**Supplementary Information**

**Table S1.** Total Nitrogen

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TN (Total Nitrogen) mg/L** | | | | | |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| WEEK 1 | 106.26 | 63.73 | 58.95 | 38.3 | 51.12 |
| WEEK 2 | 128.33 | 88.04 | 72.14 | 51.76 | 52.9 |
| WEEK 3 | 120.84 | 72.27 | 67.26 | 58.61 | 62.15 |
| WEEK 4 | 99.86 | 65.79 | 67.19 | 46.21 | 53.41 |
| WEEK 5 | 81.96 | 70.21 | 62.2 | 42.01 | 54.32 |
| WEEK 6 | 110.31 | 67.84 | 64.2 | 39.1 | 49.51 |
| WEEK 7 | 112.31 | 71.25 | 63.24 | 41.14 | 48.21 |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| Average Conc | 108.55 | 71.30 | 65.03 | 45.30 | 53.09 |
| St Dev | 14.99 | 7.98 | 4.26 | 7.48 | 4.55 |
| % Removal |  | 34.31 | 40.10 | 58.27 | 51.09 |

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| --- | --- | --- | --- | --- | --- | --- |
| **Table S2.** Anova: Single Factor for TN | | | | | | |
| **SUMMARY** | | | | | | |
| ***Groups*** | ***Count*** | ***Sum*** | ***Average*** | ***Variance*** |  |  |
| Wetland A | 7 | 499.13 | 71.30429 | 63.66593 |  |  |
| Wetland B | 7 | 455.18 | 65.02571 | 18.17646 |  |  |
| Wetland C | 7 | 317.13 | 45.30429 | 55.8809 |  |  |
| Wetland D | 7 | 371.62 | 53.08857 | 20.70778 |  |  |
| **ANOVA** | | | | | | |
| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
| Between Groups | 2868.701 | 3 | 956.2338 | 24.14258 | 0.0000002 | 3.008787 |
| Within Groups | 950.5864 | 24 | 39.60777 |  |  |  |
| Total | 3819.288 | 27 |  |  |  |  |

PASS - equal variance may be assumed (p > 0.05).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S3.** Multiple Comparisons: Tukey Test for TN | | | | | | |
| **Sorted means:** | **Group name** | **Mean** |  |  |  |  |
|  | Wetland C | 45.30429 |  |  |  |  |
|  | Wetland D | 53.08857 |  |  |  |  |
|  | Wetland B | 65.02571 |  |  |  |  |
|  | Wetland A | 71.30429 |  |  |  |  |
| **Group 1** | **Group 2** | **Delta means** | **SE** | **q** | **p** | **Significant?** |
| Wetland A | Wetland C | 26 | 2.378708 | 10.9303 | 1.44282E-06 | Yes |
| Wetland A | Wetland D | 18.21571 | 2.378708 | 7.657818 | 7.56108E-05 | Yes |
| Wetland A | Wetland B | 6.278571 | 2.378708 | 2.639488 | 0.268636834 | No |
| Wetland B | Wetland C | 19.72143 | 2.378708 | 8.290815 | 2.87447E-05 | Yes |
| Wetland B | Wetland D | 11.93714 | 2.378708 | 5.01833 | 0.008302454 | Yes |
| Wetland D | Wetland C | 7.784286 | 2.378708 | 3.272485 | 0.122921559 | No |

**Table S4.** Total Phosphate

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Total Phosphate (mg/L)** | | | | | |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| WEEK 1 | 38.4 | 18.1 | 17.6 | 9.6 | 14.4 |
| WEEK 2 | 35.0 | 22.2 | 18.5 | 10.5 | 15.8 |
| WEEK 3 | 34.7 | 19.2 | 15.8 | 11.0 | 13.5 |
| WEEK 4 | 35.2 | 15.8 | 12.9 | 11.8 | 14.4 |
| WEEK 5 | 37.4 | 17.7 | 12.4 | 10.1 | 10.6 |
| WEEK 6 | 34.1 | 18.4 | 14.5 | 12.7 | 14.2 |
| WEEK 7 | 38.1 | 16.2 | 13.0 | 10.2 | 11.9 |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| Average Conc | 36.1 | 18.2 | 15.0 | 10.8 | 13.6 |
| St Dev | 1.8 | 2.1 | 2.4 | 1.1 | 1.8 |
| % Removal |  | 49.6 | 58.6 | 70.0 | 62.5 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S5.** Anova: Single Factor for Total Phosphate (TP) | | | | | | |
| **SUMMARY** | | | | | | |
| ***Groups*** | ***Count*** | ***Sum*** | ***Average*** | ***Variance*** |  |  |
| Wetland A | 7 | 127.54 | 18.22 | 4.5182 |  |  |
| Wetland B | 7 | 104.65 | 14.95 | 5.81543 |  |  |
| Wetland C | 7 | 75.87 | 10.83857143 | 1.14155 |  |  |
| Wetland D | 7 | 94.88 | 13.55428571 | 3.08816 |  |  |
| **ANOVA** | | | | | | |
| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
| Between Groups | 198.0549286 | 3 | 66.01830952 | 18.1327 | 0.0000023 | 3.008787 |
| Within Groups | 87.38005714 | 24 | 3.640835714 |  |  |  |
| Total | 285.4349857 | 27 |  |  |  |  |

PASS - equal variance may be assumed (p > 0.05).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S6.** Multiple Comparisons: Tukey Test for Total Phosphate | | | | | | |
| **Sorted means:** | **Group name** | **Mean** |  |  |  |  |
|  | Wetland C | 10.83857 |  |  |  |  |
|  | Wetland D | 13.55429 |  |  |  |  |
|  | Wetland B | 14.95 |  |  |  |  |
|  | Wetland A | 18.22 |  |  |  |  |
| **Group 1** | **Group 2** | **Delta means** | **SE** | **q** | **p** | **Significant?** |
| Wetland A | Wetland C | 7.381429 | 0.721193 | 10.23502 | 1.71E-06 | Yes |
| Wetland A | Wetland D | 4.665714 | 0.721193 | 6.469439 | 0.000642 | Yes |
| Wetland A | Wetland B | 3.27 | 0.721193 | 4.534154 | 0.018547 | Yes |
| Wetland B | Wetland C | 4.111429 | 0.721193 | 5.700871 | 0.002545 | Yes |
| Wetland B | Wetland D | 1.395714 | 0.721193 | 1.935285 | 0.530414 | No |
| Wetland D | Wetland C | 2.715714 | 0.721193 | 3.765586 | 0.061243 | No |

**Table S7.** Nitrate (NO3)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Nitrate (NO3-N) mg/L** | | | | | |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| WEEK 1 | 33.89 | 6.1 | 4.13 | 0.76 | 2.2 |
| WEEK 2 | 27.54 | 6.24 | 4.74 | 2.38 | 3.49 |
| WEEK 3 | 29.17 | 7.11 | 7.27 | 5.2 | 6.23 |
| WEEK 4 | 26.51 | 8.04 | 1.59 | 0.32 | 0.43 |
| WEEK 5 | 27.59 | 7.59 | 6.9 | 3.13 | 4.01 |
| WEEK 6 | 32.12 | 6.14 | 5.89 | 2.87 | 3.21 |
| WEEK 7 | 31.21 | 7.27 | 5.34 | 1.82 | 2.4 |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| Average Conc | 29.72 | 6.93 | 5.12 | 2.35 | 3.14 |
| St Dev | 2.75 | 0.78 | 1.92 | 1.63 | 1.79 |
| % Removal | - | 76.69 | 82.76 | 92.08 | 89.44 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S8.** Anova: Single Factor for Nitrate (NO3) | | | | | | |
| **SUMMARY** | | | | | | |
| ***Groups*** | ***Count*** | ***Sum*** | ***Average*** | ***Variance*** |  |  |
| Column 1 | 7 | 48.49 | 6.927143 | 0.60079 |  |  |
| Column 2 | 7 | 35.86 | 5.122857 | 3.66959 |  |  |
| Column 3 | 7 | 16.48 | 2.354286 | 2.655329 |  |  |
| Column 4 | 7 | 21.97 | 3.138571 | 3.201281 |  |  |
| **ANOVA** | | | | | | |
| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
| Between Groups | 88.79014 | 3 | 29.59671 | 11.69023 | 6.44E-05 | 3.008787 |
| Within Groups | 60.76194 | 24 | 2.531748 |  |  |  |
| Total | 149.5521 | 27 |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S9.** Multiple Comparisons: Tukey Test for Nitrate (NO3) | | | | | | |
| **Sorted means:** | **Group name** | **Mean** |  |  |  |  |
|  | Wetland C | 2.354286 |  |  |  |  |
|  | Wetland D | 3.138571 |  |  |  |  |
|  | Wetland B | 5.122857 |  |  |  |  |
|  | Wetland A | 6.927143 |  |  |  |  |
| **Group 1** | **Group 2** | **Delta means** | **SE** | **q** | **p** | **Significant?** |
| Wetland A | Wetland C | 4.572857 | 0.601397 | 7.603726 | 8.29E-05 | Yes |
| Wetland A | Wetland D | 3.788571 | 0.601397 | 6.299619 | 0.000877 | Yes |
| Wetland A | Wetland B | 1.804286 | 0.601397 | 3.000158 | 0.174961 | No |
| Wetland B | Wetland C | 2.768571 | 0.601397 | 4.603568 | 0.016561 | Yes |
| Wetland B | Wetland D | 1.984286 | 0.601397 | 3.299461 | 0.118539 | No |
| Wetland D | Wetland C | 0.784286 | 0.601397 | 1.304107 | 0.793382 | No |

**Table S10.** Ammonia (NH3-N)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Ammonia (NH3-N) mg/L** | | | | | |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| WEEK 1 | 45.1 | 23.9 | 22.5 | 18.8 | 17.6 |
| WEEK 2 | 50.0 | 26.5 | 25.0 | 20.9 | 19.5 |
| WEEK 3 | 51.4 | 27.3 | 25.7 | 21.5 | 20.0 |
| WEEK 4 | 47.3 | 25.1 | 23.6 | 19.7 | 18.4 |
| WEEK 5 | 52.1 | 27.6 | 26.0 | 21.7 | 20.3 |
| WEEK 6 | 46.1 | 24.5 | 23.0 | 19.2 | 18.0 |
| WEEK 7 | 49.5 | 26.3 | 24.7 | 20.7 | 19.3 |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| Average Conc | 48.78 | 25.88 | 24.36 | 20.36 | 19.00 |
| St Dev | 2.69 | 1.42 | 1.34 | 1.12 | 1.05 |
| % Removal | - | 46.95 | 50.06 | 58.27 | 61.04 |

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| --- | --- | --- | --- | --- | --- | --- |
| **Table S11.** Anova: Single Factor for Ammonia (NH3-N) | | | | | | |
| **SUMMARY** | | | | | | |
| ***Groups*** | ***Count*** | ***Sum*** | ***Average*** | ***Variance*** |  |  |
| Column 1 | 7 | 181.1572 | 25.8796 | 2.030426 |  |  |
| Column 2 | 7 | 170.5455 | 24.36364 | 1.799519 |  |  |
| Column 3 | 7 | 142.5002 | 20.35718 | 1.25634 |  |  |
| Column 4 | 7 | 133.0255 | 19.00364 | 1.094827 |  |  |
| **ANOVA** | | | | | | |
| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
| Between Groups | 221.7033 | 3 | 73.90111 | 47.82382 | 2.81629E-10 | 3.008787 |
| Within Groups | 37.08668 | 24 | 1.545278 |  |  |  |
| Total | 258.79 | 27 |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S12.** Multiple Comparisons: Tukey Test Ammonia (NH3-N) | | | | | | |
| **Sorted means:** | **Group name** | **Mean** |  |  |  |  |
|  | Wetland D | 19.00364 |  |  |  |  |
|  | Wetland C | 20.35718 |  |  |  |  |
|  | Wetland B | 24.36364 |  |  |  |  |
|  | Wetland A | 25.8796 |  |  |  |  |
| **Group 1** | **Group 2** | **Delta means** | **SE** | **q** | **p** | **Significant?** |
| Wetland A | Wetland D | 6.875962 | 0.469845 | 14.63454 | 1.37E-06 | Yes |
| Wetland A | Wetland C | 5.522426 | 0.469845 | 11.75373 | 1.38E-06 | Yes |
| Wetland A | Wetland B | 1.51596 | 0.469845 | 3.226513 | 0.130699 | No |
| Wetland B | Wetland D | 5.360002 | 0.469845 | 11.40803 | 1.4E-06 | Yes |
| Wetland B | Wetland C | 4.006466 | 0.469845 | 8.527213 | 2.16E-05 | Yes |
| Wetland C | Wetland D | 1.353536 | 0.469845 | 2.880815 | 0.202726 | No |

**Table S13.** Orthophosphate (PO4-P)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Orthophosphate (PO4-P) mg/L** | | | | | |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| WEEK 1 | 15.2 | 8.7 | 6.6 | 4.8 | 5.9 |
| WEEK 2 | 16.3 | 9.1 | 7.2 | 5.2 | 6.4 |
| WEEK 3 | 17.1 | 9.2 | 7.7 | 5.3 | 6.4 |
| WEEK 4 | 18.2 | 9.7 | 7.7 | 5.9 | 7.0 |
| WEEK 5 | 16.2 | 8.9 | 6.6 | 5.7 | 5.9 |
| WEEK 6 | 14.9 | 8.3 | 6.7 | 4.7 | 5.8 |
| WEEK 7 | 16.3 | 9.3 | 7.2 | 5.4 | 6.2 |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| Average Conc | 16.3 | 9.0 | 7.1 | 5.3 | 6.2 |
| St Dev | 1.1 | 0.4 | 0.5 | 0.4 | 0.4 |
| % Removal |  | 44.6 | 56.5 | 67.7 | 61.7 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S14.** Anova: Single Factor PO4-P | | | | | | |
| **SUMMARY** | | | | | | |
| ***Groups*** | ***Count*** | ***Sum*** | ***Average*** | ***Variance*** |  |  |
| Column 1 | 7 | 63.2546 | 9.036371 | 0.187072 |  |  |
| Column 2 | 7 | 49.68736 | 7.098194 | 0.210422 |  |  |
| Column 3 | 7 | 36.91655 | 5.273793 | 0.185902 |  |  |
| Column 4 | 7 | 43.71014 | 6.244306 | 0.159338 |  |  |
| **ANOVA** | | | | | | |
| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
| Between Groups | 53.74008599 | 3 | 17.91336 | 96.47244 | 1.58E-13 | 3.008787 |
| Within Groups | 4.456409295 | 24 | 0.185684 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 58.19649529 | 27 |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S15.** Multiple Comparisons: Tukey Test PO4-P | | | | | | |
| **Sorted means:** | **Group name** | **Mean** |  |  |  |  |
|  | Wetland C | 5.273793 |  |  |  |  |
|  | Wetland D | 6.244306 |  |  |  |  |
|  | Wetland B | 7.098194 |  |  |  |  |
|  | Wetland A | 9.036371 |  |  |  |  |
| **Group 1** | **Group 2** | **Delta means** | **SE** | **q** | **p** | **Significant?** |
| Wetland A | Wetland C | 3.762579 | 0.162869 | 23.1019 | 1.37E-06 | Yes |
| Wetland A | Wetland D | 2.792066 | 0.162869 | 17.14304 | 1.37E-06 | Yes |
| Wetland A | Wetland B | 1.938177 | 0.162869 | 11.90024 | 1.38E-06 | Yes |
| Wetland B | Wetland C | 1.824401 | 0.162869 | 11.20166 | 1.41E-06 | Yes |
| Wetland B | Wetland D | 0.853889 | 0.162869 | 5.2428 | 0.005659 | Yes |
| Wetland D | Wetland C | 0.970513 | 0.162869 | 5.958863 | 0.001612 | Yes |

**Table S16.** Chemical Oxygen Demand (COD)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Chemical Oxygen Demand (COD) mg/L** | | | | | |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| WEEK 1 | 612.7 | 134.4 | 113.5 | 53.2 | 68.3 |
| WEEK 2 | 654.8 | 143.6 | 121.3 | 56.9 | 73.0 |
| WEEK 3 | 627.8 | 137.7 | 116.3 | 54.5 | 69.9 |
| WEEK 4 | 638.9 | 140.1 | 118.4 | 55.5 | 71.2 |
| WEEK 5 | 653.1 | 143.2 | 121.0 | 56.7 | 72.8 |
| WEEK 6 | 634.1 | 139.1 | 117.5 | 55.1 | 70.6 |
| WEEK 7 | 617.2 | 135.4 | 114.4 | 53.6 | 68.8 |
|  | **Influent** | **Wetland A** | **Wetland B** | **Wetland C** | **Wetland D** |
| Average Conc | 634.09 | 139.06 | 117.50 | 55.09 | 70.64 |
| St Dev | 16.32 | 3.58 | 3.02 | 1.42 | 1.82 |
| % Removal | - | 78.07 | 81.47 | 91.31 | 88.86 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S17.** Anova: Single Factor Chemical Oxygen Demand (COD) | | | | | | |
| **SUMMARY** | | | | | | |
| ***Groups*** | ***Count*** | ***Sum*** | ***Average*** | ***Variance*** |  |  |
| Column 1 | 7 | 973.4336 | 139.0619 | 12.80547 |  |  |
| Column 2 | 7 | 822.5322 | 117.5046 | 9.143002 |  |  |
| Column 3 | 7 | 385.6208 | 55.08869 | 2.009574 |  |  |
| Column 4 | 7 | 494.5045 | 70.64351 | 3.304636 |  |  |
| **ANOVA** | | | | | | |
| ***Source of Variation*** | ***SS*** | ***df*** | ***MS*** | ***F*** | ***P-value*** | ***F crit*** |
| Between Groups | 32429.19 | 3 | 10809.73 | 1586.011 | 1.03E-27 | 3.008787 |
| Within Groups | 163.5761 | 24 | 6.815671 |  |  |  |
| Total | 32592.77 | 27 |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table S18.** Multiple Comparisons: Tukey Test Chemical Oxygen Demand (COD) | | | | | | |
| **Sorted means:** | **Group name** | **Mean** |  |  |  |  |
|  | Wetland C | 55.08869 |  |  |  |  |
|  | Wetland D | 70.64351 |  |  |  |  |
|  | Wetland B | 117.5046 |  |  |  |  |
|  | Wetland A | 139.0619 |  |  |  |  |
| **Group 1** | **Group 2** | **Delta means** | **SE** | **q** | **p** | **Significant?** |
| Wetland A | Wetland C | 83.97325 | 0.986746 | 85.1012 | 1.37E-06 | Yes |
| Wetland A | Wetland D | 68.41843 | 0.986746 | 69.33744 | 1.37E-06 | Yes |
| Wetland A | Wetland B | 21.55734 | 0.986746 | 21.84691 | 1.37E-06 | Yes |
| Wetland B | Wetland C | 62.41591 | 0.986746 | 63.25429 | 1.37E-06 | Yes |
| Wetland B | Wetland D | 46.86109 | 0.986746 | 47.49054 | 1.37E-06 | Yes |
| Wetland D | Wetland C | 15.55482 | 0.986746 | 15.76375 | 1.37E-06 | Yes |