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BALLAST WATER MANAGEMENT FOR EGYPTIAN PORTS – IS THERE A NEED FOR A DECISION

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ABSTRACT

Ballast water has been identified as the main vector for the introduction of alien and harmful organisms into coastal zone waters, from which can originate ecological, social and economic impacts. In response to this problem, the International Maritime Organization (IMO) has adopted the "International Convention for the Control and Management of Ships' Ballast Water and Sediments" (2004), Port Authorities are responsible for leading the programs and measures of environmental control at their organized port areas mostly through the process of environmental licensing of ports. This paper will provide an overview of the current international provisions, mainly those established by the IMO on the matter, as well as describe how the subject is currently dealt with in Egypt. This study also intends to identify legal requirements and procedures for ballast water management in the United States and European countries that could be applied in Egypt. Regarding the role of ports in the national ballast water management program, this study will also review the possibility of establishing standardized procedures for environmental licensing of ports and terminals in Egypt, including the necessary criteria for ballast water management.

KEYWORDS: Ballast Water, Ballast Water Management, Alien Species, Regulatory Of Ballast Water

INTRODUCTION

Ballast water is normally taken on ships to compensate for the loss of weight stemming from unloaded cargoes and also due to significant consumption of fuel. It is the water necessary to maintain the draft of ships, which helps their propulsion and maneuvers, control their trim, list, stability and keeps the levels of stress on their structure within acceptable limits. Ballasting and de-ballasting operations are normally undertaken in ports or in areas adjacent to these, during the operations of loading cargoes or fuel supplying, and its volumes can vary according to the size of vessel, type of trade and shipping routes. Many studies have reported that the shipping industry is responsible for the global transfer of more than 10 billion tons of ballast water each year [1]. The negative impacts associated with ballast water occur due to a process inherent to their standard operational procedures. Ballast water is recognized as the most important vector for transoceanic and inter-oceanic movements of shallow-water coastal organisms and the consequent introduction of alien and harmful organisms in the coastal zone waters.

THE EGYPTIAN PORT ASPECTS

Egyptian Ports, as well as many others in diverse parts of the world, are very old and were constructed in sheltered coastal environments. Currently, these environments are located within or near large urban areas, and are usually degraded and eutrophicated, especially due to landings or other physical modifications of the shoreline, and the

introduction of urban and industrial effluents and residues, including those deriving directly from port activities. Ports and harbors are potential hotspots for marine invasive species because activities that can transport and potentially introduce new species are concentrated in these areas, including ballast water exchange, hull cleaning, bait and seafood transport, and boat travel.

EGYPTIAN PORTS

Egypt has 66 ports. 51of them are Specialized ports, mean these establishments on the Egyptian coasts or in the Egyptian exclusive economic zone built for the purpose of receiving Fishing vessels, oil takers, minerals or tourist yachts. Specialized ports also refer to these ports of a specific nature, or specialized maritime platforms. The remaining are 15 commercial ports [2].

Table 1: Egyptian Commercial Ports Capacities

Port	Max Capacity Cargo (Million Tons)	Achieved Capacity During 2013 Cargo (Million Tons)
Alexandria	36.80	20.9
El Dekheila	22.10	24.3
Damietta	19.75	23.9
Port Said	12.78	5.03
El Arish	1.20	0.9
East Port Said	12.00	28.6
Suez	6.60	0.5
Petroleum Dock	4.14	1.4
Adabiya	7.93	6.1
Sokhna Port	8.50	5.6
Hurghada	0	0
Safaga	6.37	2.5
El Tour	0.38	0
Nuweiba	1.90	0.9
Sharm El Sheikh	0	0
Total	**140.45**	**120.63**

Source (MTS 2015)

Table 1 showing the maximum capacity of 15 commercial ports and the achieved capacity in 2013. More than 120 million tones of cargo handled in those ports in 2013 which represents 85.9% of the maximum capacity of these ports. The Total Berths' Length of those Commercial Ports are 32.4 Kilometers with total water areas more than 405 km2 [2]..

Estimate made considering the ballast water volume as 40% of the cargo weight loaded and unloaded. Thus, Egypt would have exported about 120 million tons and imported 48 million tons of ballast water. Of this imported volume, the majority would have been discharged into Mediterranean ports of Alexandria (8.4 million tons); El Dekheila (7.7 million tons), Damietta (9.6 million tons), Port Said (2 million tons) and East Port Said (11.4 million tons). The Egyptian Mediterranean ports would receive together more than 85% of total ballast water.

Introduced Species and Ballast Water

Introduced species are a substantial and growing global threat. Many countries such as Canada and the United States have already been seriously impacted by the introduction of species. It is a problem that has accelerated significantly over the last few decades. Studies conducted in the United States and abroad have show that the single largest transport of non-native species for the marine environment is the exchange or partial exchange of ballast water from ships as they pass

through ports throughout the world. Every year, well over 21 billion gallons of ballast water are discharged into N. American waters, containing between 3,000 and 7,000 species. A study of 70 vessels surveyed arriving at ports found that 90% of these vessels carried live organisms in their ballast waters.

Depending on the environmental characteristics of the port area, the alien species released may survive, grow, reproduce and interact negatively with native species, preying on them or competing with them for food resources and/or space. The more similar environmental characteristics are between the new port and the old port, the greater the chances of those organisms are in surviving and establishment. This approach would be even more important for those aquatic invasive species not capable to tolerating variations in environmental parameters, for example salinity and temperature.

If an alien species became established in natural or semi-natural ecosystems or habitats, is an agent of change since it starts to occupy a place and play a new role in the local food chain, which can be sufficient to alter the previous characteristics of other species populations, affect the ecosystem balance, and consequently threaten the biological diversity. In this case they are classified as “alien invasive species” as they not only persist but proliferate and spread beyond defined limits. Many worldwide examples of biological invasions have caused serious ecological, economical, social and health consequences to the country or region where the alien species have been introduced.

INTERNATIONAL REGULATORY OF BALLAST WATER

International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78)

If ballast water contains potential invasive species and/or pathogenic agents, it should also be considered as a harmful substance and the MARPOL Convention would thus apply to ballast water control. Indeed, initially it was understood that international rules governing ballast water and sediments would be annexed to this Convention. The subject of ballast water as a role was treated separately by IMO through an international convention that addressed ballast water specifically. Currently, the MARPOL Convention already contains international standards, described in its technical annexes, specifically for other six forms of ship source pollution. Only Annexes I and II of MARPOL are compulsory to its State Parties, whereas the other four Annexes are voluntary unless the party has specifically accepted them [3]. In any case, some situations involving ballast water were considered by the MARPOL Convention, despite the provisions relevant to this seem to be only associated with the risks of the discharge of ballast water contaminated by oil and other harmful substances in marine environments. This was implicit through the definitions adopted in the Annexes I and II of the Convention that clearly do not consider any other contaminants than oil and noxious liquid substances for the concept of “clean” ballast water. Therefore, the MARPOL Convention, through Annexes I and II, established some requirements for the management of ballast water by ships that carry oil and noxious liquid substances [4]. These requirements address the main concerns regarding ballast water control. As far as ships are concerned, specific procedures were created for existing ships as well as specifications for projects and designs of new ships. Regarding the use of ballast water in oil tanks, MARPOL implemented limitations for reducing the discharge of highly contaminated ballast water onto ports, minimizing the risks to marine resources and human health [5]. Requirements were also created to make possible the management and treatment of the discharge of contaminated ballast water onto facilities that would be prepared to handle oily water and residues. Later, already in the scope of the specific convention addressing ballast water management (BWM), the use of onshore facilities were also proposed as an option for treating ballast water and eliminating alien species and pathogenic agents[6]. Thus, initiatives have been adopted to examine the feasibility of adapting the existing oily ballast water treatment facilities to also treat ballast water to reduce the chances of biological invasions and diseases occurrences.

The United Nations Convention on the Law of the Sea (UNCLOS, 1982)

Since 1982, the United Nations Convention on the Law of the Sea had already established that the States have the responsibility to protect and preserve the marine environment. Moreover, the UNCLOS also addressed the issue since had stated that the Parties would have to take actions in avoiding marine pollution and the introduction of exotic species that could cause damage to the marine environment [7].

Therefore, the UNCLOS demanded from States, individually or jointly as appropriate, the adoption of measures to prevent, reduce and control pollution of the marine environment.

Considering the UNCLOS definition of marine pollution and what was established more specifically in its Articles 194 and 196, in addition to the MARPOL definition for harmful substances, it seems clear that ballast water discharges must be considered by States under the same attention of any other compound or substance that possesses great potential to cause marine pollution. Both Conventions have set a structure of rules that generally called the States to promote the control of all types of marine pollution possibly caused by ballast water, but did not detail how to exactly achieve this goal when the main issues involved with the transferences of alien species and pathogenic agents are considered.

International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004). The First IMO Guidelines for Ballast Water

Canada and Australia, after experiencing particular problems with unwanted species brought their concerns to the attention of Maritime Environmental Protection Committee (MEPC) in the late 1980s [8]. In 1990, as a response to problems encountered concerning ballast water and associated sediments as a source of biological introductions into marine waters, the MEPC at its 31 session created a working group on ballast water to develop guidelines addressing the problem of alien species. Thus, in 1991, IMO adopted MEPC resolution 50(31), the first international voluntary “Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges[9].

In November 1993, the IMO Assembly responded to the explicit request by adopting guidelines in Assembly Resolution A.774 (18). These second guidelines were similarly named and based on MEPC resolution 50(31) and MEPC and MSC were requested to keep them under regular review with a view to developing internationally applicable and legally-binding provisions.

Subsequently, in 1997, more complete measures were adopted through Resolution A.868 (20): “Guidelines for the control and management of ships’ ballast water, to minimize the transfer of harmful aquatic organisms and pathogens.”119 Resolution A.868 (20) further requests Governments to “take urgent action in applying these Guidelines, including the dissemination thereof to the shipping industry, to use them as a basis for any measures they adopt with a view to minimizing the risks of introducing harmful aquatic organisms and pathogens”. And also requests MEPC to “work towards completion of legally binding provisions on BWM in the form of a new Annex to MARPOL 73/78, together with guidelines for their uniform and effective implementation with a view to their consideration and adoption in the year 2000”. Ballast water management and control measures recommended by Resolution A.868(20) Guidelines.

With the same importance given to measures to be undertaken by ships, Resolution A.868 (20) Guidelines also requires port States to carry out monitoring or enforcement activities in a fair, uniform and nationally consistent manner at

all their ports. One strategy to monitor ships' compliance with the guidelines would be for port States authorities to perform analysis of ballast water and sediment samples to test for the continued survival of Harmful aquatic organisms and pathogens. Sampling activities could be undertaken for monitoring, research or enforcement purposes. Considering the costs of such measures to the shipping industry, the guidelines also required that the process for taking and analyzing samples should not cause significant delays to ships. However, the guidelines also allow the possibility for port State authorities to take samples before permitting a ship to discharge its ballast water in environmentally sensitive locations and further stipulate that port State's.

US BALLAST WATER STANDARD

The US Coast Guard (USCG) published its final rule on Ballast Water Management for Control of Nonindigenous Species in Waters of the United States on 23 March 2012. The USCG Regulations 33 CFR Part 151 and 46 CFR Part 162 entered into force on 21 June 2012 and applies to new ships constructed on or after 1 December 2013 as well as to existing ships by their first dry-docking after 2014 or 2016 depending on their Ballast Water capacity.

To address the US implementation schedule for BWMS for dates prior to 2015, the USCG has introduced an "Alternate Management System" (AMS) acceptance for some IMO type approved systems. Ships with an AMS installed are grandfathered for a period of five years beyond their USCG compliance date. USCG type approvals are not likely to be issued before 2015 but according to USCG, some systems are in the approval process. It should be noted that an AMS acceptance is in no way linked to the prospect of a future USCG type approval.

Furthermore, the USCG final rule gives the Coast Guard the right to grant an extension to the implementation schedule in cases where the Master, owner, operator, agent, or person in charge of a vessel can document that despite all efforts to meet the ballast water discharge standard requirements, compliance is not possible. Any extension request must be made no later than 12 months before the scheduled implementation date listed in the US regulation.

In September 2013 the USCG published a Policy Letter 13-01 on Extension of Implementation Schedule for Vessels Subject to Ballast Water Management (BWM) Discharge Standards providing information and guidance to owners/operators on how to submit an extension request to the USCG. In late December 2013, a policy letter published by USCG and EPA together has created uncertainty about extensions. This new policy letter simply establishes a "low enforcement priority by EPA with regard to the EPA's Vessel General Permit (VGP) provisions. In spite of this policy letter, the vessel would technically be non-compliant with the VGP regulations. The inconsistency between the BWM regulation and the VGP can cause uncertainty and misinterpretation by the various industry stakeholders. The consequences of this policy letter also includes the risk that ship owners will become subject to citizen suits in the US, potential non-cover decisions by P&I clubs for fines/penalties for non-compliance, as well as legal fees in this context among others. The situation is not clear and work is on-going to ensure a safe route ahead for owners.

The numerical values of the discharge standards in the US remain identical to those of the BWM Convention. However, the qualitative criterion on elimination is different. IMO sets limits for organisms that are viable whereas the US sets limits for organisms that are living. This inconsistency remains to be addressed by the US authorities.

The USCG is bound by law to review the practicability of implementing a higher and more stringent ballast water discharge standard and publish the review results no later than 1 January 2016 [10].

BALLAST WATER MANAGEMENT IN EUROPE

There is no common Europe ballast water policy and no legal mandatory requirement in place. EMSA is the responsible body for maritime safety and environmental matters. However, at this point in time, the BWM issue was not taken under its umbrella. By now it could be concluded that the EU approach is leaning on the ratification and implementation of the BWM Convention by the EU member states. However, the BWM issue may also be addressed under the framework of the new EU Maritime Policy and the EU Marine Strategy.

The new EU Maritime Policy (EU Commission, 2007), in the view of long-term enhanced maritime transport competitiveness and environmental protection (i.e. sustainable development of shipping industry), brings into focus needs for development of a long-term maritime strategy, promotion of maritime excellence, building knowledge and innovation, as well as establishing maritime transport surveillance. Among ‘’environmental issues” the focus appears to be on air pollution and green house gas emissions, mostly in light of climate change exacerbation. Unfortunately, the issue of ballast water is not explicitly mentioned although shipping is recognised as one of the most important vectors of transferring harmful species with unwanted consequences [11]. The EU Marine Strategy Directive (EU Parliament, 2007) establishes a framework within Member States to ‘’take the necessary measures to achieve or maintain good environmental status in the marine environment” at the latest by the year 2020 [12]. To this end, the marine strategies each member state has to develop need to focus on:

- Protection and preservation of the marine environment,
- Preventing its deterioration,
- Where practicable, restore marine ecosystems in areas where they have been adversely affected,
- Prevention and reduction of inputs in the marine environment.

The overall goal is to phase out pollution to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea. With this, implicitly, the ballast water issue is brought into the main focus of this Directive although neither ballast water nor alien species are mentioned. The Directive also stipulates the importance of ‘’regional cooperation” calling for cooperation and coordination activities between Member States and, whenever possible, third countries sharing the same marine region or sub-region.

CONCLUSIONS AND RECOMMENDATIONS

The IMO Ballast Water Convention is essential to prevent further spread of invasive species and their potentially devastating impacts on ecology and economy. It provides the set of internationally consistent practices standards and guidelines needed for effective control of ballast water management, as well as minimises the logistical and economic costs to international shipping and global trade. The achieved capacities and total water areas of the Egyptian commercial ports require setting up an effective standard and regulations to protect the marine environments. The authors conclude with the following final recommendations to approach the BWM issue in Egypt:

- The ballast water issue should be addressed on a European scale to avoid different BWM requirements in Mediterranean Sea region.
- The Egyptian Authority for Maritime Safety would coordinate the preparation of the plan and its implementation,

would need to be designated.

- Close cooperation should be established with the various bodies developing BWM measures to assist in the harmonization of BWM requirements.
- Consideration should be given toward the participation countries that are neighboring Egyptian seas.

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