S. HRG. 108–354

NATIONAL AQUATIC INVASIVE SPECIES ACT OF 2003

HEARING

BEFORE THE

SUBCOMMITTEE ON FISHERIES, WILDLIFE, AND WATER

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

on

S. 525

A BILL TO AMEND THE NONINDIGENOUS AQUATIC NUISANCE PREVENTION AND CONTROL ACT OF 1990 TO REAUTHORIZE AND IMPROVE THAT ACT

JUNE 17, 2003

Printed for the use of the Committee on Environment and Public Works

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NATIONAL AQUATIC INVASIVE SPECIES ACT OF 2003

TUESDAY, JUNE 17, 2003

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON FISHERIES, WILDLIFE, AND WATER,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:34 a.m. in room 406, Senate Dirksen Building, Hon. Michael D. Crapo [chairman of the subcommittee] presiding.

Present: Senators Crapo, Warner, Murkowski, Allard, and Jeffords [ex officio].

Also present: Senator Voinovich.

OPENING STATEMENT OF HON. MICHAEL D. CRAPO, U.S. SENATOR FROM THE STATE OF IDAHO

Senator CRAPO. Good morning. The Subcommittee on Fisheries, Wildlife and Water will come to order.

Today, the subcommittee will be receiving testimony on S. 525, the National Aquatic Invasive Species Act. This bill would reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended by the National Invasive Species Act of 1996.

Aquatic nuisance species have cost our Nation billions of dollars in lost revenue and costs of action to control aquatic nuisance to protect commerce and our environment. In many instances, aquatic nuisance species enter our Nation's waterways through ship ballast water. Many of us are familiar with the challenges that the sea lamprey and the zebra mussel infestations have presented to citizens of the Great Lakes area and elsewhere. We have learned that once an aquatic nuisance species gains a presence in our waterways, control costs are often high and effectiveness is often limited. It is clearly much more cost-effective and less damaging to prevent the introduction of new aquatic nuisance species than to deal with them after they have arrived.

Aquatic nuisance species also enter our waters through other means such as by introduction of species from the pet trade. Just last year, we saw a dramatic example of the effects of these kinds of introductions when officials discovered and were forced to try to eradicate the snakehead fish in Eastern United States waterways. In Idaho, we may have experienced the first known occurrence of New Zealand mud snail in the country in the Hagerman reach of the Snake River. Also, the State of Idaho will increase its spending to $250,000 this year trying to control the Eurasian water milfoil,

an aquatic nuisance plant species that threatens to choke off waterways, affecting agriculture and recreation.

If Zebra mussels ever gain a foothold in the Snake River in Idaho, it could threaten a large portion of our irrigated agriculture community, as well as hydropower systems and the Snake River salmon recovery efforts. We are already familiar with the impacts that other long-present invasive or nuisance species can have. For example, in significant portions of the Western United States, cheat grass is taking over native range vegetation, reducing forage and habitat value for livestock and wildlife, and causing more frequent and severe wildfires. These effects cause Americans millions of dollars a year. Cheat grass control actions have just begun. They are expensive and are not yet broadly effective. Addressing aquatic nuisance species may be even more difficult when moving waters can connect habitats without any human assistance, and detection of species may be more difficult underwater than on land.

I know that our witnesses will be recommending numerous changes to this large and complex bill. However, this bill is a good starting point for addressing some critical needs. I appreciate the work of Senator Levin and the cosponsors of this bill and the work that they have done. It is my hope that this subcommittee can begin working to resolve some of the issues that have been brought to our attention so that we can move swiftly to protect our economy and our environment.

Since there are no other members of the committee here yet, we will go immediately to our first panel. Excuse me, I did not look to my right. Senator Allard, excuse me.

[Laughter.]

Senator CRAPO. If I didn't have Senator Levin here to keep me on course, I would have just gone right ahead.

Senator Allard, if you have an opening statement, please go ahead.

OPENING STATEMENT OF HON. WAYNE ALLARD, U.S. SENATOR FROM THE STATE OF COLORADO

Senator ALLARD. I do, Mr. Chairman. I want to thank you for holding this hearing and thank Senator Levin for bringing this bill forward.

I think this is a very important issue. The prominence of invasive species and its surrounding issues have grown tremendously over the past several years. Each of us point to instances in our State that highlight the critical importance of responsible control and eradication of plant species that harm natural ecosystems and crowd out native plants.

For example, in my State of Colorado, invasive species such as the myrtle spurge have grown in great popularity as an ornamental plant for xeriscaping. However, the plant is rapidly expanding into sensitive ecosystems, displacing native vegetation and reducing forage for wildlife. It also exudes a toxic milky latex which causes skin irritation upon contact. Hardly a beneficial addition, I would say, to the native plant mix.

While this bill deals with aquatics, it is important to keep in mind that the difference between invasive types can be blurry. Take tamarisk as an example. The tamarisk, also known as salt

cedar, is an invasive species that has crowded our natural stands of cottonwoods and willows along Colorado River banks. The tamarisk is an aggressive plant that grows to 20 or 30 feet high and sends its roots hundreds of feet into the earth below. Two things make this plant a particular concern. First, the plant can consume up to 250 gallons of water a day. Second, the plant leaves are highly saline, creating a problem for both plant life and riparian systems.

Now, 250 gallons of water a day per plant in a drought-stricken State of Colorado, you can see why the eradication of this plant becomes so very important. It is a non-native species. Not only does the tamarisk steal water from the river and drop salt and leaves on the ground, it straightens out river channels and displaces habitat for the endangered willow flycatcher.

I have joined my colleague from Colorado, Senator Ben Nighthorse Campbell, in an effort to end the tamarisk problem. Together, we have introduced legislation that will create a series of grants to Western States suffering from the invasion. The grants will provide an infusion of Federal aid toward eradication efforts, saving water, protecting stream banks, ending salinity problems, returning land to its natural state, and promoting the propagation of the willow flycatcher.

You can see from the tamarisk and the other bills introduced on this subject that invasive species create overlapping dilemmas. This is one thing that we must be careful of when considering the bill. Any legislation must focus directly on the needs of our States and their water. Legislation must address these needs and provide end-game solutions so that continued Federal involvement does not infringe upon local and private rights.

In Colorado, golden algae or paramecium parvum is responsible for fish kills at places like Prewitt Reservoir in Northeastern Colorado. The finding of golden algae results in an immediate ban on boating, fishing, wading and swimming. Long associate with fish die-offs in aquariums, golden algae has been a fish culture problem in Texas since the 1980's. They have also been associated with fish kills in Denmark, Great Britain, South Africa and Israel. In 2001, the algae was responsible for killing the entire hatchery production of striped bass and wipper in Texas, and they are suspected in a fish kill in New Mexico.

Finding solutions that responsibly address such invasive species as golden algae and tamarisk is a difficult task. But again, I would ask my colleagues on the committee to be mindful of existing agency efforts and private projects. Federal legislation should not overstep its bounds, becoming a burden without solving the problem. Nor should the Federal Government impose additional unfunded mandates on States. If we are going to require new compliance with Federal regulations, we must provide a means for States to avoid such new responsibilities.

The bill is 134 pages long, and the stated purpose of the bill is to protect the Nation's waterways from non-native, nuisance aquatic invasive species. This purpose is a worthy cause, but other causes of a similar nature that have been brought before this committee resulted in legislation without corresponding benefits. Anytime a 134-page bill surfaces, a bill that deals with water, Colo-

radans rightfully get a little nervous. They have endured a broken endangered species system that places a high priority on listing species and recovering them. The private property infractions resulting from this law have turned many conservationists into skeptical landowners.

The Colorado system of water law is a product of 100 years worth of constitutional dictates, case law, statute and practice. I want to make sure that any bill dealing with water, whether in a National Forest matter or a new Invasive Species Act, does not intrude upon private property rights. I insist that it not burden the existing doctrine of prior appropriation. Water rights are properly a matter before the States' courts. Federal legislation must not interfere with State water rights and the rights of those people who hold them.

Mr. Chairman, again I thank you for allowing me to share my thoughts with the committee and for working to ensure that this bill promotes a healthier ecosystem, but also protects private property rights and rights properly belong to the States.

Thank you, Mr. Chairman.

[The prepared statement of Senator Allard follows:]

STATEMENT OF HON. WAYNE ALLARD, U.S. SENATOR FROM THE STATE OF COLORADO

Thank you, Mr. Chairman. The prominence of invasive species and its surrounding issues has grown tremendously over the past several years. Each of us can point to instances in our State that highlight the critical importance of responsible control and eradication of plant species that harm natural ecosystems and crowd out native plants.

For example, in my State of Colorado, invasive species such as myrtle spurge have grown in great popularity as an ornamental plant for xeriscaping. However, the plant is rapidly expanding into sensitive ecosystems, displacing native vegetation and reducing forage for wildlife. It also exudes a toxic, milky latex which causes skin irritation upon contact. Hardly an added addition to the native plant mix.

While this bill deals with aquatics, it is important to keep in mind that the difference between invasive types can be blurry. Take tamarisk as an example. The tamarisk, also known as the salt cedar, is an invasive shrub that has crowded out natural stands of cottonwoods and willows along Colorado river banks. The tamarisk is an aggressive plant that grows to 20 or thirty feet high and sends its roots hundreds of feet into the earth below.

Two things make this plant of particular concern: First, the plant can consume up to 250 gallons of water a day; and second, the plant's leaves are highly saline, creating a problem for both plant life and riparian systems. At 250 gallons a day in the arid, drought stricken, State of Colorado, you can see why the eradication of this plant is so important. Not only does the tamarisk steal water from the river and drop salty leaves on the ground, it straightens out river channels and replaces habitat for the endangered willow flycatcher.

I have joined my colleague from Colorado, Senator Ben Nighthorse Campbell, in an effort to end the tamarisk problem. Together, we have introduced legislation that will create a series of grants to western States suffering from the invasion. The grants will provide an infusion of Federal aid toward eradication efforts, saving water, protecting streambanks, ending salinity problems, returning land to its natural state and promoting the propagation of the willow flycatcher.

You can see from the tamarisk, and the other bills introduced on this subject, that invasive species create overlapping dilemmas—this is one thing that we must be careful of when considering the bill. Any legislation must focus directly on the needs of our State's and their water; legislation must address these needs, and provide end-game solutions so that continued Federal involvement will not infringe upon local and private rights.

In Colorado, golden algae, or Prymnesium parvum, is responsible for fish kills at places like Prewitt Reservoir in northeastern Colorado. The finding of golden algae resulted in an immediate ban on boating, fishing, wading and swimming. Long associated with fish die-offs in aquariums, golden algae have been a fish culture problem in Texas since the 1980's. They have also been associated with fish kills in Den-

mark, Great Britain, South Africa and Israel. In 2001, the algae were responsible for killing the entire hatchery production of striped bass and wiper in Texas, and they are suspected in a fish kill in New Mexico.

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Anytime a 134 page bill surfaces—a bill that deals with water—Coloradans rightfully get a little nervous. They have endured a broken endangered species system that places a higher priority on listing species than recovering them.

The private property infractions resulting from this law have turned many conservationists into the most skeptical of private property owners. Colorado's system of water law is the product of a hundred years worth of constitutional dictates, case law, statute, and practice. I want to make sure that any bill dealing with water, whether it is a national forest matter or a new invasive species act, does not intrude upon private property rights, and I insist that it not burden the existing doctrine of prior appropriation. Water rights are properly a matter before the State's courts—Federal legislation must not interfere with State water rights and the rights of those people who hold them.

Mr. Chairman, again, I thank you for allowing me to share my thoughts with the committee, and for working to ensure that this bill promotes a healthier ecosystem, but also protects private property rights and rights properly belonging to the States.

Senator CRAPO. Thank you very much, Senator Allard. I strongly agree with your concerns about the protection of private property rights and making certain that we recognize the sovereignty of States over the jurisdiction of water. The allocation, use and management of water is a State issue in my opinion, and I appreciate your raising that important point.

Now I see that there are no other Senators on the panel present, and I will then turn to our first panel, who is the chief sponsor of this proposed legislation.

Senator Levin, we welcome you here and we encourage you to take the time that you need to present your legislation to us.

STATEMENT OF HON. CARL LEVIN, U.S. SENATOR FROM THE STATE OF MICHIGAN

Senator LEVIN. Thank you very much, Mr. Chairman, for holding this hearing. Senator Allard, thank you as always for your participation in involvement in these critical issues.

As both of you have stated, the hearing today is to consider the authorization of the Levin–Collins National Aquatic Invasive Species Act. It has 16 senators sponsoring it, in addition to Senator Collins and myself. A companion bill has been cosponsored in the House by Congressmen Gilchrest and Ehlers. Its purposes are essential, which is to reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act, and to take a more comprehensive approach toward addressing aquatic nuisance species to protect our waters.

This problem is a real one in all of our States. As you both have mentioned, the invasion of foreign species, non-domestic species has hit all of our States, and hit many of our States very, very hard. These species, micro-organisms, pathogens, plants, fish and animals, because they are foreign, typically do not run into any

natural enemies in their new environments. The result is that they are often ecologically and economically disastrous.

I think you may remember what happened in the late 1980's when the zebra mussel was released into the Great Lakes through ballast water. The Great Lakes still have those zebra mussels, but now 20 other States have them as well. Just in less than a decade, or perhaps a decade and a half, 20-plus States are now fighting to control these mussels which have changed the dynamics of our waters. They have decimated native mussels. They have allowed toxins to reenter the food chain, and they may be responsible for creating oxygen-deficient conditions or a dead zone in Lake Erie. Many of our beaches are now littered by zebra mussel shells, and it is estimated that electrical generation, water treatment and industrial facilities spend tens of millions of dollars every year combating the zebra mussel.

The legislation is needed now for a number of reasons. One is just to reauthorize existing law. However, we also need to provide some direction to our negotiators at the International Maritime Organization to create an international ballast water standard, and to provide a national ballast water standard, rather than the patchwork of State efforts that we now have, in order to move a Ballast Water Management Program forward.

As the Chairman mentioned, the best effort that we have against invasive species is prevention. While the Coast Guard has authority under existing law to significantly increase the Nation's efforts to prevent the introduction of aquatic invasive species through the largest pathway of introduction, which is ballast water, there has been very little progress to move toward technology that is as effective as ballast water exchange. By requiring the Coast Guard and the EPA to set interim and final ballast water management standards, the legislation allows and would promote ballast water technology to develop to a known standard.

The bill requires the Coast Guard to set an interim standard that would require ships entering a U.S. port from outside the economic zone to either use ballast water exchange or use technology that reduces the number of living organisms in ballast tanks by 95 percent. This interim standard is not intended to be implemented for the long run and it is not perfect. However, a final standard is difficult to set today or in the near future because of the limited research that has been conducted on how clean or sterile ballast water discharge should be, and what is the best expression of a standard. But rather than wait many more years before taking action to stop new introductions, an imperfect but clear and achievable interim standard for treatment technology is the right approach. It will take at least another step forward.

The interim standard would lead to the use of ballast water treatments that are more protective of our waters than the default method of ballast water exchange, and it can be implemented in the very near future. The bill provides the Coast Guard with flexibility to promulgate the interim standard using either a size-based standard or by whatever parameters the Coast Guard determines are appropriate.

There are a number of other important provisions of the bill designed to prevent and respond to invasive species. The bill would

authorize $160 million to $170 million each year. It is a lot of money. It is a critical investment, however, compared to the cost of invasive species, which are estimated at $137 billion per year. All of us face the havoc caused by invasive species and we know the ecological and economic damage that invasive species can cause.

So Mr. Chairman and other members of the committee, again I want to thank you for tackling this subject. It is an issue which affects all of our States. We in the Great Lakes feel very strongly about our waters. I think all of us do, as Senator Allard has mentioned. Water is a very, very important issue in every State in the Union, and we in the Great Lakes have the same kind of special pride that all our other States do in their own waters and protecting those waters, and in controlling those waters at a State level. We need to get the Coast Guard more active in terms of foreign ballast coming into our lakes and our waters, and that is one of the purposes of this bill as well, which is to reauthorize the entire program.

Again, I thank you all for your attendance here and for your interest in this subject.

Senator CRAPO. Thank you very much, Senator Levin.

I will withhold my questions until the end, and we will go to the two members of the panel who have just arrived. Senator Jeffords, would you like to either make a statement or ask a question of Senator Levin?

Senator JEFFORDS. No. I would just thank him for his statement. I know the terrible problems that are created by the zebra mussel in particular, so I appreciate your excellent statement.

Senator LEVIN. Thank you, Senator Jeffords.

Senator CRAPO. Senator Voinovich?

OPENING STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Senator VOINOVICH. Thank you, Mr. Chairman. I want to thank you for calling today's hearing on the National Invasive Species Act of 2003.

Although you do not represent a Great Lakes or coastal State, you have recognized, Mr. Chairman, that the issue of invasive species is a problem that plagues our entire Nation. As a Senator from Ohio whose northern boundary is Lake Erie and a cosponsor of the bill before this committee, I am glad to join Senator Levin in the cosponsorship of this legislation. I truly appreciate your attention to this issue.

As you know, I have a scheduling conflict this morning in Governmental Affairs. We are marking up several bills, and I will try to keep my statement brief and try and get back for the rest of the witnesses.

The issue of invasive species is very important to restoring and protecting one of our Nation's greatest natural resources, the Great Lakes. I am pleased to welcome James Weakley who is here to testify. He is the President of the Lake Erie Carriers' Association and is from my hometown of Cleveland, Ohio, right on America's north coast.

During 37 years of public service, I have committed myself to stopping the deterioration of the lake and have waged what I refer to as the Second Battle of Lake Erie to reclaim and restore Ohio's Great Lake. I consider my efforts to preserve and protect Lake Erie of all the Great Lakes to be among the most significant that I have done during my entire career in public service.

Through the years, we have seen great progress in the restoration of the lakes, but they remain threatened by a grave enemy, aquatic invasive species. These species threaten the health and viability of the Great Lakes fishery and ecosystem. I am worried about these aquatic terrorists from the ballast water of boats from all over the world. These species are already wreaking havoc in the lakes and our coastal waters and will continue to do so until they are stopped.

As Mayor of Cleveland in the 1980's, I was alarmed about the introduction of zebra mussels into the Great Lakes and conducted the first national meeting to investigate the problem. It is a complicated situation, and we still are learning how invasive species like the zebra mussel affect the ecosystem. Since the 1800's, over 145 invasive species have colonized the Great Lakes. Since 1990 when legislation to address aquatic nuisance species was first enacted, we have averaged about one new invader every year. Hard to believe.

Clearly, we have not closed the door to invasive species. I know first-hand the damage that these species can cause as I have seen the lakes become infiltrated with zebra and quagga mussels, gobies, sea lampreys and a variety of other species. This past August, I held a hearing in Cleveland on what might seem to be an unrelated problem, the annual formation of dead zones in the lake. If anyone is unfamiliar with this term, these are areas in our waterways that are without oxygen. While I have introduced the Harmful Algal Bloom and Hypoxia Research and Control Act of 2003 to better understand the cause and possible solutions to this phenomenon, some experts believe that invasive species are behind it. The scientists that I have talked to think that the dead zones are created by the invasive species.

The possible link between Lake Erie's dead zone problem and invasive species underscores the seriousness of the problem. Aquatic invasive species readily spread through interconnected waterways and are very difficult to treat. The National Aquatic Invasive Species Act attempts to address the introduction, screening, response, research and hopefully eradication of these aquatic terrorists. We cannot afford to wait any longer in taking real and measurable steps to address the invasion of our waters. We must act quickly to strengthen our Nation's efforts to prevent invasive species from wreaking havoc on the Great Lakes' aquatic habitat and throughout the United States.

I just want to make one other comment, Mr. Chairman. It is my understanding now that the zebra mussels have been seen in the Columbia River basin. It is just amazing. We did everything we could to try and limit it to Lake Erie and the Great Lakes. All of our lakes in Ohio now are infested with zebra mussels. This thing is just spreading all over the United States of America. We have another thing called quagga mussels that are even worse. They are

going to be around. This is a very, very serious problem that I think that we need to tackle forthrightly if we are going to preserve the great resources that we have, not only the Great Lakes, but throughout the United States.

Thank you very much.

[The prepared statement of Senator Voinovich follows:]

STATEMENT OF HON. GEORGE V. VOINOVICH, U.S. SENATOR FROM THE STATE OF OHIO

Mr. Chairman, thank you for calling today's hearing on the National Aquatic Invasive Species Act of 2003. Although you do not represent a Great Lakes or coastal State, you have recognized that the issue of invasive species is a problem that plagues our entire nation. As a Senator from Ohio whose northern boundary is Lake Erie, and as cosponsor of the bill before this Subcommittee today, I truly appreciate you turning your attention to this important issue.

The issue of invasive species is very important to restoring and protecting one of our nation's greatest natural resources the Great Lakes. I am pleased to welcome James Weakley, who is here to testify. He is the President of the Lake Carriers' Association and is from my home town of Cleveland, Ohio, right on the coast of Lake Erie.

Lake Erie's ecology has come a long way since I was elected to the State legislature in 1966. During that time, Lake Erie formed the northern border of my district and it was known worldwide as a dying lake. Lake Erie's decline was covered extensively by the media and became an international symbol of pollution and environmental degradation. Its problems were so well-known that the British Broadcasting Company sent a film crew to make a documentary about it.

Thirty-seven years ago, when I saw firsthand the effects of pollution on Lake Erie and the surrounding region, I knew we had to do more to protect the environment for our children and grandchildren. As a State legislator, I made a commitment to stop the deterioration of the Lake and to wage the "Second Battle of Lake Erie" to reclaim and restore Ohio's Great Lake. I have continued this fight throughout my career as County Commissioner, State Legislator, Lieutenant Governor, Mayor of Cleveland, Governor of Ohio, and now United States Senator. I consider my efforts to preserve and protect Lake Erie and all of the Great Lakes to be among the most significant of my career and of my life.

It is comforting to me that in the 37 years since I started my career in public service, I am still involved, as a member of the U.S. Senate and our Committee on Environment and Public Works, in the battle to save Lake Erie and all the Great Lakes.

Today in Ohio, we celebrate Lake Erie's improved water quality. It is a habitat to countless species of wildlife, a vital resource to the area's tourism, transportation, and recreation industries, and the main source of drinking water for many Ohioans. Unfortunately, however, there is still a great deal that needs to be done to improve and protect Ohio's greatest natural asset.

I have taken several specific steps in the 108TH Congress to ensure that the Great Lakes are protected and receive the attention they deserve. I proposed an amendment that was included in the fiscal year 2003 Omnibus Appropriations bill to extend the current moratorium on oil and gas drilling in the Great Lakes until the end of fiscal year 2005.

Additionally, we must protect the area and specifically the wetlands around the Great Lakes. With almost 98 percent of the costal wetland system that existed in western Lake Erie lost over the past two centuries, I was pleased that Congress passed earlier this year my bill to expand the Ottawa National Wildlife Refuge and Detroit River International Wildlife Refuge.

Recently, the General Accounting Office reported that while there are many Federal, State, and local programs, restoration of the Great Lakes is being hindered because there is no coordination or unified strategy for these activities. Furthermore, the GAO found that although more than a billion dollars has been spent since 1992, it is not possible to comprehensively assess restoration progress in the Great Lakes because overall indicators do not exist.

The conclusions of this GAO report confirm concerns I have had that the Great Lakes are not receiving the attention they deserve. As Chairman of the Subcommittee on Oversight of Government Management, I plan to hold an oversight hearing on management of Great Lakes environmental programs. In addition, I cosponsored legislation (S. 1116) to direct the Great Lakes National Program Office to develop, implement, monitor, and report on a series of indicators of water quality

and related environmental factors in the Great Lakes. This bill would expand the Lake Erie Water Quality Index that I created as Governor to cover all of the Great Lakes.

Through the years, we have seen great progress in the restoration of the Great Lakes, but they remain threatened by a grave enemy aquatic invasive species. These species threaten the health and viability of the Great Lakes fishery and ecosystem. I am worried about these aquatic terrorists in the ballast water of boats from all over the world. These invasive species are already wreaking havoc in the Lakes and our coastal waters and will continue to do so until they are stopped.

Since the 1800's, over 145 invasive species have colonized in the Great Lakes. Since 1990, when legislation to address aquatic nuisance species was first enacted, we have averaged about one new invader each year. Clearly, we have not closed the door to invasive species. I am deeply troubled by the surge in new invasive species in Lake Erie, because once a species establishes itself, there is virtually no way to eliminate it.

Because I know firsthand the damage these species can cause as I have seen the Lakes become infiltrated with Zebra and quagga mussels, gobies, sea lampreys, and a variety of other species I am involved in a fight to keep another invasive species out of the Great Lakes the Asian Carp. I cosponsored an amendment that was included in the fiscal year 2003 Omnibus Appropriations bill to provide funds to continue operation of the Chicago Ship and Sanitary Canal Dispersal Barrier, which is the last line of defense to a very big and destructive fish. Fortunately, the bill before the Subcommittee today expands on the existing program by improving the Barrier project.

As Mayor of Cleveland in the 1980's, I was alarmed about the introduction of zebra mussels into the Great Lakes and conducted the first national meeting to investigate the problem. It is a complicated situation, and we are still learning how invasive species like the zebra mussel affect the ecosystem.

This past August, for example, I conducted a field hearing of the Environment and Public Works Committee to examine the increasingly extensive oxygen depletion or hypoxia in the central basin of Lake Erie. This phenomenon has been referred to as a "dead zone" and has been associated with massive fish kills, toxic algae blooms, and bad-tasting or bad-smelling water.

Hypoxia is usually the result of decaying algae blooms which consume oxygen at the bottom of the lake. In the past, excessive phosphorus loading from point sources such as municipal sewage treatment plants were greatly responsible for algae blooms. Since 1965, the level of phosphorus entering the Lake has been reduced by about 50 percent. These reductions have resulted in smaller quantities of algae and more oxygen going into the system.

In recent years, overall phosphorus levels in the Lake have been increasing, but the amount of phosphorus entering it has not. Scientists are unable to account for the increased levels of phosphorus in the Lake. One hypothesis is the influence of two aquatic nuisance species the zebra and quagga mussels. Although their influence is not well understood, they may be altering the way phosphorus cycles through the system.

Another way zebra mussels could be responsible for oxygen depletion in Lake Erie is due to their ability to filter and clear vast quantities of lake water. Clearer water allows light to penetrate deeper into the Lake, encouraging additional organic growth on the bottom. When this organic material decays, it consumes oxygen.

This year, I introduced the Harmful Algal Bloom and Hypoxia Research Amendments Act of 2003 (S. 937) to reauthorize and expand the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 to include the Great Lakes. The research authorized by the original Act focused only on coastal marine waters, although these problems exist throughout the Great Lakes. We need to focus our research and dollars not only on coastal marine waters, but also on these troubling situations in the Great Lakes.

It is my understanding that Senators Olympia Snowe (R–ME) and John Breaux (D–LA) have also introduced a bill (S. 247) to reauthorize the Act and that the Commerce Committee will be marking up this legislation on Thursday. I also understand that they will be including the provisions in my bill that deal with the Great Lakes. I thank them for their leadership on this issue and for recognizing the importance of expanding this program to include the Great Lakes.

However, more needs to be done. The possible link between Lake Erie's dead zone problem and invasive species underscores the seriousness of this problem. Aquatic invasive species readily spread through interconnected waterways and are extremely difficult to treat safely. Over the last 30 years, we have made remarkable progress in improving water quality and restoring the natural resources of our nation's aquatic areas, and we need to prevent any backsliding on this progress.

While these species are a particular problem, I recognize that both terrestrial and aquatic invasive species cause significant economic and ecological damage throughout North America. Recent estimates state that invasive species cost the U.S. at least $138 billion per year and that 42 percent of the species on the Threatened and Endangered Lists are at risk primarily due to invasive species.

In 1999, President Clinton issued an Executive Order creating the National Invasive Species Council to develop a national management plan for invasive species and to bring together the Federal agencies responsible for managing them. This was a promising plan that has never been fully implemented. The National Invasive Species Management Plan was issued in 2001, but agencies with responsibilities under the plan have been slow to complete activities by the established due dates. Moreover, the agencies do not always act in a coordinated manner.

The General Accounting Office released a report in October 2002 that showed that implementing the Management Plan was possibly being hampered by the lack of a congressional mandate for the Council. It is disturbing to me that this Council exists but is not making substantial progress. Make no mistake about it; these species are not waiting for the Federal Government to get all of its ducks in a row. Instead, they are continuing to invade the waters and lands of the U.S.

To correct this problem by legislatively establishing the Council, I am pleased to be an original cosponsor of the National Invasive Species Council Act (S. 536). I am interested to hear from the witnesses their thoughts on this legislation as well as any other recommendations they may have.

The National Aquatic Invasive Species Act attempts to address the introduction, screening, response, research, and hopefully eradication of these aquatic terrorists. We cannot afford to wait any longer in taking real and measurable steps to address the invasion of our waters. We must act quickly to strengthen our nation's efforts to prevent invasive species from wreaking havoc on the Great Lakes' aquatic habitat and throughout the U.S.

Again, Mr. Chairman, thank you for holding this hearing. This lineup of witnesses is extraordinary and I thank all of the expert witnesses who are here today. I look forward to their input on this very important legislation.

Thank you.

Senator VOINOVICH. Senator Levin, thank you for giving me an opportunity to make this statement. I know that you are a very busy person.

Senator LEVIN. See you at Governmental Affairs.

[Laughter.]

Senator CRAPO. Thank you very much, Senator Voinovich.

I just have one quick question, Senator Levin, then we will see if Senator Allard has one and we will let you get off to your meetings.

As you know, federalism is a big issue that has been raised with regard to the management of invasive species. I note that in the GAO report that we will have discussion of following you, there was sort of a mix between the States as to whether they thought that we should have Federal legislation that integrated all of the Federal authorities on invasive species, or whether to approach it from another perspective. I was just curious as to how your proposed legislation addresses this issue.

Senator LEVIN. Mr. Chairman, I think we are all sensitive to the need for us to have the States basically be in the driver's seat relative to the waters. We feel very keenly about that in the Great Lakes. As a matter of fact, nationally we have insisted that our Great Lakes Governors have veto authority over diversion of water from the Great Lakes. So it is a very sensitive issue, I think, for all of our States.

The non–Federal portions of the program are voluntary. It is intended to be a voluntary program, so no State has to accept any of the funding or any of the programs that are in here. We do however, when it comes to water coming into this country in ballast water in foreign ships or in U.S. ships that might bring in an

invasive species, require that that ballast water be exchanged, but ballast water exchange has not worked well enough.

So the fundamental issue that we address here is whether or not we have an interim standard which would promote technology as the alternative to ballast water exchange, and that would be something the Coast Guard would have to implement. But I don't see how that would be in any way a detriment to the power of States to control their own waters. I think that could only be seen as a plus.

Beyond that, I am not sure I can address the specific question of the Chairman, and I don't know on this specific issue whether there is anything, frankly, in our bill which would be detrimental to the power of the States over their own waters. I think it would be viewed by most States as a plus, as something which would have the Federal Government be offering something to the States, but not be demanding that the States accept the offer in any way, or that there be any unfunded mandates or anything like that in here.

I hope that is an accurate answer. It is the best I can give you without getting back into that 135-page bill, which I did not do last night, I am afraid.

Senator CRAPO. Well, we are all going to get into it very carefully. I do appreciate your answer and your attitude on those issues. It is a critical issue that we will need to address as we move forward.

Senator Allard?

Senator ALLARD. I just have one simple question for the Senator. We in Colorado frequently see, particularly on invasive species, the State willing to do the work and the property owner willing to do the work and people affected doing it, but the Federal Government has a stake there and they do not do it. Do we in any way reduce the responsibility of the Federal Government, that you are aware of, in your bill? Do we expect them to be treated like everybody else?

Senator LEVIN. Right. Quite the opposite. I think we finally would put in enough funding on the funding side of that issue so that the Federal Government could carry out its responsibility. Because on that one particular issue alone, it is a major growing issue, and the Federal role should be a real one. It ought to be a partnership role. It should not be imposed, but it surely ought to be carried out so that we carry out our side of the commitments.

Senator ALLARD. Thank you, Mr. Chairman.

Senator CRAPO. Thank you very much.

Any other questions?

Senator VOINOVICH. Mr. Chairman, Mr. Hill is going to be testifying here from the Office of Environment and Natural Resources at the U.S. General Accounting Office. He is going to be getting involved in his testimony in the fact that State officials have identified the lack of legal requirements for control of invasive species as a legislative gap in dealing with them. He is going to try and explain to us how you fill the gap without imposing an unfunded mandate on the States. So I am anxious to hear his testimony.

Senator CRAPO. Yes, we are very much.

Senator LEVIN. That is our goal.

Senator CRAPO. Without any further questions, if there are none, we will excuse you, Senator Levin, and we will move to the next panel.

Senator LEVIN. Thank you very much.

Senator CRAPO. Before we do so, I wanted to note that Mr. Hill, you may be coming up while I make this announcement. Senator Murkowski was very interested in making an opening statement and I believe she is presiding on the floor of the Senate right now. When she arrives, we will at an appropriate breaking point, allow her to make her opening statement.

I note that we have been joined by Senator Warner. Senator Warner, before we start this next panel, would you like to make any opening statement?

Senator WARNER. Mr. Chairman, I eventually will, but I need a few minutes to talk to staff.

Senator CRAPO. All right. I understand that entirely.

With that, we will go to our second panel then, Mr. Barry Hill, who is the Director of Interior Issues with the Office of Environment and Natural Resources at the U.S. General Accounting Office. Mr. Hill, I will tell you and all of the other witnesses on the panels for the rest of this hearing, we have given you instructions that we would like you to keep your oral testimony to 5 minutes.

We do have your written testimony and your reports, and for other witnesses we have your written testimony and we will review it and in most cases have already reviewed it, but we like to keep as much time as we can for questions and answers. So we encourage you to watch that clock and try to keep your remarks to 5 minutes.

With that, Mr. Hill, please proceed.

STATEMENT OF BARRY HILL, DIRECTOR, INTERIOR ISSUES, OFFICE OF ENVIRONMENT AND NATURAL RESOURCES, U.S. GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY TRISH McCLURE, ASSISTANT DIRECTOR, OFFICE OF ENVIRONMENT AND NATURAL RESOURCES

Mr. HILL. Thank you, Mr. Chairman and members of the subcommittee. Before I do begin, let me introduce my colleague. With me today is Trish McClure, who led the work we will be presenting today on the Invasive Species Program.

We are pleased to be here today to discuss the issue of managing invasive species. My testimony today is based on our October 2002 report on the Federal Government's national management plan for invasive species, as well as new work that you requested on State perspectives regarding invasive species management.

As you know, States and over 20 different Federal agencies operate a variety of invasive species-related programs and activities. In 1999, Executive Order 1312 established the National Invasive Species Council to provide national leadership in this area and to develop a national management plan to serve as a blueprint for Federal invasive species actions. Our evaluation of that plan found that it lacks a clear, long-term desired outcome and quantifiable measures of performance. While the actions called for in the plan are likely to contribute to controlling invasive species, it is unclear how implementing them will move the United States toward a spe-

cific outcome such as reducing the number of new invasive species or the spread of established species by a certain amount.

Moreover, we reported that implementation of the plan has been slow. As of September 2002, Federal agencies had completed less than 20 percent of the 65 actions that the plan had called for by that date. We recommended that the Council clarify the goals and objectives in the national management plan and improve reporting on the progress of its implementation.

We also reported in October 2002 that Federal efforts are not adequate to prevent the introduction of invasive species into the Great Lakes via the ballast water of ships. Despite Federal regulations requiring ships that enter the Great Lakes to exchange their ballast water in the open ocean, aquatic invasive species are still establishing themselves in that ecosystem.

We found two factors that contribute to this problem. First, the Coast Guard classifies about 70 percent of the ships that enter the Great Lakes as having no ballast on board and are therefore exempt from open ocean exchange requirements. However, these ships may in fact carry thousands of gallons of residual ballast water that may contain invasive organisms and that may be discharged into the Great Lakes.

Second, the open ocean exchange conducted by ships that have ballast does not effectively remove or kill all organisms in the tanks. Federal officials believe it could be a decade or more before standards and technologies are developed to effectively treat ballast water. In the meantime, the introduction of aquatic invasive species into the Great Lakes will continue to be a problem.

Now let me turn to our most recent work gathering State perspectives on the invasive species problem. According to the State officials we surveyed, a key gap noted in both aquatic and terrestrial legislation is the lack of legal requirements for controlling invasives that are already established or widespread. In addition, many State officials frequently cited as ineffective the current Federal standards for ballast water, which only impose requirements for ships entering the Great Lakes and not other U.S. waters.

Regarding barriers to addressing invasive species, most State officials were concerned with the lack of Federal funding for State efforts and the lack of public awareness, outreach and education activities. A majority of the States also said that there are less control techniques available to combat aquatic species than there are for terrestrial species and that there is a need for more species-specific research to identify effective measures.

S. 525 appears to address many of the issues we have discussed today. For example, among other things, the bill sets forth a much more aggressive program for ballast water and related pathways by requiring ballast water standards for ships in all U.S. waters, and authorizing substantially more funding for research on pathways of likely aquatic invaders and the development of treatment technologies.

Second, the bill provides better outreach and education to various industries that can serve as pathways for invasives, such as the pet trade, recreational boaters and marina operators. Finally, S. 525 would authorize a grant program for research, development, demonstration and verification of environmentally sound, cost-effective

technologies and methods to control and eradicate aquatic invasive species.

Mr. Chairman, this concludes my statement. We would be more than pleased to respond to any questions that you or other members may have.

Senator CRAPO. Thank you very much, Mr. Hill.

Your testimony states at the outset that the data we need to set long-term goals and performance measures is not available currently. If I understand correctly, it is going to be a number of years before we are at a point where we can do that. What sorts of research data and collection need to be completed before we would have a comprehensive picture to enable us to do this well?

Mr. HILL. This is almost like a chicken and an egg argument. You almost have to decide what your performance goals and measures are going to be. How are you going to measure success or performance in this program? And then based on those measurements, you have to determine what data is currently available and what data gaps exist. I think that is something that the Council is currently wrestling with.

Senator CRAPO. The question I am getting at is, are we in a position right now where we, through legislation, can make progress in this arena? Or are we simply getting the cart before the horse? Do we need to get more data collection before we can proceed?

Mr. HILL. I am going to let Ms. McClure comment on this as well. I think the bill does provide for many nice things, one of the things being conducting of more additional research to hopefully study the situation and identify what the problem is so that you can determine what kind of data you are going to need to collect.

Ms. MCCLURE. I think the big concern is that you do not want to set a goal, for example, reducing or eliminating the invasions of invasive species to our environment, because many people recognize that that is an incredibly difficult thing to do. So I think the concern is setting an appropriate goal, and therefore identifying performance measures that are actually achievable, and the concern of gathering that data is to be sure you are reporting on the appropriate things.

Senator CRAPO. So establishment of the goal is going to drive the kind of data collection and research that we will need to conduct?

Ms. MCCLURE. Yes, definitely.

Senator CRAPO. Thank you very much.

Mr. Hill, currently there are, if I understand it correctly, 11 Federal agencies on the Invasive Species Council. The obvious question that that brings to my mind from the outset is whether we have too many cooks in the invasive species kitchen. Do we have too broad an issue here? Or is it the kind of situation where we have such a broad impact from this problem that we have to bring that many agencies to bear in the Council to address the issue?

Mr. HILL. It is certainly a situation that affects not only a lot of agency programs and missions, as well as many States, obviously as well. So it is difficult to single out one or two agencies that you could consolidate this thing into. I think the concept of a council is a good one, where you basically have all the responsible Federal agencies conceptually working together and coordinating their ac-

tivities to assist States and the Federal agencies to address the problem.

Senator CRAPO. I noted in your report that there was some discussion with the States about whether integration was a good idea or not. The States seem to be in a slight margin in favor of that. What are we talking about by "integration"?

Ms. MCCLURE. That would be providing a single legislative authority that would be very broad and provide quite a bit of flexibility in terms of how to address invasives or pathways, what type of data to collect, and what types of controls would be implemented.

Senator CRAPO. As opposed to a number of different statutory authorities? And what was the concern of the States that did not support integration?

Ms. MCCLURE. There was concern that there would be reduced State flexibility. As my colleague was saying, some of the concerns that we have many existing programs in place that have been working well, and that if you start to integrate and force agencies to change what they have historically been doing, you may be losing some of that expertise and some of the goals or the achievements that have already been made.

Senator CRAPO. My last question, then, and I will go on to Senator Allard, but did any of the States raise federalism issues or State sovereignty issues with regard to this issue?

Ms. MCCLURE. That is an interesting point. The State results actually indicate some degree of conflict on that. While they say there is a need for some legal requirements in many areas, and really need that to be able to address things, they also recognize the lack of Federal funding in many areas. So it does seem to be a mixed point.

Senator CRAPO. Thank you.

Senator Allard?

Senator ALLARD. It seems to me that if we are going to meet all these varied types of species and everything, there is so much difference in how you might attack reducing those invasive species' populations. You almost have to rely on the States to come up with a program. Would it possible, do you think, to make this a successful program if we just provided the dollars and set some general guidelines that say that you have got to show within the first 3 years of funding that you reduced whichever species it is by 5 percent within the State?

Could we be as effective doing that as we could with any kind of a mandate that we currently have in law? This report is probably one of the weakest reports as far as administering a program as I have probably seen since I have been in the Congress. It just doesn't seem to be able, like you say, measure results. I think you were right in pointing that out. Can we do that through the appropriation process and make it voluntary on the States?

Mr. HILL. That would be challenging for them in that in many cases the invasive species are not contained within one State. It is becoming a national issue. It certainly affects multiple States. In order to effectively control or prevent these species from entering, it is going to take some coordination on the part of States working together to address the problem. If they could do that, yes, it would

be effective. But if the States have different priorities or they are focusing on different species, and one State is focusing on one species and the adjacent State is not, it is going to be very difficult to control that species and certainly to do it cost-effectively.

Senator ALLARD. For example, the mussel problem that we have in the Great Lakes or the problems we have there, those species would not be a problem to other States, but perhaps regionally we could put a program in place where those States that are all impacted by that mussel, for example, could set up a program.

We could provide the money, but again direct them to do specific things in order to qualify for the funding and manage the program. Maybe we would not do it strictly by a State basis, but say if the States have a common problem, then part of the responsibility of getting this money in this program is to form a coalition of States that are willing to be a part of that coalition to get the job done.

Mr. HILL. That could be done, and certainly for the zebra mussel where it is becoming widespread and States are recognizing if we do not work together to do something, it is going to be even a bigger problem. There is a common interest there perhaps in addressing that particular issue. But there are so many species out there, and there are so many that still could enter the United States. I think what you are talking about here, and I think Senator Levin used the correct term, what you need to be looking for is basically a partnership here between Federal agencies, the States themselves, working together cooperatively where it makes sense to address common problems that they have.

Senator ALLARD. If you are going to work cooperatively, it seems like you have to make it voluntary. They have to feel they are part of the team, but you have to have responsibility to the taxpayers to make sure the money that it gets is spent responsibly. It seems to me that the proper role for the Federal Government here is to provide the money, make sure, like you said, that the program they come up with has measurable results, and that that money is well spent.

I know that, for example, a lot of foreign species that come into the United States are restricted at certain ports of entry. Is that program working or not? Did you cover that in your GAO evaluation?

Ms. MCCLURE. No, we did not.

Senator ALLARD. OK. Thank you.

Senator CRAPO. Thank you.

Senator Jeffords?

Senator JEFFORDS. Mr. Hill, regarding the agency's work implementing the management plan, does it appear that the agencies are coordinating their efforts to address actions called for by the plan?

Mr. HILL. When we did our work back in October of 2002, we did find instances where there was not effective coordination going on, where there were particular actions that were designated that needed to be done. It seemed as though the agencies were doing things that were related to that particular action, but they really weren't coordinated or integrated, and did not seem to be directed in a way that would have a successful outcome.

Since we have done that report, on a positive note, one thing that we are aware of is that the agencies now have a cross-cutting budget which should help in coordinating future efforts, since they are basically identifying budgetary things that can be done and pooling money in a way where they can coordinate some activities in the future.

Senator JEFFORDS. What is a cross-cutting budget?

Ms. MCCLURE. The cross-cutting budget that they put together for fiscal year 2004 deals with activities related to prevention, detection and control for Agriculture, Commerce and Interior. Basically, it is the starting point of something that would help them integrate, as Mr. Hill said, their programs, identify where they have actions that are related, and ensure that those activities are coordinated and they are working toward more efficient outcomes.

Senator JEFFORDS. What does GAO believe should be done in regard to ballast water management?

Mr. HILL. Clearly, there is a need for more research and technology development there. Right now, I think it was mentioned earlier by Senator Levin, that there is a need for a standard to be developed. Until that standard is developed, the companies that develop the technology are kind of reluctant, I think, to go ahead and develop those technologies because they do not know what standard or what level that those technologies need to be developed to. So you need a standard that will hopefully spur on some technology development. Once the technologies are available, you can incorporate them into ships.

Now, the other thing that is important to consider here is the longer this goes on, the longer that this standard is not developed, the longer that the technology is not put in place, ships that are currently being built will have to be retrofitted in the future to upgrade them to that standard.

Senator JEFFORDS. Thank you, Mr. Chairman.

Senator CRAPO. Thank you.

Senator Warner, and you may make an opening statement if you choose, and then follow with questions.

OPENING STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Senator WARNER. [holds up a marine mollusk shell about six inches long.] The reason I did want to speak is that I want to introduce everybody to this. I collected this yesterday when I traveled to the Chesapeake Bay with our former colleague and dear friend, Senator Mathias, who spent much of his career here in the Senate working to clean up the Chesapeake Bay.

I am going to read what this is. I really did not know much about it. Here it is. It is called a Rapa welk. Whoever heard of that before? It apparently came in through the ballast tanks and into the Chesapeake Bay some years ago. Today, it eats everything in its path, including oysters which we are appropriating significant sums of money trying to restore. So with one hand, the taxpayer is putting in money to develop oysters in my State, and this joker is running around eating them up as fast as we can get them started. In between, he devours the clams and the mussels and everything else.

Now, when I first saw it, I thought it was one of those fancy things called a conch, and all of us have been down to the islands in the middle of winter and we get conch stew and everything is quite nice. No human can eat it. It is practically poisonous.

So what has Virginia done? It has put a $5 bounty on this rascal. Even the kids can go along the seashore and pick up the shells, which they are doing, and get some bounty, but if you can get one live, it is $5 and the fishermen are almost making more money scooping these fellow up then they are the products of the sea.

So we have got to do something about it. There are a number of firms in Virginia that have developed technologies to help solve it, but precisely what you said, they are not going to move with their capital and take the risks until we decide on these interim standards. That is why I joined the Levin bill in hopes that Congress can impress upon the Federal Government that all of the various players in this, and we have a full list of all the various government agencies and so forth that have been enumerated this morning, can get together and at least hold a quiet election somewhere in a room and elect one agency to go ahead. I think the Coast Guard is eminently qualified to spearhead the effort.

So I am going to go down and put this on my shelf and watch as we work on this legislative process as a reminder to me that we have got to do something because my State is suffering greatly from this. I thank our witnesses this morning. I thank the Chairman and our distinguished Ranking Member. Now let's go get something done. This beast has got to be stopped.

Thank you very much.

Senator CRAPO. Thank you very much, Senator Warner. When you brought that in here, I thought you were bringing us something from the islands. So we appreciate that lesson.

Senator Murkowski, you may make an opening statement. Then if you choose when you are finished, you can follow up with questions.

OPENING STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR FROM THE STATE OF ALASKA

Senator MURKOWSKI. Thank you, Mr. Chairman.

I appreciate the opportunity again to participate in the hearing that has substantial impact on my State of Alaska. We have been relatively fortunate in Alaska due to the distance, climate and a little bit of foresight, to be protected from some of these invasive species. We do not have this monster that apparently has invaded the great Chesapeake Bay. We have some pretty strong laws regarding the importation of exotic species, and have had them for many years.

Despite that, we have had a number of invasive aquatic species and non-aquatic species that have hitchhiked to Alaska. We have others that are near our border and appear to be working toward our direction. In the port of Valdez in Prince William Sound, we receive the third-largest volume of ballast water of any U.S. port due to the regular arrival of very large oil tankers, many of which arrive to the port of Valdez already infested with invasive species. This is a significant and a continuing threat, although to date only a small number of problems have been detected.

We are working on technologies and practices to meet this. Among the most promising is this new method of introducing ozone into the ballast water, both when it is pumped aboard and when it is discharged. So far, we understand that there have been excellent results in removing these biological hitchhikers. I want to note that this research has been funded actually by the oil and gas industry, British Petroleum, and the industry's willingness to step forward on this issue should be recognized. But the government's obligation to address this issue should not be overlooked. I hope this committee will agree that this research is very worthy and we need to give it our strong support.

There has been a variety of both animal and plant organisms that have shown up in Alaskan waters. The Northern Pike, which has been introduced illegally into areas where it is not native, and is a very serious threat to our native Pacific salmon and other fish. We have Atlantic salmon escaping from salmon farms in other areas, which we have also seen from Southeastern Alaska up to Prince William Sound, and in ocean waters as far away as the Bering Sea. Natural reproduction of escaped Atlantic salmon has been observed in British Columbia, and it is possible that this species could find a foothold in Alaska, again, posing serious threat to our native stocks.

Plants such as Japanese knotweed, Reed Canary grass and Foxtail barley are also colonizing, posing a threat to our naturally occurring species. There are several other species which have not yet been observed in Alaska, but are considered to be a danger and we are watching carefully in the hopes of intercepting them before they do become a problem.

The European green crab is an example. It became established in California and has already moved as far north as Vancouver Island. Although small, it is highly aggressive, preys on juveniles of other crab species, as well as on clams, mussels, urchins and other fish and plants. So in Alaska, all the major crab species, king, Dungeness and Tanner, could be at risk from this European green crab.

Another small crab, again, of concern is the Chinese mitten crab, which has become established in San Francisco and may be moving northward. One specimen has been found near the mouth of the Columbia River, but because this little creature comes to the freshwater to spawn, potentially moving hundreds of miles upriver, we view it as a serious threat.

This is by no means an exhaustive list, and it is not meant to be. It is just an example of those things that we are keeping an eye on very attentively.

I also need to make mention of another creature that has become a serious problem. It is not an aquatic animal. It is the Norway rat. It shares one of the common characteristics with many aquatic nuisance species, and that is the mode of travel. Rats arriving via shipwrecks and in transferred cargo are now considered a significant threat to sea bird colonies in the Aleutian Islands Maritime Wildlife Refuge. I am hoping that when we begin to work on specific changes to the Act, it is possible to address this matter, perhaps in the same way that the Brown Tree snake, which was another terrestrial species, that will be addressed again in the original Act.

Mr. Chairman, I look forward to continuing discussion on this issue.

At this time, just a very quick question of you, Mr. Hill. I mentioned the ozone treatment into the ballast waters. We seem to think that it has shown some success. Your thoughts on this as a possible treatment?

Mr. HILL. We did not do an analysis of the various treatments being attempted. In the work we have done, we have identified that there is a need for new treatment technology and new treatments to be developed, but I am not aware of any work that we have done specifically on any treatment developments.

Senator MURKOWSKI. Perhaps we can share ours with you.

Mr. Chairman, thank you.

Senator CRAPO. Thank you very much.

Any further questions? If not, Mr. Hill and Ms. McClure, we appreciate your being with us. Thank you.

We will now move to our third panel. The panelists may come up. This panel includes Ms. Lori Williams, the Executive Director of the National Invasive Species Council; Mr. Joseph Angelo, Director of Standards at the U.S. Coast Guard; Mr. Matthew Hogan, Deputy Director of the U.S. Fish and Wildlife Service; Mr. Timothy Keeney, Deputy Assistant Secretary for Oceans and Atmosphere at the U.S. National Oceanic and Atmospheric Administration; and Mr. Tracy Mehan, Assistant Administrator for Water at the U.S. Environmental Protection Agency.

We welcome you all with us. Ms. Williams, we will start with you. Please proceed.

STATEMENT OF LORI WILLIAMS, EXECUTIVE DIRECTOR, NATIONAL INVASIVE SPECIES COUNCIL

Ms. WILLIAMS. Thank you.

Thank you for the opportunity to discuss the National Invasive Species Council's efforts to deal with the problem of invasive species and comment on S. 525, the National Aquatic Invasive Species Act of 2003.

Last summer, efforts to eradicate the snakehead fish in Maryland put the problem of aquatic invasive species on the front page. The threat that this voracious predator, discovered in a small pond, could easily have spread to the entire Chesapeake Bay if quick action was not taken by the State of Maryland and local officials, graphically demonstrates the risk of invasive species and their potential destructive capacity.

The apparent success of Maryland officials in eradicating the snakehead fish and quick action by the U.S. Fish and Wildlife Service, moving swiftly to regulate the fish under Federal law, has unfortunately been the exception, rather than the rule in the past. Too often, invasive species have become well established and difficult, if not impossible, to eradicate or contain by the time action is taken. When these species to become established, as you have heard in graphic detail, they cause environmental economic harm and some harm to animal and human health as well.

The Council is charged with coordinating Federal activities relating to all invasive species, including aquatic and terrestrial species. Although our focus today is on aquatic invasive species, many of

the issues and proposed solutions are common to all types of invasive species.

As you heard from the GAO, the Council was created by Executive Order 13112, not only to address the growing problem of invasive species, but the need for coordination. There are over 20 Federal agencies in 11 different departments and agencies that have important invasive species programs, and it is vital that they be coordinated. The Council is co-chaired and provided leadership by the Secretaries of Interior, Agriculture and Commerce, and many of the other departments that are members of the Council are represented here today.

The Executive Order provides for an Invasive Species Advisory Committee. This committee is composed of non–Federal experts and stakeholders. They advise the Council and provide vital non–Federal perspective and input. The key tasks and some of the accomplishments of the Council are listed in my full statement, but one of the most important activities of the Council is to draft and implement the National Invasive Species Management Plan. The executive summary is attached for your information, to this testimony.

I would like to now turn to comment on S. 525. The subcommittee requested that I provide a general overview of the Federal agencies' comments and concerns regarding the reauthorization bill. At that point, following my testimony, the other departments and officials will provide more detail on their specific concerns.

First, we support the reauthorization of the Aquatic Invasive Species legislation. It is a vital and important step in addressing this problem. There is broad support among councilmembers for the bill's comprehensive approach to dealing with aquatic invasive species problems. This approach is very similar to that taken in the National Invasive Management Plan.

Regarding concerns, first, in terms of ballast water, it is critical that any treatment standard adopted for ballast water be biologically meaningful, based on science, and enforceable. It has not been demonstrated that the standard based on a kill rate meets these criteria as currently proposed in S. 525. The Coast Guard and other agencies will elaborate on the specifics in terms of ballast water.

In general, there is concern that some of the provisions of S. 525 are administratively burdensome and inflexible. The Department of Commerce notes in their testimony that 31 separate deadlines for administrative actions all fall within a relatively short timeframe. Some of the bill's provisions, including the areas of rapid response and screening, are overly prescriptive and do not allow the agencies and the Council the flexibility needed to develop and test new methods and provide for adequate stakeholder input, recognizing the complexity and difficulty in dealing with some of these issues and policies involved. Some of these issues involve international trade and need to be dealt with very, very carefully.

Along the lines we noted, new spending authorized by S. 525 is currently not in the President's 2004 budget, and thus the proposal must be considered within the existing resources and priorities.

New requirements included in the bill, such as those for education, should be integrated into existing efforts.

As with any comprehensive and complex legislation, there are areas that need improvement. The other Federal representatives on the panel will provide additional detail and the Council is ready to assist the committee in addressing these general concerns and providing additional technical comments.

Thank you and I would be glad to address questions at the end of the panel.

Senator CRAPO. Thank you very much, Ms. Williams.

Mr. Angelo?

STATEMENT OF JOSEPH J. ANGELO, DIRECTOR OF STANDARDS, U.S. COAST GUARD

Mr. ANGELO. Good morning, Mr. Chairman and distinguished members of the subcommittee. I am Joe Angelo, the Director of Standards for the Coast Guard. I also serve as the head of the United States delegation to the International Maritime Organization which is negotiating an international treaty on ballast water management.

It is a pleasure to appear before you today to provide our views on S. 525. The Commandant of the Coast Guard, Admiral Collins, has stated that ballast water management is the No. 1 environmental protection issue for the U.S. Coast Guard. Working under existing legislation, the Coast Guard's ongoing regulatory efforts are addressing many of the ballast water management provisions contained in S. 525. These include establishing a mandatory national ballast water management program, which would include ballast management plans and records of ballast operations; setting a ballast water treatment standard; and establishing a process for the development, testing, and evaluation of experimental treatment systems.

Nevertheless, we believe that reauthorization and amendment of the aquatic nuisance species legislation is necessary to effectively address this growing environmental problem. However, we do have some concerns regarding S. 525 which we believe should be considered. In developing a ballast water standard, we have established three major criteria that we believe are essential in protecting U.S. waters. The standard must be biologically meaningful, scientifically sound, and enforceable. We are particularly concerned with the inclusion of an interim ballast water treatment standard in this bill. The interim standard in the bill that requires at least 95 percent removal or kill of organisms in the ballast water does not meet any of the above criteria, and from our perspective, especially the enforceability aspect.

Another concern is that the bill has the Coast Guard issuing regulations for an interim standard and EPA issuing the final standard. We believe that the responsibility to develop and promulgate a single ballast water discharge standard should remain with one agency. The Coast Guard stands ready, willing and able to do so in full consultation with those sitting at this table.

Our third concern is the proposed timelines for implementing many aspects of the ballast water management regulatory regime. We fully recognize the need to issue regulations on this important

issue quickly, but in view of the fact that the current state of ballast water management technology is very much in its infancy, we firmly believe that stakeholder input and participation throughout the regulatory process is absolutely essential. The timelines contained in the bill may inhibit full and complete stakeholder participation.

The final concern I will mention is that we believe that the prescriptive nature of the bill has the potential for delaying the implementation of an effective Federal ballast water management regime.

In closing, I would like to thank you for the opportunity to present some of our views on this bill. The Coast Guard looks forward to working with Congress on the reauthorization of aquatic nuisance species legislation as we continue our ongoing efforts to implement an effective ballast water management regime for the United States.

I would be happy to answer any questions that you have when we are done. You asked for 5 minutes, and I kept it to three. I have always wanted to say this, sir, I yield my 2 minutes to the remaining panel members.

[Laughter.]

Senator CRAPO. We appreciate your keeping it to three, but we are not going to let you yield those minutes to anybody else.

[Laughter.]

Senator CRAPO. Thank you very much, Mr. Angelo.

Mr. Hogan?

STATEMENT OF MATTHEW HOGAN, DEPUTY DIRECTOR, U.S. FISH AND WILDLIFE SERVICE

Mr. HOGAN. Good morning, Mr. Chairman, and members of the subcommittee. I am Matt Hogan, Deputy Director of the U.S. Fish and Wildlife Service. I thank you for inviting the Department of Interior to give you our comments on S. 525.

There is no question that the introduction and establishment of aquatic invasive species have significantly impacted our natural areas. The United States continues to see an increase in the number of aquatic species crossing our borders, and we expect these trends to continue if preventive action is not taken. The Department supports the overall direction of this bill and is encouraged by the leadership and foresight shown by Congress in introducing legislation that is so comprehensive.

One of the purposes of the original legislation was to encourage Federal and State agencies to work with partners to enhance our collective efforts. We believe that the partnerships and cooperative entities established through the ANS Task Force and the National Invasive Species Council have been instrumental in making significant progress to prevent and control aquatic invasive species. While aquatic invasive species continue to be a significant threat to our natural resources, we believe our efforts to prevent and control them has resulted in fewer species introduced and reduced impacts for those that have become established.

I would like to take a moment to briefly address some of our concerns with S. 525. Let me begin by saying that we support reauthorization and look forward to working with you, Mr. Chairman,

to address the Department's concerns. One specific concern we have is the proposed deadlines required by S. 525. We hope to have the opportunity to work with you and your staff to ensure that the deadlines are manageable, while still ensuring that we continue to deal aggressively with these issues.

We are encouraged to see that additional emphasis is being placed on aquatic pathways other than ballast water. This additional emphasis will encourage the development of management actions which may minimize the threats from new aquatic invasive species that have the potential to impact our fish and wildlife populations and associated habitats.

The Department supports the development of a screening process for planned importations of live aquatic organisms. Having the opportunity to evaluate new non-native species that are proposed to be imported into the United States will be a valuable tool to ensure that we are proactive in preventing the introduction of new aquatic invasive species into U.S. waters.

However, we are concerned about the provisions that delegate authority to screen species imported for use in aquaculture to the U.S. Department of Agriculture. Because of the risk to fish and wildlife, we believe that the Service should also have a role in this type of screening.

We are also concerned that the deadlines are nondiscretionary and that we will not have adequate resources to develop and implement the screening process to accomplish these tasks within the stated deadlines. We have a few technical corrections and would like to work with you to address these issues.

Education and outreach continue to be critical elements to the success of invasive species prevention and control. Within the Department, the Fish and Wildlife Service has been actively working for many years on the 100th Meridian Initiative to stop the westward spread of zebra mussels and other aquatic invasive species. We support the proposed enhancement of these efforts through increased and targeted outreach and education efforts.

In closing, Mr. Chairman, I want to thank you for providing the Department with an opportunity to comment on this important legislation. As I stated earlier, we would be happy to work with you and your staff to address issues related to deadlines and implementation. We believe that the comprehensive approach outlined in this legislation will result in a more balanced, holistic effort to address the problems caused by aquatic invasive species.

Mr. Chairman, that concludes my statement. I would be happy to respond to any questions at the appropriate time.

Senator CRAPO. Thank you very much, Mr. Hogan. You did it in three-and-a-half minutes. That is good.

Mr. Keeney?

STATEMENT OF TIMOTHY R.E. KEENEY, DEPUTY ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE, U.S. NATIONAL OCEAN AND ATMOSPHERIC ADMINISTRATION

Mr. KEENEY. Good morning, Chairman Crapo and distinguished members of the subcommittee. I am Tim Keeney, Deputy Assistant Secretary of Commerce for Oceans and Atmosphere and the National Oceanic and Atmospheric Administration, and co-chair of the

Aquatic Nuisance Species Task Force. I certainly appreciate the opportunity to present NOAA's views on S. 525.

Senator Levin's bill, Mr. Chairman, addresses some gaps in our existing programs. NOAA strongly supports existing program and reauthorization of the program. Nevertheless, we have significant concerns with some provisions of the pending legislation and I am happy to have my staff work with the committee staff to address these concerns.

NOAA believes that some of the elements dealing with ballast water need to be revised. Ultimately, there needs to be a ballast water discharge standard based on sound science that is biologically meaningful and enforceable. We do not believe that the 95 percent kill or removal rate meets these criteria. NOAA fully supports the provision which would allow approval of experimental technologies for ballast water treatment, but wonders if the intent of Congress was really for such authority to expire after 18 months. NOAA believes that a provision for on-board testing of promising technologies should remain in place until final standards become effective.

We do not believe that having a rapid response contingency plan as one of the components of State management plans should be a prerequisite for receiving matching funds for rapid response to serious invaders. If an invader presents a serious enough threat to warrant a rapid response action, the response should be made whether a State has developed a contingency plan or not. Similarly, while any activities to improve early detection should be encouraged, NOAA does not believe that an early detection strategy should be a prerequisite for a rapid response plan.

Recently, considerable attention has been given to the economic difficulties facing State governments. The monitoring necessary for an effective early detection strategy can be quite costly. Such a provision actually may discourage States from developing rapid response plans. The result could be a situation of being unable to respond to a serious invasion because a State does not have a monitoring program set up. NOAA is providing funding during the current fiscal year to help regional panels develop contingency plans for rapid response. NOAA suggests that the Task Force, which includes the Coast Guard, is the appropriate entity for approval of such plans.

It is important that management agencies are included in this process, which would be accomplished by giving the Task Force responsibility for formal approval. NOAA supports the increasing emphasis on research in the bill, as virtually every activity from prevention to control to restoration needs, to have a scientific underpinning.

Despite significant advances, there are still areas in which our knowledge is seriously deficient. 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 baselines so that we know when a serious new invader has been introduced. Both the Task Force and NOAA have taken first steps to correct the deficiencies in monitoring. We are pleased that the bill would take further steps by requiring the development of protocols in setting up a monitoring standard.

Second, our scientific knowledge of control methods in aquatic environments is still in its infancy and control in aquatic ecosystems presents unique problems. It is much more difficult to localize biocide applications in the aquatic environment because water transports chemicals so readily. We have just begun to look at bio-control agents and some promising early results with a pathogen that could be used for zebra mussel control and may be species-specific.

Thank you for allowing me the opportunity to testify on behalf of NOAA and the Department of Commerce. That concludes my testimony and I would be happy to answer any questions you may have.

Senator CRAPO. Thank you very much, Mr. Keeney.

Mr. Mehan?

STATEMENT OF G. TRACY MEHAN, ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. MEHAN. Good morning, Mr. Chairman, members of the committee. I am Tracy Mehan, Assistant Administrator for Water at EPA. I appreciate the opportunity to comment on S. 525.

This is a great day, as somebody who has been laboring as a State official on this issue for a decade or so. It is really wonderful to have this hearing and put the spotlight on an issue which most biologists and ecologists would say is second only to habitat loss. I would go so far as to say that at least in the Great Lakes ecosystem, one I am very familiar with, that it is probably the paramount threat to the integrity of the ecosystem.

I will make some brief remarks, pretty much echoing a lot of the technical comments of my colleagues today. I would ask that my full written statement be entered into the record.

Senator CRAPO. Without objection. The testimony of all witnesses today will be put into the record.

Mr. MEHAN. Section 101(a) of the Clean Water Act states that the objective of this chapter is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. The fact is, 31 years after the passage of the Clean Water Act, most of our focus, at least at EPA, has been on the chemical impacts on the aquatic ecosystems. That is still important and will continue to be, but we are clearly now in the 21st century at a point where biology has to come forward, and certainly as a priority as it relates to aquatic nuisance species.

Again, as Senator Voinovich noted, in the Great Lakes ecosystem we have somewhere between 135 and probably close to 160 exotics that were not in the system last century, primarily due to ballast water discharges. It is not uncommon in that region to hear academic scholars use the phrase "invasional meltdown" to describe what has been going on there with all the introductions.

EPA has been working in a number of areas to try and address invasive species, from research and monitoring to assisting in the development of the ballast water standards. These kinds of regulatory actions are things we obviously have a lot of experience in, whether it is on benefit-cost analysis or just the intricacies of the Administrative Procedures Act. We appreciate that the bill recog-

nizes EPA's role in addressing invasive species. We recognize the hard work that has gone into the bill, commend the authors, and look forward to working on a technical level to deal with some of the concerns we have that are identical to those that my colleagues have outlined today.

Again, we share the concerns about the 95 percent interim standard. I personally have spoken to the Chairman of the International Joint Commission, who of course is interested in the Great Lakes as he works to implement the Boundary Waters Treaty of 1909. He shares our concerns that we are really going to need something much more geared to the science that is going to actually deal with specific organisms. The broad-brush approach to a standard is not going to really solve the problem. Again, we are more than willing to put our technical expertise into the mix of other expertise here today to try and work through these issues.

We also echo the concerns regarding the sheer number of activities required by the bill over the next 3 years. While it is not quite the Clean Air Act Amendments of 1990, they are pretty daunting, at least from the perspective of our program which has experienced a 32 percent reduction in funding for core programs over the last 5 years.

The bill provides for sediment management in trans-oceanic vessels, which is very important as it relates to the NOBOB issue, which was brought up by Mr. Hill. Again, we think this is necessary, but it is not sufficient to deal with NOBOB. Just so I can emphasize that point again with respect to the great closed system of the Great Lakes, I have heard figures as high as 85 percent from various Coast Guard spokespersons as to the number of vessels coming into the Great Lakes that are not carrying ballast water.

They are essentially NOBOB, which means there is this layer of sediment in which aquatic nuisance species are in-dwelling and as water is taken on within the Great Lakes and then it is re-discharged, we have got an introduction. The rate of introduction today into the Great Lakes is the same as it was before the Ballast Water Exchange Program was put in place. So clearly NOBOB is a serious question as it relates to the Great Lakes, and for that matter, all ecosystems which are exposed to these discharges. So again, we look forward to working on that crucial issue.

Last, we are concerned that the research required in the bill is too prescriptive, and we would love to bring in our colleagues at EPA from the Office of Research and Development to work on that.

I am going to conclude with just a quote from a towering figure in Great Lakes policy and Michigan conservation, Dr. William Cooper, a former member of EPA's Science Advisory Board, Professor Emeritus of Zoology at Michigan State University, who made this provocative statement not too long ago: "If one wished to allocate scarce monetary and human resources so as to maximize the reduction in ecological risk per unit resource expended, one would do more good by regulating and/or limiting the introductions of exotics than by obtaining marginal reductions in trace levels of existing toxicants."

I do not offer that statement to prove the truth of the matter asserted, but I think he does present a challenging statement as to

how biology is coming up on the agenda of issues pertaining to protecting our ecosystems.

Thank you, Mr. Chairman.

Senator CRAPO. Thank you very much, Mr. Mehan.

I commend the entire panel, all of you, for keeping your testimony within the limits and saving us a few minutes along the way.

Mr. Mehan, I would like to begin my questioning with you. You indicated something that I had not thought of in that context, and I am not going to quote you directly here, I would like you to flesh out your thought. You indicated that you thought this issue of invasive species was second only to habitat loss as a threat to our ecosystems in the country. Could you explain that?

Mr. MEHAN. Again, I consider myself a layperson in terms of the science of this, having degrees in law and history. But every scientist, every ecologist, every biologist that I have talked to for at least the last decade or more continually comes back to the destabilizing impact that these introductions, these exotics, if you will, aquatic nuisance species, terrestrial species, have, whether it is destroying native populations, out-competing native populations, disrupting natural flow regimes in a more arid climate if you are talking terrestrial species.

There is just no good that comes of these things. And these ecosystems have evolved over millennium, if not millions of years, and the whole system becomes disrupted at a foundational level. Therefore, a lot of things stem from this. Senator Voinovich talked about the possible tie-in to zebra mussels in the hypoxia areas in Lake Erie. In Grand Traverse Bay in Michigan, we are creating a biological desert there because of this substratum of zebra mussels.

We would not have a Great Lakes fishery today without the millions if not billions of dollars that have been spent by the U.S. and Canada just controlling sea lampreys, which did not come in through ballast water, but through the Welland Canal. Again, without that foundation program, a huge investment annually run through the State Department's budget and the Canadian counterpart budget, we just would not have any fishery system at all.

So whether it is the zebra mussel or the sea lamprey, what we are seeing now, say, with the melaleuca in the Everglades, the tamarisk in Colorado; one threat after another is just presenting colossal challenges to the integrity of our ecosystems.

Senator CRAPO. Thank you.

Do the other members of the panel agree with that perspective?

Ms. WILLIAMS. Yes, I would agree with that. I just wanted to add one variation on it, that invasive species have been documented as the second-leading cause of species being listed as endangered or threatened under the Endangered Species Act, after habitat loss. So that would support what he is saying. Also, when we talked about tamarisk, the water regime, it takes a lot of water out of the system. That also changes the whole ecology of the area. So there are quite a few examples of these species having broad impact across the ecosystems.

Senator CRAPO. I think that perspective is a very important perspective and one that we need to make certain is understood by the public as we address this issue. It is one that I do not think is being focused on that closely in the United States right now, at

least in terms of the public perception of the kinds of issues that we are dealing with in terms of our ecosystems, our environment, and the protection of species.

An issue that I suspect will be raised by at least some of the next panel is how do we determine what is a good or a bad invasive species? I mean, there are some species that are being introduced on purpose in certain circumstances, or in the past have been. In fact, a question has been raised in some of the papers that I have read about the rainbow trout, which we love to fish for out in the West where I come from. In certain places, that could be considered an introduced or an invasive species.

How do we approach this question of defining what it is that we are seeking to eradicate or to prevent?

Ms. Williams?

Ms. WILLIAMS. I will tackle that in terms of the definition in the Executive Order. One of the things I always talk about is you need to give your definition of "invasive species" when you start talking about it, because there is a variation in how people talk about invasive species. The way that the Federal Government defines "invasive species" in the Executive Order is to say the species has to be both alien to the ecosystem or region under consideration, and harmful to the economy, the environment, or to animal or human health.

There is some subjectivity in that definition. Invasive species are not necessarily regulated just because they are called or determined to be harmful and invasive species. They also have to be regulated under specific statutes in the Federal Government. So there is no master list of invasive species that we have compiled, nor do I think that would be wise or appropriate because it does change and it does vary. An invasive species in Florida may not be invasive in another region of the country or Alaska or whatever. So you do have to look at the particular area involved to determine if it is a problem.

Senator CRAPO. Thank you.

My time has expired, so if you had a comment that you wanted to make on this, hold it, because we are going to come back and do another round here and I will come back to this.

Senator Allard, would you like to go ahead?

Senator ALLARD. Thank you, Mr. Chairman.

It seems like the general concern for many members on this panel at least is the requirement in the bill that there are 31 separate actions, each with deadlines that must be completed by members of the Aquatic Nuisance Species Task Force within 18 months of passage. Do you feel like you could prioritize these actions for the committee, and determine which ones are the best and which ones are least important in your mind? And if you could share those now, or if you can't, perhaps make those available to the committee?

Mr. KEENEY. Certainly. We at Commerce would be more than willing to work with your committee and committee staff to provide that priority.

Senator ALLARD. Yes, but I am not asking that you work with us. I want to know what your priorities are for the members of this panel. So I don't think our committee staff should be a part of that.

They are not part of the Council. What I want to know is what your priorities are, and the Council needs to come up and provide those priorities to this committee.

Mr. KEENEY. I will provide that for the record.

Senator ALLARD. Yes.

Mr. HOGAN. Senator, we would be glad to do the same thing. Just a couple of comments, I think those activities associated with screening and prevention would be right at the top of the list, and then certainly early detection and rapid response. But we would be happy to provide a more detailed list to the committee and to you.

Senator ALLARD. What we struggle with in this committee is then what, and again, your comments tend to be kind of general. We need to have some specifics on GPRA, you know, the Government Procedures and Results Act where we get measurable ways to quantify things so that we can measure them so we can measure results. I am of the view, and I think maybe other members of this committee, we do not necessarily want to get into the day-to-day operations, but we want to see results.

If you can reduce the mussel population in the Great Lakes by 10 percent in 5 years, that is a measurable quantity, maybe, if you can figure out how to measure the number of mussels in the lake. Those kind of things are helpful. I know what the bill sponsor is trying to do. He is trying to fix up some measurable goals there, and if you think these are too tight, maybe some of them need to be dropped, and if we know where the priorities are and where they are not, then that helps us determine where to focus your attention to get the best results.

Ms. WILLIAMS. Senator, the Council would be willing to help coordinate the priorities of the different agencies and work with everyone here and provide to the committee.

Senator ALLARD. Let me bring up another concern if I have time here. Some people are concerned about an apparent multiplicity of reporting requirements. These people allege that each report will require a significant commitment of resources that could actually inhibit implementation of activities. NOAA recommends that there be a single reporting requirement and the committee identified elements to be included in the report. I am wondering if I can have a comment from each of you. I don't know if we need a comment from Mr. Keeney, but from the rest of you on the panel here. Do you have any thoughts on this suggestion?

Mr. HOGAN. Senator, I will take the first crack at that. I think that makes eminent sense and we would be glad to fall in line with that if other folks were agreeable as well.

Ms. WILLIAMS. I would agree.

Senator ALLARD. Everybody? All right.

Third question, this legislation requires that each State have a rapid response contingency plan. If the Federal Government requires such a plan, how can we ensure that all ships that discharge ballast waters are aware of each State's plan?

Mr. KEENEY. Senator, I might say first of all that each State is working on a management plan, and NOAA is working closely with them to assist them in putting those plans together. We also have regional panels. I think we have a total of five of them, all of which have State leadership that run those panels. The States have em-

braced a Federal coordinating role to assist them to come up with adequate and appropriate response plans.

Senator ALLARD. So how do you inform these ships that are coming in? As a veterinarian, we write health certificates. We get a booklet with all the States' requirements on health certificates and whatnot. So are you planning on making these available to the shipping companies so that they know what these requirements are? How do you make that available? They are foreign as well as native?

Mr. MEHAN. If I might just take a shot at that. Obviously, the details of that need to be worked out collaboratively, but I think certainly again, speaking about an ecosystem I have some familiarity with, every ship that comes into the Great Lakes comes through Messina, New York and the Coast Guard jumps on that ship and checks out its salinity levels and does all sorts of things. So at least for that region, that eight–State region, I think it is pretty clear you can control it. I think posting things on a Web site, providing things in a manual. I think with the information technologies available, that is doable.

The question will be more what is the content of the rapid response plans and what is their role. A lot of this will get down to site-specific areas, what ports are you talking about, and where and under what circumstances do the protocols allow a discharge or not.

So I think it is a solvable problem, but it will take some puzzling out of the details to make it efficient and not a burdensome requirement.

Senator ALLARD. Yes?

Mr. ANGELO. If I might just add one comment here, Senator. You focused on the States' response plans. Where we see the bigger emphasis with the international shipping community would be through the prevention side. We believe that by making sure that the shipping that comes to the United States is complying from a prevention standpoint, that would significantly diminish the need for anything in the response area. Once it is in the water, there is little the ship can do itself. It then turns into a response between the Federal Government and the States. But if we focus on the prevention side, we think we can have a bigger bang for our buck there.

Mr. KEENEY. Just to follow up what was just stated by the Coast Guard, NOAA opposed the rapid response plans for ships in our testimony.

Senator CRAPO. Thank you very much.

Senator Murkowski?

Senator MURKOWSKI. Thank you.

I would like to go back to the discussion we were having about the definition of "invasive species." I think it was you, Ms. Williams, that mentioned that as part of the definition you looked to whether or not the species was alien to the region, and I think you said harmful to the economy or the environment. We have been focusing on a lot of those species that are coming in through ballast waters, but as I mentioned in my statement, one of the concerns that we have in Alaska right now is the farm salmon that are coming out of British Columbia or coming out of the State of Wash-

ington, and are essentially being found as far north as the Bering Sea.

We view this as increased competition, then, with our wild salmon for prey, for habitat, for predation. We view this as a significant threat to our wild stocks. Certainly our fishermen are feeling the economic pinch, if you will, as a consequence of these farmed fish.

Is it your opinion that if we are talking about a plan of attack for invasive species, that farmed salmon versus the wild stocks, that that would be part of your plan?

Ms. WILLIAMS. You would certainly want to address that one of the possible pathways for invasive species is farmed fish or aquaculture. It does have to be looked at in terms of not only the economic value of that industry. Aquaculture also is a very important industry, but what affects if these fish are escaping is it having on other regions?

One of the things we have looked at, actually GAO made this recommendation as well, is getting better economic impact data. Besides one very large study from Cornell, which everyone quotes, there is not a lot of good data on what the impact of some of these species are on the economy broadly, especially in certain regions. So we are looking to enhance that throughout the Council, getting better economic impact data.

Senator MURKOWSKI. Mr. Keeney or Mr. Hogan, do you have any additional comments?

Mr. KEENEY. Senator Murkowski, NOAA's Northwest Fisheries Science Center and our Fisheries Science Lab in Manchester, Washington have been analyzing the impacts with regards to aquaculture and bringing foreign salmon into an ecosystem, and also the potential of introducing diseases along with those salmon. With NOAA moneys, the Pacific States Marine Fisheries Commission is sponsoring a workshop this fall of 2003 to bring together commercial fishermen and those in the aquaculture industry together to assess the extent of problems and potential solutions for those problems.

Senator MURKOWSKI. Thank you.

Mr. Hogan?

Mr. HOGAN. Senator, I guess I would just add that I agree with what Lori Williams said, that definitely there is a need to get more economic data and find out exactly what impact these species are having. I think you raise an excellent point, and it relates to your point, Senator Crapo. Some of these species were introduced with the best of intentions, in some cases mistakenly and in some cases on purpose, and it is not until later that we have found that they have a detrimental impact. One of the provisions in the bill actually moves us toward a more proactive approach where we would do some initial screening before the species was imported, rather than having to deal with it once it has already been introduced and established, and oftentimes when it is too late to completely control or eradicate it.

Senator MURKOWSKI. Thank you. I appreciate your responses. Thank you.

Senator CRAPO. Thank you.

Senator Jeffords, do you have any questions?

Senator JEFFORDS. Mr. Hogan, you say in your testimony that the nature of the Lacey Act makes your actions more reactive than proactive. While the screening process proposed in S. 525 is proactive, would you give us some suggestions and other ideas that we might want to apply to the Lacey Act to make it more proactive?

Mr. HOGAN. Senator, when you talk about opening the Lacey Act, it comes with a potential host of problems. We would rather suggest to you for your consideration some additional legislative remedies outside of the Lacey Act that could be used to make our screening more proactive, while not necessarily approaching it through the Lacey Act. I would be happy to provide those details to you for the record following this meeting, with some specific ideas.

Senator JEFFORDS. S. 525 shifts the Federal agencies' focus from reacting to new invasions to a more preventive strategy where our policy will be to stop invasions before they happen. Could the witnesses comment generally on that strategy? Is it wise to focus our resources on more preventive efforts?

Mr. MEHAN. Senator, I would be happy to take a shot at that.

Senator JEFFORDS. Go ahead, Mr. Mehan.

Mr. MEHAN. Let's take the zebra mussel as a case in point. Millions of dollars have been spent by researchers examining its impacts, but the fact is we really do not have any way to deal with it. We are coping with it. I wanted to engage with Senator Allard a bit, we are not going to reduce that biomass. It is here to stay and the system is adapting and coping with it. So it seems to me, again using the Great Lakes as an example, there are predictions of 16 or 17 more introductions coming from places like the Caspian Sea by way of ballast water. I think our energies are much more prudently directed toward preventing new introductions.

Coping is always something we have to do, but it is exactly that, coping. Whether we really can put the genie back in the bottle, I think is doubtful in many cases. Maybe on a smaller watershed basis you might be able to control terrestrial species or maybe use biocides to beat back something to allow native species to come back, but in terms of a large system like the Great Lakes, prevention is the only way to go.

Mr. ANGELO. From the Coast Guard's perspective, we fully support the emphasis on prevention. We think that is the proper action to be taking and that is the program that we are trying to put in place right now.

Ms. WILLIAMS. Under the plan, we talk about prevention as the first line of defense. Obviously, some things get through, and having some capability for early detection and rapid response is really a responsible way to go. Also, prevention is the largest responsibility for the Federal Government. Often when these species become established, it does tend to fall to the States and these tremendous control costs tend to fall to the States to deal with these species. So it really makes the Federal responsibility under prevention all that more important. But I would not want to ignore early detection rapid response where it is possible. In the aquatic area, it is very, very difficult.

Mr. KEENEY. I would just like to say in response again to the principle that was originally asked about the importance of these invasive species, the fact of the matter is that once non-indigenous species are established in an ecosystem, that ecosystem changes forever. You can never get back to where you were before the species was introduced. That is an important concept, because if you are talking about investing dollars, the best return on the investment is from prevention to begin with. Early detection rapid response and other control mechanisms are important parts of the equation, but prevention is where you get your most bang for the buck.

Senator JEFFORDS. Mr. Angelo, the International Maritime Organization, IMO, is currently debating many of the same issues that are before us here in S. 525. Can you please describe the United States' position on ballast water standards during these negotiations? Are we pursuing a strategy that will lead to a strong domestic program?

Mr. ANGELO. Senator, I would say that the United States is taking the leadership role in the International Maritime Organization in developing a worldwide international treaty on ballast water management. From our perspective, there are four key elements to this treaty. We believe that the treaty must have a ballast water treatment standard. We believe that there must be mandatory ballast water exchange. And to bridge the two, we believe the treaty must also have provisions for allowing experimental technologies to develop so we can progress from ballast water exchange to a very rigorous treatment.

The fourth element, Senator, is perhaps the most important from the United States' perspective. That is that we believe the treaty should also have the provision that allows any country, including the United States, to take any additional measures it needs to take above and beyond the treaty to protect its waters. As of right now, the latest draft of this instrument contains provisions, all four of those provisions that I have just mentioned.

It will be our approach as we go through the negotiations, which will be at the upcoming Marine Environmental Protection Committee meeting in July, to make sure that those provisions are retained in the convention. And then when we go forward hopefully to an international conference sometime early next year, to make sure that they are retained in the outcome of the conference. If they are not, then we would have serious reservations about whether we want to have the United States even become party to that instrument, sir.

Senator JEFFORDS. Thank you. I hope you will keep us apprised as you go along to make sure that we are aware of any problems that you can alert us to.

Mr. ANGELO. Yes, we will, sir.

Senator CRAPO. Thank you very much, Senator.

Before we go to the next panel, I just wanted to come back and see if anybody had any further comments on the line of questioning I was pursuing, which was this notion of how do we define what is an invasive species and what is not in the context of the nature of this threat to our ecosystem. Anybody want to elaborate on that, or shall we go on?

Mr. Keeney?

Mr. KEENEY. Thank you. Some of the points have already been made with regards to the need for initial screening. I think that research is another important element here with regards to the potential impact of the species. The alewife, for instance, is a species introduced into the Great Lakes, which actually seems to have a positive effect because, again, the ecosystem has changed. The alewife has now become a valuable part of the ecosystem.

But I think we also need to focus on the prevention element; the fact that we need to look at vectors that are bringing these species in. That is about it.

Senator CRAPO. Thank you.

Mr. Mehan?

Mr. MEHAN. It is interesting talking about the alewife. Then the salmon were brought in to control the alewife. So the problem is that we are doomed to play God; that the systems have been so altered in many cases that we even when we don't want to allow these introductions, we have to deal with them. For instance, I know in the upper Midwest, they are looking at an exotic beetle to control purple loosestrife, so there are some bio-control efforts.

So the question comes down to, is it an intended or unintended introduction? A lot of these problems, as we have noted earlier, are due to unintended introductions. So I think you start with some presumptions, and the presumption is against introducing an exotic or non-native species. But based on where the science is and how it progresses, we are looking at a non-native oyster in Chesapeake Bay and waiting for an NAS report on that. We may make prudential judgments that an introduction is worth the risk. But again, I think you have to start with a presumption that it is a very dicey proposition whenever you are introducing or allowing to be introduced a non-native species.

Senator CRAPO. Thank you.

As I wrap up, I just had one other question to ask, and it kind of springs from the point made by Ms. Williams. I want to be sure I understood you correctly. Did you say that the second-leading cause of threatening species and leading to endangered species is invasive species?

Ms. WILLIAMS. Under the Endangered Species Act, what they found is the second-leading threat; they list species and then they say these are the threats to these species. To endangered species, after habitat loss, causing them to be listed as endangered or threatened, are invasive species. So they are getting preyed on or crowded out or they are having some effect that is leading them to be leading them to be listed as endangered or threatened.

Senator CRAPO. OK. I think that is a very remarkable piece of information. It tells us a lot about what we are dealing with here.

The last question I had is, and this is just for clarification in terms of the relationship between the invasive species statutes and the Endangered Species Act, is I am assuming that a non-indigenous invasive species cannot become threatened or endangered under the Endangered Species Act. Am I correct?

Ms. WILLIAMS. I know of no case. I think they kind of are opposite ends of the spectrum. What you have is an invasive species is partly invasive because its populations are either exploding or way

beyond what would be normally expected. So that would be counter to the fact that that would usually cause an endangered species to be listed, but I will let the Fish and Wildlife Service respond.

Mr. HOGAN. That is correct, Senator. It does not have to be a native species in order to be listed.

Senator CRAPO. How far back do we go to define "native"?

[Laughter.]

Mr. HOGAN. Now you are getting into a little bit more difficult area. That is a good question and I don't know that I am really equipped to answer it right now, but I would be glad to provide that.

[The information referred to follows:]

Question. Would the Fish and Wildlife Service ever list a non-indigenous invasive species under the Endangered Species Act (ESA)?

Response. Although the ESA provides for the protection of any species, both foreign and domestic, except for insect pests that pose a significant threat to humans, it is unlikely that the Service would ever list a non-indigenous invasive species. Invasive species by their very nature are not likely to become threatened or endangered, and therefore to require protection under the ESA. Invasive species generally are successful competitors for resources and adaptable to a variety of habitats, including those that have been significantly modified by humans for agriculture or other purposes. Typically, species that qualify for listing under the ESA have restricted habitat requirements, are intolerant of human presence and activities, or may be out-competed by other species, although other factors may contribute to a listing

Senator CRAPO. Any help you can give on that would be appreciated. I think that it is an intuitive answer, but I would like to be sure that it is correct.

I would like to thank this panel for your participation and the information you have provided. You are excused and we will move on to our fourth panel. We invite our fourth panel to come forward.

Our fourth panel is composed of Mr. Jim Beers, the Science Advisor to the American Land Rights Association; Mr. Sebastian Hargrove, the Government Relations Associate from the Nature Conservancy of Idaho; Mr. Michael Hauser, the Aquatic Nuisance Species Specialist from the Vermont Department of Environmental Conservation; and Mr. James Weakley, the President of Lake Carriers' Association.

Gentlemen, as you are taking your seats, I would like to remind you also to try to pay attention to that clock and the 5-minute rule so we will have time for some interaction. I appreciate your appearance today to present your testimony on this issue.

Mr. Beers, as soon as you are ready, we will start with you.

STATEMENT OF JIM BEERS, SCIENCE ADVISOR, THE AMERICAN LAND RIGHTS ASSOCIATION

Mr. BEERS. Thank you, Mr. Chairman, for inviting me to testify at your hearing today. I represent the American Land Rights Association, an organization of small property owners in all 50 States. I worked for the U.S. Fish and Wildlife Service for 30 years in four States and Washington, DC. I was a wildlife biologist, special agent, and refuge manager.

I have enforced injurious wildlife regulations, investigated endangered species cases both here and in Europe. I worked on invasive species control programs for nutria and purple loosestrife, attended U.N. wildlife conferences, and represented State wildlife

agencies fighting a threatened European fur embargo. I currently write and speak extensively about both endangered and invasive species.

The National Aquatic Invasive Species Act of 2003 is based on erroneous assumptions. Briefly, it is wrong to characterize all recently arrived plants and animals as having only exaggerated bad effects and reducing biodiversity. This striped bass right here is an invasive species in numerous lakes, rivers and reservoirs across the Nation, as well as in West Coast estuaries. This rainbow trout is another invasive species in lakes, rivers and reservoirs throughout the United States.

Fishing license money, State fishery management staffs, charter boat revenues, and boating equipment sales, fishing tackle sales, tourist revenues, annual sport fish restoration dollars in the millions, taxidermy business, as well as millions of hours of family recreation and many fine meals will all be reduced under this legislation.

These fish are typical of many desirable invasive plants and animals that increase biodiversity while benefiting us all. It is wrong to infer a Federal concern for plants and animals outside the historic range of the species of which the organism is a member. This applies directly to these two fish that have been widely and purposely introduced for the many direct and indirect benefits to citizens and aquatic habitats that they create.

What does historic range mean? When Asians arrived 10,000 years ago, when Columbus arrived, when the Constitution was signed? Camels, horses and elephants once thrived here. Are they native or invasive species? It is wrong to define Federal aquatic authority as including estuarine and inland waters and wetlands. These waters are nearly all under State jurisdiction. Given the current court case involving a decade-long dumping of toxic sludge by the United States Army Corps of Engineers through a national park under an EPA permit reviewed by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service on a spawning grounds of endangered shortnose sturgeon in the Potomac River as it passes Washington, DC, it does not appear prudent to expand Federal authority in this manner.

It is wrong to infer Federal jurisdiction over invasive species and non-indigenous species that may cause harm, so broadly defined as to permit any biological competition or increase in biodiversity to be declared harmful. These two fish, for instance, eat other fish and compete with yet others for space and good.

It is wrong to claim authority over any fundamental category of taxonomic classification below a genus or subgenus. This enshrines the unwritten Endangered Species Act principle that authorizes all manner of Federal intervention to the smallest flock, school or stand of any species. This has caused increasing friction with property owners and many others as the level of Federal concern descended below that of species to races, varieties, distinct populations and even beyond.

Using the need for the Federal Government to regulate ballast water, a penumbra of Federal authorities and tasks are being created to mimic the Endangered Species Act. That Act has caused havoc with much more than property rights, and has gone unau-

thorized for 15 years while its reach and annual appropriations continue to grow. The authority to manage, control and eradicate plants and animals is one of those powers reserved to the States in the 10th Amendment.

The Federal Government is responsible for the management of the import, export, interstate and foreign aspects of these matters. It is proper that the Federal Government ensures clean ballast water discharges, manages imports and exports, and cooperates with State governments in the management, control, and eradication of harmful plants and animals regardless of their origins or arrival dates.

The American Land Rights Association joins with all citizens concerned about the loss of not only land property rights, but also the rights of fish owners, aquarium hobbyists, florists, gardeners, landscapers, boaters, horseback riders, pet owners, hikers, trappers, duck hunters, fishermen and scores of others whose property rights, outdoor activities, property rights held in trust by State governments, and public land access are directly threatened by this proposed expansion of Federal authority and diminishment of State authority over aquatic habitats.

The task being proposed, encouragement of native species, is not desirable, not beneficial, not achievable, not measurable, never-ending, and a public expense beyond comprehension.

Please consider a revised bill that controls ballast water discharge, controls harmful aquatic plants and animals on the Federal estate, and cooperates with the States to fulfill the fish, wildlife and plant responsibilities assigned them in the Constitution. Otherwise, S. 525 will, like the Endangered Species Act, radically modify our basic freedoms, while enriching only Federal bureaucracies, universities, and the agendas of environmental and animal rights organizations.

One last observation. The bill's proposed whitelist approach in Section 1105 for controlling imports is fraught with pitfalls. It is causing problems in Australia and had it been in effect here 200 years ago, we would not now have brown trout, tulips, Holsteins, or even house cats here today. Definitions like "organism" and "trade" in Section 1003, which does not even mention "aquatic," appear designed to stop all trade in plants and animals. Including, quote, "aesthetic degradations" in Section 1003 has an undesirable impact and likewise seems designed to maximize serious mischief.

The authority given an agency director in Section 1105(d)(2) exceeds authorities formerly reserved only for secretaries. Assigning penalties of a class C felony, 10 to 25 years, as in Section 1105, especially for violating, quote, "regulation" in Section 1101 that have not even been drafted, suggests agendas one could only speculate about.

Five minutes is not enough time for me to explain this, but I would offer to point out there is a better approach that does not impair the trade and freedoms we cherish, while minimizing future harmful U.N. controls which are likely with invasive species, as they have been with endangered species under CITES.

Thank you. I am ready to answer any questions.

Senator CRAPO. Thank you very much, Mr. Beers.

Mr. Hargrove? We welcome you here from Idaho.

STATEMENT OF SEBASTIAN HARGROVE, GOVERNMENT RELATIONS ASSOCIATE, THE NATURE CONSERVANCY OF IDAHO

Mr. HARGROVE. Thank you, Chairman Crapo and Senator Jeffords, for the opportunity to be here today and speak in support of S. 525. I am appearing here today on behalf of the Nature Conservancy and as a concerned citizen of Idaho.

I will cover two major points in my comments today. First, aquatic invasive species are a major threat to the Nation's economy and environment, including the inland West; and second, S. 525 is an effective tool for addressing the threat.

To illustrate the immediacy of the danger of non-native aquatic invasive species, I would like to recount what happened in Spokane, Washington 2 years ago yesterday, on June 16, 2001. On that mild June day, a trailered 40-foot sailboat en route from the Great Lakes to Seattle pulled into the Washington port-of-entry on Interstate 90 a few miles west of the Idaho border. State inspectors, alerted to the danger of aquatic invaders, examined the boat closely. What they found were live zebra mussels encrusted on the rudder flaps and the screens and the cooling system of that boat.

We have heard many people talk about what a scourge zebra mussels are in the Great Lakes and Eastern watersheds. So far as we know, they have not arrived in the West yet. Officials quarantined and cleaned the boat before allowing it to enter Washington waters.

I think this story really illustrates two key points. First, aquatic invaders are not only a problem for the coastal and Great Lakes States. The waters in the inland West are at risk from zebra mussels and a host of other aquatic invaders. Second, the modest investment that Washington State made in training its employees to prevent aquatic invaders paid big dividends in that one find that they had there. But Washington's prevention program is really the exception, rather than the rule. We can only assume that no inspectors in other States found these zebra mussels as that boat traveled west across the northern tier of the U.S. In fact, if the boat had put into Lake Coeur d'Alene or Payette Lake in Idaho, we could have zebra mussels established in the Upper Columbia River basin, with potentially devastating impacts to irrigation, hydropower and recreation.

This story is not an isolated example of the risks these invaders pose. Idaho communities already spend $250,000 a year controlling Eurasian water milfoil in some of Idaho's most important recreational waters, as you alluded to earlier, Senator Crapo, including Payette and Hayden Lakes. This fast-growing weed is really choking our shorelines and it is spreading fast.

You might also be surprised to learn, although Senator Crapo also talked about this, that the first known infestation of New Zealand mudsnails occurred not at one of our major port cities, but in the Snake River, hundreds of miles from the coast, near Hagerman, Idaho. These invasive mollusks grow in dense colonies. They have now spread up the Snake River into the Madison in Yellowstone Park, with unknown consequences for our native fish populations.

The danger is clear. We need to get prepared, and NAISA is an essential step in that direction. It will provide critical tools for States like Idaho and their partners in the battle to manage aquat-

ic invasives. It is particularly noteworthy that S. 525 adopts the most cost-effective approach by focusing on prevention, early detection and rapid response, areas where we all need to improve. The bill will cover all waters of the U.S., including inland lakes and streams. Critical elements from our perspective include grants for State management plans, prevention of introduction by vessels and other pathways, early detection and rapid response funding, and education and outreach. Those are some of the keys.

Passage of NAISA will provide important financial and technical help to States such as Idaho that are just beginning to address aquatic invaders. Like many States, we have established an invasive species council that will address or deal with all the whole spectrum of invasive species, but we need more help. We need strengthened leadership. We need better coordination and we need more resources.

This bill goes a long way to providing the tools that States need, but the Conservancy would be pleased to work with the committee to strengthen the provisions dealing with inland States even more.

Thank you for the opportunity to comment. I have provided additional comments in my written testimony, and would be happy to take any questions.

Senator CRAPO. Thank you very much, Mr. Hargrove.

Mr. Hauser?

STATEMENT OF MICHAEL HAUSER, AQUATIC NUISANCE SPECIES SPECIALIST, VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Mr. HAUSER. Thank you, Mr. Chairman and Senator Jeffords, for the opportunity to provide this testimony. I am here on behalf of the State of Vermont in support of this bill.

I consider myself fortunate to live and work in Vermont, a small State, but with a tremendous reputation for its natural beauty, environmental integrity and recreational opportunities. Unfortunately, these qualities are threatened by a large and very real problem, the introduction and spread of aquatic invasive species. The zebra mussel, water chestnut, Eurasian water milfoil, shown here on my left, and purple loosestrife, among others, have significant negative economic and ecological impacts.

More than $2 million of local, State and Federal funds are spent annually in Vermont to manage and prevent the spread of these species. More than one-quarter of this goes to the water chestnut management program on southern Lake Champlain. There is another photo here that you will see shortly that shows that. These totals do not include the costs associated with the degradation of the environment, reduction of lakeshore property values, or the protection of boats, water intake systems, or other infrastructure.

There are currently four staff positions within the Department of Environment and Conservation dedicated to the management of aquatic invasive species. It is fair to say we cannot keep up. Aquatic invaders continue to displace native species, impede boating, fishing and swimming, and strain State and local budgets.

Despite these problems, Vermont and the other Northeastern States are relatively fortunate to have had only a fraction of the non-native species introductions experienced in other parts of the

country. We must seize this opportunity to prevent more invasive aquatic species from coming our way, and they are coming. The round goby, the Asian carp, Eurasian ruffe, quagga mussel, spiny water flea are all non-native species that have proven to be extremely invasive in other regions of this country, and are poised to enter water systems of the Northeast. It is imperative that we prevent this from happening, and the National Aquatic Invasive Species Act can help.

As you well know, invasive species do not recognize political boundaries. We in Vermont cannot expect an invasive species to stop at our border, and experience tells us we cannot wait for it to cross the border before we take action. By then it is too late. We must work with other States throughout the region to build a unified defense.

The National Invasive Species Act is helping us do this through its authorization and funding of the Northeast Aquatic Nuisance Species Panel. This panel, which includes representatives from all the New England States, New York and Canada, meets regularly to coordinate aquatic nuisance species spread prevention and management efforts throughout the region. S. 525 would ensure the continuation of the critical work of this panel, as well as that of the other panels representing regions throughout this country.

Provisions of this bill that prevent new introductions of potentially invasive species to this country will have perhaps the greatest long-term benefit for Vermont. For example, although Vermont does not have significant issues directly related to ballast water dumping, it is vulnerable to non-native species introduced to the Great Lakes via ballast water. Lake Champlain along Vermont's western border is directly connected to the Great Lakes by several canal systems. The zebra mussel used these routes to enter Lake Champlain from the Great Lakes in 1993.

Other provisions of this bill would facilitate the transfer of knowledge gained from the dispersal barrier deployed on the Chicago River ship and sanitary canal to other canal systems throughout the country, including those mentioned before. We welcome this. Authorized and funded under the National Invasive Species Act, the Lake Champlain Basin Aquatic Nuisance Species Management Plan has enabled many significant accomplishments in the fight against aquatic invaders in the Lake Champlain basin of Vermont and New York, accomplishments too numerous to list at this time.

While the continued development and approval of State and interstate management plans is a positive contribution to the nationwide effort to address invasive species, funding levels for such plans have not grown for the last several years. This has resulted in a smaller share for each State with an approved plan. To be effective, the funding for State and interstate plans must grow proportionate to the number of approved plans, not get sliced into smaller and smaller portions. This bill provides the funding authorization to enable this to happen, provided of course the actual appropriations are equivalent.

In conclusion, I would like to say that the passage of S. 525 will greatly assist Vermont and I believe the Nation as a whole in continuing to build on the substantial gains made under the Non-in-

digenous Aquatic Nuisance Species Prevention and Control Act of 1990 and that of the reauthorization of the National Invasive Species Act of 1996.

Thank you again for the opportunity to speak with you this morning.

Senator CRAPO. Thank you, Mr. Hauser.

Mr. Weakley?

STATEMENT OF JAMES WEAKLEY, PRESIDENT, LAKE CARRIERS' ASSOCIATION

Mr. WEAKLEY. Thank you for the opportunity to testify on this legislation so crucial to both the maritime industry and to the marine environment. We are generally supportive of S. 525.

The Lake Carriers' Association is a member of the Ballast Water Coalition, although I do not testify on behalf of that coalition today. I will focus on concerns of the shipping industry.

The Lake Carriers' Association represents 11 American corporations operating 57 vessels exclusively on the Great Lakes. Foreign-flag operators move cargo into the region from across the oceans. We do not. Our vessels typically move more than 100 million tons of cargo each year. Those commodities include iron ore for the steel industry, coal for power generation, and limestone for the construction industry. As you can see, tens of thousands of family sustaining jobs depend on the efficient movement of cargo on the Great Lakes. We not only earn our wages here, we relax along the shores and we drink from the world's largest supply of fresh water. It is a place we call home.

The Lake Carriers' Association has been leading efforts to find an invasive species solution for more than a decade. In partnership with government agencies, nongovernment agencies and shippers, we have invested more than $4 million researching this complex problem. The Lake Carriers' Association is committed to finding a solution to the worldwide problem of ballast water transport of non-indigenous species.

Upon learning of the discovery of the ruffe in the Duluth–Superior harbor in the late 1980's, LCA produced the voluntary ballast water management program. Deemed, quote, "the cutting edge of technology" by the Fish and Wildlife Service, our voluntary efforts have largely contained the ruffe. In addition, we have installed other voluntary practices. These practices represent our industry's commitment to slowing what is inevitable, the migration of newly arrived exotic species. For example, the ruffe has migrated along the southern shore of Lake Superior of its own volition.

Therefore, we must focus our energies on prevention of new exotics into the Lakes and all of the U.S. waterways. The Lakes, like many waterways, are naturally connected, so absent a natural predator any fish, insect or plant introduced into one of the Great Lakes can and will migrate to the others. Like it or not, the ruffe, zebra mussels and sea lamprey, to mention a few, are here to stay.

I must emphasize that this issue is not limited to the Great Lakes basin. The West Coast of the United States, Alaska and the Chesapeake Bay have been significantly threatened and remain vulnerable to new invasions. Vessels engaged in international voyages and foreign-flag vessels sailing between U.S. ports pose a risk

to our ecosystems. Internationally, the topic is being debated at the International Maritime Organization. Much of that debate in the international community seems to be focused on what the standard will be and how it will be implemented.

In addition to prevention, there are several other themes for addressing this issue: a clearly defined practical treatment standard, a Federal solution with worldwide application, a robust data collection and technological research system, and the grandfathering of treatment systems and vessels. I believe that the above approach will lead to a variety of solutions. From a shipboard perspective, the critical variables include the volume of ballast water, the pumping rate, the length of the voyage, the time in port, trade pattern, and vessel design. The complexity of these variables make a single solution difficult, if not impossible.

Although we respect the role of the State governments, an appropriate Federal solution would not only adequately address this problem, it would save the States enforcement dollars. This is exactly the type of problem that requires a regional and therefore a Federal solution. Can you imagine the complexities of trying to comply with different regulations promulgated by the eight different States that share the Lakes?

I want to thank the committee for your commitment to finding a solution to this problem, and conclude by saying that we must recognize that those exotics that have established themselves in the Great Lakes basin are now citizens in all but name. Even the very sophisticated and very successful efforts of the Great Lakes Fisheries Commission have resulted in the control, but not the elimination of the sea lamprey. Therefore, our goal must be prevention. It must be prevention of additional invasions via ballast water from ocean-going vessels.

I thank you for your time.

Senator CRAPO. Thank you very much, Mr. Weakley.

Mr. Beers, I want to start with you. I think you raised some very important issues relating to federalism, States' rights, private property, sovereignty over water and questions of the like. You indicated toward the end of your testimony that a revised bill would be more preferable, one which focuses specifically on ballast water discharge which controls harmful aquatic plants and animals on the Federal property and cooperates with States in their responsibilities over fish and wildlife and plants.

Could you elaborate a little bit on that third part there, the cooperating with the States? What types of activities there do you think would be appropriate and helpful?

Mr. BEERS. Recognizing that the States have constitutional authority over the fish, wildlife and plants, and looking at what is considered harmful or problematic in the environment that a State has jurisdiction over. The Federal Government owns property in some of those States and should I think agree with the State on what is harmful or not harmful, and if not, deal with them, but then work to manage, control or even eliminate those species where appropriate, where the Federal jurisdiction enters into the State.

There is also the role for national research like we used to have land grant colleges for, and a lot of international and import-export responsibilities of the Federal Government that can be coordinated

with the States overall to help everyone meet the private property owners, the Federal landowners, the State landowners and the State Governors property rights and responsibilities for plants and animals that are under their concern, which affect others.

Senator CRAPO. I think that is very helpful. Would you also agree that Federal support in the area of education or even Federal grants to help the States is appropriate?

Mr. BEERS. Sir, that always sounds good and who can argue against education, of course not. And who can argue against grants? But we look at the Endangered Species Act, and we see where grants under the Endangered Species Act not only have changed the way universities look at science, but has changed the way a lot of State departments look at the Federal Government's jurisdiction expansion regarding those endangered species. So that the States become grant applicants the same as the universities do, and that affects their perspective on what they support, what they say.

We saw earlier today the sort of "we can tell that you like rainbow trout, so we are not thinking about rainbow trout," "we can tell you don't like pike up in Alaska, and the Atlantic salmon and of course we are going to be concerned there," but the test comes with the court taking the words that you enact and then having it applied by a judge. That is what we have seen with the Endangered Species Act and what we are concerned about.

Senator CRAPO. Thank you.

Mr. Hargrove, in this vein, as you are probably aware, I have been a long-time advocate of State sovereignty over water management and allocation and use. In fact, I have been concerned that there has just been over the last few decades, in fact more than that, a gradual creep of Federal jurisdiction over State sovereignty in that arena. This is another statute where there is a very valid need, but one in which if we do not do it correctly could represent or accomplish a further creep of Federal control and jurisdiction in areas that traditionally have been State responsibilities.

I would just like you to comment on that generally and tell me if you have any ideas about how we can make certain that we do not extend Federal sovereignty over matters which traditionally are State issues, water quality, water management and the like, while we still achieve the objectives that we need to achieve to protect ourselves.

Mr. HARGROVE. Chairman Crapo, I would start off by just saying that the risks are so grave that we need to weigh those against the potential misuse of this bill. I would cite as an example that the concerns over irrigation are valid. The Idaho Water Users Association came out in support of an invasive species bill that Governor Kempthorne had in the State legislature this year, so they are very concerned about it.

I would agree that the more that we can empower the States and even at the lower local level to deal with these invasive species, the better. With Senator Craig's bill that is in Congress for terrestrial weeds, we are seeing the approach where we are dealing with cooperative weed management areas at a very local level, where local folks who know the issues are being empowered by receiving grants

that help them fund their programs, and really get things done on the ground.

Senator CRAPO. Thank you very much.

Mr. HAUSER AND MR. Weakley, do you have a thought on this?

Mr. WEAKLEY. Well, sir, there is a good model that I am involved with, the Council of Great Lakes Governors, which is not addressing the aquatic nuisance species, but the usage of waters throughout the Great Lake basin. The Great Lakes Commission is a similar forum, but not necessarily respectful of the Governors.

If I may add, it is also an issue not just for the States, but for the mayors. I was at a meeting of the mayors from the Great Lakes region yesterday, and aquatic nuisance is very much on their agenda.

Senator CRAPO. Mr. Hauser?

Mr. HAUSER. There is very little from the Vermont perspective in this bill that would threaten our sovereignty as a State. If anything, we feel that many of the problems we are faced with are problems that arise from things outside of our control, and greater Federal leadership in addressing those problems would help us greatly on the State end.

Senator CRAPO. Thank you.

I think I will go to Senator Jeffords now. Senator Jeffords, do you have any questions?

Senator JEFFORDS. Yes, I do.

Mr. Hauser, from the State perspective, do you have any concerns about the rapid response requirements proposed in the bill?

Mr. HAUSER. Not really. We consider rapid response planning to be a very critical need, and the provisions of this bill would facilitate the development, implementation and coordination of rapid response plans at the regional and Federal level, and would provide much-needed assistance of both technical and funding to the States for doing their own rapid response planning.

I would concur with earlier testimony by Mr. Keeney on the previous panel that it would probably be best to de-link it from the State management plans as far as the funding goes, just to ensure that funding is not delayed to the States for rapid response if in fact the State does not have a management plan. But we think it is a very important piece of this bill.

Senator JEFFORDS. This is perhaps related, but critics of this bill complain that it will be very expensive to fund all of the programs and initiatives required of the Federal agencies. What would be your response to this complaint?

Mr. HAUSER. I think it is much more expensive to not properly fund or require proper action on the part of the Federal agencies. Inaction costs much more. This is clearly an area and an issue where being proactive is much more cost-effective. For example, you saw an earlier photo of the Eurasian water milfoil. Perhaps some time ago, a single action on the part of the Federal agency could have prevented the introduction of the Eurasian water milfoil through a screening process. It did not, so instead in Vermont alone we are spending hundreds of thousands of dollars every year to address problems with the Eurasian water milfoil.

We as a Nation clearly need to get ahead of the curve on invasive species, and we will not do that unless we invest a considerable

amount of money up front and resources up front. I think the long-term payoffs will be great, however.

Senator JEFFORDS. Thank you. I thank all the witnesses. I thank the Chairman. I have to go to the floor on the Medicare bill, so I just appreciate this hearing. It has been very, very helpful to us, and thank you to the witnesses for their participation. Thank you.

Senator CRAPO. Thank you very much, Senator Jeffords.

I am going to just conclude with a line of questioning that is similar to what I was discussing with the previous panel, and that is, in terms of the nature of the threat that invasive species present to our ecosystems. Sometimes I am not sure that we generally in the public understand the level of threat that certain circumstances present to us. I think that some of the testimony today has indicated how serious the threat to our ecosystems and to species the introduction, whether it be voluntarily or involuntarily, of invasive species can represent.

First of all, let me just ask the panel generally, I am sure you heard the testimony earlier that this is second to habitat as a threat to the species and to the management of ecosystems in our country. Do you agree with that, Mr. Beers?

Mr. BEERS. Not at all, not at all, Senator. Mr. Chairman, that is so overblown. That is generated by a bunch of bureaucrats that benefit from the endangered species programs, and a couple of university professors who also get a lot of grants for that stuff. It is absolutely not true. Ecosystems have been changing everywhere since time immemorial and will continue to do so. We have the wherewithal to make our environment beneficial to us and to manage these species, but take the salt cedar thing which keeps popping up. Salt cedar is an nest tree for the endangered willow flycatcher. They do fine in it. But here we can say, let's do away with that tree, when we would not do away with it if it was a native tree. Now, does that make sense? I do not think so.

And the purple loosestrife, another one that keeps being brought up. I worked on that years ago, and we imported three insects from over near Russia that feed on it and help keep it under control. It will eventually fade into our environment. It makes good honey.

We could go on and on about they have a lot of bad effects and they have some good effects, and things change; it used to be worse, and now it is getting worse over here and it is getting better over here. That will always be the situation. I think it is wrong to think there is some kind of static arrangement biologically that depends on when the Asians got here or when Columbus got here or some other imaginary date that somehow we need to get back to because that was better. It was not better, it was only different.

Senator CRAPO. You are not saying, are you, that we should have no concern about the introduction of invasive species?

Mr. BEERS. Sure, not at all, not at all. I think we can manage that, but we are all so oriented to talking about this problem and the Federal Government should have authority and educate people and put money to it. In the meantime, you do just what happens with endangered species. You have taking without compensation problems; you have all kinds of running over and stopping of projects and a bunch of things that nobody could have foreseen, or if they had foreseen it and said that things would be like that, peo-

ple would say, well, that is silly. Nobody intends that. And I think this is going to do more of the same.

Senator CRAPO. Thank you.

Mr. Hargrove?

Mr. HARGROVE. First of all, I would just say that in Idaho, we believe that invasive species may pose the No. 1 threat to biodiversity in the State.

Senator CRAPO. Are you talking about the Nature Conservancy?

Mr. HARGROVE. The Nature Conservancy.

Senator CRAPO. OK.

Mr. HARGROVE. Looking across our plans and priority areas, we believe that it may be the No. 1 threat there. If you take an example like cheat grass that has altered the whole sagebrush steppe ecosystem and led to the decline of sage grouse, it has altered the fire regime. We used to have fire return intervals of 70 to 100 years. They are now two to 5 years. That has just impoverished that whole ecosystem, millions and millions of acres in Southwest Idaho.

The other point I would just like to quickly make is that in terms of natural resource issues, this is the one issue where practically everyone in Idaho agrees and can come together. We are not seeing the typical battles and polarization of this issue. We are having Federal agencies, local agencies, private parties and the State work together on these issues, from cooperative weed management areas up to the Idaho Weed Coordinating Committee that I work on, and the Invasive Species Council. So it is really an issue that has brought people together to work across boundaries.

Senator CRAPO. Thank you.

Mr. Hauser?

Mr. HAUSER. Our situation in Vermont is very similar to that described by Mr. Hargrove in Idaho. It is not a polarizing issue. We have strong support across all State agencies and local groups and lake users and citizens for addressing this issue. It is seen as a very big concern. We believe that it is very much one of the greatest, if not the greatest threat to biodiversity in the State.

Senator CRAPO. Mr. Weakley?

Mr. WEAKLEY. Senator, being a shipowner, I have to admit that I have not studied it from a biological perspective. So where to rank-order it, I do not feel qualified, but I will say it is a very important issue. If I may be so bold to add, it is an inadvertent result of what shipowners do, and certainly the Lake Carriers' Association wants to see this halted, and I would believe other shipowners as well would like to see this problem addressed. What we need is a good Federal solution so that we can move forward in the process.

Senator CRAPO. Thank you very much, Mr. Weakley.

I appreciate the entire panel and the perspectives that you bring. Obviously, we have a serious problem, and the proposed solution to that problem could bring with it a set of its own problems, and that is the kind of thing, whether it be intended or unintended consequences, that we must try to make ourselves aware of here as we craft solutions to this legislation.

I think that the issues on all sides have been pretty squarely brought forward today, both concerns about the bill as it is drafted, concerns about what the issues need to be and what we need to ad-

dress, and concerns about the consequences that could come to State sovereignty and to water management and to private property rights and the like if we do not address it properly.

So it is very clear that we have an issue that we need to address. It is also very clear that we have our work cut out for us in terms of making sure that we parse the issues well enough that we do not create consequences that are unintended, either jurisdictionally or in terms of the environment. I encourage you to give us your continued input and support on this issue as the committee moves forward.

Without anything further, then, we will excuse this panel and adjourn the hearing. We thank you all for your attendance today.

[Whereupon, at 12:01 p.m. the committee was adjourned, to reconvene at the call of the Chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

As global trade increases, so do the number of ships entering United States' ports. However, these ships not only carry freight, they come with unintended cargo, aquatic invasive species. The number of damaging aquatic invasive species has increased in tandem with globalization having a negative impact on the United States economically as well as environmentally.

The introduction of such aquatic invasive species as the zebra mussel has had devastating repercussions. In the Great Lakes alone, it has cost millions annually to mitigate the problem of clogged intake valves. Since their introduction from the ballast water of ships, zebra mussels have spread to more than 20 States. I know my colleague and Great Lakes congressional Member, Sen. Voinovich, has been working on this issue for Ohio for quite some time, and I look forward to my continued work with him to reauthorize the National Invasive Species Act.

When Congress passed the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990, the legislation focused on problems specific to the Great Lakes and encouraged increased cooperation between Federal and State agencies. The reauthorization of this law, the National Invasive Species Act, took this effort one step further and expanded ballast water guidelines to the rest of the Nation. However, though these laws laid the foundation for mitigating the problem of aquatic invasive species, they failed to adequately address a number of issues that we hope to remedy with the upcoming reauthorization.

One of the difficulties of trying to limit the impact of these destructive exotics is that they do not recognize political boundaries. Therefore, cooperation and partnerships among not only the Federal agencies, but the States as well, is critical to minimizing the effects of harmful aquatic invasive species. The National Invasive Species Council has strengthened the partnerships and increased communication between the Federal agencies, but, as cited in the October 2001 GAO study, the Federal Government lacks a coordinated, comprehensive long-term plan.

Though I support the reauthorization of NANPCA, I have a number of concerns regarding some of the language in S. 525. It is my hope that today's hearing will provide much needed insight into how the reauthorization should proceed. It is important that we tread carefully if we decide upon comprehensive reform. States play an integral part in controlling invasive species, and it is critical that they are given adequate flexibility to address problems affecting their region. I look forward to hearing from the witnesses to provide insight into how best to approach this complicated issue and also to highlight their concerns with the proposed legislation.

STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Good morning. And let me welcome all of our witnesses this morning. In particular, I would like to welcome Senator Levin, who has been a long-time champion on the issue of invasive species, and all issues that will keep those Great Lakes as beautiful as Vermont's Lake Champlain.

I would also like to welcome Michael Hauser from Montpelier, Vermont, who will be speaking on one of the later panels.

The waters of the United States continue to face threats from aquatic invasive species. Invasive species take both an economic and an environmental toll. The United States and Canada are spending $14 million a year just to try to control sea lamprey, a species that has invaded Lake Champlain and the Great Lakes.

The environmental costs are also staggering. Invasive species usually have high reproductive rates, they disperse easily, and can tolerate a wide range of environmental conditions, making them very difficult to eradicate. They often lack predators in their new environment and out-compete native species for prey and breeding sites.

S. 525, the "National Aquatic Invasive Species Act of 2003", builds on existing programs and would establish a mandatory National Ballast Water Management Program and minimum requirements for all ships operating in the U.S. waters. Ballast water is considered the major pathway for invasive species introduction.

S. 525 would also address potential introduction of aquatic invasive species by other pathways, including the pet trade. The discovery last year of "snakehead fish" in nearby Maryland likely came from the release of aquarium fish.

While this legislation deals with aquatic invasive species and calls for guidelines to determine whether importing a live organism should be allowed, the recent outbreak of monkeypox, which has been traced to the importation of African rodents, is further evidence that we must be vigilant when permitting imports than can harm not only the environment, but human health.

The legislation also increases funding for dispersal barrier projects and research to prevent the interbasin transfer of organisms. This is of particular importance in my State of Vermont. We, along with New York, are home to one of this country's most beautiful lakes—Lake Champlain. However, zebra mussels, Eurasian water milfoil, water chestnuts and sea lamprey have invaded Lake Champlain and are having a devastating impact.

Like most who visit Lake Champlain, these species want to call it home, but we cannot compromise the health of the lake.

Examining the feasibility and effectiveness of a dispersal barrier in the Lake Champlain Canal to control invasive species in the lake is another way to prevent further destructive dispersal of these species.

Thank you, Senator Crapo, for holding this hearing today and I look forward to hearing from our witnesses.

STATEMENT OF HON. CARL LEVIN, U.S. SENATOR FROM THE STATE OF MICHIGAN

I want to thank Chairman Crapo and Ranking Member Graham for holding today's hearing on S. 525, the National Aquatic Invasive Species Act, that Senator Collins and I as well as 16 other Senators introduced in the Senate and Representatives Gilchrest and Ehlers introduced in the House. The purpose of this bill is to reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act and to take a more comprehensive approach toward addressing aquatic nuisance species to protect the nation's waters. This bill deals with the prevention of new introductions, the screening of new aquatic organisms coming into the country, the rapid response to new invasions, and the research to implement the provisions of this bill.

The problem of aquatic invasive species is a very real one to coastal and inland waterways. More than 6,500 non-indigenous invasive species have been introduced into the United States and have become established, self-sustaining populations since the days of colonization. These species microorganisms, pathogens, plants, fish and animals typically encounter few, if any, natural enemies in their new environments. The result are often ecologically and economically disastrous.

Some of my colleagues may remember that back in the late eighties, the zebra mussel was released into the Great Lakes through ballast water. The Great Lakes still have zebra mussels, and now, 20 States as far West as Idaho are fighting to control them. Zebra mussels have changed the dynamics of the Great Lakes. They have decimated native mussels, allowed toxins to reenter into the food chain, and may be responsible for creating hypoxic conditions or a "Dead Zone" in Lake Erie. Many of our beaches are littered by zebra mussel shells, and it is estimated that electrical generation, water treatment, and industrial facilities spend tens of millions of dollars every year combating the zebra mussel.

The legislation before you is needed now. It's needed to provide direction to the U.S. negotiators at the International Maritime Organization, to create a national ballast water standard rather than the patchwork of State efforts, and most importantly to move a ballast water management program forward.

The best effort that we have against invasive species is prevention. While the U.S. Coast Guard has the authority under existing law to significantly increase the na-

tion's efforts to prevent the introduction of aquatic invasive species through the largest pathway of introduction ballast water there has been very little progress to move toward technology that is as effective as ballast water exchange. By requiring the Coast Guard and EPA to set interim and final ballast water management standards, this legislation allows ballast water technology to develop to a known standard. This bill requires the Coast Guard to set an interim standard that would require ships entering a U.S. port from outside the Exclusive Economic Zone to either use ballast water exchange or use technology that reduces the number of living organisms in ballast tanks by 95 percent.

This interim standard in this bill is not intended to be implemented for the long run, and it is not perfect. However, a final standard is difficult to set today or in the near future because of the limited research that has been conducted on how clean or sterile ballast water discharge should be and what is the best expression of a standard. Rather than wait many more years before taking action to stop new introductions, I believe that an imperfect but clear and achievable interim standard for treatment technology is the right approach. This interim standard will lead to the use of ballast treatments that are more protective of our waters than the default method of ballast water exchange provides, and it can be implemented in the very near future. Further, the bill provides the Coast Guard with the flexibility to promulgate the interim standard using a size-based standard or by whatever parameters the Coast Guard determines appropriate.

There are many other important provisions of the bill designed to prevent and respond to invasive species. All in all, the bill would cost between $160 million and $170 million each year. This is a lot of money, but it is a critical investment. However, compared to the estimated $137 billion annual cost of invasive species, the cost of this bill is minimal. As those of us facing the havoc caused by invasive species know, the ecological and economic damage that invasive species can cause is high.

STATEMENT OF HON. SUSAN M. COLLINS, U.S. SENATOR FROM THE STATE OF MAINE

From Pickerel Pond to Lake Auburn, from Sebago Lake to Bryant Pond, lakes and ponds in Maine are under attack. Aquatic invasive species threaten Maine's drinking water systems, recreation, wildlife habitat, lakefront real estate, and fisheries. Plants, such as Variable Leaf Milfoil, are crowding out native species. Invasive Asian shore crabs are taking over Southern New England's tidal pools, and just last year, began their advance into Maine to the potential detriment of Maine's lobster and clam industries.

Maine and many other States are attempting to fight back against these invasions. Unfortunately, their efforts have frequently been of limited success. As with national security, protecting the integrity of our lakes, streams, and coastlines from invading species cannot be accomplished by individual States alone. We need a uniform, nationwide approach to deal effectively with invasive species. For this reason, Senator Levin and I have introduced the National Aquatic Invasive Species Act (NAISA) of 2003 to reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act. This bipartisan legislation would create a comprehensive nationwide approach to combating alien species that invade our shores.

I want to thank Chairman Crapo and Ranking Member Graham for holding a hearing on this issue of national importance.

The stakes are high when invasive species are unintentionally introduced into our nation's waters. Invasive species endanger ecosystems, reduce biodiversity, and threaten native species. They disrupt people's lives and livelihoods by lowering property values, impairing commercial fishing and aquaculture, degrading recreational experiences, and damaging public water supplies.

In the 1950's, European Green Crabs swarmed the Maine coast and literally ate the bottom out of Maine's soft-shell clam industry by the 1980's. Many clam diggers were forced to go after other fisheries or find new vocations. In just one decade, this invader reduced the number of clam diggers in Maine from nearly 5,000 in the 1940's to fewer than 1500 in the 1950's. European green crabs currently cost an estimated $44 million a year in damage and control efforts in the United States.

Past invasions forewarn of the long-term consequences to our environment and communities unless we take steps to prevent new invasions. It is too late to stop European green crabs from taking hold on the East Coast, but we still have the opportunity to prevent many other species from taking hold in Maine and the United States.

Six months ago, in the Town of Limerick, Maine, one of North America's most aggressive invasive species hydrilla was found in Pickerel Pond. Hydrilla can quickly dominate its new ecosystem already hydrilla covers 60 percent of the bottom of Pick-

erel Pond from the shoreline out to six feet deep. Never before detected in Maine, this stubborn and fast-growing aquatic plant threatens Pickerel Pond's recreational use for swimmers and boaters, and could spread to nearby lakes and ponds. Research in Vermont shows that invasive plants can cost shoreline owners over $12,000 each in lost property values on infested lakes. Unfortunately, eradication of hydrilla is nearly impossible, so we must now work to prevent further infestation in the State.

The National Aquatic Invasive Species Act of 2003 is the most comprehensive effort ever to address the threat of invasive species. By authorizing $836 million over 6 years, this legislation would open numerous new fronts in our war against invasive species. The bill directs the Coast Guard to develop regulations that will end the easy cruise of invasive species into US waters through the ballast water of international ships, and would provide the Coast Guard with $6 million per year to develop and implement these regulations.

The bill also would provide $30 million per year for a grant program to assist State efforts to prevent the spread of invasive species. It would provide $12 million per year for the Army Corps of Engineers and Fish and Wildlife Service to contain and control invasive species. Finally, the Levin–Collins bill would authorize $30 million annually for research, education, and outreach.

The most effective means of stopping invading species is to attack them before they attack us. We need an early alert, rapid response system to combat invading species before they have a chance to take hold. For the first time, this bill would establish a national monitoring network to detect newly introduced species, while providing $25 million to the Secretary of the Interior to create a rapid response fund to help States and regions respond quickly once invasive species have been detected. This bill is our best effort at preventing the next wave of invasive species from taking hold and decimating industries and destroying waterways in Maine and throughout the country.

One of the leading pathways for the introduction of aquatic organisms to U.S. waters from abroad is through transoceanic vessels. Commercial vessels fill and release ballast tanks with seawater as a means of stabilization. The ballast water contains live organisms from plankton to adult fish that are transported and released through this pathway. NAISA would establish a framework to prevent the introduction of aquatic invasive species by ships. Since the last reauthorization of this legislation in 1996, there has been growing consensus about the value of a mandatory national program to prevent movement of organisms by ships. NAISA will require all ships to prepare Aquatic Invasive Management Plans, carry out Best Management Practices, and document all ballast operations and management activities related to this legislation. The legislation establishes interim standards for Ballast Water Exchange and Ballast Water Treatment, which will apply to 2010 at the latest, and requires that a final standard be implemented by 2011. These measures will ensure that the United States is taking the most effective actions possible to protect our waters, ecosystems and industries.

While introduction of aquatic invasive species through ballast water poses the greatest threat to our waters, non-native species imported for live food, aquaculture, or the pet trade can escape and become invasive. The snakehead fish that invaded a Maryland pond last summer is one example. Currently, there is no uniform, systematic process for screening or regulating the proposed importation of live organisms to prevent the introduction of harmful invasive species. The NAISA legislation creates a screening process for planned introductions of non-indigenous species not already in trade. The legislation would prohibit the importation of species that are determined to pose a high risk of becoming invasive or species with insufficient information to determine the risk.

Prevention is key, but when it fails, we must respond rapidly to detect invasive species and stop their spread. This legislation will help States and regional organizations detect and respond to future invasions through early detection and rapid response. The bill provides funding to support ecological surveys to rapidly detect recently established aquatic invasive species and to develop and implement rapid response plans to eradicate or control aquatic invasive species. This provision would support efforts, such as those being undertaken by the New England Invasive Plant Group, to compile an invasive plant atlas for the region and create an early warning system to alert States to invasive plants.

The legislation also takes precautions to ensure that the methods we use to manage and control invasive species do not adversely affect health, public safety, or the environment. Ensuring the environmental soundness of our response is critical if we are to avoid unintended consequences. In the 1990's, biologists in Maine found DDT and other pesticides in the mudflats of Maine. In an attempt to eradicate the green crab, the State and individuals had applied pesticides to the flats about 50 years

earlier. We must be careful that our current attempts to remove invasive species do not cause even more serious problems.

Information and education are essential mechanisms to inhibit the spread of aquatic invasive species. The bill provides funding for education and information programs to prevent the spread of invasive species through boating and other activities. This funding will augment aggressive State efforts to stop the invasion of aquatic species. For example, Maine has passed two laws to prevent the spread of invasive species and ban the sale or introduction of 11 invasive aquatic plants into the State. In October 2002, Maine also adopted an action plan for managing invasive aquatic species. Educating the public about the introduction and spread of species is a primary goal of the State's program. NAISA will support Federal, State and local efforts to raise public awareness about invasive aquatic species and teach how individuals can help prevent or stop the spread of these species.

Underpinning this bill is research. The legislation supports research into the prevention, control and eradication of aquatic invasive species. Finding effective methods to combat aquatic invasive species depends on good science. The legislation would provide funds for research on ecological surveys to assess the rate and patterns of introductions; pathway surveys to analyze how non-native species may be introduced into aquatic ecosystems and determine practices that contribute to the introduction of these species; and technology development into environmentally sound methods and treatments to detect, prevent, control and eradicate aquatic invasive species.

Each year, invasive species cost the United States $138 billion. Nonindigenous species infest and degrade U.S. waterways and coastal areas in virtually every region of the United States. We are losing the fight to protect the nation's waters from expensive and environmentally damaging invasions by aquatic nuisance species. Every day that passes without protections to prevent new invasions increases the threat that another exotic species will establish itself, altering the ecosystem in our great waters.

The NAISA legislation provides the framework for a comprehensive and coordinated response at the Federal, State and local levels to prevent the spread of aquatic invasive species. I urge my colleagues to cosponsor this legislation and work to move the bill swiftly through the Senate.

STATEMENT OF BARRY HILL, DIRECTOR, OFFICE OF NATURAL RESOURCES AND ENVIRONMENT, GENERAL ACCOUNTING OFFICE

Mr. Chairman and Members of the Subcommittee: I am pleased to be here today to discuss the difficult issue of managing invasive species as you deliberate Senate Bill 525,[1] which would reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990.[2] Invasive species harmful, nonnative plants, animals, and microorganisms are found throughout the United States and cause damage to crops, rangelands, waterways, and other ecosystems that is estimated in the billions of dollars annually. In addition to their economic costs, invasive species can have a devastating effect on natural areas, where they have strangled native plants, taken over wetland habitats, crowded out native species, and deprived waterfowl and other species of food sources. Conservation biologists rank invasive species as the second most serious threat to endangered species after habitat destruction. Overall, scientists, academicians, and industry leaders are recognizing invasive species as one of the most serious environmental threats of the 21st century. In October 2002, we issued a report on the Federal Government's National Management Plan for managing invasive species, ballast water management, and other issues.[3],[4]

My testimony today is based on our October 2002 report as well as new work that you requested. Specifically, I will discuss the findings and recommendations of our October 2002 report that address (1) progress made by Federal agencies implementing the National Management Plan and (2) the current state of ballast water management as a pathway for invasive species. I will also discuss some of the results of new work we conducted to obtain State perspectives on (1) the gaps in, or problems with, existing legislation and barriers to addressing terrestrial and aquatic invasive species and (2) the Federal leadership structure for addressing invasive

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[1]S. 525, 108th Cong. (2003).

[2]Pub. L. No. 101–646, 104 Stat. 4761 (1990) (codified as amended at 16 U.S.C. §§4701–4751).

[3]U.S. General Accounting Office, Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem, GAO–03–1 (Washington, DC: Oct. 2002).

[4]Executive Order 13112 created a National Invasive Species Council, now composed of 11 Federal departments and agencies, to provide national leadership on addressing invasive species and to develop a plan for managing them.

species and integration of Federal legislation on terrestrial invasive species with legislation on aquatic invasives. To obtain State perspectives, we surveyed the State agencies typically most involved with invasive species State agencies responsible for agriculture and natural resources or fish and wildlife sending surveys to at least two agencies within each of the 50 States. We received 68 responses from a total of 45 States. We also surveyed the members of the Invasive Species Advisory Committee, a Federal advisory committee established to help the Federal Government develop and implement its National Management Plan; we received responses from about two-thirds of the 24 Committee members. We also interviewed officials in a few States chosen because of their well-established invasive species programs or the large number of invasive species present. We conducted our work in accordance with generally accepted government auditing standards. We will provide to you the full results of our survey in a separate product.

Summary

As we reported in October 2002, the National Management Plan for addressing invasive species lacks a clear long-term desired outcome and quantifiable measures of performance. While the actions called for in the plan are likely to contribute to controlling invasive species in a general sense, it is unclear how implementing them will move the United States toward a specific outcome, such as reducing new invasive species by a specific number or reducing the spread of established species by a specified amount. Federal officials recognize that the plan has deficiencies and are working on improvements. Currently, the only performance measure that can be assessed is the percentage of planned actions that have been completed. By this measure, implementation has been slow. As of September 2002, Federal agencies had completed less than 20 percent of the actions that the plan called for by that date, although they had begun work on others. Reasons for the slow progress included delays in establishing teams to be responsible for guiding implementation of the planned actions, the low priority given to implementation by the National Invasive Species Council and Federal agencies, and the lack of funding and staff responsible for doing the work. Some stakeholders expressed the view that the low priority given to implementing the plan and associated limited progress may be due to the fact that the Council and plan were created by executive order and thus do not receive the same priority as programs that are legislatively mandated. We made several recommendations to the Council intended to clarify goals and objectives in the National Management Plan and to improve reporting on the progress of its implementation; Council agencies generally agreed with our recommendations.

We also reported in October 2002 that current Federal efforts are not adequate to prevent the introduction of invasive species into the Great Lakes via the ballast water of ships. Despite Federal regulations requiring ships that enter the lakes from more than 200 nautical miles off the U.S. coast to exchange their ballast water in the open ocean (that is, in waters deeper than 2,000 meters and farther than 200 nautical miles from the U.S. coast); retain the ballast water on board; or use an alternative, environmentally sound, method of ballast water management, aquatic invasive species are still entering the Great Lakes and establishing themselves in the ecosystem. According to the experts we consulted, at least two factors contribute to the failure of the existing regulations to prevent introductions. First, about 70 percent of the ships that enter the Great Lakes are classified by the Coast Guard as having no ballast on board and, are therefore, exempt from open-ocean exchange requirements. However, these ships may in fact carry thousands of gallons of residual ballast water and sediment in their drained tanks, and this water and sediment may contain potentially invasive organisms that may be mixed with water later taken from, and then discharged into, the Great Lakes. Second, the open-ocean exchange conducted by ships that have ballast does not effectively remove or kill all organisms in the ballast tanks. Although Federal officials believe more should be done to protect the Great Lakes from ballast water discharges, their plans for doing so depend on the development of standards and technologies that will take many years. In the meantime, the continued introduction of invasive species could have major economic and ecological consequences.

According to our new work, State officials identified a number of legislative gaps or problems, and other barriers related to addressing invasive species. A key gap noted in both aquatic and terrestrial legislation is the lack of legal requirements for controlling invasive species that are already established or widespread. State officials said that if there is no Federal requirement, there is often little money available to combat a species and that a legal requirement would raise the priority for responding to it. For example, one State official complained about the lack of authority to control Eurasian ruffe, an invasive fish that has spread through several Great Lakes and causes great harm to native fisheries. He compared this to the au-

thorities available to control the sea lamprey, which has a mandated control program that is funded by the U.S. and Canada.[5] In addition, many State officials frequently cited, as ineffective, the current Federal standards for ballast water, which only impose requirements on ships entering the Great Lakes and not other U.S. waters. State officials also identified the lack of Federal funding for State invasive species efforts as another barrier they face. In particular, States were concerned about not having sufficient funds to create management plans for addressing invasive species, and to conduct monitoring and detection, inspection and enforcement, and research activities. Finally, State officials were also concerned with the lack of cost-effective control measures and insufficient public education and outreach efforts.

State officials' opinions on effective Federal leadership structures for addressing invasive species varied. A National Invasive Species Council specifically authorized in legislation was most often identified as an effective leadership structure for managing invasive species, although many officials also thought that continuing with the Council as established by executive order would also be effective. Several Federal agency officials thought that giving the Council authority in legislation would make it easier for them to implement the National Management Plan. Regarding the form legislation on invasive species should take, most State officials were in favor of integrating legislation on terrestrial invasive species with legislation on aquatic invasive species, but the margin was relatively small. Many State officials indicated that the possible benefits of integrated legislative authority would be increased coordination between Federal agencies and States and an increased focus on invasive species pathways, as opposed to specific species. The possible drawbacks identified included concerns that a single piece of legislation would not be able to address all possible situations dealing with invasive species and may result in reduced State flexibility in addressing invasives.

Background

As we have reported in the past, the impact of invasive species in the United States is widespread, and their consequences for the economy and the environment are profound.[6] Invasive species affect people's livelihoods and pose a significant risk to industries such as agriculture, ranching, and fisheries. The cost to control invasive species and the cost of damages they inflict, or could inflict, on property and natural resources are estimated in the billions of dollars annually. For example, according to the U.S. Department of Agriculture (USDA), each year the Formosan termite causes at least $1 billion in damages and control costs in 11 States; USDA also estimates that, if not managed, fruit flies could cause more than $1.8 billion in damage each year.[7] Invasive species continue to be introduced in new locations, with recent examples including the northern snakehead fish in Maryland, the emerald ash borer in Michigan, and the monkeypox virus in the Midwest.

Invasive species may arrive unintentionally as contaminants of bulk commodities, such as food, and in packing materials, shipping containers, and ships' ballast water. Ballast water is considered a major pathway for the transfer of aquatic invasive species. Ballast is essential to the safe operation of ships because it enables them to maintain their stability and control how high or low they ride in the water. Ships take on or discharge ballast water over the course of a voyage to counteract the effects of loading or unloading cargo, and in response to sea conditions. The ballast that ships pump aboard in ports and harbors may be fresh, brackish, or salt water. These waters could potentially contain various organisms that could then be carried to other ports around the world where they might be discharged, survive, and become invasive. Other invasive species may be introduced intentionally; kudzu, for example a rapidly growing invasive vine that thrives in the southeastern United States was intentionally introduced from Japan as an ornamental plant and was used by USDA in the 1930's to control soil erosion.

Federal agencies implement a variety of invasive species-related programs and activities pursuant to their specific missions and responsibilities. USDA, for example, spends significant resources on prevention and control activities for invasive species that harm agricultural and forest products. USDA is also responsible for preventing infectious diseases, some of which are considered invasive, from spreading among livestock. States also play a major role in addressing invasive species, either through their own programs or through collaboration with or funding from Federal programs. Such programs and the amount of resources expended on them vary considerably among the States.

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[5]Convention on Great Lakes Fisheries, Sept. 10, 1954, U.S.–Can., 6 U.S.T. 2836.

[6]U.S. General Accounting Office, Invasive Species: Federal and Selected State Funding to Address Harmful Nonnative Species, GAO/RCED–00–219 (Washington, DC.: Aug. 24, 2000).

[7]Estimates are in 2001 dollars.

In response to concerns that we were losing the battle against invasive species, President Clinton signed Executive Order 13112 in February 1999 to prevent the introduction of invasive species; provide for their control; and minimize their economic, environmental, and human health impacts. The executive order established the National Invasive Species Council, which is now composed of the heads of 11 Federal departments and agencies, to provide national leadership on invasive species and to ensure that Federal efforts are coordinated and effective, among other things. The executive order also required the Secretary of the Interior to establish a Federal advisory committee to provide information and advice to the Council. To achieve the goals of the executive order, the Council was to develop a national management plan that would serve as the blueprint for Federal action on invasive species. S. 525, if enacted, would call on the Council to carry out several other activities such as implementing a strategy to share information collected under the proposed legislation and to develop a program for educating the public about certain pathways for invasive species; it would also authorize funds for the Council to carry out these activities.

NATIONAL MANAGEMENT PLAN LACKS MEASURABLE GOALS, AND ITS IMPLEMENTATION HAS BEEN SLOW

The National Invasive Species Council's management plan, Meeting the Invasive Species Challenge, issued in January 2001, calls for actions that are likely to help control invasive species, such as issuing additional regulations to further reduce the risk of species introductions via solid wood packing material, developing methods to determine rapid response measures that are most appropriate for specific situations, and devoting additional resources to strengthening inspection services at ports of entry. However, as we observed in our October 2002 report, the plan lacks a clear long-term goal and quantifiable performance criteria against which to evaluate its overall success. For example, the plan does not contain performance-oriented goals and objectives, such as reducing the introduction of new species by a certain percentage or reducing the spread of established species by a specified amount. Instead, the plan contains an extensive list of actions that, while likely to contribute to preventing and controlling invasive species, are not clearly part of a comprehensive strategy. Similarly, many of the actions in the plan call for Federal agencies to take certain steps rather than to achieve specific results and do not have measurable outcomes. For example, the plan calls for the Council to work with relevant organizations to "expand opportunities to share information, technologies, and technical capacity on the control and management of invasive species with other countries." The plan also calls for the Council to support international conferences and seminars. These types of actions are more process-oriented than outcome-oriented; taken individually, the actions may be useful, but judging whether they are successful and have contributed to an overall goal, will be difficult.

Federal officials involved in developing the plan told us that they recognize that it has deficiencies and are working on improvements. The Council acknowledged in the plan itself that many of the details of the actions called for would require further development in the implementation phase. The executive director of the Council staff told us that, in her opinion, given the scope of this first-time effort, it would have been unrealistic and difficult to agree on specific measurable goals. She also said that, in many areas, the Federal Government does not have the data on invasive species conditions needed to set long-term goals and develop better performance measures. She said that many of the actions called for in the management plan are designed to help develop needed data but pointed out that doing so for some aspects of invasive species management will be difficult given the comprehensive data needed.

The management plan also called for the Council to establish a transparent oversight mechanism by April 2001 to report on implementation of the plan and compliance with the executive order. This mechanism, however, is just now being set in place. Without this mechanism, the only available measure that could have be used to assess overall progress in implementing the plan was the percentage of planned actions that were completed by the dates set in the plan. By this measure, implementation has been slow. Specifically, Federal agencies had completed less than 20 percent of the 65 actions that were called for by September 2002. Council agencies had started work on over 60 percent of the remaining planned actions, however, including some that have a due date beyond September 2002. Several actions in the plan that were completed on time related to the development of the Council's Web site, which is found at www.invasivespecies.gov. In addition, the National Oceanic and Atmospheric Administration, the Coast Guard, the Department of the Interior, and the Environmental Protection Agency (EPA) had sponsored research related to

ballast water management. Nevertheless, a vast majority of the members of the Invasive Species Advisory Committee, which we surveyed for our October 2002 report, said that the Council was making inadequate or very inadequate progress.

We found several reasons for the slow progress in implementing the plan. First, delays occurred in establishing the teams of Federal and nonFederal stakeholders that were intended to guide implementation of various parts of the plan. Second, our review of agencies' performance plans (prepared pursuant to the Government Performance and Results Act) indicated that while some agencies' plans described efforts taken to address invasive species under their own specific programs, none of the plans specifically identified implementing actions called for by the plan as a performance measure. Some stakeholders expressed the view that the low priority given to implementing the plan and associated limited progress may be due to the fact that the Council and plan were created by executive order, and thus do not receive the same priority as programs that are legislatively mandated. Finally, we also noted a lack of funding and staff specifically devoted to implementing the plan.

To address these shortcomings, we recommended that the Council co-chairs (the Secretaries of Agriculture, Commerce, and the Interior)

- ensure that the updated management plan contains performance-oriented goals and objectives and specific measures of success and
- give high priority to establishing a transparent oversight mechanism for use by Federal agencies complying with the executive order and reporting on implementation of the management plan.

We also recommended that all member agencies of the National Invasive Species Council with assigned actions in the current management plan recognize their responsibilities in either their departmental or agency-level annual performance plans. The agencies generally agreed with our recommendations.

Since we issued our report, the Council made significant progress on its first crosscutting budget one of the planned actions in the management plan that should help to develop performance measures and promote better coordination of actions among agencies. The Office of Management and Budget is currently reviewing the Council's proposal for the fiscal year 2004 budget cycle. In addition, according to Council staff, the oversight mechanism should be finalized in July 2003, and the first revision to the management plan should be finalized later this summer.

Current Regulations Concerning Ballast Water Management Are Not Keeping Invasive Species out of the Great Lakes

According to experts and agency officials we consulted, current efforts by the United States are not adequate to prevent the introduction of aquatic invasive species into the Great Lakes via ballast water of ships, and they need to be improved. Since 1993, Federal regulations have required vessels entering the Great Lakes from outside the Exclusive Economic Zone a zone extending 200 nautical miles from the shore to exchange their ballast water in the open ocean (that is, water deeper than 2,000 meters) before entering the zone. Exchanging ballast water before arriving in the Great Lakes is intended to serve two purposes: to flush aquatic species taken on in foreign ports from the ballast tanks and to kill with salt water any remaining organisms that happen to require fresh or brackish water. If a ship bound for the Great Lakes has not exchanged its ballast water in the open ocean it must hold the ballast in its tanks for the duration of the voyage through the lakes or conduct an exchange in a different approved location. Data from the Coast Guard show that the percentage of ships entering the Great Lakes after exchanging their ballast water has steadily increased since the regulations took effect in 1993 and averaged over 93 percent from 1998 through 2001. Despite this, numerous aquatic invasive species have entered the Great Lakes via ballast water and have established populations since the regulations were promulgated.

Experts have cited several reasons for the continued introductions of aquatic invasive species into the Great Lakes despite the ballast water regulations. In particular, the Coast Guard's ballast water exchange regulations do not apply to ships with little or no pumpable ballast water in their tanks, which account for approximately 70 percent of ships entering the Great Lakes from 1999 through 2001. These ships, however, may still have thousands of gallons of residual ballast and sediment in their tanks that could harbor potentially invasive organisms from previous ports of call and then be discharged to the Great Lakes during subsequent ballast discharges. There are also concerns that open-ocean ballast water exchange is not an effective method of removing all potentially invasive organisms from a ship's ballast tank.

Federal officials believe that they should do more to develop treatment standards and technologies to protect the Great Lakes from ballast water discharges. The Coast Guard is now working to develop new regulations that would include a performance standard for ballast water that is, a measurement of how "clean" ballast

water should be before discharge within U.S. waters. The Coast Guard is expecting to have a final rule ready for interdepartmental review by the fall of 2004 that will contain ballast water treatment goals and a standard that would apply not only to ships entering the Great Lakes but to all ships entering U.S. ports from outside the Exclusive Economic Zone. Once the Coast Guard sets a performance standard, firms and other entities will be able to use this as a goal as they develop ballast water treatment technologies. While several technologies are being investigated, such as filtration and using physical biocides such as ultraviolet radiation and heat treatment, a major hurdle to be overcome in developing technological solutions is how to treat large volumes of water being pumped at very high flow rates. In addition, small container vessels and cruise ships, which carry a smaller volume of ballast water, may require different technologies than larger container vessels. As a result, it is likely that no single technology will address the problem adequately. Consequently, it could be many years before the world's commercial fleet is equipped with effective treatment technologies. Without more effective ballast water standards, the continued introduction of aquatic invasive species into the Great Lakes and other aquatic systems around the country is likely to cause potentially significant economic and ecological impacts.

We reported in October 2002 that the Coast Guard and the Department of Transportation's Maritime Administration are developing programs to facilitate technology development. In addition, the National Oceanic and Atmospheric Administration and the U.S. Fish and Wildlife Service have funded 20 ballast water technology demonstration projects at a total cost of $3.5 million since 1998 under a research program authorized under the National Invasive Species Act. Other programs also support research, and the Maritime Administration expects to make available several ships of its Ready Reserve Force Fleet to act as test platforms for ballast water technology demonstration projects. Once effective technologies are developed, another hurdle will be installing the technologies on the world fleet.[8] New ships can be designed to incorporate a treatment system, but existing ships were not designed to carry ballast water technologies and may have to go through an expensive retrofitting process. With each passing year without an effective technology, every new ship put into service is one more that may need to be retrofitted in the future.

Public and private interests in the Great Lakes have expressed dissatisfaction with the progress in developing a solution to the problem of aquatic invasive species introduced through ballast water. An industry representative told us that she and other stakeholders were frustrated with the slow progress being made by the Coast Guard in developing a treatment standard. More broadly, in the absence of stricter Federal standards for ballast water, several Great Lakes States have considered adopting legislation that would be more stringent than current Federal regulations. In addition, in a July 6, 2001, letter to the U.S. Secretary of State and the Canadian Minster of Foreign Affairs, the International Joint Commission and the Great Lakes Fishery Commission stated their belief that the two governments were not adequately protecting the Great Lakes from further introductions of aquatic invasive species.[9] They also noted a growing sense of frustration within all levels of government, the public, academia, industry, and environmental groups throughout the Great Lakes basin and a consensus that the ballast water issue must be addressed now. The two commissions believe that the reauthorization of the National Invasive Species Act is a clear opportunity to provide funding for research aimed at developing binational ballast water standards.

S. 525 sets forth a more aggressive program against the introduction of aquatic invasive species through ballast water and related pathways. In particular, it would require ballast water standards for ships in all waters of the U.S., instead of the current voluntary program for waters outside of the Great Lakes. It also specifically authorizes significantly more funding in the form of grants to States, and Federal funding and grants for research, including research on pathways, likely aquatic invaders, and development of cost-effective control methods.

Now let me turn to our most recent work gathering State perspectives on invasive species legislation and management.

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[8]A recent study analyzing the market for future treatment technologies reported that there are over 47,000 vessels in the world fleet for which ballast water treatment technologies could be applicable.

[9]The Boundary Waters Treaty of 1909 established the International Joint Commission to, among other things, advise the U.S. and Canadian governments concerning transboundary water quality issues. The Commission has six members: three appointed by the President of the United States, with the advice and approval of the Senate, and three appointed by the Governor in Council of Canada, on the advice of the Prime Minister. The Great Lakes Fishery Commission was created in 1955 by a convention on Great Lakes fisheries between the U.S. and Canada.

State Officials Cited Several Gaps in Existing Federal Legislation and Identified Other Barriers to Addressing Invasive Species

State officials who responded to our survey identified several gaps in, or problems with, existing Federal legislation on aquatic and terrestrial invasive species, as well as other barriers to their efforts to manage invasive species.

Perceived Gaps in or Problems with Existing Legislation

According to our new work, the lack of legal requirements for controlling already-established or widespread invasive species was the gap in existing legislation on aquatic and terrestrial species most frequently identified by State officials. Specifically, they said that this is a problem for species that do not affect a specific commodity or when a species is not on a Federal list of recognized invasives. Officials noted that if there is no Federal requirement, there is often little money available to combat a species and that a legal requirement would raise the priority for responding to it. For example, one State official complained about the lack of authority to control Eurasian ruffe, an invasive fish that has spread through several Great Lakes and causes great harm to native fisheries. He compared this to the authorities available to control the sea lamprey, which has a mandated control program that is funded by the U.S. and Canada. In addition, some State officials said that in the absence of Federal requirements, differences among State laws and priorities also pose problems for addressing established species, for example, when one State may regulate or take actions to control a species and an adjacent State does not. Some State officials noted that they have little authority to control or monitor some species and that getting laws or regulations for specific species, such as those for the sea lamprey, takes time.

Many State officials also identified ineffective Federal standards for ballast water as a problem for addressing invasive species. Specifically, some State officials complained that standards and treatment technologies, regulations, compliance with reporting requirements, and penalties for noncompliance are lacking and say that research and legislation are needed to address the problem. As we reported in October 2002, Federal regulations for ballast water are not effective at preventing invasive species from entering our waters and are only required for ships entering the Great Lakes. Some State officials also said that Federal leadership is essential to fund efforts in these areas and to provide coordination among States. As I have already noted, S. 525 would authorize a more aggressive program for developing standards and technologies for regulating ballast water. Although some State officials believe solving the ballast water problem is possible, some officials pointed to difficulties in doing so with some methods. Specifically, these officials noted that some environmentalists are opposed to chemical treatments, while industry groups have objected to the cost of some technologies. S. 525 would revise the definition of "environmentally sound" (as in environmentally sound control measures) to delete the emphasis on nonchemical measures.

Other Barriers to Addressing Invasive Species

State officials reported that inadequate Federal funding for State efforts was the key barrier to addressing invasive species both aquatic and terrestrial. In particular, State officials were concerned about having sufficient funds to create management plans for addressing invasive species, particularly as more States begin to develop plans, and for inspection and enforcement activities. State officials also identified the need for additional funds to conduct monitoring and detection programs, research, and staffing. In particular, some State officials noted that uncertainty in obtaining grant funds from year to year makes it difficult to manage programs, especially when funding staff positions relies on grants. S. 525 would specifically authorize significantly more funding in grants to address invasive species than is specifically authorized under the current legislation.

Many State officials also identified a lack of public education and outreach as a barrier to managing terrestrial invasive species. Public education and outreach activities are important components of the battle against invasive species, as many invasives have been introduced through the activities of individuals, such as recreational boating, and the pet, live seafood, and plant and horticultural trades. For example, the outbreak of the monkeypox virus that has sickened at least 80 people in the Midwest is thought to have spread from a Gambian rat imported from Africa to be sold as a pet. S. 525 includes efforts intended to provide better outreach and education to industry, including the horticulture, aquarium, aquaculture, and pet trades, and to recreational boaters and marina operators, about invasive species and steps to take to reduce their spread.

State officials identified a lack of cost-effective control measures as a key barrier to addressing aquatic invasive species. Some officials commented that there is a

need for more species-specific research to identify effective measures. For example, one successful control effort the sea lamprey control program costs about $15 million per year. However, similar control programs for all invasive species would be problematic and officials told us that targeted research on control methods is needed, particularly for aquatic invasive species. S. 525 would authorize a grant program for research, development, demonstration, and verification of environmentally sound, cost-effective technologies and methods to control and eradicate aquatic invasive species.

State Officials' Opinions Varied on Effective Leadership Structures for Managing Invasive Species and Whether to Integrate Legislative Authority on Invasive Species

State officials' opinions varied on the preferred leadership structure for managing invasive species and whether to integrate legislative authority on invasive species. Many State officials indicated that specifically authorizing the National Invasive Species Council would be an effective management option and favored integrated authority, but in both cases, the margins were relatively small.

Federal Leadership Structure for Invasive Species

Currently, no single agency oversees the Federal invasive species effort. Instead, the National Invasive Species Council, which was created by executive order and is composed of the heads of 11 Federal departments and agencies, is intended to coordinate Federal actions addressing the problem. State officials most often identified specifically authorizing the Council in legislation as an effective leadership structure for managing invasive species. Almost all of the Invasive Species Advisory Committee members that responded to our survey agreed with this approach. During our work for our October 2002 report, the executive director of the Council noted that legislative authority for the Council, depending on how it was structured, could be useful in implementing the national management plan for invasive species by giving the Council more authority and, presumably, authorizing more resources. Officials from USDA, the Department of Defense, and EPA also told us that legislative authority, if properly written, would make it easier for Council agencies to implement the management plan, as implementing actions under the executive order are perceived to be lower in priority than are programs that have been legislatively mandated. Many State officials, however, also believed that keeping the current Council authority as established by executive order is an effective option.

Integration of Federal Laws Addressing Invasive Species

As you know, Federal authorities for addressing invasive species are scattered across a patchwork of laws under which aquatic and terrestrial species are treated separately. Questions have been raised about whether this is the most effective and efficient approach and whether the Federal Government's ability to manage invasive species would be strengthened if integrated legal authority addressed both types of invasives. Some believe such an approach would provide for more flexibility in addressing invasive species; others are concerned that such an approach would disrupt existing programs that are working well.

On the basis of the responses from State officials, no clear consensus exists on whether legislative authority for addressing aquatic and terrestrial invasive species should be integrated. Overall, State officials were in favor of integrating legislative authority, but the margin was relatively small. Differences were more distinct, however, when we considered the State officials' expertise. Specifically, we asked officials whether they considered themselves experts or knowledgeable in aquatic invasive species, terrestrials, or both. A large majority of the State officials who identified themselves as having expertise solely in aquatic invasive species were against integrating aquatic and terrestrial authority. The terrestrial experts were also against integrated authority, but with a smaller majority. These positions contrast with those of the State officials who said they were experts or knowledgeable in both aquatic and terrestrial invasives; these officials favored integrated authority by a large majority. About twice as many members of the Invasive Species Advisory Committee who responded to our survey favored integrating legislation on aquatic and terrestrial invasive species compared to those who did not.

Regarding the drawbacks of integrating authority for aquatic and terrestrial invasive species, many State officials said that it could be difficult to address all possible situations with invasive species and some species or pathways may get overlooked, and were concerned that it may reduce State flexibility implementing invasive species programs. Some State officials said that the two types of invasives should be handled separately, since the ecological complexities of aquatics and terrestrials are very different different pathways of entry and spread, and different requirements for control methods and expertise. In addition, some officials stated

that combining legislative authority would result in competition among various invasive species programs for scarce resources. In particular, one official referred to the "issue of the moment" phenomenon, where a specific invasive species becomes the focus of great public attention and receives a large share of resources, while many other species may get very few resources.

On the other hand, many State officials saw an increased focus on pathways for invasive species as opposed to on specific species as a possible benefit of integrating authority for aquatic and terrestrial invasive species. Such an approach could facilitate more effective and efficient efforts to address invasive species. Many State officials also believed that integration of legislative authority could result in increased coordination between Federal agencies and States. Some State officials described the efforts needed to address invasives as requiring broad, interdisciplinary coordination and characterized the current Federal effort as fragmented and ineffective. In addition, some State officials said that the classification of species into aquatic or terrestrial types might not be clear-cut and that the current separation between them is "an artificial Federal construct," citing, for example, the difficulty of classifying amphibians.

GAO CONTACTS AND STAFF ACKNOWLEDGMENTS

For further information about this testimony, please contact me at (202) 512–3841. Mark Bondo, Mark Braza, Kate Cardamone, Curtis Groves, Trish McClure, Judy Pagano, Ilga Semeiks, and Amy Webbink also made key contributions to this statement.

RESPONSES OF BARRY T. HILL TO AN ADDITIONAL QUESTION FROM SENATOR ALLARD

Question 1. The legislation proposes that the Coast Guard will promulgate the regulations for an interim standard, while the EPA will develop the final standard. The Coast Guard supports a single standard that is scientifically sound and enforceable, and EPA has concerns that they should be the ones in charge, as well as issues of rule promulgation sharing. Some before this committee believe that the responsibility to develop and promulgate a ballast water discharge standard should remain with one agency. How should this be addressed? Who is the right agency?

Response. GAO does not have a view regarding which is the "right" agency to develop and promulgate a ballast water discharge standard. GAO believes that the rulemaking process for ballast water management should be a cooperative one involving, to some degree, the Federal agencies with related expertise or a stake in the outcome such as the Coast Guard, U.S. Maritime Administration, Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration, and Department of the Interior. We have not analyzed whether the Coast Guard or EPA is the more appropriate lead agency for this effort although there are reasons why each might be considered the better choice. For example, the Coast Guard has been dealing with ballast water for many years and has valuable experience with the shipping industry. The EPA, on the other hand, has extensive experience in developing and promulgating environmental standards, such as those issued under the authority of the Clean Water Act. We are concerned about switching agency responsibility for developing a standard midstream-with the Coast Guard starting the process and EPA finishing it-because the experience and expertise developed in the first part of the process would need to be transferred during the transition, possibly delaying the process. Several precedents exist for two agencies jointly issuing regulations; in other cases, the Congress has directed an agency to consult with others when developing specific regulations. These approaches could be considered for ballast water regulations. In addition, regardless of which agency-or agencies-actually promulgates a final standard, it is likely that other agencies will be responsible for implementing and/or enforcing the standard. In our view, the critical success factors for issuing ballast water regulations is ensuring effective coordination among the agencies that are stakeholders to the outcome and/or have relevant expertise, and adequate resources to develop and promulgate a standard expeditiously.

RESPONSES OF BARRY T. HILL TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. Does S. 525 provide clear lines of authority and accountability to enable State and Federal agencies to work together?

Response. GAO did not conduct a comprehensive legal analysis of S. 525 to determine the sufficiency of the lines of authority and accountability between Federal

agencies and States. Federal and State cooperation in efforts to deal with invasive species is extremely important, as the States have a key role in managing invasive species within their borders. Executive Order 13112 and the national management plan for invasive species recognize the importance of Federal/State cooperation; S. 525 continues that theme. However, the bill addresses only aquatic nuisance species so its potential impact on Federal/State authority is limited in this way.

GAO has reported generally on different approaches for balancing Federal and State responsibilities for standard setting and implementation, and on how the Federal/State relationship differs among these approaches. For example, regulations that set forth minimum Federal standards, thereby allowing States to impose stricter standards, may include a mix of Federal and State implementation as well as provisions to hold States accountable to Federal requirements. Standards that are developed jointly by Federal agencies and States, however, may result in significant State autonomy regarding how and what is implemented, with accountability stopping at the State level. See Regulatory Programs: Balancing Federal and State Responsibilities for Standard Setting and Implementation, GAO–02–495 (Washington, DC: Mar. 20, 2002), for more details.

Question 2. As you mentioned in your testimony, the GAO reported last year that implementation of the national invasive species management plan developed by the Council is possibly being hampered by the fact that the Council does not have a congressional mandate. Please provide comments on S. 536.

Response. Some of the Federal officials that GAO interviewed for the report said that legislative authority, if properly written, would make it easier for Council departments to implement the management plan. In addition, the Council recognized in the management plan that without significant additional resources for existing and new programs it would not be possible to accomplish the goals of the plan within the specific timeframes. If passed, S. 536 would legislatively establish the National Invasive Species Council and authorize funding for the purposes outlined in the bill. It would also establish a process for monitoring progress implementing the plan that would include reporting requirements to the Congress. The components of S. 536 appear very similar to those of the executive order. However, while the language in the executive order addressing Federal responsibilities for avoiding the introduction and spread of invasive species is similar to that in S. 536, the level of effort necessary to carry out these responsibilities may change if it becomes a legislative requirement.[1]

Question 3. What do you think is the best way to focus research dollars on aquatic invasive species in general, and more specifically, the ballast water standard issue?

Response. GAO has not done specific work on research needs for aquatic invasive species or ballast water standards. Clearly, the development of a ballast water standard and related technology will require scientific support from research. Regarding addressing invasive species in general, overall, the consensus appears to be that prevention is the most cost-effective method. Identifying successful preventive measures will require conducting research to identify the most important pathways for species as well as the species that are most likely to enter the United States.

Question 3a. You stated in your testimony that State officials identified "the lack of legal requirements for controlling invasive species" as a legislative gap in dealing with invasive species. First, can you explain how we fill that gap without imposing an unfunded mandate on States and localities while providing them with flexibility to deal with their specific problems?

Response. We reported in our testimony that the lack of legal requirements for controlling already-established or widespread species was the gap in existing legislation on invasive species most frequently identified by State officials. Specifically, State officials said that this was a problem for species that do not affect a specific commodity or are not on a Federal list of recognized invasives. State officials noted that if there is no Federal requirement to control such species, there is often little money available to do so. These officials believe that a legal requirement would raise the priority for addressing these species. State officials also identified inadequate Federal funding for State efforts as the key barrier to addressing invasive species. Therefore, while States indicated a need for additional requirements for ad-

[1]For example, under the executive order each Federal agency whose actions may affect the status of invasive species, to the extent practicable and permitted by law, is not to "authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species . . . unless . . . the agency as determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions." S. 536 includes a similarly worded provision but without the "to the extent practicable and permitted by law" caveat.

dressing invasives, there was also a clear call for additional funds to carry out needed programs to tackle this difficult problem. Additional legal requirements for control, however, would not necessarily be directed solely at States as Federal agencies implement a wide variety of invasive species control programs and could be given additional responsibilities.

Regarding States' flexibility, in Regulatory Programs: Balancing Federal and State Responsibilities for Standard Setting and Implementation, GAO–02–495, we discuss different approaches to developing and implementing Federal regulations and the amount of flexibility these approaches provide to States.

Question 3b. Does, or how can, S. 525 address this issue?

Response. GAO did not comprehensively review S. 525. However, there are several sections of S. 525 that propose increasing authorizations to States to carry out specific programs and activities included in the bill.

Question 4. You stated in your testimony that "most State officials were in favor of integrating legislation on terrestrial invasive species with legislation on aquatic invasive species." What are the advantages and disadvantages of such an approach?

Response. Regarding the drawbacks of integrating authority for aquatic and terrestrial invasive species, many State officials said that such an approach could make it difficult to address all possible situations with invasive species, with the result that some species or pathways could get overlooked. These officials were also concerned that integrating legislation could reduce State flexibility in implementing invasive species programs. Some State officials also said that the two types of invasives should be handled separately because the ecological complexities of aquatics and terrestrials are very different-different pathways of entry and spread, and different requirements for control methods and expertise. In addition, some officials stated that combining legislative authority could result in competition among various invasive species programs for scarce resources. In particular, one official referred to the "issue of the moment" phenomenon, where a specific invasive species becomes the focus of great public attention and receives a large share of resources, while many other species get very few resources.

On the other hand, many State officials saw an increased focus on pathways for invasive species-as opposed to focusing on specific species-as a possible benefit of integrating authority for aquatic and terrestrial invasive species. Such an approach could facilitate more effective and efficient efforts to address invasive species. Many State officials also believed that integration of legislative authority could result in increased coordination between Federal agencies and States. Some State officials described the efforts needed to address invasives as requiring broad, interdisciplinary coordination and characterized the current Federal effort as fragmented and ineffective. In addition, some State officials said that classifying species into aquatic or terrestrial types might not be clear-cut and that the current separation between them is "an artificial Federal construct," citing, for example, the difficulty of classifying amphibians.

RESPONSES OF BARRY T. HILL TO ADDITIONAL QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your testimony, you mention that there is a lack of cost-effective control measures for cargo ships and cruise ships to address their ballast water discharge. Would setting a specific standard for the removal of organisms from ballast water tend to spur technological development?

Response. Technology-forcing standards are designed to induce an industry to develop and implement technology that would otherwise not be forthcoming, or that would be implemented at a far slower pace. In past work, we found that technology equipment manufacturers have little incentive to develop new technologies when there is no specific environmental standard or requirement (Environmental Protection: Wider Use of Advanced Technologies Can Improve Emissions Monitoring, GAO–01–313 (June 22, 2001)). For example, in the case of technology for measuring the emissions of pollutants into the air by industrial sources, most air emissions technology improvements had been focused on making existing technology more reliable and less expensive because there was no regulatory requirement forcing more advanced technologies. In these cases, the burden falls on Federal agencies to conduct needed research and development on new technologies. However, if a standard or requirement is imposed, technology manufacturers and regulators we interviewed believed that technology would be developed to meet those standards or requirements. As an industry trade association representative noted, "if regulations are imposed, the technology will follow." However, in some cases, technology development may take longer than provided for in regulation. For example, while the Clean Air

Act required specific automobile emission reductions within 5 years, the technology was not ready until 6 years after the deadline.[2]

Question 2. What are your thoughts on the introduction of ozone to treat ballast water?

Response. GAO has not conducted an analysis of the treatment options for ballast water.

STATEMENT OF LORI WILLIAMS, EXECUTIVE DIRECTOR, NATIONAL INVASIVE SPECIES COUNCIL

Introduction

Thank you for the opportunity to discuss the National Invasive Species Council's efforts to deal with the problem of invasive species and comment on S. 525, the "National Aquatic Invasive Species Act of 2003". The Council's mission is to enhance coordination and improve the effectiveness of Federal efforts, by working cooperatively with affected stakeholders, to prevent and reduce the damage caused by invasive species to the economy, the environment and in some cases animal and human health.

Today, as requested by the Subcommittee, I will briefly outline the role and activities of the Council and present and summarize the views and concerns of the Council member departments regarding S. 525, a bill to reauthorize the National Aquatic Nuisance Prevention and Control Act of 1990.

Last summer, efforts to eradicate the snakehead fish in Maryland put the problem of aquatic invasive species on the front page. The threat that this voracious, predator, discovered in a small pond, could easily have spread to the Chesapeake Bay if quick action was not taken by the State of Maryland and local officials, graphically demonstrated the risks of invasive species and their potential destructive capacity. The apparent success of Maryland officials in eradicating the snakehead and Fish and Wildlife Service moving swiftly to regulate the fish under Federal law has unfortunately been, in the past, the exception rather than the rule. Too often invasive species have become well-established and difficult if not impossible to eradicate or contain by the time action is taken.

The rate of introduction of invasive species has increased significantly because of increases in travel, trade, and tourism. Invasive species have caused billions of dollars of economic damage. Invasive species are the second leading factor in the listing of species as endangered or threatened. In some cases they are known to degrade ecosystems and harm animal and human health. Invasive species do not respect jurisdictional or bureaucratic boundaries. They impact Federal land and water resources, States, tribal interests, and private landowners, as well as, other nations. Therefore, an effective response to these biological invasions must be coordinated, inter-departmental, and multi-jurisdictional.

The Council is charged with coordinating Federal activities relating to all invasive species, including aquatic and terrestrial species. Although our focus today is on aquatic invasive species, many of the issues and proposed solutions are common across all types of invasive species. A comprehensive approach including prevention, early detection and rapid response, research, control, education and outreach, and international cooperation are key elements in any strategy to address this complex issue and are included as components of the National Invasive Species Management Plan (discussed below).

Overview of the National Invasive species Council (Council)

The Council was created by executive order in 1999, Executive Order 13112, (E.O.) not only to address the growing problem of invasive species but the need for coordination among Federal programs and the lack of a comprehensive Federal plan to deal with the issue. The Council is co-chaired by the Secretaries of the Interior, Agriculture, and Commerce and includes the Secretaries of the Treasury, State, Health and Human Services, Defense, Transportation, and (most recently) Homeland Security, as well as, the Administrators of the Environmental Protection Agency (EPA) and the US Agency for International Development. The E.O. also provides for an Invasive Species Advisory Committee (ISAC), which includes a wide variety of nonFederal experts and stakeholders to advise the council and provide non-Federal perspective and input. The key tasks of the Council, in addition to extensive coordination on invasive species programs and budgets are:

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[2]Joseph A. Grundfest, The Future of United States Securities Regulation: An Essay on Regulation in an Age of Technological Uncertainty, Saint John's Law Review, Winter 2001.

1) drafting and guiding implementation of the National Invasive Species Management Plan; (executive summary attached)

2) working with Department of State to enhance international cooperation to prevent and control invasive species;

3) building partnerships with local, State, and tribal governments;

4) organizing and providing enhanced public access to invasive species information; and

5) enhancing public education and outreach on invasive species issues.

The Council operates with a small staff—currently four staff with plans for seven positions—and depends on the work of departmental liaisons, agency staff and detailees. The Council has no separate legal and regulatory authority and works through the member departments and agencies to address invasive species issues on a cooperative basis with significant stakeholder involvement.

Early in 2001, the Council issues the first edition of the National Invasive Species Management Plan. The Plan, which includes 57 action items, is a comprehensive blueprint to address invasive species. Recent accomplishments include: drafting guidelines for early detection and rapid response systems; listing significant pathways for introduction of invasive species; establishing (working with USDA's National Agricultural Library) an invasive species website that provides information about all Federal invasive species programs; enhancing international cooperation by co-sponsoring international invasive species regional workshops, and beginning work on a North American invasive species strategy. In addition, the Council has proposed modifications to the Executive Order (now under review) to enhance the role of States and tribal interests with the Council. Finally, the Council has completed the first, performance-based invasive species crosscut budget for fiscal year 2004 in order to leverage Federal invasive species programs and resources in three targeted areas, and proposes to further strengthen budget coordination in fiscal year 2005.

Relationship between the Council and ANSTF

While the Council coordinates invasive species issues at the departmental level for all types of invasive species, the Aquatic Nuisance Species Task Force (ANSTF) provides agency-level coordination solely for aquatic species. To avoid any duplication of effort, the Council is mandated under E.O. 13112 to coordinate with the ANSTF. Currently, NOAA assists this coordination by having Deputy Assistant Secretary Tim Keeney serve as their representative to both the Task Force and the Council. The Council and ANSTF are considering further ways to consolidate and combine similar activities in the area of prevention to ensure continued close cooperation and leverage scarce resources.

General comments on S. 525

S. 525 would reauthorize the Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990. In my remarks, as requested by the Subcommittee, I will provide a brief overview of the Federal agencies general comments and concerns regarding the reauthorization bill. Following my testimony agency and departmental officials will provide additional comments related to their specific concerns.

We support the reauthorization of aquatic invasive species legislation as an important component of addressing aquatic invasive (nuisance) species. S. 525 wisely address the full array of aquatic pathways (such as hull-fouling, live bait, etc.) in addition to the critical problem of ballast water. There is broad support among Council members for the bill's comprehensive approach to dealing with aquatic invasive species problem that is similar to the approach taken in the National Invasive Species Management Plan. In addition to emphasizing prevention, it recognizes the need to include a variety of approaches, including early detection and rapid response, research and monitoring, control, and education. The bill also recognizes the important coordination provided by the Aquatic Nuisance Species Task Force for solely aquatic issues and the broader level of coordination provided by the Council.

The bill would, for the first time, address planned or intentional introductions of invasive species in the aquatic arena by calling for the development of a screening process. This process would evaluate whether a species being proposed for introduction into the U.S. for the first time is likely to become invasive. Screening is also an element of the Management Plan and is critical to prevention efforts.

The bill recognizes and supports important State and regional efforts through State aquatic nuisance plans and regional panel activities. Partnerships and multi-jurisdictional efforts are essential for prevention and control activities. The bill also proposes an appropriate role for the Council in providing overall guidance on policy

(regarding screening), as well as close coordination on policy formulation with ANSTF.

Concerns

Addressing the issue of ballast water, the bill appropriately supports Federal efforts to make ballast water standards mandatory. Other the provisions of the bill dealing with ballast water are problematic in a number of ways that will be addressed in more detail by the Coast Guard and other agencies. Most importantly, while recognizing the importance of dealing with this issue and the frustration with progress to date, it is critical that any treatment standard adopted for any ballast water be biologically meaningful, based on science and enforceable. It has not been demonstrated that a standard based on a kill-rate meets these standards, as is currently proposed in S. 525.

In general, there is concern that some of the provisions of S. 525 are administratively burdensome and inflexible. DOC notes in their testimony that 31 separate deadlines for administrative action within a short timeframe (18 months) are included in the bill. In addition, numerous reporting requirements raise concerns that scarce resources will be taken up filling out reports. Some of the bills provisions (in the areas of rapid response and screening for example) are overly prescriptive and do not allow the agencies and the Council the flexibility needed to develop and test new methods and provide for adequate stakeholder input—given the complexity of some of the issues and policies involved. Reporting requirements for the States may also be burdensome or create possible barriers to rapid action (such as the requirement that every State have a rapid response contingency plan in place—including a provision dealing with education—before being eligible to receive response matching funds).

The language regarding dissemination of information should be clarified. While the Council can and should assist with the coordination and dissemination of information, the action agencies should remain responsible for dissemination of the information that they are charged with collecting. Several agencies involved in this effort have particular expertise and infrastructure to disseminate information not available to a coordinating body such as the Council.

Along these lines we note that new spending authorized by S. 525 is not currently included in the President's fiscal year 2004 Budget and thus the proposal must be considered within existing resources and priorities. New requirements included in the bill, such as those for education programs, should be integrated into existing efforts.

As with any comprehensive and complex legislative proposal there are areas that need improvement. The other Federal representatives on the panel will provide additional detail and discuss their specific concerns. The Council is ready to assist the committee with addressing these general concerns and additional technical issues to improve the legislation.

I thank the Subcommittee for addressing this important and complex issue. Working together is our only means to prevent and mitigate the extensive damage caused by invasive aquatic species. Thank you and I will be pleased to answer any questions.

MEETING THE INVASIVE SPECIES CHALLENGE

Management Plan
National Invasive Species Council
2001

Executive Summary

Invasive species affect each of our lives, all regions of the U.S., and every nation in the world. Society pays a great price for invasive species – costs measured not just in dollars, but also in unemployment, damaged goods and equipment, power failures, food and water shortages, environmental degradation, increased rates and severity of natural disasters, disease epidemics, and even lost lives. Stimulated by the rapid global expansion of trade, transport, and travel, invasive species and their costs to society are increasing at an alarming rate.

For centuries, people have moved organisms around the world. Plants and animals, and their products, are imported into the U.S. to be used, for instance, as food, construction materials, ornamental plants, livestock, and pets. Organisms that have been moved from their native habitat to a new location are typically referred to as "non-native," "nonindigenous," "exotic," or "alien" to the new environment. Most U.S. food crops and domesticated animals are non-native species, and their beneficial value is obvious – for instance, managed livestock are examples of non-native species that are not invasive. Many other non-native species are simply benign. However, a small percentage cause serious problems in their new environments and are collectively known as "invasive species."

Invasive species are non-native to an ecosystem... whose introduction causes or is likely to cause economic or environmental harm.

An "invasive species" is defined as a species that is 1) non-native (or alien) to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order 13112, Appendix 1). This National Invasive Species Management Plan (Plan) focuses on those non-native species that cause or may cause significant negative impacts and do not provide an equivalent benefit to society.

The means and routes by which invasive species are imported and introduced into new environments are called "pathways." Some non-native organisms that are intentionally imported escape from captivity or are carelessly released into the environment and become invasive. While most importations are legal, smuggling of invasive species also occurs. Some invasive species arrive as hitchhikers on commodities such as produce, nursery stock, and livestock. Other invasive species are stowaways in transport equipment, such as packing materials or a ship's ballast water.

One report indicates that the economic cost of invasive species to Americans is an estimated $137 billion every year (Pimentel *et al.* 2000). The Formosan termite costs an estimated $300 million in property damage annually in New Orleans (Bordes pers. comm.). Zebra mussels invaded the Great Lakes through ballast water, and clog water intake pipes needed by a variety of industries.

Up to 46% of the plants and animals federally listed as endangered species have been negatively impacted by invasive species (Wilcove *et al.* 1998). While purple loosestrife has beautiful purple flowers, it also diminishes waterfowl habitats, alters wetland structure and function, and chokes out native plants. The Asian

longhorned beetle, which probably arrived in solid wood pallets made in China, is causing the destruction of valuable city trees and could spread to natural forests. The nutria, a large rodent native to South America originally imported for a private zoo, now exists in the wild and is devastating large portions of wetland ecosystems.

The newly introduced West Nile virus, an invasive virus which is transmitted to humans by mosquitoes that feed on the blood of infected animals, now threatens people and animals in 12 eastern States and the District of Columbia. Cholera and some of the microorganisms that can cause harmful algal blooms along the U.S. coast are moved in the ballast water carried by large ships. Imported red fire ants cause painful and potentially deadly stings to humans, livestock, and pets in the southern U.S.

Farmers, ranchers, scientists, State officials, and many others have urged the Federal Government to consider invasive species issues a priority and to develop a coordinated national effort to address the problem. In response, the President issued Executive Order 13112 on Invasive Species (Order) in February 1999. The Order established the National Invasive Species Council (Council), co-chaired by the Secretaries of Agriculture, Commerce, and the Interior; and includes the Secretaries of State, Treasury, Defense, and Transportation, and the Administrator of the Environmental Protection Agency. The Order directs the Council to form a non-Federal Invasive Species Advisory Committee (ISAC) to advise the Council in its work. The Council (specifically, the eight department members) is to: provide national leadership on invasive species; see that their Federal efforts are coordinated and effective; promote action at local, State, tribal and ecosystem levels; identify recommendations for international cooperation; facilitate a coordinated network to document and monitor invasive species; develop a web-based information network; provide guidance on invasive species for Federal agencies to use in implementing the National Environmental Policy Act; and prepare the Plan – this document.

This Plan presents nine interrelated and equally important areas that the Council considers priorities in addressing invasive species problems. The following actions are recommended. The Council will undertake these actions in coordination and partnership with other stakeholders as appropriate:

Leadership and Coordination: The Council is directed by the Order to provide national leadership and oversight on invasive species and to see that Federal agency activities are coordinated, effective, work in partnership with States, and provide for public input and participation.

When appropriate, the Council and its staff will draw on various existing organizations for coordination and leadership. These include, among others, State agencies, State invasive species committees and councils, regional organizations

such as regional weed boards, the Aquatic Nuisance Species Task Force (ANSTF), the Federal Interagency Committee on the Management of Noxious and Exotic Weeds (FICMNEW), the Committee on Environment and Natural Resources (CENR), and various non-government organizations. The States play a key role in the management of invasive species within their borders; therefore, this Plan reflects the need to build capacity and capability at State and local levels to coordinate, detect, and respond to invasive species. Additional steps are also needed to ensure a unified, effective, and coordinated Federal response.

Response:

- Establish a transparent oversight mechanism for use by Federal agencies in complying with the Order and reporting on implementation.
- Ensure that a clearly defined process will be developed and procedures will be in place to resolve jurisdictional and other disputes regarding invasive species issues.
- Conduct an evaluation of current legal and regulatory authorities relevant to invasive species.
- Prepare an analysis of legal and policy barriers to coordinated and joint actions among Federal agencies.
- Identify at least two major invasive species issues, regulations, or policies where coordination is inadequate and take action that fixes the problem.
- Coordinate and provide to the Office of Management and Budget (OMB) a proposed cross-cut budget for Federal agency expenditures concerning invasive species.
- Convene a working group of agency leads on international agreements relevant to invasive species.
- Prepare a 2-year work plan identifying specific initiatives to work with State, local, and regional organizations.
- Prepare and issue guidance on invasive species for Federal agencies to use in implementing the National Environmental Policy Act (NEPA).

Prevention: The first line of defense is prevention. Often, the most cost-effective approach to combating invasive species is to keep them from becoming established in the first place. Diverse tools and methods are needed to prevent invasive species from becoming established in ecosystems where they are not native. A risk-based approach is mandated by the Order and requires consideration of the likelihood an invasive species will establish and spread as well as the degree of harm it could cause.

Response:

- Develop a fair, feasible, risk-based comprehensive screening system for evaluating first-time intentionally introduced non-native species in consultation with the Invasive Species Advisory Committee (ISAC), State governments, scientific and technical experts and societies, and other stakeholders, including affected industries and environmental groups.

- Develop modifications to the screening system or other comparable management measures (i.e., codes of conduct, pre-clearance or compliance agreements) to formulate a realistic and fair phase-in evaluation of those intentional introductions currently moving into the U.S., in consultation with ISAC, State governments, scientific and technical experts and societies, and other stakeholders, including affected industries and environmental groups.
- Identify the pathways by which invasive species move, rank them according to their potential for ecological and economic impacts, and develop mechanisms to reduce movement of invasive species.
- Take the steps to interdict pathways that are recognized as significant sources for the unintentional introduction of invasive species.
- Implement a process for identifying high priority invasive species that are likely to be introduced unintentionally and for which effective mitigation tools are needed.
- Develop a risk assessment program for the intentional and accidental introduction of non-native species through U.S. international assistance programs and encourage other countries and international organizations to do the same.

Early Detection and Rapid Response: We cannot prevent all introductions. However, early detection of introductions and quick, coordinated response can eradicate or contain invasive species at much lower cost than long-term control, which may be infeasible or prohibitively expensive. Invasive species should be detected and dealt with before they become established and spread. An integrated approach involving research and development, technical assistance, and operations is needed to facilitate and implement effective action. No comprehensive national system is in place for detecting and responding to incipient invasions. Unfortunately, inadequate planning, jurisdictional issues, insufficient resources and authorities, limited technology, and other factors often hamper early detection and rapid response in many locations.

Response:

- Take steps to improve detection and identification of introduced invasive species, recognizing the need for jurisdictional coordination.
- Develop a program, in close cooperation with State and local efforts, for coordinated rapid response to incipient invasions.
- Develop and recommend to the President draft legislation, in consultation with the States, to address rapid responses to incipient invasions, possibly including permanent funding for rapid response activities.

Control and Management: When invasive species appear to be permanently established, the most effective action may be to prevent their spread or lessen their impacts through control measures. Control and management of invasive species encompasses diverse objectives such as eradication within an area, population suppression, limiting spread, and reducing effects. Complete eradication is not generally feasible for widespread invasive species or where adequate

control methods are not available. Integrated pest management (IPM) is an approach to pest control (including invasive species) that flexibly considers available information, technology, methods, and environmental effects. Methods include physical restraints (e.g., fences and electric dispersal barriers), mechanical removal (e.g., hand-pulling, burning and mowing), judicious use of pesticides, release of biological control agents (such as host-specific predatory organisms), cultural practices (e.g., crop rotation), and interference with reproductive capacity (e.g., pheromone-baited traps and release of sterile males). Consideration of cumulative environmental impacts requires that environmentally sound methods be deployed, especially in vulnerable areas. Because control actions have local effects and cross jurisdictional borders, they are often carried out by or in cooperation with State or local agencies. Adequate funding and public awareness are critical to success.

Response:

- Land management agencies will seek additional resources - through the annual appropriations process consistent with Administration policy - to significantly enhance control and management of invasive species on Federal lands.
- Develop and recommend to the President draft legislation to authorize matching Federal funds for State programs to manage invasive species.
- Explore and, as appropriate, adopt sanitation and exclusion methods for preventing spread of invasive species.
- Develop and issue a protocol for ranking priority of invasive species control projects at local, regional, and ecosystem-based levels.
- Develop a proposal for accelerating the development, testing, assessment, transfer, and post-release monitoring of environmentally safe biological control agents.
- Develop a proposal for cooperation with private industry to utilize current programs and to facilitate development, testing, transfer, and training concerning use of environmentally compatible pesticides and herbicides in controlling invasive species.
- Prepare a list of connecting waterways to develop a strategy for preventing movement of aquatic species among watersheds and initiate a research program on methods to prevent such movement.
- Expand opportunities to share information, technologies, and technical capacity on the control and management of invasive species with other countries, promoting environmentally sound practices.

Restoration: Executive Order 13112 requires Federal agencies to "provide for restoration of native species and habitat conditions in ecosystems that have been invaded." Without restoration, areas may become reinfested by the same or new invasive species.

Response:

- Develop and issue recommendations, guidelines, and monitoring procedures for Federal land and water management agencies to use, where feasible, in restoration activities.
- Identify sources of propagative material for native species in areas of restoration or reclamation projects.
- Prepare draft legislation to authorize tax incentives and otherwise encourage participation of private landowners in restoration programs.
- Develop criteria for the use of non-native species in overseas restoration projects.

International Cooperation: The U.S. cannot succeed in addressing its domestic invasive species problems unless it takes a leadership role in international cooperation and invests in strategies that raise the capacity of other nations to manage the movement of invasive species. Our ability to prevent invasive species from entering the U.S. depends a great deal on the capability of other countries to effectively manage invasive species and invasion pathways domestically. Once invasive species become established within one country, they pose a threat to an entire region, as well as to trading partners and every country along a trading pathway. If an invasive species never leaves its native country, it will never become a problem in the U.S.. Actions by the U.S. have sometimes contributed to the invasive species problems faced by other countries. Despite good intentions, we have occasionally facilitated the introduction of invasive species to other countries through development assistance programs, military operations, famine relief projects, and international financing.

Response:

- Strengthen and expand U.S. participation in mutually supportive standards and codes of conduct within international fora.
- Develop a strategy and support materials for U.S. representatives to encourage and assist all countries with development of coordinated policies and programs on invasive species.
- Identify the limitations and strengths of existing international agreements and develop a program of work to further strengthen them.
- Outline an approach to a North American invasive species strategy.
- Establish an ongoing process to consider the risks of invasive species during the development of U.S. trade agreements.
- Sponsor technical assistance workshops in other countries.
- Provide financial and technical support to international meetings of policy makers, as well as regional and global programs.
- Conduct a study of international assistance as an invasion pathway.

Research: Research supports each aspect of the Plan. Complementary research projects ranging from basic investigations with broad application to highly targeted applied efforts are required. Federal research outcomes, where appropriate, will be transferred to Federal, State, local, tribal, and private sector stakeholders for their utilization.

Response:

- Include, as part of the cross-cut budget proposal, an initiative to adequately fund Federal invasive species research programs.
- Establish and coordinate a long- and short-term research capacity that encompasses the range from basic to applied research for invasive species. This initiative will build on existing efforts that reflect a range of perspectives and program approaches.
- Prepare a catalog of existing aquatic and terrestrial control methods.
- Develop and implement a plan to strengthen international research collaborations between the U.S. and other countries.

Information Management: The Council is charged with establishing a coordinated, up-to-date information-sharing system. Although there are many sources of information concerning invasive species, incompatible database formats and other factors impede information sharing. The Council is currently developing an information "gateway" accessible through the Council's website – www.invasivespecies.gov. The long-term goal is to provide accessible, accurate, referenced, up-to-date, comprehensive, and comprehensible information on invasive species that will be useful to local, State, tribal, and Federal managers, scientists, policy-makers, teachers, students, and others.

Response:

- Develop guidance for managing information concerning invasive species in aquatic and terrestrial environments.
- Maintain and enhance the Council's website, www.invasivespecies.gov, on a continuing basis.
- Post and maintain "case studies" on control and rapid response efforts on the Council's website.
- Include a locator for occurrences of invasive species in the United States by county.
- Link the website to major U.S. databases, websites, and most State information networks that deal with invasive species, and to websites in other nations that have active invasive species programs.
- Develop and implement a memorandum of understanding among appropriate Federal Departments to establish an invasive species assessment and monitoring network.

- Expand the website to include information on internationally relevant agreements, codes of conduct, meetings, publications, experts, programs, and financial resources, as well as regional and global invasive species databases.
- Produce an Invasive Species Compendium for North America.

Education and Public Awareness: Views of invasive species issues are molded by human values, decisions, and behaviors. The prevention and control of invasive species will require modifying behaviors, values, and beliefs and changing the way decisions are made regarding our actions to address invasive species. A wide variety of education, outreach, and training programs are needed.

Response:

- Coordinate development and implementation of a national public awareness campaign, emphasizing public and private partnerships.
- Identify and evaluate existing public surveys of attitudes and understanding concerning invasive species issues.
- Compile a comprehensive assessment of current invasive species communications, education, and outreach programs.
- Develop a model public awareness program that incorporates national, regional, State, and local level invasive species public education activities, including a plan for testing the model over the next year.
- Coordinate development and implementation of an international education campaign.
- Develop a series of education materials to guide organizations in development assistance, industry, international finance, and government sectors to write and implement "codes of conduct."
- Co-host a series of international workshops on invasive species in different regions for policy makers.

STATEMENT OF JOSEPH A. ANGELO, U.S. COAST GUARD, DEPARTMENT OF HOMELAND SECURITY

Good morning, Mr. Chairman and distinguished members of the Subcommittee. It is a pleasure to appear before you today to provide our views on Senate Bill 525 (S. 525), to amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 and to reauthorize and improve that Act.

The Coast Guard is a leader in ensuring America's marine environment is protected, and we take great pride in providing valuable services to the American people that make our nation cleaner, safer, more mobile, and more secure.

Today, the spread of non-native aquatic species throughout our waterways remains a serious and growing national problem. We know all too well that once introduced, many of these species are capable of disrupting native ecosystems, resulting in lost natural resources, and significant mitigation costs. Aquatic nuisance species invasions can also cause damage to coastal infrastructure and threaten coastal industries.

In reauthorizing and amending existing Federal aquatic nuisance species (ANS) legislation, S. 525 would, among other things, provide detailed guidance and requirements for the conduct of a Federal ballast water management program and the establishment of a research program to support efforts to prevent the introduction of any ANS. We believe this bill appropriately identifies significant issues related to improving the nation's defense against the introduction of ANS, and that reauthorization and amendment of the legislation is necessary to effectively address this growing environmental problem. However, we do have some specific concerns re-

garding implementation actions detailed in this bill, which we believe should be considered.

Working under the broad authorities granted by current legislation, the Coast Guard's ongoing regulatory efforts are addressing many of the ballast water management provisions contained in S. 525. As detailed in the transmittal letter accompanying the Secretary of Transportation's June 2002 voluntary ballast water management assessment report to Congress, mandated by the National Invasive Species Act, the Coast Guard is establishing a mandatory national ballast water management program. Coast Guard efforts also include: (1) the setting of an enforceable and scientifically supportable ballast water treatment standard, and (2) establishing a process that will facilitate the development, testing and evaluation of promising experimental treatment systems. We believe that our current regulatory strategy is both sound and aggressive, especially when compared to the current state of ballast water management technology, which is very much in its infancy. We further believe that the prescriptive requirements and new management arrangements contained in S. 525 would unnecessarily complicate and inevitably delay the implementation of an effective mandatory Federal ballast water management regime.

We are particularly concerned with the bill's inclusion of a proposed interim ballast water treatment standard. However, the interim standard that requires the removal of 95 percent of the viable organisms taken in by the vessel as specified in the bill, presents near insurmountable monitoring and enforcement challenges. In consultation with other Federal agencies, the Coast Guard is currently assessing various options for biologically protective treatment standards, including standards that would be expressed as allowable concentrations of organisms in discharged ballast water. In order to support the treatment technology evaluation process for a ballast water discharge standard, the Coast Guard is working under a cooperative arrangement with the Environmental Protection Agency (EPA) and other technical experts, to develop verification protocols for ballast water treatment technologies. We are also tracking several complementary international efforts to develop effective management technologies and will use their findings as appropriate in developing our domestic program.

The legislation proposes that the Coast Guard will promulgate the regulations for an interim standard, while the EPA will develop the final standard. The Coast Guard supports a single standard that is scientifically sound and enforceable. The responsibility to develop and promulgate a ballast water discharge standard should remain with one agency, and we would like the opportunity to work further with the Subcommittee in order to clarify specific agency roles.

Another area of concern is the proposed timelines for implementing various aspects of the ballast water management regulatory regime. While it is important to promulgate regulations quickly, the timelines presented in the proposed legislation may significantly inhibit the participation of the stakeholders. Appropriately, existing rulemaking procedures provide opportunity for stakeholder input, and accelerating the timelines would compromise these processes. The Coast Guard receives valuable input from many sectors including the scientific community, water treatment technologists, the maritime industry, and Federal and State agencies, commenting both on the regulatory aspects of our rules, as well as the environmental consequences of these rulemakings as agency actions. It is critical to continue to permit this information exchange.

While the Coast Guard is not assigned responsibilities for conducting the ecological surveys described in S. 525, the results of these surveys will likely be used to evaluate the efficacy of our efforts as well as the efforts of other Federal agencies in reducing the rate of invasions by aquatic nuisance species. We believe it is important to coordinate the development of such surveys with the implementing agencies, such as the Coast Guard.

Thank you for the opportunity to present some of our views on this bill today. The Coast Guard looks forward to working with Congress on the reauthorization of ANS legislation while we continue our ongoing efforts to implement an effective ballast water management regime. I will be happy to answer any questions you may have.

STATEMENT OF MATT HOGAN, ASSISTANT DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Good morning, Mr. Chairman and Members of the Subcommittee. I am Matt Hogan, Deputy Director of the U.S. Fish and Wildlife Service (Fish and Wildlife Service). The Director of the Fish and Wildlife Service serves as a co-chair of the Aquatic Nuisance Species Task Force (ANS Task Force) and I thank you, on both

his and the Department of the Interior's (Department) behalf, for the opportunity to comment on S. 525, the "National Aquatic Invasive Species Act." The Department, working primarily through the Fish and Wildlife Service and the U.S. Geological Survey (USGS), has a long history of aggressively working on issues related to aquatic invasive species.

There is no question that the introduction and establishment of aquatic invasive species have significantly impacted our natural areas. We have only to look at a history of invasions, from the sea lamprey to the zebra mussel to the snakehead fish last summer, to understand the broad scope of the problem. The United States continues to see a number of aquatic species, which may become invasive, crossing our borders, and we expect this trend to continue. The Department supports the overall direction of this bill and is encouraged by the leadership and foresight shown by Congress in addressing this difficult issue. However, we have some concerns with the bill, and offer to work with the Subcommittee on specific program details. We also note that new spending authorized by these bills is not currently included in the President's Budget and, as such, these actions must be considered within existing priorities.

We agree with the continued focus on partnerships and cooperative efforts to address this nationally significant problem. One of the purposes of the original law, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, was to encourage Federal and State agencies to work with partners to enhance our collective efforts. We believe that the partnerships and cooperative entities established through the ANS Task Force and the National Invasive Species Council (Council) have been instrumental in making significant progress to prevent and control aquatic invasive species.

We support inclusion of research agencies, such as the USGS and the Smithsonian Institution, as participants in the Task Force to encourage strong links between research and the management of non-indigenous aquatic species. The ANS Task Force, authorized by the original Act, met recently in New Orleans, Louisiana to discuss the aquatic invasive species issues specific to the Gulf of Mexico region. Over the last 12 years, the Task Force has held meetings throughout the country to better understand regional invasive species issues, increase awareness, and enhance coordination efforts with local and regional entities.

The Task Force has been successful in establishing additional Regional Aquatic Nuisance Species Panels, bringing together governmental and private entities to coordinate aquatic invasive species activities at a regional level. The 1990 Act authorized the Great Lakes Panel, and the National Invasive Species Act of 1996 (NISA) authorized the establishment of a Western Regional Panel. NISA also recommended that the ANS Task Force establish additional panels. Three additional panels have been established since 1997, the Gulf of Mexico Panel in 1999, the Northeast ANS Panel in 2001, and the Mississippi River Basin Panel in 2002. The ANS Task Force is also encouraging the establishment of a Mid–Atlantic Panel and a Pacific Islands Panel. The ANS Task Force is proud of many of the accomplishments made over the last decade including enhancement of regional coordination on aquatic invasive species issues. While invasive aquatic species continue to be a significant threat to our natural resources, we believe our efforts to prevent and control aquatic invasive species have resulted in fewer species introduced and reduced impacts from those that have become established.

In General

Let me begin by saying that, while we have some concerns with the bill, we support reauthorization and want to work with you and your staff to address some technical details. As this bill is very comprehensive, we will limit our comments today to several general areas. One general area of concern relates to the number of reports and proposed deadlines required by

S. 525. We hope to have the opportunity to work with you and your staff to try to consolidate some of these reporting requirements to ensure that we can implement the activities outlined in the Act aggressively, but also that the timeframes established are meaningful and manageable.

Ballast Water

We believe that substantial progress has been made regarding the management of ballast water; however, much remains to be done. Through NISA, Congress required that the Coast Guard develop voluntary guidelines for ballast water management, and that those guidelines be made mandatory if the industry did not comply with the guidelines or did not adequately report on compliance. In 1996, as required by NISA, the ANS Task Force provided the Coast Guard with a report outlining the criteria for determining the adequacy and effectiveness of the voluntary guidelines.

The Coast Guard utilized the input from the ANS Task Force and submitted their report to Congress on the Voluntary Guidelines for Ballast Water Management, which outlined a process to transition to a mandatory program. The Department supports the Coast Guard's ongoing efforts to transition from the voluntary national program to a mandatory program, as well as efforts to establish a standard to serve as the benchmark for ballast water management options, and we urge a continuation and emphasis for research on ballast water management to assure that the resulting standards are effective and environmentally sound.

Pathways

While ballast water has been acknowledged as one of the leading vectors of introduction, we are encouraged to see that additional emphasis is being placed on other aquatic pathways. Some of these other pathways include bait fish, the aquarium and pet trade, horticulture, and live food. This additional emphasis will encourage the development of management actions, which may minimize the threats from new aquatic invasive species that have the potential to impact our fish and wildlife populations and associated habitats. We support interagency priority pathway research and management efforts to identify high risk pathways and develop management strategies to address them. In developing its strategic plan last year, the ANS Task Force also identified the management of pathways by which invasive species are introduced as a vital action to prevent future establishment of aquatic invasive species. A number of the actions called for in this bill are similar to those included in the "Prevention" section of the Council's National Invasive Species Management Plan (Plan). A copy of that plan is available at the following web address: http://www.invasivespecies.gov/council/nmp.shtml

Screening of Planned Importations

The Department has recognized the need for the development of a screening process for planned importations of live aquatic organisms. Having the opportunity to evaluate new non-native species that are proposed to be imported into the United States is an invaluable tool to ensure that we are proactive in preventing the introduction of new aquatic invasive species into United States waters. An example of the need for such a tool is the discovery last summer of a population of snakehead fish in a pond in Maryland.

Snakehead fish are an aquatic invasive species that are sold live for food or as aquarium pets. Snakeheads are top predators that multiply quickly and have several special features that enhance their ability to survive in wild. In addition to the population found in Maryland, another population was found a year ago in Florida. After the discovery in Florida during the summer of 2001, the Fish and Wildlife Service and the USGS initiated a risk assessment to gather scientific information to determine the injurious nature, and potential impacts, of snakeheads. Data from this risk assessment indicated that the snakeheads were indeed detrimental and the Fish and Wildlife Service began the process of listing snakeheads as injurious wildlife. That process was completed when a final rule was published on October 4, 2002. That rulemakes it illegal under the Lacey Act to import into the United States or transport across State lines all members of the Channidae family, including the 28 currently recognized species and any species that may be classified under the Channidae family in the future.

While the Injurious Wildlife provisions of the Lacey Act give the Fish and Wildlife Service the ability to evaluate and list species as injurious, the nature of the law makes our efforts more reactive than proactive. The screening process outlined in the proposed legislation is an example of a more proactive and effective approach to preventing introductions of aquatic invasive species.

Having recognized the need for improved screening, the Council's Plan, which I previously mentioned, also calls for working with key stakeholders to develop and test a screening process for intentionally introduced species. Preliminary work to develop this system has begun in conjunction with the ANS Task Force. We also recommend the development of risk assessment methods to evaluate the potential threat of species that have not yet been introduced. This will be critical in making our screening efforts effective. The Department, the Council, and the ANS

Task Force would like to work with the Subcommittee to consider whether the specifics of this proposal should be revised during the legislative process.

We are concerned about the provisions in section 105 (b) that delegate authority to screen species for use in aquaculture only to the U.S. Department of Agriculture. Because of the risk to native fish and wildlife, we believe that both the Fish and Wildlife Service and the National Oceanic and Atmospheric Administration (NOAA), in the Department of Commerce, should also have a role in screening species imported to be used in aquaculture.

In addition to evaluating potentially invasive species through the screening process, the Fish and Wildlife Service would also be responsible for enforcement of the resulting regulations. Currently, the Fish and Wildlife Service has 92 uniformed Wildlife Inspectors at 32 staffed ports. In 2002, there were 121,171 wildlife shipments that were imported or exported through the United States. Of those, 27,218 or 22.5 percent were physically inspected. The added workload associated with developing the guidelines and regulations, conducting the evaluations, and ensuring effective compliance will be substantial. Given the comprehensive nature of this provision, it will be necessary to work cooperatively with other agencies that may also have responsibility for aquatic invasive species. We embrace the opportunity to work with these other agencies to develop an effective and efficient screening process that is protective of both the human and natural environment.

State ANS Plans

The State ANS Management Plan provisions have been very successful and we are happy to see that the program is continued. The ANS Task Force developed guidelines to help States develop ANS plans, and made those guidelines available to the States in 2000. As outlined in the bill, the ANS Task Force will update and enhance those guidelines to address additional components related to early detection and rapid response, aquatic plant control and screening of planned importations. We look forward to continuing collaborative work with the States on their efforts to more effectively address invasive species issues. The ANS Task Force provides us with an excellent venue to pursue these collaborative partnerships. In fact, the ANS Task Force and its Regional Panels have encouraged the continued development of State and Interstate ANS Management Plans. There are currently 13 State and Interstate Plans approved by the ANS Task Force and a number of other States are in the process of developing plans. The Fish and Wildlife Service provided cost-share grants to 15 States and tribes to implement those approved plans in Fiscal Year 2003. Several additional States are expected to submit their plans to the ANS Task Force for approval in 2004.

Cooperative Control/Management Plans

The ANS Task Force also has a long history of developing and implementing cooperative control and management plans. For example, plans for brown tree snake and Eurasian ruffe were developed in the mid–1990's, and the ANS Task Force is currently developing management/control plans for the Chinese mitten crab and Caulerpa taxifolia, a marine algae. The objectives of these plans are to outline strategies and actions to control or manage aquatic invasive species. These plans are developed and implemented cooperatively by Federal, State, and regional entities where appropriate.

Early Detection and Monitoring

We support the objectives addressed in Section 301. An early detection network based on the best available science is important to reducing the impacts of invasive aquatic species.

Information, Education and Outreach

Education and outreach continue to be critical elements to the success of invasive species prevention and control. Within the Department, the Fish and Wildlife Service has been actively working for many years on a 100th Meridian Initiative to stop the westward spread of zebra mussels and other aquatic invasive species. The bill proposes to enhance these efforts through increased and targeted outreach and education efforts. The ANS Task Force and the Fish and Wildlife Service have established a public awareness campaign known as Stop Aquatic Hitchhikers! that targets aquatic recreation users and promotes voluntary guidelines to ensure that aquatic invasive species are not spread through recreational activities. Stop Aquatic Hitchhikers! complements the 100th Meridian Initiative and was designed to unify the conservation community to inform recreation users about the issue and encourage them to become part of the solution to prevent the spread of aquatic invasive species.

The National Park Service also provides information to millions of visitors every year regarding conservation of natural and cultural resources. The Act, as amended, recognizes the vital role that the National Park Service has in education and outreach on resource conservation and, more specifically, during the commemoration of the Lewis and Clark Bicentennial Expedition. Invasive species education and information, integrated within ongoing educational efforts, will provide critical context to increase understanding of the impacts of invasive species on natural resources.

Again, we applaud the legislation's multi-agency approach to education and outreach as there are already significant efforts to coordinate the dissemination of in-

formation. One example is the National Biological Information Infrastructure (NBII), an extensive information network already in wide public use, which can be utilized as a means to facilitate public access to survey, monitoring, and risk assessment information.

Aquatic Invasive Species Research

We are encouraged by the increased emphasis on research and monitoring efforts in the bill. In its strategic planning effort, the Task Force determined that additional actions were needed and restructured its committees to better address these problems. Key areas addressed in the legislation, including pathways, ballast water management, early detection and monitoring and control, can only be successful if they are based on sound research.

We recognize the need for methods for rapid assessment of newly detected aquatic species, and recommend that adequate resources for conducting such assessments be included as an integral component of coordinated planning for rapid responses. We recommend that particular attention be given to expanding and coordinating existing data bases, such as the USGS's National Non-indigenous Aquatic Species Data base, which provides basic scientific information for addressing invasive species threats. Finally, we recommend that the legislation ensure better coordination among the agencies and organizations that collect and store invasive aquatic species information, and we offer our assistance to the Subcommittee in this regard.

Conclusion

In closing, I want to thank you for providing the Department with an opportunity to comment on this legislation. As I stated earlier, we are happy to work with you and your staff on programmatic and other technical issues.

Mr. Chairman, this concludes my prepared remarks. I am happy to respond to any questions you or the other Committee members may have.

STATEMENT OF TIMOTHY R.E. KEENEY, DEPUTY ASSISTANT SECRETARY OF COMMERCE FOR OCEANS AND ATMOSPHERE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Good morning, Chairman Crapo and Members of the Subcommittee. I am Timothy Keeney, 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 S. 525, 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. I will then comment on some general concerns with the legislation as currently drafted, and finally I will touch on some specific provisions of the bill.

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 S. 525, and the bill would constitute a major rewrite of the existing law if it is enacted.

Last year, the Aquatic Nuisance Species Task Force adopted a 5-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. S. 525 addresses some gaps in our existing programs.

Even though ballast water continues to be the most significant pathway for new introductions into coastal waters, there is a need to systematically assess other 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 pending legislation.

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 approved by the Task Force in November. The Northeast Regional Panel began to work on its plan at a meeting last month, and the Great Lakes Panel will work on its plan at a meeting next week.

NOAA is acutely aware of both the economic and environmental impacts of aquatic invasives and strongly supports the existing program. We also support reauthor-

ization of the program. Nevertheless, we have significant concerns about both general and specific provisions of the pending legislation.

Our first general concern is that the bill requires 31 separate actions each with deadlines 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. In some instances, the Task Force has already initiated action and the deadlines are reasonable. In other cases, it will be necessary to develop capacity to implement the activities. We recommend that the Committee 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.

Similarly there is a multiplicity of reporting requirements. Each report will require a significant commitment of resources that could actually inhibit implementation activities. NOAA recommends that there be a single reporting requirement and that the Committee identify elements to be included in the report.

Title IV of the legislation contains several elements that are duplicated in other sections of the legislation. In at least one instance, different agencies are identified to implement the same activity. Areas that are duplicated include ecological surveys and developing protocols for those surveys, pathway analysis, performance tests for ballast water exchange, and dispersal barriers.

In addition to these general concerns, NOAA has concerns with a number of specific proposals.

Even though progress has been made, ballast water still remains the most significant pathway for new introductions of nonindigenous species into coastal waters. Title I of the legislation recognizes that we still have work to do in this area. Nevertheless, NOAA believes that some of the elements in Title I need to be revised.

During the last re-authorization in 1996, the need to develop more effective ballast water management was recognized. As the Coast Guard's report to the Congress last 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.

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.

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 that is biologically meaningful and enforceable. NOAA is concerned about a "kill rate" being used as a 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 (e.g., the phytoplankton that cause harmful algal blooms). Some algal blooms in other countries 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 shellfish safety is 5,000 cells per liter. A tech-

nology 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.

NOAA fully supports the provision in §1101(b)(4) which would allow approval of experimental technologies for ballast treatment, but we wonder if it was really the intent of the Congress that such authority expire after 18 months. NOAA believes that a provision for onboard testing of promising technologies should remain in place until final standards become effective, and we suggest that it may be useful to allow testing of experimental technologies on board ships even after the standard is in place.

In Title II Section 1105(e)(2), the Congress may intend that there be a permitting requirement for exceptions to a prohibition on importation, but NOAA suggests that such a procedure be made explicit. A formal permitting process would enable the Federal agency of jurisdiction to place restrictions on handling of organisms after they are imported. As examples, subsequent transfer of organisms to third parties could be prohibited, or instructions for proper disposal could be included. NOAA also suggests that, with a formal permitting requirement, the exception could be expanded to include entities such as commercial aquaria which might want to develop educational displays on invasive species.

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.

As I indicated above, NOAA recognizes that an additional effort needs to be made on rapid response. We also recognize rapid response activities must involve State and Local governments. Finally, as co-chair of the Aquatic Nuisance Species Task Force, we are more than willing to add a rapid response contingency plan as one of the components of State Management Plans. We do not believe, however, that having such a plan in place should be a prerequisite for receiving matching funds for rapid response to serious invaders. If an invader presents a serious enough threat to warrant a rapid response action, the response should be made whether a State has developed a contingency plan or not.

Similarly, while any activities to improve early detection should be encouraged, NOAA does not believe that an early detection strategy should be a prerequisite for a rapid response plan. Recently, considerable attention has been given to the economic difficulties facing State governments, and the monitoring necessary for an effective early detection strategy can be quite costly. Such a provision actually may discourage States from developing rapid response plans. As indicated above, we could be in the incongruous situation of being unable to respond to a serious invasion because a State does not have a monitoring program set up.

Finally, while education and outreach is an essential part of prevention and control activities and could be an important element of a response and is already included in the guidelines for State Management Plans, a rapid response is essentially an emergency response and requirements to have education and outreach provisions in place for addressing pathways and industries which may introduce species is not an appropriate requirement for a response strategy.

The Aquatic Nuisance Species Task Force is already working with its Regional Panels to develop regional rapid response plans, and NOAA is providing funding during the current fiscal year to help the Panels develop such plans. The first plan, developed by the Western Regional Panel, has been completed and approved by the Task Force. As currently written, the Task Force would be responsible for encouraging development of such plans, but the Coast Guard would be responsible for for-

mal approval. NOAA suggests that the Task Force, which includes the Coast Guard, is the appropriate entity for approval of such plans. It is important that management agencies are included in this process which would be accomplished by giving the Task Force responsibility for formal approval.

NOAA supports the increasing emphasis on research in Title IV and elsewhere in the bill. 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. Over the last decade, considerable progress has been made much of which has been the result of the competitive grant program administered by the National Sea Grant Program under §1202(f), but there are still areas in which our knowledge is seriously deficient.

I would like to discuss two areas as an illustration of our current challenges.

First, there is inadequate monitoring in aquatic systems. In many instances, we do not even have baselines 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 Cohen and Carlton is outstanding in documenting nonindigenous species occurrence in that ecosystem and is often cited even in terrestrial studies. A similar study of Chesapeake Bay sponsored by U.S. Fish and Wildlife Service and performed by the Smithsonian Environmental Research Center provides a very good baseline for Chesapeake Bay. Both the Aquatic Nuisance Species Task Force and NOAA recognize this shortcoming and have taken first steps to correct the deficiency in monitoring. 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. Title IV of the bill would take steps to address this gap by requiring the development of protocols and setting up a monitoring system.

Second, 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 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 and the Agriculture Research Service have 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 the U.S. Fish and Wildlife Service, a researcher has found that a pseudomonas bacterium causes extremely high mortality in zebra mussels and preliminary results indicate that it may be species specific. 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 bivalves are already listed as threatened and endangered.

Chairman Crapo and Members of the Subcommittee, 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. S. 525 would be major rewrite of existing law, and 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 this bill is not currently included in the President's Budget, and as such, these actions must be considered within existing 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.

RESPONSES OF TIMOTHY R.E. KEENEY TO ADDITIONAL QUESTIONS FROM SENATOR ALLARD

Question 1. This legislation requires that each State have a rapid response contingency plan. If the Federal Government requires such a plan, how do we ensure that all ships that discharge ballast waters are aware of each State's plan?

Response. As I indicated in my testimony, NOAA is opposed to the provision that States that a ship will have a rapid response plan as part of its ballast water management plan. It would be problematic to develop a plan that would take into account different State contingency plans. The major responsibilities for a ship during a rapid response are likely to be: (1) not entering an area where a rapid response action is occurring, (2) not loading ballast water which could contribute to the spread of an invasive species, or (3) not discharging ballast water known to have originated from a rapid response area. In the case of a rapid response effort, the major requirement for ships should be to cooperate rather than to have some sort of rapid response plan specific to an individual ship in place. Port authorities currently have authority to place conditions on a ship entering its port and thus, if necessary, it can place specific conditions on a particular ship in the event that it is necessary to facilitate rapid response efforts. Therefore, under such conditions, a State specific plan may not be necessary.

Question 2. The legislation proposes that the Coast Guard will promulgate the regulations for an interim standard, while the EPA will develop the final standard. The Coast Guard supports a singe standard that is scientifically sound and enforceable, and EPA has concerns that they should be the ones in charge, as well as issues of rule promulgation sharing. Some before this committee should believe that the responsibility to develop and promulgate a ballast water discharge standard should remain with one agency. How should this be addressed? Who is the right agency?

Response. NOAA believes that the Coast Guard is the appropriate agency to develop the ballast water discharge (BWD) standard. The Coast Guard is well along in the process, having already begun developing the Environmental Impact Statement (EIS) required under the National Environmental Protection Act (NEPA) for a BWD standard. EPA, NOAA, and FWS are cooperating agencies under the Council on Environmental Quality (CEQ) regulations.

RESPONSE OF TIMOTHY R.E. KEENEY TO AN ADDITIONAL QUESTION FROM SENATOR MURKOWSKI

Question 1. As you know, there are other sources of invasions besides ballast water. In Alaska, State authorities consider Atlantic Salmon a serious threat to Alaska species such as salmon and trout due to competition for prey, possible competition for habitat, and predation. These fish commonly escape from fish farms in British Columbia and Washington and have been recovered in Alaska as far north as the Bering Sea. Is it appropriate for a national plan of attack against invasive species to address this source? If so, how?

Response. It is appropriate that the legislation place additional emphasis on pathways other than ballast water, and certainly aquaculture is a potential pathway. Historically, movement of species from one area to another for commercial purposes has been a significant source of introductions. To cite just a couple of examples, the Japanese oyster drill was introduced with oyster stocks, and net profits in areas where the oyster drill is present in the State of Washington are reduced by 50 percent. Genetic studies indicate that MSX—one of the two diseases that has devastated oysters in the Chesapeake Bay—probably was introduced from Asia. It should be noted, however, that actions taken by the aquaculture industry have reduced the risk of such introductions in the future. As an example, the Atlantic States Marine Fisheries Commission has set up a protocol on the movement of shellfish from one area to another.

As a first step in addressing the issue of Atlantic salmon escapes on the west coast, NOAA has provided funding to the Pacific States Marine Fisheries Commission for a workshop on Marine Aquaculture: Effects on the West Coast and Alaska Fishing Industry. The purpose of this meeting was to bring together representatives from both the commercial fishing industry and the aquaculture industry to determine how a series of issues can best be addressed. The meeting was held in Seattle on November 17–19, 2003.

STATEMENT OF G. TRACY MEHAN III, ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY

Good morning, Mr. Chairman and Members of the Committee. I am Tracy Mehan, Assistant Administrator for Water at the U.S. Environmental Protection Agency (EPA). I appreciate and welcome this opportunity to discuss the provisions of S. 525, and to consider the continuing challenges ahead to protect water quality, human health and the environment against invasive species.

INTRODUCTION

The Environmental Protection Agency shares the Subcommittee's concerns about protecting the Nation's waters against invasive species. We commend the Subcommittee and others for bringing attention to the problems and threats created by invasive species. As you may know, I came to EPA from Michigan, the Great Lakes State, where interactions among over 160 known aquatic invaders have severely affected the local ecosystem structure. Introductions can create new competition, change trophic levels, alter habitat and impact species interaction. Invasive species have become one of the greatest threats to U.S. waters and ecosystems. In fact, invasive species are regarded by biologists worldwide as the second greatest threat to biodiversity, behind habitat loss. Invasive species are also a costly economic problem, causing the United States billions of dollars worth of damage each year.

The complexity of the freshwater, estuarine and marine ecosystems, combined with the increased rate of unwanted introductions and more susceptible environments, contributes to making invasive species a major challenge in U.S. waters. Invasive species can successfully invade aquatic ecosystems through a wide variety of pathways, including but not limited to vessel activities, aquaculture, aquarium trade, fish stocking, live bait, and research activities.

Most recently, vessels have been the major focus for invasive species issues. As ballast water is drawn into a ship, living organisms are removed from their native water environment and brought on board the vessel. Then these organisms may be discharged into a new environment. Survival in a new environment is based on a number of physical, chemical and biological factors, such as temperature, salinity, and the presence of other organisms that might prey upon the invaders. Advanced ship technology is also playing a role in invasive species survival by allowing ships, and any hitch-hiking organisms, to travel faster and farther. It is estimated that more than 10,000 marine species (e.g., zebra mussel, Asian clam, green crab) are transported each day in ballast water, allowing new invasions to occur regularly in coastal waters.

Other vessel vectors that are of great importance are hull fouling, i.e., organisms attached to the hull, and No Ballast on Board or (NOBOB) vessels. NOBOB vessels contain sediments and water slurry that is unpumpable and may get resuspended and discharged. Studies indicate that NOBOB vessels can carry viable organisms in the sediment and residual ballast water, creating additional opportunities for the establishment of invasive species. Over the past 9 years, approximately 85 percent of all ships entering the Great Lakes via the St. Lawrence Seaway have been NOBOB vessels. The remaining 15 percent of the vessels entering the Great lakes were required to perform ballast water management. However, the Great Lakes are still being invaded by non-indigenous species, at an average of one invader every 8 months. Approximately 15 new species have invaded the Great Lakes since mid oceanic exchange of ballast water was mandated in 1993. This is the same number of invasions that occurred during the 1970's and 1980's, indicating that current ballast water management efforts are not completely effective. Overall, the current rate of invasions in the Great Lakes is 66 percent higher than one hundred years ago.

The impacts of invasive species are immediate and often irreversible. If left unchecked, the number, density, and rates of species transfers are expected to increase, and along with them, impacts on our ecosystem, socio-economic well-being, and human health. Prevention, reduction, and eradication are all integral parts of dealing with invasive species. Prevention is critical to success, as once invasive species have become established, eradication is often not an available or successful tool.

In order to be most effective, we need an integrated national response. We need management programs, including regulatory and non-regulatory approaches, rapid response efforts, early warning systems, development of control technologies, research, monitoring and education. Aggressive efforts are vital, otherwise introductions will continue to destroy our native environments and our coastal resources.

EPA ACTIVITIES

Faced with the scope and magnitude of this threat, our collective efforts to develop policies, conduct research and make programmatic decisions, informed by rigorous scientific and technical studies, are crucial. The control of invasive species is important to EPA, and we look to our partners in the U.S. Coast Guard, other Federal agencies, States and Tribes, and the port and shipping industries to move expeditiously to help us meet this major challenge to the health of our nation's coastal and ocean resources. We look forward to expanding our partnerships as we make progress against these invaders.

EPA continues to work with the Aquatic Nuisance Species Task Force, chaired by U.S. National Ocean and Atmospheric Agency (NOAA) and U.S. Fish and Wildlife Service (FWS), and the National Invasive Species Council on issues ranging from the national and international control of ballast water discharges to the regional management and control of individual invasive species. As a member of the U.S. delegation on the Marine Environment Protection Committee to the International Maritime Organization, EPA is helping to negotiate an international ballast water treaty and standard to address ballast water discharges from ocean-going vessels.

EPA is also assisting the Coast Guard in the development of mandatory ballast water management regulations and in the development of standards for ballast water discharge. These regulations are vital to our ongoing efforts to prevent invasions from ballast water discharges. EPA has helped to prepare the environmental analysis for the management rule, and we will be assisting in the development of the EIS for the standards rule. This spirit of cooperation is not only mutually beneficial to our agencies, it enhances our ability to address this difficult problem.

EPA's Office of Research and Development (ORD), in partnership with other agencies and organizations, is involved with numerous invasive species research activities, including developing models which could help to identify which ecosystems are more susceptible to invasions. These models are being developed to identify the multiple stressors on a particular ecosystem that could increase its vulnerability.

The Environmental Technology Verification (ETV) Program is another example of our cooperative efforts with Coast Guard and the private sector. The Coast Guard is interested in developing testing protocols to support its efforts to establish treatment standards and the certification of ballast water treatment systems. Such treatment systems may allow for safer alternatives to the current practice of open ballast exchange. The ETV Program will test new ballast water treatment and management technologies as they become available in the market. This EPA program was created as a means to accelerate the acceptance of new environmental technologies in the marketplace through the independent verification of vendor performance claims of any treatment system for any discharge of concern.

EPA also has developed partnerships for continued research and action regarding invasive species. The partnerships involve State and local resource management agencies, non-profits, the National Estuary Program (NEP), and universities. The NEPs, in particular, have numerous activities that play a key role in targeting many of the challenges from invasive species. NEPs have established partnerships in education and outreach, and have contributed to the development of rapid assessments and baseline inventories for invasive species. NEPs also have played an integral role in developing model monitoring and rapid response programs for invasive species. EPA has used Clean Water Act Funding for these and other activities that address invasive species. We believe this is consistent with Section 101 (a) of that Act, which states, "The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

Partnerships and collaborative efforts are key to combating invasive species. I am encouraged by the multi-faceted opportunities for partnerships that we have within EPA, among Federal agencies, with the States and Tribes, and with multiple industry and community representatives.

S. 525

The bill under consideration by this Subcommittee introduces many actions intended to help address the issue of invasive species. For example, the bill addresses the risk of invasion through vectors other than ballast water. The bill also acknowledges EPA's expertise and involvement in responding to the challenge.

The goals and concepts behind the actions set forth in S. 525 are beneficial to combating invasive species. However, the time lines and authorizations provided are of significant concern. An average rule can take 4 to 7 years to complete and that does not take into account the complexity of the invasive species issue. The bill introduces many actions in addition to the new regulations. If possible, the actions should be prioritized to appropriately use the authorized funding in the bill. As the bill stands now, it will be difficult to complete all of the actions, without at least full appropriation of the authorized funding.

The bill appears to identify many of the same actions for a number of different agencies. Although agencies need to work together to combat the issues of invasive species, different agencies should have different responsibilities so as not to duplicate work efforts. In addition to the duplicative work efforts, it is difficult to determine which agency has the primary role in some of the actions.

The bill provides for sediment management in transoceanic vessels to be included as a best management practice. The bill also recognizes the importance of addressing potential introductions of invasive species from no-ballast-on-board (NOBOB) vessels, particularly in light of the volume of such vessels in the Great Lakes.

The bill also addresses the issues of ballast water standards. Specifically, it sets an interim standard of 95 percent removal, which we believe raises a number of technical issues. Removal relies on laboratory testing which raises technology maintenance and durability issues. Percent removal also does not adequately address large volume discharges, because discharging 5 percent of a tanker ship's volume could still release millions of organisms per liter. We believe that the standards should be based on concentration and size of organism, similar to discussions with the international community. Having an interim and a final standard could have the unintended effects of stalling development of a final standard or misdirecting technology development away from more environmentally protective approaches. EPA is also concerned that the Bill identifies and designates both EPA and the Coast Guard as regulating authorities, one for each standard. EPA and the Coast Guard would like the opportunity to work further with the Subcommittee in order to clarify specific agency roles, and define a more appropriate schedule, and discuss the need for an interim standard. We would also be happy to provide further technical assistance on this bill. We also note that new spending authorized by this bill that is not currently included in the President's Budget, and as such, these actions must be considered within existing priorities.

CONCLUSION

Tremendous progress has been made by EPA and our many Federal, State, Tribal, local, and private partners in cleaning up our waters over the last decade. EPA's experience in addressing difficult issues regarding the health of our environment can help us protect them from these harmful invaders. We at EPA appreciate your support and commitment to these vital goals, and look forward to continuing a collaborative effort to protect and restore our Nation's waters.

This concludes my prepared remarks. I would be happy to address any questions you may have at this time.

STATEMENT OF JAMES M. BEERS, SCIENCE ADVISOR, AMERICAN LAND RIGHTS ASSOCIATION

Thank you Mr. Chairman for inviting me to testify at your hearing today.

I represent the American Land Rights Association, an organization of small property owners in all 50 States.

I worked for the US Fish and Wildlife Service for 30 years in four States and Washington, DC as a wildlife biologist, special agent, and refuge manager. I have enforced Injurious Wildlife regulations and investigated Endangered Species cases both here and in Europe. I have worked on Invasive Species control programs for nutria and purple loosestrife. I have attended U.N. Wildlife Conferences and represented State wildlife agencies fighting a threatened European fur embargo. I currently write and speak extensively about both Endangered and Invasive Species.

The National Aquatic Invasive Species Act of 2003, S. 525 is based on erroneous assumptions. Briefly, it is wrong:

1. To characterize all recently arrived plants and animals as having only exaggerated bad effects and "reducing biodiversity" (Sec. 2 Findings 1–10). This striped bass is an "Invasive Species" in numerous lakes, rivers and reservoirs across the Nation as well as in west coast estuaries. This rainbow trout is another "Invasive Species" in lakes, rivers, and reservoirs throughout the United States. Fishing license money, State fishery management staffs, charter boat revenues, boat and boating equip-

ment sales, fishing tackle sales, tourist revenues, annual Sport Fish Restoration dollars in the millions, taxidermy business, as well as millions of hours of family recreation and many fine meals will all be reduced under this legislation. These fish are typical of many desirable "Invasive" plants and animals that increase "biodiversity" while benefiting us all.

2. To infer a Federal concern for plants and animals "outside the historic range of the species of which the organism is a member" (Sec. 1003 (15)). This applies directly to these two fish that have been widely and purposely introduced for the many direct and indirect benefits to citizens and aquatic habitats that they create. What does "historic range" mean? When Asians arrived 10,000 years ago? When Columbus arrived? When the Constitution was signed? Camels, horses, and elephants once thrived here, are they native or "Invasive Species"?

3. To define Federal aquatic authority as including "estuarine" and "inland waters and wetlands" (Sec. 1003 (2)). These waters are nearly all under State jurisdiction. Given the current court case involving the decade-long dumping of toxic sludge by the US Army Corps of Engineers through a National Park under an EPA permit reviewed by the National Marine Fisheries Service and the US Fish and Wildlife Service on the spawning grounds of Endangered shortnose sturgeon in the Potomac River as it passes Washington, DC, it does not appear prudent to expand Federal authority in this manner.

4. To infer Federal jurisdiction over "invasive species" and "non-indigenous species" that "may cause harm" (Sec. 1003 (17)) so broadly defined as to permit any biological competition or increase in biodiversity to be declared harmful. These two fish for instance eat other fish and compete with yet others for space and food.

5. To claim authority over "any fundamental category of taxonomic classification below a genus or subgenus" (Sec. 1003 (28)). This enshrines the unwritten Endangered Species Act principle that authorizes all manner of Federal intervention to the smallest flock, school, or stand of any species. This has caused increasing friction with property owners and many others as the level of Federal concern descended below that of species to races, varieties, distinct populations, and even beyond.

Using the need for the Federal Government to regulate ballast water, a penumbra of Federal authorities and tasks are being created to mimic the Endangered Species Act. That Act has caused havoc with much more than property rights and has gone unauthorized for 15 years while it's reach and annual appropriations continue to grow.

The authority to manage, control, and eradicate plants and animals is one of those "powers" "reserved to the States" in the 10th Amendment. The Federal Government is responsible for the management of the import, export, interstate, and foreign aspects of these matters. It is proper that the Federal Government assures clean ballast water discharges, manages imports and exports, and cooperates with State governments in the management, control, and eradication of harmful plants and animals regardless of their origins or arrival dates.

11The American Land Rights Association joins with all citizens concerned about the loss of not only land property rights but also the rights of fish owners, aquarium hobbyists, florists, gardeners, landscapers, boaters, horseback riders, pet owners, hikers, trappers, duck hunters, fishermen and scores of others whose property rights, outdoor activities, property rights held in trust by State governments, and public land access are directly threatened by this proposed expansion of Federal authority and diminishment of State authority over aquatic habitats. The task being proposed (encouragement of "native species") is not desirable, not beneficial, not achievable, not measurable, never-ending, and a public expense beyond comprehension.

Please consider a revised bill that controls ballast water discharge, controls harmful aquatic plants and animals on the Federal estate, and cooperates with the States to fulfill the fish, wildlife, and plant responsibilities assigned them in the Constitution. Otherwise, S. 525 will, like the Endangered Species Act, radically modify our basic freedoms while enriching only Federal bureaucracies, Universities, and the agendas of environmental and animal rights organizations.

One last observation: The bill's proposed "whitelist approach" (Sec. 1105 et al) for controlling imports is fraught with pitfalls. It is causing problems in Australia and had it been in effect here 200 years ago we would not have brown trout, tulips, Holsteins, or even house cats here today. Five minutes is not enough time for me to explain this, but I would offer to point out there is a better approach that does not impair the trade and freedoms we cherish while minimizing future, harmful U.N. controls which are likely with Invasive Species as they have been with Endangered Species under CITES.

Further explanation of these issues may be found on the American Land Rights Association website, www.landrights.org.

Thank you and I am ready to answer any questions you might have.

RESPONSES OF JAMES BEERS TO ADDITIONAL QUESTIONS FROM SENATOR MURKOWSKI

Question 1. "Mr. Beers, your testimony suggests that the Federal Government should not attempt to exert control over State waters, but has an appropriate role for ballast water. Many States are struggling with budget issues that may affect their ability to implement their own invasive species plans. What role, if any, do you suggest for the Federal Government in such circumstances?"

Response. Exerting Federal authority over ballast water discharge, like regulation of interstate commerce, neither involves nor requires Federal control over State waters or lands. Just as the prevention of smuggling or terrorism necessitates Federal regulations and Federal agents while creating Federal requirements and enforcement regimes on and over State lands and waters without controlling the State lands and waters; ballast water discharge and the prevention of harmful plant or animal introduction requires no Federal taking of State authorities.

Any truly Harmful plant, animal, or infectious organism should be designated by the Federal Government and prevented from entering the country. Proof of such demonstrable harm should demonstrate significant potential damage to human health, agriculture, or certain plants or animals important to American citizens. Such biological entities should be (and are) prevented from entering the country as much as is humanly possible. Where and when they breach these safeguards they should be (and are) pursued and eradicated as quickly as possible by Federal and State authorities. State waters along the coasts or Great Lakes, like State lands bordering Canada or Mexico are the busy battlegrounds in these legitimate and necessary Federal efforts.

The current "Injurious Wildlife List" provides a proven approach. When a species like mongoose is proven (demonstrably and definitively) to be a danger and seriously harmful it is listed; regulations direct Federal import regulators to exclude it; and if it breaches the controls, lethal controls and Federal/State animal specialists eradicate it immediately. The fact of "nativeness" has nothing to do with it. The fact that it is not established and that it would not require draconian government controls and billions of dollars to ultimately not eradicate it has everything to do with it. Applying this principle to say goldfish or carp (two well established "non-native" fish that could be painted by any number of aquatic biologists as environmentally disruptive) would be incredibly expensive, ultimately ineffective, and further erode the State authority over plants and animals while growing Federal authorities and the tax burden—to no good purpose.

Regarding the issue of States "struggling with budget issues that may affect their ability to implement their own invasive species plans." If the Federal Government stepped in and took State authority every time States were "struggling with budget issues" over the past century; we would have long since ceased being a Republic and become a centrally ruled nation like France, Australia, or Indonesia.

States Were given and should maintain authority over all plants and animals within their jurisdiction. Current Invasive Species desires in many States are simply wishes expressed because of the rumors of imminent Federal funding availability and their continuing (and currently acute) desire for more tax money from any source. Many States will gladly abdicate their Constitutional authorities in this regard since they are unwilling to protect the rights of their residents from other Federal intrusions from which they obtain Federal funding. An example of this would be Endangered Species takings of private property under the guise of Critical Habitat declarations by Federal bureaucrats who also approve grants and monetary assistance to State bureaucrats and University professors in the same States. Another example is the forced closure of heavily used State highways in National Parks by Transportation bureaucrats who dispense highway funding to States. Invasive Species funding is likewise seductive to these same Federal and State bureaucrats, University professors, and environmental activists who together testified so overwhelmingly before your Subcommittee in favor of new Invasive Species legislation. They aim to create new Federal authorities and begin an annually increasing flow of Federal dollars for invented problems that will put Endangered Species abuses and lawsuits to shame.

The role I suggest for the Federal Government in this matter is no different than the one clearly envisioned when the final Constitutional Amendment in the Bill of Rights (10th Amendment) was ratified. Federal authority over interstate and foreign commerce provides all the Federal authority needed to prevent the introduction of harmful and non-present plants, animals, or microbes. This entails research on potential threats; techniques for detecting, preventing, and eradicating harmful enti-

ties; and maintaining regulations and employees to enforce the Federal legislation to do these things. Invasive Species authority should remain "reserved to the States respectively, or to the people."

In addition, because the Federal Government owns more lands in the United States than any other landowner, Federal lands (with the exception of those few lands where Exclusive [of State authority] Jurisdiction prevails like the Washington Mall and Yellowstone Park) should be exemplary units managed in accord with State laws and the standards of the communities wherein they occur. Federal managers should manage and eradicate harmful plants like knapweed and yellow starthistle on Federal properties and refrain from imposing urban standards like the elimination of grazing or hunting in rural areas by imposing new Federal authorities. Invasive Species authority will certainly encourage such attempts.

Federal advocates of further involvement in the matter of Harmful Species (i.e. "Injurious") might consider Land Grant University research on controls for species such as fire ants and kudzu. If the Environmental Protection Agency can be convinced to permit lethal control methods and agents, perhaps States would cooperate with each other and at least reduce the density and distribution of such species. Eradication is problematic in today's world where agencies, laws, powerful environmental/animal rights organizations, and regulations discourage lethal controls generally and problem species once purposely eradicated, like wolves, are forcibly reintroduced over State objections by Federal edicts.

State governments can, and do, enforce the plant and animal standards and distributions desired by their residents. Whether such species have been in place for 12 months, 12 years, or 500 years; whether the species were introduced for agriculture, animal husbandry, hunting, fishing, gardens, or as pets; whether urban residents despise them or rural people love them, the numbers, distribution, use, management of, and all decisions involving plants and animals should remain a primary State responsibility.

Question 2. "You've suggested that rainbow trout and striped bass, both popular recreational fish, could be considered invasive species in some of their present range. Does that represent concern that this legislation may encourage lawsuits similar to those involving various ESA and NEPA issues? If so please elaborate."

Response. Rainbow trout and striped bass greeted the first European explorers. The striped bass occupied coastal waters and coastal streams along the Atlantic seaboard and rainbow trout were ubiquitous in clear, coldwater streams mainly in mountains and northern (US) waters. They were found to be very desirable due to their commercial abundance, their tasty flesh, and for the fishing enjoyment they provided individual fishermen seeking a sporting challenge and a good meal. As a result they have been "introduced" (i.e. transplanted) all over the US. Striped bass have been placed in reservoirs, Pacific streams in California, and in streams where they were formerly unknown. Even greater transplanting took place with rainbow trout that are now found throughout the Nation in streams, ponds, reservoirs, the Great Lakes, and even cold tailwaters below southern desert dams.

There is no way to distinguish these transplanted fish from brown trout (bought from Europe) or goldfish (brought from China) or walking catfish released from an aquarium and imported from Thailand. All are "Invasive", "non-native", and "non-indigenous" in most of the waters in which they occur today. Any attempt to refine the "Invasive" definition (1492, 1776, etc.) highlights the total lack of data for such an assertion and the foolishness of judging what should be on "that mountain slope" or in "those waters" based on past circumstances.

There is no doubt that however you define "Invasive" in any Federal legislation, these and similar species that have been moved about for commercial purposes, sport purposes, or as the result of water projects like the diversion of the Chicago River or reservoir construction on the Missouri River will be targeted for extinction over the majority of their current ranges. Just as court decisions, Federal regulations, and Universities were manipulated by environmentalists and animal rights activists using Endangered Species legislative language and funding; so too will these same entities be further utilized by the same people using Federal Invasive Species authority.

Endangered Species legislative and regulatory language has been the tool used to stop public works projects, logging, public land access, fishing, and many other legitimate American freedoms and needed improvements. One example of fishing reduction is the unjustified listing of the bull trout under the Endangered Species Act to justify the eradication of rainbow trout in hundreds of miles of streams. Universities are influenced by the possibility of obtaining Federal grants for study. The "experts" on say bats or darters are rewarded with funds and attention (graduate students, tenure, and recognition) if their biology asserts vague differences in races

or populations as significant or habitat "requirements" as needing more study because of overblown environmental interactions.

Invasive Species legislation will provoke the same groups to utilize courts, bureaucrats, and professors in the same way. Meaningless competition between west coast striped bass and some other predator will be pictured as very serious by a biology professor. Courts, bureaucrats, professors (and sad to say, even State agencies eligible for Federal grants) will be prodded by groups opposed to sport fishing, commercial fishing, boating, gas engines, shoreline development, etc. to eradicate the striped bass and replace them with far less desirable or less utilizable species. This will all be presented as "restoring the balance of nature" and this scenario will be repeated nationwide until there is no more private shoreline property, no sport fishing, no commercial fishing, and no boating. Anyone doubting these intended results need only look at the extreme agendas and radical activities of environmental and animal rights groups over the past 20 years. Historical facts speak for themselves.

For the sake of all the things Americans hold dear, from sport fishing to private property to making a living from the sustainable harvest of renewable natural resources, please leave authority over plants and animals at the State level where the Founding Fathers wisely placed it.

STATEMENT OF SEBASTIAN HARGROVE, GOVERNMENT RELATIONS ASSOCIATE, THE NATURE CONSERVANCY OF IDAHO

Mr. Chairman and members of the Committee, thank you for the opportunity to testify today in support of S. 525, the National Aquatic Invasive Species Act or NAISA. I am appearing here today on behalf of The Nature Conservancy. I will cover three major points in my comments today:

1) the threat aquatic invasive species pose to the nation's economy and environment, including the inland West;

2) use of NAISA as an effective tool for addressing this threat; and

3) improvements that can be made to the bill through a few technical and substantive amendments.

I. Introduction

The Nature Conservancy is dedicated to preserving the plants, animals and natural communities that represent the diversity of life on earth by protecting the land and water they need to survive. The Conservancy has more than 1 million individual members and over 1,900 corporate associates. We currently have programs in all 50 States and in 30 nations. To date our organization has protected more than 12 million acres in the United States and abroad, and has helped local partner organizations preserve millions of acres in other nations. The Conservancy itself owns a network of more than 1,400 preserves in the United States the largest private system of nature sanctuaries in the world. Our conservation work is grounded on sound science, strong partnerships with other landowners, and tangible results at local places.

The Conservancy determines where and how to do its work through a planning process that identifies areas in the country containing the most viable and important examples of plant and animal communities. This process further identifies the principal threats to the integrity of the sites such as land conversion, non-point source runoff, or repression of natural fire regimes. An overwhelming 94 percent of our sites have identified invasive species as the most significant threat to the integrity of biodiversity.

II. The Threat of Aquatic Invasive Species

Non-native, invasive species cause significant economic and ecological damage throughout North America. Recent estimates state that invasive species cost the U.S. approximately $130 billion per year and that 42 percent of the species on the Threatened and Endangered Species Lists are at risk primarily because of invasive species. Once established, invasive species displace native species, impede municipal and industrial water systems, degrade ecosystems, reduce recreational and commercial fishing opportunities, and cause public health problems.

Aquatic invasive species are a particular problem because they readily spread through interconnected waterways and are difficult to treat safely. Hundreds of exotic species arrive in U.S. waters every day through a variety of pathways such as ballast water, boat hulls, aquaculture and others. Our interest is to prevent these new arrivals, or to rapidly detect and eradicate if prevention is not possible.

To illustrate the immediacy of the threat of aquatic invasive species, I would like to recount what happened in Spokane, Washington 2 years ago yesterday on June 16, 2001. On that mild June day, a trailered 40-foot sailboat pulled into the State

of Washington port of entry on Interstate 90, just a few miles west of the Idaho border. State inspectors, alerted to the danger of aquatic invasive species, examined the boat closely and found live zebra mussels (Dreissena polymorpha) encrusted on the rudder flaps, screens, and engine cooling system. Zebra mussels are a scourge of the Great Lakes and many eastern watersheds, where they have severely disrupted native ecosystems and caused hundreds of millions of dollars in damage and control costs. Officials quarantined and cleaned the boat before allowing it to enter Washington waters.

This story illustrates two key points. First, aquatic invasive species are not only a problem for the coastal and Great Lakes States; the waters in the inland West are at risk from zebra mussels and a host of other aquatic invasive species. Second, the modest investment that Washington State made in training its employees to prevent aquatic invasive species paid big dividends. But Washington's prevention program is the exception rather than the rule. We can only assume that no inspectors in other States found these zebra mussels as the sailboat traveled west across the northern tier of the U.S. If the boat had put into Lake Coeur d'Alene or Payette Lake in Idaho, we could have zebra mussels established in the upper Columbia River Basin, with potentially devastating impacts on recreation, hydropower, and irrigation.

This story is not an isolated example of the risks posed by aquatic invaders. Idaho communities already spend a quarter of a million dollars annually to control Eurasian water milfoil (Myriophyllum spicatum) in some of Idaho's most important recreational waters, including Payette and Hayden lakes. This fast-growing weed is choking our shorelines and spreading fast.

You might also be surprised to learn that the first known infestation of New Zealand mudsnails (Potamopyrgus antipodarum) in the United States occurred not in one of our major port cities, but hundreds of miles inland on the Snake River, near Hagerman, Idaho. These invasive mollusks grow in dense mats and have now spread up the Snake and into the Madison River in Yellowstone National Park, with unknown consequences for native fish populations. The danger is clear. We need to get prepared, and NAISA is an essential step in that direction.

III. S. 525—The National Aquatic Invasive Species Act

The National Aquatic Invasive Species Act of 2003 will dramatically upgrade our nation's invasive species program in two very important ways.

First, NAISA will create new tools to protect and manage inland waters. Efforts to date have been targeted at severe problems in the Great Lakes and on the coast. However, aquatic invasive species such as giant salvinia, purple loosestrife, and zebra mussels threaten inland waters as well. NAISA will provide tools and coordination to manage these threats in a broader geographic area.

Second, NAISA will implement the framework recommended by the National Invasive Species Council for an effective invasive species management program. This framework calls for a program—coordinated between all levels of government and with the private sector—that includes:

- Prevention,
- Public Outreach and Education,
- Early Detection and Rapid Response,
- Research and Risk Analysis, and
- Control and Management.

S. 525 will provide critical tools for States like Idaho and their partners in the battle to manage aquatic invasive species. It is particularly noteworthy that NAISA adopts the most cost-effective approach by focusing on three areas where we all need to improve: prevention, early detection, and rapid response. The bill will cover all waters of the U.S., including inland lakes and streams. Critical elements of the bill include:

- Grants for State Management Plans—Section 501 provides for State level planning for aquatic nuisance species and authorizes Federal grants for development and implementation of those plans;
- Prevention of Introductions by Vessels—Section 101 will expand and strengthen existing programs governing ballast water management the Conservancy supports including a role for the U.S.E.P.A. in establishing standards;
- Priority Pathway Management—Section 201 will establish a system to help more effectively target prevention efforts by identifying high-risk pathways for aquatic invasive species introductions;
- Pre-screening of Intentional Introductions—Section 202 establishes a system for pre-screening species newly in trade to limit importation of high-risk species and help better target prevention efforts;

- Early Detection and Monitoring—Section 301 directs the existing Aquatic Nuisance Species Task force to coordinate with States, local, and tribal governments to establish an early detection monitoring network;
- Rapid Response—Section 302 establishes a critical $30 million rapid response fund for States, establishes regional interagency rapid response teams at the Federal level to provide assistance upon request to States in implementing rapid response strategies;
- Information, Education, and Outreach—Section 306 establishes public and industry outreach programs to identify high-risk pathways for introduction (such as marinas), information on techniques to check and clean recreational vessels, information on how to properly dispose of live, non-native aquatic organisms in trade, and directs outreach to maritime, horticultural, aquarium, aquaculture, and pet trade industries to promote cooperation to prevent new introductions; and,
- Research Title 4 establishes a competitive, peer-reviewed research program to support prevention, early detection and rapid response efforts, and evaluate effectiveness of existing programs. This section also supports research on control and eradication methods and technology to support effective stewardship on the ground.

We support NISA reauthorization, and feel that this bill is an excellent starting point. It embodies many principles that will move the Nation forward in a constructive manner and set a standard globally.

IV. Recommendations

The Conservancy has recommended a few technical and substantive changes to the bill to better facilitate work on the ground. We would be happy to work with the Committee on these amendments. In short, we recommend the Committee consider the following suggestions:

The legislation should recognize and clarify that treatments should have a long term, net-positive effect on an ecosystem. We should not rule out some rapid response or other control, management, or restoration efforts because they may have discrete, short-term adverse impacts to nontarget species, if that risk is balanced against the ability to prevent greater harm in the long term. The Conservancy is committed to working to develop effective, benign methods for treating aquatic invasions. But, as we have seen in the effort to control an invasion of Spartina anglica in North Puget Sound in Washington—large populations of spartina are at present only effectively controlled by a combination of mechanical treatment and herbicide application. The Conservancy is working with partners to test mechanical control techniques on smaller patches.

With regard to the cost-sharing provisions for grants, the Conservancy recommends that the Committee expand upon the current language to allow any match required for activities under the Act to be met with in-kind activities. In addition, the legislation should be clarified to State that the Federal share of grants to fund rapid response contingency strategies should be at least 50 percent or 75 percent—depending on the nature of the activity.

Passage of NAISA will provide important financial and technical help to States such as Idaho that are just beginning to address aquatic invaders. Idaho, like many States, has established an invasive species council that will address all invaders, including New Zealand mudsnails, Eurasian water milfoil, and zebra mussels, but we need strengthened leadership, better coordination, and more resources. NAISA goes a long way toward providing the States the tools they need to tackle aquatic invaders. The Conservancy would be pleased to work with the Committee to strengthen the provisions dealing with inland States.

Thank you for the opportunity to comment on this important legislation. I would be happy to answer any questions.

STATEMENT OF MICHAEL HAUSER, AGENCY OF NATURAL RESOURCES, VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Thank you Mr. Chairman and Committee members for the opportunity to provide testimony on Senate Bill 525. I consider myself fortunate to live and work in Vermont, a small State, but with a tremendous reputation for its natural beauty, environmental integrity, and recreational opportunities. Unfortunately, these qualities are threatened by a large and very real threat—the introduction and spread of aquatic invasive species. Nearly sixty species of aquatic non-native plants and animals are known to have taken up residence in Vermont. While not all of these species have become invasive, those that have, such as zebra mussels, water chestnut, Eurasian water milfoil and purple loosestrife, have significant negative economic and ecological impacts. More than $2 million of local, State and Federal funds are

spent annually in Vermont to manage and prevent the spread of these species. Approximately one quarter of this goes to managing water chestnut in southern Lake Champlain alone. These totals do not include the costs associated with the degradation of the environment; reduction of lakeshore property values; or the protection of boats, water intake systems and other infrastructure. Currently within the Department of Environmental Conservation there are four staff positions dedicated to the management of aquatic invasive species, and it is fair to say we cannot keep up. These invaders continue to displace native species; impede boating, fishing and swimming; and strain State and local budgets.

Despite these problems, Vermont, and the other northeastern States, are relatively fortunate to have had only a fraction of the nonnative species introductions experienced in other parts of the country. This is not to say Vermont doesn't have major problems from invasive species, we do, but these problems are likely to increase significantly if we do not seize this opportunity to prevent more invasive aquatic species from coming our way. And they are coming, the round goby, the Asian carp, the Eurasian ruffe, the quagga mussel, the spiny water flea. Nonnative species that have all proven to be extremely invasive in other regions of this country are poised to enter water systems of the Northeast. It is imperative that we prevent this from happening, and the National Aquatic Invasive Species Act can help us do it.

As you well know, invasive species do not recognize political boundaries. We in Vermont can't expect a species to stop at our border. Experience tells us that we also can't wait for an invasive species to cross into the State before we take action—by then it is too late. We must work with other States throughout the region to build a unified defense. The National Invasive Species Act is helping us to do this. In 2001 the Northeast Aquatic Nuisance Species Panel was formed under authority of the Federal Aquatic Nuisance Species Task Force. The Panel, with funding assistance from the Task Force, has developed a dedicated network of representatives from all six New England States, New York, and Canada. We meet regularly to share ideas and concerns, and to coordinate the use of our limited resources. For example, the Panel is printing a card to assist boaters, resource managers and other individuals throughout the Northeast in the identification of the extremely invasive plant, hydrilla. Populations of hydrilla have recently been found in a few lakes in Connecticut, Massachusetts and Maine. As a further example of regional coordination, the Panel recently held a workshop to develop a model aquatic nuisance species rapid response plan for the Northeast. When completed, the plan will establish a coordinated region-wide early detection and warning system. It will also facilitate the development of State aquatic invasive species rapid response plans that are consistent and coordinated throughout the region.

Additionally, the Northeast Aquatic Nuisance Species Panel and each of the other four regional panels developed under the National Invasive Species Act give the respective regions a strong, unified voice on the national stage helping to level the playing field. The regional panels, via the Aquatic Nuisance Species Task Force, enable small States like Vermont to have their aquatic nuisance species concerns fairly presented to the Federal agencies distributing funds and making critical management decisions in this area.

Provisions of Senate Bill 525 that would lead to effective practices to prevent new introductions of potentially invasive species to this country will have perhaps the greatest long-term benefit for Vermont. For example, although Vermont does not have significant issues directly related to ballast water, it is vulnerable to nonnative species introduced to the Great Lakes via ballast water dumping. Lake Champlain, along Vermont's western border, is directly connected to the Great Lakes by the Champlain Barge Canal, Erie Canal and Saint Lawrence Seaway systems. The zebra mussel used these routes to enter Lake Champlain from the Great Lakes in 1993. Of direct relevance, provisions in Senate Bill 525 would facilitate the transfer of knowledge gained from the dispersal barrier deployed on the Chicago Ship and Sanitary Canal to other canal systems throughout the country. This specifically includes the Champlain Barge Canal which connects the south end of Lake Champlain to the Erie Canal system and has been implicated in the introduction of numerous invasive species to Lake Champlain.

The National Invasive Species Act has played a direct role in helping to address aquatic invasive species issues throughout the Lake Champlain Basin of Vermont and New York. Authorized under the National Invasive Species Act, the Lake Champlain Basin Aquatic Nuisance Species Management Plan was developed and subsequently approved by the Federal Aquatic Nuisance Species Task Force in 2000. Since then the Task Force has provided $370,000 for the Plan's implementation. While this represents a relatively small percentage of the total aquatic nuisance species program costs in the Basin, the funds have enabled many significant accom-

plishments that would have otherwise been unattainable. Specifically, Task Force funding has assisted with the establishment of an Aquatic Nuisance Species Coordinator position for the Lake Champlain Basin, has enabled dedicated enforcement of Vermont aquatic nuisance species laws, has contributed to the Lake Champlain Water Chestnut Management program, has funded the printing of outreach/spread prevention literature, and is helping with the development of an aquatic invasive species rapid response plan for the Lake Champlain Basin.

Senate Bill 525 would significantly raise the authorized funding levels for State and interstate aquatic nuisance species management plans. While the continued development and approval of State management plans is a positive contribution to the nation-wide effort needed to address invasive species, funding levels for such plans have not grown for the last several years. This has resulted in a smaller share for each State with an approved plan. To be effective, the funding for State and interstate plans must grow proportionate to the number of approved plans, not get sliced into smaller and smaller portions. This bill provides the funding authorization to enable this to happen.

Passage of Senate Bill 525 will greatly assist Vermont, and I believe the Nation as a whole, in continuing to build on the substantial gains made under the Nonindigenous Aquatic Nuisance Species Prevention and Control Act of 1990. I encourage you to support this bill and thank you again for the opportunity to speak with you this afternoon. Time permitting, I will be happy to entertain questions.

RESPONSE OF MICHAEL HAUSER TO AN ADDITIONAL QUESTION FROM SENATOR ALLARD

Question. This legislation requires that each State have a rapid response contingency plan. If the Federal Government requires such a plan, how do we ensure that all ships that discharge ballast waters are aware of each State's plan?

Response. The bill provisions require that portions of State rapid response contingency strategies involving actions by vessels conform to guidelines established by the Coast Guard (Secretary of the department in which the Coast Guard is operating). I assume procedures for due notification of vessels would be part of those requirements.

STATEMENT OF JAMES H.I. WEAKLEY, PRESIDENT, LAKE CARRIERS' ASSOCIATION

Thank you for the opportunity to testify on this legislation that is so crucial to both the maritime industry and the marine environment. It is Lake Carriers' Association's concern that this bill be crafted such that both are well served. We are generally supportive of S. 525.

LCA is a member of the Ballast Water Coalition. Although I do not testify today on behalf of the Coalition, I will focus on the concerns of the shipping industry.

Lake Carriers' Association represents 11 American corporations operating 57 U.S.-flag vessels exclusively on the Great Lakes. Foreign-flag operators move cargo into the region from across the oceans. We do not. Our vessels typically move more than 100 million tons of cargo each year. Those commodities include iron ore for the steel industry, coal for power generation, and limestone for the construction industry. As you can see, tens of thousands of family sustaining jobs depend on the efficient movement of cargo on the Great Lakes. We not only earn our wages here, we recreate along the shores and drink from the world's largest supply of fresh water. It is a place we call home.

Lake Carriers' Association has been leading efforts to find an invasive species solution for more than a decade. In partnership with Government agencies, non-governmental agencies, and shippers, we've invested more than $4 million researching this complex problem. Our projects evaluated several ballast water treatment methodologies and engineering solutions using a barge specifically designed for this purpose, as well as operational ships and land-based facilities.

Lake Carriers' Association is committed to finding solutions to the worldwide problem of ballast water transport of nonindigenous species. Upon learning of the discovery of the ruffe in Duluth/Superior Harbor in the late 1980's, LCA produced the Voluntary Ballast Water Management Program. Deemed the "cutting edge of technology" by the U.S. Fish & Wildlife Service, our voluntary efforts have largely contained the ruffe. In addition, we have instituted other voluntary practices to reduce the threat of transferring other aquatic nuisance species within the Great Lakes. These practices represent our industry's commitment to slowing what is inevitable the migration of newly arrived exotics.

For example, the ruffe is migrating along the southern shore of Lake Superior of its own volition. Therefore, we must focus our energies on prevention of new exotics into the Lakes and all U.S. waters. The Lakes, like many waterways, are naturally connected; so absent a natural predator, any fish, insect, or plant introduced into one Great Lake can and will migrate to the others. Like it or not, the ruffe, the zebra mussel, and the sea lamprey, to mention a few, are here to stay.

I must emphasize that this issue is not limited to the Great Lakes Basin. The West Coast of the United States and the Chesapeake Bay have been significantly threatened and remain vulnerable to new invasions. Vessels engaged on international voyages and foreign-flag vessels sailing between U.S. ports also pose a risk.

Internationally, the topic is being debated at the International Maritime Organization. Australia struggles with the same issues and continues to deal with invasive species. Since the United States is the world's largest trading partner, what we do impacts the world shipping community in ways that no other country can. Much of the debate in the international community seems to be focusing on what the standard will be and how to implement it. An alternative to the percent based standard in S. 525, a standard based on the number of organisms living above a certain size in the treated ballast water has been proposed at IMO.

It is my sense that this alternative standard is growing in support at IMO and in the international community. I think that standard does have merit as an alternative and it seems to be where the debate is moving to, for the following reasons:

a) It is more clearly defined and, from an engineering perspective, easier to design to engineers like tight design definitions.

b) From a testing and verification perspective, it may also be easier to measure and enforce.

c) Also, it may be more practical for manufacturers to build to that standard.

The primary problem with the 95 percent approach is its vagueness. Ninety-five percent of what? Even the biologists and scientists may have a hard time agreeing. With all of the biological differences in various water samples across a wide spectrum of sizes from different ecosystems, engineers would find it difficult to develop a system to meet the requirement.

It also may be byzantine to design a testing protocol to evaluate equipment based on the 95 percent standard.

At IMO, I think there is a good chance that the standard may be changed from that of a percent approach to one of an organisms alive above a size in a standard volume of water. It makes sense for the U.S. standard to be compatible with the international standard. I also believe we will act on this long before IMO reaches consensus and enacts anything. If we lead, others will follow.

From a risk perspective, the question is: Is there a greater risk by allowing 5 percent of all the biota to remain alive or some unknown amount below a certain size and a specific number of organisms above that size to enter the ecosystem? Either methodology does a better job of protecting the ecosystem than what we have now, and both focus on prevention.

In addition to prevention, there are several other themes for addressing this issue: a clearly defined and practical treatment standard; a Federal solution with worldwide application, robust data collection and technological research systems; and the grandfathering of treatment systems and vessels. I believe that the above approach will lead to a variety of solutions. From a shipboard perspective, the critical variables include: the volume of ballast water; pumping rate; length of voyage; time in port; trade pattern; and vessel design. The complexity of these variables makes a single solution difficult, if not impossible.

Although we respect the role of State Governments, an appropriate Federal solution would not only adequately address the problem, it would save the States' enforcement dollars. This is exactly the type of problem that requires a regional and, therefore, Federal solution. Can you imagine the complexities of trying to comply with different regulations promulgated by the eight States that share the Lakes?

I want to thank the Committee for your commitment to finding solutions to this problem and conclude by saying we must recognize those exotics that have established themselves in the Great Lakes are now citizens in all but name. Even the very successful and sophisticated efforts of the Great Lakes Fishery Commission have resulted in the control of but not the elimination of the sea lamprey. Therefore, our goal MUST BE the prevention of additional introductions via the ballast water on ocean-going vessels.

Thank you.

RESPONSES OF JAMES H.I. WEAKLEY TO ADDITIONAL QUESTIONS FROM SENATOR ALLARD

Question 1. This legislation requires that each State have a Rapid Response Contingency Plan. If the Federal Government requires such a plan, how do we ensure that all ships that discharge ballast waters are aware of each State's plan?

Response. It would be difficult to ensure that all ships discharging ballast are aware of each individual State's response plan. That is why we favor a Federal solution based on international agreements and protocols. The Oil Pollution Act of 1990 implemented a response approach that clearly designated the Federal Government as the response leader while allowing for State and Local input into the response plan and execution. I believe that the structure for responding to invasive species should follow the same pattern. That approach would ensure that all involved parties understood their role, responsibility, and authority.

Question 2. The legislation proposes that the Coast Guard will promulgate the regulations for an interim standard, while the EPA will develop the final standard. The Coast Guard supports a single standard that is scientifically sound and enforceable, and the EPA has concerns that they should be the ones in charge, as well as issues of rule promulgation and sharing. Some before this Committee believe that the responsibility to develop and promulgate a ballast water discharge standard should remain with one agency. How should this be addressed? Who is the right agency?

Response. LCA strongly agrees that the responsibility to develop and promulgate a ballast water discharge standard should lie with one agency and, further, that the U.S. Coast Guard is best suited to be that agency. If more than one agency is involved, the potential for conflicts and contradictions rises dramatically. I mean no disrespect to other Federal agencies, but regulations that govern ballast water procedures must be developed by individuals who are highly knowledgeable of the marine environment and vessel operations. If ballast tanks are filled or emptied too quickly or in the wrong sequence, the resulting stresses can crack or even break the hull, a result that puts both lives and the environment at risk. We strongly urge that the U.S. Coast Guard be the sole agency responsible for development and implementation of a ballast water discharge standard.

RESPONSES OF JAMES H.I. WEAKLEY TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question. It is my understanding that there is an ongoing lawsuit between several groups and the EPA on whether the agency should regulate ballast water under the Clean Water Act. What effect would regulation of this kind have on the shipping industry?

Response. Regulation of ballast water by the EPA under the Clean Water Act could have a devastating effect on the marine industry. Operationally, the process for applying for permits, certifying and testing effluent, and the permutations of ballasting operations could significantly impact the industry. Our ability to move cargo demands a regulatory scheme that is streamlined and efficient. Introducing the EPA into the process would be counter to both of those goals. The U.S. Coast Guard, steeped in maritime history and knowledge, serves the best interest of marine transportation without compromising the best interest of our Nation. The industry could easily be issued contradictory requirements by the U.S. Coast Guard and the EPA, effectively catching the ship and the vessel operator in a bureaucratic tug-of-war for control. The sheer number of ballasting operations could overwhelm the EPA and divert attention from their current duties and responsibilities. The resulting regulatory gridlock would negatively impact the environment and the economy. The U.S. Coast Guard, from both a domestic and international perspective, remains the most qualified and effective agency for addressing the ballast water issue.

Question 2. What have you learned from your Association's process of trying to find a solution to the ballast water problem? Please describe some of your research.

Response. Through our research, we gained a greater appreciation of the complexity of the problem. We have also been able to focus in on some of the key variables and concluded that there likely will not be a single solution or technology that works for every vessel. Volume of ballast water and rate of flow appear to be the key engineering variables for treatment systems. Vessel design and trade pattern also play a role in determining the need for ballast water treatment and the success of that treatment. More research must be done to understand the problem before solutions are found.

In the end, there will probably be different solutions for treatment, depending on the application. There may also be systems employing a series of treatment at the water intake, water discharge and during transit or a technological breakthrough may result in a single system with multiple applications. One thing is clear, there remains much work to do.

To date, we have evaluated filtration systems, cyclonic separator systems, and ultra-violet light. We have even evaluated filtrations systems in combination with ultra-violet light. Our testing environments have included a Canadian laker trading between the St. Lawrence Seaway and the Lakes; an American barge moored in Duluth (Minnesota) Harbor; and an ocean-going tanker.

Question 3. It is my understanding that attendees at the recent International Conference on Aquatic Invasive Species held in Windsor, Ontario, thought it would be a good idea to dedicate a test ship to full-scale, on-board ballast water technologies and treatment. Is this something the government can do to promote research and help find a solution to the ballast water problem?

Response. At some point, ballast water treatment and equipment evaluation must be done aboard ship. However, it may not be the best use of government money to provide a ship dedicated to this purpose. With research in its infancy, more needs to be done to develop possible solutions in the laboratory before testing shipboard implementation. Rather than a single ship dedicated to testing different applications at different times, a better approach may be to fund specific tests on multiple ships at the same time. That approach would result in a larger body of research in a shorter timeframe. The vessel operator, not the government, would then pay the fixed costs of operating the ship. The government would only be funding the marginal costs of the ballast water research. Operational tests could also be done on barges specifically designed for the test or modified at significantly less cost for the same information. The government should stimulate research by funding as much testing as possible with the limited money available.

STATEMENT OF THOMAS W. SHERMAN, PRESIDENT, AQUACIDE LLC

Thank you, Chairman Inhofe and Members of the Committee, for the opportunity to present Aquacide's views on certain aspects of the Bill, especially as they pertain to Ballast Water Management.

Aquacide is a ballast water engineering firm consisting of engineers and scientists with expertise in thermodynamics, fluid/gas handling, metallurgy, marine biology, naval architecture, marine engineering, biochemistry, toxicity, waste water treatment, marine law, patents and licensing. We have been involved in the invasive species problem for more than 10 years, and participated in the preparation of Sen. Glenn's Bill, the National Invasive Species Act of 1996.

The invasion of our waters has been going on for years. Congress took note of it and passed, in 1990, the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA). During the intervening years, scientists have been driving the Invasive Species train, and while this has resulted in the accumulation of much needed data, little has actually been accomplished to stem the tide of invaders. I should add here that my use of the term "stem the tide" is not original. "Stemming the Tide" is the title of a book published in 1996 by the National Research council, which is considered to be the "bible" for those involved in this business.

The International Maritime Organization (IMO) has been addressing the issue with numerous international meetings, exchanges of papers, etc. Also, for years, the Coast Guard has been publishing for comment proposals for regulating ballast water. The "community" of scientists, shipowners, regulators and others have actively participated, and the volumes of paperwork accumulated in this process are a matter of public record.

There is no shortage of data.

But in 13 years, nothing concrete has been achieved. So every day, thousands of tons of unregulated ballast water containing invasive species and disease causing pathogens are being discharged into our waters. Action is clearly required, and that is the thrust of my remarks today.

Other than voluntary ballast water exchange (BWE), there are no controls over ballast water being discharged into U.S. waters. We believe that it is time, as Congress addresses the present legislation, to move forward and establish mandatory requirements which will actually begin to stem the tide. In the process of moving forward, decisions will have to be made, some of which may be painful, but these decisions must be made. We view the legislation before you as a crossroads a golden opportunity to transition the process from being problem oriented to solution oriented.

The scientists and the regulators have had their day in court (thirteen years of them), and it is now time for the owners, the builders, the innovators and the engineers to make things happen. While they are at work, the scientists will continue their work on the evolving threat.

As Aquacide sees things, the main order of business before this Committee, as pertaining to ballast water treatment, and where the decisions need to be taken, is the establishment of mandatory standards and a timetable for their implementation. This action, which will lead to consideration and passage by the Congress, should be completed in a timely fashion. When one considers those thousands of tons of unregulated ballast water being discharged into our waters, the need for prompt action is apparent

Only after Congress has set the standards and the timetable can the owners commit resources needed to get the engineers and builders to configure the ships to meet the standards. Proper "grandfathering" must be built into the process to protect the owners' investments, which will involve billions of dollars.

The stated goal of Congress is to eliminate the risk of introduction of non-native species, and plant, animal, or human pathogens by vessels. This is often called zero discharge. To our knowledge, Aquacide's thermal pasteurization process is the only existing technology able to approach this theoretical limit. But whatever standards are adapted should not limit research which might lead to alternative treatment methods which, given the evolving threat, may be required. At this point it is appropriate to point out that the invasive species threat has already evolved into a public health threat, given that pathogens are now recognized as part of the invasion. I note that some of the members of this Committee are also members of the Committee on Health, Education, Labor and Pensions. The public health policy aspects of invasive species require decisionmakers to lean toward the worst-case scenarios. The public, as they become more informed about the issue, will demand action rather than inaction.

The first required step of the process is to establish Interim Standards and we urge the Committee to act promptly to get these established as soon as possible. At this point, I'm going to borrow an example from the aerospace world to help view Interim Standards in the proper perspective.

When, say, the Air Force procures a new aircraft, it doesn't go immediately into full-scale production. It starts with a prototype, which is everybody's best estimate as to what the final product will be. When the prototype is fielded for test, many things show up that nobody had thought about. The Law of Unintended Consequences plays large here, as does Murphy's Law. After the prototype is wrung out and fixed, only then is full-scale production begun. Some call this "fly before buy." There probably will still be some bugs left, but usually they are minor. The main thing is not to get set into concrete too soon in the process. I equate Interim Standards to prototypes. With proper wording, the bugs in the Interims and there will be some can be worked out with a minimum of time and effort. These, in turn, will lead to solid, workable Final Standards. As you probably recall, the Draft of the Bill before us contains a time line which includes this logical approach.

Given the importance of Interim Standards, I will lay them out in a step-by-step format:

1. They should be viewed as the first step toward the congressional goal of zero discharge.

2. They should be better than Ballast Water Exchange (BWE), or at least as effective. This will require an arbitrary decision (and the "community" knows why it must be arbitrary) as to what is meant by "as effective as BWE." The Coast Guard should, by law, make this decision, but if there are legal concerns in that Agency over making such a decision, Congress can make it. In any event, this decision must be made promptly.

3. They should be viewed as they are titled: Interim. All concerned parties shippers, Coast Guard, scientists, engineers, etc. will learn by doing. The prototype analogy.

4. The measurement protocols must be stated and must use commonly accepted yardsticks. Without these protocols, standards are meaningless. Physical size (so many microns) is one such measure and there are also commonly accepted biological measures, (which we favor) used in the field by Agencies like the EPA, such as Biochemical Oxygen Demand (BOD) and Oxygen Uptake Rate (OUR). These measures have been studied by the Coast Guard and if approved, would be given Type Approval, which is in the draft language of the Bill.

5. They should not be stated in terms subject to interpretation, like "as clean as drinking water." There are many legitimate definitions of this term. Also, they should not be contingent on future activity, i.e., using language like "to be developed." They should be based on data in hand now, which exists in abundance. Final

Standards (including measurement protocols) will be based on lessons learned from the Interim Standards. Standards must be established which reduce uncertainty to the absolute minimum. Uncertainty puts an unreasonable burden on those who must bear the costs of ballast water treatment, the shipowners.

The above specifics apply to Interim Standards in general. The Regulatory Agencies appear to be reluctant to accept them as they require decisionmaking, enforcement, and schedules on their part. But to comply with the stated intent of Congress in 1990, this action must be taken. Those who State that the current process is working OK are clearly unwilling to take the action, because, as stated earlier, in the 13 years that the current process has been operating, the invasion continues. There is still nothing on the books.

Hopefully, this hearing will lead to action which, as a minimum, will result in the establishment of Interim Standards and a schedule. After all these years, the first steps will have been taken to Stem the Tide.

We appreciate the opportunity to contribute to this important legislation.

Thank you

STATEMENT OF KATHY J. METCALF, DIRECTOR, MARITIME AFFAIRS, CHAMBER OF SHIPPING OF AMERICA

The Chamber of Shipping of America (CSA) appreciates the opportunity to provide written testimony to the Senate Subcommittee on Fisheries, Wildlife, and Water to the record of the subcommittee's June 17, 2003 hearing on the National Aquatic Invasive Species Act of 2003 (S. 525). Our testimony focuses on potential strategies relative to marine vessels entering US waters from outside the exclusive economic zone (EEZ).

CSA represents 23 U.S. based companies that own, operate or charter oceangoing tankers, container ships, and other merchant vessels engaged in both the domestic and international trades and represents other entities that maintain a commercial interest in the operation of such oceangoing vessels.

CSA has been involved in the issue of aquatic invasive species for over a decade at the international, national and sub-national (local and regional) levels. We have served as an industry advisor to the US delegation to the International Maritime Organization's (IMO) Marine Environment Protection Committee working closely with the US Coast Guard, Environmental Protection Agency and other Federal agencies in the development of the US position at the IMO. We have also worked with our international maritime trade association colleagues in identifying practical and environmentally beneficial solutions to the continuing problem of aquatic invasive species transportation in the ballast water of marine vessels.

CSA strongly supports the implementation of a mandatory national ballast water management program and believes that S. 525 is an excellent framework within which to design such a system with due regard to environmental protection, technological feasibility and the realities of the marine transportation industry. We do have some concerns with specific aspects of the bill and would be pleased to discuss these in detail with you at your convenience. However, the majority of these specific details fall within the purview of several broad categories which we discuss in further detail below. In addition to these discussions, we close our comments with responses to particular issues raised at the June 17, 2003 hearing. We hope you find this information valuable and informative as we all move forward together in meeting this environmental challenge.

CSA has identified four key issues associated with the creation and implementation of a mandatory national ballast water management program in the United States. The four key issues explained below are seen as the most critical elements to a practical and environmentally protective national ballast water management program which minimizes the disruption to the free flow of maritime commerce.

Technology Performance Standards/Standardized Test Protocols

For over a decade, the challenges associated with the transport of aquatic nuisance species in ballast water have been recognized. During this time, a number of technology developers have approached various segments of the industry with the ultimate goal of installing these technologies aboard vessels for "real world" testing. As a result of the significant financial investment required for transition from concept to laboratory to pilot plant to full shipboard installation (conservatively estimated at US $1,000,000 minimum), stakeholders in these discussions have asked the obvious question as to whether a particular technology could be expected to meet future legal requirements. In the absence of any performance standards, industry and technology experts have acknowledged the impossibility of answering

this threshold question, which if answerable in the affirmative could justify the expenditure of the significant financial resources necessary to take a particular technology from concept to shipboard installation.

Furthermore, in the absence of any standardized test protocols, technology developers and some ship owners have borne the cost of laboratory and prototype testing which have produced promising results but which, unfortunately, are not comparable from one technology to another. Standardized test protocols which outline scientifically acceptable test methods are necessary to provide the necessary comparability among various tested technologies. These standard test protocols are currently the subject of a joint public/private effort organized by EPA under its environmental technology verification program and in which CSA participates.

While we do not claim any scientific expertise in establishing the quantitative aspects of a biological standard (which must necessarily balance achievability with environmental protection), we do propose that any established standard, whether experimental, interim or final, should be achievable based on existing or reasonably expected technology and capable of being installed and operated on new and existing vessels with a minimum of disruption to ship operations. The current bill proposes 95 percent kill, inactivation and/or removal interim standard. We believe that a standard based on size of organism is far preferable to a format which establishes a particular percentage for the following reasons. A size based standard would meet the necessary criteria of biological meaningfulness, scientific soundness and enforceability. To fully comprehend the necessity of establishing a standard meeting these criteria requires a review of the problems created if such criteria were not met, as would be the case with the 95 percent kill, inactivation and/or removal standard proposed.

First, the 95 percent number was chosen as a surrogate equivalency for the 95 percent volumetric efficiency associated with ballast water exchange. We do not believe that a direct correlation between biological and volumetric efficiency is justifiable, particularly when one notes that various studies attempting to quantify the biological effectiveness of ballast water exchange have ranged from 29 99 percent, with variations attributable to the wide range in biological components of the loaded ballast water, methods of exchange (empty/refill, dilution) and the criteria organisms which were measured in the loaded and then exchanged ballast water. Second, a standard based on percent reduction does not adequately take into account the risk introduced into the receiving water body. Ballast water loaded from a water body rich in native organisms and then treated to a 95 percent kill, inactivation and/or removal criteria, presents a far different risk to a receiving ecosystem than ballast water loaded in a relatively "benign" water body. Third, enforcement and compliance programs utilizing a percent reduction, presuppose that a sample of water taken at the load port would then later be analyzed at the discharge port to enable the determination that a particular percentage of organisms were in fact killed, inactivated or removed. The reliability of such a measurement is problematic as the biological composition of the sample during transit will naturally change as certain organisms may die off during transit, while others may thrive, based on the environment in the sample container.

Creation of a performance standard based on size of organism killed, removed or inactivated eliminates these problems. Removal based on organism size can be directly related to risk reduction in the discharged ballast water. Additionally, compliance is more easily verified since the ballast water would only need be analyzed for organism size rather than the potentially wide range of organism types and their concentrations found in ecosystems worldwide.

Experimental Shipboard Testing Program

The key to successful implementation of a national (and international for that matter) ballast water management program that transitions from the use of ballast water exchange to ballast water treatment systems requires a program which provides incentives for participants to go beyond the status quo (currently exchange) and results in the installation of a number of "in test" technologies aboard ship. Laboratory and shore side prototypes can only go so far. It is these shipboard installations operated in the sometime severe marine environment on a variety of ship types and with ballast water loaded in a wide range of ports worldwide that will provide us with the data necessary to establish what is practically achievable and what is not. Furthermore, such test programs will provide valuable data to invasion biologists relative to what types of organisms from specific geographical regions present the greatest threat to US waters. A robust incentivized experimental shipboard testing program with appropriate agency oversight and reporting requirements is absolutely critical to a successful ballast water management program.

Grandfathering Provisions

Most international and US regulations pertaining to shipboard equipment include grandfathering provisions which provide that compliance with a standard in place at the time the vessel is constructed (or undergoes major modification) establishes compliance for that equipment for the life of the vessel. Such provisions need to be considered within the context of ballast water treatment systems which carry significant initial costs and present challenges to retrofitting new equipment on an already existing vessel. At the very minimum, compliance life of the treatment system should be linked to expected return on an investment of this significance and the (in)ability of an existing vessel to install a new system on an existing vessel. Grandfathering provisions will also play a critical role in accelerating the move from ballast water exchange to treatment, where the outlay for treatment system installation far exceeds the operating expenses of maintaining the status quo (ballast water exchange).

International/National/Sub-national Consistency

In the ideal world, requirements established by the International Maritime Organization (IMO), the US, States and local/regional jurisdictions would mirror one another. Compliance with one would constitute compliance with the others and provide assurance that vessels, most of which are engaged in international trade, would not be subject to different sets of requirements in each port of call. Current direction at the IMO suggests that the international standards may not be viewed as sufficiently stringent for US waters, although the US delegation to IMO is working very hard at achieving that level of stringency in treaty text which is expected to be finalized at a Diplomatic Conference in early 2004. Recognizing the limited ability any one country has to influence the final outcome in international treaty negotiations, we turn to the ability to at least create this consistency within US waters, noting the large number of vessels which call in multiple US ports. Language preempting State programs would be the ideal solution to this dilemma. However, recognizing the political baggage which accompanies such preemption text, States, at a minimum, should be urged to the maximum extent practical, to adopt the national program as their respective State programs. Based on discussions with representatives of a number of States' environmental agencies, it is expected that States' would gladly "buy in" to a sufficiently strong national program which did not place them in the precarious position of choosing environmental protection at the expense of port competitiveness.

Recommendations

- Establishment of an achievable and environmentally protective ballast water treatment performance standard utilizing organism size as the criteria for compliance.
- Establishment of a standardized testing protocol for developing technologies which will enable comparability among test results for various technologies.
- Development of an incentivized experimental shipboard testing program to maximize the number of technology types being tested on a wide variety of ship types and over a wide geographic range.
- Develop appropriate grandfathering provisions for treatment systems taking into account the significant investment required for installation and operation of such systems and (in) ability to retrofit new systems aboard existing vessels.
- Maximize consistency among international, national and sub-national requirements.

CSA Responses to Issues Raised During the Hearing

Issue: A number of Members expressed concern about enacting a strong Federal program within the context of traditional States' rights in control and protection of their waters.

Response: CSA recognizes and supports the notion of States' rights over control of their marine environment. However, CSA also recognizes the international nature of marine transportation and the transfer of aquatic invasive species which necessarily demands a strong international and national template for controls on which the States may rely. CSA recommends that Federal preemption language be included in the bill limited only to those programs addressing prevention namely, Title I, Section 101 which addresses prevention of ANS introductions into US waters by vessels. The remaining sections of the legislation addressing research, early detection, rapid response, control and outreach would not be subject to Federal preemption and would be implemented through coordinated Federal/State/private partnerships.

Issue: A number of witnesses expressed concern over the proposed 95 percent kill, inactivation or removal format for the performance standard.

Response: We agree with the expressed concerns. As indicated above, the performance standard must be biologically meaningful, scientifically sound and enforceable (readily measurable). A standard based on size of organism meets this criteria, while one based on percent kill, inactivation or removal does not. In addition, we believe the standard should also be technologically achievable and practical taking into account the harsh marine environment in which ballast water treatment systems must operate.

Issue: A number of Members and witnesses discussed the relative importance of the various aspects of a national program which must necessarily include prevention, early detection, response, control, eradication and outreach.

Response: We believe that prevention of invasions is the lodestone of a successful program. While appropriate focus should be placed on early detection, response, eradication and outreach, primary focus should be placed on keeping the invaders out of our waters in the first place. History is the unfortunate witness as to the practical impossibility of eradicating an already invasive species once entrenched in an ecosystem in all but a very few cases where the geographic range of the invasion has been limited either through natural phenomenon or early human intervention. It is also important to note that the need for attention to program components other than prevention is necessary due to the fact that the development of technologies addressing the various vectors of ANS transmission is in its infancy and, while expected to improve substantially over time, is not capable of reducing the risk of invasions to zero.

Issue: Several witnesses noted that the proposed legislation is unclear in some portions as to which, if any, Federal agency is the "lead" agency on a particular issue.

Response: We agree that responsibilities of Federal agencies should be clearly and consistently identified. We also recognize the complexity of dealing with the aquatic invasive species problem and the need for all agencies with expertise in a given area to be involved in the decisionmaking which leads to regulations implementing the provisions of the bill. It is our understanding that an existing interagency review process is well equipped to vet proposed regulations among the interested agencies prior to promulgation. With this system in place, the responsibilities and roles assigned to the various agencies under the bill should be clear, consistent with agencies' known expertise and provide for a single agency to take the lead on a given initiative. For example, the bill as proposed would require the Coast Guard to establish the interim standard with the concurrence of the EPA and in consultation with the ANS Task Force. However, the bill then proposes that the final standard be established by the EPA with the concurrence of the Coast Guard and in consultation with the ANS Task Force. Such inconsistency is difficult to fathom since all three of these entities (and quite likely other agencies) should be involved in the development of standards (whether they be interim or final). CSA believes that a single agency be recognized as the lead agency for standards development and we assert that agency should be the US Coast Guard, but only after due consultation with all Federal agencies with expertise in this area.

Issue: Two witnesses addressed the issue of interim and final standards in their written testimony and specifically, questioned whether both an interim and final standard is needed (versus establishment of a final standard only).

Response: CSA recognizes the inherent difficulties placed before Federal agencies in transitioning from an interim standard to a final standard, particularly with regard to what benefits should accrue to a proactive shipowner who has early on in the process, invested heavily in an experimental shipboard system which proves to exceed the effectiveness of ballast water exchange but fails to meet the final standard. On the other hand, vendors and shipowners absolutely require now some quantitative criteria, a target if you will, which if met, qualifies their equipment and the shipboard installation for favorable compliance treatment under the experimental shipboard testing program and beyond the final standard implementation date, in order to provide adequate incentives for early action. Without such incentives, vendors cannot justify bench and shore scale testing programs and vessel owners cannot justify the significant outlay to move the technology to full shipboard installation and testing, a critical step in the development of promising and increasingly more effective technologies. With such incentives, entities with proactive programs will be appropriately rewarded while those who remain in the wings waiting for others to incur the shipboard testing costs will be required to meet the final standard by the legislatively mandated implementation date. This issue has been the subject of much discussion in both international and national fora and CSA believes that the issue is one more related to semantics than substance, at least from the industry's perspective. If the concept of an interim standard is problematic for the en-

forcement of the ballast water management program, then CSA suggests inclusion of a performance standard within the body of the experimental shipboard testing program. Such inclusion, while not mandatory for participation in the shipboard testing program, would provide that vessels which do not meet this standard during the course of the testing, would be subject to final standard requirements at the implementation date. Technologies that do meet this (interim or experimental) performance standard prior to or during the course of the experimental shipboard testing program would be afforded the benefits of a compliance designation beyond the final standard implementation date and for an appropriate term to be determined. Based upon the expected life of large marine vessel systems, CSA proposes that a 20 year life is an appropriate starting point. Providing such an incentive is well justified in light of the need to get a number of promising technologies installed and under test aboard vessels as such tests will not only permit a determination of the capabilities of existing technology but will also begin to provide the much needed data relating to biological profiles of ballast water loaded at locations around the world.

We thank you for the opportunity to provide these comments and would be pleased to address any questions or discuss any other related issues in which you have an interest.

UNITED STATES DEPARTMENT OF THE INTERIOR,

U.S. GEOLOGICAL SURVEY,
June 20, 2003.

Senator MICHAEL CRAPO,
Senate Office Building,
Washington, DC 20510–1204.

SENATOR: On June 17, Senator Crapo chaired the U.S. Senate Subcommittee on Fisheries, Wildlife & Water at hearing on S. 525, a bill "To amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act." In connection with this important topic, I wanted to give you some information and a fact sheet on the work done by the U.S. Geological Survey's (USGS) Western Fisheries Research Center in Seattle, Washington.

The Western Fisheries Research Center and its six associated laboratories in California, Oregon, Washington and Nevada are involved in a number of scientific studies related to the impact of aquatic invasive species. We work in partnership with a variety of State and local governments, Tribes and land management agencies to assess the damage, vulnerabilities and future risks imposed by aquatic invasive species. We do this work in coastal ecosystems like Puget Sound, large rivers like the Columbia, sensitive inland desert waters, and many other estuaries, rivers, wetlands and reservoirs.

One particular concern is the risks posed by ballast water introduction, and the need to develop effective and economical treatment methods for ballast water. Zebra mussels, red tide plankton and human cholera pathogens are just some of the bioinvasives identified in ballast water discharge. The States of California and Washington have recently passed laws to regulate discharge of ballast water, laws that will require sound science underpinning their implementation. USGS' Marrowstone Marine Station in northern Puget Sound is actively involved in developing treatment methods, assessing species transportation risks and other ballast water research.

USGS feels that reliable science is essential to predict and assess aquatic invasive species risks, and to define and manage problems once they occur. We assist our partners in determining why and how aquatic invaders are successful, identifying methods to control populations and short-stop initial invasions, and in approaches to anticipate new threats. Our partners include States, Tribes, local governments, State and private universities, and Federal partners such as the U.S. Army Corps of Engineers, NOAA and our sister agencies within the Department of the Interior the National Park Service, U.S. Fish & Wildlife Service, Bureau of Land Management and the Bureau of Reclamation.

I invite you to contact me to learn more about the USGS invasive species science underway in Senator Crapo's District or to visit the Western Region Fisheries Center or one of our Laboratories.

Sincerely,
Anne Kinsinger
Regional Executive for Biology
USGS Western Region
909 First Avenue, Suite 804

Seattle, WA 98104

Non-Indigenous Species Invasions in the Western United States

More than 6,500 non-indigenous species are now established in the United States, causing huge economic losses and disrupting valued American ecosystems. Biological invaders pose risks to native species, human and wildlife health, and the productivity of agricultural food supplies. Losses caused by just 79 of these *taxa* were conservatively estimated in 1993 by the U.S. Office of Technology Assessment to be more than $97 billion and increasing. Bio-security protection from dangerous biological introductions—is important to Americans.

The vast mosaic of western U.S. habitats is welcoming to potential biological newcomers. The invaders include plants, animals and microbial pathogens. Weeds like cheatgrass and medusahead now dominate over 3 million acres of public land over 5 western States, fueling many of the nation's largest wildfires. More than 230 non-native species have colonized San Francisco Bay, completely altering estuarine food chains and ecosystem processes. Red tide plankton and human cholera pathogens have been identified in ballast water discharges. Once established, these invasive species can degrade habitats of critically declining native wildlife -- indeed, non-indigenous species are often the most critical problem facing western threatened and endangered species, particularly on Pacific islands.

Current USGS research on nonindigenous species cannot fulfill information needs expressed by western resource managers in the Bureau of Land Management, US Fish and Wildlife Service, National Park Service, and numerous tribes, States, and private institutions. Gaps in the USGS program exist for many of the vulnerable habitats of the west -- many of which are on Federal lands. Risks posed by the invaders are frequently unknown, so managers can't act to prevent damage. Knowledge regarding how to restore native communities once they are degraded by invasive species is largely nonexistent.

In order to fill these gaps, the USGS needs to enhance science activity in the west, working within the bureau's Invasive Species and Emerging Diseases Program. The science would be focused through partnerships with resource managers and conducted using multidisciplinary or integrated approaches depending on the nature of the problem. The initiative would include:

Major Thrusts

Predicting and assessing risks: provide USGS partners with tools and models to anticipate problems; help to better define and manage problems once they occur.

Prevention and control: develop strategies and methods to shortstop initial introductions and cost-effectively control invaders once established, based on research to determine how and why invaders are successful.

Information management: serve data and information to inform all aspects of invasive species management; reveal trends through monitoring to guide adaptive ecosystem management.

High Priority Topics

Fresh Water/Aquatic: define risks posed by aquatic invertebrates; identify exotic fishes and their effects upon declining natives; determine non-native species influences on amphibians; define risks posed by wetland and riparian weed invaders.

Coastal/Marine: determine the vulnerability of estuarine benthic communities and planktonic food webs; identify high risk foreign species in advance; determine threats to estuarine ecology.

Ballast Water: research and develop effective ballast water treatment methods; assess species transport risks (e.g. by season; biogeographic region of origin); predict vulnerability to invasion for particular valued habitats, ecosystems, and native species complexes.

Pacific Islands: develop potential biological controls (e.g. brown tree snakes); assess risks to island habitats for particular invaders by region of origin; provide recovery science for threatened and endangered native species depressed by exotics.

Arid and Semiarid Rangeland: identify changes to fire regimes caused by non-indigenous invasions; develop restoration technologies; determine habitat impacts for native wildlife; determine how bio-invasions interact with human habitat perturbations and climate change.

Microbial pathogens and parasites: develop genetic tools to identify/diagnose novel pathogens; conduct biocontainment laboratory disease challenges for novel or incipient pathogens to determine virulence and assess risk of epizootics; develop treatment tools and methods.

Process understanding: develop information about the ecological processes and mechanisms that foster invasiveness of plants, animals, and pathogens; develop science-based control strategies.

108TH CONGRESS
1ST SESSION

S. 525

To amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act.

IN THE SENATE OF THE UNITED STATES

MARCH 5, 2003

Mr. LEVIN (for himself, Ms. COLLINS, Mr. DEWINE, Ms. STABENOW, Mr. REED, Mr. INOUYE, Mr. VOINOVICH, Mr. KENNEDY, Mr. LEAHY, Ms. CANTWELL, Mr. JEFFORDS, Mr. WARNER, Mr. AKAKA, Mr. FITZGERALD, Mr. DURBIN, and Mr. BAYH) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Aquatic Invasive Species Act of 2003".

(b) TABLE OF CONTENTS.—The table of contents of this Act is as follows:

Sec. 1. Short title; table of contents.

Sec. 2. Findings.
Sec. 3. Definitions.

TITLE I—PREVENTION OF INTRODUCTION OF AQUATIC INVASIVE SPECIES INTO WATERS OF THE UNITED STATES BY VESSELS

Sec. 101. Prevention of introduction of aquatic invasive species into waters of the United States by vessels.
Sec. 102. Armed services whole vessel management program.

TITLE II—PREVENTION OF INTRODUCTION OF AQUATIC INVASIVE SPECIES BY OTHER PATHWAYS

Sec. 201. Priority pathway management program.
Sec. 202. Screening process for planned importations of live aquatic organisms.

TITLE III—EARLY DETECTION; RAPID RESPONSE; CONTROL AND OUTREACH

Sec. 301. Early detection.
Sec. 302. Rapid response.
Sec. 303. Dispersal barriers.
Sec. 304. Environmental soundness.
Sec. 305. Specific invasive species control programs.
Sec. 306. Information, education, and outreach.

TITLE IV—AQUATIC INVASIVE SPECIES RESEARCH

Sec. 401. Ecological, pathway, and experimental research.
Sec. 402. Analysis.
Sec. 403. Vessel pathway standards research.
Sec. 404. Graduate education in systematics and taxonomy.

TITLE V—COORDINATION

Sec. 501. Program coordination.
Sec. 502. International coordination.

TITLE VI—AUTHORIZATION OF APPROPRIATIONS

Sec. 601. Authorization of appropriations.

TITLE VII—CONFORMING AMENDMENTS

Sec. 701. Conforming amendments.

SEC. 2. FINDINGS.

Congress finds that—

(1) invasive species can cause devastating declines in local, regional, and national species diversity;

(2) aquatic invasive species continue to be introduced into waters of the United States;

(3) aquatic invasive species damage infrastructure, disrupt commerce, out compete native species, reduce biodiversity, and threaten human health;

(4) the direct and indirect costs of aquatic invasive species to the economy of the United States amount to billions of dollars per year;

(5) in the Great Lakes region, approximately $3,000,000,000 has been spent in the past 10 years to mitigate the damage caused by a single invasive species, the zebra mussel;

(6) recent studies have—

(A) demonstrated that, in addition to economic damage, invasive species can cause enormous ecological damage; and

(B) cited invasive species as the second leading threat to endangered species;

(7) over the past 200 years, the rate of detected marine and freshwater invasions in North America has increased exponentially;

(8) wetlands suffer compound impacts from—

(A) terrestrial infestations (such as Nutria);

(B) aquatic infestations (such as Hydrilla); and

(C) riparian infestations (such as Purple Loosestrife);

(9) the rate of invasions continues to be unacceptable;

(10) infestations by aquatic invasive species often spread and cause significant, negative regional, national, and international effects;

(11) prevention of aquatic invasive species is the most environmentally sound and cost-effective management approach because once established, aquatic invasive species are costly, and sometimes impossible to control;

(12) to be effective, the prevention, early detection, and control of and rapid response to aquatic invasive species should be coordinated regionally, nationally, and internationally;

(13) research underlies every aspect of detecting, preventing, controlling, and eradicating invasive species, educating citizens and stakeholders, and restoring ecosystems;

(14) pathway management is the most promising approach to reducing unplanned introductions of aquatic invasive species;

(15) consistent national screening criteria are needed to evaluate the potential risk of nonnative aquatic species;

(16) States and regions have specific problems with respect to aquatic invasive species and resources for addressing aquatic invasive species;

(17) an emphasis on research, development, and demonstration to support prevention efforts would likely result in a more cost-effective and successful approach to combating invasive species through preventing initial introduction;

(18) research, development, and demonstration to support prevention includes monitoring of pathways and ecosystems to track the introduction and establishment of invasive species, analysis of that data, and development and testing of technologies to prevent introduction through known pathways;

(19) the Aquatic Nuisance Species Task Force established by section 1201(a) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4721(a)) has been directed by Congress to coordinate interagency responses to aquatic invasive species, but the provision of additional direction, and assignment of specific responsibilities,

to various Federal agencies would accelerate those responses; and

(20) it is in the interest of the United States to conduct a comprehensive and thorough research, development, and demonstration program on aquatic invasive species in order to better understand how aquatic invasive species are introduced and become established and to support efforts to prevent the introduction and establishment of those species.

SEC. 3. DEFINITIONS.

Section 1003 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4702) is amended to read as follows:

"SEC. 1003. DEFINITIONS.

"In this Act:

"(1) ADMINISTRATOR.—The term 'Administrator' means the Administrator of the Environmental Protection Agency.

"(2) AQUATIC ECOSYSTEMS.—The term 'aquatic ecosystems' means freshwater, marine, and estuarine environments (including inland waters and wetlands), located wholly in the United States.

"(3) ASSISTANT SECRETARY.—The term 'Assistant Secretary' means the Assistant Secretary of the Army for Civil Works.

"(4) BALLAST WATER.—The term 'ballast water' means any water (with its suspended matter) used to maintain the trim and stability of a vessel.

"(5) COASTAL VOYAGE.—The term 'coastal voyage' means a voyage conducted entirely within the exclusive economic zone.

"(6) DIRECTOR.—The term 'Director' means the Director of the United States Fish and Wildlife Service.

"(7) ENVIRONMENTALLY SOUND.—The term 'environmentally sound', when used in reference to any activity or thing, refers to an activity or thing that prevents, wholly or in part, introductions, or controls infestations, of aquatic invasive species in a manner that—

"(A) minimizes adverse effects on—

"(i) the structure and function of an ecosystem; and

"(ii) nontarget organisms and ecosystems; and

"(B) emphasizes the use of integrated pest management techniques.

"(8) EXCLUSIVE ECONOMIC ZONE.—The term 'exclusive economic zone' means the area comprised of—

"(A) the Exclusive Economic Zone of the United States established by Proclamation Number 5030, dated March 10, 1983; and

"(B) the equivalent zones of Canada and Mexico.

"(9) GREAT LAKE.—The term "Great Lake" means—

"(A) Lake Erie;

"(B) Lake Huron (including Lake Saint Clair);

"(C) Lake Michigan;

"(D) Lake Ontario;

"(E) Lake Superior;

"(F) the connecting channels of those Lakes, including—

"(i) the Saint Mary's River;

"(ii) the Saint Clair River;

"(iii) the Detroit River;

"(iv) the Niagara River; and

"(v) the Saint Lawrence River to the Canadian border; and

"(G) any other body of water located within the drainage basin of a Lake, River, or connecting channel described in any of subparagraphs (A) through (F).

"(10) GREAT LAKES REGION.—The term 'Great Lakes region' means the region comprised of the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.

"(11) INDIAN TRIBE.—The term 'Indian tribe' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450b).

"(12) INTERBASIN WATERWAY.—The term 'interbasin waterway' means a waterway that connects 2 distinct water basins.

"(13) INTERNATIONAL JOINT COMMISSION.—The term 'International Joint Commission' means the commission established by article VII of the Treaty relating to boundary waters and questions arising along the boundary between the United States and Canada, signed at Washington on January 11, 1909 (36 Stat. 2448; TS 548).

"(14) INTERSTATE ORGANIZATION.—The term 'interstate organization' means an entity that—

"(A) is established by—

"(i) an interstate compact approved by Congress;

"(ii) an Act of Congress; or

"(iii) an international agreement to which the United States is a party;

"(B)(i) represents 2 or more—

"(I) States (or political subdivisions of States); or

"(II) Indian tribes;

"(ii) represents—

"(I) 1 or more States (or political subdivisions of States); and

"(II) 1 or more Indian tribes; or

"(iii) represents the Federal Government and 1 or more foreign governments; and

"(C) has jurisdiction over, serves as a forum for coordinating, or otherwise has a role or responsibility for the management of, any land or other natural resource.

"(15) INTRODUCTION.—The term 'introduction' means the transfer of an organism to an ecosystem outside the historic range of the species of which the organism is a member.

"(16) INVASION.—The term 'invasion' means an infestation of an aquatic invasive species.

"(17) INVASIVE SPECIES.—The term 'invasive species' means a nonindigenous species the introduction of which into an ecosystem may cause harm to

1 the economy, environment, human health, recreation,
2 or public welfare.
3 "(18) INVASIVE SPECIES COUNCIL.—The term
4 'Invasive Species Council' means the interagency
5 council established by section 3 of Executive Order
6 No. 13112 (42 U.S.C. 4321 note).
7 "(19) NEW SOURCE.—The term 'new source'
8 means any source of nonnative species that may be
9 introduced by construction that is commenced after
10 the publication of a proposed regulation prescribing
11 a standard of performance under this Act that is ap-
12 plicable to the source, if the standard is subse-
13 quently promulgated in accordance with this Act.
14 "(20) NONINDIGENOUS SPECIES.—The term
15 'nonindigenous species' means any species in an eco-
16 system that enters that ecosystem from outside the
17 historic range of the species.
18 "(21) ORGANISM IN TRADE.—The term 'orga-
19 nism in trade' means an organism of a species or
20 subspecies that has a documented history of being
21 commercially imported into the United States in the
22 period beginning on January 1, 1990, and ending on
23 January 1, 2002.
24 "(22) ORGANISM TRANSFER.—The term 'orga-
25 nism transfer' means the movement of an organism

of any species from 1 ecosystem to another ecosystem.

"(23) PATHWAY.—The term 'pathway' means 1 or more routes by which an invasive species is transferred from 1 ecosystem to another.

"(24) PILOT SCALE TEST.—The term 'pilot scale test' means a test—

"(A) that is conducted at less than full-scale; and

"(B) the results of which can potentially be extrapolated to the full scale.

"(25) PLANNED IMPORTATION.—The term 'planned importation' means the purposeful movement of a species into the territorial limits of the United States.

"(26) REGIONAL PANEL.—The term 'regional panel' means a panel convened in accordance with section 1203.

"(27) SECRETARY.—The term 'Secretary' means the Secretary of the department in which the Coast Guard is operating.

"(28) SPECIES.—The term 'species' means any fundamental category of taxonomic classification, or any viable biological material, ranking below a genus or subgenus.

"(29) TASK FORCE.—The term 'Task Force' means the Aquatic Nuisance Species Task Force established by section 1201(a).

"(30) TERRITORIAL SEA.—The term 'territorial sea' means the belt of the sea measured from the baseline of the United States determined in accordance with international law, as set forth in Presidential Proclamation Number 5928, dated December 27, 1988.

"(31) TREATMENT.—The term 'treatment' means a mechanical, physical, chemical, biological, or other process or method of killing, removing, or rendering infertile, invasive species.

"(32) TYPE APPROVAL.—The term 'type approval' means an approval procedure under which a type of system is certified as meeting a standard established by law (including a regulation) for a particular application.

"(33) UNDER SECRETARY.—The term 'Under Secretary' means the Under Secretary of Commerce for Oceans and Atmosphere.

"(34) UNDESIRABLE IMPACT.—The term 'undesirable impact' means economic, human health, aesthetic, or environmental degradation that is not nec-

essary for, and is not clearly outweighed by, public health, environmental, or welfare benefits.

"(35) WATERS OF THE UNITED STATES.—

"(A) IN GENERAL.—The term 'waters of the United States' means the navigable waters and territorial sea of the United States.

"(B) INCLUSION.—The term 'waters of the United States' includes the Great Lakes.".

TITLE I—PREVENTION OF INTRODUCTION OF AQUATIC INVASIVE SPECIES INTO WATERS OF THE UNITED STATES BY VESSELS

SEC. 101. PREVENTION OF INTRODUCTION OF AQUATIC INVASIVE SPECIES INTO WATERS OF THE UNITED STATES BY VESSELS.

(a) IN GENERAL.—Section 1101 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4711) is amended to read as follows:

"SEC. 1101. PREVENTION OF INTRODUCTION OF AQUATIC INVASIVE SPECIES INTO WATERS OF THE UNITED STATES BY VESSELS.

"(a) REQUIREMENTS FOR VESSELS OPERATING IN WATERS OF THE UNITED STATES.—

"(1) INVASIVE SPECIES MANAGEMENT PLAN.—

"(A) IN GENERAL.—Effective beginning on the date that is 180 days after the issuance of guidelines pursuant to subparagraph (D) and promulgation of any regulations under this section, each vessel that is equipped with ballast, and each towed vessel and structure, operating in waters of the United States shall have in effect, and have available for inspection, an aquatic invasive species management plan that prescribes safe and effective means by which the master of the vessel shall minimize introductions and transfers of invasive species by any part of the vessel (including towed vessels), pursuant to the guidelines or regulations applicable to that vessel.

"(B) SPECIFICITY.—The management plan shall be specific to the vessel (or group of vessels with characteristics similar to that of the vessel, as determined by the Secretary).

"(C) REQUIREMENTS.—The management plan shall include, at a minimum, such information as is requested by the Secretary pursuant to subparagraph (D), including—

"(i) operational requirements to safely and effectively comply with the ballast

water management requirements under paragraph (4);

"(ii) operational requirements to safely and effectively carry out any actions consistent with a rapid response action required by States and approved by the Secretary under section 1211;

"(iii) other requirements specified in guidelines adopted by the International Maritime Organization;

"(iv) a description of all reporting requirements and a copy of each form necessary to meet those requirements;

"(v) the position of the officer responsible for implementation of ballast water management and reporting procedures on board;

"(vi) documents relevant to any ballast water management equipment or procedures;

"(vii) a description of the location of access points for sampling ballast or sediments pursuant to paragraph (3)(B)(vi);

"(viii) a description of requirements relating to compliance with any approved

rapid response strategy relevant to the voyage of the vessel;

"(ix) a contingency strategy applicable under section 1211, if appropriate; and

"(x) such requirements described in subsection (b) as are applicable to the vessel.

"(D) GUIDELINES.—Not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary shall issue final guidelines for the development of invasive species management plans, including guidelines that—

"(i) identify types of vessels for which plans are required;

"(ii) establish processes for updating and revising the plans; and

"(iii) establish criteria for compliance with this subsection.

"(2) RECORDS.—The master of a vessel shall—

"(A) maintain records of all ballast operations, for such period of time and including such information as the Secretary may specify;

"(B) permit inspection of the records by representatives of the Secretary and of the State in which the port is located; and

"(C) transmit records to the National Ballast Information Clearinghouse established under section 1102(f).

"(3) BEST MANAGEMENT PRACTICES.—

"(A) IN GENERAL.—Not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary shall issue guidelines on best management practices to eliminate or minimize and monitor organism transfer by vessels.

"(B) PRACTICES TO BE INCLUDED.—The best management practices shall include—

"(i) sediment management in transoceanic vessels;

"(ii) minimization of ballast water uptake in areas in which there is a greater risk of harmful organisms entering ballast tanks (such as areas with toxic algal blooms or known outbreaks of aquatic invasive species);

"(iii) avoidance of unnecessary discharge of ballast water in a port that was taken up in another port;

"(iv) to the maximum extent practicable, collection and the proper disposal of debris from the cleaning of the hull;

"(v) proper use of anti-fouling coating; and

"(vi) provision of sample access ports in ballast piping for sampling of ballast intake and discharge.

"(4) BALLAST WATER MANAGEMENT.—

"(A) IN GENERAL.—Except as provided in subparagraph (B) and subsection (e), each vessel equipped with a ballast water tank that enters a United States port shall comply with—

"(i) the standards described in paragraphs (1) and (2) of subsection (b); and

"(ii) the regulations promulgated under subsection (e) relating to ballast water management.

"(B) EXCEPTIONS.—

"(i) VESSELS OPERATING ENTIRELY WITHIN EXCLUSIVE ECONOMIC ZONE.—A vessel equipped with a ballast tank that

1 operates entirely within the exclusive eco-
2 nomic zone shall not be required to comply
3 with the standard described in subsection
4 (b)(1).
5 "(ii) VESSELS OPERATING IN EN-
6 CLOSED AQUATIC ECOSYSTEMS.—
7 "(I) IN GENERAL.—Subject to
8 subclause (II), a vessel equipped with
9 a ballast tank and that operates exclu-
10 sively in the upper 4 Great Lakes
11 (Lake Superior, Lake Michigan, Lake
12 Huron, and Lake Erie, and the con-
13 necting channels), or in another en-
14 closed aquatic ecosystem in which the
15 potential for movement of organisms
16 by natural and anthropogenic means
17 is not significantly altered by the
18 movement of the vessel, shall not be
19 required to comply with the standards
20 described in paragraphs (1) and (2) of
21 subsection (b).
22 "(II) ADDITIONAL ENCLOSED
23 AQUATIC ZONES.—The Administrator
24 and the Under Secretary, in consulta-
25 tion with regional panels of the Task

Force, may determine additional enclosed aquatic zones that are covered by subclause (I).

"(b) BALLAST WATER MANAGEMENT STANDARDS AND CERTIFICATION PROCEDURES.—

"(1) INTERIM STANDARDS.—

"(A) IN GENERAL.—Not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary, with the concurrence of the Administrator and in consultation with the Task Force, shall promulgate final regulations establishing interim standards indicating acceptable—

"(i) operational performance for ballast water exchange (including contingency procedures in instances in which a safety exemption is used pursuant to subsection (k)); and

"(ii) biological effectiveness of ballast water treatment systems (including onshore facilities and facilities on board vessels).

"(B) REQUIREMENTS.—

"(i) BALLAST WATER EXCHANGE.—The interim standard for ballast water ex-

change described in subparagraph (A) shall require—

"(I) at least 1 empty-and-refill cycle on the high sea or in an alternative exchange area designated by the Secretary, of each ballast tank that contains ballast water to be discharged into waters of the United States;

"(II) in a case in which the master of a vessel determines that compliance with subclause (I) is impracticable, a sufficient number of flow-through exchanges of ballast water, on the high sea or in an alternative exchange area designated by the Secretary, to achieve replacement of at least 95 percent of ballast water in ballast tanks of the vessel, as determined by a certification dye study conducted or model developed in accordance with protocols developed under paragraph (4)(B)(i) and recorded in the management plan of a

vessel pursuant to subsection (a)(1)(C)(i); and

"(III) an approved contingency procedure using best practicable technology or practices in instances in which a ballast water exchange is not undertaken pursuant to subsection (k).

"(ii) BALLAST SYSTEM DESIGN AND WATER TREATMENT SYSTEMS.—The interim standard for a ballast water system design and treatment system described in subparagraph (A) shall require that at least 95 percent of the live aquatic vertebrates, invertebrates, phytoplankton, and macroalgae, respectively, in ballast water taken in by a vessel or class of vessels be killed or removed from ballast discharge as determined by the qualified type approved process promulgated under paragraph (4)(B)(ii)

"(iii) CRITERIA; PERIOD OF EFFECTIVENESS.—The interim standards described in clauses (i) and (ii) shall—

"(I) meet occupational safety and environmental soundness criteria described in paragraph (7); and

"(II) cease to apply on the effective date of final standards developed pursuant to paragraph (2).

"(2) FINAL STANDARDS.—

"(A) IN GENERAL.—Not later than 4 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Administrator, in consultation with the Task Force and with the concurrence of the Secretary, shall promulgate final standards for ballast water discharge and other vessel operations determined to pose a significant risk to the environment through the introduction of non-indigenous species.

"(B) REQUIREMENTS.—The final standards shall—

"(i) result from application of the best available technology economically achievable for—

"(I) the applicable category or class of vessels; and

"(II) the new source or existing source status;

"(ii) have the goal of eliminating the risk of introduction of nonnative species (including plant, animal, and human pathogens) into waters of the United States by vessels of nonnative species, including plant, animal, and human pathogens;

"(iii) consider findings of scientific and policy research, including research conducted pursuant to this Act; and

"(iv) be measurable.

"(3) CERTIFICATION OF TREATMENTS AND ENFORCEMENT.—

"(A) IN GENERAL.—Not later than the date on which interim standards are promulgated under paragraph (1) and final standards are promulgated pursuant to paragraph (2)(A), the Secretary shall, with the concurrence of the Administrator, promulgate regulations for—

"(i) the certification of treatments or practices that comply with the standards; and

"(ii) on-going enforcement of the use of the treatments or practices.

"(B) CERTIFICATION UNDER INTERIM STANDARDS.—The certification of treatments and practices in compliance with the interim standard promulgated pursuant to paragraph (1) shall be based on a qualified type approval process, including—

"(i) a protocol for ballast water exchange involving dye studies or models detailing flow dynamics of vessels described in paragraph (1)(B)(i)(II); and

"(ii) a protocol for qualified type approval of ballast water treatment systems for the interim standard described in paragraph (1) that—

"(I) is capable of determining the extent to which a ballast water treatment system complies with applicable standards including limitations on that compliance caused by—

"(aa) biological, chemical, or physical conditions of water taken into ballast; and

"(bb) conditions encountered during a voyage;

"(II) is capable of determining the extent to which a ballast water treatment system—

"(aa) is environmentally sound, based on criteria promulgated by the Administrator under paragraph (7)(A); and

"(bb) is safe for vessel and crew;

"(III) may be used in estimating the expected useful life of the ballast water treatment system, as determined on the basis of voyage patterns and normal use conditions;

"(IV) includes a shipboard testing component, and may include a shore-based testing component;

"(V) provides for appropriate monitoring; and

"(VI) is cost effective.

"(C) CERTIFICATION UNDER FINAL STANDARDS.—The certification of treatments in

compliance with the final standards promulgated pursuant to paragraph (2) shall—

"(i) apply to all methods of ballast water management and system design, including—

"(I) ballast water exchange;

"(II) ballast water treatment systems; and

"(III) other vessel operations determined to pose a significant risk to the environment through the introduction of nonnative organisms;

"(ii) be reviewed and, as appropriate, revised not less often than every 3 years pursuant to subsection (f)(1);

"(iii) meet occupational safety and environmental soundness criteria described in paragraph (7); and

"(iv) apply beginning not later than October 1, 2011.

"(4) EXPERIMENTAL APPROVAL FOR BALLAST WATER TREATMENT.—

"(A) IN GENERAL.—Subject to subparagraph (B), if, before the date on which the Secretary promulgates interim ballast water man-

agement standards under paragraph (1), an owner or operator of a vessel seeks to conduct a treatment of ballast water—

"(i) the owner or operator shall apply to the Secretary for experimental approval of the treatment; and

"(ii) the Secretary shall approve the treatment if—

"(I) the owner or operator provides to the Secretary independent, peer-reviewed, pilot-scale information relating to the effectiveness and environmental soundness of the treatment;

"(II) the Secretary and the Administrator, in consultation with the Task Force (including relevant regional panels, and the Prevention Committee, of the Task Force), determine that the technology to be used for the treatment has significant potential to kill or remove at least 95 percent of the aquatic vertebrates, invertebrates, phyto-plankton, and macro algae, respectively, in ballast water taken in by the class of vessel

for which the treatment is sought to be conducted; and

"(III) the Administrator determines that the treatment meets environmental regulations.

"(B) LIMITATIONS.—

"(i) PERIOD OF TESTING.—Testing of the treatment system approved under this section may cease prior to the termination of the approval period described in clause (ii).

"(ii) PERIOD OF APPROVAL.—Approval granted under subparagraph (A) shall be for the least of—

"(I) a period of 10 years;

"(II) the expected life of the treatment system; or

"(III) a period ending on the date that the Secretary and Administrator (as appropriate) determines that there exists a serious deficiency in performance or human safety or environmental soundness of the system relative to anticipated performance or environmental soundness.

"(iii) INFORMATION.—As a condition of receiving experimental approval for a treatment under subparagraph (A)(ii), the owner or operator of a vessel shall agree to collect and report such information regarding the operational and biological effectiveness of the treatment through sampling of the intake and discharge ballast as the Secretary may request.

"(iv) RENEWAL.—An experimental approval may be renewed pursuant to paragraph (7)(B).

"(5) INCENTIVES FOR USE OF TREATMENT SYSTEMS.—

"(A) IN GENERAL.—The Secretary, the Secretary of Transportation, and the Administrator shall assist owners or operators of vessels that seek to obtain experimental or interim approval for installation of ballast water treatment systems, including through providing guidance on—

"(i) a sampling protocol and test program for cost effective treatment evaluation;

"(ii) sources of sampling equipment and field biological expertise; and

"(iii) examples of shipboard evaluation studies.

"(B) SELECTION OF TECHNOLOGIES AND PRACTICES.—In selecting technologies and practices for shipboard demonstration under section 1104(b), the Secretary of the Interior and the Secretary of Commerce shall give priority consideration to technologies and practices that have received or are in the process of receiving approval under paragraphs (1) and (4).

"(C) ANNUAL SUMMARIES.—The Secretary shall annually summarize, and make available to interested parties, all available information on the performance of technologies proposed for ballast treatment to facilitate the application process for experimental approval for ballast water treatment under paragraph (4).

"(6) APPLICATION FOR APPROVAL.—

"(A) IN GENERAL.—The Secretary and the Administrator shall approve an application for certification of a ballast water treatment system only if the application is in such form and con-

tains such information as the Secretary and Administrator may require.

"(B) APPROVAL AND DISAPPROVAL.—

"(i) IN GENERAL.—On receipt of an application under subparagraph (A)—

"(I) the Administrator shall, not later than 90 days after the date of receipt of the application—

"(aa) review the application for compliance and consistency with environmental soundness criteria promulgated under paragraph (7)(A); and

"(bb) approve those ballast water treatment systems that meet those criteria; and

"(II) the Secretary, in consultation with the Task Force, shall, not later than 180 days after the date of receipt of the application—

"(aa) determine whether the ballast water treatment system covered by the application meets the requirements of this subsection, as appropriate;

"(bb) approve or disapprove the application; and

"(cc) provide the applicant written notice of approval or disapproval.

"(ii) LIMITATIONS.—An application approved under clause (i) shall—

"(I) be qualified with any limitations relating to voyage pattern, duration, or any other characteristic that may affect the effectiveness or environmental soundness of the ballast water treatment system covered by the application, as determined by the Secretary in consultation with the Administrator;

"(II) be applicable to a specific vessel or group of vessels, as determined by the Secretary;

"(III) be valid for the least of—

"(aa) the expected useful life of the ballast water treatment system;

"(bb) 10 years; or

"(cc) such period of time for which the Secretary or Administrator (as appropriate) determines that (based on available information, including information developed pursuant to paragraph (4)(B)(iii)) there exists a serious deficiency in performance or environmental soundness of the system relative to anticipated performance or environmental soundness; and

"(IV) be renewed if—

"(aa) the Secretary determines that the ballast water treatment system remains in compliance with applicable standards as of the date of application for renewal; or

"(bb) the remaining useful life of the vessel is less than 10 years.

"(7) ENVIRONMENTAL SOUNDNESS CRITERIA FOR BALLAST TREATMENTS.—

"(A) IN GENERAL.—The Administrator shall include in criteria promulgated under section 1202(k)(1)(A) specific criteria—

"(i) to ensure environmental soundness of ballast treatment systems; and

"(ii) to grant environmental soundness exceptions under subparagraph (B).

"(B) EXCEPTIONS.—

"(i) IN GENERAL.—In reviewing applications under paragraph (6)(B)(i)(I) in an emergency situation to achieve reductions in significant and acute risk of transfers of invasive species by vessels, the Secretary and the Administrator may jointly determine to make an exception to criteria described in subparagraph (A)(i).

"(ii) QUALIFICATION OF APPROVALS.—To be eligible for an exception under clause (i), an approval under paragraph (6)(B)(i)(I) shall be qualified under paragraph (6)(B)(ii).

"(c) DESIGN FEATURES AND TREATMENT SYSTEMS FOR NEW VESSELS.—A vessel of which construction begins on or after January 1, 2006, shall be equipped with

1 design features and ballast water treatment systems that
2 meet, at a minimum—
3 "(1) the interim standards described in sub-
4 section (b)(1)(B)(ii); or
5 "(2) on promulgation of final standards pursu-
6 ant to subsection (b)(2)(A), such final standard as
7 is applicable to the vessel.
8 "(d) GREAT LAKES PROGRAM.—
9 "(1) REGULATIONS.—Until such time as regu-
10 lations are promulgated to implement the amend-
11 ments made by the National Aquatic Invasive Spe-
12 cies Act of 2003, regulations promulgated to carry
13 out this Act shall remain in effect until revised or
14 replaced pursuant to the National Aquatic Invasive
15 Species Act of 2003.
16 "(2) RELATIONSHIP TO OTHER PROGRAMS.—
17 On implementation of a national mandatory ballast
18 management program that is at least as comprehen-
19 sive as the Great Lakes program (as determined by
20 the Secretary, in consultation with the Governors of
21 Great Lakes States)—
22 "(A) the program regulating vessels and
23 ballast water in Great Lakes under this section
24 shall terminate; and

"(B) the national program shall apply to such vessels and ballast water.

"(3) REVIEW AND REVISION.—

"(A) IN GENERAL.—Not later than the date that is 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary shall—

"(i) review and revise regulations promulgated under this section; and

"(ii) promulgate the revised regulations.

"(B) CONTENTS.—The revised regulations shall include, at a minimum, requirements under subsections (a) and (b) (as amended by that Act).

"(e) AUTHORITY OF THE SECRETARY.—

"(1) IN GENERAL.—The Secretary shall, with the concurrence of the Administrator, promulgate regulations to carry out this section.

"(2) PROGRAM COMPONENTS.—

"(A) IN GENERAL.—In carrying out paragraph (1), the Secretary shall promulgate a separate set of regulations for—

"(i) ships that enter the Great Lakes after operating outside the exclusive economic zone; and

"(ii) ships that enter United States ports after operating outside the exclusive economic zone, excluding United States ports on the Great Lakes.

"(B) DURATION.—Regulations promulgated under subparagraph (A)(i) shall remain in effect until the Great Lakes program is terminated pursuant to (b)(1)(B).

"(3) REQUIREMENTS.—The regulations promulgated under paragraph (1) shall—

"(A) be consistent with interim and final standards promulgated under paragraphs (1) and (2), respectively, of subsection (b);

"(B) apply to all vessels to which the respective standards apply;

"(C) protect the safety of—

"(i) each vessel; and

"(ii) the crew and passengers of each vessel;

"(D) provide for sampling of ballast intake and discharge flows through ballast piping to monitor for compliance with the regulations;

"(E) take into consideration—

"(i) vessel types;

"(ii) variations in the ecological conditions of waters and coastal areas of the United States; and

"(iii) different operating conditions;

"(F) be based on the best scientific information available; and

"(G) not affect or supersede any requirements or prohibitions pertaining to the discharge of ballast water into waters of the United States under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.).

"(4) TIME FRAME AND CONTENT.—In promulgating under paragraph (1), the Secretary shall—

"(A) not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003 that are consistent with the interim standards and certification procedures promulgated under subsection (b)(1) and other requirements of this section, require a vessel—

"(i)(I) to carry out the exchange of ballast water of the vessel in waters beyond the exclusive economic zone in accordance

with the standards and certification procedures promulgated under subsection (b)(1); or

"(II) in a case in which the master of the vessel determines that compliance with clause (i) is impracticable, to exchange the ballast water of the vessel in other waters in which the exchange does not pose a threat of invasion or spread of nonindigenous species in waters of the United States, as designated by the Secretary; and

"(ii) to use environmentally sound alternatives ballast water management methods, including modification of the vessel ballast water tanks and intake systems, if the Secretary determines that such alternative methods are in accordance with standards and certification procedures promulgated under subsection (b)(1); and

"(B) on promulgation of final standards and certification procedures under subsection (b)(2) that are consistent with the standards and certification procedures, to comply with all of the requirements of this section.

"(5) CONSISTENCY WITH INTERNATIONAL AGREEMENTS.—The Secretary shall, with the concurrence of the Administrator, revise regulations promulgated under this subsection as necessary to ensure that the regulations relating to any matter are consistent with the treatment of the matter in any international agreements, to which the United States is a party, governing management of the transfer by vessel of aquatic nonindigenous species.

"(6) EDUCATION AND TECHNICAL ASSISTANCE PROGRAMS.—The Secretary may carry out education and technical assistance programs and other measures to promote compliance with the regulations promulgated under this subsection.

"(f) PERIODIC REVIEW AND REVISION OF REGULATIONS.—

"(1) IN GENERAL.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, and not less often than every 3 years thereafter, the Secretary shall (with the concurrence of the Administrator, based on recommendations of the Task Force, and information collected and analyzed under this title and in accordance with criteria developed by the Task Force under paragraph (3))—

"(A) assess the compliance by vessels with regulations promulgated under this section;

"(B) assess the effectiveness of the regulations referred to in subparagraph (A) in reducing the introduction and spread of aquatic invasive species by vessels; and

"(C) as necessary, on the basis of the best scientific information available—

"(i) revise the regulations referred to in subparagraph (A); and

"(ii) promulgate additional regulations.

"(2) SPECIAL REVIEW AND REVISION.—Not later than 90 days after the date on which the Task Force makes a request to the Secretary for a special review and revision of the Program, the Secretary shall (with the concurrence of the Administrator)—

"(A) conduct a special review of regulations in accordance with paragraph (1); and

"(B) as necessary, in the same manner as provided under paragraph (1)(C)—

"(i) revise those guidelines; or

"(ii) promulgate additional regulations.

"(3) CRITERIA FOR EFFECTIVENESS.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, and every 3 years thereafter, the Task Force shall submit to the Secretary criteria for determining the adequacy and effectiveness of all regulations promulgated under this section.

"(g) SANCTIONS.—

"(1) CIVIL PENALTIES.—

"(A) IN GENERAL.—Any person that violates a regulation promulgated under this section shall be liable for a civil penalty in an amount not to exceed $50,000.

"(B) SEPARATE VIOLATIONS.—Each day of a continuing violation constitutes a separate violation.

"(C) LIABILITY OF VESSELS.—A vessel operated in violation of a regulation promulgated under this Act shall be liable in rem for any civil penalty assessed under this subsection for that violation.

"(2) CRIMINAL PENALTIES.—Any person that knowingly violates the regulations promulgated under subsection (b) is guilty of a class C felony.

"(3) REVOCATION OF CLEARANCE.—On request of the Secretary, the Secretary of the Treasury shall withhold or revoke the clearance of a vessel required by section 4197 of the Revised Statutes (46 U.S.C. App. 91), if the owner or operator of that vessel is in violation of the regulations promulgated under subsection (b).

"(4) EXCEPTION TO SANCTIONS.—This subsection does not apply to a failure to exchange ballast water if—

"(A) the master of a vessel, acting in good faith, decides that the exchange of ballast water will threaten the safety or stability of the vessel or the crew or passengers of the vessel; and

"(B) the vessel complies with—

"(i) recordkeeping requirements of this Act;

"(ii) contingency requirements of section 1211; and

"(iii) reporting requirements of this Act.

"(h) COORDINATION WITH OTHER AGENCIES.—The Secretary is encouraged to use (with consent) the expertise, facilities, members, or personnel of, appropriate Fed-

1 eral and State agencies and organizations that have rou-
2 tine contact with vessels, as determined by the Secretary.
3 "(i) CONSULTATION WITH CANADA, MEXICO, AND
4 OTHER FOREIGN GOVERNMENTS.—In developing the
5 guidelines issued and regulations promulgated under this
6 section, the Secretary is encouraged to consult with the
7 Government of Canada, the Government of Mexico, and
8 any other government of a foreign country that the Sec-
9 retary, in consultation with the Task Force, determines
10 to be necessary to develop and implement an effective
11 international program for preventing the unintentional in-
12 troduction and spread of nonindigenous species.
13 "(j) INTERNATIONAL COOPERATION.—
14 "(1) IN GENERAL.—The Secretary, in coopera-
15 tion with the International Maritime Organization of
16 the United Nations and the Commission on Environ-
17 mental Cooperation established pursuant to the
18 North American Free Trade Agreement, is encour-
19 aged to enter into negotiations with the governments
20 of foreign countries to develop and implement an ef-
21 fective international program for preventing the un-
22 intentional introduction and spread of nonindigenous
23 species.
24 "(2) SENSE OF CONGRESS ON INTERNATIONAL
25 AGREEMENTS TO PROTECT AQUATIC ECOSYSTEMS

FROM SPECIES INTRODUCTIONS THROUGH BALLAST WATER.—

"(A) FINDINGS.—Congress finds that—

"(i) the aquatic ecosystems of the United States have been and continue to be subject to permanent and costly damage resulting from aquatic invasive species introduced by ballast water of vessels entering United States ports;

"(ii) the United States is currently engaged in international negotiation over regulation of the ballast water of vessels to prevent the introductions;

"(iii) this Act and the amendments made by this Act establish a minimum acceptable domestic effort to protect aquatic ecosystems of the United States from the introduction of invasive species by the ballast water of vessels; and

"(iv) the programs established under this Act and the amendments made by this Act address the fundamental and legitimate operational and safety concerns of the maritime industry.

"(B) SENSE OF CONGRESS.—It is the sense of Congress that the United States should become party to an international agreement that relates to the protection of aquatic ecosystems from the introduction of invasive species by the ballast water of vessels only if the agreement is at least as protective of the aquatic ecosystems as this Act and the amendments made by this Act.

"(k) SAFETY EXEMPTION.—

"(1) MASTER DISCRETION.—The Master of a vessel is not required to conduct a ballast water exchange if the Master determines that the exchange would threaten the safety or stability of the vessel, or the crew or passengers of the vessel, because of adverse weather, vessel architectural design, equipment failure, or any other extraordinary conditions.

"(2) OTHER REQUIREMENTS.—A vessel that does not exchange ballast water on the high seas under paragraph (1) shall not discharge ballast water in any harbor, except in accordance with a contingency strategy approved by the Secretary (and included in the invasive species management plan of the vessel) to reduce the risk of organism transfer by the discharge (using the best practicable tech-

nology and practices pursuant to regulations promulgated under subsection (b)(1)(B)(iii)).

"(l) NON-DISCRIMINATION.—The Secretary shall ensure that vessels registered outside of the United States do not receive more favorable treatment than vessels registered in the United States in any case in which the Secretary performs studies, reviews compliance, determines effectiveness, establishes requirements, or performs any other responsibilities under this Act.

"(m) EFFECT ON OTHER LAW.—Nothing in this section or any regulation promulgated under this section supersedes or otherwise affects any requirement or prohibition relating to the discharge of ballast water under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.).".

(b) CONFORMING AMENDMENTS.—

(1) Section 1102(c)(1) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4712(c)(1)) is amended by striking "issued under section 1101(b)" and inserting "promulgated under section 1101(e)".

(2) Section 1102(f)(1)(B) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4712(f)(1)(B)) is amended by striking "guidelines issued pursuant to section

1101(e)'' and inserting ''regulations promulgated under section 1101(e)''.

SEC. 102. ARMED SERVICES WHOLE VESSEL MANAGEMENT PROGRAM.

Section 1103 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4713) is amended—

(1) by striking the section heading and inserting the following:

''SEC. 1103. ARMED SERVICES WHOLE VESSEL MANAGEMENT PROGRAM.'';

and

(2) in subsection (a)—

(A) by striking ''Subject to'' and inserting the following:

''(1) BALLAST WATER.—Subject to''; and

(B) by adding at the end the following:

''(2) TOWED VESSEL MANAGEMENT PROGRAM.—

''(A) IN GENERAL.—Subject to operational conditions, the Secretary of Defense, in consultation with the Secretary, the Task Force, and the International Maritime Organization, shall implement a towed vessel management program for Department of Defense vessels to

minimize the risk of introductions of aquatic invasive species through hull and associated hull aperture transfers by towed vessels.

"(B) CURRENT BALLAST PROGRAM.—Except as provided in subparagraph (A), this Act does not affect the ballast program for Department of Defense vessels in effect on the date of enactment of the National Aquatic Invasive Species Act of 2003.

"(3) REPORTS.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, and every 3 years thereafter, the Secretary of Defense shall submit to Congress a report that includes a summary and analysis of the program carried out under this section.".

TITLE II—PREVENTION OF INTRODUCTION OF AQUATIC INVASIVE SPECIES BY OTHER PATHWAYS

SEC. 201. PRIORITY PATHWAY MANAGEMENT PROGRAM.

Subtitle C of title I of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4721 et seq.) is amended by adding at the end the following:

"SEC. 1210. PRIORITY PATHWAY MANAGEMENT PROGRAM.

"(a) IDENTIFICATION OF HIGH PRIORITY PATHWAYS.—Not later than 2 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, and every 3 years thereafter, the Task Force, in coordination with the Invasive Species Council and in consultation with representatives of States, industry, and other interested parties, shall, based on pathway surveys conducted under this title and other available research relating to the rates of introductions in waters of the United States—

"(1) identify those pathways that pose the highest risk for introductions, both nationally and on a region-by-region basis, unless further managed;

"(2) develop recommendations for management strategies for those high-risk pathways;

"(3) include in the report to Congress required under section 1201(f)(2)(B) a description of the identifications, strategies, and recommendations based on research collected under this title; and

"(4) identify invasive species not yet introduced into waters of the United States that are likely to be introduced into waters of the United States unless preventative measures are taken.

"(b) MANAGEMENT OF HIGH PRIORITY PATHWAYS.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the

1 Task Force or agencies of jurisdiction shall, to the max-
2 imum extent practicable, implement the strategies de-
3 scribed in subsection (a)(2), considering appropriate peri-
4 odic updates to the strategies.".

5 **SEC. 202. SCREENING PROCESS FOR PLANNED IMPORTA-**
6 **TIONS OF LIVE AQUATIC ORGANISMS.**

7 Subtitle B of the Nonindigenous Aquatic Nuisance
8 Prevention and Control Act of 1990 (16 U.S.C. 4711 et
9 seq.) is amended by adding at the end the following:

10 **"SEC. 1105. SCREENING PROCESS FOR PLANNED IMPORTA-**
11 **TIONS OF LIVE AQUATIC ORGANISMS.**

12 "(a) IN GENERAL.—Not later than 3 years after the
13 date of enactment of the National Aquatic Invasive Spe-
14 cies Act of 2003, no live aquatic organism not in trade
15 shall be imported into the United States without screening
16 and approval in accordance with subsections (c) and (d).

17 "(b) GUIDELINES.—

18 "(1) IN GENERAL.—Not later than 30 months
19 after the date of enactment of the National Aquatic
20 Invasive Species Act of 2003, in consultation with
21 regional panels convened under section 1203, States,
22 tribes, and other stakeholders, the Invasive Species
23 Council (in conjunction with the Task Force) shall
24 promulgate guidelines for screening proposed

planned importations of live aquatic organisms into the United States that include—

"(A) guidelines for minimum information requirements for determinations under subsection (c); and

"(B) guidelines for a simplified notification procedure for any additional shipments of organisms that may occur after completion of an initial screening process and determination under subsection (e).

"(2) PURPOSE.—The purpose of the screening process shall be to prevent the introduction or establishment of aquatic invasive species (including pathogens and parasites of the species) in waters of the United States and contiguous waters of Canada and Mexico.

"(3) FACTORS.—In developing guidelines under this subsection and reviewing and revising the guidelines under subsection (j), the Invasive Species Council and the Task Force shall consider—

"(A) the likelihood of the spread of organisms by human or natural means;

"(B) organisms that may occur in association with the organism planned for importation

including pathogens, parasites, and free-living organisms;

"(C) regional differences in probability of invasion and associated impacts;

"(D) the difficulty of controlling an established population of an aquatic invasive species in the wild; and

"(E) the profile established under section 1108(b).

"(c) CATEGORIES.—The screening process shall—

"(1) require the identification, to the maximum extent practicable, to the species level and, at a minimum, to the genus level, of live aquatic organisms; and

"(2) designate—

"(A) species with high or moderate probability of undesirable impacts to areas within the boundaries of the United States and contiguous areas of neighboring countries, to which the organism is likely to spread; and

"(B) species with insufficient information to determine the risk category based on guidelines issued pursuant to subsection (b)(1)(B).

"(d) EVALUATION.—

"(1) IN GENERAL.—Not later than 180 days after the date of promulgation of guidelines under subsection (b), in consultation with regional panels convened under section 1203, States, tribes, and other stakeholders, a Federal agency with authority over an importation into the United States of a live organism not in trade and proposed for importation into the United States shall screen the organism in accordance with guidelines promulgated under subsection (b).

"(2) DELEGATION AND AUTHORITY.—

"(A) IN GENERAL.—Subject to subparagraph (B), if no agency has authority described in paragraph (1) or an agency delegates the screening to the Director under subsection (h), the Director shall screen the organisms in accordance with subsections (a) and (b).

"(B) UNITED STATES FISH AND WILDLIFE SERVICE.—The Director may restrict or prohibit the importation of an organism in trade if—

"(i) no other Federal agency has authority to regulate the importation of the organism in trade; and

"(ii) the Director determines, based on an evaluation that is consistent with the screening requirements promulgated under subsection (g), that the organism in trade has a high or moderate probability of an undesirable impact to an area within the boundaries of the United States or a contiguous area of a neighboring country, to which the organism may spread.

"(3) MULTIPLE JURISDICTION.—

"(A) IN GENERAL.—Subject to subparagraph (B), if more than 1 agency has jurisdiction over the importation of a live organism, the agencies shall conduct only 1 screening process in accordance with the memorandum of understanding described in subsection (f) (in consultation with National Oceanic and Atmospheric Administrator).

"(B) CULTURED AQUATIC ORGANISMS.—The Secretary of Agriculture shall conduct screening of organisms imported to be cultured.

"(e) REQUIREMENTS.—A Federal agency of jurisdiction, or the Director shall—

"(1) restrict or prohibit the importation into the United States from outside the United States of any species that is described in subsection (e)(1);

"(2) prohibit the importation of any species described in subsection (e)(2), unless the importation is for the sole purpose of research that is conducted in accordance with section 1202(f)(2); and

"(3) make a determination under this subsection not later than 180 days after receiving a complete request for permission to import a live aquatic species.

"(f) MEMORANDUM OF UNDERSTANDING.—

"(1) IN GENERAL.—The Director of the United States Fish and Wildlife Service shall enter into a memorandum of understanding with the agencies of jurisdiction regarding the screening requirements of this section.

"(2) CONTENTS.—The memorandum of understanding shall contain, at a minimum—

"(A) a description of the relationship between and responsibilities of the agencies of jurisdiction, including a process designating a lead agency in cases in which multiple agencies may have jurisdiction over the screening of an aquatic species;

1 "(B) the process by which the Director will
2 delegate screening duties to and receive delega-
3 tion from other agencies of jurisdiction; and
4 "(C) the process by which agencies of ju-
5 risdiction and the Invasive Species Council will
6 coordinate and share information required for
7 the screening of species.
8 "(g) SCREENING REQUIREMENTS.—The Director
9 shall promulgate screening requirements consistent with
10 the guidelines promulgated under subsection (b) to evalu-
11 ate any planned live aquatic species importation (including
12 an importation carried out by a Federal agency) from out-
13 side the borders of the United States into waters of the
14 United States that is—
15 "(1) not otherwise subject to Federal authority
16 to permit the importation; or
17 "(2) delegated to the Director by another agen-
18 cy of jurisdiction under subsection (h).
19 "(h) DELEGATION TO DIRECTOR.—Any agency with
20 authority over the planned importation of a live aquatic
21 organism may delegate to the Director the screening proc-
22 ess carried out under this section.
23 "(i) CATALOG OF ORGANISMS IN TRADE.—Not later
24 than 1 year after the date of enactment of the National
25 Aquatic Invasive Species Act of 2003, the Director of the

United States Geological Survey and the Director of the Smithsonian Environmental Research Center, in cooperation with agencies with jurisdiction over planned importations of live organisms, shall—

"(1) develop and, as necessary, update a catalog of organisms in trade; and

"(2) include the list in the information provided to the public pursuant to section 1102(f).

"(j) REVIEW AND REVISION.—

"(1) IN GENERAL.—At least once every 3 years, the Council, in conjunction with the Task Force, shall use research on early detection and monitoring under section 1106, among other information sources, to review and revise to the screening, guidelines, and process carried out under this section.

"(2) REPORT.—The Invasive Species Council shall include in its report to Congress required pursuant to section 1201(f)(2)(B)—

"(A) an evaluation of the effectiveness of the screening processes carried out under this section;

"(B) the consistency of the application of the screening process by agencies; and

"(C) recommendations for revisions of the processes.

"(k) PROHIBITIONS.—

"(1) IN GENERAL.—It shall be unlawful to import an organism described in subsection (d), (e), or (g).

"(2) PENALTIES.—

"(A) CIVIL PENALTY.—Any person that violates paragraph (1) shall be liable for a civil penalty in an amount not to exceed $50,000.

"(B) CRIMINAL PENALTIES.—Any person that knowingly violates paragraph (1) is guilty of a class C felony.

"(l) FEES.—The head of any agency that has jurisdiction over a planned importation of a live organism subject to screening under this Act may increase the amount of any appropriate fee that is charged under an authority of law to offset the cost of any screening process carried out under this section.

"(m) INFORMATION.—A Federal agency conducting a screening process under this section shall make the results of the process available to the public (including international organizations).

"(n) EFFECT ON OTHER LAWS.—Nothing in this section or any regulation promulgated under this section supersedes or otherwise affects any other provision of Federal or State law.".

TITLE III—EARLY DETECTION; RAPID RESPONSE; CONTROL AND OUTREACH

SEC. 301. EARLY DETECTION.

Subtitle B of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4711 et seq.) (as amended by section 202) is amended by adding at the end the following:

"SEC. 1106. EARLY DETECTION AND MONITORING.

"(a) IN GENERAL.—Not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003, in conjunction with the Council, the Task Force shall (based on the standard protocol for early detection surveys developed under this title), promulgate a set of sampling protocols, a geographic plan, and budget to support a national system of ecological surveys to rapidly detect recently-established aquatic invasive species in waters of the United States.

"(b) CONTENTS.—The protocols, plan, and budget shall, at a minimum—

"(1) address a diversity of aquatic ecosystems of the United States (including inland and coastal waters);

"(2) encourage State, local, port, and tribal participation in monitoring;

"(3) balance scientific rigor with practicability, timeliness, and breadth of sampling activity;

"(4) considers the pathways and organisms identified under section 1210;

"(5) include a capacity to evaluate the impacts of permitted importations screened by the processes established under section 1105; and

"(6) include clear lines of communication with appropriate Federal, State, and regional rapid response authorities.

"(c) IMPLEMENTATION.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Director of the United States Geological Survey, the Administrator of the National Oceanic and Atmospheric Administration, and the Administrator (in consultation with the Invasive Species Council and in coordination with other agencies and organizations) shall implement a national system of ecological surveys that is—

"(1) carried out in cooperation with State, local, port, tribal authorities, and other non-Federal entities (such as colleges and universities); and

"(2) based on the protocols, plan, and budget published under subsection (a) and any public comment.".

SEC. 302. RAPID RESPONSE.

Subtitle C of title I of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4721 et seq.) (as amended by section 201) is amended by adding at the end the following:

"SEC. 1211. RAPID RESPONSE.

"(a) STATE RAPID RESPONSE CONTINGENCY STRATEGIES.—

"(1) EMERGENCY FUNDS FOR RAPID RESPONSE.—A State or multistate commission that has in effect a rapid response contingency strategy, including rapid assessment capability, for invasive species in the State that is approved under paragraph (2) shall be eligible to receive emergency funding to remain available until expended to implement rapid response measures for aquatic invasive species under the strategy, subject to renewal, as determined by the Secretary of the Interior and the Secretary in accordance with paragraph (2).

"(2) APPROVAL OF RAPID RESPONSE CONTINGENCY STRATEGIES.—The Task Force, in consultation with the Invasive Species Council, shall approve a rapid response contingency strategy of a State or multstate commission described in paragraph (1) if the strategy—

"(A) identifies all key governmental and nongovernmental partners to be involved in carrying out the strategy;

"(B) clearly designates the authorities and responsibilities of each partner, including the authority of any State or government of an Indian tribe to distribute emergency funds;

"(C) specifies criteria for rapid response measures, including a diagnostic system that—

"(i) distinguishes cases in which rapid response has a likelihood of success and cases in which rapid response has no likelihood of success;

"(ii) distinguishes rapid response measures from ongoing management and control of established populations of aquatic invasive species; and

"(iii) distinguishes instances in which the rate and probability of organism dispersal is significantly altered by vessel movements;

"(D) includes an early detection strategy that supports or complements the early detection and monitoring system developed under section 1108;

"(E) provides for a monitoring capability to assess—

"(i) the extent of infestations; and

"(ii) the effectiveness of rapid response efforts;

"(F) to the maximum extent practicable, is integrated into the State aquatic invasive species management plan approved under section 1204;

"(G) to the maximum extent practicable, includes rapid response tools that meet environmental criteria developed under subsection (e)(4);

"(H) includes a public education and outreach component directed at—

"(i) potential pathways for spread of aquatic invasive species; and

"(ii) persons involved in industries and recreational activities associated with those pathways; and

"(I) to the extent that the strategy involves vessels, conforms with guidelines issued by the Secretary under subsection (e)(2).

"(b) REGIONAL RAPID RESPONSE CONTINGENCY STRATEGIES.—The Task Force, with the concurrence of

the Invasive Species Council and in consultation with the regional panels of the Task Force established under section 1203, shall encourage the development of regional rapid response contingency strategies that—

"(1) provide a consistent and coordinated approach to rapid response; and

"(2) are approved by—

"(A) the Secretary; and

"(B) the Governors and Indian tribes having jurisdiction over areas within a region.

"(c) MODEL RAPID RESPONSE CONTINGENCY STRATEGIES.—Not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003—

"(1) the Task Force, with the concurrence of the Invasive Species Council and the regional panels of the Task Force established under section 1203, shall develop—

"(A) a model State rapid response contingency strategy (including rapid assessment capability) for aquatic invasive species that meets, to the maximum extent practicable, the requirements of subparagraphs (A) through (H) of subsection (a)(2); and

"(B) a model regional rapid response contingency strategy (including rapid assessment capability) for aquatic invasive species; and

"(2) the Secretary, in concurrence with the Task Force and the regional panels of the Task Force, shall issue guidelines that describe vessel-related requirements that may be used in a rapid response contingency strategy approved under this section.

"(d) COST SHARING.—

"(1) STATE RAPID RESPONSE CONTINGENCY STRATEGIES.—The Federal share of the cost of activities carried out under a State rapid response contingency strategy approved under subsection (a) shall be not less than 50 percent.

"(2) REGIONAL RAPID RESPONSE CONTINGENCY STRATEGIES.—The Federal share of the cost of activities carried out under a regional rapid response contingency strategy approved under subsection (b) shall be not less than 75 percent.

"(e) FEDERAL RAPID RESPONSE TEAMS.—

"(1) ESTABLISHMENT OF TEAMS.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Invasive Species Council, in coordination with the

Task Force and the heads of appropriate Federal agencies, shall establish a Federal rapid response team for each of the 10 Federal regions that comprise the Standard Federal Regional Boundary System.

"(2) DUTIES OF TEAMS.—Each Federal rapid response team shall, at a minimum—

"(A) implement rapid eradication or control responses for newly detected aquatic invasive species on Federal and tribal land;

"(B) carry out, or assist in carrying out, rapid responses for newly detected aquatic invasive species on non-Federal land at the request of a State, Indian tribe, or group of States or Indian tribes, with a rapid response contingency strategy approved under subsection (a) or (b);

"(C) provide training and expertise for State, tribal, or regional rapid responders;

"(D) provide central sources of information for rapid responders;

"(E) maintain a list of researchers and rapid response volunteers; and

"(F) in carrying out any rapid response activity with respect to an aquatic noxious weed

listed under section 412(f) of the Plant Protection Act (7 U.S.C. 7712(f)), include representatives of the Animal and Plant Health Inspection Service.

"(3) CRITERIA FOR IDENTIFYING CASES OF RAPID RESPONSE WARRANTING FEDERAL ASSISTANCE.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Task Force, with the concurrence of the Invasive Species Council, shall develop criteria to identify cases warranting Federal assistance for rapid assessment and response under this subsection, including indicative criteria relating to, at a minimum—

"(A) the extent to which infestations of aquatic invasive species may be managed successfully by rapid response;

"(B) the extent to which rapid response efforts may differ from ongoing management and control; and

"(C) the extent to which infestations of nonindigenous aquatic invasive species are considered to be an acute or chronic threat to—

"(i) biodiversity of native aquatic organisms;

"(ii) habitats of native fish and wildlife; or

"(iii) human health.

"(4) ENVIRONMENTAL CRITERIA.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Administrator, in consultation with the Invasive Species Council, the Secretary of Transportation, the Task Force (including regional panels of the Task Force established under section 1203), the Director, and the Director of the National Marine Fisheries Service, shall develop environmental criteria to minimize nontarget environmental impacts of rapid responses carried out pursuant to this section.".

SEC. 303. DISPERSAL BARRIERS.

Section 1202 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4722) is amended—

(1) by redesignating subsections (j) and (k) as subsections (l) and (m), respectively; and

(2) by inserting after subsection (i) the following:

"(j) NATIONAL DISPERSAL BARRIER PROGRAM.—

"(1) CHICAGO RIVER SHIP AND SANITARY CANAL DISPERSAL BARRIER PROJECT.—

"(A) IN GENERAL.—The Assistant Secretary, with the concurrence of the Administrator, shall complete construction of, operate, repair, and maintain, the Chicago River Ship and Sanitary Canal dispersal barrier project on a permanent basis.

"(B) CONSULTATION.—Subparagraph (A) shall be carried out in consultation with the appropriate Federal, State, local, and other nongovernmental entities.

"(C) CONSTRUCTION OF BARRIER.—The completed barrier project shall include—

"(i) additions to the dispersal barrier in existence on the date of enactment of the National Aquatic Invasive Species Act of 2003, including—

"(I) backup power;

"(II) a research vessel launching crane;

"(III) replacement electrodes;

"(IV) other barrier elements, as available and appropriate;

"(V) an acoustic monitoring system; and

"(VI) emergency egress system; and

"(ii) construction of a second long-service life dispersal barrier.

"(D) FEASIBILITY STUDY OF CHICAGO RIVER SHIP AND SANITARY CANAL.—

"(i) IN GENERAL.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Assistant Secretary, in consultation with appropriate Federal, State, local, and non-governmental entities, shall conduct a feasibility study of the full range of options available to prevent the spread of aquatic invasive species through the Chicago River Ship and Sanitary Canal dispersal barrier.

"(ii) MATTERS TO BE STUDIED.—The study shall—

"(I) provide recommendations concerning additional measures and long-term measures necessary to improve the performance of the Chicago River Ship and Sanitary Canal dispersal barrier; and

"(II) examine methods and measures necessary to achieve, to the maximum extent practicable—

"(aa) 100 percent efficacy of the barrier with respect to aquatic invasive species of fish; and

"(bb) maximum efficacy of the barrier with respect to other taxa of aquatic invasive species.

"(E) REIMBURSEMENT.—The State of Illinois shall be reimbursed for all State funds expended on the planning, design, construction, and operation and maintenance of the project identified, along with any subsequent modifications, in the report entitled 'Aquatic Nuisance Species Dispersal Barrier II', dated December 2002, issued under section 1135 of the Water Resources Development Act of 1986 (33 U.S.C. 2294 note; 100 Stat. 4251).

"(2) MONITORING PROGRAM.—

"(A) ESTABLISHMENT.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary of the Interior shall establish an interbasin and intrabasin monitoring program.

"(B) REQUIRED ELEMENTS.—The monitoring program shall—

"(i) track aquatic invasive species moving through—

"(I) the Chicago River Ship and Sanitary Canal;

"(II) the Lake Champlain Canal;

"(III) other interbasin waterways; and

"(IV) major river systems (such as the Mississippi River), as recommended by regional panels convened under section 1203, in which interbasin transfers of aquatic invasive species have been shown to pose a significant threat to fish and wildlife resources;

"(ii) assess the efficacy of dispersal barriers and other measures in preventing the spread of aquatic invasive species through the waterways; and

"(iii) identify waterways suitable for dispersal barrier demonstration projects, in addition to the waterways at which dispersal barrier demonstration projects were

carried out before the date of enactment of the National Aquatic Invasive Species Act of 2003.

"(C) REPORTS.—The Secretary of the Interior shall issue biennial reports describing the findings of the monitoring program.

"(3) PREVENTION AND MITIGATION PLANS FOR CORPS PROJECTS.—In developing projects involving interbasin waterways or other hydrologic alterations that could create pathways for aquatic invasive species, the Assistant Secretary shall develop adequate prevention and mitigation plans for controlling the dispersal of the aquatic invasive species.

"(4) TECHNICAL ASSISTANCE.—The Administrator of the National Oceanic and Atmospheric Administration, acting through the Great Lakes Environmental Research Laboratory, shall provide technical assistance to appropriate entities to assist in the research conducted under this subsection.

"(5) ADDITIONAL WATERWAYS.—The Assistant Secretary, with the concurrence of the Administrator, and other relevant Federal agencies, shall—

"(A) identify additional waterways suitable for the construction of new dispersal barriers

(based on the monitoring program established under paragraph (2));

"(B) determine the feasibility of a dispersal barrier project at the Lake Champlain Canal and, if feasible, establish a plan for a dispersal barrier at the Lake Champlain Canal; and

"(C) construct, maintain, and operate such dispersal barriers as necessary.

"(6) REPORTS.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Assistant Secretary and the Director shall jointly submit to Congress a report that describes—

"(A) the efficacy of the Chicago River Ship and Sanitary Canal dispersal barrier project; and

"(B) a plan to provide for additional dispersal barrier demonstration projects and related research projects.".

SEC. 304. ENVIRONMENTAL SOUNDNESS.

Section 1202 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4722) (as amended by section 303) is amended by inserting after subsection (j) the following:

"(k) IMPROVEMENT OF TREATMENT METHODS FOR AQUATIC INVASIVE SPECIES.—

"(1) CRITERIA TO EVALUATE ENVIRONMENTAL SOUNDNESS OF TREATMENT METHODS.—

"(A) IN GENERAL.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Administrator, in consultation with the Secretary, the Invasive Species Council, and the Task Force (including any regional panels of the Task Force) shall promulgate criteria to evaluate the treatment methods described in subparagraph (B) for the purpose of ensuring that the treatment methods pose no significant threat of adverse effect on human health, public safety, or the environment (including air quality and the aquatic environment) that is acute, chronic, cumulative, or collective.

"(B) TREATMENT METHODS.—The treatment methods referred to in subparagraph (A) are all chemical, biological, and other treatment methods used in bodies of water of the United States (regardless of whether the bodies of water are navigable and regardless of the origin

of the waters), to prevent, treat, or respond to the introduction of aquatic invasive species.

"(C) CONSULTATION.—In carrying out subparagraph (A), the Administrator shall consult with—

"(i) the Secretary of Transportation;

"(ii) the Task Force (including the regional panels of the Task Force established under section 1203);

"(iii) the Director;

"(iv) the Assistant Secretary;

"(v) the Director of the National Marine Fisheries Service; and

"(vi) relevant State agencies.

"(2) PUBLICATION OF INFORMATION ON ENVIRONMENTALLY SOUND TREATMENT METHODS.—The Administrator, in consultation with the Invasive Species Council, shall publish (not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003) and update annually—

"(A) a list of environmentally sound treatment methods that may apply to a potential aquatic invasive species response effort;

"(B) accompanying research that supports the environmental soundness of each approved treatment method; and

"(C) explicit guidelines under which each treatment method can be used in an environmentally sound manner.

"(3) REPORTS.—The Invasive Species Council and Task Force shall include the information described in paragraph (2) in the reports submitted under section 1201(f)(2)(B).".

SEC. 305. SPECIFIC INVASIVE SPECIES CONTROL PROGRAMS.

(a) BROWN TREE SNAKE CONTROL PROGRAM.—Section 1209 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4728) is amended to read as follows:

"SEC. 1209. BROWN TREE SNAKE CONTROL PROGRAM.

"(a) IN GENERAL.—The Task Force and the Invasive Species Council shall support the continuation and expansion of a regionally-based comprehensive, environmentally sound program, conducted in coordination with territories and possessions of the United States, States, and political subdivisions, to control the brown tree snake on Guam, the Commonwealth of the Northern Mariana Islands, the State of Hawaii, and other areas in

1 which the brown tree snake is, or may become, established
2 outside of the historic range of the brown tree snake.
3 "(b) COMPONENTS.—The program shall include—
4 "(1) the expansion of Federal and territorial
5 control programs on Guam that reduce the undesir-
6 able impact of the brown tree snake on Guam and
7 reduce the risk of spread to areas in which the snake
8 is not established;
9 "(2) the expansion of existing control programs
10 in the Commonwealth of the Northern Mariana Is-
11 lands and the State of Hawaii, including the estab-
12 lishment of interagency rapid response teams to as-
13 sist local governments with detecting brown tree
14 snakes and incipient brown tree snake populations in
15 areas in which brown tree snakes are not estab-
16 lished;
17 "(3) product-oriented research based on control
18 program needs, including projects to reduce the
19 number of brown tree snakes on Guam and an anal-
20 ysis of pathways for brown tree snake introduction
21 into areas in which the species is not established;
22 "(4) the appointment of a coordinator by the
23 Invasive Species Council to provide oversight and di-
24 rection over Federal actions dealing with brown tree
25 snake control; and

"(5) the continuation of the Brown Tree Snake Control Committee, which shall—

"(A) be chaired by the coordinator; and

"(B) meet annually to plan and coordinate ongoing brown tree snake control activities on a regional and national level.".

(b) NATIONAL NUTRIA CONTROL PROGRAM.—Subtitle C of title I of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4721 et seq.) (as amended by section 302) is amended by adding at the end the following:

"SEC. 1212. NATIONAL NUTRIA CONTROL PROGRAM.

"(a) IN GENERAL.—Not later than 180 days after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Task Force shall establish a national subcommittee on nutria composed of representatives of—

"(1) the United States Fish and Wildlife Service;

"(2) the United States Geological Survey;

"(3) State fish and wildlife agencies in States affected by nutria; and

"(4) nonprofit and commercial interests in nutria and the impact of nutria on native habitat and species.

"(b) PROPOSAL FOR NUTRIA CONTROL.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the subcommittee shall—

"(1) report to the Task Force on actions taken to carry out this section;

"(2) draft a proposal for—

"(A) nutria control guidelines; and

"(B) support, criteria, and processes for grants to promote State and regional partnership efforts to control nutria in accordance with the guidelines; and

"(3) submit the proposal to the Task Force for approval, including a recommendation to the Task Force on national priority tasks and resources required to carry out the proposal.

"(c) OTHER DUTIES.—In addition to the responsibilities described in subsection (b), the subcommittee shall—

"(1) oversee and coordinate implementation of approved national priority tasks relating to nutria control;

"(2) review State and regional partnership grant proposals and make recommendations to the Task Force on making grants to carry out the proposals; and

"(3) carry out additional duties assigned to the subcommittee by the Task Force (including a co-chairperson of the Task Force).".

SEC. 306. INFORMATION, EDUCATION, AND OUTREACH.

Section 1202(h) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4722(h)) is amended—

(1) by striking "(h) EDUCATION.—The Task Force" and inserting the following:

"(h) INFORMATION, EDUCATION, AND OUTREACH.—

"(1) IN GENERAL.—The Task Force"; and

(2) by adding at the end the following:

"(2) ACTIVITIES.—

"(A) IN GENERAL.—The programs carried out under paragraph (1) shall include the activities described in this paragraph.

"(B) PUBLIC OUTREACH.—

"(i) PUBLIC WARNINGS.—Not later than 180 days after the date of enactment of the National Aquatic Invasive Species Act of 2003, each Federal officer of an agency that provides Federal funds to States for building or maintaining public access points to United States water bodies shall amend the guidelines of the agency,

in consultation with relevant State agencies, to encourage the posting of regionally-specific public warnings or other suitable informational and educational materials at the access points regarding—

"(I) the danger of spread of aquatic invasive species through the transport of recreational watercraft; and

"(II) methods for removing organisms prior to transporting a watercraft.

"(ii) CLEANING OF WATERCRAFT AT MARINAS.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Under Secretary and the Director (in cooperation with the Task Force and in consultation with the States, relevant industry groups, and Indian tribes) shall develop an education, outreach, and training program directed toward marinas and marina operators regarding—

"(I) checking watercraft for live organisms;

"(II) removing live organisms from the watercraft before the watercraft are commercially or recreationally trailered;

"(III) encouraging regular hull cleaning and maintenance, avoiding in-water hull cleaning; and

"(IV) other activities, as identified by the Secretary.

"(iii) PROPER DISPOSAL OF NONNATIVE LIVE AQUATIC ORGANISMS IN TRADE.—The Task Force shall—

"(I) not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, develop (in consultation with industry and other affected parties) guidelines for proper disposal of live nonnative aquatic organisms in trade; and

"(II) use the guidelines in appropriate public information and outreach efforts.

"(C) 100TH MERIDIAN PROGRAM.—

"(i) IN GENERAL.—Not later than 1 year after the date of enactment of the

National Aquatic Invasive Species Act of 2003, the Task Force shall expand the information and education program directed at recreational boaters in States from which watercraft are transported westward across the 100th meridian.

"(ii) ACTIVITIES.—In carrying out the program, the task force shall—

"(I) survey owners of watercraft transported westward across the 100th meridian to determine the States of origin of most such owners;

"(II) provide information directly to watercraft owners concerning the importance of cleaning watercraft carrying live organisms before transporting the watercraft; and

"(III) support education and information programs of the States of origin to ensure that the State programs address westward spread.

"(D) INFORMATION AND EDUCATION PROGRAM BY NATIONAL PARK SERVICE.—The Secretary of the Interior, acting through the Director of the National Park Service, shall develop

a program to provide public outreach and other educational activities to prevent the spread of aquatic invasive species by recreational watercraft in parkland or through events sponsored by the National Park Service, including the Lewis and Clark Bicentennial Expedition.

"(3) OUTREACH TO INDUSTRY.—The Task Force, in conjunction with the Invasive Species Council, shall carry out activities to inform and promote voluntary cooperation and regulatory compliance by members of the national and international maritime, horticultural, aquarium, aquaculture, pet trade, and other appropriate industries with screening, monitoring, and control of the transportation of aquatic invasive species.

"(4) PUBLIC ACCESS TO MONITORING INFORMATION.—The Task Force, the Invasive Species Council, and other relevant agencies, shall maintain information on the Internet regarding—

"(A) the best approaches for the public and private interests to use in assisting with national early detection and monitoring of aquatic invasive species in waters of the United States;

"(B) contact locations for joining a national network of monitoring stations;

"(C) approved State Management Plans under section 1204(a) and Rapid Response Contingency Strategies under sections 1211(a)(2) and 1211(e); and

"(D) the list of potential invaders under section 1201(a)(4).".

TITLE IV—AQUATIC INVASIVE SPECIES RESEARCH

SEC. 401. ECOLOGICAL, PATHWAY, AND EXPERIMENTAL RESEARCH.

(a) IN GENERAL.—Subtitle B of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4711 et seq.) (as amended by section 301) is amended by adding at the end the following:

"SEC. 1107. ECOLOGICAL, PATHWAY, AND EXPERIMENTAL RESEARCH.

"(a) DEFINITION OF ADMINISTERING AGENCIES.—

"(1) IN GENERAL.—In this section and section 1108, the term 'administering agencies' means—

"(A) the Smithsonian Environmental Research Center;

"(B) the United States Geological Survey; and

"(C) the National Oceanic and Atmospheric Administration (including the Great Lakes Environmental Research Laboratory).

"(2) MEMORANDUM OF UNDERSTANDING.—The administering agencies shall enter into an agreement regarding implementation of this subtitle.

"(3) CONSULTATION.—In carrying out this section, the administering agencies shall consult with—

"(A) the Task Force;

"(B) the Environmental Protection Agency;

"(C) the United States Fish and Wildlife Service; and

"(D) other appropriate Federal and State agencies.

"(4) COOPERATION.—In carrying out this section, the administering agencies shall contract, as appropriate, or otherwise cooperate with academic researchers.

"(b) PROGRAM.—The administering agencies shall develop (not later than 18 months after the date of enactment of the National Aquatic Invasive Species Act of 2003) and conduct a marine and freshwater research program (including ecological and pathway surveys and experimentation) to assess rates of, patterns of, and condi-

1 tions surrounding introductions of nonnative aquatic spe-
2 cies in aquatic ecosystems.
3 "(c) PURPOSE.—The purpose of the program is to
4 support efforts to prevent the introduction of, and detect
5 and eradicate, invasive species by—
6 "(1) providing information for—
7 "(A) early detection and rapid response ef-
8 forts; and
9 "(B) relevant policy questions; and
10 "(2) assessing the effectiveness of implemented
11 policies (including any standard) to prevent the in-
12 troduction and spread of aquatic invasive species.
13 "(d) PROTOCOL DEVELOPMENT.—The administering
14 agencies shall—
15 "(1) establish standardized protocols for con-
16 ducting surveys that are integrated and produce
17 comparable data, and, as practicable, build on exist-
18 ing protocols and data collection methods (including
19 surveys required under subsection (b)), including—
20 "(A) protocols to support early detection
21 surveys of nonnative aquatic species conducted
22 by Federal, State, or local agencies involved in
23 the management of invasive species, including
24 surveys carried out pursuant to section 1106;

1 "(B) protocols to support comprehensive
2 ecological surveys conducted under this section
3 for purposes of research and analysis of rates
4 and patterns of invasions; and
5 "(C) protocols to support pathway surveys;
6 "(2) recommend a standardized approach for
7 classifying species;
8 "(3) when proposing protocols, consider rec-
9 ommendations made at the workshop conducted
10 under subsection (h);
11 "(4) subject the protocols to peer review;
12 "(5) complete the protocols not later than 1
13 year after the date of enactment of the National
14 Aquatic Invasive Species Act of 2003;
15 "(6) revise protocols as necessary; and
16 "(7) disseminate the protocols to the Task
17 Force and other Federal, State, and local stake-
18 holders.
19 "(e) ECOLOGICAL AND PATHWAY SURVEY REQUIRE-
20 MENTS.—
21 "(1) IN GENERAL.—Each comprehensive eco-
22 logical survey conducted under this section shall, at
23 a minimum—
24 "(A) document baseline ecological informa-
25 tion of the aquatic ecosystem, including—

"(i) to the maximum extent practicable, a comprehensive inventory of native species, nonnative species, and species of unknown origin, present in the ecosystem; and

"(ii) the chemical and physical characteristics of water and underlying substrate in the ecosystem;

"(B) in the case of nonnative species, gather information to assist in identifying—

"(i) the life history of the species;

"(ii) the environmental requirements and tolerances of the species;

"(iii) the native ecosystems of the species; and

"(iv) the history of the species spread from the native ecosystems of the species;

"(C) track the establishment of nonnative species, including information about the estimated population of nonnative organisms to allow an analysis of the probable date of introduction of the species; and

"(D) identify the likely pathway of entry of nonnative species.

"(2) MINIMUM REQUIREMENTS.—Each pathway survey conducted under this section shall, at a minimum—

"(A) identify which nonnative aquatic species are being introduced, or have the potential to be introduced, through the pathways under consideration;

"(B) determine the rate of organism introduction through the pathways under consideration; and

"(C) determine the practices that contributed to or could contribute to the introduction of nonnative aquatic species through the pathways under consideration.

"(f) NUMBER AND LOCATION OF SURVEY SITES.—

"(1) REQUIRED SITES.—The administering agencies shall designate the number and location of survey sites necessary to carry out marine and freshwater research required under this section.

"(2) EMPHASIS.—In carrying out paragraph (1) and subsection (g), the administering agencies shall give particular consideration to—

"(A) the geographic diversity of sites; and

"(B) the diversity of human uses and biological characteristics of sites.

"(g) COMPETITIVE GRANT PROGRAM.—

"(1) IN GENERAL.—In order to assist in carrying out subsections (b) and (i), the administering agencies (acting through the National Oceanic and Atmospheric Administration) shall administer a program to award grants to academic institutions, State agencies, and other appropriate groups.

"(2) ADMINISTRATION.—The program required under this section shall be competitive, peer-reviewed, and merit-based.

"(h) WORKSHOP.—Not later than 120 days after the date of enactment of the National Aquatic Invasive Species Act of 2003, to assist in the development of the protocols and design for the surveys under this section, the administering agencies shall—

"(1) convene a workshop among researchers from Federal and State agencies and academic institutions to obtain recommendations for the development of the protocols and surveys; and

"(2) make the results of the workshop widely available to the public.

"(i) EXPERIMENTATION.—The administering agencies shall conduct (at existing field stations and such other sites as may be appropriate) coordinated experiments on a range of taxonomic groups to identify—

"(1) the relationship between the introduction and establishment of nonnative aquatic species; and

"(2) the circumstances necessary for the species to survive and thrive.

"(j) NATIONAL PATHWAYS AND ECOLOGICAL SURVEYS DATABASE.—

"(1) IN GENERAL.—The United States Geological Survey shall develop, maintain, and update, in consultation and cooperation with the Smithsonian Environmental Research Center and the National Oceanic and Atmospheric Administration, a central national database of information concerning information collected under section 1107(b).

"(2) REQUIREMENT.—The United States Geological Survey shall—

"(A) make the database widely available to the public;

"(B) update the database not less often than once every 90 days;

"(C) coordinate the database with existing databases collecting similar information; and

"(D) to the maximum extent practicable, format the databases in a manner such that the data is useful for researchers and Federal and

State employees managing relevant invasive species programs.".

(b) VESSEL PATHWAY SURVEYS.—Section 1102(b)(2)(B) of Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4712(b)(2)(B)) is amended by striking clause (ii) and inserting the following:

"(ii) examine other potential modes for the introduction of nonnative aquatic species by vessel, including hull fouling.".

SEC. 402. ANALYSIS.

(a) IN GENERAL.—Subtitle B of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4711 et seq.) (as amended by section 401(a)) is amended by adding at the end the following:

"SEC. 1108. ANALYSIS.

"(a) INVASION ANALYSIS.—

"(1) IN GENERAL.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, and annually thereafter, the administering agencies shall analyze data collected under section 1107 and other relevant research, for the purpose of preventing the introduction of, detecting, and eradicating invasive species by—

"(A) providing information for early detection and rapid response efforts;

"(B) providing information for relevant policy questions; and

"(C) assessing the effectiveness of implemented policies to prevent the introduction and spread of invasive species.

"(2) CONTENTS.—The analysis required under paragraph (1) shall include, with respect to aquatic invasive species—

"(A) an analysis of pathways to—

"(i) identify, and characterize as high-, medium-, or low-risk, regional and national pathways for the introduction of nonnative aquatic species into aquatic ecosystems;

"(ii) identify new and expanding pathways through which nonnative aquatic species may be introduced into aquatic ecosystems;

"(iii) identify handling practices that contribute to the introduction of species in pathways; and

"(iv) assess the risk that species currently used in commerce pose for introduction into aquatic ecosystems;

"(B) include patterns and rates of invasion and susceptibility to invasion of various types of bodies of water;

"(C) consider the ways in which the risk of establishment of an aquatic invasive species through a pathway is related to the identity and number of organisms transported;

"(D) consider rates of spread and numbers and types of pathways of spread of new populations of the aquatic invasive species and estimate the potential for the spread and distribution of newly introduced invasive species based on the environmental requirements and historical distribution of the species;

"(E) document factors that influence the vulnerability of an ecosystem to invasion by a nonnative aquatic species;

"(F) include a description of the potential for, and impacts of, pathway management programs on invasion rates;

"(G) provide recommendations for improvements on the effectiveness of pathway management;

"(H) to the extent practicable, determine the level of reduction in live organisms of various taxonomic groups required to reduce to an acceptable level the risk of establishment to receiving aquatic ecosystems; and

"(I) evaluate the effectiveness of management actions (including any standard) at reducing species introductions and establishment.

"(3) REPORT.—The administering agencies shall submit to the Task Force a report on analyses conducted under this section.

"(b) RESEARCH TO ASSESS THE POTENTIAL OF THE ESTABLISHMENT OF INTRODUCED SPECIES.—

"(1) IN GENERAL.—Not later than 2 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the administering agencies shall develop, conduct peer review of, and submit to the Task Force a profile of the general characteristics of invasive species, in order to—

"(A) predict, to the extent practicable, whether a species planned for importation is

likely to invade a particular aquatic ecosystem if introduced; and

"(B) support the development of the screening process authorized under section 1105.

"(2) RESEARCH.—In developing the profile, the administering agencies shall analyze the research conducted under section 1107 and other research as necessary to determine—

"(A) characteristics of general species and ecosystems (taking into account the opportunity for introduction into any ecosystem); and

"(B) circumstances that may lead to establishment of a nonnative aquatic organism.

"(3) RECOMMENDATIONS.—Based on the profile, the administering agencies shall develop and submit to the Task Force, for inclusion in the report to Congress developed under section 1201(f)(2)(B), recommendations concerning which planned importation of nonnative aquatic organisms warrant restriction under section 1105.

"SEC. 1109. DISSEMINATION.

"(a) IN GENERAL.—The Invasive Species Council, in coordination with the Task Force, and the administering agencies shall disseminate the information collected under

this Act to Federal, State, and local entities (including relevant policymakers and private researchers with responsibility over or interest in aquatic invasive species).

"(b) REPORTS.—The Invasive Species Council shall—

"(1) not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, submit to Congress a report that describes the actions and findings carried out under this Act; and

"(2) at least once every 3 years thereafter or more often as necessary, update the report.

"(c) RESPONSE STRATEGY.—To enable Federal, State, and local entities having responsibility for responding to the introduction of potentially harmful nonnative aquatic species to better and more rapidly respond to those introductions, the Invasive Species Council, in coordination with the Task Force, the administering agencies, and other appropriate Federal and State agencies, shall implement a national strategy for the sharing of information collected under this Act with those entities.

"(d) PATHWAY PRACTICES.—The Invasive Species Council, in coordination with the Task Force, and the administering agencies shall disseminate information to, and develop an ongoing educational program for, pathway

users (including vendors and customers) to inform those users about means by which users can prevent the intentional or unintentional introduction of nonnative aquatic species into aquatic ecosystems.

"SEC. 1110. TECHNOLOGY DEVELOPMENT DEMONSTRATION AND VERIFICATION.

"(a) ENVIRONMENTALLY SOUND TECHNOLOGY DEVELOPMENT, DEMONSTRATION AND VERIFICATION.—

"(1) IN GENERAL.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Administrator, in consultation with the Army Corps of Engineers and the administering agencies, shall develop and implement a grant program to fund research, development, demonstration, and verification of environmentally sound cost-effective technologies and methods to control and eradicate aquatic invasive species.

"(2) PURPOSES.—Proposals funded under this program shall—

"(A) provide funds to support on-going efforts of Federal, State, or local officials to control and eradicate aquatic invasive species in an environmentally sound manner;

"(B) increase the number of environmentally sound technologies or methods Fed-

eral, State, or local officials may use to control or eradicate aquatic invasive species;

"(C) provide for the demonstration or dissemination of the technologies or methods to potential end-users; and

"(D) verify that any technology or practice meets any appropriate criteria developed for effectiveness and environmental soundness that are established by the Administrator.

"(3) PREFERENCE.—In making grants under this subsection, the Administrator shall give preference to proposals that meet criteria developed for environmental soundness that are established by the Administrator.

"(4) MERIT REVIEW.—Grants awarded through this subsection shall be awarded through a competitive, peer-reviewed process and shall be merit-based.

"(5) REPORT.—Not later than 3 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Administrator shall submit to Congress a report on the program conducted under this subsection, including findings and recommendations of the Secretary with respect to technologies and methods described in paragraph (1).

"(b) DISPERSAL BARRIER RESEARCH PROGRAM.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Assistant Secretary, in conjunction with the Director and other appropriate Federal agencies and academic researchers, shall establish a research, development, and demonstration program—

"(1) to study environmentally sound methods and technologies to reduce dispersal of aquatic invasive species through interbasin waterways; and

"(2) to assess the potential for using those methods and technologies in other waterways.".

(b) EXPANSION OF VESSEL PATHWAY TECHNOLOGY DEMONSTRATION PROGRAM.—Section 1104(b) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4712(b)) is amended—

(1) by redesignating paragraphs (4) and (5) as paragraphs (7) and (8), respectively; and

(2) by inserting after paragraph (3) the following:

"(4) ADDITIONAL PURPOSES.—The Secretary of the Interior and the Secretary of Commerce may demonstrate and verify technologies under this subsection to monitor and control pathways of organism

transport on vessels other than through ballast water.

"(5) PRIORITY.—In making grants under this subsection, the Secretary of the Interior and the Secretary of Commerce shall give priority to technologies that meet criteria established in any testing protocol developed under the Environmental Technology Verification program of the Administrator.

"(6) WORKSHOP.—The Secretary of the Interior and the Secretary of Commerce shall—

"(A) hold an annual workshop to encourage the exchange of information between and among—

"(i) principal investigators for which funds are made available under this subsection; and

"(ii) researchers conducting research directly relating to vessel pathway technology development; and

"(B) make the results of the proceedings widely available to the public.".

SEC. 403. VESSEL PATHWAY STANDARDS RESEARCH.

Subtitle B of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4711 et

1 seq.) (as amended by section 402(a)) is amended by add-
2 ing at the end the following:

3 **"SEC. 1111. VESSEL PATHWAY STANDARDS RESEARCH.**

4 "(a) RESEARCH PROGRAM.—

5 "(1) IN GENERAL.—The Secretary and the Ad-
6 ministrator (in coordination with the National Oce-
7 anic and Atmospheric Administration, the Task
8 Force, and other appropriate Federal agencies and
9 academic researchers) shall develop and conduct a
10 coordinated research program to support the estab-
11 lishment and implementation of standards to prevent
12 the introduction and spread of aquatic invasive spe-
13 cies by vessels.

14 "(2) COMPONENTS.—The research program
15 shall include programs to—

16 "(A) characterize physical, chemical, and
17 biological harbor conditions relevant to ballast
18 discharge into waters of the United States to
19 provide information for the design and imple-
20 mentation of vessel vector control technologies
21 and practices;

22 "(B) develop testing protocols for deter-
23 mining the effectiveness of vector monitoring
24 and control technologies and practices;

"(C) research and demonstrate methods for mitigating the spread of aquatic invasive species by coastal voyages, including the exploration of the effectiveness of alternative exchange zones in the near coastal areas and other methods proposed to reduce the transfers of organisms;

"(D) verify the practical effectiveness of any type approval process to ensure that the process produces repeatable and accurate assessments of treatment effectiveness; and

"(E) evaluate the effectiveness and residual risk and environmental impacts associated with any standard established with respect to a ship pathway through experimental research.

"(b) PERFORMANCE TEST.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary, in conjunction with the National Institute of Standards and Technology and the Maritime Administration, shall design a performance test for ballast water exchange (such as a dye study) to measure the effectiveness of ballast water exchange.

"(c) NATIONAL ACADEMY OF SCIENCES STUDY.—

"(1) IN GENERAL.—The Secretary shall enter into an agreement with the National Academy of Sciences under which the Academy shall—

"(A) identify the relative risk of transfer of various taxonomic groups of invasive species by different vessel modes;

"(B)(i) assess the extent to which a ballast water standard that virtually eliminates the risk of introduction of invasive species by ballast water may relate to the risk of introductions by all vessel modes; and

"(ii) explain the degree of uncertainty in such an assessment; and

"(C)(i) recommend methods for reducing the transfers of invasive species by vessels by addressing all parts and systems of vessels and all related modes of transport of invasive organisms; and

"(ii) identify the research, development, and demonstration needed to improve the information base to support those methods, including economic information.

"(2) REPORT.—Not later than 2 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Secretary shall submit to

1 Congress a report that describes the results of the
2 study under paragraph (1).
3 "(3) IMPLEMENTATION OF RECOMMENDA-
4 TIONS.—Not later than the later of the date that is
5 1 year after the date of submission of the report
6 under paragraph (2) or the date that is 3 years after
7 the date of enactment of the National Aquatic
8 Invasive Species Act of 2003, the Task Force, in
9 conjunction with the Administrator, administering
10 agencies, and other appropriate Federal agencies,
11 shall submit to the Secretary a report that describes
12 recommendations for—
13 "(A) a vessel pathway treatment standard
14 that incorporates all potential modes of transfer
15 by vessel; and
16 "(B) methods for type approval and accu-
17 rate monitoring of treatment performance that
18 are simple and streamlined and follow estab-
19 lished protocols.
20 "(d) WORKING GROUP.—
21 "(1) IN GENERAL.—Not later than 2 years
22 after the date of issuance by the Secretary of any
23 standard relating to the introduction by vessels of
24 invasive species, the Secretary shall convene a work-
25 ing group (including the Administrator, the admin-

1 istering agencies, and other appropriate Federal and
2 State agencies and academic researchers) to evaluate
3 the effectiveness of that standard and accompanying
4 implementation protocols.
5 "(2) DUTIES.—The duties of the working group
6 shall include, at a minimum—
7 "(A) reviewing the effectiveness of the
8 standard in reducing the establishment of
9 invasive species in aquatic ecosystems, taking
10 into consideration the data collected under sec-
11 tion 1107; and
12 "(B) submitting recommendations to the
13 Secretary (who shall make the recommenda-
14 tions widely available to the public) for the revi-
15 sion of the standard and type approval process
16 in order to ensure—
17 "(i) effectiveness in reducing introduc-
18 tions of invasive species; and
19 "(ii) the effectiveness of accurate
20 shipboard monitoring of treatment per-
21 formance in a simple and streamlined man-
22 ner.".

SEC. 404. GRADUATE EDUCATION IN SYSTEMATICS AND TAXONOMY.

Subtitle B of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4711 et seq.) (as amended by section 403) is amended by adding at the end the following:

"SEC. 1112. RESEARCH IN SYSTEMATICS AND TAXONOMY.

"(a) IN GENERAL.—The National Science Foundation shall establish a program to award grants to researchers at institutions of higher education and museums to carry out research in systematics and taxonomy.

"(b) PURPOSES.—The purposes of the program are—

"(1) to encourage scientists to pursue careers in systematics and taxonomy to ensure a continuing knowledge base in those disciplines;

"(2) to ensure that there will be adequate expertise in systematics and taxonomy to meet Federal, State, and local needs to identify invasive species;

"(3) to develop that expertise throughout the United States with an emphasis on regional diversity; and

"(4) to draw on existing expertise in systematics and taxonomy at institutions of higher edu-

cation and museums to train the next generation of systematists and taxonomists.

"(c) ADMINISTRATION.—

"(1) MERIT REVIEW.—Grants awarded through this section shall be awarded through a competitive, peer-reviewed process and shall be merit-based.

"(2) PREFERENCES.—In making grants under this section, the National Science Foundation shall provide a preference for—

"(A) projects in a diverse set of ecosystems and geographic locations;

"(B) if applicable, projects that are integrated with the Long Term Ecological Research Network created by the National Science Foundation;

"(C) projects that include student participation; and

"(D) projects carried out by institutions of higher education and museums that actively train students to become experts in systematics and taxonomy.".

TITLE V—COORDINATION

SEC. 501. PROGRAM COORDINATION.

(a) MEMBERSHIP OF TASK FORCE.—Section 1201(b) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4721) is amended—

(1) in paragraph (6), by striking "and" at the end;

(2) by redesignating paragraph (7) as paragraph (12); and

(3) by inserting after paragraph (6) the following:

"(7) the Director of the United States Geological Survey;

"(8) the Director of the Smithsonian Environmental Research Center;

"(9) the Secretary of State;

"(10) the Secretary of Transportation;

"(11) the Secretary of Homeland Security; and".

(b) COORDINATION WITH INVASIVE SPECIES COUNCIL.—Section 1201(f) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4721(f)) is amended—

(1) by striking "Each Task Force member" and inserting the following:

"(1) IN GENERAL.—Each member of the Task Force"; and

(2) by adding at the end the following:

"(2) INVASIVE SPECIES COUNCIL.—The Invasive Species Council shall—

"(A) coordinate and cooperate with the Task Force in carrying out the duties of the Invasive Species Council relating to aquatic invasive species;

"(B) not later than 2 years after the date of enactment of the National Aquatic Invasive Species Act of 2003, and every 3 years thereafter, submit to Congress a report that summarizes the status of the conduct of activities authorized by and required under this Act; and

"(C) establish any regional panels or task forces in coordination with the regional panels of the Task Force convened under section 1203.".

(c) COORDINATION WITH OTHER PROGRAMS.—Section 1202(c) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4722(c)) is amended by adding at the end the following:

"(3) RECOMMENDATIONS FOR LISTS.—

"(A) IN GENERAL.—The Task Force shall annually recommend to Federal agencies of jurisdiction such additions of aquatic invasive species as the Task Force determines to be appropriate for inclusion on—

"(i) any list of species of wildlife covered by section 42 of title 18, United States Code (including regulations); or

"(ii) any list of noxious weeds under the Plant Protection Act (7 U.S.C. 7701 et seq.) (including regulations promulgated under that Act contained in part 360 of title 7, Code of Federal Regulations (or any successor regulations)).

"(B) PROCESS.—The Task Force may use the screening process developed pursuant to section 1105 to identify species pursuant to subparagraph (A).".

(d) REGIONAL COORDINATION.—Section 1203 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4723) is amended by adding at the end the following:

"(d) ANNUAL INTER-REGIONAL MEETING.—The Task Force shall annually convene all regional panels established pursuant to this Act for the purpose of informa-

1 tion transfer between and among panels, and between the
2 panels and the Task Force, regarding aquatic invasive
3 species management.
4 "(e) ORGANIZATIONS.—
5 "(1) IN GENERAL.—An interstate organization
6 that has a Federal charter authorized by law or ex-
7 ecutive order for purposes of fisheries or natural re-
8 source management may develop and implement—
9 "(A) regional aquatic invasive species man-
10 agement plans; and
11 "(B) rapid response activities that are—
12 "(i) requested by the Governors of the
13 member States of the organization; and
14 "(ii) consistent with any relevant
15 State aquatic invasive species management
16 plans.
17 "(2) FUNDS.—The interstate organization may
18 receive funds under this Act to implement activities
19 under the regional aquatic invasive species manage-
20 ment plan of the organization.".
21 (e) STATE AQUATIC INVASIVE SPECIES MANAGE-
22 MENT PLANS.—Section 1204(a) of the Nonindigenous
23 Aquatic Nuisance Prevention and Control Act of 1990 (16
24 U.S.C. 4724(a)) is amended—
25 (1) in paragraph (2)—

(A) in subparagraph (A), by inserting before the semicolon at the end the following: ", including, in accordance with guidelines issued by the Task Force under paragraph (5)—

"(i) rapid assessment and response contingency strategies under section 1211;

"(ii) early detection strategies under section 1211(a)(2)(D);

"(iii) aquatic plant control programs conducted pursuant to other laws; and

"(iv) screening of planned introductions pursuant to section 1105"; and

(B) in subparagraph (D), by inserting "include" after "(D)"; and

(2) by adding at the end the following:

"(5) GUIDELINES.—

"(A) IN GENERAL.—Not later than 1 year after the date of enactment of the National Aquatic Invasive Species Act of 2003, the Task Force shall amend the guidelines of the Task Force for the development of plans under this subsection, including guidelines for reporting progress in implementing the plans, to encourage consistency in implementation of and reporting under those plans.

"(B) GUIDELINES.—The guidelines published under subparagraph (A) shall include, for the purpose of paragraph (2)(A), guidelines concerning—

"(i) rapid response contingency strategies under section 1211;

"(ii) early detection strategies under section 1211(a)(2)(D);

"(iii) aquatic plant control programs conducted pursuant to other laws;

"(iv) screening of planned introductions pursuant to section 1105; and

"(v) the review and revision of requirements of this subsection and the reapproval process under this subsection.

"(6) RELATIONSHIP TO OTHER PLANS.—

"(A) IN GENERAL.—A plan approved under paragraph (4) shall be deemed to meet any State planning requirement of the program established under section 104 of the River and Harbor Act of 1958 (33 U.S.C. 610) for a plan to control noxious aquatic plant growths.

"(B) ENFORCEMENT.—Funds provided to States for implementation of plans pursuant to section 1204 may be used by States to enforce

requirements relating to aquatic invasive species under the Plant Protection Act (7 U.S.C. 7701 et seq.) (including regulations promulgated under that Act contained in part 360 of title 7, Code of Federal Regulations (or any successor regulations)).

"(7) ELIGIBILITY OF EXISTING PLANS.—A plan approved under this section as of the day immediately before the date of enactment of the National Aquatic Invasive Species Act of 2003 shall be eligible to receive a grant awarded under this section.

"(8) REVIEW AND REVISION.—

"(A) IN GENERAL.—Each State shall periodically review and, as necessary, revise the management plan of the State in accordance with guidelines of the Task Force.

"(B) UPDATE OF EXISTING PLANS.—A plan approved under this section as of the day immediately before the date of enactment of the National Aquatic Invasive Species Act of 2003 shall be updated after the date of enactment of the National Aquatic Invasive Species Act of 2003 to conform to the guidelines published under paragraph (5).

"(9) OTHER STATE MANAGEMENT PLANS.—In addition to the management plans required under this subsection, the Director shall encourage each State to develop and implement new, and expand existing, State management plans to improve State actions to prevent and control aquatic invasive species.".

(f) GRANT PROGRAM.—Section 1204(b)(1) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4724(b)(1)) is amended by striking "subsection (a) for the implementation of those plans." and inserting the following: "subsection (a)—

"(A) to develop those plans with a total amount that does not exceed 10 percent of the amounts made available for grants under this section for each fiscal year; and

"(B) to implement those plans.".

SEC. 502. INTERNATIONAL COORDINATION.

(a) IN GENERAL.—Subtitle E of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4751 et seq.) is amended—

(1) by striking the subtitle heading and inserting the following:

"Subtitle E—Administration";

and

(2) by adding at the end the following:

"SEC. 1402. INTERNATIONAL COORDINATION.

"(a) IN GENERAL.—The Task Force, the Invasive Species Council, and the Secretary of State shall, to the maximum extent practicable, ensure that international efforts to prevent, detect, monitor, assess, and control aquatic invasive species (including through the International Maritime Organization, the International Convention on the Exploration of the Sea, the Global Invasive Species Program, and other appropriate programs) are coordinated with policies of the United States established by this Act.

"(b) COORDINATION WITH NEIGHBORING COUNTRIES.—

"(1) IN GENERAL.—The Task Force, in consultation with the Secretary of State, shall include in the report required by section 1202(m) a description of the means by which international agreements and regulations with countries that share a border with the United States will be implemented and enforced by Federal agencies (including a clarification of the roles and responsibilities of those agencies).

"(2) NEGOTIATIONS.—As soon as practicable after the date of enactment of the National Aquatic

Invasive Species Act of 2003, the Secretary of State may enter into negotiations with—

"(A) Canada to issue a request that the International Joint Commission, not later than 18 months after the date of enactment of that Act, review, research, conduct hearings on, and submit to the parties represented on the International Joint Commission a report that describes the success of current policies of governments in the United States and Canada having jurisdiction over the Great Lakes in anticipating and preventing biological invasions of the aquatic ecosystem in the Great Lakes, including—

"(i) an analysis of current Federal, State or Provincial, local, and international laws, enforcement practices, and agreements;

"(ii) an analysis of prevention efforts relating to all likely pathways for biological invasions of the aquatic ecosystem in the Great Lakes; and

"(iii) recommendations of the International Joint Commission for means by which to improve and harmonize the poli-

cies and enforcement practices referred to in clause (i); and

"(B) Mexico, to ensure coordination of efforts of the United States with efforts of Mexico to manage invasive species established in the United States-Mexico border region.".

TITLE VI—AUTHORIZATION OF APPROPRIATIONS

SEC. 601. AUTHORIZATION OF APPROPRIATIONS.

Section 1301 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4741) is amended to read as follows:

"SEC. 1301. AUTHORIZATION OF APPROPRIATIONS.

"(a) IN GENERAL.—Except as otherwise provided in this section, there are authorized to be appropriated such sums as are necessary to carry out this Act for each of fiscal years 2004 through 2008.

"(b) TASK FORCE AND AQUATIC INVASIVE SPECIES PROGRAM.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(1) $8,000,000, to carry out activities of the Task Force under section 1202, of which—

"(A) $4,000,000 shall be used by the Director;

"(B) $3,000,000 shall be used by the National Oceanic and Atmospheric Administration; and

"(C) $1,000,000 shall be used by the Invasive Species Council;

"(2) $30,000,000, to provide grants under section 1204(b);

"(3) $3,000,000, to provide assistance to the regional panels of the Task Force;

"(4) $1,000,000, to be used by the Director to carry out section 1105(g); and

"(5) $6,000,000, to be used by the Secretary of the Interior to carry out section 1209.

"(c) INTERNATIONAL COORDINATION.—There is authorized to be appropriated to the Department of State to carry out section 1403 $1,000,000 for each of fiscal years 2004 through 2008.

"(d) PREVENTION OF INTRODUCTION BY VESSELS OF AQUATIC INVASIVE SPECIES INTO WATERS OF THE UNITED STATES.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(1) $6,000,000, to be used by the Secretary to carry out section 1101;

"(2) $2,500,000, to be used by the Administrator to carry out section 1101; and

"(3) $2,750,000, to be used by the Task Force to carry out section 1101, of which—

"(A) $1,500,000 shall be used by the Director; and

"(B) $1,250,000 shall be used by the National Oceanic and Atmospheric Administration.

"(e) PREVENTION OF THE INTRODUCTION BY NONVESSEL PATHWAYS OF AQUATIC INVASIVE SPECIES INTO WATERS OF THE UNITED STATES.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(1) $5,000,000, to carry out the priority pathway management program under section 1210, of which—

"(A) $2,000,000 shall be used by the National Oceanic and Atmospheric Administration; and

"(B) $3,000,000 shall be used by the Director;

"(2) $1,000,000, to be used by the Invasive Species Council to establish screening guidelines under section 1105(b); and

"(3) $3,500,000, to be used by the Director to promulgate and implement screening requirements under section 1105(g).

"(f) EARLY DETECTION AND MONITORING.—There is authorized to be appropriated, to carry out early detection, monitoring, and survey planning and implementation under section 1106, $2,000,000 for each of fiscal years 2004 and 2005 and $10,000,000 for each of fiscal years 2006 through 2008, of which—

"(1) for each of fiscal years 2004 and 2005—

"(A) $1,000,000 shall be used by the National Oceanic and Atmospheric Administration; and

"(B) $1,000,000 shall be used by the Director; and

"(2) for each of fiscal years 2006 through 2008—

"(A) $5,000,000 shall be used by the National Oceanic and Atmospheric Administration; and

"(B) $5,000,000 shall be used by the Director.

"(g) CONTAINMENT AND CONTROL.—

"(1) DISPERSAL BARRIERS.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(A) $300,000, to be used by the Assistant Secretary in carrying out operation and mainte-

nance of the Chicago River Canal Dispersal Barrier under section 1202(j)(1);

"(B) $1,800,000, to be used by the Assistant Secretary in carrying out the complete construction of the Chicago River Canal Dispersal Barrier;

"(C) $8,000,000, to be used by the Assistant Secretary for the construction of a second long-service life barrier for the Chicago River Canal;

"(D) $500,000, to be used by the Assistant Secretary to carry out a feasibility study for the construction described in subparagraph (C); and

"(E) $2,150,000, to be used by the Director to carry out the monitoring program under section 1202(j)(2).

"(2) RAPID RESPONSE.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(A) $25,000,000, to the rapid response fund of the Secretary of the Interior established under section 1211;

"(B) $1,000,000, to be used by the Invasive Species Council in developing the State

and regional rapid response contingency strategy under section 1211; and

"(C) $1,500,000, to be used for Federal rapid response teams under section 1211(e), of which—

"(i) $500,000 shall be used by the National Oceanic and Atmospheric Administration; and

"(ii) $1,000,000 shall be used by the Director.

"(3) ENVIRONMENTAL SOUNDNESS.—There is authorized to be appropriated for establishment under section 1202(k) of criteria for the improvement of treatment methods for aquatic invasive species $600,000 for each of fiscal years 2004 through 2008.

"(4) NATIONAL NUTRIA CONTROL PROGRAM.—There is authorized to be appropriated to the Director to carry out the national nutria control program under section 1212 $3,000,000 for each of fiscal years 2004 through 2008.

"(h) INFORMATION, EDUCATION AND OUTREACH.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(1) $500,000, to be used by the Secretary of the Interior to carry out the information and education program under section 1202(h)(2)(D);

"(2) $750,000, to be used by the Director in carrying out the 100th meridian program under section 1202(h)(2)(C);

"(3) $2,000,000, to be used to carry out informational and educational activities of the Task Force under section 1202(h), of which—

"(A) $1,000,000 shall be used by the National Oceanic and Atmospheric Administration; and

"(B) $1,000,000 shall be used by the Director; and

"(4) $500,000, to be used by the National Oceanic and Atmospheric Administration to carry out section 1202(h)(2)(B)(ii).

"(i) RESEARCH.—

"(1) ECOLOGICAL AND PATHWAY RESEARCH AND ANALYSIS.—There are authorized to be appropriated for each of fiscal years 2004 through 2008—

"(A) $17,000,000, to be used by the National Oceanic and Atmospheric Administration to carry out sections 1107 and 1108, of which

1 $13,000,000 shall be used to carry out the
2 grant program under section 1107(g));
3 "(B) $4,000,000, to be used by the Smith-
4 sonian Environmental Research Center to carry
5 out sections 1107 and 1108;
6 "(C) $4,500,000, to be used by the United
7 States Geological Survey to carry out sections
8 1107 and 1108, of which $500,000 shall be
9 used to develop, maintain, and update the data-
10 base required under section 1107(j)); and
11 "(D) $1,650,000, to be used by the Great
12 Lakes Environmental Research Laboratory to
13 carry out the demonstration program under sec-
14 tion 1202(i).
15 "(2) DISSEMINATION.—There is authorized to
16 be appropriated to provide for the dissemination of
17 information by the Invasive Species Council under
18 section 1109 $500,000 for each of fiscal years 2004
19 through 2008.
20 "(3) TECHNOLOGY DEVELOPMENT, DEM-
21 ONSTRATION, AND VERIFICATION.—There are au-
22 thorized to be appropriated for each of fiscal years
23 2004 through 2008—
24 "(A) $2,500,000, to be used by the Admin-
25 istrator for the purposes of environmental

soundness screening and improvement under section 1110(a);

"(B) $1,000,000, to be used by the Assistant Secretary to carry out the program under section 1110(b); and

"(C) $7,500,000, to carry out vessel pathway technology development under sections 1104 and 1301(e).

"(4) VESSEL PATHWAY STANDARDS RESEARCH.—There are authorized to be appropriated—

"(A) for each of fiscal years 2004 through 2008, $3,000,000, to be used for research in support of vessels pathway standards and technology evaluation under section 1111(a) of which—

"(i) $1,500,000 shall be used by the Administrator; and

"(ii) $2,000,000 shall be used by the Secretary of the Coast Guard;

"(B) for each of fiscal years 2004 through 2006, $500,000, to be used by the Coast Guard to carry out the performance test required under section 1111(b); and

"(C) for fiscal year 2004, $500,000, to be used by the Secretary of the Coast Guard to enter into an agreement with the National Academy of Sciences to carry out the study required under section 1111(e).

"(5) RESEARCH IN SYSTEMATICS AND TAXONOMY.—There is authorized to be appropriated for the National Research Foundation to provide research grants for systematics and taxonomy under section 1112 $2,500,000 for each of fiscal years 2004 through 2008.".

TITLE VII—CONFORMING AMENDMENTS

SEC. 701. CONFORMING AMENDMENTS.

(a) IN GENERAL.—The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 is amended—

(1) in section 1102 (16 U.S.C. 4712)—

(A) in subsection (a), by striking the subsection heading and inserting the following:

"(a) STUDIES ON INTRODUCTION OF AQUATIC INVASIVE SPECIES BY VESSELS.—"; and

(B) in subsection (b)—

(i) by striking paragraph (1); and

(ii) by redesignating paragraphs (2) and (3) as paragraphs (1) and (2), respectively;

(2) in subtitle C (16 U.S.C. 4721 et seq.), by striking the subtitle heading and inserting the following:

"Subtitle C—Prevention and Control of Aquatic Invasive Species Dispersal";

(3) in section 1201(a) (16 U.S.C. 4721(a)), by striking "Nuisance Species" and inserting "Invasive Species";

(4) in section 1202 (16 U.S.C. 4722), by striking the section heading and inserting the following:

"SEC. 1202. AQUATIC INVASIVE SPECIES PROGRAM.";

(5) in section 1204 (16 U.S.C. 4724), by striking the section heading and inserting the following:

"SEC. 1204. STATE AQUATIC INVASIVE SPECIES MANAGEMENT PLANS.";

and

(6) by striking "aquatic nuisance species" each place it appears and inserting "aquatic invasive species".

(b) SHORT TITLE.—

(1) Section 1001 of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701) is amended by striking "Nonindigenous Aquatic Nuisance" and inserting "Nonindigenous Aquatic Invasive Species".

(2) REFERENCES.—Any reference in a law, map, regulation, document, paper, or other record of the United States to the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 shall be deemed to be a reference to the Nonindigenous Aquatic Invasive Species Prevention and Control Act of 1990.

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