

North Dakota

AQUATIC NUISANCE SPECIES (ANS) MANAGEMENT PLAN

*Protecting our aquatic resources for the future
through education and responsible actions by all;
the public, public officials entrusted to manage
North Dakota's resources in a responsible manner!*

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Table of Contents

ACKNOWLEDGEMENTS	i
EXECUTIVE SUMMARY	ii
INTRODUCTION	1
STATE AUTHORITIES, REGULATIONS, AND PROGRAMS	6
FEDERAL AUTHORITIES AND REGULATIONS	8
PROBLEMS AND CONCERNS	10
WESTERN REGIONAL PANEL RECOMMENDATIONS ON STATE ACTIONS TO IMPROVE REGIONAL CAPACITY FOR MANAGING AQUATIC INVASIVE SPECIES	14
BUILDING NORTH DAKOTA’S AQUATIC NUISANCE SPECIES RESPONSE MANAGEMENT ACTIONS TO PROTECT THE FUTURE	16
<u>Objective 1</u> : Coordination of aquatic nuisance species activities and preparing/implementing a comprehensive management plan	17
<u>Objective 2</u> : Prevent the introduction of aquatic nuisance species into North Dakota.	19
<u>Objective 3</u> : Detect a pioneering aquatic nuisance species and monitor existing populations of aquatic nuisance species.	21
<u>Objective 4</u> : Educational campaign to prevent the spread of aquatic nuisance species.	23
<u>Objective 5</u> : Where feasible, control and eradicate pioneering or established aquatic nuisance species that have significant impacts on native or desirable species.	26
<u>Objective 6</u> : Inform the policy makers about the risks and impacts of aquatic nuisance species.	27
<u>Objective 7</u> : Increase the aquatic nuisance species knowledge base and disseminate that knowledge in North Dakota through compiling data, conducting research and informational publications.	27
PUBLIC INVOLVMENT	27

BUDGETING	29
PRIORITIZING OBJECTIVES AND STRATEGIES TO BEGIN AQUATIC NUISANCE SPECIES MANAGEMENT IN NORTH DAKOTA	29
PROGRAM MONITORING AND EVALUATION	32
DEVELOPMENT OF REASONABLE AQUATIC NUISANCE SPECIES REGULATIONS AND EMPHASIS ON PROMOTING PREVENTING THE INTRODUCITON OF ANS INTO NORTH DAKOTA’S WATERS	32
NORTH DAKOTA STATEWIDE MANAGEMENT PLAN	34
GLOSSARY	35
LITERATURE CITED	37

APPENDICIES

- [Appendix A:](#) *Section 1204 of the National Invasive Species Act of 1996*
- [Appendix B:](#) *Authorities and Regulations Provided by the State of North Dakota*
- [Appendix C:](#) *Federal Laws Addressing Aquatic Nuisance Species Relevant to North Dakota*
- [Appendix D:](#) *Executive Order 13112*
- [Appendix E:](#) *Public Comments (reference the North Dakota's statewide aquatic nuisance species management plan.*
- [Appendix F:](#) *Budget Matrix for North Dakota's Aquatic Nuisance Species Management Plan*
- [Appendix G:](#) *Invasive Aquatic Nuisance Species Issues for the North Dakota Legislature*
- [Appendix H:](#) *Agencies, Public and Private Groups, and Individuals (the representative) on the Aquatic Invasive Species Committee*
- [Appendix I:](#) *Flow chart for Aquatic Invasive Species Committee and various agencies and entities, public and private.*
- [Appendix J:](#) *Technical Advisors and Individuals that Reviewed North Dakota Aquatic Species Management Plan*
- [Appendix K:](#) *Invasive Aquatic Species Committee Meeting Dates and Summary of that meeting, and How the North Dakota statewide aquatic nuisance species plan was developed.*
- [Appendix L:](#) *Outtakes from: RISK ASSESSMENT FOR THE INTRODUCTION AND ESTABLISHMENT OF AQUATIC NUISANCE SPECIES IN NORTH DAKOTA*
- [Appendix M:](#) *List of Non-indigenous Aquatic species in North Dakota*
- [Appendix N:](#) *North Dakota Rapid Response Plan*

Attachments:

**2004 PROGRESS REPORT NORTH DAKOTA AQUATIC NUISANCE SPECIES
MANAGEMENT PROGRAM** by LR Schlueter, Special Project Biologist, North
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EXECUTIVE SUMMARY

NORTH DAKOTA'S STATEWIDE AQUATIC NUISANCE SPECIES (ANS) MANAGEMENT PLAN

Each year more nuisance aquatic plants and animals enter the United States and they are getting closer to North Dakota. So far, North Dakota has a very limited number of aquatic nuisance species (ANS), and only in isolated infestations. As they arrive, ANS will affect more than just anglers, boaters, and hunters. ANS infestations will impact cities, power companies, water transfer projects, and landowners. In short, ANS impacts anything and anyone dependent on surface waters. It is easy to understand the problem by picturing the negative impacts noxious plants such as leafy spurge, musk thistle, and Canada thistle have had on agriculture. This is the same issue, but in the water instead of on land. Our natural resources, alone won't feel the only impacts of ANS. If North Dakota had zebra mussel infestations, the costs for additional maintenance and monitoring for water intakes is estimated to be \$383,000 and \$787,000 for power plant cooling tower. These costs are passed on to the consumer. ANS infestations will affect communities and business relying on water-based recreation such as boating, hunting, and fishing. A 10% reduction in visits to North Dakota can equate to a loss of \$3.2 million dollars in direct hunting and fishing expenditures in the local economy. Water transfer and water pipeline projects can be blocked by ANS concerns and become more expensive to build and operate. Minnesota has spent approximately \$1 million dollars annually in its ANS control projects, without eliminating the problems. ANS equates to irreparable damage to North Dakota's economics and its natural resources.

ANS are arriving in our state because of recreational, commercial, and consumer activities. There is increased interstate travel for recreation which means more boats and other equipment coming from ANS infested waters are coming to North Dakota. Also, increasing commercial importation of undesirable species to support the pet trade, water gardens, and landscaping means it is easier for a noxious species to enter commercial markets and become widely distributed. The global market now provides a pathway for new, noxious species to find their way to our door step with a phone call, placing an order, and having overnight delivery.

The saying, "An ounce of prevention is worth a pound of cure" is a dramatic truism with ANS. The most important lesson learned from the experiences of other states is the wisdom that prevention is much more effective and much cheaper. Prevention requires very intense and effective public education, developing partnerships, voluntary actions, and state agencies' responsibilities for coordinating scarce resources on the areas of the highest risk. To date, most of North Dakota's ANS prevention and control efforts have been loosely organized and under funded.

North Dakota managers are slowly becoming more aware of this management challenge and are trying to address the portions of the problem that fall under their jurisdictions. The problem is that there is no clear authority or single agency charged with comprehensively managing ANS problems. Most management efforts have

focused on reacting to isolated infestations, not a comprehensive set of strategies to prevent or control ANS. The current situation is much like a family that has a very basic insurance policy with limited coverage for catastrophic events. While some things are covered, there are many risks that are not or can only be handled after a extensive paperwork and a long wait. Some of North Dakota's ANS problems are covered by existing state activities and funding but there are many that are not. Most state agencies have only reacted to infestations that have become well established. Chiefly missing is coordination of ANS activities across public and private sectors, limited reach of projects that legitimately fall under current state agency mandates, and a lack of funding to allow consistent actions to protect North Dakota's natural resource, continue existing ecosystems, and plant and animal communities. North Dakota is 'under-insured' for the many different ANS risks which we will be facing.

The North Dakota Aquatic Invasive Nuisance Species Management Plan (ND-Plan) intends to:

- Form an advisory board, i.e., Aquatic Invasive Species Committee (AISC), to coordinate ANS prevention and control activities, and encourage state agencies and the private sector to become involved in ANS prevention and response;
- Develop a list of ANS that cannot be brought into or transported within North Dakota;
- Organize educational and outreach efforts for the public and private sectors, and use a target audience approach to marketing ANS prevention;
- Monitor waters at high risk for ANS, and determine the pathways of importation into or within the state;
- Recommend an approach for early detection and rapid response to control a pioneering infestation;
- Recommend legislative solutions that can help protect North Dakota's human and natural resource communities from ANS damage;
- Make North Dakota eligible for federal matching funds and provide a way to set priorities for allocating funds for ANS prevention and control, leverage these funds with local communities, private entities, and governmental agencies; and
- Improve collaboration between national, regional, state, and local ANS prevention efforts.

The ND-Plan relies on state agencies and non-governmental partners working together to prevent or control ANS infestation. The cooperative effort of all state agencies and North Dakotans is our best deterrent to ANS damage.

INTRODUCTION

What are ANS?

Aquatic nuisance species (ANS) are nonindigenous, obligate aquatic plants or animals that threaten economic stability, human health, native or desirable species, or the ecological health of waterbodies. ANS infestations have negative impacts on commerce, agriculture, aquaculture, recreation, or just about any activity dependent on the state's waters. When noxious plants and animals are introduced, they can quickly become a problem as the new environments lack natural controls, i.e., diseases and predators, and the populations rapidly expand. The negative effects of ANS to native and desirable aquatic resources are difficult to measure, but those consequences are real and dramatic. In a recent study, invasive species, which include ANS, are imposing an economic burden of \$137 billion dollars/year, in the United States (Pimentel et al. 1999). North Dakota's agriculture sector is already aware of the impacts of noxious species such as leafy spurge and various non-native thistles. ANS are just the aquatic version of this problem, but able to impact any sector that relies on North Dakota's surface waters.

What is our situation?

North Dakota is a prairie state where water is often a scarce resource. ANS invasions create risk to domestic, municipal, agricultural, and industrial supplies, and to recreational water use. Compromising water supplies is a threat North Dakota's cities and rural communities, disrupts economies, and damages natural resources.

Much of North Dakota's municipal water supplies are from rivers, reservoirs, and lakes. These resources are in jeopardy from ANS infestations. Imagine the consequences of these supplies becoming fouled with a nuisance species such as zebra mussels. These animals clog water intakes which increases annual maintenance costs. When they die in large numbers, their shells litter beaches and the smell of decay is in the air and water. When there is a large die-off, the dead mussels create a nuisance and human health risk – especially to potable water supplies. These die-offs disrupt recreation and reduce waterfront property values. By filtering plankton from the water, zebra mussels displace desirable fish and wildlife through competition and disrupt the biological health of waterbodies. Wastes from zebra mussels foul the bottom substrates, and greatly modify habitats.

Are these risks of zebra mussels real or imagined? The reality is that zebra mussels are being moved closer to North Dakota each year. In their wake, ANS has left significant economic problems, ecosystem impacts, damaged natural resources, and new social problems. The nearest infestation to North Dakota is less than 150 miles to the east in Lake Ossawinnamakee in Minnesota. An ounce of prevention is a good investment when dealing with ANS.

There are five important points: 1) ANS is now only a small problem in North Dakota; 2) The risks from ANS are real, and ANS are closing in on North Dakota's borders; 3) Prevention of ANS is more practical and less expensive than control; 4) Negative impacts will occur to all those who depend on water from an ANS infestation; and 5) Additional and dedicated funds are needed to continue and improve North Dakota's ANS prevention efforts.

What is at risk?

While North Dakota has been lucky so far with having few ANS infestations (USGS, 2000), the long term threat is apparent. Examples of the immediate economic and environmental risks include:

- **Outdoor Recreation:** Outdoor recreation is important to North Dakota's economy contributing \$468,500,000 in 2001 from hunting and fishing alone (Bangsund and Leistriz, 2003). Non-resident anglers spent \$31.9 million dollars in North Dakota in 2001-2002. If an ANS infestation reduces visitation by even a modest amount (say 10%) it would amount to a significant loss of revenue to the state (about \$3.2 million dollars in this example). Salmon fishing in Lake Sakakawea supports approximately 13 thousand angler days per year which equates to a value of \$1.8 million dollars annually (Power, 2004). The salmon population could be reduced by whirling disease, a viral pathogen found in states to the west.



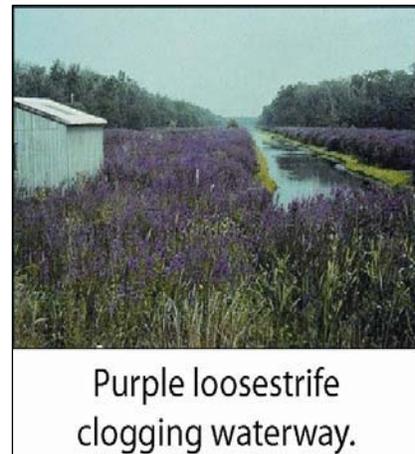
- **Water Users:** Several North Dakota industries, all major cities, and many rural water pipe lines rely on supplies of surface water. An industrial water user has only to look to our neighbors to the east and the problems they are having, and then think about the risk to our state. ANS bivalve infestations in the Midwest and the eastern part of the United States are costing \$1 billion dollars annually (Khalanski, 1997). In the upper Midwest, a medium sized city spends about \$383,000 per year per water intake (Jensen, 2004). To clean ANS from power cooling towers, the annual cost is nearly \$787,000 per site (Jensen, 2004).



- Agriculture: Water flows in canals and irrigation pump intakes are clogged by Brazilian Elodea (WASHINGTON DEPARTMENT ECOLOGY, 2004). This plant also creates problems for boaters and anglers. Heavy growth of these plants will displace native plants and waterfowl production is curtailed in infested lakes and rivers. The same statements are true about the effects of Eurasian watermilfoil on water uses.



- Natural Resources: Even a minor zebra mussel infestation can reduce desirable fish populations by about 35% (Schlueter, 2004). Heterospora spp. (a microsporidan) has been found in Minnesota and Wisconsin waters for approximately 15 years affecting fish species such as fathead minnows, walleye, yellow perch, largemouth bass, and channel catfish. Purple loosestrife was found in a few isolated locations along the Red River near Lockport, Manitoba in 1944, but it now has invaded and displaced native species in thousands of acres of the wetlands (Manitoba Purple Loosestrife Project, 2002).



- Property Values: People will pay more to live next to water, but lake front property values in Pennsylvania dropped approximately 15% where Eurasian watermilfoil infestations occurred. The consequent reductions in county property tax revenues were off-set by increased tax rates on other items. Environmental and economic problems caused by the dense growth of these weeds includes impairment of water-based recreation, navigation and flood control, degradation of water quality



and fish and wildlife habitat, and accelerated filling of lakes and reservoirs. Eurasian water milfoil is found within 150 miles of North Dakota's borders (Exotic Species Program, 2004).

- Un-infested waterbodies: As ANS are moved to new areas, the cost to control the problem also increases. Minnesota's first Eurasian watermilfoil infestation was reported in 1987. This ANS spread because control efforts were not quickly put into place. Minnesota now has Eurasian watermilfoil in 152 lakes, reservoirs, streams and rivers (Exotic Species Program, 2004). It is estimated that Minnesota spends approximately \$1 million dollars annually to control Eurasian watermilfoil. Yet the problem has not been eliminated at this spending level. Movement of ANS into or within North Dakota will likely create similar costs. This means monies and man-power reallocated from other recreational projects.



Who manages ANS?

States are in the lead. Each state has a pivotal role in managing ANS inside its borders. Most states have noxious weeds laws and at least some level of management on other deleterious species. For ANS prevention and control efforts, state governments have become the focal point for managing ANS inside their borders. States are writing ANS management plans to coordinate different activities, setting priorities for intelligently allocating scarce resources, and creating management systems that can learn, and adapt programs to meet changing needs.

Federal government is involved. The introduction and spread of ANS continues even though the problems, e.g., damage to ecosystems, degradation of natural resources, increased socio-economic costs to water users, and other impacts are well known (Lassuy, 1994). As a result, the federal government has taken an active interest. In 1990, the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) began providing federal funds to implement states ANS management plan. While programs created by this national legislation were initially directed at the Great Lakes region, the reauthorization of NANPCA in 1996 as the National Invasive Species Act

(NISA) established a national goal of preventing the introduction and spread of ANS in all states. NISA specifies, among other things, that state plans identify feasible, cost-effective management practices and measures that can be implemented by a state to prevent and control ANS infestations in an environmentally sound way. Approval of North Dakota's ANS plan will make federal funds available for North Dakota in ANS prevention efforts (Appendix A). Federal agencies, like the Department of the Interior, is to ensure that American Indian resources and federal lands are properly managed, protected, and conserved – including protection from ANS damage. Generally speaking, the various federal agencies managing ANS on agency and tribal lands, provide policy reviews and other technical services, and educate, conduct training, act as a liaison, and information services. This makes federal agencies and Indian tribes important partners in a state's ANS management scheme.

There is regional cooperation. Various regions of the United States have come to realize that one state's problem is really a problem that affects other states. It is easy for North Dakota to imagine this by considering that an ANS infestation in the Missouri River or the Mississippi River will not stop at our borders. In response to the ANS threat, the Western Governor's Association created the Western Regional Panel in 1997. The Panel was tasked with helping states limit the introduction, spread and impacts of ANS into western North America. The Panel is a combination of public and private sector participants working together to protect Western water resources from ANS.

History of management in North Dakota. ANS problems in North Dakota have long been recognized by state and federal agencies, and the private sector. Efforts to control ANS have been funded as an extra project with some funds moved from other internal sources or from available federal funding sources. The North Dakota Game and Fish Department began working with the US Fish and Wildlife ANS-Task Force, the 100th Meridian, and Western Governors Regional Panel in the mid-1990's to secure funds that were utilized in forming partnerships with other North Dakota natural resource agencies for ANS education and prevention activities. These funds allowed signs to be placed at boat ramps in North Dakota Department of Parks and Recreation areas and in areas operated by the US Army Corps of Engineers (COE). Publications by the North Dakota Tourism Department contained educational information which was distributed to nonresidents. Signs to increase ANS awareness were developed, and posted in bait shops, sporting goods stores, boat dealer ships, and at local chambers of commerce offices. Monitoring of waterbodies for ANS infestations was done by North Dakota Game and Fish field staff and COE staff. ANS impact to North Dakota's resources and to long term operational and maintenance impacts were discussed with the North Dakota Department of Health, State Water Commission, Fish and Wildlife Service-Fisheries Assistance Operation, and Bureau of Reclamation. Local Water Resource Boards were provided with information on ANS impacts from water management projects. Contracts with universities for studies on boaters' points of origin and travel destinations, comparison of ANS life cycle requirements to conditions in ND waters, and ANS precautions the boaters had done were vital to develop risk analysis reports. The agencies which issue permits for water projects understand the importance of taking

proactive steps and have begun to modify their permitting systems and operational procedures to include provisions to prevent ANS introductions.

It is difficult to track all of the ANS prevention expenditures done in North Dakota to date. The North Dakota Game and Fish Department has spent \$125,000 over the last five years. Monies spent by other agencies have not been tracked, and would be extremely difficult to estimate. It is believed that their efforts were the result of funding and involvement with the North Dakota Game and Fish Department. A number of partnerships were developed to provide information to targeted audiences, in order to inform the private sector of ANS impacts, and provide for coordinated ANS prevention or monitoring activities. The partnership allowed a limited budget to cover more activities and reach a large number of people, private entities, and state agencies.

STATE AUTHORITIES, REGULATIONS, AND PROGRAMS

In North Dakota, many state agencies have authority over and regulatory roles in managing natural resources. Although the legislature has not given a single agency the sole responsibility to regulate ANS, the various state agencies have authorities that allow or enable them to act in the best interest of North Dakota's citizens. While many agencies have some authority to regulate ANS, all agencies have an ethical responsibility to prevent damage to North Dakota's resources. There is no centralized authority or management structure that exists to coordinate ANS activities in North Dakota. The authorities and regulations of various state agencies are summarized below (see Appendix B for an extensive listing of North Dakota Century Code on various state agencies).

DEPARTMENT OF AGRICULTURE

The Commissioner of Agriculture or the commissioner's authorized representative with the assistance of the North Dakota State University Extension Service has powers over the management, control and eradication of pests, noxious weeds, rodent and insect management and the use and application of pesticides. Their primary function is to provide technical expertise to County Weed Boards and to provide funding for various weed control activities.

The Plant Pests Act [North Dakota Century Code: 4-33-01 through 4-33-12] provides the Department of Agriculture powers to suppress, control or eradicate the spread of plant pests in the state. The commissioner may temporarily quarantine areas that he believes necessary to prevent the spread of plant pests for up to ninety (90) days without a public hearing, or longer with a public hearing. The commissioner is empowered to conduct a reasonable inspection of any premises or property within the state with a warrant issued by the District Court or consent of the owner and may stop and inspect any means of transport or conveyance within the state if he has probable cause to believe it to contain or carry a plant pest or host.

The North Dakota Noxious Weed Control Act [North Dakota Century Code: 63-01.1-01 through 63-01.1-17] provides that the Agriculture Commissioner, working in conjunction with county weed boards and county weed officers, authorities for control, maintenance, and eradication of noxious weeds and pests throughout the state. The commissioner, after consultation with the North Dakota State University Extension Service shall compile and keep current a list of noxious weeds and provide local authorities with information and a program for the control or eradication of noxious weeds. The act provides the Highway Patrol, sheriffs, and other law enforcement officers the power to stop and inspect vehicles suspected of transporting noxious weeds within the state, to prevent the dissemination of noxious weeds on highways, airways or waterways.

GAME AND FISH DEPARTMENT

The North Dakota Game and Fish Department [North Dakota Century Code: 20.1-02-01 through 20.1-02-28] provides the Director of the Department with the authority to regulate the importation, introduction and transplanting of fish, fish eggs, and other aquatic animals into the waters of the state. The act provides that one must have a permit issued by the Director before one can introduce any fish or fish eggs into public waters and the fish or fish eggs must be inspected for disease.

The Fish, Frog, and Turtle Regulation Act [North Dakota Century Code: 20.1-06-01 through 20.1-06-17] provides the Director with the power to remove and dispose of fish deemed undesirable to the best interest of the public. The director may adopt rules governing the operation of private fish hatcheries, the introduction and release of fish into the state, and the supervision of live bait wholesalers. Department rules prohibit the dumping of minnow buckets or any other container into the public waters of the state. [NDAC 30-04-04-05].

STATE DEPARTMENT OF HEALTH

The State Water Pollution Control Board, which includes the Director of the Game and Fish Department, through the State Department of Health and with cooperation of the State Water Commission [North Dakota Century Code: 61-28-01 through 61-28-08] maintains and improves the water quality of the state, formulates and issues standards of water quality. Provide for a system to classify North Dakota's waters [NDAC 33-16-02.1-04, 09]. The agency is to require the proper maintenance and operation of sewage and industrial waste systems to protect the present and future use of such waters for, among other reasons, the propagation of fish and aquatic life and wildlife.

STATE WATER COMMISSION AND STATE ENGINEER

The Water Commission Act [North Dakota Century Code: 61-02-01 through 61-02-76] provides for the establishment of a State Water Commission, which has general authority over all surface and sub-surface water within the state. This includes authority over water projects which include recreational use or wildlife conservation. The

Commission appoints the state engineer. Anyone who wants to divert or appropriate water within the state must get a permit issued by the state engineer, unless the use is for domestic, livestock or for fish, wildlife (including purposes of propagating, sustaining fish and wildlife resources, and for the development and maintenance of water areas) or other recreational need [North Dakota Century Code: 61-04-01.1 through 61-04-32]. The state engineer does have the authority to control and supervise all water and wildlife conservation projects and wildlife reservations. [North Dakota Century Code: 61-15-03].

WATER RESOURCE DISTRICT ACT

This is the only agency empowered with the express power to order the removal of aquatic weeds and pests [North Dakota Century Code: 61-16.1-01 through 61-16.1-63]. The Water Resource Boards have the power to manage water resources within their districts and order or initiate legal action to compel a person, user or controller of any bridge, or culvert to remove any weeds, shrubbery or other debris which hinders or decreases the flow of the water.

HIGHWAY PATROL AND OTHER LAW ENFORCEMENT

Statutes concerning the enforcement of laws regarding pests, pesticides, noxious weed control, weed control, and game and fish generally require other law enforcement agencies within the state to aide and assist in the enforcement of laws and regulations in these areas.

FEDERAL AUTHORITIES AND REGULATIONS

No single federal agency has clear authority over all aspects of ANS management. Many agencies have programs and responsibilities that address aspects of the problem such as importation, interstate transportation, exclusion, control, and eradication (see Appendix C). Federal activities on ANS management are coordinated through the National Aquatic Nuisance Species Task Force and Executive Order (EO) 13112, which requires all federal agencies to collaborate in developing a national invasive species management plan that will include terrestrial and aquatic species.

Executive Order 13112 on Invasive Species

President Clinton signed Executive Order (EO) 13112 on Invasive Species (64 Fed. Reg. 6183, Feb. 8, 1999), on February 3, 1999. The EO seeks to prevent the introduction of invasive species, provide for their control, and minimize their impacts through better coordination of federal agency efforts under a National Invasive Species Management Plan. The Order directs all federal agencies to address invasive species concerns as well as refrain from actions likely to increase invasive species problems. The National Invasive Species Management Plan was finalized on January 18, 2001. The Plan can be found on the Council website at www.invasivespecies.gov. See Appendix D for full details on EO 13112.

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA; Title I of P. No.101-646, 16 U.S.C. 4701 et seq.)

This Act established a federal program to prevent the introduction of and to control the spread of introduced ANS and the brown tree snake. The U.S. Fish and Wildlife Service, the U.S. Coast Guard, the Environmental Protection Agency, the Army Corps of Engineers, and the National Oceanic and Atmospheric Administration share responsibilities for implementing this effort. They act cooperatively as members of an Aquatic Nuisance Species Task Force. The mandate is prevention, monitoring, and control with these activities supported by research and education. The Task Force conducts studies and reports to Congress:

- to assess whether ANS threaten the ecological characteristics and economic uses of U.S. waters other than the Great Lakes;
- to identify and evaluate approaches for reducing the risk of adverse consequences associated with intentional introduction of aquatic organisms.

Under NANPCA, state governors are authorized to submit comprehensive management plans to the Task Force for approval, which identifies areas or activities for which technical and financial assistance is needed. Grants are authorized to states for implementing approved management plans, with a maximum federal share of 75% of the cost of each comprehensive management plan. The state (or non-federal) contribution is 25% of total program costs.

National Invasive Species Act (NISA; No.104-332)

In 1996, NISA amended NANPCA to mandate regulations to prevent the introduction and spread of ANS into the Great Lakes through ballast water and other vessel operations. This act required a U.S. Coast Guard study to Congress on the effectiveness of existing shore side ballast water facilities used by crude oil tankers.

The Act authorized funding for research on aquatic nuisance species prevention and control in the Chesapeake Bay, the Gulf of Mexico, the Pacific Coast, the Atlantic Coast, and the San Francisco Bay-Delta Estuary.

In addition, NISA required a ballast water management program to demonstrate technologies and practices to prevent aquatic nonindigenous species from being introduced into and spread through ballast water in U.S. waters. It modified: (1) the composition and research priorities of the Aquatic Nuisance Species Task Force; and (2) zebra mussel demonstration program requirements. See Appendix A for full details on NISA.

PROBLEMS AND CONCERNS

How do they get around? – The need for pathway management. Effectively managing the risk of ANS will take a new and different response featuring prevention rather than control after the problem is here. The spread of ANS to inland waters has many pathways. The first pathway is by “hitchhiking”. These are organisms that catch a free ride on aquatic recreational equipment, such as boats, trailers, and sporting equipment, from one waterbody to another. These hitchhikers can be moved into North Dakota or moved among North Dakota waterbodies. In routine angler surveys conducted on North Dakota waters, it was found that the number of non-resident anglers has increased in recent years. Many of these anglers are coming from areas that are known to have ANS infestations, and some visitors have neglected to take ANS precautions to rid their equipment of ANS hitchhikers. To compound the problem, North Dakotans visit other states where ANS abounds, and end up carrying ANS home with them on their vessels or boats. Another pathway is through commercial ventures, like the importation of live fish baits, importing exotic fishes for aquariums, and importing exotics for aesthetics purposes such as aquatic landscaping or for food. In 2003 and 2004 exotic aquatic plants were observed for sale in local plant nurseries and home improvement centers in North Dakota. North Dakota Game and Fish Department staff checked and found that many of these plants were on the federal nonindigenous list. But since, North Dakota did not list them as a noxious plant, no action could be taken. The concern is that these nursery plants be released, accidentally or intentionally, into the wild and create ANS problems in North Dakota waters. The two classic examples of ornamental plants that become problems are purple loosestrife and saltcedar. Both of these plants are on the state’s Department of Agriculture’s noxious plant list, but can still be found in some commercial plant nurseries. Both plant species now occur in the wild in many areas of North Dakota. The prodigy of “domesticated” plants or animals can easily escape or be released into the wild, become an established infestation, and cause significant problems.

Understanding the pathways by which ANS move into and around North Dakota allows prevention, education, and outreach efforts or other reasonable and effective prevention practices (REPPs) to be effectively focused. The following is a general listing of ANS pathways in North Dakota:

- via watercourse or watershed connections such as ditches, channels, natural overland flows in high water events, and streams and rivers;
- on or in recreational vessels or equipment used for angling, hunting, boating, outdoor activities or construction in waters;
- use of undesirable species or ANS as live fish baits and the disposal of unwanted baits in improper locations;
- commercial ventures which includes aquaculture, pet industry, plant nurseries, landscaping, food markets that utilize a live product, service industry such as hunting lodges or fishing guides, and fish bait industry;

- natural carriers, such as seeds in feathers and fur on animals and birds, seeds or eggs stuck on muddy feet, or attached to another plant or animal; and
- importation of plants or animals for personal enjoyment, as status symbols, ornamental use, and similar uses.

How do they stay here to become a problem? – The need for active eradication and control. The importation of an ANS to a new area does not always result in a new population being formed. As with any species, the introduced ANS must find compatible conditions in the human and natural environment. Four inter-related factors create conditions suitable for the spread of ANS:

1) Human demand. This is consumer demand for live plants or animals used in human consumption, for display in gardens and aquariums, aesthetic pleasures, and commercial ventures (i.e., live food market, aquaculture, captive breeding);

2) Increased travel and trade avenues. This occurs as individuals have more discretionary monies and leisure time, and are willing to travel greater distances to enjoy their leisure, sightsee, and recreate. The increased distances the recreators will travel correlates to the likelihood the recreators will come in contact with an ANS. Increasingly easy international trade (i.e., air mail delivery of species ordered over the Internet) also makes it possible for exotic species to effortlessly find their way to North Dakota. This creates the hub and spoke phenomenon where there is great distances between newly discovered infestation sites, but infestations quickly radiate out from those sites;

3) Lack of citizen and entrepreneur knowledge. This means humans are, often, unknowing agents of unwanted migrations of ANS as individuals and businesses are unaware of ANS problems or are not taking precautions to prevent the unwarranted introduction of new species into North Dakota; and

4) Suitable biological conditions for the exotic animal or plant. This is the match between a species' biological needs and the conditions found in a new area, often allowing noxious plants and animals to quickly grow and spread because they are introduced into new environments where natural controls, i.e., diseases and predators, are not present.

While the first three bring the ANS into an area, it is the last one that determines if the ANS will survive and flourish in North Dakota. Those ANS that are from tropical regions will not survive in North Dakota's harsh winter climate. The problem is, many ANS originate from regions with similar weather and water conditions as North Dakota. These species can tolerate the conditions in North Dakota and will thrive. As with any new population, the numbers of individuals slowly increase until they reach a threshold level which allows for rapid population expansion. At this point, it is nearly impossible to

eradicate them. While the new population is slowly building, genetic selection is occurring which allows those individuals best adapted to the new conditions to prosper and multiply. A species' adaptation allows some introduced species to dominate in the new environment and out-compete other species.

Who is in charge? – The need for agency coordination. While many government and private entities have some form of ANS responsibility, there is not a comprehensive and coordinated management capacity, nor is there a focus on prevention. A new, robust vision of cooperation and deterrence will be required to meet the uncharted risks that ANS present to North Dakota. The many different laws, regulations, and policies with partial impact on ANS need to be woven into a comprehensive, cooperative program to protect the state's aquatic resources, and domestic, agricultural, and industrial water supplies. The proposed program needs to be based on reasonable and effective prevention practices (REPPs) which meets North Dakota's needs. Examples of such increased activities in ANS prevention include:

- State Water Commission permits for construction of water transfer projects, water pipelines, water retention structures, water intake devices or similar activities with REPPs that prevent the introduction or the spread of ANS.
- Department of Health permits for water projects to include REPPs provisions covering the discharge of waters or the transfer of water between basins that present an ANS risk.
- Department of Agriculture to expand its plant nursery or garden center inspections/monitoring for North Dakota listed ANS entering the state via commercial pathways and enforce appropriate ANS regulations on sales of aquatic plants.
- Game and Fish Department to ensure that imported species such as baitfish or fish for aquaculture or stocking are ANS free or not from areas with ANS infestations; continue inspecting bait wholesalers and retailers for ANS; work with the pet trade industry in implementing REPPs; and enforce pertinent ANS regulations on transporting aquatic vegetation or organisms.
- Tourism and Commerce Department to provide information on ANS ecologic and economic risks, and the need for prevention in its trade publications, economic development information, and other education materials.
- County Extension Agency to provide information on alternative water garden plants which do not pose ANS risks.
- Department of Parks and Recreation to include information on ANS concerns, REPPs for park visitors, and enforce such ANS regulations on transporting aquatic vegetation or organisms.

- Department of Transportation to inspect large boats hauled by commercial carriers when they pass thru ports of entry or at weigh stations, and enforce appropriate ANS regulations on the movement of aquatic plants and organisms.
- Water Boards to review water management permits to ensure ANS introductions will not occur and include REPPs for equipment brought into an area. To quarantine waters, if needed, to prevent the spread of ANS to other waters.

The changes such as those listed above can fit well with existing duties and agency mandates to protect North Dakota's environmental and economic resources. The ANS problems are new and require agencies to forgo the role of reacting to a well established problem by following traditional routine of sole entity intervention to that of being very proactive with coordinated prevention. Preventing ANS introductions is the responsible action for agencies which are entrusted with management of North Dakota's resources.

Who is in charge? – The need for private-sector and government partnership.

Success with a new set of coordinated activities from government, especially to educate the public and business community, will require participation by those private-sector parties who share a stake in preventing ANS damage. While agencies frequently interact with the public, they do not do so nearly as often as the private-sector. Consequently, a large segment of those who will be impacted by ANS are not being reached. The local merchants and businesses are vital partners in getting the ANS message out and to pass that message to their customers. Some commercial activities such as water gardening, exotic pet importing, and the live fishbait industry, are high-risk pathways for introducing deleterious species. While many regulations govern the activities of these businesses, they will not be effective without broad, voluntary cooperation. Importers and vendors must be willing partners to implement best management practices for their industry and in so doing complement the limited reach of regulations. North Dakota's water-based industries are not only potential pathways of unwanted introductions, but are also at high risk themselves if ANS introductions start increasing their operation and maintenance costs. These industries are natural partners to create an environment where prevention can reap benefits for the expenditure side of their operations.

Partnerships are critical to the prevention of ANS. The outdoor recreators must buy into taking preventive precautions to ensure their resources for the future. North Dakotans who will be impacted by ANS must willingly agree to prevention efforts. The ANS prevention program can be successful if those impacted are willing to help. There are three major advantages to the partnership: 1) willingness of all affected parties to be involved; 2) increased levels of direct communications on the problem between all affected parties, finding realistic solutions, and understand the solutions' impacts on affected parties; and 3) leveraging a limited budget with matching dollars and in-kind services.

WESTERN REGIONAL PANEL RECOMMENDATIONS ON STATE ACTIONS TO IMPROVE REGIONAL CAPACITY FOR MANAGING AQUATIC INVASIVE SPECIES

The Western Regional Panel (WRP) was formed to promote a cooperative regional response to the threat of ANS among member states. States have broad authorities and resources that are critically needed to combat invasive species. ANS impact states economically and environmentally. The WRP is attempting to assist member states by recommending actions that will reduce the risk of ANS for each state and the western region as a whole. The WRP encourages member states to implement actions to reduce the risk from ANS to the region. The following recommendations have been reviewed and approved by the WRP members.

I. Actions to build state capacity for managing aquatic invasive species.

1. Appoint a state ANS or Invasive Species Coordinator – Every state has multiple agencies, authorities and information sources that can be used to implement a wide variety of aquatic invasive species management programs. A coordinator is needed to integrate these efforts into an efficient, unified response, and to serve as an identifiable lead contact for the state on aquatic invasive species issues and related aquatic issues.
2. Establish state ANS or Invasive Species Committees – The challenges caused by invasive species can be so diverse, extensive and long-term that they require consistent attention over time by the full range of agencies that serve the affected public. A coordinating committee, especially if established through legislation, has the greatest ability to provide a stable long-term forum for key stakeholders to address ANS problems.
3. Create state ANS management plans – Statewide ANS Management Plans can provide a well thought out, effective action strategy that creates consensus and support from partners within the state and, if approved by the national Aquatic Nuisance Species Task Force, can make a state eligible for federal funding.
4. Appoint a representative to the WRP and provide the resources needed for participation – The problems caused by ANS cannot be solved by any one state or entity. International, national, regional, state and local initiatives are needed to affect meaningful solutions. Participating in the WRP panel provides members access to new, creative ideas, and facilitates coordination among state efforts and national and international programs. Informed state actions are better able to implement effective programs that are consistent with federal law.

II. Actions to improve state authorities and increase funding for implementation:

1. Provide a long-term, stable source of state funding that can be used as match for federal funding to implement state ANS management programs. Some states have already implemented aquatic ANS management programs that are supported by fees, license revenues, or general fund dollars. Federal funding by itself is insufficient to address the problem, but it can serve as a catalyst for leveraging limited state funds. Each state should consider their various funding options and strive to secure long-term funding for ANS management.

2. Implement programs to prevent the spread of invasive species from boating as well as other pathways. The spread of aquatic ANS among fresh water lakes and rivers, coastal estuaries, and nearshore marine waters can be greatly reduced by implementing state prevention programs. These programs should have adequate funding for boater education and inspection programs, along with the authority to make the transporting of nonindigenous aquatic organisms on recreational or commercial boats illegal.

a. Survey trailered recreational boats according to 100th Meridian Initiative Guidelines. The 100th Meridian Initiative has a standard survey form which can be found at www.100thmeridian.org and is being used by many states to find out which boats are entering western states from infested waters, where they are headed, and what highways they are using. This information, in a searchable database, can help focus education activities along specific pathways.

3. Create a state early detection and rapid response plan with clear authority and funding to quickly respond to new invasions and new pathways for invasion. The WRP has created a model rapid response plan that should make it easier for each of our member states to create and implement state specific response plans.

4. Provide state authority to designate waters that contain ANS as “Infested Waters” and implement management actions to control the existing population and prevent spread. It is not feasible to eradicate some invasive species populations if they become firmly established before control action is begun. Control of invasive species in certain waterbodies can become a long-term management commitment. The designation of “Infested Waters” (or any other special state designation) can allow managers to quantify the problem while implementing education, containment and control programs to limit the damages and long-term expense.

5. Implement a nonnative species classification program that may allow for the beneficial use of some nonnative species while screening out potentially invasive species prior to importation or release. The intentional importation and release of nonnative species has led to the introduction of numerous invasive species. New federal and state programs are needed to screen out harmful invasive species prior to importation or release. Screening programs can reduce the impact of invasive species while allowing for their beneficial uses.

BUILDING NORTH DAKOTA'S AQUATIC NUISANCE SPECIES RESPONSE AND MANAGEMENT ACTIONS TO PROTECT THE FUTURE

The goal of the North Dakota ANS Management Plan is to:

Prevent the harmful ecological, economic, and social impacts from ANS being introduced into North Dakota.

This goal will be achieved through implementation of seven objectives. For each Objective an Action Item is envisioned to address the concerns listed in the Objective. And for each Action Item, there is a series of potential implementation Strategies. The following are the areas where the Invasive Species Coordinator (Coordinator) and Aquatic Invasive Species Committee (AISC) will need to provide a presence and work to ensure coordinated ANS efforts across government and private sectors. Each Strategy will require cooperation, collaboration, and participation of state, federal, and tribal agencies, private industry, and public interest groups.

It is understood that the Actions will be accomplished if authorities, funding, and staffing is provided by the legislature, state agencies or entities, the federal government, and/or private sources.

The ANS plan will contain many different strategies needed to effectively prevent ANS movement into North Dakota. Some strategies that are identified are interdependent on other sections of the plan and can only be undertaken if precursors are accomplished. Other strategies are independent and can be undertaken as needed or when an opportunity presents itself. The strategies and their order of listing doesn't represent when they will or need to be accomplished.

It is not possible to address all potential ANS invaders, their impacts, and the constraints and contingencies that may develop. Consequently, these management actions are intended to be adaptable to changing circumstances and, necessarily, set out high priority items from this list for first implementation. These higher priorities appear in the following "Budgeting Tables" section.

The time frame of the ND-Plan is five years, and is broken down into five one-year segments for budgeting purposes. It is envisioned that the ND-Plan will continue

beyond five-years and will be rewritten to update the state's management program based on experiences and new knowledge gained in the state and across the nation. Periodic updating of the ND-Plan will allow adjustment to changes in public attitudes and new ANS problems and opportunities. It is safe to say that ANS problems will not subside and ANS efforts will be needed into the future under a framework of continuous improvement of the program. The AISC is an advisory board that will serve as the focal point for devising these continuous improvements and making recommendations to government and private-sector managers.

OBJECTIVE 1: COORDINATION OF AQUATIC NUISANCE SPECIES ACTIVITIES AND PREPARING/IMPLEMENTING A COMPREHENSIVE MANAGEMENT PLAN.

Problem Addressed: There is no clear authority or agency charged with managing ANS problems in North Dakota. Most management activities focus on isolated problems and not comprehensive strategies to prevent or control ANS. The lack of coordination on ANS activities, limited oversight from various agencies, and lack of funding has fortunately allowed only a few ANS to become established in North Dakota. There are no effective plans in place to manage the risk from existing or new ANS introductions.

Action: Develop a management plan that defines plant or animal species considered as ANS, include defined tasks and activities, and the authorities and resources to undertake effective prevention and management of ANS.

Current agencies with activities or designated for future activities: Department of Agriculture, Game and Fish Department, Department of Health, Department of Parks and Recreation, State Water Commission, Department of Tourism, Natural Resource and Conservation Service, U.S. Fish and Wildlife Service, Department of Transportation

Strategy 1A: Coordination of ANS activities for all ANS management programs and activities within North Dakota through development of the Aquatic Invasive Species Committee.

1A1. The Game and Fish Department will designate an Aquatic Species Coordinator (coordinator) and support this position with federal ANS Task Force funds and matching state funds. The coordinator will encourage communication between governmental entities, public, and private sector, provide information, archive appropriate ANS information, and provide the public with needed information for them to make responsible decisions. – Status: PARTIALLY COMPLETED – see 2004 Progress Report (attached)

1A2. The coordinator will identify key personnel in governmental, tribal, private, and the public sector with ANS responsibilities. These individuals will be invited to form the Aquatic Invasive Species Committee to oversee ANS activities. The coordinator will be the chairperson of this advisory committee. The AISC will work to ensure that the ANS strategy is coherent and consistent

throughout North Dakota. AISC will develop ANS assessment guidelines as needed for local governments and cooperating entities. – Status: COMPLETED – see 2004 Progress Report (attached)

1A3. The state plan will allow for coordinating North Dakota ANS prevention efforts with those being done on a local level, in the region such as the efforts outlined in Montana's and Iowa's state plan and Minnesota's Sea Grant work, and on a national scale. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT – see 2004 Progress Report (attached)

Strategy 1B: Prepare and implement a comprehensive management plan.

1B1. AISC will prepare a plan to further comprehensive ANS management in North Dakota. Plan to be reviewed by technical advisors and others prior to its submission. – Status: COMPLETED – see 2004 Progress Report (attached)

1B2. Encourage water users, such as municipal, industrial, irrigation, lake associations and others, to become involved in the AISC's efforts to prevent the importation of ANS as such infestations could have a financial burden on them which will be passed on to their customers. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT – see 2004 Progress Report (attached)

Strategy 1C: Participate in and support regional, federal, and international efforts to control ANS.

1C1. The coordinator will participate in the Aquatic Nuisance Species Task Force's Western Regional Panel, support the Pacific States Marine Fisheries Commission's 100th Meridian Project, Missouri Interstate Cooperative Resource Association-ANS Panel, and coordinate with Canadian provinces and neighboring states on ANS issues. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

Strategy 1D: Develop partnerships and funding sources to leverage state and federal funds with nonfederal funds to increase ANS prevention efforts that will be undertaken.

1D1. Create stable funding sources for ANS management in North Dakota by seeking federal funding from the NANPCA Act as part of the North Dakota Plan. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

1D2. Develop partnerships with state and federal agencies, private enterprise, and the public to leverage existing funding sources to undertake additional ANS prevention and eradication efforts. Partnerships to fund ANS prevention information with local entities will create a buy-in for ANS prevention with those groups and an ownership in preventing ANS importation. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

Strategy 1E: Review and evaluate state efforts in addressing ANS.

1E1. Update the state ANS plan as needed, with annual progress reports and a five-year program report. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT – see 2004 Progress Report (attached)

OBJECTIVE 2: PREVENT THE INTRODUCTION OF AQUATIC NUISANCE SPECIES INTO NORTH DAKOTA.

Problem Addressed: There are many pathways by which injurious plants and animals arrive in North Dakota. ANS species are often intentionally imported to provide perceived benefits such as sport fishing opportunities, bait for angling, erosion control, food, aesthetic enjoyment, and so on. These species are accidentally released or escape from holding facilities into the wild. Unintentional ANS introductions can occur as humans, through recreation, industrial development, or commerce carry ANS hitchhikers (e.g., zebra mussels on barges, camouflage on duck boats, etc.). ANS established in neighboring states and Canada may disperse into North Dakota by natural means.

There are limited programs that review and regulate the aquatic species intentionally allowed in North Dakota. The pathways by which ANS can be unintentionally transported into or within North Dakota need to be defined to allow prioritizing management in the highest risk pathways. The components creating this problem include lack of funding for additional staff to inspect and monitor importation of aquatic species.

Action: Determine which pathways function as conduits for ANS into North Dakota. Create a list of which species that represent aquatic invasive organisms which will create problems for North Dakota.

Current agencies with activities or designated for future activities: Department of Agriculture, Game and Fish Department, Department of Parks and Recreation, Universities, 100th Meridian Group, Pacific States Marine Fisheries Commission, County Extension Service, Western Regional Panel, and Fish and Wildlife Service

Strategy 2A: Research and address pathways of introduction.

2A1. Describe the potential pathways through which ANS can enter North Dakota via recreational, commercial, esthetic, and illegal pathways, and include judgments of the risks of introduction from specific pathways. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT – see 2004 Progress Report (attached)

2A2. Estimate the potential for ANS introduction for each pathway by conducting a risk analysis for each specific pathway or pathways in combination. – Status: ON-GOING EFFORT – see 2004 Progress Report (attached)

Strategy 2B: Prevention of ANS along determined pathways of introduction.

2B1. Continue to educate relevant public and private groups are identified in 2A1 and 2A2 as likely sources of ANS importation. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT - see 2004 Progress Report (attached)

2B2. Educate the retailers and wholesalers of aquatic products of problems associated with the importation of ANS and their likely release into the wild. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT - see 2004 Progress Report (attached)

2B3. Implement the HACCP (Hazard Analysis and Critical Control Point) training program for appropriate fish hatchery, field, and survey personnel of the North Dakota Game and Fish Department. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT - see 2004 Progress Report (attached)

2B4. Work with fishing tournament officials to ensure boats and equipment under go ANS prevention protocols. – Status: PARTIALLY COMPLETED, ON-GOING - see 2004 Progress Report (attached)

Strategy 2C: Increase enforcement awareness of existing laws, controlling the transportation, propagation, sale, collection, possession, importation, purchase, cultivation, distribution, and introduction of ANS.

2C1. Increase the priority of enforcing ANS regulations.

2C2. Train enforcement personnel to identify ANS and understand the ANS regulations that are in place.

2C3. Distribute information on ANS laws to businesses that import or sell aquatic plants and animals.

2C4. Publicize the penalties for the intentional introduction of any nonindigenous species to North Dakota's waters.

Strategy 2D: Prohibit, control, or permit the importation of non-indigenous aquatic species based upon their invasive potential.

2D1. Develop a non-indigenous species list for North Dakota. – Status: COMPLETED – see 2004 Progress Report (attached)

2D2. Develop an ANS list from the 2D1's list of species that are of high concern to North Dakota and develop preferred management strategies for dealing with these as listed by priority class. – Status: COMPLETED, TO BE REVIEWED AS REQUIRED – see 2004 Progress Report (attached)

2D3. Develop a North Dakota list of ANS that cannot be imported, moved, possessed or sold within North Dakota. Provide that information to the North Dakota Legislature for review and concurrence. – Status: COMPLETED, TO BE REVIEWED AS REQUIRED – see 2004 Progress Report (attached)

Strategy 2E: Promote legislation and regulatory rules that establishes or increases the state's authority to control the introduction of new species.

2E1. Establish the authority to detain and require cleaning of any vehicle, vessel or water based equipment containing or infested with ANS that is being transported into North Dakota.

2E2. Increase the ability of the State to regulate the importation of aquatic plants, animals or other organisms where existing authorities are limited.

2E3. Establish the authority to quarantine waters to prevent ANS from spreading and to contain ANS for eradication.

2E4. Require that aquatic species imported by wholesalers or retailers to be free of ANS and/or originate from ANS free areas.

2E5. Require that fish imported for hatchery use or bait is disease free or collected from areas free of ANS. Periodically review the status of ANS in areas the fish or bait originate in and new ANS to keep North Dakota's moratorium on importation current. – Status: ON-GOING EFFORT - see 2004 Progress Report (attached)

Strategy 2F: Research the potential to develop a list of aquatic species that can be imported into North Dakota as they pose no known potential for becoming an ANS based on species or genus characteristics, review the history of other introductions outside a species home range, inter/intra ecological impacts, and actual demand or need for a species introduction.

2F1. Research existing federal or other states' databases for appropriate information on exotic species that pose little or no danger of becoming an ANS. Compile a list (import list) of flora and fauna which will be unlikely to cause problems if introduced into state or region waters.

OBJECTIVE 3: DETECT A PIONEERING AQUATIC NUISANCE SPECIES AND MONITOR EXISTING POPULATIONS OF AQUATIC NUISANCE SPECIES.

Problem Addressed: Affordable and effective eradication and control requires that infestations of ANS be discovered early in the pioneering stage of infestation and that the extent of the infestation be quickly determined. Currently, most state agency workers do not routinely look for new species or ANS problems when they are at state waters, inspecting water treatment facility, or monitoring a commercial venture. Explicit ANS monitoring effort will require additional staff time or the reprioritization of existing work and funding.

North Dakota lacks information and species identification infrastructure for suspect species. Thus, they cannot be readily determined by individuals doing routine inspections and timely control measures taken.

Action: Create a way for government personnel, private-sector field staff, and trained volunteers report (use of standardized forms) suspected ANS species while they are visiting a waterbody or commercial venture. These efforts would include a desire to document uninfested waters to documenting future occurrence and the spread of ANS. Create a mechanism for recording and archiving information on ANS monitoring activities, infestations found, and ANS expansion in infested sites.

Current agencies with activities or designated for future activities: Department of Agriculture, Game and Fish Department, Department of Parks and Recreation, Universities, Department of Health, Fish and Wildlife Service, United States Army Corps of Engineers, Bureau of Reclamation, US Coast Guard, Department of Health, State Water Commission, Disaster and Emergency Response, Weed Boards, Water Boards, and private individuals

Strategy 3A: Implement a monitoring and early detection program.

3A1. Encourage and train appropriate agency personnel to identify ANS, develop and implement a monitoring and reporting program for ANS in North Dakota waters.

3A2. Conduct an annual monitoring of high-risk waters and monitor other waters. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

3A3. Place colonization substrates (traps) in areas likely to be infested with zebra mussels or provide traps to other agencies or individuals. In addition, inspect for zebra mussels on boat docks or buoy lines removed from the waters. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

3A4. Conduct zebra mussel larval tows in areas that are likely to be colonized and have samples processed by a certified laboratory.

Strategy 3B: Develop an early response mechanism to deal with detected and potential invasive species.

3B1. Implement a Rapid Response Plan. – Status: COMPLETED, TO BE REVISED AS NEEDED – see 2004 Progress Report (attached)

3B2. Conduct periodic reviews of North Dakota's Rapid Response Plan to determine if ANS species of concern are included and update as needed.

3B3. Create a network of expertise to rapidly and accurately verify suspected new invasive species.

3B4. Include these efforts as part of North Dakota's Disaster and Emergency response activities to avert bio-terrorism on the state's natural resources.

Strategy 3C: Train volunteers to assist with monitoring public waters for ANS infestations.

3C1. Develop a program to recruit and train volunteers to monitor selected public waters, and report their findings to appropriate authorities.

OBJECTIVE 4: EDUCATIONAL CAMPAIGN TO PREVENT THE SPREAD OF AQUATIC NUISANCE SPECIES.

Problem Addressed: To effectively prevent ANS introduction into or movement within North Dakota, there must be strong outreach efforts to various target audiences with appropriate information. The categories to reach are: 1) resident anglers and hunters, 2) nonresident anglers and hunters, 3) nonconsumptive outdoor recreators, 4) water users, e.g., municipal water intakes, irrigators, power production, etc., 5) tourism, both on a state and local level, 6) state agencies and entities such as the State Water Commission, Department of Agriculture, Department of Health, Water Resource Boards, Game and Fish Department, Department of Tourism, Department of Parks and Recreation, etc., 7) private and public entities, 8) commercial ventures, and 9) youth programs. Each category's message will be tailored to produce the desired effect, i.e., a willingness to accept or take ANS prevention efforts. This use of market-based outreach requires an understanding of target audience values and needs, and how to best reach that audience with the information. This market-based outreach to a targeted audience is a departure from typical information dissemination provided by state agencies. In addition, ANS prevention is a proactive concerted efforts rather than reactionary to a problem's appearance.

Action: Create a "market based" information and education capability that identifies the target audience or audiences, formulate messages and information specifically for the targeted group, and utilize appropriate educational instruments to deliver these messages.

Current agencies with activities or designated for future activities: Department of Agriculture, Game and Fish Department, Fish and Wildlife Service, United States Army Corps of Engineers, Coast Guard, Department of Parks and Recreation, Department of Tourism, County Extension Service, Natural Resources Conservation Service, State Water Commission

Strategy 4A: Educate resident anglers and hunters about ANS prevention protocols by providing focused information in the best avenues of dissemination.

4A1. Identify what is the key message, the best format to deliver the information, and where to best deliver the message to this group. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

4A2. Provide information and education (e.g., signs, posters, kiosks, banners, newspaper articles, articles in periodicals, on radio and television spots, and similar venues) on ANS risks and prevention protocols as found in 4A1. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

4A3. Determine the level of ANS awareness and precautions used. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

4A4. Provide the list of ANS and of waters with problems to this group. Promote media reporting on ANS and the importance of management.

Strategy 4B: Educate non-resident anglers and hunters of ANS prevention protocols by providing focused information in the best avenues of dissemination.

4B1. Identify what is the key message, the best format to deliver the information, and where to best deliver the message to this group. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

4B2. Provide information and education (e.g., newspaper articles, articles in periodicals, in tourism publications, on radio and television spots, and similar venues) on ANS risks and prevention protocols as found in 4B1. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

4B3. Determine the level of ANS awareness and precautions used. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

4B4. Provide the list of ANS and waters with problems to this group. Promote media reporting on ANS and the importance of management.

Strategy 4C: Educate non-consumptive outdoor recreators of ANS, the need to prevent the problems, and disseminate information in the best form and venue.

4C1. Identify what is the key message, the best format to deliver the information, and where to best deliver the message to this group. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS – see 2004 Progress Report (attached)

4C2. Provide ANS prevention information (e.g., newspaper articles, articles in periodicals, in publications, on radio and television spots, and similar venues) to those identified in 4C1.

4C3. Provide the list of ANS and waters with problems to this group. Promote media reporting on ANS and the importance of management.

Strategy 4D: Educate water users of ANS problems, the need to prevent the introduction or spread of the problem, and how to best provide that message.

4D1. Determine where the different types of water users can be reached and in what form will the ANS message, in what format, and where the message is

best delivered and understood. – Status: PARTIALLY COMPLETED, ON-GOING EFFORT - see 2004 Progress Report (attached)

4D2. Provide information and education (e.g., articles in trade periodicals, direct mailings or letters, and similar venues) on ANS risks and prevention protocols to those identified in 4D1.

4D3. Provide the list of ANS and waters with problems to this group. Promote media reporting on ANS and the importance of management.

Strategy 4E: Provide tourism promotion groups, including state and local efforts which include guides and outfitters, fishing tournament promoters, etc., the information about the impacts of ANS, how ANS are moved into or within the state.

4E1. Determine which North Dakota groups are promoting tourism, what ANS prevention information should be provided in their publications or information packets.

4E2. Determine these groups willingness to provide additional information on ANS prevention methods. – Status: ON-GOING EFFORT - see 2004 Progress Report (attached)

Strategy 4F: Develop communication with public and private entities, such as the Garrison Conservancy District, water pipeline cooperatives, etc., about potential impacts of ANS to their operation, the need for a cooperative approach to prevention, and heightened staff awareness.

4F1. Determine the level of awareness that these groups have regarding potential ANS problems and what ANS prevention and monitoring is currently being done.– Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

4F2. Provide information and education on ANS risks and prevention protocols to the various public and private entities.

4F3. Continue to communicate the value of ANS prevention as opposed to controlling infestations.

Strategy 4G: Educate the commercial sector such as plant nurseries, pet trade, landscaping operations, home improvement centers, aquaculture, fish rearing and bait collection, and similar groups, about ANS impacts, and how their actions can prevent the spread and introduction of ANS.

4G1. Determine the ANS awareness of the various groups mentioned above.

4G2. Develop and distribute information on ANS prevention.

Strategy 4H: Educate juveniles about ANS prevention protocols and to the problems posed.

4H1. Establish an educational campaign, targeting fourth-graders to eighth-graders of the problems ANS cause.

4H2. Provide educational materials for the classroom.

OBJECTIVE 5: WHERE FEASIBLE, CONTROL AND ERADICATE PIONEERING OR ESTABLISHED AQUATIC NUISANCE SPECIES THAT HAVE SIGNIFICANT IMPACTS ON NATIVE OR DESIRABLE SPECIES.

Problem Addressed: Well established ANS populations create the most noticeable impacts, yet these infestations are the most difficult to address. ANS infestations are best controlled when they are in the early stages. Usually, it is too late or too expensive to eradicate a species once it has reached the level where it is readily observed. One management solution for a well established ANS infestation is learning to live with the problem and accepting the loss of aquatic resources. The economic impacts outweigh the funds required to eradicate a new infestation. The key is to identify the problem early and take needed steps to eliminate it. No single agency or other entity is responsible for developing a comprehensive eradication and control plan to quickly and effectively deal with initial ANS infestations.

Action: Provide technical and planning support for the existing management infrastructure in North Dakota.

Current agencies with activities or designated for future activities: Department of Agriculture, Game and Fish Department, Department of Parks and Recreation, Fish and Wildlife Service, United States Army Corps of Engineers, Department of Health, State Water Commission, Water Boards, Weed Boards

Strategy 5A: Control known nuisance populations where economically and technically feasible.

5A1. Develop and implement aquatic nuisance weed management plans.

5A2. Develop and implement aquatic nuisance animal management plans

5A3. Provide technical assistance to watershed councils, conservation districts, irrigation districts, lake associations, and other groups for development of management plans. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

OBJECTIVE 6: INFORM THE POLICY MAKERS ABOUT THE RISKS AND IMPACTS OF AQUATIC NUISANCE SPECIES.

Problem Addressed: Lawmakers must be informed about ANS's negatively impact to North Dakota's resources and that ANS problems will affect all North Dakotans. Inform legislators about the shortcomings of current laws and agency mandates. Provide interested legislators the framework of ANS laws to protect and conserve the state's resources.

Action: Provide concise and in-depth information to those who will be making decisions on ANS problems and formulating legislation on ANS control.

Current agencies with activities or designated for future activities: Game and Fish Department, Pacific States Marine Fisheries Commission, U.S. Forest Service, North Dakota State University, Extension Service, United States Army Corps of Engineers, Fish and Wildlife Service, PPL North Dakota

Strategy 6A: Educate public officials about the problems of ANS and how ANS is spread.

6A1. Create media presentations and accompanying information on ANS concerns, impacts, and need for proactive prevention efforts. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

6A2. Provide interested law makers the pertinent points to be considered in crafting legislation to prevent the introduction or spread of ANS. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

OBJECTIVE 7: INCREASE THE AQUATIC NUISANCE SPECIES KNOWLEDGE BASE AND DISSEMINATE THAT KNOWLEDGE IN NORTH DAKOTA THROUGH COMPILING DATA, CONDUCTING RESEARCH, AND INFORMATIONAL PUBLICATIONS.

Problem Addressed: Little is known about the extent and magnitude of the ANS problems in North Dakota. In fact, many more nonindigenous species may occur in North Dakota than are recognized. Information and research is needed to quantify and clarify the effects that ANS are having in North Dakota. The explicit threats to North Dakota posed by specific ANS and the mechanism responsible for transferring those organisms are not documented. The ability to quickly and effectively respond to new ANS is hindered because quick access to information on taxonomy, management or eradication methods is not available. Managers lack quick access to knowledge about eradication and control methods.

Action: Complete monitoring of North Dakota waters to determine what ANS are present. Provide a technical and information infrastructure for managers to easily access.

Current agencies with activities or designated for future activities: Game and Fish Department, North Dakota State University, University of North Dakota, Fish and Wildlife Service, Pacific States Marine Fisheries Commission, Department of Agriculture

Strategy 7A: Research ANS for their impact on biota utilizing regional efforts and literature searches.

7A1. Develop a better understanding of life histories and the impacts of introduced aquatic plants and animals.

7A2. Evaluate the potential for aquarium and live food fish to serve as vectors of disease and parasites to native fish populations.

Strategy 7B: Research management alternatives for their effect on ANS and native species.

7B1. Investigate the relationship between human-induced disturbance of aquatic and riparian systems and ANS invasion, establishment, and impacts.

7B2. Investigate and develop new and or adapt existing methods traditional method of managing problems to meet the challenges of ANS.

7B3. Compile a set of recommended and acceptable eradication and control methods for high risk species.

Strategy 7C: Facilitate the collection and dispersal of information, research, and data on ANS in North Dakota.

7C1. Create a central repository for reference materials and a central data base on ANS infestations. – Status: PARTIALLY COMPLETED, ON-GOING EFFORTS - see 2004 Progress Report (attached)

7C2. Develop and maintain a list of taxonomic experts for ANS identification.

The Objectives and Strategies make up the core of North Dakota's statewide aquatic species management plan. The Strategies are to be accomplished by the coordinator and AISC. Completion of these Strategies will protect and conserve the state's public aquatic resources from degradation by ANS.

PUBLIC INVOLVMENT

North Dakota's aquatic resources are at risk from ANS and the public has the greatest stake in any outcome. Initial public involvement will be at a series of meetings

during ND-Plan's development. See Appendix E for additional information. Public involvement will continue with eight Advisory meetings held in the spring and eight Advisory meetings held in the fall by Game and Fish Department.

The AISC public representation includes: anglers via North Dakota Sportfishing Congress, hunters via North Dakota Wildlife Federation, and nonresidents via North Dakota Guides and Outfitters. The AISC meetings will be open to the public, and all reports of those proceedings will be open to the public. There will be an open invitation to contact the coordinator on ANS problems and solutions. Individuals' attitudes recorded during angler surveys will be another source of public input for the AISC. The AISC meetings will be open to the public. The public will be advised of the AISC meetings, its agenda, and invited to attend. There will be a strong, continuous effort to have the public involved in the AISC meetings and the direction that ANS prevention efforts are taking.

BUDGETING

The funds used by the AISC and coordinator will be a combination of federal funds via the U.S. Fish and Wildlife Service ANS Task Force, government grants (e.g., from the Western Regional Panel), funds provided as in-kind monies or services by the Game and Fish Department, other state agencies, or other entities (e.g., grants from Fish American Foundation, public trusts, or endowments). ANS efforts will require partnerships between state and federal agencies, public, and private interests. The following budget is based on the likelihood that the primary sources of funding will be the federal government and the state's share will include dedicated monies and in-kind services. In addition, additional state funds will be requested by the various agencies to conduct ANS prevention activities. Listing of budgets and staffing is some of what will be needed by the coordinator, the AISC, and the various state agencies to conduct ANS prevention activities. North Dakota's approval of the ND-Plan is a necessary precursor for application for federal matching funds.

PRIORITIZING OBJECTIVES AND STRATEGIES TO BEGIN ANS MANAGEMENT IN NORTH DAKOTA

The Objective and Strategies listed below are needed in a full campaign to prevent the introduction of ANS or for ANS control and its eradication. Achieving the following items provide the best return on investment to prevent ANS in North Dakota.

1. Designation of an Aquatic Species Coordinator (Coordinator) in the Game and Fish Department. The position will be funded with a proportion of the funds from the federal ANS grants. Implementation of other Objectives and Strategies are to be funded as monies are made available and implemented based on the greatest impact in preventing the introduction and spread of ANS into or within North Dakota.

2. The Aquatic Invasive Species Committee (AISC) will complete development, and periodically revise, the ANS statewide management plan for North Dakota. The AISC will continue to operate as an advisory board for ANS prevention, monitoring, enforcement, and research efforts undertaken by various state, public entities, and private organizations. The ND-Plan will allow for collaboration between local, regional, and national ANS prevention efforts.
3. The coordinator and AISC will work with state entities, private organizations, and impacted parties to heighten the awareness of ANS problem(s) and the need to take proactive precautions before problems develop. Those entities with regulatory authorities will be encouraged to become involved by including prudent, reasonable, and practical prevention protocols for the importation or spread of ANS into or within the state.
4. The AISC, with the input of qualified individuals from state entities and impacted organizations, will develop an official ANS list for North Dakota and this list will be used in regulatory efforts.
5. Agencies will continue educational efforts now in place to inform the public and the private sector of the ecological and economical impacts resulting from ANS infestations. Agencies will increase outreach efforts in non-traditional venues like the retail and service industries, municipal water plants, power generation facilities, and commercial ventures (i.e., pet trade, plant nurseries, live fish bait wholesalers and retailers, aquaculture, etc.).
6. Continue with the current monitoring efforts of North Dakota waters and the inclusion of questions in periodic angler/boater surveys at select waterbodies or in statewide questionnaires from individuals selected from a pool of fishing and hunting license holders. Expand monitoring efforts to include cooperating agencies and volunteers.
7. Continue to interview North Dakotans and non-residents to determine their knowledge of ANS problems and awareness of prevention methods. These direct individual contacts will be part of routine surveys at selected waterbodies and from a pool of names of resident and nonresident license holders.
8. Provide information and advice to the Governor, the Governor's cabinet, legislators, local governments, tribal governments, and members of the judicial system about ANS risks, prevention and management options. Providing technical support for modifications to laws and promulgation regulations that can help protect North Dakota from ANS damages.
9. Provide matching funds for partnerships between government and private sector such as angling clubs, chambers of commerce and tourism, power companies, and other groups that will be impacted by ANS to increase collaborate on ANS prevention and management projects. The matching

funds will allow for local groups to secure educational materials and allow them to provide them to targeted audiences.

10. Provide education for law enforcement institutions and solicit their cooperation to enforce existing laws and regulations. This need for enforcement may require some new legislation that deals with ANS problems and provides enforcement groups with the necessary authorities to deal with ANS prevention and management.

Under a reasonable initial budget, the AISC will focus efforts and monies on those strategies that are known to provide the greatest level of ANS prevention and while providing education on ANS problems in North Dakota. Table 1 provides a budget for undertaking and completing these high priority strategies. Implementation of these strategies is based on the ND-Plan being accepted and funding provided by the US Fish and Wildlife Service's ANS-Task Force and appropriations made available and dedicated to ANS prevention by the North Dakota Legislature. Appendix F provides the detailed information that is summarized in Table 1.

Table 1. Annual budget required to complete selected Strategies from the ND-Plan that best utilize limited funding.

	Time Frame				
	Year 1	Year 2	Year 3	Year 4	Year 5
	01 JUL 05 to 30 JUN 06	01 JUL 06 to 30 JUN 07	01 JUL 07 to 30 JUN 08	01 JUL 08 to 30 JUN 09	01 JUL 09 to 30 JUN 10
Overall man-yr	1.59	1.59	1.59	1.59	1.59
Accumulative Salaries	\$60,150	\$60,150	\$60,150	\$60,150	\$60,150
Education: Field Staff and Law Enforcement (NDGF, DeptAg, DOT, Prks&Rec, Tribal, DoH, SWC, etc.)	\$2,750	\$1,750	\$1,750	\$1,750	\$1,750
Educational Materials	\$6,000	\$500	\$500	\$500	\$5,000
Mass Media	\$14,500	\$14,500	\$14,500	\$14,500	\$14,500
Data Collection	\$750	\$750	\$750	\$750	\$750
Signs	\$2,250	\$250	\$250	\$2,250	\$1,000
Contracts	\$7,500	\$17,500	\$17,500	\$20,000	\$5,000
Grants	\$7,000	\$7,000	\$7,000	\$7,000	\$7,000
Promotional	\$5,000	\$5,000	\$500	\$500	\$1,500
Meetings	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
Monitoring Equipment	\$500	\$1,000	\$1,000	\$250	\$250
Overall Funding and Strategy Implementation Costs	\$113,900	\$115,900	\$111,400	\$115,150	\$104,400

The budget is estimated at \$225,000 per biennium (\$125,000 annually) with 10% of the funding held in contingency by the coordinator. The coordinator will utilize the contingency fund to cover unexpected expenses, activities of opportunity, e.g., advertising at trade shows, educational seminars, and unknown events at this time, which will benefit ANS prevention.

PROGRAM MONITORING AND EVALUATION

The evaluation process of the ND-Plan will provide a means of monitoring progress, determine if strategies have been met, and identifying areas where improvement in the ND-Plan is apparent. The evaluation will be performed every five years as the program is reauthorized. Mid-course corrections will be made when and if necessary. The process involves three main components: oversight, evaluation, and reporting.

DEVELOPMENT OF REASONABLE AQUATIC NUISANCE SPECIES REGULATIONS AND EMPHASIS ON PROMOTING PREVENTING THE INTRODUCTION OF ANS INTO NORTH DAKOTA'S WATERS

Part of the AISC's role is to be a source of information and advice for the North Dakota Legislature. This information should deal with more than the environmental impacts, but also address the negative economic and quality-of-life consequences of ANS infestations. This section provides the information needed to improve or provide authorities for ANS prevention, authorize the funding for implementing management strategies – all with the intent of focusing first on prevention rather than reactive management once ANS problems become established. The goal is for state agencies with resource responsibilities to undertake ANS prevention as a part of their duties.

North Dakota represents a unique aspect for ANS management because of six factors: 1) the state has a small number of residents; 2) government entities have and do work well together to accomplish needed tasks; 3) environmental conditions preclude many ANS problems; 4) few ANS problems are already established; 5) private and commercial sectors are locally operated; and 6) the state's residents place a high value on their outdoor recreational resources. In addition, North Dakota has begun the process of determining vectors of ANS importation which allows focus on immediate problems of high-risk ANS introduction pathways. With these factors in mind, the ND-Plan will reflect those needs for North Dakota.

State agencies and entities that have the authority and are responsible for the best management of the state's resources are bound by the burden of "Public Trust." These agencies need to include involvement in ANS prevention and management as part of their efforts.

An example of issues needing attention by North Dakota's Legislature is provided in Appendix G. The following issues should be considered in ANS legislation and development of ANS regulations:

- Provide that agencies/entities that have a stake in the protection of the State's aquatic resources to be tasked with:
 - Organizing and recognizing the Aquatic Invasive Species Committee as the state's ANS coordinating mechanism providing advisory services for the state.
 - List those aquatic species, plants, animals, and pathogens that cannot be brought into or moved within North Dakota,

- Provide agencies authorities/responsibilities/mandated efforts:
 - North Dakota Game and Fish Department to apply for funding available as grants from state, federal or private sources for ANS activities.
 - North Dakota Game and Fish Department to provide regulations on ANS prevention from the importation in baits, live fish used for rearing, stocking, or sale in the pet trade, fish transported into or within the state on or in boats, trailers, equipment or vehicles, associated inspections and enforcement of regulations.
 - Department of Health to include reasonable restrictions on water project permits to prevent the importation or transfer of ANS into or within the state,
 - State Water Commission to include reasonable ANS REPPS in water project permits to prevent the importation or transfer of ANS into or within the state,
 - Department of Agriculture to include ANS inspections as part of their facility inspections and enforce ANS regulations.
 - Natural Resource Boards and Water Resource Boards to consider ANS REPPs in their water projects and the quarantining of waterbodies to use while ANS are being eradicated or control efforts are underway.
 - Department of Parks and Recreation shall include ANS educational materials in their published literature and signs and enforce ANS regulations on the movement of ANS into or within state lands.
 - Department of Tourism to include ANS educational material in literature on North Dakota's aquatic resources.
 - Department of Transportation and State Patrol include ANS prevention in their vehicle inspections and enforce ANS regulations.
 - All agencies and other entities receiving public funds include ANS educational messages on their aquatic-oriented educational material.

- The Legislature should provide to agencies:
 - Expanded authorities for agencies and entities involved in management of North Dakota's resources to include ANS prevention and management.
 - Regulations promulgated to prevent ANS movement into or within the state.
 - Provide for a system of fines/legal forfeitures to make ANS infractions as a Class B misdemeanor.

- Recognize the need for the coordinator and AISC as an advisory board to conduct ANS education/prevention for the State's aquatic resources

The preceding items can serve as a base for constructing North Dakota's regulations to prevent the importation and spread of ANS.

NORTH DAKOTA STATEWIDE ANS MANAGEMENT PLAN

The ND-Plan is a very reasonable approach to address the ANS challenges that are facing North Dakota. By forming a task force that is made up of public and private sectors, and of inter-agency staff, the Aquatic Invasive Species Committee, chaired by the ANS Coordinator as appointed by the Game and Fish Department, will be responsible to all North Dakotans and to all of North Dakota's needs. The guiding principle that the ND-Plan focuses on is that prevention is better and cheaper than dealing with an infestation. Prevention must include educating the traditional outdoor recreators such as boaters, hunters, and anglers, and general water users such as municipalities, rural water lines, power production, cities, and the general public, about the impacts of ANS. The ND-Plan's strategies are based on reaching a targeted audience with effective outreach that ends in ANS prevention protocols being voluntarily taken. Monitoring activities and determination of ANS pathway will define where additional efforts ANS prevention efforts are required. The ND-Plan is an efficient use of available funding to achieve the best outcome; prevention of ANS importation or movement with the state. The ANS regulations which could be adopted for North Dakota are simple, enforceable, and effective. The ND-Plan allows for collaboration with other states and federal ANS prevention activities.

The ND-Plan's objectives and strategies outline what is needed and how those needs will be fulfilled. North Dakota agencies are already actively involved in ANS prevention efforts. It is important that these initial ANS prevention efforts are not thwarted and diminished as any set back will cause future ANS prevention to be much more difficult to achieve. The funding for these efforts needs to continue and be increased. The combination of federal funds and state funds and resources will allow for ANS prevention activities to continue at their current rate.

The ND-Plan is based on the recommendations for developing a statewide management plan that was provided by the WRP, the ANS-Task Force, and reflects the needs for North Dakota. The ND-Plan is a reasonable approach for ANS prevention and the ANS-Task Force should readily approve this plan.

GLOSSARY

Accidental introduction: an introduction of nonindigenous aquatic species that occurs as the result of activities other than the purposeful or intentional introduction of the species involved, such as the transportation of nonindigenous species in ballast water or in water used to transport fish, mollusks, or crustaceans for aquaculture or other purposes.

ANS - aquatic nuisance species: a plant or animal species which is outside of its native range that threatens the diversity or abundance of native species, the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters and cause negative economic or ecological impacts

Biocontrol: The use of living organisms, such as predators, parasites, and pathogens, to control pest insects, weeds, or diseases.

Bio-fouling: The accumulation of living organisms in places where they are not wanted and in sufficient quantities that they cause management problems or unacceptable deleterious impacts.

Commercial venture: Those efforts by individuals to set up and operate a business or industry for profit, i.e., power production, fish rearing, irrigations districts, water diversions, plant nurseries, pet stores, bait dealers, food markets or restaurants dealing in live animals or plants, or similar ventures for gain of individuals or groups.

Control: eradicating, suppressing, reducing, or managing invasive species populations, preventing the spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions.

Ecological integrity: the extent to which an ecosystem has been altered by human behavior; an ecosystem with minimal impact from human activity has a high level of integrity; an ecosystem that has been substantially altered by human activity has a low level of integrity.

Eradicate: the act or process of eliminating an aquatic nuisance species.

Exotic: any species or other variable biological material that enters an ecosystem beyond its historic range which is on a continental scale, including such organisms transferred from one ecosystem to another.

Intentional introduction: all or part of the process by which a nonindigenous species is purposefully introduced into a new area.

Invasive: a species that thrives and become established in a non-historical location or in a new location where it was not previously found, often to the detriment of species which were there before or to the negative impact of desirable species or native species in the new areas or to the ecosystem and habitats.

Nonindigenous species: any species or other variable biological material that enters an ecosystem beyond its historic range which is typically the same region, including such organisms transferred to a new location on purpose, but these species may not have an injurious impact on ecosystem or negative inter species relationships.

Pathogen: a microbe or other organism that causes disease.

Pioneer infestation: a small ANS colony that has spread to a new area from an established colony.

Priority species: an ANS that is considered to be a significant threat to North Dakota waters and is recommended for immediate or continued management action to minimize or eliminate their impact.

Watershed: an entire drainage basin including all living and nonliving components.

LITERATURE CITED

- Bangsund, D.A. and F.L. Leistritz. 2003. *Hunter and Angler Expenditures, Characteristics, and Economic Effects, North Dakota, 2001-2002*. Agribusiness and Applied Economics Report No. 507-S, North Dakota State University, Fargo, North Dakota
- Berard, E., J. Kolar, and J.Vetter. 2003. Summary of the Bait Industry in North Dakota: January 1 – December 31, 2002. ND Game and Fish Departments, Fisheries Division Report 55. Bismarck, ND.
- Berard, Emil. 2004. Personal communication. District Fisheries Supervisor, North Dakota Game and Fish Department, Dickinson, North Dakota.
- Brooks, L. and L.R. Schlueter. 2002. *Angler use and Sportfishing Catch Survey on the Red River, North Dakota – March 15 through October 31, 2000*. North Dakota Game and Fish Department, Bismarck, North Dakota.
- Exotic Species Program. 2004. Harmful Exotic Species of Aquatic Plants and Wild Animals in Minnesota: Annual Report for 2004. Minnesota Department of Natural Resources, St. Paul, MN.
- Gunderson, J. L., and R. E. Kinnunen, Editors. 2002. Sea Grant Aquatic Nuisance Species – Hazard Analysis and Critical Control Point (HACCP) Training Curriculum. University of Minnesota, 78 p.
- Grondahl, C. and K. Martin. 1992. North Dakota's Endangered & Threatened Species. Special publication by North Dakota Game and Fish Department.
- Hesse, L.. 2003. Zebra Mussel Monitoring in the Middle Missouri River in ANNUAL PERFORMANCE REPORT Prepared For Missouri River Natural Resources Committee by Rivers Corporation, Inc..
- Hoberg, Ted and Cully Gause. 1992. Reptiles & Amphibians of North Dakota. In *North Dakota Outdoors*, published by North Dakota Game and Fish Department.
- Jensen, D. 2004. Personal communication. Aquatic Invasive Species Information Coordinator, Minnesota Sea Grant College Program. Duluth, MN.
- Khalanski M. 1997. Industrial and ecological consequences of the introduction of new species in continental aquatic ecosystems: the zebra mussel and other invasive species. *Bulletin Francais de la Peche et de la Pisciculture*. (344-345): 385-404.
- Lassuy, D.R. 1994. Aquatic nuisance organisms: setting national policy. *Fisheries*. 19(4): 14-17. Bethesda, MD.

- Leun, B., D. Lodge, D. Finnoff, J. Shogren, M. Lewis, and G. Lamberti. 2002. *An ounce of prevention or a pound of cure: bioeconomic risk analysis of invasive species* in Proceeding of the Royal Society of London, B (2002) 269, pp 2707-2413.
- Mack, R. et.al.. 2000. *Biotic Invasions: Causes, Epidemiology, Global Consequences and Control*. Ecological Society of America. Washington, DC.
- Manitoba Purple Loosestrife Project. 2002. History of purple loosestrife spread in Manitoba. Manitoba Purple Loosestrife Project, Hammock Marsh, Stonewall, MB.
- Martin, R.. 2004. Personal Communication. USACOE. Bowman Haley Recreational Unit Project Leader, Jamestown, North Dakota.
- Power, G.. 2004. Niche Fishing Experiences. Inter office communication of 09 JUN 2004. ND Game and Fish Department, Fisheries Division, Bismarck, ND.
- Pimental, D., L. Lach, R. Zuniga, and D. Morrison. 1999. Environmental and economic costs associated with non-indigenous species in the United States," American Association for the Advancement of Science annual meeting, June 12, 1999.
- Schlueter, LR. Empirical data representing the changes in desirable fish populations from aquatic nuisance species infestations. File information. ND Game and Fish Department, Fisheries Division, Devils Lake, ND.
- The National Council for Science and the Environment (NCSE). 1999. Harmful Nonnative Species: Issues for Congress VII. Washington, D.C.
- U.S. Congress, Office of Technology Assessment (OTA). 1993. Harmful Nonindigenous Species in the United States, OTA-F-565. U.S. Government Printing Office. Washington, D.C.
- USGS. 2000. United States Geological Service Nonindigenous aquatic species database.
- WASHINGTON STATE DEPARTMENT OF ECOLOGY. 2003. Technical Information about *Egeria Densa* (Brazilian Elodea). Washington State Department of Ecology, Washington.