

Lounging on the Deep Green Sea

Cruise line efforts in environmental stewardship.

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Cruise ship life is a wonder unto itself, with waiters walking among poolside lounge chairs, delivering passengers frozen drinks with names like “Coco Loco” and “Bahama Breeze” on a warm Caribbean afternoon. The nearly all-day buffet



The Norwegian Dawn sails past the Statue of Liberty. Photo courtesy of Norwegian Cruise Line.

overflows with goodies prepared by famous chefs, surrounded by carved fruit and ice sculptures. The sumptuous meals, the spotless cabins, and the world-class entertainment—all at sea while the vessel steams to the next port on the itinerary—are hallmarks of the cruise vacation.

What most people suspect, but don't really get a chance to see (employee spaces are off-limits to guests), is that the vessel is also world-class below decks. Cruise ships have adopted efficient environmental technology and best management practices to prevent water and air pollution.

Environmental Efforts

Cruise ships were some of the first in the industry to work with municipalities in Alaska and California to develop shore power connections at berth, allowing a vessel to shut down its engines and eliminate air emis-

sions from the vessel. Other vessels are test platforms for ballast water treatment systems, more efficient lighting, and plasma arc gasification (a waste incineration process).

Cruise lines also work with equipment manufacturers

to reduce emissions of nitrogen oxides, sulfur oxides, and particulate matter through in-engine technology and exhaust gas scrubbers. Many vessels are equipped with advanced waste water treatment systems to treat black (sewage) and gray water and turn it into clear, clean, effluent water.

Waste Management

As one might expect, cruise ships generate large amounts of waste, but it is not volume that constitutes or prevents pollution, it is the strength or failure of waste management practices and procedures. A cruise ship is, after all, a ship, and waste from engineering spaces has been managed ever since the addition of engines. But a cruise ship is also a resort, and the hotel and restaurant waste, black water, gray water, incinerator ash, paper and plastic, food waste, glass and cans, and special waste (including hazardous waste) must also be properly managed.





A barge takes on recycling materials from a cruise ship in Vancouver, B.C., Canada. Photo courtesy of Mr. Steve Collins, CLIA.

- reusing them,
- sorting and compacting them for recycling.

Reduce

Cruise ships continually analyze where waste is generated and work with vendors to reduce the amount of waste coming aboard using a process called waste minimization. This process has been used to reduce waste from flower deliveries to salon products and continues to be one of the more effective means to reduce waste aboard.

The process has also been used to reduce toxicity of chemical products. One company removed 99 products¹ from its inventory, replacing them with more environmentally (and crew-) friendly products. Also, buying bulk concentrates and using dispensing stations reduces the number and volume of bottles of prepared products coming aboard. Reusing spray bottles and refilling them at the dispensing stations saves even more.

Reuse, Recycle

Today's port facilities can recycle aluminum cans, tin, glass, cardboard, white paper, photo copier cartridges, plastics, photo waste, cooking oil, carpet, paints and thinners, batteries, and even electronics. The list of recycling options grows as technological advances make recovery of the raw materials within these

Cruise Lines International Association, Inc. (CLIA) cruise lines meet not only U.S. and international MARPOL Annex V standards for discharge of solid waste, but also have enacted proactive strategies such as waste minimization, source reduction, incineration, and recycling to reduce solid waste. CLIA members outperform Annex V requirements in that they do not discharge any bulk packaging materials, cardboard, paper, etc. Crushed cans are recycled, as is the majority of glass. Managing these wastes includes several options:

- landing them ashore to an approved disposal facility (much like you handle household waste),
- grinding and screening them for disposal to the sea (mostly food waste),
- sorting and combusting them in an incinerator,

items possible.

One challenge for a vessel with a finite amount of storage space is deciding where to put items awaiting recycling. For example, cooking oil and glass from beer and wine bottles are stored in cold rooms to keep them from attracting pests. Most other recyclables will take up enormous amounts of space, but ships typically compact them into pallet-sized bundles that can be stacked and easily landed ashore.

Ships are also unique in that they can land some wastes to the dock and others to a barge, opening recycling opportunities to both land- and sea-based companies. Some ships have taken storage one step further and designed special totes and bags, allowing them to manage large volumes while recovering the container, combining both recycling and reuse.

Other examples of waste management practices aboard cruise ships:

- Plastic pails from items such as laundry soap are cleaned and landed or reused aboard for things such as tote buckets for tools or to collect spent batteries for recycling.
- Dining room food wastes are separated by the wait staff and other crewmembers in the galley. Paper and plastics are channeled to different receptacles and wet food is transferred to pulpers (systems similar to residential garbage disposals) that grind up the waste, allowing for more efficient removal of water. The excess water is recycled through the food slurry line and is ultimately discharged as gray water. The “dried” food waste is often burned in the incinerator.
- Virtually all stateroom, bar, retail store, or venue trash is hand-sorted by housekeeping or other staff, separating all recyclable materials (from camera batteries to luggage tags) into labeled containers, with the remainder landed ashore or incinerated. Discarded items are sep-

arated and (if still in usable or repairable condition) are often cleaned and repaired and set aside for charities.

We’re All in This Together

After waste minimization, recycling and reuse are excellent options for many items that would normally become waste. Reuse often takes more thought (and, admittedly, more work) but there are opportunities for those willing to champion the cause. Recycling reduces the demand for raw materials, which also reduces the need for energy in processing and transportation.

Cruise line organizations often work with environmental organizations to identify waste management opportunities, particularly when developing new cruise destinations, to ensure the cruise vessel leaves the smallest possible environmental footprint while maximizing the opportunity for best practices and protection of biodiversity and fragile ecosystems.

So when you hear the words “Coco Loco” at the pool, you can rest assured that your vacation will be like no other, remaining one of the most environmentally friendly means to enjoy a number of destination ports.

An Innovative Solution

We are all familiar with aluminum six-pack soda cans available at the grocery store that come on a cardboard box, wrapped in more plastic. Deliveries to cruise ships used to be similar, but also included yards of plastic shrink wrap to hold about four dozen cases on a pallet. It used to take workers hours to restock a vending machine because they needed to remove each soda can from the plastic wrap, cardboard flat, and plastic ring one at a time. Once removed, the vessel had a colossal amount of waste to manage.

One waste minimization process focused on the wrap, the plastic six-pack holders, and cardboard and asked how these could be reduced. It turned out that the soda manufacturers were also asking how they could reduce their costs, so the obvious net benefit to both was to eliminate the plastic six-pack holders. Replacing the cardboard was a much more difficult process, since the manufacturer needed to develop a reusable flat and also needed to develop a reverse distribution system, so that the flat could be returned and refilled at the factory.

Today, many vessels receive deliveries of aluminum drink cans on returnable flats (some that fold flat for easier storage) without disposable plastics, thus eliminating three wastes and making it possible for vending staff to restock a vending machine in half the time, with no residual waste.

About the author:

Mr. Steve Collins, certified hazardous material manager and former U.S. Coast Guard lieutenant, combines his Coast Guard, U.C. Berkeley, Yellowstone National Park, and Royal Caribbean Cruises Ltd. experience to provide CLIA member lines with perspective and strategic approaches to cruise industry environmental and medical issues.

Endnote:

¹ Royal Caribbean Cruises Ltd. “Environmental Report 2000,” Id, 2000, p. 22.



Environmental officer Malcolm Barry, right, prepares waste for landing ashore. Photo courtesy of Mr. Steve Collins, CLIA.

