

SUSTAINABLE COMMUNITY-BASED MARINE DEBRIS FRAMEWORK: KAMPUNG PULO SALAK EXPERIENCE

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Accepted 2 March 2018, Published online 31 March 2018

Marine debris is defined by the United Nations Environment Programme (UNEP) as any persistent, manufactured or processed solid material discarded, disposed or abandoned in the marine and coastal environment (Butterworth *et al.*, 2012). There are many types or categories of marine debris such as plastic, rubber, metal, glass, timber (Ribic *et al.*, 1992) and plastics are the most common marine debris worldwide. The sources of marine debris can be either from land-based, ocean-based and common sources (Sheavly, 2005). About 80% of marine debris is washed off from land, blown by winds, or deliberately discarded from shore whereas approximately 20% originated from vessels and offshore platforms (Potts & Hastings, 2011; Mobilik & Hassan, 2015).

Marine debris can be a health and safety hazard for humans. Broken glass, medical waste, rope and fishing line can directly harm human health and safety because sharp objects such as broken glass and rusty metal could cause injuries, besides could wrap around and damage the boats and vessels propeller debris leading to serious impact on economic activities (Potts & Hastings, 2011). Other than that, marine debris decreases aesthetic value of the landscape and seascape (Hassan & Mobilik, 2012). Marine debris could transport alien species which the organism may attach to the marine debris and travel hundreds of kilometres and land on a shoreline where it is non-native. This alien species could cause a catastrophic impact on fisheries and local ecosystems and very damageable (Allsopp *et al.*, 2006).

The community-based approach has been used in managing resources for example in fisheries (Humber *et al.*, 2017), and ecotourism (Masud *et al.*,

2017). Participation of local community helps build confidence for long term sustainability and ensure sustainable use and management of natural resources that reduce the adverse effects of anthropogenic exercise on the environment (Masud *et al.*, 2017). Since Sarawakians take high pride in the cleanliness of their homes (Mobilik *et al.*, 2014), this positive attitude is one of the motivations to be involved in resolving marine debris problem. However, lack of knowledge on marine debris may have hindered their ability to tackle the problem in a systematic manner.

Studies of marine debris in Sarawak, involving those stranded on beaches had been properly documented by Hassan and Mobilik (2012), Mobilik *et al.* (2014) and Lee (2016) while ship-garbage marine debris related problems had been published by Mobilik and Hassan (2015), Mobilik *et al.* (2016a & 2016b). There is no publication yet on the types and abundance of marine debris that stranded around silts of traditional 'water village' houses and surrounding area, therefore the aim of this study is to assess type and abundance of marine debris in Kampung Pulo Salak, Kuching Sarawak. The uniqueness of this study is active involvement from the public (villagers and UNIMAS communities) with other relevant agencies in understanding the marine debris issues through awareness campaign and hands on removal of marine debris. It is hoped that this approach is successful in enhancing their understanding of the marine debris problem and act as a catalyst to find possible solutions.

This study was conducted on 25th March 2017 at Kampung Pulo Salak Kuching (1°40'23.6"N; 110°17'56.8"E) [Figure 1]. This village is home to approximately 626 people (Malay, Muslim). It enjoys several basic amenities including a primary school, mosque, a small library, small grocery shop, community hall, telephone coverage, internet access

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