Senate Department
for Urban Development,
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01.11 Criteria for the Evaluation of the Soil Functions 2020

Introduction and Statistical Base

The Federal Soil Protection Law outlines the natural functions of soil including its importance as an archive. Suitable criteria are required to evaluate and illustrate these. A soil function is characterised by either one or a combination of different criteria. The criteria for evaluation (cf. Maps 01.12) were selected during the development of the Berlin Soil Protection Concept (Lahmeyer 2000). Characteristic values for each soil property are required to derive these criteria (cf. Maps 01.06). The derivation method based on soil-scientific characteristic values and other data regarding the condition and distribution of soil types was developed by Lahmayer (2000) and applied experimentally. Some modifications and additional data were however necessary for it to be implemented across the entire urban area.

Only criteria which could be derived relatively easily using existing information were used for the evaluation of soil functions.

01.11.1 Regional Rarity of Soil Associations

Description

In order to preserve a diverse range of habitats, it is essential to safeguard the existence of as many distinct types of soil as possible.

The 'rarity' criterion describes the spatial distribution of soil associations in the State of Berlin. Soils vary in frequency across the Berlin area. The Soil Associations Map provides an overview of the distribution, indicating the rarity or frequency of soil associations.

The smaller the area a soil association occupies, the more endangered it is, i.e. the level of endangerment increases as the area proportion decreases.

Rarity is assessed for soil associations, rather than for individual soil types. Thus, rare soil types may occur within soil associations that are common or less rare, and vice versa.

Methodology

The proportions of each soil association were determined using area size data available in the Urban and Environmental Information System, excluding areas occupied by roads and bodies of water. Subsequently, these area sizes were aggregated for each soil association and compared to the total area under observation. As a result, percentages were generated to indicate the proportion of the total area occupied by each soil association.

The method described by Stasch, Stahr and Sydow (1991) was chosen to assess the rarity of the soils. This evaluation was based on the distribution of soil associations throughout Berlin.

The ‘rarity’ of soil was categorised into five levels, ranging from ‘very rare’ to ‘very common’ (Tab. 1). Combined associations (cf. Map 01.01) received the same rating as the soil association occupying the smallest area within the combined association (3020 → 1100; 3030 → 1340, 1350; 3040 → 1360, 1370). The Concept Soil Association 2471 [49a] was classified as ‘common’, similar to Soil Association 2470 [49].

Soil Association		Aggregate area [ha]	Area proportion of total area [%]	Rarity level
New	Old			
1010	1	4256.12	5.757	5
1020	2	1130.48	1.529	4
1021	2a	264.89	0.358	2

Soil Association		Aggregate area [ha]	Area proportion of total area [%]	Rarity level
New	Old			
1022	2b	205.03	0.277	2
1030	3	773.78	1.047	4
1040	4	1274.73	1.724	4
1050	7	332.89	0.45	3
1060	5	745.78	1.009	4
1070	6	2790.58	3.774	4
1072	6b	166.11	0.225	2
1080	8	199.59	0.27	2
1090	9	768.87	1.04	4
1100	10	716.59	0.969	3
1110	72	23.14	0.031	1
1120	11	13.20	0.018	1
1130	12	93.79	0.127	2
1131	12a	65.46	0.089	1
1140	13	66.37	0.09	1
1141	13a	95.62	0.129	2
1150	14	288.73	0.391	2
1160	15	9517.20	12.873	5
1164	15d	734.70	0.994	3
1170	16	17.66	0.024	1
1180	17	132.47	0.179	2
1190	18	1126.16	1.523	4
1200	19	471.74	0.638	3
1210	20	95.01	0.129	2
1220	21	60.18	0.081	1
1230	22	29.41	0.04	1
1231	22a	944.93	1.278	4
1240	23	3.00	0.004	1
1250	25	49.34	0.067	1
1251	C	1.91	0.003	1
1260	26	1235.90	1.672	4
1270	27	214.32	0.29	2
1280	28	320.64	0.434	3
1290	29	223.59	0.302	2
1300	30	108.43	0.147	2
1310	31	41.57	0.056	1
1320	24	128.79	0.174	2

Soil Association		Aggregate area [ha]	Area proportion of total area [%]	Rarity level
New	Old			
1330	32	190.68	0.258	2
1340	35	10.89	0.015	1
1350	36	1.52	0.002	1
1360	33	48.02	0.065	1
1370	34	6.80	0.009	1
1380	37	59.14	0.08	1
2390	38	445.62	0.603	3
2400	39	270.51	0.366	2
2410	40	150.90	0.204	2
2420	41	259.17	0.351	2
2430	42	100.89	0.136	2
2440	43	111.00	0.15	2
2441	43a	63.08	0.085	1
2450	47	81.86	0.111	2
2460	48	63.85	0.086	1
2470	49	1997.51	2.702	4
2471	*49a*	*103.79*	*0.14*	*4*
2482	50aR	1044.99	1.413	4
2483	50T	4724.05	6.39	5
2484	50GS	1029.74	1.393	4
2485	50GM	4747.87	6.422	5
2486	50F	340.07	0.46	3
2487	50aT	3532.77	4.778	4
2488	50aGS	840.09	1.136	4
2489	50aGM	3647.81	4.934	4
2490	51	3484.00	4.712	4
2500	52	3520.67	4.762	4
2510	53	890.19	1.204	4
2530	55	445.16	0.602	3
2540	57	7148.22	9.668	5
2550	58	690.41	0.934	3
2560	60	936.58	1.267	4
2580	62	1741.57	2.356	4
2590	63	1085.66	1.468	4
3020	*SG 9. 10*	*91.34*	*0.124*	*3*
3030	*SG 24. 32. 35*	*70.35*	*0.095*	*1*
3040	*SG 33. 34*	*52.35*	*0.071*	*1*

Soil Association		Aggregate area [ha]	Area proportion of total area [%]	Rarity level
New	Old			
7777	50aF	175.97	0.238	2

Tab. 1: Regional rarity of soil associations based on their area proportions (as of 2024)

Area proportion of soil associations [%]	Rarity	
	Level	Rating
< 0.1	1	very rare
0.1 – < 0.4	2	rare
0.4 – 1.0	3	moderate
> 1.0 – 5.0	4	frequent
> 5.0	5	very frequent

Tab. 2: Evaluation of the regional rarity of soil associations

01.11.2 Distinctive Landscape Character of Soils

Description

Glacial deposits have sculpted Berlin's landscape, bestowing upon it a distinctive character that sets it apart from other landscapes in Germany. Noteworthy in this landscape are geomorphological features, such as kettle holes, end and push moraines, dunes, and former glacial meltwater channels.

Kettle holes, remnants of ice blocks from the last ice age that later melted away, now appear as round depressions, sometimes filled with water. They are characterised by soils influenced by groundwater and bog associations. Loamy soils with sand wedges, where drift sand was blown into desiccation cracks during the late ice age, lie on undisturbed boulder marl plateaus, forming a regular network of polygons discernible in aerial views.

End and push moraines are accumulation moraines, shaped by a balance between ice replenishment and melting at its edges. In the landscape, they now appear as ridges and hills.

Late and post-glacial dunes, while still retaining their distinctive shapes, have ceased movement largely due to vegetation covering them.

Some glacial meltwater channels have been preserved, forming chains of lakes and wetlands. Soil development and present soil associations have been significantly influenced by morphology and parent materials. They reflect the unique characteristics and peculiarities of the natural space.

Methodology

The analysis exclusively focused on soil associations linked to geomorphological features shaped by the ice age, which were able to develop from glacial deposits without disturbance. Soils with a distinctive character remain largely untouched by human activity; hence, only near-natural soil associations were included (cf. legend for Map 01.01). Soils consisting of aggraded material or relocated soil material are not classified as having a distinctive character. Table 1 presents an overview of soil associations with a distinctive landscape character, attributed to their parent material, special morphology, and largely undisturbed soil development. These include primarily moraine plateaus with sand wedges, moraine hills, glacial meltwater channels with groundwater soils and bogs, river floodplains with fluvisol, gyttjas and peats, as well as dunes.

The soil associations listed in Table 1 have received a positive rating for their distinctive landscape character. The remaining soil associations do not exhibit such characteristics.

Soil Association	Geomorphology
1080, 1090, 1100, 3020	dunes
1050, 1230, 1231, 1270, 1280, 1290, 1300	glacial meltwater channels
1030, 1030, 1110, 1180	meltwater deposits of the plateaus
n1040, 1060	end and push moraines, moraine hills
1164, 1240, 1260, 1270, 1280, 1290, 1300, 1320, 3030	low-moor bog soils
1250, 1251	kettle holes
1010, 1130	sand wedges
1310	lime muds

Tab. 1: Soil associations with a distinctive landscape character

01.11.3 Degree of Naturalness of Soils

Description

In the Berlin city area, soils have undergone significant alterations due to human activity. The degree of naturalness, reflects the extent of these changes compared to the original natural state of the soils. Changes here include soil translocation between natural horizons, removal of soil material, or overlaying with foreign materials. Substance inputs and lower groundwater levels are not considered here. Based on the Soil Associations Map and information on land use, an overview is provided on the degree of anthropogenic alteration, thereby indicating the extent to which Berlin’s soils and soil associations maintain natural characteristics.

This aspect is particularly important, as it is presumed that areas with minimal alterations have preserved natural soil characteristics and a diverse range of soil properties, whereas human influence has led to the homogenisation of soil types and their properties. Notably, the legend items on the Soil Associations Map already roughly differentiate between near-natural and anthric soil associations.

Methodology

To assess the degree of naturalness of soils, Blume and Sukopp (1976) introduced a ‘hemeroby index’, drawing on the botanical concept of hemeroby. This index classified various land-use types, based on their impact on ecosystems. Grenzius (1987) utilised this system to describe the anthropogenic influence on soils and soil associations in relation to the 1985 Map of Soil Associations of Berlin (West).

Grenzius (1987) refined the hemeroby index to account for different types of land use (cf. Tab.1). The underlying premise was that it is particularly the diversity of human land use that results in varying degrees and types of soil alteration, and the destruction of natural soils.

Table 1 illustrates the classification of areas based on their respective land use, referring to insights from multiple authors.

Hemeroby index	Extent of soil alterations	Land use examples	Criteria	Degree of naturalness
	unaltered	no occurrence in Berlin		
	very slightly altered			
1	slightly altered	forest, bog (not in use)	naturally grown soils influenced slightly by anthropogenic use	high
2		Park on the outskirts (e.g. landscape park)	topsoil influenced slightly by anthropogenic use	moderate
3	moderately altered	meadow and pasture	topsoil influenced slightly by anthropogenic use	

4		farmland	topsoil influenced by anthropogenic use	
5		park, green space, cemetery, allotment garden, tree nursery weekend cottage area, camping ground, residential area with <45% impervious soil coverage	soils (partially aggraded soils) present in the topsoil and sometimes in the subsoil influenced by anthropogenic use	
6	highly altered	former sewage farm	soils strongly influenced by anthropogenic use in the topsoil and moderately influenced in the subsoil	low
7	very highly altered	park in the inner city (mainly on aggradations), allotment garden on excavation or aggradation), fallow area, military training area, surface mining, track area; landfills	whole soil structure strongly altered, mainly aggraded soils	
8	extremely altered	sport facility, outdoor swimming pool; residential area *) with impervious soil coverage between 10 % and 45 %	whole soil structure strongly altered, mainly aggraded soils	very low
9		city square, track facility, residential area *) with impervious soil coverage between 45 % and 85 %	whole soil structure very strongly altered, mainly aggraded soils	
10		residential area *) with impervious soil coverage of at least 85 %, war debris hills, landfills	soils completely altered by erosion and deposits, compacting etc.	

*) Residential area includes the following land uses, residential area, mixed-use area, commercial and industrial area, public facilities, utilities area, and traffic area

Note: Categories 1 to 5 are generally located on near-natural soil associations, categories 6 to 10 on anthric soil associations (cf. Map 01.01 Soil Associations).

Tab. 1: Evaluation of the degree of naturalness based on the hemeroby index according to Blume and Sukopp (1976); Blume (1990); Grenzius (1985); Stasch, Stahr, Sydow (1991)

Due to the absence of completely unaltered soils in Berlin, categories for unaltered or very slightly altered soils were excluded. Consequently, the categories for the evaluation of Berlin soils were revised, based on the classification criteria of Blume (1990), Grenzius (1985) and Stasch, Stahr, Sydow (1991).

To gauge the naturalness of the soils, data on soil associations, land use, area type and degree of impervious coverage were analysed. Initially, an automatic classification was carried out to group together specific combinations of soil associations, land uses and degrees of impervious soil coverage. These were then assigned ratings for their ‘degree of naturalness’ (categories 1 to 10 as per Grenzius, as shown in Tab. 1).

Selected land uses, such as green spaces and park facilities, fallow areas etc., required an individual assessment of naturalness. Soils in these areas may have undergone varying degrees of alteration. Typically, soils in the inner city have been significantly altered or newly formed by humans from aggraded material. Near-natural soils that fall into the same land-use category are often found on the outskirts, some of which with minimal alterations. The degree of naturalness of these areas was therefore determined on a case-by-case basis with the aid of topographic maps, protected area maps and expert reports.

Four levels, ranging from ‘very low’ to ‘high’, were devised to rate and aggregate the data to present it on the map (cf. Tab. 2, according to Lahmeyer 2000).

Hemeroby index according to Tab. 1	**Degree of naturalness of soils**	
	Rating	**Designation**
1	4	high
2 – 5	3	medium

6 – 7	2	low
8 – 10	1	very low

Tab. 2: Evaluation of the degree of naturalness based on its classification

01.11.4 Soil Water Exchange Rate

Description

The soil water exchange rate reflects how quickly incoming precipitation water replaces the water within the active soil zone. A lower exchange rate indicates a longer dwell time for water in the soil. Longer dwell times, in turn, may have a compensatory effect on groundwater flow rates, and enable a more powerful decomposition of certain inputs.

Methodology

The **soil water exchange rate** was determined by calculating the ratio (quotient) between percolation (in mm per annum, long-term means from 1991 to 2020) and the available water capacity in the effective root zone (in mm). Impervious soil coverage was disregarded here.

Percolation was computed using the ABIMO runoff formation model of the Federal Institute of Hydrology, which calculates the difference between precipitation and evaporation. This model incorporates area-specific data on precipitation, land use, vegetation structure, field capacities (based on soil textures), and depths to groundwater (measured from the surface to the water table) (Glugla et al. 1999) (cf. Map 02.13.4).

When calculating percolation for the evaluation of soil functions, the influence of impervious coverage was not considered, assuming complete permeability of surfaces. However, soils located near impervious surfaces experience increased exchange rates due to runoff precipitation.

The **available water capacity in the effective root zone** was derived from land use data and the Map of Soil Associations, incorporating soil profile models devised by Grenzius (1987) for individual soil associations.

Since determining the exchange rate of soil water is not common practice, there are no universally applicable evaluation standards. The values determined for Berlin were thus categorised to ensure each level covers a similar proportion of the municipal area.

Soil water exchange rate per annum	Soil water exchange rate	
	Level	Designation
< 1	1	very low
1 – < 2	2	low
2 – < 3	3	moderate
3 – < 4	4	high
≥ 4	5	very high

Tab. 1: Soil water exchange rate levels

01.11.6 Nutrient Storage Capacity/ Pollutant Binding Capacity of Soils (KAK_{eff})

Description

The storage and binding capacity of soil refers to its ability to retain nutrients or pollutants by binding them to organic substances or clay minerals within the soil. This capacity is influenced by factors such as clay content, types of clay minerals, and the humus content. Organic materials, such as humus or peat, typically exhibit a considerably higher binding capacity compared to clay minerals. This capacity also depends on the pH value, however, decreasing as the pH value decreases. Soils with high clay content and a high proportion of organic matter, coupled with slightly acidic to neutral pH values, therefore have a high capacity for binding nutrients and pollutants.

Methodology

The nutrient storage capacity and pollutant binding capacity of soils are derived from the levels of the previously determined effective cation exchange capacity (cf. Map 01.06.9), which largely encapsulate the aforementioned characteristic values.

Binding capacity is evaluated based on three categories as shown in Table 1, building on the levels of effective cation exchange capacity (KAK_{eff}). Levels 1 and 2 are grouped as ‘low’, and levels 4 to 6 are combined as ‘high’.

KAK_{eff} [$cmol_c$ / kg]	**KAK_{eff} level**		**Nutrient storage capacity/ pollutant binding capacity**
< 4	1	very low	low
4 – < 8	2	low	
8 – < 12	3	medium	medium
12 – < 20	4	high	high
20 – 30	5	very high	
≥ 30	6	extremely high	

Tab. 1: Evaluation of the nutrient storage capacity/ pollutant binding capacity, based on the levels of mean effective cation exchange capacity (KAK_{eff})

01.11.7 Nutrient Supply in the Topsoil (S-Value)

Description

The nutrient supply of a site depends on both the nutrient stock and the nutrients accessible to plants. The nutrient stock comprises minerals from the parent material, which are released during soil weathering. The soil solution contains nutrients that are accessible to plants as base cations, such as calcium (Ca^{2+}), magnesium (Mg^{2+}), potassium (K^+) and sodium (Na^+). Base cations present in the soil solution may be derived from the total of exchangeable cations (referred to as S-Value) (cf. Map 01.06.08). This only provides a total number, however, and does not indicate their relative proportions. For example, a site may therefore be rich in calcium and magnesium but deficient in potassium.

Phosphorus (P) and nitrogen (N), which may be estimated based on organic matter content, are not included here. Instead, only the proportion of base cations is taken into account.

Methodology

To gain an overview of the current nutrient supply of the soil associations, the levels of the aggregated exchangeable cations in the topsoil were consulted (cf. Map 01.06.8).

Table 1 presents a simplified evaluation of the nutrient supply based on base saturation: levels 1 to 6 indicate nutrient-poor conditions, level 7 suggests medium or fair conditions, and levels 8 to 10 nutrient-rich conditions.

Sum of exchangeable cations (S-Value)			Nutrient supply	
[mol_c/m^2]	Level	Designation	Level	Designation
< 1	1	extremely low	1	poor
1 – < 2	2	very low		
2 – < 3.5	3	moderately low to very low		
3.5 – < 5	4	moderately low		
5 – < 10	5	low		
10 – < 25	6	moderate		
25 – < 50	7	medium	2	medium
50 – < 100	8	moderately high	3	rich
100 – < 200	9	high		
≥ 200	10	very high		

Tab. 1: Nutrient supply levels based on the sum of exchangeable cations (S-Value)

01.11.8 Water Supply of Soils

Description

The water supply available to plants hinges on the soil's capacity to retain precipitation in the root zone and to release it back to the roots. The volume of water soil can retain is influenced by factors, such as soil texture, humus content, bulk density, and the proportion of coarse soil. Soils connected to the groundwater may benefit significantly from capillary water rising from below, greatly increasing the water available to plants.

The assessment of soil water supply relies on the average available water capacity in the shallow-root zone.

Methodology

The water supply for sites and soil associations is determined by the average available water capacity (nFK) in the shallow-root zone (0 to 30 cm) (cf. Map 01.06.2). This measure is only required for evaluating the yield function for cultivated plants (cf. Map 01.12.2) and the habitat function for near-natural and rare plant communities (cf. Map 01.12.1). The water supply for deep-rooted plants (> 30 to 150 cm), such as trees, is not determined here. The evaluation is based on Table 1. If the depth to groundwater is < 0.8 m, the rating is increased by one level to account for capillary rise (unless already rated as 'high').

nFK [mm] shallow-root zone	nFK level		Depth to water table [m]	Water supply	
< 60	1 – 2	very low to low	≥ 0.8	1	poor
< 60	1 – 2	very low to low	< 0.8	2	moderate
60 – < 80	3 – 4	moderate to increased	≥ 0.8	2	moderate
60 – < 80	3 – 4	moderate to increased	< 0.8	3	good
≥ 80	5 – 6	high to very high	-	3	good

01.11.9 Filtering Capacity of Soils (kf)

Description

The filtering capacity of soil refers to its ability to retain dissolved and suspended substances, preventing them from reaching the groundwater. This capacity is primarily influenced by soil texture and the resulting velocity at which precipitation moves through it under gravity. Soils that are highly water permeable, such as gravelly or sandy soils, have a low filtering capacity. This is the case as water can travel more than two metres per day in water-saturated soil, whereas in boulder marl soils, it travels only about 0.1 to 0.2 metres per day.

The evaluation of the filtering capacity does not consider whether and how much water actually moves toward the groundwater (depending on evaporation/ vegetation). The Exchange Frequency of Soil Water (cf. Map 01.11.4) addresses this matter to some extent.

Methodology

The filtering capacity of soils is determined based on saturated water permeability (kf value) (cf. Map 01.06.10), without considering the thickness of the soil horizons that substances need to traverse to reach the groundwater.

The evaluation is based on three categories, as shown in Table 1. Soils with high saturated water permeability and kf levels between 4 and 6 have a ‘low’ filtering capacity. Less permeable soils with kf levels of 1 to 2 receive a ‘high’ rating.

Saturated water permeability (kf) [cm/d]	Saturated water permeability (kf) level		Filtering capacity	
< 1	1	very low	3	high
1 – < 10	2	low		
10 – < 40	3	medium	2	medium
40 – < 100	4	high	1	low
100 – < 300	5	very high		
≥ 300	6	extremely high		

Tab. 1: Evaluation of the filtering capacity derived from the saturated water permeability (kf)

01.11.10 Heavy Metal Binding Strength of Soils

Description

Heavy metals are bound through adsorption onto humic substances, clay minerals, and sesquioxide in the soil. The solubility of these heavy metals depends on their total content and the pH value of the soil solution. Generally, higher acidity leads to increased solubility of heavy metal compounds. This is the case because metals tend to form stable oxides or precipitates of poorly soluble compounds, such as $PbCaCO_3$, at higher pH levels.

The relative heavy metal binding strength is used as a criterion for evaluating the Filtration and Buffering Function (cf. Map 01.12.3).

Heavy metals exhibit varied binding patterns. (DVWK, 1988). Cadmium, for example, is particularly soluble and is a common background pollutant in Berlin. It is relevant here due to its harmfulness. Following the method proposed by the Hamburg Ministry for Environment and Health (2003), the binding strength of easily soluble cadmium is used here as a benchmark for heavy metal binding strength.

Methodology

Blume and Brümmer (1987, 1991) developed a concept for assessing soil sensitivity to metal contamination, which is currently being implemented across Berlin. The assessment is based on the relative binding strength of individual metals depending on the pH value of the soil solution, assuming the conditions of a weakly sorptive, humus-poor sandy soil. The values are adjusted for higher humus, clay, and iron hydroxide contents. The calculation is carried out to a depth of 1 metre. For this purpose, characteristic values for the topsoil and subsoil are determined step by step based on pH value, humus content, and clay content. The sum of these yields the BS_{SM} binding strength. This value is adjusted based on the proportion of coarse soil and horizon thickness. It can range from 0 to 5, representing a heavy metal binding strength from ‘none’ to ‘very high’.

Level of heavy metal binding strength	Designation
0	none
1	very low
2	low
3	medium
4	high
5	very high

Tab. 1: Evaluation of the relative heavy metal binding strength based on pH value, humus and clay content, the proportion of coarse soil, and horizon thickness (according to Blume and Brümmer 1987, 1991)

01.11.11 Buffering Capacity of Soils in the Organic Carbon Balance

Description

Soil plays a crucial role in the global organic carbon cycle, acting as both a buffer and at times a carbon sink. This function helps reduce CO_2 emissions, contributing to the mitigation of global warming. Soil’s ability to perform this role is closely tied to its humus and peat content, primarily derived from organic inputs by vegetation. Higher levels of humus and peat in soil may lower CO_2 emissions, yet their decomposition releases CO_2 back into the atmosphere. Under natural conditions, a balance between humus formation and decomposition is typically established over time. Increased humus and peat levels are commonly found in developing, relatively young soils and in intact bogs. Destruction of soil structures, intensive agricultural use, and, in the case of bogs, drainage cause the organic substance to decompose and CO_2 and methane (CH_4) to be released. Gentle agricultural and horticultural practices and the spontaneous development of urban (raw) soils lead to an accumulation of organic matter, creating a CO_2 sink.

Regarding the organic carbon balance, two soil types with high buffering capacities may be identified:

- raw soils, which, if allowed to develop undisturbed, can still bind large amounts of organic carbon, and
- soils with currently high humus or peat content, the disruption or destruction of which leads to the release of CO_2.

The binding of organic carbon in young soils is a slow process, while the release of CO_2 after the soil structure has been destroyed occurs relatively quickly. Therefore, this release is considered the primary factor and is the sole criterion assessed here.

The total amount of peat and humus stored in Berlin soils corresponds to approx. 25.8 million tonnes of CO_2. Berlin’s CO_2 emissions amount to approx. 14.6 million tonnes per year (as of 2020, Statistical Office for Berlin-Brandenburg, 2022).

Methodology

The evaluation of the buffering capacity in relation to the organic carbon balance draws on the organic carbon stock levels (cf. Map 01.06.6). Ratings from 1 to 3 indicate a ‘low’ buffering capacity, while ratings from 5 to 6 represent a ‘high’ buffering capacity.

Organic carbon stock level	Buffering capacity in the organic carbon balance	
	Rating	Designation
1 – 3	1	low
4	2	medium
5 – 6	3	high

Tab. 1: Evaluation of the buffering capacity in the organic carbon balance based on organic carbon stock levels

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