ANDROMEDA

JPI OCEANS

Microplastics Factsheet

1907

Bakelite, the world's **first fully synthetic plastic**, is invented in 1907, forever changing the way we live

1955

'Life' magazine cover from 1955 celebrates a growing consumer culture of **"Throwaway Living"**

2020

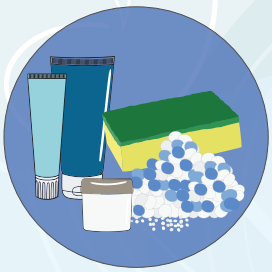
Plastic usage on a **global scale** has created **plastic pollution** all around the world.

2022+

The **United Nations Environment Assembly** (UNEA) passed a resolution on a **global plastic treaty** entitled **'End Plastic Pollution: Towards a Legally Binding Instrument'** in March 2022. Negotiations are underway and will finalise by **2024**.

What are Microplastics?

Microplastics are **synthetic particles** between **1 µm – 5000 µm* in diameter** (0.001 mm - 5 mm) which originate from a **variety of sources** and typically **end up in the ocean** or **on beaches. Plastic debris** and **microplastic particles** can now be found across **all ocean basins**, **ecosystems**, **habitats**, and **food webs** on earth. *µm = micrometre



Nurdles & Intentionally Added Microplastics

Nurdles are produced and **used commercially in the plastics industry** as the **source material for making products**. These **small particles** are **melted down for use** in a multitude of products, from **cosmetics** to **cleaning products** and **food packaging** to **Christmas trees**!

Some consumer products contain **intentionally added microplastics and microbeads**, although these are now being **phased out gradually**, for example in the **cosmetics industry**. These types of microplastics can be **released directly into the environment** during product use or by **accidental release**.

Unintentionally Formed Microplastics

These are microplastics that occur from the **break down of larger plastic fragments,** such as **water bottles, fabric fibres, tyres** and **plastic bags**. This breakdown is caused by **exposure to environmental factors**, mainly ultraviolet light from the **sun**, the ocean's **waves,** and the **wind**.

ANDROMEDA is an international, JPI Oceans-funded research project developing analysis techniques for quantifying nanoplastics and microplastics and their degradation in the marine environment. For information and resources visit **www.andromedaproject.net**

ANDROMEDA

JPI OCEANS

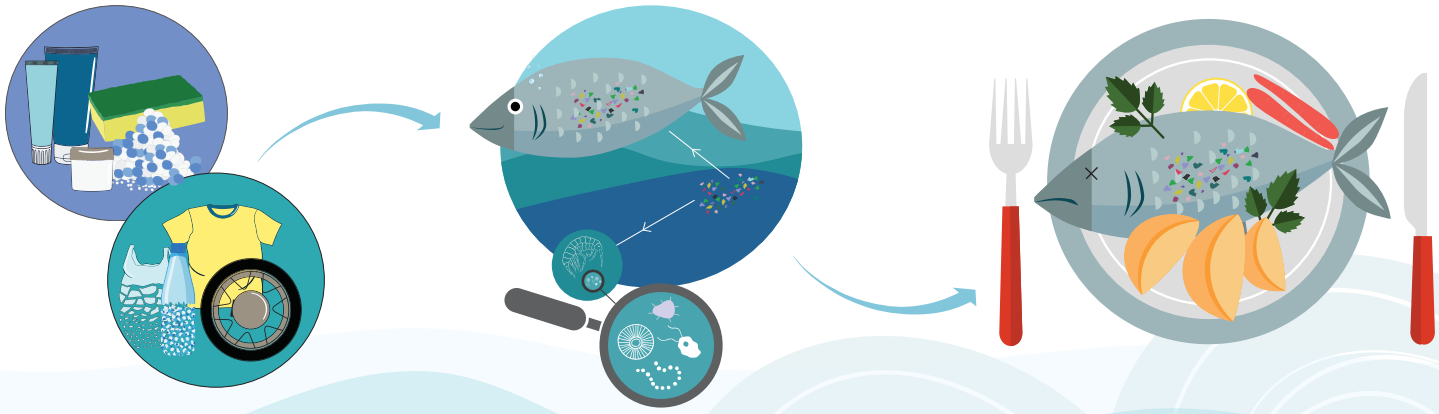
Microplastics Factsheet

Microplastics can also be a **source of chemicals**. Plastics contain **additives**, such as **UV absorbers** or **plasticizers** (to make the material softer and more flexible), which are **applied during the manufacturing process**. These chemicals can **make their way into the environment**. Given the **huge amount** and small size of microplastics in our natural environments they are **extremely difficult to remove**.

How do microplastics enter the food chain?

Microplastics can **enter the marine food chain** by being **eaten by microscopic organisms such as plankton**, which are then eaten by **fish**. They can also be **ingested directly by fish**, as well as by molluscs such as **mussels** and **oysters**. Most microplastics **pass quickly through the digestive system of organisms** and **leave with their poo**! The **very smallest** microplastics might **transfer into organisms**.

Plankton and fish are **lower and higher trophic organisms**, respectively. A **trophic level** is the **level**, **or position**, that an **organism occupies in the food chain**.



Plastic pollution is everyone's business!

*Check out **www.andromedaproject.net** for more information and resources!*

ANDROMEDA is funded by JPI Oceans through support by the following national funding agencies: Belgium: the Belgian Federal Science Policy Office (BELSPO), **France**: The National Research Agency (ANR), **Estonia**: Ministry of the Environment of the Estonia Republic (MoE) and the Estonian Research Council (ETAg); **Germany**: Federal Ministry of Education and Research (BMBF), **Ireland**: Marine Institute, and the Dept of Housing, Planning, and Local Government (DHPLG); **Malta**: Malta Council for Science and Technology (MCST); **Norway:** The Research Council of Norway (RCN); **Spain**: Spanish State Research Agency (AEI); **Sweden**: the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS). **Project Coordinator:** richard.sempere@mio.osupytheas.fr