**Sources, Pathways and Environmental Fate of Microplastics**

Anne Marie Mahon¹, Róisín Nash¹ Heather Lally¹, Sinead Murphy¹, John O’Sullivan², Michéal Bruen², Mark Kelly¹, Noelle Jones¹, Bart Koelmans³, Ian O’Connor¹

¹. Marine & Freshwater Research Centre, Galway Mayo institute of Technology, Galway, Ireland
². School Of Civil, Structural & Environmental Engineering, University College Dublin, Dublin, Ireland
³. Aquatic Ecology and Water Quality Management, Wageningen University, Netherlands

www.freshwatermicroplastics.com

**Consortium & Expertise**

Biologists, Limnologists, Hydrological & Environmental Engineers and Industry Partners collaborating to inform the development and implementation of policy through understanding of the sources, pathways and environmental fate of microplastics in freshwater systems.

### Objectives

- Characterisation of microplastic sources with respect to industry, wastewater treatment plants and diffuse sources.
- Describe movement of microplastics from land based sources to aquatic receptors.
- Determine factors affecting dispersal mechanisms in freshwater systems.
- Identify potential pathways and transfer rates for microplastics within freshwater food webs.
- Model critical source areas for microplastics and their potential impact.
- Inform policy and make recommendations for monitoring.

### Outcomes and Impacts

- Deliver on national environmental research priorities described in the EPA research strategy 2014-2020.
- Provide in-depth knowledge on the specifics of the sources, pathways and environmental fate of microplastics.
- Inform political decisions regarding the possible requirement for inclusion of microplastic monitoring programme under the WFD
- Inform decisions regarding possible regulation of microplastics from various sources.

---

**3 year Project - Kick-Off Meeting January 2017**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Leader Dr Mahon</td>
<td>Leader Dr O’Sullivan</td>
<td>Leader Dr Lally</td>
<td>Leader Dr Murphy</td>
<td>Leader Prof Bruen</td>
</tr>
<tr>
<td>Contributions: Dr Kelly</td>
<td>Contributions: Dr Mahon, Prof Bruen, PhD Student (UCD)</td>
<td>Contributions: Dr Nash, Dr Mahon, Dr O’Sullivan, PhD students (GMIT &amp; UCD)</td>
<td>Contributions: Dr Lally, Dr Nash, Dr Mahon, Dr O’Sullivan</td>
<td>Contributions: Dr O’Sullivan, Dr Mahon, Prof Koelmans, PhD student (UCD)</td>
</tr>
<tr>
<td>Leader Dr Mahon</td>
<td>Leader Dr Nash</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions: Dr Lally, Dr Nash, Dr Murphy</td>
<td>Contributions: Dr O’Connor, Dr Mahon, Dr Lally</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Pressures of microplastic pollution identified
- Policy recommendations concerning microplastic pollution in Ireland
- Solutions/alternative suggested to reduce microplastic pollution

---

**Data on transport from land to aquatic receptors**

- Impact of flow, velocity and depth on transport of MPs
- Factors controlling MP dispersal

**Pathways in food web.**

- Bio-indicators for monitoring

**Communications Plan**

- Website, conference, publications
- Conference report communications evaluation

---

**WP5. Modelling**

- Leader Prof Bruen
- Contributions: Dr O’Sullivan, Dr Mahon, Prof Koelmans
- PhD student (UCD)

**WP6. Recommendations for monitoring of microplastic pollution**

- Leader Dr Mahon
- Contributions Dr Lally, Dr Nash, Dr Murphy