Top photo: Royal Caribbean Cruise Line's Voyager of the Seas *moored to a SEAFLOAT buoy.*

Bottom photo: a close-up of one of the SEAFLOAT mooring buoys.

Seaward SEAFLOAT® Buoys Assist in Mooring the World's Largest Cruise Ship

One of the private destinations for the *Voyager of the Seas* (see cover story) and several other Royal Caribbean Cruise vessels is Labadee, a secluded peninsula located on the north coast of Hispaniola (Haiti). The facilities at Labadee include a variety of watersport activities, such as sailing, swimming and snorkeling, as well as refreshment bars, artisan markets and picnic facilities.

Since there are no dockside facilities at Labadee suitable for berthing the *Voyager of the Seas*, Royal Caribbean moors the vessel in Labadee Bay and uses tender boats to ferry the passengers ashore. The company tasked Coastal Systems International, Inc. of Coral Gables, Florida, to design a stern mooring system for the *Voyager of the Seas* and other cruise vessels calling on Labadee. Bill Mueller served as Royal Caribbean's project manager for the Haiti project.

Coastal Systems designed a mooring using 3.5 inch (89mm) stud-link riser chain connected to smaller ground chains with multiple 30,000 pound (13.6 tons) Danforth/LWT anchors. Cortney Co. of New Orleans, Louisiana, supplied the anchors and chain for the project. (Cortney company also serves as Seaward's sales representative in New Orleans.) A Seaward SEAFLOAT mooring buoy of approximately 68,000 pounds (31 tons) net buoyancy was used to support the riser chain and take mooring loads.

Royal Caribbean planned to use the stern mooring system in conjunction with the vessel's thrusters to maintain the vessel's position. However, they found that operation of the thrusters sometimes affected the visibility for snorkeling, a key activity of the cruise ship passengers. As a result, Royal Caribbean decided to install a second mooring system for the bow of the vessel so that the thrusters would not be so frequently required. The bow mooring system, virtually identical to the stern mooring, again used a Seward SEAFLOAT buoy.

Each of the SEAFLOAT mooring buoys measures 13.5 feet (4.11m) in diameter and weighs about 15,000 pounds (7 tons). The buoys incorporate a non-skid upper surface as well as a ladder for personal access. Like other Seaward International products, the buoys are tough, resilient and designed for a long life in the marine environment.

Coastal Systems International, Inc. was also responsible for installing the SEAFLOAT buoys. According to Keith Simpson, Director of Construction at Coastal Systems International, "The SEAFLOAT buoys were easy to install and have worked very well for our client. Labadee is a very popular destination for Royal Caribbean's customers, and we are glad to have been able to play a part in making it successful." We at Seaward International are also glad to have been able to play a role.