Table S1. Environmental variables (mean ± SD) for four seasons at the four sampling locations. Dep, depth; Sal, salinity; T, temperature; PCs, petroleum contaminants in sediments; TOC, total organic carbon in sediments; As, arsenium in sediments; Hg, mercury in sediments.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Samples | Dep(m) | Sal(psu) | T(℃) | DO(mg/L) | Chl-*a*(μg/L) | PO43-(mg/L) | NH4+(mg/L) | PCs(mg/kg) | TOC(mg/kg) | As(mg/kg) | Hg(mg/kg) | Sediment type |
| **Autumn** |  |  |  |  |  |  |  |  |  |  |  |  |
| SED | 4.7±0.5 | 31.8±0.2 | 24.2±0.3 | 8.1±0.4 | 3.07±0.73 | 0.002±0.001 | 0.018±0.008 | 218.6±105.5 | 1.97±0.37 | 7.24±1.53 | 0.056±0.028 | Silty Clay |
| MRC | 4.7±3.0 | 32.0±0.4 | 24.0±0.0 | 8.2±0.3 | 1.7±1.05 | 0.006±0.008 | 0.012±0.006 | 134.5±17.5 | 1.40±0.64 | 6.58±1.81 | 0.052±0.020 | Silty Clay |
| NTD | 12.2±2.2 | 33.9±0.7 | 24.2.±1.7 | 7.0±0.8 | 1.72±0.26 | 0.003±0.003 | 0.006±0.001 | 121.4±86.0 | 1.85±0.51 | 6.57±1.15 | 0.031±0.003 | Silty Clay |
| REF | 16.3±1.0 | 32.7±0.4 | 25.6±0.5 | 8.4±0.0 | 1.46±0.08 | 0.005±0.003 | 0.005±0.000 | 78.1±44.7 | 1.53±0.29 | 6.17±0.61 | 0.029±0.004 | Silty Clay |
| **Winter** |  |  |  |  |  |  |  |  |  |  |  | Silty Clay |
| SED | 4.7±0.5 | 30.5±0.2 | 16.4±0.3 | 11.1±1.0 | 5.95±3.88 | 0.001±0.000 | 0.042±0.051 | 203.6±102.9 | 1.98±0.41 | 7.00±1.52 | 0.055±0.021 | Silty Clay |
| MRC | 4.7±3.0 | 30.2±0.4 | 16.3±0.2 | 9.6±0.5 | 1.99±1.10 | 0.009±0.012 | 0.066±0.067 | 133.1±15.6 | 1.42±0.56 | 6.19±1.62 | 0.054±0.027 | Silty Clay |
| NTD | 12.2±2.2 | 31.1±0.9 | 15.6±1.2 | 11.2±3.1 | 1.27±0.37 | 0.011±0.007 | 0.015±0.005 | 93.9±31.6 | 1.93±0.45 | 6.80±1.50 | 0.037±0.007 | Silty Clay |
| REF | 16.3±1.0 | 32.0±0.2 | 16.7±0.2 | 9.4±0.2 | 2.18±1.57 | 0.011±0.005 | 0.013±0.002 | 71.9±20.4 | 1.77±0.42 | 5.85±0.60 | 0.034±0.008 | Silty Clay |
| **Spring** |  |  |  |  |  |  |  |  |  |  |  | Silty Clay |
| SED | 4.7±0.5 | 29.9±0.0 | 22.7±0.1 | 7.5±0.0 | 1.18±0.30 | 0.012±0.004 | 0.134±0.029 | 202.1±89.9 | 1.95±0.46 | 6.79±1.30 | 0.054±0.024 | Silty Clay |
| MRC | 4.7±3.0 | 30.0±0.2 | 23.6±0.6 | 7.5±0.0 | 0.97±0.21 | 0.010±0.004 | 0.049±0.043 | 130.2±24.1 | 1.53±0.60 | 6.47±1.86 | 0.052±0.020 | Silty Clay |
| NTD | 12.2±2.2 | 30.7±0.5 | 23.1±1.1 | 7.3±0.4 | 0.78±0.27 | 0.005±0.002 | 0.003±0.001 | 99.3±47.6 | 1.84±0.48 | 6.39±1.05 | 0.030±0.004 | Silty Clay |
| REF | 16.3±1.0 | 32.3±0.1 | 20.3±0.2 | 7.9±0.1 | 0.55±0.08 | 0.005±0.002 | 0.037±0.012 | 71.3±26.6 | 1.64±0.38 | 6.13±0.67 | 0.031±0.008 | Silty Clay |
| **Summer** |  |  |  |  |  |  |  |  |  |  |  | Silty Clay |
| SED | 4.7±0.5 | 29.5±0.1 | 28.2±0.3 | 6.9±0.6 | 6.63±3.33 | 0.003±0.002 | 0.008±0.008 | 213.2±56.4 | 2.11±0.36 | 6.47±1.01 | 0.055±0.021 | Silty Clay |
| MRC | 4.7±3.0 | 29.2±0.4 | 28.3±0.3 | 7.4±0.3 | 3.10±2.33 | 0.002±0.001 | 0.003±0.003 | 127.0±22.6 | 1.39±0.62 | 5.93±1.64 | 0.046±0.017 | Silty Clay |
| NTD | 12.2±2.2 | 30.7±2.2 | 28.3±2.4 | 7.7±0.7 | 4.27±1.57 | 0.001±0.002 | 0.009±0.003 | 108.1±64.4 | 1.86±0.50 | 6.14±1.26 | 0.030±0.002 | Silty Clay |
| REF | 16.3±1.0 | 32.8±0.1 | 28.2±0.2 | 8.4±0.3 | 1.21±0.26 | 0.001±0.001 | 0.027±0.005 | 71.0±15.3 | 1.71±0.36 | 6.04±0.26 | 0.031±0.006 | Silty Clay |