



# Slashing Plastic Pollution and Breaking Away from a Throwaway Society: Turning Science into Policy & Actions

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Marine Litter Expert of WES**



**For more than twenty years  
joining forces & building bridges  
in the Euro-Mediterranean area**



# MIO-ECSDE AT A GLANCE

## Who we are

We are a non-profit Federation of 130 Mediterranean NGOs for Environment and Sustainable Development

## What we do

We act as a technical and political platform for the intervention of NGOs in the Mediterranean scene

## Our mission

Our mission is to protect the Natural Environment and Cultural Heritage and promote Sustainable Development in a peaceful Mediterranean

[www.mio-ecsde.org](http://www.mio-ecsde.org)



# MIO-ECSDE's KEY ROLE IN ADDRESSING MARINE LITTER





# OUR RECENT PROJECTS ON MARINE LITTER & PLASTIC POLLUTION

EU-funded Water and Environment programme (2019-2023)

LIFE+ OPERATING GRANT FOR NGOs (2018-2019)

Interreg Med PlasticBusters MPAs (2018-2022)

Interreg Med ACT4LITTER (2017-2018)

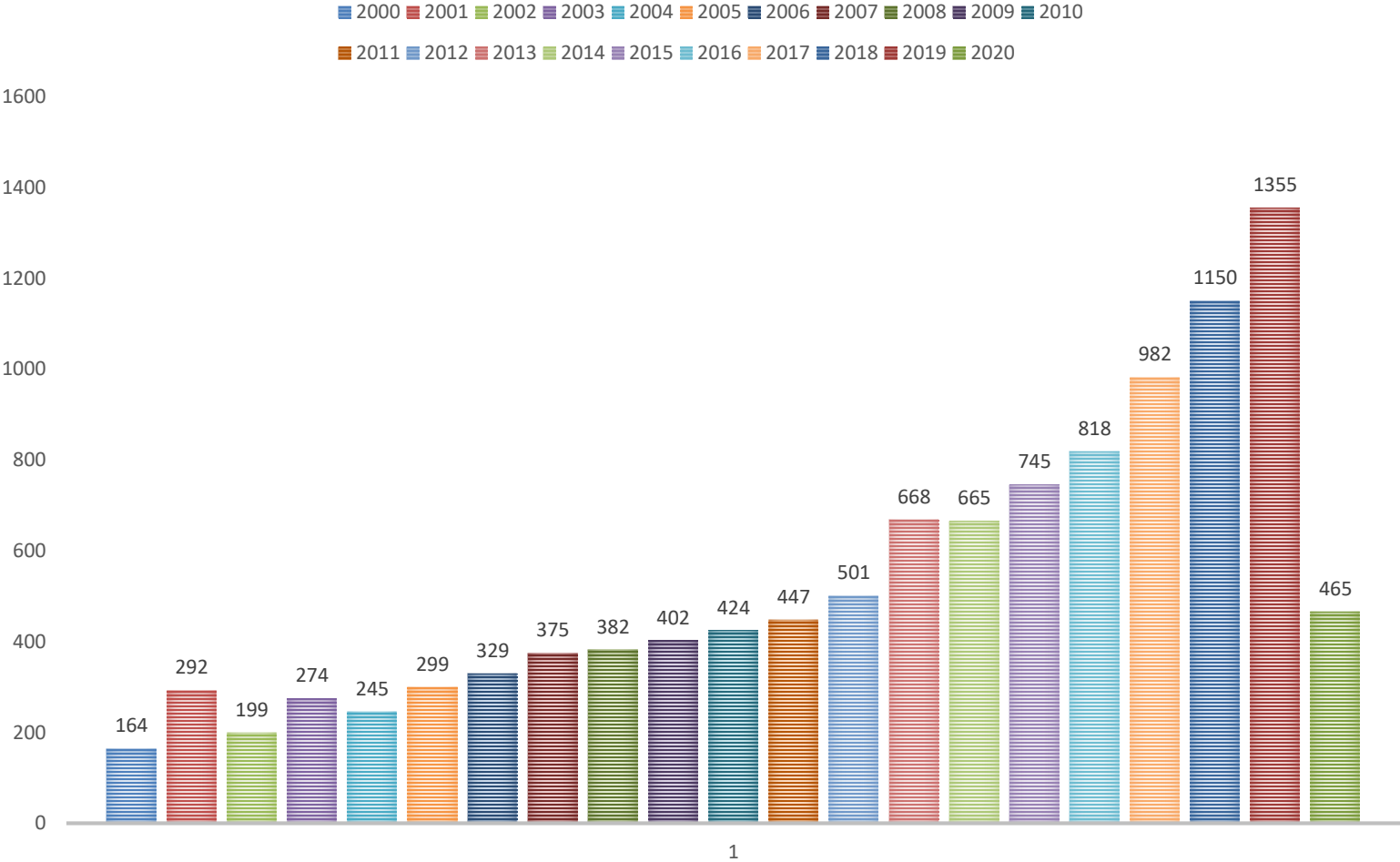
EU SWIM-H2020 SM (2017-2019)

IPA-Adriatic DeFishGear (2013-2016)



# MARINE LITTER | AN INDISPUTABLE GLOBAL THREAT THAT IS GROWING

Some 11,000 research articles have been published in the last 20 years documenting the marine litter threat





# EXPLORING PUBLIC VIEWS ON MARINE LITTER IN EUROPE



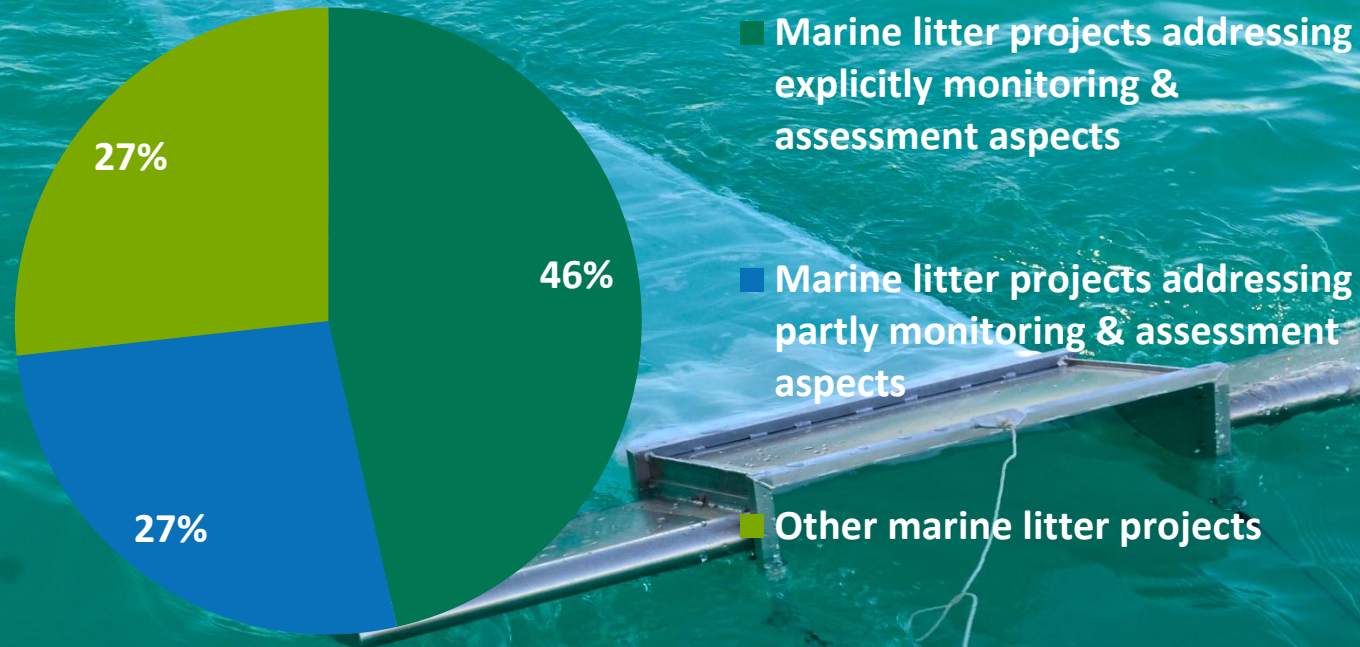
- ❑ People reported high levels of concern about marine litter.
- ❑ The problem was attributed to product and packaging design and behaviour rather than lack of facilities or accidental loss of items.

We analysed public perceptions of marine litter and contributing factors, using data from 1133 respondents across 16 European countries: Portugal, France, UK, Denmark, Italy, Romania, Turkey, Germany, Netherlands; Greece, Cyprus, Ireland, Slovenia, Spain, Bulgaria Belgium.



# MARINE LITTER PROJECTS IN EUROPE

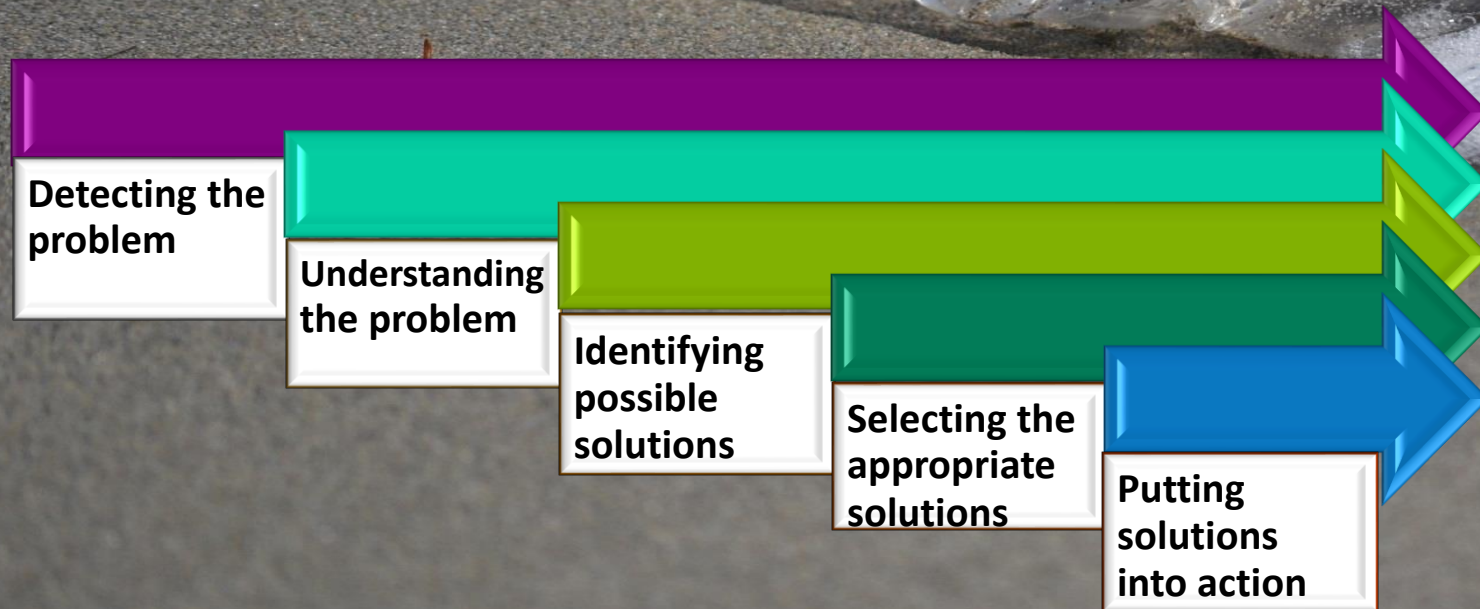
## Marine Litter Projects



*Source: MSFD TG ML, 2019. List of marine litter projects relevant to the Marine Strategy Framework Directive.*



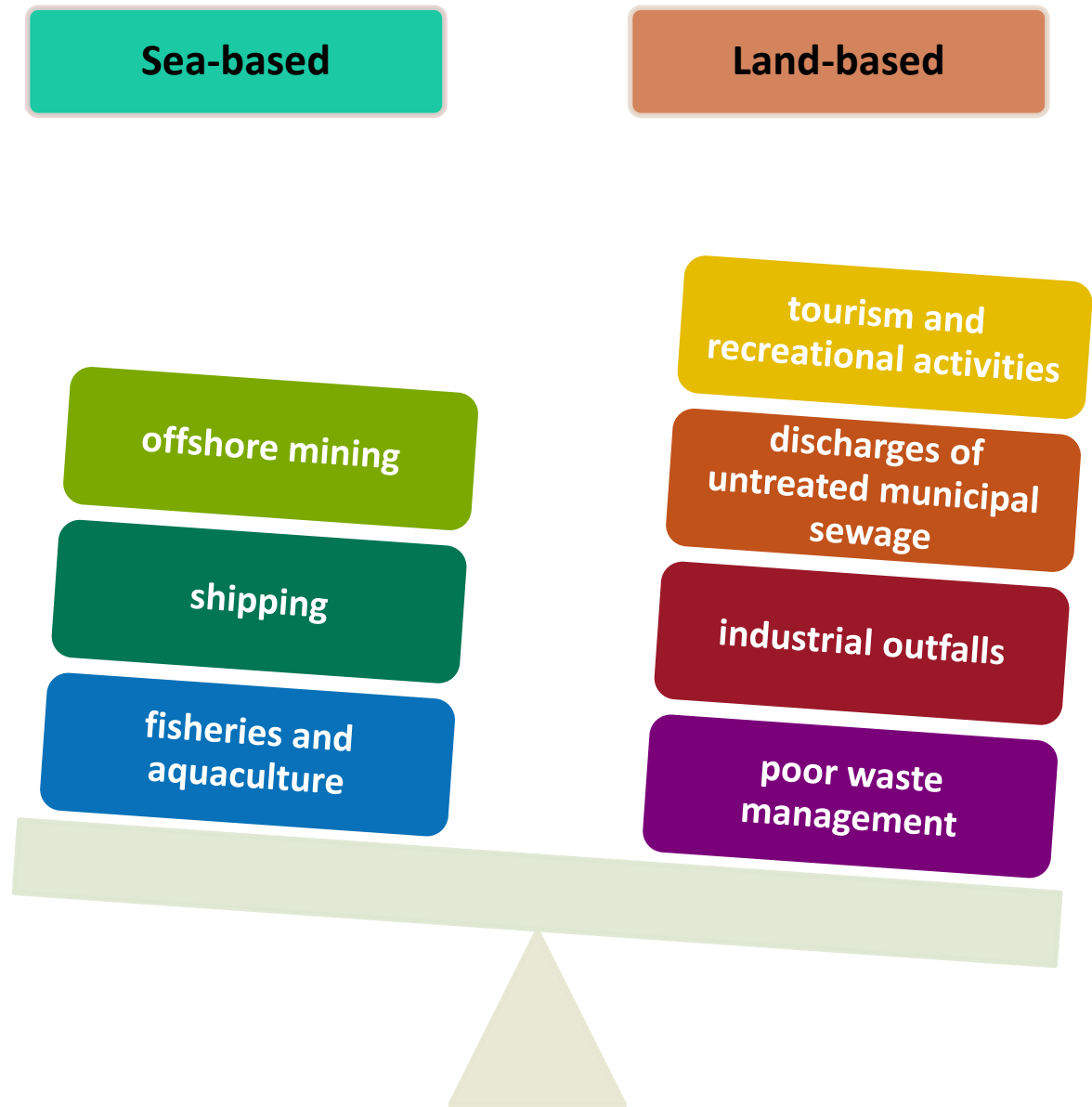
# THE CERTAINTIES & UNCERTAINTIES ALONG THE MANAGEMENT CYCLE OF MARINE LITTER





# MARINE LITTER ORIGIN, SOURCES & PATHWAYS

- ✓ Assessing the relative importance of the different sources is challenging given that a considerable percentage of litter items cannot be attributed to a specific source.
- ✓ Beach litter research results are biased towards reflecting marine litter inputs from tourism and recreational activities as most beach litter surveys are carried out in tourism destinations.
- ✓ The origin (transboundary effect) of marine litter is difficult to be determined.
- ✓ The riverine inputs of marine litter are substantial.





# MARINE LITTER COMPOSITION

- ✓ Plastics are ubiquitous in the coastal and marine environment accounting for some 70-90% of all litter items found. Leakage' of plastics into the ocean can occur at all stages of the production-use-disposal cycle.
- ✓ A large amount of litter items found in the Mediterranean are single-use plastic items.
- ✓ Fishing and aquaculture related items account for some 37.5% of total items recorded in certain areas of the Mediterranean (Vlachogianni et al., 2018).
- ✓ There are no reliable estimates of the microplastics quantities entering the marine environment.
- ✓ Even if all releases of plastic to the environment were to cease immediately, the number of microplastics in the ocean would be expected to continue to increase as a result of continuing fragmentation.

*The beaches of the Lavezzi island –located in the Natural Reserve of the Strait of Bonifacio- polluted by 'mermaids' tears' and mussel nets. All beaches of the island were cleaned up a week ago and now they are back to square one.*

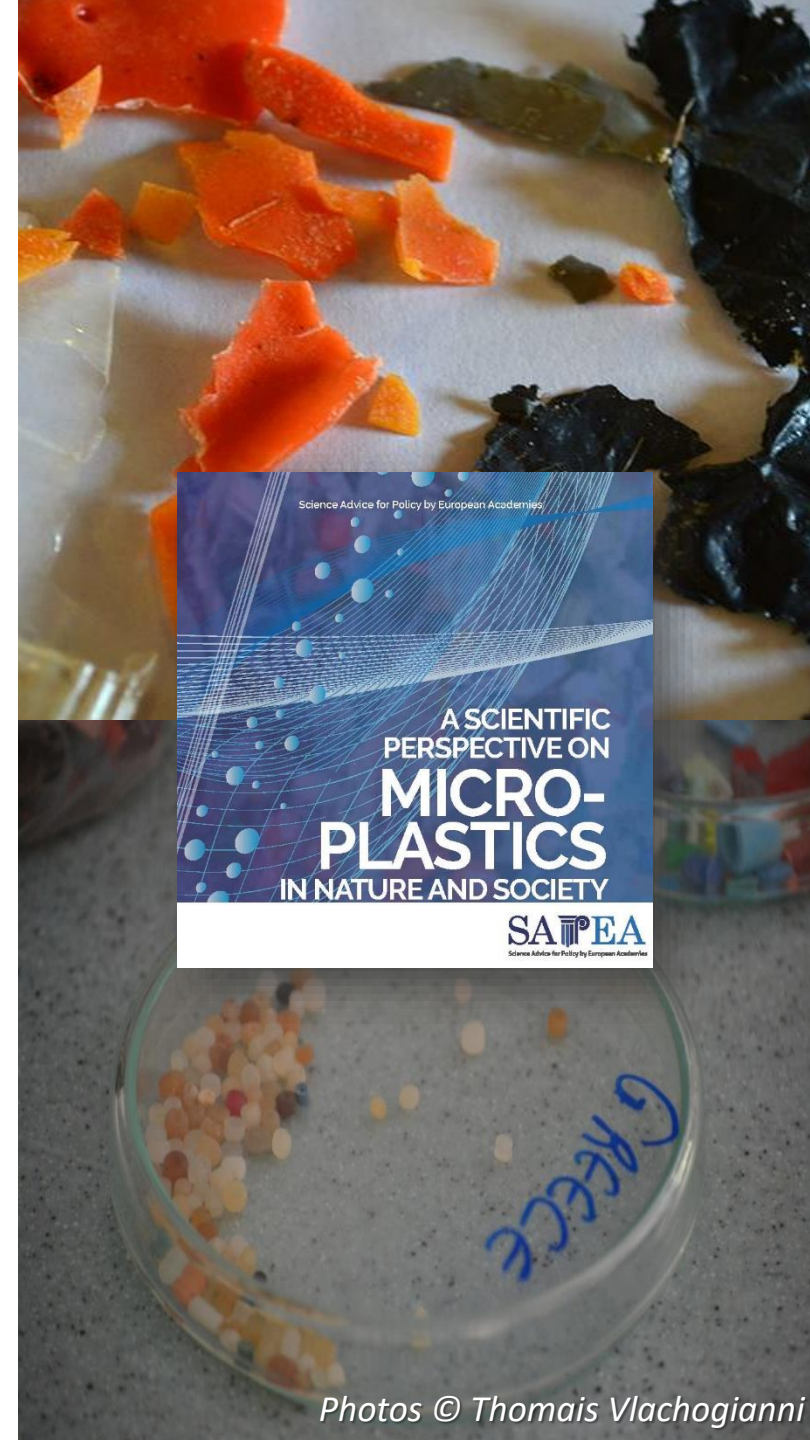




# MARINE LITTER IMPACTS

- ✓ Uncertainties remain regarding the extent of harm caused to marine species by ingestion of microplastics and their exposure to hazardous chemicals leaching from or adsorbed on microplastics.
- ✓ Currently there is no evidence to support or refute potential bio-magnification of particles or associated chemicals.
- ✓ Basic toxicological data on the consumption of micro- and nano-plastics by humans for a food risk safety assessment are lacking.
- ✓ Measuring the full economic cost of marine litter e.g. including the inhibition of the proper functioning of marine ecosystems is not possible.

*Upper photo: stomach contents of sea turtles that were dissected at the Talamone Sea Turtles Rescue Centre located in south Tuscany*





# MARINE LITTER MEASURES

- ✓ Substituting 'conventional' plastics with biobased plastics is merely a distraction to the marine litter 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.
- ✓ End-of-pipe solutions such as cleanup operations cannot address the issue.





# COMBATING MARINE LITTER AT EU LEVEL | THE MARINE STRATEGY FRAMEWORK DIRECTIVE



**ACHIEVING GOOD  
ENVIRONMENTAL STATUS  
BY 2020**

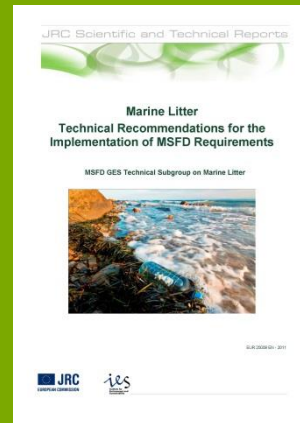
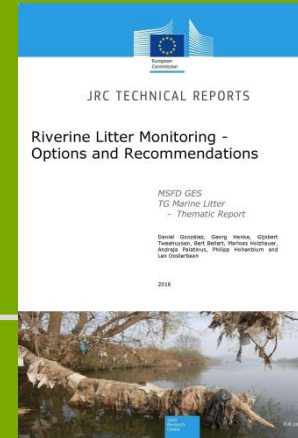
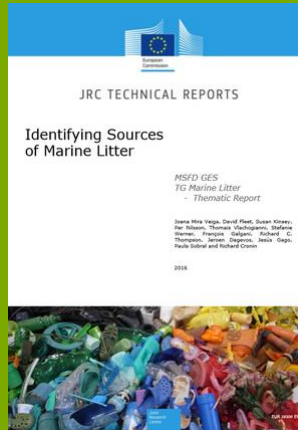
**11 Descriptors**

**Monitoring Programmes**

**Programmes of Measures**

**Baseline & threshold values**







# THE EUROPEAN PLASTICS STRATEGY







Source: Joint Research Centre, European Commission (2017)

- ✓ Plastic ban in certain products
- ✓ Consumption reduction targets
- ✓ Obligations for producers
- ✓ Collection targets
- ✓ Labelling Requirements
- ✓ Awareness-raising measures
- ✓ Complete the existing policy framework with producer responsibility schemes for plastic fishing gear



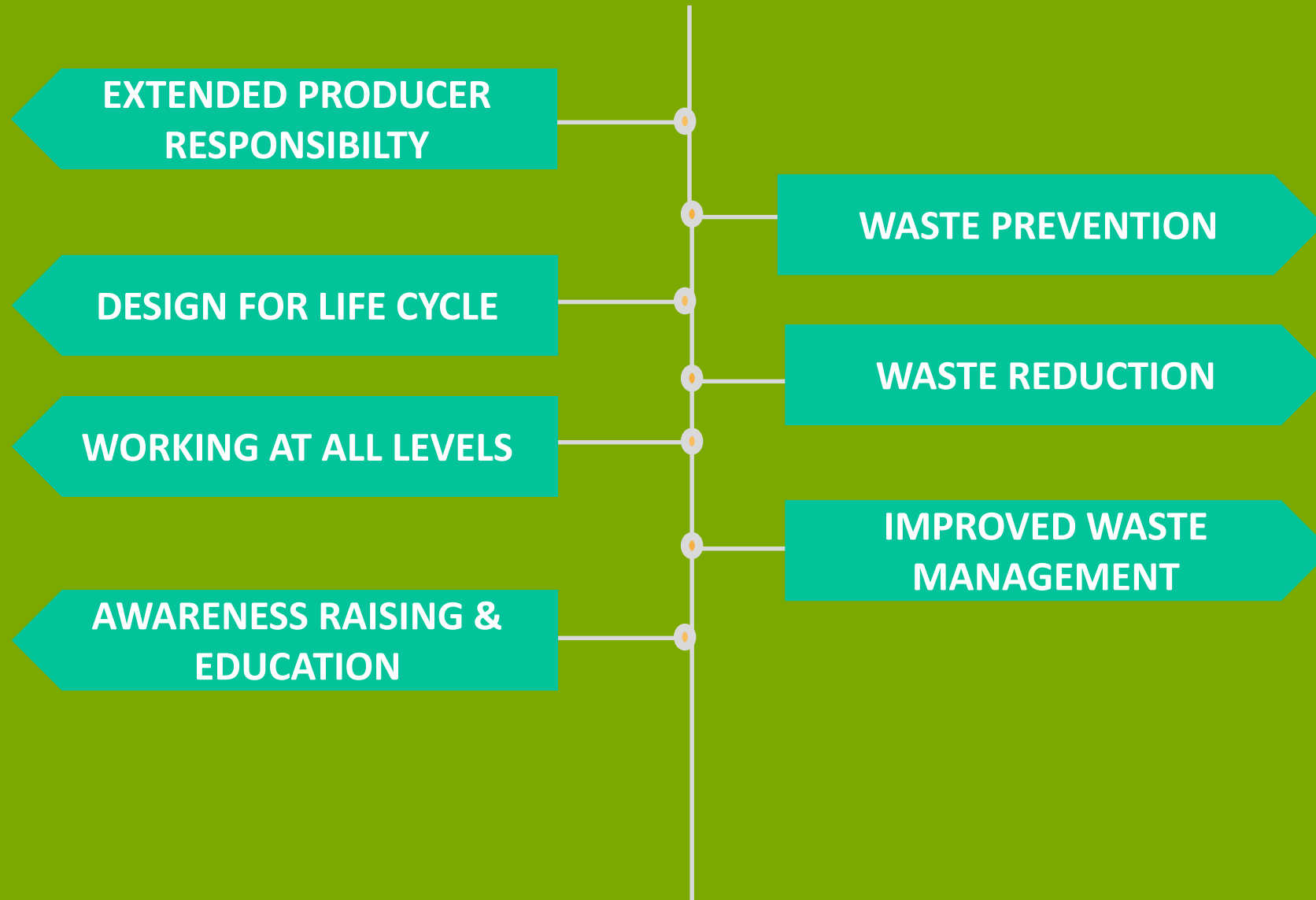
# Combating ML at the Mediterranean coasts and sea

The Regional Plan for Marine Litter Management in the Mediterranean of the Barcelona Convention (Decision IG.21/7)


- Main objectives
- ✓ **Prevent** and **reduce** to the minimum marine litter pollution in the Mediterranean and its impact on ecosystem services, habitats, species in particular the endangered species, public health and safety;
  - ✓ **Remove** to the extent possible marine litter by using environmentally respectful methods;
  - ✓ **Enhance knowledge** on marine litter;
  - ✓ Achieve that its management is performed **in accordance with accepted international standards** and approaches.



# MEASURES TO TACKLE MARINE LITTER



# PLASTIC POLLUTION ON THE MEDITERRANEAN COASTLINE

 Science of The Total Environment  
Available online 23 November 2019, 135058  
In Press, Journal Pre-proof

Plastic pollution on the Mediterranean coastline: generating fit-for-purpose data to support decision-making via a participatory-science initiative

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- <sup>c</sup> U Marinu, Bastia, France
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- <sup>e</sup> Hellenic Marine Environment Protection Association, Athens, Greece
- <sup>f</sup> Marevivo, Rome, Italy
- <sup>g</sup> Association Sunce, Split, Croatia



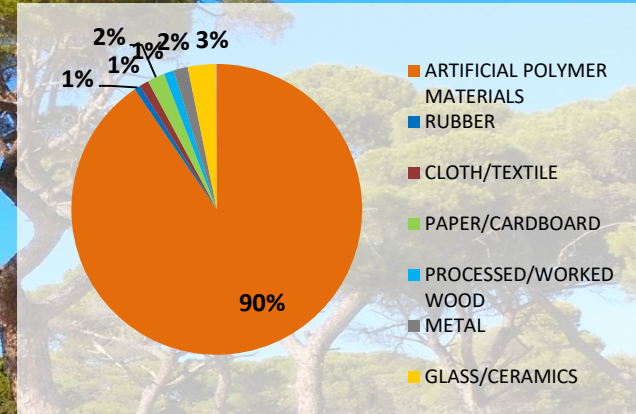
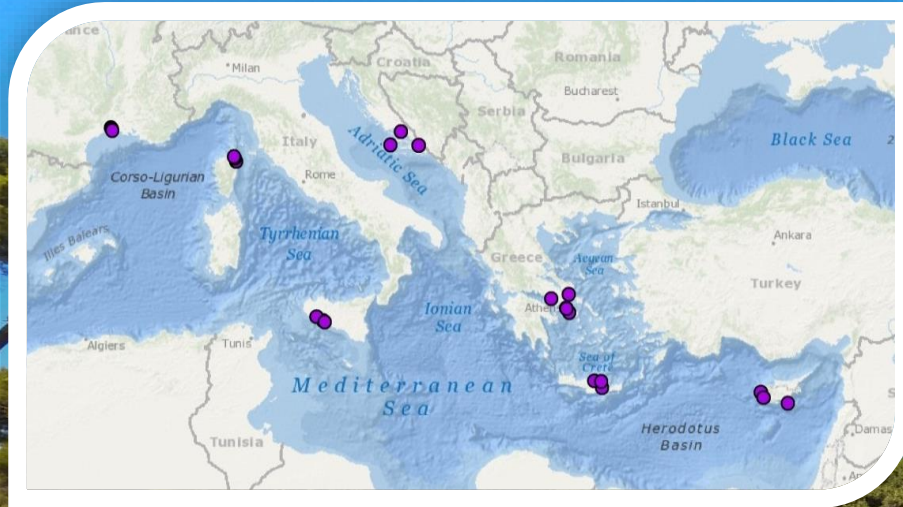
7 environmental NGOs: AKTI PROJECT AND RESEARCH CENTRE (Cyprus), MAREVIVO (Italy), HELMEPA (Greece), MIO-ECSDE (Greece), SEAQUARIUM MARINE INSTITUTE (France), SUNCE (Croatia) and U MARINU (France).

Beach litter surveys in 5 Mediterranean countries; a total of 23 sites surveyed; a total of 62 beach transects performed, extending over a distance of 6,200 m and covering an area of 113,780m<sup>2</sup>

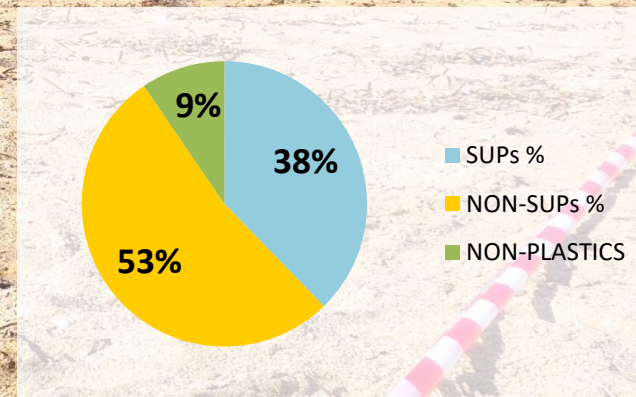
Photo: Thomas Vlachogianni



# COMPOSITION OF MARINE LITTER

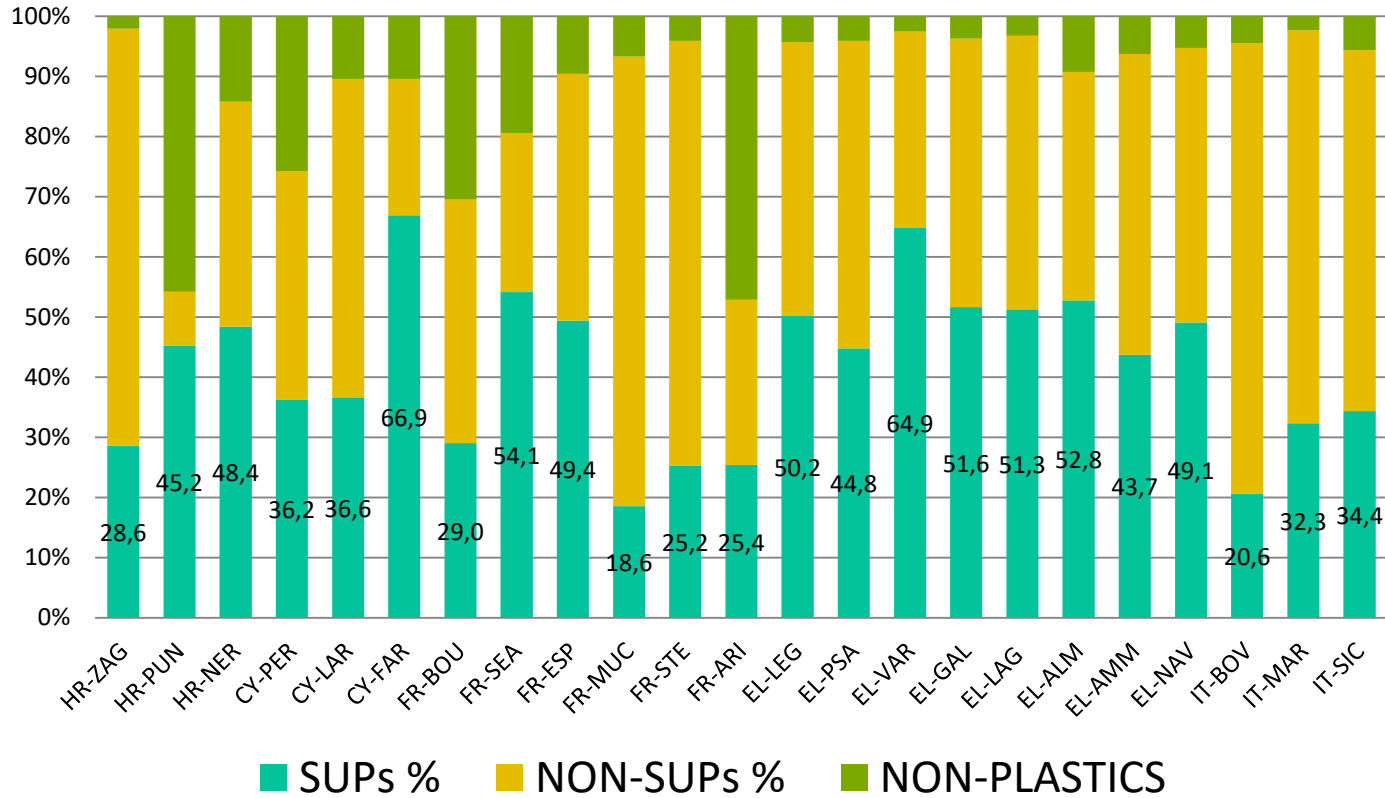


	Item code	Item name	%
1	G79	Plastic pieces 2.5 cm > < 50cm	26
2	G27	Cigarette butts and filters	12
3	G21	Plastic caps/lids from drinks	8.1
4	G95	Cotton bud sticks	6.3
5	G82	Polystyrene pieces 2.5 cm > < 50cm	5.8
6	G35	Straws and stirrers	3.0
7	G80	Plastic pieces > 50 cm	2.2
8	G83	Polystyrene pieces > 50 cm	2.0
9	G200	Bottles, including pieces	1.8
10	G30	Crisps packets/sweets wrappers	1.7





# SINGLE-USE PLASTICS AT BEACH LEVEL



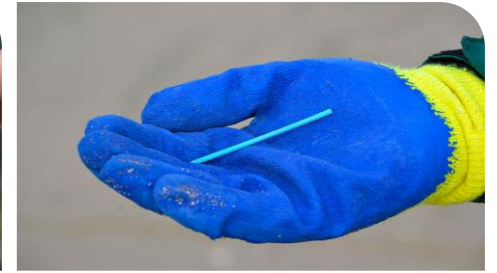
Plastic pieces 2.5 cm >> 50cm (G79)



Cigarette butts and filters (G27)



Plastic caps/lids from drinks (G21)



Cotton bud sticks (G95)



Straws and stirrers (G35)



Glass bottles (G200)



Crisps packets/sweets wrappers (G30)



String and cord (diameter less than 1cm) (G50)





# BEACH LITTER SURVEYS IN MPAs

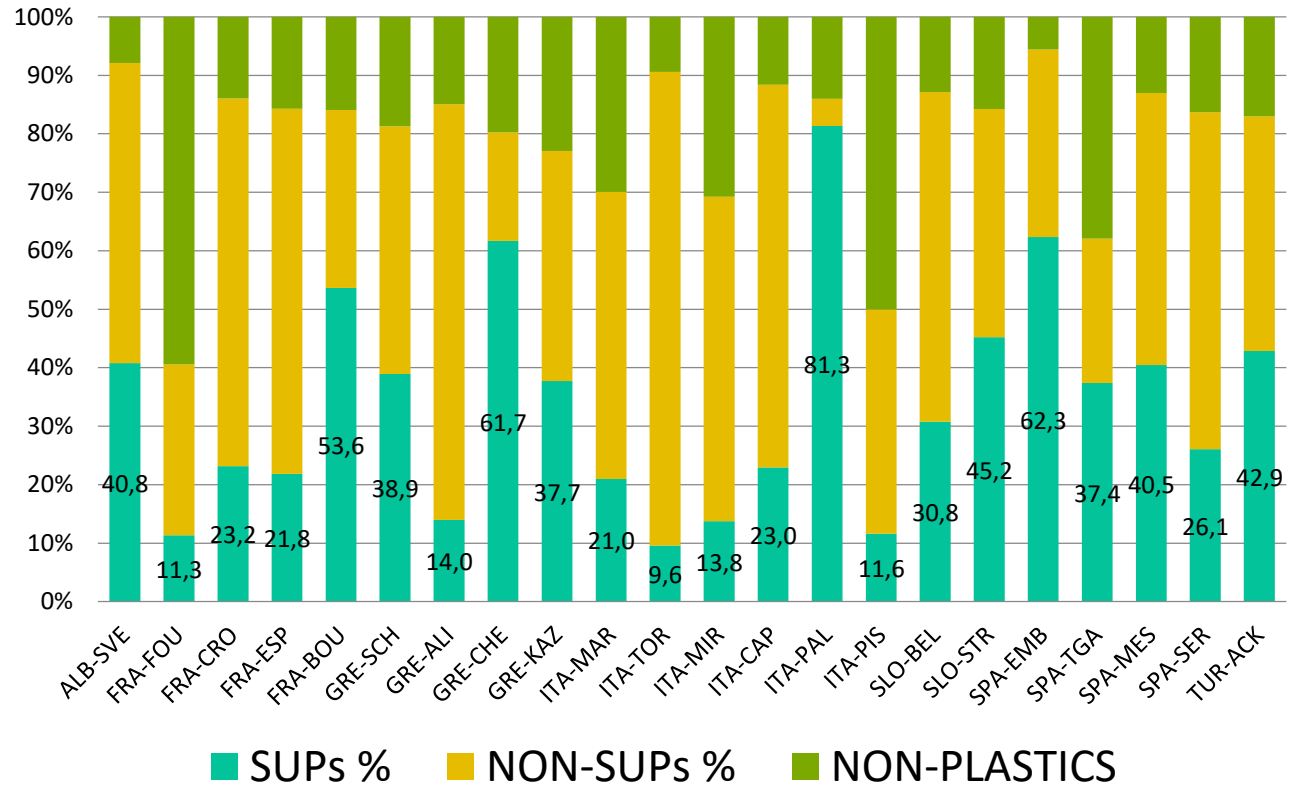
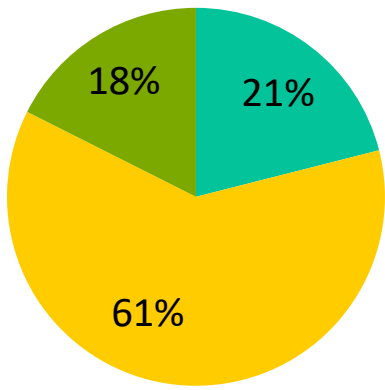


Photo © Thomais Vlachogianni





Impacting negatively vital economic sectors:

Bringing losses to:

Tourism

Fisheries

Aquaculture

Navigation

Individuals

Enterprises

Communities

Photo: Thomais Vlachogianni



## DIRECT & INDIRECT COSTS OF ML IN THE ADRIATIC – IONIAN SEA

- ✓ For the fisheries sector the average annual cost of marine litter per vessel reaches **€ 5,378** (cost of repairs of damages, loss of revenue due to the smaller catch, loss of time spent on clearing and repairing nets, etc., reported by fishermen per fishing vessel per year). Given this, the total losses to the fisheries sector in the Adriatic-Ionian macroregion were calculated to be € 18.19 million per year, which represents one third of the marine litter costs to the EU fishing fleet (€ 61.7 million per annum).
- ✓ On average, the annual direct and indirect marine litter related costs for the aquaculture sector were assessed to be **€ 3,228** per aquaculture farm unit.
- ✓ The total annual cost of managing marine litter reported by 38 harbours and marinas in the Adriatic-Ionian macroregion was **€ 323,550** with an average annual cost of **€ 8,518** per harbour.
- ✓ The average annual amount per tourism related business of varying size and type was calculated to be **€ 5,685** per year, which can be considered as a substantial expense.
- ✓ The total cost of removing beach litter reported by the 32 municipalities was € 6,724,530 per year, with an average of **€ 216,920** per year per municipality. On average, the municipalities spent some 5% of their budget for marine litter cleanup operations.

# KEY PROJECTS COMBATING MARINE LITTER

WES &  
SWIM-H2020 SM

SEIS

H2020 SEA LITTER  
CRITTERS,  
UPCYCLING THE  
OCEANS, CLAIM

INDICIT

IPA-ADRIATIC  
DEFISHGEAR

LIFE+  
SMILE, AMMOS,  
GHOST ,DEBAG,  
MERMAIDS

MARINE LITTER MED  
ECAP

FP7 CLEANSEA  
FP7 MARLISCO  
FP7 PERSEUS

## Interreg Med projects

ACT4LITER

AMARE

MED  
SEALITTER

PLASTIC  
BUSTERS  
MPAS

MED  
BLUEISLANDS

MELTEMI

COMMON

marGnet







The **PlasticBusters MPAs** is an Interreg Med funded project aiming to contribute to maintaining biodiversity and preserving natural ecosystems in pelagic and coastal MPAs, **by defining and implementing a harmonized approach against marine litter**. The project entails actions that address **the whole management cycle of marine litter**, from monitoring and surveillance to prevention and mitigation actions.

# THE PLASTIC BUSTERS PILOT MEASURES

SUPs-free beach bars

Adopt-a-beach

Establishing a derelict fishing gear management scheme and promoting co-responsibility to tackle fisheries & aquaculture-related litter

Cigarette-butt free beaches

Developing a network of collection points for beverage containers made of PET, aluminium and glass

Setting up a reusable cup distribution system for beach bars and festivals

Promoting the sustainable management of polystyrene fish boxes



# TURNING SCIENCE INTO POLICY & ACTIONS | THE MAIN CHALLENGE OF OUR ERA

- ▶ The large amount of SUPs found on beaches underlines the urgency of implementing targeted measures to address them effectively; the SUPs Directive is expected to have a big impact.
- ▶ Reversing the cycle of decline of the coastal and marine environment requires a paradigm shift in our lifestyles and a transformation of the way we think and act. To this end ocean literacy and education for sustainable development are key!
- ▶ Marine litter is an example of a problem that does not have a “one solution fits all”. It requires a combination of multi-stakeholder and multi-sectorial efforts across nations and disciplines in order to address it effectively.



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Assessing and mitigating the harmful effects of plastic pollution: the collective multi-stakeholder driven Euro-Mediterranean response

Maria Cristina Fossi <sup>a,\*</sup>, Thomais Vlachogianni <sup>b</sup>, Francois Galgani <sup>c</sup>, Francesco Degli Innocenti <sup>d</sup>, Giorgio Zampetti <sup>e</sup>, Gaetano Leone <sup>f</sup>



# AN INCONVENIENT TRUTH!

... if the world had acted upon the knowledge that the scientific community has already produced, the state of many ecosystems would be different today...

...a better understanding of the science-policy-society nexus is what provides the enabling environment and creative power to address the complex challenges that society faces towards sustaining the vitality and integrity of socio-ecological systems...





For more than twenty five years  
joining forces & building bridges in  
the Euro-Mediterranean area

**THANK YOU FOR YOUR ATTENTION!**

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