

Statement of

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and

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Water Science and Technology Board  
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and the Subcommittee on Water Resources and Environment  
Committee on Transportation and Infrastructure  
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Good morning Chairman LoBiondo, Chairman Gibbs, Ranking Members, and members of the Subcommittees.

My name is James T. Carlton. I am a Professor of Marine Sciences at Williams College and I served as the Chair of the "Committee on Assessing Numeric Limits for Living Organisms in Ballast Water" of the National Research Council, the arm of the National Academy of Sciences that operates to advise the government on matters of science and technology.

Our study, requested by the EPA and the U.S. Coast Guard, was to advise these agencies as they develop plans to regulate the concentration of living organisms discharged from ballast water. These plans assume that there is a quantitative relationship between invasive species concentrations in released ballast and the probability of their successful establishment.

Here are our five key conclusions:

First, the methods for determining an exact numeric standard for ballast water discharge are limited by a profound lack of data by which to develop and validate the necessary models that relate organism release to the probability of invasion.

Second, while the number of released organisms is important, it is only one of many variables that determine when, why, and where species will invade. Any method that attempts to predict invasions based on only one factor is likely to suffer from a high level of uncertainty.

Third, that said, there is evidence that significantly reducing the number of released organisms reduces invasion probability. Therefore a benchmark discharge standard that reduces the concentration of organisms below the levels achieved by open-sea ballast water exchange is an important first step.

Fourth, we urge the development of robust statistical models, experimental studies, and field investigations that are focused on the relationship between the quantity, quality and frequency of released organisms and invasion risk. This research could be focused on the types of species that have the highest probability of being good invaders and that are likely to pose the greatest threats to our economy and health. This focus on the "best-case-for-invasion scenarios" sets the regulatory bar high—noting that by "best-case-for-invasion" we mean of course the worst-case for our society.

and

Fifth, our databases on what invasive species are now becoming established in American waters and our knowledge of the details of many vectors that bring these species to the United States—including ballast water, vessel fouling, the aquarium industry, and the live sea food and bait trades—are patchy and substantially mismatched. For example, we have anecdotal accounts that there are now fewer invasions since extensive open-ocean ballast water exchange has

been in place for ships arriving from foreign shores. On the other hand, there is no  
– no – national survey program to determine if invasions have in fact decreased.

Let me conclude on a personal note, as a marine biologist and as a scientist who has worked on invasive species for 49 years. I have had the privilege to testify before Congress nine times since 1990, and my message remains the same as it did 20 years ago:

Our oceans are under great pressure.

Our natural resources and our economic health derived from our rich maritime assets and heritage are under great pressure.

Our fundamental goal has been and remains to limit invasions of exotic species in order to protect and preserve our existing populations of fish, shellfish, and wildlife and the many other beneficial uses of our nation's waters.

Given the sobering reality of the uncertainty of our knowledge about what regulates and promotes non-native species, our ability to make accurate predictions is severely limited -- underscoring more than ever that *only the strongest science behind the policy* will insure the outcomes we seek.

Thank you for the opportunity to testify. I welcome any questions you might have.