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## Turning the Tide on Aquatic Invaders

JULIE PALAKOVICH CARR

**P**orts in the United States are among the busiest in the world—ships made more than 60,000 port calls here in 2008. Along with the 2.3 billion metric tons of goods moved through these ports were untold numbers of aquatic hitchhikers, transported in ballast water and residual sediment in ballast tanks. Ballast water, loaded aboard to improve ship stability during a voyage, transports as many as 3000 to 10,000 different species, including invasive species such as zebra mussels, green crabs, algae, and plankton, as well as disease-causing bacteria and viruses. When ships reach their destinations and release this ballast water, they also release nonnative species in ports around the world. Beyond the ecological impacts of these aquatic invaders are the costs they inflict on the economy: Every year these hitchhikers are responsible for the loss of billions of dollars. Zebra mussels alone cause \$1 billion in damages each year in the United States. Although the scientific community, environmentalists, policymakers, port managers, and shippers agree that the discharge of ballast water should be regulated, a consensus about which agency should be granted regulatory authority has proven elusive.

Many see the US Coast Guard (USCG) as the logical choice. As a federal agency authorized by Congress to regulate ballast water management, the USCG can enforce a national standard for domestic and foreign ships that use American ports. Indeed, since 1993, the USCG has required ocean-going vessels entering the Great Lakes to exchange their ballast water at least 200 nautical miles offshore, or to retain their ballast while in the lakes.

For the last five years, the USCG has been working to create a mandatory national program for ballast water management. In August, the agency released a draft rule that would require

the exchange or treatment of ballast water for almost all ballast-carrying vessels operating in US waters. The program, which would be implemented in two phases, would require ships to meet certain performance standards for the concentrations of living organisms in their ballast water. The interim performance standard would require ships to reduce the concentration of living organisms in their ballast water by 80 percent; the final standard is potentially a thousand times more stringent.

According to David Lodge, professor of biology at the University of Notre Dame, this is an “essential and long overdue step.” However, Lodge says, “the Coast Guard’s effectiveness measures refer to the magnitude of reductions in the concentrations of organisms in discharged ballast water, not to the outcome that is most important: the reduction in new invasions.” He adds that the policy could be strengthened by “coupling it with an invasive species monitoring policy. Without meaningful surveillance for new invasions, we don’t have enough information to accurately evaluate the effectiveness of ballast water policies.”

Uncertainty regarding the relationship between the number of organisms released through ballast water and the potential for new invasions has led several states to create their own ballast water discharge policy for their coastal waters. Regulations in California, Hawaii, Michigan, Minnesota, New York, Oregon, Virginia, and Washington vary widely, resulting in a mosaic of rules that shippers must follow. California’s are the most stringent: By 2020, no ship will be able to discharge ballast water that contains living organisms.

Adding to the confusion are regulations adopted by the International Maritime Organization (IMO). Although not yet in force, the IMO performance standard is comparable to the

USCG’s interim standard. Additionally, the Environmental Protection Agency (EPA) has been ordered by a district court to use its authority under the Clean Water Act to regulate the discharge of ballast water in the United States.

In response to this jurisdictional muddle, some members of Congress have called for a unified national requirement for ballast water management. In a Senate Environment and Public Works Committee hearing, Senator Carl Levin (D–MI) testified: “I believe that we need to enact legislation that will require ballast water discharge management...as soon as possible. I support establishing a strong national ballast water technology standard for all ships.”

In 2008, the House of Representatives did just this, passing legislation that establishes strong treatment standards so that, by 2015, no ballast water discharged into US waters will contain living organisms. The Senate has yet to pass its own legislation. For some senators, it is a matter of state sovereignty—a federal regulation or law preempts a state’s right to control its coasts and waters. For instance, California’s regulation is almost a thousand times more stringent than the IMO standards. On the other hand, the shipping industry fears that allowing each state to set its own ballast water management regime creates too heavy a regulatory burden.

This debate is far from over. The USCG is accepting comments on its draft rule until 4 December, but a final rule could take years. The EPA is also reconsidering its stance on the issue. Meanwhile, potentially invasive species continue to arrive by the boatload.

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