



**INTERNATIONAL
STORMWATER BMP
DATABASE**
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Attachment 1

Categorical Summary of BMP Performance Data for Nutrients Contained in the International Stormwater BMP Database

Prepared by

Geosyntec Consultants, Inc.
Wright Water Engineers, Inc.

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1 Description of Statistics Used in this Report

This report provides a concise statistical summary of BMP performance data contained in the International Stormwater BMP Database. The analysis focuses on the distribution of effluent water quality from individual events by BMP category, thereby providing greater weight to those BMPs for which there are a larger number of data points reported. In other words, the performance analysis presented in this technical summary is “storm-weighted”, as opposed to “BMP weighted”¹.

The statistical summaries have been organized by BMP and then by constituent. For each data set, influent and effluent summary statistics are presented in a table followed by graphical summaries.

1.1 Tabular Summaries

The summary tables include both parametric and non-parametric statistics. Parametric statistics operate under the assumption that data arise from a single statistical distribution that can be described mathematically using coefficients, or parameters, of that distribution. The mean and standard deviation are example parameters of the normal, or Gaussian, distribution. Non-parametric statistics are fundamentally based on the ranks² of the data with no need to assume an underlying distribution. Non-parametric statistics do not depend on the magnitude of the data and are therefore resistant to the occurrence of a few extreme values (i.e., high or low values relative to other data points do not significantly alter the statistic).

Table 1.1 summarizes the parametric and non-parametric statistics commonly used to describe data sets. Definitions for each summary statistic included in the tables are provided in Table 1.2.

Statistic Category	Parametric	Non-Parametric
Measures of Location	Mean	Median
Measures of Spread	Variance, Standard Deviation	Interquartile Range, Median Absolute Deviation
Measures of Skew	Coefficient of Skewness	Quartile Skew Coefficient

1.2 Graphical Summaries

In addition to the summary tables provided for each BMP/constituent combination, influent/effluent box plots and non-exceedance probability plots are provided. Box plots (or box and whisker plots) provide a schematic representation of the central tendency and spread of the influent and effluent data sets. Box plots can also be used to indicate whether the influent median is statistically different than the effluent median. A key for the box plots is provided in Figure 1.1. Probability plots illustrate the empirical distribution of the data. A comparison of the influent and effluent probability plots indicates whether there may be differences among all percentiles

¹There are several viable approaches to evaluating the BMP Database. Two general approaches that have been presented in the past (Geosyntec and WWE 2008) are the “BMP-weighted” and “storm-weighted” approaches. The BMP-weighted approach represents each BMP with one value representing the central tendency of the BMP study, whereas the storm-weighted approach combines all of the storm events for the BMPs in each category and analyzes the overall storm-based data set. The storm-weighted approach has been selected for this report.

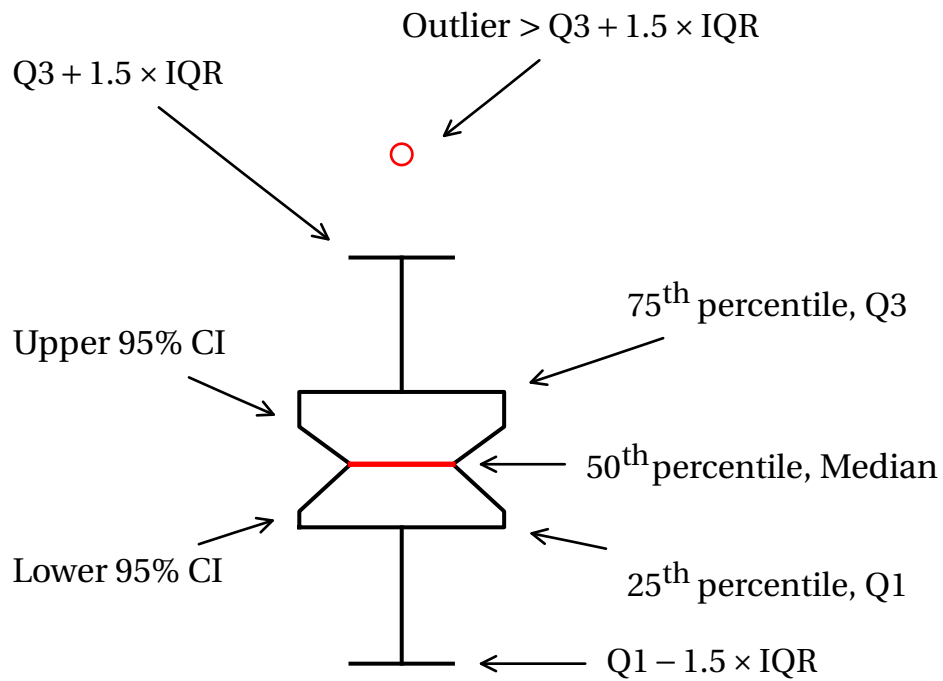
²In this context, ranks refer to the positions of the data after being sorted by magnitude.

(not just the median) and whether the influent and effluent data sets are similarly distributed. Probability plots also provide a quick method of identifying the probability that an individual sample would be less than or equal to a particular value. For example, the effluent probability plot may be used to identify the probability that a particular water quality threshold would be met (e.g., 40% chance that effluent concentration would be less than or equal to 1 mg/L).

Table 1.2: Common Parametric and Non-Parametric Descriptive Statistics

Statistic	Definition/Description
Count	Total number of data points analyzed. Most BMP data sets include only event mean concentrations (EMCs). The exception includes BMPs with permanent pools (retention ponds and wetland basins) where grab samples were also included.
Number of Non-detects	Total number of data points reported at or below the analytical reporting limit. One-half the reporting limit has been used for these data points.
Mean (95% conf. interval)	The mean of the data points and the 95% confidence interval about the mean. Provides a parametric measure of the central tendency. The confidence interval was computed using the bias corrected and accelerated (BCa) bootstrap method described by Efron and Tibishirani (1993) ³ .
Std. Dev.	The standard deviation of the data points.
Skewness	The coefficient of skewness of the data points.
Median (95% conf. interval)	The median of the data points and the 95% confidence interval about the median. The confidence interval was computed using the bias corrected and accelerated (BCa) bootstrap method described by Efron and Tibishirani (1993) ³ .
25th, 75th percentiles	The difference between the 25th and 75th percentiles is the interquartile range, which is a non-parametric measure of the spread of the data.

³Efron, B. and Tibishirani, R. (1993). *An Introduction to the Bootstrap*. Chapman & Hall, New York.



Inner Quartile Range, $IQR = Q3 - Q1$

Boxplot Key

Figure 1.1: Graphical explanation of box and whisker plots

2 Bioretention

2.1 Nitrogen as N

Table 2.1: Summary of Nitrogen as N at Bioretention BMPs

Statistic	Inlet	Outlet
Count	136	116
Number of Non-detects	0	0
Number of Studies	7	7
Min, Max	0.1, 22.3	0.09, 18.2
Mean (95% conf. interval)	1.84 (1.58, 2.3)	2.32 (1.84, 2.94)
Std. Dev.	2.08	3.01
Skewness	7.25	3.04
Median (95% conf. interval)	1.38 (1.25, 1.59)	1.09 (0.98, 1.24)
25 th , 75 th percentiles	0.95, 2.21	0.755, 2.87

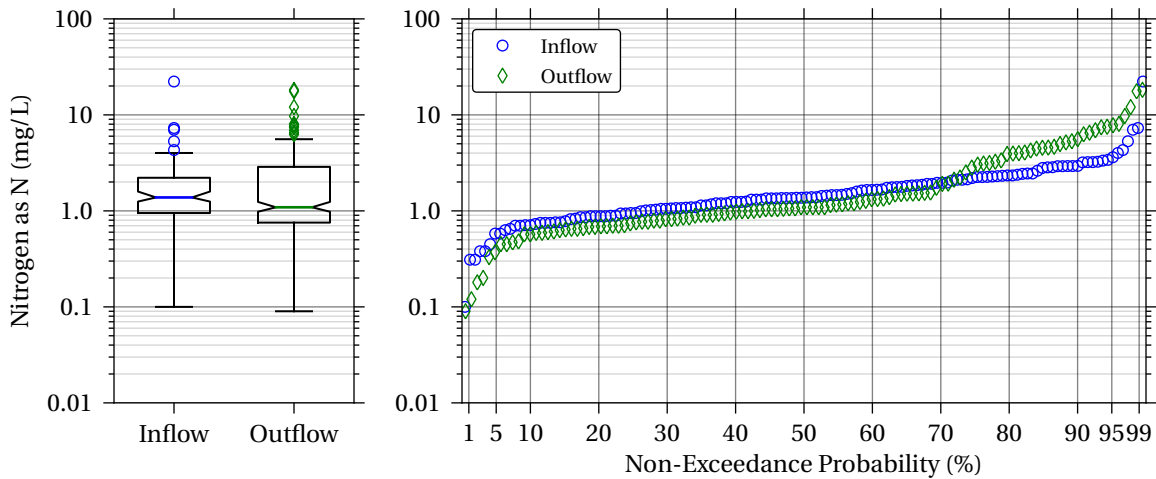


Figure 2.1: Box and probability plots of Nitrogen as N at Bioretention BMPs

2.2 NO_x as N

Table 2.2: Summary of NO_x as N at Bioretention BMPs

Statistic	Inlet	Outlet
Count	194	158
Number of Non-detects	0	2
Number of Studies	10	10
Min, Max	0.02, 4.32	0.0, 2.32
Mean (95% conf. interval)	0.418 (0.355, 0.506)	0.299 (0.251, 0.361)
Std. Dev.	0.526	0.354
Skewness	5.16	3.64
Median (95% conf. interval)	0.295 (0.26, 0.345)	0.225 (0.17, 0.26)
25 th , 75 th percentiles	0.19, 0.44	0.103, 0.38

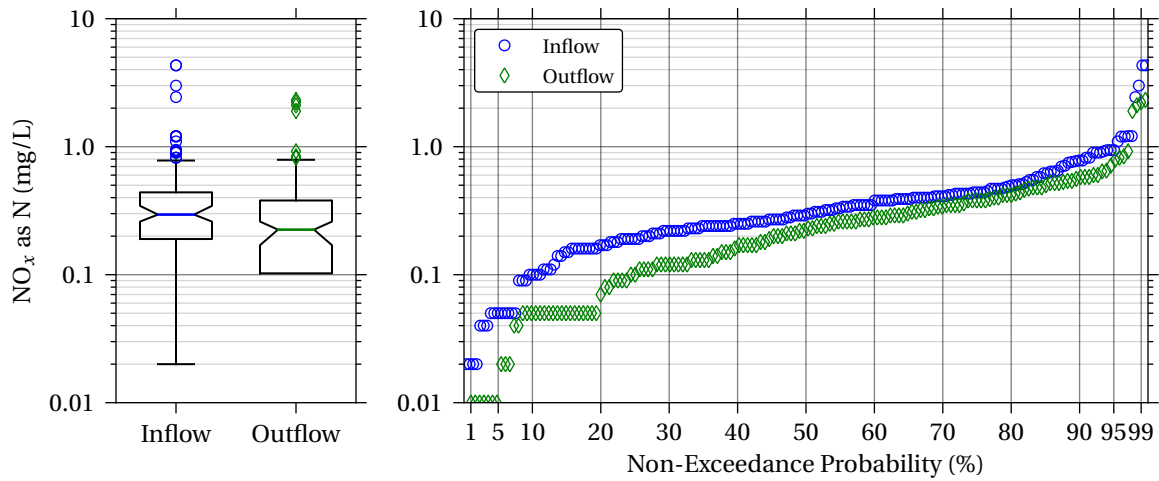


Figure 2.2: Box and probability plots of NO_x as N at Bioretention BMPs

2.3 Total Kjeldahl Nitrogen

Table 2.3: Summary of Total Kjeldahl Nitrogen at Bioretention BMPs

Statistic	Inlet	Outlet
Count	122	107
Number of Non-detects	0	0
Number of Studies	8	8
Min, Max	0.05, 22.0	0.21, 18.0
Mean (95% conf. interval)	1.53 (1.24, 2.04)	2.34 (1.82, 2.99)
Std. Dev.	2.19	3.09
Skewness	7.06	2.81
Median (95% conf. interval)	1.1 (0.92, 1.2)	1.01 (0.84, 1.3)
25 th , 75 th percentiles	0.683, 1.6	0.505, 3.25

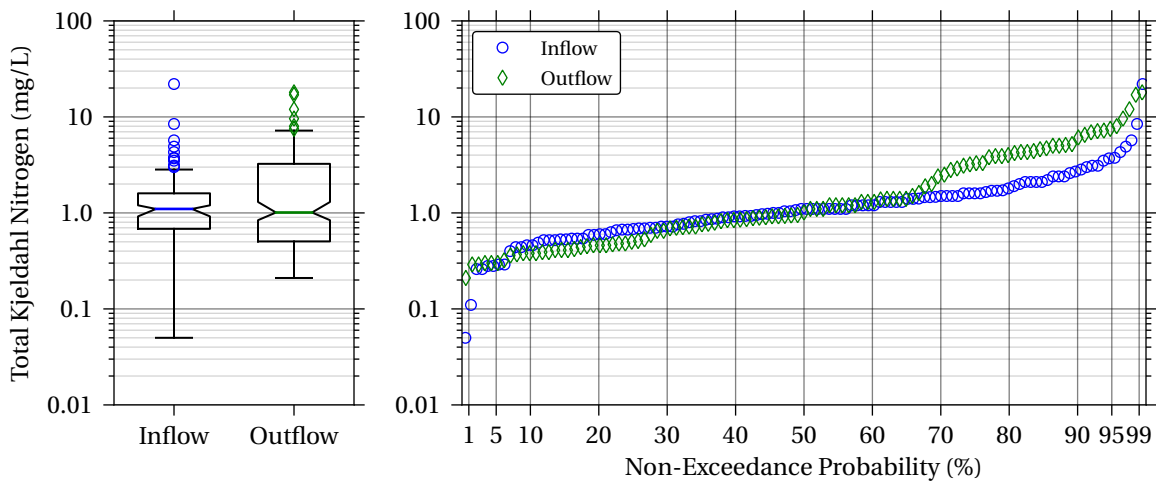


Figure 2.3: Box and probability plots of Total Kjeldahl Nitrogen at Bioretention BMPs

2.4 Total Phosphorus as P

Table 2.4: Summary of Total Phosphorus as P at Bioretention BMPs

Statistic	Inlet	Outlet
Count	187	157
Number of Non-detects	0	8
Number of Studies	12	12
Min, Max	0.01, 1.43	0.0, 23.1
Mean (95% conf. interval)	0.201 (0.173, 0.234)	0.693 (0.402, 1.15)
Std. Dev.	0.211	2.35
Skewness	3.19	7.02
Median (95% conf. interval)	0.14 (0.12, 0.15)	0.13 (0.1, 0.16)
25 th , 75 th percentiles	0.07, 0.23	0.06, 0.33

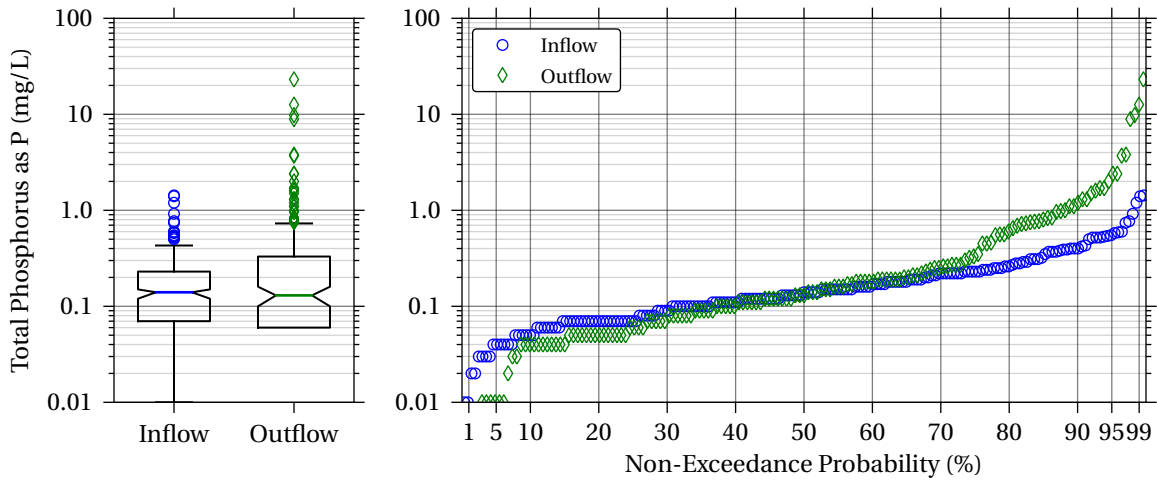


Figure 2.4: Box and probability plots of Total Phosphorus as P at Bioretention BMPs

2.5 Orthophosphate as P

Table 2.5: Summary of Orthophosphate as P at Bioretention BMPs

Statistic	Inlet	Outlet
Count	79	77
Number of Non-detects	0	0
Number of Studies	7	7
Min, Max	0.0, 1.1	0.01, 21.9
Mean (95% conf. interval)	0.111 (0.0767, 0.157)	1.08 (0.565, 1.93)
Std. Dev.	0.18	2.98
Skewness	3.13	5.17
Median (95% conf. interval)	0.04 (0.01, 0.04)	0.16 (0.07, 0.37)
25 th , 75 th percentiles	0.01, 0.13	0.05, 0.75

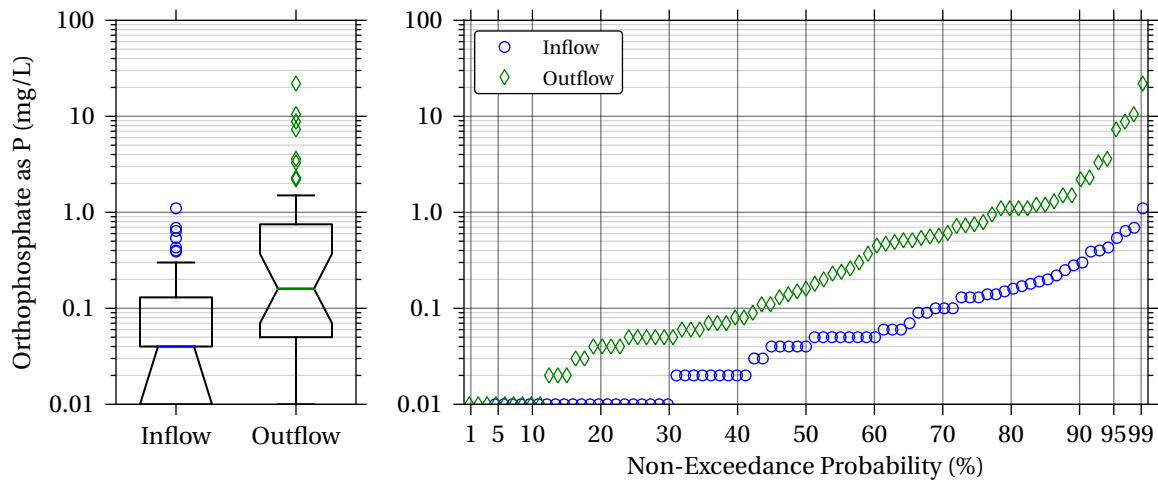


Figure 2.5: Box and probability plots of Orthophosphate as P at Bioretention BMPs

3 Detention Basin

3.1 Dissolved Organic Carbon

Table 3.1: Summary of Dissolved Organic Carbon at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	34	31
Number of Non-detects	0	0
Number of Studies	4	4
Min, Max	3.1, 30.0	4.4, 34.0
Mean (95% conf. interval)	14.2 (11.8, 16.7)	15.4 (12.6, 18.6)
Std. Dev.	7.23	8.5
Skewness	0.631	0.805
Median (95% conf. interval)	11.0 (9.5, 12.0)	12.0 (7.8, 12.0)
25 th , 75 th percentiles	9.55, 20.8	8.45, 20.5

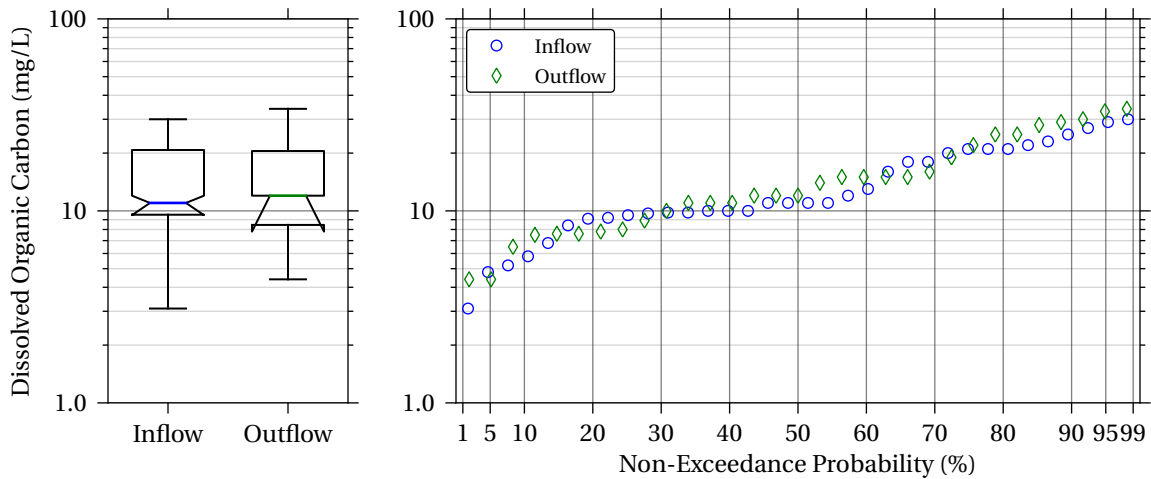


Figure 3.1: Box and probability plots of Dissolved Organic Carbon at Detention Basin BMPs

3.2 Total Organic Carbon

Table 3.2: Summary of Total Organic Carbon at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	47	45
Number of Non-detects	0	0
Number of Studies	6	6
Min, Max	3.6, 36.0	4.0, 39.0
Mean (95% conf. interval)	16.0 (13.7, 18.5)	15.3 (13.1, 17.8)
Std. Dev.	8.39	8.1
Skewness	0.803	1.03
Median (95% conf. interval)	13.0 (11.0, 17.0)	13.0 (11.0, 16.0)
25 th , 75 th percentiles	10.0, 21.5	10.0, 19.0

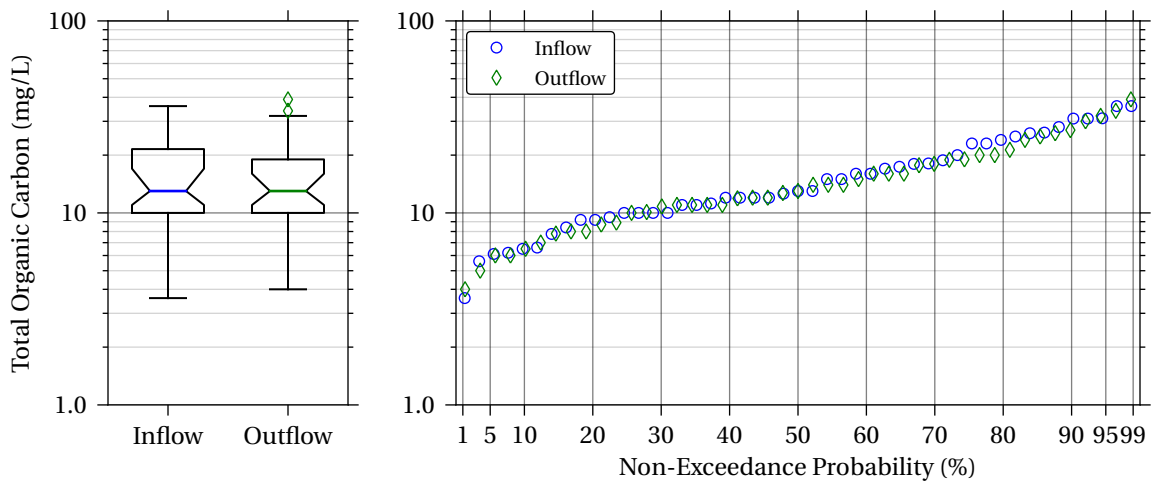


Figure 3.2: Box and probability plots of Total Organic Carbon at Detention Basin BMPs

3.3 Nitrogen as N

Table 3.3: Summary of Nitrogen as N at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	52	64
Number of Non-detects	0	0
Number of Studies	3	3
Min, Max	0.27, 53.3	0.45, 7.66
Mean (95% conf. interval)	3.03 (1.7, 5.92)	2.44 (2.1, 2.81)
Std. Dev.	7.41	1.44
Skewness	6.08	0.851
Median (95% conf. interval)	1.4 (1.13, 1.62)	2.45 (1.77, 2.73)
25 th , 75 th percentiles	0.9, 2.02	1.18, 3.27

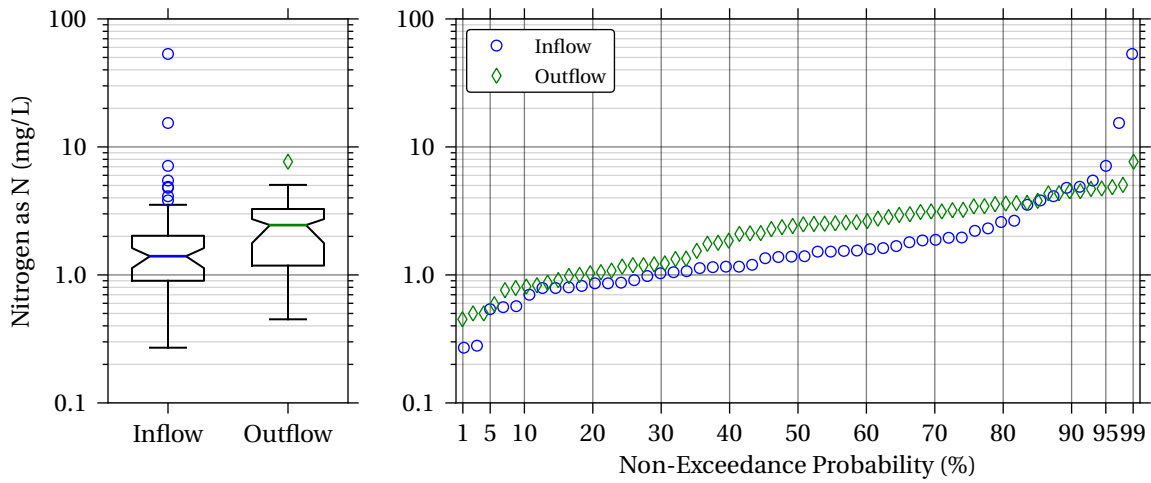


Figure 3.3: Box and probability plots of Nitrogen as N at Detention Basin BMPs

3.4 NO_x as N

Table 3.4: Summary of NO_x as N at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	173	179
Number of Non-detects	5	11
Number of Studies	12	12
Min, Max	0.01, 9.5	0.0, 4.2
Mean (95% conf. interval)	0.769 (0.622, 0.968)	0.556 (0.47, 0.654)
Std. Dev.	1.15	0.629
Skewness	4.95	2.15
Median (95% conf. interval)	0.5 (0.36, 0.53)	0.38 (0.22, 0.47)
25 th , 75 th percentiles	0.21, 0.9	0.095, 0.75

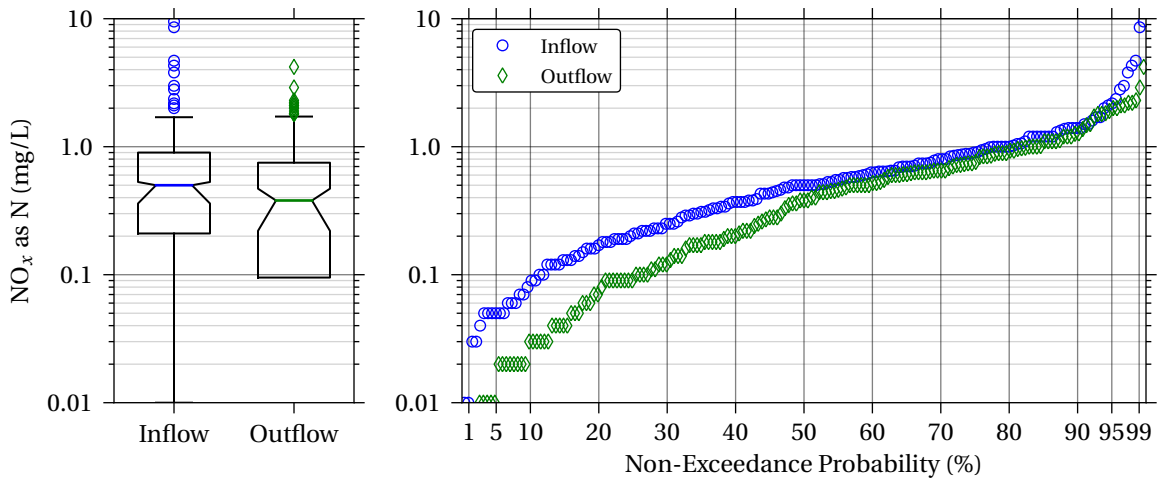


Figure 3.4: Box and probability plots of NO_x as N at Detention Basin BMPs

3.5 Total Kjeldahl Nitrogen

Table 3.5: Summary of Total Kjeldahl Nitrogen at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	157	161
Number of Non-detects	5	8
Number of Studies	10	10
Min, Max	0.14, 53.2	0.22, 78.6
Mean (95% conf. interval)	2.41 (1.83, 3.41)	2.46 (1.84, 3.85)
Std. Dev.	4.92	6.24
Skewness	7.98	11.3
Median (95% conf. interval)	1.4 (1.11, 1.42)	1.6 (1.2, 1.8)
25 th , 75 th percentiles	0.84, 2.4	0.9, 2.6

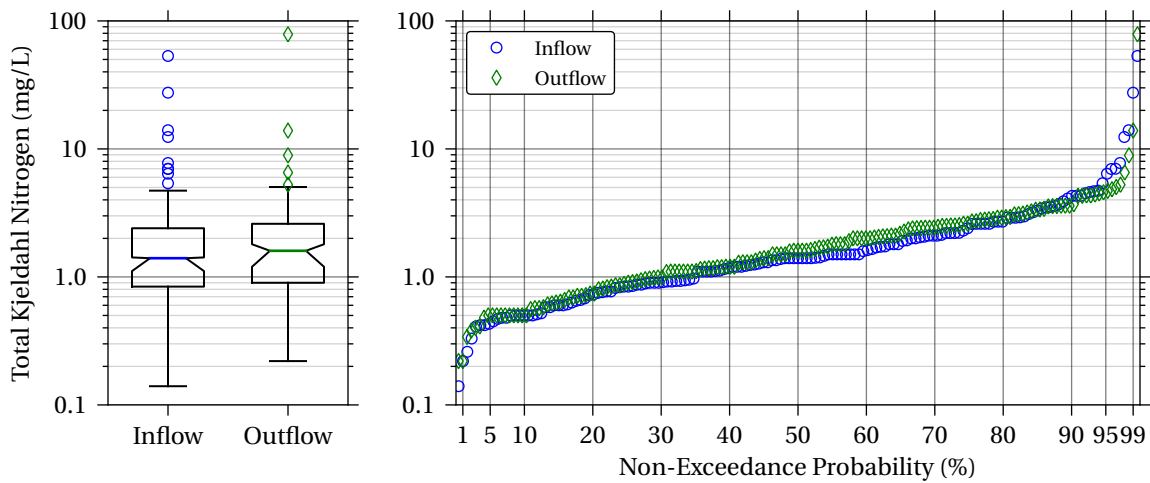


Figure 3.5: Box and probability plots of Total Kjeldahl Nitrogen at Detention Basin BMPs

3.6 Dissolved Phosphorus as P

Table 3.6: Summary of Dissolved Phosphorus as P at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	63	60
Number of Non-detects	9	10
Number of Studies	7	7
Min, Max	0.03, 0.96	0.03, 0.72
Mean (95% conf. interval)	0.125 (0.0989, 0.166)	0.128 (0.102, 0.163)
Std. Dev.	0.132	0.12
Skewness	4.31	2.72
Median (95% conf. interval)	0.09 (0.07, 0.1)	0.09 (0.065, 0.11)
25 th , 75 th percentiles	0.05, 0.155	0.05, 0.14

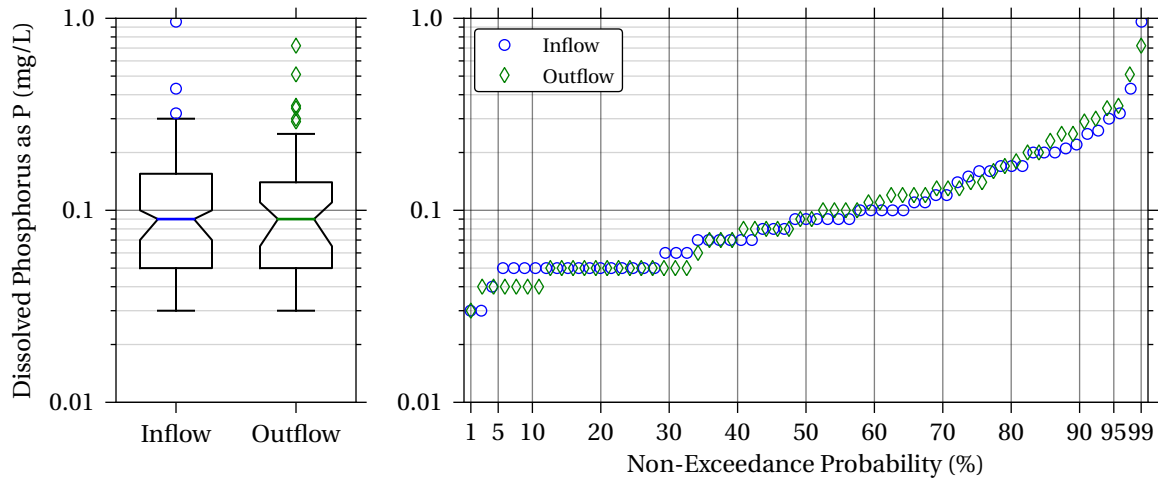


Figure 3.6: Box and probability plots of Dissolved Phosphorus as P at Detention Basin BMPs

3.7 Total Phosphorus as P

Table 3.7: Summary of Total Phosphorus as P at Detention Basin BMPs

Statistic	Inlet	Outlet
Count	222	241
Number of Non-detects	7	7
Number of Studies	17	17
Min, Max	0.02, 8.44	0.03, 7.7
Mean (95% conf. interval)	0.455 (0.37, 0.58)	0.365 (0.29, 0.478)
Std. Dev.	0.786	0.724
Skewness	6.89	7.13
Median (95% conf. interval)	0.26 (0.21, 0.26)	0.21 (0.18, 0.23)
25 th , 75 th percentiles	0.18, 0.48	0.12, 0.34

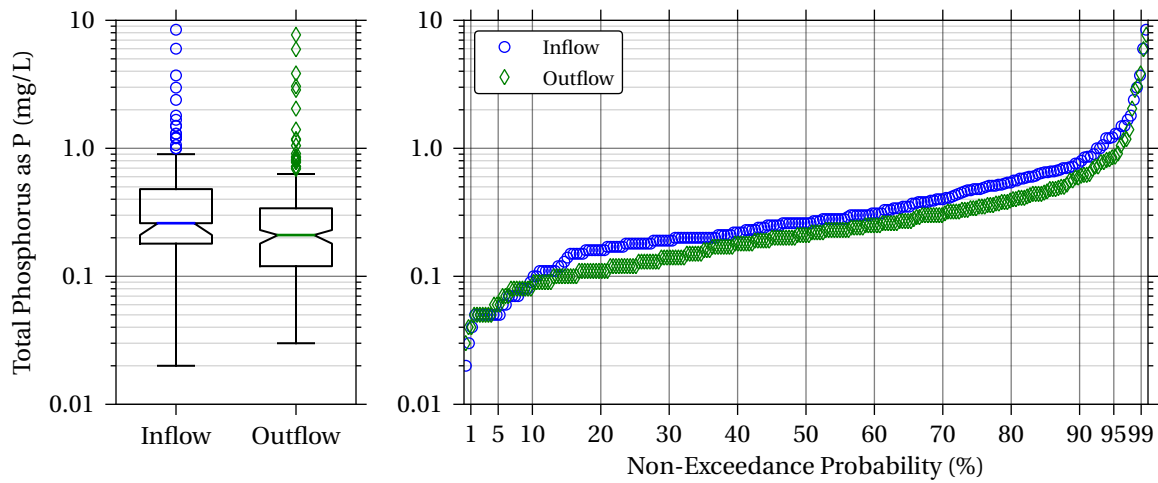


Figure 3.7: Box and probability plots of Total Phosphorus as P at Detention Basin BMPs

4 Filter Strip

4.1 Dissolved Organic Carbon

Table 4.1: Summary of Dissolved Organic Carbon at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	208	149
Number of Non-detects	0	1
Number of Studies	11	11
Min, Max	0.7, 75.0	0.5, 86.0
Mean (95% conf. interval)	11.9 (10.4, 13.6)	15.2 (13.6, 17.1)
Std. Dev.	11.8	10.9
Skewness	2.36	2.53
Median (95% conf. interval)	8.2 (7.1, 9.5)	12.0 (9.4, 12.0)
25 th , 75 th percentiles	4.47, 13.3	8.2, 19.0

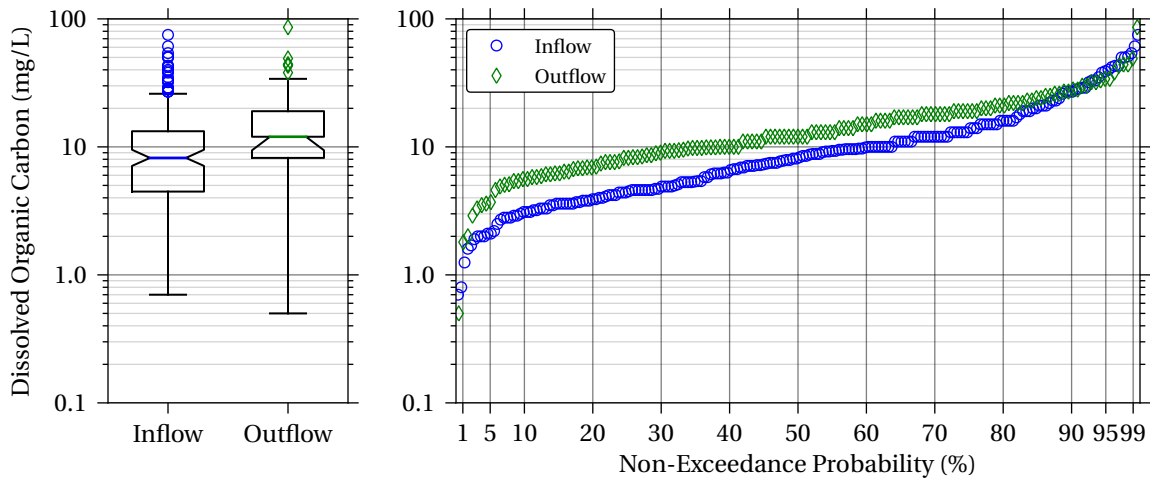


Figure 4.1: Box and probability plots of Dissolved Organic Carbon at Filter Strip BMPs

4.2 Total Organic Carbon

Table 4.2: Summary of Total Organic Carbon at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	217	156
Number of Non-detects	1	1
Number of Studies	12	12
Min, Max	1.0, 88.0	0.5, 120
Mean (95% conf. interval)	13.8 (12.1, 15.8)	16.9 (15.1, 19.3)
Std. Dev.	14.2	13.0
Skewness	2.54	3.7
Median (95% conf. interval)	9.2 (7.6, 10.0)	13.0 (10.9, 13.0)
25 th , 75 th percentiles	5.1, 16.0	9.35, 22.0

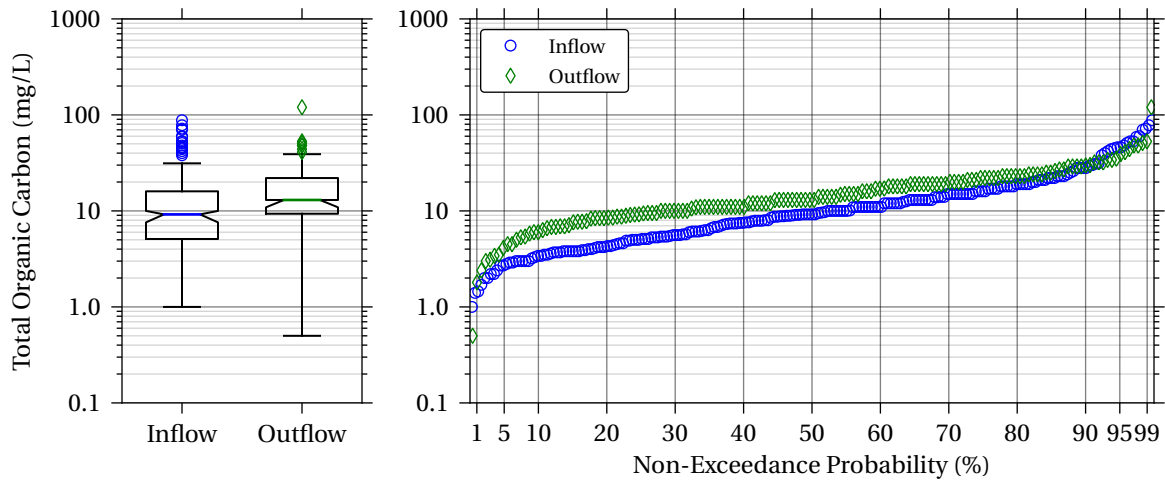


Figure 4.2: Box and probability plots of Total Organic Carbon at Filter Strip BMPs

4.3 NO_x as N

Table 4.3: Summary of NO_x as N at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	243	174
Number of Non-detects	3	5
Number of Studies	14	14
Min, Max	0.01, 5.21	0.01, 14.0
Mean (95% conf. interval)	0.961 (0.846, 1.08)	0.838 (0.645, 1.12)
Std. Dev.	0.959	1.56
Skewness	1.79	5.87
Median (95% conf. interval)	0.63 (0.48, 0.68)	0.415 (0.33, 0.51)
25 th , 75 th percentiles	0.305, 1.2	0.18, 0.928

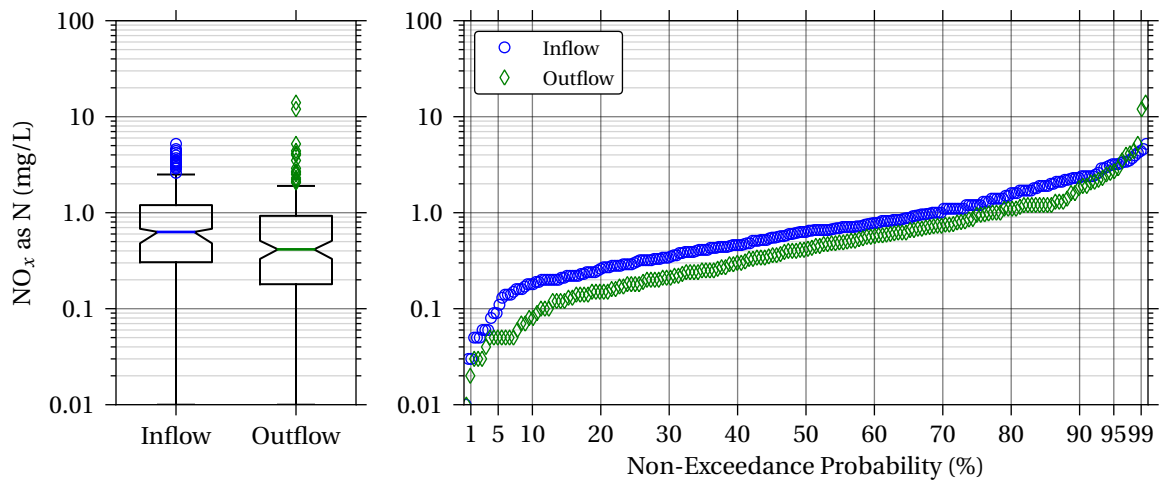


Figure 4.3: Box and probability plots of NO_x as N at Filter Strip BMPs

4.4 Total Kjeldahl Nitrogen

Table 4.4: Summary of Total Kjeldahl Nitrogen at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	237	161
Number of Non-detects	0	0
Number of Studies	13	13
Min, Max	0.11, 8.4	0.11, 18.0
Mean (95% conf. interval)	1.85 (1.69, 2.04)	1.75 (1.5, 2.11)
Std. Dev.	1.38	1.97
Skewness	1.91	5.19
Median (95% conf. interval)	1.5 (1.4, 1.6)	1.3 (1.1, 1.4)
25 th , 75 th percentiles	0.88, 2.4	0.86, 1.8

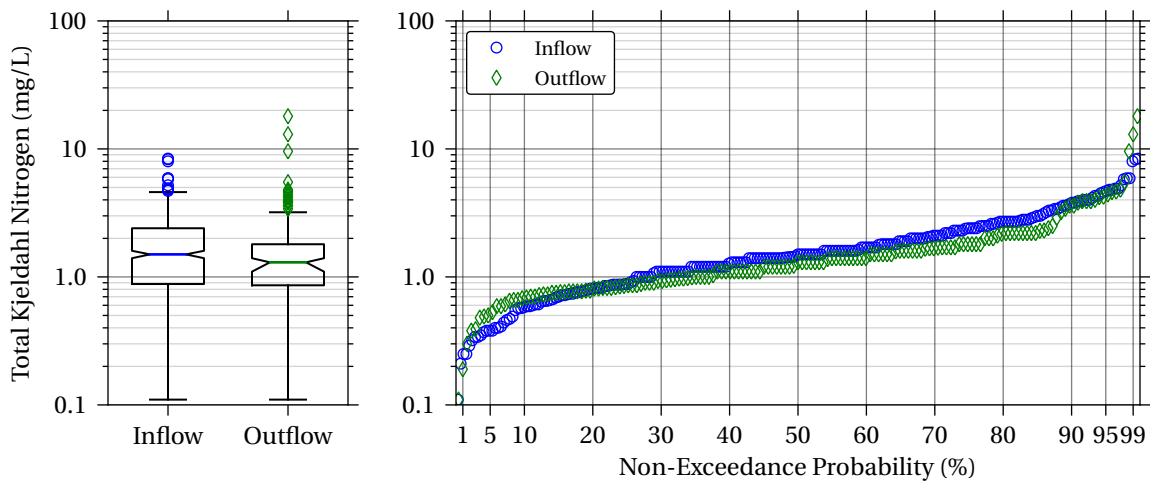


Figure 4.4: Box and probability plots of Total Kjeldahl Nitrogen at Filter Strip BMPs

4.5 Dissolved Phosphorus as P

Table 4.5: Summary of Dissolved Phosphorus as P at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	21	17
Number of Non-detects	2	0
Number of Studies	3	3
Min, Max	0.03, 1.39	0.14, 2.58
Mean (95% conf. interval)	0.165 (0.0824, 0.337)	0.501 (0.268, 0.876)
Std. Dev.	0.286	0.626
Skewness	3.72	2.41
Median (95% conf. interval)	0.08 (0.06, 0.08)	0.23 (0.16, 0.26)
25 th , 75 th percentiles	0.06, 0.14	0.18, 0.38

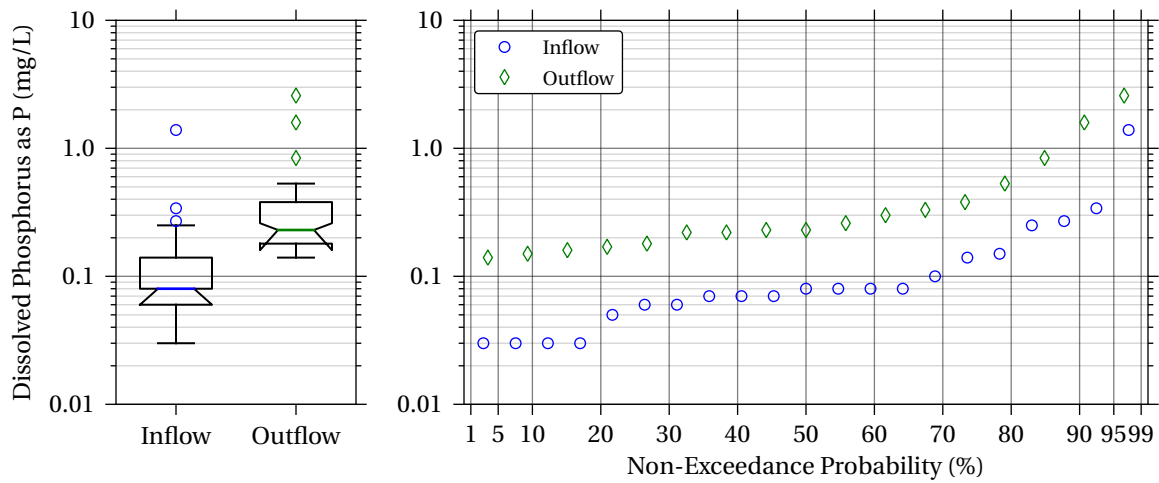


Figure 4.5: Box and probability plots of Dissolved Phosphorus as P at Filter Strip BMPs

4.6 Total Phosphorus as P

Table 4.6: Summary of Total Phosphorus as P at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	245	169
Number of Non-detects	27	7
Number of Studies	14	14
Min, Max	0.0, 1.83	0.0, 3.3
Mean (95% conf. interval)	0.234 (0.204, 0.269)	0.398 (0.322, 0.489)
Std. Dev.	0.258	0.553
Skewness	2.78	3.12
Median (95% conf. interval)	0.16 (0.14, 0.19)	0.21 (0.16, 0.23)
25 th , 75 th percentiles	0.07, 0.3	0.1, 0.45

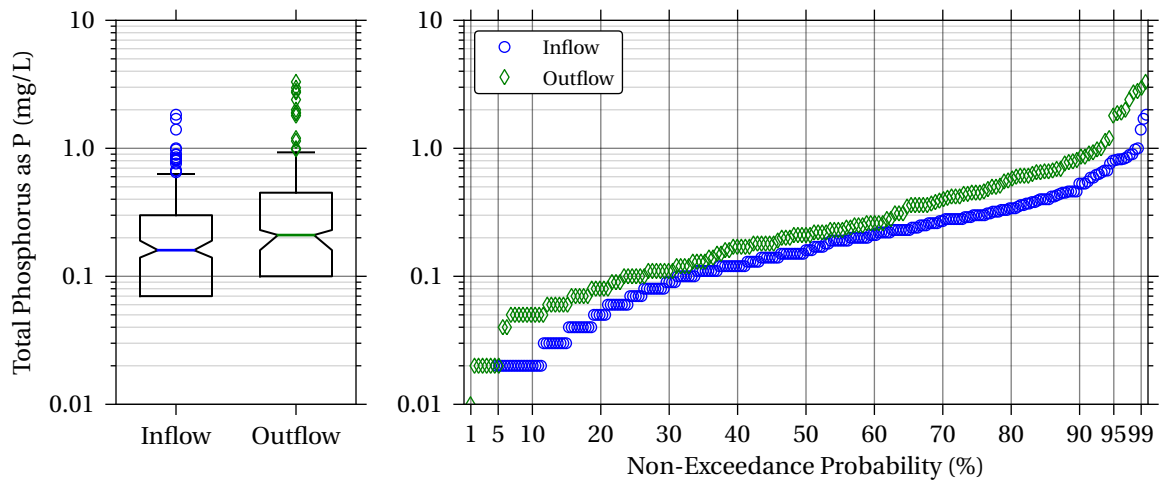


Figure 4.6: Box and probability plots of Total Phosphorus as P at Filter Strip BMPs

4.7 Orthophosphate as P

Table 4.7: Summary of Orthophosphate as P at Filter Strip BMPs

Statistic	Inlet	Outlet
Count	206	142
Number of Non-detects	58	20
Number of Studies	10	10
Min, Max	0.0, 1.2	0.0, 2.3
Mean (95% conf. interval)	0.0899 (0.074, 0.11)	0.232 (0.176, 0.302)
Std. Dev.	0.13	0.378
Skewness	4.08	3.47
Median (95% conf. interval)	0.04 (0.03, 0.04)	0.08 (0.06, 0.1)
25 th , 75 th percentiles	0.02, 0.11	0.03, 0.318

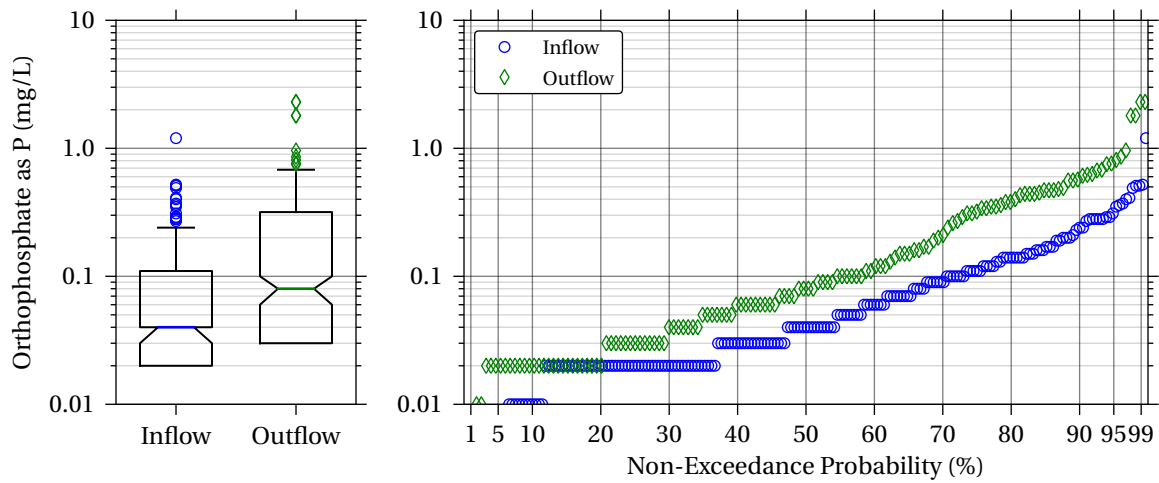


Figure 4.7: Box and probability plots of Orthophosphate as P at Filter Strip BMPs

5 Bioswale

5.1 Dissolved Organic Carbon

Table 5.1: Summary of Dissolved Organic Carbon at Bioswale BMPs

Statistic	Inlet	Outlet
Count	37	25
Number of Non-detects	0	0
Number of Studies	6	6
Min, Max	2.5, 72.0	3.9, 32.0
Mean (95% conf. interval)	22.7 (17.3, 29.2)	15.5 (12.5, 18.6)
Std. Dev.	18.3	7.76
Skewness	1.24	0.238
Median (95% conf. interval)	17.0 (10.4, 21.0)	12.9 (8.4, 17.0)
25 th , 75 th percentiles	10.0, 30.0	9.7, 22.0

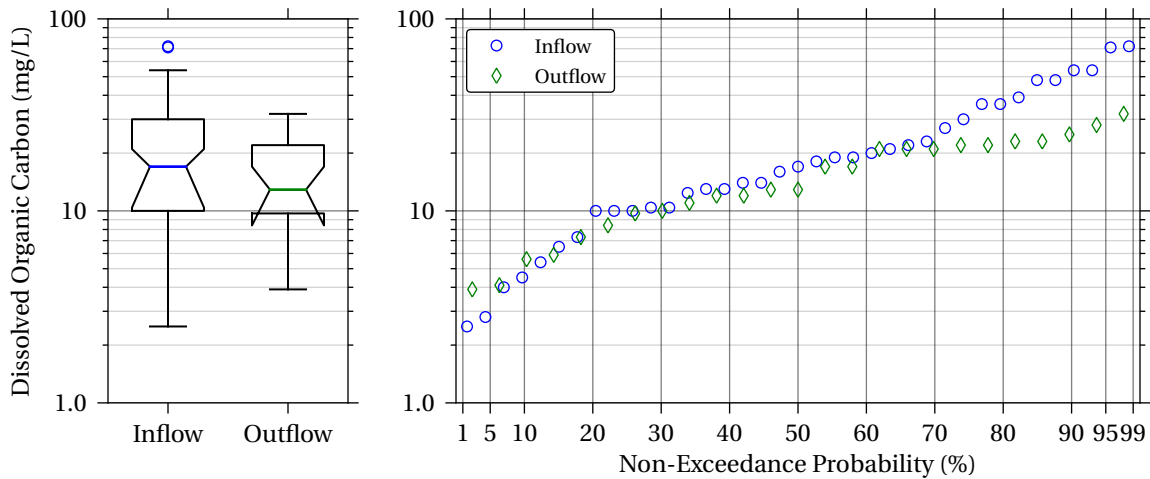


Figure 5.1: Box and probability plots of Dissolved Organic Carbon at Bioswale BMPs

5.2 Total Organic Carbon

Table 5.2: Summary of Total Organic Carbon at Bioswale BMPs

Statistic	Inlet	Outlet
Count	56	44
Number of Non-detects	0	0
Number of Studies	7	7
Min, Max	0.1, 90.0	4.6, 44.0
Mean (95% conf. interval)	21.4 (17.0, 26.8)	15.4 (13.3, 17.8)
Std. Dev.	18.7	7.57
Skewness	1.66	1.28
Median (95% conf. interval)	13.4 (11.0, 20.0)	13.0 (11.0, 14.0)
25 th , 75 th percentiles	9.05, 27.8	10.9, 21.0

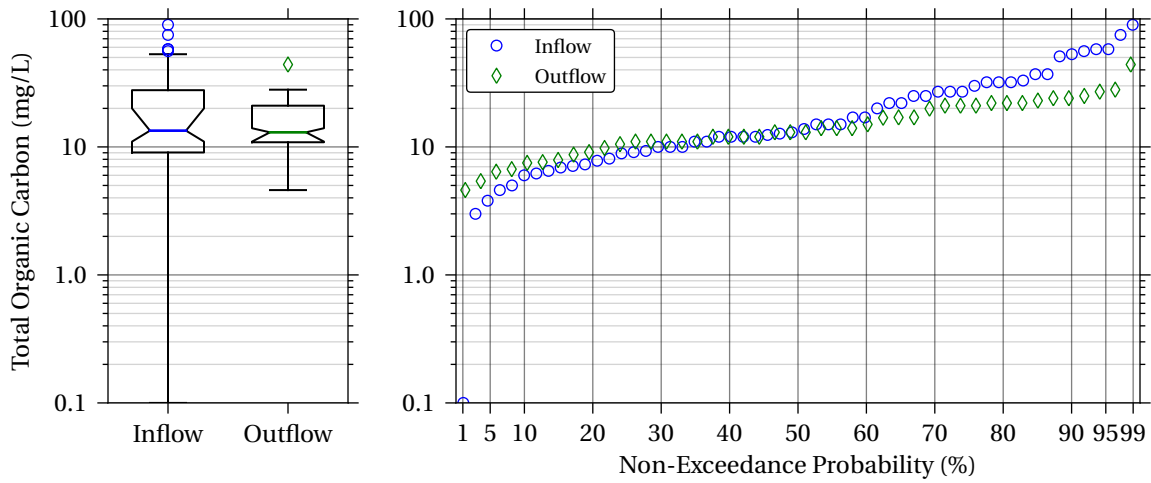


Figure 5.2: Box and probability plots of Total Organic Carbon at Bioswale BMPs

5.3 Nitrogen as N

Table 5.3: Summary of Nitrogen as N at Bioswale BMPs

Statistic	Inlet	Outlet
Count	138	197
Number of Non-detects	0	0
Number of Studies	4	6
Min, Max	0.03, 4.8	0.06, 6.2
Mean (95% conf. interval)	0.879 (0.746, 1.03)	0.924 (0.809, 1.06)
Std. Dev.	0.857	0.874
Skewness	1.97	2.3
Median (95% conf. interval)	0.59 (0.5, 0.62)	0.62 (0.54, 0.66)
25 th , 75 th percentiles	0.285, 1.19	0.36, 1.2

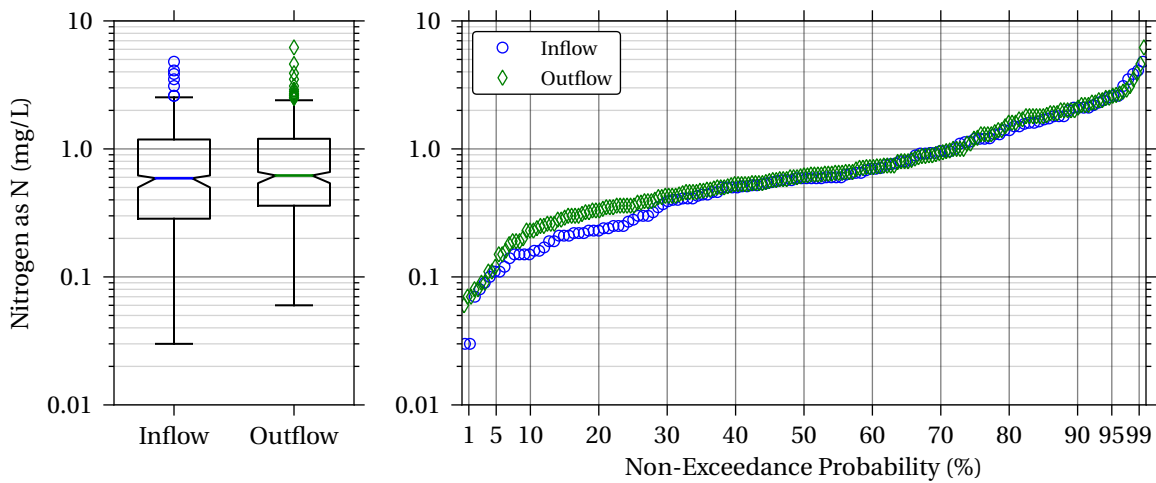


Figure 5.3: Box and probability plots of Nitrogen as N at Bioswale BMPs

5.4 NO_x as N

Table 5.4: Summary of NO_x as N at Bioswale BMPs

Statistic	Inlet	Outlet
Count	267	301
Number of Non-detects	9	3
Number of Studies	17	19
Min, Max	0.0, 5.8	0.0, 16.9
Mean (95% conf. interval)	0.556 (0.46, 0.674)	0.475 (0.385, 0.637)
Std. Dev.	0.888	1.07
Skewness	3.92	12.2
Median (95% conf. interval)	0.3 (0.25, 0.35)	0.28 (0.23, 0.3)
25 th , 75 th percentiles	0.13, 0.6	0.13, 0.5

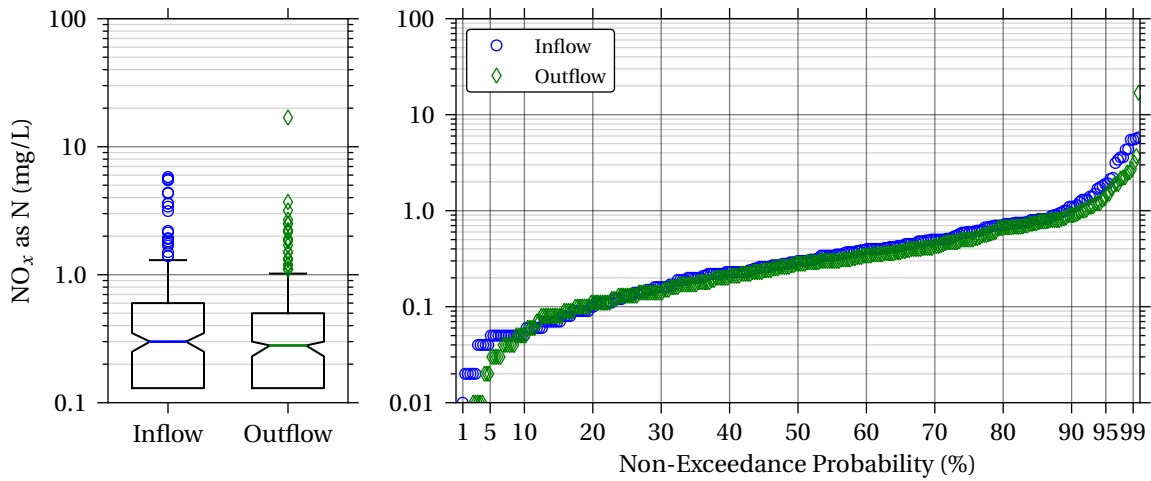


Figure 5.4: Box and probability plots of NO_x as N at Bioswale BMPs

5.5 Total Kjeldahl Nitrogen

Table 5.5: Summary of Total Kjeldahl Nitrogen at Bioswale BMPs

Statistic	Inlet	Outlet
Count	211	253
Number of Non-detects	0	0
Number of Studies	14	16
Min, Max	0.01, 11.0	0.02, 6.15
Mean (95% conf. interval)	1.36 (1.13, 1.62)	0.834 (0.727, 0.958)
Std. Dev.	1.81	0.931
Skewness	2.63	2.61
Median (95% conf. interval)	0.7 (0.46, 0.86)	0.5 (0.43, 0.62)
25 th , 75 th percentiles	0.21, 1.81	0.25, 1.02

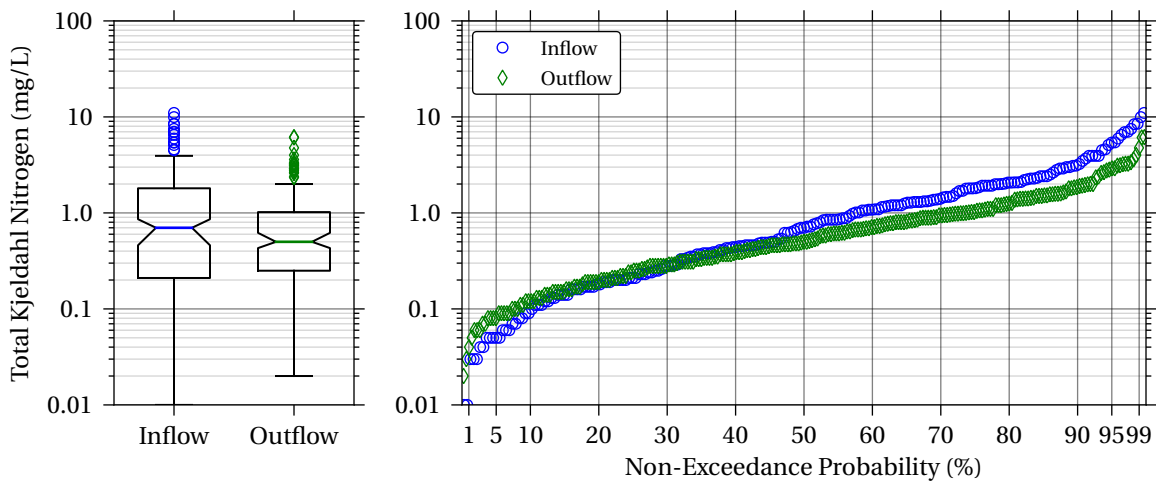


Figure 5.5: Box and probability plots of Total Kjeldahl Nitrogen at Bioswale BMPs

5.6 Total Organic Nitrogen

Table 5.6: Summary of Total Organic Nitrogen at Bioswale BMPs

Statistic	Inlet	Outlet
Count	NA	159
Number of Non-detects	NA	0
Number of Studies	NA	4
Min, Max	NA, NA	0.0, 3.35
Mean (95% conf. interval)	NA (NA, NA)	0.388 (0.334, 0.455)
Std. Dev.	NA	0.388
Skewness	NA	3.55
Median (95% conf. interval)	NA (NA, NA)	0.31 (0.25, 0.35)
25 th , 75 th percentiles	NA, NA	0.145, 0.485

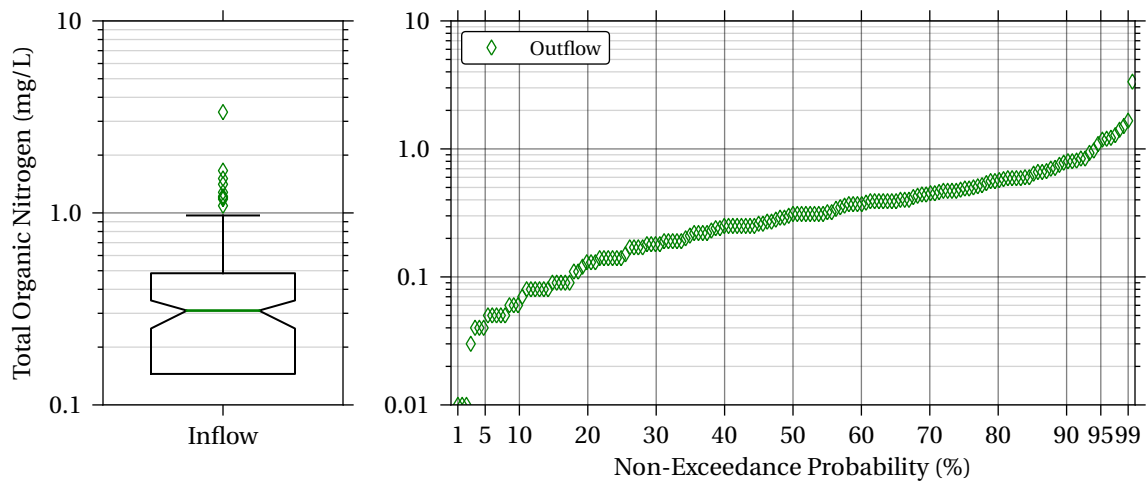


Figure 5.6: Box and probability plots of Total Organic Nitrogen at Bioswale BMPs

5.7 Dissolved Phosphorus as P

Table 5.7: Summary of Dissolved Phosphorus as P at Bioswale BMPs

Statistic	Inlet	Outlet
Count	37	24
Number of Non-detects	0	0
Number of Studies	6	6
Min, Max	0.01, 0.68	0.06, 2.98
Mean (95% conf. interval)	0.126 (0.0924, 0.174)	0.51 (0.319, 0.818)
Std. Dev.	0.125	0.614
Skewness	2.79	2.8
Median (95% conf. interval)	0.09 (0.06, 0.11)	0.295 (0.21, 0.35)
25 th , 75 th percentiles	0.06, 0.14	0.185, 0.493

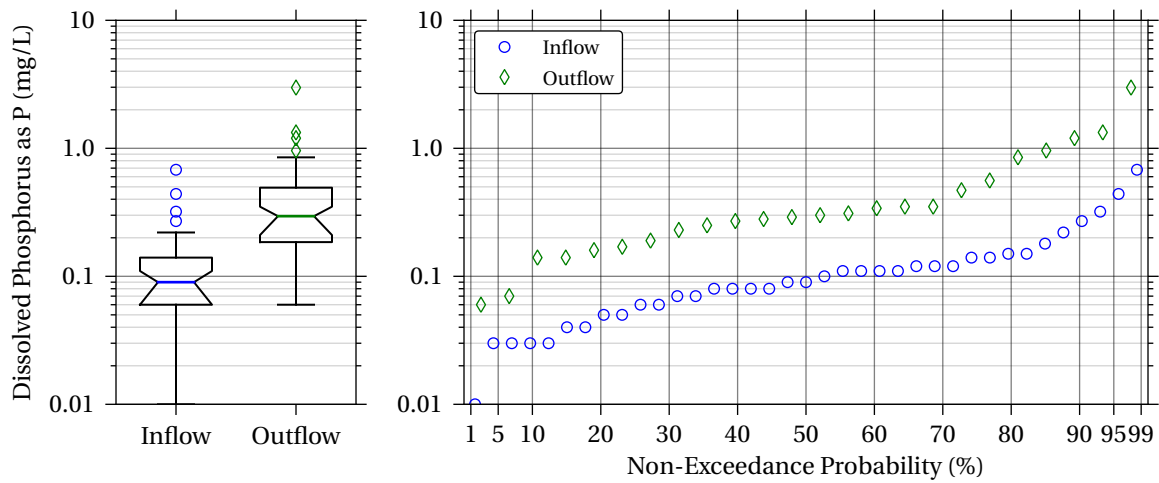


Figure 5.7: Box and probability plots of Dissolved Phosphorus as P at Bioswale BMPs

5.8 Total Phosphorus as P

Table 5.8: Summary of Total Phosphorus as P at Bioswale BMPs

Statistic	Inlet	Outlet
Count	257	293
Number of Non-detects	2	2
Number of Studies	17	19
Min, Max	0.01, 1.4	0.01, 2.68
Mean (95% conf. interval)	0.2 (0.175, 0.228)	0.309 (0.273, 0.351)
Std. Dev.	0.215	0.341
Skewness	2.2	3.78
Median (95% conf. interval)	0.12 (0.09, 0.16)	0.2 (0.17, 0.2)
25 th , 75 th percentiles	0.05, 0.28	0.14, 0.35

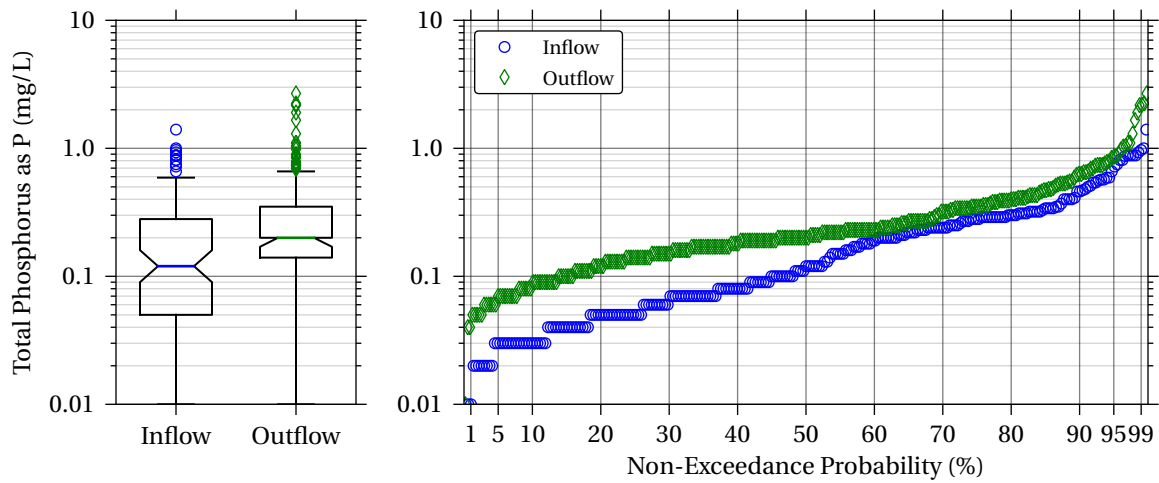


Figure 5.8: Box and probability plots of Total Phosphorus as P at Bioswale BMPs

5.9 Orthophosphate as P

Table 5.9: Summary of Orthophosphate as P at Bioswale BMPs

Statistic	Inlet	Outlet
Count	140	197
Number of Non-detects	13	0
Number of Studies	5	7
Min, Max	0.0, 0.4	0.02, 1.9
Mean (95% conf. interval)	0.0461 (0.0371, 0.0579)	0.156 (0.136, 0.184)
Std. Dev.	0.0626	0.168
Skewness	3.79	6.27
Median (95% conf. interval)	0.03 (0.03, 0.03)	0.12 (0.1, 0.13)
25 th , 75 th percentiles	0.02, 0.04	0.07, 0.18

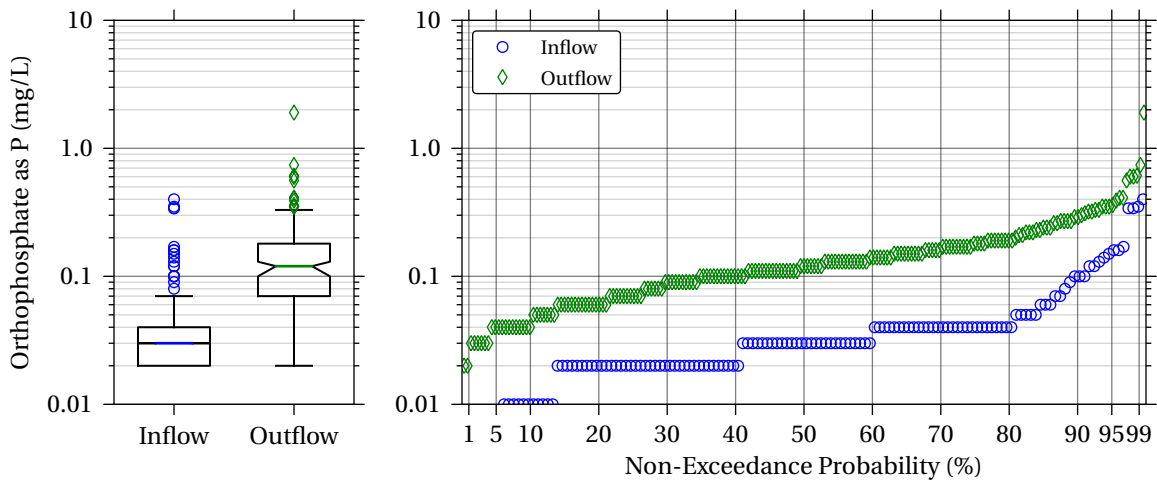


Figure 5.9: Box and probability plots of Orthophosphate as P at Bioswale BMPs

6 Manufactured Device

6.1 Dissolved Organic Carbon

Table 6.1: Summary of Dissolved Organic Carbon at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	142	151
Number of Non-detects	0	0
Number of Studies	8	14
Min, Max	2.1, 113	2.0, 128
Mean (95% conf. interval)	27.4 (24.7, 30.5)	23.4 (20.8, 26.5)
Std. Dev.	17.6	18.1
Skewness	2.03	2.54
Median (95% conf. interval)	27.0 (25.0, 28.3)	23.4 (19.0, 25.5)
25 th , 75 th percentiles	16.1, 34.0	9.75, 29.4

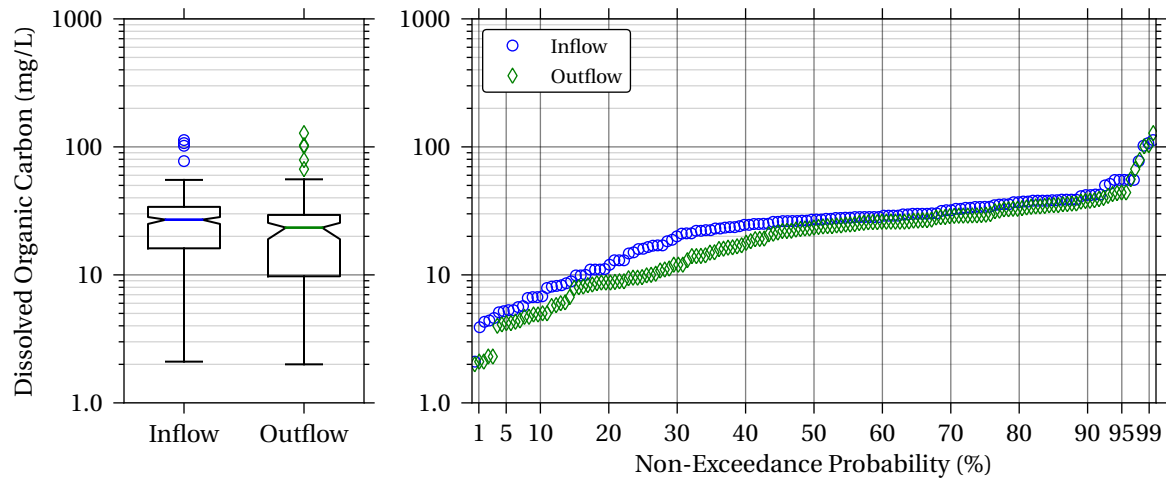


Figure 6.1: Box and probability plots of Dissolved Organic Carbon at Manufactured Device BMPs

6.2 Total Organic Carbon

Table 6.2: Summary of Total Organic Carbon at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	167	176
Number of Non-detects	0	0
Number of Studies	11	17
Min, Max	2.2, 122	2.1, 134
Mean (95% conf. interval)	28.6 (25.5, 32.0)	23.9 (21.3, 26.8)
Std. Dev.	21.3	18.5
Skewness	1.9	2.39
Median (95% conf. interval)	26.6 (22.7, 28.0)	23.0 (19.0, 26.1)
25 th , 75 th percentiles	12.9, 34.7	10.0, 30.6

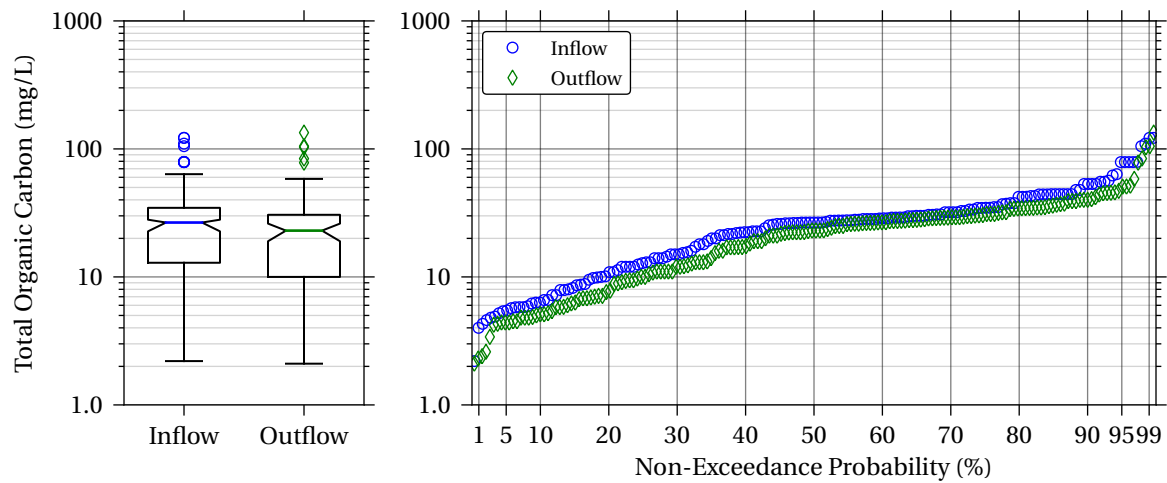


Figure 6.2: Box and probability plots of Total Organic Carbon at Manufactured Device BMPs

6.3 Nitrogen as N

Table 6.3: Summary of Nitrogen as N at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	133	117
Number of Non-detects	0	0
Number of Studies	8	8
Min, Max	0.11, 12.6	0.11, 12.0
Mean (95% conf. interval)	2.82 (2.48, 3.21)	2.71 (2.36, 3.15)
Std. Dev.	2.15	2.18
Skewness	2.12	2.45
Median (95% conf. interval)	2.25 (1.98, 2.65)	2.21 (1.85, 2.34)
25 th , 75 th percentiles	1.29, 3.58	1.4, 3.29

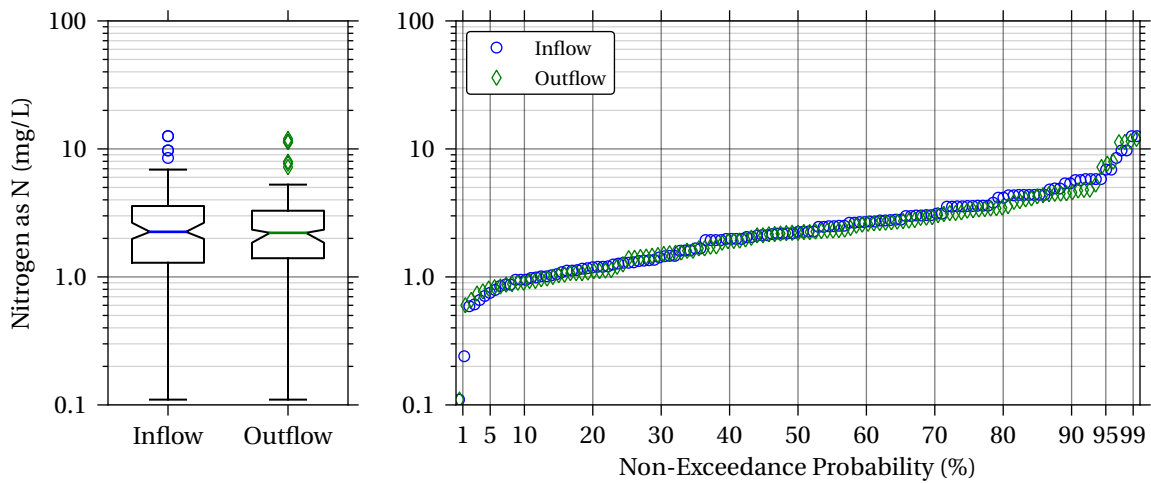


Figure 6.3: Box and probability plots of Nitrogen as N at Manufactured Device BMPs

6.4 NO_x as N

Table 6.4: Summary of NO_x as N at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	480	457
Number of Non-detects	3	6
Number of Studies	27	34
Min, Max	0.01, 13.4	0.01, 54.2
Mean (95% conf. interval)	0.689 (0.597, 0.805)	0.775 (0.613, 1.12)
Std. Dev.	1.15	2.65
Skewness	5.98	18.1
Median (95% conf. interval)	0.38 (0.33, 0.4)	0.43 (0.38, 0.45)
25 th , 75 th percentiles	0.22, 0.79	0.22, 0.77

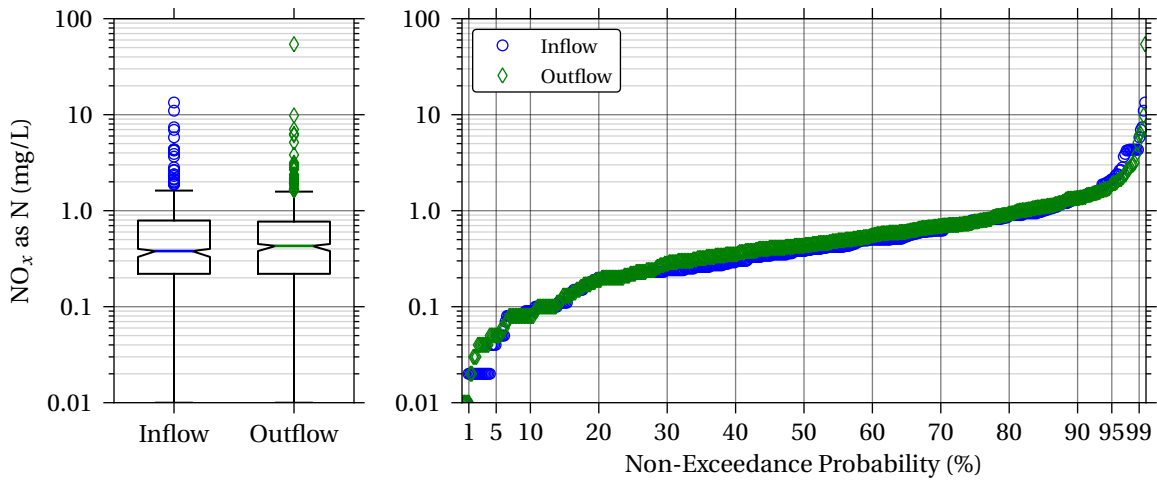


Figure 6.4: Box and probability plots of NO_x as N at Manufactured Device BMPs

6.5 Total Kjeldahl Nitrogen

Table 6.5: Summary of Total Kjeldahl Nitrogen at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	292	341
Number of Non-detects	1	3
Number of Studies	18	25
Min, Max	0.01, 305	0.0, 31.1
Mean (95% conf. interval)	3.44 (2.19, 6.5)	2.13 (1.87, 2.46)
Std. Dev.	18.0	2.75
Skewness	16.2	5.67
Median (95% conf. interval)	1.6 (1.43, 1.75)	1.51 (1.4, 1.6)
25 th , 75 th percentiles	0.8, 2.81	0.8, 2.45

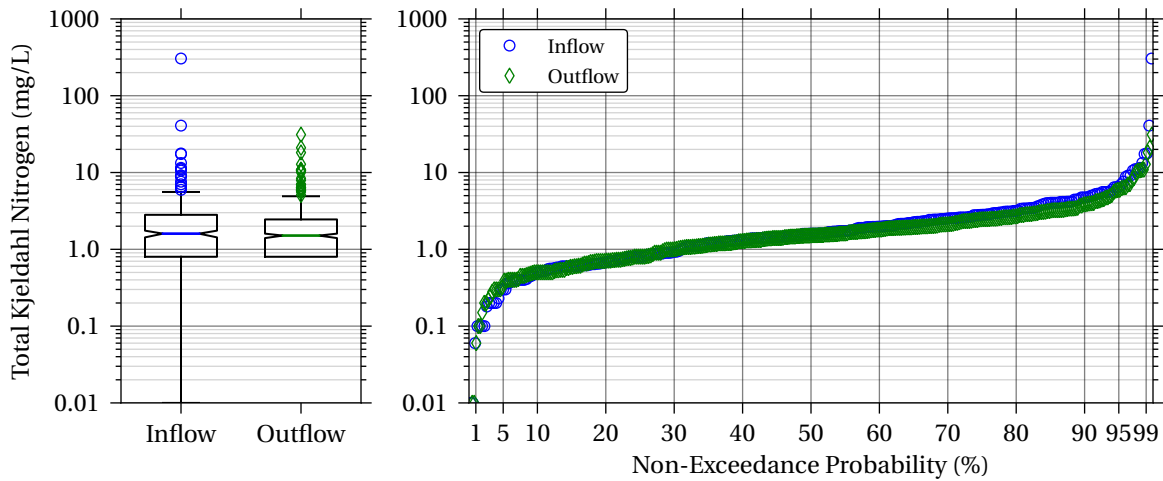


Figure 6.5: Box and probability plots of Total Kjeldahl Nitrogen at Manufactured Device BMPs

6.6 Total Organic Nitrogen

Table 6.6: Summary of Total Organic Nitrogen at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	118	104
Number of Non-detects	0	0
Number of Studies	6	6
Min, Max	0.04, 1.36	0.04, 2.81
Mean (95% conf. interval)	0.477 (0.426, 0.534)	0.862 (0.73, 1.0)
Std. Dev.	0.298	0.71
Skewness	0.81	0.953
Median (95% conf. interval)	0.445 (0.35, 0.505)	0.61 (0.47, 0.755)
25 th , 75 th percentiles	0.25, 0.628	0.255, 1.25

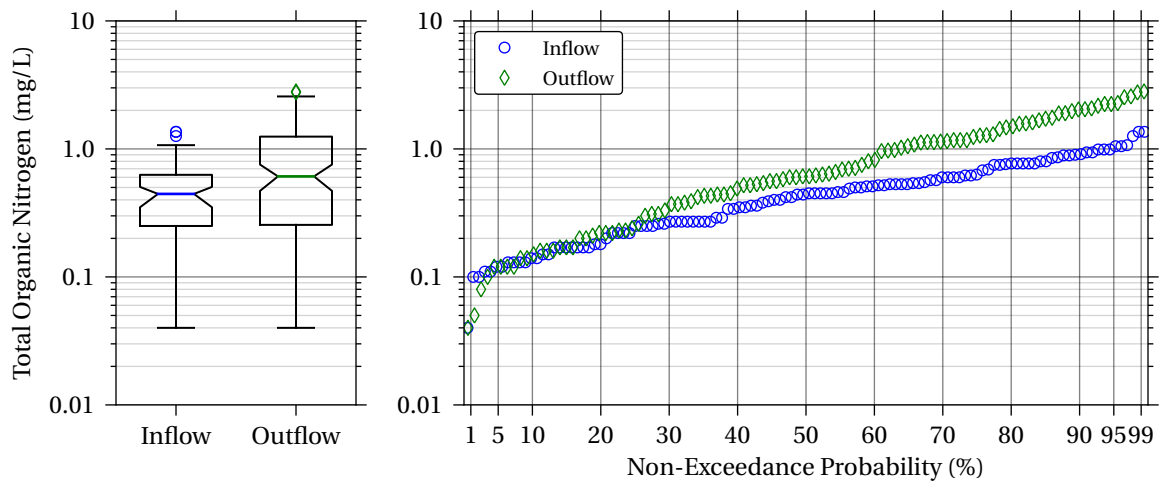


Figure 6.6: Box and probability plots of Total Organic Nitrogen at Manufactured Device BMPs

6.7 Dissolved Phosphorus as P

Table 6.7: Summary of Dissolved Phosphorus as P at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	132	164
Number of Non-detects	6	5
Number of Studies	12	19
Min, Max	0.0, 3.31	0.0, 1.85
Mean (95% conf. interval)	0.231 (0.166, 0.317)	0.214 (0.164, 0.275)
Std. Dev.	0.44	0.36
Skewness	4.03	2.88
Median (95% conf. interval)	0.08 (0.055, 0.105)	0.07 (0.05, 0.08)
25 th , 75 th percentiles	0.03, 0.21	0.03, 0.2

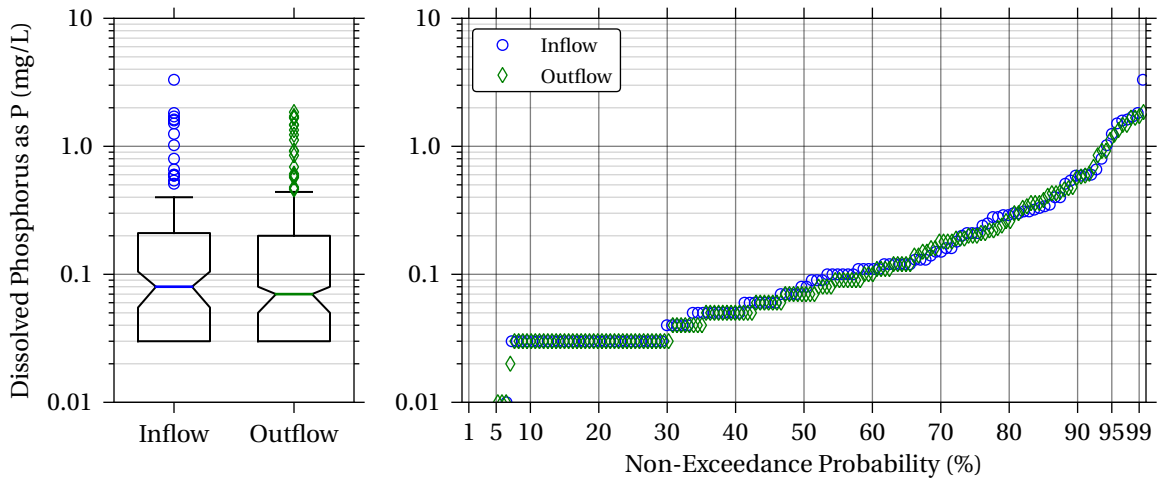


Figure 6.7: Box and probability plots of Dissolved Phosphorus as P at Manufactured Device BMPs

6.8 Total Phosphorus as P

Table 6.8: Summary of Total Phosphorus as P at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	457	456
Number of Non-detects	5	10
Number of Studies	34	41
Min, Max	0.01, 7.3	0.0, 8.35
Mean (95% conf. interval)	0.441 (0.374, 0.521)	0.378 (0.309, 0.462)
Std. Dev.	0.795	0.834
Skewness	5.07	5.83
Median (95% conf. interval)	0.22 (0.16, 0.22)	0.14 (0.11, 0.14)
25 th , 75 th percentiles	0.1, 0.46	0.07, 0.363

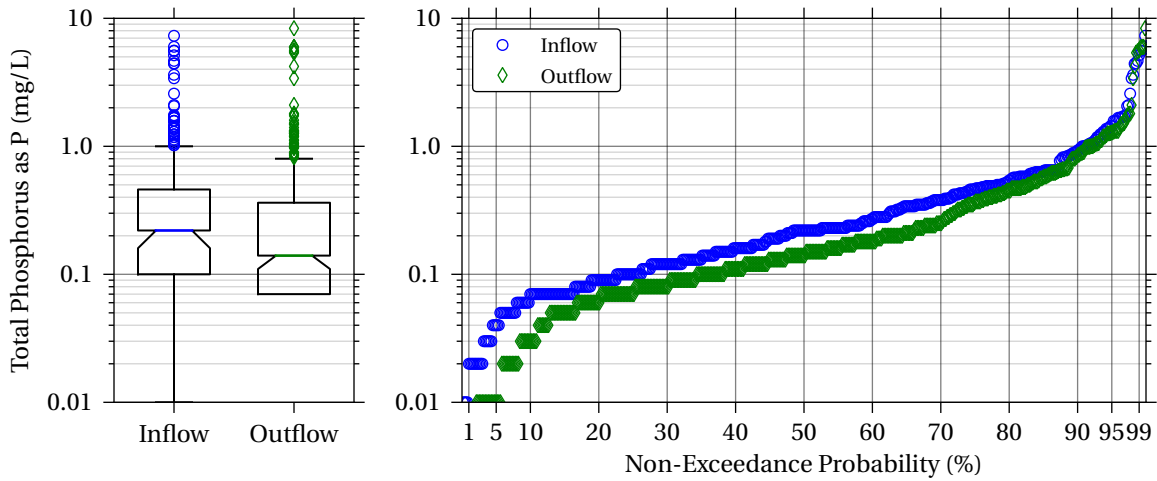


Figure 6.8: Box and probability plots of Total Phosphorus as P at Manufactured Device BMPs

6.9 Orthophosphate as P

Table 6.9: Summary of Orthophosphate as P at Manufactured Device BMPs

Statistic	Inlet	Outlet
Count	201	185
Number of Non-detects	18	18
Number of Studies	14	14
Min, Max	0.0, 1.35	0.0, 1.35
Mean (95% conf. interval)	0.296 (0.256, 0.34)	0.265 (0.221, 0.314)
Std. Dev.	0.302	0.32
Skewness	1.33	1.58
Median (95% conf. interval)	0.21 (0.13, 0.25)	0.12 (0.07, 0.13)
25 th , 75 th percentiles	0.05, 0.46	0.03, 0.41

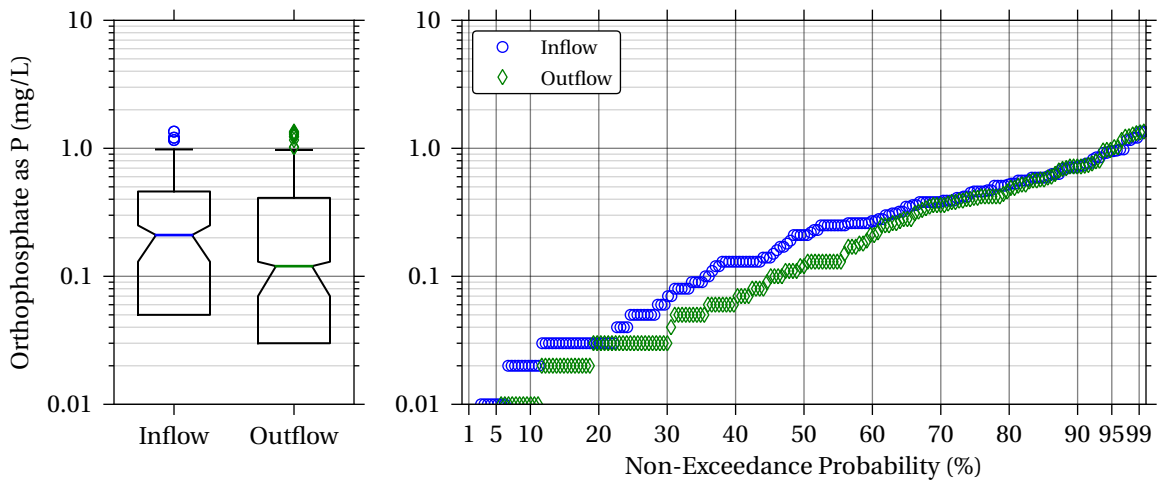


Figure 6.9: Box and probability plots of Orthophosphate as P at Manufactured Device BMPs

7 Media Filter

7.1 Dissolved Organic Carbon

Table 7.1: Summary of Dissolved Organic Carbon at Media Filter BMPs

Statistic	Inlet	Outlet
Count	120	114
Number of Non-detects	1	2
Number of Studies	11	11
Min, Max	0.5, 82.0	0.5, 90.0
Mean (95% conf. interval)	12.4 (10.2, 15.2)	12.3 (9.78, 15.5)
Std. Dev.	14.0	15.4
Skewness	2.5	2.94
Median (95% conf. interval)	7.18 (5.55, 9.75)	8.15 (5.4, 10.5)
25 th , 75 th percentiles	4.0, 14.9	3.33, 14.0

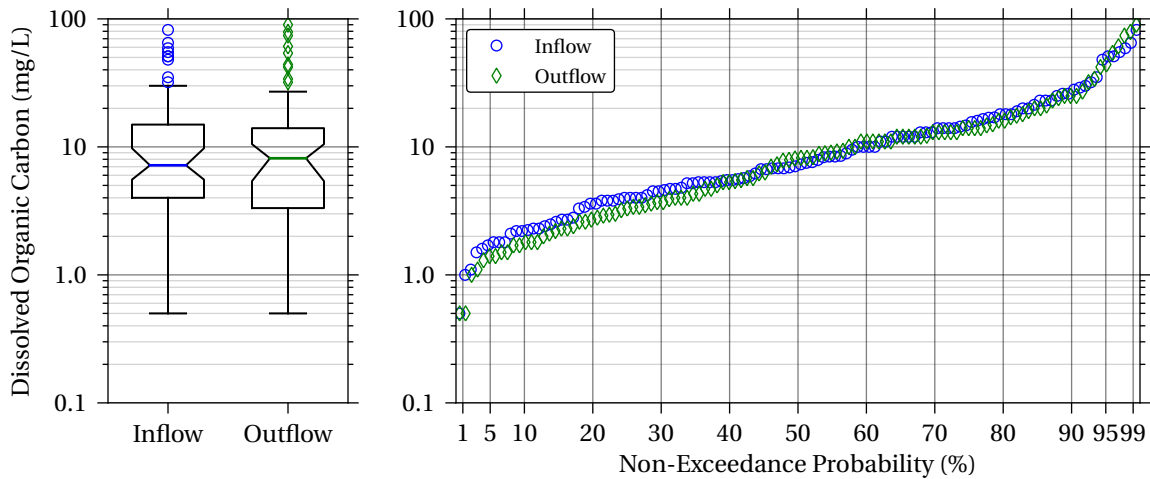


Figure 7.1: Box and probability plots of Dissolved Organic Carbon at Media Filter BMPs

7.2 Total Organic Carbon

Table 7.2: Summary of Total Organic Carbon at Media Filter BMPs

Statistic	Inlet	Outlet
Count	151	146
Number of Non-detects	2	3
Number of Studies	13	13
Min, Max	0.5, 97.0	0.5, 94.0
Mean (95% conf. interval)	17.4 (14.7, 20.7)	13.7 (11.4, 16.3)
Std. Dev.	18.6	15.0
Skewness	2.09	2.85
Median (95% conf. interval)	12.0 (7.8, 13.7)	11.0 (7.7, 12.0)
25 th , 75 th percentiles	5.1, 21.0	3.93, 17.0

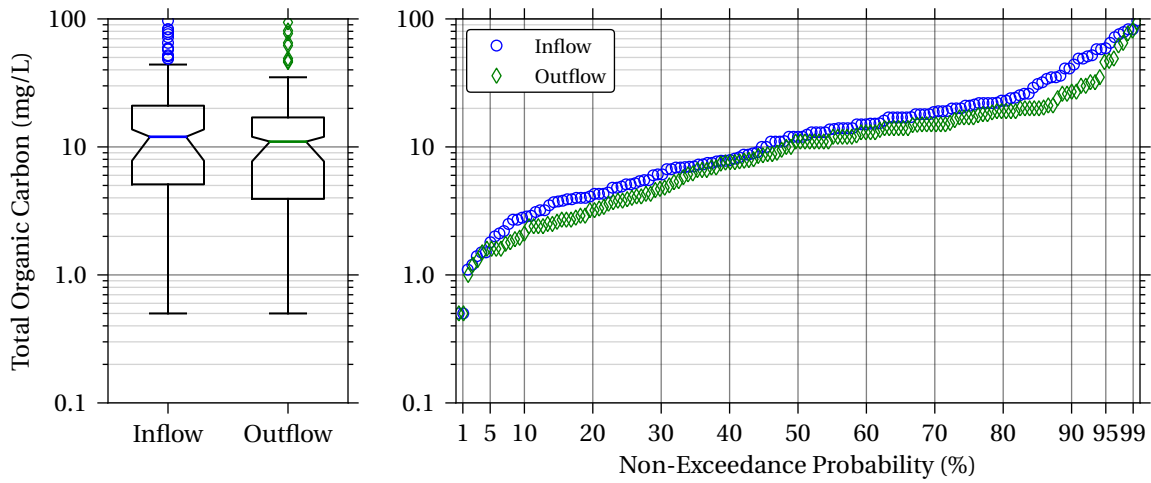


Figure 7.2: Box and probability plots of Total Organic Carbon at Media Filter BMPs

7.3 Nitrogen as N

Table 7.3: Summary of Nitrogen as N at Media Filter BMPs

Statistic	Inlet	Outlet
Count	74	61
Number of Non-detects	0	0
Number of Studies	3	3
Min, Max	0.24, 30.1	0.24, 8.21
Mean (95% conf. interval)	2.85 (1.98, 4.09)	1.68 (1.27, 2.17)
Std. Dev.	4.56	1.8
Skewness	3.63	1.68
Median (95% conf. interval)	1.02 (0.855, 1.39)	0.77 (0.67, 0.91)
25 th , 75 th percentiles	0.685, 2.73	0.48, 2.42

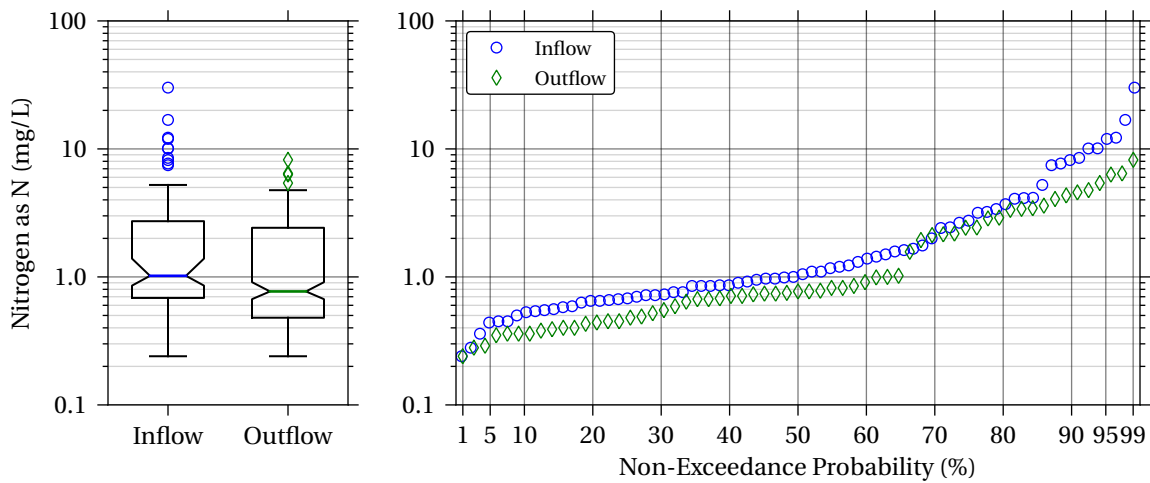


Figure 7.3: Box and probability plots of Nitrogen as N at Media Filter BMPs

7.4 NO_x as N

Table 7.4: Summary of NO_x as N at Media Filter BMPs

Statistic	Inlet	Outlet
Count	296	272
Number of Non-detects	8	7
Number of Studies	18	18
Min, Max	0.01, 4.4	0.0, 8.6
Mean (95% conf. interval)	0.588 (0.513, 0.671)	0.762 (0.661, 0.884)
Std. Dev.	0.7	0.94
Skewness	2.6	4.04
Median (95% conf. interval)	0.34 (0.29, 0.375)	0.525 (0.45, 0.63)
25 th , 75 th percentiles	0.18, 0.67	0.2, 0.98

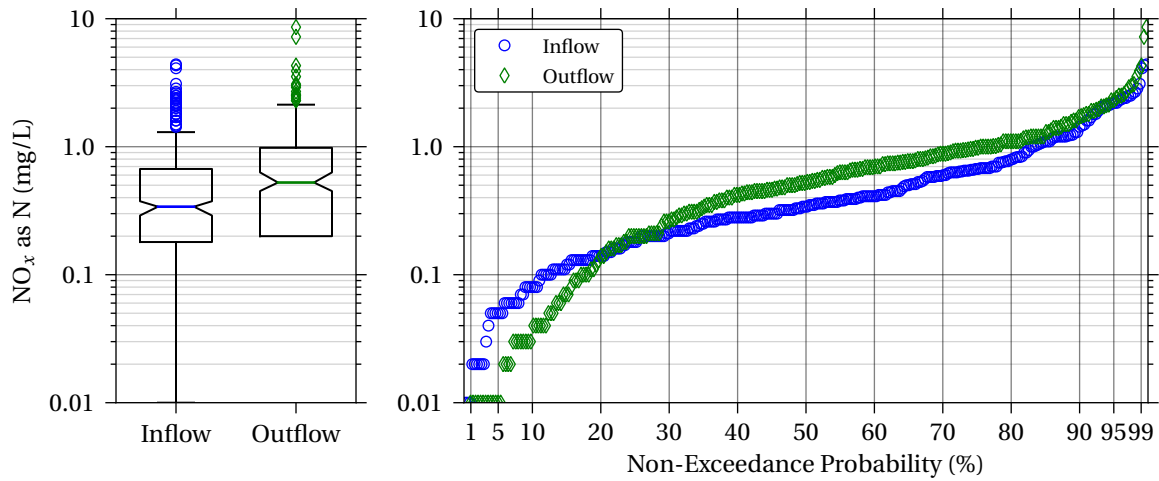


Figure 7.4: Box and probability plots of NO_x as N at Media Filter BMPs

7.5 Total Kjeldahl Nitrogen

Table 7.5: Summary of Total Kjeldahl Nitrogen at Media Filter BMPs

Statistic	Inlet	Outlet
Count	271	253
Number of Non-detects	4	8
Number of Studies	17	17
Min, Max	0.01, 28.0	0.05, 13.0
Mean (95% conf. interval)	1.89 (1.63, 2.23)	1.34 (1.14, 1.59)
Std. Dev.	2.52	1.82
Skewness	5.25	3.3
Median (95% conf. interval)	1.2 (0.92, 1.25)	0.71 (0.61, 0.8)
25 th , 75 th percentiles	0.59, 2.1	0.38, 1.5

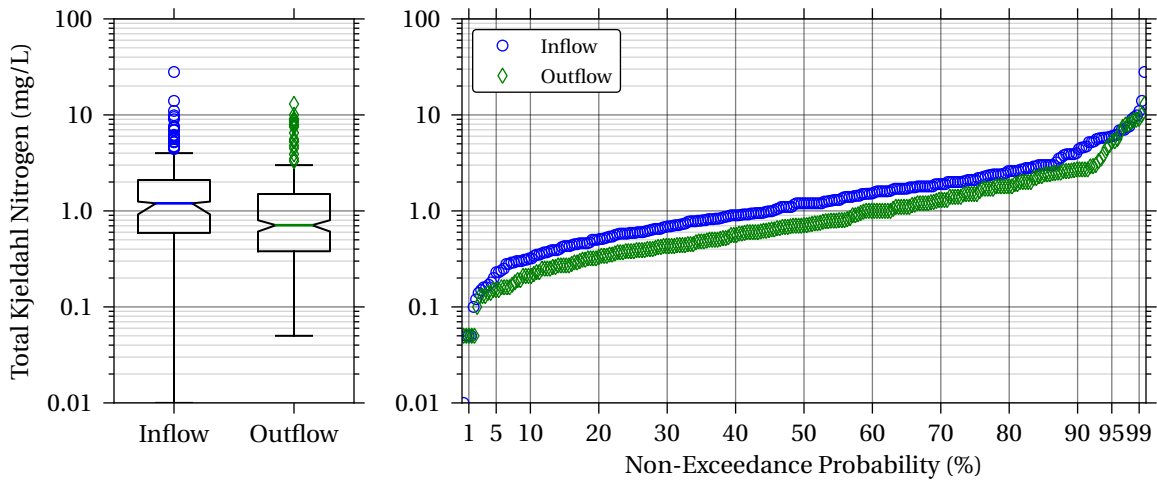


Figure 7.5: Box and probability plots of Total Kjeldahl Nitrogen at Media Filter BMPs

7.6 Dissolved Phosphorus as P

Table 7.6: Summary of Dissolved Phosphorus as P at Media Filter BMPs

Statistic	Inlet	Outlet
Count	68	73
Number of Non-detects	1	4
Number of Studies	9	10
Min, Max	0.03, 1.3	0.03, 1.82
Mean (95% conf. interval)	0.167 (0.122, 0.227)	0.16 (0.114, 0.232)
Std. Dev.	0.22	0.252
Skewness	3.1	4.57
Median (95% conf. interval)	0.1 (0.07, 0.11)	0.09 (0.08, 0.11)
25 th , 75 th percentiles	0.05, 0.175	0.05, 0.15

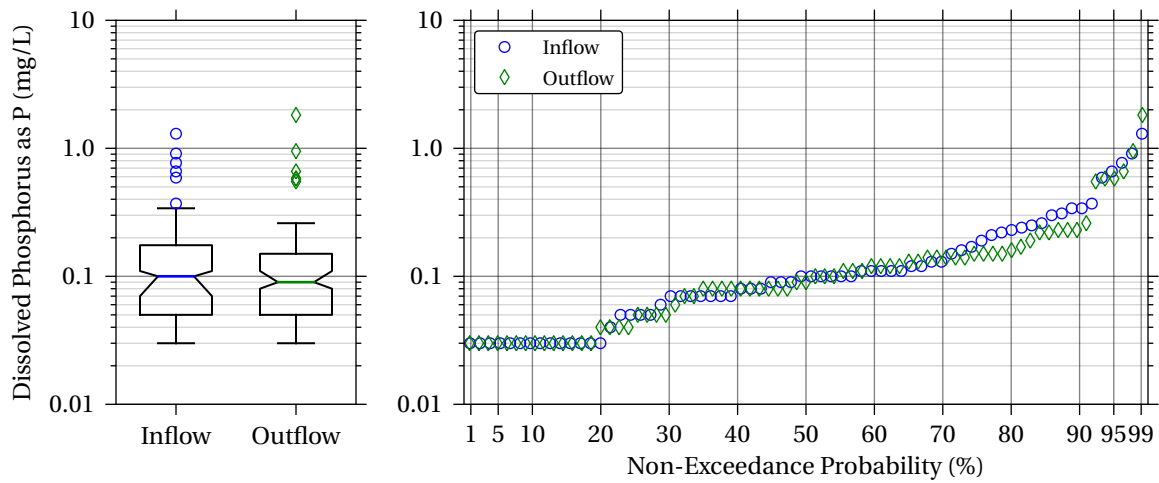


Figure 7.6: Box and probability plots of Dissolved Phosphorus as P at Media Filter BMPs

7.7 Total Phosphorus as P

Table 7.7: Summary of Total Phosphorus as P at Media Filter BMPs

Statistic	Inlet	Outlet
Count	291	282
Number of Non-detects	6	23
Number of Studies	19	20
Min, Max	0.01, 1.5	0.0, 2.3
Mean (95% conf. interval)	0.26 (0.234, 0.29)	0.18 (0.153, 0.213)
Std. Dev.	0.24	0.259
Skewness	2.15	4.24
Median (95% conf. interval)	0.19 (0.16, 0.2)	0.1 (0.08, 0.11)
25 th , 75 th percentiles	0.1, 0.35	0.05, 0.19

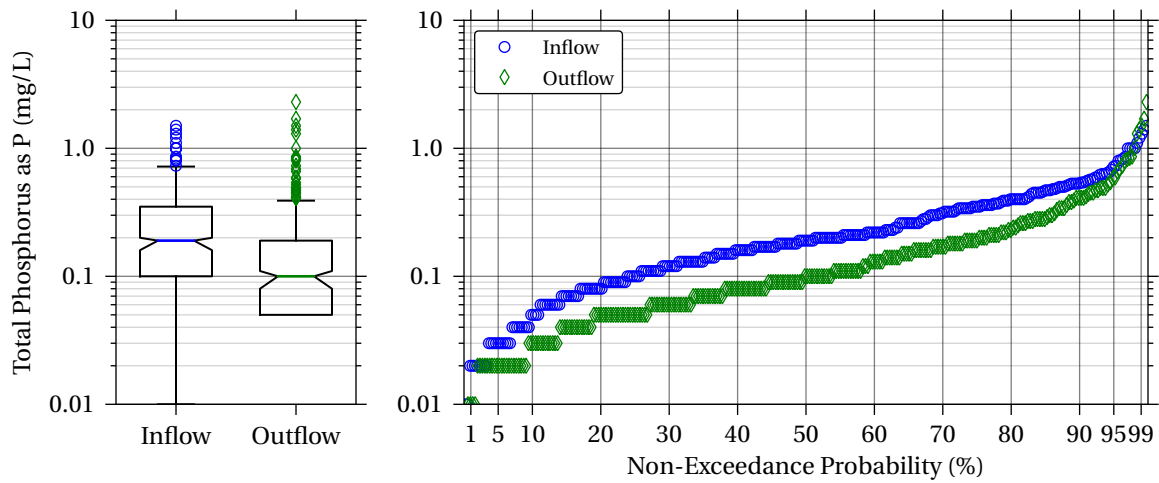


Figure 7.7: Box and probability plots of Total Phosphorus as P at Media Filter BMPs

7.8 Orthophosphate as P

Table 7.8: Summary of Orthophosphate as P at Media Filter BMPs

Statistic	Inlet	Outlet
Count	144	131
Number of Non-detects	20	40
Number of Studies	7	7
Min, Max	0.0, 1.4	0.0, 0.2
Mean (95% conf. interval)	0.0872 (0.0673, 0.116)	0.0372 (0.0316, 0.0434)
Std. Dev.	0.148	0.0345
Skewness	5.6	1.65
Median (95% conf. interval)	0.04 (0.03, 0.05)	0.02 (0.02, 0.03)
25 th , 75 th percentiles	0.02, 0.09	0.01, 0.055

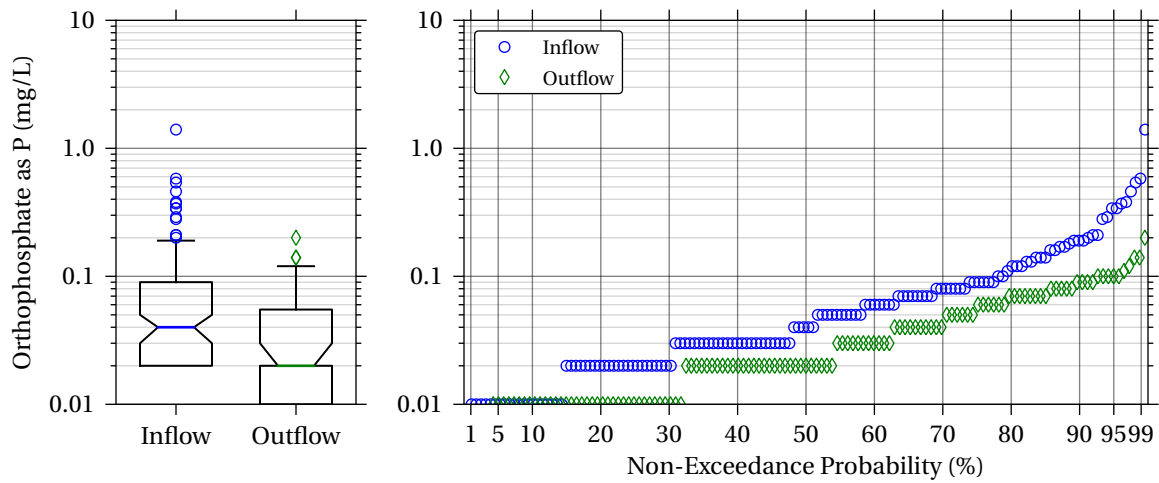


Figure 7.8: Box and probability plots of Orthophosphate as P at Media Filter BMPs

8 Porous Pavement

8.1 NO_x as N

Table 8.1: Summary of NO_x as N at Porous Pavement BMPs

Statistic	Inlet	Outlet
Count	77	74
Number of Non-detects	0	1
Number of Studies	5	7
Min, Max	0.02, 4.32	0.05, 4.57
Mean (95% conf. interval)	0.805 (0.665, 0.98)	1.2 (1.02, 1.41)
Std. Dev.	0.7	0.856
Skewness	2.28	1.53
Median (95% conf. interval)	0.66 (0.49, 0.79)	1.0 (0.84, 1.23)
25 th , 75 th percentiles	0.34, 1.01	0.62, 1.56

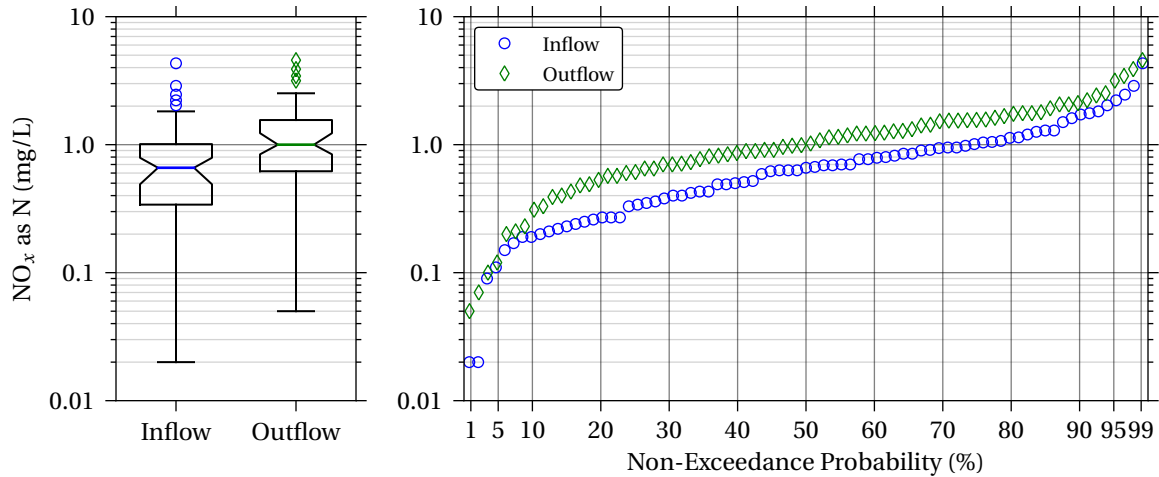


Figure 8.1: Box and probability plots of NO_x as N at Porous Pavement BMPs

8.2 Total Kjeldahl Nitrogen

Table 8.2: Summary of Total Kjeldahl Nitrogen at Porous Pavement BMPs

Statistic	Inlet	Outlet
Count	53	62
Number of Non-detects	0	6
Number of Studies	4	7
Min, Max	0.6, 13.0	0.0, 60.3
Mean (95% conf. interval)	2.38 (1.83, 3.14)	2.32 (1.21, 5.14)
Std. Dev.	2.4	7.5
Skewness	2.75	7.44
Median (95% conf. interval)	1.5 (1.1, 2.2)	1.15 (0.915, 1.35)
25 th , 75 th percentiles	1.0, 2.6	0.7, 1.7

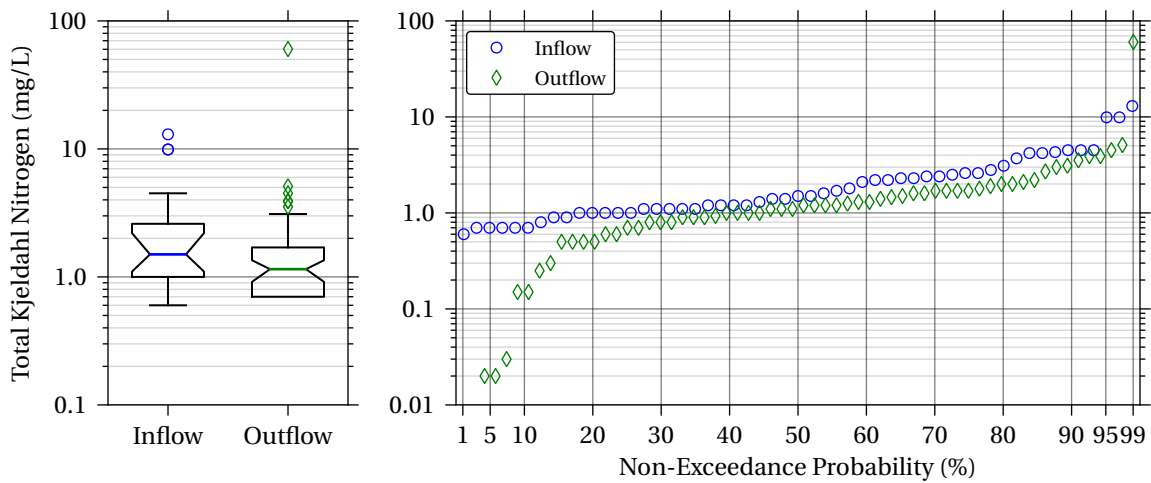


Figure 8.2: Box and probability plots of Total Kjeldahl Nitrogen at Porous Pavement BMPs

8.3 Total Phosphorus as P

Table 8.3: Summary of Total Phosphorus as P at Porous Pavement BMPs

Statistic	Inlet	Outlet
Count	65	65
Number of Non-detects	0	1
Number of Studies	5	6
Min, Max	0.01, 0.9	0.0, 0.37
Mean (95% conf. interval)	0.163 (0.127, 0.211)	0.114 (0.0952, 0.134)
Std. Dev.	0.171	0.0804
Skewness	2.76	1.29
Median (95% conf. interval)	0.12 (0.09, 0.13)	0.1 (0.07, 0.11)
25 th , 75 th percentiles	0.07, 0.17	0.06, 0.14

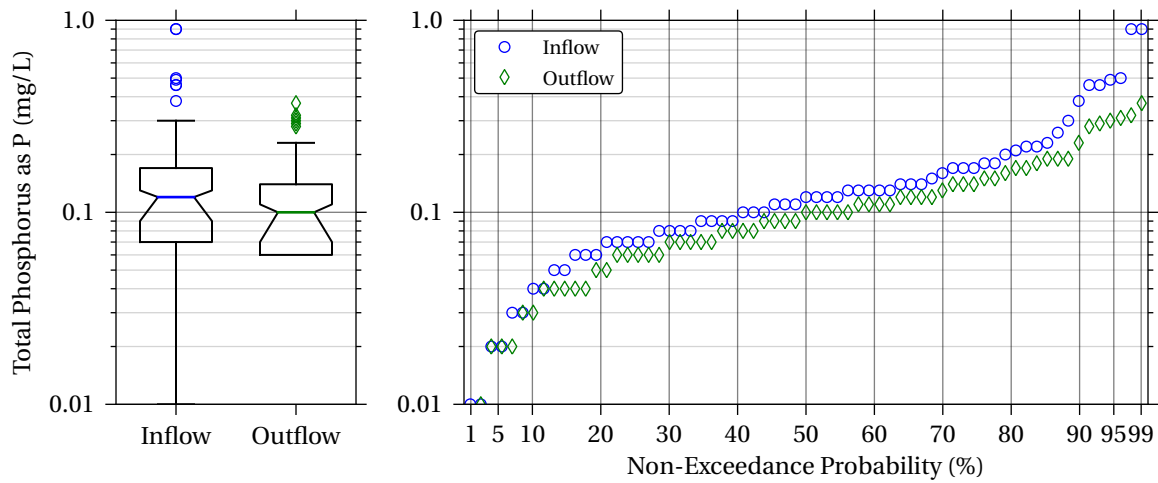


Figure 8.3: Box and probability plots of Total Phosphorus as P at Porous Pavement BMPs

9 Retention Pond

9.1 Total Organic Carbon

Table 9.1: Summary of Total Organic Carbon at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	177	165
Number of Non-detects	1	1
Number of Studies	11	11
Min, Max	0.5, 54.0	0.5, 36.0
Mean (95% conf. interval)	15.2 (14.0, 16.6)	11.6 (10.9, 12.5)
Std. Dev.	9.01	5.36
Skewness	1.6	1.65
Median (95% conf. interval)	14.4 (12.5, 15.0)	10.8 (10.0, 11.2)
25 th , 75 th percentiles	9.81, 18.2	8.36, 13.3

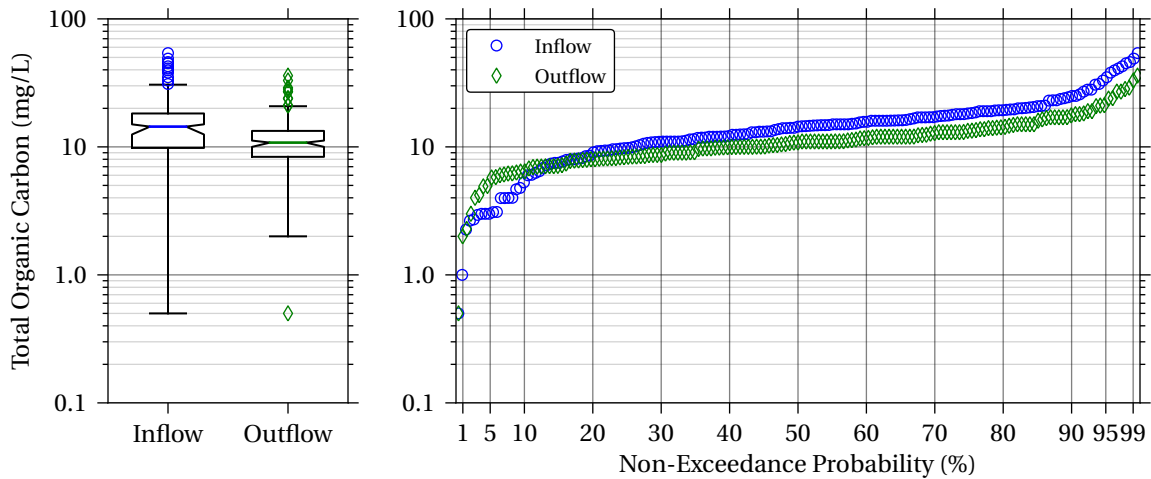


Figure 9.1: Box and probability plots of Total Organic Carbon at Retention Pond BMPs

9.2 Nitrogen as N

Table 9.2: Summary of Nitrogen as N at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	291	288
Number of Non-detects	0	0
Number of Studies	19	19
Min, Max	0.05, 15.0	0.1, 5.11
Mean (95% conf. interval)	2.18 (1.98, 2.4)	1.4 (1.32, 1.49)
Std. Dev.	1.82	0.76
Skewness	3.36	1.48
Median (95% conf. interval)	1.75 (1.5, 1.9)	1.27 (1.16, 1.35)
25 th , 75 th percentiles	1.01, 2.74	0.85, 1.77

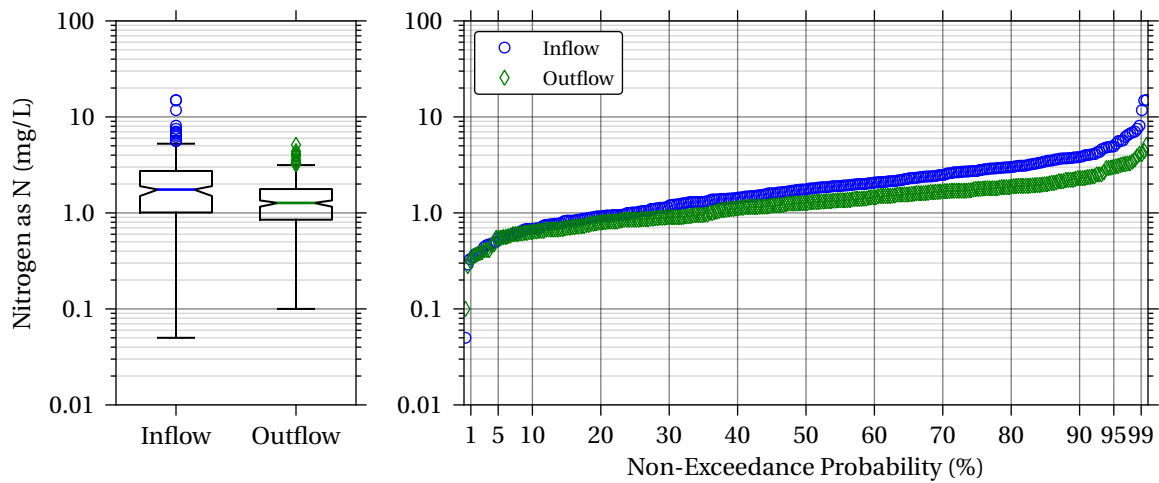


Figure 9.2: Box and probability plots of Nitrogen as N at Retention Pond BMPs

9.3 NO_x as N

Table 9.3: Summary of NO_x as N at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	559	530
Number of Non-detects	12	34
Number of Studies	35	35
Min, Max	0.0, 8.32	0.0, 8.2
Mean (95% conf. interval)	0.611 (0.551, 0.679)	0.425 (0.359, 0.5)
Std. Dev.	0.769	0.826
Skewness	3.94	4.13
Median (95% conf. interval)	0.4 (0.32, 0.42)	0.15 (0.11, 0.16)
25 th , 75 th percentiles	0.15, 0.805	0.03, 0.43

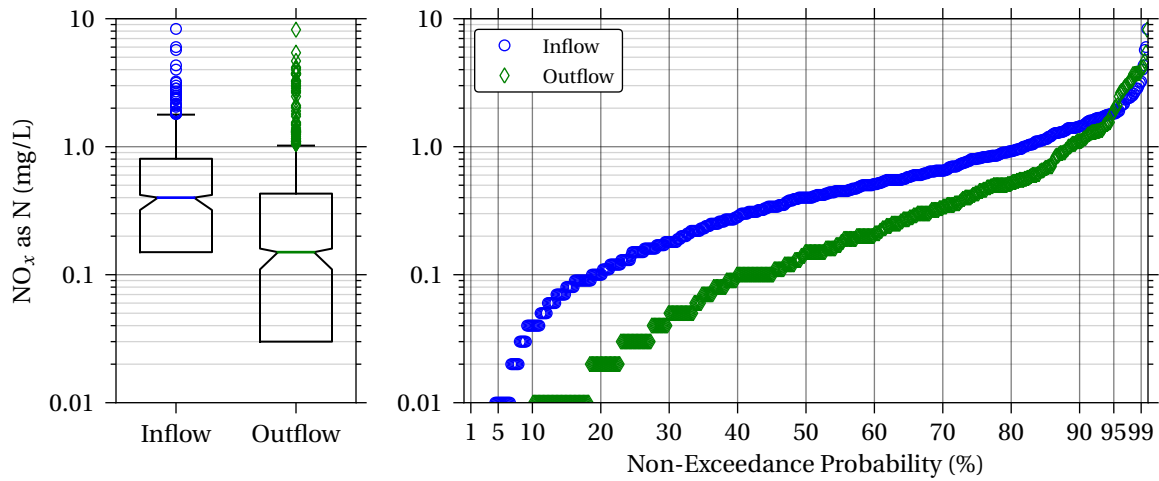


Figure 9.3: Box and probability plots of NO_x as N at Retention Pond BMPs

9.4 Total Kjeldahl Nitrogen

Table 9.4: Summary of Total Kjeldahl Nitrogen at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	371	376
Number of Non-detects	8	11
Number of Studies	28	31
Min, Max	0.06, 54.0	0.0, 4.56
Mean (95% conf. interval)	1.9 (1.65, 2.32)	1.22 (1.15, 1.29)
Std. Dev.	3.19	0.676
Skewness	12.2	1.38
Median (95% conf. interval)	1.3 (1.15, 1.36)	1.1 (1.0, 1.15)
25 th , 75 th percentiles	0.8, 2.07	0.768, 1.6

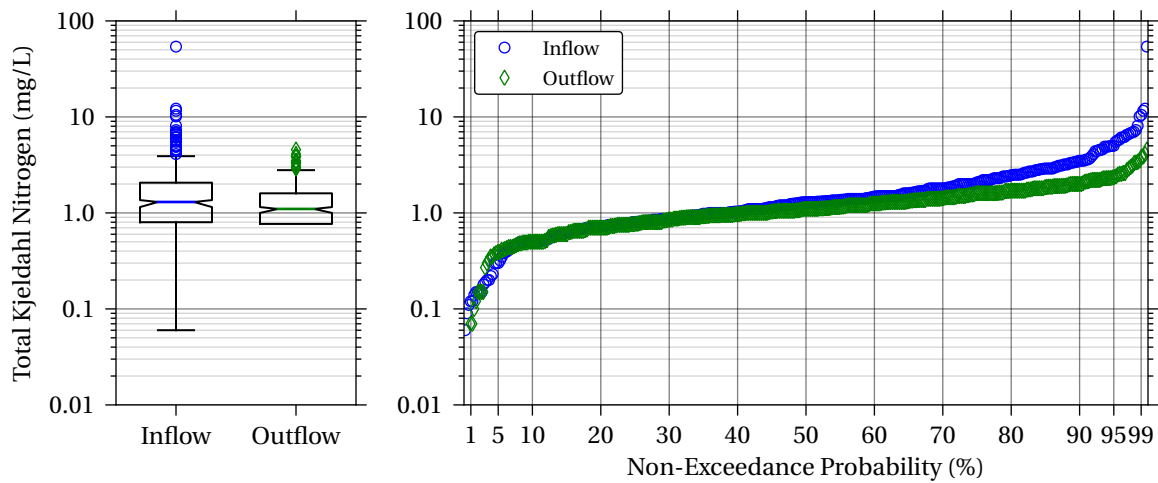


Figure 9.4: Box and probability plots of Total Kjeldahl Nitrogen at Retention Pond BMPs

9.5 Total Organic Nitrogen

Table 9.5: Summary of Total Organic Nitrogen at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	206	202
Number of Non-detects	4	16
Number of Studies	12	12
Min, Max	0.0, 2.87	0.0, 2.46
Mean (95% conf. interval)	0.82 (0.747, 0.897)	0.574 (0.515, 0.636)
Std. Dev.	0.548	0.437
Skewness	1.01	0.721
Median (95% conf. interval)	0.775 (0.685, 0.835)	0.54 (0.44, 0.61)
25 th , 75 th percentiles	0.415, 1.1	0.16, 0.87

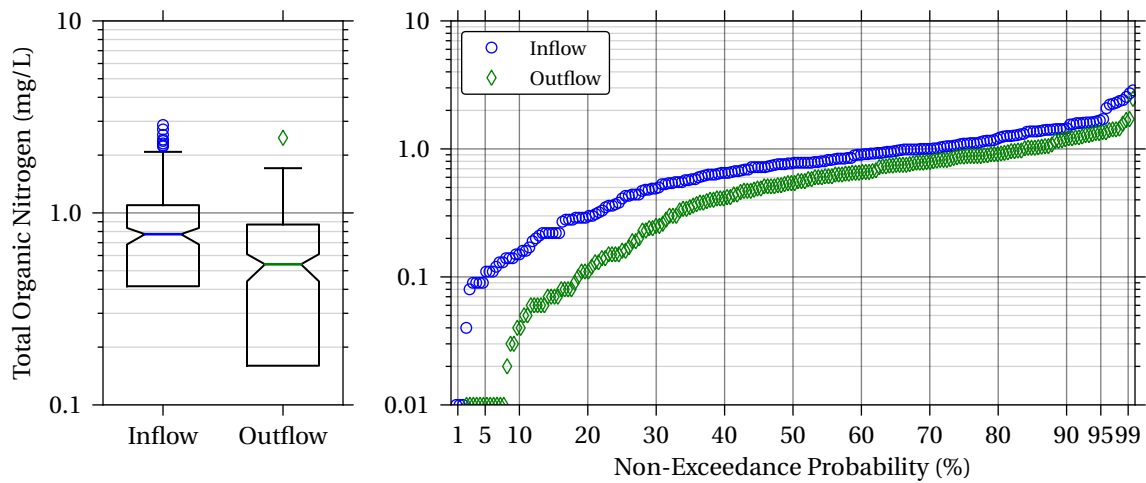


Figure 9.5: Box and probability plots of Total Organic Nitrogen at Retention Pond BMPs

9.6 Dissolved Phosphorus as P

Table 9.6: Summary of Dissolved Phosphorus as P at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	331	319
Number of Non-detects	6	9
Number of Studies	15	15
Min, Max	0.01, 1.31	0.0, 1.5
Mean (95% conf. interval)	0.153 (0.139, 0.17)	0.0945 (0.0821, 0.111)
Std. Dev.	0.145	0.128
Skewness	2.7	5.61
Median (95% conf. interval)	0.11 (0.08, 0.11)	0.06 (0.04, 0.06)
25 th , 75 th percentiles	0.06, 0.2	0.03, 0.11

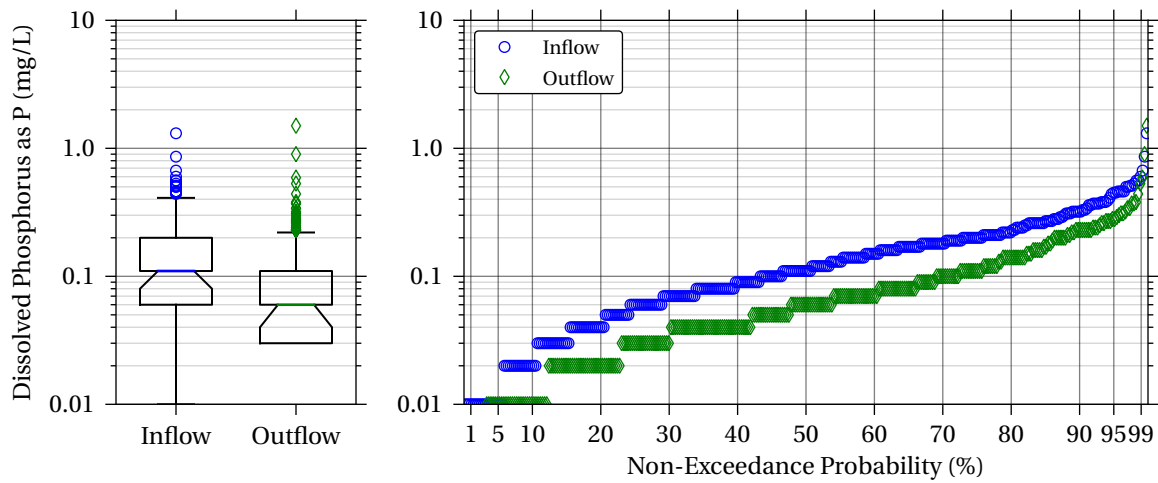


Figure 9.6: Box and probability plots of Dissolved Phosphorus as P at Retention Pond BMPs

9.7 Total Phosphorus as P

Table 9.7: Summary of Total Phosphorus as P at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	578	561
Number of Non-detects	8	18
Number of Studies	38	40
Min, Max	0.0, 15.6	0.0, 22.3
Mean (95% conf. interval)	0.48 (0.414, 0.572)	0.278 (0.204, 0.4)
Std. Dev.	0.958	1.15
Skewness	9.69	14.5
Median (95% conf. interval)	0.27 (0.23, 0.29)	0.11 (0.08, 0.11)
25 th , 75 th percentiles	0.14, 0.53	0.06, 0.22

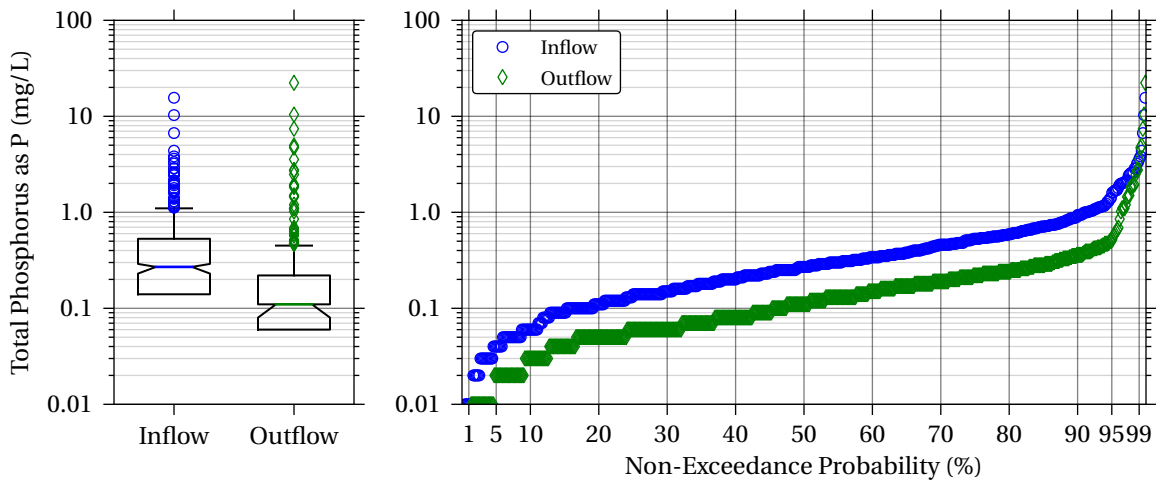


Figure 9.7: Box and probability plots of Total Phosphorus as P at Retention Pond BMPs

9.8 Orthophosphate as P

Table 9.8: Summary of Orthophosphate as P at Retention Pond BMPs

Statistic	Inlet	Outlet
Count	362	346
Number of Non-detects	5	19
Number of Studies	26	27
Min, Max	0.0, 1.61	0.0, 9.93
Mean (95% conf. interval)	0.188 (0.166, 0.214)	0.115 (0.0771, 0.2)
Std. Dev.	0.232	0.55
Skewness	3.26	16.6
Median (95% conf. interval)	0.105 (0.095, 0.13)	0.04 (0.04, 0.05)
25 th , 75 th percentiles	0.06, 0.22	0.02, 0.1

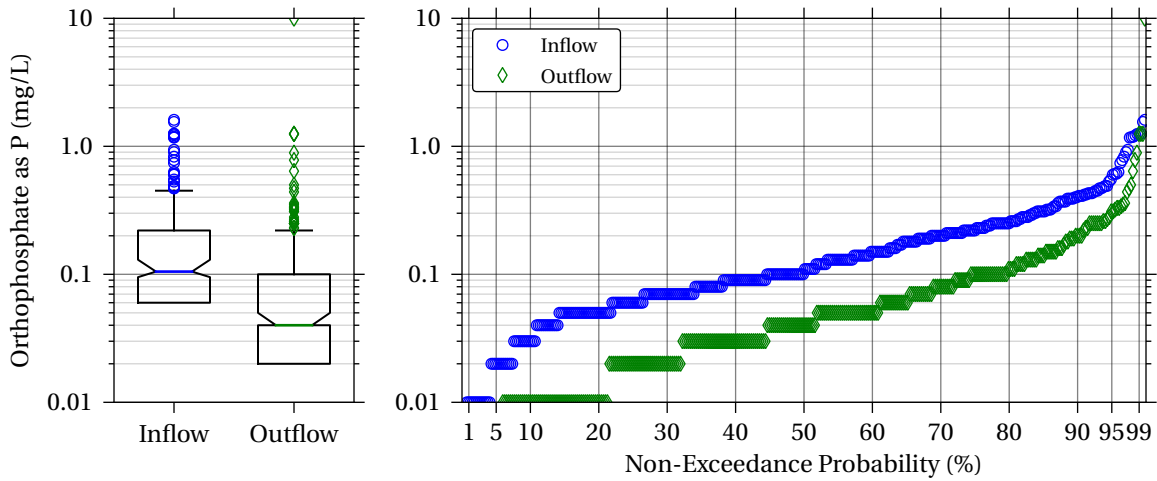


Figure 9.8: Box and probability plots of Orthophosphate as P at Retention Pond BMPs

10 Wetland Basin

10.1 Nitrogen as N

Table 10.1: Summary of Nitrogen as N at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	222	223
Number of Non-detects	0	0
Number of Studies	6	6
Min, Max	0.01, 8.57	0.01, 51.4
Mean (95% conf. interval)	1.56 (1.4, 1.74)	1.9 (1.45, 2.64)
Std. Dev.	1.29	4.4
Skewness	2.74	8.98
Median (95% conf. interval)	1.14 (1.05, 1.3)	1.21 (1.06, 1.21)
25 th , 75 th percentiles	0.8, 1.9	0.895, 1.65

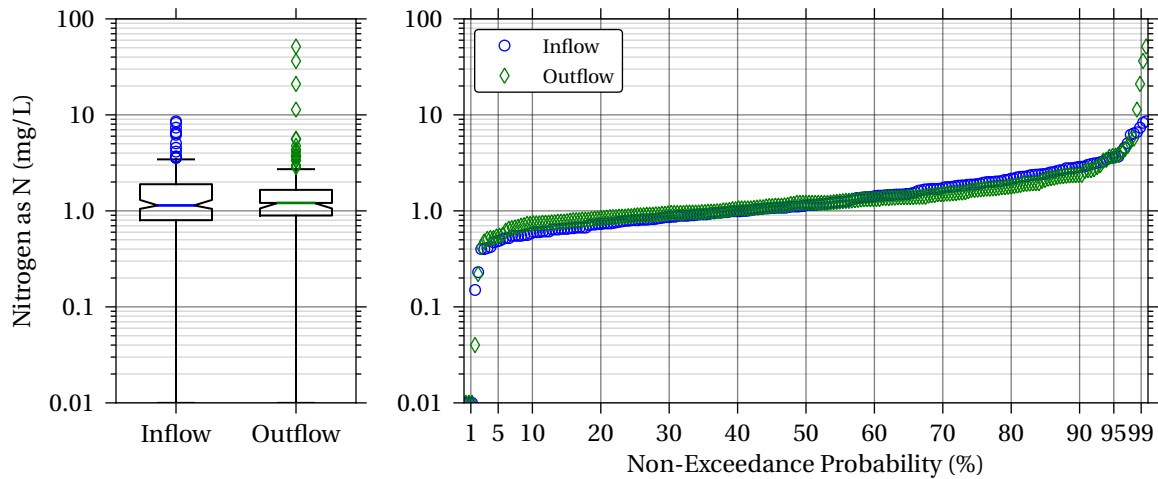


Figure 10.1: Box and probability plots of Nitrogen as N at Wetland Basin BMPs

10.2 NO_x as N

Table 10.2: Summary of NO_x as N at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	249	238
Number of Non-detects	2	14
Number of Studies	10	11
Min, Max	0.0, 5.22	0.0, 8.06
Mean (95% conf. interval)	0.363 (0.306, 0.438)	0.239 (0.176, 0.339)
Std. Dev.	0.531	0.625
Skewness	5.19	9.0
Median (95% conf. interval)	0.21 (0.15, 0.23)	0.08 (0.05, 0.1)
25 th , 75 th percentiles	0.08, 0.44	0.02, 0.208

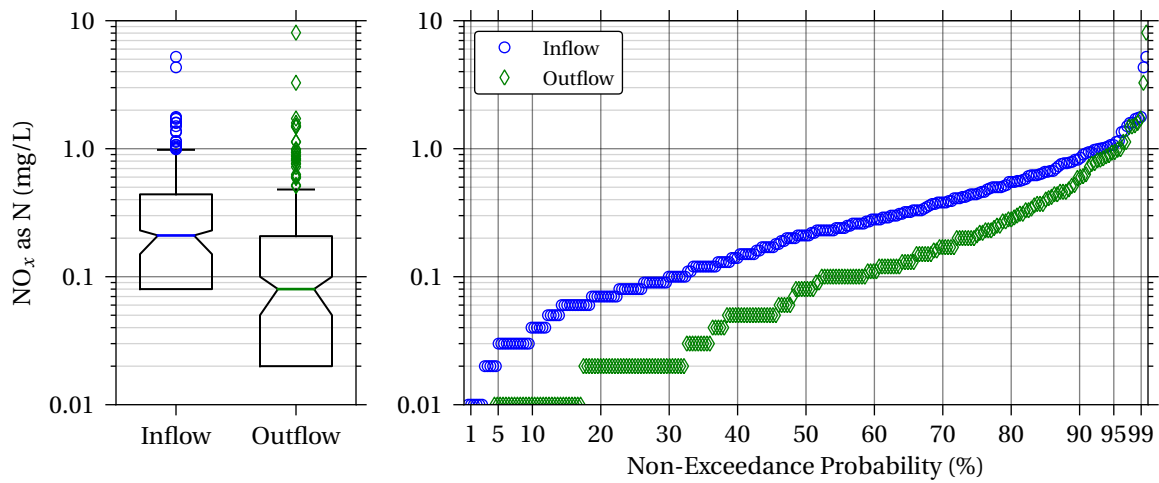


Figure 10.2: Box and probability plots of NO_x as N at Wetland Basin BMPs

10.3 Total Kjeldahl Nitrogen

Table 10.3: Summary of Total Kjeldahl Nitrogen at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	67	176
Number of Non-detects	0	0
Number of Studies	5	8
Min, Max	0.15, 7.56	0.01, 13.4
Mean (95% conf. interval)	1.08 (0.892, 1.38)	1.25 (1.1, 1.48)
Std. Dev.	0.987	1.25
Skewness	4.47	6.8
Median (95% conf. interval)	0.99 (0.62, 1.05)	1.06 (0.95, 1.13)
25 th , 75 th percentiles	0.555, 1.25	0.79, 1.31

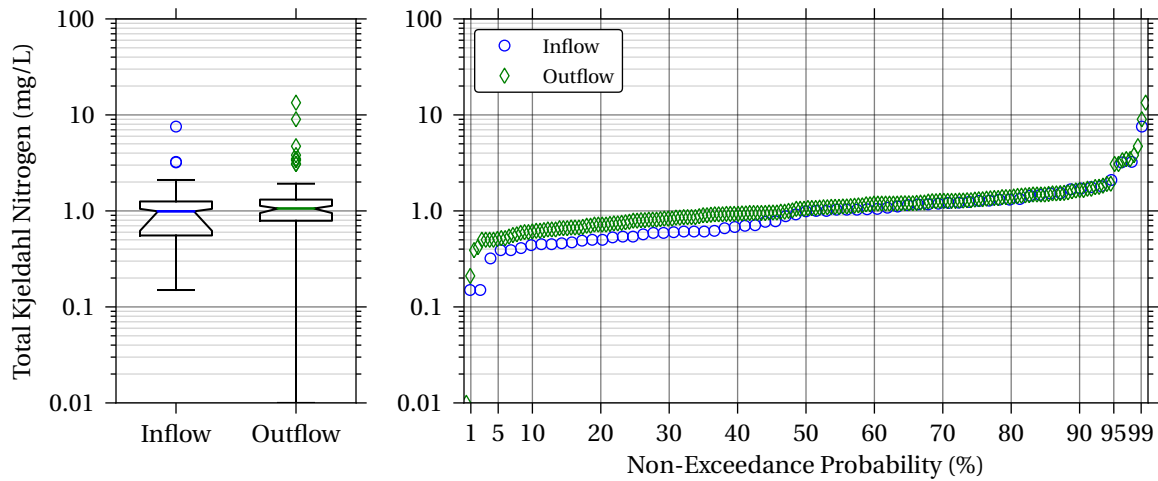


Figure 10.3: Box and probability plots of Total Kjeldahl Nitrogen at Wetland Basin BMPs

10.4 Total Organic Nitrogen

Table 10.4: Summary of Total Organic Nitrogen at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	185	188
Number of Non-detects	0	0
Number of Studies	5	5
Min, Max	0.0, 7.1	0.01, 9.24
Mean (95% conf. interval)	0.715 (0.622, 0.84)	0.881 (0.777, 1.03)
Std. Dev.	0.744	0.86
Skewness	5.06	5.36
Median (95% conf. interval)	0.57 (0.5, 0.6)	0.84 (0.7, 0.915)
25 th , 75 th percentiles	0.32, 0.87	0.318, 1.19

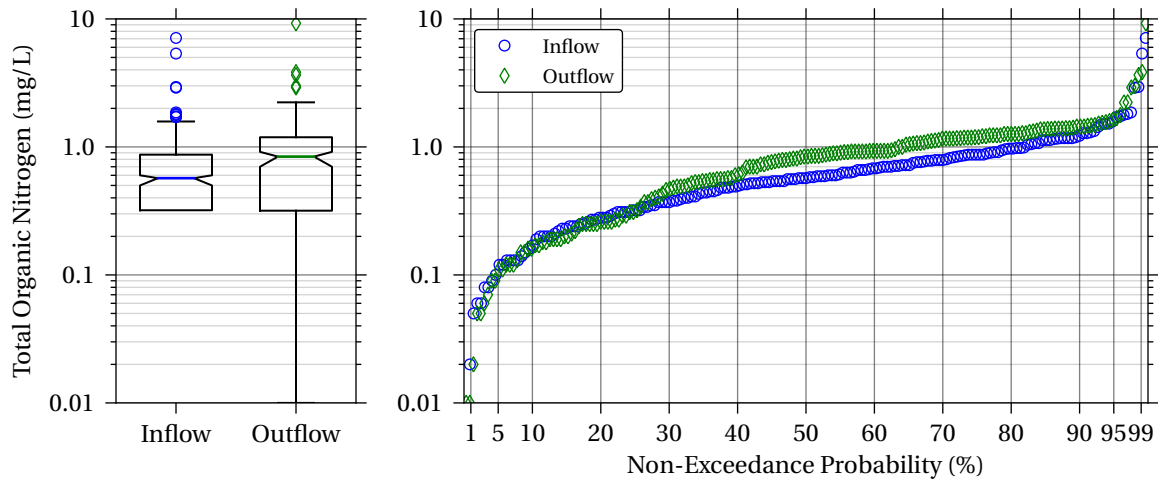


Figure 10.4: Box and probability plots of Total Organic Nitrogen at Wetland Basin BMPs

10.5 Dissolved Phosphorus as P

Table 10.5: Summary of Dissolved Phosphorus as P at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	104	103
Number of Non-detects	0	1
Number of Studies	4	4
Min, Max	0.01, 2.01	0.0, 1.24
Mean (95% conf. interval)	0.124 (0.0938, 0.176)	0.11 (0.0803, 0.149)
Std. Dev.	0.21	0.178
Skewness	7.1	3.57
Median (95% conf. interval)	0.08 (0.05, 0.09)	0.04 (0.03, 0.04)
25 th , 75 th percentiles	0.04, 0.13	0.02, 0.125

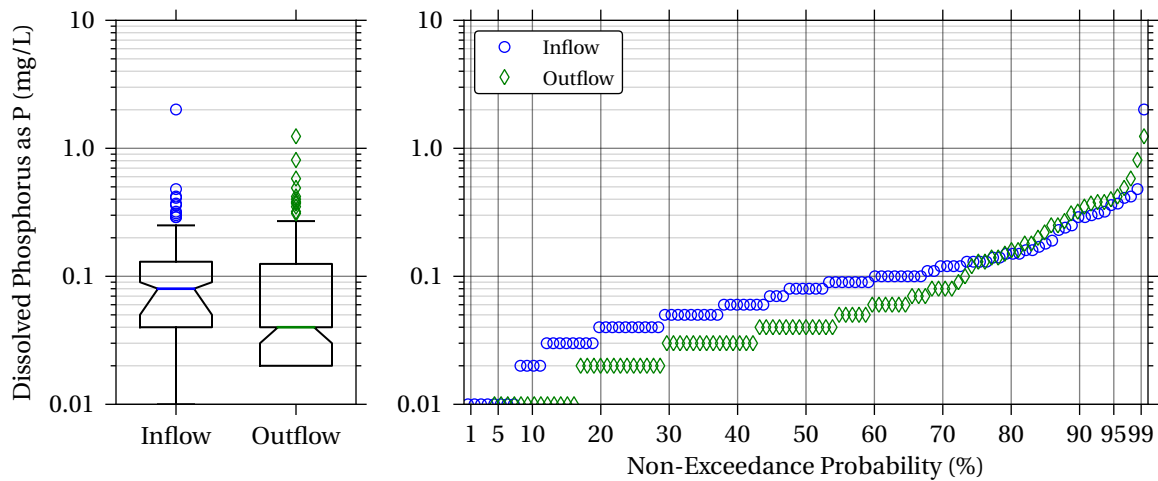


Figure 10.5: Box and probability plots of Dissolved Phosphorus as P at Wetland Basin BMPs

10.6 Total Phosphorus as P

Table 10.6: Summary of Total Phosphorus as P at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	284	271
Number of Non-detects	2	3
Number of Studies	12	13
Min, Max	0.01, 3.56	0.0, 1.44
Mean (95% conf. interval)	0.207 (0.174, 0.251)	0.129 (0.11, 0.151)
Std. Dev.	0.332	0.172
Skewness	6.01	3.83
Median (95% conf. interval)	0.12 (0.1, 0.12)	0.08 (0.06, 0.08)
25 th , 75 th percentiles	0.08, 0.2	0.04, 0.14

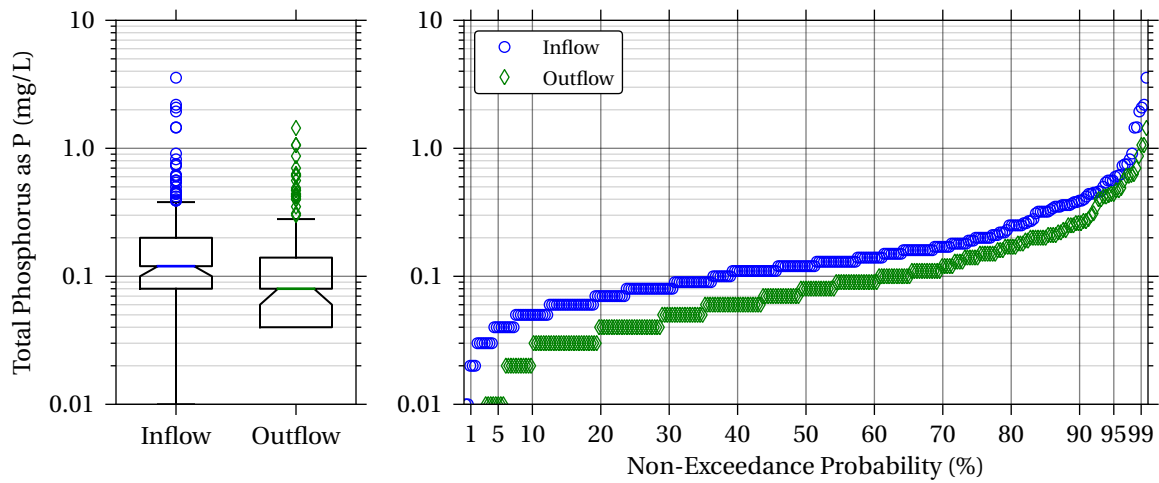


Figure 10.6: Box and probability plots of Total Phosphorus as P at Wetland Basin BMPs

10.7 Orthophosphate as P

Table 10.7: Summary of Orthophosphate as P at Wetland Basin BMPs

Statistic	Inlet	Outlet
Count	179	171
Number of Non-detects	11	9
Number of Studies	6	7
Min, Max	0.0, 9.93	0.0, 0.43
Mean (95% conf. interval)	0.165 (0.0956, 0.324)	0.0719 (0.0571, 0.0888)
Std. Dev.	0.754	0.106
Skewness	12.2	1.88
Median (95% conf. interval)	0.05 (0.04, 0.06)	0.02 (0.02, 0.03)
25 th , 75 th percentiles	0.03, 0.125	0.01, 0.07

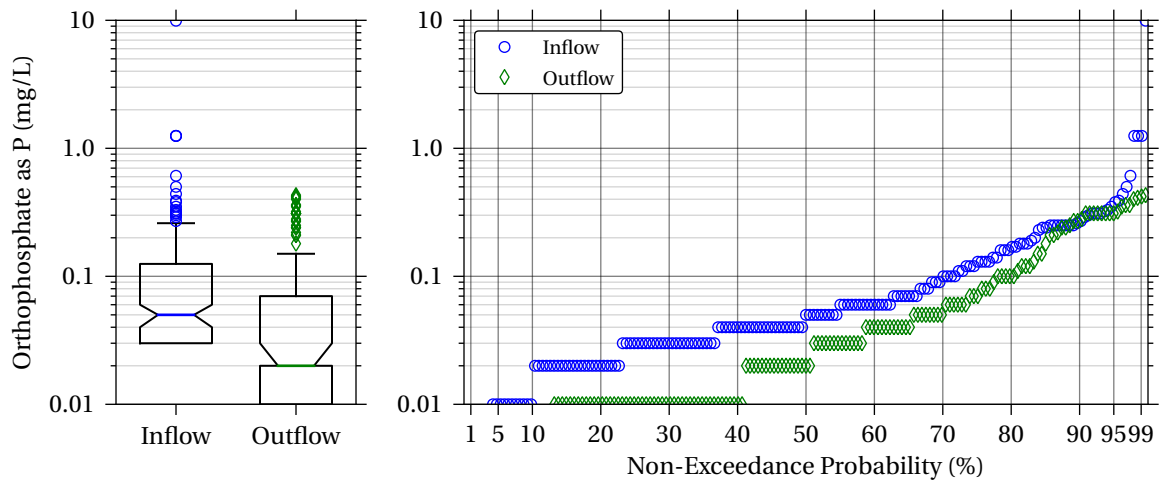


Figure 10.7: Box and probability plots of Orthophosphate as P at Wetland Basin BMPs

11 Wetland Channel

11.1 Nitrogen as N

Table 11.1: Summary of Nitrogen as N at Wetland Channel BMPs

Statistic	Inlet	Outlet
Count	40	50
Number of Non-detects	0	0
Number of Studies	3	4
Min, Max	0.81, 4.44	0.59, 44.8
Mean (95% conf. interval)	1.84 (1.6, 2.12)	3.15 (1.94, 5.64)
Std. Dev.	0.846	6.39
Skewness	1.28	5.69
Median (95% conf. interval)	1.62 (1.38, 1.89)	1.78 (1.4, 2.0)
25 th , 75 th percentiles	1.25, 2.13	1.11, 2.54

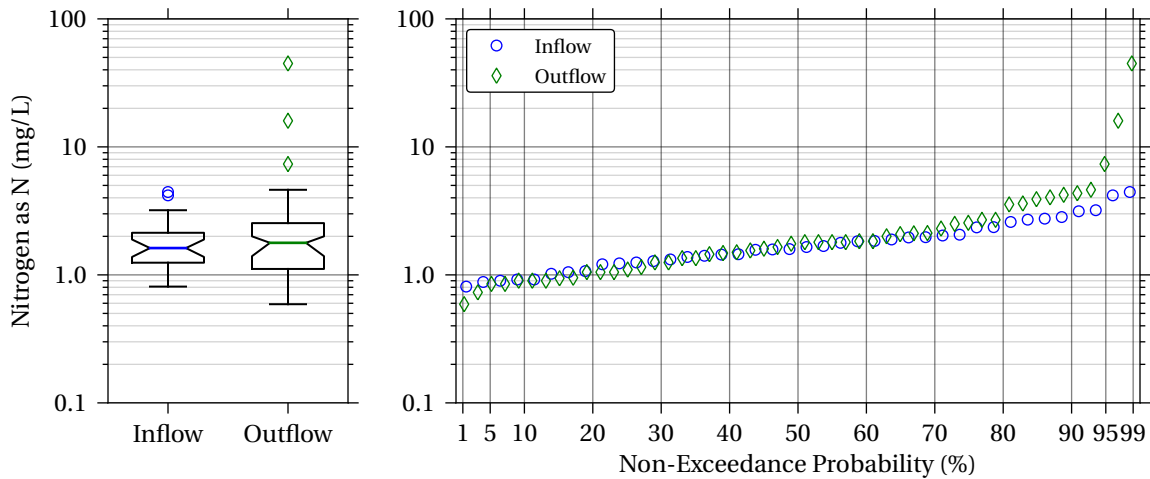


Figure 11.1: Box and probability plots of Nitrogen as N at Wetland Channel BMPs

11.2 NO_x as N

Table 11.2: Summary of NO_x as N at Wetland Channel BMPs

Statistic	Inlet	Outlet
Count	75	72
Number of Non-detects	0	0
Number of Studies	7	7
Min, Max	0.01, 8.0	0.02, 6.34
Mean (95% conf. interval)	1.65 (1.25, 2.1)	1.01 (0.784, 1.31)
Std. Dev.	1.86	1.12
Skewness	1.19	2.08
Median (95% conf. interval)	0.55 (0.39, 1.15)	0.615 (0.33, 0.96)
25 th , 75 th percentiles	0.225, 3.05	0.2, 1.42

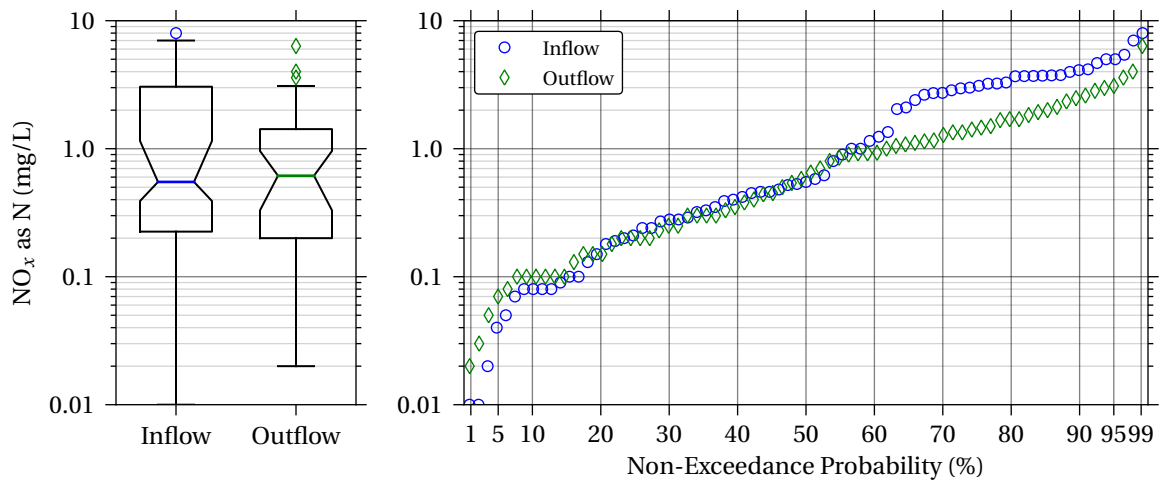


Figure 11.2: Box and probability plots of NO_x as N at Wetland Channel BMPs

11.3 Total Kjeldahl Nitrogen

Table 11.3: Summary of Total Kjeldahl Nitrogen at Wetland Channel BMPs

Statistic	Inlet	Outlet
Count	37	72
Number of Non-detects	2	2
Number of Studies	3	4
Min, Max	0.15, 3.3	0.15, 4.2
Mean (95% conf. interval)	1.55 (1.34, 1.76)	1.24 (1.11, 1.4)
Std. Dev.	0.653	0.642
Skewness	0.0109	1.42
Median (95% conf. interval)	1.6 (1.2, 1.7)	1.2 (0.9, 1.3)
25 th , 75 th percentiles	1.2, 2.0	0.8, 1.6

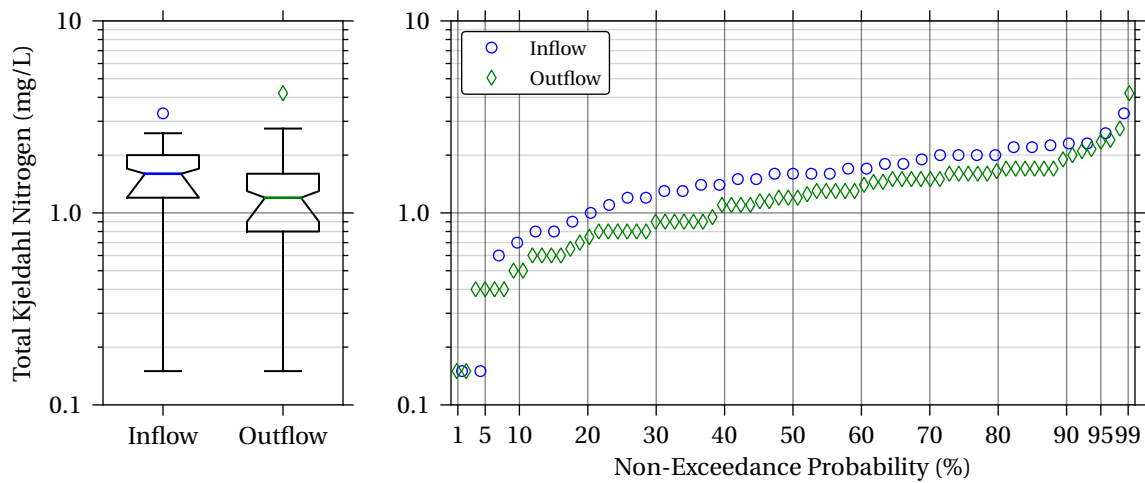


Figure 11.3: Box and probability plots of Total Kjeldahl Nitrogen at Wetland Channel BMPs

11.4 Dissolved Phosphorus as P

Table 11.4: Summary of Dissolved Phosphorus as P at Wetland Channel BMPs

Statistic	Inlet	Outlet
Count	92	89
Number of Non-detects	4	2
Number of Studies	5	5
Min, Max	0.0, 0.9	0.01, 0.47
Mean (95% conf. interval)	0.111 (0.0907, 0.139)	0.105 (0.0916, 0.121)
Std. Dev.	0.116	0.0718
Skewness	3.96	2.44
Median (95% conf. interval)	0.08 (0.07, 0.1)	0.09 (0.07, 0.1)
25 th , 75 th percentiles	0.0475, 0.15	0.06, 0.14

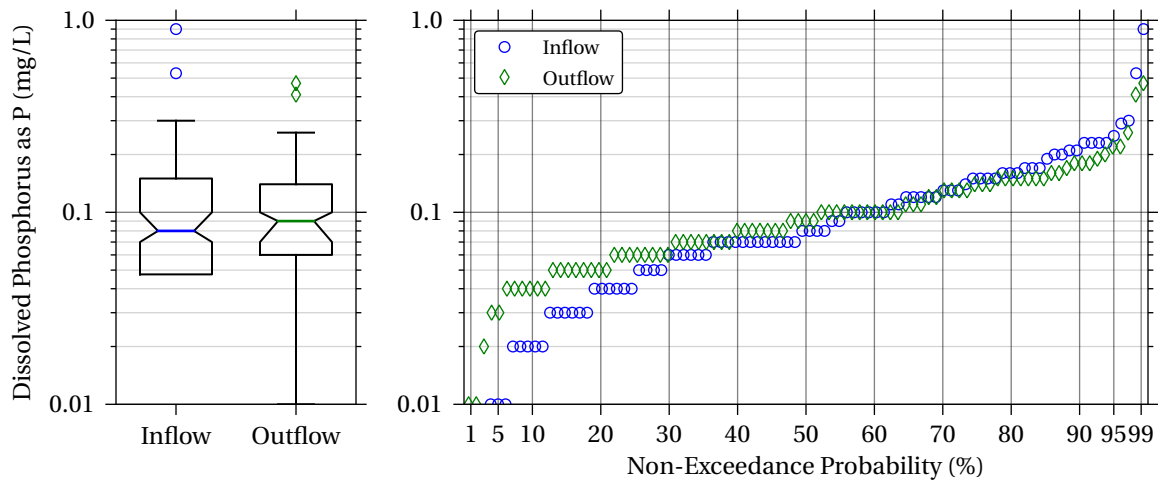


Figure 11.4: Box and probability plots of Dissolved Phosphorus as P at Wetland Channel BMPs

11.5 Total Phosphorus as P

Table 11.5: Summary of Total Phosphorus as P at Wetland Channel BMPs

Statistic	Inlet	Outlet
Count	88	83
Number of Non-detects	1	0
Number of Studies	6	6
Min, Max	0.01, 4.5	0.03, 5.52
Mean (95% conf. interval)	0.342 (0.237, 0.506)	0.254 (0.171, 0.439)
Std. Dev.	0.628	0.603
Skewness	5.28	8.08
Median (95% conf. interval)	0.18 (0.15, 0.215)	0.14 (0.11, 0.15)
25 th , 75 th percentiles	0.13, 0.298	0.1, 0.25

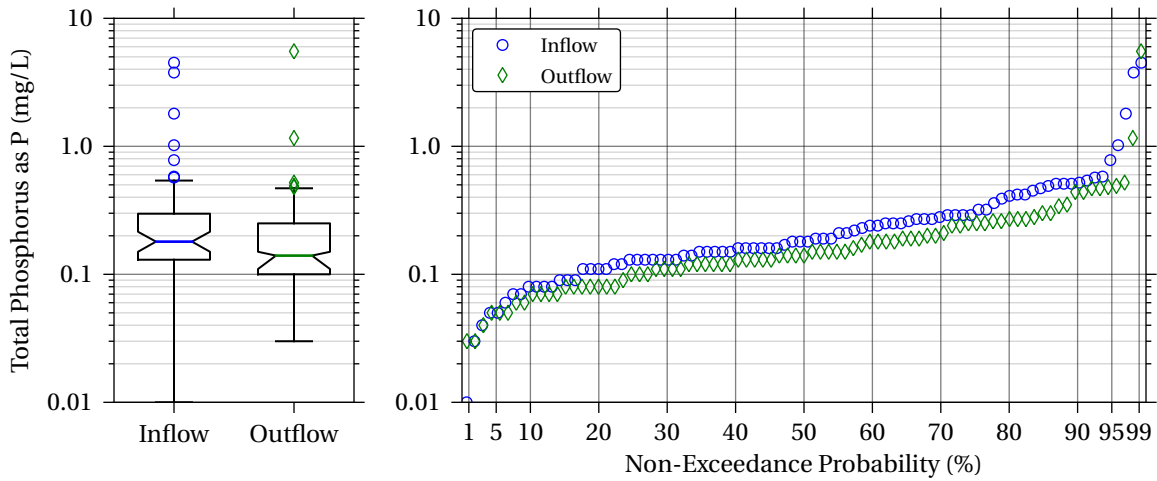


Figure 11.5: Box and probability plots of Total Phosphorus as P at Wetland Channel BMPs

11.6 Orthophosphate as P

Table 11.6: Summary of Orthophosphate as P at Wetland Channel BMPs

Statistic	Inlet	Outlet
Count	43	36
Number of Non-detects	4	3
Number of Studies	3	3
Min, Max	0.01, 0.78	0.0, 1.34
Mean (95% conf. interval)	0.0981 (0.0644, 0.149)	0.118 (0.0675, 0.216)
Std. Dev.	0.139	0.221
Skewness	3.27	4.72
Median (95% conf. interval)	0.05 (0.02, 0.05)	0.06 (0.03, 0.07)
25 th , 75 th percentiles	0.025, 0.095	0.0275, 0.123

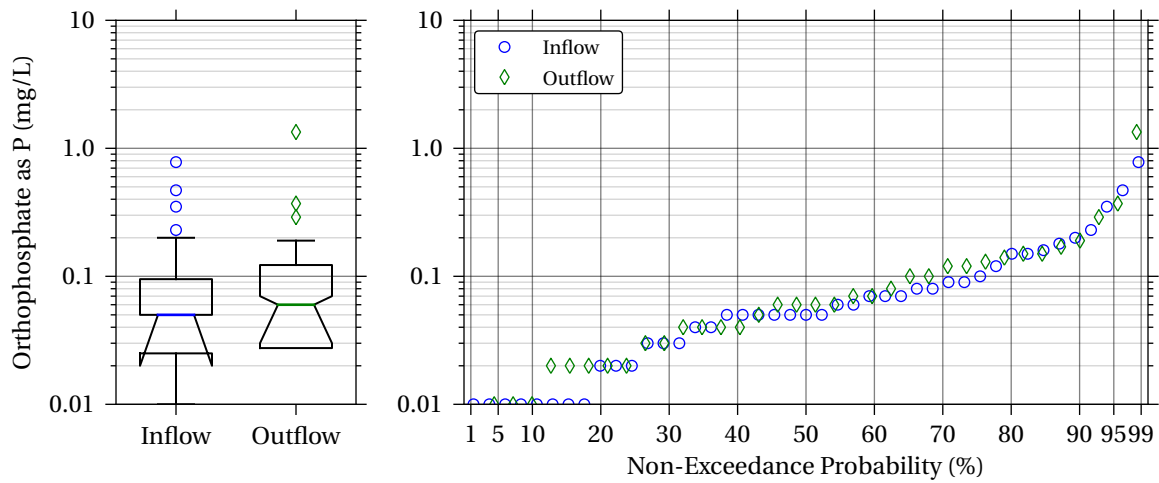


Figure 11.6: Box and probability plots of Orthophosphate as P at Wetland Channel BMPs