Policy options for litter-free seas

This brochure aims to provide policy makers, regional and local authorities, and other interest groups with practical policy options and co-management measures to support progress towards marine litter reduction

Produced by the CleanSea Project: Towards a Clean Litter-Free European Marine Environment through Scientific Evidence, Innovative Tools and Good Governance (2013-2015)

Photo: Joana Mira Veiga

Marine litter

Marine litter consists of any manufactured items or material that have been deliberately discarded or lost at sea or on the coastline, or that have been transported to the marine environment via rivers, sewage, storm water or wind. Marine litter is a pervasive problem affecting all oceans and seas of the world and is recognised internationally as a major global challenge.

Why is it a problem?

Litter found in the sea can range from large fishing nets to microscopic-sized litter, often resulting from gradual fragmentation of bigger items. The larger litter fractions are a threat to navigation, ship propellers can get jammed by it, marine animals get entangled in it, fish catch quality is reduced by litter, as is the aesthetic beauty of our coastlines. The smaller litter pieces can be ingested by a wide variety of species, with risks of negative effects on organisms from the bottom to the top of the marine food-chain, including seafood for human consumption. Ubiquitous in our daily lives, plastic items are consistently the dominant fraction of marine litter as well. The most prevalent litter categories include packaging (plastic bags, food and drink containers) and single-use, disposable items (e.g. straws, bottles, cotton bud sticks). Marine litter brings with it enormous social costs, e.g. litter clean-ups.

A societal and political challenge

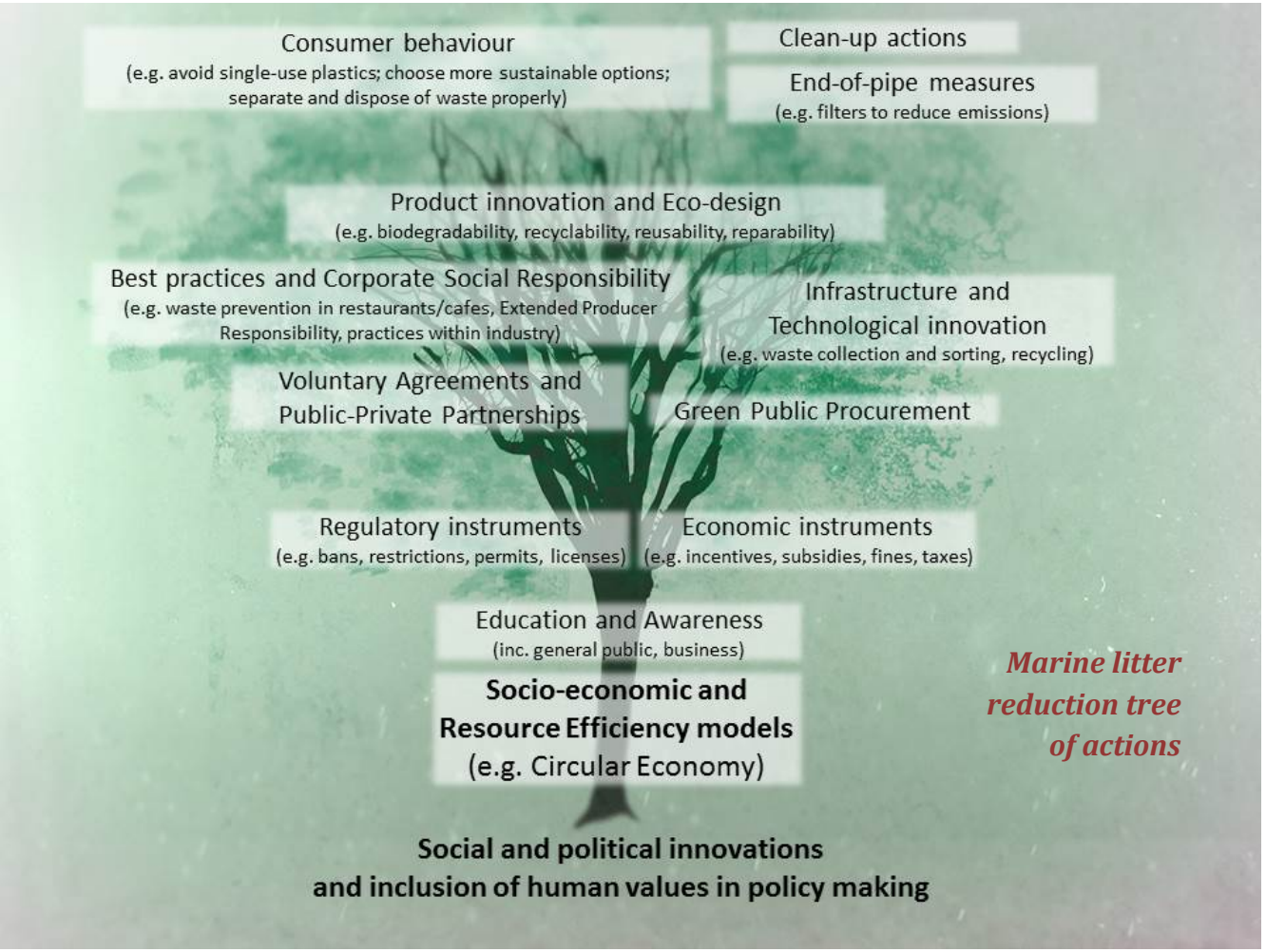
Marine litter is a consequence of our current paradigm of linear use of resources and our inability to fully deal with the volume of waste this produces. It presents a challenge to society and to our economic and political systems to mitigate marine litter damage to our oceans and welfare much more effectively and without delay.

Achieving litter-free seas through good governance is a joint effort

From small-scale actions to powerful policymaking

There are opportunities to reduce marine litter on **every governance level from local to international**, and targeting and involving a multitude of sectors and actors across society.

Tackling marine litter will require what can be regarded as a whole tree of approaches (see diagram), from **tiny-scale, personal choices** to reduce, reuse and recycle in our own lifestyles to large-scale, **powerful changes in our litter-generating system** of production and consumption. The small scale actions and experiments in the 'action tree' canopy and the cultural acceptance of the problem we observe here cannot lead to clean seas on their own. Yet they are crucial to embody the structural changes that are taking place at or near the base of the system. Likewise, powerful **policies, economic instruments, leadership in businesses**, litter problem-solving **technologies** all provide the sturdy **structural support** needed in the branches to keep things moving and to give direction to and drive the actions.



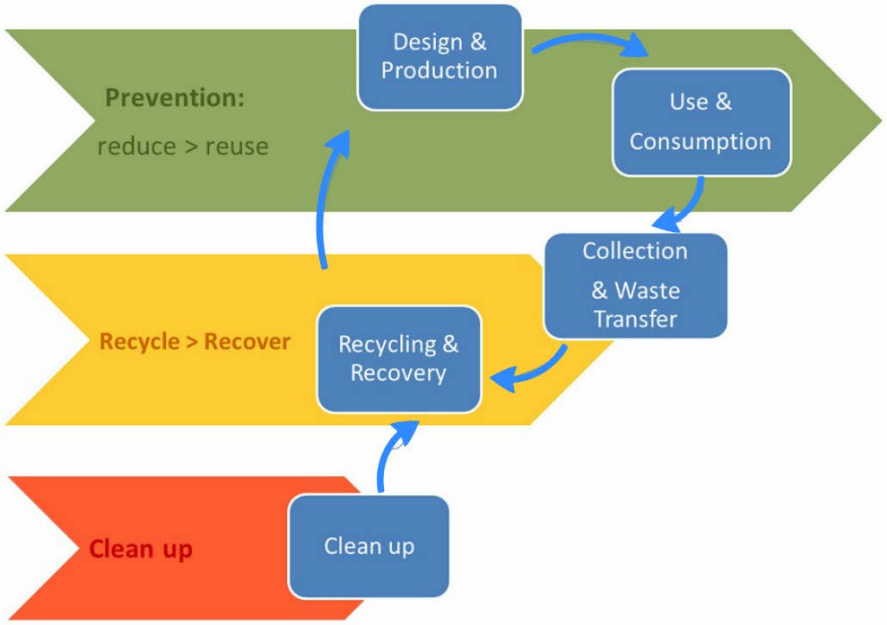
Marine litter reduction tree of actions

A comprehensive legal framework is an essential part of the larger strategy to regulate human activities and prevent negative impacts on our ecosystems. **Top-down, regulatory instruments** can be effectively used to promote sustainable production, use and recovery of products and materials and therefore be applied at different stages of the "product-to-waste" chain to prevent marine litter or otherwise mitigate it. No environmental problem has been solved without a strong legal framework.

Economic policy instruments can be used to reduce marine litter by providing economic **incentives and disincentives** to change behavior in different actors and sectors. These come in the form of taxes, fees, deposits and subsidies. Economic instruments can be powerful instruments for rapid market transformation.

Prevention is the starting point

The CleanSea Project studied and developed a set of policy options including economic instruments, regulations and co-management[1] (e.g. public-private partnerships) to address marine litter. These address various points in the current product-to-waste chain **where policy can intervene**: from the design and production of products, through consumption, collection, recycling, waste treatment and finally clean up.



Product-to-waste stages are represented by blue boxes. On the background, the European waste hierarchy is shown prioritizing prevention and clean up is a last resort.

[1] *Co-management* refers a form of governance involving collaboration between two or more primary stakeholders such as government bodies, commercial private sectors, civil society organisations and local communities.

Following the waste management hierarchy, priority should be given to those stages that lead to **waste prevention** (in terms of reduction and preparation for re-use). To make the system more regenerative, support a **circular economy** and the European waste hierarchy (see figure) it would require policies that ensure that:

- Products are **designed** to be long-lasting and reused, reparable, remanufacturable and recyclable, with the most effective use of resources, minimizing the use of virgin non-degradable materials and incorporation of toxic substances; manufacture and transport use renewable energy;
- Superfluous **consumption** is limited. Inappropriate disposal behavior is discouraged and citizens are enabled to make responsible, well-informed decisions about the products they buy; sustainable product systems are available to citizens;
- Adequate systems to promote **collection** and separation of different types of waste are in place to maximize return rates of high-quality materials that can be reused or recycled (not downcycled). Waste is regarded not as 'waste' but rather as a valuable resource, which minimizes its loss from the system;
- **Recycling** is favored over incineration and landfilling of valuable 'waste' commodities, with energy recovery of the non-recyclable fraction. New technologies for recycling and markets for recycled materials are encouraged and strengthened.

Practical opportunities to reduce marine litter

- Reductions in marine litter can be achieved through adopting a **combination** of economic instruments, regulations and co-management measures.

- There are opportunities to **expand the geographic coverage** of successful instruments and initiatives, (e.g. *no-special-fee* in maritime transport or *pay-as-you-throw* schemes), with only small adjustments to fit into each local contexts.

- It is possible to **enhance the scope of existing instruments**, e.g. by re-directing subsidies to encourage innovation of specific products and services or by increasing monitoring and enforcement of littering fines.

- **Economic instruments** that are known to be effective in reducing the consumption or increasing the rates of collection of certain items (e.g. tax on plastic bags and deposit refund schemes for drink bottles) could be **applied to other types of common marine litter items**.

- **Success factors** for marine litter reduction instruments include:

  i) the capacity to address the **dominant types of marine litter** in the region;

  ii) the targeting **early stages of current product-to-waste chains**, preferably the ones that lead to prevention of waste in the first place;

  iii) the targeting **sectors** that can play instrumental roles in reducing marine litter ; and

  iv) **the legislative support** to the implementation.

CleanSea policy options for top marine litter items and key sectors

A set of **practical and effective regulatory and economic instruments, co-management initiatives** to address marine litter are presented below. They are organised in terms of targeting specific items that often end up in the sea as marine litter (Table 1), and then in terms of specific sectors which can play key roles in mitigating marine litter (Table 2). The options in both categories are organized across the stages of the product-to-waste chain.

The intention is to provide a **resource** to assist stakeholders in **identifying sound options** to tackle marine litter that can be **tailored to regional specificities and priorities** (e.g. considering the dominant items of marine litter or activities that often generate marine litter in a given region). Such an overview can support: the finalisation of the Programmes of Measures for Descriptor 10 (Marine Litter) by the European Member States for the Marine Strategy Framework Directive (MSFD)[2], the reviewing of measures for the next MSFD cycle, the design of actions for the Regional Seas Action Plans[3] and the improvement of current waste management systems. Measures may be initiated not only by authorities but also by industry and other interest groups.

The options presented emerged from a coordinated assessment of the most promising policy options, measures and best practices implemented in Europe or being considered at the national and regional levels. It includes new proposals for actions based on social, technological or institutional innovations obtained from CleanSea research and stakeholder consultations.

Colour legend in tables: type of measures

Regulatory instruments
Economic Instruments
Co-management and voluntary initiatives
Technological innovation and improvement of infrastructure

[2] http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm
[3] http://www.unep.org/regionalseas/

Table 1. POLICY OPTIONS TO MITIGATE COMMON MARINE LITTER ITEMS (1/3)

	Design and Production	Use and Consumption	Collection and Transfer	Treatment and Recycling	Cleanup
Primary microplastics	*Operation Clean Sweep* – prevention of pellet loss during handling and transport through good practices		Improvement of Waste Water Treatment Plants to retain microplastics from urban and industrial effluents		
	Beat the Micro Bead Campaign – app available for citizens to identify cosmetics containing microplastics and lobby brands to change products				
Smoking-related items	Substitution of synthetic cigarette filter with natural materials	Ban/restriction of smoking on beaches (e.g. France)	Awareness raising and collection of cigarette butts (e.g. ashtray distribution on beaches)		
Drink containers	Re-design caps/lids attached to bottle	Drinking water publically available for refills	Deposit-refund scheme for drink containers (including lids)		
	Packaging tax				
Food packaging (e.g. snack packets, fast-food containers)	Bans on polystyrene packaging		Deposit-refund schemes for packaging		
	Voluntary agreements with retailers and suppliers to reduce packaging and waste, including selling products in bulk and reusing containers (e.g. *Courtauld Commitment*, UK)				
	Ecotax on specific single-use items				
	Ban single-use plastic items and packaging from certain areas (e.g. recreational beaches, protected areas)				
Service packaging (e.g. plastic cutlery, straws, plastic bags)	Ban on oxo-degradable plastic shopping bags	Code of conduct in hotels and restaurants: straws provided with drink only on request			

Table 1. POLICY OPTIONS TO MITIGATE COMMON MARINE LITTER ITEMS (2/3)

	Design and Production	Use and Consumption	Collection and Waste Transfer	Treatment and Recycling	Clean up
Service packaging (e.g. plastic cutlery, straws, plastic bags) *continued*	Ecotax on specific single-use items				
		Certification and awards of service providers to include specific criteria on single-use, disposable items and on prevention of marine litter (e.g. *Green Key*)			
		Plastic bag tax (e.g. Ireland)			
	Voluntary agreements with retailers and suppliers to reduce packaging and waste, including selling products in bulk and reusing containers (e.g. *Courtauld Commitment*, UK)				
Sewage-related debris (e.g. cotton-bud sticks)	Ban on the sale of plastic cotton-bud sticks		Improvement of Waste Water Treatment Plants to retain microplastics and fibres from urban and industrial effluents		
	Awareness campaigns for proper disposal of sanitary waste, including labelling (e.g. *Bag it, Bin it*, UK)				
	Ecotax on specific single-use items				
Fishing gear (e.g. nets, cords, traps)	Innovative alternative for fishing gear based on harmless and biodegradable materials	Use of alternative biodegradable materials in fishing gear	Collection and removal of old or abandoned nets for recycling and incorporation in new products (e.g. *HealthySeas Initiative*)		

Table 1. POLICY OPTIONS TO MITIGATE COMMON MARINE LITTER ITEMS (3/3)

<table>
<tr><th></th><th>Design and Production</th><th>Use
and Consumption</th><th>Collection and
Waste Transfer</th><th>Treatment and Recycling</th><th>Clean up</th></tr>
<tr><td rowspan="11">Other litter items</td><td colspan="4">Strategies for Extended Producer Responsibility, requiring producers to be responsible for the entire life-cycle of products</td><td></td></tr>
<tr><td colspan="2">Voluntary agreements with retailers & suppliers to reduce packaging and waste, including selling products in bulk and reusing containers (e.g. Courtauld Commitment, UK)</td><td>Fines for littering</td><td rowspan="2">Innovative technologies on sorting of municipal waste and energy recovery of non-recyclable fraction</td><td>Removal of marine litter in accumulations and sensitive areas</td></tr>
<tr><td colspan="2"></td><td colspan="2">Pay-as-You-Throw – municipal waste charges are based on the amount of waste produced (e.g. Germany, Belgium, Greece)</td><td>Regular beach clean up campaigns</td></tr>
<tr><td colspan="4">Plastic cycle chain voluntary agreement between stakeholders to achieve a circular economy for plastics (e.g. Netherlands)</td><td>Clean ups at river mouths</td></tr>
<tr><td colspan="4">Fiscal Incentives for companies investing in environmentally friendly techniques</td><td>Voluntary underwater clean up by scuba divers (e.g. Dive Against Debris)</td></tr>
<tr><td colspan="3">Inclusion of marine litter and its impacts in waste management plans (e.g. Regional Action Plan HELCOM Baltic Marine Environment Protection Commission)</td><td rowspan="3"></td><td>Removal of marine litter during normal maritime operations (e.g. Fishing for Litter Program)</td></tr>
<tr><td rowspan="2">Packaging tax</td><td colspan="2" rowspan="2">Certification and awards of service providers to include specific criteria on single-use, disposable items and on prevention of marine litter (e.g. Green Key)</td><td>Voluntary beach clean up campaigns (e.g. Let's Clean up Europe, Keep Denmark Clean; Coastwatch Constanta)</td></tr>
<tr><td colspan="2">Zero Plastics to Landfills (e.g. Germany)</td><td></td></tr>
<tr><td colspan="4">Awareness raising activities about the issue of marine litter and potential solutions (e.g. MARLISCO Project)</td><td></td></tr>
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Table 2. POLICY OPTIONS TO MITIGATE MARINE LITTER PER SECTOR (1/2)					
	Design and Production	**Use and Consumption**	**Collection and Waste Transfer**	**Treatment and Recycling**	**Ckeanup**
Fisheries and Aquaculture	Innovative alternatives for fishing gear (e.g. dolly rope) based on harmless and biodegradable materials	Alternative biodegradable materials in fishing gear (e.g. clay octopus pots) and aquaculture (e.g. cotton mussel socks)	*Fishing for Litter* – collection of litter accidently caught during fishing operations and appropriate sorting and treatment (e.g. Netherlands; *Motril* project, Spain)		
	Innovative alternatives for aquaculture gear based on harmless and biodegradable materials (e.g. cotton mussel socks)	Use of alternative materials in aquaculture (e.g. cotton mussel socks)	Collection and removal of old or abandoned nets for recycling and incorporation in new products (e.g. *HealthySeas Initiative*)		
			Deposit-refund schemes for fishing items (e.g. fish boxes)		
		Best practices for waste minimization/Guide for Aquaculture (UK-Scotland)			
Shipping			Effective Implementation of MARPOL Annex V		
			Reasonable costs or *No-Special-Fee* for Port Reception Facilities		

Table 2. POLICY OPTIONS TO MITIGATE MARINE LITTER PER SECTOR (2/2)

	Design and Production	Use and Consumption	Collection and Waste Transfer	Treatment and Recycling	Clean up
Agriculture			National schemes for collecting and recycling of used agricultural plastics (e.g. APE, France)		
Tourism and Recreation		Obligation for maritime tourism operators to provide educational material on marine litter and disposal facilities for litter			
			Deposit-refund schemes for packaging		
		Certification and awards of service providers to include specific criteria on single-use, disposable items and on prevention of marine litter (e.g. *Green Key*)			
		Waste schemes (prevention, collection & recycling) in tourism sites through incentive-based public-private partnerships (e.g. Greece)			
			Adopt-a-Beach – community-based waste management, clean up and monitoring of beaches		
		Reduction of plastic waste by local regulatory mandatory requirements (e.g. polluter-pays-principle for pathways of plastic, stricter approval requirements for event organisers)			
Other Industries	Alternative to non-degradable plastic materials (e.g. *Q-Milk*, Germany)	Inclusions of marine litter as part of the Environmental Impact Assessment in permits/licenses			Removal of macro-waste before disposal of dredged sediments in the sea
	Strategies for Extended Producer Responsibility, requiring producers to be responsible for the entire life-cycle of products				
	Voluntary agreements with retailers and suppliers to reduce packaging and waste, including selling products in bulk and reusing containers (e.g. *Courtauld Commitment*, UK)				
	Plastic cycle chain voluntary agreement between stakeholders to achieve a circular economy for plastics (e.g. Netherlands)				

About CleanSea

CleanSea is a large European Framework Programme 7 research project in a programme aptly called 'The Oceans of Tomorrow'. CleanSea devoted three years of interdisciplinary research to improving our understanding of marine litter impacts, providing tools to monitor the situation and generating a torrent of ideas to keep litter out of European seas. From across Europe, 17 partner organisations from 11 Member States collaborated under the leadership of scientist Dr. Heather Leslie from the Netherlands. In this short period (2013-2015) CleanSea has become well-known initiative through the team's research output and intensive engagement in scientific, policy, industrial and civil society realms. CleanSea's aim was to provide new, powerful research and knowledge to a world that's transforming before our eyes. While the project has an end date, the momentum for the pursuit of marine litter obsolescence that it has helped to create should continue.

CleanSea

Towards a Clean Litter-Free European Marine Environment through Scientific Evidence Innovative Tools and Good Governance

ww.cleansea-project.eu

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Reference

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