

Webinar #3: Micro/ Nanoplastics in the Agro-Environment  
and in Human Respiratory and Immunological Systems

9 September 2025



BASEL / ROTTERDAM / STOCKHOLM  
C O N V E N T I O N S

# Updates from the second part of the fifth session of the Intergovernmental Negotiating Committee on Plastic Pollution (INC-5.2)

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# Intergovernmental Negotiating Committee on Plastic Pollution



**UNEA resolution 5/14 (March 2022):** Member States agreed to develop a **new international legally binding instrument on plastic pollution, including in the marine environment**, with the ambition of completing its work **by the end of 2024**.



- **INC-1** Punta del Este, 28 Nov–2 Dec 2022
- **INC-2** Paris, France, 29 May–2 Jun 2023
- **INC-3** Nairobi, 13–19 Nov 2023
- **INC-4** Ottawa, 21–30 Apr 2024
- **INC-5.1** Busan, 25 Nov–1 Dec 2024
- **INC-5.2** Geneva, 5 – 14 (15) Aug 2025

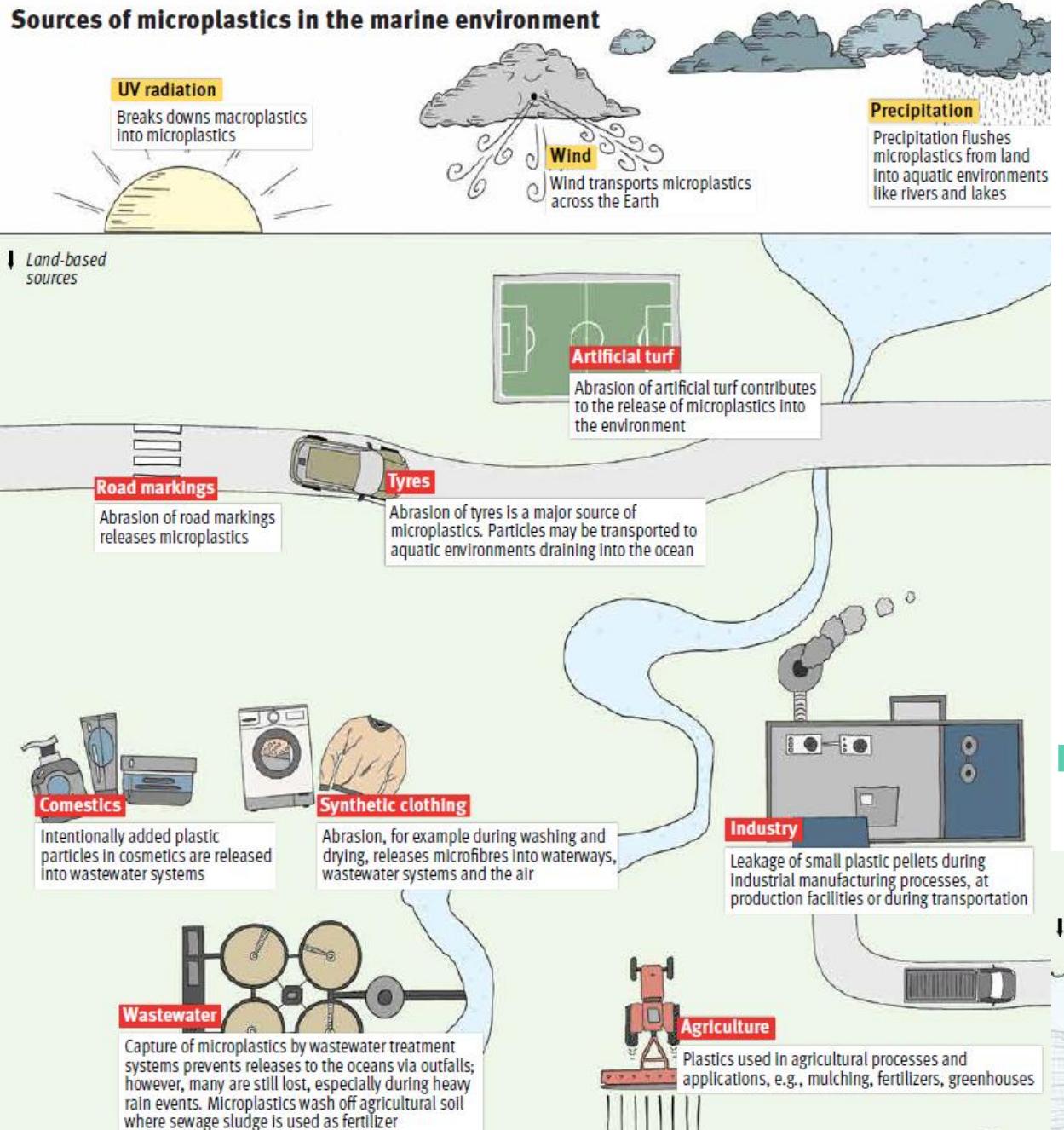
# Provisions potentially relevant to microplastics in the draft text

- **Article on Plastic Products**
  - Will there be a reference to plastic products that contain intentionally added microplastics?
- **Article on Plastic Product Design**
  - Will there be a call for measures to improve plastic product design to minimize releases and leakages of plastics to the environment, including microplastics?
- **Article on Releases and Leakages**
  - Will there be a requirement for Parties to assess, prevent, reduce and, where possible, eliminate releases and leakages of plastics into the environment, including microplastics?
- **Article on Plastic Waste Management**
  - Will the provisions, while focused on waste, also help avoid secondary microplastic generation by preventing mismanagement (e.g. open dumping, burning, ocean dumping)?

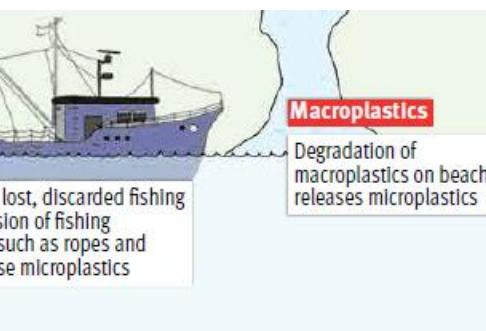




## Sources of microplastics in the marine environment



Source: Waldschläger et al. (2020). Illustration by GRID-Arendal.



Abrasion of aquaculture gear such as buoys made of expanded polystyrene contributes to microplastic releases



# Key elements under the BRS conventions addressing plastic pollution, including microplastics

## Control of transboundary movements of plastic waste

The control of TBM involves PIC procedure to minimize unrecyclable waste movement while fostering international trade for recycling.



## Minimization and environmentally sound management of plastic waste

The ESM of plastic waste prioritizes prevention, minimization, and adherence to the waste hierarchy.



## Identification and control of chemicals associated with plastics

The mechanism to add new chemicals for control; ensure traceability of chemicals in products, articles, stockpiles, waste; reduce unintentional releases of toxic chemicals.





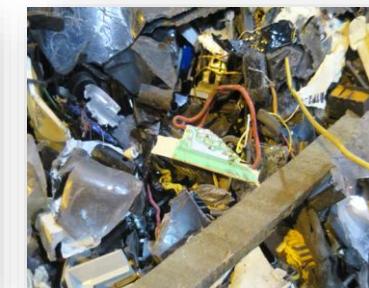
# Basel Convention Plastic Waste Amendments

**BC-14/12:**  
Plastic Waste  
Amendments

*Effective 1 Jan 2021*

**Annex II**  
Plastic waste,  
including mixtures

Y48



**Annex VIII**  
Hazardous plastic waste

A3210



**Annex IX**  
Clean plastic waste for  
recycling

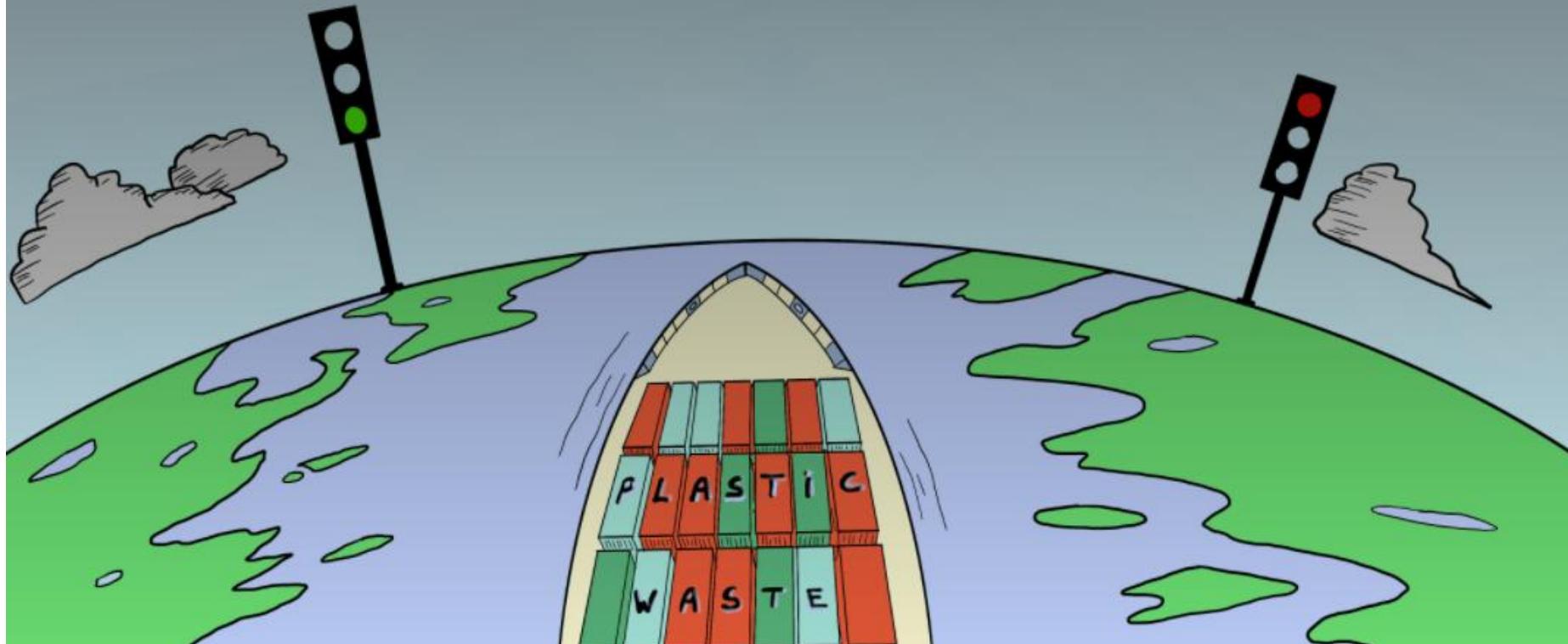
B3011



Prior  
Informed  
Consent  
(PIC)

# Plastic waste and the Basel Convention

July 27, 2021



<https://storymaps.arcgis.com/stories/63f88d8da65841f3a13ba4018d26361d>





# Chemicals in plastics: Impacts across production, use, recycling & disposal stages

**Marine Litter and Plastic Waste**

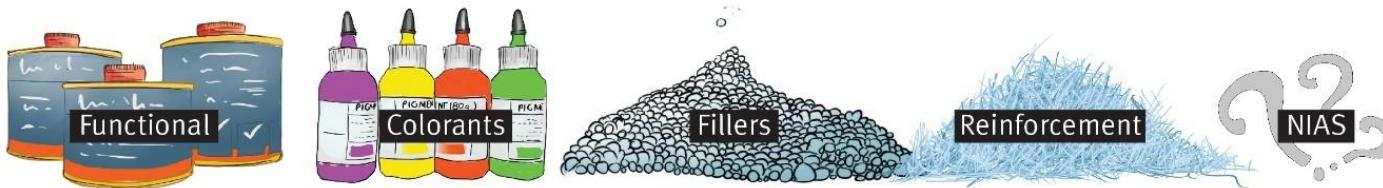


**Fact Sheet #5**

**GRID ARENDAL**  
A UNEP Partner

**BASEL CONVENTION**

**Five types of plastic additives**



For more information consult "Drowning in Plastics - Marine Litter and Plastic Waste Vital Graphics" p the BRS Secretariat and GRID-Arendal. Available from link <https://bit.ly/3GOrz8E>

## Plastic additives

Every plastic item contains additives that determine the properties of the material and influence the cost of production (Stenmarck et al. 2017). Typical additives include stabilisers, fillers, plasticisers, colourants, as well as functional additives such as flame retardants and curing agents (Figure 1). Some plastic additives are hazardous to human health and the environment (Stenmarck et al. 2017).

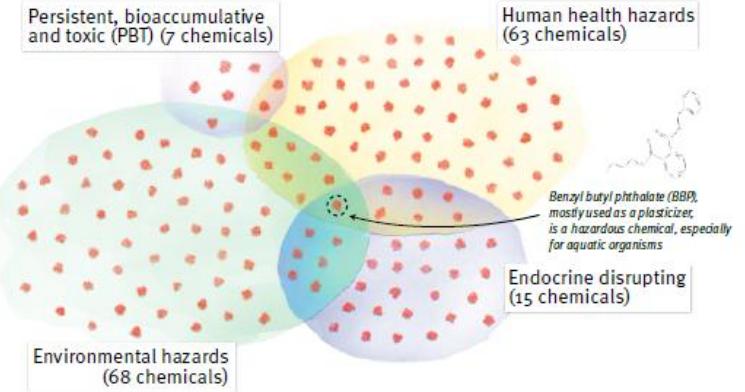
### Leakage and degradation

Plastics are composed of chains of polymers that can be weakly bound to the polymers or linked in the polymer matrix. The weakly bound additives can leach out of the plastics during normal use, when in landfills, or following improper disposal in the environment (Wagner and

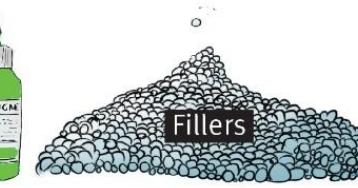
### Hazardous chemicals in plastics

A 2018 study found that 3,377 chemicals are potentially associated and 906 chemicals are likely associated with plastic packaging. Out of these, 148 have been identified as most hazardous (Groh et al. 2018).

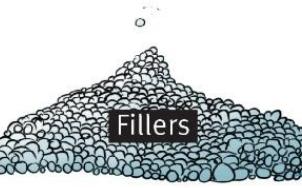
Source: Groh et al. (2018). Illustration by GRID-Arendal (2020).



Functional additives include for example stabilizers, antistatic agents, flame retardants, plasticizers, lubricants, slip agents, curing agents, foaming agents, biocides, etc.



Colorants are substances such as dyes or pigments added to give color to plastic. Some of them are added to give a bright transparent color.



Fillers are added to change and improve physical properties of plastics. They can be minerals, metals, ceramics, bio-based, gases, liquids, or even other polymers.



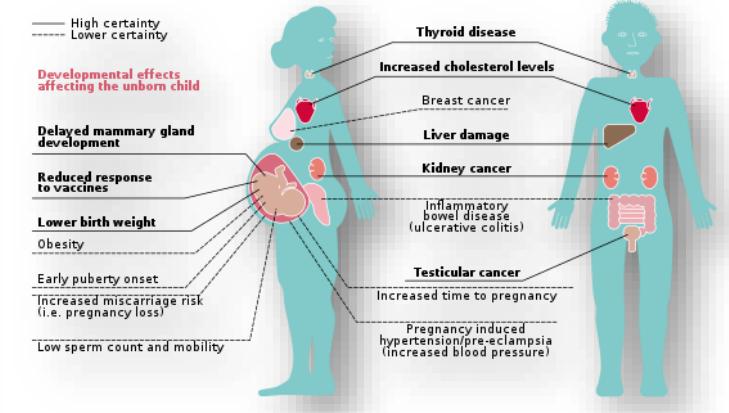
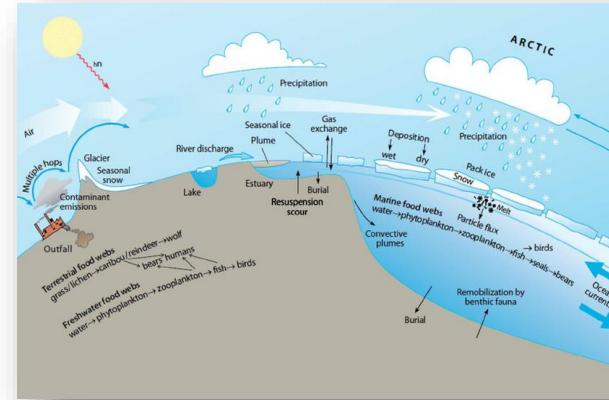
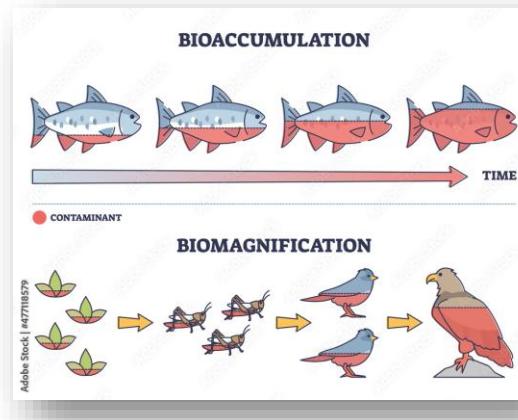
Reinforcement are used to reinforce or improve tensile strength, flexural strength and stiffness of the material. E.g. glass fibres, carbon fibres, etc.



NIAS are chemicals that arrive in products from processes such as reaction by-products or break down products

Sources: Hansen et al. (2013). Illustration by GRID-Arendal (2020).

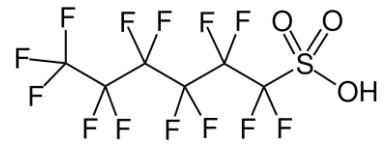
# Stockholm Convention on Persistent Organic Pollutants



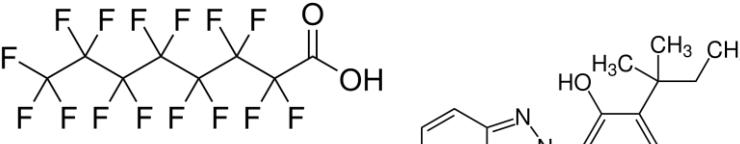
A group of organic compounds that possess characteristics of:

- Persistence
- Bio-accumulation
- Adverse effects
- Potential for long-range environmental transport

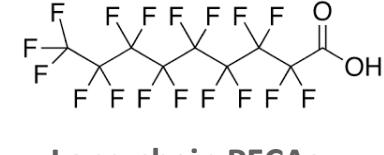
# Chemicals in plastics under the Stockholm Convention



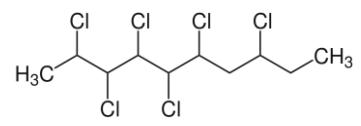
PFHxS, its salts and PFHxS-related compounds



PFOA, its salts and PFOA-related compounds



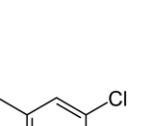
Long-chain PFCAs



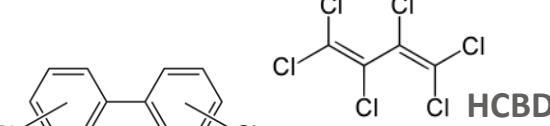
SCCPs



MCCPs



PCNs



PCBs

## Elimination

Specific exemptions

## Annex A

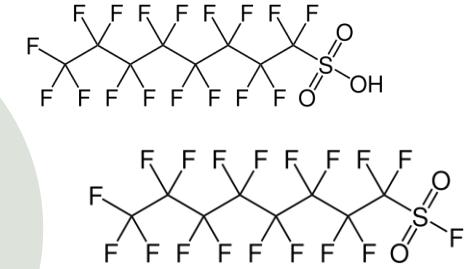
## Annex C

37 POPs

19 plastic-related chemicals

## Restriction

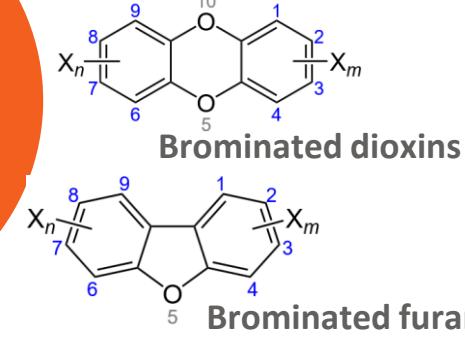
Acceptable purposes



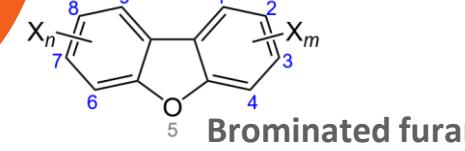
PFOS, its salts and PFOSF

## Annex B

Under review  
POPs Review Committee

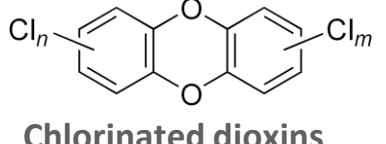


Brominated dioxins



Brominated furans

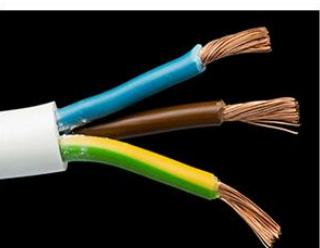
## Unintentional releases BAT/BEP



Chlorinated dioxins



Chlorinated furans



# Process for listing a new chemical under the Stockholm Convention



A Party submits a proposal with information specified in Annex D

POPRC decides whether the proposal fulfills the **screening criteria in Annex D**

POPRC develops a **risk profile (Annex E information)** and decides whether:

POPRC develops RME (Annex F socio-economic considerations); makes a recommendation to COP

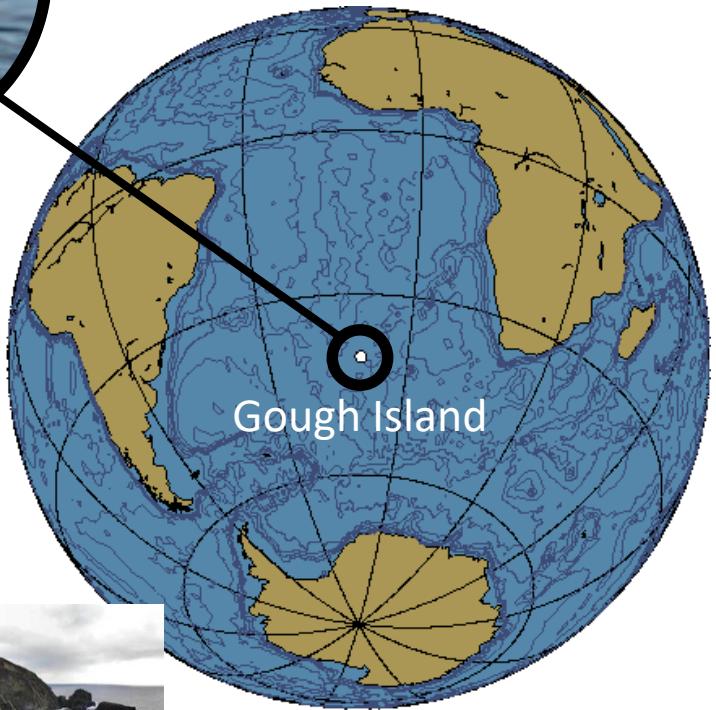
COP decides whether to list the chemical in Annex A, B and/or C

The chemical is likely as a result of its long-range environmental transport to lead to significant adverse human health and/or environmental effects such that **global action is warranted**.

# Long-range transport: monitoring in seabirds

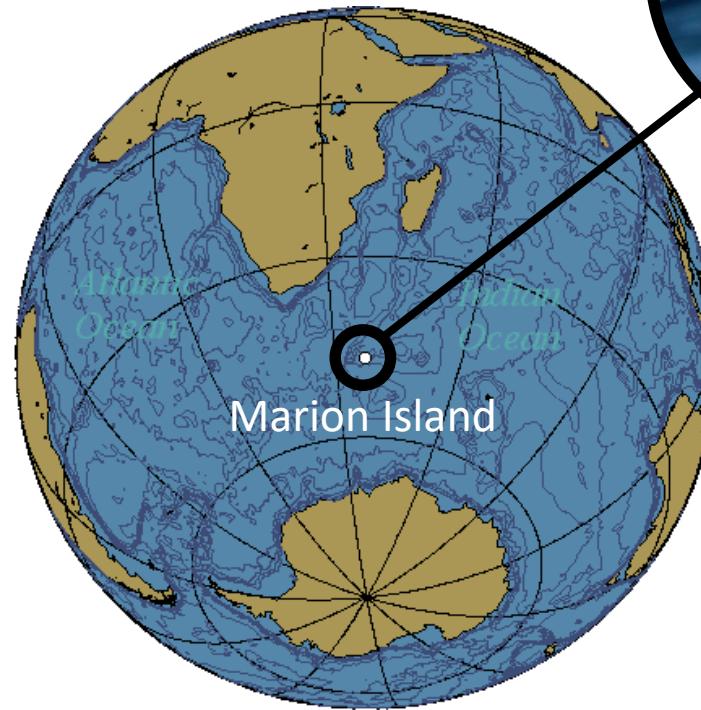
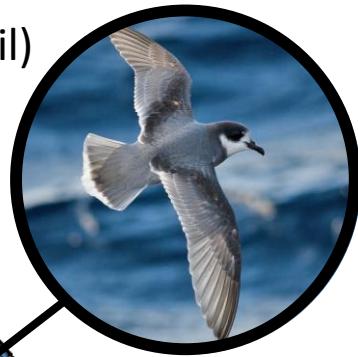


**Great shearwater** (preen gland oil)  
**4987–7055 ng/g lw**  
**DF = 100%**

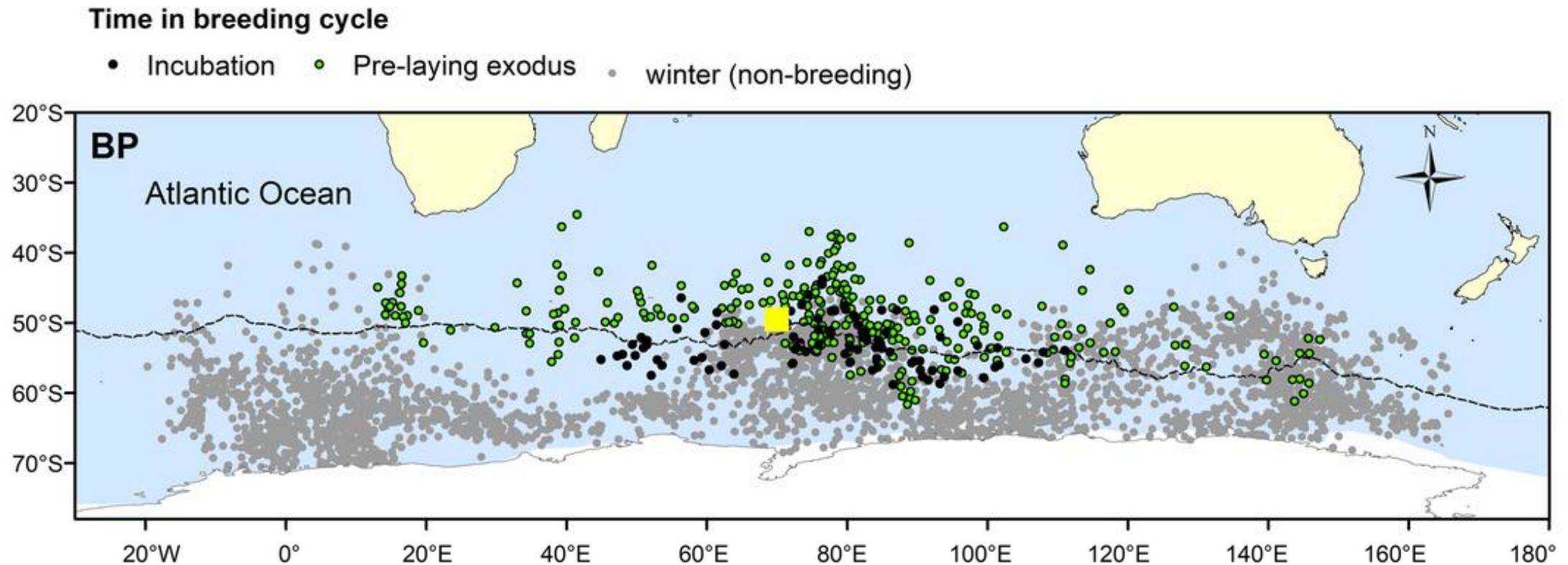


**Remoteness Index\***  
 $RI \approx 3$   
(Arctic:  $RI = 2.6$  avg.)

**Blue petrel** (preen gland oil)  
**1047–3003 ng/g lw**  
**DF = 100%**



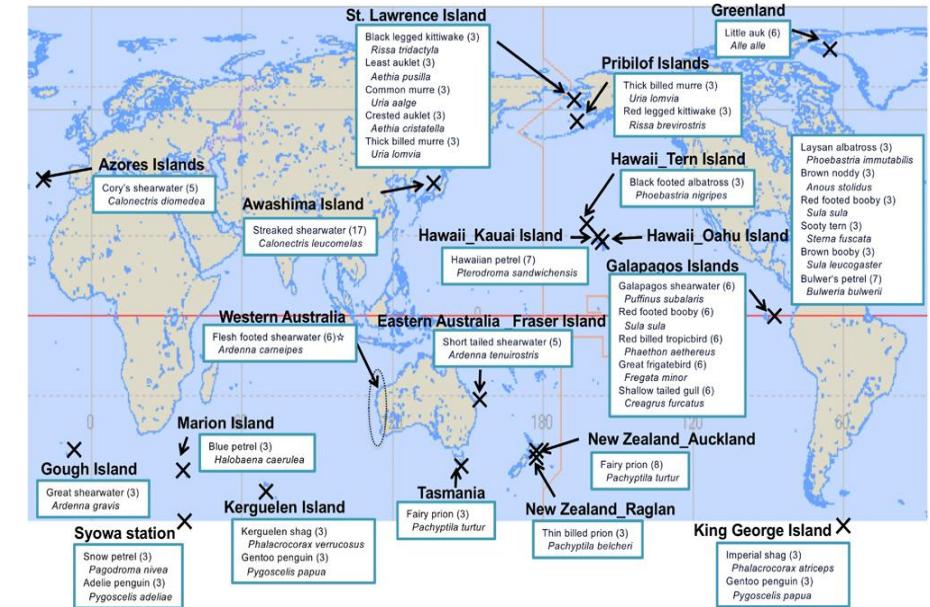
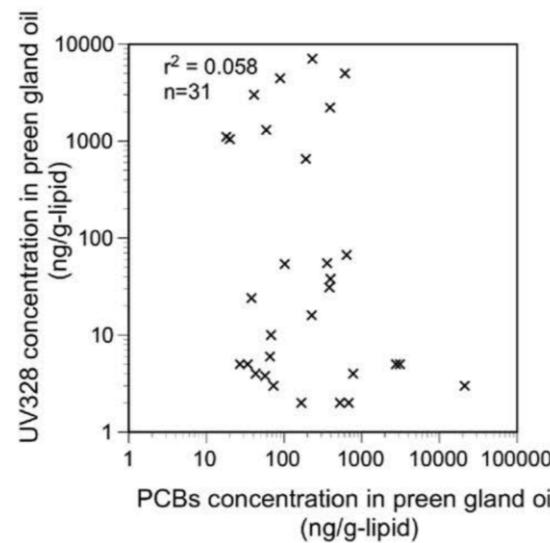
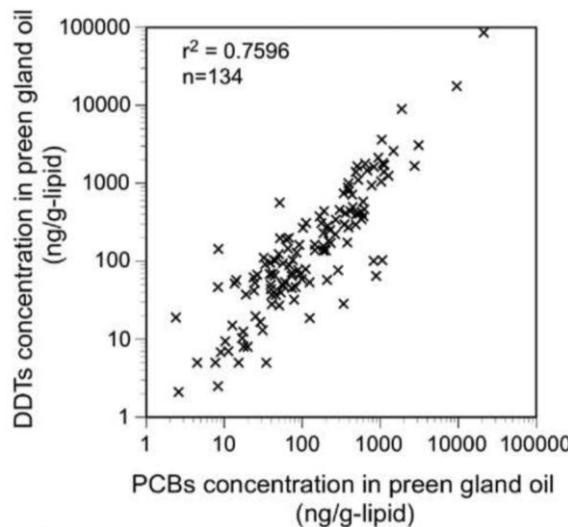
# Geographical distribution of blue petrels



# Long-range oceanic transport via plastic debris

Yamashita et al., 2021 (doi:10.5985/emcr.20210009)

- Global monitoring of additives (e.g. UV-328) and legacy POPs in the preen gland oil of seabirds
- Source identification
  - No correlation with PCB concentrations in preen gland oil → different source pattern



# Concluding statement of the POPs Review Committee

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UV-328 is likely, as a result of its long-range environmental transport, to lead to significant adverse human health and/or environmental effects, such that global action is warranted.



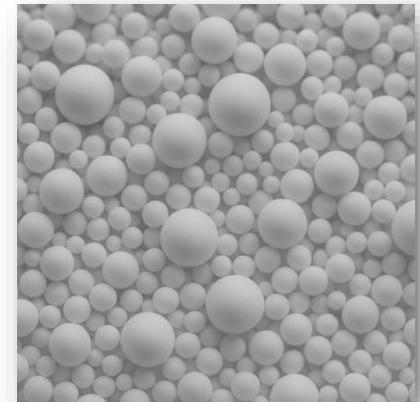
Great shearwater and 194 plastic fragments found in its stomach (Photo: Peter G. Ryan)



STOCKHOLM

# PTFE as a Source of Microplastics and PFAS Exposure

- **Production:** Historically, non-polymeric PFAS like PFOA were used in PTFE manufacture; concerns exist about residual PFAS in fluoropolymers and their potential release during use or disposal, although many manufacturers now use alternatives.
- **Persistence:** PTFE is highly stable and resistant to degradation, creating challenges for end-of-life management.
- **Landfilling:** While PTFE itself is inert, residual PFAS or additives in fluoropolymer wastes may contribute to leachate contamination; physical breakdown can also release microplastic particles.
- **Fragmentation:** Under mechanical stress and weathering, PTFE can degrade into microplastics, which may act as carriers for residual PFAS.
- **Applications:** PTFE micropowders are used in lubricants, sprays, and coatings, which can lead to direct environmental releases.
- **Industry efforts:** Guidance, information sharing, etc.



# Thank you!

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