# The Mediterranean Sea & Marine litter



Brussels, March 12th, 2019



#### What does the situation of marine litter look like?





- 8 M tons of pastic is littered every year in the ocean
- 5 trillions particules of plastic are floating in the World ocean
- #800 marine species are affected by litter (Entanglement, ingestion, rafting of species)

#### What does the situation of marine litter look like?





Shipping

\*Includes mismanaged waste combined with population density Note: the map utilizes a dimensionless model source input binned on 5x5 degree bins. Circles are indicative of the amplitude of the phenomena and do not express quantitative information.



Country	Waste generation (kTons/person/Year)*	Mismanaged plastic waste [Tons/person/year]*	Plastic waste littered [tons/Year]**
Albania	0,77	0,28	1 273
Algeria	1,2	0,44	17 332
Bosnia /Herzegovina	1,2	0,44	613
Croatia	2,1	0,77	2 636
Cyprus	2,07	0,76	1 518
Egypt	1,37	0,5	18972
France	1,92	0,7	11 134
Gibraltar	2,1	0,77	61
Greece	2	0,73	14 229
Israel	2,12	0,77	14 417
Italy	2,23	0,81	32 761
Lebanon	1,18	0,44	2 665
Libya	1,2	0,44	4 240
Malta	1,78	0,65	628
Monaco	2,1	0,77	62
Montenegro	1,2	0,44	273
Morocco	1,46	0,53	2 547
Palestine	0,79	0,29	1 396
Slovenia	1,21	0,44	355
Spain	2,13	0,78	30085
Syria	1,37	0,5	4 691
Tunisia	1,2	0,44	7 616
Turkey	1,77	0,65	41922
TOTAL / MEAN	1,58	0,58	211425

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#### WHAT DOES THE SITUATION LOOK LIKE IN THE MED

(After Jambeck et al., 2015 and http://jambeck.engr.uga.edu/landplasticinput

#### What does the situation of marine litter look like in the MED SEA?

### The Mediterranean is the most affected area worldwide:

- # 320 Millions inhabitants
- A closed basin
- 25- 30% of the maritime traffic
- A touristic destination
- Large rivers (Rhône, Nile, Po)



- Up to 1000 000 items/ km2 (Sea floor, submitted)



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#### Trends are almost unknown







**Tourism in Spain** 



UNEP MAP 2015

## What are the main sources of marine litter?



Rivers, run offs, shipping, fishing, tourism ..... and diffuse pathways Atmospheric inputs (microplastics) may be important





#### Are there regional differences?



 Sea surface plastics, g/km2
 Spain (East, 83.4%)

Floating platics (modelled, *Liubartseva et al.*, 2018)

#### % Sea turtles with ingested litter (INDICIT)





# Importance of microplastics



#### 250 billions floating microplastics, max at 64 M items/km 2



#### ENTANGLEMENT, INGESTION AND TRANSPORT OF SPECIES ARE THE MOST IMPORTANT ENVIRONMENTAL IMPACTS





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#### ENTANGLEMENT, INGESTION









#### TRANSPORT OF SPECIES











#### challenges in the measurement of Marine Litter?



#### **Cost-effective methods**





## Automated sensors







Risk assessment

## understand harm



Small sized particles

#### MARINE LITTER HAS SOCIAL AND ECONOMIC IMPACTS AND AFFECT HUMAN HEALTH



#### Europe: 263 millions/ year



#### **Common misconceptions associated with marine litter**

- 'Plastic islands' are not a reality, convergence zones are not permanent in the MED
- Cleanup must be limited to valuable litter (fishing nets, beaches)
- Debris affect marine species but trophic transfer Is limited, unknown for nanopolymers
- Plastic / microplastic is a minor pathway for contaminants
- The rafting of species could be underestimated





#### **MEDITERRANEAN SEA WHAT WE NEED?**

**1** Better understand pathways for the transport of marine litter (atmospheric inputs, transboundaries sources, etc.

2 Map hot spots of marine litter (Beaches/deep sea, data base for accumulation areas, etc.)

**3** Locate lost fishing gears/ Evaluate the potential loss of fish stocks, Organize and harmonize ghost nets collection ( Reduction Measure).

4 Evaluate the distribution/quantify of micro plastics (sediments / deep sea fish )

5 Better understand harm (rafting, additives, etc.), monitor Entanglement (MSFD)

**6** Better link fluxes with economic sectors

7 Implement the Plastic strategy (bans, taxes, new materials, etc.), -consider specific Mediterranean issues (cigarette butts, deficient WWTps, maritime sources, etc.)



# **THANK YOU**



H. Glader

