

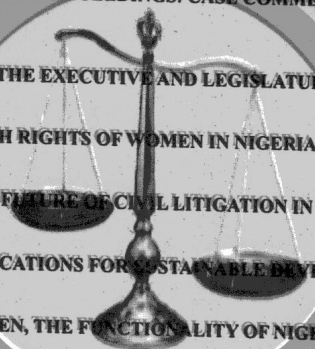


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List of Contributors

- * MASS MAST IN PLANNING AND ENVIRONMENTAL LAW MAZE: NEED FOR STRICTER GOVERNMENT REGULATION.
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Dr. Obidimma E. O. & Anushiem M. I.
- * WOMEN, ACQUISITION AND TRANSFER OF LAND IN NIGERIA: CURTAILMENT OR ACCOMMODATION?
Atah Christiana.
- * CROSS EXAMINATION AND FRONT-LOADING SYSTEM IN NIGERIA.
Dr. Kenen E.A.
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Dr. John D.C.
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Dr. Ifemeje Sylvia. C. & Lawal Bose.
- * A LEGAL APPRAISAL OF THE NATIONAL HEALTH INSURANCE SCHEME.
Ayanleye, O.A.
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Ajape Taiwo Shehu.
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Dr. Anwo, J. O., & Arowolo, G. A.
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- * AN APPRAISAL OF THE GROUNDS FOR SETTING ASIDE AN ARBITRAL AWARD UNDER THE ARBITRATION AND CONCILIATION ACT.
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Ahmad B A, Ibrahim F. A. & Bilikis Ayinla.
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TABLE OF CONTENTS

MASS MAST IN PLANNING AND ENVIRONMENTAL LAW MAZE: NEED FOR STRICTER GOVERNMENT REGULATION.	1
<i>Otubu Tunde, LL.B, B. L., M. Phil., (Lecturer Dept. of Private and Property Law, University of Lagos)</i>	
CLOGS IN THE DEBT RECOVERY IN THE NIGERIAN MICRO FINANCE BANKS: SOURCING FOR LEGAL SOLUTIONS.	15
<i>Olokooba S.M. Ph.D, & Olatoke J.O. Ph.D. (Lecturers Fac. of Law Unilorin)</i>	
E- SERVICE OF COURT PROCESSES IN NIGERIA: A BRIDGE TOO FAR.	25
<i>Okafor Chienye. LL.B., LL.M., Lecturer, Faculty of Law Nnamdi Azikiwe University, Awka.</i>	
APPRAISAL OF JURISDICTIONAL ISSUES IN NIGERIA BANKRUPTCY LEGISLATION.	40
<i>Obidimma E.O.C Ph.D, B.A., LL.B., LL.M., Ph.D., Lecturer and Head of Department, Commercial and Property Law, Faculty of Law, Nnamdi Azikiwe University, Awka, Nigeria & Anushiem M.I., LL.B., Lecturer, Faculty of Law, Nnamdi Azikiwe University, Awka, Nigeria.</i>	
WOMEN, ACQUISITION AND TRANSFER OF LAND IN NIGERIA: CURTAILMENT OF ACCOMMODATION.	52
<i>Attah Christiana, Lectu. er, Benue State University Makurdi.</i>	
CROSS EXAMINATION AND FRONT-LOADING SYSTEM IN NIGERIA.	65
<i>Kenen E.A Ph.D. Senior Lecturer, and Dean, Faculty. of Law, Benue State University, Makurdi.</i>	
A PURVIEW OF THE JURISDICTION OF TAX APPEAL TRIBUNAL VIS-À-VIS THE EXCLUSIVE JURISDICTION OF THE FEDERAL HIGH COURT IN NIGERIA.	71
<i>John D.C., LLB, LLM, Ph.D, B.L, Lecturer, Dept. of Commercial Law, ABU Zaria.</i>	
THE PROTECTION OF THE MARINE ENVIRONMENT AND BIODIVERSITY IN NIGERIA: A CALL FOR AN URGENT LEGISLATIVE INTERVENTION.	94
<i>Ifemeje Sylvia. C., Associate Professor & Sub Dean, Faculty. of Law Unizik Awka & Lawal Bose, Lecturer Faculty of Law, LASU, Ojoo.</i>	
A LEGAL APPRAISAL OF THE NATIONAL HEALTH INSURANCE SCHEME.	106
<i>Ayanleye, O.A., Department of Business and Industrial Law, Faculty of Law, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria.</i>	
PROPERTY RIGHTS IMPLICATION FOR GARNISHEE PROCEEDINGS IN NIGERIA	118
<i>Ajape Taiwo Shehu., (Senior Lecturer, Department of Public Law, Faculty of Law, University of Ilorin, Nigeria).</i>	

- A COMPARATIVE ANALYSIS OF LAGOS AND KWARA STATES CITIZEN'S MEDIATION CENTRE LAWS.** 129
Olufemi Abifarin, Faculty of Law, Kogi State University, Anyigba.
- AN APPRAISAL OF THE FUNCTIONS OF CAUSATION AS A BASIS FOR LEGAL RESPONSIBILITY IN ENVIRONMENTAL LAW:** 139
Dr Ikoni U.D, Faculty of Law, Benue State University, Markudi.
- AN OVERVIEW OF THE BASIS FOR THE REQUIREMENT OF CONSENT IN ALIENATION OF LAND RIGHTS IN NIGERIA.** 155
Ogiji L.O. Ph.D, B.L., Lecturer, Faculty of Law, Benue State University, Makurdi, Nigeria.
- A CRITICAL APPRAISAL OF THE EFFECT OF THE THIRD ALTERATION ACT TO THE 1999 NIGERIAN CONSTITUTION ON THE JURISDICTION OF THE NATIONAL INDUSTRIAL COURT.** 170
Mr T.C. Esq., B.SC, M.SC, LL.B, B.L, LL.M; Ag. Head, Department of Commercial & Property Law, ANSU, Igbariam.
- A RE-EXAMINATION OF THE IMPACT OF THE DECISION OF THE SIERRA LEONE SPECIAL COURT IN PROSECUTOR V SAMUEL NORMAN ON AFRICA:** 178
Anwo, J. O., LL.B (Hons) ABU, B. L., LL.L. (Forte Hare, South Africa), Lecturer, Faculty of Law, Lagos State University, Ojo. Currently Senior Special Adviser to Osun State Governor on Legal Matters. & Arowolo, G. A. LL.B (Hons), Ife; B.L, LL.M. Lecturer, Faculty of Law, Lagos State University, Ojo.
- A CRITICAL ANALYSIS OF GENDER AND RIGHTS PROBLEMS: THE IMPORT OF THE INTERNATIONAL HUMAN RIGHTS INSTRUMENTS AS DEVELOPMENT STRATEGIES.** 191
Ikpeze O. V. C. (Assoc. Professor of Law, Faculty of Law Unizik Awka)
- EXTRA TERRITORIAL PROTECTION AND ENFORCEMENT OF INDIGENOUS FORMS OF KNOWLEDGE AND CHOICE OF LAW DILEMMA: AN AFRICAN PERSPECTIVE.** 207
Kur F. Ph.D., Lecturer, Department of Private and Public Law, Benue State University, Makurdi.
- AN APPRAISAL OF THE GROUNDS FOR SETTING ASIDE AN ARBITRAL AWARD UNDER THE ARBITRATION AND CONCILIATION ACT.** 222
Abdulrauf Lukman Adebisi, (Lecturer University Of Ilorin)
- THE IMPERATIVE OF AN ATTITUDINAL CHANGE ABOUT THE PRACTICE OF LAW IN NIGERIA: A CRITIQUE OF THE INTERDEPENDENCE OF ADR AND THE JUDICIARY.** 233
Ahmad B.A, (Ph.D (Malaysia), LL.M (Ife), BL. (Abuja), Ibrahim T. A., LL.B. (UDUS), Lecturer, Faculty of Law, Unilorin & Bilikis Ayinla
- LEGISLATIVE PRIVILEGES AND IMMUNITY IN NIGERIA,** 245
Paschal Onyi Oguno, Ph.D Senior Lecturer; Faculty of Law, Anambra State University, Igbariam Campus. & Chudi Charles Nwabachili, Ph.D, Senior Lecturer; F.sc. of Law, Anambra State University, Igbariam Campus.

THE ROLE OF THE JUDGE – ADVOCATE IN COURT MARTIAL PROCEEDINGS: CASE COMMENT ON THE NIGERIAN ARMY V LT. PATRICK ODODO. 256

Dr. Emmanuel O. C. Obidimma, B.A., LL.B., B.L., LL.M., Ph.D.,
Senior Lecturer and Head of Department, Commercial & Property Law,
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Obidimma, B.A., LL.B., B.L., LL.M., Ph.D., *Lecturer, Faculty of Law, Nnamdi*
Azikiwe University, Awka, Nigeria.

TOWARDS A FRICTION-FREE RELATIONSHIP BETWEEN THE EXECUTIVE AND LEGISLATURE. 262

Ibraheem Ojo Tajudeen, LL.B (Hons), B.L, LL.M (Ife) C.O.M, AMNIM,
MBLAS, Notary Public, Acting Dean, Fac. of Law, Adekunle Ajasin University.

ABORTION: VIOLATION OF THE REPRODUCTIVE HEALTH RIGHTS OF WOMEN IN NIGERIA. 274

Umejiaku Nneka LL.M, Lecturer Fac. of Law Nnamdi Azikiwe University.
& Nosike Onyeka, LL.B. B.L., Lectuer, Faculty of Law, UNIZIK.

THE FRONT LOADING CONCEPT: AN APPRAISAL OF THE FUTURE OF CIVIL LITIGATION IN THE ANAMBRA STATE HIGH COURTS, 288

Iguh Amaka., LL.B, LL.M, Faculty of Law, Nnamdi Azikiwe University Awka

THE CONCEPT OF THE RULE OF LAW IN NIGERIA: IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT. 298

Dr. Kalu, Uwadineke, (Ph.D), Senior Lecturer, Faculty of Law, Nnamdi Azikwe
University Awka, Anambra State.

FROM THE CASTLE DOCTRINE TO THE BATTERED WOMEN, THE FUNCTIONALITY OF NIGERIA LAW OF SELF DEFENCE. 328

Esa O. Onoja, BL (1991) Ph.D Lecturer, Department of Litigation, Nigerian Law
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The Protection of the Marine Environment and Biodiversity in Nigeria: A Call for an Urgent Legislative Intervention

Abstract

Nigeria, is presently facing a hard time with the environmental degradation, caused by oil pollution, as a result of exploration and exploitation of natural gift of God, crude oil, which is endowed on Nigeria. Although, the effect of oil pollution on the society is colossal, the effect of harmful aquatic organism and pathogens is arguably worse than oil pollution. Several international instruments have been adopted for the purposes of protecting the marine environment, ecosystem and biodiversity. Several of these instruments have been ratified by Nigeria, but many have not been domesticated. Nigeria is one of the early eight countries that ratified the *International Convention for the Control and Management of Ships' Ballast Water and Sediments*, 2004, but has not domesticated the provisions of the Convention. This paper aims at examining the need for Nigeria to implement the provisions of the Convention as applicable to Nigeria environment, ecosystem and biodiversity in order to prevent, control and ultimately eradicate the introduction and spread of harmful aquatic organisms and pathogens transferred through ships' ballast water and sediments into Nigeria environments.

Introduction

Shipping is widely recognized as a key component of international trade.¹ It provides the most effective means of transporting bulk goods over long distances. In fact, "ships carry over 90 percent of all global trade."² For safety, ships require ballast to maintain stability throughout their voyages. Over the years, sands, rocks, stones, or heavy iron rods were used as ballast to balance seagoing vessels. Their utilization was expensive, time and energy consuming.³ In modern times, specifically in the late 19th century, as a result of the advent of steel-hulled ships,⁴ the marine world turned to the utilization of salt water as a means of balancing vessels, especially when not fully laden with cargo, as it is much easier to load and off load, and more efficient and economical in comparison to solid ballast.⁵ By this process, ship ballast tanks are filled with water to maintain their balance.

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¹ Edgar Gold, Aldo Chircop & Hugh Kindred, *Essentials of Canadian Law: Maritime Law* (Toronto, Ontario: Irwin Law, 2003) at.75.

² *Oceans and the Law of the Sea: Report of Secretary General*, UN Doc. A/64/66/Add.2 (2009) 66.

³ Moira L. McConnell, "Ballast and Biosecurity: The Legal, Economic and Safety Implications of the Developing International Regime to Prevent the Spread of Harmful Aquatic Organisms and Pathogens in Ships' Ballast Water" (2003) 17 *Ocean Yearbook* 213 at 218.

⁴ Gregory M. Ruiz & David F. Reid, "Current State of Understanding About the Effectiveness of Ballast Water Exchange (BWE) in Reducing Aquatic Nonindigenous Species (ANS) Introduction to the Great Lake Basin and Chesapeake Bay, USA: Synthesis and Analysis of Existing Information" in Emily O'Sullivan, ed, *Ballast Water Management: Combating Aquatic Invaders* (New York: Nova Science Publishers Inc. 2010) 25 at 50.

⁵ GloBallast Partnerships, "The GloBallast Programme", online: <http://globallast.imo.org/index.asp?page=gef_interw_project.htm>

As essential as ballast water is to ships' operations, it serves as a vector through which harmful aquatic organisms and pathogens (HAOP)⁶ are transferred or introduced from one part of the world to another.⁷ The *International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004* (BWMC)⁸ defines HAOP to mean "aquatic organisms or pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create health hazards to the environment, human health, property or resources, impair biological diversity or interfere with other legitimate uses of such areas."⁹

The introduction of these organisms into another locality through ships' ballast water is generally considered as either operational or unintentional.¹⁰ As a medium for the transfer of HAOP, ships' ballast water has been identified as one of the four main threats to the world's oceans.¹¹ Globally, it is estimated that between 10 and 14 billion tonnes of ballast water are transferred globally each year, and that 7,000 species are carried around in ballast water every day.¹²

This paper seeks to examine the need to protect Nigeria marine environments from HAOP. In an attempt to do this, the paper contains the introduction. It also examines the international legal regime put in place to regulate the protection of marine environment prior to the adoption of BWMC which specifically aims at regulating ships' ballast water and sediments to avoid the transfer of HAOP into marine environment. Moreover, the paper analyses the impacts that HAOP transferred through ships' ballast water may have if proper regulation is not put in place to regulate it, as it had in some countries having technological know-how than Nigeria. The study concludes optimistically, arguing that if the provisions of the BWMC and the Regulations made under it are effectively

HAOP is interchangeably referred to as invasive, alien, foreign species.
Other media through which HAOP may be introduced into the marine environment include hull sewage and aquaculture escapes. See Gregory M. Ruiz et al, "Global Invasions of Marine Estuarine Habitats by Non-Indigenous Species: Mechanisms, Extent and Consequences" (1997) 37 *American Zoology* 621at 622. See also United States Environmental Protection Agency, "Pathways for Invasive Species Introduction" online: <http://www.epa.gov/type/oceb/habitat/pathways.cfm>
International Convention for the Control and Management of Ship's Ballast Water and Sediments, IMO Doc. BMW/CONF/36, 16 February 2004.
BWMC, *ibid*, art. 1 (8).
Moirra L. McConnell, "Responsive Ocean Governance: The Problem of Invasive Species and Ballast Water- A Canadian Study" in T. Koivurova et al, eds, *Understanding and Strengthening the European Union — Canada Relations in Law of the Sea and Ocean Governance*, (2009) 35 *Juridica Scandinavica* 433 at 434. See also Erik Jaap Molenaar, *Coastal State Jurisdiction Over Vessel-Source Pollution* (The Hague, Boston, London: Kluwer Law International,1998) at 20.
Other threats to the marine world include land-based marine pollution, over-exploitation of living resources and physical alteration of marine habitats. Land-based pollution and activities are the major threats to the marine environment and biodiversity. It accounts for 80 per cent of total marine pollution.
See David L. VanderZwaag & Ann Powers, "The Protection of the Marine Environment from Land-Based Pollution and Activities: Gauging the Tides of Global and Regional Governance" (2008) 23 *Int'l J Mar & Coast L* 423 at 423-424. See also Efihimios E. Mitropoulos, General, International Maritime Organization, Foreword in Maria Helen Fonseca de Souza, *The International Law on Ballast Water: Preventing Biopollution* (Leiden , Boston: Martinus Nijhoff Publishers, 2008).
I. Tamelander et al, *Guidelines for the Development of a National Ballast Water Management Strategies*, Globallast Monographs no.18, (London, UK and Switzerland, IMO, 2010). See also Matthews & Kobie Brand, *Africa Invaded: The Growing Danger of Invasive Alien Species* (The International Invasive Species Programme (GISP), 2004) 40, online: <http://www.gisp.org/downloadpubs/gisp%20africa%202.pdf>

implemented under Nigeria national laws and enforced religiously, it will go a long way to deter ships, especially the oil tankers from introducing into Nigeria ports HAOP through ships' ballast water and sediments and its resultant negative impacts will be avoided.

The Impacts of Harmful Aquatic Organisms and Pathogens

Ships' ballast water has both positive and negative effects. On the positive side, ballast water is essential to the safe and efficient operation of modern shipping. As noted above, it stabilizes ships and ensures efficient propeller and rudder operation, in particular, where the ship has no cargo on board or has discharged part or all its cargo. On the negative side, it serves as a vector through which HAOP can be transferred from one locality to another. The adverse effects of HAOP range from ecological, environmental, economic, to impacts on human health. These effects are summed up as follows: The introduction of alien invasive species poses one of the most serious

threats to both terrestrial and marine biodiversity. In fact, habitat loss, climate change, and alien invasive species are generally considered to top the list of biodiversity threats. Concern about invasions is not limited to biodiversity per se but extends to its broader socio-economic impacts on agriculture, forests, fisheries, aquaculture, and other human activities dependent on the stability of living resources in a particular ecosystem. As a result, invasive species pose almost incalculable economic, socio-cultural and human health security risks....¹³

These negative consequences of the transfer of HAOP are discussed subsequently.

Ecological Effects

Ecologically, many of the HAOP compete with indigenous species for both food and space. Sometimes, these organisms feed on the indigenous species and, in most cases, on their eggs. By all these, the food chain and the local ecological system are affected. For instance, the European green crab or *carcinus maenas* established itself on the east coast of North America, Australia and South Africa, subsisting on a variety of food organisms, fish, local crabs, algae etc.¹⁴ Also, round gobies are aggressive fish and voracious feeders who restrict the feeding of other less aggressive species in the North America Great Lakes. Similarly, the zebra mussel competes with native fish for plankton.¹⁵ The American comb jelly introduced in the Black Sea is another voracious organism that eats fish eggs and larvae. It developed rapidly due to the lack of natural predators to curb its multiplication, and to abundant zooplankton which "formed the base of the Black Sea

¹³ Meinhard Doelle, Moira L. McConnell & David L. VanderZwaag, "Invasive Seaweeds: Global and Regional Law and Policy Responses" (2007) 50 *Botanica Marina* 438 at 438. See also McConnell "Responsive Ocean Governance", *supra* note 11 at 433.

¹⁴ Sylvia B. Yamada, Christopher Hunt & Neil Richmond, "The Arrival of the European Green Crab *Carcinus maenas*, in Oregon Estuaries" in Judith Pederson, ed, *Marine Bioinvasions: Proceedings of the First National Conference, January 24-27, 1999*, (Cambridge, USA, Massachusetts Institute of Technology, 1999) 94 at 94.

¹⁵ IMO, "Alien Invaders- Putting a Stop to the Ballast Water hitch-hikers", online <<http://www.imo.org/OurWork/Environment/BallastWaterManagement/Documents/LINK%2014df>>

web.”¹⁶ The American comb jelly is believed to be responsible for the closure of fishing industries in the Black Sea in the 1990s.¹⁷ According to Perry, the ability of the invasive species “to out compete native species for food resources, high reproductive capacity, and wide environmental tolerances lend them the capacity to fundamentally alter community structure in coastal ecosystems.”¹⁸ The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection and Advisory Committee on Protection of the Sea (GESAMP) also noted that “the populations of plankton crashed as invaders ate them. Fish stocks collapsed partly because the jellyfish deprived them of their food and ate their eggs and larvae.”¹⁹

Commenting generally on the overall ecological effects of harmful aquatic species, it was

Invasive alien species can compete with native biota, displace them, predate upon them, parasitise and transmit or cause diseases, reduce growth and survival rates, cause decline, extirpation (local extinction) of populations... thereby altering community structure..., affect growth and survival of other organisms in aquatic and marine environments by ... decreasing the amount of dissolved oxygen in water, changing soil chemistry and its structure....²⁰

The above, in essence, means that once harmful aquatic organisms reach a host marine environment, they affect the marine life of the local species and the ecosystems in general.

Economic Effects

Economically, the introduced HAOP from ships' ballast water and sediments may affect coastal and port States. These organisms can constitute threats to States' commercial and sport fishing.²¹ The financial implication of cleaning up their ecosystems, replacing damaged infrastructure, or preventing their environment from adverse impacts of HAOP is huge.²² Similarly, some organisms from the discharged ballast water may contaminate local filter-feeding shellfish. The contamination may lead to the death of the shellfish or other local fishes and these incidents may invariably cause fisheries to be closed, thereby causing loss of numerous jobs and income. Where fisheries are closed, the

Christopher J. Patrick, “Ballast Water Law: Invasive Species and Twenty-Five Years of Ineffective Legislation” (2009) 27:1 Va Env'tl LJ 67 at 71.

IMO, “Alien Invaders- Putting a Stop to the Ballast Water hitch-hikers”, *supra*, note 16.

Harriet Perry, “Carcinus maenas”, United States Geological Survey (USGS) Nonindigenous Species Database, online: <<http://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=190> Revision 4/25/2008>. See also Amy Browning, “Recent Development: The Current State of Ballast Water Regulations” (2007-2008) 2 Env'tl & Energy L & Pol'y 327 at 328.

Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection and Advisory Committee on Protection of the Sea (GESAMP), *The Life of the Seas* (IMO/FAO/UNESCO- IOC/WMO/WHO/IAEA/UN/UNEP, 2001 No. 70) 1 at 13.

United Nations 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*, (United Nations doc. UNEP/CBD/SBSTTA/6/INF/11, 2001), <<http://www.cbd.int/doc/meetings/sbstta/sbstta-06/information/sbstta-06-inf-11-en.pdf>> at 7.

An instance is the Ruffe (*Gymnocephalus cernuus*) that grows very fast and has high reproductive capacity.

It is considered a serious threat to commercial and sport fishing in the Great Lakes. See, IMO, “Alien Invaders- Putting a Stop to the Ballast Water hitch-hikers”, *supra* note 16.

See generally IMO, *Economic Assessment for Ballast Water Management: A Guideline*, GloBallast Monograph Series No. 19 (London: GloBallast Partnerships Project Coordinating Unit, 2010) at 5-9.

closure will definitely have negative impact on tourism. For instance, the GESAMP note that *“the catch of the former USSR States plummeted from 250,000 tonnes to 30,000 tonnes a year....At least \$300 million was lost in falling fishery revenues between the mid1980s and the early 1990s, with grave economy and social consequences. Fishing vessels were put up for sale, and fishermen abandoned the sea.”*²³ In Canada, damage caused by HAOP, mostly to commercial and sport fisheries, costs \$343 million annually.²⁴ Of recent, IMO notes that *“new invasion of HAOP with a rate of one every nine weeks lead to economic losses of US\$100 billion per year”*.²⁵

Additionally, when fish stocks are affected, fisheries are depleted, fish catches are affected, and minimal catches become expensive. Fishers expend more fuel on their boats and stay longer at sea to harvest fishes that are not really forth coming. This has psychological effects on the fishers, as their source of livelihood is destroyed by HAOP. The thought of how they will live, send their wards to school and maintain their livelihood continually agitate their minds. In a documentary on the invasion of HAOP in Iran, a man complained bitterly about the effects of the invasion. He lamented that until 1999, in Iran, fishing was good, and they were happy with their catches until the advent of the comb jelly which exploded and multiplied in the water. According to him, the comb jelly eats the food of local fishes, their eggs, and then, the local fishes. This disintegrated the Iranian fishing trade, psychologically traumatized those depending on fishery for survival.²⁶

Aside from forcing the closure of fisheries, the containment of HAOP is very expensive. In USA, the cost of removing the explosive population growth of zebra mussels from marinas, navigation locks, drains, public and private drinking water treatment plants, etc., is estimated at over US\$1 billion. Some held the cost to be as high as US\$5 billion between 1989 and 2004.²⁷ According to Paneta,²⁸ *“... on land and in the sea, invasive species are responsible for about 137 billion dollars in lost revenue and management costs in the U.S. each year.”* Also, huge sums will be required to provide for infrastructure to manage HAOP from ships' ballast water. The huge expenses remain, notwithstanding the management measures adopted in regard to ballast water exchange and treatment methods.

Beyond economic impacts in relation to the cost of clean-up and containment are the *“innumerable impacts to an irreplaceable ecosystem that could see the extinction of its native inhabitants.”*²⁹ The irreplaceable impacts on society is such that *“...unlike other forms of marine pollution, such as oil spills, where ameliorative action can be taken and*

²³ GESAMP, *supra* note 20 at 13.

²⁴ Lesley A. MacDougall et al, “Marine Invasive Species in North America: Impacts, Pathways and Management” (2006) 20 *Ocean Yearbook* 435 at 451.

²⁵ IMO, “Harmful Aquatic Organisms in Ballast Water” MEPC Doc. 62/2/15, 6 May 2011 online: <<http://www.amtcc.com/imosite/meetings/IMOMeeting2011/MEPC62/MEPC%2062-2-15.pdf>>

²⁶ The IMO documentary was shown on February 14, 2011, at the Marine Affairs Programme, Rowe Building, Room 3001, Dalhousie University, Halifax, Nova Scotia, Canada.

²⁷ National Research Council of the National Academies *Great Lakes Shipping, Trade, and Aquatic Invasive Species*, (Washington, D.C. Transportation Research Board, 2008) at x, 8, & 48.

²⁸ LE Paneta, “America’s Living Oceans: Charting a Course for Sea Change”. [Electronic version, CD] Pew Oceans Commission, 2003.

²⁹ Cited in Cory Hebert, “Ballast Water Management: Federal, States and International Regulations” (2009- 2010) 37 *SUL Rev* 315 at 319-320. See also Loren Remsberg, “Too many Cooks in the Gallery: Overlapping Agency Jurisdiction of Ballast Water Regulations” (2007-2008) 76 *Geo Wash L Rev* 1412 at 1414.

from which the environment will eventually recover, the impacts of invasive species are most often irreversible!"³⁰

Effects on Human Health

Human health is not left out of the negative effects perpetrated by HAOP introduced through ships' ballast water. Some of these harmful aquatic organisms contaminate filter feeding fishes, making them toxic to humans. When they are consumed, the introduced pathogens may cause diseases which may sometimes lead to illness and eventual death. In 1991, toxigenic *Vibrio cholerae* was detected in oysters and the intestine of fish in Mobile Bay, USA. Analysis was carried out which revealed similarities between the *Vibrio cholerae* detected in Mobile Bay and the one responsible for a cholera outbreak in South America. A further analysis was carried out on ships' ballast water arriving Mobile Bay from South America and the same *Vibrio cholerae* was detected.³¹ In 1992, the Great Lakes Ballast Management, the Food and Drug Administration, and the Centers for Disease Control recognized as a public health issue, the contamination of shellfish beds in Mobile Bay by *Vibrio cholerae* transported in ships' ballast tanks entering Mobile Bay from South America.³²

Another type of species affecting the health of human beings and aquaculture is toxic dinoflagellate which invaded several locations around the world and introduced the human disease called paralytic shellfish poisoning (PSP). This disease was unknown in Australia, New Zealand and the rest of the Southern Hemisphere before 1970. But by 1990, cases of the disease had spread not only to the Southern Hemisphere but also to the Northern Hemisphere.³³ As to the link between the disease, PSP, and ballast water, Dobbs and Rogerson pointed out that Dinoflagellate cysts have been reported in abundance in ballast tank sediments of ships arriving in Australia, Canada, New Zealand, United States of America, etc.³⁴ The ships are from Japanese and Korean ports and Japanese and Korean coastal waters are believed to have wide-spread presence of toxic PSP dinoflagellates.³⁵

Other aquatic invasive organisms that have negative effects on human health are the European Zebra Mussel (*Dreissena Polymorpha*) which was introduced to the North American Great Lakes, and the north pacific seastar (*asteras amurensis*) introduced to Southern Australia. The zebra mussel may accumulate and block water intake pipes and facilities and eventually foul drinking water passed out for human consumption.³⁶ Also, studies have shown that zebra mussel can accumulate pollutants into their tissues which

GloBallast Partnerships, "The Problem", online:
http://globallast.imo.org/index.asp?page=gef_interw_project.htm See also IMO, "Alien
 Putting a Stop to the Ballast Water hitch-hikers", *supra* note 16.

Fred C. Dobbs & Andrew Rogerson, "Ridding Ships' Ballast Water of Microorganisms" (2005) 39
 Environmental Science and Technology 259 at 262. See also Moira L. McConnell, "Introduction
 sHarmful Organisms from Ships to be regulated by Feds" (October 6, 2006) 26:21 The Lawyers

Allegra Cangelosi, "Ballast Water Management: Developments in Policy and Technology" in
 ed, *supra* note 15, 273 at 273& 275.

Gustaaf M. Hallegraeff, "Transport of Toxic Dinoflagellates via Ships' Ballast Water:
 Assessment and Efficacy of Possible Ballast Water Management
 Strategies" (1998) 168 Marine Ecology Progress Series 297 at 297-298. See also Dobbs & Rogerson,
 note 32 at 260.

Dobbs and Rogerson, *ibid* at 261-262.

Hallegraeff, *supra* note 34 at 300.

IMO, "Harmful Aquatic Organisms in Ballast Water", *supra* note 26 at 2.

they deposit as slug of mucous mixed with other matter they filter from the water. The pollutants may eventually be eaten by carnivorous animals, who may eventually pass on the pollutants, through food chain for human consumption.³⁷ Aside from endangering human health, these organisms also threatens commercial stocks of oysters and scallops.³⁸

The MEPC, expressing concern with the continuous increase in the rate of the introduction of HAOP noted that, damage caused by the introduction of HAOP “to the environment and human health and high economic costs are many”.³⁹ Thus, given the many effects that HAOP have, as noted by MEPC and as discussed above, it is clear that HAOP constitute a great and increasing threat, not only to marine ecosystems, but to host environments and the international community as a whole. As a result of these threats, there were global efforts at combating the threat.

The International Legal Regime for the Protection of the Marine Environment against Harmful Aquatic Organisms and Pathogens

The need to combat the threat posed by HAOP resulted in various global attempts. Before 2004, the international organizations adopted numerous conventions and regulations imposing obligations on States to protect the marine environment. The IMO also adopted non-binding Guidelines to specially address this issue of HAOP in ships’ ballast water. The principal instruments among these numerous conventions include the *United Nations Convention on the Law of the Sea (LOSC)*, 1982,⁴⁰ *Convention on Biological Diversity (CBD)*, 1992,⁴¹ and the BWMC. The LOSC by its article 192 places a general obligation on States to protect and preserve the marine environment. Article 194 also provides that “States shall take ... all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source”⁴² Similarly, article 196 is to the effect that “States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species”⁴³ So, the LOSC adopts holistic approach towards the protection of the marine environment by placing obligations on States to protect and preserve its marine environments as well as control pollution of the marine environment including those which may arise as a result of technology utilization. It thus provides “a legal framework for the implementation of contemporary principles of environmental protection”.⁴⁴

On the other hand, the principal objective of CBD is the conservation of biological diversity and sustainable use of its components for the benefit of present and future generations.⁴⁵ This is stemmed from the fact that “States have sovereign rights over their

³⁷ Zebra Mussel Data Base, “Zebra Mussel” online: <<http://www.gma.org/surfing/human/zebra.html>>

³⁸ GloBallast Programme, “Stopping the Ballast Water Stowaways”, Global Ballast Water Management Programme, online: <http://globallast.imo.org/water_stowaways_brochure.pdf>

³⁹ IMO, “Harmful Aquatic Organisms in Ballast Water” *supra* note 26 at 2.

⁴⁰ *United Nations Convention on the Law of the Sea*, 10 December, 1982, 1833 U.N.T.S. 3.

⁴¹ *Convention on Biological Diversity of the United Nations Conference on the Environment and Development*, 5 June 1992, 31 I.L.M. 818.

⁴² Article 194(1) of the LOSC.

⁴³ *Ibid*, art. 196(1).

⁴⁴ R.Donald, Rothwell & Tim Stephens, *The International Law of the Sea* (Oxford and Portland, Oregon, Hart Publishing, 2010) at 338.

⁴⁵ CBD, *supra* note 42 at preamble.

own biological resources”⁴⁶ as biological diversity is being reduced significantly by human activities of which shipping is among. According to the Convention, biological diversity is defined as “the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this include diversity within species, between species and ecosystems”.⁴⁷ The Convention provides in Article 8(h) that “... each contracting party shall, as far as possible and appropriate prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.”⁴⁸ In addition, the CBD provides in Article 22 that the provisions of the CBD shall not affect the rights and obligations of any party under any existing Conventions.⁴⁹ It specifically lays emphasis that its implementation with respect to the marine environment must be done consistently with the rights and obligations of States under the LOSC.⁵⁰ Thus, the CBD provisions impose an obligation on parties to regulate, control or eradicate harmful aquatic organisms which may be transferred *inter alia*, through ships’ ballast water,⁵¹ and threaten marine environments, biodiversity and ecosystems.

The need for more specific guidance on implementing the obligation under Article 8(h) of CBD caused the Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA), at its fifth meeting in 2000, to develop and recommend interim Guiding Principle for the effective implementation of the CBD’s Article 8 (h).⁵² In May 2000, the Conference of Parties (COP), at its fifth meeting urged that the interim Guiding Principles recommended by the SBSTTA be accepted and implemented.⁵³ The Guiding Principles were finalized in 2001 by SBSTTA,⁵⁴ and endorsed by the sixth meeting of the COP in 2002.⁵⁵ The parties reaffirmed their decision that “full and effective implementation of article 8(h) is a priority”⁵⁶ to be attained in order to combat the threat of HAOP, and to that the final fifteen Guiding Principles were directed.⁵⁷ The Guiding Principles deal, *inter alia*, with the regulation of the pathways for unintentional introduction of alien invasive species. For this, States must put in place relevant legal and institutional

Ibid.

ibid., art. 2.

ibid., art. 8(h).

ibid., art. 22(1).

ibid., art. 22(2).

Patrick, *supra* note 17 at 75.

SBSTTA 5 Recommendation V/4, online: <http://www.cbd.int/recommendations/sbstta/> and <http://www.cbd.int/recommendation/sbstta/?id=7021>.

COP 5 Decision V/8, from the 5th Conference of Parties, *Alien Species that Threaten Ecosystems, and Species*, online: <http://www.cbd.int/decisions/cop/>,

and <http://www.cbd.int/decision/cop/?id=7150>.

Suzanne Bostrom, “Halting the Hitchhikers: Challenges and Opportunities for Controlling Ballast Water Discharges and Aquatic Invasive Species” (Summer 2009) 39 *Envtl L* 867 at 879.

SBSTTA 6 Recommendation VI/4 (UNEP/CBD/SBSTTA/6/INF/11), online: <http://www.cbd.int/recommendation/sbstta/?id=7035>

See COP 6 Decision VI/23, *Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species that Threaten Ecosystems, Habitats or Species* online: <http://www.cbd.int/decisions/cop/> and <http://www.cbd.int/decision/cop/?id=7197>

COP 6 Decision VI/23, *ibid.*, par. 1.

ibid., par. 5.

Emphasis supplied. See COP 6 Decision, *ibid.*, par. 10(c).

At the time the CBD was adopted in 1992, Agenda 21: *Programme of Action for Sustainable Development*⁵⁹ was also adopted. Although it is not a binding instrument, it however references the problem of HAOP through ships' ballast water and the need to adopt uniform standards to combat the problem. In Chapter 17 of Agenda 21,⁶⁰ the conference called on the IMO and other international bodies to address the transfer of HAOP by ships by adopting an international instrument for this purpose. The Agenda also requests States, individually bilaterally, or regionally to develop rules guiding the discharge of ballast water.⁶¹

Paragraph 17.30 states that:

States, acting individually, bilaterally, regionally or **multilaterally** and within the framework of IMO and other relevant international organizations, whether sub-regional, regional or global, as appropriate, should assess the need for additional measure to address the degradation of the marine environment:

(a) From shipping by:

(iv) considering the adoption of appropriate rules on ballast water discharge to prevent the spread of non-indigenous organisms.⁶²

A decade later, the World Summit on Sustainable Development (WSSD) was held, and the commitments made under Agenda 21 and its plans of implementation were reaffirmed. The WSSD also called for the fast development of measures to address invasive species in ballast water and for an international convention to combat the threat of HAOP.⁶³ However, one clear fact is that the Guiding Principles and the obligations prescribed under Agenda 21 are not binding on State party to the CBD because the instruments are not international conventions. Agenda 21 for instance, is a global programme of action to be carried out to achieve a clean and safe marine environment as prescribed under the LOSC. According to Meinhard Doelle, Agenda 21 is non-binding, but "*built upon initial acknowledgement of the invasive aquatic species issue under the Law of the Sea Convention (LOS)*."⁶⁴ Similarly, as noted above, none of the binding instruments were adopted for the direct purpose of dealing with the problem of HAOP.

Nonetheless, given the fact that CBD does not specifically address HAOP transferred through ships' ballast water, the COP in 2002⁶⁵ left it to the IMO "*to complete ... an international instrument to address the environmental damage caused by the introduction*

⁵⁹ It is popularly known as Agenda 21.

⁶⁰ Chapter 17 of Agenda 21 is titled *Protection of the Oceans, All Kinds of Seas, Including Enclosed and Semi-Enclosed Seas, and Coastal Areas and the Protection, Rational Use and Development of their Living Resources*.

⁶¹ Emphasis supplied.

⁶² GloBallast Partnerships, *Report of the United Nations Conference on Environment and Development (UNEP), Rio de Janeiro, 3-14 June 1992, Agenda 21, par.17.30*, online: <<http://globallast.imo.org/index.asp?page=UNCED.htm>>

⁶³ GloBallast Partnerships, "The International Response" online: <http://globallast.imo.org/index.asp?page=internat_response.htm>.

⁶⁴ Meinhard Doelle, "Legal and Policy Responses to Invasive Species" (2001) Background Paper Prepared for the Commission for Environmental Cooperation, online: <http://www.cec.org/Storage/53/4582_Legal-Policy-Responses-InvasivesSpecies_en.pdf> at 3.

⁶⁵ Convention on Biological Diversity, "COP 6 Decision" online: <<http://www.cbd.int/decisions/cop/?m=cop-06>>.

of HAOP in ballast water.”⁶⁶ This effort eventually resulted in the adoption of the *International Convention for the Control and Management of Ships’ Ballast Water and Sediments*, 2004 (BWMC)⁶⁷ by the IMO. It is the first Convention to principally address the issue of HAOP resulting from ships’ ballast water and sediments. The Convention was therefore adopted to curb the unintentional transfer of HAOP through ships’ ballast water. The Convention also constitutes implementation of the general obligations in the LOSC and CBD.⁶⁸ The objectives of the BWMC are:

to prevent, minimize, and ultimately eliminate the risks to the environment, human health, property and resources arising from the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of Ships’ Ballast Water and Sediments as well as to avoid unwanted side-effects from that control and to encourage developments in related knowledge and technology.⁶⁹

The Convention places general obligations on parties who “undertake to give full and complete effect to the provisions of this Convention and the Annex thereto in order to prevent, minimize and ultimately eliminate the transfer of Harmful Aquatic Organisms and Pathogens through the control and management of ships’ Ballast Water and Sediments”.⁷⁰ The Convention also stipulates the ballast water management (BWM) to be adopted by States as including “mechanical, physical, chemical, and biological processes, either singularly or in combination, to remove, render harmless, or avoid the uptake or discharge of Harmful Aquatic Organisms and Pathogens within Ballast Water and Sediments”.⁷¹ In addition, parties have obligation to continually develop ballast water and sediment management practices and standards in order to combat the transfer of HAOP through them.⁷² Co-operation is mandated among parties to ensure effective implementation, compliance and enforcement of the Convention.⁷³ This means also that they must collaborate under the auspices of IMO to address the threats and risks from HAOP as they affect the marine ecosystem and biodiversity within and beyond the limits of their national jurisdictions.⁷⁴

The Protection of the Marine Environment and Biodiversity against Harmful Aquatic Organisms and Pathogens in Nigeria

Nigeria is a party to the LOSC and CBD in addition to some other international instruments regulating oil pollution.⁷⁵ In essence, it has national laws regulating the

COP 6 Decision VI/23, *supra*, note 56, par. 7.

BWMC, *supra* note 9.

See the preamble to the BWMC.

BWMC, *ibid* at preamble.

Art. 2(1) of BWMC.

ibid, art. 1(3).

ibid, art. 2(5).

ibid, art. 2(4).

ibid, art. 2(9).

Some of the national laws regulating oil pollution include *Merchant Shipping Act, Laws of the Federation (LFN)*, 2004, *Oil in Navigable Waters Act*, 2004, *Oil Terminal Dues Act*, 2004, *Petroleum Act*, P.10, LFN 2004, *Petroleum (Drilling and Production) Regulations*, 2004 and *Harmful Waste (Special Provisions, etc) Act*. See generally, Michael I. Igbokwe Esq. “Assessment of Existing National Legislation and Regulations Related to Pollution Control”, An update of the paper presented at the National Workshop for the Ratification, Implementation and Enforcement of MARPOL 73/78 organised by the IMO in conjunction with the Federal Ministry of Transport and National Maritime Authority (now NIMASA) in Lagos between 27th to 29th August, 2001.

protection of its marine environment against oil pollution and preservation of the biological diversity. However, the *Nigeria National Environmental Standards and Regulations Enforcement Agency (NESREA) Act, 2007*⁷⁶ is the general law on environmental related issues in Nigeria. The Agency created under the Act is charged with the responsibility of enforcing environmental standards, regulations, rules, laws, polices, and guidelines.⁷⁷ Section 7 of the Act mandates the Agency to *inter alia*:

“Enforce compliance with the provisions of international agreements, protocols, conventions and treaties on the environment, including climate change, biodiversity, conservation ... pollution, sanitation and such other environmental agreements as may from time to time come into force.”⁷⁸

The Agency is also saddled with the duty of enforcing compliance with guidelines and legislations on sustainable management of the ecosystem and biodiversity conservation.⁷⁹ Regarding the regulation of shipping industry, the Nigerian Ports Authority (NPA) is the body responsible for the use of ports in Nigeria, with the *Nigerian Ports Authority Act, 1999* as the established law. The only provision made under the Act regarding ships' ballast water is in relation to the power of NPA to regulate ships while taking or discharging ballast.⁸⁰ In addition, the Regulations made under the Act provide that the discharge or deposit of any ballast *inter alia* into the waters from a ship is prohibited.⁸¹ But, neither the Act nor the Regulations made under the Act specifies the manner through which ships' ballast water and sediments may be controlled and managed in order to avoid the introduction of HAOP. So, as at today, there is no comprehensive national laws and policies on the issue of HAOP in Nigeria despite the 1999 report which showed that Nigeria is highly invaded with different threatened species⁸² of 269⁸³ in totality.

Similarly, Nigeria is one of the early eight ratifying States to BWMC.⁸⁴ In 2010, there was regional training and workshop on the legal implementation of the BWMC organised by the GloBallast Partnerships in collaboration with the Nigerian Maritime Administration and Safety Agency (NIMASA) and the Interim Guinea Current

⁷⁶ Nigeria *National Environmental Standards and Regulations Enforcement Agency Act*, No. 25, 30 July 2007.

⁷⁷ NESREA Act, *ibid*, sec. 2(a).

⁷⁸ *ibid*, sec. 7(c).

⁷⁹ *ibid*, sec.7(e).

⁸⁰ See the *Nigerian Ports Authority Act, 1999*, sec. 32(1)(c). The mechanism for enforcing the provision is not stipulated.

⁸¹ Reg. 43 of the *Nigerian Ports Authority (Port) Regulations, 1999*.

⁸² The threatened species include all flora and fauna, of which aquatic organisms form part.

⁸³ See UNdata, “Country Profile”, available online: <<http://data.un.org/CountryProfile.aspx?crName=>>.

⁸⁴ IMO, “Status of Multilateral Conventions and Instruments in Respect of which The International Maritime Organization or Its Secretary-General Performs Depositary or Other Functions”, available online:

<<http://www.imo.org/About/Conventions/StatusOfConventions/Documents/Status%20-%202011.pdf>> at 473.

Commission (IGCC).⁸⁵ The training was aimed at familiarization with BWMC, and preparation for the adoption and drafting of national laws on ships' ballast water and sediments.⁸⁶ According to Temisan Omatseye, "*it is paramount that we participate actively to ensure an in depth understanding of the Convention and eventual drawing up of the national legislative parameters in readiness for its implementation both at the regional and national level.*"⁸⁷ Despite this assertion, Nigeria is yet to implement the provisions of the BWMC, aimed at facilitating efforts to prevent and eradicate the threat posed by HAOP.

It is nevertheless essential to regulate the discharge of HAOP from ships' ballast water into Nigeria marine environments by domesticating the provisions of the BWMC so as to avoid the negative impacts of HAOP in our society as above noted. This is because Nigeria is an oil producing, a port and a coastal State. In the course of shipping oil from Nigeria to other countries, oil tankers have to de-ballast in order to load crude oil. The de-ballasted water may contain harmful aquatic organisms, which may eventually harm Nigeria's marine ecosystem and biodiversity. Moreso, Nigeria has suffered and still suffering from resultant impacts of oil and gas pollution⁸⁸ and the impacts of HAOP transferred through ships' ballast water as noted above will be more disastrous on Nigeria society because arguably unlike an oil spill that can be cleaned up,⁸⁹ once foreign species attack local coastal and marine species, it may lead to the loss of the local ones and the effect is always long lasting. In similar vein, the present legal regime for regulating environment and oil pollution in Nigeria cannot be relied on for regulating ships' ballast water because the effect of HAOP "*on the oceans differs substantially from oil pollution and special methods are required to prevent biopollution of the marine environment.*"⁹⁰

Conclusion

In order to help prevent the negative impacts of HAOP and to combat their transfer into Nigeria marine environments, there must be control amongst others, over their transport through ships' ballast water and sediments, and this can be achieved only by domesticating the international legal regime adopted for the purpose. Thus, the time is ripe for Nigeria to implement the provisions of BWMC as well as enforce it accordingly in order to avoid negative impacts resulting from the transfer of HAOP through ships' ballast water and sediments to aid cleaner and safer marine environments and ecosystems as well as protect its biodiversity.

GloBallast Partnerships, "Announcements", available online: <http://globallast.imo.org/index.asp?page=announcements.asp#205>.

ibid.
Temisan Omatseye, Director General, Nigerian Maritime Administration and Safety Agency (NIMASA), quoted in Andrew Airahuobhor "Nigeria: International Collaboration to Protect Environment from Ballast Water", online: <http://allafrica.com/stories/201006180445.html>.

See generally, Ebirim Okechukwu & Ndukwe Cgharles Ndukwe, *Nigerian Law on Oil Pollution*, Spectrum Books Ltd. (2008).

GloBallast Programme, "Which is the Bigger Threat?" Online: http://globallast.imo.org/poster1_english.pdf.

Helen Fonseca de Souza Rolim, *supra* note 12 at 53.