THE PLASTIC BUSTERS MPAs MARINE LITTER PREVENTION & MITIGATION ACTIONS: A SYNTHESIS

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PLASTIC POLLUTION & SUPs IN MEDITERRANEAN MPAs

THE JOINT LIST OF LITTER CATEGORIES

JRC TECHNICAL REPORTS

A Joint List of Litter Categories for Marine Macrolitter Monitoring

Manual for the application of the classification system

Ried, G., Vlachogianni, T., Henke, G.
MED Technical Group on Marine Litter

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The TGML has been set up on request by the EU Member States under the MSFD Common Implementation Strategy. Activities are based on a mandate and work program agreed within the CIS and approved by the EU Marine Directors. The group reports through the GES group. It is supporting the MSFD Descriptor 10 implementation and the EU external activities concerning marine litter.

THE JOINT LIST: A LIST FOR ALL MARINE COMPARTMENTS

MACROLITTER ITEMS > 2.5 CM

Beach
Sea surface
Seafloor
Biota

Fit-for-purpose data
Comparable data
Reliable data
## THE USE CATEGORIES

<table>
<thead>
<tr>
<th>Type-code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ag_</td>
<td>agriculture related</td>
</tr>
<tr>
<td>aq_</td>
<td>aquaculture related</td>
</tr>
<tr>
<td>cl_</td>
<td>clothing</td>
</tr>
<tr>
<td>co_</td>
<td>building &amp; construction related</td>
</tr>
<tr>
<td>fc_</td>
<td>food consumption related</td>
</tr>
<tr>
<td>fi_</td>
<td>fisheries related</td>
</tr>
<tr>
<td>hy_</td>
<td>personal hygiene and care related</td>
</tr>
<tr>
<td>md_</td>
<td>medical related</td>
</tr>
<tr>
<td>nn_</td>
<td>undefined use</td>
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<tr>
<td>re_</td>
<td>recreation related</td>
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<tr>
<td>sm_</td>
<td>smoking related</td>
</tr>
<tr>
<td>vk_</td>
<td>vehicle related</td>
</tr>
<tr>
<td>hu_</td>
<td>hunting related</td>
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</tbody>
</table>
THE JOINT LIST & ITS HIERARCHICAL STRUCTURE

Level 1
Material
- artificial polymer material
- plastic fishery-related items
- plastic food consumption-related items

Level 2
Use
- plastic food bottles & containers
- plastic tableware cups/cutlery/plates/trays/straws/stirrers

Level 3
- plastic drink bottles
- plastic food containers made of foamed polystyrene

Level 4
- plastic drink bottles ≤ 0.5l
- plastic drink bottles >0.5l

Level 5
- plastic drink bottles ≤ 0.5l
- plastic drink bottles >0.5l
THE MAIN TARGETED LITTER ITEMS

- Bags
- Cutlery
- Straws
- Food & beverage containers
- Cups & cup lids
- Plates
- Stirrers
SEA-BASED SOURCES ARE OF PARAMOUNT IMPORTANCE IN MANY AREAS OF THE MEDITERRANEAN, INCLUDING MPAs!

THE MAIN TARGETED LITTER ITEMS

Sea-based:
- offshore mining
- shipping
- fisheries and aquaculture

Land-based:
- tourism and recreational activities
- discharges of untreated municipal sewage
- industrial outfalls
- poor waste management

Thesprotia, Greece
Lavezzi island, France
Milazzo, Italy
WISE USE OF PLASTICS WITHIN A CIRCULAR ECONOMY
Thermoplastics capable of being repeatedly moulded, or deformed plastically, when heated

Polyethylene Terephthalate (PET); Polypropylene (PE); Low Density Polyethylene (LDPE); High Density Polyethylene (HDPE); Polystyrene (PS); Expanded Polystyrene (EPS); Polyvinylchloride (PVC); Polycarbonate; Polypropylene (PP); Polylactic acid (PLA); Polyhydroxyalkanoates (PHA)

Thermosets once formed, cannot be remoulded by melting

Polyurethane (PUR), Phenolic resins, Epoxy resins, Silicone, Vinyl ester, Acrylic resins, Urea-formaldehyde (UF) resins

WHAT ARE SUPs MADE OF?

<table>
<thead>
<tr>
<th>Polymer</th>
<th>Plastic product</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDPE</td>
<td>Milk bottles, freezer bags, shampoo bottles, ice cream containers</td>
</tr>
<tr>
<td>PET</td>
<td>Bottles for water and other drinks, dispensing containers for cleaning fluids, biscuit trays</td>
</tr>
<tr>
<td>LDPE</td>
<td>Bags, trays, containers, food packaging film</td>
</tr>
<tr>
<td>PP</td>
<td>Microwave dishes, potato chip bags, bottle caps</td>
</tr>
<tr>
<td>PS</td>
<td>Cutlery, plates and cups</td>
</tr>
<tr>
<td>EPS</td>
<td>Hot drink cups, insulated food packaging, protective packaging for fragile items</td>
</tr>
</tbody>
</table>
BIO-BASED VS PETRO-BASED PLASTICS

- **Bio-based plastics**
  - made from renewable resources

- **Petro-based plastics**
  - made from non-renewable petroleum based resources

- Renewable resources can include corn, potatoes, rice, soy, sugarcane, wheat, and vegetable oil.

- Two very common examples of bio-based plastics are bio-polyethylene and poly(lactide). While most of the conventional polyethylenes are produced from fossil fuel, bio-polyethylene a leading bio-based plastic is produced entirely from biomass feedstock.
The degradation of plastics is defined as the process that induces changes in the polymer properties (deterioration of functionality) due to chemical, physical or biological reactions.

Depending upon the nature of the causing agents, polymer degradations have been classified as thermal- (heat), photo- (sunlight), oxidative- (oxygen), hydrolytic- (water), mechanical- (stress), and bio- (microorganisms) degradation.
Substituting ‘conventional’ plastics with biobased plastics is merely a distraction to the marine litter issue.

End-of-pipe solutions such as cleanup operations cannot address the issue.

Biodegradable and compostable plastics pollute our coasts and seas just like conventional plastics, as they behave quite differently in the marine environment than in a terrestrial setting (landfill, composter) where the conditions required for rapid biodegradation are unlikely to occur. In addition, mixing of such plastics with normal plastics in the recycling stream may compromise the properties of the newly synthesised polymer.
EC GUIDELINES ON SINGLE-USE PLASTIC PRODUCTS

‘Plastics manufactured with modified natural polymers, or plastics manufactured from bio-based, fossil or synthetic starting substances are not naturally occurring and should therefore be addressed by the SUPs Directive. The adapted definition of plastics should therefore cover polymer-based rubber items and bio-based and biodegradable plastics regardless of whether they are derived from biomass or are intended to biodegrade over time’

Commission guidelines on single-use plastic products in accordance with Directive (EU) 2019/904 of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment (2021/C 216/01)
**THE EUROPEAN WASTE HIERARCHY AT THE HEART OF THE PLASTIC BUSTERS MPAS MARINE LITTER PREVENTION & MITIGATION INTERVENTIONS**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Phase out or eliminate</td>
<td>This option refers to the absolute removal of a SUP-related item from a business, i.e. no bottled water is given to customers.</td>
</tr>
<tr>
<td>Reuse</td>
<td>This option refers to deploying a reusable alternative, i.e. by joining a reusable coffee-to-go cup scheme.</td>
</tr>
<tr>
<td>Reduce</td>
<td>This option refers to the reduction of the use of a SUP-related item, i.e. by providing it to a customer only when requested (handing out a carrier bag only upon request).</td>
</tr>
<tr>
<td>Replace with a sustainable or more sustainable alternative</td>
<td>This option refers to replacing a SUP-related item in use with a less harmful alternative i.e. replacing a plastic straw with a ‘straw’ straw or replacing a plastic cup with a FSC non-plastic-coated paper cup.</td>
</tr>
<tr>
<td>Improve recycling</td>
<td>This option refers to ensuring that a SUP-related item that is necessary due to a regulation or due to the unavailability of alternatives, is fully recyclable, is appropriately collected and recycled.</td>
</tr>
</tbody>
</table>
THE PILOTED & REPLICATED MEASURES

- Setting up a SUPs-free network of coastal food and beverage outlets
- Setting up the adopt-a-beach scheme
- Establishing an ALDFG scheme to tackle fisheries & aquaculture litter
- Promoting the sustainable management of mussel farming nets
- Developing an awareness raising campaign for cigarette-butt free beaches
- Developing a network of collection points for beverage containers
- Setting up a reusable cup delivery system for beach bars
THE PIONEERING MPAs

Testing Actions
FRANCE - Pelagos Sanctuary
GREECE - National Marine Park of Zakynthos
GREECE - Thermaikos Gulf Protected Areas
ITALY - Miramare MPA
ITALY - Pelagos Sanctuary
ITALY - Tuscan Archipelago National Park
SPAIN - Cabo de Gata-Nijar Natural Park
SPAIN - Cabrera National Park
SPAIN - Natural Park of Ebro Delta

Replication Actions
ALBANIA - Karaburun-Sazan MPA
CROATIA - Brijuni National Park
MONTENEGRO - Platamuni MPA
SLOVENIA - Debeli Rtič Landscape Park

Testing & Replication Actions
SLOVENIA - Landscape Park Strunjan
TURNING SCIENCE INTO POLICY & ACTIONS
THE MAIN CHALLENGE OF OUR ERA

- Fit-for-purpose data
- Participatory decision-making & bottom up approaches
- Feasible & effective solutions
- Coordinated & multilevel actions
- Methodologically sound & science-based processes
- Social innovations for a paradigm shift in the way we produce & consume
THE PLASTIC BUSTERS MPAS BLUEPRINT FOR A JOINT URGENT RESPONSE TO MARINE LITTER POLLUTION
Thank you!

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