



BALLAST WATER MANAGEMENT - an integrated approach

Introduction

The introduction and spread of aquatic nonindigenous species (ANS) through ship's ballast water is now recognized as a global issue. The United States is no stranger to this issue and has developed an integrated approach consisting of a combination of education and awareness, voluntary and mandatory ballast management procedures, and a central coordinating body to oversee a comprehensive Aquatic Nuisance Species Program. This paper details the objectives, procedures, and methodology of the components.

National

Although there was some evidence of aquatic invasions through ballast water in the United States prior to 1989, it was the discovery and rapid spread of the Zebra Mussel in the Great Lakes which brought the problem to public attention. The prolific biofouler rapidly clogged water intake pipe and actually shut down a water treatment plant in the Great Lakes region. U.S. lawmakers reacted quickly and took actions to prevent future introductions of ANS and to control existing introductions. Congress enacted the *Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990* as part of Public Law 101-646, (the Act). The Act called for the development of an Aquatic Nuisance Species Program comprised of five basic precepts: to prevent unintentional introductions; to coordinate research and information dissemination (establish an education program); to develop and implement environmentally-sound control methods; to minimize economic and ecological impacts; and to establish a research and technology program beneficial to state governments. The formation of the Aquatic Nonindigenous Species Task Force was mandated by the Act to coordinate all U.S. Federal Government activities and oversee the ANS Program.

The ANS Program consists of the elements stated above form an integrated approach of which only one is a mandatory provision. The regulatory provisions of the Act called for mandatory ballast water management regulations for vessels operating beyond the EEZ and visiting the Great Lakes. The mandatory regulations went into effect on May 10, 1993. As a part of the Oceans Act of 1992, Congress amended the Act to

specifically regulate vessels operating beyond the EEZ and visiting a port on the Hudson River above the George Washington Bridge. The Coast Guard issued the final rule on December 30, 1994.

The regulations, found in 33 CFR 151.1502, only apply to vessels that operate outside the EEZ of either Canada or the United States, before entering the Great Lakes or the Hudson River north of the George Washington Bridge. Vessels meeting these criteria are required to exchange ballast water in the open ocean. The regulations allow for alternatives to ballast water exchange as a control method, but other than retention on board and discharge to a reception facility, none have been approved to date.

The mandatory guidelines in the Great Lakes and the Hudson River represent the only regulated efforts worldwide to prevent introductions of ANS from ballast water. There are no other formal Federal efforts calling for the mandatory management of ballast water of commercial or recreational traffic. The Act provides no authority for similar regulatory efforts in other parts of the United States.

There are, however, other players involved in the effort to manage ballast water on a national scale but in a more informal, voluntary manner.

In late 1991 the U.S. Fish and Wildlife Service added the Zebra Mussel to the list of unjurious fish, mollusks and crustaceans. This federal action prohibits the importation, acquisition or transportation of live zebra mussels within the territorial boundaries of the U.S., but does not prevent entry from European or other countries.

The USCG in accordance with the Act's mandate regarding ballast water management procedures published ballast water regulations and developed a mariner education program for the Great Lakes and the Hudson River. Further, the USCG has taken a proactive approach regarding ballast water management procedures reaching above and beyond the Act's mandate asking all vessels calling at U.S. ports to voluntarily comply with ballast water management guidelines. Also, in response to the Chesapeake Bay Commission (CBC) report, *The Introduction of Nonindigenous Species To The Chesapeake Bay Via Ballast Water*, dated January 5, 1995, the Fifth Coast Guard District directed the Baltimore and Hampton Roads Marine Safety Offices to implement many of the report's recommendations. In particular both MSO's are directed to designate a point of contact, take proactive measures to educate the shipping industry, and collect basic data on ballast

water management practices for all vessels inbound from foreign ports that are boarded.

The regulatory approach in the Great Lakes and the Hudson River, the U.S. Navy program, the listing of the zebra mussel by FWS, and the proactive directive from the Fifth Coast Guard District represent forward-looking management approaches to invasions by ANS via ballast water. Notwithstanding, the United States has no cognizant, national policy in place to address other ballast water hotspots. Currently, the federal approach to ballast water management provides incomplete protection from the invasion of harmful ANS. The approach is not comprehensive; but rather a fragmented approach that does not fully and effectively address the widespread problem of ANS.

A comprehensive approach addressing the problem on a national scale is sorely needed to effectively minimize the risk of introductions of ANS throughout the United States. There has been, and will likely continue to be increased movement in this direction. Several ANS bills and amendments will be offered in the 104th Congress in an effort to forge a cohesive, strong, Federal response to the very real problem of ANS.

Regional

In December 1993 the Chesapeake Bay Program, a regional body committed to the restoration of the Bay, adopted the *Chesapeake Bay Policy for the Introduction of Non-Indigenous Aquatic Species*. The policy guides the signatory parties (Maryland, Virginia, Pennsylvania and the District of Columbia) in the development and implementation of management plans for both intentional and non-intentional ANS introductions. It lays out a framework of cooperative management approaches and public outreach efforts for both. It is significant that the Chesapeake Bay policy addresses the ANS issue on a regional rather than a state by state basis. It serves as an excellent model on ANS prevention and management.

The Chesapeake Bay Commission (CBC), a tri-state legislative commission serving the General Assemblies of Virginia, Maryland and Pennsylvania helps guide the states in cooperatively managing the Chesapeake Bay. CBC is the lead in an effort to explore ballast water management options for the Chesapeake Bay. In early 1995, the Commission published a report (*The Introduction of Nonindigenous Species To The Chesapeake Bay Via Ballast Water, CBC report*) concerning research and policy information on ballast water management practices. It includes recommendations focussing, particularly on, the cross-boundary, global nature of

the problem. The report posits that the development of improved ballast exchange technologies and practices that minimize the risk of nonindigenous species introductions must occur both nationally and internationally. Successful implementation of the recommendations is largely dependant upon congressional and federal agency action and support.

The relative success of the regional approach is illustrated by Senator Sarbanes' decision to introduce several ANS bills in the 104th Congress. In a recent telephone conversation with Mark Dyner, Senator Sarbanes' environmental staffer, stated that the CBC report was the impetus behind Senator Sarbanes' decision to introduce several ballast water management bills. His decision to do so stemmed from the resolutions recently passed by Maryland, Virginia and Pennsylvania calling for the broader Federal action concerning ballast water management. Congressmen from Virginia and Pennsylvania are expected to fully support Senator Sarbanes' bills and will likely sign on as sponsors.

Another example of a successful regional approach is the development of the *Great Lakes Maritime Industry Voluntary Ballast Water Management Plan for the Control of Ruffe in Lake Superior*. This plan was initially developed by the Great Lakes shipping industry and government agencies in 1993 with full cooperation and advice from the Ruffe Control Committee of the ANS Task Force. Ships that travel primarily in the Great Lakes are requested to avoid releasing ballast water west of a demarcation line between Ontonongan, Michigan and Grand Portage, Minnesota. The Lake Carriers Association and co-sponsors implemented the plan. The fact that ruffe have not been detected in shipping ports outside of western Lake Superior, despite surveillance efforts in all five Great Lakes, indicates success.

Further, states bordering Lake Superior have instituted aggressive education campaigns aimed at reducing the likelihood that members of the public will inadvertently spread ruffe. Minnesota and Wisconsin prohibit the possession of ruffe in Lake Superior and its tributaries. Several states bordering the Great Lakes are currently drafting response plans should ruffe become established in inland waters.

Regional cooperation will prove to play an important role in the development of solutions to the ANS problems; particularly for the pervasive cross-boundary ANS problems. The above mentioned regional approaches clearly illustrate the viability of regional coordination.

State

With the federal regulatory response limited solely to the

Great Lakes and the Hudson River some states have attempted to pass their own legislation or resolutions rather than wait for additional federal actions. These efforts for the most part have failed as states lack the Constitutional authority to affect trade. Four states have pursued state legislative efforts to regulate ballast water discharges, but none has been successful, either because of resistance in their own legislature or anticipated legal challenges. A state's power in regulating ballast water exchanges is limited. The efforts of California, Washington, Hawaii and Alaska to regulate ballast water exchange management illustrate the main barriers to state legislative initiatives. The efforts of California are particularly instructive in illustrating the barriers to state regulation of ballast water and the constraints posed by the interstate commerce clause in the Constitution.

Local

Local governments have significant responsibilities relative to ANS. Local governments are forced to respond to the immediate problems of impacts, such as blockages in municipal water supplies, maintenance of municipal aquatic recreation facilities, irate citizens, and raising funds to respond to the impacts. Therefore, the local governments are required to initiate ANS prevention and control activities with almost no Federal or State funds. There are various ways a local government can help and support regional and national prevention activities - environmental education and information meetings, monitoring of water supplies, development of public facility management plans etc... Without the support and cooperation of local governments, state and federal programs for ANS management will likely remain unsuccessful. Conversely, without the support of the federal and state governing entities (especially financially), local programs for ANS management will, without question, founder.

Conclusion

ANS and the associated impacts are creating a steadily mounting burden for the nation. The current Federal and State guidelines and regulations provide woefully inadequate protection from the pervasive problem of ANS. In sum, there is no real national policy on ANS; the current system is piecemeal. Most Federal and State statutes, regulations and programs are not keeping pace with the prolific and spreading ANS. Better environmental education is needed. All federal agencies (F&WS, NOAA) involved in the ANS Task Force need to aggressively pursue

ANS environmental education measures. Finally, better, quicker response and more adequate, effective funding mechanisms are a necessity (i.e., redelegate funds to regional efforts). Many believe that the introductions of ANS are inevitable and that current efforts are satisfactory. This is simply not true. Quick, decisive, coordinated, aggressive response is imperative. The consequences of inaction; the sit back and wait mentality, will - as in the case of the Zebra Mussel - result in a continual, un-stoppable, sapping of already limited fiscal resources, detracting from other, equally serious problems.