**Paper 1 PLSR Modeling Results**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Response Variable** | **All Ponds** | | **Original Ponds** | | **New Ponds as Validation Dataset** | |
| **Q2** | **AIC** | **Q2** | **AIC** | **R2** | **RMSE** |
| TP Difference | **0.44** |  | 0.43 | 351 |  |  |
| TN Difference | **0.29** |  | 0.27 |  |  |  |
| Chloride Difference | 0.4 |  | **0.57** | 207 |  |  |
| Nitrate Difference | 0.47 |  | **0.53** |  |  |  |
| Ammonia Difference | 0.11 |  | **0.17** |  |  |  |
| Sulfate Difference | 0.34 |  | **0.49** |  |  |  |
| TSS Difference (Change better) | 0.03 |  | **0.14** |  |  |  |
| DO Difference | 0.16 |  | **0.25** |  |  |  |
| SPC Difference | 0.88 |  | **0.94** | 42 |  |  |
| Attenuation | 0.72 |  | **0.81** | 166 |  |  |
| Total Richness | 0.93 |  | **0.98** | -56 |  |  |
| % Days with Outflow | 0.97 |  | **0.99** | 63 |  |  |
| Peak Outflow | 0.97 |  | **0.98** | 87 |  |  |
| Water Clarity Difference | **0.25** |  | 0.12 |  |  |  |
| Water Clarity Late |  |  | 0.29 | 200 |  |  |
| Odor Difference | 0.22 |  | **0.28** |  |  |  |
| Odor Late |  |  | 0.53 | -22 |  |  |
| Trash Count Difference | 0.17 |  | **0.26** |  |  |  |
| Trash Count Late |  |  | 0.51 | 164 |  |  |

**Original modeling results (15 ponds, 3 storms, n = 43)**

**TP (Q2 = 0.43, AIC = 380, 2 comps, 11 vars)**

**A graph with green dots

Description automatically generated**

**A graph with green bars

Description automatically generated with medium confidence**

**TN**

**Chloride Difference (Q2 = 0.57, AIC = 228, 2 comps, 13 vars)**

**A graph with green dots

Description automatically generated**

**A graph with green and black bars

Description automatically generated**

**Nitrate**

**Ammonia**

**Sulfate**

**TSS**

**DO**

**SPC (Q2 = 0.87, AIC = 84, 4 comps, 8 vars)**

**A graph with green dots

Description automatically generated**

**A graph with green bars

Description automatically generated**

**Attenuation (Q2 = 0.74, AIC = 167, 4 comps, 19 vars)**

**A graph with purple dots

Description automatically generated**

**Total Richness**

**Old: Q2 = 0.97, AIC = -13, 4 comps, 14 vars**

**A graph of a graph with red dots

Description automatically generated**

**A graph with green and black text

Description automatically generated with medium confidence**

**All: Q2 = 0.95, AIC = 29, 4 comps, 12 comps**

**A graph with red dots

Description automatically generated**

**% Days with Outflow**

**Old: Q2 = 0.97, AIC = 65, 4 comps, 19 vars**

**A graph with blue dots

Description automatically generated**

**A graph with a green line

Description automatically generated**

**All: Q2 = 0.95, AIC = 195, 4 comps, 17 vars**

**A graph with blue dots

Description automatically generated**

**Peak Outflow (Q2 = 0.98, AIC = 94, 4 comps, 18 vars)**

**A graph with blue dots

Description automatically generated**

**A chart with green and white text

Description automatically generated**

**Water Clarity Difference (Q2 = 0.29, AIC = 218, 2 comps, 15 vars)**

**Need to check this—all but 2 VIP scores are negative**

**A diagram of water quality

Description automatically generated**

**Odor Difference (Q2 = 0.53, AIC = -18, 1 comp, 6 vars)**

**A graph with red dots

Description automatically generated**

**A graph with green rectangular bars

Description automatically generated with medium confidence**

**Trash Count Difference (Q2 = 0.5, AIC = 167, 3 comps, 18 vars)**

**A graph of a graph with red dots

Description automatically generated**

**A chart with green and white bars

Description automatically generated with medium confidence**

**Modeling results with all ponds (20 ponds, 3 storms, n = 58)**

**Modeling results with original ponds, 5 new ponds as validation set**