



**64** Ships are switching to non-toxic, fuel-saving antifoulants, such as *Ecospeed* by *Subsea Industries* for *Disney Wonder* (above, being painted at *BAE Systems Norfolk*) and *Intersleek 900* by *International Paint* for *Carnival Victory* and *Carnival Valor* as well as *MSC Poesia*.

**65.** In a drive to reduce plastics, *Crystal Cruises* substituted fabric laundry, dry cleaning and shoeshine bags, paper cups for styrofoam, wood lint brushes for disposable plastic lint removers and stainless steel ice buckets for plastic.

**66.** At the Ports of Stockholm, NOx and SOx have fallen by approximately 40% and 60% respectively in 10 years, even though there are more ship calls today. There has long been a discount system for vessels that use low-sulphur fuel, and cruise ships are recognised for outstanding environmental initiatives.

**67.** The North West CruiseShip Association was instrumental in finalising a memorandum of understanding for environmental protection with the state of Hawaii. Cruise lines agreed to exceed regulatory requirements to protect tropical reefs and the Humpback Whale Marine Sanctuary.

**68.** Harland and Wolff Heavy Industries and environmental management consultancy *Golder Associates* joined forces with V.Group subsidiary V.Navy to provide environmentally sound ship recovery and recycling.

**69.** NCL Corp. recycles oily residues through programs in Alaska, Hawaii, British Columbia, New York, Miami and Charleston. The waste oil from sources like fuel oil separation, lube oil separation, the treatment of oily bilge water and spent lube oil from the main engines is sent directly to the secondary oil market via partners like

*Peninsula Waste Water Services* in Victoria, BC, and *Cliff Berry, Inc.* in South Florida.

**70.** In purchasing and provisioning, *Holland America* says it takes an aggressive approach to minimising the use of packaging, especially plastics. The line buys products manufactured from or packaged in recycled packaging and uses recycled paper when possible. Ships stock paper or washable cups, wooden stirrers, paper bags and glass or metal packaging, with bulk dispensers for individual condiments and cream.

**71.** Many cruise ships post notices asking passengers to consider re-using towels to cut down on the use of water, detergent and energy.

**72.** HVAC systems, probably the costliest energy consumers after propulsion, are being updated for greater efficiency.

**73.** *Regent Seven Seas* discontinued dolphin encounter programs, taking a stand against what it called 'the wanton capture and use of marine mammals for the amusement of travellers.' 'Sadly, under the guise of communing with nature or advancing our scientific understanding, dolphin encounter programs too often overlook the way dolphins actually exist and interact with each other in the wild, rather than respecting their natural place in the marine ecosystem,' says *Darius Mehta*, *Regent's* director of land programs.

**74.** *Palacrociere* cruise terminal in Savona, managed by *Costa Cruises*, received RINA's BEST 4 certification, testifying to high quality of services, environmental protection, safety and social responsibility.

**75.** Hamburg-based *SkySails* aims to reduce fuel consumption of modern shipping by using wind energy. The company has developed a towing kite wind propulsion system now in testing with cargo ships and super-yachts.

**76.** Responding to concerns about air pollution and crowding, Norway's *Geiranger* is restricting the number of cruise calls per day starting in 2008 to one to two ships and 5,000 passengers in total.

**77.** Cruise operators are reducing direct mail and paper brochures in favour of email campaigns and electronic brochures. Many also provide e-marketing tools for travel agent partners.

**78.** All of *Holland America's* on-board materials are printed with environmentally friendly soy-based ink.

**79.** To avoid energy dumping, *Fincantieri* is undertaking a study to determine the most efficient design and operation modes for the recovery of energy from power generation. Functions will be included in automation systems to adjust for different operating conditions and meet the most efficient pre-determined condition.

**80.** To prevent the release of mercury into the environment, lines are safely disposing of spent fluorescent and mercury vapour lamps and recycling when possible.

**81.** *Siemens* developed a new type of propulsion motor for all-electric ships. The synchronous machine is part of an electric propulsion system based on high temperature superconducting technology (HTS). *Siemens* lists HTS technology benefits such as greater engine efficiency, significant weight and volume reduction and design flexibility that allows a more energy-efficient ship.



**82.** More and more cruise ships are installing or looking at advanced wastewater treatment systems from such manufacturers as *Hamworthy*, *Rochem*, *ScanShip*, *Zenon*, *Hydroxyl*, *Navalis*, *Evac-Zodiac* and *WABAG*. *Hydroxyl* is supplying *CleanSea* systems for *Royal Caribbean International's* two *Genesis* newbuilds at *Aker Yards Finland* (*RCI* president and ceo *Adam Goldstein* at the keel-laying, above).