

SDG Goal 14	Life below water
SDG Target 14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
SDG Indicator 14.1.1	(a) Index of coastal eutrophication; and (b) plastic debris density
Time series	Plastic waste on the beaches of the German North Sea coast

1. General information on the time series

- Date of national metadata: 7 August 2024
- National data: <http://sdg-indicators.de/14-1-1/>
- Definition: Plastic waste found on selected beaches along the German North Sea coast.
- Disaggregation: Not available.

2. Comparability with the UN metadata

- Date of UN metadata: July 2024
- UN metadata: <https://unstats.un.org/sdgs/metadata/files/Metadata-14-01-01.pdf>
- The time series is compliant with the UN metadata.

3. Data description

- Marine litter pollution is one of the biggest environmental problems. Durable plastics are the most frequently found material with a share of >75%. Through fragmentation, they also contribute to the pollution caused by so-called secondary microplastics.

Both land-based sources and marine activities such as shipping and fishing contribute significantly to pollution. Marine litter poses a threat to marine biodiversity. Entanglement and strangulation lead to direct injury and suffocation, while the ingestion of litter items affects animal health in the medium term. Chemical substances in plastics can enter the food chain in this way. Marine litter also has direct economic consequences due to its negative impact on fishing and aquaculture as well as restrictions on tourism and shipping.

Further information on marine litter: <https://www.muell-im-meer.de/de/hintergrund-problemdarstellung>.

As part of the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic's litter monitoring programme, pieces of litter are recorded and categorised on selected counting stretches (beaches). On these beaches, beach litter (macro litter >2.5 cm) is recorded at least three times a year on 100 metre long stretches (width: water's edge to dune/dike).

In the Marine Strategy Framework Directive, the EU has set a target value of 20 pieces of litter/100m of beach length (median without pieces <2.5cm) (<https://mcc.jrc.ec.europa.eu/main/dev.py?N=41&O=454>). This target refers to all types of litter and can therefore serve as a minimum target for the plastic litter sub-category. In the North-East Atlantic Environment Strategy 2030, OSPAR has set the goal of reducing single-use plastic and plastic from the maritime industry on beaches by at least 50% by 2025 and at least 75% by 2030 (operational objective S4.03).

All visible pieces and fragments of waste within the detection zone are recorded and assigned to one of the OSPAR waste categories. These are reported to OSPAR in a standardised format. They are publicly

accessible and can be analysed using an analysis tool that is also available. To calculate the indicator for the plastic litter sub-category, the median of the pieces of litter found on all beaches analysed is calculated in a rolling 3-year window (due to significant annual fluctuations).

OSPAR guidelines for the categorisation of litter items: <https://www.ospar.org/documents?v=72>
R-Package: <https://cran.r-project.org/web/packages/litterR/vignettes/litterR-manual.html>

4. Access to data source

- Data from the OSPAR's beach litter monitoring:
<https://beachlitter.ospar.org/survey/export>

5. Metadata on source data

- Abundance, Composition and Trends of Beach Litter:
<https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/indicator-assessments/beach-litter/>

6. Timeliness and frequency

- Timeliness: Not applicable.
- Frequency: Annual

7. Calculation method

- Unit of measurement: Number of pieces of plastic waste per 100 meters of beach length
- Calculation:

$$\text{Plastic waste on the beaches of the German North Sea coast} = \text{Median of plastic waste items found at selected counting routes (3-year average)}$$

SDG Goal 14

Life below water

SDG Target 14.1

By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

SDG Indicator 14.1.1

(a) Index of coastal eutrophication; and (b) plastic debris density

Time series

Plastic particles in fulmar stomachs

1. General information on the time series

- Date of national metadata: 7 August 2024
- National data: <http://sdg-indicators.de/14-1-1/>
- Definition: Proportion of fulmar deaths on the German North Sea coast with more than 0.1 grams of plastic in the stomach (5-year average).
- Disaggregation: Not available.

2. Comparability with the UN metadata

- Date of UN metadata: July 2024
- UN metadata: <https://unstats.un.org/sdgs/metadata/files/Metadata-14-01-01.pdf>
- The time series is compliant with the UN metadata.

3. Data description

- Marine litter is mistaken by animals for food and can injure and clog their digestive organs after consumption, which can lead to their death. For the monitoring in the North Sea fulmars are used, as they are widespread and feed exclusively on the sea surface in the open sea. It mistakes floating pieces of garbage for food particles and accumulates these in its stomach over several weeks. No animal species has yet been identified for the Baltic Sea with which similar studies are possible. For this reason, no comparable statements can be made for the Baltic Sea for the time being. The indicator is based on examinations of dead fulmars found on the German North Sea coast. Various parameters on the state of health and possible cause of death are determined in the laboratory. The stomach contents are then examined. The percentage of fulmars with more than 0.1 g of plastic in their stomachs is then calculated. As the values fluctuate greatly from year to year, the indicator is calculated as the five year average.

In 2008, the OSPAR contracting states decided that no more than 10 % of all fulmars found dead may have more than 0.1 grams of plastic in their stomachs. This target value was derived from fulmars in the relatively unpolluted Canadian Arctic.

4. Access to data source

- Plastic waste in the North Sea:
<https://www.umweltbundesamt.de/en/data/environmental-indicators/indicator-plastic-waste-in-the-north-sea>

5. Metadata on source data

- Methodological information on the indicator "Plastic waste in the North Sea":
<https://www.umweltbundesamt.de/en/data/environmental-indicators/indicator-plastic-waste-in-the-north-sea>

6. Timeliness and frequency

- Timeliness: Not applicable.
- Frequency: Annual

7. Calculation method

- Unit of measurement: Percentage
- Calculation:

$$\begin{array}{l}
 \text{Fulmar deaths on the German} \\
 \text{North Sea coast with more} \\
 \text{than 0.1g plastic in the stomach}
 \end{array}
 = \frac{\sum_{i=0}^4 \frac{\text{In year t-i found death} \\ \text{fulmars with more than} \\ \text{0.1g plastic in the stomach [number]}}{\text{In year t-i found death} \\ \text{fulmars [number]}}}{5}$$