ORBICON

BioConsult SH

Interconnector NeuConnect – Sediment chemistry Report

REPORT

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REPORT

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1 INTRODUCTION

1.1 Background

NeuConnect Ltd. plans to connect the German and British energy markets with a high voltage cable. The NeuConnect project proposes to operate a 1,400 MW High Voltage Direct Current (HVDC) interconnector linking Germany with the United Kingdom. The interconnector will comprise HVDC submarine cables of approx. 680 km between Germany and the UK, with a section passing through Netherlands territorial waters (compare with Figure 1-1). The interconnector will be designed to transmit electrical power in both directions across the Southern North Sea, UK territorial waters, through Dutch EEZ and into German territorial waters and EEZ to link the electricity transmission systems in the UK and Germany.
A preliminary route has been developed and is subject to ongoing discussions with relevant stakeholders in each of the countries. A pair of cables will be buried in the seabed, typically to a depth of 2 to 3 meters.

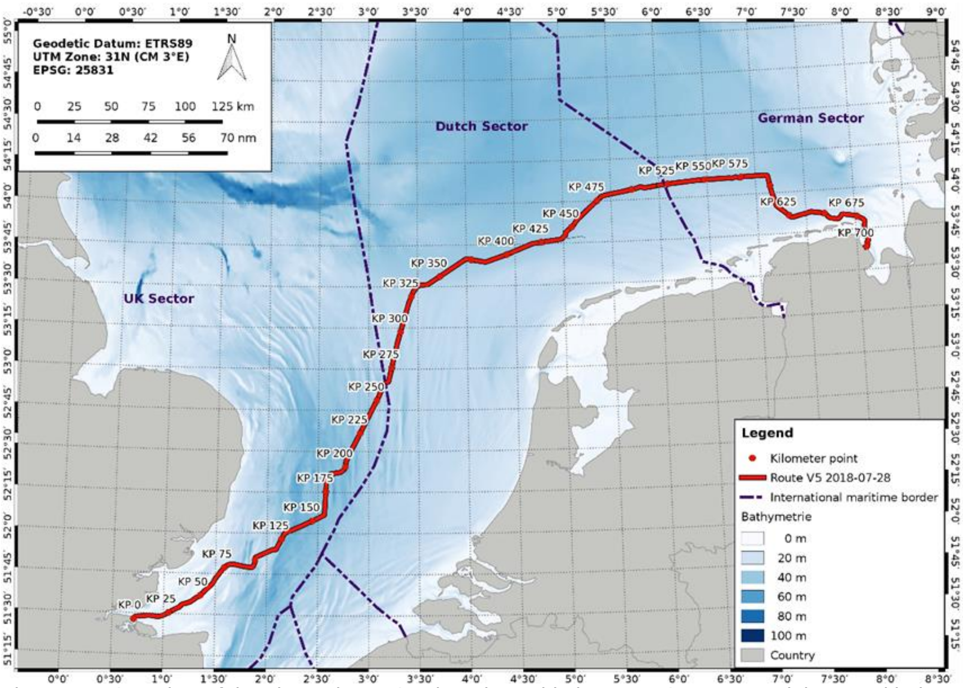

Figure 1-1: Overview of the planned HVDC submarine cable between Germany and the UK with the section of the Dutch EEZ.

1.2 Objectives of the Benthic Investigations

The present baseline report presents the results of the sediment survey. The baseline report is part of the Environmental impact assessment (EIA) and serves to describe the status quo of the pollution load of sediment in the sea area of the preliminary route. The results of the inventory will form the baseline for the impact assessments of the project with regard to the sediment characteristics.

The objectives of the sediment chemistry investigation are to:

- Acquisition of benthic grab sampling for physico-chemical analysis of sediments;
- Provide baseline data for the assessment of the benthic community along the cable trench (e.g. EIA);
- Provide baseline data for later assessment of impacts during operation for paired cables (e.g. BACI – design).

2 METHODS

2.1 Investigation Area

The investigation area is located along the proposed cable corridor in the Dutch EEZ (Figure 1-1).

2.2 Survey Design

Based on the screening of the side-scan sonar investigations, the substrate properties along the proposed cable corridor are considered to be homogeneous. Accordingly, the investigation program is oriented towards these substrate conditions.
Survey operations were performed in accordance with the procedural guidelines contained within the marine monitoring handbook (Davies et al. 2001). The cable corridor extends into the Dutch EEZ over a length of approx. 270 km. The station grid for the sediment survey comprises 34 stations[1] with a distance of 7.7 km between each station.

In order to record the concentration of hazardous substances of sediments, 34 stations were examined by using a van Veen grab sampler. Each station consists of 2 sub-samples. The first sample at each station was processed for the macrofauna analysis (see previous report). The second grab sample was used for the physico-chemical investigations of sediments.

Subsamples from the second grab were taken for:

- Particle size distribution (PSD) and total organic matter (TOM) analyses (see previous report)
- Hydrocarbon analyses
- Heavy metals and total organic carbon (TOC) analyses

The following data were analyzed and are reported here

- Documentation of physico-chemical sediment characteristics

[1] At station 33 investigation were not possible. Crab traps were located in the surrounding area.

2.3 Sediment Sampling

Figure 2 illustrates the station numbers within the survey area.

The second van Veen grab sample was used for physico-chemical samples, subsamples from this grab sample were taken as follows:

- Hydrocarbon/heavy metals samples were collected with a clean metal spoon, and stored in a pre-labelled 1 l glass jar;
- Samples for total organic carbon (TOC) were collected together with the PSD samples.

All samples were cooled (Hydrocarbon/heavy metals samples) or frozen and stored on the vessel until demobilisation and transfered to the analysis laboratory.

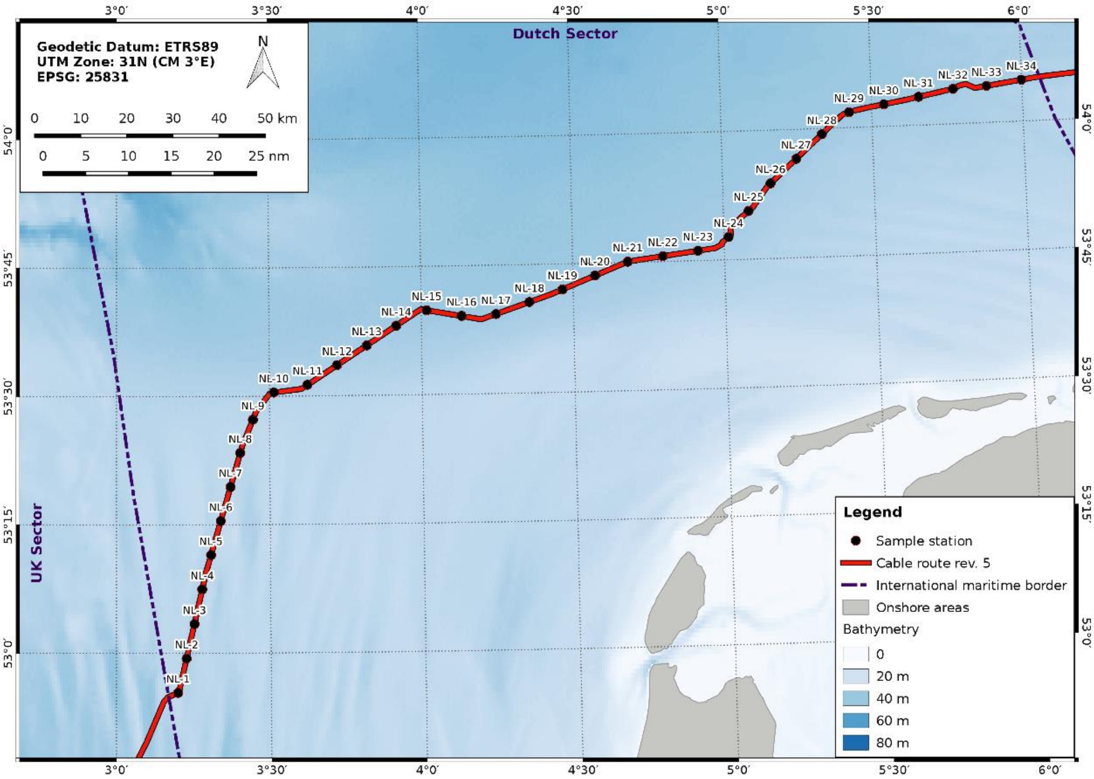

Figure 2: Survey sampling locations

Analyses were performed by an accredited chemistry laboratory. Summaries of the methodologies used are described in detail in Table 1 to Table 3. For further information about the analyses see Table 4.

Table 1: Sediment Chemistry Analysis – Total Hydrocarbons

Total Hydrocarbons	
Method Description	Ultrasonic extract of wet sediment, column chromatography clean-up, analysis by Gas Chromatography - Mass Spectrometry (GC – MS)
Minimum Reporting Value (mg/kg)	0.5

Table 2: Sediment Chemistry Analysis – Polycyclic Aromatic Hydrocarbons (PAHs)

Polycyclic Aromatic Hydrocarbons	
Method Description	Ultrasonic extract of wet sediment, column chromatography clean-up, analysis by GC - MS
Minimum Reporting Value (mg/kg)	Individual PAHs – 0.0001
	Alkylated PAHs – 0.001

Table 3: Sediment Chemistry Analysis – Trace Metals

Metals (aqua regia digest)	
Method Description	Samples dried, sieved, digested and analysed by Inductively Coupled Plasma Mass Spectrometry (ICP-MS) Mercury is determined by Cold Vapour Atomic Fluorescence Spectroscopy (CV - AFS)
Minimum Reporting Value (mg/kg)	Selected metals:
	Al – 90
	As – 0.04
	Cd – 0.005
	Cr – 0.2
	Cu – 0.7
	Pb – 0.2
	Hg – 0.0005
	Ni – 0.4
	Sn – 1
	Zn – 2

Table 4: Overview investigation methods

Parameter	Methodology standard	Unit	Limit of quantitation [mg/kg dw]
Aluminium	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.5
Arsenic	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	1
Lead	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	2
Cadmium	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.1
Chromium	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.5
Copper	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.5
Nickel	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.5
Mercury	DIN EN 1483 (E12): 2007-07	mg/kg dw	0.03
Zinc	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.5
Tin	DIN EN ISO 11885 (E 22): 2009-09	mg/kg dw	0.5
Hydrocarbons (C10 - C40)	DIN ISO 16703: 2005-12	mg/kg dw	50
Hydrocarbons (C10 - C22)	DIN ISO 16703: 2005-12	mg/kg dw	50
PAH (EPA)			
Naphthalene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Acenaphthylene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.1
Acenaphthene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Fluorene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Phenanthrene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Anthracene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Fluoranthene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Pyrene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Benzo(a)anthracene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Chrysene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Benzo(b)fluoranthene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Benzo(k)fluoranthene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Benzo(a)pyrene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Dibenzo(a,h)-anthracene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Benzo(g,h,i)perylene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.01
Indeno(1,2,3-cd)-pyrene	DIN EN ISO 13877: 2000-01	mg/kg dw	0.02
Sum PAH (EPA)	DIN EN ISO 13877: 2000-01	mg/kg dw	

3 RESULTS

Data and samples were successfully collected at 33 of the 34 sampling stations. At the station NC_NL_33 no sampling was possible because of the occurrence of Crab traps in the surrounding area.

The results of the sediment chemistry analyses are displayed in Table 5 - Table 11. The results were evaluated using the OSPAR assessment criteria for contaminants in sediments (ICES 2018).
Regarding the BAC assessment criteria, the values for the metal concentrations are all within or below the concentration limit, except for the cadmium concentration at station 25, with a value of 0.33 mg/kg dw, just above the concentration limit of 0.31 mg/kg dw. Applying the ERL assessment criteria a few outliers occur for arsenic. The concentrations at stations 3, 4, and 5 are just above the concentration limit, whereas station 25 showed the highest value with 22 mg/kg dw.

No concentration limit within the assessment criteria of BAC and ERL were applicable for the metals aluminium and tin.

3.1 Heavy metals

Aluminium showed an upward trend from west to east within the first 18 stations peaking at station NC_NL_18 followed by a downward trend (see Figure 3). Concentration was lowest at station NC_NL_34. A similar trend can be observed for chromium, lead, nickel, copper, mercury and zinc concentrations (see Figure 4, Figure 6, Figure 7, Figure 8, Figure 10, Figure 11).
Stations 25 and 29 showed extreme values, at station 25 aluminium, chromium, lead, nickel, copper and zinc were exceptionally low compared to the stations nearby, whereas at station 29 the concentrations for the above-mentioned metals was exceptionally high. Additionally, arsenic concentrations as well as cadmium concentrations were highest at station 25 (see Figure 5 and Figure 9).
Mercury concentrations showed no such trend (see Figure 11). It was highest at station 18, but still within the OSPAR range. Tin concentrations were below the limit of quantification with few outliers. It was highest at station 31. Additionally, it showed high concentrations at station 29, similar to the concentrations of aluminium, chromium, lead, nickel, copper and zinc.

Additionally, the silt content at the stations correlated with the metal concentrations here displayed at the examples of aluminium and lead in Figure 13and Figure 14. For detailed information about the silt content, see previous report.

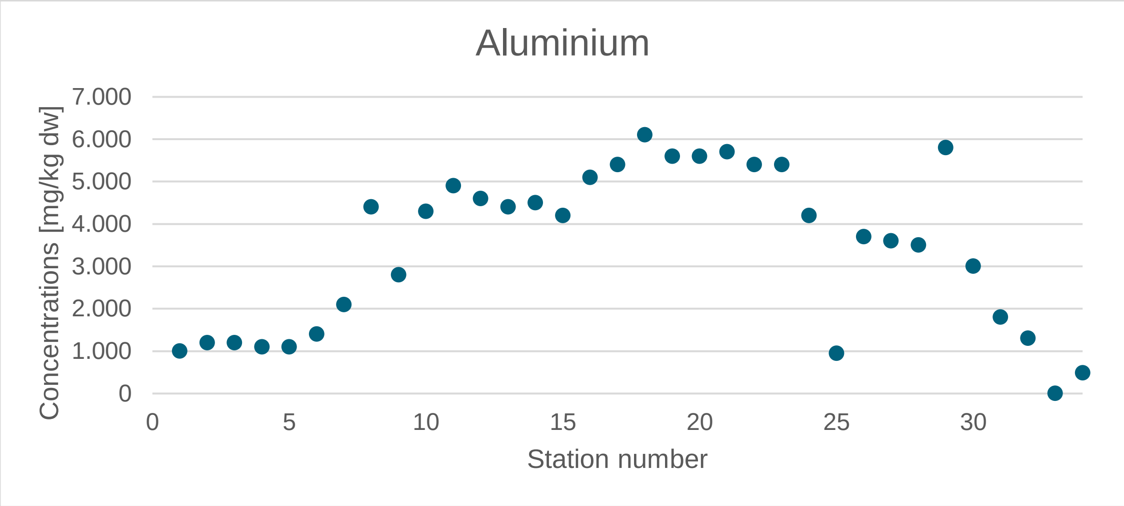

Figure 3: Aluminium concentration in mg/kg dw per station.

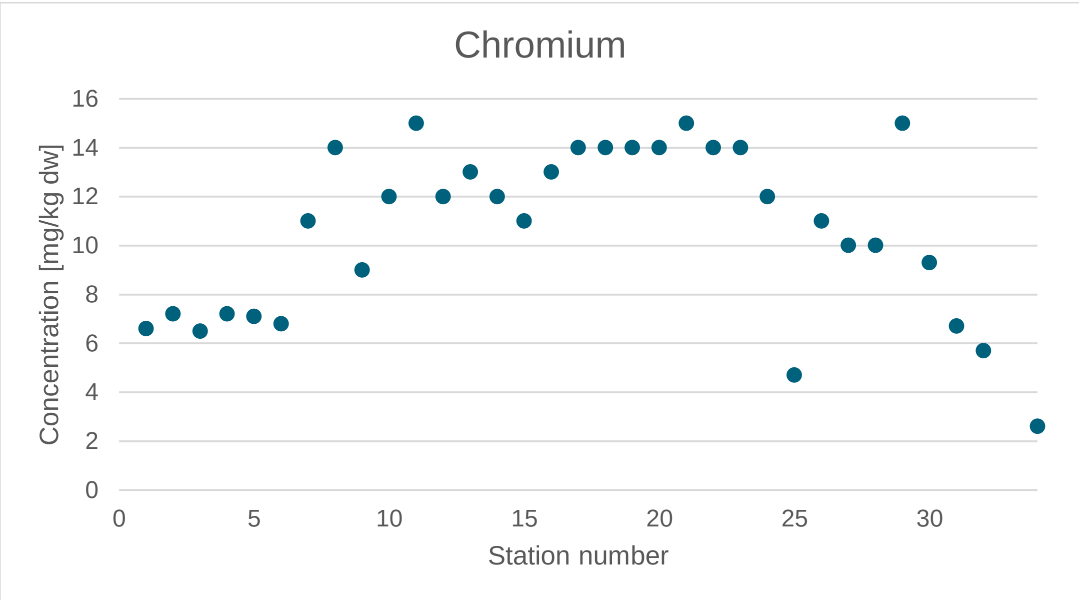

Figure 4: Chromium concentration in mg/kg dw per station.

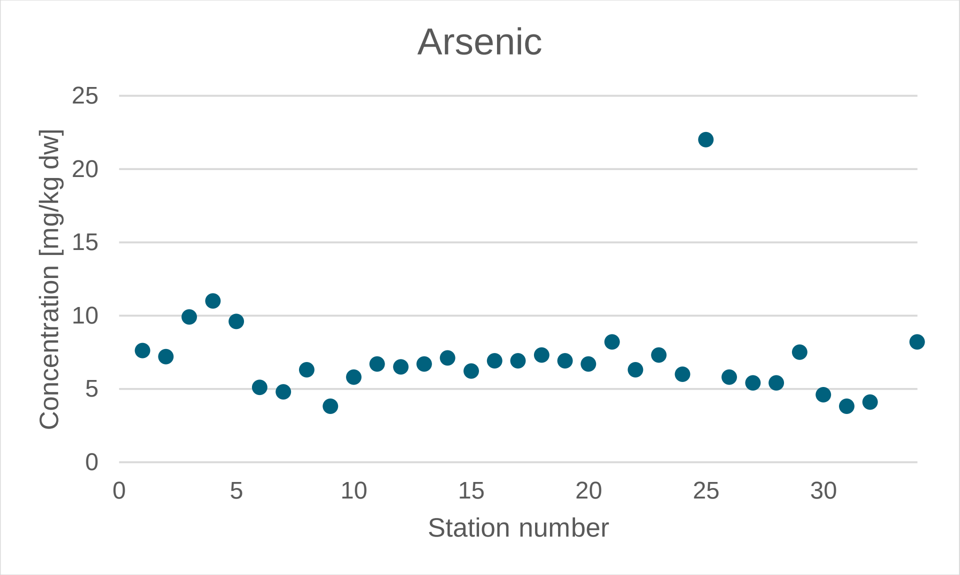

Figure 5: Arsenic concentration in mg/kg dw per station.

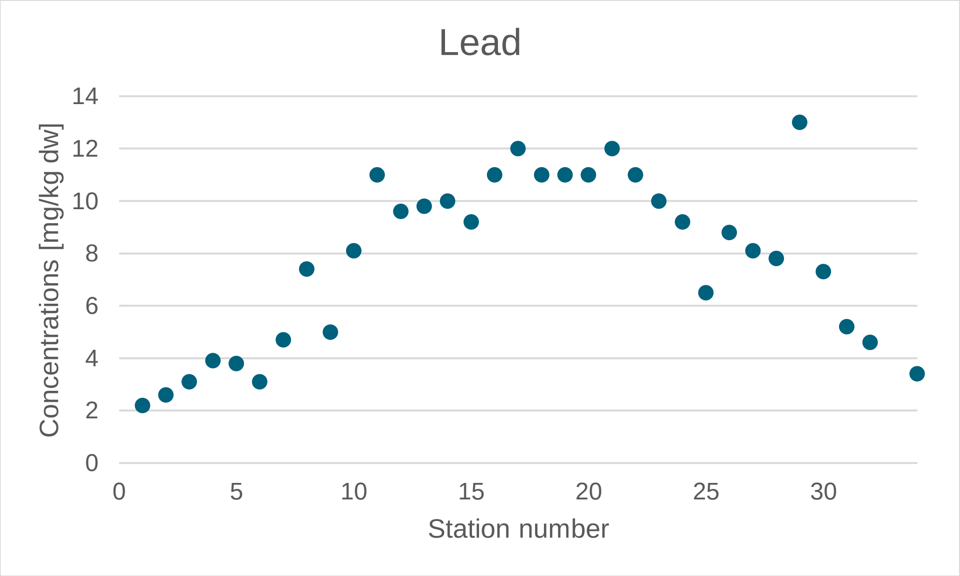

Figure 6: Lead concentration in mg/kg dw per station.

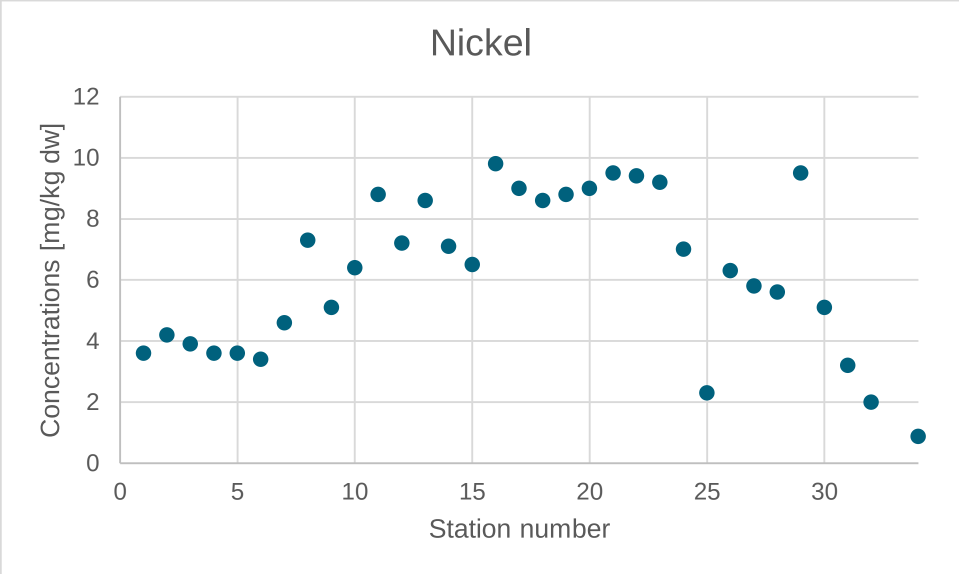

Figure 7: Nickel concentration in mg/kg dw per station.

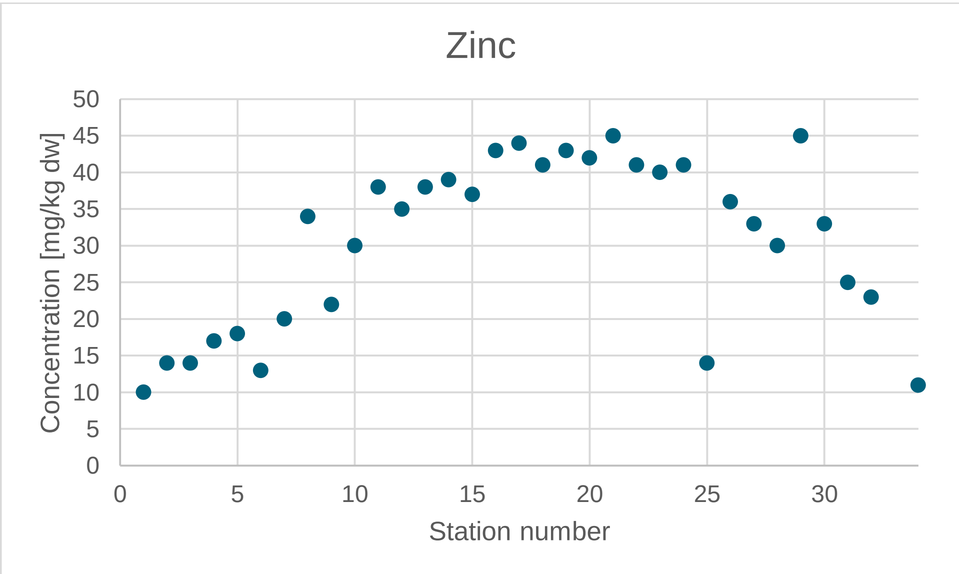

Figure 8: Zinc concentration in mg/kg dw per station.

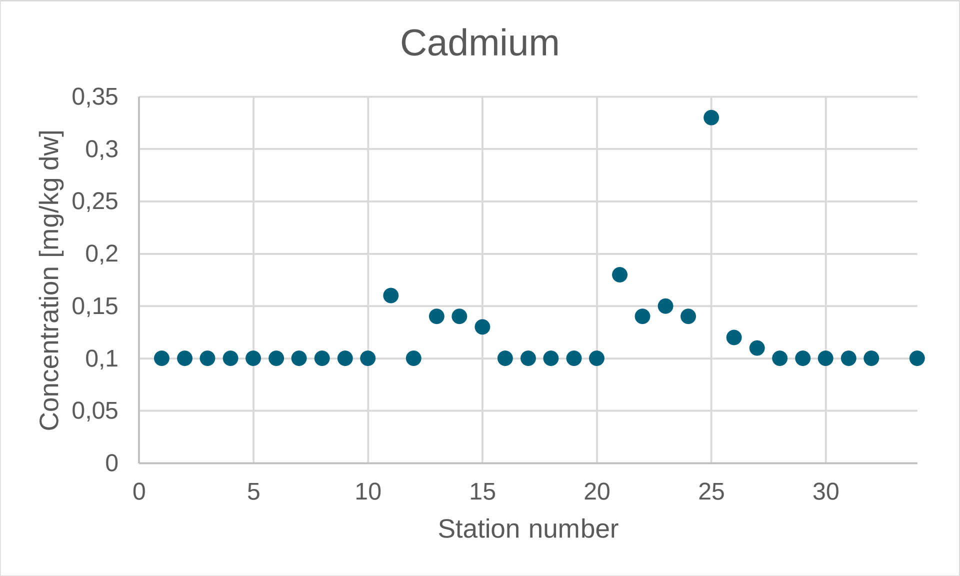

Figure 9: Cadmium concentration in mg/kg dw per station.

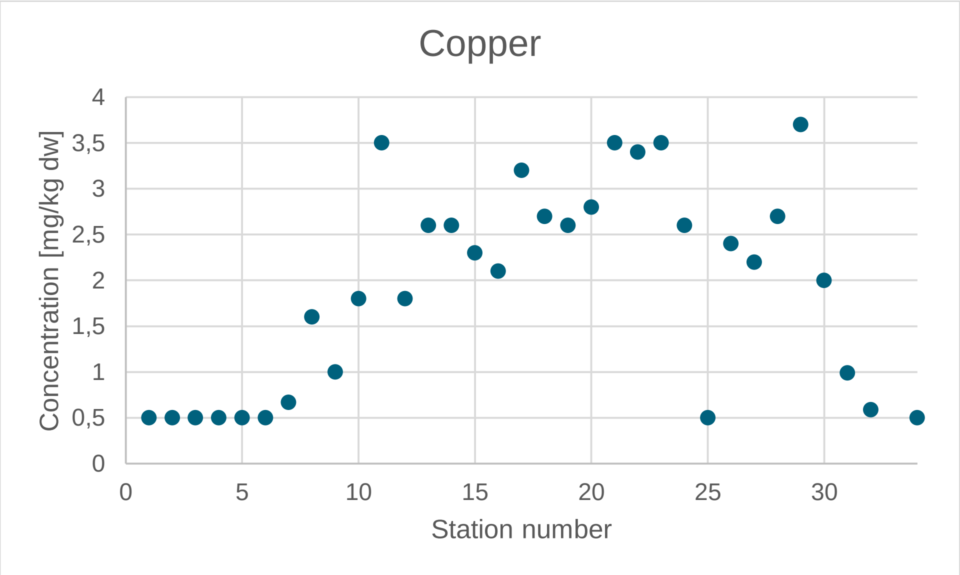

Figure 10: Copper concentration in mg/kg dw per station.

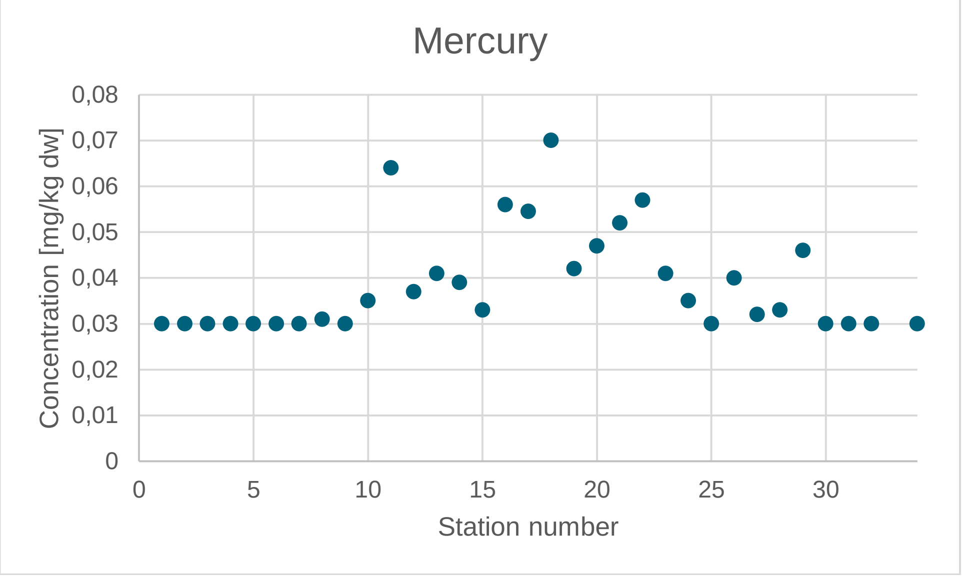

Figure 11: Mercury concentration in mg/kg dw per station.

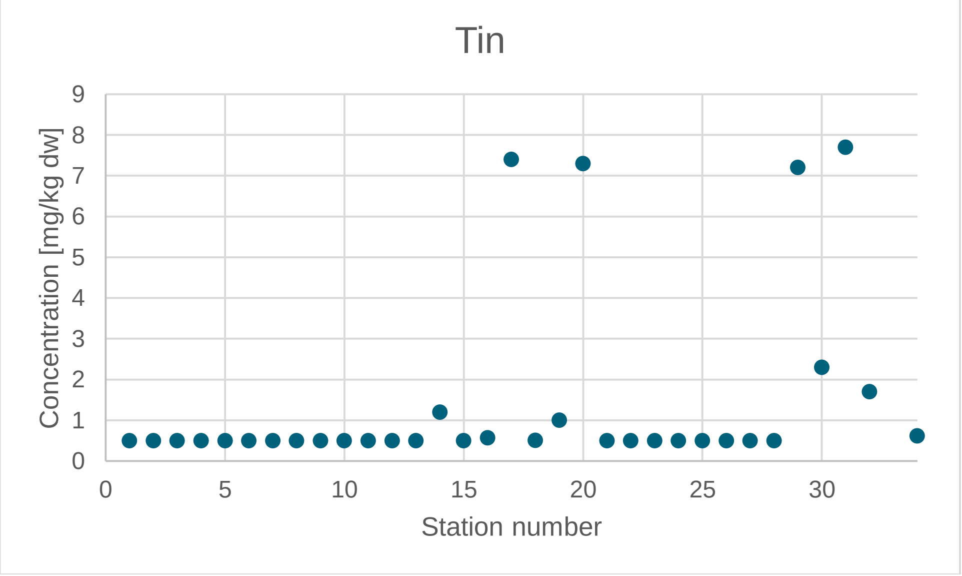

Figure 12: Tin concentration in mg/kg dw per station.

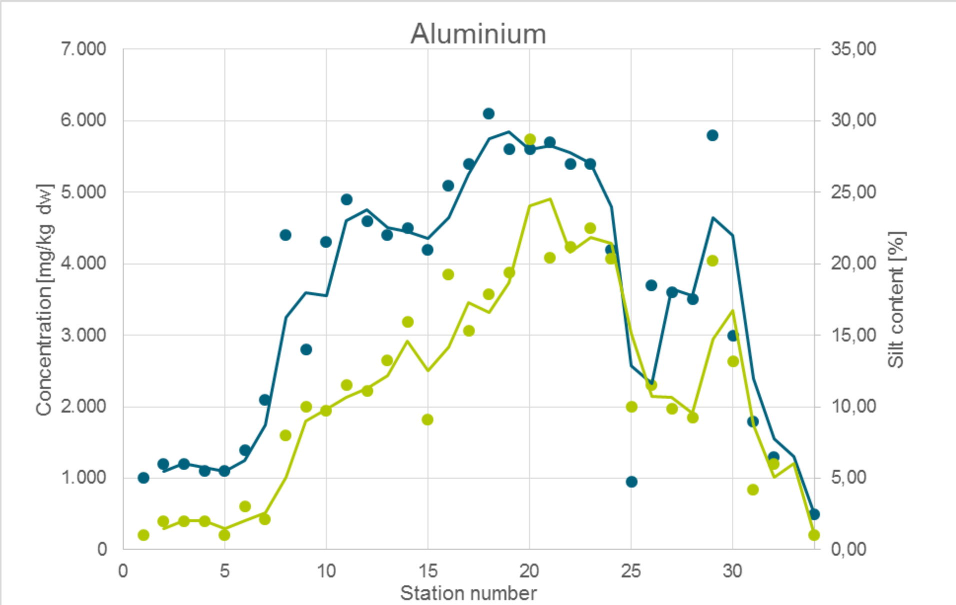

Figure 13: Aluminium concentrations in mg/kg dw (blue) together with the silt content in % (green) per station.

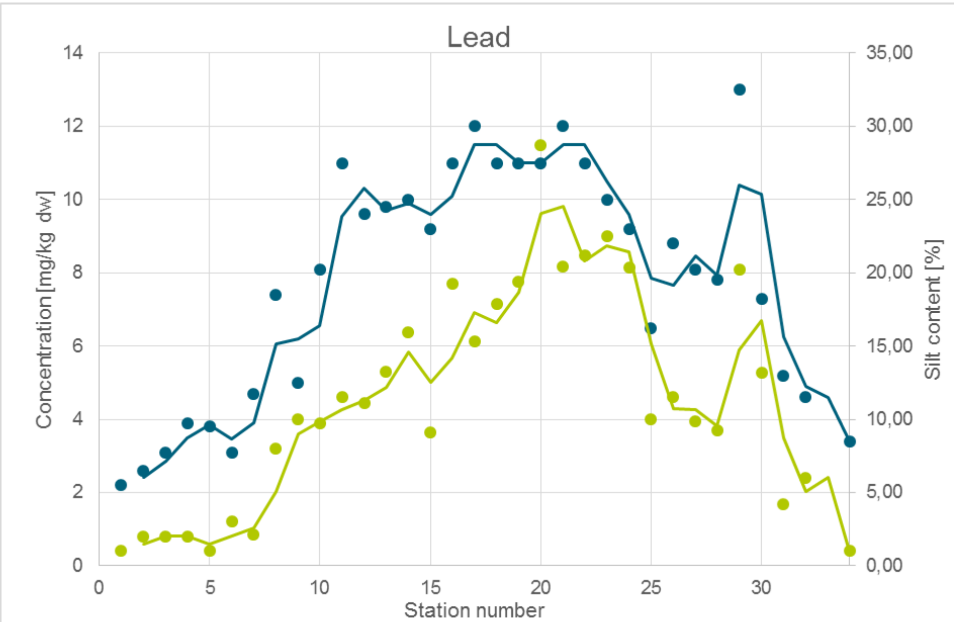

Figure 14: Lead concentrations in mg/kg dw (blue) together with the silt content in % (green) per station.

3.2 Hydrocarbons

All Hydrocarbons are below the limit of quantification of 50 mg/kg dw, except for station 26 with exceptional values of 71 mg/kg dw for Hydrocarbons (C10 - C40) and 52 mg/kg dw for Hydrocarbons (C10 – C21) (see Table 5).

Table 5: Sediment Chemistry Analysis – Total Hydrocarbons

	Total Hydrocarbons	*Hydrocarbons (C10-C40)*	*Hydrocarbons (C10-C21)*
	Unit	***mg/kg dw***	***mg/kg dw***
Sample	**Date**		
NC_NL_ 1	04.12.2018	<50	<50
NC_NL_ 2	04.12.2018	<50	<50
NC_NL_ 3	04.12.2018	<50	<50
NC_NL_ 4	04.12.2018	<50	<50
NC_NL_ 5	04.12.2018	<50	<50
NC_NL_ 6	04.12.2018	<50	<50
NC_NL_ 6	04.12.2018	<50	<50
NC_NL_ 8	04.12.2018	<50	<50
NC_NL_ 9	04.12.2018	<50	<50
NC_NL_ 10	25.11.2018	<50	<50
NC_NL_ 11	25.11.2018	<50	<50
NC_NL_ 12	25.11.2018	<50	<50
NC_NL_ 13	25.11.2018	<50	<50
NC_NL_ 14	25.11.2018	<50	<50
NC_NL_ 15	25.11.2018	<50	<50
NC_NL_ 16	25.11.2018	<50	<50
NC_NL_ 17	25.11.2018	<50	<50
NC_NL_ 18	24.11.2018	<50	<50
NC_NL_ 19	24.11.2018	<50	<50
NC_NL_ 20	24.11.2018	<50	<50
NC_NL_ 21	24.11.2018	<50	<50
NC_NL_ 22	24.11.2018	<50	<50
NC_NL_ 23	24.11.2018	<50	<50
NC_NL_ 24	24.11.2018	<50	<50
NC_NL_ 25	23.11.2018	<50	<50
NC_NL_ 26	23.11.2018	71	52
NC_NL_ 27	23.11.2018	<50	<50
NC_NL_ 28	23.11.2018	<50	<50
NC_NL_ 29	23.11.2018	<50	<50
NC_NL_ 30	23.11.2018	<50	<50
NC_NL_ 31	22.11.2018	<50	<50
NC_NL_ 32	22.11.2018	<50	<50
NC_NL_ 34	22.11.2018	<50	<50

3.3 Polycyclic Aromatic Hydrocarbons (PAH)

Most Polycyclic Aromatic Hydrocarbons (PAH) are within the concentration limits of both assessment criteria. Applying the BAC assessment criteria some stations showed elevated PAHs concentrations. At Station 10 the Fluoranthene concentration was elevated above the BAC limit as well as Chrysene. Additionally, Pyrene concentrations were elevated at the stations 17, 22, 23 and 29 as well as Benzo(a)anthracene concentrations at stations 16 and 18.
No concentration limit within the assessment criteria of BAC and ERL were applicable for the PAHs Acenaphthylene, Acenaphthene, Fluorene, Benzo(b)fluoranthene, Benzo(k)fluoranthene and Dibenzo(a,h,)anthracene. Their concentrations are mostly below the limit of quantification. The few occurring outliers are only slightly above the limit of quantification.
For Benzo(g,h,i)perylene and Indeno(1,2,3.cd)pyrene only BAC concentration limits were available.

All PAHs with concentration above the limit of quantification showed a higher concentration at the stations 17 to 26, which are located within the NATURA 2000 area. Station 10 showed higher concentrations of Phenanthrene, Fluoranthene, Benzo(a)anthracene and Chrysene compared to the stations nearby.
These results are reflected by the PAH concentrations, a sum of all the analysed PAHs (see Figure 24).

Additionally, the silt content at the stations correlated with the PAH concentrations as displayed in Figure 25. For detailed information about the silt content see previous report.

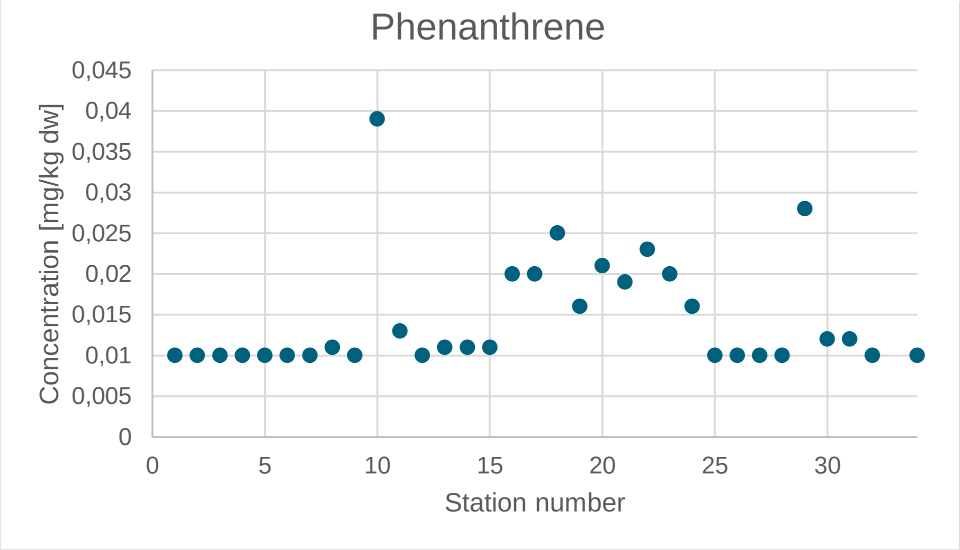

Figure 15: Phenanthrene concentration in mg/kg dw per station.

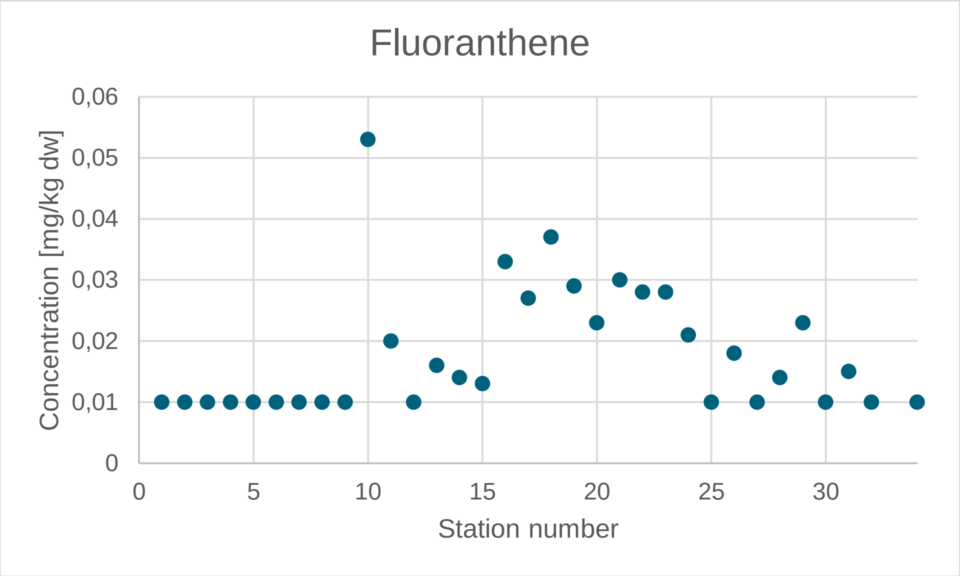

Figure 16: Fluoranthene concentration in mg/kg dw per station.

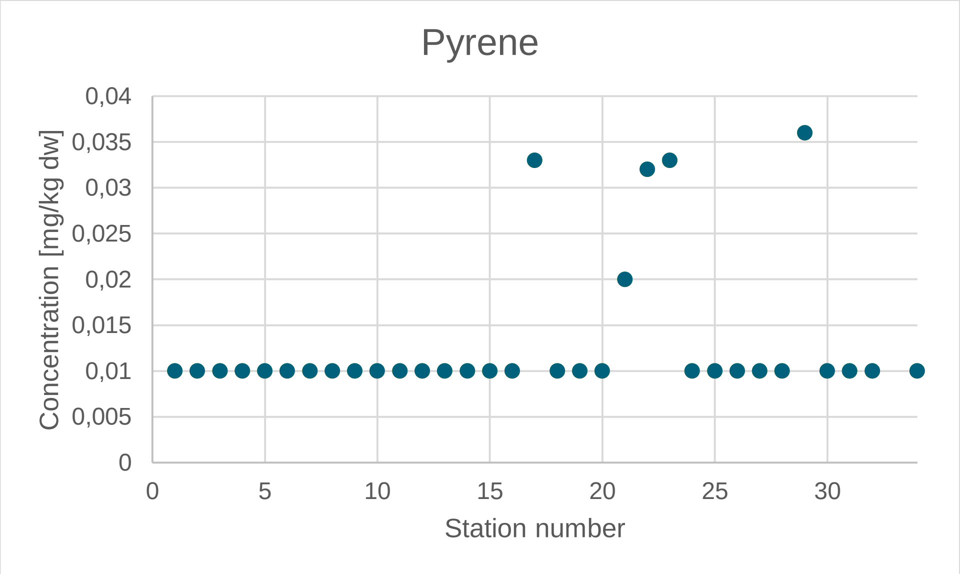

Figure 17: Pyrene concentration in mg/kg dw per station.

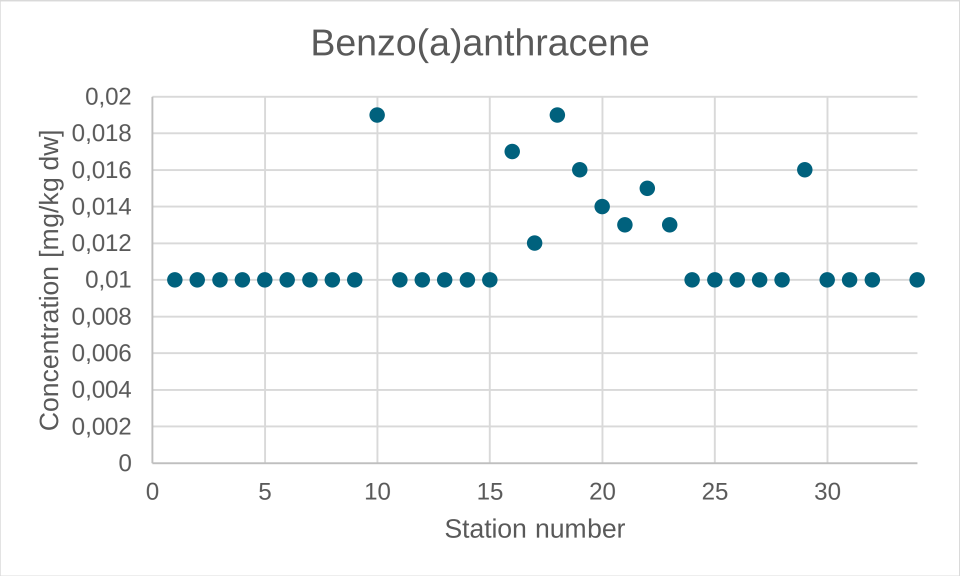

Figure 18: Benzo(a)anthracene concentration in mg/kg dw per station.

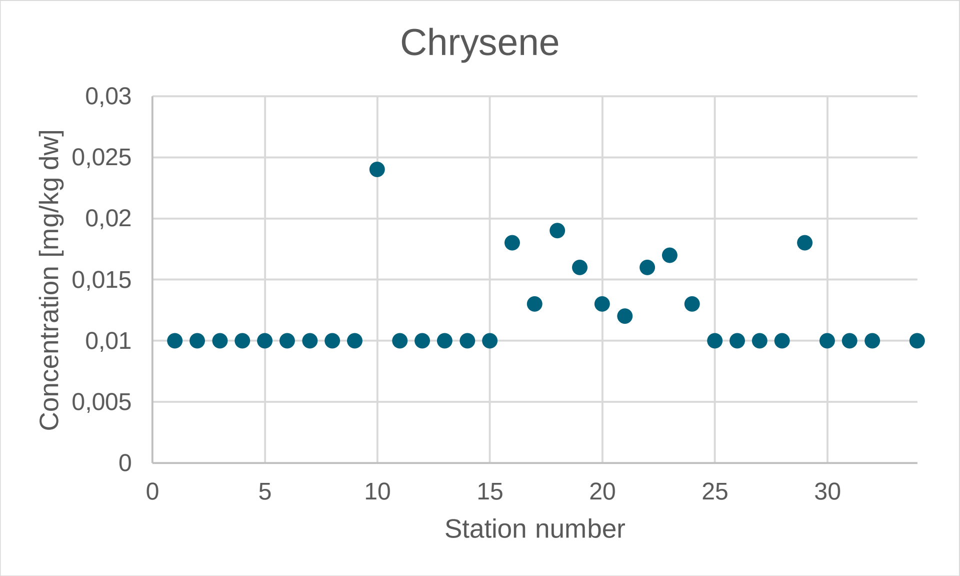

Figure 19: Chrysene concentration in mg/kg dw per station.

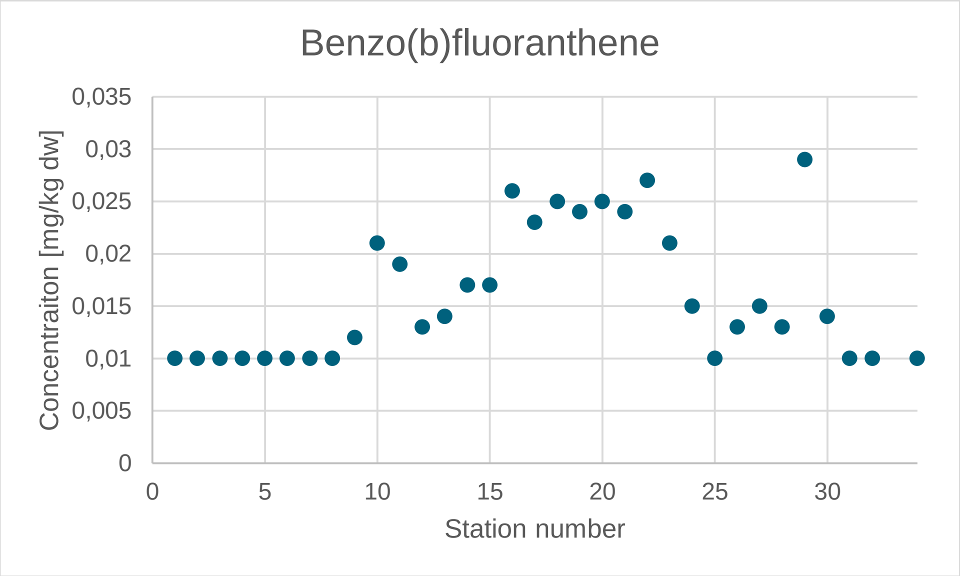

Figure 20: Benzo(b)fluoranthene concentration in mg/kg dw per station.

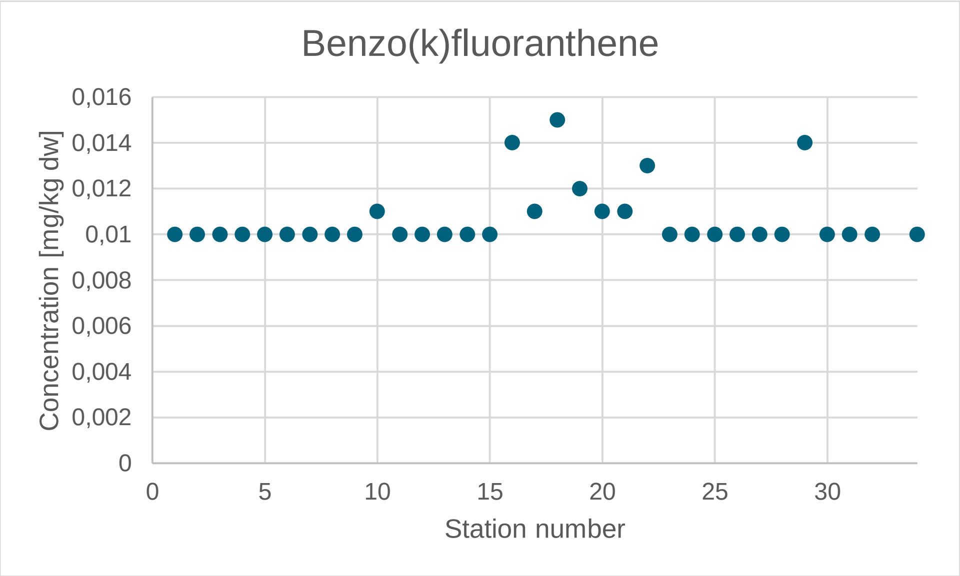

Figure 21: Benzo(k)fluoranthene concentration in mg/kg dw per station.

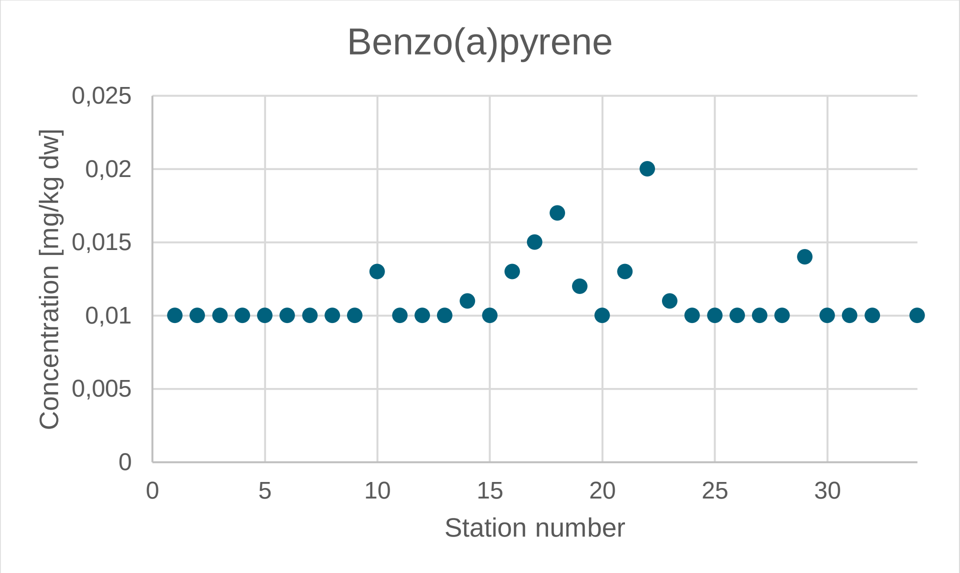

Figure 22: Benzo(a)pyrene concentration in mg/kg dw per station.

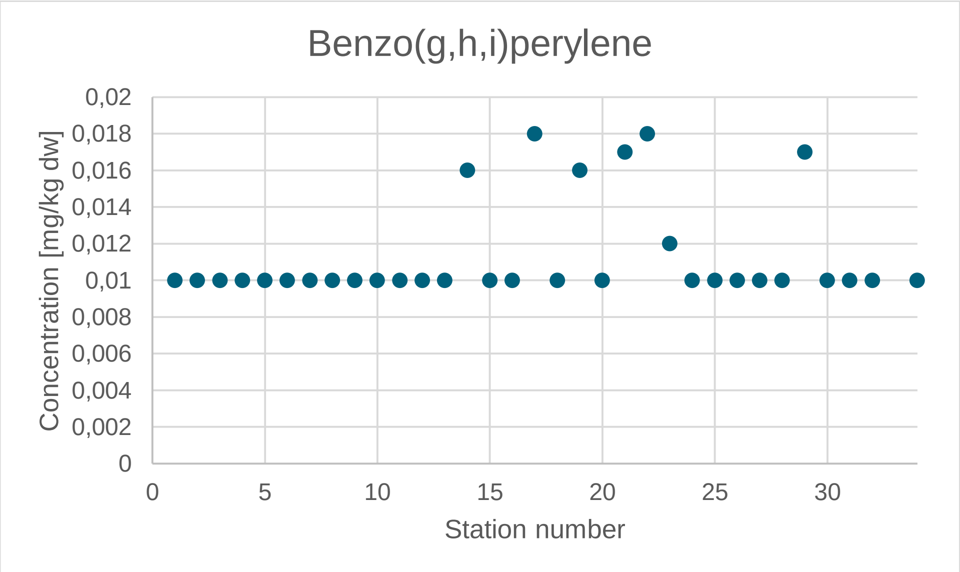

Figure 23: Benzo(g,h,i)perylene concentration in mg/kg dw per station.

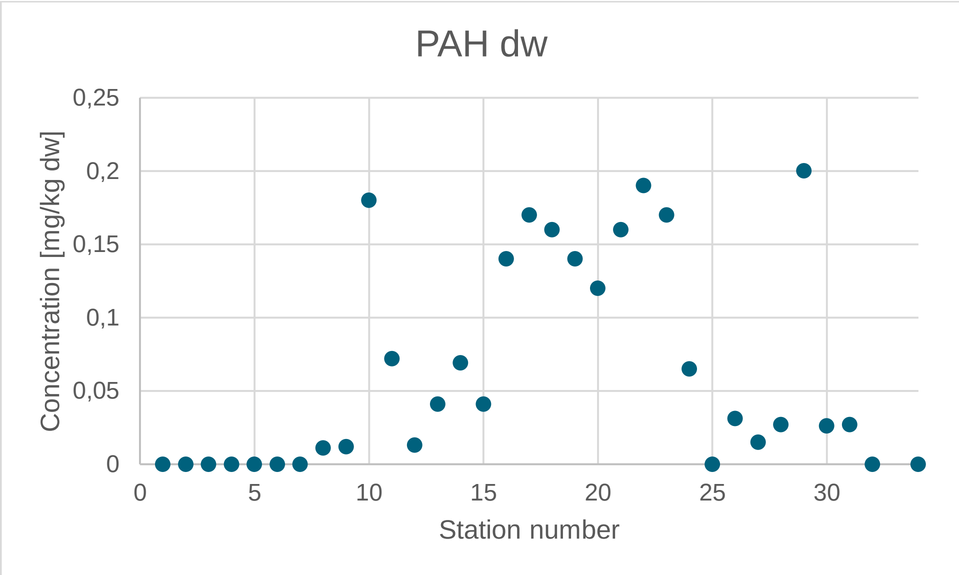

Figure 24: PAH concentration in mg/kg dw per station.

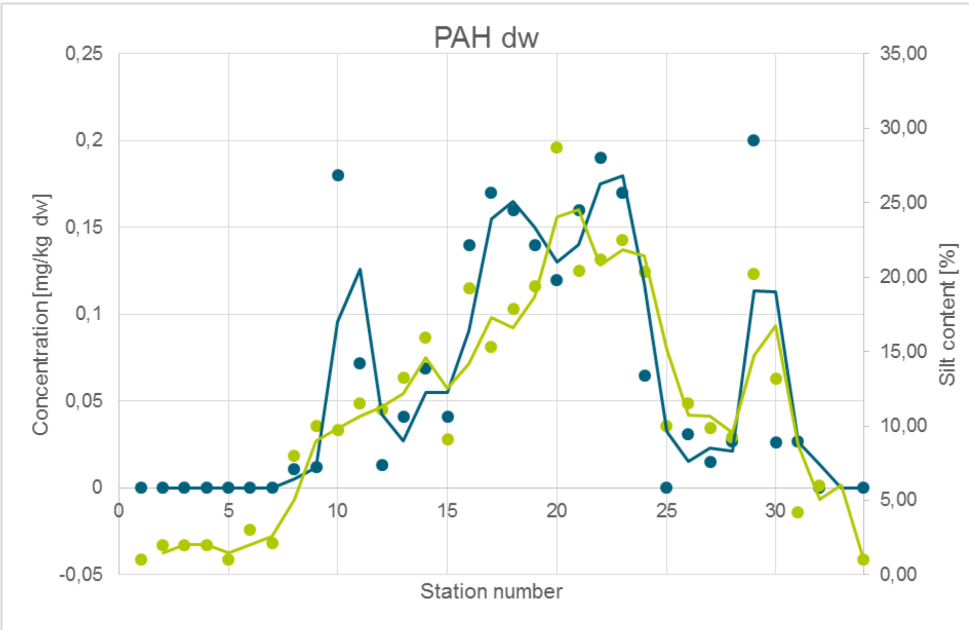

Figure 25: Sum of PAHs concentrations in mg/kg dw (blue) together with the silt content in % (green) per station.

4 DISCUSSION

4.1 Sediment Chemistry

The sediment chemistry showed no major contaminations in the survey area. Except for Arsenic all metals were within the concentration limits of the assessment criteria. Arsenic showed elevated concentration applying the ERL assessment criteria. It was within the normal range of the BAC concentration limit. As Arsenic is only assessed against the BAC (ICES 2018) there is no need for concerns about the higher value.

The observed elevated concentrations at the stations located towards the center of the route might be due to oil platforms in the surrounding area (OSPAR 2018). Additionally, currents might influence the accumulations of certain substances in this region. This is supported by the correlation of silt content and metal concentrations as well as PAHs concentrations. The silt as well as the metals and PAHs might originate from river runoff and ocean currents and are deposited in the area along the survey route.

The Hydrocarbons showed no noticeable trends and were all below the limit of quantification, except for station 26 with slightly elevated concentrations.

The analysis of the PAHs showed few elevations over the BAC concentrations. As all BAC ratios (observed value/ BAC value) were close to 1 there is no need for concerns. Additionally, all PAHs above the OSPAR limit, Pyrene, Fluoranthene, Chrysene and Benz(a)anthracene, are almost insoluble in water (IFA 2019). Therefore, the expected impact for the environment is neglectable.

5 REFERENCES

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6 APPENDIXES

Table 6: Sediment Chemistry Analysis – Trace Metals; green cells indicate values below the concentration limit, yellow cells indicate values at the concentration limit and red cells indicate values above the concentration limit.

Metal		***Aluminium***		***Arsenic***		***Lead***		***Cadmium***	
Assessment Criteria		**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**
Concentration limit		-	-	**25**	**8,2**	**38**	**47**	**0,31**	**1,2**
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***								
NC_NL_ 1	04.12.2018	1,000	1,000	7.6	7.6	2.2	2.2	<0.1	<0.1
NC_NL_ 2	04.12.2018	1,200	1,200	7.2	7.2	2.6	2.6	<0.1	<0.1
NC_NL_ 3	04.12.2018	1,200	1,200	9.9	9.9	3.1	3.1	<0.1	<0.1
NC_NL_ 4	04.12.2018	1,100	1,100	11	11	3.9	3.9	<0.1	<0.1
NC_NL_ 5	04.12.2018	1,100	1,100	9.6	9.6	3.8	3.8	<0.1	<0.1
NC_NL_ 6	04.12.2018	1,400	1,400	5.1	5.1	3.1	3.1	<0.1	<0.1
NC_NL_ 6	04.12.2018	2,100	2,100	4.8	4.8	4.7	4.7	<0.1	<0.1
NC_NL_ 8	04.12.2018	4,400	4,400	6.3	6.3	7.4	7.4	<0.1	<0.1
NC_NL_ 9	04.12.2018	2,800	2,800	3.8	3.8	5.0	5.0	<0.1	<0.1
NC_NL_ 10	25.11.2018	4,300	4,300	5.8	5.8	8.1	8.1	<0.1	<0.1
NC_NL_ 11	25.11.2018	4,900	4,900	6.7	6.7	11	11	0.16	0.16
NC_NL_ 12	25.11.2018	4,600	4,600	6.5	6.5	9.6	9.6	<0.1	<0.1
NC_NL_ 13	25.11.2018	4,400	4,400	6.7	6.7	9.8	9.8	0.14	0.14
NC_NL_ 14	25.11.2018	4,500	4,500	7.1	7.1	10	10	0.14	0.14
NC_NL_ 15	25.11.2018	4,200	4,200	6.2	6.2	9.2	9.2	0.13	0.13
NC_NL_ 16	25.11.2018	5,100	5,100	6.9	6.9	11	11	<0.1	<0.1

Metal		*Aluminium*		*Arsenic*		*Lead*		*Cadmium*	
Assessment Criteria		**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**
Concentration limit		-	-	**25**	**8,2**	**38**	**47**	**0,31**	**1,2**
Unit		*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*
Sample	***Date***								
NC_NL_ 17	25.11.2018	5,400	5,400	6.9	6.9	12	12	<0.1	<0.1
NC_NL_ 18	24.11.2018	6,100	6,100	7.3	7.3	11	11	<0.1	<0.1
NC_NL_ 19	24.11.2018	5,600	5,600	6.9	6.9	11	11	<0.1	<0.1
NC_NL_ 20	24.11.2018	5,600	5,600	6.7	6.7	11	11	<0.1	<0.1
NC_NL_ 21	24.11.2018	5,700	5,700	8.2	8.2	12	12	0.18	0.18
NC_NL_ 22	24.11.2018	5,400	5,400	6.3	6.3	11	11	0.14	0.14
NC_NL_ 23	24.11.2018	5,400	5,400	7.3	7.3	10	10	0.15	0.15
NC_NL_ 24	24.11.2018	4,200	4,200	6	6	9.2	9.2	0.14	0.14
NC_NL_ 25	23.11.2018	950	950	22	22	6.5	6.5	0.33	0.33
NC_NL_ 26	23.11.2018	3,700	3,700	5.8	5.8	8.8	8.8	0.12	0.12
NC_NL_ 27	23.11.2018	3,600	3,600	5.4	5.4	8.1	8.1	0.11	0.11
NC_NL_ 28	23.11.2018	3,500	3,500	5.4	5.4	7.8	7.8	<0.1	<0.1
NC_NL_ 29	23.11.2018	5,800	5,800	7.5	7.5	13	13	<0.1	<0.1
NC_NL_ 30	23.11.2018	3,000	3,000	4.6	4.6	7.3	7.3	<0.1	<0.1
NC_NL_ 31	22.11.2018	1,800	1,800	3.8	3.8	5.2	5.2	<0.1	<0.1
NC_NL_ 32	22.11.2018	1,300	1,300	4.1	4.1	4.6	4.6	<0.1	<0.1
NC_NL_ 34	22.11.2018	490	490	8.2	8.2	3.4	3.4	<0.1	<0.1

Table 7: Sediment Chemistry Analysis – Trace Metals; green cells indicate values below the concentration limit, yellow cells indicate values at the concentration limit and red cells indi-cate values above the concentration limit.

Metal		Chromium		Copper		Nickel		Mercury	
Assessment Crite-ria		BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL
Concentration limit		81	81	27	34	36	21	0,07	0,15
Unit		mg/kg dw	mg/kg dw	mg/kg dw	mg/kg dw	mg/kg dw	mg/kg dw	mg/kg dw	mg/kg dw
Sample	Date								
NC_NL_ 1	04.12.2018	6.6	6.6	<0.5	<0.5	3.6	3.6	<0.03	<0.03
NC_NL_ 2	04.12.2018	7.2	7.2	<0.5	<0.5	4.2	4.2	<0.03	<0.03
NC_NL_ 3	04.12.2018	6.5	6.5	<0.5	<0.5	3.9	3.9	<0.03	<0.03
NC_NL_ 4	04.12.2018	7.2	7.2	<0.5	<0.5	3.6	3.6	<0.03	<0.03
NC_NL_ 5	04.12.2018	7.1	7.1	<0.5	<0.5	3.6	3.6	<0.03	<0.03
NC_NL_ 6	04.12.2018	6.8	6.8	<0.5	<0.5	3.4	3.4	<0.03	<0.03
NC_NL_ 6	04.12.2018	11	11	0.67	0.67	4.6	4.6	<0.03	<0.03
NC_NL_ 8	04.12.2018	14	14	1.6	1.6	7.3	7.3	0.031	0.031
NC_NL_ 9	04.12.2018	9	9	1.0	1.0	5.1	5.1	<0.03	<0.03
NC_NL_ 10	25.11.2018	12	12	1.8	1.8	6.4	6.4	0.035	0.035
NC_NL_ 11	25.11.2018	15	15	3.5	3.5	8.8	8.8	0.064	0.064
NC_NL_ 12	25.11.2018	12	12	1.8	1.8	7.2	7.2	0.037	0.037
NC_NL_ 13	25.11.2018	13	13	2.6	2.6	8.6	8.6	0.041	0.041
NC_NL_ 14	25.11.2018	12	12	2.6	2.6	7.1	7.1	0.039	0.039
NC_NL_ 15	25.11.2018	11	11	2.3	2.3	6.5	6.5	0.033	0.033
NC_NL_ 16	25.11.2018	13	13	2.1	2.1	9.8	9.8	0.056	0.056
NC_NL_ 17	25.11.2018	14	14	3.2	3.2	9.0	9.0	0.0545	0.0545
NC_NL_ 18	24.11.2018	14	14	2.7	2.7	8.6	8.6	0.07	0.07
NC_NL_ 19	24.11.2018	14	14	2.6	2.6	8.8	8.8	0.042	0.042

Metal		***Chromium***		***Copper***		***Nickel***		***Mercury***	
Assessment Crite-ria		**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**
Concentration limit		**81**	**81**	**27**	**34**	**36**	**21**	**0,07**	**0,15**
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***								
NC_NL_ 20	24.11.2018	14	14	2.8	2.8	9.0	9.0	0.047	0.047
NC_NL_ 21	24.11.2018	15	15	3.5	3.5	9.5	9.5	0.052	0.052
NC_NL_ 22	24.11.2018	14	14	3.4	3.4	9.4	9.4	0.057	0.057
NC_NL_ 23	24.11.2018	14	14	3.5	3.5	9.2	9.2	0.041	0.041
NC_NL_ 24	24.11.2018	12	12	2.6	2.6	7.0	7.0	0.035	0.035
NC_NL_ 25	23.11.2018	4.7	4.7	<0.5	<0.5	2.3	2.3	<0.03	<0.03
NC_NL_ 26	23.11.2018	11	11	2.4	2.4	6.3	6.3	0.04	0.04
NC_NL_ 27	23.11.2018	10	10	2.2	2.2	5.8	5.8	0.032	0.032
NC_NL_ 28	23.11.2018	10	10	2.7	2.7	5.6	5.6	0.033	0.033
NC_NL_ 29	23.11.2018	15	15	3.7	3.7	9.5	9.5	0.046	0.046
NC_NL_ 30	23.11.2018	9.3	9.3	2.0	2.0	5.1	5.1	<0.03	<0.03
NC_NL_ 31	22.11.2018	6.7	6.7	0.99	0.99	3.2	3.2	<0.03	<0.03
NC_NL_ 32	22.11.2018	5.7	5.7	0.59	0.59	2.0	2.0	<0.03	<0.03
NC_NL_ 34	22.11.2018	2.6	2.6	<0.5	<0.5	0.87	0.87	<0.03	<0.03

Table 8: Sediment Chemistry Analysis – Trace Metals; green cells indicate values below the concentration limit, yellow cells indicate values at the concentration limit and red cells indi-cate values above the concentration limit.

Metal		***Zinc***	***Tin***

Assessment Criteria		BAC	ERL	BAC	ERL
Concentration limit		**122**	**150**	-	-
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***				
NC_NL_ 1	04.12.2018	10	10	<0.5	<0.5
NC_NL_ 2	04.12.2018	14	14	<0.5	<0.5
NC_NL_ 3	04.12.2018	14	14	<0.5	<0.5
NC_NL_ 4	04.12.2018	17	17	<0.5	<0.5
NC_NL_ 5	04.12.2018	18	18	<0.5	<0.5
NC_NL_ 6	04.12.2018	13	13	<0.5	<0.5
NC_NL_ 6	04.12.2018	20	20	<0.5	<0.5
NC_NL_ 8	04.12.2018	34	34	<0.5	<0.5
NC_NL_ 9	04.12.2018	22	22	<0.5	<0.5
NC_NL_ 10	25.11.2018	30	30	<0.5	<0.5
NC_NL_ 11	25.11.2018	38	38	<0.5	<0.5
NC_NL_ 12	25.11.2018	35	35	<0.5	<0.5
NC_NL_ 13	25.11.2018	38	38	<0.5	<0.5
NC_NL_ 14	25.11.2018	39	39	1.2	1.2
NC_NL_ 15	25.11.2018	37	37	<0.5	<0.5
NC_NL_ 16	25.11.2018	43	43	0.57	0.57
NC_NL_ 17	25.11.2018	44	44	7.4	7.4
NC_NL_ 18	24.11.2018	41	41	0.51	0.51
NC_NL_ 19	24.11.2018	43	43	1.0	1.0
NC_NL_ 20	24.11.2018	42	42	7.3	7.3
NC_NL_ 21	24.11.2018	45	45	<0.5	<0.5
NC_NL_ 22	24.11.2018	41	41	<0.5	<0.5

Metal		***Zinc***		***Tin***	
Assessment Crite-ria		**BAC**	**ERL**	**BAC**	**ERL**
Concentration limit		**122**	**150**	-	-
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***				
NC_NL_ 23	24.11.2018	40	40	<0.5	<0.5
NC_NL_ 24	24.11.2018	41	41	<0.5	<0.5
NC_NL_ 25	23.11.2018	14	14	<0.5	<0.5
NC_NL_ 26	23.11.2018	36	36	<0.5	<0.5
NC_NL_ 27	23.11.2018	33	33	<0.5	<0.5
NC_NL_ 28	23.11.2018	30	30	<0.5	<0.5
NC_NL_ 29	23.11.2018	45	45	7.2	7.2
NC_NL_ 30	23.11.2018	33	33	2.3	2.3
NC_NL_ 31	22.11.2018	25	25	7.7	7.7
NC_NL_ 32	22.11.2018	23	23	1.7	1.7
NC_NL_ 34	22.11.2018	11	11	0.62	0.62

Table 9: Sediment Chemistry Analysis – Polycyclic Aromatic Hydrocarbons (PAHs); green cells indicate values below the concentration limit, yellow cells indicate values at the concentration limit and red cells indicate values above the concentration limit.

PAH		***Naphthalene***	***Acenaph-thylene***	***Acenaph-thene***	***Fluorene***	***Phenanthrene***	***Anthracene***	***Fluoranthene***

Assessment Criteria		**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**
Concentra-tion limit		**0.008**	**0.160**	**-**	**-**	**-**	**-**	**-**	**-**	**0.032**	**0.240**	**0.005**	**0.085**	**0.039**	**0.600**
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***														
NC_NL_ 1	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 2	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 3	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 4	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 5	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 6	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 6	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 8	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.011	0.011	<0.01	<0.01	<0.01	<0.01
NC_NL_ 9	04.12.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 10	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.039	0.039	<0.01	<0.01	0.053	0.053
NC_NL_ 11	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.013	0.013	<0.01	<0.01	0.02	0.02
NC_NL_ 12	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 13	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.011	0.011	<0.01	<0.01	0.016	0.016
NC_NL_ 14	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.011	0.011	<0.01	<0.01	0.014	0.014
NC_NL_ 15	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.011	0.011	<0.01	<0.01	0.013	0.013
NC_NL_ 16	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	0.033	0.033
NC_NL_ 17	25.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.020	0.020	<0.01	<0.01	0.027	0.027
NC_NL_ 18	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.025	0.025	<0.01	<0.01	0.037	0.037
NC_NL_ 19	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.016	0.016	<0.01	<0.01	0.029	0.029
NC_NL_ 20	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.021	0.021	<0.01	<0.01	0.023	0.023

PAH		*Naphthalene*		*Acenaph-thylene*		*Acenaph-thene*		*Fluorene*		*Phenanthrene*		*Anthracene*		*Fluoranthene*	
Assessment Criteria		**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**	**BAC**	**ERL**
Concentra-tion limit		**0.008**	**0.160**	**-**	**-**	**-**	**-**	**-**	**-**	**0.032**	**0.240**	**0.005**	**0.085**	**0.039**	**0.600**
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***														
NC_NL_ 21	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.019	0.019	<0.01	<0.01	0.03	0.03
NC_NL_ 22	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.023	0.023	<0.01	<0.01	0.028	0.028
NC_NL_ 23	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	<0.01	0.028	0.028
NC_NL_ 24	24.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.016	0.016	<0.01	<0.01	0.021	0.021
NC_NL_ 25	23.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 26	23.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	0.018
NC_NL_ 27	23.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 28	23.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.014
NC_NL_ 29	23.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.028	0.028	<0.01	<0.01	0.023	0.023
NC_NL_ 30	23.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.012	0.012	<0.01	<0.01	<0.01	<0.01
NC_NL_ 31	22.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	0.012	0.012	<0.01	<0.01	0.015	0.015
NC_NL_ 32	22.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NC_NL_ 34	22.11.2018	<0.01	<0.01	<0.10	<0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table 10: Sediment Chemistry Analysis – Polycyclic Aromatic Hydrocarbons (PAHs); green cells indicate values below the concentration limit, yellow cells indicate values at the concentration limit and red cells indicate values above the concentration limit.

PAH		***Pyrene***	***Benzo(a)anthracene***	***Chrysene***	***Benzo(b)fluoranthene***	***Benzo(k)fluoranthene***	***Benzo(a)pyrene***	***Dibenzo(a,h)ant***

Assessment Criteria		BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL
Concentration limit		0.024	0.665	0.016	0.261	0.020	0.384	-	-	-	-	0.030	0.430	-	
Unit		*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg*
Sample	*Date*														
NC_NL_ 1	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 2	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 3	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 4	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 5	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 6	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 6	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 8	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 9	04.12.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 10	25.11.2018	<0.01	<0.01	0.019	0.019	0.024	0.024	0.021	0.021	0.011	0.011	0.013	0.013	<0.01	<
NC_NL_ 11	25.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.019	0.019	<0.01	<0.01	0.01	0.01	<0.01	<
NC_NL_ 12	25.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 13	25.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 14	25.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	0.017	<0.01	<0.01	0.011	0.011	<0.01	<
NC_NL_ 15	25.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 16	25.11.2018	<0.01	<0.01	0.017	0.017	0.018	0.018	0.026	0.026	0.014	0.014	0.013	0.013	<0.01	<
NC_NL_ 17	25.11.2018	0.033	0.033	0.012	0.012	0.013	0.013	0.023	0.023	0.011	0.011	0.015	0.015	<0.01	<
NC_NL_ 18	24.11.2018	<0.01	<0.01	0.019	0.019	0.019	0.019	0.025	0.025	0.015	0.015	0.017	0.017	<0.01	<
NC_NL_ 19	24.11.2018	<0.01	<0.01	0.016	0.016	0.016	0.016	0.024	0.024	0.012	0.012	0.012	0.012	<0.01	<
NC_NL_ 20	24.11.2018	<0.01	<0.01	0.014	0.014	0.013	0.013	0.025	0.025	0.011	0.011	0.01	0.01	<0.01	<

PAH		*Pyrene*		*Benzo(a)anthracene*		*Chrysene*		*Benzo(b)fluoranthene*		*Benzo(k)fluoranthene*		*Benzo(a)pyrene*		*Dibenzo(a,h)ant*	
Assessment Criteria		BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL	BAC	ERL
Concentration limit		0.024	0.665	0.016	0.261	0.020	0.384	-	-	-	-	0.030	0.430	-	
Unit		*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg/kg dw*	*mg*
Sample	*Date*														
NC_NL_ 21	24.11.2018	0.02	0.02	0.013	0.013	0.012	0.012	0.024	0.024	0.011	0.011	0.013	0.013	<0.01	<
NC_NL_ 22	24.11.2018	0.032	0.032	0.015	0.015	0.016	0.016	0.027	0.027	0.013	0.013	0.02	0.02	<0.01	<
NC_NL_ 23	24.11.2018	0.033	0.033	0.013	0.013	0.017	0.017	0.021	0.021	0.01	0.01	0.011	0.011	<0.01	<
NC_NL_ 24	24.11.2018	<0.01	<0.01	<0.01	<0.01	0.013	0.013	0.015	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 25	23.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 26	23.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 27	23.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 28	23.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 29	23.11.2018	0.036	0.036	0.016	0.016	0.018	0.018	0.029	0.029	0.014	0.014	0.014	0.014	<0.01	<
NC_NL_ 30	23.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 31	22.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 32	22.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<
NC_NL_ 34	22.11.2018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<

Table 11: Sediment Chemistry Analysis – Polycyclic Aromatic Hydrocarbons (PAHs); green cells indicate values below the concentration limit, yellow cells indicate values at the concentration limit and red cells indicate values above the concentration limit.

PAH		*Benzo(g,h,i)perylene*	*Indeno(1,2,3-cd)pyrene*	*PAH dw*

Assessment Criteria		**BAC**	**ERL**	**BAC**	**ERL**	
Concentration limit		**0.080**	**-**	**0.103**	**-**	
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***					
NC_NL_ 1	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 2	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 3	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 4	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 5	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 6	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 6	04.12.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 8	04.12.2018	<0.01	<0.01	<0.02	<0.02	0.011
NC_NL_ 9	04.12.2018	<0.01	<0.01	<0.02	<0.02	0.012
NC_NL_ 10	25.11.2018	<0.01	<0.01	<0.02	<0.02	0.18
NC_NL_ 11	25.11.2018	0.01	0.01	<0.02	<0.02	0.072
NC_NL_ 12	25.11.2018	<0.01	<0.01	<0.02	<0.02	0.013
NC_NL_ 13	25.11.2018	<0.01	<0.01	<0.02	<0.02	0.041
NC_NL_ 14	25.11.2018	0.016	0.016	<0.02	<0.02	0.069
NC_NL_ 15	25.11.2018	<0.01	<0.01	<0.02	<0.02	0.041
NC_NL_ 16	25.11.2018	<0.01	<0.01	<0.02	<0.02	0.14
NC_NL_ 17	25.11.2018	0.018	0.018	<0.02	<0.02	0.17
NC_NL_ 18	24.11.2018	<0.01	<0.01	<0.02	<0.02	0.16
NC_NL_ 19	24.11.2018	0.016	0.016	<0.02	<0.02	0.14
NC_NL_ 20	24.11.2018	<0.01	<0.01	<0.02	<0.02	0.12
NC_NL_ 21	24.11.2018	0.017	0.017	<0.02	<0.02	0.16

PAH		***Benzo(g,h,i)perylene***		***Indeno(1,2,3-cd)pyrene***		***PAH dw***
Assessment Criteria		**BAC**	**ERL**	**BAC**	**ERL**	
Concentration limit		**0.080**	**-**	**0.103**	**-**	
Unit		***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***	***mg/kg dw***
Sample	***Date***					
NC_NL_ 22	24.11.2018	0.018	0.018	<0.02	<0.02	0.19
NC_NL_ 23	24.11.2018	0.012	0.012	<0.02	<0.02	0.17
NC_NL_ 24	24.11.2018	<0.01	<0.01	<0.02	<0.02	0.065
NC_NL_ 25	23.11.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 26	23.11.2018	<0.01	<0.01	<0.02	<0.02	0.031
NC_NL_ 27	23.11.2018	<0.01	<0.01	<0.02	<0.02	0.015
NC_NL_ 28	23.11.2018	<0.01	<0.01	<0.02	<0.02	0.027
NC_NL_ 29	23.11.2018	0.017	0.017	<0.02	<0.02	0.2
NC_NL_ 30	23.11.2018	<0.01	<0.01	<0.02	<0.02	0.026
NC_NL_ 31	22.11.2018	<0.01	<0.01	<0.02	<0.02	0.027
NC_NL_ 32	22.11.2018	<0.01	<0.01	<0.02	<0.02	n.n.
NC_NL_ 34	22.11.2018	<0.01	<0.01	<0.02	<0.02	n.n.