

Cruising Toward a Cleaner Industry

By Shari Currey, CZM

During a single voyage, a modern cruise ship can carry hundreds or even thousands of passengers and crew to exotic coastal locations around the world. All told, the entire global cruise fleet, comprised of over 223 ships, transports an estimated 9.5 million passengers each year. Although cruise lines offer service on every continent, more than half of the global fleet operates in the North American market, with the major U.S. ports of call located in Florida, Alaska, Texas, California, Louisiana, New York, Puerto Rico, and, somewhat surprisingly, Massachusetts.

Here in the Bay State, large cruise ships operate from the Black Falcon Cruise Terminal, located in the heart of Boston's Seaport District. Although the cruise industry in Massachusetts remained rather modest in size through the early 1980s, it has grown rapidly over the past two decades and currently represents the fastest growing segment of Boston's commercial port activity. In 1985, 13 ship calls brought a total of 11,723 visitors to Boston, but since then, Boston has become a premier destination for several major cruise lines that link New England to Canada, Europe, and the Caribbean. It has also become the homeport of Norwegian Majesty, a high-end cruise line that offers weekly service to Bermuda from April through

October. Due to the popularity of these cruise lines, Boston received 62 ship calls and 105,000 passengers in 1998, and 118 ship calls and 253,576 passengers in 2001. These numbers will probably continue to rise in the coming years, as the global cruise industry expands its fleet size and increases its overall passenger capacity.

The growth of the cruise industry has had a significant economic impact throughout the United States, including the Commonwealth. According to the International Council of Cruise Lines (ICCL), in 2000, the cruise industry created approximately 170,000 jobs for U.S. citizens and contributed more than \$11 billion to the economy by buying goods and services in all 50 states. In Massachusetts, the industry spent over \$120 million in 1998 alone, with most revenue benefiting the manufacturing, transportation, communications, and utilities sectors.

However, as the cruise industry has grown, so have concerns surrounding cruise-related marine pollution. According to the Bluewater Network, a national environmental group committed to protecting public waterways, cruise ships produce enormous amounts of hazardous and non-hazardous waste. When improperly disposed of, these substances adversely affect water quality,

the marine environment, and public health. Although several federal and state regulations address the disposal of waste produced by vessels such as cruise ships, many obstacles hinder effective enforcement by authorities such as the U.S. Coast Guard and state environmental police.

In a report released by the U.S. General Accounting Office (GAO), cruise ships were linked to 87 cases of illegal discharges in U.S. waters from 1993 to 1998. Many of these cases involved multiple infractions and the overall number of discharges numbered in the hundreds. Although cruise-related cases comprised only a small portion (about four percent) of confirmed illegal dumping in the United States during that six-year period, many of the incidents were highly publicized, particularly those entailing multiple violations, the deliberate bypassing of pollution control devices, and the falsification of records by cruise staff. Most of these cases were handled by the Coast Guard's civil and administrative penalty authorities, but the U.S. Department of Justice prosecuted 10 criminal cases against various cruise ship companies and levied fines ranging from \$75,000 to \$18 million. In addition to the 87 confirmed cases, 17 cases were referred to other countries for adjudication and an unknown number of incidents went undetected.

In March of 2000, the Bluewater Network responded to the GAO report by petitioning the U.S. Environmental Protection Agency (EPA) to investigate cruise ship pollution and, if necessary, to implement regulatory and policy changes to prevent cruise-related discharges from harming the marine environment. The EPA is currently studying both cruise ship discharges and waste management approaches, and in the meantime, has released a white paper on cruise ship pollution that examines several waste streams including wastewater discharge, solid and hazardous waste disposal, and oily bilge water release. Portions of the white paper are summarized in the *Common Cruise Ship Waste Streams* box on page 26, and the entire report is available online at www.epa.gov/owow/oceans/cruise_ships/assess.html.

Overall, the GAO report concluded that, although the cruise industry has increased its compliance with current environmental legislation, there is a continued need for significant improvement. Specifically, the GAO recommended that the Coast Guard increase its use of aircraft surveillance to monitor cruise ship activity and initiate discussions with the cruise industry, government officials, and environmental groups regarding improved

standards for vessel discharge and discharge monitoring. Similarly, the EPA has suggested that federal and state regulations governing cruise ship waste may not be completely comprehensive or adequately enforced. To rectify this, the EPA plans to establish an interagency workgroup with the Coast Guard that will study the volume, characteristics, and environmental impacts of cruise-related waste, scrutinize the effectiveness of existing waste management programs (regulatory and non-regulatory), and explore options for improving overall environmental management within the cruise industry. However, as the Coast Guard takes on added security responsibilities in the wake of September 11, 2001, it remains to be seen whether or not it will be able to increase its role in preventing cruise-related marine pollution.

As a result, state and local governments, industry associations and non-profit groups may have to

assume a more prominent role. By issuing more comprehensive regulations, encouraging public-private partnerships, and promoting voluntary compliance programs, these entities could enhance previous and on-going efforts to improve the environmental performance of the cruise industry. Such actions are already taking place in states such as Florida and Alaska, where collaborative efforts between resource management agencies, industry officials, and environmental advocates have resulted in better waste management and disposal practices.

1998 Direct Spending by the Cruise Industry in Massachusetts

Estimates rounded to the nearest \$100,000¹

Transportation, Communications, & Utilities	77,900,000
Total Manufacturing	18,300,000
Nondurable Goods	5,900,000
Durable Goods	12,400,000
Wholesale & Retail Trade	6,800,000
Business Services	16,400,000
Health & Social Services	100,000
Other Services	1,100,000
TOTAL	120,600,000

¹Source: ICCL 1999



photo by Tom Skinner

Alaska has taken steps to control sewage discharge from cruise ships in state waters.

The cruise industry is also directly improving its environmental and waste management practices in many ways. According to the GAO, several cruise lines have implemented comprehensive management plans to clarify environmental policies and enhance waste-handling procedures. They have upgraded waste-treatment equipment, improved employee training and monitoring, and increased both internal and external oversight of their environmental practices and waste management protocols.

Finally, several cruise lines have been certified to be in compliance with the International Safety Management (ISM) Code. The ISM Code was established by the International Maritime Organization (IMO) and sets international standards for vessel-related safety and environmental protection.

Massachusetts is fortunate in that, to date, no cruise-related illegal discharge cases have occurred in its state waters. However, given the increasing popularity and use of Boston as a port of call, the Commonwealth may one day play an important role in ensuring that the growing cruise industry continues to operate in a manner that protects the integrity of New England's coastal waters.

Common Cruise Ship Waste Streams

Wastewater: Wastewater is commonly divided into "black water" (sewage) and "gray water" (shower, sink, and galley water). Sewage discharge contributes to the degradation of the marine environment by introducing excessive nutrients (nitrogen and phosphorus) and disease-causing microorganisms. Moreover, chemicals and deodorizers commonly used in marine sanitation devices (MSDs) often contain chlorine, quaternary ammonia, and formaldehyde, each of which is potentially harmful to marine organisms. Similarly, gray water often contains detergents, cleaners, oil, grease, metals, pesticides, and medical waste that can degrade water quality and harm aquatic life. Although section 312 of the Clean Water Act (CWA) regulates the discharge of wastewater, the Bluewater Network argues that the Coast Guard's methods of inspecting vessels and enforcing regulations are inadequate to ensure CWA compliance.

Solid Waste: Solid waste is comprised of materials such as food waste, plastic, paper, wood, cardboard, cans, and glass. Although these materials are sometimes brought ashore for disposal or recycling, much of it is incinerated on board or dumped overboard, often without proper note in the ship's Garbage Record Book. This is particularly true of plastic, which accounts for most of the solid waste illegally dumped and which adversely affects a variety of marine animals including fish, mammals, turtles, and birds. Despite legislation such as the Marine Protection, Research and Sanctuaries Act (MPRSA) and the Act to Prevent Pollution from Ship (APPS), solid waste disposal by cruise ships remains a serious problem.

Hazardous Waste: Hazardous waste generated aboard cruise ships include an array of chemicals and metals used by onboard dry cleaning facilities, photo processing laboratories, and print shops, as well as paint waste, dirty solvents, and batteries. At this time, little reliable data exist on the quantity of these substances created during any given time. Consequently, it is uncertain what regulations apply to the management and disposal of these substances. The Bluewater Network suggests that the EPA clarify the regulations governing the use and disposal of these substances, both at sea and once offloaded.

Oily Bilge Water: Bilge water often contains a volatile mix of fuel, oil, and wastewater from engines and other machinery found on ships. It may also contain solid wastes such as rags, metal shavings, glass, paint, and cleaning agents. These substances often poison fish and degrade overall water quality. The Oil Pollution Act (OPA) prohibits the discharge of oil and hazardous wastes in quantities that are harmful to U.S. navigable waters or the resources found in the U.S. Exclusive Economic Zone (EEZ). It also requires vessels to record oily discharges in an Oil Record Book. However, since at least one major cruise-related marine pollution case involved routine falsification of this record, the monitoring and enforcement of cruise ship bilge water disposal likely needs improvement.

From the Port Reporter, Vol. 3, February, 1949: "Skillful cargo handling at the Port of Boston protects the shipper's investment and insures arrival of goods in excellent condition at destination."