National Toxics Network Australia

Contaminants in Marine Plastics

2016
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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
- Nano particles (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*

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Foul Bay test</th>
<th>Range of levels recorded by International Pellet Watch</th>
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</thead>
<tbody>
<tr>
<td>PCBs</td>
<td>20ng/g-pellet</td>
<td>7 to 486ng/g-pellet</td>
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<tr>
<td>DDT</td>
<td>9ng/g-pellet</td>
<td>3 to 323ng/g-pellet</td>
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<tr>
<td>PAHs</td>
<td>0.4ng/g-pellet</td>
<td>0.2 to 15ng/g-pellet</td>
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<tr>
<td>Hopanes</td>
<td>14ng/g-pellet</td>
<td>2 to 49ng/g-pellet</td>
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<tr>
<td>HCH</td>
<td>&lt;0.2ng/g-pellet</td>
<td>0.1 to 37ng/g-pellet</td>
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</tbody>
</table>
Levels of pollutants in other microplastics

- 2014 Norwegian Institute for Water Research

- Pesticides: DDT, HCH, Chlorodanes, Cyclic dienes, Mirex, HCB

- 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