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Hitchhikers' Guide to the Ballast Water Management Convention: An Analysis of Legal Mechanisms to Address the Issue of Alien Invasive Species

Briony MacPhee[1]

1. INTRODUCTION

Alien species, or exotic species, organisms that have been introduced either intentionally or accidentally into ecosystems not their own, can pose a serious threat to the environment. If the natural predators of an introduced species are not present to control the population or inhibit its growth, the introduced species thrives in its new environment, which in turn has the potential to wipe out indigenous species and to severely alter or disrupt the ecosystem. When this type of negative or adverse impact on its new home occurs, the newcomer is characterized as "invasive."

Alien invasive species are often introduced into new areas through the release of water from the holds of ships—water taken on earlier as ballast in the species' native habitats. These organisms are able to survive until a ship reaches its destination and discharges its ballast water. This discharge of introduced species into foreign waters can result in environmental degradation, human health problems, and, quite often, economic disaster for the region.

Although the issue of alien invasive species is addressed in many legal documents, none deals comprehensively with the prevention, control, and eradication of alien invasive species. At this juncture, however, a comprehensive document may prove to be ineffective, since it would be quite broad and thus very difficult to implement. It may therefore be much more useful to tackle the issue more narrowly, vis à vis the modes of transportation of the invasive species.

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This article will analyze the existing legal documents and guidelines that have been established to address the issue of alien invasive species as a whole. It will pay special attention to the effectiveness, or lack thereof, of existing legal mechanisms. It will then look specifically at the introduction of aquatic alien species by the release of ships' ballast water, and examine the current legal framework that addresses the issue, concentrating on the Convention on Ballast Water Management produced by the International Maritime Organization. Finally, it will discuss the benefits and disadvantages of the newly developed International Convention for the Control and Management of Ships' Ballast Water and Sediments, and consider whether or not the United States should sign and ratify it.

1. BACKGROUND: ALIEN SPECIES VERSUS ALIEN INVASIVE SPECIES

The distinction between alien species and alien *invasive* species needs to be recognized. Alien or non-indigenous species are organisms that do not occur naturally in a particular locale or ecosystem.[2] Alien species are not necessarily destructive or harmful to the environment. In fact, they can be quite beneficial, especially to humans. For example, non-indigenous species make up the vast majority of the world's agricultural and livestock industry as David Pimental has pointed out.[3] It is estimated that more than 50,000 species of plants and animals have been introduced into the United States alone,[4] Practically the entire American diet is comprised of intentionally introduced alien species.

Although there are thus clear benefits to be derived from the introduction of non-native species into new environments, there is an identifiable group of alien species with the potential to be quite injurious. These become "invasive"—a negative influence upon the ecosystem into which they are introduced. An alien invasive species[5] is "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human

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[2] SPECIES INVASIONS: INSIGHTS INTO ECOLOGY, EVOLUTION AND BIOGEOGRAPHY 2 (Dov F. Sax, John J. Stachowicz, & Steven D. Gaines, eds., 2005) (hereinafter Sax et al.).

[3] Crops such as potatoes, wheat, rye, rice, corn, barley, soybeans, peanuts, and coconuts were spread throughout the world to feed its growing population. Similarly, animals such as cows, chickens, ducks, horses, sheep, goats, and buffalo were dispersed to provide the world its meat, milk and egg products. BIOLOGICAL INVASIONS: ECONOMIC AND ENVIRONMENTAL COSTS OF ALIEN PLANT, ANIMAL, AND MICROBE SPECIES 3–4 (David Pimentel, ed., 2002).

[4] *Id*. at 7.

[5] These species are also referred to as pests, noxious species, harmful species, biological pollutants, aggressive species, invasive species, and invasive alien species. This article refers to them as alien invasive species. U.N. Environment Programme (UNEP), Subsidiary Body on Scientific, Technical and Technological Advice, *Invasive Alien Species: Status, Impacts and Trends of Alien Species That Threaten Ecosystems, Habitats and Species*, U.N. doc. UNEP/CBD/SBSTTA/6/INF/11 (2001), at 5 (hereinafter UNEP/CBD/SBSTTA/6/INF/11).

health."[6] As Pimentel concluded, ". . . the impact of invasive species is second only to that of human population growth and associated activities as a cause of the loss of biodiversity throughout the world."[7] In addition to their destructive impact on the environment, alien invasive species can pose dire consequences for endangered species. "Approximately 35–46 percent of the species on the endangered species list are there partly or entirely because of the effects of invasive species."[8] Pimentel writes that in the United States, alien invasive species are responsible for an almost 50 percent decline in the native species listed as endangered.[9]

When introduced into a new habitat, these species often find that their natural predators are absent, and consequently they thrive. Alien species "can compete with native biota; displace them; predate upon them; parasitize and transmit or cause diseases; reduce growth and survival rates, cause decline, extirpation of populations, or extinction. . . ."[10] Alien invasive species can thus negatively and completely alter their new ecosystem.[11] Moreover, they can have severely detrimental financial impacts. The cost of preventing, controlling and eradicating these organisms amounts to billions of dollars worldwide. [12] It is estimated that the United States spends $100 million to $400 million annually to combat the spread of just one alien invasive species, the zebra mussel.[13] As evidenced by the data, alien invasive species can have catastrophic effects, threatening biodiversity's delicate fabric and causing grave economic harm.

"Few species reside solely in the location where they originated . . . species expand, contract and shift their geographical distributions."[14] The process of natural dispersion should occur slowly, over many years.[15] However, due to globalization, technological advances, and the growth of trade, travel, and tourism, goods and people now move at a far faster rate. Mountains, deserts, and oceans, impenetrable natural barriers in the not too distant past, are now traversed by plane within a matter of hours. Plants, animals, and

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[6] Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 8, 1999).
[7] Pimentel, *supra* note 3, at 4.
[8] Susan Jewell, *A Unified Defense Against Invasive Species*, 25 ENDANGERED SPECIES BULLETIN 1, 2 (2000).
[9] Pimentel, *supra* note 3, at 4.
[10] UNEP/CBD/SBSTTA/6/INF/11, supra note 5, at 7.
[11] *Id* at 5.
[12] Sarah McGee, *Proposals for Ballast Water Regulation: Biosecurity in an Insecure World*, 2001 COLO. J. INT'L ENVTL. L. & POL'Y 141, 146 (2001).
[13] *Ballast Water Management: New International Standards and National Invasive Species Act Reauthorization: Joint Hearing Before the Subcomm. on Coast Guard and Maritime Transportation and Water Resources and Environment of the House Comm. on Transportation and Infrastructure*, 108th Cong. (2004), "Background" information *available at* http://www.house.gov/transportation/cgmt/03-25-04/03-25-04memo.html (last visited March 1, 2006). (hereinafter "Joint Hearing").
[14] Sax, *supra* note 2, at 1.
[15] McGee, *supra* note 12, at 141.

other organisms are moved into new habitats with a speed and efficiency that thousands of years of evolution may not have facilitated:

> The problem of invasive species is largely due to the expanded trade and traffic volume over the last few decades . . . quantitative data show the rate of bio-invasions is continuing to increase at an alarming rate, in many cases exponentially . . . volumes of seaborne trade continue overall to increase and the problem may not yet have reached its peak.[16]

The anthropogenic effect of human activity exacerbates the problem by facilitating the relocation of species. It is humans that provide the major impetus for the introduction of alien species; other factors are mere byproducts of human behavior. Alien species have been moved around for hundreds of years, and in fact it was quite fashionable to possess and consume these rare and exotic species.[17] It has only been over the last two decades or so that the negative effects of alien invasive species have been placed on the radar screens of the international community.

2. BALLAST WATER AS A MODE OF INTRODUCTION

The introduction of alien invasive species can be either intentional or unintentional. Intentional introduction is usually meant to benefit humankind. When species are introduced for economic reasons, such as to provide food, the objective is for the introduction to be contained and limited.[18] Species can also be intentionally introduced to achieve a certain goal,[19] such as biocontrol (pest management).[20] However, they can potentially escape human control and become invasive. "This problem is exacerbated by the fact that it is not always possible to accurately predict which introduced species will become invasive, and when it will do so."[21]

The other mode of introduction is unintentional, via "hitchhiking."[22] Species inadvertently hitch a ride on airplanes, in ships and trucks, in packing

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[16] International Maritime Organization, Ballast Water Management, International Convention for the Control and Management of Ships' Ballast Water and Sediments adopted in 2004, *available at* http://www.imo.org/home.asp?flash=false (last visited Feb. 28, 2006).

[17] For example, watermelons are native to South Africa, specifically the Kalahari region. Adapted from the British, owning and maintaining a beautiful and well-manicured lawn was a status symbol. Perhaps the most popular and widely sought, Kentucky Blue Grass, is an alien species, despite its name. Moreover, apple pie, something thought to be very "American" could not have been made had alien species not been introduced. "There were no apples for filling, no lemons for juice, no cinnamon or cloves for spice, no sugar (other than maple) for sweetening, no wheat for flour, and no butter for pastry." JOHN LELAND, ALIENS IN THE BACKYARD: PLANT AND ANIMAL IMPORTS INTO AMERICA 1; 11; 18 (2005).

[18] McGee, *supra* note 12, at 144.

[19] *Id*. at 144.

[20] UNEP/CBD/SBSTTA/6/INF/11, *supra* note 5, at 5.

[21] *Id*. at 5.

[22] McGee, *supra* note 12, at 144.

materials and shipping containers, and generally speaking in any form of present-day transportation. They move clandestinely to a new location, and it is not until they begin to degrade their new ecosystems that their presence is detected.

The ballast water of ships is the principal pathway of unintentional introduction for aquatic alien invasive species. "Invasive alien species are common and highly significant agents of change in coastal and marine environments . . . [the] increase of shipping worldwide has made it the most important pathway of spread of invasive alien species. . . ."[23] The increased efficiency and technological advances of the shipping industry, coupled with the fact that the oceans make up a great deal of the Earth's surface, make examination of the introduction of aquatic alien invasive species via the ballast water of ships critical to the maintenance of the marine environment.

Ballast "is any material used to weight and/or balance an object."[24] Ballast water, then, is water carried on board a ship to provide it with balance and stability. A ship takes on ballast water when its cargo hold is empty. It discharges the ballast water when it loads the hold with cargo. Historically, solid ballast was carried aboard ships in the form of rocks or sand.[25] Using water as ballast, however, is much easier and economically efficient.[26] The intake of ballast water is now the principal method of balancing ships.[27] "Ballast water is absolutely essential to the safe and efficient operation of modern shipping, providing balance and stability to un-laden ships."[28]

Ballast water exchange poses a problem in regard to alien invasive species because it transfers organisms from one location to another. After a ship unloads its cargo, it will usually take on ballast water at port.[29] This water is fairly shallow, and the likelihood of organisms being collected is quite great.[30] When the ship reaches its destination to take on new cargo, it generally discharges its ballast water at port as well. Although mostly small organisms will enter the ballast tanks, the larvae and eggs of larger organisms may enter as well, and if conditions are favorable, these can all survive until they reach their destined new environment, with the potential of becoming invasive.[31]

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[23] UNEP/CBD/SBSTTA/6/INF/11, *supra* note 5, at 7.

[24] Global Ballast Water Management Programme (GloBallast), The Problem, *available at* http://globallast.imo.org/index.asp?page=problem.htm&menu=true (last visited Feb. 25, 2006) (hereinafter "The Problem").

[25] *Id*.

[26] *Id*.

[27] *Id*.

[28] *Id*.

[29] *Id*.

[30] *Id*.

[31] *Id*.

2.1 The Importance of Regulating Ballast Water

Since water comprises approximately 70 percent of Earth's surface,[32] regulating ballast water exchange may have quite positive effects on marine conservation. Tackling a major pathway of alien invasive introduction at its source may elicit tangible change. The International Maritime Organization (IMO), a specialized agency under UN auspices, has been entrusted with "improving maritime safety and preventing pollution from ships."[33] The IMO calls the introduction of invasive aquatic species one of the four greatest threats to the Earth's oceans.[34]

The shipping industry is the principal mechanism for transporting goods internationally, overseeing the trans-shipment of an estimated 80 percent of the world's commodities.[35] In the United States alone, over 2,500 commercial ships enter and leave American ports under the supervision of the U.S. Coast Guard every day.[36] This prolific traffic across the world's waterways increases the potential for the coincidental transfer of unwanted alien species. Shipping vessels transport approximately ten billion tons of ballast water globally per year.[37] Each vessel contains anywhere from "several hundred litres to more than 100,000 tons, depending on the size and purpose of the vessel."[38] Moreover, it is estimated that 3,000 species are transferred to new environments in the ballast water of ships per day.[39] Due to improvements in the technology of modern day shipping, more organisms survive the shorter journeys of newer vessels.

Some of the most injurious alien invasive species in the United States have been introduced in the ballast water of ships. Organisms such as the zebra mussel and the Chinese mitten crab were introduced into the Great Lakes through this pathway and have dramatically and negatively altered the lakes' ecosystems.[40] The Chinese mitten crab burrows into the banks of lakes

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[32] Alan Ward, Weighing Earth's Water from Space, NASA (2003), *available at* http://earthobservatory.nasa.gov/Study/WeighingWater/ (last visited March 1, 2006).

[33] International Maritime Organization, *available at* http://www.imo.org/home.asp?flash=false (last visited Feb. 28, 2005).

[34] The other three are land-based sources of marine pollution, overexploitation of living marine resources, and physical alteration/destruction of marine habitat. The Problem, *supra* note 24.

[35] *Id*.

[36] The United States Coast Guard, Average Day—Coast Guard, *available at* http://www.uscg.mil/hq/g-cp/comrel/factfile/index.htm (last visited March 1, 2006).

[37] International Maritime Organization, Ballast Water Management, *Focus Paper—Alien Invaders—Putting a Stop to the Ballast Water Hitch-Hikers*, (Aug. 25, 1999), *available at* http://www.imo.org/home.asp, (last visited March 1, 2006).

[38] *Id*.

[39] *Id*.

[40] International Maritime Organization, Ballast Water Management, Ten of the Most Unwanted, *available at* http://globallast.imo.org/poster4_english.pdf (last visited Feb. 25, 2006) (hereinafter "Ten of the Most Unwanted").

and rivers, causing erosion.[41] These crabs have even caused extinctions of native species in the lakes during periods of their outbreaks.[42]

Zebra mussels have been especially harmful to the Great Lakes. They were initially introduced in the mid 1980s through the ballast water of a vessel from Europe.[43] Since the Great Lakes lack fish whose jaws are strong enough to break its tough shell, this species has been able to thrive without any natural predators to inhibit its spread.[44] Zebra mussels have altered the lakes' ecosystems by reducing the number of phytoplankton, the basis of the food chain.[45] They also attach themselves to the Lakes' indigenous mussels, preventing them from reproducing.[46] Apart from their devastating effects on the environment, zebra mussels destroy the solid infrastructure of the lakes. They adhere to and damage the hulls of ships and other structures.[47] They clog water intake pipes and irrigation ditches.[48] The devastation of the Great Lakes is only one example of the injurious effect organisms can have on foreign ecosystems. But the introduction of zebra mussels into the Great Lakes has had at least one positive effect. This organism has served as an impetus for U.S. action in regard to alien invasive species. Since the destruction occurred in America's backyard, it has pushed the United States to take decisive action to create a domestic infrastructure and legal framework to tackle the issue:

> Zebra mussels represent one of the most important biological invasions into North America, having profoundly affected the science of Invasion Biology, public perception, and policy . . . invasions were not a large component of the popular environmental movement, and no serious legislation existed . . . for these reasons the zebra mussel is often described as the 'poster child' of biological invasions.[49]

Before this article turns to the importance of domestic action, however, it will first examine the overarching international legal mechanisms that address the issue of alien invasive species.

3. INTERNATIONAL LEGAL MECHANISMS

To date, there is no legal document that addresses the issue of alien invasive species comprehensively and collectively. Although a dozen or so disparate

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[41] *Id*.

[42] *Id*.

[43] It is thought that they were transferred from either the Caspian or the Black Sea. U.S. Geological Survey, Nonindigenous Aquatic Species, Zebra Mussels, *Zebra Mussel Fact Sheet*, *available at* http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5, (last visited Feb. 27, 2006).

[44] *Id*.

[45] McGee, *supra* note 12, at 145.

[46] *Id*. at 145.

[47] Ten of the Most Unwanted, *supra* note 40.

[48] *Id*.

[49] U. S. Geological Survey, *supra* note 43.

documents and conventions[50] refer to the importance of preventing and controlling the introduction of alien invasive species, they do not provide the international community with comprehensive enforcement mechanisms. At the same time, many of these documents or conventions are binding upon their signatories, so it is their duty to adhere to their provisions to the best of their ability. There is thus a fundamental conundrum created by the gap between the obligation to comply with these conventions, and the existence of effective and viable mechanisms for doing so.

3.1 The Convention on Biological Diversity

Probably the most important international instrument to address the threat of invasive species is the Convention on Biological Diversity (CBD). This Convention stresses conservation, citing "the intrinsic value of biological diversity," premised upon the inherent and aesthetic value of biodiversity.[51] Furthermore, the preamble states that the preservation of biodiversity is a "common concern of mankind."[52] The language evidences the fact that nature is not merely a commodity to be exploited, but rather a resource to be protected.

Article 8 of the CBD requires that "each contracting party shall, as far as possible and appropriate," maintain the biodiversity of species within their natural habitat (*in situ* conservation).[53] Preventing the introduction of alien invasive species is among the directives listed in Article 8. Article 8(h) specifically calls upon the parties to "prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species."[54]

Although the Convention on Biological Diversity is a binding instrument, and therefore contracting parties must adhere to its requirements, it does not provide any mechanism for compliance with or enforcement of Article 8(h). Indeed, the Article's vague requirement that parties need only act "as far as possible and appropriate" affords states the option to do very little to address invasive issues. The language utilized implies that the contracting parties are exempt from its requirements if they do not have the ability to enforce the article's provisions. They are also exempt if it should not be "appropriate" for them to do so, which appears quite open-ended as to its meaning. Thus the contracting parties may be enforcing this provision ineffectively, or not at all, and still be within the realm of "as far as possible and appropriate." Of course all contracting parties, especially developing nations, do not possess the same degree of wealth or advances in technology. The Convention seeks to address

[50] McGee, *supra* note 12, at 154.
[51] Convention on Biological Diversity, December 29, 1993, 1760 U. N. T. S. 143, 31 I. L.M 818.
[52] *Id*. at Preamble.
[53] *Id*. at art. 8.
[54] *Id*. at art. 8(h).

this issue by urging wealthier parties to provide financial assistance to nations who require support to effectuate implementation of the Convention.[55]

The Convention on Biological Diversity deals with the matter of biodiversity as a whole, which is so expansive that Article 8(h) may well be marginalized. The inadequacy of this Convention, in terms of preventing the worldwide dissemination of alien invasive species, is evident. An important and positive aspect of inclusion of the issue of alien invasive species in the CBD, however, is that it was at least placed on the radar screen of the international community.

The contracting parties to the Convention on Biological Diversity have recognized the limitations of Article 8(h) and have entrusted its Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA) to create guiding principles in order to implement the provisions of Article 8(h) effectively. Interim guiding principles were developed at the fifth meeting of the SBSTTA, held in January/February, 2000 (Recommendation V/4).[56] Later the same year, the Conference of the Parties (COP) urged the international community to apply these interim principles.[57] In March 2001, at its sixth meeting, the SBSTTA finalized its formal guidelines: Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species That Threaten Ecosystems, Habitats or Species (Recommendation VI/4).[58] The guiding principles consist of two annexes, the first of which sets out fifteen principles for controlling, eradicating, and preventing the spread of alien species, and the second of which provides a process for the conduct of case studies on alien species. The guidelines were subsequently endorsed in April 2002 by the sixth meeting of the COP.[59]

The SBSTTA created these guiding principles in an effort to provide the international community with a set of comprehensive and pragmatic guidelines to follow with respect to the issue of alien invasive species.[60] They invoke such commonly known principles in the realm of international environmental law as the duty to cooperate, the precautionary approach, and the concept of trans-boundary environmental injury. The principles are for the most part educational in nature, highlighting the harmful aspects of alien invasive species and the important factors that a State needs to consider in

[55] *Id*. at Article 8(m).

[56] Convention on Biological Diversity, SBSTTA 5, *Recommendation V/4: Alien Species: Guiding Principles for the Prevention, Introduction and Mitigation of Impacts* (Jan/Feb 2000).

[57] Convention on Biological Diversity, Conference of the Parties 5, *Decision V/8: Alien Species That Threaten Ecosystems, Habitats or Species* (May 2000). 11/25/2005.

[58] Convention on Biological Diversity, SBSTTA 6, *Recommendation VI/4: Alien Species That Threaten Ecosystems, Habitats or Species* (March 2001).

[59] Convention on Biological Diversity, Conference of the Parties 6, *Decision VI/23: Alien Species That Threaten Ecosystems, Habitats or Species* (April 2002).

[60] Their terminology: invasive alien species.

addressing the problem. Overall, these principles provide a blueprint for State action, focusing on defining the parameters of the problem, preventing its further expansion by either intentional or unintentional introductions, and mitigating its impacts.[61]

These guidelines, while something concrete for states to aspire to, are, at the end of the day still non-binding. Moreover, they do not provide a substantive standard to guide policy.

3.2 The United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS) provides the most comprehensive and significant document to date dealing with the prevention of marine pollution, among other matters concerning the world's oceans. UNCLOS refers to the prevention of alien invasive species under Part XII, Protection and Preservation of the Marine Environment.[62] Article 196 (1) provides that "States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from . . . the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto."[63] The Article thus invokes the concept of *all means necessary*, but does not include a description of what this entails, how the stated objectives should be achieved, or how adherence to these principles might be affected.

Furthermore, Article 196(1) includes the provision that states must "reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control."[64] The fusion of these completely different duties and concepts appears to suggest that the prevention of marine alien species does not warrant its own Article. Rather, it is merged with another duty—to control pollution from the use of technologies. Myron H. Nordquist, in commenting on Article 196(1), concluded that,

> "Article 196 is an amalgam of two concepts which do not stand on an equal footing: the duty of States to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control; and the duty of States to maintain the natural state of the marine environment."[65]

Nordquist states that each duty deserves its own independent status.[66] The question is, why were they not separated? From examining the legislative

[61] "Recommendation VI/4, supra note 57.

[62] United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 (hereinafter UNCLOS).

[63] *Id*. at art. 196(1).

[64] *Id*. at art. 196(1).

[65] Recognition should be given to his volume editors: Shabtai Rosenne and Alexander Yankov, and his assistant editor, Neal. R. Grandy. United Nations Convention on the Law of the Sea: A Commentary, Volume IV—Articles 192 to 278, Final Act, Annex VI 73 (Myron H. Nordquist et al. eds.,1991).

[66] *Id*. at 74.

history of the Article, one notes that more substantive requirements were suggested—by Norway, for instance. In 1974 at the second session of the Conference, Norway suggested including, "States shall not undertake or permit activities which may cause significant and extensive changes in the natural state of the marine environment by the deliberate introduction thereinto or the transfer from one area to another thereof of species alien or new thereto. . . ."[67] This language appears to be stronger than the provision in place today, since it requires states to not permit or undertake activities that may transfer unwanted alien species. Moreover, Norway urged another provision providing for states to consult with one another and other international organizations where it was uncertain if an action may cause the transfer of these species before the conduct of such action.[68] Norway's recommendation was not adopted, and subsequent sessions would result in the removal of requirements under the Article until the final result of the language in place today was achieved—one Article addressing two very different forms of marine pollution.[69]

Article 196 does, however, specifically identify the introduction of alien invasive species as a form of pollution of the marine environment. Article 211, Pollution from Vessels, refers to the operational pollution caused by vessels,[70] and ballast water exchange is an operational feature of a functioning ship. Since vessels are the major pathway of alien species introduction, it would appear that this provision would or should fall under Article 211: Pollution from Vessels. However, it apparently does not. This is unfortunate.

In comparison to Article 196, the provisions under Article 211 contain far more comprehensive guidelines for the prevention of pollution by vessels, including the authorization for Coastal States to adopt laws within their Exclusive Economic Zone (EEZ) to facilitate enforcement.[71] The article also provides that States shall adopt laws for vessels flying their flags to prevent marine pollution.[72] Article 211 may have an important role to play in encouraging States to be more proactive in their efforts to forestall further pollution of the marine environment. However, by its non-inclusion under Article 211, the introduction of alien invasive species seems to fall somewhere below the level of critical international concern.

Probably the most efficient manner in which to control the pollution by alien invasive species under UNCLOS as it currently stands would be by looking to the enforcement measures of Articles 217, Enforcement by

[67] *Id*. at 74.
[68] *Id*. at 74.
[69] *Id*. at 74–76.
[70] Robin R. Churchill & Alan V. Lowe, THE LAW OF THE SEA 242 (3rd ed. 1999).
[71] UNCLOS *supra* note 61, at art. 211(5).
[72] *Id*. at art. 211(2).

Flag States, Article 218, Enforcement by Port States, and Article 220, Enforcement by Coastal States.[73] Regulation by the Flag State would probably be the most effective of the three. The problems associated with "flags of convenience" may, however, render this method of prevention useless or deficient.

The International Transport Workers' Federation, a coalition of trade unions allied with the International Confederation of Free Trade Unions,[74] defines "flags of convenience as follows: "where beneficial ownership and control of a vessel is found to lie elsewhere than in the country of the flag the vessel is flying, the vessel is considered as sailing under a flag of convenience."[75] Countries that engage in this practice do little or nothing to equip their vessels adequately, and turn a blind eye to their actions.[76] It would then be up to coastal states or port states to regulate this form of marine pollution, in addition to the many other forms of pollution they also have to address. For all these reasons, although this convention provides for a commitment to prevent the introduction of alien invasive species, it is nonetheless limited in its scope and application.

To sum up, the current international legal mechanisms for dealing with the issue of alien invasive species are underdeveloped and inadequate. Although the creation of the SBSTTA guiding principles should be commended, they remain inefficient and ineffective. UNCLOS is also limited in its application. In an effort to fill in the gap between compliance with inadequate international conventions and their implementation on the ground, some states have been particularly proactive in passing domestic legislation.

4. UNILATERAL STATE ACTION

The International Maritime Organization cites the United States, Canada, New Zealand, Australia, Israel and Chile, as well as individual states within the United States and many individual ports,[77] as being especially proactive in passing domestic legislation to tackle the issue of alien invasive species. These countries, U.S. States, and ports have recognized the importance and effectiveness of implementing a sound framework at the domestic level to

[73] *Id*. at art 217; 218; 220.

[74] International Transport Workers' Federation, About us, *available at* http://www.itfglobal.org/about-us/moreabout.cfm, (last visited March 3, 2006).

[75] International Transport Workers' Federation, What Are Flags of Convenience?, Flags of Convenience Campaign, *available at* http://www.itfglobal.org/flags-convenience/index.cfm, (last visited March 1, 2006).

[76] *Id*.

[77] These include Buenos Aires in Argentina, Scapa Flow in Scotland, and Vancouver in Canada. Global Ballast Water Management Programme (GloBallast), Legislation and Regulations, *available at* http://globallast.imo.org/index.asp?page=bwlegis.htm&menu=true (last visited Feb. 25, 2006).

address this issue. Although domestic legislation does have limitations, it is a very important tool in the application of international environmental law. The national programs and legislation implemented by certain of these countries—the United States, Australia, and Israel—will be discussed below.

4.1 The United States

The introduction of zebra mussels into the U.S. Great Lakes in the 1980s has served as a catalyst for domestic U.S action. The effects of the introduction of zebra mussels have been catastrophic, prompting the United States to establish domestic legislation, as well as to create specific organizations solely for the purpose of addressing alien invasive species.

The first domestic U.S. legislation enacted in response to this issue was the Nonindigenous Aquatic Nuisance Prevention and Control Act in 1990 (NANPCA).[78] "The 1990 Act established a program for preventing, researching, monitoring, and controlling infestations of non-indigenous aquatic species and required all vessels equipped with ballast water tanks entering the Great Lakes to undergo ballast water exchange."[79]

The Act was amended in 1996 to address the possible introduction of alien invasive species by the ballast water of ships in other U.S. waters (the National Invasive Species Act of 1996, or NISA).[80] The amended act would go a step further, requiring the U.S. Coast Guard to issue voluntary guidelines (to be made mandatory if necessary) to prevent the further introduction of invasive species. The voluntary guidelines did ultimately prove to be inadequate, and the regulations became mandatory[81] under 33 CFR (Code of Federal Regulations) 151.[82] Furthermore, new legislation has been considered over the past few years. However, as of the end of 2006, no final legislation has been adopted.[83]

The Coast Guard has also been extremely active and influential in regard to the introduction of marine alien species. Under the mandatory regulations of its Ballast Water Management Program (BWM), the Coast Guard may now impose civil penalties of up to $27,500 per day or bring Class C Felony charges for failure to submit the required information.[84] Furthermore, in January

[78] Joint hearing, *supra* note 13.

[79] *Id*.

[80] *Id*.

[81] The United States Coast Guard, Office of Operating and Environmental Standards, Ballast Water Management Program, *available at* http://www.uscg.mil/hq/gm/mso/bwm.htm (last visited Feb. 27, 2006) (hereinafter "Ballast Water Management Program").

[82] Vessels Carrying Oil, Noxious Liquid Substances, Garbage, Municipal or Commercial Waste, and Ballast Water, 151 C.F.R. §151.1500–151.2065 (2001).

[83] To amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, to establish vessel ballast water management requirements, and for other purposes, S. 363, 109th Cong. (1st Sess. Feb. 10, 2005).

[84] Ballast Water Management Program, *supra* note 81.

2004, the Coast Guard created the Shipboard Technology Evaluation Program (STEP).[85] STEP assists in the development of alternatives to ballast water exchange, such as ballast water treatment.[86] The goal for STEP is to develop alternative treatment methods that would reduce the number of organisms in ships' ballast water by 98 percent.[87]

In addition, the United States has established organizations whose mandate is to tackle the issue of invasive species. In 1999, President Clinton signed Executive Order 13112, which created the National Invasive Species Council, an inter-Departmental council entirely committed to coordinating and establishing federal programs to address this issue.[88] The National Invasive Species Council also created its own National Management Plan to deal with invasive species.[89] Although the United States is not yet a party to UNCLOS, and in contemplation of U.S. ratification, the United States Senate Foreign Relations Committee has proposed a declaration that the United States may require certain measures by any vessel that wishes to enter U.S. waters and that the United States has the right to enforce such measures.[90] This declaration seems to be directed toward prevention of further alien invasive species being introduced into U.S. waters.

4.2 Australia

The Australian Quarantine and Inspection Service (AQIS) is Australia's lead agency for ballast water management.[91] It has been actively working since the early 1990s to create a National System to address the issue of alien invasive species. Ballast Water Management Guidelines were passed in 1992.[92] In 2005, the Intergovernmental Agreement on a National System for the Prevention and Management of Pest Incursions was passed.[93] This agreement is binding on the entire Commonwealthand is the culmination of the work of the AQIS. In the interim between the 1992 Guidelines and the 2005 Agreement, the National

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[85] The United States Coast Guard, Office of Operating and Environmental Standards, Shipboard Technology Evaluation Program (STEP), *available at* http://www.uscg.mil/hq/gm/mso/step.htm, (last visited March 1, 2006).

[86] *Id*.

[87] Joint Hearing, *supra* note 13.

[88] The National Invasive Species Council, What Is the National Invasive Species Council? *available at* http://www.invasivespeciesinfo.gov/council/whatis.shtml (last visited Feb. 27, 2006).

[89] *Id*.

[90] Howard S. Schiffman, *U.S. Membership in UNCLOS: What Effects for the Marine Environment*, 11 ILSA J. INT'L & COMP. L. 477, 481 (2005).

[91] C. Hay, H.D. Tenis, *Mid-Ocean Ballast Water Exchange: Procedures, Effectiveness and Verification*, Cawthron Report No. 468, Cawthron Institute (1998).

[92] The International Association of Independent Tank Owners, Ballast Water Issues, Australia, *available at* http://www.intertanko.com/tankerfacts/environmental/ballast/australia.htm (last visited Feb. 28, 2006).

[93] Australian Government, Department of the Environment and Heritage, Introduced Marine Pests, *available at* http://www.deh.gov.au/coasts/imps/ (last visited at Feb. 28, 2006).

Introduced Marine Pests Coordination Group (NIMPCG), chaired by the Department of Agricultural Fisheries and Forestry, and the High Officials Working Group (HLG), established by the Natural Resource Management Ministerial Council, were created in 2001 and 2002, respectively.[94]

4.3 Israel

Probably the most substantial piece of Israeli legislation in regard to ballast water management to mitigate the prevention of aquatic alien species is Israel Notice to Mariners No. 4/96.[95] This legislation, dated April 19, 1996, was issued by the Israeli Administration of Shipping and Ports.[96] Under the legislation, ships must exchange ballast water in the open ocean.[97] If the vessels fail to do so, they will not be allowed to discharge their ballast water in Israeli ports. Furthermore, records must be kept of the ships' ballast water exchange, and this documentation must be submitted to the Israeli Ministry of Transport.[98]

4.4 Miscellaneous Technological Efforts

In addition to the regulations and programs mentioned above, which serve to provide increased protection to the domestic waters of the respective countries, unilateral action by various states has been extremely effective in the development of alternatives to ballast water exchange. Technology is a very important and useful tool in international environmental law, and efforts are being made to apply its capabilities to this issue. Although ballast water exchange is the most efficient and the safest manner in which to discharge a ship's ballast, it is not 100 percent effective.[99] Many countries have been studying alternatives to ballast water exchange, quite similar to the STEP program developed by the U.S. Coast Guard. These new methods include heat treatment, hydrocyclones, biodegradable chemicals, and electrochemical control.[100]

Australia has developed a heat treatment system, in which heated water is rerouted to the ballast tanks, with the intention of killing the organisms contained in the ballast water.[101] It is feared, however, that the heated water

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[94] *Id*.

[95] The International Association of Independent Tank Owners, Ballast Water Issues, Israel, *available at* http://www.intertanko.com/tankerfacts/environmental/ballast/israel.htm (last visited Feb. 28, 2006).

[96] *Id*.

[97] Hay, *supra* note 91.

[98] *Id*.

[99] Joint Hearing, *supra* note 13.

[100] The International Association of Independent Tank Owners, Ballast Water Issues, Ballast Water and Invasive Species, *available at* http://www.intertanko.com/tankerfacts/environmental/ballast/ballast.htm (last visited March 2, 2006).

[101] *Id*.

may damage the interior coatings of the tanks.[102] Norway and Canada are developing treatment by hydrocyclones—centrifugal separators, backed by UV treatment.[103] This process flushes out the sediments contained in the ballast tanks, and then the organisms are killed by the UV treatment.[104] The process is fairly expensive, however, costing an estimated $2.5 million for each vessel.[105] Germany is spearheading the development of the use of biodegradable chemicals, which would cost "approximately 50 litres of the chemical, costing US$150 . . . to treat 1,000 tonnes of ballast water."[106]

Finally, Japan is developing a process by which "low potential electric power is applied to ballast water flowing through porous graphite electrodes in order to kill any micro-organisms present."[107] While these are all innovative technologies, there are still concerns about the application of these various processes and their economic costs.

The passage of domestic legislation can be extremely useful for optimizing enforcement efforts. Domestic legislation provides an oversight mechanism to ensure that entities operating within the jurisdiction of a state are in compliance with the state's international commitments, and it serves as one way to harmonize the accomplishment of an international objective and its implementation on the ground. "In many cases, effective multilateral action to protect the environment is impossible, so the choice is not between unilateralism and multilateralism, but between unilateralism and inaction."[108]

4.5 Effects and Limitations of Unilateral State Action

There are, however, a number of limitations to domestic legislation. First, the passage of a multiplicity of disparate legislation by various countries may render the international process ineffective, and may ultimately be detrimental to the achievement of an international objective. Before the IMO established an international convention to regulate ballast water, the chairman of the IMO's Marine Environmental Protection Committee (MEPC),[109] Michael Julian, remarked:

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[102] *Id*.
[103] *Id*.
[104] *Id*.
[105] *Id*.
[106] *Id*.
[107] *Id*.
[108] Bodansky, Daniel. *What's so Bad about Unilateral Action to Protect the Environment?* 11 EUR. J. INT'L L. 339, 339 (2000).
[109] MPEC is the IMO's technical body that governs issues related to marine pollution. "International Maritime Organization."

> It is of great concern to both IMO and the global shipping industry that in the absence of an agreed single, uniform, international convention, some individual jurisdictions at the national, provincial and local level are proceeding with implementing their own regulatory regimes . . . a piece-meal, disjointed approach is counter-productive when dealing with a trans-boundary, global industry such as shipping. [110]

Due to the truly international nature of merchant shipping, it may be extremely difficult for vessels to adhere to the many different rules and regulations imposed by coastal and port states as the ships pass from jurisdiction to jurisdiction.[111] For instance, there is not a universally agreed upon requirement for the depth at which a vessel should discharge its ballast water. The United States has imposed a depth requirement of 2,000 meters, "Australian legislation has a depth requirement of 200 meters, and Israel's ballast water exchange requirement has no depth restriction."[112] Furthermore, these regulations may conflict, making it very difficult for a vessel to comply with all of them. It is imperative that the laws imposed by countries be uniform and consistent. This is exactly what the International Maritime Organization has just achieved with the adoption of an internationally binding document on the regulation of ballast water exchange for all countries that are signatories to it. The comprehensive, uniform, and integrated document created by the convention is the culmination of an international effort to mitigate, if not completely eradicate, the further introduction of alien invasive species into foreign waters.

5. LATEST DEVELOPMENTS IN REGULATING BALLAST WATER

Over the past decade, the IMO has been developing mechanisms to control the further introduction of alien invasive species into coastal and other waters and to regulate the species that have already been introduced. "The IMO is seen as the sole international maritime regulator . . . other countries taking matters into their own hands detracts from the international campaign."[113]

The issue of alien invasive species was first brought to the attention of the IMO's Marine Environment Protection Committee in 1988, when Canada

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[110] Beth Jinks, *International Cooperation Needed to Resolve Ballast Water Issues*, THE BUSINESS TIMES SINGAPORE, Nov. 5, 2001, at 1.

[111] "Legislation and Regulations."

[112] The International Convention for the Control and Management of Ships' Ballast Water and Sediments has a depth requirement of 200 meters. David Ciesla, *Developments in Vessel-Based Pollution: The International Maritime Organization's Ballast Water Convention and the European Union's Regulation to Phase Out Single-Hull Oil Tankers*, 2003 COLO. J. INT'L ENVTL. L. & POL'Y 107, 113 (2003).

[113] Jinks, *supra* note 110, at 1.

notified MEPC regarding the alien invasive species that had been deposited into the Great Lakes.[114] The first non-binding guidelines were adopted in 1991 by MEPC.[115] In 1992, at the United Nations Conference on Environment and Development (UNCED), in addition to the hard law document, the Convention on Biodiversity (discussed earlier), Agenda 21, a soft law document, emerged. Chapter 17.30 of Agenda 21 specifically called upon the IMO and other international bodies to address the issue of the introduction of alien invasive species.[116] In 1997, the organization adopted "Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens" by resolution A.868(20), that would replace the earlier guidelines.[117] But, none of these documents was binding, and, hence, due to their voluntary nature, countries did not have to comply with their provisions.

In 2002, at the World Summit on Sustainable Development (WSSD), the commitment to Agenda 21 was reaffirmed, and the IMO was called upon to finish a freestanding and binding ballast water convention.[118] At the International Conference on Ballast Water Management for Ships, held in London from 9–13 February 2004, the International Convention for the Control and Management of Ship's Ballast Water and Sediments was finalized and adopted.[119] Attendance at the conference was fairly substantial. Delegates from 74 states, one associate member, two intergovernmental organizations and 18 non-governmental organizations were present.[120] Not only states, but also NGOs, were able to voice their opinions while the Convention was drafted.[121]

5.1 The International Convention for the Control and Management of Ship's Ballast Water and Sediments

The International Convention for the Control and Management of Ship's Ballast Water and Sediments is the latest achievement of the international

[114] The International Maritime Organization, *Ballast Water Management Convention* (2005) (hereinafter "Ballast Water Management Convention").

[115] The guidelines were finalized and adopted by the IMO in 1993, Regulation A.774(18). *Id*.

[116] MEPC's 1991 guidelines were adopted as an Assembly resolution in 1993. Global Ballast Water Management Programme (GloBallast), International Response, *available at* http://globallast.imo.org/index.asp?page=UNCED.htm (last visited Feb. 25, 2006).

[117] *Id*.

[118] Ballast Water Management Convention, *supra* note 114.

[119] *Id*.

[120] Diplomatic Conference on Ballast Water Management For Ships, *DIPCON Delegation Report* (Feb. 9–13, 2004), available at http://www.uscg.mil/hq/g-m/mso/images/DipConsu.doc (last visited March 4, 2006) (hereinafter "DIPCON Delegation Report").

[121] When drafting an IMO convention, all 165 IMO members are invited to attend. In addition, invitations are sent to all members of the United Nations, the 50 NGOs that have consultative status with the organization are allowed to attend, as well as are the 13 intergovernmental organizations that have cooperation agreements with the IMO. The international community has the potential to be truly represented when drafting these agreements. International Maritime Organization, Legal, Conventions, *available at* http://www.imo.org/home.asp?topic_id=161 (last visited March 4, 2006).

community in its drive to create a multilateral, binding document to regulate ballast water, with the objective of minimizing, and the ultimate goal of eradicating, the introduction of marine alien invasive species.

The Convention is comprised of 22 articles, 1 annex which contains detailed regulations, and 2 appendices.[122] It will enter into force 12 months after 30 nations that represent greater than 35 percent of the world's shipping tonnage have ratified it.[123] As of March 2006, there are six Contracting Parties that represent 0.62% of the world's shipping tonnage.[124] They are: Maldives, Saint Kitts and Nevis, Spain, Nigeria, Tuvalu, and the Syrian Arab Republic.[125] The IMO website declares that in July of 2005, Argentina, Australia, Brazil, Finland, and the Netherlands had signed but had not ratified the Convention.[126]

The Ballast Water Convention addresses the issue by first creating a regimen for the Contracting Parties to adhere to and follow: a Ballast Water Sediments Management Plan and a Ballast Water Management Standard. It then requires the Contracting Parties to demonstrate their compliance with the regimen by producing and maintaining a Ballast Water Record Book and a Ballast Water Management Certificate. The Annex describes requirements and regulations under the Ballast Water Management and Standard. The Appendices contain an example of the Certificate and the Ballast Water Management Book.

The language of the preamble indicates that this Convention was written with preservation of the environment in mind. It highlights and commends the international action taken to date, as well as the unilateral action taken by different countries. It also makes it very clear that the purpose of the Convention is to regulate and prevent the introduction of marine alien invasive species, and that proper management of ships' ballast water is an appropriate and viable method by which to do so. The preamble states the Convention's objective, as "... desiring to continue the development of safer and more effective Ballast Water Management options that will result in continued prevention, minimization and ultimate elimination of the transfer of Harmful Aquatic Organisms and Pathogens."[127] The document is very much an environmental treaty, but it also provides guidelines and regulations that ships must follow to adhere to the provisions of the Convention. These standards are comprehensive, produce uniformity, and articulate clear goals.

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[122] Ballast Water Management Convention, *supra* note 114.

[123] *Id*. at art. 18.

[124] International Maritime Organization, Summary of Status of Conventions, *available at* http://www.imo.org/home.asp?flash=false (last visited March 1, 2006).

[125] International Maritime Organization, Status of Conventions by Country, *available at* http://www.imo.org/includes/blastDataOnly.asp/data_id%3D13368/status.xls (last visited March 1, 2006).

[126] At this point, there might be more countries that have signed the Convention but the IMO does not make this information readily available. International Convention for the Control and Management of Ships' Ballast Water and Sediments adopted in 2004, *supra* note 16.

[127] Ballast Water Management Convention, *supra* note 114, at Preamble.

Article 2, General Obligations, reaffirms the preamble's commitment to the environment, stating that the parties to the Convention must "give full and complete effect to the provisions of this Convention and the Annex" to prevent and eventually eradicate aquatic alien species. This Article sets the tone of the entire document. Furthermore, it encourages states, working solely or with other states, to take more stringent measures than provided for in the Convention.[128]

The Convention applies to the Flag Ships of the Contracting Party, as well as to ships that "operate under the authority of a Party."[129] The latter refers to those vessels that are operating within the territorial waters of a state and are therefore subject to its laws. As highlighted before under UNCLOS, the role of flag ships may be very important, if the states whose control they operate under are proactive in ensuring that their respective vessels are in compliance with the provisions. Since this Convention applies to the Flag Ships of a Party, the other parties to the Convention know whether the flag ships are violating one or more of the provisions. Thus, a country is targeted, providing the other members with recourse for such violations. However, this may also prove to be a problem due to the issue with "flags of convenience" previously discussed. At the same time, such targeting can serve to be a useful tool. According to the Convention, the port state has the right to prevent ships flying the flag of notorious countries from entering their ports.[130] States that are operating vessels under convenient flags would feel the burden of this as more and more countries decline to use their ships to transport goods. Thus, the Convention can help achieve passive conformity as an increasing number of countries are forced to have their ships abide by the regulations for fear of financial losses. Having the Convention apply to those states under whose jurisdiction the ship operates can also be useful, in that this provision would require countries that may not even be signatories to the document to meet its requirements. This may achieve universal compliance without the need to have countries actually sign onto the document.

The Convention also provides for an inter-state compliance and monitoring system. The Convention requires all ships to maintain on board a Ballast Water Record Book and a Ballast Water Management Certificate.[131] In addition, the parties must pass national legislation to implement, and programs that promote, the ballast water management plan laid out in the Convention.[132] This includes providing adequate receptacle facilities so that if the ballast tanks of ships are cleaned or repaired, the appropriate facilities are in place

[128] *Id*. at art. 2(3).
[129] *Id*. at art. 3(1).
[130] *Id*. at art. 10(2).
[131] *Id*. at art. 9.
[132] *Id*. at art. 4(2).

so that the remnants of sediments and water can be disposed of properly.[133] The inter-state compliance and monitoring system notifies other parties to the Convention if a state does not have the proper facilities for ballast tank cleaning or repair. Furthermore, if a ship is in violation of any of the provisions of the Convention, but is able to leave the port of a state successfully, that state may warn the ship's next port of call of the violation.[134] This interstate complaint system ensures that parties are informed of others that are not adhering to the Convention's directives, providing, in essence, a watchdog list of violators.

In addition to being a binding instrument, the Convention's other principally important feature is that it indicates what action may be taken if a party is in violation of its provisions. If a Party's ship is in violation, sanctions may be imposed against that Party, and, if necessary, criminal proceedings may be brought.[135] The Convention declares that the sanctions should be adequately severe in nature so that future violators are deterred.[136] If a ship does not produce the appropriate ballast water certificate or is otherwise violating the Convention, or if there is reason to believe that the record book is not a clear indication of actual ballast exchange practices, parties are allowed to "take steps" to ensure that the ship does not discharge its ballast at port.[137] These steps may include warning or detaining the ship, or barring it from entering a state's port.[138]

The Convention calls for the peaceful settlement of disputes, as provided for in Article 33 of the UN Charter.[139] This not only includes negotiation, enquiry, mediation, conciliation, arbitration and judicial settlement, but also the use of regional arrangements or other peaceful means of the Parties' choice.[140] This Convention however, takes into consideration the fact that it is regulating the shipping industry, and it is unfair and injurious to the industry if ships are not allowed to carry out their tasks efficiently and expeditiously. Thus Article 12 states that if ships are unduly delayed they will be compensated.[141]

Finally, the Convention contains many references to cooperation, and the dissemination and sharing of information, as well as the improvement of modern technology. Article 13 calls upon parties to aid other parties that request assistance in implementing the ballast water provisions. This includes training, making technology available, and initiating joint research and development programs.[142] Parties are also called upon to transfer technology to these

[133] *Id*. at art. 5(1).
[134] *Id*. at art. 11(3).
[135] *Id*. at art. 8(1).
[136] *Id*. at art. 8(3).
[137] *Id*. at art. 9(3).
[138] *Id*. at art. 10(2).
[139] U.N. Charter art. 33.
[140] Ballast Water Management Convention, *supra* note 114, at Article 15.
[141] *Id*. at art. 12.
[142] *Id*. at art. 13(1).

parties as new methods are developed.[143] Lastly, the Convention recognizes the importance and success of regional cooperation, and calls upon parties that are located in similar geographic locales to work together, since they have a vested and collective interest in the prevention of marine species being introduced into their specific ecosystems.[144]

The regulations contained in the Annex describe in great detail the ballast water standards, the different dates of compliance, and appropriate ballast exchange and management procedures. Additionally, they provide for ongoing review of standards in acknowledgement of likely technical improvements in the future.[145] By calling upon the parties to meet a certain requirement for dealing with and disposing of organisms that remain in the tanks after ballast exchange, the Regulations are, in effect, providing for the eventual phase out of ballast water exchange, as the technology surrounding the current methods of ballast water exchange would not meet the requirements set forth in the regulations.[146] Therefore, countries are compelled to research and implement more efficient methods of ballast water removal. Some important aspects of the regulations provide that these standards must be implemented in all vessels constructed after 2009.[147] Vessels built after 2009 have until 2014 to 2016 to implement the provisions of the Convention, depending on the size of the vessel.[148]

Regulation B4 also requires that ballast water exchange take place at a distance of 200 nautical miles from shore.[149] This greatly minimizes the chance of aquatic invasive species being introduced into a new locale. The fixed dates create a timeframe for compliance, with, clearly, the ultimate objective being the implementation of technologies for the complete elimination of invasive alien species. States have clear goals to reach.

5.2 Assessment of the Convention

The Ballast Water Convention is the most comprehensive instrument to date that deals with alien invasive species through a principal method of introduction: via the ballast water of ships. Although it is not a comprehensive approach in the sense that it addresses every mode of introduction of any form of alien invasive species, it is still one of the most important steps taken thus far to regulate the further introduction and dispersal of aquatic alien invasive species through the ballast water of ships.

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[143] *Id*. at art. 13(2).
[144] *Id*. at art. 13(3).
[145] *Id*. at Annex: Section B, D & E.
[146] Joint Hearing, *supra* note 13.
[147] Ballast Water Management Convention, *supra* note 114, at Regulation B3.
[148] *Id*. at Regulation B3.
[149] The Regulation also states that vessels may not exchange ballast water any closer than 50 nautical miles from shore. *Id*. at Regulation B4.

Probably the most important aspect of the Convention is that it is legally binding on its parties. Moreover, the establishment of an international Convention ensures stability, consistency, clarity and uniformity. The Convention bridges the gaps that exist in piecemeal domestic legislation, and ensures that there is not a conflict between the respective requirements of the States. Furthermore, by setting standards, the Convention can assure parties that other countries are meeting at least the threshold of compliance, and that all parties can only work up from there.

Additionally, to further the Convention's effectiveness, the GloBallast Program has been created as a joint initiative of the International Maritime Organization, the United Nations Development Programme (UNDP), the Global Environmental Facility (GEF), and member governments. The Program's mandate is to assist and educate developing countries with implementing the Convention's provisions, and devising better methods of ballast water management. With a budget of $10.2 million, GloBallast has the potential to achieve concrete results. This program is yet another example of international cooperation and the determination of the international community to work together to achieve the Convention's objectives.[150]

The Conference of the Parties and the SBSTTA of the Convention on Biodiversity have endorsed the Ballast Water Convention, and have urged the signatories to the CBD to ratify it as well. The 6th Conference of the Parties in April 2002 urged the IMO to complete the binding document, and called upon governments to ensure its full implementation.[151] At its 9th meeting in November 2003, the SBSTTA recommended that governments ratify the Convention when it is adopted and open for signature.[152]

Of course, the Convention is not a perfect instrument. First and foremost, technology has not caught up with the objectives laid out in the Convention.[153] While on the one hand this encourages states to develop new and improved methods of ballast water removal, on the other it depends upon the eventual development of a technology that achieves this standard. If an effective method of removal is not efficiently and economically achieved, then many states would be in violation of the Convention. The fact that the Convention contains a provision to continuously assess the developments of parties may mitigate this occurrence, but reliance on the development of new technologies may lead to the ineffectiveness of the Convention if such new technologies never come to fruition.

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[150] Information contained in this paragraph paraphrased from, Global Ballast Water Management Programme (GloBallast), The GloBallast Programme, *available at* http://globallast.imo.org/index.asp?page=gef_interw_project.htm&menu=true (last visited March 1, 2006).

[151] Convention on Biological Diversity. Conference of the Parties 7, *Decision VII/13: Alien Species That Threaten Ecosystems, Habitats or Species* (February 2004).

[152] Convention on Biological Diversity. SBSTTA 9, *Recommendation IX/15: Alien Species That Threaten Ecosystems, Habitats or Species* (November 2003).

[153] Joint Hearing, *supra* note 13.

Furthermore, some contend that the measures adopted by the Convention are not stringent enough to be protective.[154] In addition, the fixed dates are set very far in advance, and parties have a decade or more to achieve the ballast water standards. If the rate of transfer of aquatic invasive species continues to increase exponentially, then the problem may be too far gone by the time these dates arrive to ameliorate it. The enforcement of the ballast water book and certificate might also be difficult if the flag states are not ensuring the compliance of their vessels. Port states will not have the time or resources to board every vessel to check whether or not its certificate and book are adequate. Parties may also be passive when it comes to notifying other parties about violations or lodging complaints. Since a great portion of this Convention relies on the cooperation and monitoring of the Parties, this may render the Convention useless. At this juncture, the Convention is not in force, so much of this assessment is speculation. However, this problem needs to be addressed now; the international community cannot wait much longer as the problem continues to worsen.

6. SHOULD THE UNITED STATES RATIFY THE CONVENTION?

Although the United States has been fairly proactive in tackling the issue of alien invasive species through its own domestic legislation, it would behoove it to ratify the Ballast Water Convention. The United States actively participated in the negotiations surrounding the Convention, and much of its input was included in the document. The U.S. suggestions that have been incorporated into the document include: (i) the sovereign right of a Party to enforce more stringent measures than are provided for in the document, (ii) fixed rather than compliance dates, (iii) the eventual phase out of ballast water exchange, and (iv) the requirement that the exchange of ballast water cannot take place less than 50 nautical miles from shore.[155] The United States, however, was not entirely satisfied with the measures ultimately implemented since it considered that they should have been more stringent. The United States was also concerned that the language of the document in regard to the passage of domestic legislature and programs included "with due regard to its particular condition and capabilities."[156] This seemed to denote the idea of differentiated responsibilities of the parties.

Although the United States does have some criticisms of the Convention, by ratifying it the United States could ensure that this critical document of international cooperation will be one step closer to its implementation. Since the United States is one of the world's principal shipping industries, its

[154] *Id*.
[155] DIPCON Delegation Report, *supra* note 120.
[156] *Id*.

ratification will aid in the document's entrance into force. Thus the United States can be assured that the other parties are at least meeting a certain standard. Furthermore, the United States is allowed, under the Convention, to enforce more stringent measures, so it is free to take whatever action it deems necessary in this regard. If it ratifies this Convention, and urges the rest of the world to ratify the document as well, the support of such a powerful nation will also help to ensure the protection of U.S. waters.

CONCLUSIONS

The establishment of the Convention is yet another collective step taken by the international community to address one of the principle methods of alien invasive species introduction. Prevention, of course, is the best way to deal with the issue. If it cannot be prevented, however, then controlling the problem is a must. This document provides clear and consistent standards to adhere to, and furthermore, a goal to aspire to. It is to be hoped that adherence to this Convention will bring the international community one step closer to the eventual eradication of alien invasive species.

The IMO states, "... it has been recognized that currently the only effective way to stop the spread of unwanted organisms is to prevent them being dumped in foreign ports."[157] The Ballast Water Convention, in its present form, calls for this activity to cease. By creating regulations that invoke technology, the Convention ensures that the international community will proactively monitor, test and research new methods of eradication of alien aquatic species, to effect the complete phase out of ballast water exchange. Furthermore, this is all done with the obligation of assisting those countries that cannot immediately enforce such provisions. International cooperation and pragmatic resolution run throughout the language of the Convention.

The Ballast Water Convention creates an internationally recognized and accepted mechanism for tackling the issue of alien invasive species dispersed around the world in the holds of trading ships. Granted, the Convention only deals with the regulation of ballast water, but this is a decisive start. It is also clear from this document that protection of the marine environment was the impetus for its creation. A more comprehensive, internationally binding document that addresses all methods of alien invasive species introduction would probably be too far reaching or too aspirational at this juncture. But it may never be necessary. Since there are many methods by which alien invasive species are introduced into an ecosystem, it may be more useful and practical to implement such provisions by regulating the various methods of

[157] Focus Paper: Alien Invaders—Putting a Stop to the Ballast Water Hitch-Hikers, *supra* note 37.

introduction. However, none of this may be achieved without this initial Convention entering into force. Inaction is not an option, unilateral enforcement is a start, but international cooperation is, and will be, the means of realization of effective progress toward the eventual eradication of alien invasive species.