



# National Toxics Network Australia

## Contaminants in Marine Plastics

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Dr Mariann Lloyd – Smith  
Jo Immig

# Plastics and Chemicals Industry

- “The building blocks of a modern economy”
- “Critical Industry enabler”



# A new toxic time bomb

- Global transport of PBTs
- Microplastics: *Plastic pellets, ropes, Nets, Microbeads, Synthetic fabric*
- Nanoparticles (engineered)
- Surface area to volume ratio
- PCB, DDT, Lindane, BPA, BFR
- Phthalates, EDC, PFC, PAH



# Types of plastics and additives

Toxicity of plastics associated with:

- Residual monomers
- Intermediates
- POPs

Additives

- Plasticizers
- Flame retardants
- Stabilizers
- Curing agents
- Colorants

Persistent Organic Pollutants

- PCB
- DDT
- HCH
- HCB
- PFC
- PBDE



When ingested by marine species, the contaminated plastics provide a clear route by which POPs can enter the marine food web.

# International Pellet Watch

Foul Bay Western Australia

| Chemical | Foul Bay test   | Range of levels recorded by International Pellet Watch |
|----------|-----------------|--------------------------------------------------------|
| PCBs     | 20ng/g-pellet   | 7 to 486ng/g-pellet                                    |
| DDT      | 9ng/g-pellet    | 3 to 323ng/g-pellet                                    |
| PAHs     | 0.4ng/g-pellet  | 0.2 to 15ng/g-pellet                                   |
| Hopanes  | 14ng/g-pellet   | 2 to 49 ng/g-pellet                                    |
| HCH      | <0.2ng/g-pellet | 0.1 to 37 ng/g-pellet                                  |

# Levels of pollutants in other microplastics

- 2014 Norwegian Institute for Water Research
- Pesticides:  
DDT, HCH, Chlordane s, Cyclo die ne s, Mire x, HC B
- Industrial Chemicals and additives:  
PCBs, PBDE, BPA, PFCs, Phenols
- Byproducts:  
PAHs, Aliphatic hydrocarbons



# Plastic Marine Pollution: a cross sector issue

-needs a cross sector response-



UNITY

COLLABORATION

TRUST

SUPPORT

RESPECT

STRENGTH

DETERMINATION

HOPE