



Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

THE NATIONAL INVASIVE SPECIES ACT

An Information Update by the Union of Concerned Scientists
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At a time when real progress on most major environmental issues is stalled, bipartisan groups on Capitol Hill are moving to strengthen legislation on invasive species. Their focus is the National Invasive Species Act (NISA), due to expire in September 2002. Since 1990, NISA and its underlying law have been among the few US laws addressing invasives. Despite its comprehensive title, NISA aims chiefly to prevent unintentional introductions of aquatic species via the ballast water of ships, especially into the Great Lakes. Even in this narrow arena, evaluations of NISA's effectiveness show that neither the law nor its implementation is adequate.

UCS has laid out an overarching approach to reauthorization and specified a number of new elements that could help NISA live up to its name. In general, we aim to correct the weaknesses that make the current law ineffective; for example, by making sure it applies across the United States. Also, we want to ensure that the reauthorized bill has new and effective provisions that apply to all invasive or potentially invasive aquatic taxa and all major pathways of introduction. The most ambitious of our specific objectives are:

- requirements for effective pre-import screening for all aquatic taxa that are intentionally introduced;
- provisions for generating revenue sufficient to ensure that these screening programs are adequately funded; and

- rapid deployment of methods to prevent or substantially reduce unintentional introductions via pathways other than ballast water.

In the past year, prominent scientists, key regional groups, and several environmental organizations have recommended ways to strengthen NISA. Never before has there been such a strong and broad consensus for strengthening the law. Thus, NISA's reauthorization provides one of our best opportunities for improving important US environmental policy. Since NISA is usually authorized for five years, it is a chance that won't come again soon. On the other hand, little time remains in the current session of Congress, some key issues in the legislation continue unresolved, and last-minute opposition may materialize. Thus there is a chance that Congress will wait until next year to act on NISA.

In this update, we provide:

- the historical context for this legislation,
- NISA's underlying 1990 law and 1996 reauthorization;
- the law's current successes and concerns;
- the opportunity to strengthen NISA and UCS's policy position;
- the status of NISA's reauthorization; and
- our conclusion, references, and other resources.

More than 2,500 UCS members and activists have already asked their congressional delegations to strengthen NISA. Their actions put reauthorization on Congress' radar screen. Now we turn to the details of passing a strong bill.

THE POLICY OF INVASIVE SPECIES: STRENGTHENING THE NATIONAL INVASIVE SPECIES ACT

The National Invasive Species Act (NISA) is one of only a handful of US laws that aim to prevent or limit problems caused by invasive species. Despite its name, NISA is far from comprehensive. Its strictest and most detailed provisions are limited with respect to both geography and vector—that is, they relate to the unintentional introduction of aquatic organisms via ship’ ballast water into the Great Lakes.

On the other hand, NISA applies broadly to the protection of native aquatic species and ecosystems as well as economic interests. This makes NISA unusual at a time when most invasive species law is charged solely with preventing damage to agriculture, forestry, or similar economic interests. As such, NISA’s upcoming reauthorization deserves considerable support. It is UCS’s aim to expand NISA at the same time. In general, our intent is to correct the weaknesses that make even the narrow provisions of the 1996 law ineffective. Also, we want to ensure that the reauthorized bill has new and effective provisions that apply across the United States, to all invasive or potentially invasive aquatic taxa, and to all major pathways of introduction.

1. HISTORICAL CONTEXT

In the late 1980s, zebra mussels (*Dreissena polymorpha*) invaded Lake St. Clair, probably hitchhiking in the ballast water of a commercial ship arriving from Europe. Within a few years, they were abundant enough to temporarily shut down the water supply of Monroe, Michigan. Power plants, water treatment facilities, and factories in New York, Ohio and Michigan faced drastic reductions in their water intake due to mussel-clogged pipes. Total projected costs were huge. Five billion dollars was a commonly cited estimate for the years 1978 to 2000. (A more accurate number turned out to be between \$750 million and \$1 billion. See Carlton 2001.)

Zebra mussels only added to the worries of Great Lakes resource managers. They had already seen the near-collapse of fisheries in the 1950s due to the invasion of sea lampreys (*Petromyzon marinus*). In addition, a small, non-native forage fish, the Eurasian ruffe (*Gymnocephalus cernuus*), had been detected

near Duluth in 1986; scientists expected it to spread and affect several native fish. By 1989, there was a sense that “[i]rreversible loss in biological diversity was inevitable; the only question was whether the degradation would be cataclysmic, or gradual and insidious” (Cangelosi 1995).

The prospect of huge economic costs, additional threats to fisheries, and broader environmental losses provided Congress with the political will to act. Ships’ ballast water was considered the major vector of the worldwide movement of aquatic species (Ruiz et al. 1997). In the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (P.L. 101-646), Congress tackled this vector.

2. THE LAW THAT UNDERLIES NISA: THE NONINDIGENOUS AQUATIC NUISANCE PREVENTION AND CONTROL ACT OF 1990 (NANPCA)

This was the first significant new legislation on invasive species in 16 years. The law provided that ships that enter the Great Lakes after operating outside the US 200 nautical mile “exclusive economic zone” exchange their ballast water in the high seas or otherwise treat it. The Coast Guard was charged with developing related voluntary guidelines within six months and mandatory regulations within two years. (Modern ships may carry more than 100,000 tons of ballast water for stability and balance when they are empty. Empty ships pump ballast water onboard in one port and discharge it in another before they are reloaded. Exchanging coastal water for high seas water while in transit reduces the number of near-coastal organisms discharged in another port.)

In addition, the law established the federal Aquatic Nuisance Species Task Force. Under the leadership of the US Fish and Wildlife Service and the National Oceanic and Atmospheric Administration, the Task Force was charged with developing a broad program on aquatic introductions. Congress specified a number of the program’s elements, including, for example, a series of biological and policy reports and a cost-sharing effort to help states create and implement statewide management plans for aquatic invaders. Among the former was a review of policies related to intentionally introduced aquatic species.

3. THE 1996 REAUTHORIZATION

By the time the 1990 law was set to expire, negative impacts of aquatic invaders were showing up virtually everywhere in the United States. Ballast water remained the leading pathway of unintentional introductions, and pressure was mounting on the maritime industry to change its practices. This helped ensure that the 1990 law would be improved.

NANPCA was reauthorized and amended in 1996 and renamed the “National Invasives Species Act” (or NISA). Although the name was comprehensive, the legislation’s scope changed only incrementally.

Exchanging ballast water on the high seas remained the main tool for preventing further introductions of aquatic species. As before, ballast water exchange was mandatory for ships entering the Great Lakes. For other destinations, ships were asked to meet voluntary guidelines. NISA instructed the Coast Guard to establish record-keeping, reporting, and sampling systems in order to monitor compliance with the voluntary guidelines. If either voluntary compliance or mandatory reporting proved inadequate, NISA stipulated that the voluntary guidelines would become mandatory--without further Congressional action. Measuring how well ballast water exchange prevented new introductions was more difficult: neither NISA nor the Coast Guard set enforceable biological standards to distinguish successful from unsuccessful ballast water exchange.

Also, NISA authorized research on several topics. Among these were water treatment methods that might replace ballast water exchange and physical barriers intended to prevent the spread of zebra mussels into the Mississippi River drainage via the Chicago River. NISA also authorized money for a new clearinghouse for national data on ballast water.

A number of significant gaps remained after NISA was passed. The Aquatic Nuisance Species Task Force had made a number of recommendations to Congress in its review of intentional aquatic introductions (ANSTF 1994) but these were not incorporated into NISA. Unintentionally introduced organisms arriving by ship--but not in ballast water (such as fouling organisms on hulls)--were not addressed. Ships operating within the US exclusive

economic zone remained exempt from NISA’s regulations and guidelines.

4. SUCCESSES OF THE CURRENT LAW

For more than a decade, NANPCA and NISA have brought much-needed attention to the global movement of aquatic species in ballast water. The US Coast Guard’s 1993 rules for mandatory ballast water exchange in the Great Lakes, for example, were the first such regulations in the world (Ballast Water Work Group 1995). Also, these laws mobilized considerable resources. The United States accounted for nearly 50% of total global funding for ballast water research in the 1990s (Mays 2001).

With the creation of the interagency Aquatic Nuisance Species Task Force, the 1990 law set a precedent for interagency cooperation--a useful approach that continues to mark US policy on invasive species. The Task Force got off to a rocky start (US Congress 1993). Since then, its meetings have become a helpful place for groups to share information and coordinate work. Because the Task Force was established by law, it commands more attention, resources, and compliance from federal agencies than similar interagency groups without similar formal imprimaturs.

NISA’s role in promoting the development and implementation of state plans for managing aquatic invaders has been another plus. Nine states and interstate groups have gained the Task Force’s approval for their own plans, with another 13 in progress. Also, the law has encouraged regional approaches. Four areas now have official regional panels working with the national Task Force, each with strong support from its participants.

NISA took a modest but thoughtful stepwise approach to regulation by beginning with voluntary guidelines, authorizing related research, then requiring mandatory regulations if that research had certain results. By 2001 it was clear that NISA’s conditions for making guidelines mandatory had been met (US Coast Guard 2001). In June 2002, the Coast Guard laid out a timeline for that change.

5. CONCERNS ABOUT THE CURRENT LAW

The major concerns regarding NISA stem from its narrow mandate and even narrower implementation. “NISA and the underlying 1990 legislation have been criticized as inadequate and flawed, and the agencies responsible for implementing the Act have failed to carry out many of its provisions...The Great Lakes states have been particularly upset...” (Anon. 2001).

For ballast water, these concerns center around the law’s limited geographic applicability (its strictest provisions apply only to the Great Lakes); its exclusion of vessels moving along US coasts; and its lack of enforceable standards to ensure that living organisms are removed from ballast water successfully.

But there are even more fundamental concerns over the basics: whether ballast water exchange at sea can prevent new introductions. In its first biennial report, the National Ballast Water Clearinghouse found that only about 30% of ships were completing the reports required by NISA and only about half of those had performed mid-ocean ballast water exchange (Ruiz et al. 2001). This was far too low to tell whether voluntary ballast exchange was working.

Regardless, new invasive species continued to reach the Great Lakes, where mandatory ballast water exchange has been in place for nearly a decade (Ayles, 2000; Brandt 2001; Long 2001). As a result, the Coast Guard and others concluded that ballast water exchange did not provide adequate protection (US Coast Guard 2001).

At least six states have either already adopted, or are considering, tougher regulations for ballast water management than the Coast Guard’s. Their actions are driven by the perception that the current national approach is inadequate and that unique regional problems need to be addressed (Mays 2001).

Both NANPCA and NISA recognized that ballast water was not the only important pathway by which damaging aquatic species reach US waters. Both laws asked federal agencies to identify additional pathways of introductions and to assess their risks. Where risks of adverse consequences are high, agencies were told to minimize those risks. Unfortunately, Congress did not assign these tasks to specific agencies or provide

deadlines and budgets. Thus, federal agencies have had few incentives to move ahead, nor has the Aquatic Nuisance Species Task Force been able to inspire this work. So agencies have not acted, and key gaps remain in US policy.

Congressional appropriations have never met the amounts authorized in NISA. A “severe lack of funding for the implementation of its programs” has resulted, according to the bipartisan group of US legislators who wrote the leaders of their respective Appropriations Committees in 2002 (Mays 2002). For example, the amount of money available for states to implement their approved management plans was too low to provide sufficient incentive for a large group of states to participate.

6. THE OPPORTUNITY TO STRENGTHEN NISA AND UCS’S POLICY POSITION

NISA’s current reauthorization takes place under new and exciting circumstances. Never before has there been such strong and broad support for strengthening the law. Prominent scientists continue to speak out (see Carlton 2001, for example). A large number of influential regional groups have considered or recommended specific changes. These include three regional panels of the federal Aquatic Nuisance Species Task Force, the Chesapeake Bay Program, the Great Lakes Commission, three regional Marine Fisheries Commissions, and participants in a special NISA reauthorization workshop held at the California Maritime Academy (Ballast Water Task Force 2001; Great Lakes Panel on Aquatic Nuisance Species 2001; Gulf of Mexico Regional Panel 2001; Lukens 2002; West Coast Ballast Outreach Project 2001; Western Regional Panel 2001). The willingness of states to exceed federal approaches has built pressure for a nationwide approach that is not just consistent but also stronger. And, for the first time, a few environmental groups have helped shape early drafts of the legislation, formed a coalition to advance its aims, and mobilized activist networks to help pass a strong bill.

There is considerable agreement among key experts on what the new law should contain. In general, most want the new legislation to correct shortcomings of current efforts, especially regarding the management of ships’ ballast water. Also, there is strong interest in expanding NISA. UCS agrees with both goals. We

have identified seven specific objectives and we seek to ensure that a reauthorized NISA incorporates:

- effective screening, before import, of all aquatic taxa that are intentionally introduced;
- effective management of ships' ballast water, with a transition away from primarily relying on ballast water exchange to using more effective ballast water treatment;
- rapid development and application of methods to reduce or prevent unintentional introductions via major pathways other than ballast water;
- standards for screening and ballast water treatment consistent with the most comprehensive approaches being taken by states;
- provisions for generating revenue sufficient to fund effective screening and treatment programs;
- monitoring programs sufficient to detect new introductions early, combined with provisions for responding rapidly; and
- a strengthened process for independent and ongoing scientific review of proposed standards and approaches.

In some cases, these changes could be accomplished by Congress with little more than assigning tasks and setting deadlines for work sketched out by NANPCA in 1990. Similar but less ambitious aims were laid out by the interagency National Invasive Species Council in its first national management plan (NISC 2001). This work has paved the way for strengthening policy. The NISC Management Plan, however, did little to set priorities among its 57 "responses" or "actions planned"; it is subject to the vagaries of political will in the Executive Branch; and it does not have the force of law. Thus enacting key provisions into NISA will help ensure that federal agencies address each topic in a timely way--and provide the public with recourse if they do not.

We believe that these objectives are consistent with sound ecological principles and represent areas of consensus among key experts and regional groups. To date, UCS has publicized our approach to reauthorization and asked UCS members and a large group of environmental activists to urge Congress to take action on NISA. You may have seen this request in the summer issue of "Catalyst" if you are a UCS member. We intended these letters to pique congressional interest and set the stage for a successful reauthorization. Almost 2,500 people, from

all 50 states, wrote to Capitol Hill. This is a remarkable showing for such a specialized topic with limited public engagement.

7. STATUS OF THE CURRENT REAUTHORIZATION

Achieving our aims is far from sure. There is considerable uncertainty in both the timing and content of NISA's reauthorization. With an August recess and November elections, little time remains in this session of Congress, and both houses are occupied with other issues. At best, NISA could be introduced in early September and pass swiftly. It is also likely, however, that NISA's reauthorization could be delayed until 2003, especially if Congress does not schedule a post-election lame duck session. Regardless, we expect the focus to remain on aquatic species and ecosystems. Also, we expect the bill to detail major changes in the way ballast water is managed.

So far, a few members of Congress have either introduced or expressed interest in related bills that could be melded into NISA. These include the Species Protection and Conservation of the Environment Act (H.R. 3558); the Great Lakes Protection Act (H.R.1680; S.1034); and a bill to help Maryland and Louisiana manage nutria and its damage (H.R.4044).

Congressional committees have held two relevant hearings. In May, two subcommittees of the House Transportation and Infrastructure Committee held a joint hearing on implementation of the current law (US Congress 2002b). This was in the midst of Congressional Invasive Species Week. The hearing focused on implementation of NISA's voluntary guidelines for managing ballast water and the US Coast Guard's efforts came under heavy fire. Witnesses from a range of industry and public interest groups supported the move from voluntary guidelines to mandatory ones as quickly as possible. Both Republicans and Democrats voiced concern that invasive species problems are not being addressed adequately. In fact, the degree of bipartisan support expressed here solidified key Members' plans to move ahead strongly on NISA's reauthorization.

On June 20th, the House Science Committee's Subcommittee on Environment, Technology, and Standards held a hearing on research priorities for aquatic invasive species (US Congress 2002a). Witnesses pressed for additional research on a range of topics, including the invasion process, especially in its earliest stages; ways to track invasion patterns and rates; and methods for treating ballast water. When the discussion turned to funding options, a California official highlighted that state's fee-based Exotic Species Control Fund, established by a 1999 state law (Falkner 2002).

So far, there has been no open opposition to NISA's reauthorization. Facing the prospect of complying with divergent state laws, the shipping industry has become more willing to discuss stronger national approaches to ballast water management. But shippers are likely to want federal preemption of states' tougher policies in return. This will be a hot-button issue when NISA comes before Congress. In the past, the aquarium, aquaculture, and horticulture industries have opposed screening organisms for invasiveness before import; they have yet to state their position on adding screening to NISA.

8. CONCLUSION

Scientists and environmentalists have worked long and hard to protect native species and ecosystems from pollution and habitat loss, only to find these gains at risk from the unchecked spread of invasive species. Together with climate change, invasives are now among the most serious global environmental changes underway, causing enormous damage in the United States and around the world.

Current national and international law remains a poor match for a problem of this magnitude and complexity. Certainly this is true in the United States, where most of our few related laws aim to protect agriculture or industry. Even these often address only a narrow aspect of the issue. None adequately protects US resources at today's volume of global trade.

Reauthorization of NISA provides a rare, perhaps even unique, opportunity to improve US invasive species law. We believe that the voices of scientists and other constituents will be important in demonstrating support for unprecedented changes to this legislation, in shoring up support from key

congressional supporters, and in countering opposition by industry or other groups. We hope you will be involved.

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10. ADDITIONAL RESOURCES

Aquatic Nuisance Species Task Force:
<http://www.anstaskforce.gov/>. Website of the
federal interagency group, with links to regional
and state efforts.

National Marine Invasions Center:
<http://invasions.si.edu/>. Home to the National
Ballast Water Information Clearinghouse and the
National Marine and Estuarine Invasions
Database.

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Controlling Introductions of Nonindigenous
Species by Ships' Ballast Water. Washington,
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Northeast Midwest Institute: <http://www.nemw.org>.
Authoritative technical and policy analysis on
ballast water management, NISA, and its legal
predecessor in the section called "Biological
Pollution."

US Geological Survey's site, Nonindigenous Aquatic
Species: <http://nas.er.usgs.gov/>. Packed with
information on individual species.

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