LOI results summary

## Total Sediment Sample Weights:

Not good regression Δorg\* (using organic weights instead of %) for Δ sed\* and hyporheic flux magnitude in either season. No differences between size ranges, since it’s not size dependent.

## Delta Analysis

### Original Size Range:

### New Size Range:

Spring regression for the coarser sizes (coarse and fine sand) is better with the new size range than the original. The finer size classes remain very similar. Summer regressions are very similar, except that for the new size range, silt regression is better and fine sand regression is worse.

## Lumping Small Sizes (All Traps)

### Original Size Range:

### New Size Range:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R2 values for each regression | **Original Sizes** | | **New Sizes** | |
| **SPRING** | **SUMMER** | **SPRING** | **SUMMER** |
| **Silt + Clay** | 0.258 | 0.1455 | 0.2585 | 0.1055 |
| **Silt + Clay + Fine Sand** | 0.2554 | 0.3208 | 0.401 | 0.275 |

For the original sizes, the S+C regression is best in spring, but the S+C+FS is best in summer. The difference is most notable in summer, meaning that the S+C+FS relation overall is better (and that fine sand influences the relation considerably).

For the new sizes, both summer and spring regressions are best for the S+C+FS size group.

It’s hard to tell whether original or new size range is best for this, since the best R2 for the original sizes occur for the summer and for the new sizes occur for the spring. Logically, I think it makes more sense for the original sizes, since there were more fines, but the R2 are on average better.

## Lumping by Trap Pair

This means that by trap pair I summed up the weights of both sediment and organics (g) and plotted them against each other.

### Original Size Range:

The fits for fine sand, silt and clay are:

The fits for combined small size groups are:

### New Size Range:

The fits for fine sand, silt and clay are:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R2 values for each regression | **Original Sizes** | | **New Sizes** | |
| **SPRING** | **SUMMER** | **SPRING** | **SUMMER** |
| **Fine Sand** | 0.343 | 0.3288 | 0.6549 | 0.5265 |
| **Silt** | 0.3183 | 0.0371 | 0.3249 | 0.0319 |
| **Clay** | 0.2749 | 0.0831 | 0.2749 | 0.0831 |
| **Silt + Clay** | 0.3115 | 0.0137 | 0.3208 | 0.0188 |
| **Silt + Clay + Fine Sand** | 0.3332 | 0.1787 | 0.6304 | 0.2804 |

For both grain size ranges, fine sand has the best relation to organics and the worse regressions are for silt and clay during the summer (weird, because it’s here when we see the most amount of fines and organic matter). It’s because of this that when we combine smaller grain sizes, the FS+S+C have the best regressions, and for the new grain size range both summer and spring R2 values are much larger. Clay regressions are the same, since the size range is always <200 microns, so no difference, but also strange that in the summer the trend is negative instead of positive?.

## Lumping by Trap Group

This means that by trap group (the location at one temperature probe), I summed up the weights of both sediment and organics (g) and plotted them against each other.

### Original Size Range:

The fits for fine sand, silt and clay are:

### New Size Range:

The fits for fine sand, silt and clay are:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| R2 values for each regression | **Original Sizes** | | **New Sizes** | |
| **SPRING** | **SUMMER** | **SPRING** | **SUMMER** |
| **Fine Sand** | 0.6246 | 0.6627 | 0.7463 | 0.7339 |
| **Silt** | 0.6713 | 0.4861 | 0.6579 | 0.4886 |
| **Clay** | 0.6355 | 0.1751 | 0.6355 | 0.1751 |
| **Silt + Clay** | 0.6661 | 0.4331 | 0.6566 | 0.4632 |
| **Silt + Clay + Fine Sand** | 0.6393 | 0.6003 | 0.6393 | 0.6566 |

Overall, once again the best size correlations is for fine sand, especially in the new size class range. However, for the original sizes, silt in spring has the highest R2 value. Thanks to the influence of fine sand, the FS+S+C regressions show the highest R2 values, especially in the new size class range.

Out of all the correlations, grouping by temperature probe group has yielded the best results and relationships between organics and sediment weights, but organic matter unfortunately does not correlate with hyporheic flux directly.