

107TH CONGRESS  
2D SESSION

# H. R. 5395

To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

---

## IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 18, 2002

Mr. EHLERS (for himself, Mr. GILCREST, Mr. KIRK, Mr. MCHUGH, Mr. KILDEE, Mr. STUPAK, Mr. BAIRD, Ms. KILPATRICK, Mr. CAMP, Ms. SLAUGHTER, Mr. BALDACCI, Mr. BARCIA, Mr. ROGERS of Michigan, Mr. HOEKSTRA, Mr. BONIOR, Ms. BALDWIN, Ms. KAPTUR, Mr. ENGLISH, Mr. LATOURETTE, Mr. FARR of California, Mrs. MORELLA, Mr. EHRLICH, Mr. CUMMINGS, Mr. LEVIN, Mr. SCOTT, Ms. BROWN of Florida, Mr. CARDIN, Mr. KIND, Mr. KUCINICH, Mr. DICKS, Mrs. BIGGERT, Mr. GREENWOOD, Ms. RIVERS, Mr. ALLEN, Mr. PALLONE, Mr. BLUMENAUER, Mr. UNDERWOOD, Mrs. MALONEY of New York, Mr. WELDON of Pennsylvania, Mr. UPTON, Mr. ORTIZ, and Ms. MCCOLLUM) introduced the following bill; which was referred to the Committee on Science, and in addition to the Committees on Transportation and Infrastructure, Resources, and House Administration, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

---

## A BILL

To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

1        *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4        This Act may be cited as the “Aquatic Invasive Spe-

5 cies Research Act”.

6 **SEC. 2. FINDINGS.**

7        The Congress makes the following findings:

8            (1) Aquatic invasive species damage infrastruc-

9            ture, disrupt commerce, outcompete native species,

10           reduce biodiversity, and threaten human health.

11           (2) The direct and indirect costs of aquatic

12           invasive species to our Nation’s economy number in

13           the billions of dollars per year. In the Great Lakes

14           region, approximately \$3,000,000,000 dollars have

15           been spent in the past 10 years to mitigate the dam-

16           age caused by one invasive species, the zebra mussel.

17           (3) Recent studies have shown that, in addition

18           to economic damage, invasive species cause enor-

19           mous environmental damage, and have cited invasive

20           species as the second leading threat to endangered

21           species.

22           (4) Over the past 200 years, the rate of de-

23           tected marine and freshwater invasions in North

24           America has increased exponentially.

1           (5) The rate of invasions continues to grow  
2 each year.

3           (6) Marine and freshwater research underlies  
4 every aspect of detecting, preventing, controlling,  
5 and eradicating invasive species, educating citizens  
6 and stakeholders, and restoring ecosystems.

7           (7) Current Federal efforts, including research  
8 efforts, have focused primarily on controlling estab-  
9 lished invasive species, which is both costly and often  
10 unsuccessful. An emphasis on research, development,  
11 and demonstration to support efforts to prevent  
12 invasive species or eradicate them upon entry into  
13 United States waters would likely result in a more  
14 cost-effective and successful approach to combating  
15 invasive species through preventing initial introduc-  
16 tion.

17           (8) Research, development, and demonstration  
18 to support prevention and eradication includes moni-  
19 toring of both pathways and ecosystems to track the  
20 introduction and establishment of nonnative species,  
21 and development and testing of technologies to pre-  
22 vent introduction through known pathways.

23           (9) Therefore, Congress finds that it is in the  
24 United States interest to conduct a comprehensive  
25 and thorough research, development, and demonstra-

1       tion program on aquatic invasive species in order to  
2       better understand how aquatic invasive species are  
3       introduced and become established and to support  
4       efforts to prevent the introduction and establishment  
5       of, and to eradicate, these species.

6 **SEC. 3. DEFINITIONS.**

7       In this Act:

8           (1) **AQUATIC ECOSYSTEM.**—The term “aquatic  
9       ecosystem” means a freshwater, marine, or estuarine  
10       environment in the United States or shared by the  
11       United States and other nations.

12          (2) **INVASION.**—The term “invasion” means the  
13       introduction and establishment of an invasive species  
14       into an ecosystem beyond its historic range.

15          (3) **INVASIVE SPECIES.**—The term “invasive  
16       species” means a species—

17           (A) that is nonnative to the ecosystem  
18       under consideration; and

19           (B) whose introduction causes or may  
20       cause harm to the economy, the environment, or  
21       human health.

22          (4) **PATHWAY.**—The term “pathway” means a  
23       route by which invasive species are imported and in-  
24       troduced into new environments.

1           (5) SPECIES.—The term “species” means a cat-  
2           egory of taxonomic classification ranking below a  
3           genus or subgenus and consisting of related orga-  
4           nisms capable of interbreeding.

5           (6) TASK FORCE.—The term “Task Force”  
6           means the Aquatic Nuisance Species Task Force es-  
7           tablished under section 1201 of the Nonindigenous  
8           Aquatic Nuisance Prevention and Control Act of  
9           1990 (16 U.S.C. 4721).

10          (7) TYPE APPROVAL.—The term “type ap-  
11          proval” means an approval procedure which certifies  
12          that a type of system meets a standard in regulation  
13          or law for a particular application.

14 **SEC. 4. ECOLOGICAL AND PATHWAY RESEARCH.**

15          (a) IN GENERAL.—The Smithsonian Environmental  
16          Research Center, the United States Geological Survey,  
17          and the National Oceanic and Atmospheric Administra-  
18          tion (including the Great Lakes Environmental Research  
19          Laboratory), in consultation with the Task Force, other  
20          appropriate Federal and State agencies, and academic re-  
21          searchers, shall develop and conduct a marine and fresh-  
22          water research program which shall include ecological and  
23          pathway surveys and experimentation to assess rates and  
24          patterns of introductions of nonnative aquatic species in  
25          aquatic ecosystems. The goal of this marine and fresh-

1 water research program shall be to support efforts to pre-  
2 vent the introduction of, detect, and eradicate invasive  
3 species through informing early detection and rapid re-  
4 sponse efforts, informing relevant policy decisions, and as-  
5 sessing the effectiveness of implemented policies. Surveys  
6 and experiments under this subsection shall be commenced  
7 not later than 1 year after the date of the enactment of  
8 this Act.

9 (b) **PROTOCOL DEVELOPMENT.**—The Smithsonian  
10 Environmental Research Center, the United States Geo-  
11 logical Survey, and the National Oceanic and Atmospheric  
12 Administration (including the Great Lakes Environmental  
13 Research Laboratory), in consultation with the Task  
14 Force, other appropriate Federal and State agencies, and  
15 academic researchers, shall establish standardized proto-  
16 cols for conducting ecological and pathway surveys of non-  
17 native aquatic species, and shall recommend a standard-  
18 ized approach for classifying species. Two protocols shall  
19 be developed, one to support early detection surveys that  
20 may be conducted by Federal, State, or local agencies in-  
21 volved in the management of invasive species, and a sec-  
22 ond marine and freshwater protocol to support the surveys  
23 conducted under subsection (a). Upon the development of  
24 protocols to support early detection surveys, the Task  
25 Force shall make appropriate efforts to disseminate the

1 protocols to appropriate Federal, State, and local entities.  
2 In developing the protocols under this subsection, the  
3 Smithsonian Environmental Research Center, the United  
4 States Geological Survey, and the National Oceanic and  
5 Atmospheric Administration (including the Great Lakes  
6 Environmental Research Laboratory) shall draw on the  
7 recommendations gathered at the workshop under sub-  
8 section (f). The research protocols shall be peer reviewed.  
9 Protocols shall be completed within 9 months after the  
10 date of the enactment of this Act.

11 (c) ECOLOGICAL AND PATHWAY SURVEY REQUIRE-  
12 MENTS.—(1) Each ecological survey conducted under this  
13 section shall, at a minimum—

14 (A) document baseline ecological information of  
15 the aquatic ecosystem including, to the extent prac-  
16 ticable, a comprehensive inventory of native species,  
17 nonnative species, and species of unknown origin  
18 present in the ecosystem, as well as the chemical  
19 and physical characteristics of the water and under-  
20 lying substrate;

21 (B) for nonnative species, identify their life his-  
22 tory, environmental requirements and tolerances, the  
23 historic range of their native ecosystems, and their  
24 history of spreading from their native ecosystems;

1           (C) track the establishment of nonnative species  
2 including, to the extent practicable, information  
3 about the estimated population of nonnative orga-  
4 nisms in order to allow an analysis of the probable  
5 date of introduction of the species; and

6           (D) identify, when possible, the likely pathway  
7 of entry of nonnative species.

8       (2) Each pathway survey conducted under this sec-  
9 tion shall, at a minimum—

10           (A) identify what nonnative aquatic species are  
11 being introduced or may be introduced through the  
12 pathways under consideration;

13           (B) determine the quantities of organisms being  
14 introduced through the pathways under consider-  
15 ation; and

16           (C) determine the practices that contributed to  
17 or could contribute to the introduction of nonnative  
18 aquatic species.

19       (d) NUMBER AND LOCATION OF SURVEY SITES.—

20 The Smithsonian Environmental Research Center, the  
21 United States Geological Survey, and the National Oce-  
22 anic and Atmospheric Administration (including the Great  
23 Lakes Environmental Research Laboratory) shall des-  
24 ignate the number and location of survey sites necessary  
25 to carry out marine and freshwater research required



1 under this section. In conducting the surveys, the above  
2 agencies shall contract with academic institutions, as ap-  
3 propriate, through a competitive, peer-reviewed process. In  
4 establishing such sites, emphasis shall be on both the qual-  
5 ity of the proposal and the geographic diversity of sites,  
6 as well as the diversity of the human uses and biological  
7 characteristics of sites.

8 (e) SHIP PATHWAY SURVEYS.—Section  
9 1102(b)(2)(B)(ii) of the Nonindigenous Aquatic Nuisance  
10 Prevention and Control Act of 1990 (16 U.S.C.  
11 4712(b)(2)(B)(ii)) is amended to read as follows:

12 “(ii) examine other potential modes  
13 for the introduction of nonnative aquatic  
14 species by ship, including hull fouling.”.

15 (f) WORKSHOP.—In order to support the develop-  
16 ment of the protocols and design for the surveys under  
17 subsections (b) and (c), the Task Force shall convene a  
18 workshop with appropriate researchers from Federal and  
19 State agencies and academic institutions to gather rec-  
20 ommendations. The Task Force shall make the results of  
21 the workshop widely available to the public. The workshop  
22 shall be held within 120 days after the date of the enact-  
23 ment of this Act.

24 (g) EXPERIMENTATION.—The United States Geologi-  
25 cal Survey, the Smithsonian Environmental Research Cen-

1 ter, the National Oceanic and Atmospheric Administration  
2 (including the Great Lakes Environmental Research Lab-  
3 oratory), and other appropriate Federal agencies, in con-  
4 sultation with the Task Force, using academic researchers  
5 as appropriate, shall conduct laboratory and field-based  
6 marine and freshwater research experiments on a range  
7 of taxonomic groups to identify the relationship between  
8 the introduction and establishment of nonnative aquatic  
9 species, including those legally introduced, and the cir-  
10 cumstances necessary for those species to survive and  
11 thrive.

12 (h) NATIONAL PATHWAY AND ECOLOGICAL SURVEYS  
13 DATABASE.—Section 1102(f) of the Nonindigenous  
14 Aquatic Nuisance Prevention and Control Act of 1990 (16  
15 U.S.C. 4712(f)) is amended to read as follows:

16 “(f) NATIONAL PATHWAY AND ECOLOGICAL SUR-  
17 VEYS DATABASE.—

18 “(1) IN GENERAL.—The Secretary shall de-  
19 velop, maintain, and update, in consultation and co-  
20 operation with the Smithsonian Environmental Re-  
21 search Center, the United States Geological Survey,  
22 the National Oceanic and Atmospheric Administra-  
23 tion (including the Great Lakes Environmental Re-  
24 search Laboratory), and the Task Force, a central,  
25 national database of information concerning—

1           “(A) ballast water management and deliv-  
2           ery practices for ships entering United States  
3           ports;

4           “(B) ballast water treatment methods  
5           under use and development; and

6           “(C) information collected under section 4  
7           of the Aquatic Invasive Species Research Act of  
8           2002.

9           “(2) REQUIREMENTS.—The database shall be  
10          widely available to the public, and shall be updated  
11          not less than once a year.

12          “(3) REPORT.—In consultation and cooperation  
13          with the Task Force and the Smithsonian Institu-  
14          tion (acting through the Smithsonian Environmental  
15          Research Center), the Secretary shall prepare and  
16          submit to the Task Force and the Congress, on a bi-  
17          ennial basis, a report that synthesizes and analyzes  
18          the data referred to in this section relating to—

19                 “(A) ballast water delivery and manage-  
20                 ment patterns; and

21                 “(B) compliance by vessels with regula-  
22                 tions promulgated under this section.”.

23          (i) AUTHORIZATION OF APPROPRIATIONS.—There  
24          are authorized to be appropriated for carrying out this sec-  
25          tion and section 1102(b)(2) of the Nonindigenous Aquatic

1 Nuisance Prevention and Control Act of 1990 (16 U.S.C.  
2 4712(b)(2)) for each of the fiscal years 2003 through  
3 2007 \$20,000,000.

4 **SEC. 5. ANALYSIS.**

5 (a) INVASION ANALYSIS.—

6 (1) IN GENERAL.—Not later than 3 years after  
7 the date of the enactment of this Act, and every year  
8 thereafter, the Smithsonian Environmental Research  
9 Center, the United States Geological Survey, and the  
10 National Oceanic and Atmospheric Administration,  
11 (including the Great Lakes Environmental Research  
12 Laboratory), in consultation with the Task Force  
13 and other Federal agencies, using academic re-  
14 searchers as appropriate, shall analyze data collected  
15 under section 4 and other relevant research on the  
16 rates and patterns of invasions by aquatic invasive  
17 species in waters of the United States. The purpose  
18 of this analysis shall be to use the data collected  
19 under section 4 and other relevant research to sup-  
20 port efforts to prevent the introduction of, detect,  
21 and eradicate invasive species through informing  
22 early detection and rapid response efforts, informing  
23 relevant policy decisions, and assessing the effective-  
24 ness of implemented policies to prevent the introduc-  
25 tion and spread of invasive species.

1           (2) CONTENTS.—The analysis required under  
2 paragraph (1) shall include with respect to aquatic  
3 invasive species—

4           (A) an analysis of pathways, including—

5                 (i) identifying, and characterizing as  
6 high, medium, or low risk, pathways re-  
7 gionally and nationally;

8                 (ii) identifying new and expanding  
9 pathways;

10                (iii) identifying handling practices  
11 that contribute to the introduction of spe-  
12 cies in pathways; and

13                (iv) assessing the risk that species le-  
14 gally introduced into the United States  
15 pose for introduction into aquatic eco-  
16 systems;

17           (B) patterns and rates of invasion and sus-  
18 ceptibility to invasion of various bodies of  
19 water;

20           (C) how the risk of establishment through  
21 a pathway is related to the identity and number  
22 of organisms transported;

23           (D) rates of spread and numbers and types  
24 of pathways of spread of new populations of the  
25 aquatic invasive species;

1 (E) documentation of factors that influ-  
2 ence an ecosystem's vulnerability to a nonnative  
3 aquatic species becoming invasive;

4 (F) a description of the potential for, and  
5 impacts of, pathway management programs on  
6 invasion rates;

7 (G) recommendations for improvements on  
8 the effectiveness of pathway management;

9 (H) to the extent practical, a determina-  
10 tion of the level of reduction in live organisms  
11 of various taxonomic groups required to reduce  
12 the risk of establishment to receiving aquatic  
13 ecosystems to an acceptable level; and

14 (I) an evaluation of the effectiveness of a  
15 standard at reducing species introductions and  
16 establishment.

17 (c) RESEARCH TO ASSESS THE POTENTIAL OF THE  
18 ESTABLISHMENT OF INTRODUCED SPECIES.—Within 2  
19 years after the date of the enactment of this Act, the  
20 Smithsonian Environmental Research Center, the United  
21 States Geological Survey, the National Oceanic and At-  
22 mospheric Administration (including the Great Lakes En-  
23 vironmental Research Laboratory) and other appropriate  
24 Federal agencies, using academic researchers as appro-  
25 priate, shall develop a profile of the general characteristics

1 of invasive species, in order to predict, to the extent prac-  
2 tical, whether a species planned for importation is likely  
3 to invade a particular aquatic ecosystem if introduced. In  
4 developing the profile, the above agencies shall analyze the  
5 research conducted under section 4, and other research  
6 as necessary, to determine general species and ecosystem  
7 characteristics (taking into account the opportunity for in-  
8 troduction into any ecosystem) and circumstances that can  
9 lead to establishment. Based on the profile, the Task  
10 Force shall make recommendations to the Invasive Species  
11 Council as to what planned importations of nonnative  
12 aquatic organisms should be restricted. This profile shall  
13 be peer-reviewed.

14 (d) AUTHORIZATION OF APPROPRIATIONS.—There  
15 are authorized to be appropriated such sums as may be  
16 necessary for carrying out this section.

17 **SEC. 6. DISSEMINATION.**

18 (a) IN GENERAL.—The Invasive Species Council, in  
19 coordination with the Task Force, the United States Geo-  
20 logical Survey, and the Smithsonian Environmental Re-  
21 search Center, shall be responsible for disseminating the  
22 information collected under this Act to Federal, State, and  
23 local entities, including relevant policymakers, and private  
24 researchers with responsibility over or interest in aquatic  
25 invasive species.

1 (b) REPORT TO CONGRESS.—Not later than 3 years  
2 after the date of the enactment of this Act, the Invasive  
3 Species Council shall report actions and findings under  
4 section 5 to the Congress, and shall update this report  
5 once every 3 years thereafter, or more often as necessary.

6 (c) RESPONSE STRATEGY.—The Invasive Species  
7 Council, in coordination with the Task Force and other  
8 appropriate Federal and State agencies, shall develop and  
9 implement a national strategy for how information col-  
10 lected under this Act will be shared with Federal, State,  
11 and local entities with responsibility for determining re-  
12 sponse to the introduction of potentially harmful non-  
13 native aquatic species, to enable those entities to better  
14 and more rapidly respond to such introductions.

15 (d) PATHWAY PRACTICES.—The Invasive Species  
16 Council, in coordination with the Task Force, shall dis-  
17 seminate information to, and develop an ongoing edu-  
18 cational program for, pathway users (including vendors  
19 and customers) on how their practices could be modified  
20 to prevent the intentional or unintentional introduction of  
21 nonnative aquatic species into aquatic ecosystems.

22 (e) AUTHORIZATION OF APPROPRIATIONS.—There  
23 are authorized to be appropriated such sums as may be  
24 necessary for carrying out this section.



1 **SEC. 7. TECHNOLOGY DEVELOPMENT AND DEMONSTRATION.**  
2 **TION.**

3 (a) ENVIRONMENTAL SOUNDNESS SCREENING AND  
4 IMPROVEMENT.—Not later than 1 year after the date of  
5 the enactment of this Act, the Environmental Protection  
6 Agency, in consultation with the Army Corps of Engi-  
7 neers, the Fish and Wildlife Service, and the National Ma-  
8 rine Fisheries Service, shall establish a marine and fresh-  
9 water research, development, and demonstration program  
10 to develop a wider set of environmentally sound methods  
11 and treatment tools for detecting, preventing, controlling,  
12 and eradicating aquatic invasive species.

13 (b) DISPERSAL BARRIER RESEARCH PROGRAM.—

14 (1) ESTABLISHMENT.—Not later than 1 year  
15 after the date of the enactment of this Act, the As-  
16 sistant Secretary of the Army for the Corps of Engi-  
17 neers, in conjunction with the Fish and Wildlife  
18 Service and other appropriate Federal agencies and  
19 academic researchers, shall establish a research, de-  
20 velopment, and demonstration program to study en-  
21 vironmentally sound methods and technologies to re-  
22 duce dispersal of aquatic invasive species through  
23 interbasin waterways and assess the potential for  
24 using those methods and technologies in other wa-  
25 terways.

1           (2) ADDITIONAL WATERWAYS.—The Corps of  
2 Engineers in consultation with the Fish and Wildlife  
3 Service and other relevant Federal agencies, shall  
4 identify additional waterways suitable for further  
5 dispersal barrier research, development, and dem-  
6 onstration projects.

7           (c) SHIP PATHWAY TECHNOLOGY DEMONSTRATION.—

9           (1) REAUTHORIZATION OF PROGRAM.—Section  
10 1301(e) of the Nonindigenous Aquatic Nuisance  
11 Prevention and Control Act of 1990 (16 U.S.C.  
12 4741(e)) is amended by striking “\$2,500,000” and  
13 inserting “\$10,000,000 for each of the fiscal years  
14 2003 through 2007”.

15           (2) EXPANSION OF PROGRAM.—Section 1104(b)  
16 of the Nonindigenous Aquatic Nuisance Prevention  
17 and Control Act of 1990 (16 U.S.C. 4712(b)) is  
18 amended—

19                   (A) by redesignating paragraphs (4) and  
20                   (5) as paragraphs (5) and (6), respectively; and

21                   (B) by inserting after paragraph (3) the  
22 following new paragraph:

23           “(4) ADDITIONAL PURPOSES.—The Secretary  
24 of the Interior and the Secretary of Commerce may  
25 also demonstrate technologies under this subsection

1 to monitor and control pathways of organism trans-  
2 port on ships other than through ballast water.”.

3 (3) WORKSHOP.—The National Oceanic and  
4 Atmospheric Administration shall hold an annual  
5 workshop of principal investigators funded under  
6 section 1104 of the Nonindigenous Aquatic Nuisance  
7 Prevention and Control Act of 1990 (16 U.S.C.  
8 4714) and researchers conducting research directly  
9 related to ship pathway technology development, for  
10 information exchange, and shall make the pro-  
11 ceedings widely available to the public.

12 **SEC. 8. RESEARCH TO SUPPORT THE SETTING AND IMPLE-**  
13 **MENTATION OF SHIP PATHWAY STANDARDS.**

14 (a) RESEARCH PROGRAM.—The Coast Guard and the  
15 Environmental Protection Agency, in coordination with  
16 the Task Force and other appropriate Federal agencies  
17 and academic researchers, shall develop a research pro-  
18 gram to support the promulgation and implementation of  
19 standards to prevent the introduction and spread of  
20 invasive species by ships that shall include—

21 (1) characterizing physical, chemical, and bio-  
22 logical harbor conditions relevant to ballast dis-  
23 charge into United States waters to inform the de-  
24 sign and implementation of ship vector control tech-  
25 nologies and practices;

1           (2) identifying existing and research new ap-  
2           proaches to shipboard evaluation and monitoring of  
3           ship vector control technologies and practices;

4           (3) researching and demonstrating methods for  
5           mitigating the spread of invasive species by coastal  
6           voyages, including exploring the effectiveness of al-  
7           ternative exchange zones in the near coastal areas  
8           and other methods proposed to reduce transfers of  
9           organisms;

10          (4) verifying the practical effectiveness of any  
11          type approval process to ensure that the process pro-  
12          duces repeatable and accurate assessments of treat-  
13          ment effectiveness; and

14          (5) evaluating the effectiveness and residual  
15          risk and environmental impacts associated with any  
16          standard set with respect to the ship pathway  
17          through experimental research.

18          (b) PERFORMANCE TEST.—Within 1 year after the  
19          date of the enactment of this Act, the Coast Guard, in  
20          conjunction with the National Institute of Standards and  
21          Technology and the Maritime Administration, shall design  
22          a performance test for ballast water exchange such as a  
23          dye study to measure the effectiveness of ballast water ex-  
24          change.

1           (c) BEST PRACTICES.—Within 1 year after the date  
2 of the enactment of this Act, the Great Lakes Environ-  
3 mental Research Laboratory shall identify best practices  
4 that can improve the effectiveness of ballast water ex-  
5 change and shall report its conclusions to the Invasive  
6 Species Council.

7           (d) NATIONAL ACADEMY STUDY.—The Secretary of  
8 the Department in which the Coast Guard is operating  
9 shall enter into an arrangement with the National Acad-  
10 emy of Sciences under which the Academy shall—

11                 (1) identify the relative risk of transfer of var-  
12                 ious taxonomic groups by different ship modes;

13                 (2) assess the extent to which a ballast water  
14                 standard that virtually eliminates the risk of intro-  
15                 duction of invasive species by ballast water may re-  
16                 late to the risk of introductions by all ship modes,  
17                 and explain the degree of uncertainty in such assess-  
18                 ment; and

19                 (3) recommend methods for reducing organism  
20                 transfers by ships by addressing all parts and sys-  
21                 tems of ships and all related modes of transport of  
22                 living organisms, and identify the research, develop-  
23                 ment, and demonstration needed to improve the in-  
24                 formation base to support such methods, including  
25                 economic information.

1 Not later than 2 years after the date of the enactment  
2 of this Act, the Secretary of the Department in which the  
3 Coast Guard is operating shall transmit to the Congress  
4 a report on the results of the study under this subsection.

5 (e) RECOMMENDATIONS.—Not later than the later of  
6 1 year after the date of submission of the report under  
7 subsection (d), or 3 years after the date of the enactment  
8 of this Act, the Task Force, in conjunction with the Envi-  
9 ronmental Protection Agency, the Smithsonian Environ-  
10 mental Research Center, the United States Geological  
11 Survey, the National Oceanic and Atmospheric Adminis-  
12 tration (including the Great Lakes Environmental Re-  
13 search Laboratory), and other appropriate Federal and  
14 State agencies and academic researchers, shall submit to  
15 the Coast Guard a report that describes recommendations  
16 for—

- 17 (1) a ship pathway treatment standard that in-  
18 corporates all potential modes of transfer by ships;  
19 and  
20 (2) methods for type approval and accurate  
21 monitoring of treatment performance that are simple  
22 and streamlined.

23 (f) WORKING GROUP.—Not later than 2 years after  
24 the issuance by the Coast Guard of any standard relating  
25 to the introduction by ships of invasive species, the Coast

1 Guard shall convene a working group including the Envi-  
2 ronmental Protection Agency, the United States Geologi-  
3 cal Survey, the Smithsonian Environmental Research Cen-  
4 ter, the National Oceanic and Atmospheric Administra-  
5 tion, and other appropriate Federal and State agencies  
6 and academic researchers, to evaluate the effectiveness of  
7 that standard. The duties of the working group shall, at  
8 a minimum, include—

9           (1) as possible, reviewing the effectiveness of  
10       the standard in reducing the establishment of  
11       invasive species in aquatic ecosystems, taking into  
12       consideration the data collected under section 4; and

13           (2) developing recommendations to the Coast  
14       Guard for the revision of such standard and type ap-  
15       proval process to ensure effectiveness in reducing in-  
16       troductions and accurate shipboard monitoring of  
17       treatment performance that is simple and stream-  
18       lined, which shall be made widely available to the  
19       public.

20       (g) AUTHORIZATION OF APPROPRIATIONS.—There  
21       are authorized to be appropriated such sums as may be  
22       necessary to carry out this section.

23 **SEC. 9. RESEARCH IN SYSTEMATICS AND TAXONOMY.**

24       (a) IN GENERAL.—The National Science Foundation  
25       shall establish a program to award grants to institutions

1 of higher education to carry out research programs in  
2 systematics and taxonomy.

3 (b) MERIT REVIEW.—Grants shall be awarded under  
4 this section on a merit-reviewed competitive basis.

5 (c) AUTHORIZATION OF APPROPRIATIONS.—There  
6 are authorized to be appropriated for carrying out this sec-  
7 tion \$500,000 each of the fiscal years 2003 through 2007.

○