

Table D9. Individual hydrocarbon and total petroleum hydrocarbon concentrations (in µg/g wet wt.) for ribbed mussels taken from Tufts Point marsh, a reference site.¹⁻³

Sample ID	Nonane (n-C ₉)	Decane (n-C ₁₀)	Undecane (n-C ₁₁)	Dodecane (n-C ₁₂)	Tridecane (n-C ₁₃)	Tetradecane (n-C ₁₄)	Pentadecane (n-C ₁₅)	Hexadecane (n-C ₁₆)	Heptadecane (n-C ₁₇)	Pristane	Octadecane (n-C ₁₈)	Phytane	Nonadecane (n-C ₁₉)	Eicosane (n-C ₂₀)	Heneicosane (n-C ₂₁)	Docosane (n-C ₂₂)	Tricosane (n-C ₂₃)
First Collection																	
197020403	0.90	nd	nd	nd	nd	0.12	nd	nd	0.20	nd	nd	nd	0.29	nd	2.55	nd	nd
197020404	0.97	nd	nd	nd	nd	nd	nd	nd	0.15	nd	nd	nd	0.20	nd	1.86	nd	nd
197020405	2.03	nd	nd	nd	nd	0.19	nd	nd	0.21	nd	nd	nd	0.34	nd	2.89	nd	nd
197020406	0.29	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	1.09	nd	nd
197020408	0.66	nd	nd	nd	nd	nd	nd	nd	0.16	nd	nd	nd	nd	nd	1.55	nd	nd
Average⁴	0.97	nd	nd	nd	nd	< MDL	nd	nd	0.15	nd	nd	nd	0.19	nd	1.99	nd	nd
Std Dev	0.65	-	-	-	-	-	-	-	0.07	-	-	-	0.13	-	0.73	-	-
Second Collection																	
497051427	nd	nd	nd	nd	nd	nd	nd	nd	0.25	nd	nd	nd	nd	nd	0.79	nd	nd
497051428	nd	nd	nd	nd	nd	nd	nd	nd	0.28	0.10	nd	nd	nd	nd	1.54	nd	nd
497051429	nd	nd	nd	nd	nd	nd	nd	nd	0.31	nd	nd	nd	1.16	nd	1.59	nd	nd
497051430	nd	nd	nd	nd	nd	nd	nd	0.15	0.32	0.12	0.13	0.11	0.19	nd	2.70	nd	3.05
497051431	nd	nd	nd	nd	nd	nd	nd	nd	0.14	nd	nd	nd	nd	nd	1.87	nd	nd
Average⁴	nd	nd	nd	nd	nd	nd	< MDL	0.26	< MDL	< MDL	< MDL	0.30	nd	1.70	nd	< MDL	
Std Dev	-	-	-	-	-	-	-	0.07	-	-	-	0.48	-	0.69	-	-	
MDL	0.24	0.06	0.12	0.12	0.11	0.11	0.11	0.09	0.08	0.10	0.10	0.10	0.11	0.21	0.38	0.68	2.47

Table D9. Continued.¹⁻³

Sample ID	Tetracosane (n-C ₂₄)	Pentacosane (n-C ₂₅)	Hexacosane (n-C ₂₆)	Heptacosane (n-C ₂₇)	Octacosane (n-C ₂₈)	Nonacosane (n-C ₂₉)	Triacontane (n-C ₃₀)	n-Hentriacontane (n-C ₃₁)	Dotriacontane (n-C ₃₂)	Tetracontane (n-C ₃₃)	Pentacontane (n-C ₃₄)	Hexatriacontane (n-C ₃₅)	Heptatriacontane (n-C ₃₆)	Octatriacontane (n-C ₃₇)	Nonatriacontane (n-C ₃₈)	Tetracontane (n-C ₄₀)	
First Collection																	
197020403	nd	nd	0.14	nd	nd	nd	nd	1.52	6.13	0.43	0.80	0.89	0.89	0.81	0.68	0.50	0.31
197020404	0.47	nd	0.13	0.40	1.00	9.82	nd	0.84	0.41	0.46	0.60	0.68	0.68	0.65	0.55	0.41	0.25
197020405	0.48	nd	0.14	0.44	1.97	nd	nd	0.55	0.68	0.69	0.77	0.86	0.87	0.80	0.68	0.50	0.31
197020406	nd	nd	nd	nd	nd	nd	nd	0.60	1.31	0.60	0.40	0.43	0.43	0.40	0.33	0.24	0.15
197020408	nd	nd	0.15	nd	nd	nd	nd	0.81	2.24	0.22	0.48	0.50	0.46	0.47	0.35	0.26	0.16
Average⁴	< MDL	nd	0.12	0.19	0.66	2.19	nd	0.86	2.15	0.48	0.61	0.67	0.67	0.63	0.52	0.38	0.24
Std Dev	-	-	0.04	0.21	0.83	4.27	-	0.39	2.33	0.18	0.18	0.21	0.22	0.19	0.17	0.13	0.08
Second Collection																	
497051427	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.12	0.07	nd
497051428	nd	nd	nd	0.16	nd	0.79	nd	nd	nd	nd	nd	0.12	0.12	nd	0.14	0.08	nd
497051429	nd	nd	nd	nd	nd	nd	nd	0.13	nd	nd	nd	nd	0.11	nd	0.13	0.08	nd
497051430	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.10	nd	0.12	0.07	nd
497051431	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Average⁴	nd	nd	nd	< MDL	nd	< MDL	nd	< MDL	nd	nd	nd	< MDL	< MDL	nd	0.11	0.07	nd
Std Dev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	0.02	-
MDL	0.29	0.27	0.11	0.08	0.20	0.56	0.48	0.11	0.14	0.11	0.09	0.10	0.10	0.18	0.08	0.06	0.06

Table D9. Continued.¹⁻³

Sample ID	Total Petroleum Hydrocarbons ⁵	Total Concentrations of Individual Hydrocarbons ^{6,7,15}	Total: Pristane + Phytane ^{6,15}	Pristane/n-C ₁₇ ¹⁶	Phytane/n-C ₁₈ ¹⁶	Total: Odd No Carbons ^{6,8,15}	Total: Even No Carbons ^{6,9,15}	Carbon Preference Index (CPI) ^{10,16}	Sum: C ₁₀ -C ₁₂ -C ₁₄ ^{6,11,15}	Sum: C ₂₂ -C ₂₄ -C ₂₆ -C ₂₈ ^{6,12,15}	Weathering Index (WI) ^{13,16}
First Collection											
197020403	260	20.2	nd	-	-	9.95	10.2	0.98	nd	nd	-
197020404	288	23.1	nd	-	-	18.0	5.02	3.58	nd	1.95	-
197020405	370	18.2	nd	-	-	11.1	6.96	1.60	nd	2.93	-
197020406	96.2	9.55	nd	-	-	5.60	3.85	1.46	nd	nd	-
197020408	158	11.7	nd	-	-	6.54	5.02	1.30	nd	nd	-
Average⁴	235	16.5	nd	-	-	10.2	6.21	1.65 ¹⁷	nd	1.40	-
Std Dev	108	5.75	-	-	-	4.90	2.49	-	-	1.01	-
Second Collection											
497051427	99.8	nd	nd	-	-	nd	nd	-	nd	nd	-
497051428	143	nd	nd	0.37	-	nd	nd	-	nd	nd	-
497051429	118	nd	nd	-	-	5.44	nd	-	nd	nd	-
497051430	185	9.32	0.23	0.38	0.90	1.08	7.33	nd	nd	nd	-
497051431	69.9	nd	nd	-	-	nd	nd	-	nd	nd	-
Average⁴	123	< MDL	< MDL	-	-	< MDL	nd	-	nd	nd	-
Std Dev	43.7	-	-	-	-	-	-	-	-	-	-
MDL	53.6	8.19 ¹⁴	0.19 ¹⁴			5.09 ¹⁴	2.91 ¹⁴		0.29 ¹⁴	1.29 ¹⁴	

Table D9. Continued.**Footnotes:**

- ¹ The concentrations of the individual aliphatic hydrocarbons and the total petroleum hydrocarbons were determined using external standard calculations.
- ² When an individual aliphatic hydrocarbon was not detected, its concentration was replaced by nd.
- ³ The concentrations for n-C₈ will be not reported, since it was difficult to identify this peak in samples and to determine MDL for n-C₈.
- ⁴ If all concentrations are nd, the average is replaced with nd. When there is at least one number in the data set to be averaged, each nd is replaced with 1/2*MDL, and an average is calculated. If this numeric value is less than the MDL, the average is replaced by < MDL; otherwise, the average is the calculated value. When a numeric value is found for the average, the standard deviation is then determined using the same number set used to calculate the average.
- ⁵ Determined from the total peak areas in the chromatogram from n-C₈ to n-C₄₀ minus any contributions from the internal standard areas.
- ⁶ These formulae use 1/2MDL values for each analyte not detected.
- ⁷ Sum of the concentrations of the individual aliphatic hydrocarbons n-C₉ through n-C₄₀ plus the concentrations of pristane and phytane.
- ⁸ The total of the concentrations of the aliphatic hydrocarbons with an odd number of carbon atoms.
- ⁹ The total of the concentrations of the aliphatic hydrocarbons with an even number of carbon atoms. The contribution of n-C₈ is not included in the total.
- ¹⁰ Carbon Preference Index (CPI) is defined as the ratio of the total of the concentrations of the aliphatic hydrocarbons with an odd number of carbons to the total concentration of the aliphatic hydrocarbons with an even carbon number.
- ¹¹ The total of the concentrations of n-C₁₀, n-C₁₂, and n-C₁₄.
- ¹² The total of the concentrations of n-C₂₂, n-C₂₄, n-C₂₆, and n-C₂₈.
- ¹³ Weathering Index (WI) is defined as the ratio of the total concentration of n-C₁₀, n-C₁₂, and n-C₁₄ to the total concentration of n-C₂₂, n-C₂₄, n-C₂₆, and n-C₂₈.
- ¹⁴ These MDL values are calculated with the same summation formulae as the samples using the individual hydrocarbon MDL values.
- ¹⁵ The summation totals for the samples are compared with calculated MDL values obtained using the same summation formulae as the samples. When these sample totals were less than the total MDL, its value was replaced by nd. The averages and standard deviations for the totals were treated in the same way as the individual hydrocarbons; see footnote 4.
- ¹⁶ Numerical values of the CPI, WI, and the ratios: pristane/n-C₁₇, phytane/n-C₁₈, and pristane/phytane, will be calculated only when the defined quantity for each index or ratio has a numeric value.
- ¹⁷ These results are not true averages, instead they are the ratios of the averages of the defined quantities, if these averages exist.