

Project Duration	36 months	Lead Partner	University of Vigo, Spain
Start	January 2016	End	December 2018
Total Partners	16	Total Project Cost	€3,154,000

EPHEMARE



ECOTOXICOLOGICAL EFFECTS OF MICROPLASTICS IN MARINE ECOSYSTEMS

The project at a glance...

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Microplastics show the potential to play a remarkable role in the incorporation and trophic transfer of pollutants into marine food webs. The toxic effects of microplastics on marine organisms are unclear and need further investigation...

This JPI Ocean project is supported by national funding agencies

Belgium: Belgian Federal Science Policy Office (BELSPD) and the Research Foundation – Flanders (FWO); **France:** The French National Research Agency (ANR); **Germany:** Federal Ministry of Education and Research; **Ireland:** Marine Institute; **Italy:** Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR); **Norway:** The Research Council of Norway (RCN); **Portugal:** Portuguese national funding agency for science, research and technology (FCT); **Spain:** Ministry of Economy and Competitiveness (MINECO) and **Sweden:** the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS) and the Swedish Agency for Marine and Water Management (SWAM).

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What are EPHEMARE's aims and objectives?

EPHEMARE aims to investigate the uptake, tissue distribution, final fate and effects of microplastics in organisms representative of pelagic and benthic ecosystems by achieving the following objectives:

- To examine the potential role of microplastics as vectors of model Persistent Pollutants that readily adsorb to their surfaces.
- To assess by means of internationally accepted standards and methods whether microplastic accumulation leads to detrimental effects at molecular, cellular, physiological and organism levels.
- To test the suitability of exposure and effect biochemical, cellular and physiological biomarkers and cutting edge omics methods to trace microplastics exposure.
- To assist public and private stakeholders with the scientific basis for the development and compliance with general environmental regulations concerning chemicals used in plastic production.
- To raise public awareness on the risks that the less visible plastics pose to marine ecosystems and, eventually, human health.



How is the work being carried out?

EPHEMARE is structured into 7 tightly interconnected WPs that aim to investigate adsorption of chemicals on microplastics (WP1), their ingestion, trophic transfer and chemical release (WP2 and WP5), and a wide array of ecotoxicological effects (from transcriptomic to cell damage and organism responses), using several invertebrate and vertebrate models.

Different typologies of polymers both virgin and previously contaminated and exposure conditions will be tested (WP3 and WP4) in order to highlight and validate mechanistic relationships and mode of action of microplastics and associated chemical compounds, while field validation studies (WP6) will allow to link the ecotoxicological findings from laboratory studies to the environmental scale.

WP7 is communicating and disseminating project information and results through effective social media promotion, web content management, production of informational and educational materials, and stakeholder engagement.

Who is involved?

EPHEMARE is conducted by a multidisciplinary consortium of 14 Partner Institutes from Belgium, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden and microplastics experts from the UK.

EPHEMARE is one of four approved projects following the 2014 JPI Oceans Pilot Call on ecological effects of microplastics.

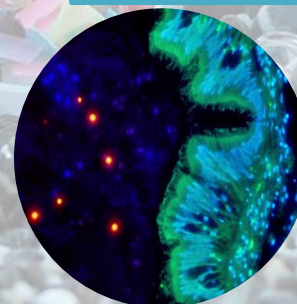


Photo Credit:

Images used in this publication are finalists from the EPHEMARE IMPACT 2017 International Microplastics Photo Competition

Cover: Simone Bava - 'Plastic Bombing'

Inner: Francesca Trampetti - 'The Harvest of the Beach'
Inserts (L-R)

1: Caia Gonçalves - 'The Brightest Nest'

2: Francesca Trampetti - 'Under the Rock (There is More)'

3: Caia Gonçalves - 'Sea of Stars'

4: Estefania Pereira Pinto - 'Plastic World'