

Indicator 3	Quantification and classification of beach litter items
<p><i>Please provide scientific background for the indicator including reference materials</i></p> <p>Background: The problem of marine litter and the associated environmental and social impacts are attracting growing interests from diverse stakeholders including policy makers, civil societies and academia. Monitoring on marine litter is an important step towards understanding the trends, sources and types of litter for an effective management. One of the most practical methods for marine litter monitoring is beach litter survey which does not require trawling. It should be noted that beach survey is normally on macro litter and thus microplastics are not monitored by this method.</p> <p>Methods: Based on the UNEP/IOC guideline, quantification (weight / volume / count) and classification per unit area / length of beach can be monitored.</p> <p>In NOWPAP area, monitoring is based on macro beach litter survey. Survey distance / area and total weight per classification of waste (plastic, rubber, paper, cloth, metals etc) are reported. OSPAR also has a similar beach litter monitoring programme based on the sampling units of 100m or 1km. Number of items per classification rather than weight is reported. HELCOM's MARLIN project also used beach litter survey based on the UNEP/IOC guideline.</p> <p>Alternative methods: According to UNEP/IOC guideline, monitoring methods can be categorized into:</p> <ol style="list-style-type: none"> 1) Beach litter surveys. 2) Benthic litter surveys, which include: <ol style="list-style-type: none"> a) Observations made by divers, submersibles or camera tows. b) Collection of litter via benthic trawls. 3) Floating litter surveys, which include: <ol style="list-style-type: none"> a) Observations made from ship or aerial based platforms. b) Collection of litter via surface trawls. <p>EC guidance on Monitoring of Marine Litter in European Seas identified additional methods:</p> <ol style="list-style-type: none"> 4) Biota ingestion / entanglement 5) Micro particles <p>For example, OSPAR uses Plastic Particles in Fulmars' Stomachs, and Seabed Litter in addition to Beach Litter survey. MAP is also aiming to adopt the following indicators, which include survey on microplastics in water column.</p> <ul style="list-style-type: none"> • Common Indicator 22: Trends in the amount of litter washed ashore and/or deposited on coastlines (EO10); • Common Indicator 23: Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10) <p>Reference: UNEP/IOC Guidelines on Survey and Monitoring of Marine Litter OSPAR guideline for monitoring marine litter on the beaches in the OSPAR Maritime Area EC guidance on Monitoring of Marine Litter in European Seas</p>	

Please indicate monitoring points and frequency (maps may be attached)

NOWPAP: NPEC marine litter monitoring program covers about 50 sampling sites in the region, once a year

MAP: To be determined by the COP

HELCOM: Guideline is going to be developed once a core indicator on marine litter is adopted by the end of 2016.

OSPAR: Over 50 beaches across the OSPAR region. Reference beaches are monitored 4 times a year.

Please indicate organisation(s) monitoring the indicator

Contracting parties to the Regional Seas Conventions and Action Plans.

Please indicate the data source(s), spatial coverage, temporal coverage, frequency of updates

HELCOM MARLIN project data: [web-based database](#)

[NOWPAP database](#): temporal coverage (2000- 2013) depending on the countries

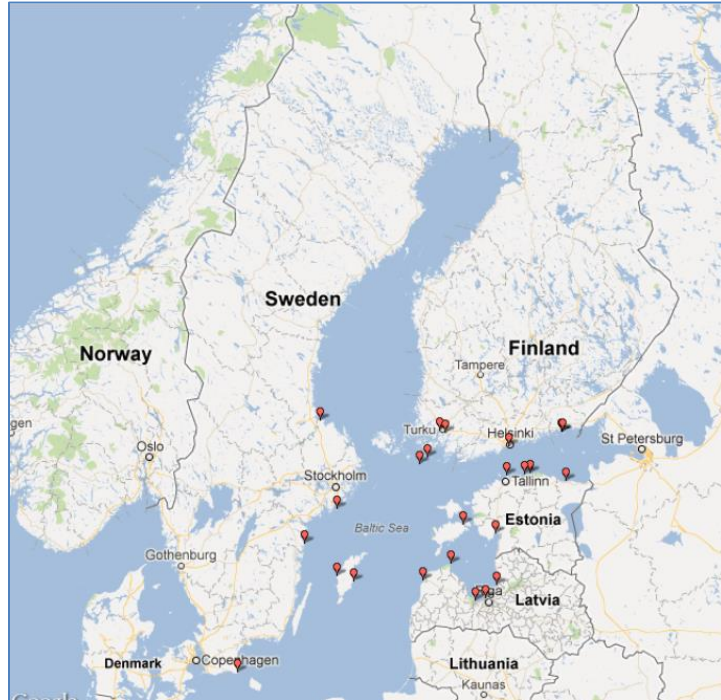
[OSPAR Beach Litter Database](#) (2001- ongoing)

Annex 1: Original Submissions from RSCAPs

1.1 HELCOM

Indicator 3	Quantification and classification of beach litter items
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<p>Surveys of litter stranded or being left on beaches are a primary tool for monitoring the load of litter in the marine environment and have been used world-wide to quantify and describe marine litter pollution. It allows for a detailed evaluation of litter in terms of amounts and composition as well as trends in the occurrence of litter on beaches and coastal waters. Another strength lies in the provision of information on potential harm to marine biota and ecosystems as well as social harm (aesthetic value, economic costs, hazard to human health) and, to some extent, on sources of litter and the potential effectiveness of management and measures applied.</p> <p>HELCOM indicator on beach litter is currently under development aiming at its adoption as a core indicator by the end of 2016.</p>	
<i>Please indicate monitoring points and frequency (maps may be attached)</i>	
<p>HELCOM data collection is based on agreed standards, guidelines and procedures to ensure comparability across the Baltic Sea Region (<i>ref:</i> HELCOM Monitoring and Assessment Strategy).</p> <p>HELCOM common monitoring of relevance to beach litter is documented in the HELCOM Monitoring Manual, particularly in the sub-programme: Macrolitter characteristics and abundance/volume. Common monitoring guidelines for beach litter should be developed among the HELCOM Contracting Parties. Once developed, the guidelines will be included in the HELCOM Monitoring Manual.</p>	

There is comparable data collected by four countries for the years 2012-2013 during the project MARLIN which is the only project to provide comparable data for the Baltic Sea Region so far. Within the MARLIN project, different beach types from Estonia, Latvia, Finland and Sweden were monitored for two years (2012 and 2013) in spring, summer and autumn (7 urban beaches, 6 rural beaches and 10 peri-urban beaches).



Beaches sampled within the MARLIN project. Beach litter surveys were carried out based on the UNEP/IOC Guidelines on Survey and Monitoring of Marine Litter (Source: MARLIN, 2013)

Please indicate organisation(s) monitoring the indicator

As stated in HELCOM Monitoring and Assessment [Strategy](#) - National competent authorities conduct monitoring and report data to HELCOM.

Please indicate the data source(s), spatial coverage, temporal coverage, frequency of updates

As stated in the HELCOM Data and Information [Strategy](#) (Chapter 2, Collection of data), HELCOM data and information system rely on data derived from publicly funded monitoring programmes by the Contracting Parties but the Contracting Parties may also report data collected by private bodies, e.g. compliance monitoring related to environmental permitting.

HELCOM members provided updated information on their beach litter monitoring activities to [HELCOM MONAS 20/2014](#). Such information is compiled in Annex 2 of the document 5-4 of the HELCOM MONAS 20/2014.

Additionally, beach litter survey results from the MARLIN project are compiled in a [web-based database](#) managed by Keep Sweden Tidy.

Quality assurance routine is developed at national level. More info will be provided during the further development of the HELCOM litter indicator.

1.2 MAP

Indicator 3	Quantification and classification of beach litter items Note. Suggest revision in line with 2 indicators: Trends in the amount of litter washed ashore and/or deposited on coastlines and Trends in the amount of litter in the water column including microplastics and on the seafloor.
<p>Please provide scientific background for the indicator including reference materials</p> <p>Under the IMAP for adoption at the COP19 include: Common Indicator 22: Trends in the amount of litter washed ashore and/or deposited on coastlines (EO10); Common Indicator 23: Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10);</p> <p>Currently marine litter is not measured uniformly, although UNEP/MAP has cooperated with several projects on marine litter.</p>	
<p>Please indicate monitoring points and frequency (maps may be attached)</p>	
<p>Please indicate organisation(s) monitoring the indicator</p>	

Please indicate the data source(s), spatial coverage, temporal coverage, frequency of updates

See below Indicator Monitoring factsheet adopted by MEDPOL FP's in 2015 (UNEP(DEPI)/ MED WG.417/17)

Common Indicator Description	Description of Parameters and/or Elements, matrix	Assessment Method	Guidelines Reference Methods QA/QC	Recommendations /Additional Data needed
<p>Common indicator 16, COP 18 Indicator 10.1.1.:</p> <p>Trends in the amount of litter washed ashore and/or deposited on coastlines, including analysis of its composition, spatial distribution and, where possible, source.</p> <p>With Operational Objective 10.1.1: The impacts related to properties and quantities of marine litter in the marine and coastal environment are minimized</p> <p>Pressure, Impact indicator</p>	<p>Counts of litter items minimum lower limit 2.5 cm in the longest dimension on at least 1 section of coastline of 100m on lightly to moderately littered beaches (optimum 2 sections) and 2 sections of 100m on heavily littered beaches (exceptionally 50m section with a normalization factor of up to 100m to ensure coherence)</p>	<p>UNEP/MAP MED POL Trend Monitoring Programme</p> <p>At least 2 surveys per year in spring and autumn (Ideally 4 surveys per year in spring, summer, autumn and winter)</p>	<p>As Guideline, with reference methods: UNEP DEPI (MED) WG 394. Inf.5</p> <p>QA according to recommended Quality Assurance Protocols (i.e. Ocean Conservancy National Marine Debris Monitoring Programme (Sheavly, 2007, see text of ECAP monitoring guidelines)</p>	
<p>Common indicator 17, COP 18 Indicator 10.1.2: Trends in amounts of litter at sea, including micro-plastics* and on the seafloor</p> <p>With Operational Objective of 10.1: The impacts related to properties and quantities of marine litter in the marine and coastal environment are minimized</p> <p>Pressure, Impact</p>	<p>Litter in the water column: Items of floating litter, 2.5 to 50cm, per km²</p> <p>Litter on the seafloor shallow coastal waters (0-20m): visually surveyed litter items size above 2.5cm</p> <p>Litter on the seafloor 20-800m: items/ha or items/km² of litter collected in bottom trawl surveys</p>	<p>For floating litter visual ship-based monitoring of floating litter 2.5cm to 50cm as items/km²</p> <p>For litter on the seafloor shallow coastal waters (0-20m): minimum annual, maximum quarterly underwater visual surveys with SCUBA/snorkelling based on line transect surveys in use for evaluation of benthic fauna</p> <p>For seafloor 20-800m collection of litter data through on-going and continuous bottom trawl fish stock survey programmes (such as</p>	<p>For Guideline and reference methods: UNEP DEPI (MED) WG 394. Inf.5</p> <p>For floating litter: approaches for inter-comparison and calibration are to be developed at regional level and implemented</p> <p>For shallow seafloor: Data on litter in shallow sea-floor are collected through protocols already validated for benthic species.</p> <p>For Litter on the seafloor 20-800m, the adoption of a common fish stock survey benthic- trawl protocol will</p>	<p>It is recommended to focus on surface and sea floor litter</p> <p>*For microplastics at the surface, samples taken by zooplankton nets (333µm mesh, 6m length, sampling for 30 minutes) or by Continuous Plankton Recorder (CPR). Minimum size 330 µm</p> <p>Collection of data on microplastics is costly and it will be critical to identify monitoring approaches (and associated metadata such as QA/QC) that directly support the aims of the indicator.</p>

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_15869

