

DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

WORKSHOP

EU Action to Combat MARINE LITTER

Brussels, Wednesday 3 May 2017

MEETING DOCUMENT

CONTENTS

PROGRAMME	3
SHORT BIOGRAPHIES OF EXPERTS	4
PRESENTATIONS	6
Presentation by François Galgani	6
Presentation by Dustin Benton	10
Presentation by Patrick ten Brink	15
Presentation by Heather Leslie	20

EU Action to Combat MARINE LITTER

WORKSHOP

Wednesday, 3rd May 2017 from 11:30 to 12:30
European Parliament (Brussels), Room: Altiero Spinelli 3G2

PROGRAMME

Chairs: Simona Bonafè MEP (ENVI)

The workshop is organised at the request of the ENVI Committee in order to contribute to European policy making to address marine litter. It is part of the ENVI Committee's follow up to the European Commission's Circular Economy Action Plan.

11:30 – 11:35

Welcome by the Chair, opening remarks

11:35 – 11:45

[Presentation 1: The global context for the marine litter issue](#)

François Galgani, IFREMER (French Research Institute for the Exploitation of the Sea)

11:45 – 11:55

[Presentation 2: Ocean cleanup? Why prevention is better than a cure](#)

Dustin Benton, Policy Director, Green Alliance

11:55 – 12:05

[Presentation 3: Measures to address marine litter](#)

Patrick ten Brink, Institute for European Environmental Policy (IEEP)

12:05 – 12:15

[Presentation 4: Messages from a marine litter scientist](#)

Heather Leslie, Vrije Universiteit Amsterdam and CleanSea

12:15 – 12:30

Q&A with closing remarks by Chair

SHORT BIOGRAPHIES OF EXPERTS

François Galgani

Dr. François Galgani is project manager at IFREMER (French Research Institute for the Exploitation of the Sea) and head of the Environment and Resources Laboratory in Corsica, France. He has more than 30 years of research experience in marine biology and conservation and 110 peer reviewed publications.

His work focuses on marine litter and ecotoxicology as well as the implementation of marine litter monitoring. He serves as chair of the scientific and technical group of the European commission / DG environment group on marine litter.

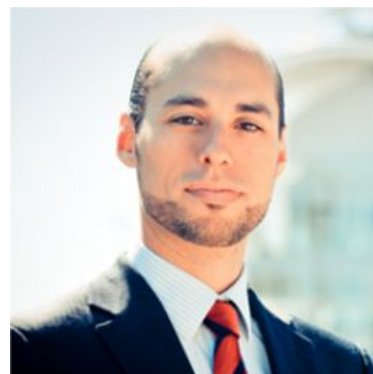
He is also part of the G20 and G7 processes on Marine litter and member of the international scientific groups from UNEP (OSPAR and MEDPOL) and UNESCO (Gesamp WG on microplastics).



Dustin Benton

Dustin is acting Policy Director at the UK-based environmental think tank Green Alliance, where he leads on Low Carbon Energy and Resource Stewardship.

He has been responsible for Green Alliance's work with the Alliance for Circular Economy Solutions (ACES), a partnership of businesses and think tanks committed to ambitious circular economy policy in Europe funded by the MAVA Foundation. ACES has paid close attention to the European Commission's Circular Economy Package, including supporting effective policies to address marine litter within the context of the forthcoming plastics strategy.



Before joining Green Alliance, Dustin worked for the Campaign to Protect Rural England where he led on the relationship between landscape protection, climate change, and new energy infrastructure. He holds an MA in Political Thought and Theory from the University of Birmingham and an MA in International Relations and French from the University of St Andrews.

Patrick ten Brink

Patrick ten Brink is the Director of IEEP's Brussels Office, Head of the Green Economy programme and leads IEEP's circular economy and marine litter work. He led IEEP's policy contributions on the DGENV Scoping study to identify potential circular economy actions, priority sectors, material flows and value chains.

He is responsible for IEEP's work on Plastics, Marine Litter and The Circular Economy (for UNEP, and for MAVA) and well as for the ongoing project on market-based instruments for pollution and natural resources that includes a theme on the circular economy and on marine litter.



He lectured on the socio-economic impacts of marine litter and on market-based instrument to address marine litter in a MOOC that had 7460 inscriptions (2016) and is in the process of contributing to further MOOCs for 2017, updating the existing modules and contributing to a new circular economy module. He is co-chair of the T20 expert group on circular economy and lead author of the paper on Circular Economy, Plastic and Marine Litter.

Patrick has an MSc in Environmental and Natural Resource Economics from University College London. He speaks English, German, French and Spanish.

Heather Leslie

Dr. Heather A. Leslie from Vrije Universiteit Amsterdam (NL) is an environmental pollution scientist with a deep interest in studying how marine litter, plastics and industrial chemicals can negatively impact our ecosystems, society and health - and what can be done about it.

She takes an interdisciplinary approach to studying complex issues like marine litter, from its environmental, societal and economic impacts to the technology and policy mix needed to address the issue, as demonstrated in the European FP7 CleanSea Project (www.cleansea-project.eu), which she coordinated.



She is committed to exploring the opportunities in the circular economy, eco-design of product systems, policy and law to prevent the environmental pollution she and her team measure in the field and laboratory.

PRESENTATIONS

Presentation by François Galgani



EU Action to Combat Marine Litter



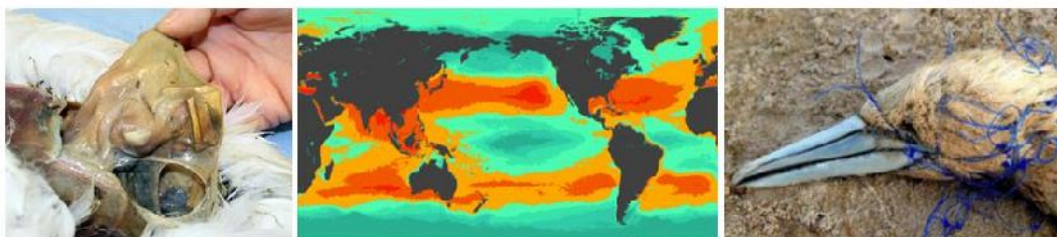
European Parliament, 3 May 2017

F Galgani, IFREMER



What does the global situation of marine litter look like?

8 M tons of Plastic are entering the world ocean every year (700 tons/day in the MED)



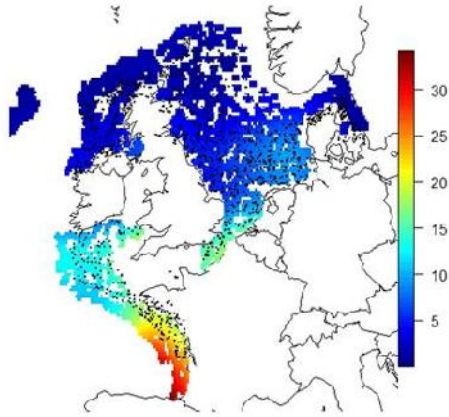
5 trillions particules of plastic are floating in the World ocean (# 250 billions in the MED)

#700 marine species are affected by litter (Entanglement, ingestion, rafting of species)

The Mediterranean sea and the gulf of Bengal are the most affected areas,
up to 100 000 items/ km² (sea floor) and 64 M items/km² (floating microplastics)



Are there regional differences?



Total litter per km² seafloor across OSPAR region
(source OSPAR)



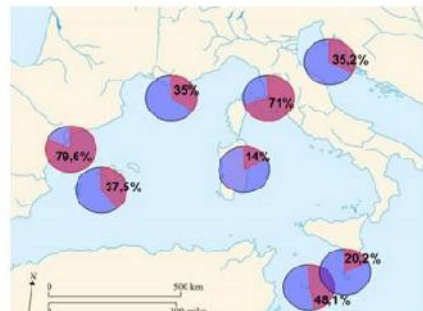
% Tulumars above GES (source OSPAR)



Are there regional differences?

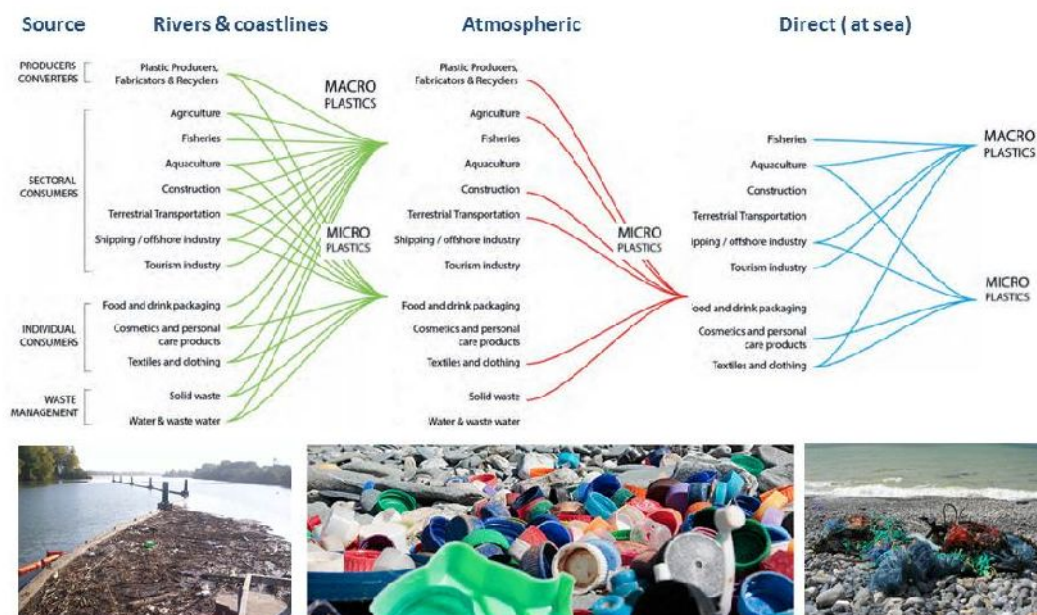


Microplastics per km² in the MED sea
(modelled, source L. Lebreton)



% of sea turtles with ingested litter
(source CEFE)

What are the main sources of marine litter?



What are the main pathways for marine litter to reach the oceans?
Rivers, run offs, shipping, fishing, tourism... and diffuse pathways

What are the challenges in measurement / verification of ML?

Research priorities

- Methods capable of quantifying small particles (μm range)
- Better understanding of degradation processes
- New tools and strategies to optimize sampling effort
- Developing automated sensors and real-time measurements
- Better understanding of harm caused



Monitoring

- Harmonising sampling and quantification methodologies
- Creating global standardized technology for monitoring
- Creating / designing cost-effective methods & rapid methods
- Organising data and storage



Who are the main actors involved in tackling marine litter?

- EC / DG ENV Plastic strategy (recycling, circular economy)
- EC directives (waste management, Port receptions facilities, etc.)
- UNEP Regional Sea conventions (Regional Actions Plans, Fishing for litter)
- National Action Plans (Ministries: bans on plastic bags & microbeads, taxes, etc.)



What kind of global regional initiatives exist to combat marine litter?

- Global initiatives (G7, G20 on Waste management, UNEP/GPML on education)
- Local Authorities (bans of smoking on beaches, taxes, etc.)
- Conventions / Agreements (Marpol, Honolulu strategy, DAVOS on plastic)
- NGOs (cleaning and monitoring)
- Everybody... (prevention)



Common misconceptions associated with marine litter

- **'Plastic islands'** are convergence zones with densities of litter higher than other areas, **far less than many coastal waters** (Mediterranean Sea). The Atlantic gyre has only 1000 tons.
- **Clean up of debris in gyres is nonsense** (due to small amounts of plastic, long distance to collect / repair, expensive systems, and it kills organisms). Better to prevent, recycle, and collect along coastal waters.
- Debris affect marine species (up to 100% of turtles have ingested litter in some areas), but **trophic transfer is limited**, and unknown for nanoplastics.
- **Plastic / microplastic is a minor pathway for contaminants** (contamination comes from water), but affects some sensitive species (high ingestion rate) locally.
- **The rafting of species could be underestimated** (long distance transport, pathogens, etc.)



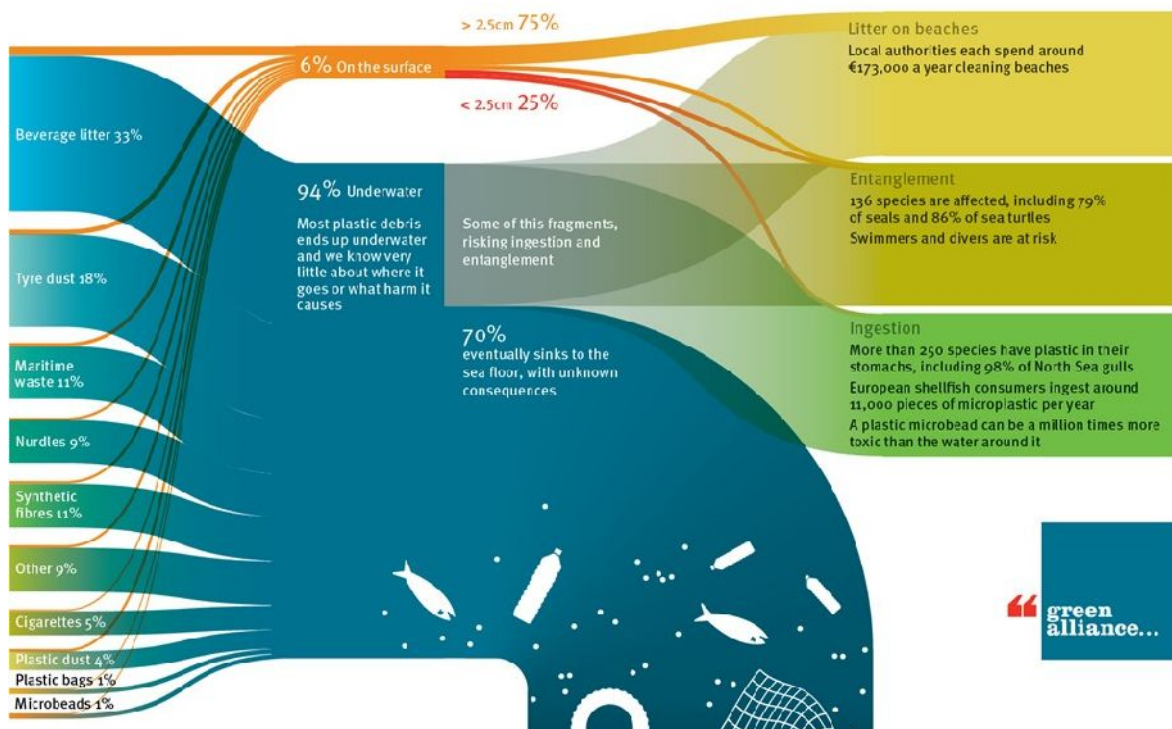
Presentation by Dustin Benton



Ocean cleanup? Why prevention is better than cure

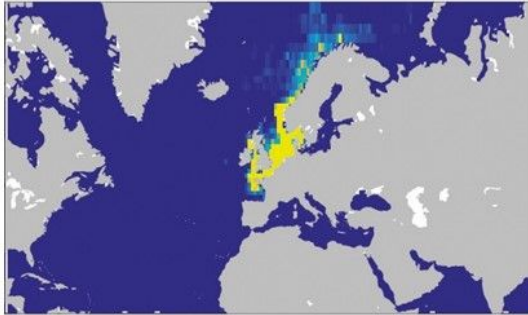
Dustin Benton
Acting policy director
@dustin_benton

What happens to plastics in the sea?



Floating plastic gets around - slowly

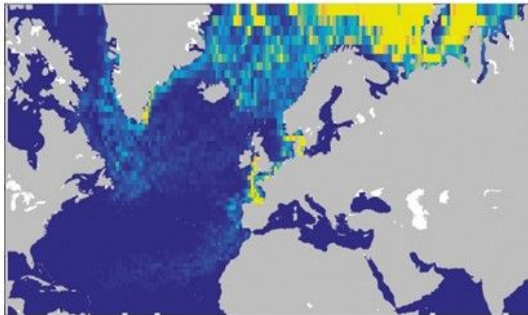
UK plastic after 1 years



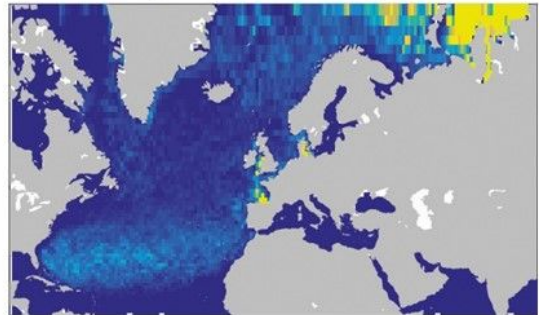
UK plastic after 2 years



UK plastic after 5 years



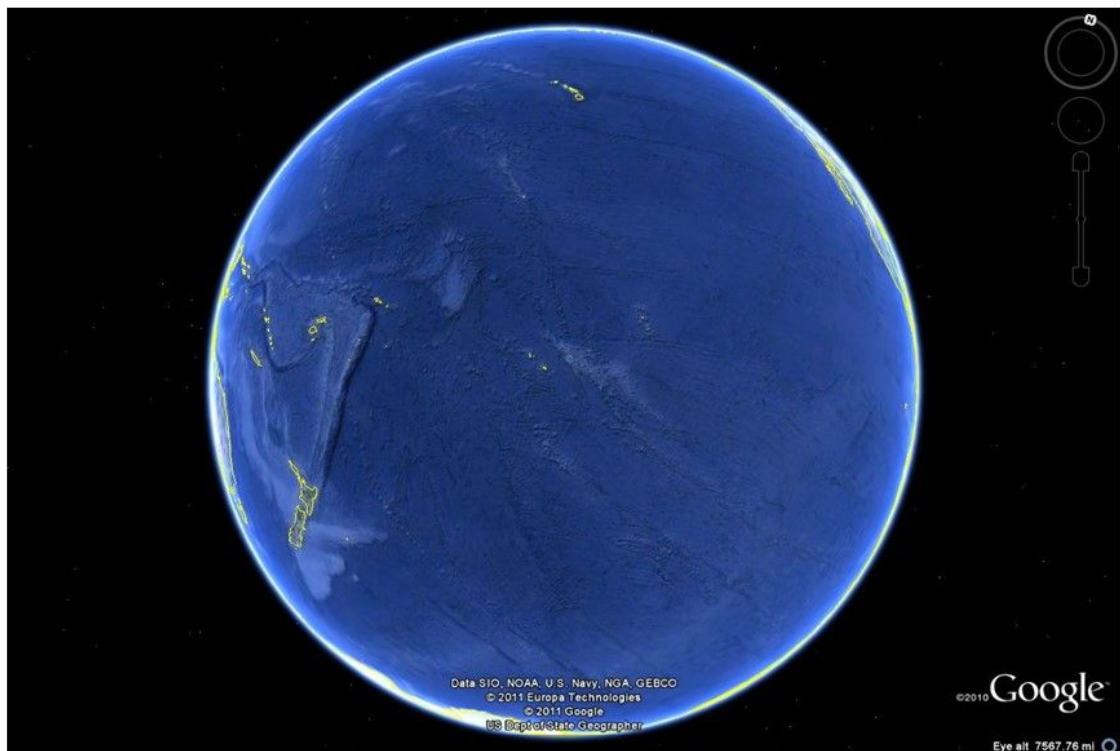
UK plastic after 20 years



Source: Erik van Sebille / Imperial

<http://www.imperial.ac.uk/grantham/publications/the-ocean-plastic-pollution-challenge-towards-solutions-in-the-uk--grantham-briefing-paper-19.php>

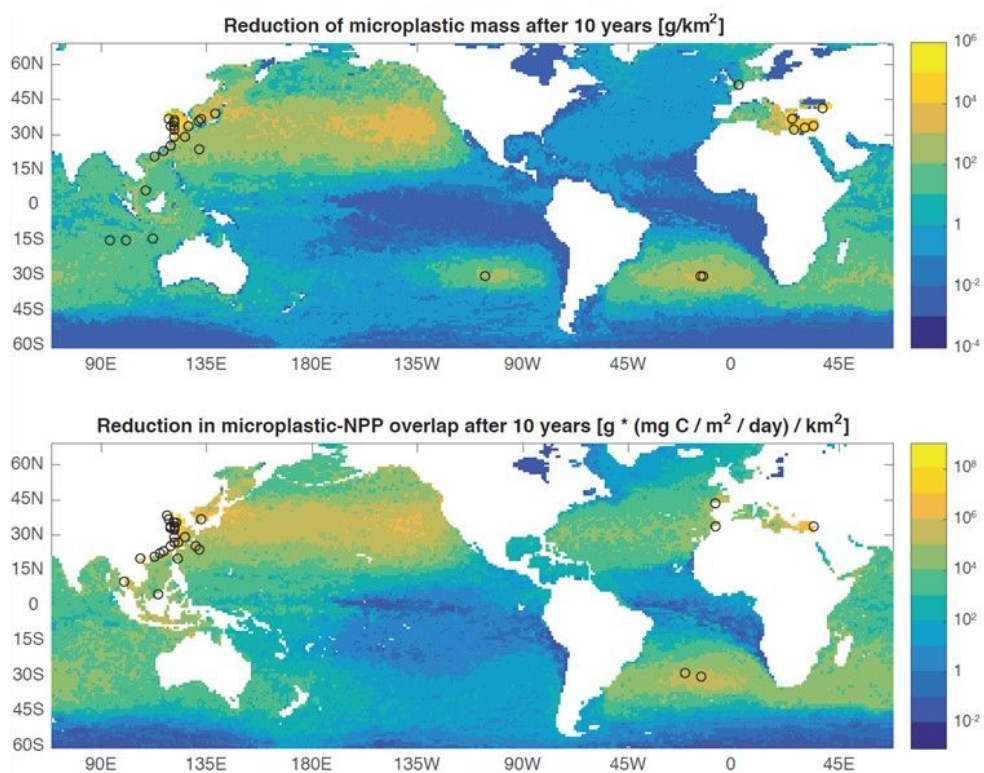
The ocean is a really really big place



Siren songs v1: floating buoys

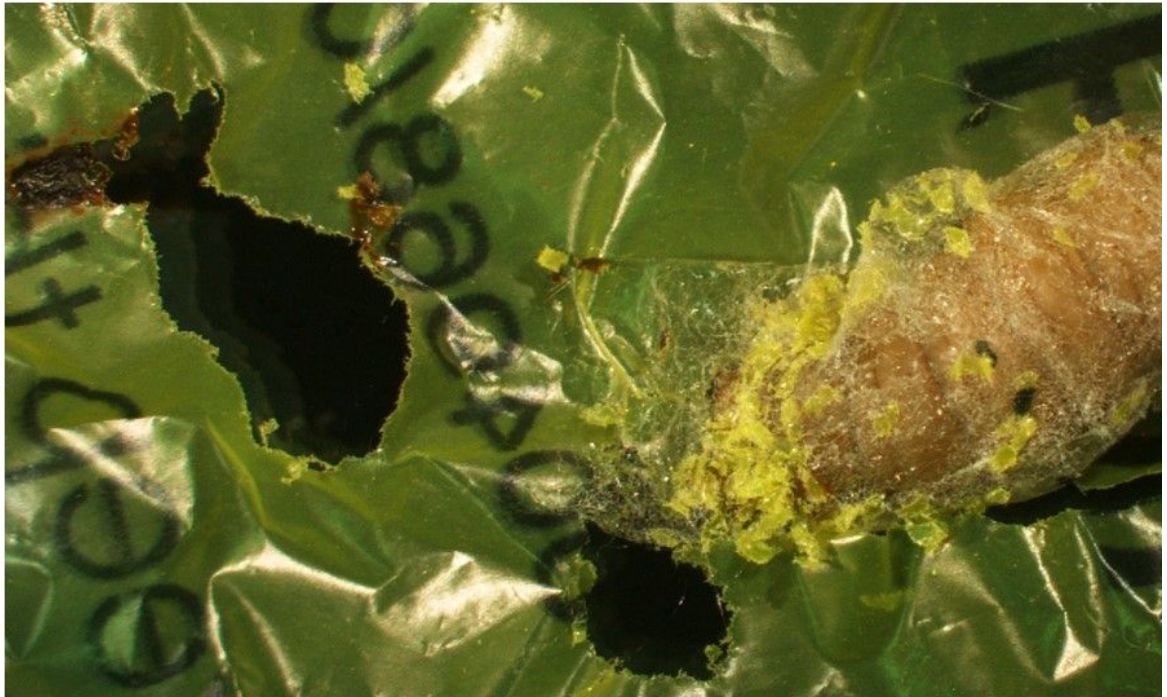


Siren songs v1: floating buoys



Source: Erik van Sebille / Imperial
<http://iopscience.iop.org/article/10.1088/1748-9326/11/1/014006/meta>

Siren songs v2: plastic eating bugs



Some better ideas

Keep plastic from getting into the ocean

Ban designed-to-pollute products

- Microbeads
- Expanded polystyrene

Support redesign

- Require biobased alternatives (cigarette filters, cotton buds)
- Plastic bottle lid tethers
- Use ecodesign to require recyclability

Enforce liability

- Nurdles are industrial pollution

Clean up as close to the source as possible

- Bottle deposits
- Wastewater filters for microfibres

Presentation by Patrick ten Brink



Measures to address Marine Litter

Patrick ten Brink

Director IEEP-Brussels & Head of the Green Economy Programme

3 May 2016

European Parliament, Brussels

www.ieep.eu

 @IEEP_eu

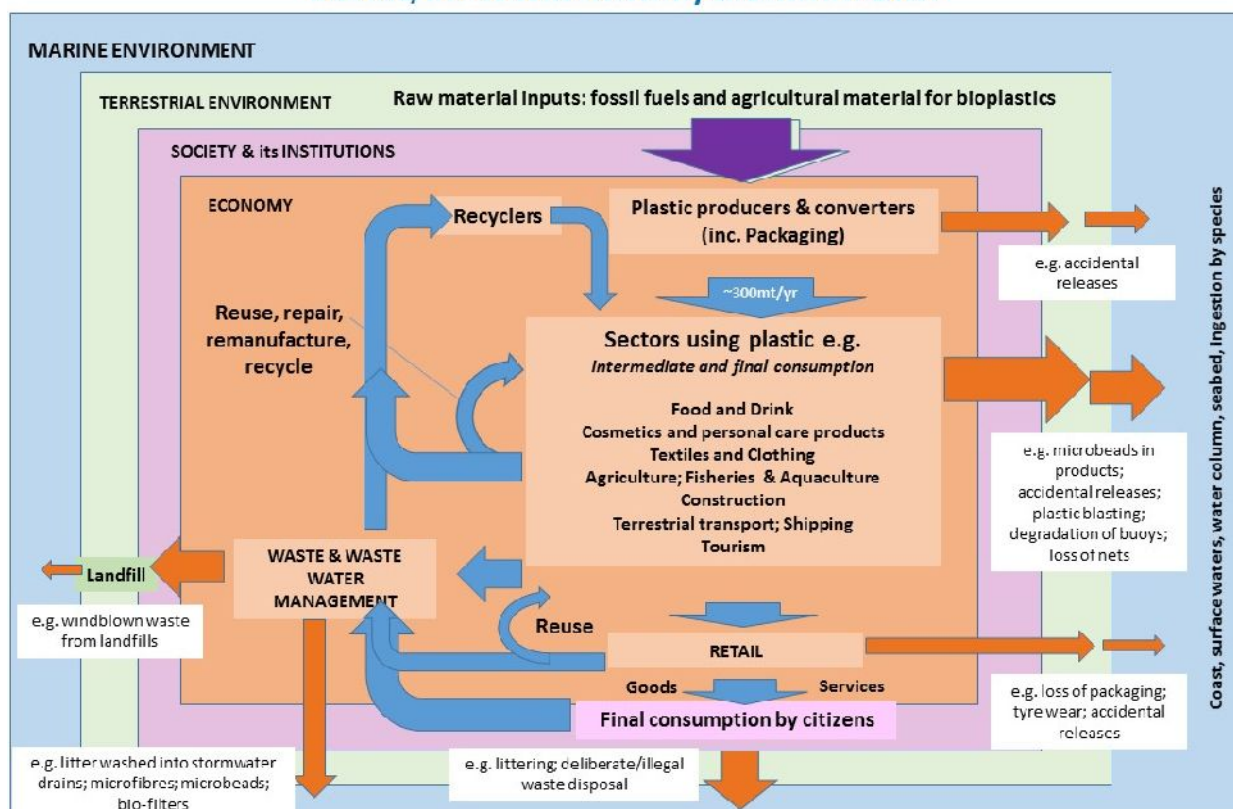
Structure



1. Plastics the Circular Economy and Marine Litter
2. Overview of Measures
3. Examples
4. Way forward



Plastics, the Circular Economy and Marine Litter



Producer responsibility & consumer behaviour



- **Production as a source:** ~300m metric tonnes of plastic produced annually; \$400bn annual market for consumer packaging
- **Consumers as a source:** 4,000 tonnes/year of microbeads in EU personal care products; microfibers from laundry; littering; packaging
- **Impacts on consumers:** health & safety, food chain, well-being
- **Means of engagement/solutions:** product design, product charges/deposits, infrastructure, technology (e.g. apps), info campaigns

Waste and wastewater sector

- **Waste sector as a source/pathway:** poor infrastructure, dumping, windblown waste, biofilters, stormwater, microbeads
- **Waste prevention:** extended producer responsibility, product design, wastewater treatment
- **Waste collection:** public/municipal and small/voluntary projects
- **Waste disposal:** capture windblown waste, clean up illegal dumps
- **Trash to treasure...!**



Fishing and aquaculture



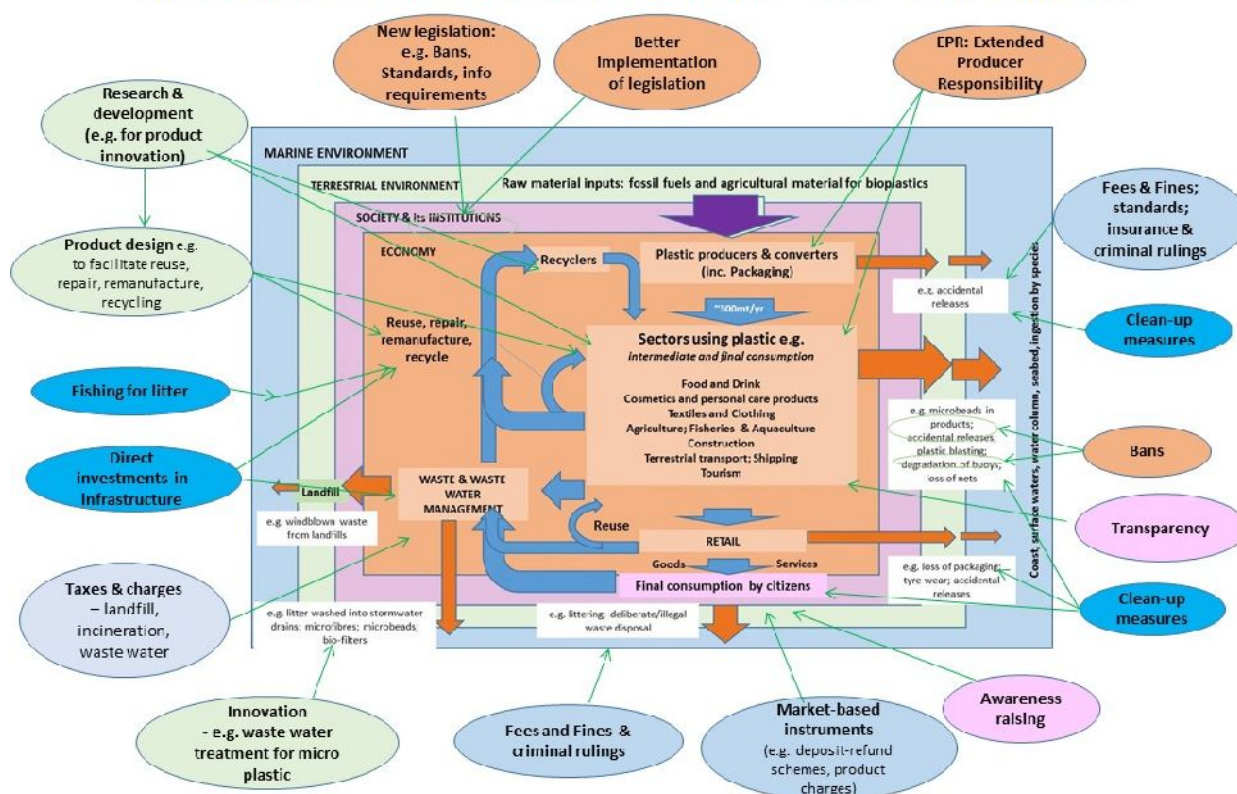
- **Fisheries/aquaculture as a source:** abandoned, lost & discarded fishing gear (ALDFG) e.g. nets, buoys, ropes
- **Impacts on the sector:** vessel damage (cooling systems, propellers), loss of catch through ghost fishing, reduced value of catch (e.g. from chemical/microplastic ingestion)
- **Actions and costs:** fishing for litter, modified gear, on-board technology, deposit refunds, port reception facilities and fees

Tourism sector

- **Tourism sector as a source:** littering, recreational fishing & boating, hotels/shops, inadequate waste infrastructures
- **Impacts on the sector:** loss of aesthetic value, health & safety risks, reduction in tourist numbers, loss of tourism jobs
- **Actions and costs:** beach clean-ups, beach certification/sustainable tourism, bans, fees and fines, awareness-raising



Plastics, the Circular Economy and Marine Litter & Instruments



Hierarchy and types of actions

Prevent/reduce waste that contributes to marine litter:

- Product design, material choice, awareness raising

Prevent/reduce litter that reaches the marine environment:

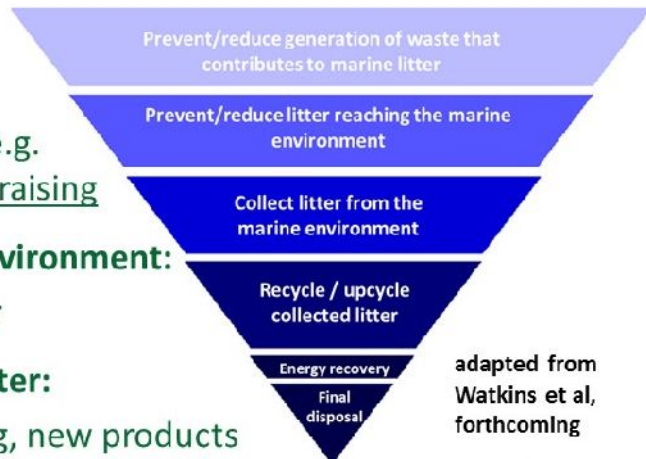
- Waste and wastewater infrastructure; incentives e.g. deposit refund, EPR; plastic bag charges; bans e.g. bags/smoking; awareness raising

Collect litter from marine environment:

- Clean-ups; fishing for litter

Recycle/upcycle collected litter:

- Trash to treasure, recycling, new products



adapted from
Watkins et al,
forthcoming



Conclusions / summary and way forward

- There are many circular economy solutions to address marine litter
- Costs (environmental, health, social and economic) of inaction are too high to accept the status quo of plastic pollution
- Need multi-level governance solution (i.e. action by all parties)
- Best to follow a hierarchy of prevention over treatment as this is likely to be more (cost)effective
- Learn from others: e.g. inspired by plastic bag taxes to product bans
- EU Plastics strategy within the Circular Economy package a major opportunity not to be missed
- Need measures and ambition in proportion to the challenge of keeping plastic and its value in the economy and out of the oceans.



Presentation by Heather Leslie



Marine litter is a political problem.

WE NEED YOUR HELP



**We
scientists
don't want
to be this
guy.**

Marine plastic litter costs Europeans billions annually

e.g. R. Brouwer et al. 2015. Socio-Economic Assessment of the Costs of Marine Litter



**Toxic chemicals (EDCs from plastic etc.) cost
Europeans hundreds of billions
annually**

Transanda et al. 2015 .Estimating burden and disease costs of exposure to endocrine-disrupting chemicals in the EU



Chemical toxicity

**endocrine disruption
central nervous system
immune system**

Plastic Particulates

The silent killer ?

Particle toxicity

oxidative stress
chronic inflammation
cell death
diseases (way too many to list here)

**Plastic pollution is a
human health issue too.**

**An ecological future
without marine litter
requires a different hierarchy of
values, economic and
political organization
of our societies.**

Hardship and disasters are mere challenges to a boundless human ingenuity.

Edward Tenner



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NOTES