

IMPLEMENTATION OF BALLAST WATER MANAGEMENT CONTROL IN CALABAR RIVER, NIGERIAN PORT AUTHORITY, CROSS RIVER STATE – NIGERIA

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ABSTRACT

This paper aimed at examining the implementation of ballast water treatment control policies in Calabar Port, Cross River State, Nigeria. Data was collected through a questionnaire survey and descriptive statistics was used to analyzed the data and the results revealed in table 1 that out of ten (10) options of the regulation policies, six (6) where not implemented and three were implemented meaning that there is a significant difference. Therefore I recommend that effective measures are urgently required to enhance effective implementation of the six (6) options in the study area. And also the Nigeria Port Authority should implement ballast water treatment plant, implement laws regulating ballast water sediment reception facilities, implement the approval certificate for ballast water management, implement the disposal of ballast water to vessels or ships, implement proper treatment of ballast water inboard and offshore, introduce standard and a control plant and finally implement effective compliance of International Maritime Organization (IMO, 2014) in Calabar port to maintain the natural water quality standard of Calabar River. Finally, there should be inspections that will be verifying on board a valid certificate and approved ballast water management plan, inspection of ballast water record book and sampling of ships ballast water carried out in accordance with the guidelines for the ballast sampling.

Keywords: Water quality, Ballast water, Cross River State, Nigeria.

INTRODUCTION

Sea transportation has played a vital role in the world economy since the beginning of economic development, the first sea transport about 5,000 years ago where there was exchange of oil from Tigris and Euphrate rivers, shipping have always existed as a very effective means of

economic expansion and the turnaround effect on the water bodies is the introduction of invasive species from ship ballast water discharge directly in the water bodies. The discharged of ballast water to impact the water quality is review by International Maritime Organization (IMO) are World Health Organization (WHO) IMO has stated that appropriately 15% of non-indigenous species are known to cause impurities in our water bodies and the introduction and spread of alien species also interfere in the biodiversity and as cited by Whittake (2005). Ballast water – Is water carried in ship's ballast tanks to improve stability in poor weather.

Ballast water management is designed to protect marine environment by minimizing the risk of introduction of marine pests and some areas in the world introduced a domestic ballast water management by Victorian government in 2004. Ballast is a solid or liquid that is brought on board a vessel to increase to prevent large foreign objects from entering the ship with the ballast water.

Ballast water management convention came up with specific standard in September, 2017 convention specifically stating (D-1 and D- 2) standards requiring ships or vessels to exchange ballast water in open seas, away from coastal areas, meaning that at least 200 nautical miles from land and in water at least 200 metres deep. By doing this, fewer organisms will survive and ships will less to likely introduce harmful speacies when they are release the ballast water. And the D- 2 standard specifically state the maximum amount of viable organizations allowed to be discharged including indicators incrobes harmful to human health, from the 8th or September, 2017 the entry was put in force or the ballast water management convention of ballast water and seehments 2004 is a treaty adopted by the International Maritime Organization (IMO) in other to help prevent the spread or harmful aquatic invasive species, organisms, phytoplantons and pathogens in ship ballast water from September 2017, ships must manage their ballast water so

that organisms, pathogens aquatic organisms are rendered harmless before the ballast water is discharge into the water bodies and this will help to prevent the spread of invasive species as well as potentially harmful pathogens.

Ballast water is important for safe and efficient operation of ships and it also lead to invasive of marine organisms being transported from one environment to another. it will collaborate results in the world that invasion of organisms causes harmful ecological, economics and health effects on the discharge environment according to guideline on ballast water management (2018). Water is an essential natural resources on planet earth but harmful natural resources on which all life depend for sustenance, all aspect of water cycle are used by man for various reasons such as for man's need and so on, for transportation, private and public water supplies, agricultural purposes, energy generation, fishing, industrial and recreational activities (Ebin and Efiang, 2018).

International Joint Commission 2001 and Doblin (2001) lies shown that ballast tanks in vessels or ships often contains an in pumpable mixture of water sediment accumulated from previous ballast operations. When operating between ports loading and in loading ships and maintaining stability to sustained changes in routes depth and vertical obstruction clearance, ballast water is loaded and unloaded from the ships allowing organism and bacteria to be discharged.

MATERIALS AND METHODS

The study was conducted in Nigeria Port Authority in Cross River State, Nigeria. It lies between longitude 8.316228^0 and 8.321931^0E and latitude 5.013778^0 and 4.983724^0N , Calabar Port Authority served as an important focus of trade with the outside world for the Eastern states

and a natural harbor for the Northern States of Nigeria right from the pre-colonial and colonial times. And the port operate with various shipping companies until December 1969 when the Federal Government took over the inadequate Calabar Port facilities from the erstwhile operators and vested it on the Nigeria Port Authority.

The development, modernization and expansion of the Calabar port was embarked up under the 3rd National Development Plan of 1975-1980 in order to upgrade the port facility to cope with the ever increasing demand of our economy. Today, Calabar Port complex comprises the following; the old port, the new port and the dockyard, and has jurisdiction over crude oil terminals at Antan, Odudu, Yoho, Qualboe, and other jetties at NIWA, McIver, NNPC, ALSCON, Dozzy, Northwest, the three terminals of Calabar port are operated by world class terminal operations namely; Eco-marine terminal (EMCT) Ltd., Intels Nigeria Ltd. and shoreline logistic Nigeria Limited. And Calabar Port's profile in the oil and gas industry is fast gaining prominences as our business is to make your import and export dreams come true by providing efficient port service system that guarantee quick turnaround time of vessels and faster cargo clearance process.

A questionnaire survey was adopted in the study area putting into consideration the population of 100 staff of the environmental units that deals and a strategic random sampling method was used where the 100 questionnaire was administered on the staff population personally and all were retrieved and simple percentages statistical tool was used to test the implementation of ballast water management control in Calabar port, Cross River State, Nigeria as shown in Table 1 and the analysis revealed that there is a significant differences in the implementation of ballast water management control in Calabar Pot that over 10 items only three (3) items were implemented in the port and seven (7) were not implemented.

RESULTS AND DISCUSSION

TABLE 1

**Simple percentages for implementation of ballast water management control in Calabar
 Port, Cross River State – Nigeria**

| S/No | SA | (%) A | (%) D | (%) S.D | (%) Total | Observed \bar{X} | Expected \bar{X} | \bar{X} difference | Remark/ observation |
|------|----|----------|----------|------------|--------------|-----------------------|-----------------------|-------------------------|------------------------|
| 1. | 10 | 21 | 46 | 23 | 100 | 2.18 | 2.50 | -0.32 | Not implemented |
| 2. | 27 | 41 | 19 | 13 | 100 | 2.82 | 2.50 | +0.32 | Implemented |
| 3. | 4 | 15 | 30 | 51 | 100 | 1.72 | 2.50 | -0.78 | Not implemented |
| 4. | 25 | 62 | 10 | 3 | 100 | 3.09 | 2.50 | +0.59 | Implemented |
| 5. | 49 | 32 | 12 | 7 | 100 | 3.23 | 2.50 | +0.73 | Implemented |
| 6. | 12 | 17 | 48 | 23 | 100 | 2.18 | 2.50 | -0.32 | Not implemented |
| 7. | 10 | 21 | 30 | 39 | 100 | 2.02 | 2.50 | -0.32 | Not implemented |
| 8. | 10 | 15 | 31 | 44 | 100 | 1.91 | 2.50 | -0.59 | Not implemented |
| 9. | 14 | 9 | 28 | 49 | 100 | 1.88 | 2.50 | -0.62 | Not implemented |
| 10. | 5 | 10 | 32 | 53 | 100 | 1.67 | 2.50 | -0.83 | Not implemented |

From table 1 above, out of 100 respondents from item 1, 10 respondents strongly agreed, 21 agreed, 46 disagreed and 23 strongly disagreed. From the responses, since the observed mean (2.18) is less than the collection of data on the performance of ballast water treatment plant by the port authority is not implemented. Out of 100 respondent from 2 of table 1, 27 responded strongly agreed, 41 agreed, 19 disagreed and 13 strongly disagreed and from the responses, since

the observed mean (2.82) is higher than the expected mean (2.50), we concluded that, the collection of data on the laws regulating ballast water reception facilities in the study area is implemented.

The analysis also shows that in 3 of the same table indicated that out of 100 respondent 4 strongly agreed, 15 agreed, 30 disagreed and 51 strongly disagreed and from the responses, since the observed mean (1.72) is less than the expected mean (2.50) we concluded that, the collection of data on the national laws regulating ballast water sediments reception facilities in the port authority is not implemented. It's also shows in 4 of the same table shows that out of 100 respondent 25 strongly agreed, 62 agreed, 10 disagreed and 3 strongly disagreed and the responses, since the observed mean (3.09) is higher than the expected mean (2.50) we concluded that, the data collected on the adopted national roles to implement ballast water management convention in the port authority is implemented.

The study also shows that out of 100 respondent in 5 of the same table shows that 49 strongly agreed, 32 agreed, 12 disagreed and 7 strongly disagreed from the responses, since the observed mean (3.23) is higher than the expected mean (2.50) we concluded that, the data collection on agencies that issue certificates for ballast water management policies in the port authority is implement. The analysis shows in 6 of the same table that out of 100 respondent 12 strongly agreed, 17 agreed, 48 disagreed and 23 strongly disagreed from the responses, since the observe mean (2.18) is less than the expected mean (2.50) we concluded that, the data collection on the issued approval certificates for ballast water management in the port authority is not implemented. Also out of 100 respondents of 7 of the same table 10 strongly agreed, 21 agreed, 30 disagreed and 39 strongly disagreed from the responses, since the observed mean (2.02) is less than the expected mean (2.50) we concluded that, the data collected on the disposed ballast

water in accordance to the ballast water management policy and standard in the study area is not implemented. Meanwhile out of 100 respondents of 8 of the same table 10 strongly agreed, 15 disagreed, 31 disagreed and 44 strongly disagreed from the responses, since the observed mean (1.91) is less than the expected mean (2.50) we concluded that, the data collected on the proper treatment of ballast water on the port is not implemented.

Also out of 100 respondent of 9 of the same table 14 strongly agreed, 9 agreed, 28 disagreed and 49 strongly disagreed and from the responses, since the observed mean (1.88) is less than the expected mean (2.50) we concluded that, the data collected on having a standard ballast water treatment and control plant in the port is not implement. Finally out of 100 respondent of 10, 5 responded strongly agreed, 10 agreed, 32 disagreed and 53 strongly disagreed and from the responses, since the observed mean (1.67) is less than the expected mean (2.30), we concluded that, the data collected on the port authority ensures effective compliance to International Maritime Organization (Imo, 2014). Nigeria government ballast water sediments management control for ships sailing in Nigeria marine water is not implemented.

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