SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

SWIM-H2020 SM expert facility activities on MARINE LITTER

State-of-the-art methods to monitor marine litter on beaches

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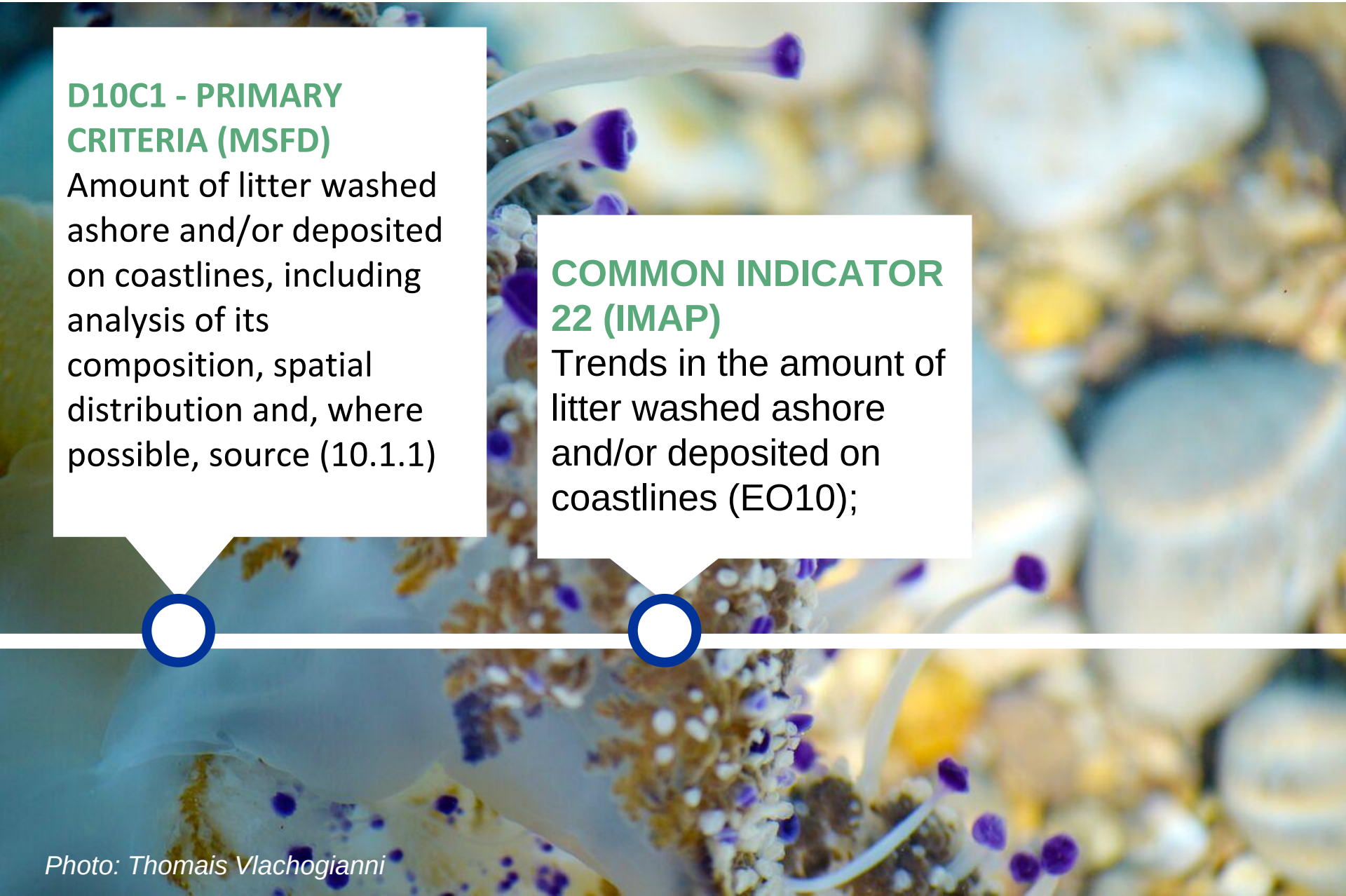
THE POLICY CONTEXT



D10C1 - PRIMARY CRITERIA (MSFD)

Amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source (10.1.1)

COMMON INDICATOR 22 (IMAP)

Trends in the amount of litter washed ashore and/or deposited on coastlines (EO10);

Photo: Thomais Vlachogianni

KEY ELEMENTS OF ML MONITORING ON BEACHES

- Site selection
- Sampling unit
- Frequency and timing of surveys
- Size limits and classes to be surveyed
- Collection and identification of litter
- Quantification of litter

Photo: Thomais Vlachogianni

MONITORING MARINE LITTER ON BEACHES | KEY POINTS

- ✓ The reviewed studies focus on the collection and visual identification and classification of litter items found at a site.
- ✓ The protocols applied may differ in terms of sampling units (size and positioning), frequency and timing of the surveys, size limits and classes of litter items to be surveyed, classification list and quantification units.

LITERATURE REVIEW ON BEACH MACRO-LITTER STUDIES

Location	Sampling unit	Frequency & timing	Size classes	Classification list	Quantification units	Reference
Slovenia	50-m transect	24 h timeframe	≥2 cm	UNEP/IOC Litter classification list	items/m^2	*Laglbauer et al., 2013*
Tyrrhenian coast, Italy	2m*2m ($4m^2$) plots	April-May	≥2.5 cm	MSFD TG10 Masterlist	N/A	*Poeta et al., 2016*
North-western Adriatic coast, Italy	50-m transect	May-June	≥2 cm	UNEP/IOC Litter classification list	items/m^2	*Munari et al., 2016*
Tyrrhenian coast, Italy	100-m transect	Every 3 months	≥2.5 cm	MSFD TG10 Masterlist	items/m	*Poeta et al., 2016*
Israel	100-m transect	Seasonal (surveys were an average of 55 days apart)	≥2.5 cm	UNEP/IOC Litter classification list	items/$100m^2$	*Pasternak et al., 2017*
Israel	10-m transect	April-July (every 2 weeks)	≥ 2 cm	MSFD TG10 Masterlist	items/m^2	*Portman and Brennan, 2017*
Mediterranean coastline, Morocco	25-m transect	Seasonal	–	Material type	Weight	*Alshawafi et al., 2017*
Corfu, Greece	100-m transect	Every 15 ± 5 days	≥2.5 cm	MSFD TG10 Masterlist	items/100 m; kg/100 m	*Prevenios et al., 2018*
Ulcinj, Montenegro	2m*2m ($4m^2$) plots	May	≥2.5 cm	MSFD TG10 Masterlist	N/A	*Šilc et al.,2018*
Pelagos Sanctuary, Italy	100-m transect	Seasonal	≥2.5 cm	OSPAR List	items/$100m^2$	*Giovacchini et al., 2018*
Mediterranean coastline, Morocco	100-m transect	November-December	≥2.5 cm	UNEP List	items/100 m; items/m^2; gr/m^2;	*Maziane et al., 2018*
Adriatic and Ionian Seas, all countries	100-m transect	Every 3 months	≥2.5 cm	MSFD TG10 Masterlist	items/100m; items/m^2	*Vlachogianni et al., 2018*

BEACH MACRO-LITTER MONITORING UNDERTAKEN BY INTERREG MED MODULAR PROJECTS AND OTHER PROJECTS/INITIATIVES

Project/Initiative	Sampling unit	Frequency & timing	Size classes	Classification list	Quantification units
Interreg Med ACT4LITTER	100-m transect	Every 3 months	≥ 2.5 cm	MSFD TG10 Masterlist	items/100m; items/m^2
Interreg Med BLUEISLANDS	100-m transect	Monthly	≥ 2.5 cm	OSPAR List	items/100m; items/m^2
Interreg-BALKANMED Meltemi	100-m transect	Every 3 months	≥ 2.5 cm	MSFD TG10 Masterlist	items/100m; items/m^2
EU SWIM-H2020 SM (Algeria, Egypt, Morocco)	100-m transect	Every 3 months	≥ 2.5 cm	MSFD TG10 Masterlist	items/100m; items/m^2
UN Environment Programme/MAP Marine Litter-MED	100-m transect	Every 3 months	≥ 2.5 cm	MEDPOL LIST	items/100m; items/m^2
IPA Adriatic DeFishGear	100-m transect	Every 3 months	≥ 2.5 cm	MSFD TG10 Masterlist	items/100m; items/m^2
EEA Marine Litter Watch	100-m transect	Every 3 months	≥ 2.5 cm	MSFD TG10 Masterlist	items/100m

One study in the Mediterranean focused on beach litter monitoring through aerial imagery (Deidun et al., 2018). It was perceived as a well-suited approach to address the monitoring needs of MPAs managers, but also pinpointed the constraints imposed by data protection considerations.

NGOS AS AN IMPORTANT CONTRIBUTOR TO BEACH LITTER DATA

- LEGABIENTE
- MAREVIVO
- MEDSOS
- MIO-ECSDE
- HELMEPA
- SURFRIDER

BEACH LITTER MONITORING - THE METHODOLOGY USED

Galgani et al., 2013. Guidance on Monitoring of Marine Litter in European Seas. Scientific and Technical Research series, Report EUR 26113 EN

UN Environment/MAP, 2016. Integrated Monitoring and Assessment Guidance. UNEP(DEPI)/MED IG.22/Inf.7

Photo: Thomais Vlachogianni

DISCREPANCIES OBSERVED…

Some very few small differences observed in the classification lists of the MSFD TGML Masterlist and the MEDPOL List. Indicative examples are the following:

- ✓ the categories of plastic drink bottles ≤0.5 l (G7) and plastic drink bottles ≥0.5 l (G8) in the MEDPOL Beach Litter Survey Form have been merged into one category entitled plastic drink bottles (G7/G8);
- ✓ similarly the plastic caps and lids (G21) and the plastic rings from bottle caps and lids (G24) have been merged into one category entitled plastic caps and lids, including rings from bottle caps/lids (G21/24).
- ✓ In total 7 such merges/differentiations have been identified.

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Thank you for your attention!

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