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|  |  | **Western Lake Erie** | | |  | **Chesapeake Bay** | | |
|  |  | **Upland** | **Transition** | **Wetland** |  | **Upland** | **Transition** | **Wetland** |
| **Total C, %** | CRC  PTR  OWC | 7.14 ± 0.42 a β  7.27 ± 0.26 a α  5.11 ± 0.39 b α | 12.02 ± 0.96 a α  10.08 ± 1.87 ab α  6.48 ± 0.46 b α | 7.66 ± 0.33 a β  7.71 ± 0.25 a α  6.5 ± 0.58 a α | MSM  GWI  GCW | 32.64 ± 1.09 a α  32.26 ± 1.67 a α  4.22 ± 0.48 b ψ | 29.67 ± 1.33 a α  26.27 ± 1.53 a α  7.63 ± 0.76 b β | 32.86 ± 2.1 a α  14.51 ± 2.83 b β  30.76 ± 0.81 a α |
| mean | 6.51 ± 0.28 B | 9.64 ± 0.84 A | 7.39 ± 0.22 B | mean | 23.04 ± 2.85 A | 20 ± 2.42 A | 26.13 ± 2.1 A |
| **Total N, %** | CC  PR  OWC | 0.52 ± 0.03 a β  0.57 ± 0.02 a α  0.36 ± 0.02 b β | 0.83 ± 0.05 a α  0.81 ± 0.15 a α  0.45 ± 0.03 b αβ | 0.73 ± 0.04 a α  0.68 ± 0.02 a α  0.51 ± 0.04 b α | MSM  GWI  GCW | 1.13 ± 0.07 a β  1.26 ± 0.07 a α  0.23 ± 0.03 b ψ | 1.52 ± 0.08 a α  1.22 ± 0.07 b α  0.41 ± 0.04 c β | 1.71 ± 0.09 a α  0.73 ± 0.13 b β  1.61 ± 0.02 a α |
| mean | 0.48 ± 0.02 B | 0.71 ± 0.06 A | 0.65 ± 0.02 A | mean | 0.87 ± 0.1 B | 1 ± 0.12 B | 1.35 ± 0.11 A |
| **Total S, %** | CC  PR  OWC | 0.05 ± 0 a ψ  0.06 ± 0 a β  0.03 ± 0 b β | 0.15 ± 0.01 a β  0.09 ± 0.02 b αβ  0.04 ± 0 c β | 0.21 ± 0.03 a α  0.13 ± 0.01 b α  0.09 ± 0.01 b α | MSM  GWI  GCW | 0.19 ± 0.05 a β  0.15 ± 0.01 a β  0.02 ± 0 b β | 0.43 ± 0.06 a β  0.27 ± 0.02 b αβ  0.06 ± 0.01 c β | 1.74 ± 0.13 a α  0.4 ± 0.08 b α  1.84 ± 0.08 a α |
| mean | 0.05 ± 0 C | 0.09 ± 0.01 B | 0.14 ± 0.01 A | mean | 0.12 ± 0.02 B | 0.22 ± 0.04 B | 1.32 ± 0.15 A |
| **pH** | CC  PR  OWC | 6.71 ± 0.06 a α  6.01 ± 0.15 b α  6.2 ± 0.18 b β | 6.51 ± 0.11 ab α  6.03 ± 0.26 b α  6.97 ± 0.1 a α | 6.72 ± 0.15 a α  6.57 ± 0.16 a α  6.36 ± 0.1 a β | MSM  GWI  GCW | 4.16 ± 0.08 b β  4.61 ± 0.17 b ψ  5.22 ± 0.13 a α | 5.18 ± 0.16 b α  6.55 ± 0.05 a α  4.6 ± 0.07 c β | 4.72 ± 0.23 b αβ  5.92 ± 0.1 a β  5.5 ± 0.06 a α |
| mean | 6.31 ± 0.1 A | 6.5 ± 0.12 A | 6.56 ± 0.09 A | mean | 4.67 ± 0.12 B | 5.44 ± 0.18 A | 5.36 ± 0.13 A |
| **Specific Conductance, mS/cm** | CC  PR  OWC | 0.11 ± 0 ab β  0.12 ± 0.01 a β  0.08 ± 0.01 b β | 0.11 ± 0 ab β  0.12 ± 0.01 a β  0.08 ± 0.01 b β | 0.11 ± 0 ab β  0.12 ± 0.01 a β  0.08 ± 0.01 b β | MSM  GWI  GCW | 0.61 ± 0.07 a ψ  0.82 ± 0.24 a β  0.05 ± 0.03 b β | 1.79 ± 0.14 a β  1.95 ± 0.13 a α  0.05 ± 0.01 b β | 6.12 ± 0.43 a α  0.68 ± 0.17 c β  4.94 ± 0.2 b α |
| mean | 0.1 ± 0.01 B | 0.1 ± 0.01 B | 0.1 ± 0.01 B | mean | 0.49 ± 0.1 B | 1.26 ± 0.19 B | 3.82 ± 0.52 A |
| **% OM** | CC  PR  OWC | 15.01 ± 0.82 a β  15.05 ± 0.51 a α  10.89 ± 0.76 b α | 24.82 ± 2.15 a α  21.14 ± 4.14 a α  15.44 ± 2.21 a α | 15.6 ± 1.05 a β  17.26 ± 0.54 a α  NA | MSM  GWI  GCW | 73.29 ± 4.89 a α  64.23 ± 4.09 a α  7.7 ± 0.91 b ψ | 75.59 ± 1.68 a α  62.47 ± 3.02 b α  14.04 ± 1.15 c β | 70.12 ± 2.04 a α  26.38 ± 4.48 b β  66.41 ± 1.39 a α |
| mean | 13.65 ± 0.55 B | 20.47 ± 1.82 A | 16.64 ± 0.53 B | mean | 48.41 ± 6.39 A | 50.7 ± 5.64 A | 54.94 ± 4.32 A |

|  | **Western Lake Erie** | | | | **Chesapeake Bay** | | | |
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| **name** | **site** | **upland** | **transition** | **wetland** | **site** | **upland** | **transition** | **wetland** |
| **Al (meq/100g)** | CRC  PTR  OWC | 0 ± 0 a α  0.02 ± 0 a α  0.03 ± 0.03 a α | 0 ± 0 a α  0.04 ± 0.03 a α  0 ± 0 a α | 0 ± 0 a α  0 ± 0 a α  0 ± 0 a α | GCW  MSM  GWI | 1.63 ± 0.77 ab β  2.59 ± 0.25 a α  0.61 ± 0.17 b α | 4.01 ± 0.77 a α  0.44 ± 0.24 b β  0.02 ± 0.01 b β | 0.06 ± 0.03 a β  0.26 ± 0.15 a β  0.08 ± 0.03 a β |
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|  |
| Mean | 0.02 ± 0.01 A | 0.02 ± 0.01 A | 0 ± 0 A | Mean | 1.61 ± 0.31 B | 1.49 ± 0.45 B | 0.14 ± 0.06 A |  |
| **Ca (meq/100g)** | CRC  PTR  OWC | 9.63 ± 0.41 a β  8.67 ± 0.21 a ψ  5.33 ± 0.46 b β | 15.4 ± 1.09 a α  10.82 ± 0.77 b β  8.86 ± 0.58 b α | 17.12 ± 1.71 a α  14 ± 0.49 a α  9.17 ± 0.97 b α | GCW  MSM  GWI | 3.84 ± 0.58 a β  1.38 ± 0.2 b β  3.01 ± 0.19 a β | 1.02 ± 0.1 c ψ  4.97 ± 0.56 b α  9.26 ± 0.34 a α | 8.76 ± 0.45 a α  5.01 ± 0.48 b α  3.21 ± 0.46 c β |  |
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| Mean | 7.88 ± 0.42 C | 11.69 ± 0.71 B | 13.67 ± 0.77 A | Mean | 2.74 ± 0.29 B | 5.08 ± 0.73 A | 5.5 ± 0.53 A |  |
| **K (meq/100g)** | CRC  PTR  OWC | 0.81 ± 0.06 b α  1.12 ± 0.09 a α  0.77 ± 0.05 b α | 0.52 ± 0.06 a β  1.04 ± 0.24 a αβ  0.73 ± 0.16 a α | 0.48 ± 0.07 ab β  0.58 ± 0.08 a β  0.2 ± 0.02 b β | GCW  MSM  GWI | 0.56 ± 0.07 b β  0.48 ± 0.06 b β  1.05 ± 0.08 a β | 0.48 ± 0.04 c β  0.73 ± 0.07 b β  2.14 ± 0.08 a α | 2.77 ± 0.15 a α  2.87 ± 0.23 a α  1.68 ± 0.26 b α |  |
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|  |
| Mean | 0.9 ± 0.05 B | 0.76 ± 0.1 B | 0.46 ± 0.05 A | Mean | 0.7 ± 0.07 C | 1.12 ± 0.16 B | 2.44 ± 0.17 A |  |
| **Mg (meq/100g)** | CRC  PTR  OWC | 3.62 ± 0.12 a β  2.3 ± 0.16 b ψ  1.94 ± 0.13 b β | 5.55 ± 0.35 a α  3.47 ± 0.37 b β  3.18 ± 0.43 b α | 4.68 ± 0.29 b α  5.9 ± 0.29 a α  2.87 ± 0.26 c αβ | GCW  MSM  GWI | 2.53 ± 0.46 a β  8.47 ± 4.4 a β  8.98 ± 0.67 a β | 2.32 ± 0.21 c β  17.02 ± 2.03 b αβ  35.19 ± 1.33 a α | 32.56 ± 0.81 a α  24.85 ± 2.49 a α  14.81 ± 2.45 b β |  |
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| Mean | 2.62 ± 0.16 C | 4.07 ± 0.3 B | 4.8 ± 0.28 A | Mean | 6.66 ± 1.55 B | 18.18 ± 2.91 A | 23.75 ± 1.91 A |  |
| **Na (meq/100g)** | CRC  PTR  OWC | 0.05 ± 0.01 a β  0.06 ± 0.01 a ψ  0.03 ± 0 b ψ | 0.34 ± 0.05 a α  0.16 ± 0.02 b β  0.09 ± 0.01 b β | 0.38 ± 0.03 a α  0.38 ± 0.02 a α  0.2 ± 0.01 b α | GCW  MSM  GWI | 0.04 ± 0 c β  5.93 ± 0.44 b β  14.78 ± 1.45 a β | 0.49 ± 0.16 c β  18.75 ± 0.79 b β  39.72 ± 1.24 a α | 81.46 ± 4.01 a α  95.73 ± 9.81 a α  47.38 ± 9.84 b α |  |
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|  |
| Mean | 0.05 ± 0 C | 0.19 ± 0.03 B | 0.34 ± 0.02 A | Mean | 6.92 ± 1.35 C | 19.65 ± 3.37 B | 75.45 ± 6.5 A |  |
| **CEC (meq/100g)** | CRC  PTR  OWC | 14.11 ± 0.46 a β  12.17 ± 0.17 b ψ  8.1 ± 0.58 c β | 21.8 ± 1.38 a α  15.53 ± 1.06 b β  12.87 ± 0.58 b α | 22.67 ± 1.93 a α  20.86 ± 0.61 a α  12.44 ± 1.24 b α | GCW  MSM  GWI | 8.61 ± 1.08 b β  18.85 ± 4.54 ab β  28.43 ± 2.31 a β | 8.32 ± 0.64 c β  41.92 ± 2.92 b β  86.31 ± 2.66 a α | 125.6 ± 4.49 a α  128.72 ± 12.77 a α  67.16 ± 12.9 b α |  |
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|  |
| Mean | 11.46 ± 0.55 C | 16.73 ± 0.94 B | 19.26 ± 0.98 A | Mean | 18.63 ± 2.37 C | 45.52 ± 6.78 B | 107.29 ± 8.65 A |  |

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|  | **Western Lake Erie** | | | | **Chesapeake Bay** | | | |
|  | **site** | **upland** | **transition** | **wetland** | **site** | **upland** | **transition** | **wetland** |
| **Chloride (meq/100g)** |  |  |  |  |  |  |  |  |  |
| CRC  PTR  OWC | 0.01 ± 0 a ψ  0.01 ± 0 a ψ  0 ± 0 a ψ | 0.27 ± 0.04 a α  0.09 ± 0.02 b β  0.03 ± 0.01 b β | 0.17 ± 0.03 a β  0.19 ± 0.02 a α  0.07 ± 0.01 b α | GCW  MSM  GWI | 0.02 ± 0 b β  4.83 ± 0.67 a β  6.13 ± 2.06 a β | 0.15 ± 0.07 b β  20.55 ± 1.55 a β  22.34 ± 1.7 a α | 104.7 ± 3.83 a α  105.8 ± 20.94 a α  2.77 ± 1.83 b β |  |
| Mean | 0.01 ± 0 B | 0.13 ± 0.02 A | 0.15 ± 0.02 A | Mean | 3.66 ± 0.88 B | 14.35 ± 2.22 B | 72.48 ± 12.23 A |  |
| **Sulfate (meq/100g)** | CRC  PTR  OWC | 0.04 ± 0 ab β  0.05 ± 0.01 a β  0.03 ± 0 b β | 0.64 ± 0.21 a β  0.14 ± 0.03 b β  0.07 ± 0.01 b β | 6.66 ± 0.93 a α  2.67 ± 0.67 b α  1.87 ± 0.21 b α | GCW  MSM  GWI | 0.01 ± 0 b β  0.28 ± 0.03 a β  0.6 ± 0.2 a β | 0.13 ± 0.03 b β  2.17 ± 0.16 a β  2.07 ± 0.17 a β | 42.56 ± 4.45 a α  24.04 ± 2.25 a α  5.98 ± 1.69 b α |  |
| Mean | 0.04 ± 0 B | 0.28 ± 0.08 B | 3.59 ± 0.53 A | Mean | 0.3 ± 0.08 B | 1.46 ± 0.21 B | 24.19 ± 3.41 A |  |

**Summary of other extractable nutrients.** Data are presented as mean +/- standard error for each site, followed by a mean across all sites for the given transect position (highlighted in grey). Different lower-case letters denote statistically significant differences among sites for a given transect position. Different upper-case letters denote statistically significant differences among transect positions for a given region. Different Greek letters denote significant differences among transect positions for a given site.

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|  | **Western Lake Erie** | | | | **Chesapeake Bay** | | | |
|  | **site** | **upland** | **transition** | **wetland** | **site** | **upland** | **transition** | **wetland** |
| **P (μg/g)** | CRC  PTR  OWC | 42.06 ± 20.21 b αβ  204.26 ± 13.9 a α  20.92 ± 4.11 b ψ | 19.21 ± 2.42 b β  256.48 ± 58.33 a α  160.87 ± 17.34 a α | 98.89 ± 27.71 a α  58.02 ± 12.19 a β  109.85 ± 9.38 a β | GCW  MSM  GWI | 4.7 ± 0.65 b β  3.54 ± 0.85 b β  29.24 ± 8.79 a α | 5.21 ± 0.83 b β  6.24 ± 1.05 b β  11.74 ± 1.58 a α | 78.17 ± 23.41 a α  42.88 ± 9.42 ab α  21.4 ± 3.92 b α |
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| Mean | 74.68 ± 17.69 B | 145.52 ± 27.31 A | 82.47 ± 10.47 B | Mean | 12.88 ± 3.89 B | 7.73 ± 0.89 B | 47.3 ± 9.23 A |  |
| **Fe (μg/g)** | CRC  PTR  OWC | 70.17 ± 5.16 a β  44.43 ± 3.99 b β  22.35 ± 2 c β | 125.33 ± 20.61 a β  100.32 ± 12.53 a β  96.64 ± 14.37 a α | 217.76 ± 31.3 a α  239.89 ± 18.87 a α | GCW  MSM  GWI | 27.02 ± 8.15 b β  206.15 ± 48.38 a αβ  40.55 ± 18.91 b β | 160.38 ± 55.32 b α  314.44 ± 38.4 ab α  488.66 ± 82.05 a α | 71.78 ± 18.88 a αβ  105.57 ± 51.87 a β  84.22 ± 22.21 a β |  |
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|  |
| Mean | 45.65 ± 4.41 C | 107.43 ± 9.33 B | 232.19 ± 16.16 A | Mean | 86.24 ± 22.99 B | 313.88 ± 43.08 A | 89.33 ± 21.62 B |  |
| **NH4-N (μg/g)** | CRC  PTR  OWC | 13.11 ± 0.41 a β  11.42 ± 0.44 a β  12.76 ± 0.85 a β | 21.67 ± 0.92 a α  16.3 ± 2.5 ab β  13.82 ± 0.7 b β | 23.88 ± 2.69 a α  25.07 ± 1.75 a α  18.96 ± 0.89 a α | GCW  MSM  GWI | 23.04 ± 1.16 b α  35.77 ± 2.64 a β  22.94 ± 2.01 b β | 10.04 ± 3.79 b β  76.28 ± 11.55 a αβ  94.56 ± 9.2 a α | 24.9 ± 3.61 b α  162.03 ± 47.19 a α  37.95 ± 6.01 b β |  |
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|  |
| Mean | 12.43 ± 0.36 C | 17.26 ± 1.09 B | 23.21 ± 1.19 A | Mean | 27.25 ± 1.68 B | 60.29 ± 8.99 AB | 78.44 ± 20.9 A |  |
| **NO3-N (μg/g)** | CRC  PTR  OWC | 67.73 ± 3.54 a α  62.81 ± 8.87 a α  47.15 ± 6.61 a α | 81.33 ± 17.59 a α  104.64 ± 49.04 a α  30.17 ± 6.1 a αβ | 89.41 ± 23.97 a α  89.92 ± 14.27 a α  24.42 ± 3.98 b β | GCW  MSM  GWI | 0.74 ± 0.02 c ψ  2.3 ± 0.1 a α  1.64 ± 0.14 b β | 0.94 ± 0.06 b β  3.39 ± 0.19 a α  4.44 ± 0.96 a α | 4.82 ± 0.07 a α  11.56 ± 5.89 a α  2.19 ± 0.31 a β |  |
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|  |
| Mean | 59.23 ± 4.1 A | 72.05 ± 17.87 A | 73.4 ± 10.56 A | Mean | 1.56 ± 0.14 B | 2.92 ± 0.44 AB | 6.4 ± 2.2 A |  |

**Summary of water-extractable forms of carbon.** Data are presented as mean +/- standard error for each site, followed by a mean across all sites for the given transect position (highlighted in grey). Different lower-case letters denote statistically significant differences among sites for a given transect position. Different upper-case letters denote statistically significant differences among transect positions for a given region. Different Greek letters denote significant differences among transect positions for a given site.

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|  | **Western Lake Erie** | | | | **Chesapeake Bay** | | | |
|  | **site** | **upland** | **transition** | **wetland** | **site** | **upland** | **transition** | **wetland** |
| **WEOC (μg/g)** | CRC  PTR  OWC | 59.99 ± 5.28 a α  57.06 ± 12.28 a α  69.42 ± 4.88 a α | 74.44 ± 8.36 a α  90.03 ± 27.16 a α  78.73 ± 7.29 a α | 65.89 ± 11.19 a α  57.61 ± 5.78 a α  49.48 ± 2.69 a β | GCW  MSM  GWI | 51.39 ± 8.31 b β  757.13 ± 46.66 a α  790.88 ± 95.92 a α | 81.12 ± 10.06 b β  644.88 ± 38.71 a α  631.41 ± 31.9 a α | 186.51 ± 9.32 b α  334.37 ± 28.22 a β  296.25 ± 59.36 ab β |
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| Mean | 62.16 ± 4.67 AB | 81.07 ± 9.48 A | 57.9 ± 4.21 B | Mean | 533.13 ± 78.83 B | 452.47 ± 57.14 B | 274.86 ± 24.41 A |  |
| **WEIC (μg/g)** | CRC  PTR  OWC | 5.17 ± 0.72 NA β  2.1 ± 0.79 NA β  6.2 ± 1.13 NA α | 33.32 ± 8.92 NA β  5.32 ± 1.56 NA β  24.06 ± 8.31 NA α | 127.33 ± 35.61 NA α  92.44 ± 20.63 NA α  8.4 ± 3.18 NA α | MSM  GWI | 0 ± 0 NA α  0 ± 0 NA β | 4.82 ± 4.4 NA α  86.98 ± 18.55 NA α | 10.33 ± 8.58 NA α  17.75 ± 5.12 NA β |  |
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|  |
| Mean | 4.42 ± 0.6 B | 20.9 ± 4.55 B | 81.24 ± 15.71 A | Mean | 0 ± 0 B | 45.9 ± 14.05 A | 13.82 ± 5.07 B |  |

| **name** | **region** | **site** | **upland** | **transition** | **wetland** |
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| percentOM | CB | GCW | 7.7 ± 0.91 b ψ | 14.04 ± 1.15 c β | 66.41 ± 1.39 a α |
| percentOM | CB | MSM | 73.29 ± 4.89 a α | 75.59 ± 1.68 a α | 70.12 ± 2.04 a α |
| percentOM | CB | GWI | 64.23 ± 4.09 a α | 62.47 ± 3.02 b α | 26.38 ± 4.48 b β |
| percentOM | CB | *NA* | 48.41 ± 6.39 A | 50.7 ± 5.64 A | 54.94 ± 4.32 A |
| pH | CB | GCW | 5.22 ± 0.13 a α | 4.6 ± 0.07 c β | 5.5 ± 0.06 a α |
| pH | CB | MSM | 4.16 ± 0.08 b β | 5.18 ± 0.16 b α | 4.72 ± 0.23 b αβ |
| pH | CB | GWI | 4.61 ± 0.17 b ψ | 6.55 ± 0.05 a α | 5.92 ± 0.1 a β |
| pH | CB | *NA* | 4.67 ± 0.12 B | 5.44 ± 0.18 A | 5.36 ± 0.13 A |
| spConductance\_mscm | CB | GCW | 0.05 ± 0.03 b β | 0.05 ± 0.01 b β | 4.94 ± 0.2 b α |
| spConductance\_mscm | CB | MSM | 0.61 ± 0.07 a ψ | 1.79 ± 0.14 a β | 6.12 ± 0.43 a α |
| spConductance\_mscm | CB | GWI | 0.82 ± 0.24 a β | 1.95 ± 0.13 a α | 0.68 ± 0.17 c β |
| spConductance\_mscm | CB | *NA* | 0.49 ± 0.1 B | 1.26 ± 0.19 B | 3.82 ± 0.52 A |
| TC\_perc | CB | GCW | 4.22 ± 0.48 b ψ | 7.63 ± 0.76 b β | 30.76 ± 0.81 a α |
| TC\_perc | CB | MSM | 32.64 ± 1.09 a α | 29.67 ± 1.33 a α | 32.86 ± 2.1 a α |
| TC\_perc | CB | GWI | 32.26 ± 1.67 a α | 26.27 ± 1.53 a α | 14.51 ± 2.83 b β |
| TC\_perc | CB | *NA* | 23.04 ± 2.85 A | 20 ± 2.42 A | 26.13 ± 2.1 A |
| TN\_perc | CB | GCW | 0.23 ± 0.03 b ψ | 0.41 ± 0.04 c β | 1.61 ± 0.02 a α |
| TN\_perc | CB | MSM | 1.13 ± 0.07 a β | 1.52 ± 0.08 a α | 1.71 ± 0.09 a α |
| TN\_perc | CB | GWI | 1.26 ± 0.07 a α | 1.22 ± 0.07 b α | 0.73 ± 0.13 b β |
| TN\_perc | CB | *NA* | 0.87 ± 0.1 B | 1 ± 0.12 B | 1.35 ± 0.11 A |
| TS\_perc | CB | GCW | 0.02 ± 0 b β | 0.06 ± 0.01 c β | 1.84 ± 0.08 a α |
| TS\_perc | CB | MSM | 0.19 ± 0.05 a β | 0.43 ± 0.06 a β | 1.74 ± 0.13 a α |
| TS\_perc | CB | GWI | 0.15 ± 0.01 a β | 0.27 ± 0.02 b αβ | 0.4 ± 0.08 b α |
| TS\_perc | CB | *NA* | 0.12 ± 0.02 B | 0.22 ± 0.04 B | 1.32 ± 0.15 A |
| percentOM | WLE | CRC | 15.01 ± 0.82 a β | 24.82 ± 2.15 a α | 15.6 ± 1.05 a β |
| percentOM | WLE | PTR | 15.05 ± 0.51 a α | 21.14 ± 4.14 a α | 17.26 ± 0.54 a α |
| percentOM | WLE | OWC | 10.89 ± 0.76 b α | 15.44 ± 2.21 a α | *NA* |
| percentOM | WLE | *NA* | 13.65 ± 0.55 B | 20.47 ± 1.82 A | 16.64 ± 0.53 B |
| pH | WLE | CRC | 6.71 ± 0.06 a α | 6.51 ± 0.11 ab α | 6.72 ± 0.15 a α |
| pH | WLE | PTR | 6.01 ± 0.15 b α | 6.03 ± 0.26 b α | 6.57 ± 0.16 a α |
| pH | WLE | OWC | 6.2 ± 0.18 b β | 6.97 ± 0.1 a α | 6.36 ± 0.1 a β |
| pH | WLE | *NA* | 6.31 ± 0.1 A | 6.5 ± 0.12 A | 6.56 ± 0.09 A |
| spConductance\_mscm | WLE | CRC | 0.11 ± 0 ab β | 0.2 ± 0.02 a β | 0.63 ± 0.11 a α |
| spConductance\_mscm | WLE | PTR | 0.12 ± 0.01 a β | 0.2 ± 0.09 a αβ | 0.34 ± 0.04 b α |
| spConductance\_mscm | WLE | OWC | 0.08 ± 0.01 b β | 0.08 ± 0.01 a β | 0.19 ± 0.02 b α |
| spConductance\_mscm | WLE | *NA* | 0.1 ± 0.01 B | 0.16 ± 0.03 B | 0.39 ± 0.05 A |
| TC\_perc | WLE | CRC | 7.14 ± 0.42 a β | 12.02 ± 0.96 a α | 7.66 ± 0.33 a β |
| TC\_perc | WLE | PTR | 7.27 ± 0.26 a α | 10.08 ± 1.87 ab α | 7.71 ± 0.25 a α |
| TC\_perc | WLE | OWC | 5.11 ± 0.39 b α | 6.48 ± 0.46 b α | 6.5 ± 0.58 a α |
| TC\_perc | WLE | *NA* | 6.51 ± 0.28 B | 9.64 ± 0.84 A | 7.39 ± 0.22 B |
| TN\_perc | WLE | CRC | 0.52 ± 0.03 a β | 0.83 ± 0.05 a α | 0.73 ± 0.04 a α |
| TN\_perc | WLE | PTR | 0.57 ± 0.02 a α | 0.81 ± 0.15 a α | 0.68 ± 0.02 a α |
| TN\_perc | WLE | OWC | 0.36 ± 0.02 b β | 0.45 ± 0.03 b αβ | 0.51 ± 0.04 b α |
| TN\_perc | WLE | *NA* | 0.48 ± 0.02 B | 0.71 ± 0.06 A | 0.65 ± 0.02 A |
| TS\_perc | WLE | CRC | 0.05 ± 0 a ψ | 0.15 ± 0.01 a β | 0.21 ± 0.03 a α |
| TS\_perc | WLE | PTR | 0.06 ± 0 a β | 0.09 ± 0.02 b αβ | 0.13 ± 0.01 b α |
| TS\_perc | WLE | OWC | 0.03 ± 0 b β | 0.04 ± 0 c β | 0.09 ± 0.01 b α |
| TS\_perc | WLE | *NA* | 0.05 ± 0 C | 0.09 ± 0.01 B | 0.14 ± 0.01 A |

XRD

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GCW** | | | **MSM** | | | **GWI** | | |
|  | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** |
| Albite | 1 ± 1 | 3.03 ± 1.86 | 1.13 ± 1.13 | 9.1 ± 1.07 | 3.37 ± 1.69 | 0 | 11.3 ± 2.22 | 5.83 ± 0.87 | 2.83 ± 1.5 |
| Chlorite | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Gypsum | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 23 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Halite | 0 ± 0 | 0 ± 0 | 14.57 ± 4.47 | 0 ± 0 | 0 ± 0 | 14 | 0 ± 0 | 0 ± 0 | 10.7 ± 3.17 |
| Hornblende | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Kaolinite | 0 ± 0 | 0 ± 0 | 11.27 ± 0.93 | 0 ± 0 | 0 ± 0 | 14 | 0 ± 0 | 8.4 ± 0.31 | 0 ± 0 |
| Microcline | 4.67 ± 1.67 | 5.17 ± 0.95 | 1.47 ± 1.47 | 1.37 ± 1.37 | 1.67 ± 1.67 | 0 | 0 ± 0 | 2.4 ± 2.4 | 0 ± 0 |
| Muscovite | 15.33 ± 1.2 | 18 ± 1.53 | 34.67 ± 1.2 | 3.33 ± 3.33 | 5 ± 5 | 0 | 0 ± 0 | 19 ± 9.5 | 10.33 ± 5.36 |
| Pyrite | 0 ± 0 | 0 ± 0 | 2.6 ± 1.38 | 0 ± 0 | 0 ± 0 | 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Quartz | 79 ± 2.52 | 74 ± 2 | 34 ± 6 | 86 ± 2.65 | 90.33 ± 7.31 | 48 | 88.67 ± 2.19 | 64.33 ± 11.46 | 76.33 ± 7.31 |
| Crystallinity | 0.07 ± 0.01 | 0.06 ± 0.01 | 0.03 ± 0 | 0.02 ± 0 | 0.01 ± 0.01 | 0 | 0.01 ± 0 | 0.01 ± 0 | 0.03 ± 0.01 |

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|  | **CRC** | | | **PTR** | | | **OWC** | | |
|  | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** |
| Albite | 9.07 ± 0.55 | 8.03 ± 0.88 | 6.77 ± 0.09 | 7.93 ± 0.19 | 8.2 ± 0.95 | 7.6 ± 0.4 | 9.63 ± 0.7 | 10.43 ± 0.33 | 8.93 ± 0.26 |
| Chlorite | 0 ± 0 | 0.47 ± 0.23 | 0.23 ± 0.23 | 0 ± 0 | 0 ± 0 | 0.83 ± 0.2 | 0.4 ± 0.4 | 0.1 ± 0.1 | 0.53 ± 0.27 |
| Gypsum | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Halite | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Hornblende | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Kaolinite | 0 ± 0 | 5.6 ± 0.1 | 6.7 ± 0.2 | 0 ± 0 | 2.07 ± 2.07 | 7.23 ± 0.97 | 0 ± 0 | 0 ± 0 | 3.5 ± 1.75 |
| Microcline | 6.5 ± 0.8 | 7.83 ± 0.8 | 8.57 ± 0.29 | 6.37 ± 0.68 | 5.17 ± 0.27 | 9.03 ± 1.19 | 6.6 ± 1.19 | 5.68 ± 0.42 | 5.9 ± 1.15 |
| Muscovite | 20.33 ± 1.67 | 31.33 ± 1.76 | 39.67 ± 0.33 | 21.67 ± 0.88 | 29.33 ± 1.33 | 38 ± 1.53 | 18.33 ± 0.88 | 20.11 ± 0.75 | 24.33 ± 0.88 |
| Pyrite | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 | 0 ± 0 |
| Quartz | 63.67 ± 2.19 | 46.67 ± 1.76 | 38.33 ± 0.33 | 63.67 ± 0.88 | 55.67 ± 2.73 | 37.67 ± 2.67 | 65 ± 1.73 | 63.56 ± 0.53 | 57 ± 2.52 |
| Crystallinity | 0.05 ± 0.01 | 0.05 ± 0.01 | 0.04 ± 0.01 | 0.05 ± 0.01 | 0.04 ± 0.01 | 0.04 ± 0.01 | 0.06 ± 0.01 | 0.04 ± 0 | 0.05 ± 0.02 |

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|  | **GCW** | | | **MSM** | | | **GWI** | | |
|  | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** |
| Sand (%) | 47.27 ± 2.31 | 40.78 ± 9.31 | *NA* | 28.56 ± 10.06 | 12.53 ± 1.92 | *NA* | 43.02 ± 5.72 | 12.76 ± 2.11 | *NA* |
| Silt (%) | 36.7 ± 3.6 | 32.16 ± 4.95 | *NA* | 45.51 ± 3.94 | 44.81 ± 11.15 | *NA* | 38.28 ± 5.96 | 52.27 ± 4.5 | *NA* |
| Clay (%) | 16.04 ± 2.41 | 27.07 ± 4.36 | *NA* | 25.94 ± 6.16 | 42.66 ± 9.5 | *NA* | 18.7 ± 0.74 | 34.98 ± 5.02 | *NA* |
|  | loam | Clay loam |  | Clay | Silty clay |  | Loam | Silty clay loam |  |

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|  | **CRC** | | | **PTR** | | | **OWC** | | |
|  | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** |
| Sand (%) | 9.9 ± 1.92 | 9.44 ± 0.5 | 4.46 ± 0.58 | 14.37 ± 0.46 | 12.73 ± 1.26 | 6.02 ± 1.1 | 28.3 ± 1.64 | 10.69 ± 2.14 | 3.22 ± 0.28 |
| Silt (%) | 69.77 ± 6.02 | 79.7 ± 5.39 | 31.74 ± 4.62 | 83.53 ± 2.41 | 67.63 ± 9.15 | 49.08 ± 6.4 | 57.75 ± 6.82 | 77.53 ± 9.22 | 90.3 ± 5.71 |
| Clay (%) | 20.33 ± 4.16 | 10.87 ± 5.04 | 63.8 ± 4.61 | 2.1 ± 1.95 | 19.64 ± 8.02 | 44.9 ± 7.35 | 13.96 ± 7.95 | 11.79 ± 11.37 | 6.48 ± 5.99 |
|  | Silt loam | Silt loam | clay | silt | Silt loam | Silty clay | Silt loam | Silt loam | Silt |

WATER RETENTION CURVES

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GCW** | | | **MSM** | | | **GWI** | | |
|  | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** |
| **α** | 0.0427 | 0.00871 | 0.0163 | 0.1691 | 0.0279 | 0.0926 | 0.1135 | 0.0129 | 0.0239 |
| **n** | 1.153 | 1.319 | 1.3 | 1.33 | 1.482 | 1.331 | 1.214 | 1.313 | 1.368 |
| **θr** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **θs** | 0.497 | 0.78 | 0.861 | 0.488 | 0.795 | 0.322 | 0.697 | 0.465 | 0.48 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CRC** | | | **PTR** | | | **OWC** | | |
|  | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** | **Upland** | **Transition** | **Wetland** |
| **α** | 0.00903 | 0.00648 | 0.0176 | 0.4057 | 0.1482 | 0.0737 | 0.2344 | 0.115 | 0.0141 |
| **n** | 1.299 | 1.294 | 1.315 | 1.121 | 1.188 | 1.231 | 1.154 | 1.147 | 1.247 |
| **θr** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **θs** | 0.443 | 0.434 | 0.531 | 0.416 | 0.495 | 0.634 | 0.375 | 0.755 | 0.696 |

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| --- | --- | --- | --- | --- | --- |
|  | **transect\_location** | **alpha** | **n** | **th\_r** | **th\_s** |
| CRC | upland | 0.00903 | 1.299 | 0 | 0.443 |
| CRC | transition | 0.00648 | 1.294 | 0 | 0.434 |
| CRC | wetland | 0.0176 | 1.315 | 0 | 0.531 |
| PTR | upland | 0.4057 | 1.121 | 0 | 0.416 |
| PTR | transition | 0.1482 | 1.188 | 0 | 0.495 |
| PTR | wetland | 0.0737 | 1.231 | 0 | 0.634 |
| OWC | upland | 0.2344 | 1.154 | 0 | 0.375 |
| OWC | transition | 0.115 | 1.147 | 0 | 0.755 |
| OWC | wetland | 0.0141 | 1.247 | 0 | 0.696 |
| GWI | upland | 0.1135 | 1.214 | 0 | 0.697 |
| GWI | transition | 0.0129 | 1.313 | 0 | 0.465 |
| GWI | wetland | 0.0239 | 1.368 | 0 | 0.48 |
| MSM | upland | 0.1691 | 1.33 | 0 | 0.488 |
| MSM | transition | 0.0279 | 1.482 | 0 | 0.795 |
| MSM | wetland | 0.0926 | 1.331 | 0 | 0.322 |
| GCW | upland | 0.0427 | 1.153 | 0 | 0.497 |
| GCW | transition | 0.00871 | 1.319 | 0 | 0.78 |
| GCW | wetland | 0.0163 | 1.3 | 0 | 0.861 |