Designing an International Agreement on Marine Plastic Pollution

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The Marine Plastic Problem

- Between 5 and 12 million tonnes of plastic added to oceans annually (Jambeck at al, 2015)
- Most from land-based sources; also significant contribution from shipping and fishing (e.g. discarded nets)
- Plastic pollution takes many forms from industrial waste to litter to discarded fishing gear
- A growing problem globally and in Australia (see Senate Standing Cttee on Enviro and Communications, Toxic Tide: The Threat of Marine Plastic, April 2016)
The Marine Plastic Problem

- Marine plastics sink, float, or remain in suspension, can break down into micro-plastics, can be transported significant distances and can accumulate in ‘garbage patches’ in ocean gyres (Cózar et al, 2014)
- Marine species impacts include entanglement and ingestion
- Microplastics and the chemicals they contain can impair biological function and affect reproduction and development (Borelle et al, 2017)
- Regional, national and subnational solutions are inadequate (Borelle et al, 2017; Haward, 2018)
Plastic waste inputs from land into the ocean in 2010

The 192 countries with a coast bordering Atlantic, Pacific, and Indian oceans, Mediterranean and Black seas produced a total of 2.5 billion metric tons of solid waste. Of that, 275 million metric tons was plastic, and an estimated 8 million metric tons of mismanaged plastic waste entered the ocean in 2010.

Mitigation options:
- Reduce plastic in waste stream
- Improve solid waste management infrastructure
- Increase capture
**Sources of marine plastic pollution in Australia**

- Beverage litter: 33%
- Tyre dust: 18%
- Production losses (plastic manufacturing, waste, management and recycling): 9%
- Synthetic fibres: 9%
- Maritime industry waste: 11%
- Use of plastic (wear and tear): 4%
- Cigarette butts: 5%
- Plastic bag litter: 1%
- Other litter: 9%
- Microbeads: 1%

Source: Sydney Morning Herald, 17 February 2016
Concentrations of plastic debris in surface waters of the global ocean.

Andrés Cózar et al. PNAS 2014;111:10239-10244
The graph compares global carbon emissions (data from ref. 20) with plastic production (21); ratification of international policy interventions are also noted.

Stephanie B. Borrelle et al. PNAS 2017;114:9994-9997
Existing International Legal Framework

  - Arts 192, 194, 207, 210, 213 and 216
  - Pollution from vessel operations
  - Annex V, Regs for the Prevention of Pollution by Garbage from Ships prohibits disposal of plastics at sea (150 states)
  - 2017 Guidelines for Implementation of Annex V
Existing International Legal Framework

  – Prohibits dumping of plastics at sea
– Regional Seas Programme (e.g. Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention) and its Protocols)
The Existing International Legal Framework

### Focus of Current Regime

- Prohibition on disposal of plastics anywhere at sea from merchant, fishing and leisure vessels
- Prohibition of sea dumping of plastics
- Soft-law instruments for plastic waste management (e.g. UNEP Clean Seas campaign)

### Gaps in Current Regime

- Enforcement
- Port-reception facilities
- Aquaculture industry poorly regulated
- No regulation of land-based sources of marine plastics (i.e. 80% of the problem)
- No regulation or limits on plastic production
- Limited regulation of harmful chemicals in plastics
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- Long history of proposals to improve the international regulation of marine debris (e.g. Lentz, 1987)
- Renewed attention to the issue as a result of scientific knowledge (e.g. GESAMP) and public awareness (e.g. ABC’s War on Waste)
- Key to Sustainable Development Goals (SDG14 ‘Conserve and Sustainably Use the Oceans’, SDG12 ‘Sustainable Consumption and Production’)
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More of the Same

- Amending/strengthening existing treaties
- New binding agreement on marine plastic pollution from land-based sources


- Modelled on Montreal Protocol on Ozone Depleting Substances
- Goals: (1) reduce plastic production, (2) eliminate harmful chemicals, (3) incentivize circular material flow
- Mechanism: (1) plastics regulated as controlled substance, (2) caps on production of plastics from virgin feedstock (i.e. recycling exempted), (3) trade restrictions, (4) reporting, (5) technology transfer
“Applying the elements of the Montreal Protocol can shift the dominant design of policy responses from end-of-life waste management and product bans towards a circular materials flow for the plastics industry” (Raubenheimer and McIlgorm, 2017, 327)
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Source: plasticoceans.org

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