



**Invasive Alien Species Legislative Review and Gap Analysis**  
**Phase II: Aquatic Species**

A report prepared for the  
Invasive Species Alliance of Nova Scotia  
by  
LJM Environmental Law and Consulting  
February 2012

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a Government of Canada Initiative

**Canada** 

# **LJM Environmental Law**

## **Report**

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ON

Invasive Alien Species Legislative Review and Gap Analysis  
Phase II: Aquatic Species

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**February 2012**

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The legislative provisions in this Report and the Appendices are for general information purposes only. The document is not legal advice and does not replace official government publications or expert legal advice.

If a discrepancy occurs between government policies, statutes or regulations and this document, the government-authorized documents will apply.

For official legislative provisions, consult the relevant federal and provincial statutes and regulations. The legislation upon which the Report is based is subject to change and therefore the Report is only current as of 29 February 2012.

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## I. Introduction

The Invasive Alien Species Legislative Review and Gap Analysis Phase II: Aquatic Species was completed by LJM Environmental Law for the Invasive Species Alliance of Nova Scotia in February 2012. Formed as an ad-hoc group in 2007, the Invasive Species Alliance of Nova Scotia (ISANS) has grown into a non-profit group of individuals and organizations focused on improved communication and information sharing to better address the threat of invasive alien species at the provincial level.

LJM Environmental Law was established in 1995 as one of the first law practices in Nova Scotia devoted exclusively to environmental law and policy. Lisa Mitchell, the principal of LJM and author of this Report has a degree in law and a Masters of Environmental Studies, along with over fifteen years of experience working in the field of environmental law.

The Invasive Alien Species Legislative Review and Gap Analysis Phase II: Aquatic Species (the 'Report') provides a summary overview of federal and provincial (Nova Scotia) statutes and regulations which contain direct or indirect authorities to address the prevention, introduction, control and eradication of aquatic invasive species (AIS) in Nova Scotia. The Report is supported by five appendices. Appendices A-C are referenced in the Report. Appendix D and Appendix E are tables that identify the legislative provisions referenced in the Report. Funding for this Report was provided by the Invasive Alien Species Partnership Program (IASPP), a Government of Canada Initiative.

## II. Background

The ISANS Steering Committee has repeatedly identified a provincial legislative review as a high priority. The responsibilities of individual government departments related to AIS are unclear to the public, as well as to other government departments. ISANS sees a number of benefits resulting from this legislative review, including:

- clarification of roles of government agencies and private landowners with respect to AIS management;
- provision of a tool for governments and landowners to understand and comply with existing legislation;
- informing stakeholders and the public about government and citizen roles related to AIS;
- identification of how existing legislation could be used more effectively to manage AIS;
- compilation of all related information in one document/location;
- contribution to early detection and rapid response (EDRR) of new AIS; and
- provision of a tool for informing provincial policy related to AIS.

The Report was developed to assist ISANS, provincial and municipal governments, private landowners, and the public in identifying the primary legislative authorities and responsibilities of federal and provincial (Nova Scotia) government departments in the management of AIS.

In 1992, Canada became a signatory to the *Convention on Biological Diversity* (CBD). Article 8(h) of the Convention states:

- Each Contracting Party shall, as far as possible and as appropriate:
- (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.

As a Party to the CBD Canada is required to act on matters related to the prevention and management of invasive terrestrial and aquatic species. In 1995 Canada developed the Canadian Biodiversity Strategy, which recognized the need to conserve biodiversity and promote the sustainable use of biological resources. This commitment included creating or amending federal, provincial and territorial legislation to meet this goal.

In 2004, the federal government introduced *An Invasive Alien Species Strategy for Canada* (the 'Strategy'). The scope of the Strategy is broad and inclusive, covering all invasive alien species regardless of species type, where they originated, or how they were introduced into Canada.

The Invasive Alien Species Strategy for Canada seeks to protect Canada's aquatic and terrestrial ecosystems, and their native biological diversity and domestic plants and animals, from the risks of invasive alien species.<sup>1</sup>

The definitions of 'alien species' and 'invasive alien species' in the Strategy reflect these broad intentions.

Alien species are species of plants, animals (including fish), and micro-organisms introduced by human action outside their natural past or present distribution.<sup>2</sup>

Invasive alien species are those harmful alien species whose introduction or spread threatens the environment, the economy, or society, including human health. Alien bacteria, viruses and fungi, and aquatic terrestrial plants, mammals, birds, reptiles, amphibians, fish and invertebrates (including insects and molluscs) can all become invaders.<sup>3</sup>

In an effort to incorporate the Strategy into policy, planning and legislation at the federal and provincial levels, two key initiatives were undertaken. The *Action Plan for Terrestrial Plants and Plant Pests* (the 'Terrestrial Action Plan') and the *Canadian Action Plan to Address the Threat of Aquatic Invasive Alien Species* (the 'Aquatic Action Plan') were completed in 2004.

The Aquatic Action Plan defined AIS and aquatic organisms.

AIS - Fish, animal, and plant species that have been introduced into a new aquatic ecosystem and are having harmful consequences for the natural resources in the native aquatic ecosystem and/or the human use of the resource.

Aquatic organisms - This includes all organisms (finfish, molluscs, crustaceans, echinoderms, and other invertebrates and their life stages) defined as 'Fish' in the Fisheries Act, as well as marine and fresh water plants.<sup>4</sup>

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<sup>1</sup> Government of Canada, *An Invasive Alien Species Strategy for Canada*, Environment Canada, 2004, viewed on 23 April 2012, <http://www.ec.gc.ca/eee-ias/>, p.7.

<sup>2</sup> *Ibid.*, p.5.

<sup>3</sup> *Ibid.*, p.5.

<sup>4</sup> Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) AIS Task Group, *A Canadian Action Plan to Address the Threat of AIS*, Department of Fisheries and Oceans, 2004, viewed on 23 April 2012 <http://www.dfo-mpo.gc.ca/science/enviro/ais-eae/plan/plan-eng.htm>, p.24.



The goal of the Aquatic Action Plan is to minimize further unintentional and unauthorized introductions of AIS. The Plan identified seven primary pathways for the introduction of AIS into Canadian waters:

1. Shipping
2. Recreational and commercial boating
3. Live bait
4. Aquarium and water garden trade
5. Live food fish
6. Unauthorized introductions and transfers
7. Canals and water diversions

A summary of each pathway, as described in the Aquatic Action Plan, can be found in Appendix A to this Report.

The Aquatic Action Plan was followed by a Technical Report published by the Department of Fisheries and Oceans in 2004.<sup>5</sup> The Technical Report included a review of federal and provincial/state legislation in Canada and the USA related to the following primary pathways of AIS introduction: ballast water (shipping), fish sales/fish markets (live food fish), bait fish (live bait) and aquarium pet trade. The Technical Report also addressed the need for rapid response capability upon identification of AIS.<sup>6</sup>

As of 2011 the National AIS Committee, under the Canadian Council of Fisheries and Aquaculture Ministers renewed their mandate to focus on several key concerns including coordination of regulatory initiatives, supporting policy and guidelines, to enable the effective management and control of AIS in Canada.<sup>7</sup> In the area of legislative/policy development the Committee has indicated that an AIS regulatory proposal is under development. The proposed AIS Regulatory Proposal would build on the existing legal and institutional framework in place in Canada to address AIS.<sup>8</sup>

There are areas in Canada, particularly the Great Lakes, where the existence and threat of AIS is significant.<sup>9</sup> A study completed by Hill and Blaney in 2009 indicated that the Maritime region has been somewhat spared from the extreme ecological and economical implications resulting from the introduction and spread of some AIS, particularly plants,

We are fortunate in the AME [Atlantic Maritime Zone] to be largely free of invasive aquatic plants, which are problematic in the Great Lakes region and many areas of the eastern United States<sup>10</sup>

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<sup>5</sup> Vasarhelyi, C., Thomas, V.G., and Niimi, A.J., 'Analysis of legislation pertaining to the control and management of exotic aquatic species in Canadian and adjacent United States waters', *Canadian Technical Report of Fisheries and Aquatic Science*, vol. 2561, 2004, pp. vii -39.

<sup>6</sup> Much of the DFO Technical Report followed the findings of Vasarhelyi, C. and Thomas, V., 'Analysis of Canadian and American legislation for controlling exotic species in the Great Lakes', *Aquatic Conservation: Marine and Freshwater Ecosystems*, vol. 13, 2003, pp.417-427.

<sup>7</sup> Department of Fisheries and Oceans (DFO), 'AIS: Proposed Regulations to Manage and Control AIS in Canada', Power Point Presentation, 2012.

<sup>8</sup> *Ibid.*

<sup>9</sup> Annual sea lamprey control costs in the Great Lakes are between \$22-25 million, DFO, 2012.

<sup>10</sup> Hill, N.M., and Blaney, C.S., 'Exotic and invasive vascular plants of the Atlantic Maritime Ecozone' *Assessment of Species Diversity in the Atlantic Maritime Ecozone*, D.F. McAlpine and I.M. Smith (eds), NRC Research Press, Ottawa, Canada, 2009, p.9.

There are, however, numerous damaging AIS in Nova Scotia including the smallmouth bass and chain pickerel. There are several species that have been directly or indirectly impacted by AIS, including endangered species such as the Atlantic whitefish and the Bay of Fundy Atlantic salmon.

### **III. Scope**

The Invasive Alien Species Legislative Review and Gap Analysis Phase II: Aquatic Species provides the most comprehensive overview and analysis of federal and provincial (Nova Scotia) legislation on the management of AIS to date. It builds on work completed by Vasarhelyi, Thomas and Niimi between 2003 and 2008. It is the only initiative to provide an extensive analysis of the regulatory framework in Nova Scotia and it includes a more detailed presentation and analysis of current federal legislation. The Report does not directly address Canadian provinces other than Nova Scotia and does not address national or state legislation in the USA.<sup>11</sup>

## **Part A**

### **Provincial Overview of Legislative Authorities and Responsibilities for AIS**

The following summary provides an overview of the legislative authorities and responsibilities for AIS provided to provincial Ministers. The goal of this summary is to clarify the role that each of the Ministers may play in the management of AIS in Nova Scotia.

This part is divided into two sections. Section 1.0 identifies: (1.1) which Ministers have direct or indirect responsibility for AIS in the province; (1.2) under what circumstances the provincial government has relatively broad regulatory control of AIS; (1.3) the geographical areas in the province where the government can control AIS; and (1.4) which type of species the government can protect from AIS.

Section 2.0 is a brief narrative overview of each of the relevant provincial statutes, including a preliminary assessment of authorities that support management of AIS and limitations on those authorities.

#### **1.0 Provincial Authorities and Responsibilities**

##### **1.1 Responsible Ministers**

The following provincial Ministers have direct or indirect responsibility for AIS:

###### **1.1.1 Minister of Natural Resources**

The Minister of Natural Resources is responsible for four statutes that may be used to manage AIS in Nova Scotia. In each case the authority of the Minister is limited to a specific area (forests, provincial parks) or to specific species (wildlife, endangered species). The Minister of Natural Resources has no general authority or responsibility to manage AIS in Nova Scotia.

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<sup>11</sup> Invasive Alien Species Legislative Review and Gap Analysis Phase I: Terrestrial Plants and Insects, 2010 is available through the Invasive Species Alliance of Nova Scotia (ISANS) <http://www.invasivespeciesns.ca/>.

The new Natural Resources Strategy for Nova Scotia 2011-2020 includes references to invasive alien species and specifically recognizes the need to ‘...implement new laws and update existing laws to support biodiversity.’ The Strategy encourages government to ‘...support action on priority issues, including alien invasive species, climate change, species at risk, habitat protection, wildlife management, and protected areas.’<sup>12</sup> In January 2012 the Minister of Natural Resources stated that in the context of the implementation of the Natural Resources Strategy, commitment to a provincial Invasive Alien Species strategy would be discussed.<sup>13</sup>

#### 1.1.2 Minister of Agriculture

The Minister of Agriculture is responsible for the *Weed Control Act* which may provide some limited authority to manage AIS. The Minister’s authority under the *Weed Control Act*, although narrow in its application (designated noxious weeds only), can be applied to ensure that action is taken to prevent the spread of noxious weeds to agricultural land or where the spread will inflict economic harm or ill health on Nova Scotians. Although it is not likely that this statute will be used to broadly manage AIS there is potential for management of wetland AIS existing in agricultural areas.

#### 1.1.3 Minister of Environment

The Minister of Environment is responsible for two statutes that may be used in the management of AIS. Nova Scotia’s primary environmental statute, the *Nova Scotia Environment Act*, regulates activities that may have an adverse effect on the environment, including adverse effects on biodiversity. The *Environment Act* vests the ownership and care of all provincial watercourses in the Crown and mandates the environmental assessment process. The *Wilderness Areas Protection Act* provides the Minister with a broad mandate to protect biodiversity in wilderness areas, including aquatic environments.

#### 1.1.4 Minister of Service Nova Scotia and Municipal Relations

The Minister of Service Nova Scotia and Municipal Relations is responsible for the *Municipal Government Act*. The role of the Minister in the management of AIS under this Act is as an oversight to municipal by-law making authorities on weed control. This Report does not examine municipal by-laws.

#### 1.1.5 Minister of Fisheries and Aquaculture

The Minister of Fisheries and Aquaculture is responsible for the *Fisheries and Coastal Resources Act*. This is the only provincial statute which includes regulation-making authority specifically intended to respond to an AIS pathway. The authority enables regulations to address unlawful introduction of fish species into provincial waters. The Act also provides the regulatory authority for licensing aquaculture operations.

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<sup>12</sup> Nova Scotia Department of Natural Resources (NSDNR), *The Path We Share, A Natural Resources Strategy for Nova Scotia 2011-2020*, 2011, viewed 23 April 2012, [www.gov.ns.ca/natr/](http://www.gov.ns.ca/natr/)

<sup>13</sup> Halifax Regional Municipality (HRM), Resolution 10A Invasive Species, Union of Nova Scotia Municipalities, January 12, 2012, viewed on 23 April 2012, [www.unsm.ca/index.php?option=com\\_docman&task](http://www.unsm.ca/index.php?option=com_docman&task).

### 1.1.6 Minister of Justice

A key element of AIS management is rapid-response to an AIS event. The Minister of Justice is responsible for the *Emergency Management Act*. The Emergency Management Office (EMO), a division of the Department of Justice, provides prompt and coordinated response to emergencies. Many emergencies are considered municipal responsibility; however, the province participates in emergency response when the emergency affects more than one municipality, when it is province-wide, at the request of the affected municipality, or upon request from the Government of Canada when the emergency is a federal jurisdiction.<sup>14</sup>

## 1.2 General Areas of Regulation

The only statute in Nova Scotia that includes provisions intended to address AIS is the *Fisheries and Coastal Resources Act*. The provisions in the Act are limited and the term AIS is not specifically mentioned or defined. The fact that the *Environment Act* places ownership and responsibility for watercourses within the provincial Crown provides a clearer opportunity for prevention and management of AIS than for terrestrial invasive species, where land ownership is an issue. However, to date there has been very little action taken by the provincial government to address AIS concerns.

The only general legislative authorities to address AIS are in the environmental assessment and approval requirements of the *Environment Act*. Activities (approvals) and undertakings (environmental impact assessment) which trigger the Act will be assessed. Projects and undertakings that trigger the Act will be assessed at some level and this assessment may include consideration of the potential for AIS introduction and the affects of such an introduction. Terms and conditions in environmental assessment decision documents and approval documents have included requirements to develop and implement a management plan for invasive species (see 2.3.1 for an example).

## 1.3 Geographical Areas of Protection

A review of the legislation indicates that the provincial government has specific regulatory authority over the following:

- Crown forests
- Provincial parks
- Designated wilderness areas
- All watercourses within the jurisdiction of the province

## 1.4 Species Protected by Regulation

A review of the legislation indicates that the provincial government has the authority to protect the following species and habitat:

- Wildlife
- Wildlife habitat in designated areas or areas owned by the Crown
- Species designated by the Endangered Species Act
- Core habitat of designated endangered or threatened species

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<sup>14</sup> Emergency Management Office, *Emergency Management Manual, Acts and Regulations*, March 2010, viewed on 23 April 2012, [http://emo.gov.ns.ca/sites/default/files/resources/EM\\_Manual\\_version\\_Mar\\_2010.pdf](http://emo.gov.ns.ca/sites/default/files/resources/EM_Manual_version_Mar_2010.pdf).

## 2.0 Provincial Legislative Summaries by Ministry

The following section provides a brief narrative on each of the statutes considered. Details of each of the statutes described in this section can be found in Appendix D, entitled Provincial Legislative Tables.

### 2.1 Minister of Natural Resources

#### 2.1.1 *Forests Act*

The purpose of the *Forests Act* is to maintain healthy productive forests to yield increased volumes. Included within that purpose is maintaining or enhancing wildlife, wildlife habitats and water quality. The Minister has broad authority and responsibility under the Act to manage and protect forests on Crown and private land. Although there are no references to AIS in forest management the Act does reference watercourses, wetlands and forest ecosystems indicating that the Minister's responsibility could be extended to include aquatic environments on forest land, especially where adverse effects to the aquatic environment could damage the forest.

Benefits:           (1)     Applies to Crown and private land, including watercourses, wetlands and forest ecosystems.  
                          (2)     Requires the Minister to monitor forests for insects and diseases.  
                          (3)     Requires the Minister to establish a forest management program.  
                          (3)     Requires the Minister to take action to protect forests from all 'injurious agents'.

Limitations:       (1)     Application of the Act is very narrow: forests only.  
                          (2)     Does not refer to AIS specifically.  
                          (3)     Focus is on insects and diseases.  
                          (4)     Does not define 'injurious agent'.

#### 2.1.2 *Wildlife Act*

The purpose of the *Wildlife Act* is to maintain an abundance and diversity of wildlife species. The definition of 'wildlife' in the Act includes all vertebrates that are wild by nature and includes 'exotic' wildlife (also defined). All 'wildlife' in Nova Scotia is vested in the Crown and the Minister has the responsibility of overseeing the protection of wildlife. The broad authority in the Act to implement policies and programs designed to protect and conserve wildlife and wildlife habitats could also be used to facilitate the identification, prevention, management and elimination of any AIS posing a threat to wildlife or wildlife habitat. The definition of 'wildlife habitat' includes water.

It is an offence under the Act and *General Wildlife Regulations* to release exotic wildlife without a permit. The prohibition could be used to address several pathways of introduction for vertebrate AIS, such as fish, including release of live bait, aquarium and water garden trade fish, and live food fish. According to the Department of Fisheries and Aquaculture the provisions prohibiting the release of exotic fish have not been enforced.<sup>15</sup>

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<sup>15</sup> Nova Scotia Department of Fisheries and Aquaculture (NSDFA), *Q & A Pending Regulations to Address the Threat of AIS: Illegal Introductions of AIS*, 2010, viewed 23 April 2012, <http://www.gov.ns.ca/fish/sportfishing/angling/fcr-q-and-a.pdf>

- Benefits:
- (1) Provides the Minister with authority and responsibility to oversee the protection of wildlife; this could include protection from AIS.
  - (2) The application of the Act is not limited to Crown land.
  - (3) There is no requirement to identify/list a species before action is taken.
  - (4) Supports diversity and stability in forest and wetland systems.
  - (5) Defines the term ‘exotic’.
- Limitations:
- (1) Does not refer to AIS specifically.
  - (2) The Minister is not required to take any action.
  - (3) The Minister’s authority is limited to protection of wildlife (vertebrates) and wildlife habitat.
  - (4) Licensing requirements and control measures are limited to vertebrates.

### 2.1.3 *Provincial Parks Act*

The purpose of the *Provincial Parks Act* is to develop and operate parks to preserve significant elements of the natural environment. The Act provides the Minister with the authority to take steps to dispose of and protect flora and fauna in provincial parks. A broad interpretation of flora and fauna could include aquatic plants, vertebrates and invertebrates.

The 2011 provincial Natural Resources Strategy recommends the *Provincial Parks Act* be updated to reflect current issues and priorities, including an ecosystem approach to resource management.

- Benefits:
- (1) The Minister has broad authority to protect flora and fauna in any provincial park.
  - (2) There is no requirement to identify/list a species before action is taken.
  - (3) The Minister has authority to dispose of flora and fauna in a provincial park.
  - (4) Crown land includes land covered by water.
- Limitations:
- (1) The Minister’s authority applies only within provincial parks.
  - (2) Does not refer to AIS specifically or clearly include all types of AIS.
  - (3) The Minister is not required to take any action.

### 2.1.4 *Endangered Species Act*

The purpose of the *Endangered Species Act* is to protect and recover species at risk in the Province, including habitat protection. The definition of habitat is broad and includes water. The Act places the conservation of species at risk within a broader strategy to maintain biodiversity which should support the prevention and management of AIS to the extent that they may adversely affect endangered species. The Act does not limit the types of management activities that may be undertaken and therefore could apply to any AIS that threaten a listed species or its habitat. The Species at Risk List Regulations include several species that live in aquatic habitat, i.e. wood turtle, yellow lamp mussel, Atlantic whitefish, Blanding’s turtle. AIS are recognized as threats to the Blanding’s turtle<sup>16</sup> and the yellow lamp mussel<sup>17</sup>.

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<sup>16</sup> Invasive species such as smallmouth bass, which have recently established in the Mersey River, may prey on hatchling turtles, See, The Blanding’s Turtle Recovery Team, *National Recovery Plan for the Blanding’s Turtle*

- Benefits:
- (1) Specifically recognizes the importance of biodiversity.
  - (2) Recovery/management plans for listed species must be prepared.
  - (3) Recovery/management plans must include identification of habitat.
  - (4) Habitat includes aquatic environments.
  - (5) Recovery/management plans are monitored and subject to a five year review.
  - (6) AIS are recognized as a threat to some listed species.
- Limitations:
- (1) The requirements only apply to species at risk (listed under the Act) and their habitat.
  - (2) Most of the Minister's authority relating to habitat is limited to designated core habitat, as defined by the Act.
  - (3) Currently, there is no designated core habitat.

## 2.2 Minister of Agriculture

### 2.2.1 *Weed Control Act*

Under the *Weed Control Act*, inspectors are granted powers to order noxious weeds and seeds to be destroyed on any land, and may undertake the destruction where the occupant of the land does not comply with the order. The Act only applies to noxious weeds and seeds that have been listed in the Weed Control Regulations. The Act is intended to protect agricultural land and provide protection from weeds which can inflict economic loss or ill health on humans and animals.

The *Weed Control Act* is not restricted to particular habitats. A noxious weed that only locates itself in a wetland habitat could be designated and regulated by the Act.

- Benefits:
- (1) The authority of inspectors to take action to manage and eliminate designated noxious weeds is comprehensive.
  - (2) Application of the Act is not limited to agricultural land or impacts.
- Limitations:
- (1) Only applies to noxious weeds (plants) and seeds that have been designated by regulation.
  - (2) Does not specifically reference AIS or biodiversity.
  - (3) There have been no aquatic invasive weeds listed as noxious weeds.

## 2.3 Minister of Environment

### 2.3.1 *Environment Act*

The *Environment Act* is an umbrella statute which has as its goal the protection, enhancement and prudent use of the environment. The Act recognizes the principle of ecological value, ensuring the maintenance and restoration of essential ecological processes and the preservation and prevention of loss of biological diversity. The Minister has the authority to sponsor or undertake

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(*Emydoidea blandingii*) *Nova Scotia Population*, Nova Scotia, Canada, 2002.

<sup>17</sup> Seven Non-native and invasive species with potential to threaten yellow lampmussels in the Sydney River watershed are identified in 'Department of Fisheries and Oceans (DFO), 'Management Plan for the Yellow Lampmussel (*Lampsilis Cariosa*) in Canada', *Species at Risk Act Management Plan Series*, Government of Canada Publications, April 2010, viewed on 23 April 2012, <http://publications.gc.ca/site/eng/359075/publication.html>, p.14.

research on anything the Minister considers necessary to achieve the purposes of the Act which could include research on the impact of AIS specifically or on biological diversity.

The Act does not specifically reference invasive species (terrestrial or aquatic). A stated goal of the Act, as identified in the Purpose section, is to maintain the principle of ecological value, [by] ensuring the maintenance and restoration of essential ecological processes and the preservation and prevention of loss of biological diversity.<sup>18</sup> The Purpose section is an essential provision of the Act; all provisions of the Act are to be interpreted in accordance with the Purpose section.

The Act includes a broad prohibition against the release of any ‘substance’ into the environment which may cause an adverse effect. The term ‘substance’ is defined by the Act to mean (i) matter that is capable of becoming dispersed in the environment, (ii) matter that is capable of becoming transformed in the environment into matter referred to in subclause (i), (iii) sound, vibration, heat, radiation or another form of energy, or (iv) any combination of things referred to in subclauses (i) to (iii).<sup>19</sup>

Although there is no precedent in place, the definition of ‘substance’ may be broad enough to include any organisms that can disperse. Recognizing an AIS as a ‘substance’ under the *Environment Act* may lead to consideration of the concept of ‘biological pollution’ under the Act. ‘Biological pollution’ has been well recognized, within academic circles, in the discussion of problems caused by invasive species.<sup>20</sup>

The *Environment Act* vests all watercourses in the Crown, providing the Minister with clear authority to manage and protect aquatic environments in the province. A watercourse is defined as:

(i) the bed and shore of every river, stream, lake, creek, pond, spring, lagoon or other natural body of water, and the water therein, within the jurisdiction of the Province, whether it contains water or not, and

(ii) all ground water.<sup>21</sup>

The Activities Designation Regulations require an approval for any activity that alters a watercourse or wetland.<sup>22</sup> The Minister has the authority to place conditions on an approval and this authority may be used to require consideration of AIS and the development of management plans.<sup>23</sup>

The authority to conduct an environmental impact assessment (EIA) is included in the *Environment Act* and regulated under the *Environmental Assessment Regulations*. The EIA process may be used to identify and prevent situations that facilitate the introduction of AIS. For example, in the 2003 EIA of the Point Tupper Marine Coal Terminal the proponent was required to describe how they would prevent the introduction of invasive species through the exchange of ballast water from international vessels.<sup>24</sup>

<sup>18</sup> Nova Scotia Environment Act, section 2.

<sup>19</sup> Nova Scotia Environment Act, subsection 2(au).

<sup>20</sup> Elliott, M. ‘Biological pollutants and biological pollution—an increasing cause for concern’, *Marine Pollution Bulletin*, vol. 46, 2003, pp.275–280.

<sup>21</sup> Nova Scotia Environment Act, subsection 3(be).

<sup>22</sup> Activities Designation Regulations, subsection 5(1).

<sup>23</sup> Nova Scotia Environment Act, section 56.

<sup>24</sup> Nova Scotia Department of Environment and Labour (NSDEL), Environmental Assessment Approval Date for Point Tupper Marine Coal Terminal Nova Scotia Power Inc., February 3, 2004, viewed 23 April 2012 [http://www.gov.ns.ca/nse/ea/pointtuppermterminal/NSPITerminal\\_Conditions.pdf](http://www.gov.ns.ca/nse/ea/pointtuppermterminal/NSPITerminal_Conditions.pdf).



- Benefits:
- (1) The purpose section of the Act specifically recognizes the preservation of biodiversity as a goal.
  - (2) The Minister has broad authority to consider any thing that has or may have an adverse effect on the environment.
  - (3) The definition of ‘substance’ is very broad.
  - (4) All watercourses are vested in the Crown.
  - (3) Includes numerous opportunities to implement programs and policies to research and manage AIS.
- Limitations:
- (1) Does not refer to or define AIS specifically.
  - (2) Provisions that may be used to address AIS are discretionary to the Minister; specific actions are not required.

### 2.3.2 *Wilderness Areas Protection Act*

The purpose of the *Wilderness Areas Protection Act* is to establish, manage and protect wilderness areas in the Province and includes a mandate to maintain and restore the integrity of natural processes and biodiversity. Wilderness areas under the Act include areas covered in water. The Minister of Environment has the authority to maintain and restore the integrity of natural processes and biodiversity within designated wilderness areas. The Minister has broad authority to establish committees, programs, policies, etc., and is required to produce a management plan to guide ‘protection’ of the designated wilderness area.

- Benefits:
- (1) Recognizes protection of biodiversity in wilderness areas, including areas covered in water.
  - (2) The Minister’s authority to protect biodiversity is not limited to specific species or actions.
  - (3) The Minister is required to establish a plan.
- Limitations:
- (1) Applies to designated wilderness areas only.
  - (2) Does not refer to AIS specifically.

## 2.4 **Minister of Service Nova Scotia and Municipal Relations**

### 2.4.1 *Municipal Government Act*

The purpose of the *Municipal Government Act* is to provide broad authority to councils to govern municipalities, including authority to maintain safe and viable communities. Councils have specific authorities to create by-laws to address nuisance activities, including control of ‘weeds’; however the Act does not include a definition of weeds. Councils also have by-law making authority to protect the health, well being and safety of persons and property. This authority may be available to address the prevention and management of AIS. However, given all watercourses are vested in the provincial Crown, the extent of municipal authority to undertake activities impacting watercourses may be challenged.

The Halifax Regional Municipality recently passed a resolution calling upon the Union of Nova Scotia Municipalities to ‘...request that the Province of Nova Scotia initiate an intergovernmental

and interdepartmental Invasive Species Strategy for Nova Scotia.’ The Resolution is a result of community pressure at the municipal level to address the impacts of invasive species.<sup>25</sup>

Benefits: (1) Municipalities have broad authority to develop planning strategies and maintain safe and viable communities.

Limitations: (1) The by-law making authority is set in the context of nuisance activities which may limit application.  
(2) Does not specifically reference AIS or biodiversity.  
(3) Watercourses are vested in the provincial Crown.

## 2.5 Minister Fisheries and Aquaculture

### 2.5.1 *Fisheries and Coastal Resources Act*

The purpose of the *Fisheries and Coastal Resources Act* is to encourage, promote and implement programs that will sustain and improve the fishery, including aquaculture. This Act provides the authority to require aquaculture licenses and leases. A license is required to introduce a species of aquatic plants or animals foreign to the area, including those used for feed. It is unclear whether this would include bacteria, fungi and viruses.

Amendments to the Act in 2010 added regulation making authority to address the unlawful introduction (live possession and transport) of fish species into provincial waters. These regulations will prohibit the possession of live fish, with appropriate exceptions for legitimate practices.<sup>26</sup>

Regulations under the federal *Fisheries Act* [Fishery (General) Regulations] and the provincial *Wildlife Act* also have the authority to prohibit the release of live fish into any fish habitat; however there have been no convictions reported under these Regulations.<sup>27</sup>

Benefits: (1) Regulates aquaculture by requiring licenses.  
(2) Includes regulation-making authority to prohibit unlawful introduction of fish.  
(3) New regulation-making authority is specifically directed at addressing the threat of AIS.

Limitations: (1) AIS is not defined in the Act.  
(2) New regulations have not been introduced.

## 2.6 Minister of Justice

### 2.6.1 *Emergency Management Act*

The *Emergency Management Act* defines ‘emergency’ as a present or imminent event in respect of which the Minister or a municipality, as the case may be, believes prompt co-ordination of action or regulation of persons or property must be undertaken to protect property or the health, safety or welfare of people in the Province. Although the Act does not specifically reference

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<sup>25</sup> Halifax Regional Municipality, 2012.

<sup>26</sup> Nova Scotia Department of Fisheries and Aquaculture, 2010.

<sup>27</sup> *Ibid.*

harm to the environment as the basis of an emergency, the implementation of the Act includes environmental effects.

The hazard analysis for Nova Scotia includes a list of types of emergencies to which Nova Scotia may be particularly vulnerable; an AIS invasion is not included in this list.

## **Part B**

### **Federal Overview of Legislative Authorities and Responsibilities for AIS**

The following summary provides an overview of the legislative authorities and responsibilities for AIS provided to federal Ministers. The goal of this summary is to clarify the role that each of the Ministers may play in the identification, prevention and management of AIS in Nova Scotia.

This part is divided into two sections. Section 1.0 identifies: (1.1) which Ministers have direct or indirect responsibility for AIS; (1.2) under what circumstances the federal government has relatively broad regulatory control over AIS; (1.3) the geographical areas where the government can control AIS; and (1.4) which plant and animal species the government can protect from AIS.

Section 2.0 is a brief narrative overview of each of the relevant federal statutes, including a preliminary assessment of authorities that support management of AIS and limitations on those authorities.

#### **1.0 Federal Authorities and Responsibilities**

##### **1.1 Responsible Ministers**

The following federal Ministers have direct or indirect responsibility for AIS:

###### **1.1.1 Minister of Environment**

The Minister of Environment is responsible for seven statutes with a wide ranging impact on the management of AIS. Four of the seven statutes are focused specifically on the protection of wildlife species and their habitats. Each of these four statutes has a slightly different means of exercising that protection, but in all cases the Minister's authority is intended to ensure that important Canadian species and spaces are protected. The other three statutes provide a more general protection for the environment from undertakings or substances that may be harmful. Within the context of these statutes, AIS, though not specifically addressed, may be captured because of their potential to cause an adverse effect to the environment.

###### **1.1.2 Minister of Agriculture**

The Minister of Agriculture is responsible for one statute relevant to the identification, prevention and management of AIS. The Canadian Food Inspection Agency (CFIA) plays a leadership role in the implementation of *An Invasive Alien Species Strategy for Canada* as it relates to plants and plant pests. The primary objectives of the CFIA in this regard are to prevent the introduction and spread of plant pests of 'quarantine significance', to detect and control or eradicate 'designated'

plant pests and to certify plant and plant products for domestic and export trade.<sup>28</sup> Recent policy statements related to the implementation of plant protection legislation indicate a role for the CFIA in the protection of marine and freshwater plants and the management of aquatic invasive plants.<sup>29</sup>

### 1.1.3 Minister of Transportation

The Minister of Transportation is responsible for the *Canada Shipping Act, 2001*. The Act provides regulation-making authority for the control and management of ballast water through the Ballast Water Management Regulations. The release of ballast water into Canadian waters is considered to be one of the primary vectors for distribution of AIS.

### 1.1.4 Minister of Fisheries and Oceans

The Minister of Fisheries and Oceans is the federal lead for AIS and is responsible for the conservation and protection of fish and their habitat. Fisheries and Oceans Canada (DFO) undertakes scientific research and provides scientific advice to Transport Canada in connection with ballast water regulations under the *Canada Shipping Act, 2001*.<sup>30</sup>

DFO is developing a national regulatory proposal including prohibitions against live possession, import and transport of AIS and authorities for control and eradication activities. The Proposal includes potential for delegation of regulatory provisions to provincial/territorial governments.<sup>31</sup>

### 1.1.5 Minister of Public Safety

The Minister of Public Safety is responsible for the *Emergencies Act* and the *Emergency Management Act*. These statutes provide the framework for rapid response to and management of emergencies with a national impact.

## 1.2 General Areas of Regulation

A review of the legislation indicates that the federal government has limited authority to manage AIS. Several statutes under federal authority such as the *Canadian Environmental Protection Act*, *Canada Water Act*, *Fisheries Act* and *Plant Protection Act* have the capacity to address certain pathways of introduction and/or certain species of AIS but there is no comprehensive coverage. None of these statutes specifically reference or define AIS, nor do they make it clear that AIS is included in key definitions such as ‘waste’, ‘toxic substance’, or ‘deleterious substance’.

Research for this Report has identified gradual progress on the development of a more comprehensive regulatory framework through policy changes on the interpretation of the *Plant Protection Act*, addition of regulation making authority to the *Canada Shipping Act* and discussion of regulatory developments under the *Fisheries Act*.

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<sup>28</sup> Summary of Plant Quarantine Pest and Disease Situations in Canada  
[www.inspection.gc.ca/english/plaveg/pestrava/surv/obje.shtml](http://www.inspection.gc.ca/english/plaveg/pestrava/surv/obje.shtml)

<sup>29</sup> North American Plant Protection Organization (NAPPO), *The Role of the North American Protection Organization in Addressing Invasive Alien Species*, January 2011.

<sup>30</sup> Department of Fisheries and Oceans (DFO), *Evaluation of AIS Project Number 6B080, Final Report*, September 16, 2008, viewed on 23 April 2012, <http://www.dfo-mpo.gc.ca/ae-ve/evaluations/08-09/6b080-eng.htm>

<sup>31</sup> Department of Fisheries and Oceans (DFO), ‘Addressing the Threat of AIS’, *A presentation to the Canadian Council of Fisheries and Aquaculture Ministers*, September 1, 2011, p. 6.

### 1.3 Geographical Areas of Protection

A review of the legislation indicates that the federal government has the authority to regulate and manage AIS in the following areas:

- National wildlife areas
- National parks
- Crown forests
- Federally owned land
- Marine protected areas

### 1.4 Species Protected by Regulation

A review of the legislation indicates that the federal government has the authority to protect the following species and habitat:

- Federally listed species at risk
- All designated wild plants and animals subject to international or interprovincial movement
- Fish and water frequented by fish, including marine mammals

## 2.0 Federal Legislative Summaries by Ministry

The following section provides a brief narrative on each of the relevant statutes, including a summary of benefits and limitations. Details of each of the statutes described in this section can be found in Appendix E, entitled Federal Legislative Tables.

### 2.1 Minister of Environment

#### 2.1.1 *Wild Animal and Plant Protection and Regulation of International and Inter-Provincial Trade Act*

The *Wild Animal and Plant Protection and Regulation of International and Inter-Provincial Trade Act* (WAPPRITA) provides the Minister with the authority to protect certain species of animals and plants, by implementing the Convention and regulating international and interprovincial trade in animals and plants. The definitions of plant and animal are broad, including all flora and fauna (aquatic and terrestrial) listed in the Wild Animal and Plant Trade Regulations. The definitions do not include bacteria, fungi or virus. One of the goals of the Act is to protect Canadian ecosystems from wild species whose introduction would be harmful to indigenous species. To that end, the Act provides the Minister with the authority to urgently recommend to the Governor in Council that a certain specimen not be imported into Canada because it would be harmful to Canadian ecosystems or to any species in Canada. These species are listed under Schedule II of the Regulations and are few in number.

Benefits: (1) Provides a tool to control the introduction and interprovincial movement of species that may prove to be invasive alien species, including aquatic species.

Limitations: (1) Limited to international and inter-provincial trade.  
(2) Regulates the movement of listed species only.

### 2.1.2 *Canada Wildlife Act*

The purpose of the *Canada Wildlife Act* is to protect wildlife on designated public land and in marine protected areas. Public lands include land covered with water. The application of the Act grants the Minister authority to undertake conservation activities in wildlife areas assigned to the Minister. The activities must not be inconsistent with the laws of the province or territory where the wildlife area exists. The authority of the Minister to take action to protect species in wildlife areas and marine protected areas appears to be broad, although specific actions are not noted in the legislation.<sup>32</sup>

- Benefits: (1) The Minister has broad authority to undertake activities in wildlife areas, including areas covered in water and marine protected areas.
- Limitations: (1) The authority of the Minister does not extend outside of the designated area.  
(2) Does not specifically reference AIS or biodiversity.  
(3) The Minister's authority is subject to provincial law.  
(4) The Minister is not required to take any action.

### 2.1.3 *Canada National Parks Act*

The purpose of the *Canada National Parks Act* is to establish and manage national parks; park land can include submerged land. The Act places a responsibility on the Minister to maintain or restore ecological integrity, through the protection of natural resources and natural processes, as a first priority of park management. This appears to be the basis for National Parks policy which includes a policy to prevent exotic plants and animals from being introduced and to eliminate them where they exist. Established parks must have management plans which include a vision for ecological integrity. Ecological integrity means, with respect to a park, a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes.<sup>33</sup>

- Benefits: (1) The Minister has both the authority and responsibility to protect ecological integrity in the parks.  
(2) The Minister is required to undertake management planning and monitoring within a specified timeframe.  
(3) The Act supports policy which includes prevention and management of AIS.
- Limitations: (1) Applies to designated National Parks only.  
(2) Does not specifically reference AIS.  
(3) Park policy to address AIS is on a case by case basis.  
(4) Unclear how extensive the authority of the Minister is to take action beyond park boundaries.

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<sup>32</sup> Vasarhelyi, C. and Thomas, V., 'Analysis of Canadian and American legislation for controlling exotic species in the Great Lakes' suggested that the *Canada Wildlife Act* does not include any sections that address EAS [AIS] or any sections that could be applied to EAS [AIS] prevention or management. I disagree with this finding.

<sup>33</sup> *Canada National Parks Act*, subsection 2(1).

#### 2.1.4 *Species at Risk Act*

The purposes of the *Species at Risk Act* are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened. The definition of ‘wildlife species’ is broad and includes all organisms other than a bacterium and viruses.

The Act requires that once a species has been listed as endangered or threatened, the competent Minister (Minister of Fisheries and Oceans for aquatic species) must follow a series of steps to assess and hopefully recover the species. Included in this is an assessment of any threats against the species or its critical habitat. In a recent Federal Court of Appeal case the judge confirmed the intention of the Act ‘...to provide for compulsory and non-discretionary legal protection...’ for identified critical habitat of listed endangered or threatened aquatic species.<sup>34</sup>

The yellow lampmussel is an example of a species of special concern, listed under the *Species at Risk Act*, which is threatened by AIS. A federal management plan for this species was created in 2010.<sup>35</sup>

The Act further requires all recovery strategies, action plans and management plans to consider the commitment of the Government of Canada to conserving biological diversity.

- Benefits:
- (1) Specifically addresses application to aquatic environments and species.
  - (2) Requires assessment of threats, which could include AIS, to a wildlife species or its critical habitat.
  - (3) Management and action plans are a required part of the assessment and recovery process.
  - (4) Recognizes conservation of biological diversity.
- Limitations:
- (1) Supports protection of listed species only, and some of their habitat.
  - (2) Does not reference AIS specifically.
  - (3) Application of the Act to habitat is very limited.
  - (4) Unclear how extensive the authority of the Minister(s) is to take action on private land.

#### 2.1.5 *Canadian Environmental Assessment Act*

The purpose of the *Canadian Environmental Assessment Act* is to assess projects to ensure mitigation of environmental impacts before the project proceeds. The Act requires that the environmental effects of any project which triggers the Act be considered before the project is undertaken. All aspects of the project and its interaction with the environment may be considered in the environmental impact assessment (EIA). Where an EIA indicates that a project is likely to release an AIS or encourage growth of an AIS, changes to the project to prevent or mitigate such an environmental effect may be required. An environmental effect includes any change that the

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<sup>34</sup> *Minister of Fisheries and Oceans v. David Suzuki Foundation, et. al.* 2012 FCA 40.

<sup>35</sup> Department of Fisheries and Oceans (DFO), ‘Management Plan for the Yellow Lampmussel (*Lampsilis Cariosa*) in Canada’, *Species at Risk Act Management Plan Series*, Government of Canada Publications, April 2010, viewed on 23 April 2012, <http://publications.gc.ca/site/eng/359075/publication.html>

project may cause in the environment, including any change it may cause to a listed wildlife species or its critical habitat.

As an example, intra-basin water diversion projects within Canada or in watersheds shared with the United States are subject to the *Canadian Environmental Assessment Act*. The environmental impacts of foreign biota are fully considered in the course of the review.<sup>36</sup>

- Benefits:
- (1) Provides an opportunity for consideration of AIS as an environmental effect.
  - (2) Includes a tool for assessment, planning and management.
  - (3) Is not limited to specific species.
- Limitations:
- (1) The requirement for an EIA only applies when the Act is triggered.
  - (2) Assessment for AIS is not specifically mentioned and therefore may be missed.

#### 2.1.6 *Canadian Environmental Protection Act*

The purposes of the *Canadian Environmental Protection Act* are broad and include identifying and managing toxic substances, assessing new substances to Canada and regulating ocean dumping. The Minister has the authority to regulate substances that meet the definition of toxic under the Act and have been listed as a toxic substance in Schedule 1. The definition of toxic substance is very broad and includes any substance that may have an immediate or long-term harmful effect on the environment or its biological diversity. The Act also recognizes the precautionary principle. The Act authorizes the assessment of substances new to Canada, including living organisms, and the New Substance Notification Regulations require an environmental risk assessment that includes invasiveness as an adverse ecological effect.

- Benefits:
- (1) Provides broad authority to the Minister to prevent harmful effects to the environment.
  - (2) The need to protect biological diversity is specifically mentioned.
  - (3) The precautionary principle is specifically referenced.
  - (4) The Minister may assess any new substances manufactured or imported into Canada, including living organisms.
- Limitations:
- (1) The Minister only has the authority to regulate toxic substances that are designated under the Act.
  - (2) Inclusion of AIS in the definition of toxic substance is not clear.
  - (3) The assessment of living organisms is confined to animate products of biotechnology.

#### 2.1.7 *Canada Water Act*

The purpose of the *Canada Water Act* is to promote research and to implement programs for the conservation and use of fresh water. The Act does not specifically address AIS; however it may be argued that the broad definition of ‘waste’ could include AIS.<sup>37</sup> The definition is almost

<sup>36</sup> Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) AIS Task Group, A Canadian Action Plan to Address the Threat of AIS, Department of Fisheries and Oceans, 2004, viewed on 23 April 2012 <http://www.dfo-mpo.gc.ca/science/enviro/ais-eae/plan/plan-eng.htm>, at 16.

<sup>37</sup> ‘waste’ means (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water to an extent that is detrimental to their use by man or by any



identical to ‘deleterious substance’ in the *Fisheries Act*. The application of the Act is limited to water quality management areas designated by the Minister. Vasarhelyi put forward an argument in 2004 to amend the definition of ‘waste’ under the Act to specifically include AIS by adding the terms ‘any substance or biota’<sup>38</sup>

Benefits: (1) Facilitates research for conservation and use of fresh water.

Limitations: (1) The definition of ‘waste’ does not clearly include AIS.

## 2.2 Minister of Agriculture

### 2.2.1 *Plant Protection Act*

The *Plant Protection Act* implements agreements entered into by Canada under the International Plant Protection Convention (IPPC) and the Convention on Biological Diversity (CBD). The purpose of the *Plant Protection Act* is to protect plant life and the agricultural and forestry sectors of the Canadian economy by preventing the importation, exportation and spread of pests and by controlling or eradicating pests in Canada. The *Plant Protection Act* is administered by the Canadian Food Inspection Agency (CFIA).

In 1997, the IPPC was modified to include ‘wild flora’ broadening the scope of application to include ecological considerations. In 2001 it was officially recognized that the scope of the IPPC includes risks to the environment and biodiversity.

The definition of ‘pest’ in the *Plant Protection Act* is broad and includes anything that is injurious or potentially injurious, directly or indirectly, to plants, and includes any plant prescribed as a pest. The CFIA uses a pest risk assessment to determine whether something is a pest, if it will have a significant adverse effect on the environment and to minimize degradation of Canadian flora. If, following a pest risk assessment the thing is determined to be a pest, in accordance with the *Plant Protection Act*, actions may be taken to prevent the introduction of the pest and to control or eradicate the pest.

Under the Plant Protection Regulations, Inspectors are granted broad powers to take steps to eradicate a pest or prevent its spread if, following a pest risk assessment, the Minister or the Inspector have a reasonable belief that the thing is a pest or is infested with a pest.

A preliminary legal analysis completed by Environment Canada under the Action Plan for Invasive Terrestrial Plants and Plant Pests concluded that the *Plant Protection Act* includes all of the authority necessary to regulate the introduction of invasive (terrestrial) alien plants and plant pests, and for considering their environmental impacts.<sup>39</sup>

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animal, fish or plant that is useful to man, and (b) any water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a);

<sup>38</sup> Vasarhelyi, C. and Thomas, V., ‘Analysis of Canadian and American legislation for controlling exotic species in the Great Lakes’, p. 5.

<sup>39</sup> Canadian Food Inspection Agency (CFIA), *Action Plan for Invasive Alien Terrestrial Plants and Plant Pests, Phase 2 – Proposed Implementation Plan, 3.0 Area of Delivery – Legislation and Regulation*, Government of Canada Publications, 2008, viewed on 23 April 2012, <http://publications.gc.ca/site/eng/325572/publication.html>.

Currently, under the *Plant Protection Act*, the CFIA is not undertaking risk assessments on AIS. However in a 2011 draft report the North American Plant Protection Organization (NAPPO) Invasive Species Panel concluded:

...plant protection legislation in all three countries [Mexico, Canada, and USA] provides the authority to protect aquatic plants, however only the U.S. currently has active programs in this area.<sup>40</sup>

The primary purpose of the *Plant Protection Act* is to 'protect plant life'; the purpose is not limited to protection of terrestrial plant life. The Act and Regulations do not prohibit the assessment or designation of aquatic pests. The broad definition of 'pest' in the Act could include any form of organism as long as it is a threat to plant life.

The practical application of the *Plant Protection Act* to the identification, assessment and control of AIS may pose numerous challenges. Preventing the intentional import of aquatic plants may be managed within the current CFIA structure; however, unintentional introduction or escape of aquatic plants into watercourses may go beyond the training or equipment of PPA inspection staff. Despite these challenges, NAPPO states in the 2011 draft report that '...NPPOs may be the national institutions best positioned to coordinate the regulation of aquatic plants.'<sup>41</sup>

Among the specific recommendations made by NAPPO in the 2011 paper is the following:

NAPPO's scope of plants to be protected should include all plants and plant-like organisms, including marine and freshwater, vascular and non-vascular plants, mosses, liverworts, hornworts, fungi and algae (brown, red and green).<sup>42</sup>

- Benefits:
- (1) There is extensive authority to prevent the introduction of certain invasive alien species, including AIS into Canada.
  - (2) There is some authority to manage the spread of certain AIS in Canada.
  - (3) Requires actions to be taken and includes strong enforcement authorities.
  - (4) Policy recognizes responsibility for protection of aquatic plants under the Act.
- Limitations:
- (1) Only applies following a determination via a pest risk assessment that the thing of concern is a plant pest.
  - (2) Only applies to pests that are injurious to plants.
  - (3) Practical challenges for implementation to aquatic environments.

## **2.3 Minister of Transportation**

### **2.3.1 *Canada Shipping Act, 2001***

The purpose of the *Canada Shipping Act, 2001* is to protect the marine environment from damage due to navigation and shipping activities. In line with this purpose is the authority in the Act to create regulations to prevent or reduce the release of AIS from vessels, into water.

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<sup>40</sup> North American Plant Protection Organization (NAPPO), Invasive Species Panel, *The Role of the North American Plant Protection Organization in Addressing Invasive Alien Species, Draft*, 2011, p. 9. The US has several aquatic plants species and one species of marine algae listed as Federal Noxious Weeds.

<sup>41</sup> *Ibid*, p. 11.

<sup>42</sup> *Ibid*, p. 13.

Section 190(1) of the Act provides the following regulation-making authority:

190(1) The Governor in Council may, on the recommendation of the Minister, make regulations respecting the protection of the marine environment, including regulations (f) respecting the control and management of ballast water; (g) for preventing or reducing the release by vessels into waters of aquatic organisms or pathogens that, if released into those waters, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters;

The current Ballast Water Control and Management Regulations were passed in 2011. The Regulations require management of ballast water of all Canadian vessels and all vessels in Canadian waters with the goal of minimizing the release of ‘harmful aquatic organisms or pathogens’.

Section 1 of the Regulations defines ‘harmful aquatic organisms or pathogens’ to mean,

aquatic organisms or pathogens that, if introduced into waters under Canadian jurisdiction, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters.

The Regulations require ships to manage ballast water in ways that reduce the risk posed by these AIS. The federal government has committed \$4.5 million over five years to strengthen enforcement of the ballast water control and management regulations.<sup>43</sup>

Benefits:       (1)       Appears to be no limitation on the type of aquatic species that can be managed.  
                  (2)       The Act and regulations apply specifically to aquatic environments.  
                  (3)       Defines and specifically addresses AIS.  
                  (4)       Addresses one of the most common pathways of AIS.

Limitations:    (1)       The application is limited to ballast water release.

## 2.4 Minister of Fisheries and Oceans

### 2.4.1 *Fisheries Act*

The purpose of the *Fisheries Act* is to protect and manage the commercial fishery. To achieve this purpose the Act and regulations include several provisions which facilitate the protection of fish and fish habitat and prevent pollution of aquatic environments. The Act prohibits the release of ‘deleterious substances’ into water frequented by fish. ‘Deleterious substance’ is defined by how it impacts the aquatic environment, fish species and the use of those species by humans.<sup>44</sup>

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<sup>43</sup> Department of Fisheries and Oceans (DFO), Health of the Oceans Initiatives — A Listing by Lead Department or Agency, Fisheries and Oceans Canada, viewed on 23 April 2012, <http://www.dfo-mpo.gc.ca/oceans/management-gestion/healthyoceans-santedesoceans/initiatives-eng.htm>

<sup>44</sup> Section 34 of the *Fisheries Act* defines deleterious substance to mean (1)(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or

The definition does not reference any specific substances; however over the years courts have found certain substances to meet the definition, including oil, leachate and silt. To date there are no court decisions recognizing AIS as a deleterious substance.

An argument could be made for the inclusion of AIS in the current definition of ‘deleterious substance’. Authors examining this subject over the years have suggested that the definition of ‘deleterious substance’ be amended to specifically include AIS.<sup>45</sup> This would help to formalize the concept of ‘biological pollution’ which has also been put forward as a basis for action on the Great Lakes Water Quality Agreement.<sup>46</sup> Amending the definition would enable the development of regulation making authority under section 43 of the Act to manage AIS.

The *Fisheries Act* has no provision that specifically addresses the introduction, removal or destruction of AIS. The Fishery (General) Regulations, which apply in Nova Scotia, prohibit the release of any live fish into fish habitat. The regulations are designed to conserve and protect fish populations and the provisions could be used to regulate the release of AIS (fish species only). However, such a provision is difficult to enforce and there have been no convictions for the illegal release of live fish into fish habitat.<sup>47</sup> The Maritime Provinces Fishery Regulations prohibit the use of specific fish species as bait. This provision may also be used to regulate the release of invasive fish species.

DFO is developing a national regulatory proposal including prohibitions against live possession, import and transport of AIS and authorities for control and eradication activities. The proposal includes potential for delegation of regulatory provisions to provincial governments.<sup>48</sup>

- Benefits:
- (1) Specifically applies to aquatic environments.
  - (2) The Minister of Fisheries and Oceans is recognized as holding primary responsibility for AIS management in Canada.
  - (3) A regulatory framework for AIS management under the Act is being developed.
- Limitations:
- (1) Does not reference or address AIS.
  - (2) Definition of ‘deleterious substance’ does not clearly include AIS.

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alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, and without limiting the generality of the foregoing includes (c) any substance or class of substances prescribed pursuant to paragraph (2)(a), (d) any water that contains any substance or class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to paragraph (2)(b), and (e) any water that has been subjected to a treatment, process or change prescribed pursuant to paragraph (2)(c).

<sup>45</sup> Cosgrove, S., ‘Aquatic invasive species legislative tools’, Biodiversity Science Branch, Department of Fisheries and Oceans, 2002, Ottawa, ON, 34 p.

<sup>46</sup> Friends of the Earth Canada, ‘Brief Amicus Curiae of Friends of the Earth Canada in Support of Petitioners’ Writ of Certiorari in the Supreme Court of the United States’, State of Michigan et al., v. United States Army Corps of Engineers and Metropolitan Water Reclamation District of Greater Chicago, 2011.

<sup>47</sup> Nova Scotia Department of Fisheries and Aquaculture (NSDFA), Q & A Pending Regulations to Address the Threat of AIS: Illegal Introductions of AIS, 2010, viewed 23 April 2012, <http://www.gov.ns.ca/fish/sportfishing/angling/fcra-q-and-a.pdf>, p. 1.

<sup>48</sup> Department of Fisheries and Oceans (DFO), ‘Addressing the Threat of AIS’, A presentation to the Canadian Council of Fisheries and Aquaculture Ministers, September 1, 2011.

## **2.5 Minister of Public Safety**

### *2.5.1 Emergencies Act*

The *Emergencies Act* provides authority to the Governor in Council to declare a ‘public welfare emergency’. A ‘public welfare emergency’ can include an emergency that is caused by a real or imminent natural phenomenon, accident or pollution and that result or may result in a danger to life or property, social disruption or a breakdown in the flow of essential goods, services or resources, so serious as to be a national emergency. Although there is no specific reference to AIS or ‘biological’ pollution, the authority to declare an emergency is generally broad and may be applied to AIS. Also, the *Emergency Management Act* makes the Minister of Public Safety responsible for coordinating emergency management activities in Canada, including research and planning.

## **PART C**

### **Analysis and Recommendations**

#### **1.0. Gap Analysis**

Addressing AIS in Canada is legally and bureaucratically complex. Constitutional division of responsibilities between the federal and provincial governments creates jurisdictional complexities around the responsibility for and management of species that cross provincial and national borders. Although there has been some movement by Fisheries and Oceans Canada on the development of a more comprehensive legal framework (see 1.2 below) unlike the United States, Canada does not have a national framework or umbrella legislation to address AIS.

Several of the statutes and regulations examined for this Report contain the authority to protect specific species or habitats from AIS while others have the capacity to address one or more pathways of introduction (see 1.1 below). However, only the Ballast Water Control and Management Regulations under the *Canada Shipping Act, 2001* were developed with the intention of preventing introduction of AIS to Canadian waters. The fact that the current legislation does not recognize the threat of AIS creates a ‘square peg in a round hole’ approach to managing this threat. One area of particular challenge is the application of definitions to AIS where such definitions do not refer to or recognize AIS (see 1.3 below).

Identifying appropriate authorities for the management of AIS is further complicated by the fact that AIS may be aquatic or semi-aquatic and establishing clear definitions for AIS is difficult. For example, invasive species, such as Purple Loosestrife, found in upland and wetland environments do not easily fit within a terrestrial or aquatic framework.

#### **1.1 Approach to Regulation of AIS is inconsistent and does not adequately cover all pathways of introduction**

There is no comprehensive federal or provincial legislative framework to identify, prevent, eradicate or control AIS in Nova Scotia. There is a mishmash of authorities and responsibilities which seek to protect certain habitats or species, such as forests, national or provincial parks, wildlife, plants and endangered species. In many instances the Minister’s authority to take action is discretionary or subject to oversight though regulation. It is virtually impossible to keep track

of the various approaches, let alone apply this mishmash of authorities to construct an effective management plan for AIS.

The Aquatic Action Plan identified seven primary pathways for the introduction of AIS into Canadian waters. A primary goal of AIS regulation is to prevent introduction via these pathways. A review of these pathways and the potential applicable legislation identifies several gaps. Table 1.1 below provides an overview of the pathway, relevant legislation and gaps.

Table 1.1

<b>Pathway</b>	<b>Legislation</b>	<b>Gap</b>
<b>Shipping</b>	Canada Shipping Act Ballast Water Control and Management Regulations	The Act and Regulations address ballast water only. Other pathways of introduction of AIS in shipping activities are not considered.
<b>Recreational and commercial boating</b>	Canada Shipping Act	The National Aquatic Invasive Species Committee has designed and launched a provincial/territorial survey to take stock of the current status of knowledge and activities related to the recreational and commercial boating vector for AIS.
<b>Live Bait</b>	Fisheries Act Maritime Provinces Fishery Regulations	The Act and Regulations address fish only and the Regulations are not enforced.
	Nova Scotia Wildlife Act	Wildlife Act Regulations are not enforced.
	Nova Scotia Fisheries and Coastal Resources Act	Regulations under the Fisheries and Coastal Resources Act are not yet in place.
<b>Aquarium and water garden trade</b>	Plant Protection Act	The Act applies to plant pests and plants as pests only. Application of the Act to aquatic plants is spotty.
<b>Live food fish</b>	Nova Scotia Fisheries and Coastal Resources Act	The proposed Regulations under this Act are not yet in place.
<b>Unauthorized introductions</b>	Plant Protection Act	The Act applies to plant pests and plants as pests only. Application of the Act to aquatic plants is spotty.
	Fisheries Act and Fishery (General) Regulations	The Regulations have not been enforced.
	Nova Scotia Wildlife Act	The Act applies to vertebrates only and the relevant Regulations have not been enforced.
	Nova Scotia Fisheries and Coastal Resources Act	The proposed Regulations under this Act are not yet in place.
<b>Canals and water diversions</b>	Canadian Environmental Assessment Act	The Act only applies to projects that have a federal trigger.

Of the ten federal statutes available to address AIS, three appear to have the broadest mandate to prevent introduction by addressing the seven pathways; the *Canada Shipping Act* (AIS entering via ships ballast water, recreational boating) *Fisheries Act* (prosecution for release of AIS, action to eradicate AIS, aquaculture escapes, bait fish, food fish releases) and *Plant Protection Act* (import of AIS plants).

Of the provincial statutes available to address AIS, only the Nova Scotia *Wildlife Act* and the *Fisheries and Coastal Resources Act* include clear application to the identified pathways. Other provincial statutes such as the *Environment Act* have the potential to regulate AIS but have not been used in this capacity.

## **1.2 The term ‘AIS’ is not legally defined or included in key definitions**

The Aquatic Action Plan defines AIS as,

Fish, animal, and plant species that have been introduced into a new aquatic ecosystem and are having harmful consequences for the natural resources in the native aquatic ecosystem and/or the human use of the resource.

The term AIS and the definition described above are only reflected in one piece of legislation identified for this Report. The Ballast Water Management and Control Regulations under the *Canada Shipping Act* specifically recognize AIS as ‘harmful aquatic organisms or pathogens.’

‘harmful aquatic organisms or pathogens’ mean aquatic organisms or pathogens that, if introduced into waters under Canadian jurisdiction, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters.<sup>49</sup>

There are numerous other terms defined in legislation that may include AIS; however each of these has specific limitations. Appendix C includes a table identifying these terms and definitions.

The lack of a consistent legal definition of AIS creates confusion and makes it difficult to determine what if any AIS are addressed by a particular statute.

## **1.3 There is no clear regulatory framework for rapid response to an AIS incident**

Rapid Response is the capacity to quickly respond to an invasion in cases where prevention (of the invasion) fails. Normally, eradication is the primary goal. Other management options include containment of the population, suppression to keep its numbers below an economic or ecological threshold or slow its spread, or living with the effects of the species. It is important that every stage of a rapid response include clear lines of authority and responsibility for funding, as well as a communication strategy which is a critical step in the process.<sup>50</sup>

Rapid response management entails an assessment of the ecological and economic risk as soon as an exotic species has been detected. In order, the events are: detection, confirmation of the

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<sup>49</sup> Ballast Water Control and Management Regulations, section 1.

<sup>50</sup> Department of Fisheries and Oceans (DFO), *Evaluation of AIS Project Number 6B080, Final Report*, September 16, 2008, viewed on 23 April 2012, <http://www.dfo-mpo.gc.ca/ae-ve/evaluations/08-09/6b080-eng.htm>



species, notification of key agencies, assessment of risk, identification of management expertise required, decision to control, legal restrictions (if any) to be resolved, logistic deployment and funding of programmed, effecting the control according to objectives, and follow-up evaluation of control process.<sup>51</sup>

The current federal and provincial (NS) legislative frameworks to address emergency management have limited capacity to meet the rapid response management assessment for AIS put forward by Thomas, Vasarhelyi and Niimi.

## **2.0. Recommendations**

### **2.1 Recommendations in Common with Invasive Alien Species Legislative Review and Gap Analysis Phase I: Terrestrial Plants and Insects**

Phase I of this Report entitled Invasive Alien Species Legislative Review and Gap Analysis Phase I: Terrestrial Plants and Insects considered three general approaches to create a more consistent and effective legislative framework for the management of invasive alien species in Nova Scotia:

1. working within the current legislative framework;
2. minor amendments to the current legislative framework to improve effectiveness; or
3. major amendments/replacing the current legislative framework.

Many of the detailed recommendations aimed at enhancing current legislation to improve management of terrestrial invasive species apply equally to the management of AIS. Those recommendations include the following:

#### **2.1.1 Integrate AIS into policies, programs and management plans through legislation**

There are several federal and provincial statutes that include a mandate to the responsible Minister to undertake studies or develop policies, programs and management plans that could include AIS. In many instances the purpose of the enabling statute includes protection of biodiversity.

Provincial statutes: *Forests Act, Wildlife Act, Endangered Species Act, Environment Act, and Wilderness Areas Protection Act.*

Federal statutes: *Canada Wildlife Act, Canada National Parks Act, Species at Risk Act, Canadian Environmental Protection Act, Forestry Act.*

There may be an opportunity for ISANS to identify these provisions to the relevant federal and provincial government departments and encourage them to include consideration of AIS in research and in the development of policies, programs and management plans.

#### **2.1.2 Explore the potential role of the *Environment Act* in the management of invasive species (terrestrial and aquatic)**

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<sup>51</sup> Thomas, V. G., Vasarhelyi, C., and Niimi A. J., 'Legislation and the capacity for rapid-response management of nonindigenous species of fish in contiguous waters of Canada and the USA' *Aquatic Conservation: Marine and Freshwater Ecosystems*, vol. 19, 2009, pp. 354-364.

The Nova Scotia *Environment Act* is an umbrella statute which may be used to regulate the release of any substance that could cause an adverse effect to the environment. Broadly interpreted the provisions that apply to the release of substances may include invasive alien species.

Nova Scotia Environment already considers the potential adverse effects on the environment from invasive alien species in the environmental impact assessment process and in the issuing of approvals for certain designated activities. There are a number of other authorities in the *Environment Act* that may prove useful in the identification, prevention, eradication and control of AIS.

Amendments to the *Environment Act* to include a new part dedicated to the management of invasive alien species, terrestrial and aquatic, and development of related regulations may provide a comprehensive regulatory framework for terrestrial and AIS at the provincial level. The *Environment Act* already contains many of the underlying themes necessary to support effective invasive species legislation. For example, the *Environment Act* recognizes protection of biodiversity within the purpose section of the Act, it includes the precautionary principle, capacity for research, policy development and public education, a public registry, comprehensive inspection and enforcement provisions. The *Environment Act* also supports the activities designation regulations which may be used to designate certain activities that are prone to invasive species introduction, thereby requiring an approval process for those activities. Specifically addressing AIS, the *Environment Act* vests all watercourses in the provincial government, providing extensive authority to the Minister of Environment to regulate activities which may adversely affect watercourses.

### 2.1.3 Minor amendments to several statutes

Minor amendments could be incorporated into many of the statutes discussed in this Report to clarify the role of the responsible Minister for the management of AIS in the context of the statute. Not all of the amendments will be appropriate for all statutes.

Amendments could include:

- (1) adding a definition of AIS;
- (2) incorporating protection of biodiversity;
- (3) requiring management planning that incorporates biodiversity and an ecosystem approach;
- (4) providing a process for early detection and monitoring of AIS;
- (5) providing authority for actions to be taken to eradicate or control AIS;
- (6) improving inspection and enforcement authorities, where appropriate;
- (7) establish an expert advisory committee and provide them the authority to identify AIS subject to the Act.

Statutes that may benefit from these amendments include:

#### Provincial Statutes

- *Forests Act*
- *Wildlife Act*
- *Endangered Species Act*
- *Environment Act*
- *Wilderness Areas Protection Act*

#### Federal Statutes

- *Canada Wildlife Act*
- *Canada National Parks Act*
- *Species at Risk Act*
- *Canadian Environmental Protection Act*
- *Forestry Act*

#### 2.1.4 Minor amendments to the provincial *Weed Control Act*

The *Weed Control Act* has several positive features that facilitate the management of noxious weeds in Nova Scotia. These include clear authorities to require the elimination or destruction of noxious weeds on any property and the establishment of a Weed Control Advisory Council. However, for the most part the Act is outdated and presents challenges to broader efforts to address invasive alien species, both terrestrial and aquatic. The Act could be improved by incorporating several of the amendments described in section 3.0 above. More substantial improvements could be made by broadening the scope of the Act to clarify its application to invasive alien plants, including aquatic invasive plants and those plants adapted to wetland and upland conditions, regardless of where they occur in the province.

Amendments to the Act could also address challenges associated with the designation of species. First of all the authority to designate a species could be expanded from noxious weeds to include all invasive alien plants, aquatic and terrestrial. Further amendments could be made to remove the requirement to have designation go through Cabinet (GIC) and enable the decision to be made by the Minister. The Minister could delegate this authority to the experts on the Advisory Council to establish a list of species that would be subject to the Act. A provision to enable amendment of the list by decision of the Council could also be included.

A more thorough analysis of the Act and discussions with those tasked with its implementation would likely lead to other useful amendments. The amendments proposed would not provide a comprehensive legislative approach to the management of invasive species at the provincial level as the management of other invasive alien species, such as the Act is limited to plant species

## 2.2 Recommendations Unique to Management of AIS

There are some aspects of AIS management however that are unique. The nature of the aquatic environment makes it more difficult and more critical to respond rapidly to an AIS invasion. Jurisdictional issues around aquatic environments differ from terrestrial. For example, in Nova Scotia all watercourses (fresh water) are vested in the provincial Crown while marine environments are the responsibility of the federal government. Because water is vested in the Crown, issues around the authority to manage invasive species on private land are not as relevant in the AIS context. Research indicates that the federal government is more actively engaged in the development of a comprehensive regulatory framework for AIS than for terrestrial invasive species.

The recommendations in the Report will build on the work that has already been undertaken by academics and government departments and will address the gaps described in section 1.0.

### 2.2.1 Establish a Regulatory Framework to Create Consistency and Cover all Pathways of Introduction

As described above the legislation currently in place to address AIS is indirect and compartmentalized. Rather than focusing on the pathways of introduction much of the legislation is mandated to protect particular species, habitat or economic drivers such as forestry and agriculture. The Convention on Biological Diversity made it clear that legislation to address invasive species (aquatic and terrestrial) should be based on the protection of ecological integrity.

Whether in the form of a stand-alone statute or a comprehensive regulatory framework, clarity, coordination and new legislative tools will be required to prevent and manage AIS in Canada. The need for a national regulatory framework for AIS is not a new concept and was in fact identified as a requirement in the Canada Action Plan for AIS in 2004.

Fisheries and Oceans Canada (DFO) is recognized as the federal lead for this coordinated effort and to that end initiated work on the development of a national Regulatory Framework for AIS in 2007-08. A number of initiatives by DFO have been undertaken since that time including consideration of proposed regulations under the *Fisheries Act*.<sup>52</sup> However, the information available is vague and relevant only at a high policy level. A recent presentation by DFO to the CCFAM identifies some key elements of the proposed regulatory framework:

- The proposed AIS Regulatory Proposal would build on the existing legal and institutional framework in place in Canada to address AIS.
- The objective of the proposal would be to provide a full suite of regulatory tools to prevent the introduction of AIS into Canadian waters and to control and manage their establishment and spread once introduced.
- Intent is to complement existing federal and provincial authorities and bridge gaps within these frameworks to enable a broad range of AIS management activities that would accommodate localized issues related to AIS, while providing a national framework for managing and controlling AIS in Canada.<sup>53</sup>

Amendments and regulation-making authorities to the *Fisheries Act*, *Canada Shipping Act* and *Plant Protection Act* should be made at the federal level. Amendments and additional regulation-making authorities to the *Environment Act* and the *Fisheries and Coastal Resources Act* should be made at the provincial level.

### 2.2.2 Recognize AIS as Biological Pollution

A paper by Michael Elliott in 2003 considered the introduction of AIS as biological pollution, discussing the definitions and concepts used in assessing and managing marine pollution in relation to these terms.

Elliott defines ‘biological pollution’ to mean

‘...pollution emanating from organisms, such as nutrients or organic matter, and even pollution affecting biological organisms.’<sup>54</sup>

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<sup>52</sup> DFO, 2012.

<sup>53</sup> *Ibid.*

<sup>54</sup> Elliott, M. ‘Biological pollutants and biological pollution—an increasing cause for concern’, *Marine Pollution Bulletin*, vol. 46, 2003, p. 275.

Numerous other academics have raised the argument for biological pollution.<sup>55</sup> The *Boundary Waters Treaty Act* implements the Boundary Waters Treaty signed by Canada and the US in 1909 to prevent pollution of water flowing across the US and Canada boundary. USA and Canada also entered in the Great Lakes Water Quality Agreement in 1972 under the Treaty. Friends of the Earth Canada is presently engaged in an action against the USA using the Boundary Waters Treaty to require the US to take steps to prevent the Asian Carp (AIS) from entering Lake Michigan. Much of the argument is based on the concept of Asian carp as ‘biological pollution’. If successful a similar argument could be made to include AIS in the definition of ‘waste’ under the Canada Water Act and ‘deleterious substance’ under the Fisheries Act.

Several of the statutes considered for this Report provide opportunity for the prevention and management of pollution (*Environment Act, Canadian Environmental Protection Act, Fisheries Act, and Canada Water Act*). These statutes have broad mandates but do not clearly include ‘biological pollution’. Amendments to the definitions in these statutes to include AIS would ensure a more comprehensive approach to prohibiting the introduction of AIS.

The following terms should be amended to include AIS and/or to clearly recognize biological pollution:

- ‘substance’ in the Nova Scotia *Environment Act*
- ‘toxic substance’ in the *Canadian Environmental Protection Act*
- ‘deleterious substance’ in the *Fisheries Act*
- ‘waste’ in the *Canada Water Act*

### 2.2.3 Develop a Rapid Response Framework for AIS

Fisheries and Oceans Canada has piloted a proposed National Framework for Rapid Response to AIS for Tunicates in Prince Edward Island.<sup>56</sup> As a follow-up to this activity a series of papers were published by Locke and Hanson entitled Rapid response to non-indigenous species. The papers were based on the experience in PEI and include a checklist of steps in developing a rapid response plan. They determined the first step in pre-invasion planning to be to, ‘understand all relevant laws, regulations, policies and guidelines that may affect the ability to undertake a rapid response.’<sup>57</sup>

Locke and Hanson do not go on to identify or evaluate any of the current statutes that may apply to rapid response such as the *Emergencies Act* and *Emergency Management Act*. Amendments to these statutes would be required to ensure recognition of an AIS invasion as a public emergency. It has also been suggested that the *Fisheries Act* may be the best statute to address rapid response for AIS.<sup>58</sup>

### 2.2.4 Create a comprehensive list of AIS in Canada

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<sup>55</sup> See Argument for ‘biological pollution’ Richard D. Horan, Charles Perrings, Frank Lupi and Erwin H Bulte, Biological Pollution Prevention Strategies under Ignorance: The Case of Invasive Species, Am J of Agric Econ Vol 84, No.5 Dec 2002. Bill N McKnight Biological Pollution: The Control and Impact of Invasive Species.

<sup>56</sup> *Ibid.*

<sup>57</sup> Locke, A and Hanson, J.M., ‘Rapid response to non-indigenous species -- A proposed framework’, *Aquatic Invasions*, vol. 4, issue 1, 2009, p. 260.

<sup>58</sup> Thomas, V. G., Vasarhelyi, C., and Niimi A. J., ‘Legislation and the capacity for rapid-response management of nonindigenous species of fish in contiguous waters of Canada and the USA’ *Aquatic Conservation: Marine and Freshwater Ecosystems*, vol. 19, 2009, p. 360.

Though some plant species are entirely aquatic (living only submerged in or floating on the water) and other entirely terrestrial (growing only in dry ground) there is a tremendous range and variety of plants growing within a spectrum of conditions intermediate between aquatic and terrestrial.<sup>59</sup> Current legislation and definitions do not clearly address these species.

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<sup>59</sup> North American Plant Protection Organization (NAPPO), Invasive Species Panel, *The Role of the North American Plant Protection Organization in Addressing Invasive Alien Species, Draft*, 2011, p. 12.

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## APPENDIX A Summary of Pathways

### 1. Shipping

This pathway includes large ocean-going vessels with ballast capability (commercial shipping, naval, and cruise vessels) that operate in Canada's offshore, near shore and inland waters. These vessels unintentionally transport invasive species that attach themselves to ship hulls or that survive in the ballast water that is taken on in foreign ports. Ballast taken onboard in one port may be released in another port and with this water come invasive species from the previous port. Organisms attached to ship hulls can also easily survive a long voyage and establish themselves in foreign ports. A variety of substances and procedures are currently used by the shipping industry to limit hull fouling. While reducing the presence of invasive species, anti-fouling hull coatings can contain toxic substances.<sup>60</sup>

The shipping pathway is considered the largest single source of new AIS. Ballast water that is taken on in foreign ports, for ship stability and safety at sea, is discharged in Canadian waters, along with undesirable 'hitchhikers' – foreign species ranging from bacteria to larger organisms. While other pathways can also be a source of new species, they generally serve to spread species that have already established themselves in Canada and other parts of North America.<sup>61</sup>

### 2. Recreational and commercial boating

This pathway consists of the in-water use and overland transportation of all watercraft other than large ocean-going vessels with ballast capabilities. Powerboats, yachts, personal watercraft, sailboats, canoes, float planes, paddleboats, and associated equipment (such as trailers or fishing equipment), as well as commercial fishing, education and research, and charter boat vessels are included in this pathway. The use and transport of watercraft can spread AIS to lakes, rivers, estuaries and coastal areas throughout Canada.<sup>62</sup>

### 3. Live Bait

This pathway consists of the public and commercial use of live organisms (including minnows, frogs, aquatic and terrestrial worms, leeches, and aquatic or terrestrial insects and larvae) to catch fish. Recreational anglers collect their own or buy commercially-sold live bait. The wild harvest and use of live bait creates a vector for introduction of bait fish and other organisms (non-target fish species, aquatic organisms, pathogens, parasites, and aquatic plant fragments, aquatic and terrestrial worms) that may be in bait buckets or associated with harvest gear.<sup>63</sup>

### 4. Aquarium and water garden trade

This pathway consists of the intentional or unintentional release of aquatic organisms including fish, invertebrates, plants, amphibians and reptiles sold for use indoors in aquariums and outdoors in ornamental ponds and water gardens. Owners may intentionally release species into open waters because they have outgrown aquariums or are no longer wanted. Species may also be

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<sup>60</sup> Canadian Council of Fisheries and Aquaculture Ministers (CCFAM), *National Code on Introductions and Transfers of Aquatic Organisms*, 2004, Department of Fisheries and Oceans, viewed on 23 April 2012, <http://www.dfo-mpo.gc.ca/science/enviro/ais-eae/code/prelim-eng.htm>, p. 12.

<sup>61</sup> *Ibid.*, p. 3.

<sup>62</sup> *Ibid.*, p. 13.

<sup>63</sup> *Ibid.*, p. 13.

intentionally introduced for control of weeds or unwanted organisms like the mosquito or as part of certain cultural practices. Unintentional release can occur when fish, aquatic invertebrates, or plants escape outdoor ponds naturally (seeds spreading) or during unexpected overflow events (flooding).<sup>64</sup>

## **5. Live food fish**

This pathway refers to any fish or other aquatic organisms imported or transferred live within Canada for distribution and sale for human consumption. Live food fish markets are expanding in Canada's urban centres, especially those with large ethnic populations. Environmental risks include unauthorized releases of alien fish and the introduction of pathogens and 'fellow-travelers' in shipping waters and material used to transport live food fish. For example, the European green crab (*Carcinus maenas*) is believed to have been introduced to the US west coast in the packing material of live foodfish from the east coast.<sup>65</sup>

## **6. Unauthorized introductions**

Unauthorized introductions are defined as any introduction or transfer of fish (including shellfish) or marine plant not performed or authorized by a federal, provincial or territorial fisheries management agency. Many new populations of fish of various species have been established throughout Canada because of unauthorized stocking. These introductions are often conducted by individuals with good intentions, such as creating new recreational or commercial fisheries or manipulating vegetation or existing fish stocks to introduce food into stunted fish lakes.<sup>66</sup>

## **7. Canals and water diversions**

This pathway consists of canals and channels used for shipping and bulk water diversion. These create artificial connections allowing the free movement of species across physical barriers, between watersheds (inter-basin), and within watersheds (intra-basin).<sup>67</sup>

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<sup>64</sup> *Ibid.*, p. 14.

<sup>65</sup> *Ibid.*, p. 15.

<sup>66</sup> *Ibid.*, p. 16.

<sup>67</sup> *Ibid.*, p. 16.

## **APPENDIX B**

### **Other Legislation and Related Instruments**

#### **Provincial**

##### *Environment Act* Pesticide Regulations

Under the Pesticide Regulations, the Minister regulates the handling, storage, etc of pest control products. An approval is required to apply a pesticide in, on or over a surface watercourse.

The Regulations define 'pest' to mean,

any plant, animal, micro-organism or any organic functions of a plant, animal, or micro-organism, including any insect, nematode, rodent, predatory animal, parasite, bacterium, fungus, weed, or other form of plant or animal life or virus, the Minister believes is or may be injurious, noxious or troublesome, but does not include a virus, parasite, bacterium or fungus in a living person or animal;

#### **Federal**

##### *Boundary Waters Treaty Act*

The *Boundary Waters Treaty Act* implements the Boundary Waters Treaty signed by Canada and the US in 1909 to prevent pollution of water flowing across the US and Canada boundary. USA and Canada also entered in the Great Lakes Water Quality Agreement in 1972 under the Treaty. The environmental organization Friends of the Earth Canada is presently engaged in an action against the USA using the Boundary Waters Treaty to require the US to take steps to prevent the Asian Carp (AIS) from entering Lake Michigan. Much of the argument is based on the concept of Asian carp as 'biological pollution'. If successful a similar argument could be made to include AIS in the definition of 'waste' under the Canada Water Act and 'deleterious substance' under the Fisheries Act.

##### *Pest Control Products Act*

The *Pest Control Products Act*, administered by the Pest Management Regulatory Agency (PMRA) under Health Canada regulates the registration and sale of all pest control products in Canada. The term 'pest' is broadly defined as an animal, a plant or other organism that is injurious, noxious or troublesome, whether directly or indirectly, and an injurious, noxious or troublesome condition or organic function of an animal, a plant or other organism. The primary objective of the Act is to prevent unacceptable risks to people and the environment from the use of pest control products. The goal of the Act is to facilitate the availability of pest control products in a safe and effective manner. The Act does not have a direct role in the identification or management of AIS; however pest control products are often the primary means of eliminating an invasive species. In that regard, the Pest Control Products Act is an important tool in the management and eradication of AIS and other invasive species.

The use of pest control products for AIS has particular challenges because of the potential negative effects such products might have on an aquatic environment. Many provinces, including Nova Scotia require an approval to use registered pest control products in or over surface watercourses.

## APPENDIX C Terms and Definitions

<b>Term</b>	<b>Definition</b>	<b>Statute</b>
Wildlife	means any species of vertebrate which is wild by nature and hence not normally dependent on man to directly provide its food, shelter or water;	Forests Act
Exotic wildlife	means all birds, mammals and other vertebrates that are not indigenous to the Province and that in their natural habitat are usually wild by nature, and includes any part of such birds, mammals or other vertebrates;	Wildlife Act
Species	means a plant, animal or other organism, and includes one or more populations of a species, and the eggs, larvae or other forms of developmental life of a species and any part of an individual of a species, but does not include a domesticated species;	Endangered Species Act
Noxious weed	means a plant that is designated under this Act as a noxious weed;	Weed Control Act
Substance	means (i) matter that is capable of becoming dispersed in the environment, (ii) matter that is capable of becoming transformed in the environment into matter referred to in subclause (i), (iii) sound, vibration, heat, radiation or another form of energy, or (iv) any combination of things referred to in subclauses (i) to (iii);	Environment Act
Fishery resource	includes all vertebrate and invertebrate animals and all plants which spend all or part of their life in the aquatic and marine environment;	Fisheries and Coastal Resources Act
Animal	‘animal’ means any specimen, whether living or dead, of any species of animal that is listed as ‘fauna’ ...	Wild Animal and Plant Protection and Regulation of International and Inter-Provincial Trade Act
Plant	‘plant’ means any specimen, whether living or dead, of any species of plant that is listed as ‘flora’ ...	
Toxic substance	(a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity; (b) constitute or may constitute a danger to the environment on which life depends; or (c) constitute or may constitute a danger in Canada to human life or health.	Canadian Environmental Protection Act
Pest	means any thing that is injurious or potentially injurious, whether directly or indirectly, to plants or to products or by-products of plants, and includes any plant prescribed as a pest;	Plant Protection Act
Harmful aquatic organisms or pathogens	means aquatic organisms or pathogens that, if introduced into waters under Canadian jurisdiction, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters.	Ballast Water Management and Control Regulations
Deleterious substance	Means (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or...	Fisheries Act
Waste	means (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man and...	Canada Water Act



## Appendix D Provincial Legislative Tables

The following tables provide an overview of each provincial statute and regulation that may be used to manage aquatic invasive species in Nova Scotia. Each table includes three columns. Column one provides the provision taken directly from the relevant statute or regulation. Column two includes any explanatory notes or comments related to the provision. Column three, entitled the “shall” column includes a check mark to identify any provision that requires the Minister or the Minister’s designate to exercise an authority that may be used to regulate aquatic invasive species. The “shall” column also includes a check mark if the provision includes a prohibition or action required by a person other than a Minister.

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**Table 1.0 Forests Act**

<b>Forests Act</b>		<b>Minister of Natural Resources</b>
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Purpose</b> 2 The intent and purpose of this Act is directed towards</p> <p>(e) maintaining or enhancing wildlife and wildlife habitats, water quality, recreational opportunities and associated resources of the forest;</p>	<p>Preventing, managing or eradicating AIS from forest areas in order to maintain or enhance wildlife habitats and water quality could fit within the purposes of the Act.</p>	
<p><b>Interpretation</b> 3 In this Act,</p> <p>(d) "Crown lands" means all or any part of land under the administration and control of the Minister;</p> <p>(h) "forest" means a plant association consisting predominantly of trees;</p> <p>(i) "forest land" means land bearing forest growth or land from which the forest has been removed but which shows surface evidence of past forest occupancy and is not now in other use.</p> <p>(t) "wildlife" means any species of vertebrate which is wild by nature and hence not normally dependent on man to directly provide its food, shelter or water;</p>	<p>The definition of "forest" does not include watercourses; however references to "crown land" and "forest land" could includes watercourses.</p> <p>The definition of "wildlife" could include aquatic species such as fish.</p>	
<p><b>Forest Management Program</b> 5 (1) The Minister shall be responsible for the development and implementation of forest management programs, including (e) the protection of forest land from insects and disease;</p>	<p>Presuming forest land includes watercourses this provision requires forest management plans to include tools to address insects and diseases; this could include aquatic insects.</p>	✓
<p><b>Forest management planning process</b> 8 (1) The Minister may undertake a forest management planning process involving the prediction of the effects of various forest management alternatives on wood supply requiring (b) full consideration of wildlife conservation requirements, potential ecological impacts...;</p>	<p>The reference to "potential ecological impacts" is broad enough to include AIS.</p>	
<p><b>Forest management techniques</b> 9 The forest management techniques to be used on Crown lands and to be recommended for use on privately owned land shall (i) reflect prevailing hazards with respect to forest insects, diseases and fire and related protection requirements and provide appropriate information and advice to owners or occupiers of forest land.</p>	<p>Where AIS (insect or disease) may provide a hazard to forest land such must be addressed by forest management techniques.</p>	✓
<p><b>Wildlife management</b></p>	<p>The Minister has a broad responsibility to manage forest ecosystems and</p>	✓



<p>10 The Minister <u>shall</u> ensure that wildlife; wildlife habitats and the long term diversity and stability of the forest ecosystems, water supply watersheds and other significant resources are managed.</p>	<p>water supply watersheds (not defined in the Act); this would include dealing with AIS.</p>	
<p><b>Protection of forests</b> 21 (1) The Minister <u>shall</u> undertake all measures which the Minister determines to be reasonable to provide for effective protection of the forests whether Crown lands, other land vested in the Crown or privately owned land from various injurious agents, including fires, insects and diseases.</p>	<p>This is a broad responsibility to protect against all injurious agents; however it is limited to protection of forests. AIS in a watercourse or wetland on forested land may only be captured if it has the potential to negatively affect the forest.</p>	✓
<p><b>Regulations</b> 40 The Governor in Council may make regulations (j) prescribing methods and standards for sustainable forest management practices to protect wildlife habitats, watercourses, wetlands and other significant resources and requiring compliance with the prescribed methods and standards;</p>	<p>These Regulations are binding on Crown and privately owned lands (see s.10A). Section 40 is the only provision in the Act that specifically references watercourses and wetlands. There are no current regulations in place to address AIS under this Act.</p>	

**Table 2.0 Wildlife Act**

<b>Wildlife Act</b>	<b>Minister of Natural Resources</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Object and Purpose</b> 2 The object and purpose of this Act is to (a) develop and implement policies and programs for wildlife designed to maintain diversity of species at levels of abundance to meet management objectives; (b) integrate appropriate protective measures into policies for use on Crown lands and in guidelines for forest management and other programs on privately owned land to ensure adequate habitat for established populations of wildlife;</p>	<p>The primary purpose of the Act is to develop programs and policies to maintain diversity of species. Invasive species, including AIS may threaten biodiversity. Broadly speaking, this Act should play a significant role in addressing the threat of AIS.</p>	

<p><b>Interpretation</b> 3 (1) In this Act,</p> <p>(j) "conservation" means the wise use of the wildlife resource through management, including both complete protection and utilization, toward the maintenance of sustained, optimum populations of wildlife;</p> <p>(q) "exotic wildlife" means all birds, mammals and other vertebrates that are not indigenous to the Province and that in their natural habitat are usually wild by nature, and includes any part of such birds, mammals or other vertebrates;</p> <p>(s) "fish" means all species of fish and any part of such fish found in Provincial waters;</p> <p>(ba) "wildlife" means vertebrates that, in their natural habitat, are usually wild by nature and includes (i) domestic organisms that are physically similar to their wild counterparts, (ii) exotic wildlife, (iii) hybrid descendants of wildlife or of wildlife and a domestic organism, (iv) the eggs, sperm or embryos of wildlife, and (v) any other organism designated as wildlife by the Governor in Council in accordance with this Act and the regulations;</p> <p>(bb) "wildlife habitat" means any water or land where wildlife may be found and the roads and highways thereon;</p>	<p>The definitions of wildlife and exotic wildlife only include vertebrates. This would include fish species but not aquatic invertebrates such as sponges, cnidarians, flatworms, molluscs, arthropods, insects, segmented worms, and echinoderms. Also would not include plants, fungi, bacteria or viruses.</p> <p>The definition of "wildlife habitat" includes "water."</p>	
<p><b>Ownership of wildlife</b> 4 (1) Subject to subsection (2), the property in all wildlife situate within the Province, while in a state of nature, is hereby declared to be vested in Her Majesty in right of the Province and no person shall acquire any right or property therein otherwise than in accordance with this Act and the regulations. 4(3) Notwithstanding anything in this Act, no right of action lies and no right of compensation exists against Her Majesty in right of the Province for death, personal injury or property damage caused by wildlife, or any wildlife that escapes or is released from captivity or is abandoned within the Province.</p>	<p>All wildlife in the Province is vested in the Crown. Section 4(3) of the Act limits liability for damage caused by such.</p>	
<p><b>Declaration of organism as wildlife</b> 4A (1) Where it is made to appear to the Governor in Council that an organism should be treated as wildlife, the Governor in Council may, by the regulations, declare the organism to be wildlife.</p>	<p>Generic definition of organism: An individual form of life, such as a plant, animal, bacterium, protist, or fungus; a body made up of organs, organelles, or other parts that work together to carry on the various processes of life. This authority enables the Minister to designate a much broader group as wildlife and presumably exotic wildlife. There are no current regulations naming an organism as wildlife under the Act.</p>	
<p><b>Responsibilities of the Minister</b> 6 (1) The Minister is responsible for overseeing the protection, management and conservation of wildlife in the Province.</p>	<p>The Minister of Natural Resources has the authority to protect wildlife. Under subsection 6(2) the Minister is granted specific powers.</p>	

<p><b>Powers of the Minister</b> 6(2) The Minister may (c) co-ordinate the development and implementation of policies and programs designed to protect and conserve wildlife and wildlife habitats;</p>	<p>Such policies or programs could include management of AIS where there may be impacts on wildlife or wildlife habitat.</p>	
<p><b>Duty to carry licence, permit or certificate</b> 35 (1) Every person, while hunting or fishing or attempting to hunt or fish, shall carry the licence, permit or certificate issued to that person pursuant to this Act or the regulations and shall produce the same for inspection upon demand by a conservation officer.</p>	<p>This provision provides the Minister with the authority to control and regulate fishing.</p>	
<p><b>Wildlife in captivity</b> 62 (1) Except as provided in this Act or the regulations or any other enactment, no person shall keep in captivity any wildlife or exotic wildlife. (3) Every person who, without a permit issued pursuant to subsection (2), releases from captivity any wildlife or exotic wildlife is guilty of an offence.</p>	<p>This section could apply to the aquarium pet trade to prohibit the release of aquarium fish, however despite widespread illegal releases of nonnative fish species there have been no charges under the Act.</p>	
<p><b>Export of wildlife</b> 63 (1) Every person commits an offence who exports or attempts to export out of the Province any live wildlife... except where that person is the holder of an export permit issued pursuant to this Act or the regulations.</p>	<p>This provision prohibits the export of any wildlife, which by definition includes exotic wildlife.</p>	
<p><b>Importing of wildlife</b> 64 (1) Except as provided in this Act or the regulations, no person shall import into the Province any live wildlife or exotic wildlife or any part thereof except where the person is the holder of an import permit issued pursuant to this Act or the regulations.</p>	<p>This provision prohibits the import of wildlife and specifically references exotic wildlife.</p>	

**Table 2.1 General Wildlife Regulations**

<b>General Wildlife Regulations</b>	<b>Minister of Natural Resources</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Captive wildlife</b> 6(1) Unless determined otherwise by the Director of Wildlife, no person shall hold in captivity any wildlife, native or exotic, unless the person holds... a permit or licence...</p>	<p>The regulation provides a list of specific permits and licenses considered acceptable under the Act. The definition of "exotic wildlife" is provided in the Act. It includes only vertebrates and therefore this provision would only apply to exotic fish species.</p>	
<p><b>Export/import of wildlife</b> 7(1) For the purpose of Sections 63 and 64 of the Act, and subject to subsection (2A), (a) the Minister may issue a Wildlife Export Permit to any person authorizing that person to export out of the Province any live or dead wildlife, or dead wildlife, or any part thereof, lawfully taken;</p>		

**Table 2.2 Fishing Regulations**

<b>Fishing Regulations</b>	<b>Minister of Natural Resources</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Terms and conditions of fishing licence</b>                      10 It shall be an offence for any person to contravene the terms and conditions contained in a fishing licence issued to that person pursuant to the Act and these regulations.</p>	The regulation regulates fishing in the province and could potentially be used to gather information on and control AIS.	

**Table 3.0 Provincial Parks Act**

<b>Provincial Parks Act</b>	<b>Minister of Natural Resources</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Purpose</b>                      2 (1) The purpose of this Act is to develop and operate provincial parks to (b) preserve unique, rare, representative or otherwise significant elements of the natural environment and historic resources of Nova Scotia;</p>	The preservation and protection aspect of the statute’s purpose could include management of anything that could threaten the park, including AIS.	
<p><b>Interpretation</b>                      (d) "Crown land" means land, whether or not covered by water, and includes an interest in land vested in Her Majesty in right of the Province;                      (o) "wildlife" means a species of animal which is wild by nature and hence not normally dependent on man to directly provide its food, shelter or water and, where appropriate, includes wild plants</p>	The definition of wildlife includes “animals” and “plants.” Unlike the <i>Wildlife Act</i> it is not restricted to vertebrates.	
<p><b>Supervision of Act</b>                      4 (1) The Minister is responsible for the general supervision, administration and management of this Act and the regulations.</p>		
<p><b>Powers of Minister</b>                      5 The Minister, with the approval of the Governor in Council, may                      (a) acquire by purchase or gift, expropriate or otherwise acquire title to land, whether or not covered by water, or an interest in land for the purpose of a provincial park;</p>	This provision makes it clear that provincial park land can include land covered by water.	
<p><b>Powers of Minister</b>                      13 The Minister, or any person designated to act on behalf of the Minister in respect of a provincial park, may                      (j) dispose of flora or fauna in a provincial park;                      (l) take such measures as the Minister deems necessary to protect flora and fauna within a provincial park;</p>	This provision provides authority to “dispose” of flora or fauna in a provincial park and authority to take measures to protect flora and fauna. Flora and fauna are not defined in the Act or in the provincial <i>Interpretation Act</i> . Flora generally refers to plant life only and may include terrestrial and aquatic plants; it sometimes includes bacterial organisms but this is not clearly included in the Act. There are various subdivisions of fauna which may include aquatic vertebrates and invertebrates.	

<p><b>General Regulations</b> 37(1)(o) prohibiting or regulating any activity carried on within any waters contiguous to a provincial park or on the shoreline thereof, to the extent that the activity could be prohibited or regulated pursuant to this Act if carried on within the limits of the provincial park;</p>	<p>This provision extends the Ministers authority by way of regulation to aquatic environments that extend outside of a provincial park.</p>	
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**Table 4.0 Endangered Species Act**

<b>Endangered Species Act</b>		<b>Minister of Natural Resources</b>
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Purpose</b> 2(1) The purpose of this Act is to provide for the protection, designation, recovery and other relevant aspects of conservation of species at risk in the Province, including habitat protection, while recognizing the following:</p> <p>(a) the goal of preventing any species in the Province from becoming extirpated or extinct as a consequence of human activities; (b) the conservation of species at risk is a key component of a broader strategy to maintain biodiversity and to use biological resources in a sustainable manner;</p>	<p>The purpose of the Act is to protect species and their habitat, including water.</p> <p>The Act specifically refers to human activities which could include introduction of AIS. The specific reference to maintaining biodiversity supports the management of AIS.</p>	
<p><b>Interpretation</b> 3(i) "habitat" means land, water or air where a plant, animal or other organism lives;</p> <p>(j) "management plan" means a statement of needs and actions to be undertaken to keep a vulnerable species from becoming at increased risk;</p> <p>(p) "species" means a plant, animal or other organism, and includes one or more populations of a species, and the eggs, larvae or other forms of developmental life of a species and any part of an individual of a species, but does not include a domesticated species;</p>	<p>The Species at Risk List Regulations include several listed species that live in aquatic habitat, i.e. Wood Turtle, Yellow lamp mussel, Atlantic whitefish, Blanding's Turtle.</p>	
<p><b>Recovery team and plans</b> 15(10) The Minister may appoint a management team and shall, within three years of the listing of a vulnerable species, prepare a management plan for the species.</p>	<p>The Minister is <u>required</u> to develop a management plan. The Minister is not required to consider AIS but is required to support the purposes of the Act. There has been some indication that recovery teams have been lobbying for better regulation to prevent live introductions of AIS.</p>	✓

**Table 5.0 Weed Control Act**

<b>Weed Control Act</b>	<b>Minister of Agriculture</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Interpretation</b>                      2 In this Act,                      (f) "noxious weed" means a plant that is designated under this Act as a noxious weed;                      (h) "weed seed" means the seed of a noxious weed.</p>	<p>The Act only addresses plants designated as noxious weeds. The Act does not specifically exclude application to aquatic environments.</p>	
<p><b>Designation of noxious weeds</b>                      3 (1) The Minister may designate plants as noxious weeds generally or in respect of any part of the Province.                      (2) The council of a municipality, after consultation with the county federation of agriculture, may recommend to the Minister plants for designation as noxious weeds within the municipality.</p>	<p>Noxious weeds must be designated by the Minister to be covered by the Act. There are no weeds currently designated under the Weed Control Regulations that would be considered AIS.</p>	
<p><b>Duty to destroy noxious weeds of class number one</b>                      4 (1) Where noxious weeds of class number one exist on land from which they are likely to spread to cultivated or pasture land, the occupant shall destroy all noxious weeds thereon as often in every year as may be necessary to prevent the ripening of the seeds.  <b>Duty to destroy noxious weeds of class number two</b>                      (2) The occupant of land shall destroy all noxious weeds of class number two as often and at such times as shall be necessary to eliminate such weeds.</p>	<p>This provision applies to any occupant of land including private land.</p>	✓
<p><b>Destruction of noxious weeds or weed seeds by occupant of land</b>                      9 (1) Where an inspector finds noxious weeds or weed seeds on any land, the inspector shall confer with the occupant as to a satisfactory method of destroying such noxious weeds or weed seeds.                      (2) Where, after consulting with the occupant, prompt effective action is not taken, the inspector may issue an order in the form prescribed in the regulations requiring the occupant to destroy the noxious weeds or weed seeds within the period of time specified in the order, which shall not be less than seven days after the person named in the order has been served with a copy of the order.</p>	<p>Section 9 provides broad authority to an inspector to order a private landowner to take action to destroy noxious weeds.                       Section 10 is similar and binds non-residents</p>	
<p><b>Power and duty of inspector</b>                      14 (1) Where a person fails to comply with an order made under Section 9 or 10, the inspector may cause the noxious weed or weed seeds to be destroyed in the manner prescribed in the regulations.</p>	<p>Inspectors have the authority to destroy noxious weeds and weed seeds if occupant does not do so.</p>	
<p><b>Weed Control Advisory Committee</b>                      21 (1) The Minister shall appoint a Weed Control Advisory Committee consisting of such number of persons as he may determine, including at least one representative of the Nova Scotia Federation of Agriculture.                      (2) The Minister shall consult with the Committee on all matters pertaining to the administration of this Act, including the making of recommendations to the Governor in Council pertaining to regulations or the designation of plants as noxious weeds.</p>	<p>The Minister is required to have a Weed Control Advisory Committee in place and must consult with that committee.</p>	✓

**Table 6.0 Environment Act**

<b>Environment Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Part I Introduction</b>  <b>Purpose of the Act</b>                      2 The purpose of this Act is to support and promote the protection, enhancement and prudent use of the environment while recognizing the following goals:                      (b) maintaining the principles of sustainable development, including                      (i) the principle of ecological value, ensuring the maintenance and restoration of essential ecological processes and the preservation and prevention of loss of biological diversity,</p>	<p>The broad purpose of the Act to preserve and prevent the loss of biological diversity which would support actions to manage any organism that may threaten that diversity.</p>	
<p><b>Part I Introduction</b>  <b>Interpretation</b>                      3 In this Act                      (c) "adverse effect" means an effect that impairs or damages the environment, including an adverse effect respecting the health of humans or the reasonable enjoyment of life or property;                       (k) "contaminant" means, unless otherwise defined in the regulations, a substance that causes or may cause an adverse effect;                       (ae) "land" means surface land, land covered by water, subsoil, matter beneath the subsoil or any combination or part thereof;                       (ak) "person responsible" means                      (i) the owner of the substance or thing,                      (ii) the owner or occupier of land on which an adverse effect has occurred or may occur,                      (iii) a previous owner of the substance or thing,                      (iv) a person who has or has had care, management or control, including care, management and control during the generation, manufacture, treatment, sale, handling, distribution, use, storage, disposal, transportation, display or method of application of the substance or thing,...                       (ar) "release" means to spill, discharge, dispose of, spray, inject, inoculate, abandon, deposit, leak, seep, pour, emit, empty, throw, dump, place, drain, pump or exhaust;                       (au) "substance" means                      (i) matter that is capable of becoming dispersed in the environment,                      (ii) matter that is capable of becoming transformed in the environment into matter referred to in subclause (i),</p>	<p>AIS could cause an 'adverse effect' to the environment.</p> <p>Substance is broadly defined (see below); AIS may fit the definition of contaminant.</p> <p>Relevant to Part VI Release of Substances. The 'person responsible' could include the person who owns the land where an invasive species is growing.</p> <p>The definition of 'release' is broad and could include intentional or accidental release of AIS.</p> <p>The definition of 'substance' is broadly defined and could include any organism such AIS including invertebrates, fungi, bacteria as long as it can be dispersed.</p>	

<p>(iii) sound, vibration, heat, radiation or another form of energy, or                  (iv) any combination of things referred to in subclauses (i) to (iii);</p> <p>(bc) "water resource" means all fresh and marine waters comprising all surface water, groundwater and coastal water;</p> <p>(be) "watercourse" means                  (i) the bed and shore of every river, stream, lake, creek, pond, spring, lagoon or other natural body of water, and the water therein, within the jurisdiction of the Province, whether it contains water or not, and                  (ii) all ground water;</p>		
<p><b>Part II Administration</b>  <b>Minister Responsible for Act</b>                  8 (1) The Minister is responsible for the general supervision and management of this Act.</p> <p>(2) The Minister, for the purposes of the administration and enforcement of this Act, and after engaging in such public review as the Minister considers appropriate, shall</p> <p>(b) establish and administer policies, programs, standards, guidelines, objectives, codes of practice, directives and approval processes pertaining to the protection and stewardship of the environment;</p> <p>(e) control the handling of substances that may have an adverse effect;</p> <p>(f) promote the rehabilitation and restoration of degraded areas of the environment;</p>	<p>Given "preservation and prevention of loss of biological diversity" is included in the purpose section of the Act, the responsibilities described in section 8 could be seen to include management of AIS.</p> <p>The provision <u>requires</u> the Minister to establish policies, programs, etc, control the handling of certain substances and promote rehabilitation of the environment.</p>	<p>✓</p>
<p><b>Part II Administration</b>  <b>Advisory committees and experts</b>                  9 The Minister may                  (a) appoint any person, establish advisory committees and retain experts to report to the Minister with respect to                  (ii) any policies, programs, standards, guidelines, objectives, codes of practice, directives, approval processes or other matters under the administration of the Minister,</p>	<p>This provision provides the Minister with the authority to establish an advisory committee on invasive species, including AIS, but the Minister is not required to establish such a committee.</p>	
<p><b>Part III Environmental Education and Research</b>  <b>Education and research</b>                  27(2) The Minister may contribute to, sponsor or undertake research that the Minister considers necessary to achieve the purpose of this Act.</p>		
<p><b>Part IV Environmental Assessment Process</b>  <b>Powers of the Minister</b>                  40 (1) Upon receiving information under Section 34, a focus report under Section 35, an environmental-assessment report under Section 38, a recommendation from the Board under Section 39 or from a referral to alternate dispute resolution, the Minister may</p>	<p>The environmental impact assessment provisions do not specifically refer to AIS but there are examples of projects where AIS had to be assessed as a potential environmental impact.</p>	



<p>(a) approve the undertaking;                  (b) approve the undertaking, subject to any conditions the Minister deems appropriate; or                  (c) reject the undertaking.</p>		
<p><b>Part V Approvals and Certificates</b>  <b>Prohibition</b>                  50 (1) No person shall knowingly commence or continue any activity designated by the regulations as requiring an approval unless that person holds the appropriate approval.                  (2) No person shall commence or continue any activity designated by the regulations as requiring an approval, unless that person holds the appropriate approval.</p>	<p>The Activities Designation Regulations provide a list of the activities and include a number of activities related to water and wetlands. The Minister has the authority to issue or refuse to issue an approval. The Minister may issue an approval with terms and conditions. The Minister's authority to require conditions on an approval is broad and could include conditions to prevent the introduction of AIS.</p>	
<p><b>Part VI Release of Substances</b>  <b>Prohibition</b>                  67 (1) No person shall knowingly release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause an adverse effect, unless authorized by an approval or the regulations.                   (2) No person shall release or permit the release into the environment of a substance in an amount, concentration or level or at a rate of release that causes or may cause an adverse effect, unless authorized by an approval or the regulations.</p>	<p>Given the broad definitions of "substance" and "adverse effect" in section 3 of the Act it is reasonable to conclude that the release of AIS into the environment could violate section 67 of the Act; however there is no record of enforcement actions.</p>	✓
<p><b>Part VI Release of Substances</b>  <b>Duty to Report Release</b>                  69 (1) Any person responsible for the release of a substance into the environment that has caused, is causing or may cause an adverse effect, shall forthwith, as soon as that person knows or ought to know of the release, report it to...</p>	<p>The definition of "person responsible" in section 3 is very broad and could capture a person who transports AIS and permits it to be released into the environment.</p>	✓
<p><b>Duty to take remedial measures</b>                  71 Any person responsible for the release of a substance under this Part shall, at that person's own cost, and as soon as that person knows or ought to have known of the release of a substance into the environment that has caused, is causing or may cause an adverse effect,                  (a) take all reasonable measures to                  (i) prevent, reduce and remedy the adverse effects of the substance, and                  (ii) remove or otherwise dispose of the substance in such a manner as to minimize adverse effects;                  (b) take any other measures required by an inspector or an administrator; and                  (c) rehabilitate the environment to a standard prescribed or adopted by the Department.</p>	<p>The broad definitions of "person responsible", "substance" and "release" provide the authority to require a person who by intention or accident releases AIS into the environment to take action to prevent and remedy adverse effects.                  The definitions are so broad that one may be able to put forward the argument that any person who has AIS on their property must report (s.69) and take remedial measures (s.71) however, the linking of the terms "person responsible" and "release" may inhibit such an argument requiring the person to physically release the species before triggering the provision.</p>	✓
<p><b>Vesting of watercourses</b>                  103 ...every watercourse and the sole and exclusive right to use, divert and appropriate any and all water at any time in any watercourse is vested forever in Her Majesty in right of the Province...</p>	<p>All watercourses (as defined by the Act) are vested in the crown. The Minister has the authority in the Act to create policies and regulations to protect watercourses.</p>	

**Table 7.0 Wilderness Areas Protection Act**

<b>Wilderness Areas Protection Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Purpose</b>                      2 The purpose of this Act is to provide for the establishment, management, protection and use of wilderness areas, in perpetuity, for present and future generations, in order to achieve the following primary objectives:                      (a) maintain and restore the integrity of natural processes and biodiversity;                      (b) protect representative examples of natural landscapes and ecosystems;</p>	<p>The purpose of the Act includes protecting the biodiversity and natural processes of the area and this could include management of AIS.</p>	
<p><b>Interpretation</b>                      3(e) "land" includes, where waters cover the land, all the waters thereon;                      (m) "wilderness area" means an area of land designated as a wilderness area pursuant to this Act;</p>	<p>The definition of land includes water and land covered with water. The definition of "wilderness area" is based on the definition of land.</p>	
<p><b>Duties and Powers of the Minister</b>                      10(2) The Minister may                      (a) establish advisory and ad hoc committees and retain experts to report to the Minister with respect to                      (i) the content and administration of this Act and the regulations,                      (ii) any policies, programs, standards, guidelines, objectives, plans, codes of practice, directives, approval processes or other matters under the administration of the Minister;</p>	<p>The Minister has the authority to set up committees, develop policies, etc., relating to any aspect of the Act which would include management of AIS in the wilderness area.</p>	
<p><b>Management Plans</b>                      15 (1) The Minister shall complete management plans to guide the protection, management or use of a specific wilderness area, a part of a specific wilderness area or any action or activity undertaken to manage a specific wilderness area.</p>	<p>The Minister is <u>required</u> to produce a management plan to guide "protection" in wilderness areas, including water. In an area where AIS are a threat, this plan could include measures to manage that threat.</p>	✓
<p><b>Prohibitions</b>                      17 (1) Within a wilderness area, no person shall                      (g) alter the surface of the land;                      (h) remove, destroy, or damage any natural object, flora or fauna, whether living or dead;</p>	<p>This provision would appear to <u>prohibit</u> activities that may be necessary to manage AIS, however there is an exception below.</p>	
<p><b>Permitted Activities</b>                      19 The Minister may carry out, or authorize the carrying out of, activities within a wilderness area, including activities that would otherwise be prohibited pursuant to Section 17, for the responsible management, preservation or restoration of indigenous biodiversity of a wilderness area, including the protection of property, the health or safety of humans and the suppression of forest fire</p>	<p>Provides authority for the Minister to undertake prohibited activities to protect indigenous biodiversity. The fact that this provision refers specifically to protection of indigenous biodiversity would support the use of this authority to manage AIS.</p>	

**Table 8.0 Municipal Government Act**

<b>Municipal Government Act</b>	<b>Minister of Service Nova Scotia &amp; Municipal Relations</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<b>PART VII BY-LAWS</b> <b>Power to make by-laws</b> 172 (1) A council may make by-laws, for municipal purposes, respecting (a) the health, well being, safety and protection of persons; (b) the safety and protection of property;	The by-law making authority may include activities to manage AIS where there is a health, safety or protection of property issue identified.	
<b>PART VIII</b> <b>PLANNING AND DEVELOPMENT</b> Interpretation 191 (r) "watercourse" means a lake, river, stream, ocean or other body of water.	Note, "body of water" is not defined in the Act.	
<b>By-law powers</b> 426 A village commission may make by-laws for (e) regulating or protecting drains, sewers or watercourses in the village;	There is no requirement to link the protection to a health, safety or property concern.	

**Table 9.0 Fisheries and Coastal Resources Act**

<b>Fisheries and Coastal Resources Act</b>	<b>Minister of Fisheries and Aquaculture</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<b>Purpose of Act</b> 2 The purpose of this Act is to (b) encourage, promote and implement programs that will sustain and improve the fishery, including aquaculture;		
<b>Interpretation</b> 3 (da) "fish products" includes fishery resources or any parts, products or by-products derived from fishery resources; (e) "fishery resources" includes all vertebrate and invertebrate animals and all plants which spend all or part of their life in the aquatic and marine environment;	The definition of fishery resource is very broad.	
<b>Powers of the Minister</b> 6 The Minister, for the purpose of the administration and enforcement of this Act, may (a) establish and administer policies, programs and guidelines pertaining to the administrative development and protection of the fishery and coastal zone aquatic resources;	The Minister has the authority to establish policies, guidelines, etc to protect all fishery and aquatic resources. Although this is not a requirement it is a broad authority which could be used to address AIS.	
<b>Licenses</b>	Regulates aquaculture by requiring a license to carry on aquacultural	

<p>44 (1) No person shall carry on aquaculture without an aquaculture licence from the Minister.                  (2) No person shall carry on aquaculture on Crown land without an aquaculture licence and an aquaculture lease from the Minister.                  (3) Unless otherwise restricted by this Part or the terms of the licence, the granting of an aquaculture licence carries with it the exclusive right to possession of the water column and sub-aquatic land described in the licence upon such terms as may be prescribed.</p>	<p>practices.</p>	
<p><b>Prohibitions</b>                  54 (1) No person shall introduce a species of aquatic plants or animals foreign to the area where it is intended to introduce them without having first obtained an aquaculture licence authorizing such introduction.                  (2) No person shall use the species of aquatic plants or animals specified in subsection (1) without first having such plants and animals examined and approved by an inspector.                  (3) No person shall use a feed stock flora or fauna foreign to the area where it is intended to use them without permission from an inspector.</p>	<p>Introduction of a species of aquacultural plants or animals foreign to the area is prohibited without first obtaining an aquacultural license.</p>	
<p><b>Regulations</b>                  64 (1) The Governor in Council may make regulations                  (f) respecting the introduction of new species or strains of aquatic plants and animals;                  (g) respecting the isolation, quarantining, gathering, disposal and destruction of aquatic plants and animals, seedstock and feedstock, including payments to the Minister for costs incurred and payment of compensation;</p>	<p>These regulatory authorities could be applied to the control and management AIS, although foreign or exotic species are not specifically mentioned.</p>	
<p><b>Prohibition</b>                  73 No person shall process, buy or sell, within the Province, fish products without a licence from the Minister unless the person is exempt pursuant to the regulations.</p>	<p>A license from the Minister is required to buy, sell, possess or market fish. However, there is no list of restricted or prohibited species is provided. Therefore, no restrictions are present in the Act to prevent the sale of exotic species of fish in fish markets.</p>	
<p><b>Regulations</b>                  81 (1) The Governor in Council may make regulations (f) respecting the non-authorized introduction of fish into Provincial waters;</p>	<p>The provincial government is currently considering regulations to prohibit the possession of live fish but there will be several exceptions such that legitimate practices will not be impacted (e.g. Live release tournaments, stocking, use of live bait, transport from pet stores to residences, educational programs, etc).</p>	

## **Appendix E Federal Legislative Tables**

The following tables provide an overview of each federal statute and regulation that may be used to manage aquatic invasive species in Nova Scotia. Each table includes three columns. Column one provides the provision taken directly from the relevant statute or regulation. Column two includes any explanatory notes or comments related to the provision. Column three, entitled the “shall” column includes a check mark to identify any provision that requires the Minister or the Minister’s designate to exercise an authority that may be used to regulate invasive species. The “shall” column also includes a check mark if the provision includes a prohibition or action required by a person other than a Minister.

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Table 11.0 Emergencies Act

**Table 1.0**

Wild Animal and Plant Protection and Regulation of International and Inter-Provincial Trade Act		Minister of Environment
Provision	Comment	Shall
<p><b>Interpretation</b>                      2 In this act                      “animal” means any specimen, whether living or dead, of any species of animal that is listed as “fauna” in an appendix to the Convention, and includes any egg, sperm, tissue culture or embryo of any such animal;</p> <p>“plant” means any specimen, whether living or dead, of any species of plant that is listed as “flora” in an appendix to the Convention, and includes any seed, spore, pollen or tissue culture of any such plant;</p>	<p>The definitions of plant and animal are very broad and could include aquatic invasive species; however the protection of the Act applies to listed species only.</p>	
<p><b>Purpose</b>                      4 The purpose of this Act is to protect certain species of animals and plants, particularly by implementing the Convention and regulating international and interprovincial trade in animals and plants.</p>	<p>The purpose of the Act is to regulate international and interprovincial trade in animals and plants in order to protect those species; the Act has not been interpreted or applied as a means of preventing the import or export of invasive species.</p>	
<p><b>Importation</b>                      6(1) No person shall import into Canada any animal or plant that was taken, or any animal or plant, or any part or derivative of an animal or plant, that was possessed, distributed or transported in contravention of any law of any foreign state.</p> <p><b>Importation and exportation</b>                      (2) Subject to the regulations, no person shall, except under and in accordance with a permit issued pursuant to subsection 10(1), import into Canada or export from Canada any animal or plant, or any part or derivative of an animal or plant.</p> <p><b>Interprovincial transport</b>                      (3) Subject to the regulations, no person shall, except under and in accordance with a permit issued pursuant to subsection 10(1), transport from one province to another province any animal or plant, or any part or derivative of an animal or plant.</p>	<p>The import, export and interprovincial movement of certain plants and animals is regulated.</p>	✓
<p><b>Issuance</b>                      10(1) The Minister may, on application and on such terms and conditions as the Minister thinks fit,</p>		

<p>issue a permit authorizing the importation, exportation or interprovincial transportation of an animal or plant, or any part or derivative of an animal or plant.</p>		
<p><b>Order</b> 21.1(1) The Governor in Council may, on the recommendation of the Minister, by order, amend the definition "animal" or "plant" in section 2 for the purposes of subsection 6(2).</p> <p><b>Recommendation</b> (2) If the Minister is of the opinion that the import of any specimen, living or dead, would be harmful to Canadian ecosystems or to any species in Canada and that urgent action is needed, the Minister may recommend that an order be made under subsection (1).</p>	<p>The Minister has the authority to recommend to the GIC that an order be issued to prohibit an animal or plant from being imported into Canada if the import could cause harm to Canadian species or the ecosystem.</p>	

**Table 1.1**

<p><b>Wild Animal and Plant Trade Regulations</b></p>		
<p><b>Provision</b></p>	<p><b>Comment</b></p>	<p><b>Shall</b></p>
<p><b>PART I Fauna</b> <b>PART II Flora</b></p>	<p>The Act lists specific flora and fauna that can be imported into Canada (Schedule I and II)</p>	



**Table 2.0**

<b>Canada Wildlife Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Definitions</b>                      2 “public lands” means lands belonging to Her Majesty in right of Canada and lands that the Government of Canada has power to dispose of, subject to the terms of any agreement between the Government of Canada and the government of the province in which the lands are situated, and includes                      (a) any waters on or flowing through the lands and the natural resources of the lands, and                      (b) the internal waters and the territorial sea of Canada;</p>	The definition of “public land” includes water.	
<p><b>Powers of Minister on public lands assigned</b>                      4 (2) Where the administration of any public lands has been assigned to the Minister pursuant to any federal law by reason of being required for wildlife research, conservation or interpretation, the Minister may                       (c) subject to the regulations, carry out measures for the conservation of wildlife on those lands not inconsistent with any law respecting wildlife in the province in which the lands are situated; and</p>	The Minister has authority to undertake conservation activities in wildlife areas assigned to the Minister as long as the activities are not inconsistent with the regulations or the laws of the relevant province or territory.	
<p><b>Protected marine areas</b>                      4.1 (1) The Governor in Council may establish protected marine areas in any area of the sea that forms part of the internal waters of Canada, the territorial sea of Canada or the exclusive economic zone of Canada.                       (2) The Minister may provide advice relating to any wildlife research, conservation and interpretation carried out in protected marine areas and may carry out measures for the conservation of wildlife in those areas.</p>	Authority to create marine protected areas and take action to conserve wildlife in those areas.	
<p><b>Measures for protection</b>                      8 The Minister may, in cooperation with one or more provincial governments having an interest therein, take such measures as the Minister deems necessary for the protection of any species of wildlife in danger of extinction.</p>	The Minister has broader authority to take action to protect species that may be at risk of extinction. Where an invasive species threatens such a species the Minister could take action to eradicate or manage the invasive species. There is no mention of limitations in relation to crown land.	
<p><b>Regulations</b>                      12 The Governor in Council may make regulations                      (i) prescribing measures for the conservation of wildlife</p>	The Minister has the authority to create regulations to conserve wildlife including wildlife within a marine protected area.	

<p>(i) on public lands the administration of which has been assigned to the Minister pursuant to any federal law,                  (ii) on public lands referred to in an order made under subsection 4(3), or                  (iii) in any protected marine areas established pursuant to subsection 4.1(1); and</p>		
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**Table 2.2**

<b>Wildlife Area Regulations</b>		
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p>3(1) Subject to subsection (2), no person shall, in any wildlife area</p> <p>(d) damage, destroy or remove a plant,                      (l) disturb or remove any soil, sand, gravel or other material, or                      (m) dump or deposit any rubbish, waste material or substance that would degrade or alter the quality of the environment,</p>	<p>Sets out a list of activities that cannot be undertaken in a wildlife area including several that could impact management of invasive species.</p>	
<p>4 The Minister may, on application, issue a permit to any person authorizing that person to carry on an activity described in section 3 in any wildlife area where that activity will not interfere with the conservation of wildlife.</p>	<p>The Minister can issue a permit for any of the prohibited activities.</p>	
<p>Schedule I</p>	<p>Schedule designates wildlife areas in provinces and territories throughout Canada. Many of the designated wildlife areas include areas covered in water (i.e. lakes, ponds, rivers, etc.)</p>	

**Table 3.0**

<b>Canada National Parks Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Definitions</b>                      2(1) The definitions in this subsection apply in this Act.</p> <p>“ecological integrity” means, with respect to a park, a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes.</p> <p>“park” means a national park of Canada named and described in Schedule 1.</p> <p>“public lands” means lands, including submerged lands, that belong to Her Majesty in right of Canada or that the Government of Canada has the power to dispose of, whether or not such disposal is subject to the terms of any agreement between the Government of Canada and the government of a province.</p>	<p>The parks described in Schedule 1 include water.</p>	
<p><b>Management by Minister</b>                      8(1) The Minister is responsible for the administration, management and control of parks, including the administration of public lands in parks and, for that purpose, the Minister may use and occupy those lands.</p> <p><b>Ecological integrity</b>                      (2) Maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks.</p>	<p>The Minister has the authority and the mandate to ensure that maintaining ecological integrity in parks is a priority.</p>	✓
<p><b>Management plans</b>                      11(1) The Minister shall, within five years after a park is established, prepare a management plan for the park containing a long-term ecological vision for the park, a set of ecological integrity objectives and indicators and provisions for resource protection and restoration, zoning, visitor use, public awareness and performance evaluation, which shall be tabled in each House of Parliament.</p> <p><b>Review of plans</b>                      (2) The Minister shall review the management plan for each park every five years, and any amendments to a plan shall be tabled with the plan in each House of Parliament.</p>	<p>Management plans are required for parks. These plans have included consideration of AIS impacts.</p> <p>Creates a mandatory review process.</p>	✓
<p><b>Regulations</b></p>	<p>The Act does not address AIS directly except to grant the minister this</p>	

<p>16 (1) The Governor in Council may make regulations respecting                  (a) the preservation, control and management of parks;                  (b) the protection of flora, soil, waters, fossils, natural features, air quality, and cultural, historical and archaeological resources;                  (c) the protection of fauna, the taking of specimens of fauna for scientific or propagation purposes, and the destruction or removal of dangerous or superabundant fauna;                  (d) the management and regulation of fishing;                  (e) the prevention and remedying of any obstruction or pollution of waterways;</p>	<p>power to make regulations for the protection of flora and fauna.</p>	
<p><b>Pollution clean-up</b>                  32(1) Where a substance that is capable of degrading the natural environment, injuring fauna, flora or cultural resources or endangering human health is discharged or deposited in a park, any person who has charge, management or control of the substance shall take reasonable measures to prevent any degradation of the natural environment and any danger to the fauna, flora or cultural resources or to persons that may result from the discharge or deposit.</p>	<p>There is no definition of the term ‘substance’ but it may be broadly defined to include AIS.</p>	<p>✓</p>

**Table 3.1**

<p><b>National Historic Parks General Regulations</b></p>		
<p><b>Provision</b></p>	<p><b>Comment</b></p>	<p><b>Shall</b></p>
<p><b>Interpretation</b>                  2 “fauna” means all vertebrates or invertebrates, living or dead, or parts thereof and includes the eggs or young of fauna but does not include the fossil remains of any fauna;                   “flora” means any plant matter, living or dead, and includes fungi and moulds but does not include the fossil remains of any flora;</p>	<p>The definitions are broad.</p>	
<p>4(1) No person shall remove, deface, damage or destroy flora, fauna or natural objects in a Park.                   (2) Notwithstanding subsection (1), a Superintendent may issue a permit to any person authorizing the person to remove, deface, damage or destroy flora, fauna or natural objects in a Park for management of the Park or scientific purposes.</p>	<p>There is no distinction provided to address invasive flora or fauna; however the permitting provision could be used when action is required to address invasive species.</p>	<p>✓</p>
<p>7 No person shall pollute any watercourse in a Park.</p>		
<p>8 Subject to sections 9 to 11, no person shall obstruct, divert or otherwise interfere with any watercourse.</p>	<p>The Minister can issue permits to allow use of water.</p>	



<p>(b) has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.</p>		
<p><b>Purposes</b> 6 The purposes of this Act are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.</p>	<p>This protection extends to the protection of habitat.</p>	
<p><b>Recovery Strategy Preparation — endangered or threatened species</b> 37(1) If a wildlife species is listed as an extirpated species, an endangered species or a threatened species, the competent minister must prepare a strategy for its recovery.</p>	<p>Once a species has been listed as endangered or threatened there are a series of steps that the Minister(s) must follow to assess and hopefully recover the species. These requirements include assessment of any threats against the species or its critical habitat. Any AIS that may impact these species would presumably be included.</p>	<p>✓</p>
<p><b>Recovery Strategy -- Commitments to be considered</b> 38 In preparing a recovery strategy, action plan or management plan, the competent minister must consider the commitment of the Government of Canada to conserving biological diversity and to the principle that, if there are threats of serious or irreversible damage to the listed wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty.</p>	<p>All recovery strategies, action plans and management plans must consider biological diversity.</p>	<p>✓</p>
<p><b>Contents if recovery feasible</b> 41(1) If the competent minister determines that the recovery of the listed wildlife species is feasible, the recovery strategy must address the threats to the survival of the species identified by COSEWIC, including any loss of habitat, and must include  (b) an identification of the threats to the survival of the species and threats to its habitat that is consistent with information provided by COSEWIC and a description of the broad strategy to be taken to address those threats;</p>		<p>✓</p>
<p><b>Proposed recovery strategy</b> 42(1) Subject to subsection (2), the competent minister must include a proposed recovery strategy in the public registry within one year after the wildlife species is listed, in the case of a wildlife species listed as an endangered species, and within two years after the species is listed, in the case of a wildlife species listed as a threatened species or an extirpated species.</p>		<p>✓</p>
<p><b>Action Plan Preparation</b> 47 The competent minister in respect of a recovery strategy must prepare one or more action plans based on the recovery strategy. If there is more than one competent minister with respect to the recovery strategy, they may prepare the action plan or plans together.</p>		<p>✓</p>

<p><b>Preparation of management plan</b></p> <p>65 If a wildlife species is listed as a <u>species of special concern</u>, the competent minister must prepare a management plan for the species and its habitat. The plan must include measures for the conservation of the species that the competent minister considers appropriate and it may apply with respect to more than one wildlife species.</p>	<p>The Yellow Lampmussel is an example of a species of special concern that is threatened by aquatic invasive species. A management plan was created in 2010.</p> <p>Section 72 requires the Minister to monitor and assess the management plan within 5 years.</p>	
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**Table 5.0**

<b>Canadian Environmental Assessment Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Definitions</b>                      2(1) In this Act,                      “environmental effect” means, in respect of a project,                      (a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the Species at Risk Act,                       “federal lands” means                      (a) lands that belong to Her Majesty in right of Canada, or that Her Majesty in right of Canada has the power to dispose of, and all waters on and airspace above those lands, other than lands under the administration and control of the Commissioner of Yukon, the Northwest Territories or Nunavut,</p>	<p>Water covering land is included in the definition of federal land.</p>	
<p><b>Purposes</b>                      4(1) The purposes of this Act are                      (b) to encourage responsible authorities to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy;                      (c) to ensure that projects that are to be carried out in Canada or on federal lands do not cause significant adverse environmental effects outside the jurisdictions in which the projects are carried out; and</p>		
<p><b>Projects requiring environmental assessment</b>                      Sections 5 – 10.1</p>	<p>Outlines the types of project that require an Environmental Assessment and the exclusions.</p>	
<p><b>Factors to be considered</b>                      16(1) Every screening or comprehensive study of a project and every mediation or assessment by a review panel shall include a consideration of the following factors:                      (a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;</p>	<p>If a project was likely to release an invasive species or encourage growth of an invasive species that could be assessed as an environmental effect.</p>	



**Table 6.0**

<b>Canadian Environmental Protection Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Duties of the Government of Canada</b>                      2(1) In the administration of this Act, the Government of Canada shall, having regard to the Constitution and laws of Canada and subject to subsection (1.1),</p> <p>(a) exercise its powers in a manner that protects the environment and human health, applies the precautionary principle that, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation, and promotes and reinforces enforceable pollution prevention approaches;</p> <p>(a.1) take preventive and remedial measures to protect, enhance and restore the environment;</p> <p>(j) protect the environment, including its biological diversity, and human health, from the risk of any adverse effects of the use and release of toxic substances, pollutants and wastes;</p>	<p>This Act is mentioned in the Committee Report of the Standing Committee on Fisheries and Oceans entitled Aquatic Invasive Species: Uninvited Guests in 2005. The Act is also mentioned in the Government Response to this report. In summary, the reference to the Act is ensuring that it is used in a way that does not facilitate the introduction of aquatic invasive species. It is not really referenced as a tool to manage or eliminated these species.</p>	
<p><b>Definitions</b>                      3(1) The definitions in this subsection apply in this Act.                      “biological diversity” means the variability among living organisms from all sources, including, without limiting the generality of the foregoing, terrestrial and marine and other aquatic ecosystems and the ecological complexes of which they form a part and includes the diversity within and between species and of ecosystems.</p>	<p>The definitions of land and environment in the Act both include water.</p>	
<p><b>National Advisory Committee</b>                      6(1) For the purpose of enabling national action to be carried out and taking cooperative action in matters affecting the environment and for the purpose of avoiding duplication in regulatory activity among governments, the Minister shall establish a National Advisory Committee</p>	<p>Requires the establishment of the National Advisory Committee.</p>	✓
<p><b>Toxic substances</b>                      64 For the purposes of this Part and Part 6, except where the expression “inherently toxic” appears, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that</p> <p>(a) have or may have an immediate or long-term harmful effect on the environment or its biological</p>	<p>If an invasive species was listed as a toxic substance it would be covered under this section of the Act. At present there do not appear to be any invasive species listed as toxic substances.</p>	

diversity; (b) constitute or may constitute a danger to the environment on which life depends; or (c) constitute or may constitute a danger in Canada to human life or health.		
<b>PART 6</b> <b>ANIMATE PRODUCTS OF BIOTECHNOLOGY</b> 104 “living organism” means a substance that is an animate product of biotechnology.		
<b>Manufacture or import of living organisms</b> 106(1) Where a living organism is not specified on the Domestic Substances List and subsection (2) does not apply, no person shall manufacture or import the living organism unless (a) the prescribed information with respect to the living organism, accompanied by the prescribed fee, has been provided by that person to the Minister on or before the prescribed date; and (b) the period for assessing the information under section 108 has expired.		
<b>Regulations</b> 200(1) The Governor in Council may, on the recommendation of the Minister and after the Committee is given an opportunity to provide its advice to the Minister under section 6, make regulations (a) establishing a list of substances that, if they enter the environment as a result of an environmental emergency (i) have or may have an immediate or long-term harmful effect on the environment or its biological diversity; (ii) constitute or may constitute a danger to the environment on which human life depends, or (iii) constitute or may constitute a danger in Canada to human life or health;		

**Table 6.1**

<b>New Substances Notification Regulations</b>		
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
4. A person who manufactures or imports an organism other than a micro-organism must provide the information specified in Schedule 5.		
SCHEDULE 5 (Section 4 and paragraph 6(d))		

<p>INFORMATION REQUIRED IN RESPECT OF ORGANISMS OTHER THAN MICRO-ORGANISMS</p> <p>1. The following information in respect of the organism:</p> <p>(e) a description of the biological and ecological characteristics of the organism, including</p> <p>(iii) its involvement in adverse ecological effects, including pathogenicity, toxicity and invasiveness.</p>		
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**Table 7.0**

<b>Canada Water Act</b>	<b>Minister of Environment</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Preamble</b></p> <p>AND WHEREAS pollution of the water resources of Canada is a significant and rapidly increasing threat to the health, well-being and prosperity of the people of Canada and to the quality of the Canadian environment at large and as a result it has become a matter of urgent national concern that measures be taken to provide for water quality management in those areas of Canada most critically affected;</p>	<p>The purpose of the <i>Canada Water Act</i> is to promote research and implement programs for the conservation and use of fresh water.</p>	
<p><b>Definitions</b></p> <p>2(1) “waste” means</p> <p>(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man, and</p> <p>(b) any water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water to the extent described in paragraph (a);</p> <p><b>Prescribed substances and certain water deemed waste</b></p> <p>2(2) Without limiting the generality of the definition “waste” in this Act,</p> <p>(a) any substance or any substance that is part of a class of substances prescribed pursuant to subparagraph 18(1)(a)(i),</p> <p>(b) any water that contains any substance or any substance that is part of a class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to subparagraph 18(1)(a)(ii), and</p>	<p>It has been suggested by Vásárhelyi and Thomas (2003) that a redefinition of the term "waste" in the Act to include "any substance or biota" would allow for provisions for the prevention and control of EAS [AIS] to be developed.</p>	

(c) any water that has been subjected to a treatment, process or change prescribed pursuant to subparagraph 18(1)(a)(iii), shall, for the purposes of this Act, be deemed to be waste.		
<b>PART II WATER QUALITY MANAGEMENT</b> <b>Pollution of Waters</b> <b>Prohibition</b> 9 Except in quantities and under conditions prescribed with respect to waste disposal in the water quality management area in question, including the payment of any effluent discharge fee prescribed therefore, no person shall deposit or permit the deposit of waste of any type in any waters composing a water quality management area designated pursuant to section 11 or 13, or in any place under any conditions where the waste or any other waste that results from the deposit of the waste may enter any such waters.	This Act deals with issues of water pollution, primarily as forms of chemical waste, and does not mention AIS. The application of the pollution provisions only apply to water quality management areas designated by the Minister.	
<b>General</b> 18 (1) The Governor in Council may make regulations (a) prescribing (i) substances and classes of substances,	Substance is not defined in the Act. There are no regulations.	

**Table 8.0**

<b>Statute: Plant Protection Act</b>		<b>Minister Responsible: Minister of Agriculture</b>
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<b>Purpose of the Act</b> 2 The purpose of this Act is to protect plant life and the agricultural and forestry sectors of the Canadian economy by preventing the importation, exportation and spread of pests and by controlling or eradicating pests in Canada.	A preliminary legal analysis of the Plant Protection Act confirms policy interpretations that it provides all of the required means for regulating the introduction of invasive alien plants and plant pests, and for considering their environmental impacts. <sup>1</sup>	
<b>Definitions</b> 3 In this Act, "pest" means any thing that is injurious or potentially injurious, whether directly or indirectly, to plants or to products or by-products of plants, and includes any plant prescribed as a pest;	The definition of pest is broad requiring only that the pest be injurious or potentially injurious to <u>plants or plant by-products</u> . The injury can be direct or indirect.	
<b>Duty to notify Minister</b> 5 Where a person becomes aware of the existence of a thing that the person suspects to be a pest in an area	There is no limit on application of this provision, it applies to anyone who has information on a "new" pest.	✓

<sup>1</sup> The federal *Action Plan for invasive alien terrestrial plants and plant pests Phase 2 - Proposed Implementation Plan*

<p>where the pest has not previously been known to exist, the person shall immediately notify the Minister of the suspected pest and provide the Minister with a specimen of it.</p>		
<p><b>Importation and Exportation</b>  <b>Presentation for inspection</b>                  7(1) No person shall import or admit into Canada or export from Canada any thing that is a pest, that is or could be infested with a pest or that constitutes or could constitute a biological obstacle to the control of a pest, unless...</p>	<p>Import and export of pests is prohibited.</p>	<p>✓</p>
<p><b>Removal of imports</b>                  8 (1) Where an inspector believes on reasonable grounds that a thing has been imported into Canada and that it                  (a) was imported in contravention of this Act or the regulations, or                  (b) is a pest, is or could be infested with a pest or constitutes or could constitute a biological obstacle to the control of a pest,                  the inspector may, whether or not the thing is seized, require the owner of the thing or the person having the possession, care or control of it to remove it from Canada.</p>	<p>Inspectors have broad powers to deal with pests or anything that may be contaminated with a pest.</p>	
<p><b>Declaration of infested place</b>                  11(1) Where an inspector suspects or determines that a place is infested with a pest and is of the opinion that the pest could spread, the inspector may in writing declare that the place is infested.</p>		
<p><b>Interim powers of inspector</b>                  13(1) Where an inspector is of the opinion that immediate action is required to control a pest, the inspector may, in a declaration under section 11 or 12, and for a period of not more than ninety days, prohibit or restrict the movement of persons and things within, into or out of the infested place for the purpose of controlling the pest.</p>		
<p><b>Powers of Minister</b>                  (3) The Minister may, by order,                  (a) declare any place to be infested that is not already the subject of a declaration under section 11 or 12;                  (b) determine and subsequently vary the area of any place that is declared infested;                  (c) extend the period of any prohibition or restriction declared by an inspector under subsection 13(1);                  (d) prohibit or restrict the movement of persons and things within, into or out of any place that is declared infested; and                  (e) permit any movement of persons and things within, into or out of a place that would otherwise be prohibited by this section or section 6.</p>		
<p><b>Regulations</b></p>		

<p>47 The Governor in Council may make regulations for carrying out the purposes and provisions of this Act and prescribing anything that is to be prescribed under this Act, including regulations</p> <p>(a) prohibiting or regulating the importation and admission into Canada, the exportation from Canada and the processing, handling, packaging, distribution, sale, disposition, loading, unloading and movement within Canada of pests and other things that are or could be infested with pests or that constitute or could constitute biological obstacles to the control of pests;</p> <p>(f) governing investigations and surveys to detect pests and to identify areas of infestation;</p> <p>(g) respecting the declaration of things infested with pests and things free of infestation;</p> <p>(i) prohibiting or regulating the use of places that are, or are suspected of being, infested with pests and of things that are, or are suspected of being, pests or infested with pests or that constitute or could constitute biological obstacles to the control of pests;</p> <p>(j) governing the quarantine of things;</p> <p>(l) governing the disposition of things that are, or are suspected of being, pests or infested with pests or that constitute or could constitute biological obstacles to the control of pests;</p>		
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**Table 9.0**

<b>Canada Shipping Act</b>	<b>Minister of Transportation</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Primary objective</b> 6 The objectives of this Act are to (c) protect the marine environment from damage due to navigation and shipping activities;</p>		
<p>PART 8 POLLUTION PREVENTION AND RESPONSE</p>	<p>This part of the Act appears only to address oil and related pollution.</p>	
<p><b>Regulations</b> 190 (1) The Governor in Council may, on the recommendation of the Minister, make regulations respecting the protection of the marine environment, including regulations</p>		

<p>(f) respecting the control and management of ballast water;                  (g) for preventing or reducing the release by vessels into waters of aquatic organisms or pathogens that, if released into those waters, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters;</p>		
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**Table 9.1**

<b>Ballast Water Control and Management Regulations (SOR/2011-237)</b>		<b>Minister of Transportation</b>
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Definitions</b>                      “harmful aquatic organisms or pathogens” means aquatic organisms or pathogens that, if introduced into waters under Canadian jurisdiction, could create hazards to human health, harm organisms, damage amenities, impair biological diversity or interfere with legitimate uses of the waters.</p>		
<p><b>Application of Regulations</b>                      2 (1) These Regulations apply in respect of the following vessels if they are designed or constructed to carry ballast water:                      (a) Canadian vessels everywhere; and                      (b) vessels that are not Canadian vessels and are in waters under Canadian jurisdiction.</p>		
<p><b>Ballast water from outside Canada</b>                      4(2) Ballast water that is taken on board a vessel outside waters under Canadian jurisdiction must be managed in order to                      (a) minimize both the uptake of harmful aquatic organisms or pathogens within the ballast water and their release with the ballast water into waters under Canadian jurisdiction; or                      (b) remove or render harmless harmful aquatic organisms or pathogens within the ballast water.</p>	<p>The regulations require that AIS be minimized or removed or rendered harmless from ballast water by exchanging water at sea.</p>	
<p><b>Ballast Water Management Plan</b>  <b>Duty to carry on board and carry out</b>                      11 (1) The authorized representative of a Canadian vessel or a foreign vessel and the owner and the operator of a pleasure craft must ensure that                      (a) a ballast water management plan that meets the requirements of subsections (2) and (3) is carried on board; and                      (b) the processes and procedures in the plan are carried out.</p>	<p>The Ballast Water Management Regulations also require ships to have a ballast water management plan that ensures ballast water management activities can be performed safely and effectively. The plan requires all ships intending to discharge ballast in waters under Canadian jurisdiction to identify what action will be taken to minimize transfers and gives the choice of ballast exchange, treatment, discharge ashore or not discharging and retaining on board.</p>	

**Table 10.0**

<b>Fisheries Act</b>	<b>Minister of Fisheries</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Definitions</b>                      2 “fish” includes                      (a) parts of fish,                      (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and                      (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals;</p>		
<p><b>Definitions</b>                      34(1) “deleterious substance” means                      (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or...                       “fish habitat” means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes;</p>	<p>The <i>Fisheries Act</i> does not contain any provisions specifically applicable to the management of AIS or provisions to implement rapid-response management actions.                      Deleterious substances are not clearly defined in this Act. A redefinition of the term "deleterious" to include AIS may allow for provisions to control AIS.</p>	
<p><b>Throwing overboard of certain substances prohibited</b>                      36 (1) No one shall                      (a) throw overboard ballast, coal ashes, stones or other prejudicial or deleterious substances in any river, harbour or roadstead, or in any water where fishing is carried on;</p> <p><b>Deposit of deleterious substance prohibited</b>                      36 (3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.</p>	<p>Activities such as throwing ballast overboard may be viewed as "deleterious" because the water may contain AIS (s. 36(1)a).</p>	
<p><b>Regulations</b>                      43 The Governor in Council may make regulations for carrying out the purposes and provisions of this Act</p>	<p>Section 43 relates to regulatory authority, and various limitations to developing regulations under this Act were identified. Cosgrove (2002) proposed that s.43 of this Act be amended to provide</p>	



<p>and in particular, but without restricting the generality of the foregoing, may make regulations</p> <ul style="list-style-type: none"> <li>(a) for the proper management and control of the sea-coast and inland fisheries;</li> <li>(b) respecting the conservation and protection of fish;</li> <li>(h) respecting the obstruction and pollution of any waters frequented by fish;</li> <li>(i) respecting the conservation and protection of spawning grounds;</li> <li>(j) respecting the export of fish or any part thereof from Canada;</li> <li>(k) respecting the taking or carrying of fish or any part thereof from one province to any other province;</li> </ul>	<p>regulatory authority to the Governor in Council to manage for aquatic invasive species. If the authority to regulate were included, then regulations could be passed under s. 43 for the management of EAS (including prevention and eradication measures).</p>	
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**Table 10.1**

<b>Fishery (General) Regulations</b>		<b>Minister of Fisheries</b>	
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>	
<p><b>Application</b>                      3 (1) Subject to subsection (2), Parts I to VIII apply in respect of</p> <ul style="list-style-type: none"> <li>(a) fishing and related activities in Canadian fisheries waters off the Atlantic, Pacific and Arctic coasts;</li> <li>(b) fishing and related activities in the provinces of Nova Scotia, New Brunswick, British Columbia, Prince Edward Island and Newfoundland and Labrador and in the Yukon Territory and Northwest Territories;</li> <li>(4) Where there is an inconsistency between these Regulations and any of the following Regulations, the following Regulations shall prevail: (f) the <a href="#">Maritime Provinces Fishery Regulations</a>;</li> </ul>	<p>The <i>Fishery (General) Regulations</i> could be used to prohibit the sale and trade of invasive carp in British Columbia, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador, but do not apply in Alberta, Saskatchewan, Manitoba, Ontario, and Quebec. As such, a separate regulatory amendment under the provincial fishery regulations would be necessary.<sup>2</sup></p>		
<p><b>PART VIII</b>  <b>RELEASE OF LIVE FISH INTO FISH HABITAT AND TRANSFER OF LIVE FISH TO A FISH REARING FACILITY</b>                      55. (1) Subject to subsection (2), no person shall, unless authorized to do so under a licence,</p> <ul style="list-style-type: none"> <li>(a) release live fish into any fish habitat; or</li> <li>(b) transfer any live fish to any fish rearing facility.</li> </ul> <p>(2) Subsection (1) does not apply in respect of fish that is immediately returned to the waters in which it was caught.</p>	<p>These regulations are designed to conserve and protect fish populations by ensuring that releases or transfers of live fish are in keeping with proper fisheries management and control objectives, to protect fish from diseases, disease agents and from adverse genetic affects. However, since the inception of these regulations in 1994, there has not been a single conviction, according to the Federal Fisheries and Oceans Departmental Violation System, for the illegal release of live fish into fish habitat. (taken from the Q &amp; A on the <i>Provincial Fisheries and Coastal Resources Act</i>).</p>		

<sup>2</sup> Amendments to the *Ontario Fishery Regulations*, banning the possession of various live aquatic invasive species, including Asian carp, gobies, and snakeheads were finalized in August 2005, and entered into force in September 2005. Similarly, Manitoba requested amendments to the *Manitoba Fishery Regulations* to ban a wide range of aquatic invasive species, including invasive carp. These examples are expected to provide a useful model for amendments in other jurisdictions.

**Table 10.2**

<b>Maritime Provinces Fishery Regulations</b>		<b>Minister of Fisheries</b>
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>General Bait Provisions</b>                      18 No person shall use as bait, or possess for use as bait, in a province any                      (a) live or dead                      (i) bass, bullhead, sunfish, white perch, yellow perch or other spiny fin-rayed fish,                      (ii) goldfish or other carp, or                      (iii) chain pickerel; or                      (b) live fish that was not taken in that province.</p>	<p>This provision outlines restrictions for bait use, including prohibiting the use of live fish for bait that have been imported from other provinces.</p>	

**Table 12.0**

<b>Emergencies Act</b>		<b>Minister of Public Safety</b>
<b>Provision</b>	<b>Comment</b>	<b>Shall</b>
<p><b>Definitions</b>                      “public welfare emergency” means an emergency that is caused by a real or imminent                        (a) fire, flood, drought, storm, earthquake or other natural phenomenon,                      (b) disease in human beings, animals or plants, or                      (c) accident or pollution                        and that results or may result in a danger to life or property, social disruption or a breakdown in the flow of essential goods, services or resources, so serious as to be a national emergency.</p>		
<p>8 (1) While a declaration of a public welfare emergency is in effect, the Governor in Council may make such orders or regulations with respect to the following matters as the Governor in Council believes, on reasonable grounds, are necessary for dealing with the emergency: (i) the assessment of damage to the environment and the elimination or alleviation of the damage.</p>		

