

## MANAGEMENT OF SHIPBORNE GARBAGE IN COMPLIANCE TO MARPOL 73/78 ANNEX V

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**Abstract:** The large number of vessels en route within Malaysia Territorial Water through Malacca Straits has introduced pressures on the marine environment, particularly from shipborne garbage. Thus, this study adopted a standard method of beach marine debris survey and shipborne garbage survey to assess the types, amount, categories and sources of debris at five public beaches during monsoon seasons and 115 vessels were selected en route through Malacca Straits at five ports in Malaysia. The mean total beach debris item collected was 961 item/km and categorized during marine debris surveys between October 2012 and August 2014. Debris accumulation was more abundant during SWM, while, plastic category (88.48%) dominating debris items collected at this study. As for shipborne garbage survey, the mean total shipborne garbage item and weight collected was 182 item/vessel and categorized on the vessels between October 2012 and October 2014. Shipborne garbage abundance is influenced by number of crews, vessels' gross tonnage and ship type. This study found, vessel visiting Malaysian ports observed the MARPOL 73/78 Annex V requirements, however, identified objects from shipping activity (1.3%; 2 items/km) found on the beaches indicates there are vessels discharging garbage illegally at sea. Therefore, promulgating awareness and educate the general public on pathway of marine debris needs to be collaborated with public participation to instill consciousness through environmental education. This effort may be small but the impact as a result of this action will reduce the amount waste dispose of at sea tremendously.

**KEYWORDS:** MARPOL 73/78, shipborne garbage sources, food waste, marine debris, garbage processing equipment