The Cruise Industry's "Fifth Labor": A Case Study in Managing Third-Party Waste Disposal Vendors

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I. INTRODUCTION

Properly managing waste disposal vendors is a tricky task going back to the times of lore. In Greek mythology, King Eurystheus ordered Hercules to clean out King Augeas' stables as one of the seemingly impossible twelve labors Hercules had to perform as punishment for killing his wife and children.[1] Home to over 1,000 head of cattle, the stables had not been cleaned for thirty years. To complete the momentous and dirty task in one day, Hercules tore two holes in the stable walls and diverted two rivers to flush out the manure. Hercules successfully completed his fifth labor, but at great environmental expense and to the displeasure of both Eurystheus and Augeas.

Today, managing environmental risks by overseeing hundreds of third-party waste disposal vendors[2] in hundreds of countries across the globe is itself a herculean task. Nevertheless, it is an important task that Carnival Corporation ("Carnival Corp."), the world's largest travel leisure company, accepted.[3]

While under a court supervised Environmental Compliance Program (ECP) and monitorship,[4] Carnival Corp. developed a robust centralized

1. *See generally* RYAN MADISON, HERCULES AND THE AUGEAN STABLES (2013).

2. The terms "waste disposal vendors" or "waste vendors" refer generally to companies that receive or handle wastes offloaded from a cruise ship. This arrangement is considered a third-party relationship. Waste disposal vendors may include barges that dock alongside a ship, trucks that remain ashore, or other types of waste reception facilities. Solid waste may be transferred from the ship to the waste disposal vendor manually (such as by hand or via a forklift). Liquid waste streams may be transferred via a hose connection.

3. *Our Brands*, CARNIVAL CORP., https://www.carnivalcorp.com/corporate-information/our-brands (last visited July 18, 2022). Carnival Corp. consists of nine distinct cruise brands sailing on 92 ships. *Id*.

4. ABA Comm. on Crim. J. Standards, Monitors, https://www.americanbar.org/groups/criminal_justice/standards/MonitorsStandards/ (2020). Assigning a monitor is a common conflict resolution tool that enables an organization to mitigate, suspend or avoid penalties. Monitors are

compliance program.[5] It overhauled its compliance program and revamped its corporate compliance structure by creating a new Ethics & Compliance department.[6] As part of its commitment to be an industry leader in compliance and environmental protection, Carnival Corp. developed a risk-based due diligence waste disposal vendor vetting program.[7]

Although cruise companies have no legal obligation in the United States to vet waste disposal vendors, performing such reviews is integral to good environmental stewardship. Focusing on waste disposal vendors also expands the role and expectations of the compliance function. Greater environmental consciousness and an ethical culture shift have led companies like Carnival Corp. to reassess how they conduct due oversight and due diligence for waste disposal vendors. Although a company may rely on third parties to haul away and dispose of waste, in some situations and jurisdictions the company is ultimately responsible for the waste from cradle to grave.[8] The trend for holding companies accountable for the actions of its third-party contractors and agents is only increasing. Therefore, a company should choose waste disposal vendors carefully, with the benefit of complete information and full transparency. However,

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typically installed when the government and or court do not trust the organization to turn things around themselves and toe the line of compliance. Aly McDevitt, *A Tale of Two Storms: Carnival's Quest for Compliance Redemption Amid the Coronavirus Pandemic*, COMPLIANCE WEEK, Autumn 2020, at 20 (quoting David Ring, partner-in-charge at law firm Wiggin and Dana). Like from a page out of Sting's songbook, the monitor will watch, "[e]very breath you take/And every move you make/Every bond you break/Every step you take." The Police, Every Breath You Take (A&M 1983).

5. *See* McDevitt, *supra* note 4, at 20, 27, 30, 37. In April of 2017, Princess Cruise Lines Ltd. ("Princess"), a subsidiary of Carnival Corp., pled guilty to seven felony charges related to deliberate vessel pollution. *See* Plea Agreement, United States v. Princess Cruise Lines, Ltd., No.16-20897 (S.D. Fla. Dec. 1, 2016), https://www.justice.gov/usao-sdfl/press-release/file/914436/download. Princess entered into a court supervised Environmental Compliance Program (ECP) for five years along with Carnival Corp.'s other cruise line companies traveling to Unites States' ports (Carnival Cruise Line, Holland America Line, Seabourn, Cunard, P&O, Costa, and AIDA). *See Princess Cruise Lines to Pay Largest-Ever Criminal Penalty for Deliberate Vessel Pollution*, U.S. DEP'T OF JUSTICE (Dec. 1, 2016), https://www.justice.gov/usao-sdfl/pr/princess-cruise-lines-pay-largest-ever-criminal-penalty-deliberate-vessel-pollution.

6. *See* McDevitt, *supra* note 4, at 7.

7. *See* Video: 2021 Brand Presidents' ECP Video (Carnival Corp. 2021) (on file with author).

8. 42 U.S.C. §6901. Additionally, there is a risk of joint and several liability if the waste is mismanaged by treatment, storage, and disposal (TSD) facilities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). 42 U.S.C. §9601. Even if a company contributes only a small amount of the mishandled waste, the company or potentially responsible party (PRP) may be liable for 100 percent of the costs to clean up a contaminated site. Aaron Gershonowitz, *Joint and Several Liability in Superfund Actions: When is Environmental Harm Divisible? PRPS Who Want to be Cows*, 14 FORDHAM ENV'T. L. REV. 207, 207-09 (2002).

these third-party risks do not end after onboarding—they should be monitored throughout the business relationship.[9]

The U.S. Department of Justice (DOJ) expects companies like Carnival Corp. to meaningfully vet and ensure waste is properly disposed of ashore.[10] Further, as part of its June 2020 guidance[11] for evaluating corporate compliance programs, the DOJ specifically addressed third-party management and conveyed a higher expectation for companies to perform third-party oversight and due diligence—beyond initial onboarding.[12] The expectation may require continuous monitoring for sanctions, watchlists, and negative news databases when the risk is medium and higher.[13] The DOJ Guidance also emphasized the importance of a compliance program not being merely a "paper program," or one that involves "check the box" exercises.[14] Rather, an effective compliance program must strive to go beyond looking good on paper, and must involve management taking actions to effectively implement the program or recognize obvious signs of corruption (or other signs of non-compliance).[15] In other words, a company must have a "living, breathing program and not a static program dependent on policies and procedures."[16]

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9. TOM FOX, EVALUATION OF CORPORATE COMPLIANCE PROGRAMS 7 (2020), https://www.convercent.com/2020-doj-update-for-corporate-compliance-programs.

10. Transcript of Status Conference at 11, United States v. Princess Cruise Lines, Ltd, No. 16-CR-20897 (S.D. Fla. Apr. 24, 2020). Richard Udell, senior attorney in the U.S. Department of Justice's Environmental Crime Division, stated, "We would certainly hope that when the company does begin cruising again, that there has been a meaningful vetting, that the company know where the waste that it discharges ashore is going, and that it's being treated properly and not just going back into the ocean."

11. DEP'T OF JUSTICE CRIMINAL DIV., EVALUATION OF CORPORATE COMPLIANCE PROGRAMS (2020), https://www.justice.gov/criminal-fraud/page/file/937501/download [hereinafter DOJ GUIDANCE].

12. *Id.*; STEELE, ONGOING MONITORING: MANAGING THIRD PARTY RISK AMID GLOBAL UNCERTAINTY 1, 2 (2021) [hereinafter STEELE WHITE PAPER], https://steeleglobal.com/modern-monitoring/; *see also* FOX, *supra* note 9, at 4. In 2020, third parties represented the highest risk under the Foreign Corrupt Practices Act. FOX, *supra* note 9 at 7.

13. STEELE WHITE PAPER, *supra* note 12, at 2.

14. DOJ GUIDANCE, *supra* note 11, at 9.

15. *See* Michael Volkov, *The Danger of a "Paper" Compliance Program*, VOLKOV LAW (Jan. 21, 2013), https://blog.volkovlaw.com/2013/01/the-danger-of-a-paper-compliance-program/.

16. FOX, *supra* note 9, at 4; *See* Kenneth A. Polite Jr., Assistant Att'y Gen., Remarks at NYU Law's Program on Corporate Compliance and Enforcement (PCCE) (Mar. 25, 2022), https://www.justice.gov/opa/speech/assistant-attorney-general-kenneth-polite-jr-delivers-remarks-nyu-law-s-program-corporate (discussing how the Department of Justice Criminal Division evaluates "corporate compliance programs to ensure that companies are designing and implementing effective compliance systems and controls, creating a culture of compliance, and promoting ethical values").

Apart from the Introduction and Conclusion, this article is divided into four parts. Part II presents the background and basics of cruise ship waste and port reception facilities (PRFs). Part III provides an overview of the current regulations that govern cruise ship waste and port reception facilities. Part IV discusses the practice of vetting and addressing waste disposal vendor risk. Part V examines Carnival Corp.'s third-party waste disposal vendor vetting policies and procedures.

II. SHIP WASTE BACKGROUND AND BASICS

A. Cruise Ship Waste

Modern cruise ships, often described as floating cities, generate a high volume and wide variety of wastes. Ship wastes can be grouped into the following distinct categories: black water (waste collected from toilets and infirmaries), grey water (water collected from sinks, showers, galleys, and laundries), air emissions, food waste, domestic waste,[17] operational waste,[18] and oil and bilge water.[19] Waste streams that can be offloaded from a ship in port include black water, grey water, food waste, solid waste, hazardous waste (including medical waste), and oily wastes (*e.g.*, sludge, bilge water, and other oily waste or residues).

The U.S. Department of Transportation data estimates the amount of generated waste during a one-week voyage is about 25,000 gallons of oily bilge water, 210,000 gallons of black water, 1 million gallons of grey

17. Merica Slišković et al., *Review of Generated Waste from Cruisers: Dubrovnik, Split, and Zadar Port Case Studies*, 4 RESOURCES 1, 2 (Nov. 9, 2018), https://www.mdpi.com/2079-9276/7/4/72. Domestic waste is waste from domestic spaces onboard such as paper, cardboard, fluorescent lamps, synthetic material, foils, metal cans, lids, glass, and pantry packaging waste. Domestic waste does not include food waste, cooking oil, or plastic. In 2018, the industry recognized a new category of garbage, e-waste, which is electronic equipment, including its components, sub-assemblies, and consumables, when disposed as a waste. *Id*. at 1-5.

18. Stavros Kairis, *Ship's Garbage Management Under Revised MARPOL Annex V*, OFFICER OF THE WATCH (Nov. 7, 2012), https://officerofthewatch.com/2012/11/07/ships-garbage-management-under-revised-marpol-annex-v/. Operational waste is solid waste and slurries not covered by other categories that is generated onboard during normal operations of the ship. It includes cleaning agents and additives added to washwater. INT'L MAR. ORG. [hereinafter IMO], *2017 Guidelines for the Implementation of MARPOL ANNEX V*, Marine Env't Protection Comm. Res. 295(71) §1.7.4 (July 7, 2017).

19. Andrew Schulkin, Note, *Safe Harbors: Crafting an International Solution to Cruise Ship Pollution*, 15 GEO. INT'L ENV'T. L. REV. 105, 111 (2002) ("Both the United States and Canada prohibit the discharge of oily bilge water with an oil content above 15 parts per million . . . ."). Ballast water, which vessels use to provide stability and adjust the vessel's draft, can be considered another type of waste stream as it can contain pollutants such as oil and possibly non-native species. Eric V. Hull, Comment, *Soiling the Sea: The Solution to Pollution is Still Dilution – A Re-Evaluation of the Efficacy of 40 C.F.R. § 122.3 and Annex IV of MARPOL*, 3 BARRY L. REV. 61, 82 (2002) ("Yet, with few exceptions, the discharge of ballast water remains unregulated.").

water and eight tons of solid waste (i.e. plastic, paper, wood, cardboard, food, cans, and glass).[20] Looking at the data on a per passenger basis, an average cruise passenger generates a minimum of 1 kilogram (or 2.2 pounds) of solid waste plus two bottles and two cans per day.[21] Given these volumes, the question then becomes how can cruise companies properly dispose of these wastes. As explained below, the answer depends upon the type of waste in question.

1. Black Water (Sewage)

For black water waste,[22] international regulations allow ships to make sea discharges via an International Maritime Organization (IMO) approved sewage treatment plants or sewage comminuting[23] and disinfecting systems at distances greater than three nautical miles from the nearest land or non-treated sewage at a distance of more than twelve nautical miles from the nearest land at a speed of not less than four knots.[24] While discharging black water at sea is free, if done improperly, it can negatively impact the environment and threaten the operating company's reputation.[25]

While international regulations allow for non-treated sewage to be discharged at distances greater than twelve nautical miles from the coastal baseline, operating lines such as the Carnival Corp. brands impose stricter regulations.[26] Carnival Corp. brands require all black water to be processed through the ship's marine sanitation device or an advanced

20. Athanasios A. Pallis et al., *Environmental Policies and Practices in Cruise Ports: Waste Reception Facilities in the Med*, 67 J. ECON. & BUS. 54, 61 (2017).

21. CLAUDIA COPELAND, CONG. RSCH. SERV., RL32450, CRUISE SHIP POLLUTION: BACKGROUND, LAWS AND REGULATIONS, AND KEY ISSUES 1, 4 (2010) (citing The Ctr. For Env't Leadership in Business, "A Shifting Tide, Env't Challenges and Cruise Indus. Responses"). *See also* Thanos Pallis, *Cruise Shipping and Urban Development: State of the Art of the Industry and Cruise Ports*, INT'L TRANSP. F., May 2015, at 60.

22. The terms black water and sewage are often used synonymously. However, some regulations exclusively use sewage as the legal term.

23. Comminute means to pulverize or divide into small parts.

24. IMO, *Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973*, Marine Env't Protection Comm. Res. 115(51), Regs. 9, 11 (Apr. 1, 2004).

25. *See Dilution is NOT a Solution to Pollution*, ST. JOHNS RIVERKEEPER (Oct. 22, 2020), https://www.stjohnsriverkeeper.org/dilution-is-not-a-solution-to-pollution/.

26. The more than 50-member Cruise Lines belonging to the Cruise Lines International Association must adhere to a zero-discharge policy at sea for untreated sewage. CLIA Global, *Cruise Industry Environmental Efforts*, YOUTUBE (Oct. 14, 2016), https://youtu.be/FhQtGx98GCA.

wastewater treatment system[27] before discharging to sea. Untreated black water must be offloaded ashore[28] except if approved in operationally critical and special circumstances. If untreated black water discharges are necessary, the brands are required to discharge only when sailing at greater than twelve nautical miles from the coastal baseline at a speed greater than six knots.[29] If black water is landed ashore, it can be offloaded in drums from the ship or transferred from the ship tanks into tanker trucks or, if available, directly into the port's sewage system.

2. Grey Water (Various Washwaters)

In contrast, on the high seas, grey water discharges are unregulated.[30] While international law does not regulate grey water, some Port States have their own local requirements. For example, the U.S. prohibits cruise ships from discharging untreated grey water within three miles of land.[31] Similar to the more stringent geographic limits for black water, Carnival Corp. requires grey water discharges to be greater than twelve nautical miles from the baseline.[32] Given the generally greater volumes of grey water, if grey water is offloaded in port, it is transferred into a barge or

27. "Marine sanitation device" and "advanced wastewater treatment systems" are cruise industry terms. The greater maritime industry uses the term sewage treatment plant.

28. *See, e.g.*, *Offloading Sewage*, PORTS OF STOCKHOLM, https://www.portsofstockholm.com/about-us/environmental-work/environmental-measures/offloading-sewage/.

29. Exceptions to these procedures are only allowed in emergency situations for the purposes of security the safety of the ship and those on board or saving a life at sea. Additionally, a discharge exception is allowed if there is an emergency resulting from damage to the ship or its equipment and all reasonable precautions have been taken to prevent or minimize the discharge.

30. Schulkin, *supra* note 19, at 109; Wei Chen et al., *Regulating Grey Water—A Necessity*, MAR. EXEC. (Apr. 23, 2021, 2:05 PM), https://maritime-executive.com/corporate/regulating-grey-water-a-necessity.

31. In 2008, the Environmental Protection Agency (EPA) began regulating incidental discharges from commercial vessels greater than 79 feet in length through the Vessel General Permit (VGP) program. 40 C.F.R. § 122 (2008). Congress passed the Vessel Incidental Discharge Act (VIDA) in 2018 to establish a new framework for regulating incidental discharges. VIDA, Pub. L. No. 115-282, Title IX, 132 Stat. 4192, 4322 (2018). The existing 2013 VGP program will remain in full force until VIDA is fully implemented. Jeanne M. Grasso and Dana S. Merkel, *EPA Publishes Its Long-Anticipated VIDA Proposed Rule*, BLANK ROME (Dec. 2020), https://www.blankrome.com/publications/epa-publishes-its-long-anticipated-vida-proposed-rule. When implemented, VIDA will extend the jurisdiction limit from three nautical miles to twelve nautical miles. Vessel Incidental Discharge National Standards of Performance, 85. F.R. 67818 (proposed Oct. 26, 2020) (to be codified at 40 C.F.R. §139).

32. The requirement to conduct discharges outside twelve nautical miles from the baseline is not applicable in Alaskan state waters, Western Canadian waters, and Greece's territorial waters in the Aegean Sea. Carnival Corp. ships can obtain Carnival Corp.'s permission to discharge grey water within twelve nautical miles from the baseline as long as discharges comply with national and local restrictions. Grey water discharges are permitted outside twelve nautical miles from the baseline except in special protected areas where such discharges are specifically prohibited.

tanker truck or, if available, directly from the ship into the port's waste water system.

3. Garbage

Disposal of garbage at sea is prohibited, except as explicitly provided for by the London International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 Relating Thereto (MARPOL).[33] MARPOL broadly defines garbage as "all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship . . . ."[34] Garbage that is prohibited from disposal at sea is collected and segregated onboard by type of waste and offloaded to shoreside trucks and containers or barges. Hazardous waste is packaged and labeled to meet local regulations at the point of offload.

4. Oil (and Oily Mixtures)

Except in emergency situations, discharge of oil or oily mixtures (including sludge or untreated bilge water) is strictly prohibited.[35] Such wastes are transferred to barges or shoreside tanker trucks. Oily bilge water can be discharged into the sea if bilge water is run through an oil separator and treated to the level where the water has an oil content below fifteen parts per million.[36]

B. Port Reception Facilities and Their Role and Practices

While there are thousands of ports around the world, ninety-nine percent of the world's trade moves through approximately 835 sea and

33. International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 184, *as amended by* Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, Feb. 17, 1978, 1340 U.N.T.S. 61 [hereinafter MARPOL]. Food waste may be discharged more than 3 nautical miles from the nearest land if it is comminuted or ground. MARPOL, Annex V, reg. 3, 1340 U.N.T.S. 263. Other food wastes can be discharged not less than twelve nautical miles from the nearest land. *Id*. Cruise ships use a combination of pulpers, vacuum stations, biodigesters to address food waste. Hard food waste such as pineapple tops, eggshells, and bones are either incinerated or offloaded ashore. Washwater from deck washing containing cleaning agents or additives is allowed as long as the substances are not classified as harmful to the marine environment. *Id*. MARPOL allows for the discharge of garbage at sea if necessary, for the purpose of security the safety of a ship and those aboard or saving life at sea. *Id*. at reg. 6.

34. MARPOL, *supra* note 33, at Annex V, reg. 1.

35. MARPOL, *supra* note 33, at Annex I, reg. 15.

36. Schulkin, *supra* note 19, at 111.

inland ports.[37] Ports[38] are economically and administratively complex organizations that can have great environmental impacts on an area.[39] The ship, port reception facility, and ultimate waste disposal facility must work in tandem to achieve compliance.[40] The ability of ships to comply with pollution regulations depends on the availability of adequate port reception facilities (PRF). The IMO defines a PRF as "anything which can receive shipboard residues and mixtures containing oil, noxious liquids, or garbage."[41] An adequate PRF is one that: 1) mariners use; 2) fully meets the needs of the ships regularly using it; 3) does not include barriers that discourage use by mariners; and 4) contributes to the improvement of the marine environment.[42] A study conducted in 1986 revealed that ship masters believed that the lack of PRFs hampered their ability to comply with international requirements.[43] As PRFs become generally more available, the volumes of waste delivered have increased compared to the volumes of waste discharged at sea.[44]

In the United States, where port governance is highly decentralized, the ship's agent makes separate arrangements for vessel services, which includes waste disposal.[45] The costs for these services are not included in the port fees.[46] On the other hand, ports in the European Union (EU) and

37. *Seaports of the World By Country*, MUESLI INGREDIENTS, http://muesliingredients.com/Images/Seaports-of-the-World.pdf (last visited Mar. 9, 2021).

38. Some ports are owned and operated by cruise lines. Due to sensitive ecosystems, Carnival Corp. fleet ships do not offload waste in Grand Turk, Mahogany Bay, Puerta Maya, Half Moon Cay, and Princess Cay.

39. Pallis, *supra* note 21.

40. BARBARA WALLACE & JAMES M. COE, NOAA, NMFS 136, GUIDELINES FOR THE PROVISION OF GARBAGE RECEPTION FACILITIES AT PORTS UNDER MARPOL ANNEX V 2 (1998).

41. IMO, COMPREHENSIVE MANUAL ON PORT RECEPTION FACILITIES 5 (2d ed. 1999). A port reception facility can be a fixed, floating, or mobile facility capable of receiving ship wastes. Fixed reception facilities usually handle large volumes of waste and are closely associated with refineries that have sophisticated waste treatment systems to process wastewater. Elson Estioko Hermogino, A Conceptional Plan for the Provision of Reception Facilities in the Philippines 46 (Oct. 18, 1996) (unpublished Master of Science dissertation, World Maritime University), https://commons.wmu.se/all_dissertations/913/.

42. IMO, *Guidelines for Ensuring the Adequacy of Port Waste Reception Facilities*, Marine Env't Protection Comm. Res. 83(44) § 3.2 (Mar. 13, 2000) [hereinafter MEPC Res. 83(44)].

43. Benedict Sheehy, *International Marine Environmental Law: A Case Study in the Wider Caribbean Region*, 16 GEO. INT'L ENV'T. L. REV. 441, 455 (2004) (citing Gerard Peet, *International Co-operation to Prevent Oil Spills at Sea: Not Quite the Success it Should Be*, GREEN GLOBE Y.B. OF INT'L CO-OPERATION ON ENV'T AND DEV. 41, 49-50 (1994)).

44. Pallis, *supra* note 21, at 56.

45. NATIONAL RESEARCH COUNCIL, CLEAN SHIPS, CLEAN PORTS, CLEAN OCEANS: CONTROLLING GARBAGE AND PLASTIC WASTES AT SEA 156 (1995).

46. *Id.*

China require ships to use the vendors mandated by the ports. In the EU, the waste disposal vendors are vetted and issued licenses to provide PRFs. In China, the waste companies are State-run companies. Upon arrival in ports with mandated vendors, the port office collects from the ship's agent, a deposit to cover port fees, as well as waste collection and disposal charges.[47] The approach to charging for waste services ranges from a minimum waste discharge fee to a mandatory waste fee, regardless if waste is discharged, or to a variable fee dependent on the waste quantities and types discharged.[48] The port can also impose a separate environmental fee.[49] At the end of the port call, the balance of the deposit is refunded.[50] The port's participation in the waste management ensures that the waste services comply with regulations.[51] Some ports employ incentive pricing to address environmental goals.[52] Ships with reduced quantities of ship-generated waste are subject to lower fees, as well as discounts offered for green award certificates or environmental ship indexes.[53]

C. Cruise Line Waste Disposal Practices and Constraints

As previously described, a modern cruise ship is essentially a floating city or mobile village, complete with its own waste processing facility. However, unlike land-based waste processing facilities, ships face the challenge of significant constraints on available space. Therefore, segregating waste streams is more challenging than it is ashore. For these reasons, a Garbage Management Plan (GMP) is vital to efficiently handling and disposing ship generated waste. Larger ships (e.g. those above 100 gross tons and which carry more than 15 persons) must have written procedures for collecting, storing, processing and disposing of garbage generated on the ship.[54] Ship owners and operators must develop a ship-specific GMP that includes collection, processing, storage, and shore disposal procedures. All types of waste produced onboard the ship is segregated into designated receptables and, if possible, processed prior

47. *Id*.
48. Pallis, *supra* note 21, at 44.
49. NATIONAL RESEARCH COUNCIL, *supra* note 50.
50. *Id*.
51. *See id*.
52. Pallis, *supra* note 21, at 56.
53. *Id*. at 59.
54. IMO, *Amendments to the Annex of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution of Ships, 1973*, Marine Env't Protection Comm. Res. 201(62) Reg. 10 (July 15, 2011).

to being discharged to a PRF.[55] The segregation of waste is supervised. Onboard, glass is crushed, cans are separated into metal and aluminum and separately compacted, and paper and cardboard are compressed or incinerated.[56] Waste to be offloaded ashore is labeled at the point of collection and then stored pending disposal.[57] The GMPs also include processes to minimize garbage by combining the following techniques: substitution of products to reduce environmental impacts, reduction at the source (e.g., less plastic packaging), separation at source, collection and storage, onboard processing, preparation for recycling, and disposal of garbage.

Even with well-developed GMPs, waste management problems can arise. Non-comminuted food waste discharges are prohibited in the Wider Caribbean Region so when some Caribbean ports began prohibiting food waste being landed ashore,[58] some of the smaller ships with less storage capacity and longer and/or exotic itineraries found it difficult to dispose of food waste if the ships did not have equipment onboard to comminute the food per international regulations.[59] As a result, ships had to make separate or additional technical calls[60] to offload food waste. To address this issue before the next Caribbean season, Seabourn outfitted its ships with bone crushers to macerate the food to meet MARPOL at sea disposal requirements.[61]

Itineraries must also be considered when planning shore waste disposal. Some of the smaller ports have fewer facilities available compared to larger commercial ports. Depending on the berth

55. Slišković et al., *supra* note 17, at 2.

56. Slišković et al., *supra* note 17, at 2.

57. Unlike shore-based operators who can find storage space offsite if necessary, available storage space onboard a ship is limited.

58. Agriculture authorities have strict biosecurity regulations prohibiting the offloading of food waste given the possibility food waste can spread plant pests as well as livestock and poultry diseases. Wei Chen, *Vanishing Food Waste Flouts Maritime and National Law*, MAR. EXEC. (Apr. 11, 2020, 8:05 PM), https://maritime-executive.com/editorials/vanishing-food-waste-flouts-maritime-and-national-law.

59. *See* MARPOL, *supra* note 33, at Annex V, reg. 5(2).

60. A technical call is usually short in duration and does not involve disembarking passengers. Anne Kalosh, *British Virgin Islands Now Accepting Cruise Technical Calls, Warm layups*, SEATRADE CRUISE NEWS (Sept. 13, 2020), https://www.seatrade-cruise.com/ports-destinations/british-virgin-islands-now-accepting-cruise-technical-calls-warm-layups; *Waiver Proposed to Permit Large Ships to Sail to Alaska in 2021*, MAR. EXEC. (Feb. 25, 2021, 5:10 PM), https://www.maritime-executive.com/article/wavier-proposed-to-permit-large-ships-to-sail-to-alaska-in-2021.

61. Macerating the food waste also helped reduce the volume of the waste so it could be stored in food waste tanks instead of taking up cold room storage space. Hard food waste can also be incinerated if the ship has an incinerator.

configuration of the port, a ship can overhang the pier, resulting in the ship's garbage door being positioned over the water. Ships may not be able to offload garbage in ports that have limited road access and are not equipped to take waste via a barge.[62] When other ports in the itinerary can only take certain waste streams, the ship may have to store garbage longer than intended. This can occur during the Hawaii and French Polynesia itineraries as it can take a week to sail between North America and the South Pacific islands.[63]

Additionally, the tidal fluctuation in one port can have greater implications for waste disposal than at other ports. While most ports with high tidal ranges address the issue with cranes, forklifts, or barge service, it is a challenge to have enough pump pressure to transfer bilge water or oily sludge onto a truck when the dock is 15-20 meters above the tide level. Timing can also be a factor when ships are only in port for a few hours. If a PRF is late arriving to the ship and offloading requires multiple hours, there may not be sufficient time to offload all the waste. Health and safety concerns may also delay waste offloads. For example, the port authority in St. Maarten often stops waste offload operations when there are multiple ships docked and there is limited space on the quayside for passengers to safely navigate their way to and from the ships.

Despite these challenges, in some ways waste management on board a ship is more efficient and effective than on land. On land, a person typically generates about 2 kg a day of unrecyclable waste, as compared to less than 700 g of waste generated by a cruise ship passenger.[64] Thus, cruise lines recycle 60 percent more waste per passenger than the average person recycles on land.[65] Onboard practices can also reduce waste volume and weight prior to disposal ashore. For example, "[i]ncineration reduces the volume of garbage by 90% and reduces the weight by 70%, allowing for a much smaller volume of waste to either be stored or

62. Barges can be used when there is limited access to wharf roads, or the jetties cannot support land vehicles. WALLACE & COE, *supra* note 40, at 16. In the United States, transport of garbage by vessel is governed by the Shore Protection Act. WALLACE & COE, *supra* note 40, at 16.

63. HOLLAND AMERICA, https://www.hollandamerica.com/en_US/find-a-cruise/H2S35A/U215.html (last visited Mar. 24, 2021) (search "35-Day Hawaii, Tahiti & Marquesas").

64. *Module 5: Env't Protection*, CRUISE LINES INT'L ASS'N 4 (2020), https://cruising.org/-/media/Cruise-Champion/Cruise-Champion-Module-5#:~:text=Looking%20at%20it%20another%20way,and%20glass%20that%20is%20recycled.

65. CLIA Global, *supra* note 26. Crew are encouraged to recycle their cabin waste given the rebates earned from recycling programs are put into onboard crew funds that can be used for crew entertainment. Onboard Holland America Group ships, the recycling team are recognized and thanked during parties that are made possible with recycled rebates.

offloaded."[66] Food waste dehydration systems can also reduce waste volume. Dehydrators can reduce the original waste volume by 80-90 percent and do not require additives such as microbes, enzymes, or fresh water.[67] The dehydration process converts the food waste into sterile biomass soil amendment that can be offloaded in port or incinerated.

D. Other Advances in Environmental Practices

Many operating cruise lines have implemented environmental policies that meet or exceed regulators' compliance requirements, as well as exceed what is required in order to meet voluntary sustainability goals.[68] Companies committed to minimizing their environmental impact or meeting specific environmental objectives often obtain voluntary certifications like ISO 14001:2015 certified Environmental Management System, ISO 9001:2015 certified Quality Management System, and ISO 50001 certified Energy Management System.[69] These third-party certifications help companies improve environmental performance by using resources efficiently, reducing waste, as well as identifying and addressing risks.[70]

Additionally, cruise ships can strive to be "zero landfill" ships by sorting and offloading to a PRF for maximum recycling.[71] Some PRF and

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66. Steven Delfosse et al., Ship Generated Waste Disposal in the Wider Caribbean Region 45 (Dec. 17, 2010) (unpublished B.S. thesis, Worchester Polytechnic Institute), https://web.wpi.edu/Pubs/E-project/Available/E-project-121610-185147/unrestricted/Team5_USCG1_IQP_FINAL.pdf. Crushing glass and compacting cardboard, plastic, aluminum, and other metals can also the reduce volume of garbage to address onboard space constraints.

67. *Meet the Hungry Giant*, HUNGRY GIANT WASTE TECHNOLOGIES, https://hungrygiantrecycling.com/products/bio-dehydrators/ (last visited Apr. 15, 2021). Pathogens and potential bio hazards are also eliminated with the dry dehydration process. *Id*. As of April 2022, Holland America Group had dehydrators installed on eleven ships. E-mail from Patrick McGuire, Operating Line Compliance Manager, Holland America Group, to Author (Mar. 14, 2022, 18:25 PDT) (on file with author).

68. Dr. Daniel E. Smith III & Denita L. Jones, *Floating Cities: Navigating Environmental Compliance in the Cruise Industry*, AM. BAR ASS'N (Apr. 28, 2021), https://www.americanbar.org/groups/environment_energy_resources/publications/natural_resources_environment/2020-21/spring/floating-cities-navigating-environmental-compliance-the-cruise-industry/.

69. *Id*.

70. *See generally* INT'L ORG. FOR STANDARDIZATION [ISO], ISO 14001 KEY BENEFITS 2 (2015), https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100372.pdf; *See generally* ISO, REAPING THE BENEFITS OF ISO 9001, 5 (2019), https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100369.pdf; *See generally* ISO, ISO 50001 ENERGY MGMT. SYSTEMS 3 (2018), https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100400.pdf.

71. Incinerator ash still goes to the landfill. *Energy Recovery from the Combustion of Municipal Solid Waste (MSW)*, U.S. ENV'T. PROTECTION AGENCY, https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw (last visited Mar. 25, 2021) [hereinafter

ports pride themselves as being zero waste,[72] or making progress towards that goal.[73] In British Columbian ports, PRF Tymac Launch Service Ltd. boasts that it diverts thousands of cubic meters of waste from landfills and repurposes much of the waste as possible.[74] Veolia, an international PRF offers its clients help in achieving zero waste to landfill goals by establishing a total waste management program to assess their clients' waste needs.[75] Non-hazardous wastes that cannot be recycled are sent to energy facilities.[76]

The vast majority of Carnival Corp. brands made significant financial investments by installing food waste biodigesters on their ships to help reduce food waste volume and improve onboard environmental compliance.[77] The biodigesters "work like a robotic stomach, using aerobic digestion with naturally occurring bacteria, water and oxygen to break down food waste into liquid form."[78] The biodigesters have the capacity to process up to 100 pounds of food waste in one hour.[79] The

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Energy Recovery]. However, through incineration the size and amount of the waste is reduced. *See id*.

72. Zero waste means sending nothing to a landfill. Kathryn Kellogg, *About Zero Waste*, GOING ZERO WASTE, https://www.goingzerowaste.com/zero-waste-1/ (last visited Mar. 25, 2021). Emphasis is put on reducing and reusing. *Id*.; *Energy Recovery*, *supra* note 71.

73. The port city, Kiel, is the first and only German city to commit to zero waste. Iain Rogers, *Meet the First And Only German City to Commit to 'Zero Waste,'* TAIPEI TIMES, Feb. 6, 2020, at 9, https://www.taipeitimes.com/News/editorials/archives/2020/02/06/2003730444. U.S. port cities such as San Francisco, New York City, and San Diego are on their way to achieving zero waste. *10 Cities That Are Making Zero Waste A Reality For A Sustainable Future*, SENSA NETWORKS (Mar. 26, 2019), https://sensanetworks.com/blog/10-cities-that-are-making-zero-waste-a-reality-for-a-sustainable-future/. In 2012, San Francisco diverted nearly 80% of its waste from landfills. *Id*. New York City has pledged to be a zero-waste city by 2030. *Id*. San Diego is targeting 2040 to become a zero-waste city. David Garrick, *San Diego Imposes New Recycling Requirements to Comply with State Law, Encourage Diversion of Organic Waste*, SAN DIEGO UNION-TRIBUNE, Feb. 12, 2021, 5:00 AM, https://www.sandiegouniontribune.com/news/politics/story/2021-02-12/san-diego-imposing-new-recycling-requirements-to-comply-with-state-law-encourage-diversion-of-organic-waste.

74. *A Clever Diversion Is Taking Place*, BCBUSINESS, https://www.bcbusiness.ca/A-Clever-Diversion-is-Taking-Place (last visited Mar. 25, 2021).

75. *Zero Waste to Landfill*, VEOLIA, https://www.veolianorthamerica.com/what-we-do/waste-capabilities/zero-waste-landfill (last visited Mar. 25, 2021).

76. When waste is burned it produces heat which coverts water to steam which then produces electricity via a turbine generator. *Energy Recovery*, *supra* note 71.

77. *See Carnival Pilots Food Waste Biodigester Technology*, WASTE360 (Dec. 19, 2019), https://www.waste360.com/food-waste/carnival-pilots-food-waste-biodigester-technology [hereinafter *Carnival Pilots*]. Additionally, Carnival Corp. is moving away from the bio-media provided by the digester manufacturers in favor of plant and animal-based media to eliminate the possibility of microplastics being discharged to sea.

78. *Food Waste Digesters – A Solution For the Cruise Industry*, BIOHITECH (Nov. 4, 2020), https://biohitech.com/2020/11/04/food-waste-digesters-a-solution-for-the-cruise-industry/.

79. *Id*.

biodigesters have a screen filter at the bottom of the machine to capture any non-organic debris accidentally mixed with food waste.[80]

Cruise lines are also investing in onboard energy facilities. The *Regal Princess* has a micro auto gasification system that recovers energy from contaminated and dry burnable waste by the heat produced during the thermal destruction process.[81] The system's emissions quality exceeds the standards of land based and onboard thermal destruction.[82] The auto gasification process reduces the ship's waste to less than five percent of the original volume.[83]

In addition to making these advances, the cruise industry also pioneered advanced wastewater treatment (sewage treatment) systems that produce cleaner water than what most U.S. coastal cities release into the ocean.[84] Some cruise ships donate used cooking oil to be repurposed as fuel,[85] and cruise ship food waste is turned into energy for onboard use.[86] Additionally, recycled hot water is used to heat passenger cabins,[87] and naturally occurring condensation from AC units is captured to use in washing decks.[88] Low flow toilets onboard Holland America Line and Seabourn ships use seventy-five percent less water than a typical home toilet.[89] Low flow shower heads and faucets are also used onboard.[90]

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80. *Carnival Pilots*, *supra* note 77.

81. *Wärtsilä's Auto Gasification Solution to Provide Sustainable Waste Disposal for Princess Cruises Vessel*, WÄRTSILÄ (Aug. 29, 2019, 11:30 AM), https://www.wartsila.com/media/news/29-08-2019-wartsila-s-auto-gasification-solution-to-provide-sustainable-waste-disposal-for-princess-cruises-vessel-2514606. The new Princess Sphere class ships will come standard with four dehydrators and four micro auto gasification systems instead of incinerators. The new *Seabourn Venture* will also have the same equipment onboard.

82. *Id*.

83. *Id*. Dryers are also used onboard to reduce the volume of sludge from wastewater and food waste before incineration by eliminating the water from the waste and transforming it into a granulated product. *Dryer*, WÄRTSILÄ WATER AND WASTE, https://www.wartsila.com/marine/build/waste-treatment/dry-waste-treatment/one-dryer-to-dry-it-all (last visited Aug. 26, 2021).

84. CLIA Global, *supra* note 26; Abby Narishkin & Steve Cameron, *How Waste Is Dealt With on The World's Largest Cruise Ship*, BUS. INSIDER (Mar. 19, 2020, 6:00 AM), https://www.businessinsider.com/how-symphony-seas-worlds-largest-cruise-ship-deals-with-waste-2020-3 ("The purification system purified the water to a point above the US federal standard, which is almost safe to drink.").

85. CLIA Global, *supra* note 26.

86. CLIA Global, *supra* note 26.

87. CLIA Global, *supra* note 26. Most ships recover heat from the diesel generators exhaust gasses to produce steam which is then used as a heat source for passengers and crew.

88. CLIA Global, *supra* note 26. Thirty-three percent of the water used onboard some Disney Cruise Line ships is reclaimed for deck washing. *Cruise Industry Environmental Practices to Conserve Water*, SAFETY4SEA (Sept. 3, 2013), https://safety4sea.com/cruise-industry-environmental-practices-to-conserve-water/.

89. *Id*.

90. *Id*.

Some ships have solar panels that generate emissions free energy.[91] Cruise lines also take advantage of reduction in power consumption with LED lighting that lasts twenty-five times longer and uses eighty percent less energy.[92]

III. CRUISE SHIP AND PORT RECEPTION FACILITY REGULATION

There is no single law or rule that regulates the waste streams generated by cruise ships. Instead, the waste streams are regulated by a myriad of international protocols and laws as well as U.S. domestic laws, some of which overlap.[93] The legal framework governing the onboard management of ship generated wastes at the international and regional levels include the United Nations Convention on the Law of the Sea (UNCLOS),[94] MARPOL, the International Convention for the Control and Management of Ships' Ballast Water and Sediments,[95] the

91. CLIA Global, *supra* note 26.

92. CLIA Global, *supra* note 26.

93. COPELAND, *supra* note 21, at 1. Domestic laws in the U.S. include the Clean Water Act (33 U.S.C. §§ 1251 et seq. (1972)) and the Act to Prevent Pollution from Ships (33 U.S.C. §§ 1905-1915 (1980)). Solid waste such as garbage and plastics are well regulated. *Id*.; *see also* Smith & Jones, *supra* note 68 ("Companies in the cruise industry actually are faced with such dynamic multi-jurisdictional challenges as they operate multiple 'floating cities' spread all over the world at any given time.").

94. *United Nations Convention on the Law of the Sea, opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397, https://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf (entered into force Nov. 1, 1994) [hereinafter *UNCLOS*].

95. IMO, *Adoption of the Final Act and Any Instruments, Recommendations and Resolutions Resulting from the Work of the Conference: International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004*, Feb. 16, 2004, annex at 2, Doc.BWM/CONF/36 [hereinafter BWM]. The IMO adopted BWM "to prevent the spread of potentially harmful aquatic organisms and pathogens in ships' ballast water." *Implementing the Ballast Water Management Convention*, IMO, https://www.imo.org/en/MediaCentre/HotTopics/Pages/Implementing-the-BWM-Convention.aspx (last visited Oct. 6, 2021) (follow "What is the Ballast Water Management Convention" hyperlink).

International Convention on the Control of Harmful Anti-Fouling Systems on Ships,[96] and the London Convention and Protocol.[97]

MARPOL, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal ("the Basel Convention"),[98] and Directive (EU) 2019/883[99] govern sea to land waste transfers. The Basel Convention and Directive 2008/98/EC (Waste Framework Directive)[100] govern land-based waste facilities. Additionally, significant events like the *Costa Concordia* and other minor incidents on North American ships prompted greater scrutiny of cruise ship operations in general from regulatory agents as well as Flag and Port State

96. IMO, *Adoption of the Final Act of the Conference and any Instruments, Recommendations, and Resolutions Resulting from the Work of the Conference: International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001*, Oct. 18, 2001, AFS/CONF/; *International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001*, Oct. 5, 2001, T.I.A.S. No. 12-11121 (entered into force Sept. 17, 2008). The convention prohibits the use of harmful organotins in anti-fouling paints used on ships as well as creates the mechanism to prevent the use of other harmful substances found in anti-fouling systems. *International Convention on the Control of Harmful Anti-fouling Systems on Ships*, IMO, https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-the-Control-of-Harmful-Anti-fouling-Systems-on-Ships-(AFS).aspx (last visited Oct 7, 2021).

97. *Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter 1972*, Dec. 29, 1972, 26 U.S.T. § 2403, T.I.A.S. No. 8165. The objective of the London Convention is to prevent the pollution of the sea by dumping of wastes and other matters. *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*, IMO (Dec. 29, 1972), https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx [hereinafter *London Convention*] The London Protocol, signed in 1996, modernizes the London Convention and will eventually replace convention which has been in force since 1975. *Id*.

98. *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, 1673 U.N.T.S 57 (Mar. 22, 1989) [hereinafter *Basel Convention*]. The Basel Convention aims to reduce the movement of hazardous waste between nations, especially from developed to less developed countries. *See* Tseming Yang & C. Scott Fulton, *The Case for U.S. Ratification of the Basel Convention on Hazardous Wastes*, 25 N.Y.U. ENV'T. L.J. 52, 58 (2017).

99. European Parliament and Council Directive 2019/883, 2019 O.J. (L 151) [hereinafter *Directive (EU) 2019/883*].

100. European Parliament and Council Directive 2008/98/EC, 2008 O.J. (L 312) [hereinafter *Directive 2008/98/EC*]. The Waste Framework Directive constitutes the legal framework for treating waste in the EU by doing the following: 1) establishing a waste hierarchy: prevention, re-use, recycling, recovery for other purposes such as energy and disposal; 2) confirming the 'polluter pays principle' where the original waste producer must pay for the costs of waste management; 3) introducing the concept of 'extended producer responsibility'; 4) making a distinction between waste and by-products; 5) requiring waste management to be carried out without any risk to water, air, soil, plants or animals, without causing a nuisance through noise or smells, or harming the countryside or places of special interest; 6) requiring producers or holders of waste to treat it themselves or have it handled by an officially recognized operator (permits and periodic inspections required); 7) requiring national authorities to establish waste management plans and waste prevention programs; and 8) introducing recycling and recover targets to be achieved by 2020 for household waste (50%) and construction and demolition waste (70%). *See id.*

regulators.[101] This Part discusses the various regulations that impact or govern cruise ship waste disposal at port reception facilities (PRFs) and how Port States regulate cruise ships when they are docked at port, well within the territorial sea.

Before discussing the legal framework at international and local levels that govern the management of ship generated wastes, it is important to outline the jurisdictional authority over cruise ships as they transit different waters or zones. A ship sailing under a State's flag[102] is "subject [to] its exclusive jurisdiction on the high seas"[103] except in special cases expressly provided for in international treaties such as UNCLOS.[104] In the exclusive economic zones (EEZ)[105] and contiguous zone,[106] a Coastal State or Port State,[107] can only exercise jurisdiction in certain circumstances.[108] The Port and Flag States have concurrent jurisdiction

101. Pallis, *supra* note 21, at 5.

102. A cruise ship must have a country of registry and have that state confer national on the ship in order to operate in international waters. UNCLOS, *supra* note 94, at art. 91. The country of registry sets the conditions for the grant of its nationality. *Id.* Along with requiring compliance with international conventions, Flag States have certain rules concerning crew nationality, manning requirements, and registration fees. Nivedita M. Hosanee, A Critical Analysis of Flag State Duties as Laid Down Under Article 94 of the 1982 United Nationals Convention of the Law of the Sea 16 (2010) (unpublished thesis, University of Milan), 8, 15, https://www.un.org/Depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/hosanee_0910_mauritious.pdf.

103. UNCLOS, *supra* note 94, at art. 92. For the purposes of this Article, "high seas" refers to the waters outside the jurisdiction of any state. At seventy-one percent, the high seas make up most of Earth's oceans. LOUIS B. SOHN & JOHN E. NOYES, CASES AND MATERIALS ON THE LAW OF THE SEA 43 (2004).

104. UNCLOS embodies the main source of international law outlining jurisdiction over vessels in international waters. *See generally* UNCLOS, *supra* note 94. Although it is not a party to UNCLOS, the United States regards most of the treaty's provisions as customary international law. *See* President Ronald Reagan, United States Ocean Policy (Mar. 10, 1983), DEP'T ST. BULL., June 1983, at 70; Louis B. Sohn, *The Law of the Sea: Customary International Law Developments*, AM. U. Edwin A. Mooers Lecture, 11 October 1984, 34 AM. U. L. Rev. 271, 279 (1985) (noting the United States has "gone quite far in the direction of accepting all the provisions of the Law of the Sea Convention, except those relating to deep seabed mining").

105. The EEZ, adjacent to the territorial sea, extends up to 200 nautical miles from a Coastal State's baseline. UNCLOS, *supra* note 94, at art. 57.

106. The contiguous zone is adjacent to a Coastal State's territorial sea but cannot extend beyond twenty-four nautical miles from the Coastal State's baseline. UNCLOS, *supra* note 94, at art. 55.

107. For the purposes of this discussion, Coastal State and Port State are interchangeable terms.

108. In the EEZ, the Coastal State has sovereign rights in exploring, exploiting, conserving, and managing living and non-living resources. UNCLOS, *supra* note 94, at art. 56. While in the contiguous zone, a Coastal State can prevent and punish any "infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea." UNCLOS, *supra* note 94, at art. 33.

over a cruise ship when it sails within a Port State's territorial seas.[109] While in the territorial seas, a foreign flagged cruise ship is subject to the Port State's laws.[110]

A. International Regulation Framework

UNCLOS is considered an umbrella convention, whose provisions are implemented through international rules and standards developed through competent international organizations such as the IMO.[111] Under UNCLOS, member States have an obligation to protect and preserve the marine environment.[112] The IMO, a specialized agency of the United Nations, is the standard-setting authority for the safety, security, and environmental performance of international shipping.[113] One of the most important IMO conventions specifically governing ship waste is MARPOL.[114] Cruise ships flying the flag of MARPOL signatory countries are subject to the MARPOL regardless of where the ship may

109. UNCLOS, *supra* note 94, at art. 3 (stating that every State has the right to claim a territorial sea of up to, but not exceeding, twelve nautical miles from the baseline). Classification Societies on behalf of a Flag State will verify whether the cruise ships comply with international and national statutory regulations. Smith & Jones, *supra* note 68.

110. UNCLOS, *supra* note 94, at art. 92. Coastal, or Port, States exercise territorial sovereignty and therefore have full legislative and enforcement jurisdiction. Gabriela Argüello, *Environmentally Sound Management of Ship Wastes: Challenges and Opportunities for European Ports*, J. SHIPPING & TRADE 5 (2020) (examining from a legal perspective the challenges and opportunities related to the management of wastes generated on-board vessels after they are discharged to PRFs). Legislative jurisdiction grants a State the authority to criminalize certain conduct while enforcement jurisdiction allows a State to realize its authority to prescribe conduct via police action. Roger O'Keefe, *Universal Jurisdiction: Clarifying the Basic Concept*, 2.3 J. INT'L CRIM. JUST. 735, 736-37 (2004) (discussing international law principles governing national criminal jurisdiction and treatment of jurisdictional issues); *see also* MARK W. JANIS & JOHN E. NOYES, INTERNATIONAL LAW CASES & COMMENTARY 767-68 (3d ed. 2006) (defining legislative jurisdiction as "the power of states to make laws.").

111. Anna Mihneva-Natova, *The Relationship Between United Nations Convention on the Law of the Sea and the IMO Conventions*, 33 (2005) (unpublished paper, Law School of the University of Virginia), https://www.un.org/Depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/natova_0506_bulgaria.pdf.

112. UNCLOS, *supra* note 94, at art 192.

113. For IMO standards to become binding, they must be ratified by member countries whose combined gross tonnage represents at least 50 percent of the world's gross tonnage. COPELAND, *supra* note 21, at 7.

114. *See* Robert Beckman & Zhen Sun, *The Relationship Between UNCLOS and IMO Instruments*, ASIA-PACIFIC J. OCEAN L. & POL'Y 201, 213 (2017). IMO developed MARPOL with the aim of eliminating operational discharges of oil and other harmful wastes and minimize accidental waste discharges. *See generally* MARPOL, *supra* note 33. A ship's Flag State is responsible for certifying whether the ship is in compliance with MAROL's pollution prevention standards. COPELAND, *supra* note 21, at 7-8.

be located at any given time.[115] MARPOL Annex I (Prevention of pollution by oil and oily water) and II (Control of pollution by noxious liquid substances in bulk) are mandatory for all MARPOL signatory nations while Annexes III (Prevention of pollution by harmful substances carried by sea in packaged form), IV (Pollution by sewage from ships), V (Pollution by garbage from ships) and VI (Prevention of air pollution from ships) are optional and must be ratified separately.[116] Signatory nations must enact domestic laws to implement MARPOL as well as pledge to comply with the similar domestic laws of other signatory countries.[117]

MARPOL focuses on restricting waste discharges while at sea and does not address the management of waste once discharged on land to PRFs—with the exception of a requirement that Port States must provide facilities for the reception of ship waste that cannot be discharged at sea.[118] MARPOL Member States[119] must provide a list with details of reception facilities that shows how the convention applies to the IMO.[120] The States commit money, time, and personnel to comply with MARPOL and there has been a significant effort to meet its regulations.[121]

The IMO's Marine Environment Protection Committee (MEPC) addresses environmental issues under the IMO's remit. More specifically, the MEPC strongly encourages the Parties to MARPOL to fulfill their

115. COPELAND, *supra* note 21, at 7.

116. Office of Commercial Vessel Compliance, U.S. COAST GUARD, https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Domestic-Compliance-Division/MARPOL/ (last visited Mar. 29, 2022).

117. COPELAND, *supra* note 21, at 8.

118. MARPOL, *supra* note 33, at Annex V; Argüello, *supra* note 110; COPELAND, *supra* note 21, at 7 (MARPOL's six Annexes address different types of pollution and have all been ratified by the requisite number of nations. The United States ratified all of the Annexes except Annex IV (setting the regulations pertaining to the discharge of sewage into the sea)).

119. Of the 158 Contracting States to MARPOL, Carnival Corp. brand ships sail to 96 countries, provinces, or territories subject to all or some part of MARPOL. Costa Rica is the only Port State that ships make calls to that is a non-Contracting State. However, given environmental conservation concerns in Costa Rica, ports offer many opportunities for recycling and responsible waste disposal. *See Recycling in Costa Rica Increased 469% in Only 2 Years*, THE COSTA RICA NEWS, https://thecostaricanews.com/recycling-in-costa-rica-increased-469-in-only-2-years/ (last visited Mar. 18, 2021) ("The growth in the collection of valuable waste is due [. . .] to a process of education of the population and the importance of reducing and separating waste, to the efforts of municipalities to collect them and private initiatives that promote this environmentally friendly practice.").

120. MARPOL, *supra* note 33, at art. 11; *see also* Sheehy, *supra* note 43, at 450. Unfortunately, most MARPOL signatory countries have not been faithful in submitting reports. Sheehy, *supra* note 43, at 454.

121. EMARC-MARPOL Rules and Ship Generated Waste, EUROPEAN COMM'N, WA-95-SC.097, 1998, https://trimis.ec.europa.eu/sites/default/files/project/documents/emarc.pdf.

treaty obligations to provide reception facilities through resolutions.[122] While the MEPC resolution related to PRFs is not a mandatory instrument, it provides helpful guidance on what constitutes an adequate reception facility within the meaning of MAROL 73/78.[123] MEPC recognizes that, in addition to looking at the adequacy of PRFs, it is important to consider the technological problems associated with the treatment and ultimate disposal of waste.[124]

In 2006, MEPC launched a port reception facility database (PRFD) as part of the modules available through the IMO Global Integrated Shipping Information System (GISIS).[125] The PRFD allows users to locate facilities in a given port, search for available facilities by waste category, obtain the contact information for Port or Flag authorities handling alleged PRF inadequacies, and identify any reported alleged inadequacies.[126] Also in 2006, MEPC approved an Action Plan to tackle the alleged inadequacy of PRFs.[127] In March of 2018, MECP adopted the Revised Consolidated Guidance for PRFs which includes standard formats for waste notification, waste delivery receipt, reporting alleged inadequacies of PRFs, as well as waste reception facility reporting requirements.[128]

Additionally, regional memorandums of understanding (MOU) coordinate Port State enforcement of international regulations agreed

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122. MEPC meets twice a year to review and update MARPOL provisions. Thomas Dickson & Johanna Ohlman, *The Shipping Law Review: Shipping and the Environment*, THE LAW REVIEWS (June 14, 2022), https://thelawreviews.co.uk/title/the-shipping-law-review/shipping-and-the-environment. Since its inception, the subject of PRFs has been on the agenda of almost all the MEPC's meetings. Nikos Mikelis, *IMO's Action Plan on Tackling the Inadequacy of Port Reception Facilities* 1, 5, 31 (Oct. 14, 2010), https://euroshore.com/sites/euroshore.com/files/downloads/3.%20imo.pdf.

123. *See* Mikelis, *supra* note 122, at 7.

124. Andrew Rakestraw, *Open Oceans and Marine Debris: Solutions for the Ineffective Enforcement of MARPOL Annex V*, 35 HASTINGS INT'L & COMP. L. REV. 383, 390 (2012) (citing MEPC Res. 83(44), *supra* note 42, at §3.2).

125. *Reception Facilities*, IMO, https://www.imo.org/en/OurWork/Environment/Pages/Port-Reception-facilities.aspx (last visited Mar. 2, 2021).

126. *See generally Global Integrated Shipping Information*, IMO, https://gisis.imo.org/Public/Default.aspx (last visited Mar. 2, 2021); Mikelis, *supra* note 122, at 11.

127. *Reception Facilities*, *supra* note 125. The Action Plan created a standard Advance Notification Form and Waste Delivery Notification form to provide uniformity across records. Mikelis, *supra* note 122, at 13.

128. MEPC Res. 83(44) states that facilities provided by the port must: 1) meet the needs of the ships normally using the port; and 2) allow for the ultimate disposal of ships' wastes to take place in an environmentally appropriate way. MEPC Res. 83(44), *supra* note 42; *see also* IMO, *2011 Guidelines for Reception Facilities under MARPOL ANNEX VI*, MARINE ENV'T PROTECTION COMM. RES. 199(62), July 15, 2011.

upon by the member States.[129] There are currently nine regional MOUs.[130] The model MOU is the Paris MOU, whose mission since 1932 has been to eliminate the operation of sub-standard ships through a harmonized system of Port State Control in waters from North America to Europe.[131] If ships fail to pass the Paris MOU Port State's control officers' inspections, which are meant to confirm compliance with applicable international conventions, including shipboard waste management, the non-compliant ships can be detained or banned.[132]

B. United States Regulation

In the United States, no single agency is responsible for regulating cruise ships in U.S. waters.[133] Several state and federal agencies exercise some degree of jurisdiction over cruise ships in U.S. waters.[134] Federally, the U.S. Department of Justice in conjunction with the U.S. Coast Guard and Environmental Protection Agency (EPA) began a wide ranging vessel pollution initiative in 1993 to detect, investigate, and prosecute violations of U.S. environmental laws, including laws implementing international treaties.[135] In the last decade, State agencies like the California Environmental Protection Agency and the California Air Resources Board have also turned their attention to cruise ship operations with efforts to reduce cruise ship pollution.[136]

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129. Rakestraw, *supra* note 124, at 395.

130. *Port State Control*, IMO, https://www.imo.org/en/OurWork/MSAS/Pages/PortStateControl.aspx (last visited Mar. 5, 2021). The nine regional MOUs are: Europe and the north Atlantic (Paris MOU); Asia and the Pacific (Tokyo MOU); Latin America (Acuerdo de Viña del Mar); Caribbean (Caribbean MOU) West and Central Africa (Abuja MOU); the Black Sea region (Black Sea MOU); the Mediterranean (Mediterranean MOU); the Indian Ocean (Indian Ocean MOU); and the Riyah MOU. *Id.*

131. *Organisation*, PARIS MOU, https://parismou.org/about-us/organisation (last visited Mar. 5, 2021) [hereinafter *Paris MOU*]. The current 27 Port State members are Belgium, Bulgaria, Canada, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Italy, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Slovenia, Spain, Sweden, and the United Kingdom. *Id.*

132. Rakestraw, *supra* note 124, at 395. Paris MOU publishes the name of the ship and identifies the flag state as a way of naming and shaming flag states and operators into compliance. Rakestraw, *supra* note 124, at 399.

133. *See* COPELAND, *supra* note 21, at 8.

134. *See* EPA 842-R-07-005, CRUISE SHIP DISCHARGE ASSESSMENT REP. 1-6 (Dec. 29, 2008) [hereinafter CRUISE SHIP DISCHARGE ASSESSMENT].

135. *Id.*

136. *See* CRUISE SHIP ENV'T. TASK FORCE, REGUL. OF LARGE PASSENGER VESSELS IN CAL. (2003), https://nmsmontereybay.blob.core.windows.net/montereybay-prod/media/resourcepro/resmanissues/pdf/CA_cruise%20_ship_rept.pdf; *California Expands Emissions Regulations for Ships in Port*, MAR. EXEC. (Aug. 27, 2020, 8:53 AM), https://www.maritime-executive.com/article/california-expands-emissions-regulations-for-ships-in-port.

Like the multiple entities involved in enforcement, there are multiple methods to enforce environment regulations relating to cruise operations. Non-compliance can trigger administrative, civil, and criminal enforcement actions initiated by the regulatory entities.[137] For example, as an administrative action, the EPA can issue a notice of violation (NOV) or an order directing cruise lines to take an action to come into compliance.[138] If a cruise line fails to comply with a statutory or regulatory requirement or comply with an administrative order, the EPA can pursue a civil judicial action.[139] As the EPA does not have statutory authority to sue, lawsuits must be filed on its behalf by the DOJ.[140] In addition, the EPA can initiate a criminal investigation, and make a criminal referral to the DOJ against a company or person for serious violations that are willfully or knowingly committed.[141]

Just as there are several U.S. agencies and enforcement methods, there are several U.S. laws that govern cruise ship waste.[142] The Act to Prevent Pollution from Ships (APPS)[143] implements the provisions of MARPOL and the annexes to which the United States is a party to all U.S.-flagged ships, regardless of location, and to all foreign-flagged vessels operating in U.S. waters or docked in U.S. ports.[144] U.S. federal

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137. Administrative actions are non-judicial enforcement actions. *Basic Information on Enforcement*, EPA, https://www.epa.gov/enforcement/basic-information-enforcement (last updated Nov. 2, 2022). Agencies file lawsuits in the civil court system or if they are not authorized to file suit themselves have suits brought on the agency's behalf by another agency. *Agency Enforcement Actions*, JUSTIA, https://www.justia.com/administrative-law/enforcement-actions/ (last visited June 24, 2021). Criminal penalties can include probation, fines, restitution, and incarceration. *See Basic Information on Enforcement*.

138. An order may be issued without or without penalties. *Basic Information on Enforcement*, *supra* note 137.

139. 33 U.S.C. § 1908(b).

140. Act of June 22, 1870, Pub. L. No. 41-97, § 17, 16 Stat. 162, 164-65.

141. 33 U.S.C. § 1908(a).

142. CRUISE SHIP DISCHARGE ASSESSMENT, *supra* note 134. An EPA assessment report released in December 2008 identified how federal laws and Coast Guard regulations addressed cruise ship waste streams. CRUISE SHIP DISCHARGE ASSESSMENT, *supra* note 134. For example, the Clean Water Act (CWA) prohibits the discharge pollutants from point sources, including vessels in U.S. waters, except under certain circumstances. 33 U.S.C. § 1311 (1972). The U.S. has successfully prosecuted CWA violations against cruise lines for unpermitted discharges of photography processing waste and dry-cleaning chemicals through the grey water system. CRUISE SHIP DISCHARGE ASSESSMENT, *supra* note 134, at 3-2. The Oil Pollution Act prohibits the discharge of oil or hazardous substances in harmful quantities in U.S. waters. 33 U.S.C. §§ 2701-2720.

143. Act to Prevent Pollution from Ships, 33 U.S.C. §§ 1901, 19051-915 (1980); Navigation and Navigable Waters, 33 C.F.R. § 151.01-151.79 (2022); COPELAND, *supra* note 21, at 7.

144. COPELAND, *supra* note 21, at 7 ("The regulatory mechanism established in APPS to implement MARPOL is separate and distinct from the Clean Water Act and other federal

law oversees some waste streams from the point of generation to ultimate disposal.[145] Facilities handling the treatment, storage, or disposal of such waste are required to have permits and comply with operating standards as well as other U.S. EPA regulations.[146] As cruise ships can generate or transport such waste, they are subject to the federal law and must offload the waste for recycling or disposal in accordance with the regulations.[147]

Regarding federal regulation of PRFs in the U.S., the Marine Plastic Pollution Research and Control Act (MPPRCA) of 1987[148] requires PRFs to conform to U.S. regulations.[149] In the U.S., there are seven "major" cruise ports (ports with more than a million passenger movements), eight very large cruise ports (500,000 to 1 million passenger movements) and eight "large" cruise ports (250,000 to 500,000 passenger movements).[150] These ports, as well as all port facilities and terminals in the U.S., must have adequate garbage reception facilities.[151] The U.S. Coast Guard regularly inspects PRFs for adequacy and issues Certificates of Adequacy (COAs) to ports and terminals as evidence the facilities meeting the requirements of Annexes I, II, and V of MARPOL.[152] Under MPPRCA, the Coast Guard can deny entry of a ship to a port if the port's facilities are not in compliance.[153]

In addition to complying with federal laws, cruise ship owners and operators must adhere to state practices concerning waste minimization,

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environmental laws."). The United States Coast Guard has the primary responsibility to prescribe and enforce the regulations required to implement the APPS. COPELAND, *supra* note 21, at 7.

145. Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901-6991; COPELAND, *supra* note 21, at 12 ("Under this act, a waste is hazardous if it is ignitable, corrosive, reactive or toxic, or appears on a list of about 100 industrial process waste streams and more than 500 discarded commercial products and chemicals."). Cruise companies are required to immediately notify the National Response Center of any release of hazardous substance in amounts above regulatory thresholds. *See* CERCLA, 42 U.S.C. § 9603(a) (1996); COPELAND, *supra* note 21, at 11.

146. COPELAND, *supra* note 21, at 12.

147. COPELAND, *supra* note 21, at 12.

148. 33 U.S.C. § 1901 (1987). The U.S. implemented MARPOL Annex V by enacting MPPRCA. The provisions of MPPRCA are virtually identical to MARPOL. 33 U.S.C. § 1902(b)(2)(A) (1987); Jeffrey S. Dehner, Note & Comment, *Vessel-Source Pollution and Public Vessels: Sovereign Immunity V. Compliance, Implications for International Environmental Law*, 9 EMORY INT'L L. REV. 507, 540 (1995).

149. 33 U.S.C. § 1905(a) (1987); Dehner, *supra* note 148, at 541.

150. Pallis, *supra* note 21, at 34.

151. 33 C.F.R. 158.133(c) (1989).

152. 33 U.S.C. § 1905(a) (1987); 33 C.F.R. 158.133(c) (1989); Dehner, *supra* note 148, at 541.

153. 33 U.S.C. § 1905 (1987); Dehner, *supra* note 148, at 547. The Coast Guard standards for what port facilities must do to implement MARPOL's obligations are set out in 33 C.F.R. Part 158.

waste reuse and recycling and waste management outlined in MOUs.[154] Several states, including Florida, Washington and Hawaii have entered into MOUs with industry organizations such as the Cruise Lines International Association (CLIA).[155] Going a step further, Alaska, California, and Maine have enacted state-specific legislation to address the management of cruise ship waste.[156]

C. European Union Regulations

The EU[157] has the reputation for regulating "more frequently and more rigorously" than the United States.[158] The EU is considered the *de facto* global legislator and regulator of the environmental, human health, and safety spheres and that its rules "eventually touch and materially impact practically every industry sector within the United States and, by the extension, the world."[159] In the maritime policy arena, the EU's approach is to "ensure a high level of safety and environmental protection."[160] Consequently, the EU increasingly uses its Port State jurisdictional powers to impose obligations on cruise ship owners and operators.[161] The result is complementary and competing waste

154. COPELAND, *supra* note 21, at 20-21.

155. COPELAND, *supra* note 21, at 20. CLIA has more than fifty cruise line members who represent more than ninety-five percent of the global cruise capacity. *About CLIA*, CLIA, https://cruising.org/en/about-the-industry/about-clia (last visited Mar. 2, 2021).

156. *See* Commercial Passenger Vessel Environmental Compliance Program, ALASKA STAT. § 46.03.460-46.03.490 (2001) (governing the operation and regulation of cruise ships in Alaska waters); CAL. HEALTH AND SAFETY CODE § 39632 (2004) (banning onboard incineration within three miles of the California coast); CAL. PUB. RES. CODE § 72525 (2004) (prohibiting the release of grey water in California waters); CAL. PUB. RES. CODE § 72425 (2004) (prohibiting the release of sewage in California waters); and ME. REV. STAT. tit. 38 § 423 (prohibiting vessel waste discharges in Maine waters).

157. Although the United Kingdom officially left the EU on January 1, 2021, the general discussion regarding EU regulations will include the United Kingdom as a Port State except where indicated.

158. Lawrence A. Kogan, *The Extra-WTO Precautionary Principle: One European "Fashion" Export the United States Can Do Without*, 17 TEMP. POL. & CIV. RTS. L. REV. 491, 492 (2008) (citing Lawrence A. Kogan, Precautionary Preference: How Europe's Regulatory Protectionism Imperils American Free Enterprise 6 (2005) (quoting Comm'n of the European Comtys., Enhancing the Implementation of the New Approach Directives 3 (2003))).

159. *Id.* at 491.

160. Directive (EU) 2019/883, *supra* note 99.

161. Argüello, *supra* note 110, at 4 (citing Henrik Ringbom, THE EU MARITIME SAFETY POLICY AND INTERNATIONAL LAW (Martinus Nijhoff Publishers 2008); Iliana Christodoulou-Varotsi, MARITIME SAFETY LAW AND POLICIES OF THE EUROPEAN UNION AND THE UNITED STATES OF AMERICA: ANTAGONISM OR SYNERGY? (Springer 2009)).

management standards that impact member States as well as non-EU ships calling at EU ports.[162]

There are several types of legal acts that impact EU Port States.[163] Regulations and directives are two examples of EU legal acts that are differently implemented and enforced.[164] A "regulation" is a binding legislative act that must be applied to all EU countries in its entirety and immediately enforced.[165] On the other hand, a "directive" is a legislative act that requires all EU countries to achieve a goal by issuing their own laws by a specified time period.[166] Directives have been seen as a way of implementing MARPOL given EU legislation, unlike international law, provides non-compliance mechanisms against EU member States as well as addresses the legal, financial, and practical responsibilities of cruise ship operators.[167]

Signatory EU Port States are obliged under MARPOL, as well as Directive (EU) 2019/883 (also known as the PRF Directive), to provide cruise ships with adequate port waste reception facilities without undue delay.[168] In Northern Europe and the Mediterranean Sea, there are nine major cruise ports, seventeen very large cruise ports and twenty-six large cruise ports.[169] Ports can exhibit different strengths in their waste handling management and specialize in receiving certain wastes from ships.[170] For example, the Port of Helsinki and Ports of Stockholm specialize in receiving wastewaters from ships since they can receive unlimited amounts of wastewater that can be sent directly into the municipal

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162. Argüello, *supra* note 110, at 3.

163. *Regulations, Directives and Other Acts*, EUROPEAN UNION, https://europa.eu/european-union/law/legal-acts_en (last visited Feb. 23, 2021).

164. van Bergen-Henegouw, Ferry, *Understanding the Difference between EU Directives and EU Regulations*, CERTIFICATION EXPERTS (May 20, 2021), https://certification-experts.com/understanding-the-difference-between-eu-directives-and-eu-regulations/.

165. *Regulations, Directives and Other Acts*, *supra* note 163; van Bergen-Henegouw, *supra* note 164.

166. *Regulations, Directives and Other Acts*, *supra* note 163; van Bergen-Henegouw, *supra* note 164.

167. Argüello, *supra* note 110, at 3-5; Pallis, *supra* note 21, at 56.

168. Pallis et al., *supra* note 20, at 54-70; MARPOL *supra* note 33, at Annex V, art. 7. Directive (EU) 2019/883 repealed Directive 2000/59/EC and amended Directives 2009/16/EC on Port State control and 2010/65EU on reporting formalities for ships. Directive (EU) 2019/883, *supra* note 99.

169. Pallis, *supra* note 21, at 34.

170. Irina Svaetichin & Tommi Inkinen, *Port Waste Management in the Baltic Sea Area: A Four Port Study on the Legal Requirements, Processes and Collaboration*, 5 SUSTAINABILITY 699 (2017). A survey conducted in 2017 of over 50 cruise ports confirmed there are satisfactory options of waste reception disposal facilities in the Mediterranean. Pallis et al., *supra* note 20, at 54-70.

wastewater systems.[171] The Port of Tallinn specializes in receiving oily wastes, while its "daughter" company Green Marine Ltd., specializes in processing oily wastes to create a new oil product.[172]

EU Port facilities' management activities related to waste transport, recycling, re-use, recovery, and final disposal operations must follow the Waste Framework Directive[173] and other relevant EU waste legislation.[174] Unfortunately, the measures detailed in the Waste Framework Directive are unrelated to daily shipping operations.[175] Therefore, in June of 2019, the European Council and the European Parliament adopted Directive (EU) 2019/883 with the aim to protect the marine environment from the negative effects of waste from ships using EU ports, by improving PRFs.[176] Directive (EU) 2019/883 eliminates inconsistencies between prior directives and MARPOL, such as waste definitions.[177] Additionally, Directive (EU) 2019/883 aligns EU legislation with MARPOL and covers all ships, including fishing vessels and recreational craft (irrespective of Flag), and all ports of the Member States (including fishing ports and marinas which total over 3,000 seaports). Given that a port's image is highly dependent on the Port State's environmental achievements it is in the Port State's best interest to ensure cruise ships calling at its ports abide by waste management laws and regulations.[178]

Like MARPOL, Directive (EU) 2019/883 requires that States ensure that waste reception and handling plans[179] are in place and include the location of PRFs applicable to each berth, and, where relevant, their opening operating hours; a list of waste from ships normally managed by

171. Svaetichin & Inkinen, *supra* note 170, at 8.

172. Svaetichin & Inkinen, *supra* note 170, at 7.

173. Directive 2008/98/EC, *supra* note 100.

174. Directive 2008/98/EC, *supra* note 100. Directive 2008/98/EC entered into force in December 2008 and required transposition by December 12, 2010. Directive 2008/98/EC, *supra* note 100; *see also* Argüello, *supra* note 110, at 6.

175. Argüello, *supra* note 110, at 20.

176. Directive (EU) 2019/883, *supra* note 99, at art. 5; EUROPEAN MAR. SAFETY AGENCY, EMSA/OP/02/2016, THE MANAGEMENT OF SHIP-GENERATED WASTE ON-BOARD SHIPS 11 (2017). Directive (EU) 2019/883 entered into force on June 27, 2019, and had to be implemented in national regulation by June 28, 2021. Directive (EU) 2019/883, *supra* note 95. As of February 23, 2021, Germany, France, Luxembourg, and Portugal had implemented national regulations. In light of "Brexit," the United Kingdom is now under no obligation to implement Directive (EU) 2019/883.

177. Argüello, *supra* note 110, at 5.

178. Svaetichin & Inkinen, *supra* note 170, at 11.

179. An example of a Port Waste Management Plan is available of the Port of Rotterdam's website. *Ship's Waste from Seagoing Shipping*, PORT OF ROTTERDAM, https://www.portofrotterdam.com/sites/default/files/port-waste-reception-and-handling-plan-2018.pdf?token=YFGiIrym (last visited Feb. 23, 2021).

the port; a list of contact points, the port reception facility operators and the services offered; a description of the procedures for delivery of the waste; and a description of the cost recovery system, including waste management schemes and funds.[180] EU States, in their capacity as Flag States, must use IMO forms and procedures to notify the IMO as well as Port State authorities of any alleged inadequacies of PRFs.[181]

Directive (EU) 2019/883 is a response to the Regulatory Fitness and Performance Programme's (REFIT)[182] findings that the PRF Directive was not "fully effective due to inconsistencies with the MARPOL Convention framework" and that Member States "developed different interpretations of the key concepts . . . such as adequacy of the facilities, advance waste notifications, the mandatory delivery of waste to PRFs and exemptions for ships in scheduled traffic."[183] Directive (EC) 2019/883 Article 7(1) loosens its predecessor's mandatory waste delivery requirement by prescribing ships do so in "accordance with the relevant discharge norms laid down in the MARPOL Convention."[184] As long as vessels have sufficient dedicated storage capacity as outlined in Article 7(4)(a)(b), ship operators can choose the port reception facility.[185] Nevertheless, European port authorities can still mandate that ship operators discharge wastes prior to departure in the following situations: a) if the next port does not have adequate PRFs;[186] and b) the next port of call is unknown.[187] Ships have to pay an indirect fee, irrespective of delivery of waste.[188] Cargo residues and waste from scrubbers are excluded.

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180. Directive (EU) 2019/883, *supra* note 99, at art. 5.

181. Directive (EU) 2019/883, *supra* note 99, at art. 4.

182. The European Commission launched REFIT in 2012 as a tool to simplify EU legislation and reduce regulatory costs. After implementation of an EU legal action, REFIT identifies opportunities to reduce regulatory burdens and simplify existing laws.

183. Directive (EU) 2019/883, *supra* note 99.

184. Directive (EU) 2019/883, *supra* note 99. Directive (EU) 2019/883 allows for exemptions. MARPOL does not require mandatory delivery of ship waste except for certain types of cargo residues and washing waters. MARPOL, *supra* note 33, at Annex II.

185. Directive (EU) 2019/883, *supra* note 99; Argüello, *supra* note 110, at 5.

186. The IMO's Marine Environment Protection Committee provides examples of assessment questions used to determine the adequacy of port waste reception facilities. MEPC Res. 83(44), *supra* note 42, at Annex D and E.

187. Directive (EU) 2019/883, *supra* note 99, at art. 7(5). Ports in Estonia, Finland, Germany, Italy, Spain and Sweden currently require ships to offload all garbage and sludge in every port. They impose a compulsory waste fee on every call up to a certain weight amount. Any offloads in excess of the limit incur additional fees.

188. *Port Reception Facilities for Ship Waste: Collecting Waste from Ships in Port*, PE 633.180, at 7 (2019), https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/633180/EPRS_BRI(2019)633180_EN.pdf.

To create a financial incentive for cruise ship operators to adopt environmentally progressive procedures and policies, Directive (EU) 2019/883 Article 8(5)(b) incorporates a fee reduction where "ship's design, equipment and operation demonstrate that the ship produces reduced quantities of waste, and manages its waste in a sustainable and environmentally sound manner."[189] EU Member states have implemented provisions to reduce port fees for ship generated waste if the ship's master can demonstrate that through the ship's environmental management, design, equipment, and operation the ship produces reduced quantities of ship-generated waste. However, few EU ports reduce these fees since there is no minimum criteria regarding onboard practices.[190] However, the Ports of Tallinn, Stockholm, and Helsinki give special reductions on their waste fees if cruise ships follow their guidelines.[191] This reduction actually makes it cheaper for cruise ships to discharge wastewater at the port rather than at sea.[192]

D. Regulations in Asia

In the immediate years leading up to the global pause in cruise operations in 2020, Asia recorded the highest growth in the number of ships calling in a region.[193] In 2016, China surpassed Germany to become the second largest cruise passenger market in the world after the United States[194] In 2019, over 4 million passengers sailed to 306 Asian ports of call.[195] As international interest in the region has grown, so have the efforts of Asian governments to limit environmental damage. Like Europe and the United States, environmental policy and response has been emerging since the 1970s.[196] Appendix I discusses in detail the most visited cruise Asian Port States and their maritime environmental policies.

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189. Directive (EU) 2019/883, *supra* note 99, at art. 8(5)(b); Argüello, *supra* note 110, at 8.

190. Argüello, *supra* note 110, at 7.

191. Svaetichin & Inkinen, *supra* note 170, at 11.

192. Svaetichin & Inkinen, *supra* note 170, at 11.

193. *See* Xiaodong Sun et al., *Location Characteristics of Cruise Terminals in China: A Lesson from Hong Kong and Shanghai*, 18 SUSTAINABILITY 5056 (2019).

194. *Id*.

195. *Asia's Cruise Destinations Grow to 306 in 2019: CLIA*, TTG ASIA (Aug. 4, 2019, 11:05 AM), https://www.ttgasia.com/2019/08/14/asias-cruise-destinations-grow-to-306-in-2019-clia/. The most frequented ports are in Japan, Mainland China, South Korea, Malaysia, Thailand, Singapore, Indonesia, Vietnam, Taiwan, India, and Hong Kong. *See id*.; Sun et al., *supra* note 193, at 3.

196. *See* Hideaki Shiroyama, *Environmental Cooperation in East Asia: Comparison with the European Region and the Effectiveness of Environmental Aid*, in DEVELOPMENT OF ENVIRONMENTAL POLICY IN JAPAN AND ASIAN COUNTRIES 252, 252 (Tadayoshi Terao & Kenji Otsuka eds., 2007).

IV. VETTING AND ADDRESSING WASTE DISPOSAL VENDOR RISK

In addition to following international and national environmental regulations, cruise companies should also ensure that their third-party vendors also comply with those regulations. While contracting with third parties is a customary business practice, there is a new and heightened scrutiny on how companies manage third-party risk, along with higher fines that exceed hundreds of millions of dollars.[197] Failure to properly manage third-party vendor risk jeopardizes the company's reputation.[198] If a third-party vendor violates an environmental law, the contracting company can also be held liable.[199] Even in the criminal area, corporate liability for environmental violations is based on imputing the conduct of agents or employees to a corporation via the doctrine of *respondeat superior*.[200] Corporate criminal liability is broad and continues to expand. For example, corporations can incur liability for the actions of their subsidiaries or predecessors.[201] Moreover, for serious environmental violations, broad prosecutorial discretion allows individual corporate officers to be personally charged, along with the corporation.[202]

In addition to the initial due diligence in the selection process, corporations should also engage in ongoing monitoring and auditing to ensure third-party environmental compliance. A 2017 survey of Chief Compliance Officers from seven industries[203] found that roughly fifty percent of the organizations had a compliance monitoring process to

197. Kristian Park, *Third-Party Risk*, DELOITTE, https://www2.deloitte.com/rs/en/pages/governance-risk-and-compliance/articles/third-party-risk.html (last visited June 25, 2021). The Department of Justice evaluates corporate compliance programs based on the process for vendor selection. U.S. DEPARTMENT OF JUSTICE CRIMINAL DIVISION, EVALUATION OF CORPORATE COMPLIANCE PROGRAMS 7 (2020).

198. Park, *supra* note 197.

199. *Third-party Risk Is Becoming a First Priority Challenge: Reduce Your Extended Enterprise Risk*, DELOITTE, https://www2.deloitte.com/ca/en/pages/risk/articles/reduce-your-third-party-risk.html (last visited June 25, 2021).

200. David Markert et al., *Environmental Crimes*, 41 AM. CRIM. L. REV. 443, 450 (2004) (quoting V.S. Khanna, *Corporate Criminal Liability: What Purpose Does it Serve?*, 109 HARV. L. REV. 1477, 1492 (1996) (arguing corporate liability is socially desirable in only limited circumstances)).

201. *Id*. at 452 (citing *United States v. Bestfoods*, 524 U.S 51, 62, 65 (1998)).

202. *Id*. at 457.

203. KPMG, a global firm providing risk, internal audit, and corporate governance advisory services, surveyed Chief Compliance Officers from the following seven industries: financial services, insurance, energy, healthcare and life sciences, technology, media and telecommunications, consumer markets, and industrial manufacturing. *The Compliance Journey: Boosting the Value of Compliance in a Changing Regulatory Climate*, COMPLIANCE WEEK (Apr. 24, 2017, 3:45 AM), https://www.complianceweek.com/the-compliance-journey-boosting-the-value-of-compliance-in-a-changing-regulatory-climate/23859.article.

confirm that third-party vendors complied with due diligence processes, while thirty-one percent managed third-party risk and issues with an enterprise-wide tool capable of monitoring and tracking key risk indicators and key performance indicators.[204]

Increased scrutiny and risk have also increased the need to vet and audit third-party vendors, particularly vendors who dispose of the company's waste. In the not so distant past, many companies only used environmental audits[205] when they purchased property in order to avoid environmental liabilities.[206] Apart from heavily regulated companies, such as manufacturing, companies often viewed environmental audits as a trendy management tool.[207] However, now, corporations use environmental audits as a professional planning practice to evaluate environmental compliance and risk.[208] Avoiding and preventing costly litigation and reducing massive clean-up costs are powerful incentives for companies to conduct environmental audits of waste disposal vendors.[209]

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204. KPMG, COMPLIANCE JOURNEY: BOOSTING THE VALUE OF COMPLIANCE IN A CHANGING REGULATORY CLIMATE 3 (2017). A Deloitte 2015 survey found that 30 percent of U.S. compliance professionals do not measure the effectiveness of their compliance programs. DELOITTE & COMPLIANCE WEEK, IN FOCUS: 2015 COMPLIANCE TRENDS SURVEY 6 (2015), https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Risk/gx-aers-reg-2015-compliance-trends-survey.pdf.

205. The EPA defines an environmental audit as "systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements." Environmental Auditing Policy Statement, 51 Fed. Reg. 25,004, 25,006 (July 9, 1986) (footnote omitted). This broad definition allows for inspections, assessments, surveys, and evaluations to be part of the audit process. Michael Ray Harris, *Promoting Corporate Self-Compliance: An Examination of the Debate Over Legal Protection for Environmental Audits*, 23 ECOLOGY L.Q. 663, 669 (1996). Unfortunately, the EPA "provides little guidance to an environmental manager or attorney for developing and environmental auditing program." *Id.*

206. Harris, *supra* note 205, at 670.

207. *See* Heather L. Cook & Robert R. Hearn, Comment, *Putting Together the Pieces: A Comprehensive Examination of the Legal and Policy Issues of Environmental Auditing*, 7 TUL. ENV'T. L.J. 545, 546 (1994).

208. *Id.*; William N. Farran II & Thomas L. Adams Jr., *Environmental Regulatory Objective: Auditing and Compliance or Crime or Punishment*, 21 ENV'T. L. REP (ENV'T. L. INST.) 10,239, 10,239 (1991) (arguing that the EPA should encourage auditing programs by legally protecting companies that participate in environmental self-audits and undertake corrective action voluntarily).

209. Cook & Hearn, *supra* note 207, at 547. Additionally, entities that conduct environmental audits could receive lenient prosecutorial treatment for violations found during an audit. Cook & Hearn, *supra* note 207, at 547. The U.S. Environmental Protection Agency and Department of Justice encourage entitles that are environmentally regulated to voluntarily perform environmental audits. Cook & Hearn, *supra* note 207, at 550; *Factors in Decisions on Criminal Prosecutions for Environmental Violations in the Context of Significant Voluntary Compliance or Disclosure Efforts by the Violator*, DEP'T OF JUSTICE, https://www.justice.gov/enrd/factors-decisions-criminal-prosecutions-environmental-violations-context-significant-voluntary (last visited Sept. 14, 2021).

For companies wanting to do the right thing, an effective compliance plan not only helps reduce such risks, but is also key to adding to core business values.

A practical guide for sourcing a waste disposal vendor who may pose an environmental risk can be found in the old Russian proverb, "doveryai, no proveryai" or, "trust, but verify."[210] According to the Department of Justice, a "well-designed compliance program should apply risk-based due diligence to its third-party relationships."[211] Companies are now expected to know the risks posed by the third-parties.[212] Compliance programs that have risk-based and integrated processes have the appropriate controls that allow them to actively manage the relationship with the vendor.[213] Effective compliance processes must be developed to detect and respond to the common types of third-party misconduct and non-compliance. These tools allow managers to take measurable actions in response to non-compliance and ensure that bad behavior has consequences.[214]

Comprehensive environmental auditing programs start with setting up a system of policies and procedures to ensure that venders' fully comply with environmental laws.[215] In a sophisticated and robust program, the actual vendor audit is just one component of the corporation's environmental program.[216] Environmental auditing can determine whether a vendor complies with environmental regulations, and therefore can help a corporation identify and eliminate environmental risk.[217] The auditing program should also provide for ongoing risk and

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210. Ronald Reagan learned the Russian proverb while preparing for talks with Soviet leader Mikhail Gorbachev. Nikolay Shevchenko, *Did Reagan Really Coin The Term 'Trust but Verify,' A Proverb Revived By HBO's Chernobyl?*, RUSSIA BEYOND (June 17, 2019), https://www.rbth.com/lifestyle/330521-reagan-trust-but-verify-chernobyl.

211. U.S. DEPARTMENT OF JUSTICE CRIMINAL DIVISION, EVALUATION OF CORPORATE COMPLIANCE PROGRAMS 7 (2020).

212. *Id*.

213. *Id*. In a nutshell, the compliance program must be more than a "paper program." *Id*. at 8.

214. *See id*.

215. *See* Harris, *supra* note 205, at 671-72 ("With this system in place, management can proceed beyond mere concern for specific laws and the most significant environmental hazards to a full management system for compliance.").

216. Harris, *supra* note 205, at 672.

217. Harris, *supra* note 205, at 666 (citing Cheryl Hogue, *Audit Legislation Gains in States, But Some Predict Slowdown in Future*, 26 ENV'T REP. (BNA) No. 18 at 882 (Sept. 1, 1995)); Daryl Ditz et al., *Environmental Accounting: An Overview*, in GREEN LEDGERS: CASE STUDIES IN CORPORATE ENVIRONMENTAL ACCOUNTING 21-28 (Daryl Ditz et al. eds., 1995)). Limiting liability is the key to the development of a vetting or audit program. *See* U.S. EPA OFFICE OF SOLID WASTE,

performance assessment and monitoring, especially prior to renewing contracts.[218]

Using a third-party auditor to vet a vendor is a common mechanism to monitor compliance and is considered a voluntary program "best practice."[219] Third-party auditors assess compliance with rules and standards developed by governments, the corporation, and other private entities.[220] As expected, there are several approaches to using third-party auditors.

In 1984, several companies seeking to audit the vendors who manage their waste started a non-profit trade association called CHWMEG, Inc.[221] Today, the association is made up of mostly manufacturing and similar industrial members.[222] Members of CHWMEG pay to access a library of completed facility review reports and information on vendors' waste recycling, treatment and disposal

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AN ASSESSMENT OF GOOD CURRENT PRACTICES FOR RECYCLING OF HAZARDOUS SECONDARY MATERIALS 8 (2006).

218. Patrick D. Warren & R. Michael Varney, *Third-Party Risk and What to Do About It*, INDUSTRY WEEK (May 22, 2014), https://www.industryweek.com/supply-chain/supplier-relationships/article/21962891/thirdparty-risk-and-what-to-do-about-it. "The companies most successful in this auditing and monitoring function are those that work to enhance the data they possess about their relationships so that they can predict areas of risk more accurately and automate relationships monitoring more effectively." *Id*.

219. Lesley K. McAllister, *Harnessing Private Regulation*, 3 MICH. J. ENV'T. & ADMIN. L. 291, 308-09 (2014) (citing MICHAEL POWER, THE AUDIT SOCIETY: RITUALS OF VERIFICATION (1997); Michael Power, *Expertise and the Construction of Relevance: Accountants and Environmental Audit*, 22 ACCT., ORGS. & SOC'Y, 123, 126 (1997); ASEEM PRAKASH & MATTHEW POTOSKI, THE VOLUNTARY ENVIRONMENTALISTS: GREEN CLUBS, ISO 14001, and VOLUNTARY REGULATIONS 60 (2006)). Audits can be classified into the following categories: 1) Self-audits or first-party conformity assessments conducted by the organization subject to regulation; 2) second-party conformity assessments conducted by another organization interested in the object the assessment's compliance (such as a purchaser of services or an industry association); and 3) third-party conformity assessments conducted by an external independent entity paid by the organization or association. *Id*. at 308, 310 (citing INT'L ORG. FOR STANDARDIZATION & INT'L ELECTROTECHNICAL COMM., ISO/IEC DOC. 17000:2004, CONFORMITY ASSESSMENT VOCABULARY AND GENERAL PRINCIPLES 2.1 (2004)).

220. McAllister, *supra* note 219, at 293 (citing Michael P. Vandenbergh, *Private Environmental Governance*, 99 CORNELL L. REV. 129, 147 (2013) (referring to private governance as the "development and enforcement by private parties of requirements designed to achieve traditionally governmental ends")).

221. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 8.

222. At present there are 284 member enterprises (563 subsidiaries and eligible joint ventures). *Member List*, CHWMEG, https://chwmeg.org/member-list.asp (last visited Feb. 12, 2021). Another non-profit trade cost sharing association is the Waste Facilities Audit Association (WFAA) which formed in 1993 in response to tightening environmental requirements in the UK, Ireland, and mainland Europe as well as increased waste disposal costs and consumer expectations. WFFA, WFFA BROCHURE 1 (2021), https://www.wfaa.eu/wordpress/includefiles/WFAABrochure 130421.pdf.

facilities.[223] Hence, the association functions as a cost-sharing approach to auditing where members pool their funds. Each year the members decide which waste disposal vendors will be audited during the year.[224] To date, CHWMEG has conducted 5,678 reviews of 2,050 facilities in 55 countries.[225] In 2021, annual membership fees for access to that year's facility program year is $1,240 for North American reports and $2,500 for Non-North American reports.[226] Access to past reports range from $800 to $2,300 depending on the location of the facility and facility program year.[227]

CHWMEG gathers audit information by evaluating risk in ten areas and assigning a quantitative risk score for environmental, operational, and financial risks.[228] The audit report does not conclude whether a facility passes or fails nor does it make a recommendation on whether members continue to use the waste disposal vendor.[229] It is on the member to use the information gathered by CHWMEG to determine whether the vendor meets their particular standards for waste handling and whether to continue to use the vendor.[230]

Unfortunately, currently CHWMEG is not a beneficial tool for the maritime industry. First, there are currently no maritime members.[231] Therefore, the library of audit reports does not contain reports for waste disposal vendors who only service the maritime industry. The first maritime member would have to individually purchase the reports to be completed by CHWMEG.[232] As members nominate which facilities will be reviewed each year, vendors who only service the maritime industry would likely not be selected for review, resulting in the maritime member individually purchasing every report only of interest to their company.[233]

Additionally, and probably most importantly, CHWMEG's formal assessment process does not review or consider treatment processes for

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223. *Membership Overview*, CHWMEG, https://chwmeg.org/membership-overview.asp (last visited Sept. 14, 2021).

224. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 16.

225. *At A Glance*, CHWMEG, https://chwmeg.org/about-chwmeg.asp (last visited Feb. 12, 2021).

226. *CHWMEG Report Cost Table*, CHWMEG, https://chwmeg.org/report-cost-tables.asp (last visited Feb. 12, 2021).

227. *Id*.

228. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 16.

229. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 16.

230. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 16.

231. *Member List*, *supra* note 222.

232. *The CHWMEG Facility Review Program*, CHWMEG, https://chwmeg.org/program-overview.asp (last visited Feb. 12, 2021).

233. *Id*.

most types of waste generated by a ship.[234] Also, having no maritime members, CHWMEG is not knowledgeable about regulations that directly impact and govern the maritime industry, such as MARPOL.[235] To date, CHWMEG has never conducted due diligence on a port facility and does not have the background knowledge to distinguish the legal nuances between foreign jurisdictions regulating ship waste.[236]

Therefore, a better approach would be for maritime companies to organize into a consortium of sharing information, like the Joint Utility Vendor Auditing Consortium (JUVAC).[237] Eight California and Arizona electric utility companies founded JUVAC. [238] Unlike the CHWMEG members, JUVAC members perform the vendor audits and share the information with the other members.[239] To retain active member status, the member must conduct a certain of number of audits each year.[240] As the members of JUVAC are all from the same industry, they presumably manage similar waste streams.[241] Thus, the organizational structure of the JUVAC consortium is more effective for streamlining audit costs than the CHWMEG association whose diverse members have waste streams disparate to maritime operators.[242] Given no such maritime organizational structure existed, Carnival Corp. had to create its own.

V. CARNIVAL CORP. THIRD-PARTY WASTE DISPOSAL VENDOR VETTING POLICIES AND PROCEDURES

In 2019, Carnival Corp. reviewed its waste disposal vendor vetting program. Without model maritime waste disposal vendor vetting programs to emulate, Carnival Corp. developed a new program from scratch. With almost 600 waste disposal vendors spread across approximately 328 ports in 96 countries, the program needed to be sufficiently robust to achieve Carnival Corp.'s compliance objectives.[243]

234. E-mail from Emilio Tombolesi, Director Environmental Policy, Carnival Corporation, to Francesca Eick, Associate, Baker Botts (Oct. 22, 2020, 15:21 EDT) (on file with author).

235. *Id.*

236. *Id.*

237. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 17.

238. *Id.*

239. *Id.*

240. *Id.*

241. *Id.*

242. *Id.*

243. The premier objective being to identify, assess and select waste disposal vendors for ships to use to help promote environmentally sustainability and mitigate risks with waste landing operations.

Specifically, Carnival Corp. needed to identify, assess, and select waste disposal vendors that would promote environmental sustainability, while also mitigating risks with waste landing operations. To achieve these objectives, Carnival Corp. created a Waste Vendor Committee ("the Committee") composed of at least one representative from each of the operating groups,[244] representatives from the Ethics & Compliance, as well as representatives from the Maritime Policy and Analysis departments. The members of the Committee review the waste disposal vendors and the associated risks and decide whether to approve the waste disposal vendor or add them to the unapproved list. Additionally, the Committee is tasked with overseeing the development, implementation, and continual improvement of the waste disposal vendor vetting program. Waste disposal vendor assessment requirements are published in Carnival Corp.'s Environmental Management System procedures. Compliance with those procedures is audited by international certification bodies.

Waste disposal vendors who are reviewed and approved by the Committee are internally posted and categorized as: a) preferred; b) acceptable; c) contingent; or d) port authority-mandated. Ships calling at ports are directed to only offload waste to vendors who are on the approved list.[245] Like most vendor auditing processes, Carnival Corp.'s approach to evaluating waste disposal vendors[246] is comprised of two important and complementary parts: 1) a remote screening phase; and 2) an on-site audit.[247]

A. Remote Screening Phase

During the remote onboarding screening phase, the vendor's compliance history is evaluated. The vendor is asked to fill out a questionnaire called a Duty of Care Self-Assessment form about its

244. The nine brands are organizationally grouped into four operating groups. Holland America Line, Princess Cruises, P&O Cruises Australia, and Seabourn make up the Holland America Group. The Carnival Cruise Line brand is a stand-alone group. Cunard and P&O Cruises make up the Carnival UK operating group while AIDA Cruises and Costa Cruises form the Costa Group.

245. If ship needs to offload to a vendor that is not on the approved list the ship personnel submit a self-reported non-conformity. A shoreside manager will approve the offload if the offload is necessary or reject the offload if an alternative option is available.

246. Waste disposal vendors are defined as vendors that Carnival Corp. (including its subsidiaries) currently use to handle various ship wastes. Waste operations conducted in a shipyard are excluded as the service is provided by the shipyard.

247. *See* U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 13.

operations and facility.[248] The form requires the waste disposal vendors to provide alternative company names as well as identify parent, subsidiary, or affiliated companies and the names of owners and top and key personnel. Additionally, the form contains questions regarding insurance and indemnification.[249] This form asks the vendor to identify disposal methods, confirm frequency to hydrostatically test hoses that transfer liquid waste, insurance, licensing and permits, and identify regulators, third-party contractors and past violations, fines, or negative media. Based on the information submitted in the Duty of Care Self-Assessment form, a risk score is assigned which reflects past environmental performance. Carnival Corp. reserves the right to ask the waste disposal vendor to update the questionnaire at any time. If the waste disposal vendor does not complete the questionnaire, the vendor will not be approved. If the waste disposal vendor resists answering a question, provides unsatisfactory responses, or has a high-risk score, a red flag is raised that requires further Committee review.[250]

Based on the level of risk presented during the Committee's red flag review, a vendor can be: a) approved; b) conditionally approved to only handle a specific waste type; or c) placed on the unapproved list. If a vendor received five or more violations for handling or disposing waste within the last three years or received a violation for improper disposal of oil within the last five years, the vendor will not be approved by the Committee unless the vendor provides sufficient evidence that corrective and preventative actions have been put in place and the Committee concludes that such corrective and preventative actions sufficiently minimize the potential risk. The Committee may require the vendor to provide quarterly updates to the Committee.[251] The types of information

248. Port authority mandated vendors are exempt from the assessment process. The mandated vendors provide services on behalf of the port. The port authority selects and assesses the vendors based on their local and national regulatory requirements. Consequently, the cruise lines cannot select, modify, or influence which port authority mandated vendor the ships in the fleet can use. Member states of the EU as well as China utilize port authority mandated vendors.

249. Before signing or renewing any direct vendor contract, Carnival Corp. assesses the vendor. Additionally, the vendor is reassessed at least three years from the date the vendor is approved. If there are reports of operational concerns or known reported incidents, the vendor can be reassessed prior to the three years.

250. *See* STEELE WHITE PAPER, *supra* note 12. Other red flags to be aware of during the audit process are: 1) any recent explosions or emergencies at the vendor's facility; 2) enforcement actions against the facility; 3) practices that have deteriorated since a previous audit; 4) financial difficulties such at Chapter 11 filing or insufficient insurance cover; and 5) vendor refusal to discuss financials. U.S. EPA OFFICE OF SOLID WASTE, *supra* note 217, at 13.

251. Additionally, Carnival Corp. added language to waste disposal vendor agreements requiring the waste disposal vendor to promptly notify Carnival Corp. of any violation of

requested in the quarterly updates can vary based on the type or severity of the triggering incident or issue. In addition to requesting the waste disposal vendor to provide details of corrective or preventative actions, the Committee can also request the waste disposal vendor to produce documents such as policies, procedures, or training materials disseminated to employees regarding a culture of compliance and ethical behavior.

Additionally, lack of insurance and licensing and removal methodologies contrary to industry standards can be grounds for placing a vendor on the conditional approval or unapproved list.[252] Also, when a waste disposal vendor contract expires, Carnival Corp. refreshes its due diligence screening to confirm the third-party's compliance efforts and check that nothing significant has changed since the initial onboarding.[253]

In addition to receiving an acceptable risk score, the vendor must pass a negative or adverse media check. Carnival Corp. uses a LexisNexis tool called Nexis Diligence to search online global news, business, web posts, blogs, and public records sources using the company names to determine whether the vendor poses regulatory, reputational, and financial risks.[254] LexisNexis representatives trained in Boolean search strategies worked with Carnival Corp. to ensure that searches captured a wider range of potential hits.[255] Negative media detailing environmental violations or significant issues are flagged and discussed by members of the Committee. Since more data is generated and available on the internet on an hourly and daily basis, Carnival Corp. monthly negative media alerts monthly to determine if new risks arise after the initial check and onboarding.[256] Accordingly, any negative media alerts involving a vendor are brought to the attention of the Committee for discussion and review.

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applicable laws, any lawsuits, and/or civil or criminal enforcement actions, any regulatory fine, or notice of violation brought against the waste disposal vendor relating to a violation of environmental laws, and any environmental regulatory agency inspection of a waste disposal vendor's facility where services are provided to Carnival Corp.

252. In some jurisdictions, insurance and licenses are not required. Therefore, Carnival Corp. must self-evaluate the level of risk exposure.

253. STEELE WHITE PAPER, *supra* note 12, at 6.

254. Ashlee Vance, *Legal Sites Plan Revamps as Rivals Undercut Price*, N.Y. TIMES (Jan. 25, 2010), https://www.nytimes.com/2010/01/25/technology/25westlaw.html?_r=1&ref=reedelsevier.

255. Additionally, Carnival Corp. conducts spot checks using the Google search engine to confirm whether a waste disposal vendor has negative media such as reported violations or fines on the worldwide web.

256. *Why Adverse Media Screening During the Coronavirus Pandemic is More Important than Ever*, LEXISNEXIS (July 6, 2020, 2:38 PM), https://internationalsales.lexisnexis.com/news-

While the Committee's negative media review focuses on environmental related issues, Carnival Corp. also performs a background check on the waste disposal vendors to determine whether there is a bribery or corruption risk. Negative media not related to environmental, bribery, or corruption risk can, but does not always, trigger further review by the Committee.[257] For example, a negative media search revealed complaints that a CEO of a waste disposal vendor company perpetrated widespread bullying. Although not environmentally related, this behavior and leadership style could undercut a compliance culture, which could lead to future non-compliance. Therefore, Carnival Corp. asked the waste disposal vendor to provide specific corrective and preventative actions the vendor had taken to address the issue. Similarly, other violations outside of the environmental arena are also important to review since they often indicate an overall weakness in, or lack of management commitment for, broader corporate compliance.

Once a vetted vendor is selected and performing operations, Committee members will review internal e-mail reports regarding issues, operational concerns, or known reported incidents involving waste venders providing services to Carnival Corp. Potential waste disposal vendor issues and concerns include but are not limited to: 1) the vendor's waste management practices present a risk to the environment and/or people/wildlife; 2) conducting waste disposal operations contrary to industry accepted methods; or 3) conducting waste disposal operations that negatively impact ship operations. Committee members can escalate issues and concerns to the Committee if the Committee member believes based on the ship reports, the waste disposal vendor's approval status requires further review. The Committee will discuss reported issues, concerns, and incidents. Depending on the severity and circumstances of the reported issues and incidents, the Committee can place the vendor on a probationary period or change the status of the vendor to contingent or unapproved.

B. On-Site Audits

On-site audits of vendors help confirm the accuracy of the documentation provided and to ensure the vendor is compliant with

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and-events/why-adverse-media-screening-during-the-coronavirus-pandemic-is-more-important-than-ever. Each day more than 2.5 quintillion bytes of content and data is created. *Id.*

257. For example, a review revealing the conviction of a waste disposal vendor owner on weapons charges while serious is not a disqualifier or an incident that would rise to Committee review.

operational requirements and compliance obligations,[258] as well as to confirm the vendor is providing services consistent with the terms of the agreement with Carnival Corp.[259] Site audits can consist of spot checks or broader formalized audits and will involve document review.[260] Unfortunately, during the global COVID-19 pandemic site visits to the vendors' facilities are not always possible. However, the pandemic gave the Carnival Corp. the opportunity to develop the audit procedures to implement once it is safe to travel and congregate.

In determining which vendors will receive site visits, Carnival Corp. developed and uses a risk-based matrix. This matrix is based upon a variety of important criteria—such as repeated reported environmental incidents, fines or violations, a high Duty of Care risk score, negative media, the number of port calls, and if the vendor is located in a country with a low Environmental Performance Index score developed by the Yale Center for Environmental Law & Policy.[261] Given the importance of on-site audits, Carnival Corp. secures the right to perform them in the written contracts with third parties and exercises those rights on a periodic basis.[262] If a waste disposal vendor objects to the audit clause during contract negotiations, Carnival Corp. reexamines the business relationship.

To launch the site audit program, Carnival Corp. contracted with an independent third-party audit company to conduct the site audits. Prior to traveling to the site as well as during the onsite visit, the auditors verify the information disclosed in the Duty of Care Self-Assessment form. The auditor will seek general information relating to the waste vendor; the

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258. DEP'T OF HEALTH & HUMAN SERV., MEASURING COMPLIANCE PROGRAM EFFECTIVENESS: A RESOURCE GUIDE 21 (2017), https://oig.hhs.gov/documents/toolkits/928/HCCA-OIG-Resource-Guide.pdf.

259. *Id*. at 22.

260. *Id*.

261. *See Environmental Performance Index*, YALE, https://epi.yale.edu/ (last visited July 6, 2021) ("Using 32 performance indicators across 11 issue categories, the EPI ranks 180 countries on environmental health and ecosystem vitality."). Given that 90% of the EPI score is unrelated to cruise ship waste, Carnival Corp. only evaluates the indicators related to waste management and wastewater treatment.

262. DEP'T OF HEALTH & HUMAN SERV., *supra* note 258, at 22. Additionally, Carnival Corp. has made a change to the agreements with port agents so that port agents must report the following: 1) changes to laws in the jurisdictions in which the port agent provides services, including changes to environmental and waste management laws; 2) significant changes to the business of any of the waste disposal vendors that could impact the waste disposal vendor's ability to provide equipment or services to Carnival Corp., such as cancelled or lapsed licenses, insurance policies, certifications or changes to any other credentials requirement by applicable laws; and 3) availability of a waste management vendor that could provide services to Carnival Corp.

scope of the vendor's activities (brokering, collection, transport, storage, treatment, etc.); the types of waste managed; the process for management of the wastes until the point of treatment/disposal (collection, storage, transfer, and final destinations); the responsibilities in relation to management of wastes; the facilities operated by the vendor; the approved supplier processes used by the vendor; the permits/authorizations in place; and compliance with relevant waste management legislation requirements. Additionally, the auditors focus on the following important areas: 1) clarifying how the waste is handled from the point of leaving the cruise ship to the end destination of each waste stream; 2) confirm the procedures and controls the vendor has in place to ensure that the wastes are handled appropriately; and 3) discuss/confirm any issues/constraints the vendor may encounter when managing the waste.

VI. CONCLUSION

Overall, PRFs are evolving to provide better waste collection services for ships in port and are becoming more sustainable to preserve the environment and climate.[263] Cruise companies are also improving their internal policies and processes to vet waste disposal vendors. Carnival Corp.'s waste disposal vendor vetting program will continue to evolve and improve. However, Carnival Corp. has taken the important initial steps of developing a system for reviewing waste vendors, setting clear expectations, reviewing on-going performance, and refusing to offload ship waste to just anyone on shore that will take it. This developing program should become a new standard in the cruise industry and will help companies ensure that cruise ship wastes are handled and processed in accordance with the wide variety of laws across the globe.

APPENDIX I

A. People's Republic of China (Mainland China)

For almost three decades, China has received criticism for half-heartedly enforcing international and domestic environmental laws. [264]

263. *See* Hélène Bouillon-Duparc, *More Environmentally-Friendly Ports: We're getting There*, POLLUTEC (June 4, 2020), https://learnandconnect.pollutec.com/en/more-environmentally-friendly-ports/; Isabela Brown, *How We Can Make Ports More Sustainable –And Why It Matters*, STATE OF THE PLANET (Sept. 17, 2019), https://news.climate.columbia.edu/2019/09/17/port-sustainability-index/.

264. Ying Xia, *China's Environmental Campaign: How China's "War on Pollution Is Transforming the International Trade in Waste*, 51 N.Y.U. J. INT'L L. & POL. 1101, 1103 (2019) (citing Chao Deng, *China Takes Another Green Step Forward*, WALL ST. J. (Dec. 27, 2017, 10:08

Now, China is gaining recognition for efforts to control pollution and improve sustainable development.[265] The change in heart is motivated by previous environmental disasters and environmental self-consciousness.[266] In 2014, the Chinese government declared a "war on pollution," planting over 300 million hectares of forest, phasing out 20 million fossil fuel cars, and shutting down tens of thousands of factories.[267] Starting in 2018, China officially banned the importation of twenty-four types of solid waste, including non-industrial plastic waste and unsorted paper waste."[268] The government also implemented a series of reforms to centralize management of environmental agencies, improve lower-level government accountability, and promote environmental monitoring and enforcement activities.[269] Many regulations in China are still under development or are in the process of evolving.[270]

The first basic domestic law governing the Chinese marine environment is the 1982 Marine Environmental Protection Law (MEPL), which went into effect on March 1, 1983.[271] MEPL takes into account

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AM), https://www.wsj.com/articles/china-takes-another-green-step-forward-1514289286; Muyu Xu & Elias Glenn, *Beijing May be Starting to Win Its Battle Against Smog*, REUTERS, Dec. 29, 2017), https://www.reuters.com/article/us-china-pollution-beijing-insight/beijing-may-be-starting-to-win-its-battle-against-smogsmogidUSKBN1EN0ZJ?feedType==RSS&feedName=topNews.

265. *Id*.

266. Zou Keyuan, *Implementing Marine Environmental Protection Law in China: Progress, Problems and Prospects*, 23 MARINE POL'Y 207, 209 (1999) ("The modern legal concept of environmental protection was introduced into China relatively late in comparison with other Asia countries, despite clear signs of an incipient environmental awareness in Chinese Culture.").

267. Xia, *supra* note 264, at 1103. Targeted industries in China include cement, steel, coal, metal working, and boot making. David Stanway, Philip Wen, & Stella Qiu, *A Pollution Crackdown Compounds Slowdown Woes in China's Heartland*, REUTERS (May 23, 2019), https://www.reuters.com/article/uk-china-economy-henan-pollution-insight-idUKKCN1SU02H.

268. Xia, *supra* note 264, at 1103-04.

269. Xia, *supra* note 264, at 1136.

270. For example, the Chinese government aims to establish a quasi-cradle-to-grave waste management system to monitor the generation, transport, processing and disposal of solid waste. Xia, *supra* note 264, at 1148.

271. Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa (中华人民共和国海洋环境保护法) [The Marine Environmental Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 23, 1982, effective Mar. 1, 1983, revised Dec. 25, 1999, amended Dec. 2013, Nov. 7, 2016, Nov. 4, 2017); Keyuan, *supra* note 266, at 207. After MEPL, a series of other laws and regulations came into effect to provide further details to the MEPL provisions. Keyuan, *supra* note 266, at 213 (naming the following laws and regulations: Regulations Concerning the Prevention of Pollution in Sea Areas by Vessels of 1983, the Regulations Concerning Dumping of Wastes at Sea of 1985, the Regulations Concerning Environmental Protection in Offshore Oil Exploration and Exploitation in 1983, the Regulations on Prevention of Environmental Pollution by Ship-Breaking of 1988, and the Regulations on the Prevention and Control of Pollution against the Marine Environment by Seashore Construction Projects in 1990). Additional environmental regulations applicable to shipping include

UNCLOS provisions and seeks to prevent pollution damage.[272] Under MEPL, no ship shall illegally discharge pollutants, ballast water, ship garbage and other harmful substances into the sea.[273] Articles 62 and 69 of MEPL require ports, docks, loading and unloading spots and shipyards that collect ship waste to be fitted with enough facilities to accommodate and deal with vessel-induced pollutants and wastes, and require the facilities to be kept in good condition.[274] Like MEPL, the Water Pollution Prevention and Control Law also requires ports to be equipped with sufficient facilities for receiving ship pollutants and wastes.[275] The Port Law of the People's Republic of China provides further provisions on operation, supervision and management.[276] The law states that port operators must protect the port environment and take preventive and effective measures to prevent and control pollution and hazards to the environment.[277]

In response to the stringent regulations, some ports in China[278] have installed garbage treatment facilities at the port equipped with garbage

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Regulations on the Prevention of Vessel-Induced Sea Pollution, Water Pollution Prevention and Control Law and most recently, the Yangtze River Protection Law. Zhonghua Renmin Gongheguo Fangzhi Chuanbo Wuran Haiyu Guanli Tiaoli (中华人民共和国防止船舶污染海域管理条例) [Regulations of the People's Republic of China on the Prevention of Vessel-induced Sea Pollution] (promulgated by the State Council, Dec. 29, 1983, effective Dec. 29, 1983); Zhonghua Renmin Gongheguo Shuiwuran Fangzhi Fa (中华人民共和国水污染防治法) [Water Pollution Prevention and Control Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., May 11, 1983, effective May 11, 1983, amended May 15, 1995, revised Feb. 28, 2008, amended June 27, 2007); Zhonghua Renmin Gongheguo Changjiang Baohu Fa (中华人民共和国长江保护法) [The Yangtze River Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 26, 2020, effective Mar. 1, 2021).

272. Keyuan, *supra* note 266, at 210-11.

273. The Marine Environmental Protection Law of the People's Republic of China, *supra* note 271, at art. 62.

274. The Marine Environmental Protection Law of the People's Republic of China, *supra* note 271, at art. 62, 69.

275. Zhonghua Renmin Gongheguo Shui Wuran Fangzhi Fa (中华人民共和国水污染防治法) [Water Pollution Prevention and Control Law of the People's Republic of China] (promulgated and adopted by the Standing Comm. Nat'l People's Cong., May 11, 1984, amended May 15, 1996, revised Feb. 28, 2008, amended June 27, 2017).

276. Gangkou Fa (港口法) [Port Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., June 28, 2003, amended Apr. 24, 2015, Nov. 4, 2017, Dec. 29, 2018).

277. *Id.* at art. 26.

278. The Chinese coastline currently has seventeen cruise ports (Dalian, Tianjin, Qingdao, Weihai, Yantai, Lianyungang, Shanghai, Zhoushan, Wenzhou, Xiamen, Guangzhou, Shenzhen, Haikou, Sanya, Beiahi, Fangchenggang and Fuzhou). Sun et al., *supra* note 193, at 5.

reception vehicles and ships.[279] However, most of the cruise ports do not have garbage treatment facilities at the port. Licensed professional garbage receiving and disposal companies manage ship garbage. Most of the companies are private companies and operate by barge. Newly constructed ports submit reports that include the status of collecting and disposing of marine waste.[280] State-owned companies own and manage the ports in China.[281]

In China, maritime law is enforced by five government agencies, known as the Five Dragons: The China Marine Surveillance, the China Coast Guard, the China Maritime Patrol, China Fisheries Law Enforcement Command, and the General Administration of Customs.[282] Additionally, the Ministry of Transport prescribes measures for the discharge and receiving of vessel-induced pollutants.[283] In 2017, the Ministry of Transport abolished the requirement for ships to dispose their sludge and garbage before departing a Chinese port.[284]

B. Japan

Japan has ratified most of the basic maritime conventions.[285] Additionally, Japan's domestic law, the Act on Prevention of Marine

279. NORTHWEST PACIFIC ACTION PLAN MARINE ENVIRONMENTAL EMERGENCY PREPAREDNESS AND RESPONSE REGIONAL ACTIVITY CENTRE, PORT RECEPTION FACILITIES IN THE NOWPAP REGION 3 (2009).

280. *Id*.

281. State-owned Chinese companies have also acquired stakes in European ports. Joanna Kakissis, *Chinese Firms Now Hold Stakes in Over A Dozen European Ports*, NPR (Oct. 9, 2018 4:57 AM), https://www.npr.org/2018/10/09/642587456/chinese-firms-now-hold-stakes-in-over-a-dozen-european-ports. In fact, China owns or has invested in two-thirds of the world's top 50 container ports. John Gallagher, *Experts Warn of China's Influence at U.S. Ports*, FREIGHT WAVES (Oct. 22, 2019), https://www.freightwaves.com/news/experts-warn-of-chinas-influence-at-us-ports.

282. Shigeki Sakamoto, *China's New Coast Guard Law and Implications for Maritime Security in the East and South China Seas*, LAWFARE BLOG (Feb. 16, 2021 1:37 PM), https://www.lawfareblog.com/chinas-new-coast-guard-law-and-implications-maritime-security-east-and-south-china-seas.

283. Zhonghua Renmin Gongheguo Chuanbo ji Xiangguan Zuoye Huodong Wuran Haiyang Huangjing Fangzhi Guanli Guiding (中华人民共和国船舶及其有关作业活动污染海洋环境防治管理规定) [Administrative Provisions of the People's Republic of China on the prevention and control of environmental pollution by vessels and their operations] (issued by the Ministry of Transport, Nov. 16, 2010, amended Aug. 31, 2013, Dec. 24, 2013, May 23, 2017).

284. *China Terminates Garbage Disposal Regulation on Ships*, SAFETY4SEA (Feb. 13, 2017), https://safety4sea.com/china-terminates-garbage-disposal-regulation-on-ships/ (last visited Mar. 19, 2021).

285. Jumpei Osada, Masaaki Sasaki, & Takuto Kobayashi, *The Shipping Law Review: Japan*, THE LAW REVIEWS (June 8, 2020), https://thelawreviews.co.uk/title/the-shipping-law-review/japan.

Pollution and Maritime Disaster,[286] prohibits the discharge of oil and other harmful substances from ships.[287] In the aftermath of World War II, which left the country's ports and infrastructure in ruins, Japan's government enacted the Port and Harbor Act[288] to establish guidelines for port planning, construction and management and administration.[289]

Given that landmass and landfill areas are limited, Japan has developed a system to collect and safely process waste through incineration and other methods.[290] Japan has the world's leading garbage incineration facilities that use methods such as stoker furnaces, fluidized bed furnaces, and gasification fusion resource furnaces.[291] Improvements in technology have greatly reduced harmful emissions generated by the incineration process while at the same time generating electricity efficiently.[292]

C. Republic of China (Taiwan)

Taiwan once held the dubious title of "Garbage Island," as in the 1990s it had a trash collection rate of only seventy percent.[293] That meant that thirty percent of the country's waste polluted the environment through littering or burning.[294] Now, with the aim of building a zero waste circular economy, Taiwan boasts a recycling rate of fifty-five percent and recycles seventy-three percent of its plastic.[295] The turnaround is thanks to the grassroots efforts of ten Taiwanese middle-class homemakers concerned about the environment.[296] Their movement paved the way for environmental legislation.[297]

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286. Act on Prevention of Marine Pollution and Maritime Disaster, Act No. 136/1970 (Japan).

287. *Id.*

288. Port and Harbor Act, Law No. 218 of 1950 (Japan).

289. Ayodeji Olukoju, *Government and Port Administration in Japan in the Aftermath of the Port and Harbour Law of 1950*, 4 NORTHERN MARINER (1997), https://www.cnrs-scrn.org/northern_mariner/vol07/tnm_7_4_65-80.pdf.

290. MINISTRY OF THE ENV'T, SOLID WASTE MANAGEMENT AND RECYCLING TECHNOLOGY OF JAPAN: TOWARD A SUSTAINABLE SOCIETY 1 (2012), https://www.env.go.jp/en/recycle/smcs/attach/swmrt.pdf.

291. *Id.* at 6.

292. *Id.* at 8-9. Dioxin emissions have been reduced by ninety-eight percent compared to 1997 levels. *Id.* at 8.

293. *Taiwan's Transition—From Garbage Island to Recycling Leader*, RAPID TRANSITION ALLIANCE (June 18, 2019), https://www.rapidtransition.org/stories/taiwans-transition-from-garbage-island-to-recycling-leader/.

294. *Id.*

295. *Id.* As a result, a Taiwan resident generates half as much waste as a U.S. resident. *Id.*

296. *Id.*

297. *See id.*

Taiwan adopted a continental legal system similar to China, where laws are codified.[298] There are four main Taiwanese laws and regulations that govern ship pollution: Marine Pollution Control Act,[299] The Commercial Port Law,[300] Fishing Port Act,[301] and the Ship and Boat Equipment Regulation.[302] Under The Commercial Port Law, the port authority is empowered to order the master or owner of a ship to mitigate or clean up pollution that occurs within the statutory boundaries of a harbor.[303] Additionally, PRFs must comply with the following laws and regulations: Waste Disposal Act,[304] Standards for Defining Hazardous Industrial Waste,[305] and Regulations Governing Determination of Reasonable Due Care Obligations of Enterprises Commissioning Waste Clearance.[306]

298. Daryl Lai & Jeff Gonzales Lee, *The Shipping Law Review: Taiwan*, THE LAW REVIEWS (June 8, 2020), https://thelawreviews.co.uk/title/the-shipping-law-review/taiwan.

299. Haiyang Wuran Fangzhi Fa (海洋污染防治法) [Marine Pollution Control Act] (promulgated by the presidential order Tzong-Tung-Haw-Tzong-1-Yi-Tzu No. 8900260419, Nov. 1, 2000, revised June 4, 2014) (Taiwan). Under the Marine Pollution Control Act, ships shall be equipped with pollution prevention equipment and may not pollute the sea. *Id*. art. 26.

300. Shanggang Fa (商港法) [The Commercial Port Law] (promulgated May 2, 1980, amended Nov. 29, 1986, Aug. 7, 1987, Jan. 10, 1996, May 7, 1997, Nov. 21, 2001, Jan. 1, 2003, Jan. 2, 2003, Feb.5, 2005, Dec. 28, 2011) (Taiwan). This law prohibits ships from emitting toxic liquids, toxic or harmful substances, swage, oil and water or other contaminants into the commercial port area. *Id*. arts. 37-39.

301. Yugang Fa (漁港法) [Fishing Port Act] (promulgated by President Order (81) Hua-Tsung-(1)-Yi-Tzu No. 0592, Jan. 31, 1992, amended May 20, 1988, Nov. 15, 2000, Apr. 7, 2004, Jan. 27, 2006) (Taiwan). The Fishing Port Act forbids the discharge of toxic or hazardous materials, waste oil, wastewater and other wastes in the fishing port area. *Id*. art. 18.

302. Chuanbo Shebei Guize (船舶設備規則) [Ship and Boat Equipment Regulation] (promulgated Feb. 10, 2006, amended Dec. 17, 2020). Not all of the provisions of the regulation have come into effect yet. *See id*. Under the regulation, ships must be equipped with qualified appliances to prevent pollution. *Id*.

303. The Commercial Port Law, *supra* note 300, art. 53.

304. Fei Chi Wu Ching Li Fa (廢棄物清理法) [Waste Disposal Act] (promulgated by presidential order July 26, 1974, revised Apr. 9, 1980, Nov. 20, 1985, Nov. 11, 1988, Mar. 28, 1997, July 14, 1999, Jan. 19, 2000, Oct. 24, 2001, June 2, 2004, July 1, 2006, Nov. 28, 2012, May 29, 2013, Jan. 18, 2017, June 14, 2017) (Taiwan).

305. You Hai Shih Yeh Fei Chi Wu Ren Ding Biao Jhun (有害事業廢棄物認定標準) [Standards for Defining Hazardous Industrial Waste] (promulgated by Environmental Protection Administration order, Mar. 7, 2001, revised, Jan 9, 2002, amended Dec. 27, 2005, revised Dec. 14, 2006, July 4, 2007, June 5, 2009, May 12, 2017) (Taiwan) (identifying and categorizing hazardous industrial waste).

306. Shih Yeh Wei Tuo Ching Li Jhih Siang Dang Jhu Yi Yi Wu Ren Ding Jhun Ze（事業委託清理之相當注意義務認定準則) [Regulations Governing Determination of Reasonable Due Care Obligations of Enterprises Commissioning Waste Clearance] (promulgated by Environmental Protection Administration order on Nov. 24, 2017) (Taiwan) (outlining how waste disposal entities exercise reasonable due care in handling and disposing of waste).

Public or private PRFs in Taiwan must also obtain permits in accordance with domestic regulations.[307] PRF business licenses outline the wastes that can be collected.[308] Non-compostable (fish, meat, or dairy products) and compostable (fruit/vegetable peelings, seed cores or eggshells) food waste collection is subject to the Bureau of Animal and Plant Health Inspection and Quarantine and Council of Agriculture approval.

D. South Korea

To implement MARPOL and its amendments, the government of South Korea enacted the Marine Environment Management Act,[309] which regulates the general collection and treatment of marine litter and provides a comprehensive plan for managing the marine environment.[310] The Korean Coast Guard, an independent and external branch of the Ministry of Maritime Affairs and Fisheries, is charged with implementation of laws on maritime security, safety, and environment.[311] The Wastes Control Act unifies the South Korean waste management system.[312] Waste in South Korea is tracked through a comprehensive online waste information and management system called Allbaro.[313] Government administrators can

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307. Gongminying Feiqiwu Qingchu Chuli Jigou Xuke Guanli Banfa (公民營廢棄物清除處理機構許可管理辦法) [Permit Management Regulations for Public or Private Waste Clearance and Disposal Organizations] (formulated and announced by Environmental Protection Administration Order (90) Huan-Shu-Fei-Tzu No. 0075173 Nov. 23, 2001, revised Aug. 23, 2011, Dec. 5, 2012, Dec. 30, 2015, Dec. 22, 2018) (Taiwan).

308. PRFs can ask the ship to sort waste in the following categories: tin and aluminum cans; textiles and fabrics; drink cartons and lunch boxes; light bulbs and fluorescent tubes; batteries; paper and carboard; plastic bottles; dry and clean Styrofoam, glass, electrical equipment, PET Bottles, and other.

309. Marine Environment Management Act, Act. No. 8371, Apr. 11, 2007 (S. Kor.); INST. OF INT'L MARITIME AFFAIRS, JT03287581, ENVIRONMENTAL IMPACTS OF INTERNATIONAL SHIPPING: A CASE STUDY OF THE PORT OF BUSAN 5 (2010), http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/WPNEP/T(2010)2/FINAL&doclanguage=en.

310. Taehee Lee & Hyunjeong Nam, *A Study on Green Shipping in Major Countries: In the View of Shipyards, Shipping Companies, Ports, and Policies*, ASIAN J. SHIPPING & LOGISTICS 4.4 (2017).

311. INST. OF INT'L MARITIME AFFAIRS, *supra* note 309, at 6.

312. *Waste Resources Management and Utilization Policies of Korea*, KOREA RESEARCH INST. FOR HUMAN SETTLEMENTS 34 (2016), https://seoulsolution.kr/sites/default/files/gettoknowus/%5BKSP%20Modularization%5D%20Waste%20Resources%20Management%20and%20Utilization%20Policies%20of%20Korea_2016.pdf.

313. *Environmental Performance Reviews: Korea*, ORG. FOR ECON. CO-OPERATION & DEV. 2017 4.1 (2017), https://www.oecd-ilibrary.org/sites/9789264268265-11-en/index.html?itemId=/content/component/9789264268265-11-en. The Allbaro system is used by over 340,000

monitor in real time whether waste is being transferred in accordance with regulations.[314] Companies liable for the waste disposal can draw up declarations and submit the forms through Allbaro.[315]

In South Korea, all ports are owned by the government while the management of the ports is regulated to the local governments.[316] In large ports, the PRFs are installed by private companies, whereas the government-owned and managed Korea Organization of Environment Management oversees the facilities in smaller ports.[317]

E. Singapore

Renowned for its cleanliness, the city-island-nation of Singapore uses its modern environmental infrastructure to efficiently and cleanly dispose of its waste.[318] Power generation and recycling address ninety-eight percent of Singapore's solid waste. Only two percent of the country's solid waste is sent to landfills, the remainder is burned at four plants to generate electricity (thirty-eight percent) or recycled (sixty percent).[319] Despite being one of the smallest and most densely populated countries in the world experiencing rapid industrialization, Singapore's air and water quality now meet World Health Organization Standards.[320]

Sound environmental management policies have safeguarded Singapore's physical environment for its citizens.[321] To give effect to MARPOL as well as prevent the pollution of Singaporean waters, the Singapore government enacted the Prevention of Pollution of the Sea Act (PPSA).[322] The PPSA requires ports to provide reception facilities.[323]

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businesses and represented most of the waste generated by business operations in Korea (128 million tons of waste). *Id*.

314. *Id*.

315. *Wastes Management*, KOREA ENVIRONMENT CORPORATION, https://www.keco.or.kr/en/core/waste_operation/contentsid/1982/index.do (last visited May 26, 2011).

316. INST. OF INT'L MAR. AFFAIRS, *supra* note 309, at 6.

317. *Id*. at 18.

318. Douglas L. Tookey, *Singapore's Environmental Management System: Strengths and Weaknesses and Recommendations for the Years Ahead*, 23 WM. & MARY ENV'T L. & POL'Y REV. 169, 170-71 (1998) (providing the framework of environmental pollution laws of Singapore).

319. Eric Yep, *Singapore's Innovate Waste-Disposal System*, WSJ (Sept. 13, 2015), https://www.wsj.com/articles/singapores-innovative-waste-disposal-system-1442197715.

320. *See* Lye Lin Heng, *The Judiciary and Environmental Governance in Singapore*, 3:1 J. COURT INNOVATION 133, 133-35 (2010), https://law.pace.edu/school-of-law/sites/pace.edu.school-of-law/files/IJIEA/Heng_Singapore_3_16.pdf.

321. *See id*. at 135.

322. Prevention of Pollution of the Sea Act, Cap. 243, Statutes of the Republic of Singapore, 1991 Rev. Ed.

323. *Id*. §§ 11-12.

Under the PPSA, the port master has the power to arrest any person reasonably suspected of violating the environmental marine regulations.[324]

Singapore is home to one of the world's largest reception facilities for the collection, treatment and disposal of oily waste and sludge.[325] Sludge and oily wastewater is collected by tanker truck.[326] Garbage collected from the ships in Singapore is either incinerated or incorporated into Singapore's municipal waste stream.[327] For a fixed fee, the Maritime and Port Authority of Singapore (MPA) will collect most domestic and operational wastes.[328] Ships that wish to dispose wastes that are not accepted via the MPA garbage collection service must make their own arrangements with vendors that are licensed by Singapore's National Environmental Agency.[329]

F. Hong Kong Special Administrative Region of the People's Republic of China

Hong Kong, the seventh busiest container port in the world,[330] follows the common law system, as opposed to China's civil law system.[331] It is committed to implementing MARPOL.[332] All of the MARPOL annexes have been implemented through the Merchant Shipping (Prevention and Control of Pollution) Ordinance and its subsidiary legislation.[333] Further, Hong Kong PRFs follow the MEPC guidance for good practices for port reception facility providers. While

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324. *Id*. § 28(1). The Port of Singapore Authority Act establishes to Port of Authority and gives it its power to regulate the port. *See generally id*.

325. *Reception Facilities*, CLEANSEAS (Mar. 22, 2021), https://www.cleanseas.com.sg/reception.htm.

326. SEFANAIA NAWADRA ET AL., IMPROVING SHIP'S WASTE MANAGEMENT IN PACIFIC ISLANDS PORTS, SOUTH PACIFIC REGIONAL ENVIRONMENTAL PROGRAMME 74 (2002), https://library.sprep.org/sites/default/files/87_0.pdf.

327. *Id*.

328. *Garbage Collection Services*, MARITIME AND PORT AUTHORITY OF SINGAPORE (Mar. 22, 2021), https://www.mpa.gov.sg/port-marine-ops/marine-services/garbage-collection-services.

329. *Id*.

330. Shanghai, Singapore, Shenzhen (China), Ningbo Zhoushan (China), Guangzhou (China), and Busan (South Korea) rank above Hong Kong. Nicola Hui & Winnie Chung, *The Shipping Law Review: Hong Kong*, THE LAW REVIEWS (June 13, 2022), https://thelawreviews.co.uk/title/the-shipping-law-review/hong-kong.

331. *Id.*

332. *Id.*

333. Merchant Shipping (Prevention and Control of Pollution) (1990) Cap. 413 (H.K.); Hui & Chung, *supra* note 330.

there is no port authority, the Transport and Housing Bureau and Environment Bureau regulate the port.[334]

G. Indonesia

Environmental pollution in Indonesia is regulated under the Environmental Protection and Management Act and the Maritime Act.[335] Pollution specifically from shipping activities is regulated under the Shipping Act, Government Regulation No. 21 of 2010, and Ministry of Transportation Regulation No. PM 29.[336] To address the issue of solid waste management and open dump waste disposal the government enacted the Solid Waste Management Act in 2008.[337]

Still, Indonesia is grappling with waste fallout as the new waste shipping destination after China banned all trash imports.[338] Landfills are running out of space as its own citizens produce nearly 200,000 tons of garbage a day, only 60 to 70 percent of which is collected.[339] As a result, Indonesia, with its 81,000 km of coastline, is the second-biggest contributor of ocean pollution.[340] To combat pollution, the country has set a goal to reduce marine plastic waste by 70 percent within five years. Ultimately, by 2040, Indonesia intends to be entirely plastic pollution

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334. Christine Loh, *As Environmental Standards for Shipping Evolve, the Hong Kong's Government's Role Should Also*, SOUTH CHINA MORNING POST (Apr. 2019, 10:00 AM), https://www.scmp.com/comment/insight-opinion/article/3006861/environmental-standards-shipping-evolve-hong-kong.

335. Environmental Protection and Management Act, No. 32 (Oct. 3, 2009); Maritime Act, No. 32 (Oct. 17, 2014); Bama Djokonugroho & Stefanny O. Simorangkir, *Legal Alert: Environmental Pollution and Damage from Shipping Activities in Indonesia*, BUDIDJAJA INT'L LAW. (Oct. 24, 2021), https://budidjaja.law/2017/10/legal-alert-environmental-pollution-and-damage-from-shipping-activities-in-indonesia-salient-legal-provisions-and-potential-risks/.

336. Shipping Act, No. 17 (May 7, 2008); Government Regulation No. 21 (Feb. 1, 2010); Ministry of Transportation Regulation No. PM 29 (2014); Djokonugroho & Simorangkir, *supra* note 342.

337. Solid Waste Management Act, No. 18 (May 7, 2018); National Plastic Waste Reduction Strategic Actions for Indonesia, MINISTRY OF ENV'T & FORESTRY, REPUBLIC OF INDONESIA v (2020), https://wedocs.unep.org/bitstream/handle/20.500.11822/32898/NPWRSI.pdf?sequence=1&isAllowed=y.

338. Derrick A. Paulo & Hoe Yeen Nie, *Indonesia Stands At The Crossroads of A Waste Crisis And Plastics Problem*, CNA INSIDER (Mar. 22, 2020 6:30 AM), https://www.channelnewsasia.com/news/cnainsider/indonesia-stands-crossroads-waste-crisis-plastics-problem-12564234.

339. *Id*.

340. Basten Gokkon, *In Indonesia's Costal Villages, The Plastic Crisis is Both Homegrown and Invasive*, MONGABAY NEWS (Sept. 9, 2020), https://news.mongabay.com/2020/09/in-indonesias-coastal-villages-the-plastic-crisis-is-both-homegrown-and-invasive; Luhut B. Pandjaitan, *Here's How Indonesia Plans to Take On Its Plastic Pollution Challenge*, WORLD ECON. FORUM (Jan. 20, 2020), https://www.weforum.org/agenda/2020/01/here-s-how-indonesia-plans-to-tackle-its-plastic-pollution-challenge/.

free.[341] To achieve its ambitious waste reduction goals, the country is planning on building and expanding safe waste disposal facilities. The facilities will allow Indonesia to safely dispose of non-recyclable plastic materials as well as reach communities in remote locations.[342]

Additionally, new legislation makes addressing plastic pollution a top priority.[343] Indonesia's domestic legislation on port reception facilities ensures the availability of PRFs in major ports like Belawan in Sumatra and Tanjung Priok in Jakarta.[344] There are four port entities organized in a regional basis that mange the 111 state owned ports in Indonesia.[345] The Belawan PRF has a wastewater treatment facility that spans 80 square meters and a solid waste collection facility covering 200 square meters.[346] Garbage must be collected by waste reception facilities provided by the port authorities.[347]

H. Philippines

The Philippines is a signatory to MARPOL as well as the International Convention on Civil Liability for Oil Pollution Damage 1969 and the 1992 Protocol to the Oil Pollution Fund Convention.[348] All ports have adopted a solid waste management program as required by the

341. Pandjaitan, *supra* note 340.

342. Pandjaitan, *supra* note 340.

343. Pandjaitan, *supra* note 340. New legislation includes the Indonesia National Waste Management Policy and Strategy (Presidential Decree No. 972017) and the Plan of Action on Marine Plastic Debris 2018-2025 (Presidential Decree No. 83/2018). Pandjaitan, *supra* note 340.

344. M. H. M. Rusli et al., *Protecting the Marine Environment of Vital Maritime Passageways*, 77 THE EUROPEAN PROCEEDINGS OF SOCIAL & BEHAVIOURAL SCIENCES 86, 94 (2019). With 50 percent of the country's sea trade, Tanjung Priok is the biggest port in Indonesia. Sari Saraswati, *Optimisation of Digital Culture Implementation at Head Office of PT Pelabuhan Indonesia II*, UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT PORT MANAGEMENT SERIES 13, 13 (2020), https://unctad.org/system/files/official-document/dtlkdb2020d2_en.pdf.

345. Saraswati, *supra* note 344, at 13.

346. Rusli et al., *supra* note 344, at 94.

347. Rusli et al., *supra* note 344, at 95.

348. Valeriano R. Del Rosario, Maria Theresa C. Gonzales, Daphne Ruby B. Grasparil, & Jennifer E. Cerrada, *The Shipping Law Review: Philippines*, THE LAW REVIEWS (June 8, 2021), https://thelawreviews.co.uk/title/the-shipping-law-review/philippines. Created in the 1970s, the Philippine Ports Authority improved port operations. *See* Jay Daniel R. Santiago, *Overview of the Philippine Ports Authority*, UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT PORT MANAGEMENT SERIES 40, 41 (2020), https://unctad.org/system/files/official-document/dtlkdb2020d2_en.pdf.

Ecological Solid Waste Management Act.[349] Additionally, the ports comply with Philippine legislation.[350]

In the Philippines, all commercial ports are owned by the government and supervised by the Philippine Ports Authority.[351] Cruise lines select private waste collection companies from a list of companies approved by the ports. Fixed waste reception fees are issued based on the vessel's gross tonnage.[352] Additional fees are imposed for excess garbage and oily or noxious waste substances.[353] All port reception facilities must be meet various qualifications and have a safe and efficient waste management system and plan.[354]

349. Ecological Solid Waste Management Act, Rep. Act No 9003 (2000) (Phil.); Philippine Ports Authority, PPA Administrative Order No. 05-2018, https://www.ppa.com.ph/sites/default/files/issuances_docs/PPA%20AO%20No.%2005-2018%20%20The%20Port%20Environmental%20Policy%20%28PEP%29_0.pdf [hereinafter PPA Administrative Order No. 05-2018].

350. PPA Administrative Order No. 05-2018, *supra* note 349. For example, The Philippine Clean Air Act of 1999, The Philippine Clean Water Act of 2004, The Climate Change Act of 2009, and the Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990. PPA Administrative Order No. 05-2018, *supra* note 349.

351. Hermogino, *supra* note 41, at 8.

352. Genivi Factao, *PPA To Impose Fees for Ship Garbage*, MANILA TIMES (Feb. 26, 2020), https://www.manilatimes.net/2020/02/26/business/maritime-business/ppa-to-impose-fees-for-ship-garbage/696179/.

353. *Id.*

354. Philippine Ports Authority, PPA Administrative Order No. 08-2018, https://www.ppa.com.ph/sites/default/files/issuances_docs/Interim%20Guidelines%20on%20the%20Issuance%20of%20Permit%20to%20Operate%20%28PTO%29%20for%20Shore%20Reception%20Facilites%20%28SRF%29%20%20Waste%20Disposal%20Service%20Provider.pdf.