

# The Plastics Plan

Tuesday 15 May 2018

# Welcome



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*"The team breaks everything down to understandable but cutting edge advice."*

(Chambers & Partners, 2017)



LEADING FIRM

**Environment -  
ranked:**

**Band 1**

**Environment -  
ranked:**

**Tier 1**

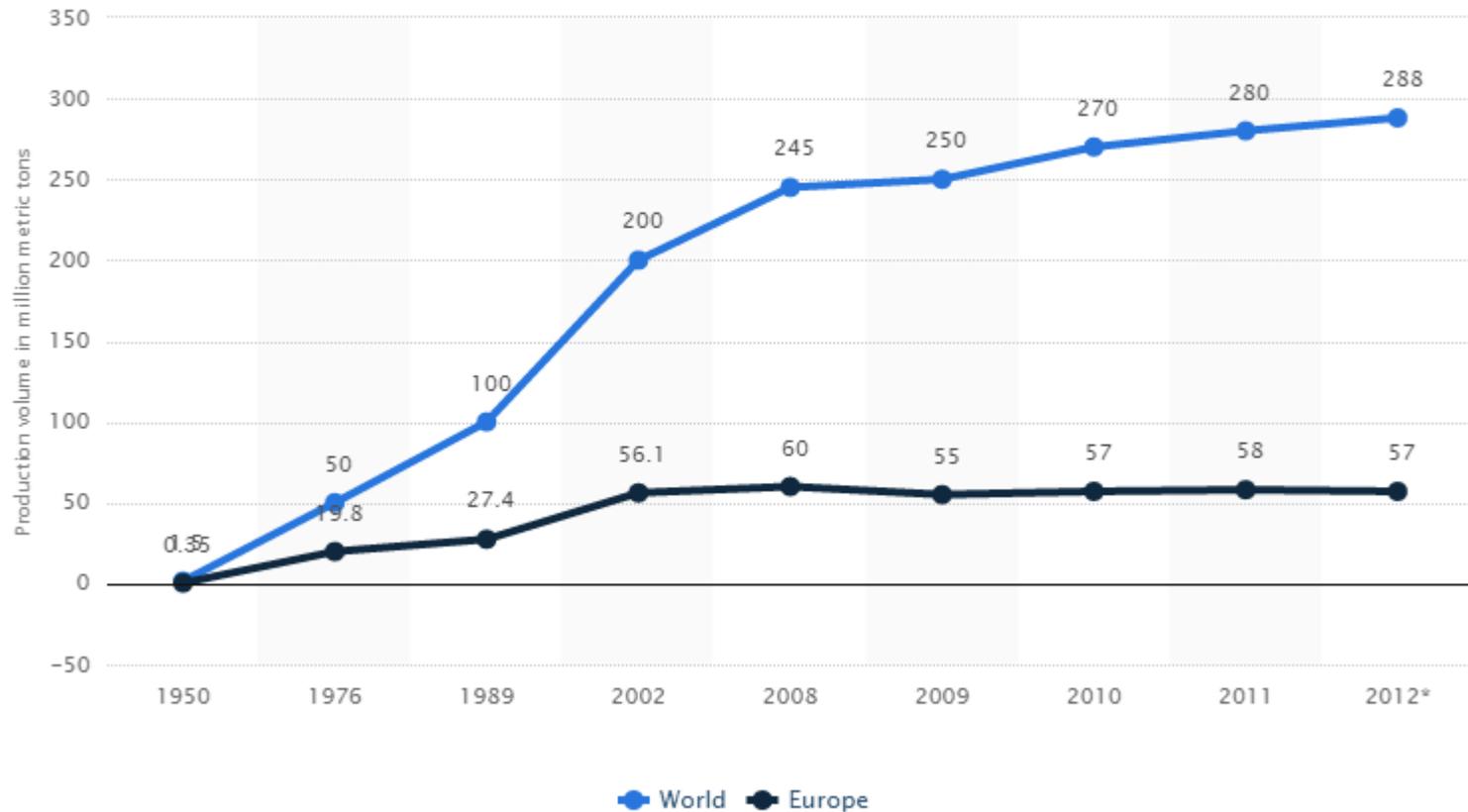


# Legal and policy perspective: Overview and context from Dentons

Sam Boileau

# Worldwide production of plastic

Production of plastics worldwide from 1950 to 2012 (in million metric tons)



# International Environmental Law



# EU Law and Policy

- EU Waste Framework Directive and Landfill Directive
- Packaging Waste Directive
  
- Circular Economy Package
  - Extended producer responsibility
  - New targets for landfill
  - New targets for packaging recovery
  - EU Strategy for Plastics in the Circular Economy



# UK Law and Policy

- Existing producer responsibility and waste management controls
- Recent legislation
  - Microbead ban
  - Plastic bag levy
- 25 Year Plan
  - Elimination of avoidable plastic waste - 2042
  - Zero avoidable waste - 2050
  - "Significantly reducing" marine plastic pollution
- Government proposals
  - Taxes to address single use plastic waste - Treasury call for evidence, March 2018
  - Bottle deposit scheme - Defra consultation to follow
  - Plastic straw ban - idea proposed; to be consulted
  - Extension of plastic bag levy - consultation to follow



# What next?

- Current UK consultations and proposals
  - Taxes / levies on single use plastic
  - Bottle deposit scheme
  - Bans on single use items
  - Extension of plastic bag scheme
  - 25 Year plan targets
- Voluntary initiatives
  - Plastics pledge
- Brexit
  - Withdrawal Bill
  - Circular economy
  - Devolution



# Scotland

Pamela Coulthard

# Scotland: Headline Grabbers

- Plastic carrier bags
  - Blanket charge introduced in October 2014
- Plastic cotton buds
  - Open consultation on banning sale and manufacture of plastic cotton buds
- Plastic straws
  - Ban on plastic drinking straws likely by end of 2019
- One big ban?
  - Case by case analysis
- Deposit Return Scheme
  - Confirmed in September 2017



# Scotland: Circular Economy



- "Making Things Last - A Circular Economy Strategy for Scotland"

- By 2025 ...

- Target to recycle 70% of all waste
- No more than 5% of waste to landfill



- EU pledge - all plastic packaging to be reusable / recyclable by 2030

*"I would very, very much want to support the EU's position. We will, in Scotland, continue to match the best possible ambition that there is, and particularly match what Brussels is doing... One of the issues we can't ignore is there are some powers, such as product standards and taxation, which are not currently in our gift to make changes because there is a devolved and reserved split."*

Roseanna Cunningham - Environment Minister

# Scotland: Circular Economy



- Ban on exporting plastic waste to China
  - Reprocess at new Scottish based purpose built plants
- Scotland's Household Recycling Charter (2015)
  - Harmonise the way local authorities collect recycling
  - Consistent, identifiable, straightforward stream of recycling
  - Maximise opportunities



# PML

Plymouth Marine  
Laboratory

Listen to the ocean

## Marine plastic: Scientific perspective

Prof. Mel Austen  
Dr Pennie Lindeque  
Dr Jim Clark  
Dr Nicky Beaumont  
Dr Matt Cole



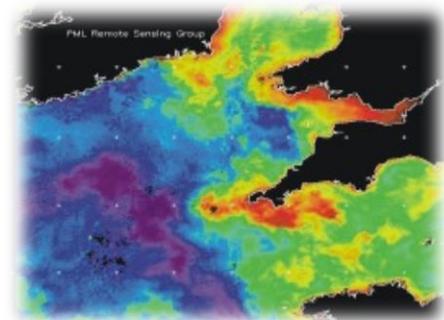
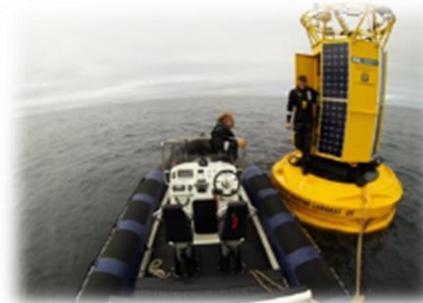
Dentons Plastic Event, 15-05-2018

**PML is a registered charity (since 2002)  
governed by a Board of Trustees**

Our mission is:

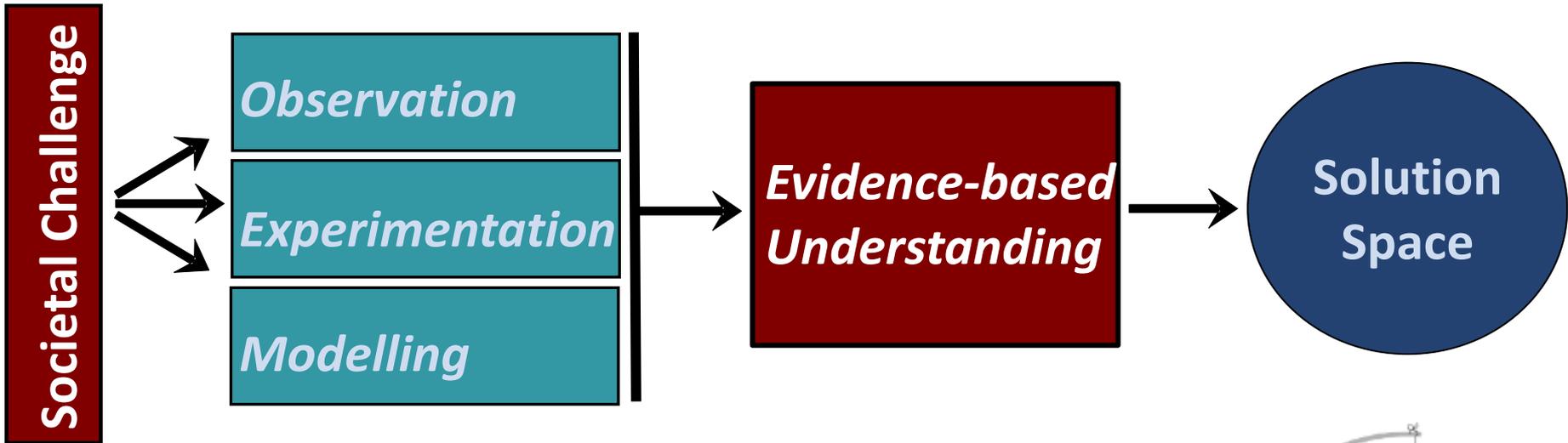
**To undertake cutting-edge, interdisciplinary research in  
anticipation of growing societal needs and to promote  
stewardship of marine ecosystems**



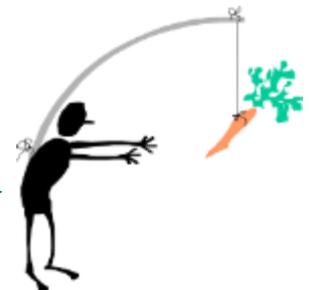


- Independent provider of policy relevant marine research
- 160 staff and 50 postgraduate students
- £11M income
- delivered with >500 institutions from >60 countries

# PML's approach ...



PML



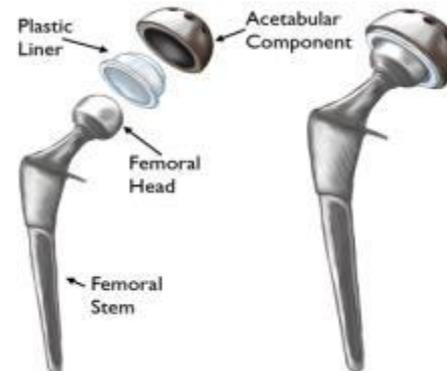
... At local to global scales ...

## Plastics – The Good, The Bad and The Ugly

- Rapid growth in plastic production over the past 60 years
- > 300 million tons manufactured per year



- Medical and Health
- Building and construction
- Electrical and electronic
- Transportation
- Sport and Leisure
- Agriculture



**“Marine litter is a growing threat to the marine environment”**

United Nations Environment Program



Plastics – The Good, The Bad and The Ugly



## Plastics – The Good, The Bad and The Ugly



J.M. van Coutren/Marine Photobank



Martin Porta/Marine Photobank



John Chinuntdet, 2007/Marine Photobank



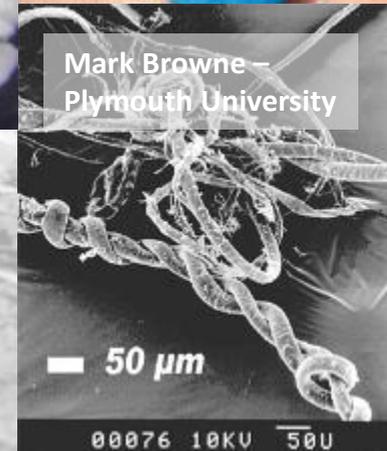
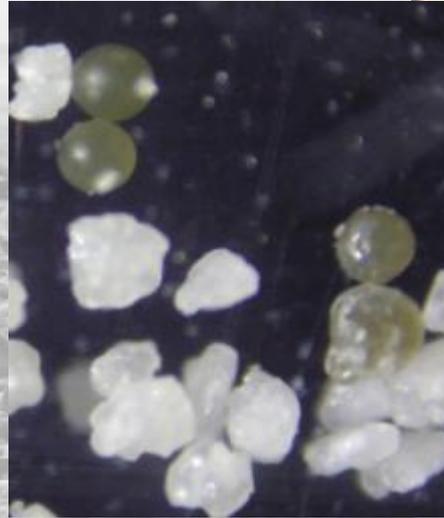
NOAA



Claire Fackler, NOAA National Marine Sanctuaries/Marine Photobank

# Microplastics

- **Small fibres, beads, granules and fragments of plastics (<5 mm in diameter)**



Mark Browne –  
Plymouth University

# Microplastic fragments

- Fragmentation of large plastics into microscopic particles
- Caused by UV degradation and abrasion



# Nurdles

- Also known as “mermaid’s tears”
- Used to make everyday plastics



# Microbeads

“40,000 particles in 25 mL of shower gel”

**UK ban on the manufacture of products containing microbeads – Jan 2018**

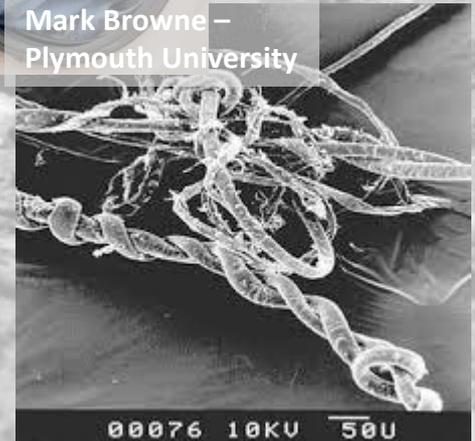


# Microplastic fibres

“a single garment can produce **>1900 fibres** per wash”

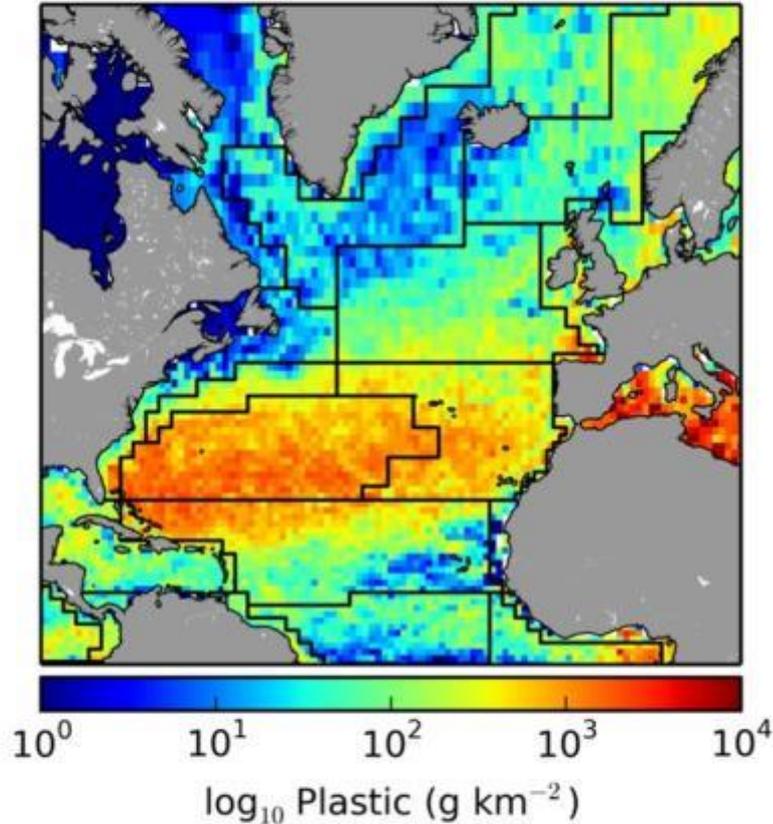


Mark Browne –  
Plymouth University

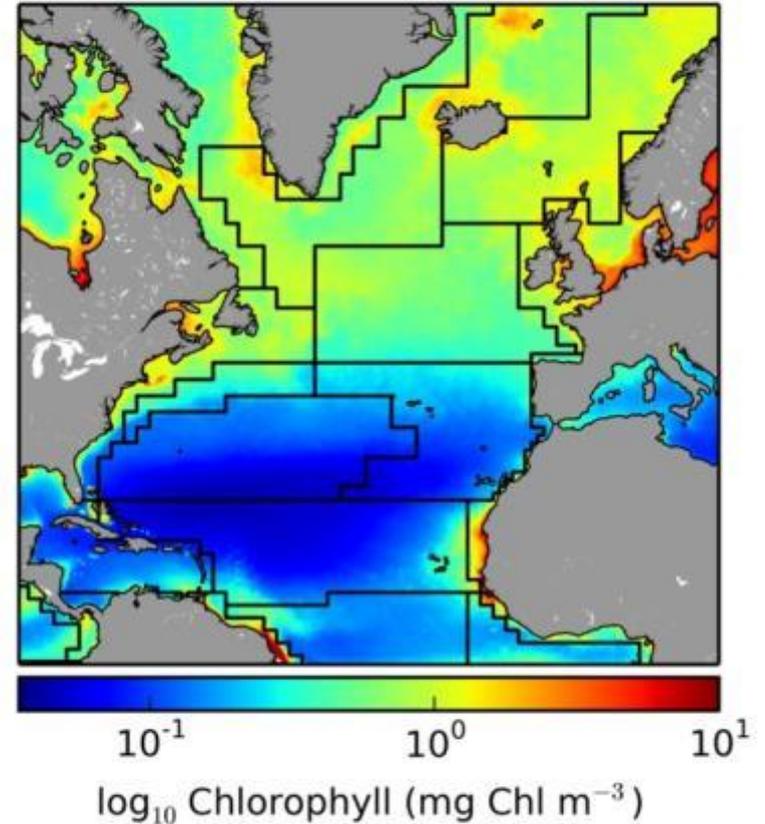


# In search of interaction “hotspots”

(a) Plastic concentration

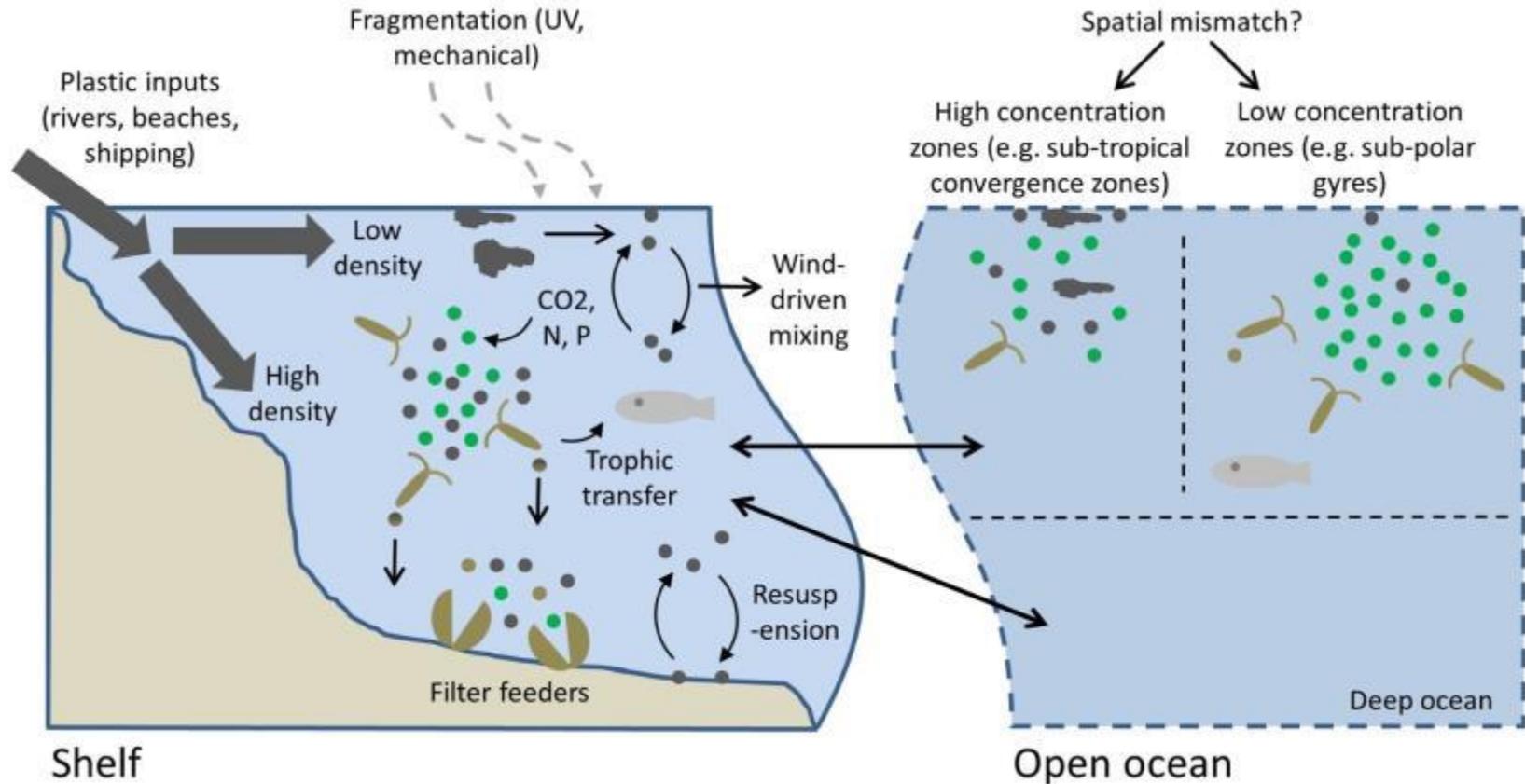


(b) Biota productivity



Particle tracking models used to map distribution of plastic with areas of high productivity, key biota and valuable habitats.

# Importance of plastics in the Shelf Seas



- Shelf seas are coincident with land based sources of marine plastic litter
- Generally productive with a rich abundance of marine life
- A key area in terms of microplastic interactions with marine life



- Optimised methodologies for **sampling** and **extracting** microplastics from the water column, sediments and biota:
- Coppock, R., Cole, M., Lindeque, P., Queirós, A., & Galloway, T. (2017). **A small-scale, portable method for extracting microplastics from marine sediments.** *Environmental Pollution*. 230: 829-837.
- Lusher, A., Welden, N., Sobral, P., & Cole, M. (2017). **Sampling, isolating and identifying microplastics ingested by fish and invertebrates.** *Analytical Methods*. 9: 1346-1360.
- Cole, M., Webb, H., Lindeque, P., Fileman, E., Halsband, C. & Galloway, T. (2014). **Isolation of microplastics in biota-rich seawater samples and marine organisms.** *Scientific Reports*. 4: 4528.
- Steer, M., Cole, M., Thompson, R., & Lindeque, P. (2017). **Microplastic ingestion in fish larvae in the western English Channel.** *Environmental Pollution*. 226: 250-259



- Our research has highlighted the extent to which animals throughout the marine food web are exposed to marine plastic and microplastic:
- Steer, M., Cole, M., Thompson, R., & Lindeque, P. (2017). **Microplastic ingestion in fish larvae in the western English Channel.** *Environmental Pollution*. 226: 250-259.
- Lindeque, P., Cole, M., Fileman, E. *et al.* (in prep.) **Microplastic ingestion by marine zooplankton.**
- Nelms, S., Duncan, E, Lindeque, P. *et al.* (2015). **Plastic and marine turtles: a review and call for research.** *ICES Journal of Marine Science*. 73: 165-181.



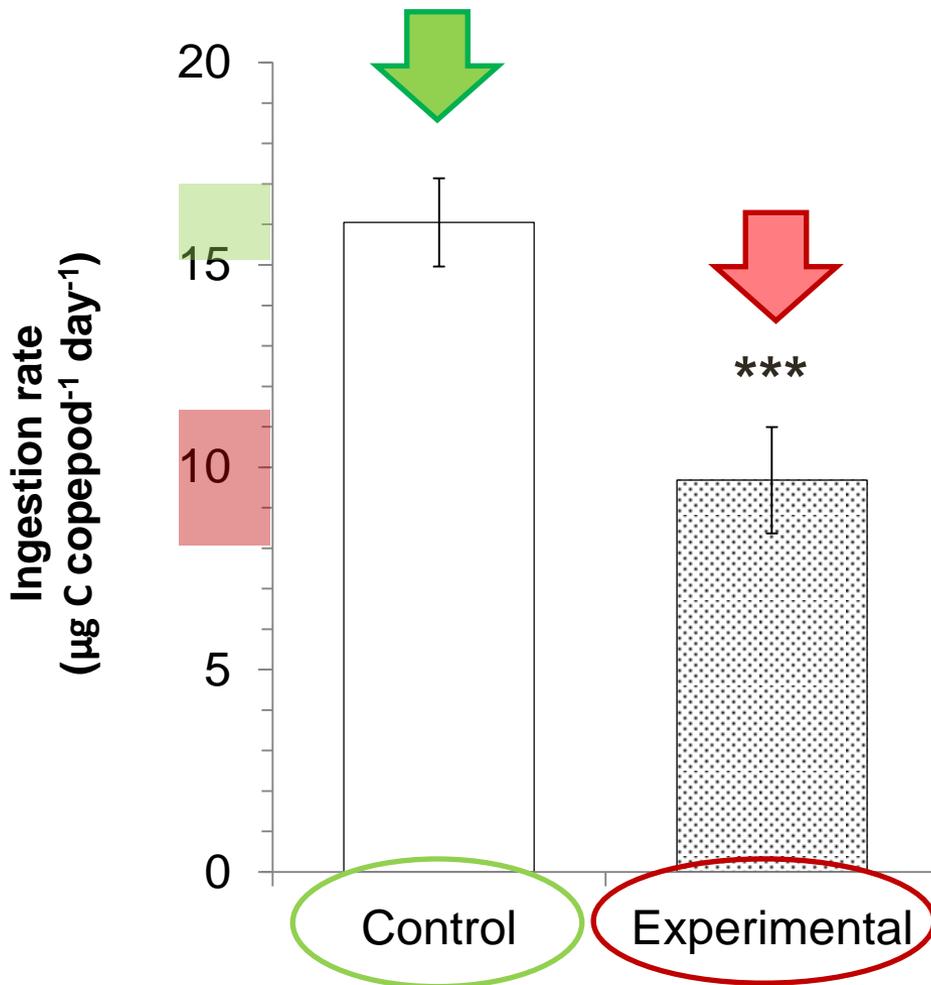
Emily Duncan

- Laboratory exposures have elucidated the capacity for marine plankton to consume and egest microplastic:
- Cole, M., Lindeque, P., Fileman, E., Clark, J. *et al.* (2016). **Microplastics alter the properties and sinking rates of zooplankton faecal pellets.** *Environmental Science & Technology*. 50: 3239-3246.
- Cole, M. & Galloway, T. (2015). **Ingestion of nanoplastics and microplastics by Pacific oyster larvae.** *Environmental Science & Technology*. 49: 14625–14632.
- Cole, M., Lindeque, P., Fileman, E., *et al.* (2013). **Ingestion of microplastics by zooplankton.** *Environmental Science & Technology*. 47: 6646–6655.



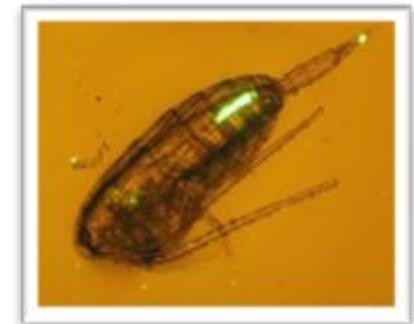
# Microplastics interfere with copepod feeding

24h exposure to 20µm PS (65 microplastics mL<sup>-1</sup>)



## Results

Significant (40%) reduction in food ingested

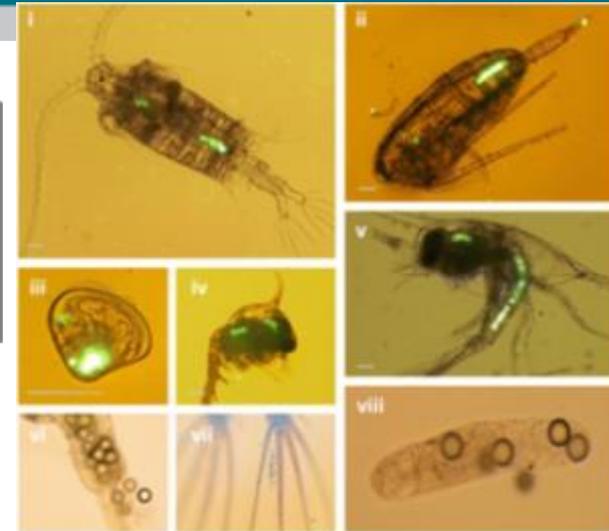


- Toxicity testing has been used to demonstrate the deleterious effects microplastics can have on biota:
- Clark, J., Cole, M., Lindeque, P., Fileman, E., Blackford, J., *et al.* (2016). **Marine microplastic debris: a targeted plan for understanding and quantifying interactions with marine life.** *Frontiers in Ecology and the Environment*. 14: 317–324.
- Cole, M., Lindeque, P., Fileman, E., *et al.* (2015). **Impact of polystyrene microplastics on feeding, function and fecundity in the marine copepod *Calanus helgolandicus*.** *Environmental Science & Technology*. 49: 1130–1137.
- Coppock, R., Cole, M., Querios, A., Galloway, T. & Lindeque, P. (in press). **Microplastics alter feeding selectivity and faecal density in the copepod, *Calanus helgolandicus*.**
- Cole, M., Lindeque, P., Fileman, E., *et al.* (2013). **Ingestion of microplastics by zooplankton.** *Environmental Science & Technology*. 47: 6646–6655.

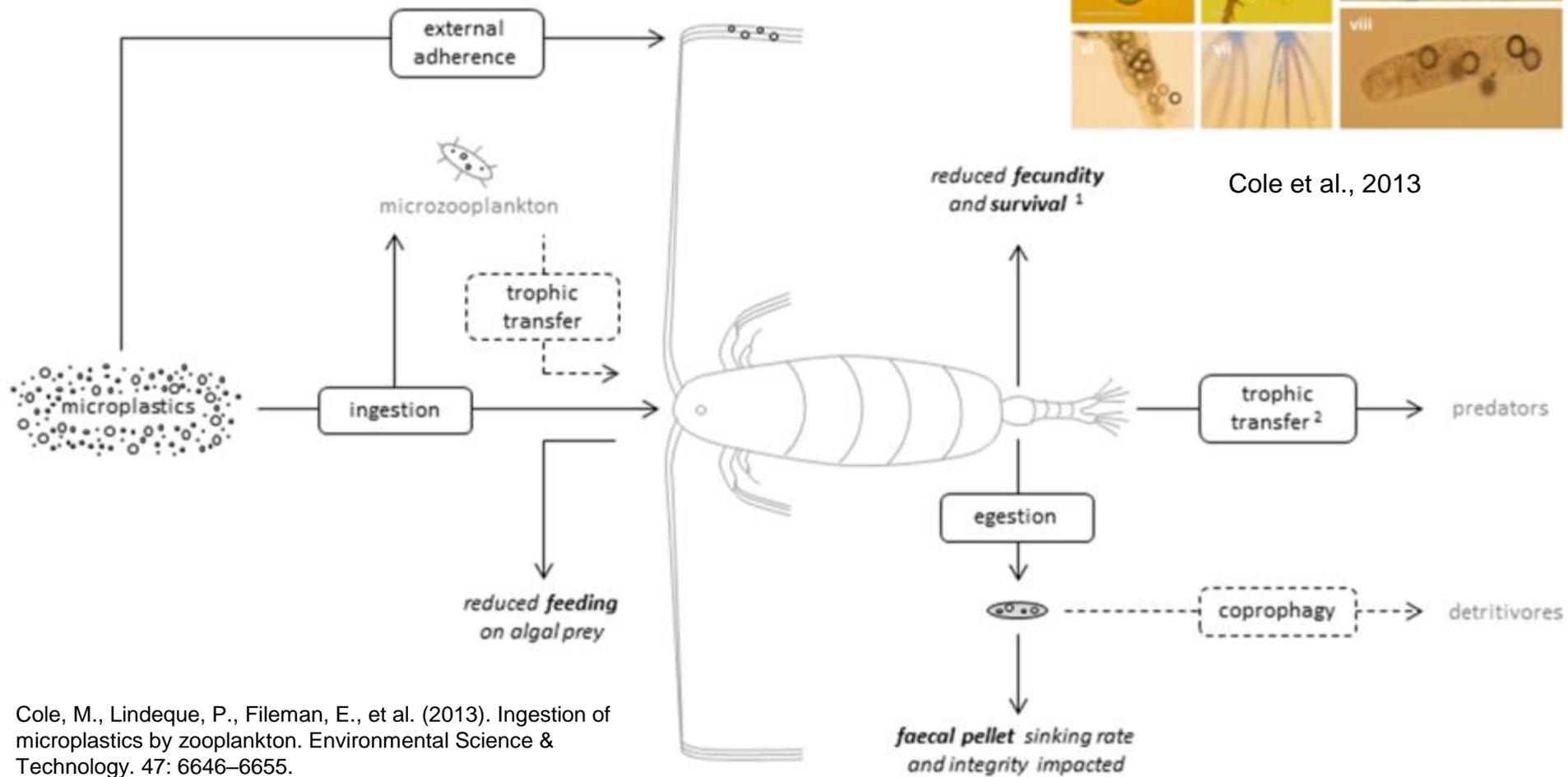


Cole et al., 2013

# Importance of biological processes in redistributing plastics in the ocean



Cole et al., 2013



Cole, M., Lindeque, P., Fileman, E., et al. (2013). Ingestion of microplastics by zooplankton. *Environmental Science & Technology*, 47: 6646–6655.

- Currently working with colleagues on exciting new approaches, including:
  - **Modelling:** Spatial and ecological modelling to better understand the movement and fate of marine plastic.
  - **Remote Sensing:** Conceptual design of a remote sensing methodology to detect marine plastic (OPTIMAL).
  - **Huge investment in facilities at PML for use in the Hub, including development of brand new microplastic clean-lab and refurbished facilities.**



## **Fish**

- *Ingestion*
- *Lethal/sub-lethal effects*
- *Entanglement*

## **Mammals**

- *Entanglement*
- *Ingestion*
- *Mortality and health effects*

## **Turtles**

- *Entanglement injury*
- *Hatchling success reduced by obstacles*
- *Ingestion*
- *Health effects and/or likely mortality*

## **Birds**

- *Entanglement*
- *Ingestion*
- *Risk to chicks*
- *Effects on bird health*

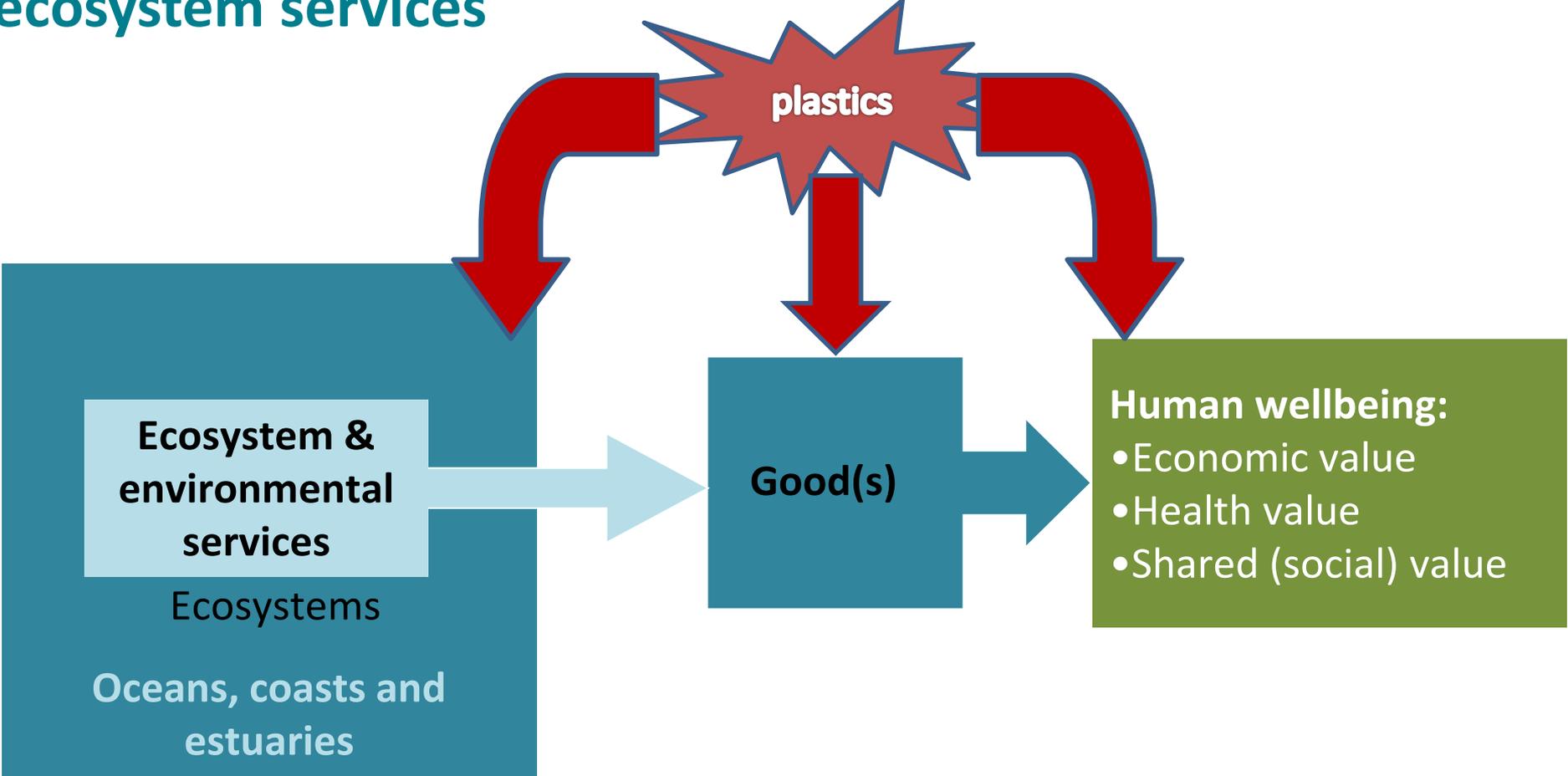
## **Invertebrates**

- *Prevalent plastic ingestion*
- *Marine debris as obstacles or for use*
- *Plastics as vectors of chemicals*

## **Bacteria**

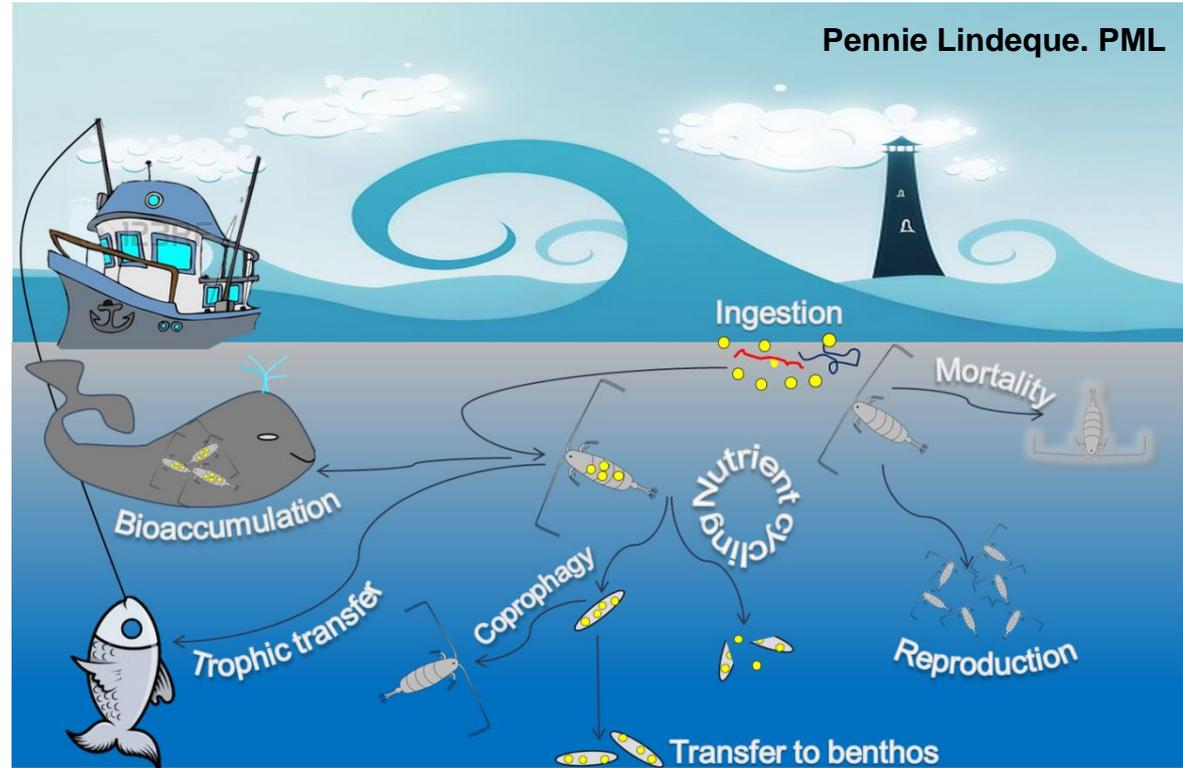
- *Bacterial communities on plastic*
- *Biodegradable plastics*
- *Colonisation of plastic*

# Linking plastics in the marine environment to ecosystem services



- **Trophic transfer**

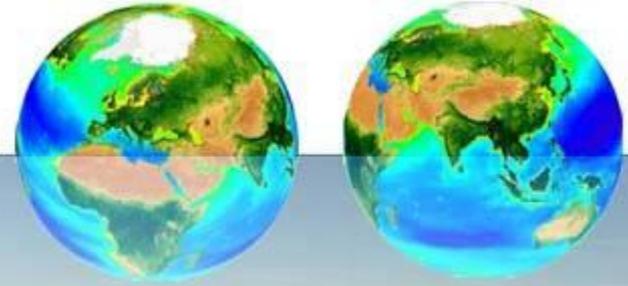
- Plastics eaten by zooplankton may get transferred up the food chain.



- **Carbon Cycling**

- Microplastics egested in faecal pellets cause the pellets to sink more slowly

# Thank you



Mel Austen ([mcva@pml.ac.uk](mailto:mcva@pml.ac.uk)); Pennie Lindeque ([pk1@pml.ac.uk](mailto:pk1@pml.ac.uk) )



DTF UK develops, manufactures and sells a wide range of polyethylene terephthalate (PET) films into a wide range of specialty and commodity applications



# DuPont Teijin Films™

**6** manufacturing locations

Sites in Europe, the USA and China

All the major regions of the world

**2375** employees

Global turnover  
**\$ 600 million**

Europe contributes over one third of global business

Global volume - almost  
**150,000** tonnes





Medical Faceshields (disposable)  
 Blood glucose test strips (for diabetes)  
 Sterilisable Packaging

## Healthcare

### Properties of PET used...

- Inert
- Optical Clarity
- Anti-fog / anti-glare
- Controlled thickness profile



Photovoltaics (PV) Solar Panels  
 Laminates for 'Back Sheet' that encapsulate the solar cell

## Photovoltaics

### Properties of PET used...

- Inert
- UV stability
- Hydrolysis resistance

Plastics underpin much of how we live



Around 500 million long life ID cards issued on Melinex® every year

## Durable Cards

### Properties of PET used...

- Long life expectancy
- Physical strength and durability
- Competitive with other materials
- Excellent thermal stability and solvent resistance
- Printable with UV curable and solvent based inks



Automotive sensors (seat sensors / airbag)  
 Flexible circuits  
 Membrane touch switches (computer keyboards, microwave oven controls)  
 LCD TV / PC screen components  
 E-readers e.g Kindle  
 Screen protectors

## Flexible Electronics

### Properties of PET and PEN used...

- Flexible
- Lightweight
- Oxygen barrier
- Stability - temperature, chemical, physical
- Optical Properties - clarity or diffusion
- Electrical insulation



## Packaging Heat Sealable

Peelable and permanent seal lidding films  
Ovenable packaging

### Properties of PET used...

- Wide range of heat seal properties
- low temperature sealing
- High temperature capability
- Class leading antifog
- Recyclability



## Packaging Films for Printing, Converting and Metallising

Printing, Lamination and Metallising  
Medical Packaging

### Properties of PET used...

- Ink adhesion coatings
- Temperature stability
- Stiffness in use
- Surface smoothness
- Clarity

....but some applications are 'single-use'

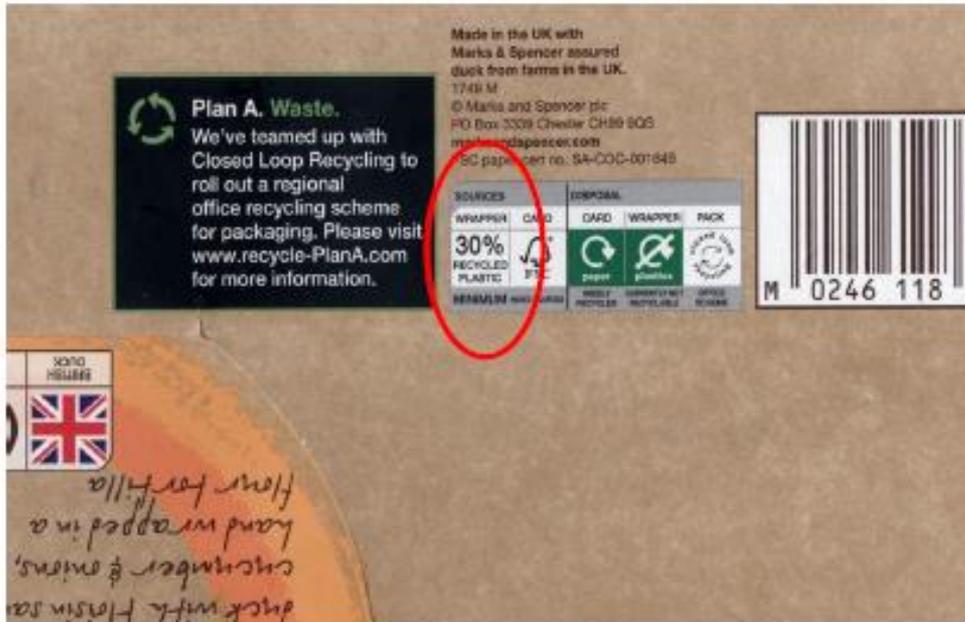


Keeps food fresh & safe for the consumer, increases sales for the retailer, reduces food & packaging waste and CO<sub>2</sub> emissions

*...need to rethink how to retain benefits and recycle.*

# Mylar and the Circular Economy

## rPET Content

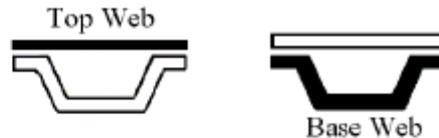


Mylar® rPET Film  
Only by DuPont Teijin Films™

Recycle

# Mylar and the Circular Economy

## Mono PET Solutions



Options	Standard Format	Recyclable Format
Film Specifications ( Top)	12/45 PET-EVOH-PE AF	13/14 PET Barrier peel AF
Film Specifications ( Base)	270/50 APET/PE peel clear	270 R-PET clear
Width /Pack size ( Top & Base)	561 & 562 mm/ 190* 127 mm	561 & 562 mm/190* 127 mm
Plastic weight used ( Approx)	32 tonnes + 160 tonnes= 192 tonnes	160 tonnes ( 20 % reduction)
Plastic into landfill	192 tonnes	0 tonnes

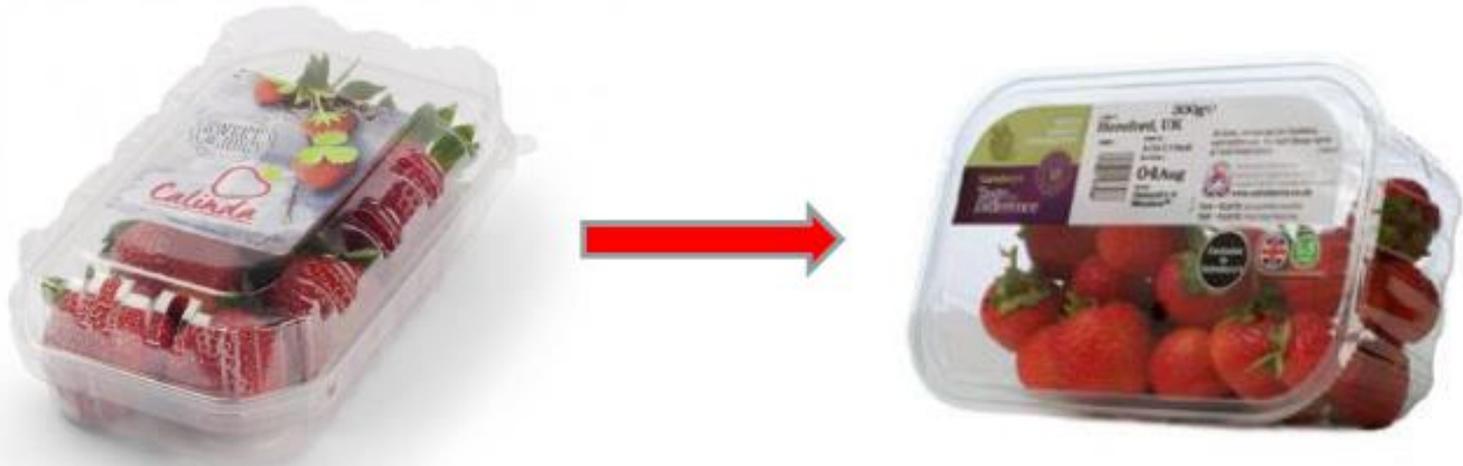


- 1 million tpa of PET trays currently used in Europe
  - Only 40% of this is mono PET
- Mono PET trays require new and more demanding lidding film
  - Heat seal through product contamination
  - Oxygen and UV barrier
  - Anti-fog properties

**Reduce & Recycle**

# Mylar and the Circular Economy

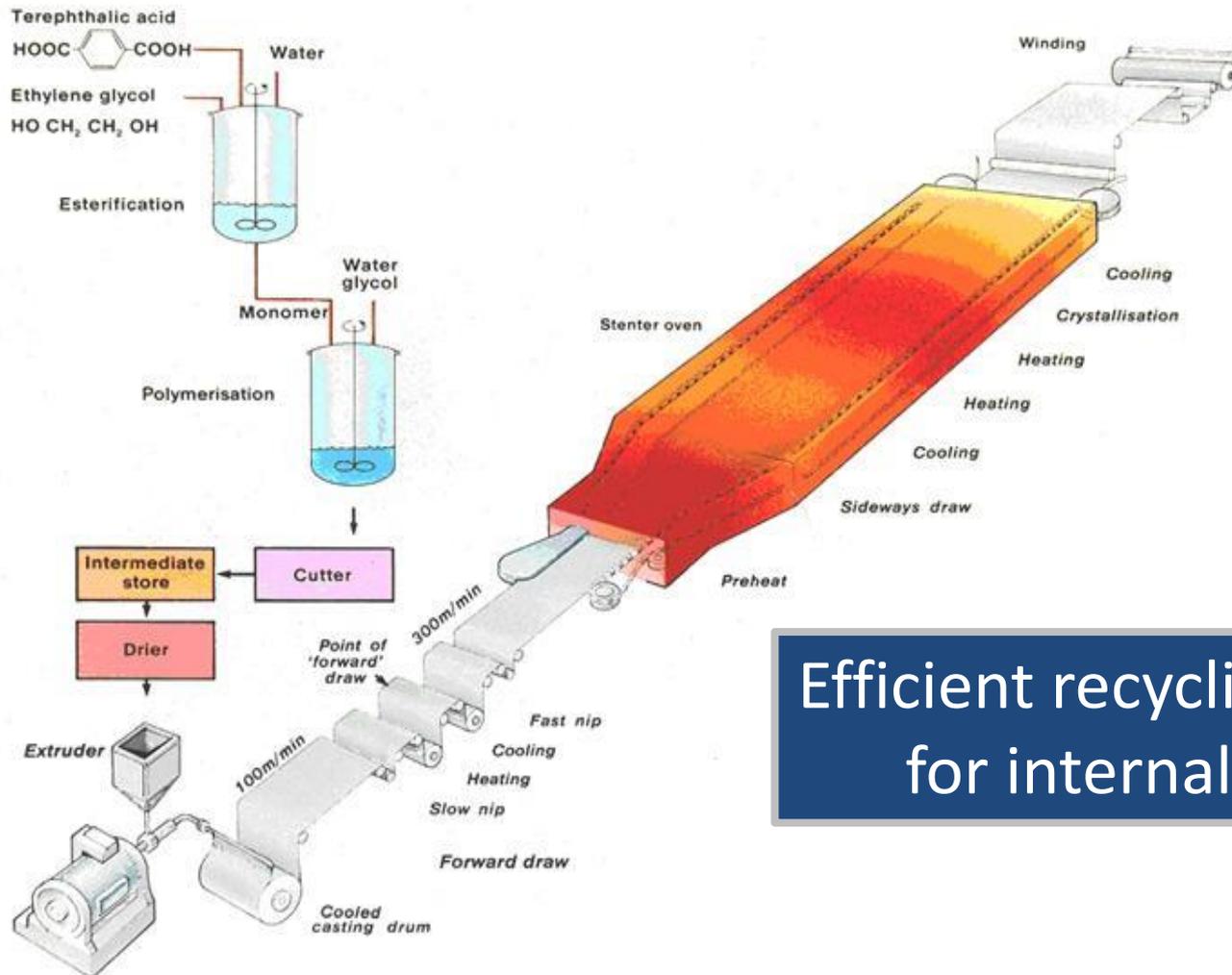
## Replacing Clip-on Lids with Top Seal Lidding



- Reduction of packaging weight by almost 50%
- Reduced pack cost
- Less in-store spoilage
- Enhanced shelf appeal with printed film
- Options to extend shelf life through MAP

Reduce

# PET Film Making Technology



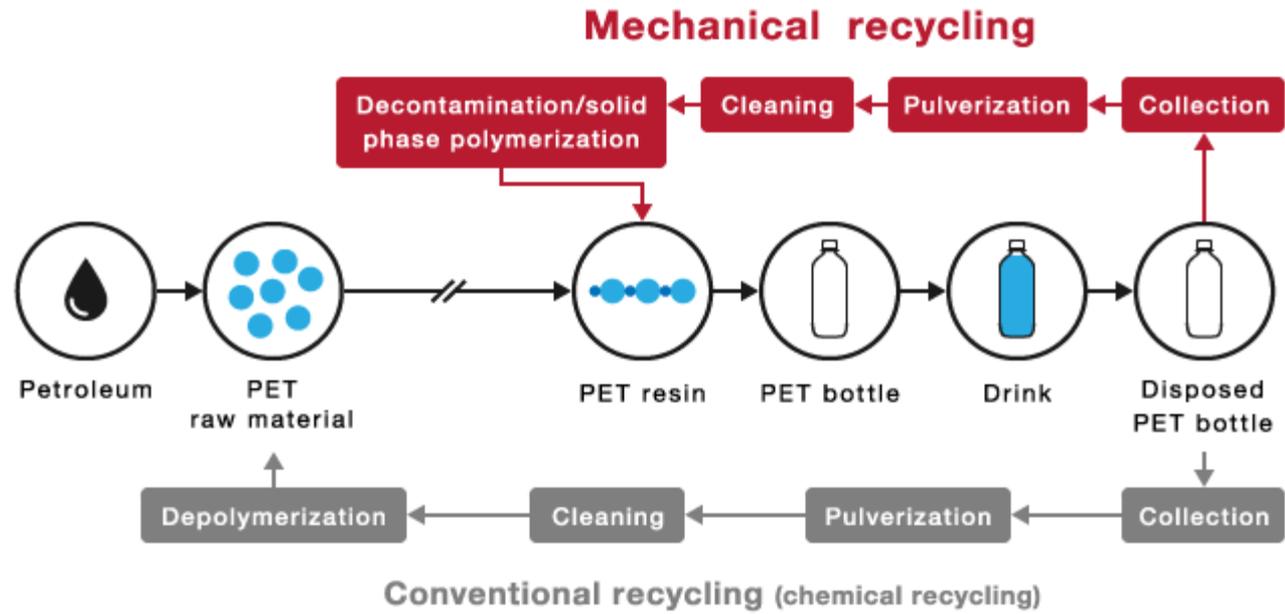
Efficient recycling process for internal 'waste'

# Circular Economy for PET

- In principle PET is 100% recyclable.
- Mechanical recycling done inside factory – know history.
- No current economic *collect/sort/decontaminate* process to reuse or recycle ‘used’ packaging materials.
- Concern over mechanical recycling methods for ‘used’ packaging materials for some food contact applications.
- Chemical recycling technology overcomes this – being revived.

Chemical recycling takes you back to basic monomers

# Mechanical & Chemical Recycling of PET



Solutions to recycle *'used'* products will be developed, they may be costly but not where the biggest issues lie

# Circular Economy Challenge

- Developing robust, cost-effective *collect/sort/decontaminate* processes involves all parties in chain – ***behaviour change***.
- *Complex system/wicked* problems, no one right solution, many stakeholders, conflicting interests, changing circumstances.
- Beware focusing on symptoms rather than underlying root causes – PR versus real solution.
- Global packaging majors will respond, unintended consequences possible, essential future requirements are well thought through.



# Towards Sustainability A Journey

## Reducing Our Environmental Impact

- Aligned to DuPont 2020 Sustainability Goals

## Assisting Our Customers with Compliance

- Dedicated product stewardship resources

## Contributing to Environmental Impact Reduction through the Value Chain

- Products for a cleaner 'greener' future

Most producers take their environmental responsibilities seriously, greater benefit from end-of-use focus to increase reuse/recycling



# The Plastics Plan: *A waste management perspective ....*

**Dr Adam Read, External Affairs Director @ SUEZ**

Denton's Breakfast Briefing – The 25 Year Environment Plan

15<sup>th</sup> May 2018 - London

ready for the resource revolution



大成 DENTONS

**safety in mind**

# The ask ... in 10 minutes....

- Who am I?
- Plastics in our waste streams .....
- The evolving policy agenda
- Disruptors?
- Where next?

# Who am I?

- Recently appointed External Affairs Director at SUEZ recycling and recovery UK (7 months in!!)
- Fellow of the Chartered Institution of Wastes Management
- 23 years of sector experience (its always changing!)
- Former Local Authority Officer, Academic, & Consultant
- Currently on CIWM General Council & Executive Committee
- Supporting DEFRA & BEIS as they think longer term about the Resource & Waste landscape in the UK



# Suez Global @ a glance!

€17.8bn  
450,000+ industrial and business customers  
€122m dedicated to R&D in 2016  
90,000+ employees worldwide  
5 continents where SUEZ is present

## Within Secondary Raw Materials

- €330m** Recycling & recovery  
**Paper/Cardboard:**
  - supply of 2.5Mt of paper
  - mainly sold on European market
- €70m** Recycling & recovery (excl. transformation plants)  
**Plastic:**
  - trading of 0.4Mt of plastics
  - 8 plastic transformation plants
- €10m** Recycling & recovery  
**Wood:**
  - 1.3 Mt of wood
  - negative selling price
- €200m** Recycling & recovery  
**Non ferrous metals:**
  - 0.1 Mt of copper, aluminium, etc.

# Collections & Harvesting ....



- Plastics are light, voluminous, and mixed .....
- Not a priority material for many Local Authorities .....

# Source segregation or commingled – the debate continues?



- In reality, mixed plastics will need some form of sorting in a MRF ....
- But is it as a clean plastics only collection, or from a mixed recyclables collection?

# MRFs can work miracles (almost!)



- Sorting by hand, sorting target materials (good or bad), and sorting between material types (between polymers)
- But if we get 30% contamination then how can we meet 90% plus target market specification?

# We can adjust the MRF to meet circumstances .....



○ Made harder by contamination, composite materials, liquids in containers etc.

**National Sword!**



# Plastics secondary materials market values as of last week!

- There is still value in secondary plastics, but 50% down on 2017 values ....
  - *MIXED PLASTIC BOTTLES* £80 pt
  - *HARD MIXED PLASTIC* -£30 pt
  - *NATURAL HDPE* £430 pt
  - *PET BOTTLES* £215 pt
- But processing makes all the difference ..... As does quality feedstock!



# So what has been the impact @ the MRFs ...

- Slower processing speeds to help meet the tougher contamination guide
- More manpower (negative sorting) to pull of contaminants
- Running some loads through again (infrequent) to capture more of the target materials
- Increase in quality checks on incoming loads with feedback to clients when outside of specification
- Some stockpiling of bales of papers & plastics until markets are ready for them
- We need to work with our clients on their expectations ..... and the reality of the markets!



# The Blue Planet Effect!



- Heightened public interest, and the reaction of a range of stakeholders focusing on plastics .....
- *But happening at a time when markets are tight and financial pressures on local authorities are increasing*

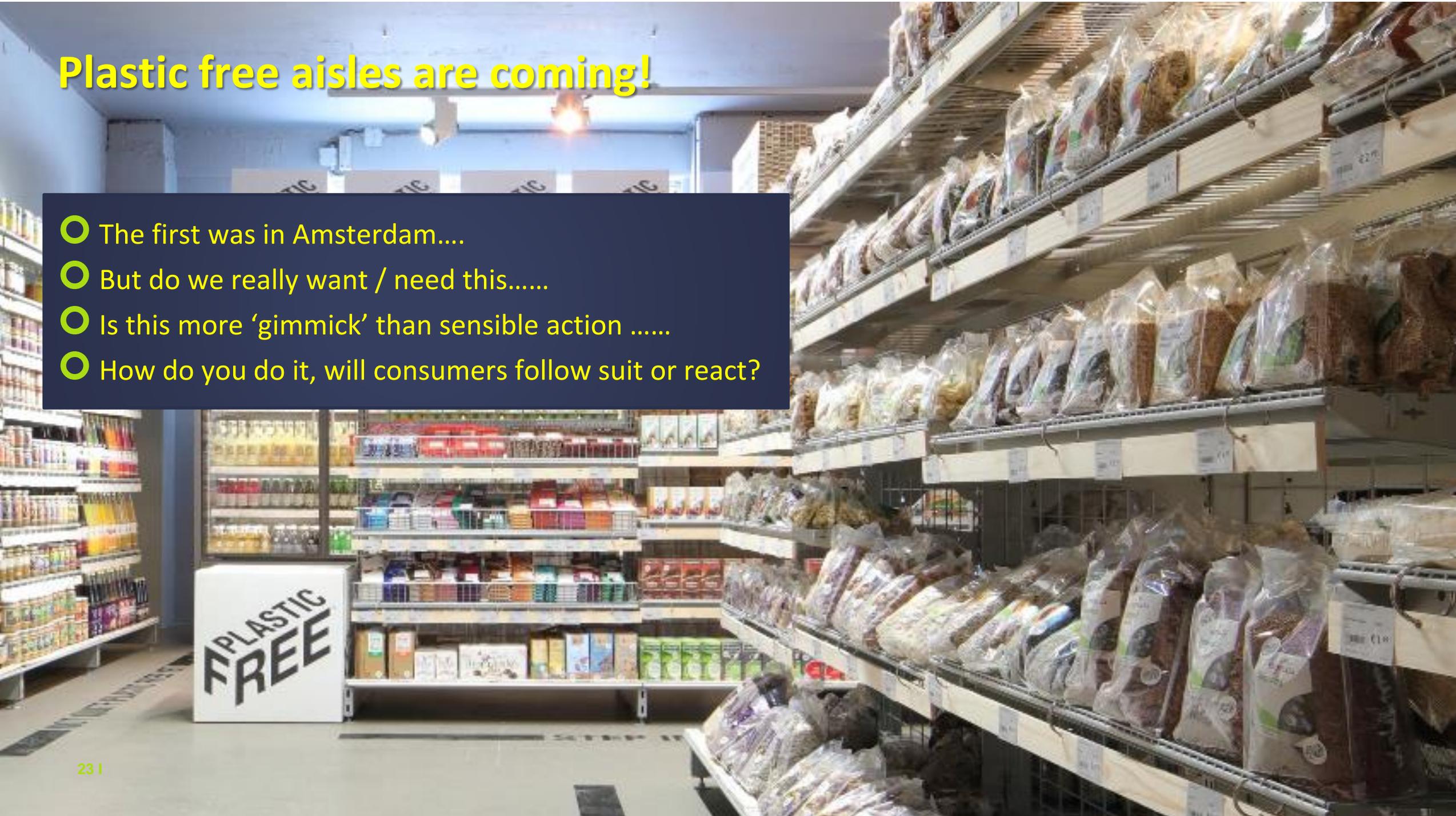
# The Government more active than ever before!

*Dealing with plastics litter, stopping unnecessary plastics, reducing plastics in the marine environment ...*



# Plastic free aisles are coming!

- The first was in Amsterdam....
- But do we really want / need this.....
- Is this more 'gimmick' than sensible action .....
- How do you do it, will consumers follow suit or react?

A photograph of a supermarket aisle. In the foreground, a white sign with the words 'PLASTIC FREE' in bold, black, sans-serif capital letters is placed on the floor. The aisle is filled with shelves of various products, including bags of grains and other packaged goods. The lighting is bright, and the overall atmosphere is clean and organized.

PLASTIC  
FREE

# Greater consistency in household recycling by 2025



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## £33M

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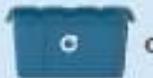
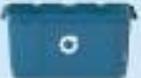
Up to **£33 million** over eight years in reduced costs to reprocessors from not having to remove contamination from materials before processing.

**But who pays for the switch, when are the contracts up / open to change, and will the future markets support this?**

Find out more about how your organisation could benefit at [www.wrap.org.uk/consistentrecycling](http://www.wrap.org.uk/consistentrecycling)

# Pick 'n' mix from these ....

*But still need to work hard on the public to avoid contamination, and additional processing costs!  
And no-one has budgets for education, engagement and communications .....*

Multi-stream with separate food	Two-stream (fibres separate) with separate food	Co-mingled with separate food
 <p>Residual waste (up to a maximum equivalent of 120 litres weekly)</p>	 <p>Residual waste (up to a maximum equivalent of 120 litres weekly)</p>	 <p>Residual waste (up to a maximum equivalent of 120 litres weekly)</p>
<p>Minimum of 120 litres collected weekly</p>	<p>Minimum equivalent of 120 litres weekly</p>	<p>Minimum equivalent of 120 litres weekly</p>
 <p>Plastics, metals and cartons</p>	 <p>Plastics, metals, cartons and glass</p>	 <p>Plastics, metals, cartons, glass, paper and card**</p>
 <p>Glass and card*</p>	 <p>Paper and card</p>	
 <p>Paper</p>	 <p>Food</p>	 <p>Food</p>
 <p>Food</p>	 <p>Plastics, metals, cartons, glass, card and paper</p>	 <p>Plastics, metals, cartons, glass, card and paper</p>
 <p>Plastics, metals, cartons, glass, card, paper and food</p>	 <p>Food</p>	 <p>Food</p>



# Plastic Pact Targets (by 2025)

- Take actions to eliminate problematic or unnecessary single-use packaging items
  - *redesign*
  - *Innovation*
  - *alternative (reuse) delivery models*
- 100% of plastic packaging to be reusable, recyclable or compostable
- 70% of plastic packaging effectively recycled or composted
- 30% average recycled content across all plastic packaging



# Plastic Pact phase 1 signatories.... across the supply chain!



## But other retailers are going further ...

- In January 2018 Iceland became the first major retailer to commit to eliminate plastic packaging for all its own-brand products within just five years..... BUT Iceland has not joined up to the pledge, because it is focusing on recycling!
- Morrisons recently announced that it will trial “plastic-free” fruit and vegetable sections in its stores, while allowing shoppers to bring in their own Tupperware and other containers for purchases from its fresh meat and fish counters. ....
- Things are ramping up .... and supermarkets are talking to us about a range of issues:
  - *How to go plastic free?*
  - *How to simplify their products / packaging for harvesting & processing?*
  - *How to ensure products are protected and wastage doesn't increase .....*

### Iceland supermarket pledges to go 'plastic-free'



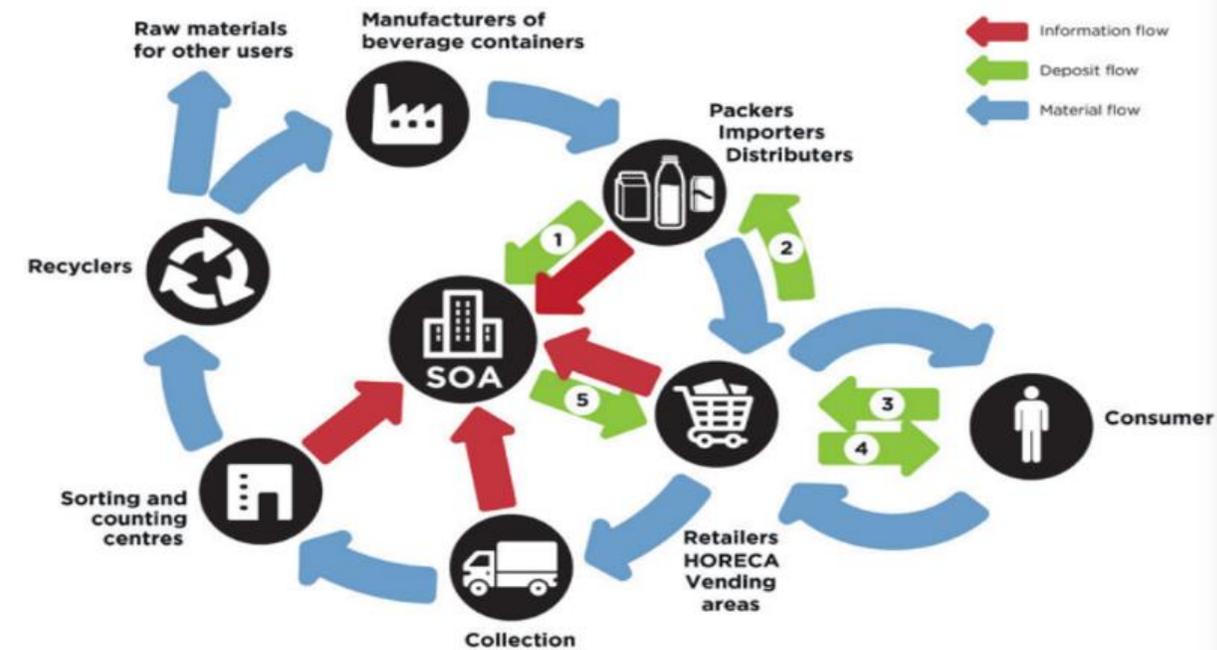


Picture: ALAMY

# Change is coming - EPR and DRS!

Diagram of the deposit flow

Plastic money: Shoppers in Germany swap their empties for cash. Fast-food shops in Norway. Many swap their empties for cash



## HOW OTHER COUNTRIES PUT US TO SHAME

	Deposit scheme	Money back	Recycling rates
<b>Germany</b>	Plastic bottles; glass; aluminium cans	22p	<b>98.5%</b>
<b>Norway</b>	Plastic bottles; glass bottles; aluminium cans	9-24p	<b>95%</b>
<b>Netherlands</b>	Large plastic bottles; beer bottles; plastic beer crates	9-23p	<b>95%</b>
<b>Finland</b>	Plastic bottles; aluminium cans; glass bottles	9-36p	<b>93%</b>
<b>Denmark</b>	Plastic bottles; glass bottles	12-35p	<b>89%</b>
<b>Sweden</b>	Plastic bottles; aluminium cans	9-18p	<b>85%</b>
<b>Canada (British Columbia)</b>	Glass; plastic bottles; Tetra Pak containers, aluminium/steel cans	6-12p	<b>85%</b>
<b>USA (California)</b>	Aluminium; glass; plastic	4-8p	<b>83%</b>
<b>South Australia</b>	All drinks containers	6p	<b>81%</b>
<b>UK</b>	None		<b>57%</b>

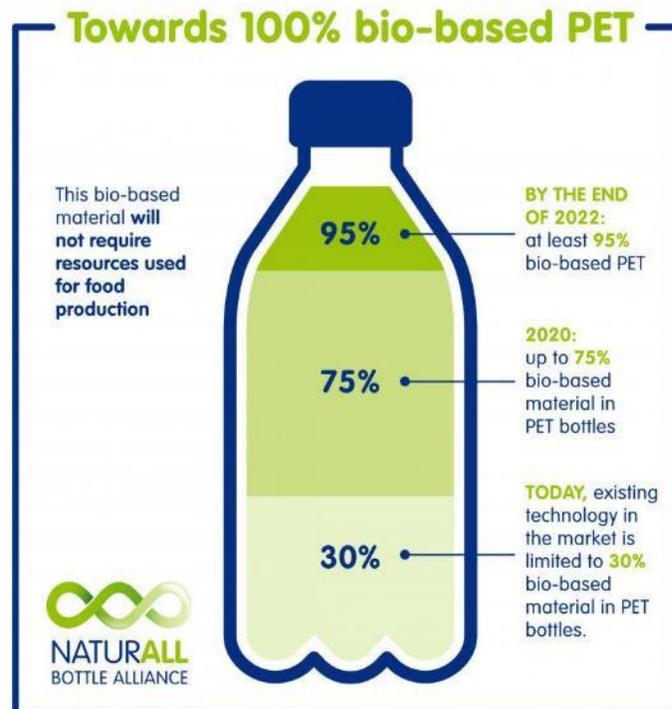
# DRS Report launch on 28th March 2018

- Hours after Michael Gove announced DRS would be consulted on!
  - Countries with DRS recycle between 80% and 95% of their plastic bottles.. Norway recycles 95% of all plastic bottles compared with only 57% in England!
- The SUEZ position?
  - Only target plastic (PET) bottles and aluminium cans smaller than 0.75l, which are typically consumed while “on-the-go” with a refundable deposit of 10p
  - Be owned /operated by manufacturers, but provide the opportunity for local authorities to generate new revenue streams by operating redemption points and local logistic systems.
  - Would not leave local authorities out of pocket by “cannibalising” the more valuable materials (like plastic and aluminium) from existing services.
  - Allow consumers to donate their deposits to other causes or organisations, rather than redeeming them as cash.
  - DRS must be part of a much wider system of Extended Producer Responsibility, which would use a range of tools to drive change.
- DRS will start to change the materials collected @ the kerbside and how recycling is funded.... So what next?
  - Brands fund recycling through DRS, kerbside collections, harvesting @ sites



# And what about biopolymers – gaining traction ....

- BUT is this switch one that we really want?
- Transition will be painful – sorting equipment cant cope, they could end up anywhere in the MRF!
- Do the public understand the issues fully?
- The answer, or should we focus on simpler polymers, readily available for collection and reprocessing?



# Chemicals recovery is key ...

for lower grade plastics..... BUT could demand outstrip supply.....

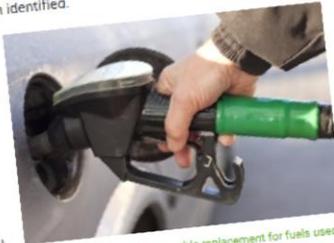
1 AUGUST 2013

## DfT launches 25m waste-to-fuel trial scheme

The Department for Transport has today (August 1) launched a 25 million scheme to projects to demonstrate the viability of facilities producing advanced biofuel from waste in the UK.

The initiative will receive the capital funding over three years from 2015, once the best and most suitable industry proposals have been identified.

It is hoped the funding will underpin private sector investment in demonstration-scale waste to fuel plants, using municipal waste and forestry residues to produce fuel. The project aims to discover a practical alternative and renewable replacement for fuels used in road transport and aviation.



The hunt is on to find a renewable replacement for fuels used in road transport and aviation

Transport minister Norman Baker said: I am delighted that we are able to support these innovative technologies and believe that they will bring significant benefits to the UK. There are real opportunities for the UK to take a technological lead, driving growth, creating highly skilled jobs and seeing energy, security and environmental benefits.

### Replacement

The initiative was largely welcomed by the Renewable Energy Association (REA) who argued any funding into biofuel technology was a step forward.



www.blue-group.com  
0845 230 1432



### Upcoming events

15 NOVEMBER 2017  
Fire Conference

23 NOVEMBER 2017  
RDF Conference

11 JULY 2018  
The Complete Auto Recycling Show & the Metals Recycling Event

SEE MORE EVENTS

29 AUGUST 2017

## Government to support waste fuels for planes

Waste could be fueling planes taking off from British airports, under a new scheme.

The Department of Transport is offering £22m to projects in the UK developing waste-based fuels for planes and lorries, with matching funding from industry.

There has already been over 70 groups interested in bidding for the funding, said a statement released by the department today (29 August).

This announcement follows the government's plans to ban all new petrol and diesel cars by 2040 and grants to encourage the use of ultra-low-emission electric cars.

The fund is available to projects producing waste-based fuels to be used in planes and lorries that are too heavy to switch to electric power. The money would help the government to fund up to five new low carbon fuel plants by 2021.

According to the department's figures, planes and lorries powered by waste fuels could use up to 20% less carbon than traditional fossil fuels.



The £22m fund is available to projects producing waste-based fuels to be used in planes and lorries that are too heavy to switch to electric power.

8 SEPTEMBER 2017

## Swindon council backs 'plastics into oil' technology

Swindon-based firm, Recycling Technologies Ltd, has announced that it has raised £5 million in funding and is now looking for further sites for its 'breakthrough' chemical recycling machine.

Swindon borough council has put its support behind the conversion process, while one of the machines is being installed at waste and recycling firm Binn Group in Perthshire.

Bernie Brannan, corporate director at Swindon borough council, said: "It is evident that this technology should have financial, environmental and economic benefits, not only for Swindon but further afield as well."

And, Recycling Technologies said that its machine, known as the "RT7000 will be located in Binn Farm, Perthshire, run by an independent recycling and waste services company Binn Group".

### Cracking

According to Recycling Technologies of Hill Barn, Purton, the machine using advanced thermal cracking technology, turns "residual plastic waste back into the oil it originally came from".



# Biodiesel from gasification of plastics.....

- Proof of concept, but global markets undermined it! Now mothballed .....



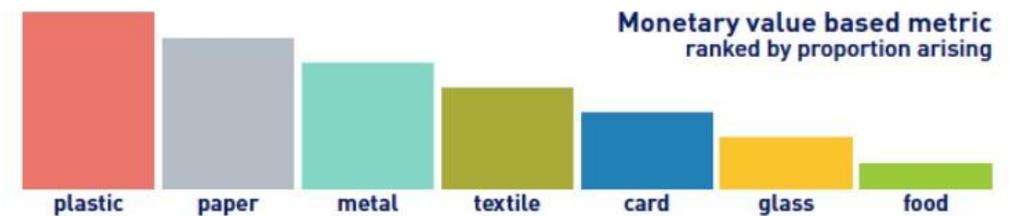
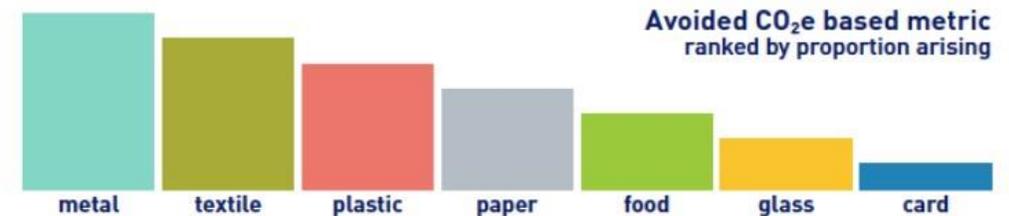
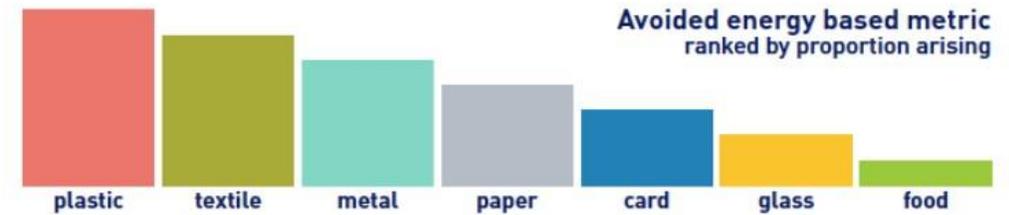
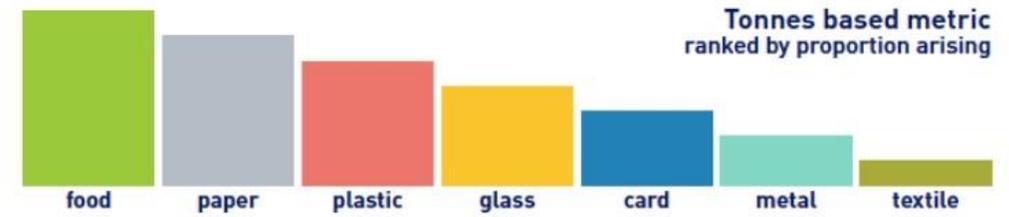
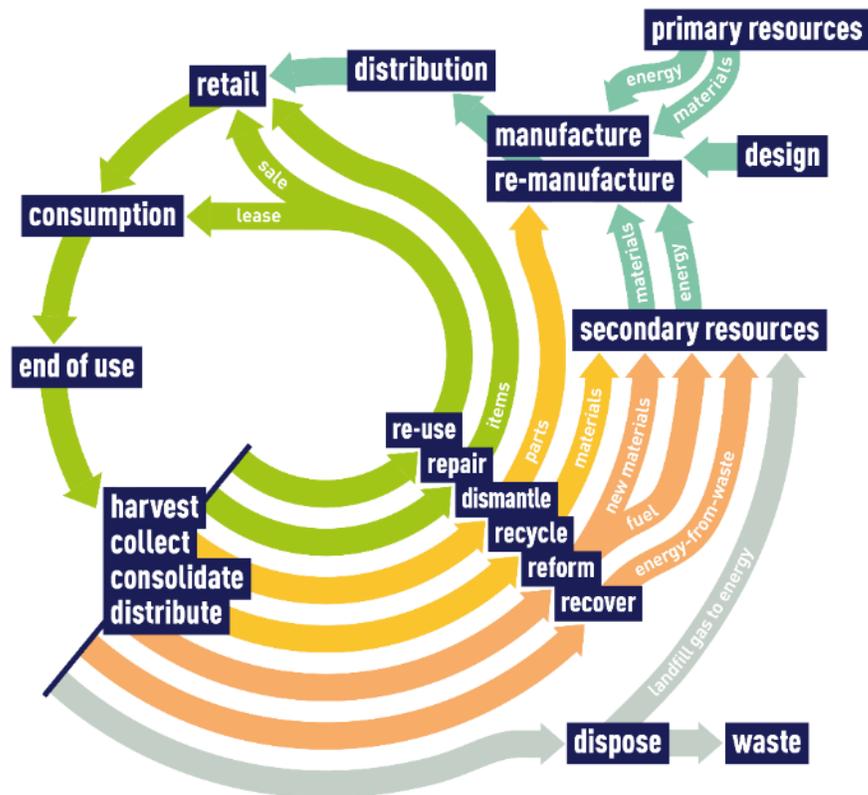
# The future | will need value chain solutions & collaborations

## the REFLEX Project



# It will also have a change of metrics & targets .....

- Need to develop systems that enable quality plastics to be captured more easily (and affordably)



# The SUEZ plastics proposition ....

1. Avoid unnecessary plastics: through a single use plastics tax
2. Consider the design of necessary plastics to improve their ability to be 'harvested' and recycled into products
3. Recycle necessary plastics where economically and environmentally the right thing to do (support the principle of EPR (producer responsibility), DRS (deposit return for some material types) and PRN upgrade to fully support the recycling of household collected materials through to recycled secondary resource)
4. Recover energy from plastics where not economically or environmentally possible to recycle and where their replacement would need more fossil oils to be consumed
5. Sequester fossil plastics in to landfill when the economy does not consume fossil oils (but not before)
6. If plastics move to renewable sources (bio plastics ) then recycle and recover energy (burning renewable plastics makes renewable energy!!)



Happy to chat....  
I'm here for coffee!

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