# Data Dictionary for Bioclogging Data Tables

The table below describes the attributes (data columns) for all comma-separated values (.csv) files included in this data release. The metadata for these data files are not complete if they are not distributed with this document.

Note: Blank cells, Not applicable, and Not Detected indicate that no value was recorded and/or not applicable for the attribute.

**This table contains the repeated attributes and definitions that are present in subsequent tables below.**

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Well Designation | Name of well sampled. |
| Aquifer Core Zone | Name of aquifer zone sampled. UFA = Upper Floridan Aquifer and/or APPZ = Avon Park Permeable Zone. |
| Water Source | Water source sampled. Either UFA, APPZ, or Kissimmee River. |
| Column Designation | For each experiment in the study, one column packed with crushed core from the respective wells (C38S, L63S, C59) and two aquifer zones within each well (UFA, APPZ) was allowed to be colonized by native groundwater microbial communities in the two aquifer zones. Biofilm Positive = colonized and Biofilm Negative = not colonized. |
| Experimental Phase | Phase of experiment. Conditioning Phase = groundwater from either the UFA or APPZ was pumped through the Biofilm Positive and Biofilm Negative columns to allow the surfaces of the crushed core contained in both columns to be exposed to the natural geochemistry of the groundwater. 1st Recharge = After the Conditioning Phase, surface water from the Kissimmee River was pumped through both columns at a specific rate for a specific time. Post Storage = Following the 1st Recharge Phase, the pumping of Kissimmee River water was halted, the columns valved off to retain the water in the columns and allowed to stand static for weeks; following this Storage Phase the water contained in each column was collected. Native = Refers to the UFA, APPZ and Kissimmee River water that was collected and used in the experiments but was not associated with the biofilm development phases of the experiments. |
| Column Input or Discharge | Column input = As Kissimmee River water was being pumped to the columns, samples were collected at a sampling valve prior to the water entering the columns. Column discharge = As the Kissimmee River water pumped into the columns was discharging from the column, samples were collected at a sampling valve prior to the water discharging to waste. |

## ****Bioclogging\_Dissolved\_Gases Table****

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Argon (%) | The concentration of argon dissolved in the water sample, expressed as the percent of total dissolved gases in the water sample. |
| Oxygen (%) | The concentration of oxygen dissolved in the water sample, expressed as the percent of total dissolved gases in the water sample. |
| Carbon Dioxide (%) | The concentration of carbon dioxide dissolved in the water sample, expressed as the percent of total dissolved gases in the water sample. |
| Nitrogen Gas (%) | The concentration of nitrogen (N2) gas dissolved in the water sample, expressed as the percent of total dissolved gases in the water sample. |
| C1 (%) | The concentration of methane dissolved in the water sample, expressed as the percent of total dissolved gases in the water sample. |
| Ethylene (%) | The concentration of ethylene dissolved in the water sample, expressed as the percent of total dissolved gases in the water sample. |
| C6+ (%) | The concentration of hydrocarbon gases dissolved in the water sample that are composed of six or more carbon atoms in a gas molecule, expressed as the percent of total dissolved gases in the water sample. |
| Methane (dissolved) (mg/L) | The concentration of methane dissolved in the water sample, expressed as milligrams per liter (mg/L). |
| Ethylene (dissolved) (mg/L) | The concentration of ethylene dissolved in the water sample, expressed as milligrams per liter (mg/L). |

## Bioclogging\_Nutrients Table

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Dissolved Organic Carbon (mg/L) | The concentration of dissolved organic carbon present in the water sample, expressed as milligrams per liter (mg/L). |
| Nitrate + Nitrite (μM) | The concentration of total nitrogen species in the water sample, expressed as micromolar (μM). |
| Nitrite (μM) | The concentration of nitrite in the water sample, expressed as micromolar (μM). |
| Ammonium (μM) | The concentration of ammonium in the water sample, expressed as micromolar (μM). |
| Phosphorus (μM) | The concentration of phosphorus in the water sample, expressed as micromolar (μM). |
| Silicate (μM) | The concentration of silica (SiO2) in the water sample, expressed as micromolar (μM). |

## Bioclogging\_Geochemistry Table

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Chloride (mg/L) | The concentration of chloride (Cl-) in the water sample, expressed as milligrams per liter (mg/L). |
| Sulfate (mg/L) | The concentration of sulfate (SO42-) in the water sample, expressed as milligrams per liter (mg/L). |
| Aluminum (μg/L) | The concentration of aluminum (Al3+) in the water sample, expressed as micrograms per liter (μg/L). |
| Arsenic (μg/L) | The concentration of total arsenic (As5+) in the water sample, expressed as micrograms per liter (μg/L). |
| Barium (μg/L) | The concentration of barium (Ba2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Calcium (μg/L) | The concentration of calcium (Ca2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Cadmium (μg/L) | The concentration of cadmium (Cd2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Chromium (μg/L) | The concentration of chromium (Cr+) in the water sample, expressed as micrograms per liter (μg/L). |
| Cobalt (μg/L) | The concentration of cobalt (Co2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Copper (μg/L) | The concentration of copper (Cu+) in the water sample, expressed as micrograms per liter (μg/L). |
| Iron (μg/L) | The concentration of total iron (Fe) in the water sample, expressed as micrograms per liter (μg/L). |
| Potassium (μg/L) | The concentration of potassium (K+) in the water sample, expressed as micrograms per liter (μg/L). |
| Magnesium (μg/L) | The concentration of magnesium (Mg2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Manganese (μg/L) | The concentration of manganese (Mn2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Molybdenum (μg/L) | The concentration of molybdenum (Mo+) in the water sample, expressed as micrograms per liter (μg/L). |
| Sodium (μg/L) | The concentration of sodium (Na+) in the water sample, expressed as micrograms per liter (μg/L). |
| Nickel (μg/L) | The concentration of nickel (Ni2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Lead (μg/L) | The concentration of lead (Pb2+) in the water sample, expressed as micrograms per liter (μg/L). |
| Selenium (μg/L) | The concentration of selenium (Se2-) in the water sample, expressed as micrograms per liter (μg/L). |
| Zinc (μg/L) | The concentration of zine (Zn2+) in the water sample, expressed as micrograms per liter (μg/L). |

## Bioclogging\_BDOC Table

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Experiment Number | This experimental design was repeated three times. The Experimental Number refers to which of the three repeats the respective data refer. |
| Incubation Time (hours) | The number of hours at which the respective samples were collected for analysis, relative to the start of the experiment (i.e., 0.00 hours). |
| Dissolved Organic Carbon (mg/L) | The concentration of dissolved organic carbon present in the sample at the respective incubation times, expressed as milligrams per liter (mg/L). |

## Bioclogging\_Hydraulic\_Conductivity Table

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Time (hours) | The number of hours at which the respective samples were collected for analysis, relative to the start of the experiment (i.e., 0.00 hours) |
| Recharge Phase | Recharge phase of water source. 1st Recharge = the first pumping of Kissimmee River water into the columns and prior to the Storage Phase and 2nd Recharge = the second pumping of Kissimmee River water into the columns and after the Storage Phase. |
| Hydraulic Conductivity (m/day) | The measure of rate at which the pumped water flows through the crushed core material contained within the columns, expressed as meters per day (m/day). |

## Bioclogging\_Substrate\_Growth Table

|  |  |
| --- | --- |
| **Attribute\_Label** | **Attribute\_Definition** |
| Date | The date (MM/DD/YYYY) on which the absorbance data (λ = 590 nm) were collected from the respective EcoPlate™ experiments. |
| Incubation Time (hours) | The number of hours at which the absorbance data were collected from the respective EcoPlate™ experiments, relative to the start of the experiment (i.e., 0.00 hours) |
| ACWD | The average color well development (ACWD) value which was calculated from the standardized absorbance data for the respective incubation times for each EcoPlate™ experiment. |
| β-methyl-D-glucoside (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-galactonic acid-γ-gamma lactone (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| L-arginine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| Pyruvic acid methyl ester (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-xylose (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-galacturonic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| L-asparagine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| Tween 40 (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| i-erythritol (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| 2-hydroxy benzoic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| L-phenylalanine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| Tween 80 (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-mannitol (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| 4-hydroxy benzoic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| L-serine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| α-cyclodextrin (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| N-acetyl-D-glucosamine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| γ-hydroxybutyric acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| L-threonine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| glycogen (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-glucosaminic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| itaconic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| glycyl-L-glutamic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-cellobiose (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| glucose-1-phosphate (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| α-ketobutyric acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| phenylethylamine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| α-D-lactose (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D,L-α-glycerol phosphate (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| D-malic acid (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |
| putrescine (standardized absorbance) | A carbon source substrate in an EcoPlate™ that has been shown to be a preferential substrate for utilization by microbial communities commonly found in environmental ecosystems. The absorbance data presented in this data release for this substrate have been standardized. |