

Indicator	
17	Amount of coastal, estuarine and marine litter.
Measurement	
17.1	Volume of litter collected per given length of shoreline.
What should the measurement tell us?	
<p>This indicator is an easy way to control and monitor the responsible use of beaches and coastal waters by the population and activities on the coast as well as inland. Moreover, it can indicate which segments of the coast are in the worst situation each year and it can help to improve the measures to promote environmental awareness in coastal municipalities.</p> <p>There are litter surveys and initiatives that exist to determine the nature and extent of littering in the marine environment. Having examined the findings of existing survey schemes to determine that a problem exists, it is then important to quantify the problem and thereby determine its significance in any coastal region interests.</p> <p>The indicator should give us information about the quantity of litter that is collected in m³ annually by the environmental authorities on the shoreline. The measure is combined with the shoreline length of the reference region to obtain the average rate of litter per km of coastline.</p> <p>The programme of litter collection operates near the beach and coastal waters of the coastal municipalities.</p>	
Parameters	
(i)	Volume of litter collected per length of shoreline (m ³ /Km).
(ii)	Total volume of litter collected annually by region (m ³).
Coverage	
Spatial	Temporal
Coastal NUTS 5.	Annually since at least 2000 but earlier if possible.

Data sources		
<p>Data on the quantity of litter collected per length of shoreline can be obtained from the competent national or regional authorities responsible for the litter collection initiatives.</p> <p>For instance, in Catalonia, data concerning litter is given by the Catalan Water Agency (ACA) which depends on the Department of Environment and Housing of the Government of Catalonia. The data is obtained through its marine service of litter collection. Data presented are classified by type of litter, organised by the region and also by sub-regions (provinces and counties). The problem facing this service is that it only operates during the bathing season.</p> <p>Another possible source is Coastwatch, an international educational network in 23 European countries, that has the aim of training and educating volunteers and students in field work, basic reporting methods and the relevance of the results obtained to legislation policy. The objective is to raise awareness of the coastal zone as a valuable common, shared and vulnerable resource and to gather baseline data on European coasts for use by local communities, authorities, governments, research organisations and NGOs. Annual marine litter surveys on beaches based on a set method is an important part of the work.</p>		
Methodology		
	Steps	Products
1	Delimit the extent of your reference region (municipality, county, province or region).	Specified reference area.
2	Obtain the volume of litter for each year in your chosen reference area.	<u>Volume of litter collected by the competent authorities for each year since at least 2000 (Graph 1).</u>
3	Choose an adequate base map with the appropriate reference scale and obtain the total length of coastline.	Total coastline length of the reference region.
4	For each year of data, divide the product of step 2 by the product of step 3.	<u>Volume of litter collected per km of shoreline in your reference area (m^3/Km). (Graph 1).</u>
Presentation of the data		
Map 1	Map depicting ratios of volumes of litter in the reference area by regions.	

<p>Graph 1</p>	<p>Volume of litter collected annually and rate of litter collected per km on the coasts of the reference region</p>	<p>Volume of litter collected and rate of litter collected per km of shoreline (2000-2005)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Volume of litter collected (m³)</th> <th>Ratio of volume of litter per Km of shoreline (m³/km)</th> </tr> </thead> <tbody> <tr> <td>2000</td> <td>800</td> <td>0.22</td> </tr> <tr> <td>2001</td> <td>900</td> <td>0.25</td> </tr> <tr> <td>2002</td> <td>1000</td> <td>0.28</td> </tr> <tr> <td>2003</td> <td>950</td> <td>0.26</td> </tr> <tr> <td>2004</td> <td>1100</td> <td>0.30</td> </tr> </tbody> </table>	Year	Volume of litter collected (m ³)	Ratio of volume of litter per Km of shoreline (m ³ /km)	2000	800	0.22	2001	900	0.25	2002	1000	0.28	2003	950	0.26	2004	1100	0.30
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<p>Adding value to the data</p>																				
<p>Number of items of litter collected per length of shoreline.</p>																				
<p>Hot spots, where the majority of litter volumes are reported ⁽¹⁾.</p>																				
<p>Aggregation and disaggregation</p>																				
<p>The level of disaggregation arrives at sub-regional divisions and the data can be aggregated at European level.</p>																				

Notes

⁽¹⁾ Provide data on coastal communities and the location of collection points to make maps more detailed in order to easily determine the hot spots.