Ships’ waste reception facilities. Studying the port of Corinth.

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Abstract (Extended)

Ships’ waste management, both cargo waste and ship-generated waste, is a subject of great interest as part of the broader issue of marine pollution. Thus, a set of measures has been activated in order to address this potential threat. Currently, those measures are based on a strict legislative framework and international conventions aimed at preventing marine pollution. Nowadays merchant ships are carrying all kinds of modern world commodities, but during their operation they produce waste. Therefore, and since ships’ waste constitute a threat for the environment, management is necessary. The basic legislative framework regarding the ships’ waste is summed up by MARPOL 73/78 International Convention and the 2000/59/EC Directive, as amended and in force, which both lay down specific restrictions and procedures for the safe ships’ waste discharge to ports.

This study will approach the aforementioned waste issue, in order to clarify the risk in terms of causing marine pollution, from the viewpoint of ships’ waste management. As a case study for this research, the port of Corinth was chosen for three reasons: 1) it is classified as a port of national importance, meaning it is of major influence on the country’s national transport network, with a distinct geopolitical position and specific development prospects, while it is obliged to all relevant waste management provisions. 2) it is a port without significant tourist flows, thus there are no indications of important volatility in the number of incoming ships during each year, and 3) a master plan1 for the expansion of the port has been approved, hence it will allow a comparative assessment of the current and the expected -according to the master plan- state.

The current research was based on the following methodological approach: i) we analyzed port’s operation data2, in order to determine the amount of ships’ waste per waste type per year, for a period of five years. ii) we calculated, using estimation models3, the amount of expected ships’ waste for the same time period. Subsequently, using estimation models3, iii) we calculated the amount of ships’ waste as expected from the considerations of the master plan. Data2 were analyzed and processed in order a) to evaluate the port regarding ships’ waste management, b) to assess the likely risk of illegal and/or irregular ships’ waste discharges into the marine environment, c) to clarify the adequacy or otherwise, of port reception facilities with respect in receiving and temporarily storing ships’ waste and d) to estimate the ships’ waste management capability expected to result from the port’s expansion, given that the approved master plan will be implemented. iv) we made a

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1 Greek Government Gazette No 194 of 18 June 2014, Corinth’s Port Development General Master Plan.
2 Data were collected from the General Secretariat General for the Aegean and Island Policy of the Greek Ministry of Maritime - Directorate of Marine Environment Protection (Pollution Statistics in Greece), Inspectorate Directorate of Merchant Ships (Ships Technical Characteristics), the General Secretariat of Ports, Port Policy and Maritime Investment of the Greek Ministry of Maritime - Directorate of Port and Building Infrastructure (Port Expansion Statistics), the Corinth’s Port Authority (Port Traffic Statistics), Corinth’s Municipal Port Fund (Port Traffic Statistics), the CNWAY Consulting Engineers MGA company (Statistics and Data resulting from Corinth’s port expansion study), the HEC S.A. company (ships’ liquid waste management statistics), the ANTIPOLLUTION company (ships’ solid waste management statistics)
3 The estimation models are reference from the European Maritime Safety Agency - EMSA, the European Sea Ports Organisation - ESPO, the IMO | Global Integrated Shipping Information System - GISIS, the Global Maritime Distress and Safety System - GMDSS, the Global Monitoring for Environment and Security - GMES, the Group of Experts on the Scientific Aspects of Marine Environment Protection - GESAMP, the International Maritime Organization - IMO, and the International Convention for the Prevention of Pollution from Ships. Those models beyond the scientific literature are widely used in waste management plan designs.
comparison among the results of the above-mentioned approaches. The comparison revealed a highly significant difference between the current, the estimated and the expected amount of discharged ships’ waste. Therefore, further research regarding the causes was necessary. Thus, v) we conducted a qualitative research, using semi-structured interviews from people (N=7) which are directly involved in the current ships’ waste management process. Lastly, following the respondents view regarding master plan’s ships’ waste management, vi) we have conducted a sitting design study about the establishment of permanent ships’ waste management facilities - temporary storage- on the already approved master plan design, in compliance with all necessary international standards.

Results indicated that ships’ waste amounts discharged in the port of Corinth are constantly decreasing over the past five years, while ships’ waste amounts discharged are significantly less than the amounts resulting using estimation models. The estimated expected amount of ships’ waste resulting from the master plan implementation is far greater compared both with the current state and the estimated situation. Results from the interview process, evince the Corinth’s port is not considered risky for illegal and/or irregular ships’ waste discharges into the marine environment, with regard to its current operation. The low traffic makes ships’ waste management controllable and the port facilities deemed adequate. On the other hand, port facilities as resulting from the master plan deemed partially adequate. Some of the respondents suggest for the expected amount of ships’ waste, a totally different management system, compared with the proposed in the master plan, as more suitable. Namely they suggest the establishment of permanent ships’ waste management facilities rather than exclusively reserved to cooperating private undertakings. Respondents also indicate poorly qualified personnel, resulting in insufficient on board ships’ waste management control check-ups.

We conclude in that the ports do not work together in informing the ships’ waste bulletin for every ship and do not maintain a computerized database on ships’ waste. The substantial reduction of scheduled marine routes, caused by the financial difficulties in Greece, has as a result the reduction of the total ships’ waste amount. Also, the ships’ waste discharge amount per ship is evidently decreasing because of the financial difficulties, with respect to the reduced commodities delivered, resulting in reduced time ships spent off at the port, driving them to discharge their ships’ waste at the next port. Also, we strongly believe, that economic incentives are not strong enough in order for ships to ultimately discharge their ships’ waste in Corinth’s port.

Consistent with the wider literature, we also recommend the recruitment of highly qualified personnel and the cooperation between ports for proper and sufficient surveillance of ships’ waste discharges, while we believe that economic incentives concerning reduction in port charges for ships’ waste discharges will be proved beneficial to all; however, it is a subject to further research and investigation. Furthermore a similar case study and research of neighboring ports, followed by comparison analysis, could potentially highlight additional useful information.

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