



Introduction to the Research Landscape of Marine Plastics Pollution in the Seas of Southeast & East Asia

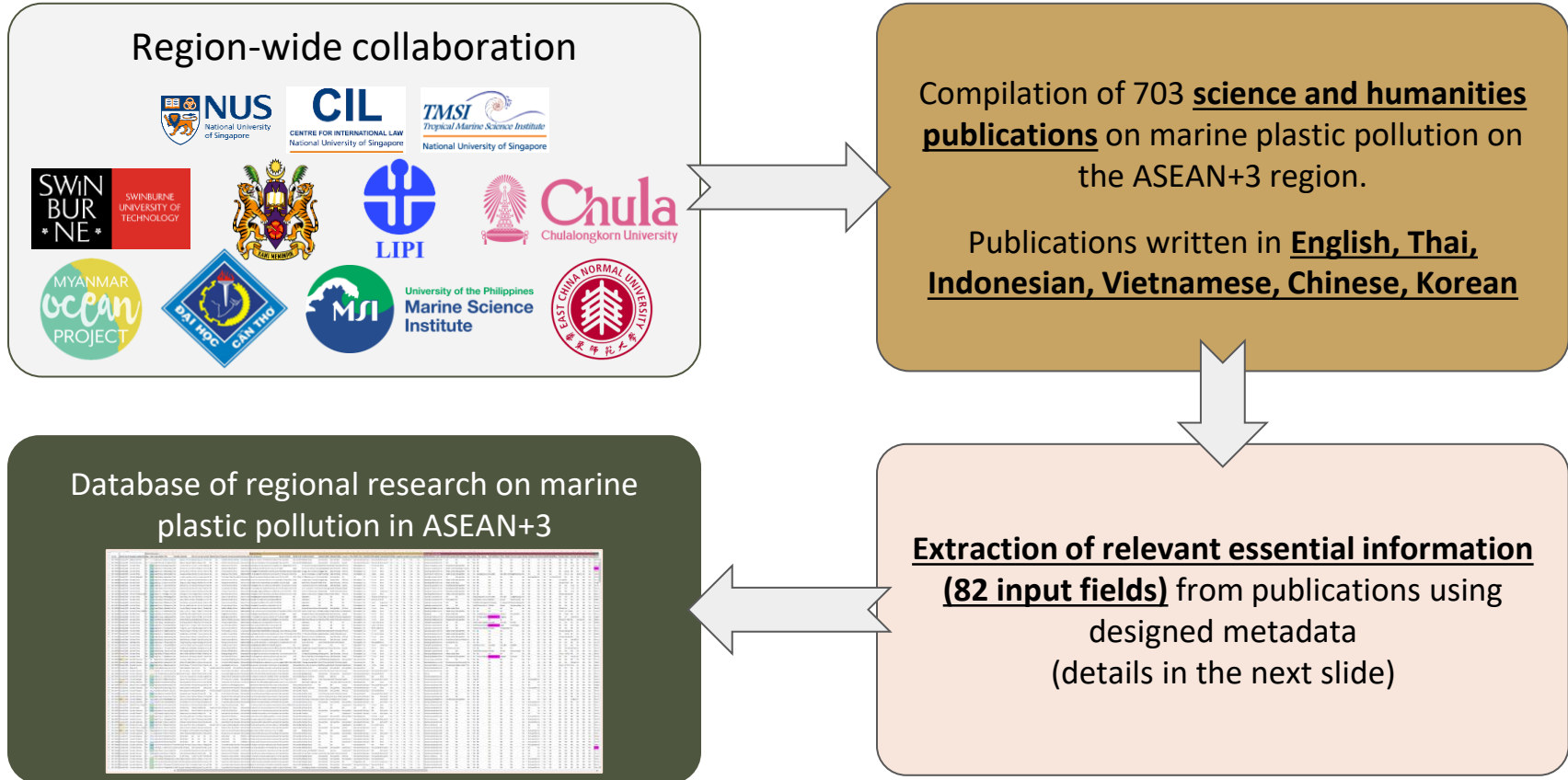
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7th International Marine Debris Conference (7IMDC)
#525 for TS-5.11: Science to policy

20 Sept 2022

1. Background to the Regional Research Inventory (RRI)
 - a. Quick introduction
 - b. Metadata: Information extracted from publications included in the Inventory
2. Overall Research Landscape
 - a. Topics in the region over the years and in different water bodies
 - b. Publication languages
3. Scientific Research
 - a. Polymers found in the region
 - b. Biota sampled by water body
4. Humanities Research
5. So What
 - a. Sources
 - b. Factsheets

1. Background to the Regional Research Inventory (RRI)



1. Background to the Regional Research Inventory (RRI)

Metadata

Article Information

20 elements of general information on the publication, such as:

- Language
- Author(s)
- Research Group(s)
- Funding Information

Research Scope

16 elements of high-level substantive information on the research, such as:

- Aim of research
- Location of work
- Plastic sizes examined
- Coastal or offshore study

Research Methodology

21 elements of methodology, including technical information, such as:

- Methodologies Used
- Depth of sediment sampling
- Field sampling frequency
- Species name of biota studied

Research Findings

25 elements of the research findings, such as:

- Key Findings
- Research Topics
- Source of Plastics
- Shape and type of plastic polymers found

Research Topics

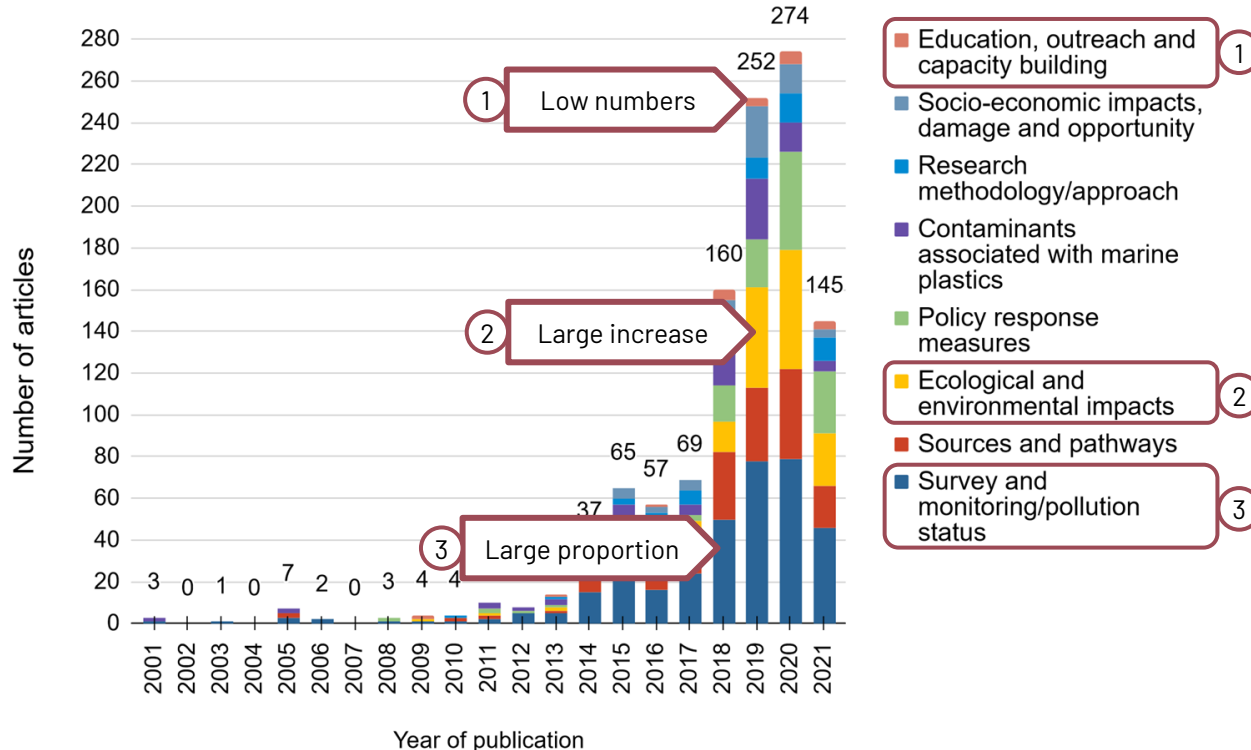
25 different research topics, such as:

- Movement of plastics in water bodies
- Fragmentation and degradation
- Microbial assemblages
- Human health/ food safety
- Laws, administrative measures
- Communication and coverage of marine plastic

2. Overall Research Landscape

Changes and shifts in research interest and capabilities:

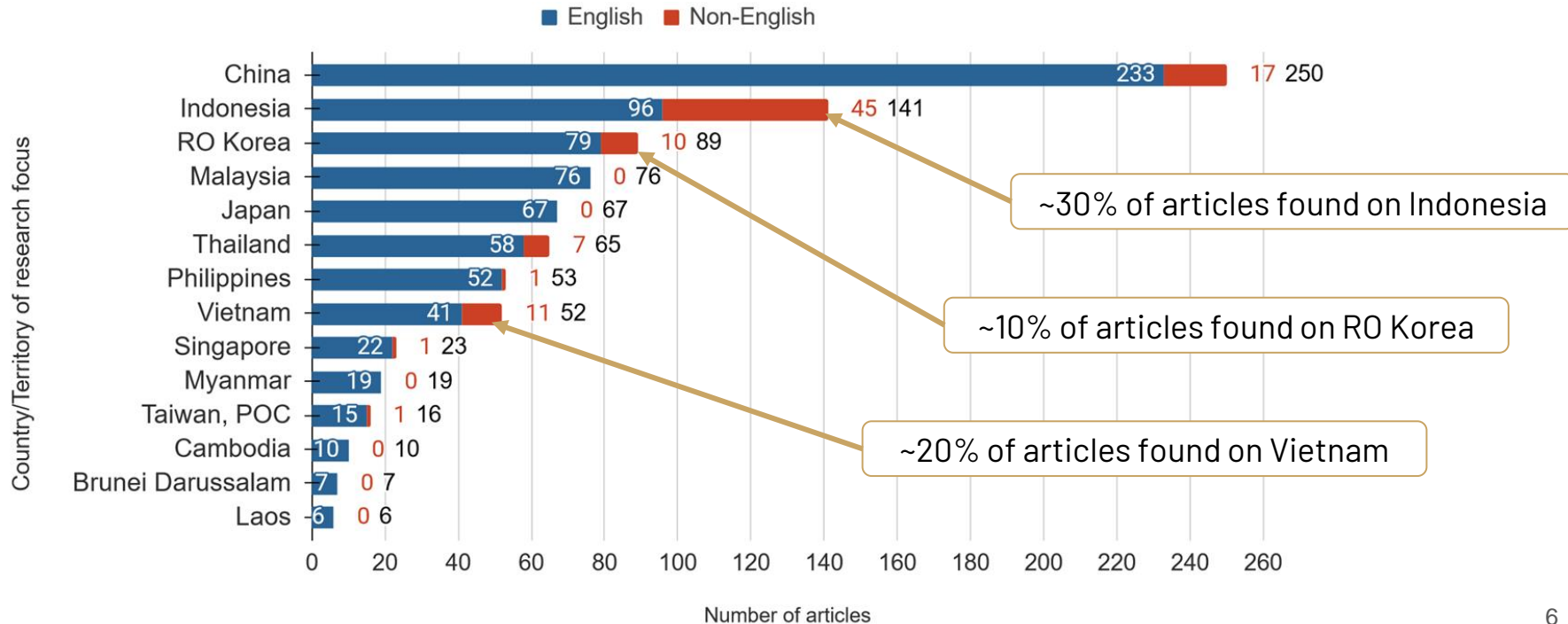
[RL1.G] Research topics covered in publications over the years



2. Overall Research Landscape

Importance of research publications in regional languages:

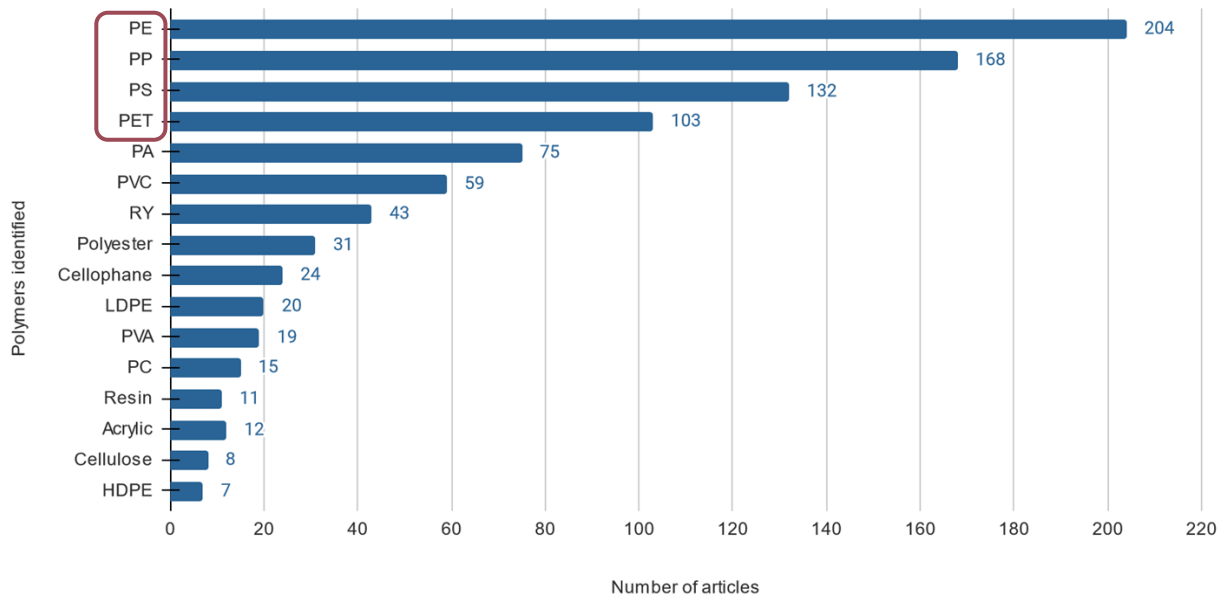
[RL2.B] No. of articles in English & Non-English languages, published on each country/territory



3. Scientific Research

Plastic polymers in the region:

[SR2.B] Commonly reported polymers identified from microplastic samples found in the region



PE = Polyethylene

Examples of use:

Packaging such as plastic bags, plastic films, and bottles

PP = Polypropylene

Examples of use:

Plastic pipes, household items

PS = Polystyrene

Examples of use:

Disposable foodware, styrofoam

PET = Polyethylene terephthalate

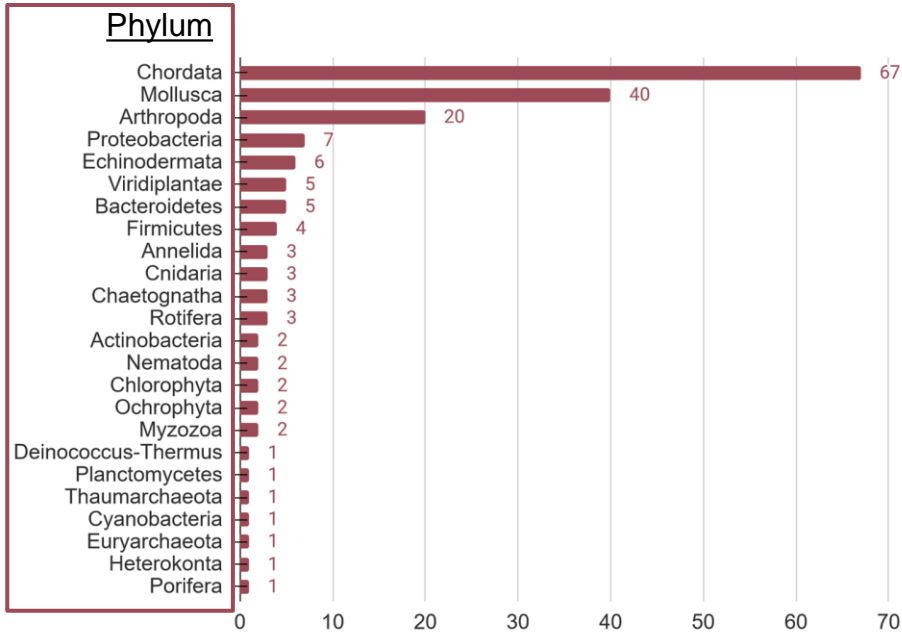
Examples of use:

Clothing fibres, containers

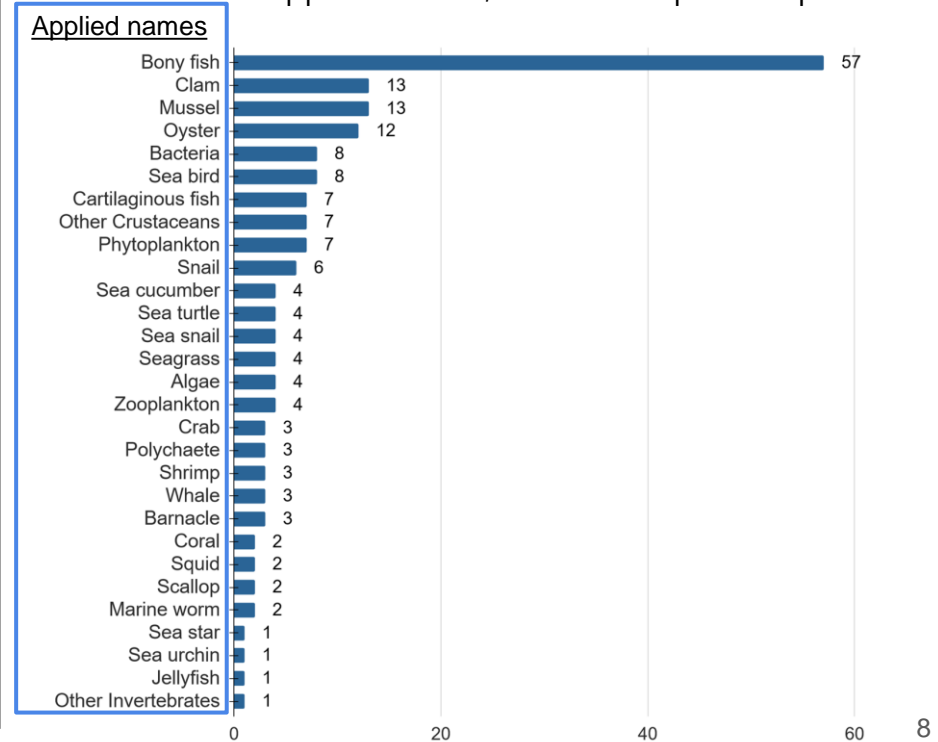
3. Scientific Research

Biota sampled in the region:

Phylum, based on reported species



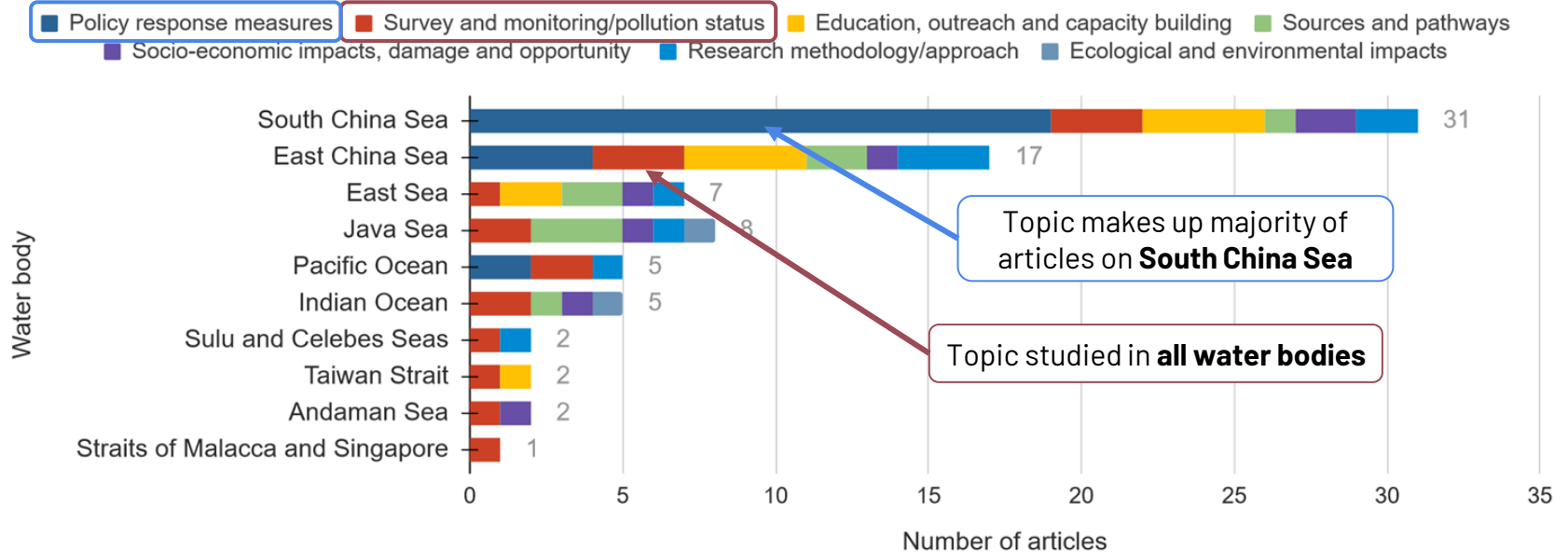
Applied names, based on reported species



4. Humanities Research

Topics frequently covered by humanities research article:

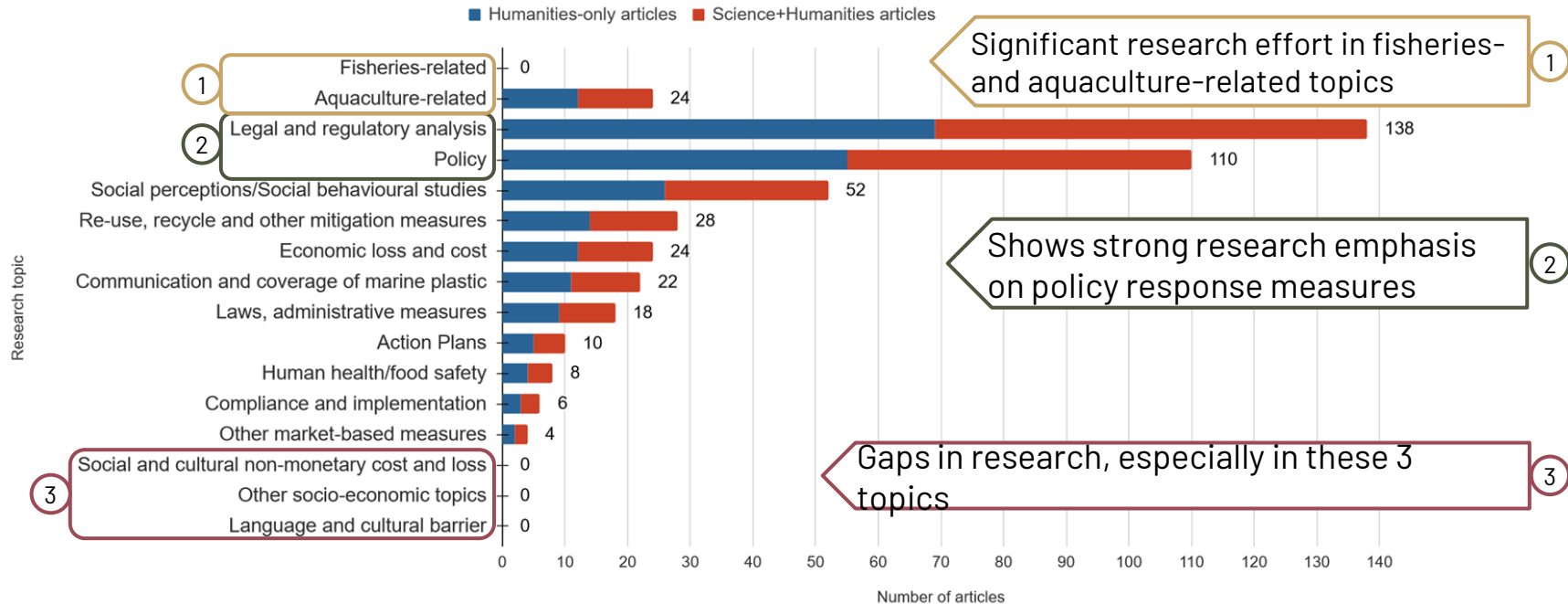
[H1.D] General research topics of humanities research articles, by water body studied



4. Humanities Research

Research topics frequently covered in humanities research:

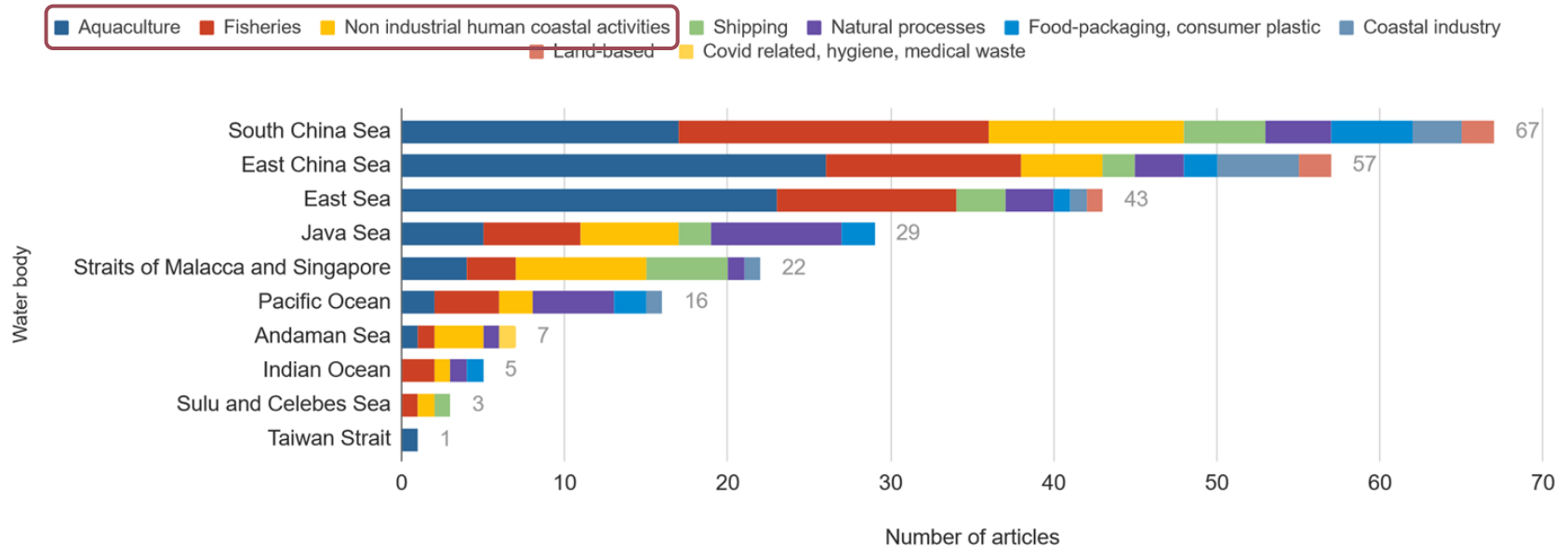
[H1.B] Specific research focus of humanities and science+humanities research articles



5. So What: Information for Policy-making

Sources of marine plastics:

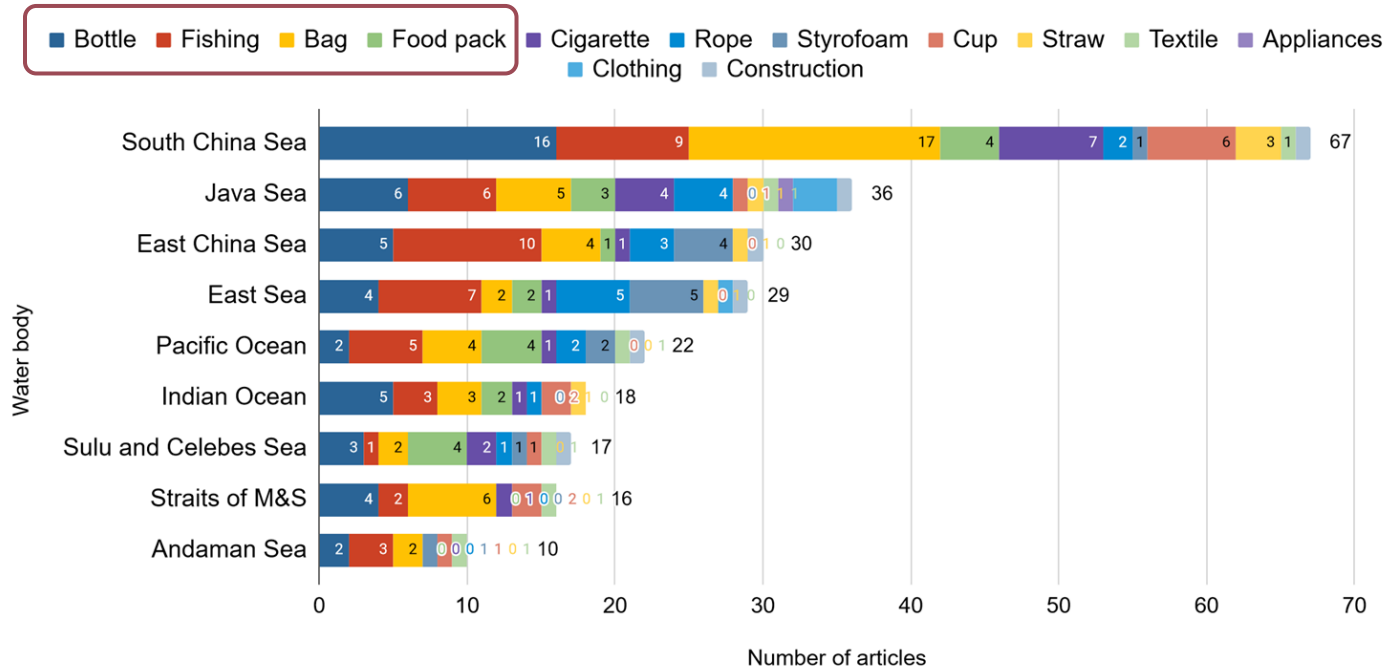
[PM1.A] Commonly reported general sources of marine plastics studied



5. So What: Information for Policy-making

Macro-plastic pollution in water bodies around the region:

[SR1.B] Commonly reported macro debris items



5. So What: Topical Factsheets

RESEARCH ON MARINE PLASTICS 101 IN THE EAST ASIAN SEAS

Marine Plastic Research Inventory in the East Asian Seas

Analysis prepared by the Regional Project Team coordinated by the Centre for International Law (CIL) of the National University of Singapore (NUS)
Data Source: RRI 2.0
Date: 14 February 2022

RESEARCH ON MARINE MICROPLASTICS

Marine Plastic Research Inventory in the East Asian Seas

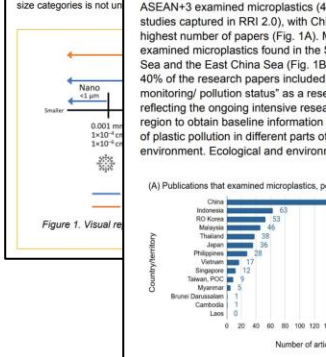
Analysis prepared by the Regional Project Team coordinated by the Centre for International Law (CIL) of the National University of Singapore (NUS)
Data Source: RRI 2.0 (additional references are also included)
Date: 6 January 2022

What are microplastics?

Microplastics are plastic particles less than 5 mm in size (GESAMP 2019). Based on their origin, microplastics can be categorised as (1) primary microplastics, which are intentionally manufactured for specific purposes (e.g. microbeads in personal care products, resin pellets, industrial abrasives), or (2) secondary microplastics, which are generated through degradation and fragmentation of larger plastics. Microplastics come in various shapes and morphologies, such as fibers, fragments, films, beads, and foams. Microplastics may also undergo further degradation and become nanoplastics (< 1 µm in size).

Profile of the research effort

The majority of plastic research conducted in the ASEAN+3 region were investigated in about 20% of the studies, ASEAN+3 examined microplastics (4 studies captured in RRI 2.0), with China having the highest number of papers (Fig. 1A). Most examined microplastics found in the Southeast Asian Sea and the East China Sea (Fig. 1B). 40% of the research papers included monitoring/ pollution status" as a research objective, reflecting the ongoing intensive research in the region to obtain baseline information on the extent of plastic pollution in different parts of the environment. Ecological and environmental impacts of microplastics were investigated in about 20% of the studies.



Other factsheets in the works:

- Contaminants and Pathogens Associated to Marine Plastics and the Micro-Plastisphere
- Single Use Plastic and Consumer Plastic

- Demonstrates applicability of inventory data, especially for policy-making purposes
- Digestible information on relevant topics
 - But more time and technical expertise required to investigate and analyse the data extracted
 - And, we need more research to fill the gaps especially in **humanities**

Scan QR code to read our factsheets and visit our website



We would like to invite you to visit our two posters:

1. **Making sense of published data on pollution from marine plastics in ASEAN+3**
by Cheng Ling Lim (on Virtual display)
2. **International and regional legal and policy landscape to respond to pollution from marine plastic in Southeast Asia** by Yulu Liu (on Physical display)

Thank you for your kind attention!

Please contact us for any clarification or further discussion at
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We would like to thank our project sponsors:

