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**PROPOSED SOLUTIONS AND LEGAL TOOLS TO
ADDRESS REGULATORY GAPS RELATING TO
COMMERCE IN EXOTIC LIVE FISH
AFFECTING THE GREAT LAKES ECOSYSTEM**

**PHASE II REPORT TO THE
GREAT LAKES FISHERY COMMISSION**

**BY THE
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I. INTRODUCTION

This Report is Phase II of the legal and policy research requested by the Great Lakes Fishery Commission regarding laws governing exotic live fish handling and commerce. Building on the Phase I Report,¹ which described existing federal, state, and provincial laws applicable to exotic live fish, this Phase II Report sets forth recommendations for crafting strong laws and regulatory standards to fill gaps that present difficulties.

Section II of this Report explains a set of recommended components of a legal program. The substantive issues addressed in these recommendations are those that were examined in Phase I in determining the gaps in regulation. The recommendations present a means to close those gaps and build strong laws regulating importation and possession of live fish for aquaculture and other purposes, and ensure that the means are in place to enforce those laws. Most of the recommendations have already been implemented in some form by either one of the jurisdictions studied or another nation, and those models are specifically cited.

Section III describes legal constraints that may be encountered in implementing these regulations. Potential constitutional challenges that may be raised as a response to pervasive regulation are explained and addressed, particularly with respect to importation across state lines.

Section IV evaluates both sweeping model legislation that has been proposed to address aquatic nuisance species and a more pared down proposal that has been introduced in the U.S. Congress. The model legislation, prepared by the Great Lakes Panel on Aquatic Nuisance Species in 1999, contains many, although not all, of the recommended program components described in Section II. The components of this model are then compared with the Section II recommendations.

Section V responds to inevitable concerns as to the political feasibility of sweeping new legislation by evaluating the extent to which the recommendations can be implemented through regulatory reform actions, rather than through new statutes.

II. COMPONENTS OF A STRONG PROGRAM

This section describes a set of features that make for a strong program to control live exotic fish. It is intended as a “wish list” of provisions – many of which may not be either politically or economically feasible in some jurisdictions, but all of them are not critical to a strong program. However, implementing even some of these provisions would substantially strengthen protection against nuisance species infestations resulting from commerce in exotic fish.

As a technical matter, most of the recommended program components could be implemented through either a U.S. or Canadian federal or through a U.S. state program. As

¹ The Phase I Report, entitled “Legal Tools and Gaps relating to commerce in Exotic Live Fish,” was presented to the Great Lakes Fishery Commission by the Environmental Law and Policy Center on July 1, 2003.

discussed in the Phase I Report, Canadian federal law preempts provincial regulation of importation of live fish, so any such new must come from the federal government.

There are obvious advantages to federal, rather than state or provincial regulation. The scale of a sufficiently comprehensive program, incorporating the features described below, is more readily achieved by the federal government. The lack of uniformity in laws governing aquatic exotics might also threaten the effectiveness of even the most stringent state and provincial level law if, for example, species prohibited in one jurisdiction are allowed in a neighboring jurisdiction connected by a waterbody. It also severely hampers enforcement because interstate cooperation is an important element of reducing illicit trade. Moreover, it may be more difficult for individual states to effectively enforce importation restrictions, while the federal government can conduct its enforcement as part of the customs process at ports of entry. Finally, as discussed below, there may be constitutional issues raised with regard to more aggressive state programs, but these can, as shown, be effectively addressed.

However, in the U.S., given both political and economic realities and the long history of states rather than the federal government taking the lead in regulation of most aspects of live fish commerce, it is more likely that the wide-ranging recommendations below could be implemented at the state level. As discussed below in Section V.A.1, substantial amendments to the Lacey Act would be required in order to implement a truly comprehensive regulatory program, and that would be difficult to achieve absent a significant political shift in Congress. However, even attempts to strengthen the Lacey Act regulations within the existing statutory framework met with strong opposition and were defeated during the 1970s.² Although additional federal restrictions on the planned importation are proposed as part of the National Aquatic Invasive Species Act (“NAISA”), H.R. 1080, which is expected ultimately to pass in some form, these restrictions are fairly narrow in scope, covering only species not “in trade” anywhere in the U.S.³

From a substantive standpoint, it makes sense to allow states some leeway in creating their own clean lists and dirty lists; potentially injurious species may be able to survive in the wild in some regions and not others. For example, although tilapia are widely raised in aquaculture, and there would be no sense in banning them entirely, a state with a warm climate capable of supporting escapees may well choose to severely restrict these fish. Thus, even if a federal program is implemented at some point, the legislation should include express permission for more stringent state measures in order to ensure that innovative state-level efforts are not preempted.⁴

Listed below are the recommended features of a strong program governing live exotic fish. They are broken down into categories similar to those addressed in Phase I, although some are collapsed together.

² See Section V.A.1, *infra*.

³ See Section IV.A, *infra*, regarding limitations of the NAISA proposal.

⁴ See Section III.B, *infra*, regarding constitutional issues related to federal preemption.

A. **IMPORTATION, POSSESSION, RELEASE, AND TRANSPORTATION**

Virtually every jurisdiction studied currently regulates importation and release of live exotic fish in some manner, and most regulate possession and transportation as well, at least with respect to prohibited species. However, as documented in Phase I, the thoroughness and quality of such regulation varies greatly in the jurisdictions.

Although no one jurisdiction provides a perfect all-around model for regulation in these four areas, many different statutes provide excellent models for individual features of a strong program. The sections that follow are in large part a “best of” list, setting forth the essential elements of a sound legal framework, and citing as models the jurisdictions that have best implemented those elements. In most cases, the examples are from the jurisdictions studied in Phase I, but models from other nations are used as well.

1. ***Four Lists:*** **A Listing System that Includes Black, White, Gray and Dark Gray Lists**

As discussed in the Phase I Report, there are two basic types of lists that can be used to govern live organism commerce: a “white list” (also known as a “green list” or “clean list”) of species that may always be imported; and a “black list” (also known as a “red list” or “dirty list”) of species that may never or almost never be imported. The federal government uses a black list under the Lacey Act, and most states use either a black list or a white list to regulate imports. Three states, however – Illinois, Indiana, and Minnesota – use both types of lists, together with a “gray list” category of species that have not yet been black or white listed, and must be put through an analytical process to determine which list is appropriate.

For reasons explained in the Phase I Report, the use of black or white lists in isolation is ineffective. A black list will inevitably be non-comprehensive and out of date with respect to newly-discovered potential aquatic invaders, while a white list, coupled with a permitting process for all other species imports, can be unwieldy and cumbersome, with bureaucratic limitations leading to more cursory review of non-white listed species. Using both lists, together with a gray list process for new species requiring categorization, allows regulators to focus their energies on species that require further study, while protecting against import of those already determined to be injurious.

However, the drawback of a black, white, and gray listing system is that it can, in some cases, unnecessarily constrain regulators from making determinations that take into account the unique circumstances relevant to particular species. There are likely to be species that do not fit neatly onto either a black list or a white list. For example, tilapia are generally understood to be a beneficial consumer product, relatively easy to grow, and cause less environmental damage than some other species (such as salmon) grown in aquaculture. But in sufficiently warm water, tilapia can escape to form independent populations – and have in fact done so.⁵ A black-white-

⁵ The Phase I Report describes an incident in which a tilapia population emerged in the Mississippi River after a bird lifted a mouth-gestating female out of the water in an aquaculture facility, causing her to spew out her offspring into the river. Phase I Report at 14-15.

gray system would give the decisionmaking body a binary choice: either ban the fish entirely, except perhaps for research purposes, or allow it without restriction. However, the best solution might be somewhere between those extremes: allow the fish to be cultivated, but in a manner that makes escape extremely unlikely – either in a closed system or in ponds unconnected to natural water bodies and not located in a flood plain.

An ideal program, therefore, would include an additional type of list – call it a “dark gray” list – that would provide regulators with substantially more leeway to tailor their decisions to address the unique circumstances relevant to each species. Under this four-tiered system, species placed on the dark gray list would not be banned entirely, but would be subject to permit restrictions, both general and case-specific. Under such a system, if the reviewing body were presented with a first-instance request to import tilapia, it could choose to: (i) prohibit the species entirely by putting it on the black list; (ii) allow the species to be imported henceforward with no restrictions by putting it on the white list; or (iii) allow the species to be imported subject to a restrictions on the manner and location in which the species may be cultivated. The dark gray list restrictions could be either permanent or case specific – for example, the agency could either use its general permitting power to ensure that all permits for this species must contain a condition disallowing its cultivation in a flood plain, or use case-specific conditions not automatically applicable to future permits.

There are several states with programs somewhat resembling a dark gray list, but without the flexibility described above. For example, Minnesota has the basic structure of a four-tiered list system with categories for “unregulated” (white list), “prohibited” (black list), “unlisted” (gray list), and “regulated” (dark gray list) species. However, “regulated” species are not subject to permitting for any purpose other than release into the wild. The law specifies that species placed on the regulated-dark gray list may otherwise be imported, propagated, and sold without a permit.⁶ Pennsylvania uses a dirty list and a clean list governing aquaculture, but provides that species not on the clean list may nonetheless be cultivated in aquaculture if they are kept in a “closed system” to prevent escape.⁷ This type of two-tiered restriction could serve as a building block for more comprehensive regulation.

2. Broad Coverage: Broadly Applicable Lists Excluding Loopholes

Many of the existing legal programs are unnecessarily narrow in framing the coverage of their import restrictions. The coverage of importation and possession restrictions should be as broad as possible.

⁶ Minn. Stat. 84D.11, Minn.R. 6216.0265, subpart 1.

⁷ 68 Pa. Code 71.3. A closed system is extensively defined by regulation such that: (i) it must be housed indoors and enclosed by solid walls, floor, and roof; (ii) there is 100 percent recycling of water, and water can be added to the system only to make up for evaporative loss and for cleaning and ammonia dilution; (iii) accidental spillage must be contained; and (iv) escape of a species from a closed system is per se unlawful and must be reported immediately to the Commission and others. 68 Pa. Code 71.3.

a. Non-purpose specific

As described in the Phase I Report, a number of jurisdictions have set up their import restrictions to be applicable only where the importation is for specified purposes. For example, in Wisconsin, a permit is only required for live fish that are imported for purposes of (i) release into state waters; (ii) use as bait; or (iii) aquaculture.⁸ Thus, there is effectively no permitting requirement for live fish imported for other purposes – such as for sale at a live fish market. It is thus essential that the permitting requirements be defined without reference to purpose.

b. Applicable to importation, possession, sale, and transportation

Where appropriate, regulations governing restricted species – black-listed or dark-gray listed – should apply expressly to possession, sale, and transportation, as well as to importation. This is essential given the practical difficulty of interdicting illicit importers at the state border. If the permitting requirements only apply to importation, there might be no recourse against purchasers from the importer. Similarly, transporters might not be liable under such a scheme because a transporter does not actually “possess” the cargo being transported in the legal sense. It is important that all parties in the chain of custody be bound by species restrictions and prohibitions in order to encourage responsibility and, when necessary, cooperation with law enforcement.

Thus, for blacklisted species, importation, possession, sale, purchase, and transportation should be prohibited in the absence of a permit. Similarly, for dark gray listed species – those whose commercial use is allowed but restricted by permit conditions – anyone purchasing or otherwise acquiring the species would be bound by those conditions. Anyone wishing to transfer permitted species or their progeny would be required to obtain permission to transfer the permit along with them. To obtain such permission, the transferee could be required to provide basic information to the agency regarding the manner and location in which the species will be held.

c. Applicable to genetically modified species

Programs regulating importation, possession, and transportation should apply to the extent possible to genetically engineered (“GE”) fish, not merely naturally occurring exotics. Federal and most state regulation of GE organisms has focused on agricultural applications with strict limitations on use of GE crops or pest control species, but few or no limitations on release of GE aquatic species. (Illinois and Minnesota are among the exceptions, regulating release of GE organisms more broadly). It is unclear, as a technical matter, whether the release of GE organisms poses as much (or more) of a threat as exotics. Nonetheless, given a potential threat, regulatory precaution is in order.

Regulation of GE organisms would probably be more desirable at the federal level. GE organisms differ from naturally occurring exotics in that they are created from, and disseminated by, a single source. Nonetheless, given current Congressional realities, it may be important for the states to first regulate GE organisms.

⁸ Wis. Stat. 29.735, Wis. Adm. Code ATCP 11.58.

3. *Sound Decisionmaking:*
Listing Decision Process Incorporating Both Expert and Public Input

To make the four-tiered list system described above work well, it is essential that the screening process for initial categorizations and for evaluating species on the gray list be thorough, transparent, guided by experts, and open to public input. The three states that currently use a three-tiered system involving a gray list – Illinois, Indiana and Minnesota – vary greatly in the quality of the screening process they require. A good program could draw features from the best of these processes. Illinois and Minnesota both define the decisionmaking process in some detail, while Indiana’s description of the process is somewhat cursory.

In addition, New Zealand’s program, which is perhaps the most comprehensive non-indigenous species management program in the world, has a very thorough screening program that could serve as a model for U.S. and Canadian jurisdictions. The program calls for: (1) an independent professional staff to advise the responsible agency, with input from expert advisory committees; (2) an adversarial system whereby importation proposals are confronted with countervailing arguments by the natural resource agency; and (3) public hearings and opportunities for appeal.⁹

a. *Substantial information in permit applications*

A prerequisite for sound decisions is, obviously, sufficient information. It is important that the screening process require the applicant to provide the decisionmaker with the information necessary for the decision. The regulations should define in detail the basic information required to be submitted, and allow the decisionmaker leeway to collect additional data either in the initial application or following review of that application.

The three states vary widely in the amount of information sought. Minnesota is the best model. Its regulations set forth a list of 10 types of information that must be included in an application. These include both scientific information relevant to assessing the potential invasiveness of the species and information regarding the particular need for and proposed use of the species by the applicant.¹⁰ The regulations further provide that “[t]he commissioner may request additional information in writing after the application is received if necessary to assess the potential impacts of an introduction.”¹¹

Illinois’ regulations, by contrast, do not mention any permit application requirements; it is unknown what information Illinois requests in practice.¹² Indiana likewise does not specify the information to be submitted, but does provide basic decisionmaking criteria, and places the

⁹ See U.S. Congress, Office of Technology Assessment, Harmful Non-Indigenous Species in the United States, OTA-F-565 (Washington, DC: U.S. Government Printing Office, September 1993) (hereinafter “OTA Report”) at 20.

¹⁰ See Minn. R. 6216.0290(1)(A).

¹¹ Id. 6216.0290.

¹² 17 Ill. Adm. Code 870.10(e).

burden of proof expressly on the applicant to demonstrate that those criteria favor importation of the species.¹³

b. Opportunity for public comment

Public comment is an important component of the screening process both because it broadens the scope of information considered in the decisionmaking process, and it increases public confidence in the integrity. Minnesota is the only U.S. jurisdiction that allows for public comment on applications to import gray list fish. New Zealand’s program, however, has very strong public participation provisions, requiring public hearings and providing an opportunity for appeal.¹⁴

Under the Minnesota regulations, public comment is part of the process only at the discretion of the Commissioner. The regulations provide for a 60-day review period for a new species, which “may” be extended if the Commissioner determines that there should be public comment.¹⁵ This provision is a good start, but would be improved by several changes. First, while some might oppose allowing public comment for every new species, as some species will be plainly harmless, there would likely be few if any comments in the “harmless” case or the law could state an objective threshold for when comment will be required – for example, when the decisionmaker makes a preliminary finding that there is any substantial possibility that the species could cause harm if released. Second, where public comment is called for, there should be a requirement that that decisionmaker respond in writing to each of the comments. Third, the regulations should provide an option for a public hearing when appropriate – the circumstances could be defined by some sort of objective trigger.

Even where there is no formal public comment period called for, all applications should be posted on the governing agency’s web site, and notice should be sent to all interested persons by e-mail. Using electronic communication allows for maximum transparency of the process with minimal expense and time. Although applications would be accessible in any event via freedom of information act processes, this can be a difficult and unreliable means of obtaining information. Web notice better enables the public to learn of gray list applications early enough to allow input.

c. Consultation with experts

Regulations should specify that screening decisions will be made – or at least informed – by experts in relevant fields, rather than generalist regulators. These include biologists who can address the risks, fisheries managers who can address potential impacts, and, where appropriate, regulatory specialists in aquaculture or other relevant industries who can address the species and potential substitutes. The law should state that the experts must be public officials or independent parties with no ties to regulated industry.

¹³ 312 IAC 9-10-15(c).

¹⁴ OTA Report at 20.

¹⁵ Minn. R. 6216.0290(B)(3).

New Zealand's program, as noted above, provides a strong model for involving impartial experts. In the U.S., Illinois and Minnesota (but not Indiana) both specify expert consultation as part of the screening process. The Illinois regulations are more effectively designed, and they specify that screening decisions are to be made by an Aquaculture Advisory Committee consisting of the chiefs of four divisions of the state Department of Natural Resources: Fisheries, Wildlife, National Heritage, and Law Enforcement, with the Fisheries Chief serving as committee chair. In addition, the law allows participation on the Committee by the president of the Illinois Aquaculture Industry Association, the Chief of the Natural History Survey, the Department of Agriculture's aquaculture coordinator, the Director of the Southern Illinois University Fisheries Research Laboratory, and the Chief of the Division of Food, Drugs and Dairies at the Department of Public Health. The Fisheries Chief, as Chair, is instructed to "consider" the committee's recommendations in making screening determinations.¹⁶

The Minnesota regulations treat the subject of expert input in a more cursory manner, although in practice, its decisionmakers may consult with experts to the same degree as in Illinois. The regulations provide only that the Commissioner of the Department of Natural Resources "may . . . seek information and opinions from technical experts."¹⁷ The NAISA proposal does not include any reference to expert consultation at all, which is a significant omission.¹⁸

d. Well-defined screening criteria

It is essential that the regulations spell out the criteria that the screening body will use in making its determinations. Section II.A.7, *infra*, discusses the appropriate substance of such criteria. As an initial matter, it is important that the criteria are spelled out in significant detail in the regulations, not merely contained in guidance documents that are subject to change.

None of the three state programs state detailed and specific decisionmaking criteria. In Minnesota, the criteria are arguably implicit in the detailed list of types of information that applicants must provide.¹⁹ Indiana's regulations lay out the criteria in highly general terms, requiring proof that the species proposed for import "(1) is free of any communicable disease; (2) will not become a nuisance; and (3) will not damage a native wild species or a domestic species of animal or plant."²⁰ One particularly positive feature of Indiana's regulations, however, is that they explicitly place the burden of proof regarding these issues on the applicant.²¹ Illinois' regulations state only that the Aquaculture Advisory Committee's recommendations "shall be based upon the potential detriment to the natural fishery resource."²²

The proposed NAISA legislation, while not specifying criteria in the proposed statutory language, requires development of such criteria, in screening guidelines to be used by federal

¹⁶ 17 Ill. Adm. Code 870.10(e).

¹⁷ Minn. R. 6216.0290.

¹⁸ See draft HR 1080, Section 202.

¹⁹ Minn. R. 6216.0290(1)(A).

²⁰ 312 IAC 9-10-15 (c).

²¹ *Id.*

²² 17 Ill. Adm. Code 870.10(f).

agencies with authority over importation.²³ It does provide a basic framework for developing the screening guidelines, which are to take into account: “(A) the likelihood of the spread of organisms by human or natural means; (B) organisms that may occur in association with the organism planned for importation, including pathogens, parasites, and free-living organisms; and (C) regional differences in probability of invasion and associated impacts.” The relevant section of NAISA is attached as Appendix 1.

4. Permit Conditions: Flexibility to Define Conditions on a Case-By-Case Basis

A one-size-fits-all importation permit is inadequate to address the many unique sets of circumstances that are likely to confront a regulator. Species differ in the level of risk associated with them, and importers differ in their plans for the species once imported. It is thus essential that a permitting system expressly allow the agency to impose appropriate conditions on an importation permit. Most programs currently contain no reference to individual permit conditions, merely stating generally that permits for importation are required.

a. Conditions regarding care and handling

There are numerous situations in which handling precautions or restrictions may not be required across the board, but should be in place in certain circumstances. For example, as described above, some species should be required to be kept in closed systems, depending on the species’ survivability in the jurisdiction’s waters. Even some species that cannot survive generally in cooler local waters might thrive in a thermal discharge-mixing zone. Pet trade importers could be required to provide warnings to consumers upon sale of certain types of species. Overall, it is possible to envision a great variety of circumstances in which individualized permit restrictions would be beneficial. Regulators must be given flexibility to impose such conditions where necessary.

b. Conditional probationary period

No matter how thorough the screening process, the actual impact of importation of the species – both positive and negative – cannot truly be known with certainty until the importation takes place. Accordingly, it makes sense in at least some circumstances to issue conditional permits specifying a probationary period, during which both the beneficial use of the species and its risks and impacts would be monitored.

No U.S. program currently employs this approach, although Minnesota does provide for revocation of permits.²⁴ However, several other nations – Argentina, New Zealand and South Africa – currently allow the agency to issue conditional permits that require monitoring during a defined trial period. Argentina requires that all aquatic species imports be provisional at the outset. During the trial period, the importer is prohibited from selling or releasing the

²³ Draft HR 1080, Section 202.

²⁴ Minn. R. 6216.0265(9)(A)(2) provides that the Commissioner may revoke a permit when “it is necessary to protect the interest of the public, to protect native plant and animal populations in the state, or to otherwise protect the state’s natural resources.”

specimens; and if permanent import permission is not granted following the trial period, all specimens must be eradicated.²⁵

5. *Black-list Precautions:*
Stringent Precautions Against Escape of Black-Listed Species

In most jurisdictions with a black list, the blacklisted species are not banned for all purposes. Although they may not be used commercially in aquaculture or pet stores, they may be imported for research, display, or other purposes. For example, Minnesota allows black list species to be held for purposes of “disposal, control, research, or education.”²⁶ Accordingly, it is essential that the blacklist species held for these purposes be subject to stringent precautions to prevent their escape.

There is a useful analogy to laws governing hazardous substances, which are generally allowed for beneficial purposes such as manufacturing, but extensive regulatory programs ensure that they are not released into the environment. The same degree of regulation should attach to blacklist exotics, whose impact on the environment can be persistent and harmful.

a. *Ensure competence of importer*

Many laws governing hazardous substances require some level of demonstrated skill on the part of those authorized to handle them. Such a requirement is unusual in the area of exotic aquatic species, but should not be.

The only jurisdiction to require a demonstration of competence on the part of the black list importer is Minnesota, which provides a sound model. The state requires that an applicant to import a prohibited (black list) exotic species must “have experience in the skills necessary for handling potentially harmful species,” defined to include: “(1) knowledge or precautions necessary to prevent spread through handling; or (2) previous experience handling harmful exotic species without allowing escapes.”²⁷ In addition, applicants must be over 18, “maintain a facility or transportation equipment that prevents the escape of exotic species,” and be qualified to do business in the state. The permit application must provide information to enable regulators to ensure that these criteria are met, including a detailed description of the facilities to be used and an explanation of how they will prevent escape, as well as a description of the applicant’s experience in handling “the same or similar species.”²⁸ In addition, after a permit application is submitted, the Commissioner may inspect the facility where the species will be held, and conduct periodic inspections of it following importation.²⁹

²⁵ See Convention on Biological Diversity, “Invasive Alien Species: A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species” (“CBD”) at 59.

²⁶ Minn. Stat. 84D.11.

²⁷ Minn. R. 6216.0265(4).

²⁸ Minn. R. 6216.0265(5)(A).

²⁹ Minn. R. 6216.0265(6).

b. Ensure liability of importer for escape

A practical means of encouraging responsible conduct on the part of black list importers – as well as unpermitted gray list importers – is to ensure that they are fully liable for escapes and responsible for eradicating the escapees. In some circumstances, liability would also be appropriate as an individual permit condition for species on the “dark gray” list – those species allowed to be imported commercially, but potentially harmful under certain circumstances. Liability can be assessed by several means, some of which are reflected in Minnesota’s program, as well as by the very comprehensive invasive species program in New Zealand.

First, the law should explicitly state that an importer, which allows a blacklisted species to escape is liable for costs of eradication. Minnesota law provides that the person responsible for the escape “is liable for the actual costs incurred by the department in capturing or controlling, or attempting to capture or control, the animal or its progeny.”³⁰ This strict liability approach, which eliminates the need on the part of the enforcer to prove negligence, is consistent with the strict liability that generally attaches to activities that the law considers inherently dangerous or ultrahazardous. Mississippi law also references liability for escapes, but provides a good model of how *not* to draft such a provision. The state’s law provides that eradication costs “may require reimbursement” by the responsible aquaculturalist “if proved to be the fault of the aquaculturalist through neglect and/or mismanagement” – thus liability is at the discretion of the regulator, and requires proof of fault, which may be difficult and costly to establish as a practical matter.³¹

Second, the law should establish a presumption that, if a blacklisted species is found to have escaped, importers of the species were responsible for the escape. This presumption overcomes the practical barriers to proof or liability that would otherwise arise. If there is more than one party in possession of a species, it can sometimes be nearly impossible to establish which was responsible for an escape, absent eyewitness testimony or other proof of the source of the escape. Establishing presumptive liability encourages importers to not only exercise caution, but to also keep careful records documenting preventive measures taken. Although this approach is not legally common in the area of exotic species, legislation in Western Australia provides an analogous model, specifying that if any alien animal escapes from a vehicle, the burden of proof is on the driver to show that she or he was not responsible.³²

Third, importers should be required to ensure that they have the financial means to eradicate an escaped population. This could be accomplished in several ways, including: mandatory insurance, deposit bonds, pooled permit fees, or special taxes akin to the Superfund tax. The first two place responsibility directly on the violator where the source of the release can be identified, rather than pooling responsibility in a manner that may diminish any particular individual’s incentive for caution. No U.S. or Canadian jurisdiction currently uses these methods, but several other nations provide potential models. New Zealand’s program provides authority for requiring bonds for potential costs of escape.³³ Argentina’s draft Biodiversity

³⁰ Minn. Stat. 84D.03(a).

³¹ CMSR 25-000-011

³² CBD at 82.

³³ See OTA Report at 20.

Strategy proposes mandatory insurance covering the risk of escape, damage to third parties, and the cost of eradication measures in the event of abandonment.³⁴ The Philippines, on the related subject of commercial access to genetic resources, requires posting of a performance, compensation, and ecological rehabilitation bond as a condition of the access agreement, which is forfeited in the event of non-compliance.³⁵

c. Require immediate action to address an escape

If an accidental escape of a black-listed species occurs, there will be a brief window of time in which it may be realistically possible to capture the escapees or prevent their dispersal to a larger area. It is essential that black-listed species permittees be required to respond quickly to an escape so the proper measures can be taken.

Minnesota law contains several provisions to help ensure a quick response. First, it requires that anyone learning of the escape of a black-listed species must report it to the Department of Natural Resources within 48 hours. Second, in order to ensure that effective measures can be taken quickly and without deliberation, an applicant for a black-listed species permit must provide “a written contingency plan for eradication or recapture in the event of an unauthorized introduction [meaning release]” of the species.³⁶ The law effectively requires that the importer implement the plan in the event of an escape, providing that anyone whom “allows or causes” an escape must “make every reasonable attempt to recapture or destroy the introduced animal.”³⁷

**6. *Ban Baitfish Imports:*
A Complete Prohibition Rather than Attempts at Regulation**

As discussed in the Phase I Report, minnow shipments are a huge potential source of unwanted exotics. It is very easy for a few members of an unwanted species to become mixed in with a bait fish shipment given the large number of fish involved. It is predictable that in some instances, harvesting of targeted species will capture a few by-catch species as well –either in the wild, on in aquaculture facilities where non-target species are present either intentionally or unintentionally. Once that happens, it is nearly impossible for an inspector to find all of the exotics that may have made their way into a shipment. The Ohio official interviewed in connection with Phase I Report said that it is not uncommon to find round goby in a tank of emerald shiners, a popular baitfish. There have also been reports of black carp fingerlings being inadvertently included in baitfish shipments to the Midwest.³⁸

This scenario strongly suggests that the only realistic way of keeping exotics from entering a jurisdiction as bait shipment by-catch is to ban the bait shipments entirely. This has been done in both Minnesota and Ontario. Any measure short of a complete import ban risks

³⁴ CBD 83.

³⁵ Implementation Rules and Regulations on the Prospecting of Biological and Genetic Resources 96-20, adopted under Philippines Executive Order 247 or 1995, cited in CBD 83-84.

³⁶ Minn. R. 6216.0265.

³⁷ Minn. R. 6216.0280.

³⁸ See Phase I Report at 16-17 and Ohio summary.

capturing only a small fraction of the by-catch that will inevitably be distributed to consumers. Since regulators agree that it is also almost impossible to police bait users and ensure that they do not dump their unused bait, it is only a matter of time before the by-catch is released into local waters.

As explained in Section III below, there is United States Supreme Court authority specifically authorizing a baitfish importation ban as an exception to the usual prohibition on import bans.³⁹ This type of ban should be supported by proper findings of fact by the legislature or an agency in order to best meet the constitutional standard.

7. *Decisionmaking Protocols:* Substantive Protocols that Employ Sound Risk Analysis Methodology

Categorizing species on white and black lists – at the outset, or in a gray list regulatory process – is ultimately a subjective decision fraught with complication. Although it must be grounded in the best science available, the scientific calculation of risk has uncertainty because it involves estimation of impacts that have not been verified over long-term experimentation (given the environmental and public health risks of delay). Moreover, the decision criteria may ultimately transcend science. Scientific risk measurement criteria can inform regulators as to the likelihood that a species will be harmful, and industry experts can inform them of the species’ benefits. However, considering these factors together is ultimately a value judgment, in part, based on criteria that are harder to measure.

A protocol should be put in place that defines appropriate criteria and methods for decisionmaking. Numerous decisionmaking protocols have been devised, but thus far have not been enacted into law. In 1991, Congress considered, but failed to pass, legislation that would have required agencies to follow a detailed protocol for importation and transportation of aquatic species.⁴⁰ Three states – Florida, Hawaii and Montana – specifically require a scientific study in connection with species introduction decisions,⁴¹ but only Hawaii sets forth specific criteria for the study.⁴²

Despite the lack of codified protocols in the U.S., there are a number of models for such protocols. Perhaps the best is New Zealand’s new species evaluation criteria established under the Hazardous Substances and New Organisms (“HSNO”) Act 1996. The criteria are set forth in the Annotated Methodology, attached as Appendix 2. The Methodology sets forth guidelines for managing information, including public access, dealing with scientific uncertainty, defining levels of risk and factors for assessing its severity, and weighing and comparing risks, costs and benefits using multiple expressly-defined factors. A similarly detailed protocol has been devised by Ohio State University economist Alan Randall.⁴³ Randall’s approach is essentially based on the principle that decisionmakers should maximize net benefits to society, subject to a Safe

³⁹ Maine v. Taylor, 477 US 131 (1986), discussed in Section III *infra*.

⁴⁰ See H.R. 5852, the Species Introduction and Control Act of 1991, attached as Appendix 3.

⁴¹ Florida’s scientific study requirement pertains to all imports, whereas the Hawaii and Montana requirements pertain only to intentional releases.

⁴² Fla. Stat. 372.265, HRS § 197-3, Mont. Code § 87-5-711.

⁴³ See OTA at 132.

Minimum Standard – a level of environmental quality that society should not go below, except in extraordinary cases.⁴⁴ The American Fisheries Society protocol⁴⁵ is also a frequently cited source of decisionmaking criteria, albeit less comprehensive than either the New Zealand or the Randall approach.

It is not likely that every jurisdiction will adopt a scientific protocol as elaborate as New Zealand's, which applies to every species proposed for import. It is probable that, given cost and personnel constraints, at least some jurisdictions would want to scale back these models, either by simplifying the decisionmaking criteria or limiting their scope of applicability – for example, making them applicable only to certain types of high-risk decisions. However, there are two basic principles that any good decisionmaking protocol should embody.

First, the burden of proof should be on the applicant to demonstrate that the species is appropriate for importation, rather than on the government to demonstrate that it is not. This system is sometimes referred to as the precautionary principle in that it requires decisionmakers faced with insurmountable scientific uncertainty to err on the side of caution and refuse the application. This principle is already part of US federal laws governing introduction of certain potentially hazardous substances onto the market. The burden of proof is placed on manufacturers of such substances to demonstrate that their benefits outweigh their potential risks.⁴⁶ Indiana's aquatic exotics program is structured this way, requiring an applicant to "establish that a fish proposed to be imported. . . will not become a nuisance; and . . . will not damage wild species or a domestic species of animal or plant."⁴⁷

The precautionary principle is mostly, although not entirely, incompatible with cost-benefit analysis.⁴⁸ To the extent that economic benefit factors play a role at all, they should never be allowed justify a risk of catastrophic environmental damage, even if remote. Professor Randall's criteria operate on this premise by establishing an environmental quality floor constraining all decisions. Were such a criterion in place, black carp would be prohibited, as even their purported significant economic benefit to the aquaculture industry could in no circumstances outweigh their potential for catastrophic harm to the Great Lakes.

Second, decisionmakers should assume, when evaluating an application, that importation of a species will inevitably lead to its release into the environment, even if they are prepared to take the utmost precautions against such release – such as those applied by Minnesota to black-listed species. Time and time again, experience has demonstrated this to be the case, as it may

⁴⁴ *Id.*, citing Randall, A. and Thomas, M., "The Role and Limits of Economics in Decisionmaking Regarding Non-Indigenous Species," contractor report prepared for the Office of Technology Assessment, August 1991.

⁴⁵ See Kohler, C.C. and Courtenay, W.R., Jr., "American Fisheries Society Position on Introductions of Aquatic Species," *Fisheries*, vol. 11, O. 2, March/April 1986, pp. 39-42, available at <http://www.afsifs.vt.edu/afspos.html>.

⁴⁶ Re the Federal Insecticide, Fungicide and Rodenticide Act, see 50 Fed.Reg. 1119, 1120 (Jan. 9, 1985); H.R. Rep. No. 92-511, 92nd Cong., 1st Sess. 20 (1971); *Environmental Defense Fund, Inc. v. Environmental Protection Agency*, 548 F.2d 998, 1004 (1976); *Stearns Elec. Paste Co. v. Environmental Protection Agency*, 461 F.2d 293, 304 (7th Cir. 1972). Re the Toxic Substances Control Act, see H.R. Rep. No. 94-1341, 94th Cong., 2d Sess. 5 (1976); H.R. Rep. No. 94-1679, 94th Cong., 2d Sess. 69 (1976).

⁴⁷ 312 IAC 9-10-15(c).

⁴⁸ A precautionary principle system could in theory require the applicant to prove that the costs are sufficiently negligible so that the benefits clearly outweigh them.

only take one release – accidental or intentional – to establish an invasive population, with the snakehead infestation in Maryland being only the latest example.⁴⁹

Some commentators suggest that the National Environmental Policy Act (“NEPA”),⁵⁰ and comparable state statutes (“little NEPAs”) provide a sound decisionmaking framework for species importation and introduction.⁵¹ This is only partially true. NEPA requires that an agency prepare an Environmental Impact Statement (“EIS”) before it engages in a “major federal action significantly affecting the quality of the human environment” – directly or through funding or approval.⁵² The EIS does provide certain types of analysis that would be useful in the exotic species decisionmaking context. For example, the agency is required to establish the “purpose and need” for the proposed action, and then evaluate alternative means for accomplishing it, evaluating and weighing the likely environmental alternatives of each alternative. However, NEPA is mostly a procedural law. It requires regulators to consider certain criteria by certain means, but does not really establish substantive requirements as to *how* those criteria should shape the decision outcome. That is, under NEPA, there is nothing to prevent a government agency from determining that alternatives to the proposed action are far less environmentally damaging, but proceeding with the proposed action anyway. Some, but not all, state NEPAs incorporate a modicum of substantive requirements; but only 18 states have their own NEPAs to begin with.⁵³

8. *Emergency Powers:* **Agency Power to Enact Emergency Bans on Species** **Prior to Completion of Notice and Comment Rulemaking**

The deliberative agency rulemaking process – draft proposals are put out for comment and the agency is then required respond to the comments – is an excellent way of making certain that agencies and the public have ample opportunity to consider new regulatory proposals. It is also a grossly inefficient way to respond to an immediate crisis. Armed with only notice and comment rulemaking power to respond to threats, even an agency that is fully cognizant of an immediate dangers posed by a particular species may be powerless to take quick action to restrict that species. Thus, for example, New York State began working on a regulatory proposal to ban snakeheads (and along with them Asian carp) not long after the snakehead invasion crisis in the summer of 2002, but only finalized the ban early this year.

The goal, clearly, is to enable agencies to respond to exotic species emergencies without running roughshod over the deliberative process and the public’s rights. The issue is less complicated with respect to species not yet present in a particular jurisdiction because a black/white/gray listing system as described above are designed to enable agencies to prohibit such species until and unless they are cleared. The more difficult issue is devising a means for

⁴⁹ See OTA at 109.

⁵⁰ 42 U.S.C. § 4321 *et seq.*

⁵¹ See OTA at 120-25.

⁵² 42 U.S.C. § 4332(C). The NEPA regulations also provide a process whereby the agency can assess whether the action’s impacts will be significant, such that an EIS is called for, by preparing an Environmental Assessment; and may also categorically exclude some types of minor actions from review altogether. 40 C.F.R. 1508.4, 1508.9.

⁵³ OTA at 206.

agencies to respond quickly to newly-identified threats from species that are already present. Snakeheads and Asian carp are a good example of this type of threat, as both had been in commerce extensively for many years before a consensus emerged, based on consequences of escapement, that they needed to be restricted. In such instances, regulators must have emergency powers – from added escapement prevention measures to an outright ban – to impose restrictions on a species already present in the jurisdiction.⁵⁴ In order to ensure that the public is not deprived of an opportunity to comment on the matter, the emergency regulation should have an expiration date, before which the agency would be required to complete the notice and comment rulemaking process.

**9. *Inter-Jurisdictional Coordination:*
A Process to Ensure that Jurisdictions Share Information
And Coordinate Decisions Regarding Species**

Invasive species are by nature a multi-jurisdictional issue; they do not respect state borders. No matter how stringent the restrictions in Minnesota may be and how many species it chooses to black-list, looser regulations in any state downstream on the Mississippi River will continue to allow threats to its waters.

On a national scale, the most obvious means of addressing this problem is to regulate species on a federal level in order to assure legal uniformity. However, there are good reasons, both political and practical, to give state and provincial jurisdictions a modicum of leeway to regulate species importation. For example, some species that survive well in tropical waters, and thus should be banned there, would probably not pose a problem in Minnesota. Moreover, regulating species nationally only serves to bump the issue up a level: species do not respect international boundaries, either, and thus various nations should coordinate their decisionmaking to the extent possible.

On the most basic level, each regulatory jurisdiction should have in place a requirement that importation decisions be made in consultation with officials from neighboring states. Consultation of this nature benefits all jurisdictions involved, as they may alert each other to threats, evaluate impacts on their combined watersheds, and share research information without the need to re-invent the wheel every time a decision is called for. This type of basic consultation is allowed but not required under Minnesota’s program, which states that the Commissioner “may. . . consult with other potentially affected jurisdictions” in the gray list decisionmaking process.⁵⁵ States and provinces might also choose to formalize the consultation process through interstate compacts and memoranda of agreement. A precedent for such compacts in the 1980 cooperative agreement signed by five western states and British Columbia for the interstate transfer of shellfish under the auspices of the Pacific Marine Fisheries Commission.⁵⁶

⁵⁴ To reduce the likelihood that extensive compensation of owners would be required as a consequence of such a ban, the law should make clear that ownership of aquatic species is subject to extensive regulation to protect public health and the environment.

⁵⁵ Minn. R. 6216.0290(4)(C).

⁵⁶ OTA at 208, citing Kern, F.G. and Rosenfield, A., “Shellfish Health and Protection,” *Dispersal of Living Organisms into Aquatic Ecosystems*, A.Rosenfield and R. Mann (Eds.) (College Park, MD: Maryland Sea Grant,

The International Council for Exploration of the Sea (“ICES”) has developed a Code of Practice, attached as Appendix 4, that defines a more developed system of cooperation regarding aquatic species that would be appropriate for use by the U.S. and Canada in their dealings with each another and with other nations. The Code addresses specifically intentional introductions – releases into the wild – but could be adapted to address imports as well. The Code is designed to function through the Council. Member nations contemplating an introduction of a non-indigenous or GMO species submit a detailed prospectus for evaluation and comment in accordance with a defined set of risk criteria (Appendix B to the Code). The prospectus is required to include extensive scientific information (Appendix A to the Code) regarding species life history, interaction with native species, and the receiving environment, as well as a management plan. The Code also describes quarantine and monitoring procedures (Appendices C and D to the Code).

10. *Regulate The Pet Trade:*
Eliminate Sweeping Exemptions
For The Pet Industry and Impose Appropriate Permit Conditions

As described in the Phase I Report, the aquarium pet industry has succeeded in carving itself a sweeping exemption from most of the state-level exotic species importation programs, even where those programs are otherwise quite strong. For example, the Illinois program, which for most purposes operates with a very effective black/white/gray list system, exempts the aquarium industry entirely so long as it is “operating in a manner which will prevent escapement into the waters standing on or flowing over the soil of the State of Illinois” – a standard so loose and vague that it is difficult to enforce.⁵⁷

Clearly, the bulk of hobby fish do not pose a major invasion threat in the Great Lakes states, as most are either tropical or, like goldfish, long ago introduced into the wild. In addition, the pet industry differs in structure from aquaculture, such that across the board regulation applying equally to both may not be the best solution. Whereas aquaculture involves regulation of large-scale commercial operators, regulating the pet trade involves influencing the conduct of countless retail dealers and individual consumers.

However, a sweeping exemption is not the best solution, either. The goal of regulating pet industry imports should be to focus on the species with invasive potential, and, to the extent imports are allowed, attach permit conditions that make retail dealers and consumers behave more responsibly. Minnesota seeks to accomplish the first goal not by exempting the pet trade as a category, but by white-listing individual pet trade species that cannot survive in Minnesota – a category including “subtropical, tropical and saltwater fish.” A dealer seeking to import a new

1992), pp. 313-323. The OTA report documents a number of conflicts that have already arisen among states concerning aquatic introductions, which illustrate some of the issues that are likely to emerge in inter-jurisdictional coordination. Virginia and Maryland have been in conflict concerning the introduction of the non-native Pacific oyster into Chesapeake bay, with Maryland opposing the introduction because it still maintains a viable indigenous oyster fishery. Minnesota (as well as federal and provincial Canadian governments) objected to the release by North Dakota of a new sport fish, the European Zander, because of ecological and disease risks. OTA at 207.

⁵⁷ Phase I Report at 17-18, Illinois summary.

species of such fish would only need to demonstrate in the gray-list screening process the fairly straightforward proposition that the species fell into one of these three categories. If it could not, then an exemption is unwarranted, even if the species will not be cultivated on a large scale.

In order to encourage more responsible conduct by retailers and hobbyists, a dark gray list category, as discussed above, would allow regulators to attach industry-appropriate conditions. For example, a permit could be required as a condition of importation that the importer (or any transferees) provide a deposit and recovery system. Substantial deposits would be returned only upon return of the fish – alive or dead – by the purchaser. In addition, permit conditions and/or regulations could require distribution of educational material to retail consumers. The materials would describe fines and penalties for unlawful release and species-specific information concerning any potential harmful consequences of release into the wild.⁵⁸

B. ENFORCEMENT

An exotic species program is only as strong as its enforcement. This, unfortunately, has been the weak link in even the best-crafted programs, which lay out extensive requirements governing importation and aquaculture, but provide no authority for meaningful punishment if those requirements are violated.⁵⁹ Minnesota's program is almost certainly the best in the Great Lakes region and one of the best in the country, rivaled only by exotic species-plagued Florida and Hawaii. Yet its penalty provisions are no stronger than those in other jurisdictions and certainly not strong enough to deter a determined violator. The penalty for transporting a black-listed species in Minnesota, for instance, is only \$100.⁶⁰ In Iowa, as described in the Phase I Report, an importer of 10,000 prohibited black carp in a recent incident was subject under state law to a fine of only \$25 and license suspension – the latter allowing the violator to simply transfer the license to a business associate or newly-created corporation. The case fortunately met the criteria for a U.S. Fish and Wildlife Service (“USFWS”) prosecution, which resulted in a five-figure fine and home incarceration.⁶¹ However, with USFWS resources stretched extremely thin, states should not count on federal enforcement to back them up.

Unfortunately, there are few legal models for an effective enforcement program. The following recommendations reference the limited models that are available in the area of exotic species, but also draw from enforcement measures used in other areas of law.

1. *Substantial Penalties:* Penalties Should Be Sufficiently Large and Broadly Applicable

A reality of live fish commerce is that it is impossible to catch all violators, or even the majority of them. Trade in prohibited exotic species has been compared to the war on drugs, in

⁵⁸ Of course, if appropriate import screening criteria are imposed, then no hobby species with potential for significant harm to an ecosystem would be cleared for importation to begin with.

⁵⁹ See Phase I Report at 19.

⁶⁰ Minn. Stat. 84D.13; Minn. R. 6216.0600.

⁶¹ Phase I Report at 19, Iowa summary.

that no amount of enforcement firepower will ever stop every prohibited shipment crossing state, provincial, or international borders. Even at the heavily-protected U.S. border, USFWS officials admit that, given the time constraints associated with live fish inspections – in which the fish are stored in individual plastic bags and likely to die in a few hours if not timely delivered – smuggling would be fairly easy to accomplish in most cases.⁶²

However, a good enforcement system will always catch at least *some* violators, even if it misses most of them. The war on drugs functions, to the extent it does, not by capturing and punishing every single drug smuggler, which would be impossible, but, rather, by heavily punishing the few it does catch to set a deterrent example. By the same token, exotic species programs need to compensate for their inability to catch most violators with very heavy penalties for those they do catch. Hawaii is one of the few states that have done this to some degree, requiring fines for violation of import permitting rules up to \$10,000 for a first offense and \$25,000 for additional offenses, in contrast to the average \$100 fines levied on average in Great Lakes states.⁶³ An additional means of stepping up fines is by defining a violation as a daily occurrence – each day of unlawful possession of a black-listed species would count as a separate violation subject to penalty. This is the approach successfully taken in U.S. federal environmental statutes such as the Clean Water Act, which also generally set a penalty cap on what would otherwise be astronomical fines.⁶⁴

Penalties should attach to all categories of violations, with heavier penalties assessed for the most dangerous activities (*e.g.*, possession of black-listed species) and those activities most likely to be controlled by large-scale industry that could otherwise count fines as a cost of doing business, such as aquaculture. Fines should attach for permit-related violations, unlawful releases, and failure to take required control or eradication measures in the event of an escape.

2. *Informant Incentives:* Apprehend Violators Through Tip Lines and Bounties

The drug trade relies heavily on informants in locating violators, using their testimony both to apprehend and to convict. Recognizing that the drug trade is an insular but highly competitive world, law enforcement authorities take advantage of sources on the inside willing to turn other violators in.

Exotic aquatic species regulation, by continuing analogy, could benefit from doing the same. In particular, the world of aquaculture has been described by some enforcement authorities as being highly competitive and on occasion somewhat corrupt. Both factors can serve as incentives for competitors to turn one another in – particularly for violations that are perceived to put the violator at an unfair economic advantage. Indeed, the black carp importer

⁶² See Phase I Report, U.S. federal summary (interview notes).

⁶³ Phase I Report at 19; WCHR §4-71-4.3.

⁶⁴ See, *e.g.*, CWA § 309(g)(2)(B), 33 U.S.C. § 1319(g)(2)(B). That section sets a \$10,000 per day penalty for each day of the violation, but establishes a cap of \$125,000.

apprehended by Iowa authorities was caught because another aquaculture operator alerted authorities to his illegal shipment of black carp.⁶⁵

Informant incentives should take two forms. First, there should be anonymous toll-free tip lines available. Second, for informants who wish to be identified, a bounty – some percentage of the fine ultimately assessed – should be offered for information leading to a civil or criminal penalty being assessed on a violator. We are not aware of any state that has a program of this type in place.

3. *Inspections:* **Full Authority to Inspect at Border Crossings and at Destination**

Programs should contain explicit authority for violation inspections to be conducted to the extent allowed under federal and state constitutions – for example, Illinois’ provision stating that the Department of Natural Resources has broad powers to enter on “all lands and waters” and conduct searches to enforce the Fish and Aquatic Life Code.⁶⁶ The best opportunities for inspection are at border crossings and on site at relevant facilities (aquaculture facilities, aquarium pet dealers, etc.).⁶⁷

Border inspections are not a particularly easy or inexpensive method of apprehending violators. At the federal level, at least the basic machinery of inspection of import shipments is in place (if poorly staffed and funded), but that is obviously not the case with the states and provinces. However, at least one state, California, has made border inspections work.⁶⁸ Authorities there make use of border inspection stations to search for species being unlawfully imported, and they have successfully stopped shipments of exotics arriving by sea.

Inspections at aquaculture facilities are easier to conduct than border inspections and are essential to adequate enforcement. Ensuring compliance with aquaculture regulations requires both an initial inspection and subsequent unannounced inspections. Yet surprisingly few jurisdictions currently require such inspections. Only three of those studied – Minnesota, Ohio and (surprisingly) Mississippi⁶⁹ – expressly require an initial inspection by law, and none require subsequent inspections. Although such inspections sometimes take place, an express legal requirement is the only way to ensure that inspections will occur on an ongoing basis, not subject to the vagaries of politics and budgets. Indeed, very few jurisdictions examined in connection with the Phase I Report – even those whose programs otherwise suggest a sincere intention to

⁶⁵ See Phase I Report, Iowa summary interview notes (enforcement official noted that, while most aquaculture operators are law abiding, there is a definite shady/criminal element in the business).

⁶⁶ 515 ILCS 5.1-185.

⁶⁷ Minnesota attempted additionally at one point to use road checks to search for exotic species violations, but the constitutionality of this method was called into severe doubt by a Minnesota Supreme Court decision limiting the use of sobriety checkpoints on state constitutional grounds. See Phase I Report at 11. The likelihood that checkpoints would be permitted may vary from state to state, given differences in state constitutions, but is overall not high. In any event, general-public checkpoints not an efficient way to catch violators unless inspectors are aware of a particular illegal shipment in the immediate vicinity that might be discovered in this manner.

⁶⁸ Hawaii also relies heavily on border inspections, but its task is obviously easier as an island state.

⁶⁹ Ohio Admin. Code 1501:31-39-01; Minn. Stat. 17.4984; Miss. Code Ann. 79-22-9.

implement a strong exotic species program – appear to implement regular aquaculture facility inspections in the absence of a legal requirement that they do so, according to the officials interviewed.⁷⁰

The reason for lax inspection requirements, and the key to making inspections effective, is funding. Both USFWS and most states simply lack the resources to perform inspections with the necessary frequency and intensity. A partial solution, absent large budget increases, is to increase the fees paid by applicants, so that users of the system essentially pay for the inspections.

4. *Citizen Suits:* **Afford Citizens A Right of Action in Court Against Violators**

Most natural resource agencies lack the resources necessary to investigate and prosecute environmental violations. One solution that has worked remarkably well in other environmental contexts, however, is a citizen suit law: a statutory provision allowing anyone affected by a violation to bring suit against the violator. Citizen suits effectively enable concerned members of the public to supplement the enforcement resources of the responsible agency.

The best and most widely used example of a citizen suit provision is in the Clean Water Act. “Any citizen may commence a civil action on his own behalf . . . against any person” alleged to be in violation of the Act’s provisions prohibiting water pollution discharge without a permit.⁷¹ The scope of allowable plaintiffs is not quite as broad as literally “any citizen,” as the U.S. Constitution requires that a plaintiff – or its members, where the plaintiff is an organization – have some real interest in the outcome of the dispute, not just a generalized concern.⁷² However, the law is sufficiently broad that it is usually possible to find a plaintiff with the necessary interest. For example, in the Clean Water Act context, plaintiffs are generally afforded standing if they can show that they use a waterway for recreational purposes that the defendant is polluting. In the exotic species context, a standing requirement would presumably be met by anyone who uses a fishery, whether recreationally or commercially, that is threatened by a permit violator’s exotic fish.

Plaintiffs suing under the Clean Water Act and similar citizen suit provisions are not entitled to monetary damages. Rather, since they are acting as stand-ins for governmental enforcement authorities (sometimes referred to as “private attorneys general”), they may seek the same remedies that the government would: an injunction to halt the violation and civil monetary penalties to be paid to the government. They may, however, collect their attorneys’ fees from the violator if the lawsuit is successful.⁷³

⁷⁰ See Phase I Report at 15.

⁷¹ Clean Water Act § 505(a)(1), 33 U.S.C. § 1365(a)(1).

⁷² Caselaw concerning standing to sue in environmental cases is voluminous. A more recent example of the U.S. Supreme Court’s statements on the issue is found in Friends of the Earth v. Laidlaw Environmental Services (TOC), Inc., 528 US 167 (2000).

⁷³ It has occasionally been suggested over the years that citizen suit plaintiffs should be able to collect a bounty – i.e., a percentage of the penalties recovered – as an additional incentive for citizens to bring suit. The concern, and the likely reason this suggestion has never been acted upon, is that it opens citizen suits further to the often-heard

An essential adjunct to a functioning citizen suit provision is open public records. A member of the public cannot build a case against a violator without access to the same records as the responsible state agency. Thus, for example, in order to facilitate citizen suits against aquaculture permit violations, it is important that all technical data generated by the applicant in connection with the permitting process be readily available to members of the public upon request.

One nation, Poland, has implemented a citizen suit provision with respect to exotic species law violations. Polish law allows both traditional private attorney general remedies and monetary damages.⁷⁴

C. AQUACULTURE

Aquaculture is the aspect of live fish commerce most easily regulated and least likely to be. Aquaculture, by its large and stationary nature, can be readily controlled and supervised, unlike importation, where determined violators can much more readily escape detection. Due to the immense and growing power of the aquaculture lobby, however, resources are being diverted from, not to, aquaculture regulation, even in states that otherwise thoroughly regulate live fish commerce. Once again, therefore, there are few available models of strong aquaculture regulation, but models for particular recommended features of a strong program are in some cases available.

1. *Detailed Application:* **Application Must Provide Sufficient Information To Make A Reasoned Determination**

A basic first step for comprehensive regulation of aquaculture is to ensure that permit applications contain sufficient information for regulators to make an individualized determination based on proper criteria. An additional function of a comprehensive application is that it provides the public with meaningful notice of the proposed facility.

Unfortunately, many jurisdictions require only cursory information as a basis for an aquaculture facility license. One state, as noted in the Phase I Report, even allows aquaculture licenses to be purchased through kiosks placed in Wal-Mart stores.⁷⁵

An application should provide, at minimum, the following basic information:

- *Facility location:* the exact proposed location of the facility, whether it is in a flood plain, and its proximity to bodies of open public water.

(albeit baseless) criticism that they are simple a means for environmental groups and their lawyers to line their pockets.

⁷⁴ See CBD at 82, citing Environmental Protection Act of 1980, as amended, and Civil Code of 1964, as amended.

⁷⁵ Phase I Report at 14, Tennessee summary.

- *Facilities plan:* the proposed structure of the facility should be presented in sufficient detail to enable regulators to determine that it is not in danger of overflowing.
- *Escapement prevention measures:* to the extent the facility is located in a body of water having egress to open public waters, detail concerning the escapement prevention measures that will be used.
- *Type and quantity of species:* the specific species proposed to be cultivated, and in what numbers.

The first two categories of these information are part of the Illinois application process.⁷⁶ The third is part of Ohio's.⁷⁷

2. ***Appropriate Siting:*** **Aquaculture Facilities Must Be Sited so as to Minimize Escapement Risk**

The most important step that can be taken to minimize the risk of escapement from aquaculture facilities is to simply prohibit them in open public waters. Cage and pen aquaculture, where species are kept in a natural body of open water but enclosed by artificial means, has historically proven to pose a high risk of escapement as a result of either natural events such as floods or human error. For example, Great Lakes United documented that even though there are only 15 open water aquaculture facilities in the Canadian Great Lakes provinces, escapes from those facilities have been frequent and massive.⁷⁸ Aquaculture can readily be conducted in closed systems, as demonstrated by the numerous states that have already taken the step of banning open water aquaculture.⁷⁹

Stocking only native fish or using escapement prevention measures are partial, but not complete, solutions to the risk created by aquaculture in or connected to open waters. Even native fish can cause harm to local populations by virtue of diseases they may carry, or a lack of diversity in their genetic makeup. Escapement measures vary greatly in effectiveness, with popular filter systems being among the least effective.⁸⁰

By the same token, regulators should exercise great caution with respect to facilities that are located on private waters, but have egress to public waters. If such facilities are allowed at all, then the most truly effective escapement measures must be required. Ohio's program is

⁷⁶ 17 Ill. Adm.Code 870.30(b)(1).

⁷⁷ Ohio Admin. Code 1501:31-39-01.

⁷⁸ See http://www.glu.org/english/information/newsletters/15_2-spring-2001/Aquaculture.html. For example, a net pen escape in Lake Ontario released more rainbow trout than the province stocks in a year (about 360,000 yearlings escaped after a 1997 storm event versus about 225,900 rainbow trout stocked in the same year).

⁷⁹ See Phase I Report at 14 (listing Kentucky, Louisiana, Missouri, New York, Wisconsin and Quebec as prohibiting open water aquaculture).

⁸⁰ Phase I Report at 14, referencing a description of filter systems to block black carp as akin to "guarding against an amphibious landing by planting poison ivy." The cited source also described an incident in which tilapia escaped from a supposedly "secure" facility when fish snatched by an osprey spewed its fry into the Mississippi River.

among the most thorough in this respect, specifying that two levels of escapement protection must be used for designated species cultivated in designated areas.⁸¹

In addition, aquaculture should not be allowed anywhere in a flood plain unless it is contained in a totally enclosed system. Two states – Illinois and Minnesota – effectively implement a restriction of this nature, allowing construction of an aquaculture facility in a flood plain only with the express consent of the state’s natural resources agency.⁸²

3. *Include Fee Fishing:*
Regulate Pay Lakes that Pose Risks Similar to Aquaculture Facilities

As described in the Phase I Report, fee fishing (also known as pay lakes or fish-out ponds), where customers pay to fish from stocked private ponds, are generally under-regulated; they are not regulated as aquaculture if the stocked fish are not raised on site.⁸³ However, these facilities could easily pose the same risks as aquaculture facilities if they are located near or with egress to public waters. Catfish are an extremely popular choice for stocking fee fishing facilities, posing the risk that operators may attempt to use Asian carp as a control measure.

To prevent this from occurring, fee fishing facilities should be subject to the same application and inspection requirements as aquaculture facilities. Tennessee is the only state studied to have taken substantive steps in this direction by requiring that catch-out facilities be constructed in such a way as to prevent fish ingress and egress and by identifying a list of approved species for such operations.⁸⁴

III. CONSTRAINTS ON PROGRAMS

In the U.S. and Canadian federal systems, states and provinces are limited in their powers where the federal government has regulatory power in the same area. For this reason, some of the measures recommended above might be precluded in Canada, where the federal government has exercised its preemptive power.

In Canada, the situation is fairly straightforward: provinces are expressly prevented under the Fisheries Act from regulating fish importation. Any laws restricting importation must be put in place at the federal level and, so far, that has not happened. Beyond importation, the provinces are free to regulate intra-state activities such as aquaculture. Moreover, they can also regulate possession and transportation, as Ontario and Quebec have done to some extent, which is arguably indistinguishable as a practical matter from regulating importation.⁸⁵

⁸¹ Ohio Admin. Code 1501:31-39-01.

⁸² 17 Ill. Adm. Code 870.30(b)(1)(100 year flood plain restriction); Minn. Stat. 17.4984 (25 year flood plain restriction).

⁸³ Phase I Report at 18.

⁸⁴ Tenn. Comp. R. & Regs. R. 1660-1-26-03. Two additional states – Missouri and New York – require a nominal license (*i.e.*, devoid of criteria for issuance). 3 CSR 10-9.640; NY Env'tl. Cons. Law 11-1913.

⁸⁵ Phase I Report at 3-4.

In the U.S., the system is more complex. No federal statute directly limits state authority to regulate fish commerce in the same way as the Fisheries Act does in Canada. Nonetheless, the U.S. Constitution embodies two general constraints on the powers of states.

A. COMMERCE CLAUSE

The first and most important of these constraints is the Commerce Clause of the U.S. Constitution, which states that “the power to regulate commerce with foreign nations, and among the several states” is vested in Congress.⁸⁶ This provision has long been interpreted to effectively constrain states from regulating such commerce by means of a doctrine known as the “dormant Commerce Clause.”

For most purposes, states may not prohibit import of an item or attach unreasonably strict requirements to such imports. However, an exception to the doctrine allows states to impose prohibitions where they are proven necessary to protect critical local concerns such as public health or the environment, and that cannot be accomplished any other reasonable way. Specifically, the U.S. Supreme Court has held that “where a state statute . . . discriminates against interstate commerce either on its face or in practical effect, the State must show both that the statute serves a legitimate local purpose, and that this purpose cannot be served as well by available nondiscriminatory means.”⁸⁷

Fortunately, the U.S. Supreme Court has ruled that a live fish import ban met this standard and is thus permissible under the Commerce Clause. In Maine v. Taylor,⁸⁸ the Court upheld the State of Maine’s ban on the importation of live baitfish, imposed to prevent the accidental importation of both parasites and non-native species inadvertently commingled with the baitfish. The Court’s decision upheld a determination by the trial court below, based on the testimony of three scientific experts, that the commingled non-native species posed “significant threats” to Maine’s “unique and fragile fisheries,” and that “there was no satisfactory way to inspect shipments of live baitfish for parasites or commingled species” – namely, that there was no less discriminatory means of preventing the spread of the non-native species or parasites to local waters.⁸⁹

However, it is not necessarily a safe assumption that all bans on live fish importation are now constitutionally permissible following Maine v. Taylor. Courts interpreting that decision have pointed to the Supreme Court’s language regarding the finding of the court below that the testimony of the state’s scientists was credible.⁹⁰ The U.S. Supreme Court, like all appellate

⁸⁶ U.S. Constitution Article I, Section 8.

⁸⁷ Hughes v. Oklahoma, 441 U.S. 322 (1979).

⁸⁸ 477 U.S. 131 (1986)

⁸⁹ 131 U.S. at 141.

⁹⁰ In Connecticut ex rel Blumenthal v. Crotty, 346 F.3d 84, 98 (2003), the court emphasized the uniqueness of the factual circumstances in Maine v. Taylor, observing, “In most instances, . . . in light of the narrowed scope of State conservation interests deemed legitimate for purposes of defeating a constitutional challenge, discriminatory conservation laws are not sustainable when there are non-discriminatory alternatives by which conservation goals may be achieved.” The Court noted that “[t]he record evidence in Maine v. Taylor showed that, unlike the standardized statistical sampling and inspection techniques for detecting parasites in salmonids (salmon and trout),

courts, is generally required to defer on issues of witness credibility to the trial court, which actually heard the testimony. Thus, Maine v. Taylor should not be understood as a universally-applicable legal finding that bans in the nature of Maine's are constitutional, but rather as a strong indication that, if factual evidence is presented which demonstrates that an import ban is necessary, then the ban is likely to be found constitutional.⁹¹

A state seeking to impose a ban in the nature of Maine's, or to otherwise severely restrict live fish imports, should be prepared in advance to present evidence as strong as that presented in Maine v. Taylor to demonstrate both that the banned species pose a significant threat to valued local ecosystems, and that there is no other way to prevent the threat than imposing the restrictions. Specifically in the case of a baitfish ban, the evidence should demonstrate, as Maine's did, it is not feasible to thoroughly inspect every shipment to ensure that there are no unwanted species present. A summary of that evidence should be included in the legislative findings accompanying a statute or in a preamble to a new regulation.

B. SUPREMACY CLAUSE

The Supremacy Clause to the U.S. Constitution states that federal law “shall be the supreme law of the land.”⁹² This means that when a federal law conflicts with a state law, it automatically supercedes it. In addition, when the federal government has regulated extensively in a particular area, states are often barred from regulating in that area even if state laws in question do not directly conflict with a federal law. When the federal government regulates extensively so as to bar state laws on the same subject, it is said to have “occupied the field.”⁹³

Currently, the U.S. federal government has generally not occupied the field of exotic aquatic species regulation because the Lacey Act is limited. However, the Supremacy Clause could become an issue if the U.S. government began to regulate extensively in this area. Indeed, it is conceivable that a Supremacy Clause challenge could be raised based on the proposed NAISA screening guidelines to the extent that states are making screening decisions regarding species not currently in trade, which are the only species that the NAISA guidelines would apply to.

no such scientifically accepted procedures of this sort were available for baitfish.” Id. Similarly, in Industrial Maintenance Service, Inc. v. Moore, 677 F. Supp. 436 (1987), the court emphasized the fact that the Supreme Court had grounded its decision on deference to factfinding by the district court, quoting the Court's statement in Maine v. Taylor that “[a]lthough the proffered justification for any local discrimination against interstate commerce must be subjected to the strictest scrutiny, the empirical component of that scrutiny, like any other form of factfinding, is the basic responsibility of district courts.” Id., 677 F.Supp. at 440 (citations omitted).

⁹¹ It is unclear even whether a court would necessarily follow Maine v. Taylor if the issue were not the inadvertent commingling of undesirable exotic species together with the commercially valuable species, but rather a danger posed by the commercially valuable exotic species itself, since much of the evidence below focused on the inability to find the undesirable species through inspection. A trial court looking to distinguish the case might well find, correctly or not, that there are less discriminatory means of preventing the spread of exotic species when they are not co-mingled, such as requiring that they be held in totally closed environments.

⁹² U.S. Constitution, Article IV.

⁹³ California v. ARC America, Inc., 490 U.S. 93 (1989).

This potential problem, however, is easy to fix legislatively. Any new federal exotic aquatic species legislation should contain a provision stating that states are not barred from regulating more stringently in that area. The approach would be similar to the Clean Water Act, which expressly states that its terms shall not be construed to bar states from adopting their standards so long as those standards are not less stringent than the federal Act.⁹⁴

IV. PROPOSED AND MODEL LEGISLATION

Several legislative proposals have been made regarding regulation of aquatic exotic species. One is the NAISA language on screening criteria. Two others are more comprehensive model legislation, one intended for use by states and provinces and the other more generally applicable.

None of these models incorporates every aspect of the program components recommended above. However, they provide a good starting point for developing language to put some of these components into effect.

A. The NAISA Screening Process

Section 202 of NAISA mandates development of a screening process for proposals to import new species.⁹⁵ The scope of the proposal is narrow, as it applies only to “organisms in trade” – defined as “an organism of a species or subspecies that has a documented history of being commercially imported into the United States in the period beginning on January 1, 1990, and ending on January 1, 2002.”⁹⁶ Thus, it would have no impact on the exotic fish currently of greatest concern, Asian carp, which have been in trade for many years.

The relevant provisions require the Invasive Species Council,⁹⁷ within three years of enactment, to issue a set of guidelines for screening importation proposals to be used by either USFWS or other agencies with importation jurisdiction. In so doing, the Council is to consider: “(A) the likelihood of the spread of organisms by human or natural means; (b) organisms that may occur in association with the organism planned for importation, including pathogens, parasites, and free-living organisms; and (C) regional differences in probability of invasion and associated impacts.”⁹⁸

This legislation is strongly grounded in the precautionary principle. Where information is insufficient to determine the risk that a particular species proposes, agencies are required to ban importation except for research purposes.⁹⁹

⁹⁴ Clean Water Act § 510, 33 U.S.C. § 1370.

⁹⁵ As of the date of this Report, the fate of NAISA is still unclear. Although most expect that it will be passed in some form, it has been subject to heavy opposition from the “property rights” lobby.

⁹⁶ Proposed HR 1080, Section 3(21). Since considerable time has elapsed since the legislation was drafted, any version ultimately passed may well amend the end date on this definitional time frame.

⁹⁷ The Council was established by Executive Order 13112.

⁹⁸ Proposed HR 1080, Section 202(b)(3).

⁹⁹ *Id.* Section 202(e)(2).

However, Section 202 has a number of significant weaknesses, in addition to the fact it only applies to organisms not in trade. First, it does not provide for any independent scientific review of application of the guidelines, along the lines of the Illinois Aquaculture Advisory Committee. It also does not require public comment. Thus, there is a danger that even strongly written guidelines may be interpreted and applied with a bias toward importation, particularly faced with pressure from the aquaculture or pet industry lobby. Second, the guidance provided for crafting the guidelines is exceedingly vague, and does not provide a framework for developing the type of risk analysis criteria that are essential to importation decisions.¹⁰⁰ Third, the language gives agencies considerable leeway to allow importation even of species that it finds pose a risk. An agency “may” prohibit importation if it determines “that the organism has a high or moderate probability of undesirable impacts.”¹⁰¹ The agency in such case also has the option to “restrict” the importation, but no guidance is provided as to the level of restriction required.

Some leaders in the fight against invasive species privately acknowledge the weaknesses of NAISA. However, they consider it to be the best bill that Congress is likely to pass at this point. The Mississippi Interstate Cooperative Resource Association (“MICRA”), an organization of 28 state natural resource departments, has proposed legislation very similar to NAISA Section 202.

B. MODEL LEGISLATION

1. The Great Lakes Panel on Aquatic Nuisance Species Proposal

In 1997, the Great Lakes Panel on Aquatic Nuisance Species, funded by the Michigan Department of Environmental Quality, commenced a project to develop model state legislation for the prevention and control of aquatic nuisance species. The multi-step project involved the Great Lakes Commission staff’s research of existing law, symposia and consultation with interested parties. The result was the 1999 report entitled “Legislation, Regulation and Policy for the Prevention and Control of Nonindigenous Aquatic Nuisance Species: Model Guidance for Great Lakes Jurisdictions.” A copy of the report is attached as Appendix 5.

The Panel’s report consists mostly of the model legislation that it proposes, interspersed with recommendations associated with it. The model incorporates many, but not all, of the program features recommended in Section II above. Large portions of the model are identical to Minnesota’s program. The following are the model’s more salient features, and how they compare with the features recommended in this report:

- *Listing classifications.* The model calls for a four-tiered listing system mostly identical to Minnesota’s, with one key distinction. Minnesota’s provision governing dark gray list (“regulated”) species only requires that such species be permitted for release into the wild. Possession, propagation, and sale of such species does not

¹⁰⁰ See Section II.A.7, *supra*.

¹⁰¹ Proposed HR 1080, Section 202(d)(2).

otherwise require a permit.¹⁰² However, under the model, these activities require a “beneficial use” permit for regulated species, which may attach such conditions as the agency deems proper.¹⁰³ This is more in accordance with the recommendation in this Phase II Report that agencies have wide discretion to condition import permits.¹⁰⁴

- *Interjurisdictional cooperation:* The model provides that agencies “shall seek cooperation” with other governmental authorities and regional entities. It does not, however, reflect the more formal cooperative approach outlined in the ICES document.¹⁰⁵
- *Prohibited species regulation:* The model sets forth the basic framework contained in Minnesota’s regulations with respect to black-listed (“prohibited”) species.¹⁰⁶ Minnesota’s extensive application and qualification requirements for handlers of these species, contained in the state’s regulations, though are not part of the model.
- *Decision criteria:* The model sets forth basic criteria for classifying species on one of the four lists.¹⁰⁷ The criteria are a sound starting point, although far less detailed and comprehensive in their approach than the risk protocols described in this report.¹⁰⁸ They include “the likelihood that aquatic nuisance species populations, upon introduction, will survive, become naturalized and spread to other waters of the state/province,” but do not specify how risk is to be measured and weighed.
- *Decisionmaking body:* The model recommends establishment of an aquaculture advisory committee along the lines of that in Illinois.¹⁰⁹
- *Aquaculture:* The model expressly requires an inspection of aquaculture facilities to determine the risk of escapement prior to issuance of a permit, although it does not require further inspections after a permit is issued.¹¹⁰ It does not prohibit cage and pen aquaculture, but also does not allow non-indigenous species to be cultivated in waters with egress to public waters.¹¹¹
- *Aquarium pet trade.* The drafters of the Panel report take the position that the permitting of pet trade operators is inappropriate because “[t]he numerous businesses involved in the aquarium trade would subject this industry to a particularly cumbersome permit process.” The model therefore requires only an inspection

¹⁰² Minn. R. 6216.0265(1).

¹⁰³ Panel report, Section 10.

¹⁰⁴ See Section II.A.4, *supra*.

¹⁰⁵ *Id.* Section II.A.9

¹⁰⁶ Panel report, Section 5.

¹⁰⁷ *Id.* Section 4(c).

¹⁰⁸ See Section II.A.7, *supra*. The model references the OTA report as a source of more detailed decisionmaking criteria.

¹⁰⁹ Panel report, Section 5(a).

¹¹⁰ *Id.* Section 10(b).

¹¹¹ *Id.*

program for aquarium trade operations although prohibited species are prohibited in the pet trade as well.¹¹²

- *Enforcement.* The model calls on its implementers to establish strong, mandatory penalty provisions and provides an excellent framework for doing so. However, the actual recommended penalty amounts (up to \$1,000) are somewhat inadequate as applied to significant industrial violations.

Overall, the model provides a good starting point for any jurisdiction looking to strengthen its program. Its drafters acknowledge that implementation of the model would vary in different jurisdictions because “[l]egislative/regulatory regimes, policy practices, management approaches, societal preferences and ecological characteristics differ from one jurisdiction to the next in the Great Lakes region,” and “[c]ertain elements in the model guidance may therefore be relevant for some jurisdictions and inappropriate for others.” The model, according to the drafters, should therefore be considered a “tool kit” rather than an “all or nothing proposition.”¹¹³

2. Emory University Model

In 1995, two Emory University professors crafted a “Model Prevention of Harm by Non-Indigenous Species Act.” A copy of the model Act is attached as Appendix 6.

This document, although it is styled as model legislation, is drafted more as a set of general recommendations than specific model language. The bulk of the document is devoted to subjects that are useful but beyond the scope of this report, such as educational programs and after-the-fact responses to biological invasions. However, on several points, it provides guidance that could be very useful to a drafter desiring to implement some of the principles outlined in this report. Part III of the document sets forth a list of screening criteria which, although not as stringent as some of the protocols identified in this report,¹¹⁴ provide a useful framework. Part V describes a proposal that is interesting, if not entirely workable on a practical level, in that it pegs import permitting fees to the danger posed by the species proposed for import and to the complexity of the analysis required to evaluate a permit. Additionally, the model recommends that all import permit applications include a proposal for controlling organisms that escape, together with an estimate of the cost of implementing that proposal. An amount equal to that cost is then to be placed in escrow as a condition of the permit. Again, this proposal is probably not entirely workable or advisable as a practical matter – bonding and insurance are much more plausible means of guaranteeing funds for an escape response – but it embodies the potentially useful suggestion that the amount of financial security could be pegged in some instances to an estimate of what the actual costs would likely be.

¹¹² Id.

¹¹³ Id. at 2.

¹¹⁴ See Section II.A.7, supra.

V. IMPROVING PROGRAMS AT THE REGULATORY LEVEL

In evaluating the potential for reforming the exotic species laws in any jurisdiction, one key question is whether the proposed reforms require statutory changes, or whether they could be enacted through regulation. The latter is generally easier to accomplish as a practical matter in most cases. However, the ability to codify reforms administratively depends on the breadth of the authorizing statute.

A review of the jurisdictions studied in this Phase II Report reveals that they vary substantially with respect to the amount of regulatory leeway afforded by the authorizing statutes. Some jurisdictions' statutes contain only very general language allowing the agency to regulate all aspects of fish and wildlife management, while other states' statutes define fairly specific requirements.

A. FEDERAL STATUTORY AUTHORITY

1. United States

The Lacey Act provision establishing the injurious species ban provides as follows:

The importation into the United States . . . of the mongoose of the species *Herpestes auropunctatus*; of the species of so-called "flying foxes" or fruit bats of the genus *Pteropus*; of the zebra mussel of the species *Dreissena polymorpha*; and such other species of wild mammals, wild birds, fish (including mollusks and crustacea), amphibians, reptiles, brown tree snakes, or the offspring or eggs of any of the foregoing which the Secretary of the Interior may prescribe by regulation to be injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States, is hereby prohibited.¹¹⁵

A long-standing controversial question is whether this language would allow the USFWS to establish a white list, or whether it authorizes only the black-listed system currently in effect. An argument that the provision allows a white list is that, because the USFWS is given broad authority to identify injurious species, the agency has latitude to find that *all* non-indigenous species are injurious until proven otherwise. On the other hand, opponents could argue that because the Lacey Act provides its own black list, then the intention of Congress was that USFWS add to that black list, not create a white list system in its place.

Notwithstanding this controversy, the USFWS attempted twice in the 1970s to create a white list system through regulation, and failed both times. What defeated the proposals was not so much the issue of legal authority as the negative response received from the affected industries, including aquaculture and the pet trade, at that time – namely 30 years ago. The agency's initial proposal in December, 1973¹¹⁶ elicited more than 4,300 comments, almost all of

¹¹⁵ 18 U.S.C. § 42.

¹¹⁶ 38 Fed. Reg. 34970 (December 20, 1973).

them negative.¹¹⁷ A modified proposal in 1975 containing a much longer white list received a similar negative response.¹¹⁸ Finally, in 1977, the USFWS shifted tactics and proposed a much longer black list instead of a white list system.¹¹⁹ That proposal failed as well, with no major constituency weighing in favoring it.¹²⁰ It is clear that an attempt to impose substantial new limits through the USFWS regulatory process was challenging in the past, but the nature and extent of the problem, and the public and political opinion, has evolved significantly over the last 30 years.

2. Canada

The Fisheries Act in Canada provides very broad authority for federal regulation, including regulation of importation of live species into the provinces.¹²¹ Accordingly, almost all of Canadian federal law governing live aquatic species, to the extent it exists, is regulatory. Notwithstanding this broad regulatory authority, as discussed in the Phase I Report, Canada has yet to promulgate regulations concerning importation of exotic aquatic species.¹²²

B. STATE STATUTORY AUTHORITY

The following section presents a survey of the amount of leeway for regulatory reform afforded by the various relevant state and provincial statutes.¹²³ For the most part, although state programs vary widely, most of the programs leave at least some room, if not always wide latitude, for reform through regulation.

- *Arkansas: Very broad authority.* Arkansas Constitutional Amendment 35 provides broad, undefined authority to the agency for regulation of wildlife and issuance of licenses.
- *Illinois: Broad authority.* The authorizing statute provides: “The Department shall have the authority to promulgate necessary rules and regulations, Illinois Administrative Procedure Act [5 ILCS 100/1-1 et seq.], regulating the possession, transportation, and shipping of aquatic life not indigenous to the State of Illinois.”¹²⁴ The exemption for the pet trade is defined by regulation, not statute.¹²⁵

¹¹⁷ 40 Fed. Reg. 7935, 7936 (February 24, 1975). The agency reported that, among other things, it received a petition with more than 13,000 signatures that had been obtained based on the false premise that the proposal would federally regulate possession of domestic cats and dogs, a perennial favorite argument of exotic species law opponents.

¹¹⁸ *Id.*

¹¹⁹ 42 Fed. Reg. 12972 (March 7, 1977).

¹²⁰ OTA at 111.

¹²¹ R.S.C. 1985, c. F-14, s. 43.

¹²² Phase I Report, at 4, Canada federal summary.

¹²³ As noted above and in Phase I, the Canadian provinces have no authority to regulate importation of live species.

¹²⁴ 515 ILCS 5/10-100.

¹²⁵ 17 Ill. Adm. Code Part 870.

- *Indiana: Moderate authority.* The authorizing statute provides: “The department shall protect and properly manage the fish and wildlife resources of Indiana.”¹²⁶ Other sections, however, provide specific direction on certain topics, including introductions into the wild,¹²⁷ bait dealer licenses,¹²⁸ and live fish sales licenses.¹²⁹ The pet trade exemption is by regulation.¹³⁰
- *Iowa: Moderate authority.* The authorizing statute requires that a clean list be established and prohibits importation of non-indigenous fish without a permit, but it does not establish permitting criteria beyond stating that a permit may be granted after an investigation as necessary to determine whether “introduction will be beneficial or detrimental to the native wildlife and the people of the state.”¹³¹ Pursuant to this grant of authority, the agency placed grass carp on the white list. Also established by statute are very low penalties (\$25),¹³² a baitfish dirty list,¹³³ and a bait dealer’s license requirement.¹³⁴
- *Kentucky: Broad authority.* The statute authorizes fish and game regulations governing “buying, selling, and transporting” of fish species, and the agency may promulgate any other regulations “reasonably necessary to carry out the purposes of this chapter.”¹³⁵ The statute also provides that the agency “shall by administrative regulation identify species of wildlife potentially damaging to native ecosystems and shall prohibit the transporting or holding of these wildlife.”¹³⁶ This provision has been interpreted to apply to authorize regulation of aquaculture although the current aquaculture regulations are quite weak. The pet trade exemption is by regulation.¹³⁷
- *Louisiana: Limited authority.* An appearance of broad authority in the Louisiana statute may be illusory because the agency’s regulatory authority is limited by other provisions. A general provision states that the agency “has full power and control. . . over all fish, whether salt or fresh water fish,”¹³⁸ and another provision states that the agency “shall have the authority to regulate or prohibit, by rule in accordance with the Administrative Procedure Act, the possession, sale, or transportation of any fish into Louisiana.”¹³⁹ However, other statutory provisions contain sweeping exemptions from such regulations for catfish and crawfish aquaculture and a limited dirty list.¹⁴⁰

¹²⁶ Burns Ind. Code Ann. 14-22-1-1

¹²⁷ *Id.* 14-22-22-2.

¹²⁸ *Id.* 14-22-16-1.

¹²⁹ *Id.* 14-22-0-7.

¹³⁰ IAC 9-10-15, 9-6-1).

¹³¹ Iowa Code 48IA.142, 48IA.47.

¹³² *Id.* 48IA.32.

¹³³ *Id.* 48IA.145.

¹³⁴ *Id.* 48IA.144.

¹³⁵ KRS 150.025.

¹³⁶ *Id.* 150.280.

¹³⁷ 310 KAR 1:122.

¹³⁸ La. R.S. 56:6.

¹³⁹ *Id.* 56.319.1

¹⁴⁰ *Id.* 56:415, 56:412. Under La.R.S. 56:579.1, the agency has somewhat more latitude to restrict “harmful” mariculture species.

They also effectively take away agency authority to deny aquaculture licenses, stating that an aquaculture certificate “shall” be issued upon filing of a proper application, which need only describe the location and type of business.

- *Michigan: Moderate authority.* The agency is given authority to restrict imports of any species that would “endanger the public fishery resource in this state.”¹⁴¹ However, this provision by its terms allows the agency to consider only threats to fisheries, rather than non-fishery ecosystems, in making its import permitting determinations. There are statutory requirements governing aquaculture, which are fairly strong,¹⁴² and a penalty structure, which is not.¹⁴³ The limited pet trade exemption is statutory.¹⁴⁴
- *Minnesota: Moderate authority.* The basic framework of Minnesota’s extensive program is defined in the statute, which is then supplemented in detail by regulation.¹⁴⁵ The statute lays out the basic parameters of the four-list system, and the regulations flesh out details such as the information required to be submitted in permit applications and criteria for decisionmaking. Aquaculture is expressly governed by statute,¹⁴⁶ as are penalties.¹⁴⁷
- *Mississippi: Moderate authority.* The Mississippi statute contains a catch-all provision giving the agency general power over matters pertaining to fish,¹⁴⁸ and there is a regulatory dirty list promulgated without reference to any particular statutory authority.¹⁴⁹ It also contains fairly specific provisions governing aquaculture, including inspection and escapement prevention requirements.¹⁵⁰ However, another statutory provision exempts catfish aquaculture entirely from these requirements.¹⁵¹ The pet trade exemption is by regulation.¹⁵² Penalties are defined by statute.¹⁵³
- *Missouri: Very Broad authority.* The Missouri Constitution sets forth broad general authority to regulate fish and wildlife, and all regulation pertaining to exotic species is pursuant to this authority.¹⁵⁴
- *New York: Limited authority.* New York’s statutory provision governing exotic species importation is similar to the Lacey Act in that the agency is authorized to

¹⁴¹ MCLS 324.45906.

¹⁴² *Id.* 286.877.

¹⁴³ *Id.* 286.883.

¹⁴⁴ *Id.* 286.876.

¹⁴⁵ Minn. Stat. 84D.12, 84D.04.

¹⁴⁶ *Id.* 17.4984.

¹⁴⁷ *Id.* 84D.13.

¹⁴⁸ Miss. Code Ann 49-1-43

¹⁴⁹ CMSR 19-000-001

¹⁵⁰ Miss. Code Ann. 79-22-9

¹⁵¹ *Id.* 79-22-23

¹⁵² CMSR 25-000-011.

¹⁵³ Miss. Code. Ann. 79-22-20.

¹⁵⁴ Missouri Constitution, Article IV, Section 40.

require an importation permit only if it finds that the non-native species “would present a danger to the health or welfare of the people of the state, an individual resident or indigenous fish or wildlife population.”¹⁵⁵ Thus, the provision arguably authorizes only a dirty list and not a clean list. Similarly, with respect to aquaculture, the statute is both specific and narrow, leaving little room for regulatory expansion.¹⁵⁶ Penalties are also established by statute.¹⁵⁷

- *Ohio: Broad authority.* The agency has general authority to regulate the sale, possession, and transportation of live species.¹⁵⁸ A separate provision lays out stringent and detailed requirements governing aquaculture and provides an additional broad grant of authority to regulate in this area.¹⁵⁹
- *Ontario: Broad authority (to the extent allowed under the Fisheries Act).* Ontario’s Fish and Wildlife Conservation Act of 1997 gives the agency broad authority to regulate aquaculture and introductions into the wild.¹⁶⁰
- *Pennsylvania: Moderate authority.* The Pennsylvania Fish and Boat Code grants the agency authority for regulating possession, transportation, and import to ensure protection and management of “any species of fish” or for the “preservation and management of fish habitat.”¹⁶¹ The provisions governing aquaculture are somewhat more specific in setting forth a framework for regulation (*i.e.*, the approved list of aquaculture species, made inapplicable to closed system aquaculture).¹⁶² Penalties are defined by statute.¹⁶³
- *Quebec: Broad authority (to the extent allowed under the Fisheries Act).* The agency is given general authority to regulate aquaculture and specify the species that may be cultivated and to regulate stocking.¹⁶⁴
- *Tennessee: Moderate authority.* The agency is given general power to promulgate regulations governing wildlife and to issue permits and promulgate regulations governing aquaculture.¹⁶⁵ However, an additional provision establishes the exotic species restrictions in more detail, dividing wildlife species into essentially five classes for purposes of regulation (with Class V as the dirty list).¹⁶⁶
- *Wisconsin: Limited authority.* The Wisconsin statute governing importation provides authority only to regulate imports intended for specific identified purposes

¹⁵⁵ New York ECL 11-0511.

¹⁵⁶ *Id.* 11-1191 (regulating farm fish ponds); 13-0316 (regulating marine hatcheries).

¹⁵⁷ *Id.* 71-4001, 4003.

¹⁵⁸ ORC Ann. 1531.08

¹⁵⁹ *Id.* 1533.63.2.

¹⁶⁰ S.O. 1997, c. 41, s. 46, 47.

¹⁶¹ 30 Pa. C.S. 2102 and 2904

¹⁶² 3 Pa.C.S. 4219.

¹⁶³ 3 Pa.C.S. 4223.

¹⁶⁴ R.S.Q., c. C-61.1, s. 73.

¹⁶⁵ TCA 70-1-206, 70-4-401, 70-2-221. The latter section sets the fee for aquaculture permits at \$25, a low number that might impede efforts to improve the program with monies generated through fee collection.

¹⁶⁶ *Id.* 70-4-403.

(introduction into the wild, bait, or aquaculture).¹⁶⁷ The statute governing aquaculture is also very specific in its terms, leaving less room for regulatory discretion, although it is fairly stringent.¹⁶⁸ The exemption for “ornamental fish” is regulatory.¹⁶⁹

VI. CONCLUSION

This Phase II Report presents both ideal approaches for regulating live fish commerce and related constraints. Not every recommendation contained in this report will be appropriate for every jurisdiction because of the significant differences in local issues and legal frameworks. Accordingly, this report should be viewed as establishing a set of benchmarks that governments may use to evaluate their programs and strive for improvements. Even if every recommended benchmark cannot be met, the logic underlying the benchmarks can still inform regulatory decisionmaking.

Even if jurisdictions may differ in their approach to implementing statutory and regulatory reform governing live fish commerce, there should be basic agreement that some improvements are needed across the board in order to prevent disasters like the spread of Asian carp from happening again. Jurisdictions seeking to implement reforms along the lines recommended here should be able to work together to develop a truly comprehensive approach to limiting that danger.

¹⁶⁷ Wis. Stat. 29.735

¹⁶⁸ Id. 95.60 and 29.773.

¹⁶⁹ Wis. Adm. Code ATCP 11.58