**MARITIME INSTITUTE OF MALAYSIA** 

**Protection of Marine Environment in the SOMS:** *Marine Pollution, Preparedness and Response* 

Marine Litter Pollution in the Straits of Malacca and Singapore (SOMS): Improving cleanliness measurement methods for coastal and marine areas and way forward [Work in progress]

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## Outline

- Background
- State of marine litter research/ programmes
- Definitions and terminology
- Collaborative efforts at the regional and national levels
- MIMA efforts
- The way forward

## Marine litter and marine plastic pollution

### Marine litter:

- Any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment (UNEP, 2015).
- Plastics make up the most prevalence and important type of marine litter (UNEP, 2009).



- Marine litter is found almost everywhere, and has wideranging environmental, social and economic impacts.
- Opportunity to act but poor information base for decision support and tracking.
- Crucial issue in this region.







**Global** scale

Fig. 1. Global map with each country shaded according to the estimated mass of mismanaged plastic waste [millions of metric tons (MT)] generated in 2010 by populations living within 50 km of the coast. We considered 192 countries. Countries not included in the study are shaded white.

Burma 18\* Morocco North Korea United States

Rank

19

20

# Marine microplastic and microplastic distribution



Source: PlasticsEurope (PEMRG)/Conversio Market&StrategyGmbH

# Marine plastic pollution



Plastic waste produced and mismanaged. Taken from Marine Litter Vital Graphics (in preparation)

(UNEP, 2016)

### Marine plastic pollution



Law et al., 2017

- A major global environmental threat associated with global climate change, ozone depletion and ocean acidification (UNEA 2016; Galloway & Lewis, 2016).
- Threats posed by plastic particles to marine environment and human health.



### **Related developments: Overview**

- In 2008, the first definition of microplastics size: plastic particles, including plastic debris, fishing nets, fibers and industrial plastic particles that are less than 5mm.
- At the UN general assembly in 2014, UNEP listed marine plastic waste pollution as one of the top 10 most emergency environmental problems and adopted the "*Marine plastic waste and microplastics*" resolution. The issue causes an economic loss of up to 13 billion US dollars to the global marine ecosystem every year.

- In 2015, NOAA released the first guidelines for microplastics monitoring • methods.
- GESAMP published the global assessment of microplastics (Sources, fate and ٠ effects of microplastics in the marine environment: A global assessment).
- Marine wastes incorporated into SDGs i.e., SDG 14 states that "by 2025, • marine pollution particularly from land-based activities including marine waste nutrient pollution, will be prevented and substantially reduced".
- In 2016, UNEA continued discussing marine plastic and micro plastic • pollution.
- GESAMP published the 2<sup>nd</sup> part of marine microplastics assessment • (Sources, fate and effects of microplastics in the marine environment – A global assessment, Part 2).
- In 2017, the regional project of "distribution, sources, trends and impacts of ٠ Marine microplastics in the Asia-Pacific region" (IOC-WESTPAC)
- GESAMP reports on microplastics impacts for fisheries ٠
- Countries and international organizations are focusing on microplastics i.e., ٠ G20 action plan on marine litter; as well as UNESCO-IOC, UNEP-MAP, NOWPAP, UNEP, COBSEA, etc.

### Limited understanding..

- Lack of unified monitoring, analysis and assessment criteria.
- Limited data/ information.



Provides advice and practical guidance for establishing programmes to monitor and assess the distribution and abundance of plastic litter in the ocean.

### Addressing marine plastic litter from ships – action plan adopted IMO Action Plan to address marine plastic litter from ships

### Identified measures :

- a proposed study on marine plastic litter from ships;
- looking into the availability and adequacy of port reception facilities;
- consideration of making marking of fishing gear mandatory, in cooperation with the FAO;
- promoting reporting the loss of fishing gear, and facilitating the delivery of retrieved fishing gear to shore facilities;
- reviewing provisions related to the training of fishing vessel personnel and familiarisation of seafarers to ensure awareness of the impact of marine plastic litter;
- establishment of a compulsory mechanism to declare loss of containers at sea and identify number of losses
- enhancing public awareness; and
- strengthening international cooperation, in particular FAO and UN Environment.



### Global and regional marine litter commitments

#### **UN ENVIRONMENT ASSEMBLY**

- □ UNEA 1/6: State of knowledge: Marine plastic debris and microplastics
- UNEA 2/11: Marine Plastic Litter and Microplastics
- UNEA 3/7: Marine litter and microplastics
- UNEA 4/6: Marine Plastic Litter and Microplastics

#### COBSEA RAP MALI

- Regional intergovernmental policy framework adopted 2008, revised 2019
- Regional and national level actions on: land-based and sea-based sources, monitoring and assessment and enabling activities

#### G20

G20 Implementation Framework for Actions on Marine Plastic Litter, adopted at G20 Summit in June 2019

#### ASEAN

- Bangkok Declaration on Combatting Marine Debris, adopted at the ASEAN Summit in June 2019
- ASEAN Framework on Action on Marine Debris

### **COBSEA Regional Action Plan on Marine Litter 2019**

- Originally adopted in 2008, *revised version adopted at COBSEA IGM-24 in June* 2019
- Regional priorities and framework; leveraging governments and other stakeholders
- Actions: land-based sources; sea-based sources; monitoring; enabling conditions
- Modalities for Implementation



### MIMA efforts on effective monitoring

- Established the Clean Coast Index (CCI) to serve as a tool for the evaluation of coast cleanliness. A pilot study was undertaken in the coastal areas around the nation, including efforts for streamlining purposes. As reported, plastic debris represents by far the major component of beach debris. The CCI has proven to be a useful tool for measuring progress and the success of activities such as education campaigns, media coverage, and enforcement actions.
- The surveys show that plastic is the major contributor to coastal debris comprising more than 60% of overall debris collected. As a measurement tool, the CCI generates enough baseline data to indicate areas that need prioritising to ensure efforts and investments in coastal cleanliness are maximised. It also provides an easy tool for enforcement bodies in assessing and managing the cleanliness levels of their jurisdictions.
- In the long term however, there is a need to create a more sustainable and effective approach to detect the sources, including making a thorough assessment of plastic pollution from shipping in the Straits.

### Assessment of marine debris at sea and gaps

- Despite increasing concerns over plastic environmental impacts on marine systems, little is known about the abundance and distribution of floating plastic debris at sea. A general understanding of their abundance has been inferred mainly from surveys of stranded litter, or from the frequency of interactions with wildlife.
- Ship-based observations, although providing a useful means to gather information on the relative abundance of debris floating at sea, are mostly at their infancy stage.
- Ryan (2013) examined the abundance and composition of marine debris observed during transects in the Straits. The results show that densities of floating litter (>1 cm) were greater and more variable in the Straits of Malacca (578 ± 219 items km<sup>2</sup>) than in the oceanic waters of the Bay of Bengal (8.8 ± 1.4 items km<sup>2</sup>).
- Data is generally lacking and required to facilitate the development of effective solutions to the issue of marine litter.



### **Efforts: Way forward...**



- Validate estimates of 1 pollution from land
- Identify hotspots for loss 2.
- 3. **Investigate drivers** (causes/sources)
- **Baselines** 4.

Update on the implementation of the resolution "Marine Plastic Litter and Microplastics" (UNEP/EA.4/RES.6) adopted at UNEA-4, in particular with regard to:
the organisation of the Third Meeting of the Ad-Hoc Open-Ended Expert Group on Marine Litter and Microplastics in Bangkok, 18-22 November, and
establishment of the Scientific Advisory Committee under the Expert Group
Study of illegal plastics imports through the national ports - national



# Thank you

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