

TESTIMONY OF
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FOR OCEANS AND ATMOSPHERE
BEFORE THE
COMMITTEE ON RESOURCES
SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE, AND OCEANS
UNITED STATES HOUSE OF REPRESENTATIVES
AND THE
COMMITTEE ON SCIENCE
SUBCOMMITTEE ON ENVIRONMENT, TECHNOLOGY, AND STANDARDS
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Good morning, Chairman Gilchrest, Chairman Ehlers, and members of the Subcommittees. I am Timothy Keeneey, Deputy Assistant Secretary of Commerce for Oceans and Atmosphere and the National Oceanic and Atmospheric Administration (NOAA) co-chair of the Aquatic Nuisance Species Task Force. I appreciate the opportunity to present NOAA views on H.R. 5395 and H.R. 5396, which would reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act as amended by the National Invasive Species Act of 1996.

I begin my testimony with some observations on the evolution of the Act which mirrors our current state of understanding of aquatic invasive species. The bulk of my testimony will focus on the ballast water and research provisions of the bills. Here we address the need to create national standards for ballast water based on sound science as well as technical changes to the bill. Before concluding, I will also mention concerns with non-ballast related provisions within the bills.

When the Act was first passed, the focus was on a single species-the zebra mussel, a single region-the Great Lakes, and a single pathway-ballast water. It subsequently became obvious that the problems caused by invasive species generally, and aquatic invasive species specifically, are broader than originally envisioned and this was reflected in the 1996 amendments. This recognition is further reflected in the two pieces of legislation that have been introduced constitute a major rewrite of the existing law.

Earlier this year, the Aquatic Nuisance Species Task Force adopted a five-year strategic plan in which we assessed current activities and looked at areas requiring additional attention. In several areas, the Task Force's conclusions are similar to issues addressed in this legislation. Your bills, Chairman Gilchrest and Chairman Ehlers, address some gaps in our existing programs. There is a need to develop an early detection

and rapid response mechanism in order to detect invasions while they are still localized and to control them before they spread. Recognizing this, the Task Force already has asked its Regional Panels to prepare rapid response contingency plans. The first of these plans, prepared by the Western Regional Panel, was submitted for approval by the Task Force this week. Even though members of the Task Force have taken preliminary steps, there is a need to systematically assess pathways to determine how best to interdict them as well as prevent invasions from occurring. Finally, the Task Force recognized that education and research are important supporting elements for all invasive species activities. The importance of these activities is emphasized in the two bills.

We would like to express our appreciation to the sponsors of the legislation for taking a comprehensive view of the problems posed by aquatic invasive species. NOAA would, however, like to suggest some technical modifications. I am happy to have my staff work with committee staffs to address some of these technical issues.

During the last re-authorization in 1996, the need to develop a more effective ballast water management was recognized. As the Coast Guard's report to the Congress in June pointed out, compliance with the voluntary guidelines, even to the extent of reporting, has not been satisfactory. Since 1996, we have continued to see the introduction of non-native species into coastal areas, and the situation has been serious enough that west coast states have acted independently to require ballast water management measures. The Federal government should develop a coordinated nationwide response to ensure that the shipping industry is not burdened by a variety of standards in different geographic locations. Such action is possible under existing law, and the Coast Guard, in its report to Congress on compliance with voluntary guidelines, has indicated that it would take steps to issue national standards. We support the Coast Guard's efforts to establish mandatory guidelines and appreciate the Committees' support of such efforts.

In several places, the legislation may contain unnecessary detail that could impose an undue burden on the private sector and State governments. Two instances occur in the ballast water provisions. The bill requires that rapid response measures be included in a ship's invasive species management plan. As I indicated earlier, NOAA supports additional efforts on rapid response. We cannot envision, however, that all ships would be aware of each State's rapid response contingency plan. Since such plans are likely to vary among the States, preparation for compliance with such provisions by the shipping companies may be unnecessarily problematic. The primary purpose behind a ballast water management plan should be to reduce the risk that a ship will be the source of new inoculations. The major responsibility for a ship during a rapid response is likely to be either not entering an area where a rapid response action is occurring, not loading ballast water which could contribute to the spread of an invasive species, or not discharging water known to have originated from a rapid response area. Rather than require a rapid response plan for unknown organisms in a multiplicity of areas, the better approach would be to require that a ship cooperate with State governments during a rapid response effort. We would be happy to provide the Committees with technical drafting assistance to clarify this provision.

NOAA is aware of the frustration in developing a standard for new ballast water treatment technologies. We believe that ultimately there needs to be a discharge standard based on sound science and one that is biologically meaningful. NOAA is concerned about a "kill rate" being used as an interim standard. Although a 95 percent kill rate may reduce the risk of new invasions, there may be difficulties posed with verification and enforcement. In addition to verification and enforcement difficulties, there is no scientific evidence that a 95 percent "kill rate" reduces the risk of new invasions. Verification of kill rates may also be impractical because in order to prove such a kill rate both the departure point and the discharge point must be sampled. There also could be a significant gap in coverage by this standard. What is killed can be as important, if not

more so, then what percentage is killed (i.e., the phytoplankton that cause harmful algal blooms). Some algal blooms worldwide have been attributed to ballast water introductions. Concentrations of up to 10 million cells per liter have been documented during some blooms. For such species, the normal maximum for human safety is 5,000 cells per liter. A technology could successfully kill 95 percent of the organisms and still be at an order of magnitude above what is safe for human health. The Coast Guard, in cooperation with other Federal Agencies, is currently assessing various options for the standards, including standards based on allowable concentrations of organisms. This process should be allowed to continue in order to ensure that the standards are biologically meaningful and technologically feasible.

Another modification that we recommend to the Committees relates to the 31 separate deadlines for specific actions that must be completed by members of the Aquatic Nuisance Species Task Force within 18 months of passage. It will be difficult to simultaneously give all of these actions the level of attention they deserve in the time allowed. We recommend that the Committees assess the priority level of each of these actions and allow for additional time for lower level priority activities. We would be happy to work with the Committees on such an assessment.

Further, the chronology of some of the activities in the legislation should be examined. In some instances, an activity is required before the deadline for the guidelines and/or protocols necessary for the activity are available. An example are the provisions for screening where the screening process is to begin before the guidelines for screening are in place.

In H.R. 5396, appropriations are authorized for NOAA and the U.S. Fish and Wildlife Service (FWS) to carry out the revised section 1101. With a couple of minor exceptions, NOAA and FWS only have consultive responsibilities under section 1101. If the intent was to authorize appropriations for the ballast water demonstration program, the referenced section should be section 1104. It should be noted that H.R. 5395 does contain an authorization for section 1104.

Section 1202(f) authorizes a competitive research program under the National Sea Grant College Program but there is no authorization of appropriations for activities under this section. The bulk of current knowledge and most of the current research being conducted on all aspects of aquatic invasive species have been funded by Sea Grant under this provision. An authorization for research on aquatic invasives is contained in proposed legislation considered by both of these Committees that would re-authorize the Sea Grant program. We recommend that H.R. 5396 include an authorization of appropriations for Sea Grant invasive species activities that parallels H.R. 3389.

Both bills recognize the fact that the science involved with aquatic invasives is much less advanced than the science dealing with terrestrial invasives-particularly as they relate to livestock and crops. While some of our colleagues in the Department of Agriculture have been dealing with weed and insect problems for most of the last century, the science of biological invasions in aquatic ecosystems is still very young. The Aquatic Nuisance Species Task Force has recognized that virtually every activity from prevention to control to restoration needs to have a scientific underpinning. Although considerable progress has been made in the last decade, there are still areas in which our knowledge is seriously deficient. NOAA is pleased that both bills give additional emphasis to research activities.

I would like to discuss two areas as an illustration of our current limitations. First, there is inadequate monitoring in aquatic systems. In many instances, we do not even have baseline information so that we know when a serious new invader has been introduced. This also hampers efforts to characterize invasion rates, and without monitoring activities, early detection and rapid response occur only by chance. It should

be noted that there are exceptions, but they are limited to specific geographic areas. As an example, the Aquatic Nuisance Species Task Force-sponsored study of San Francisco Bay by scientists Dr. Andrew Cohen and Dr. James Carlton is outstanding in documenting nonindigenous species occurrence in that ecosystem and is often cited even in terrestrial studies. A similar study of the Chesapeake Bay sponsored by FWS and performed by Dr. Greg Ruiz at the Smithsonian Environmental Research Center provides a very good baseline for Chesapeake Bay. Both the Aquatic Nuisance Species Task Force and NOAA recognize the need for baseline surveys and have taken first steps to correct this deficiency. The U.S. Fish and Wildlife Service sponsored a workshop on developing protocols and requirements for an effective monitoring program in aquatic ecosystems, and earlier this year, NOAA's National Ocean Service conducted a similar workshop for monitoring within the National Estuarine Research Reserve System. We are pleased that both bills highlight the need for a uniform protocol for such monitoring activities.

Our scientific knowledge of control methods in aquatic environments is still in its infancy, and control in aquatic ecosystems present unique problems. Because water is a medium which will move chemicals from one place to another, it is much more difficult to localize biocide applications. In addition, there is special concern that available chemicals are not species specific. Last summer when the State of Maryland used rotenone to eradicate the northern snakehead from a pond near Washington, DC, it should be noted that the application was in a small, isolated body of water and that all other fish species were also killed. Obviously, there are only limited circumstances when such a method can be used. There are even taxonomic groups for which there is no scientific knowledge of control methods. NOAA confronted this issue two summers ago when there was a bloom of spotted jellyfish in the Gulf of Mexico. We recognized that the species was having a major impact in localized areas and was affecting commercial fisheries, but we were in a situation where nobody had ever tried to control jellyfish in the past.

With the exception of aquatic weeds, where the Army Corps of Engineers has had some notable successes, we also have just begun to look at biocontrol agents. We do have some promising results, though, with a pathogen that could be used for zebra mussel control. In a project funded by NOAA Sea Grant and FWS, a researcher has found that the *Pseudomonas fluorescens* bacterium causes extremely high mortality in zebra mussels and preliminary results indicate that it may be specific to zebra mussels. To show the difficulty in finding an acceptable biocontrol agent, it should be noted that the researcher looked at over 600 different pathogens. In addition, once such a pathogen is found, it is necessary to make sure that the biocontrol agent will not affect native species. This is particularly important in this case because many of our native freshwater bivalves are already listed as threatened and endangered.

Some provisions in the two bills are duplicative or overlap each other. As examples, provisions on ballast water technology development, monitoring for both baselines and new introductions, and dispersal barriers are contained in both bills.

Although the invitation asked that I specifically address the ballast water and research provisions, I would like to address a couple of other items contained in the legislation. First, NOAA is pleased that increasing emphasis is given to the role played by State governments. If we are to be successful in combating invasive species, partnerships with other levels of government are absolutely essential. H.R. 5396 recognizes this by placing a greater emphasis on State management plans, contingency plans, and rapid response. As I indicated earlier in my testimony, however, there are places where the proposed legislation may be a little too detailed and could ultimately become burdensome on State governments. As an example, there is a provision requiring education to be part of a rapid response plan. While NOAA and the Task Force believe that education is extremely important and have encouraged inclusion of education provisions in State Management Plans, we do not believe that it is an essential element of a contingency plan for rapid

response. In fact, Sea Grant Colleges already conduct education and outreach programs associated with research including invasive species. We also have concerns about the requirement for an early detection program before rapid response funding could be approved. The situation may arise where a program is needed before a State has resources available to establish a program. The absence of such a program should not preclude a rapid response effort if a serious invasive species is discovered.

H.R. 5396 also would give statutory recognition to the Invasive Species Council. Such statutory recognition will assist in providing policy guidance and coordination of the Federal government's invasive species program. In at least one instance, however, NOAA believes that the proposed legislation assigns a task which is inappropriate for the Council. The legislation would give the Council responsibility for control of brown tree snakes. NOAA, which co-chairs the Aquatic Nuisance Species Task Force and is Commerce's designee as the co-chair of the Council, does not believe that the Council should be responsible for implementation of specific control plans. The Council's primary focus is to provide policy guidance and we do not recommend changing that focus. The Council does not have the same expertise or infrastructure as the ANS Task Force has to implement control plans. Specific control plans should be implemented by the ANS Task Force in coordination with State and Local governments.

Screening provisions in the bill may need to be revised. In addition to chronology problems, the limitations imposed by the screening process could be viewed as too restrictive. In addition to the research exception, there may be other instances where importation of invasive species may be appropriate. To illustrate this point, the risk of a saltwater fish species imported for display by the Shedd Aquarium in Chicago becoming a problem is minimal. Not only is the Aquarium a very reputable organization, but even if the species were to escape, it would not be likely to become established in the freshwater environment of Illinois.

NOAA is also concerned about the provision that grants the Department of Agriculture the sole authority to screen species proposed for aquaculture use. NOAA believes that the end use of an importation is irrelevant to whether or not a species is invasive. We are concerned because, in the case of aquaculture, what is most often cultured are wild species normally under the jurisdiction of either NOAA or the U.S. Fish and Wildlife Service. In addition, aquaculture is not limited to closed systems. Often species such as oysters and clams are released into natural ecosystems. We would also point out that much of the scientific expertise for making determinations on aquatic imports is in the management agencies. In order to make such determinations, information on life history and impacts on natural ecosystems and native species is necessary. Finally, if end use helps to determine whether a species should be prohibited, we could end up with contradictory decisions. The recent case of the northern snakehead is illustrative. The fish released into the local pond were imported for human consumption and would presumably be under the authority of the U.S. Fish and Wildlife Service. The same species has been cultured in Hawaii and a determination of invasiveness would presumably be made by the Department of Agriculture.

Chairman Gilchrest and Chairman Ehlert, and members of the subcommittees, the legislation before you builds on the previous Act and addresses some gaps that have already been identified by the Aquatic Nuisance Species Task Force. As with any complicated piece of legislation, there are some technical difficulties, and we would be happy to work with the subcommittee to address them. Among these issues, we note that new spending authorized by these bills is not currently included in the President's FY2003 Budget, and as such, must be considered within existing resources and priorities. As one of the trustees for marine and coastal resources, NOAA has been aware of the problems caused by aquatic invasive species and recognized that we have a responsibility to help prevent these invasions and reduce the impact if such invasions occur. NOAA also recognizes that we cannot be successful without partnerships with other Federal agencies, State and local governments, and the private sector. We are pleased that the proposed

legislation places an increasing emphasis on such partnerships. Thank you for allowing me the opportunity to present the Department of Commerce's views on this topic. This concludes my testimony, and I would be happy to answer any questions you may have.

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