

 APPENDIX A-1

**SWIMMING RIVER
Cyanobacteria Modeling**

CYANOBACTERIA MODELING – SWIMMING RIVER RESERVOIR

The original data set consisting of 48 chemical events was used for developing and testing additional ANN models. Again, the chemical events include all of the physical variables used during the physical modeling, such as precipitation, air temperature, water temperature, etc., plus the four chemical variables that are intermittently measured; nitrite/nitrates, total phosphorous, ammonia, and turbidity. One issue of concern for this particular modeling problem is the relatively small number of events for the chemical data set relative to the number of nodes in the network models. As the size of the ANN increases, with more input, output, and hidden nodes, the dimension of the error space increases, and hence, larger data sets are required for the ANN to search along the error space and effectively learn. This concern is supported by the testing error relative to the training error achieved with the ANNs. As discussed in the ANN background section, the training data, consisting of half of the available data, in this case, 24 events, is used by the ANN during learning to identify the optimal weight connections. A separate validation or testing data set is used to determine how effectively the ANN has learned to generalize system behavior.

Table 1 (modified Table 5 in interim report) compares the statistical performance of the different ANN models. For the first ANN model, all four chemical variables were used as inputs (i.e. “All”). For the four next models, only the chemical variable corresponding to the heading in Table 1 was used as a chemical variable input (e.g. ammonia) for the ANN model. The last model, designated “None”, used no chemical input variables. The table has been expanded to include the number of false positives and false negatives predicted by each model in terms of algal bloom events. In this case, algal bloom events are defined as measurement episodes with a cyanobacteria count of at least 100. There were five such algal bloom events in the period of record.

It should be noted that the ANN models sometimes predict a negative algae count, which is physically infeasible, and accordingly has been “corrected” to 0 for Swimming River. These tables presented in the report, however, depict statistical results that include

negative values; thus, the overall ANN performance in terms of MAE and correlation coefficient after correction will be even higher. The uncorrected measures presented in the tables still provide a relative comparison of model performance. In Table 3 presented later in this section, corrected MAEs are provided for comparison against uncorrected MAE's. As shown, the corrected MAE's decrease, but more importantly, the relative performance of the different models remains the same, which was consistent throughout.

One last important note; data file input errors were identified for the phosphorous variable following submission of the preliminary report. Accordingly, the complete and reduced phosphorous ANN models were redeveloped and evaluated with the corrected input values. Thus, Table 2 below includes these redeveloped models.

**Table 1. Statistical Comparison of ANN performance with all chemical inputs
Versus reduced ANN models – Iteration 1**

Statistical Measure	All	Ammonia	Turbidity	Nitrite/ Nitrate	Phospho- rus	None
Data Mean	47.39	47.39	47.39	47.39	47.39	47.39
Data Standard Deviation	95.30	95.30	95.30	95.30	95.30	95.30
Error Mean	8.97	6.88	2.86	2.18	-3.87	20.42
Error Standard Deviation	46.95	49.56	48.56	54.06	57.27	86.00
Mean Absolute Error	31.52	39.15	30.10	29.99	36.54	37.06
Standard Deviation Ratio	0.49	0.52	0.51	0.56	0.60	0.90
Correlation	0.87	0.86	0.86	0.83	0.80	0.71
No. of False Positives	0	3	0	2	1	1
No. of False Negatives	1	0	2	3	1	2

Source: Preliminary Report submitted to NJDEP, August 4, 2004. Complete and Phosphorous ANN models were retrained with corrected phosphorous data.

Overall statistical performance of the five models that used at least one chemical input is strikingly similar. What is obvious in this case is the degree to which the complete ANN model minimized total number of false positives and negatives relative to the other models. While failing to predict one of the five algal blooms, it did not falsely predict any blooms, or events with cyanobacteria counts above 100. In contrast, the other models provided some combination of at least two false positives and/or negatives. The ANN

model that did not use any chemical inputs may have performed the worst overall when considering both predictive accuracy and the ability to avoid false positives and negatives. It is also interesting to note that a low MAE does not necessarily result in fewer incidences of false positives and negatives, as demonstrated by the nitrite/nitrate model, which while having the lowest MAE, produced the highest number of false positive and false negative events (5).

New ANN models using the same sets of input predictor variables were developed and tested. That is, using the same set of data, new ANN models were trained to determine how repeatable the modeling results are with the relatively small data set. A lack of repeatability or consistency indicates that the data set is not sufficient to permit robust ANN learning. Table 3 below presents the results of the second set of model runs using the same set of input variables displayed in Table 1 above. In addition, the corrected MAE values, where computed negative counts are corrected to 0, are provided for comparison with the uncorrected MAE values.

**Table 2. Statistical Comparison of ANN performance with all chemical inputs
Versus reduced ANN models – Iteration 2**

Statistical Measure	All	Ammonia	Turbidity	Nitrite/ Nitrate	Phospho- rus	None
Data Mean	47.40	47.40	47.40	47.40	47.40	47.40
Data Standard Deviation	95.31	95.31	95.31	95.31	95.31	95.31
Error Mean	9.57	-1.94	1.50	6.09	-8.15	-4.52
Error Standard Deviation	49.56	43.84	48.90	48.69	41.78	42.92
Actual Mean Absolute Error	33.35	33.44	33.04	29.27	40.22	23.53
Recalculated Mean Absolute Error	29.71	26.31	32.64	24.23	27.24	22.75
Standard Deviation Ratio	0.59	0.46	0.51	0.51	0.44	0.45
Correlation	0.86	0.89	0.86	0.88	0.90	0.89
No. of False Positives	3	2	0	1	0	0
No. of False Negatives	0	0	2	0	0	1

As shown, there is some discrepancy between the first and second iteration results in terms of relative performance of the individual models. Statistically, there is little discrepancy between the original models (Table 1) and the second set of models for the turbidity, ammonia, and nitrate/nitrite models. However, the ANN model that used no chemical inputs (i.e.) performed much better in the second iteration, even outperforming the other models in terms of a lower MAE.

There are also differences between the two model sets in terms of avoiding false positives and false negatives. The model that did not use any chemical inputs failed to predict only one algal bloom, and did not produce any false positives. In contrast, while the model that used all four chemical inputs predicted all five blooms, it also predicted three false positives. The ANN model with only phosphorous as an input performed the best, predicting all five blooms without any false positives. The ANN model with ammonia also predicted all five blooms, but provided two false positives. The ANN model with nitrate predicted four of the five blooms, with two false positives. Lastly, the ANN model with turbidity predicted three out of the five blooms with no false positives. Measured versus ANN predicted values for the second set of models are shown below in Figures 1 through 6.

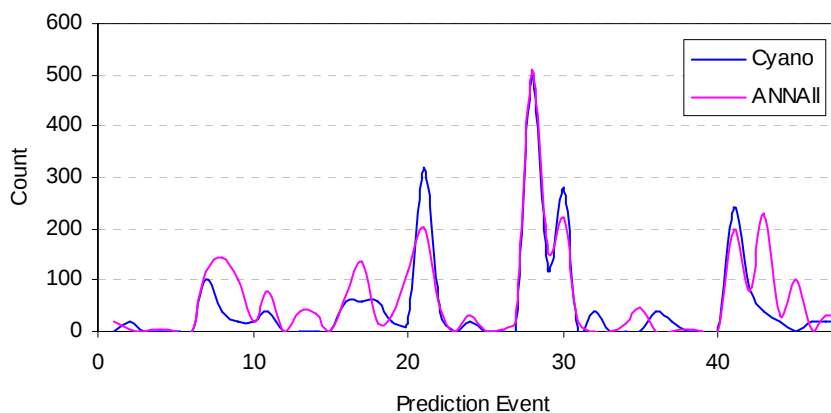


Figure 1. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with all chemical inputs (second model set).

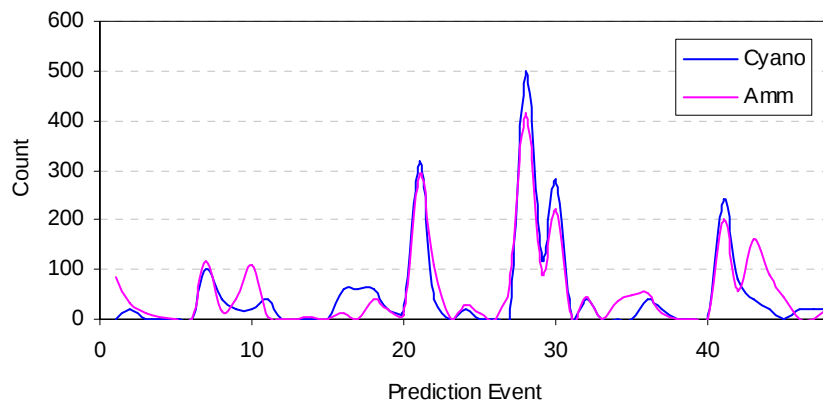


Figure 2. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with ammonia as the sole chemical input (second model set).

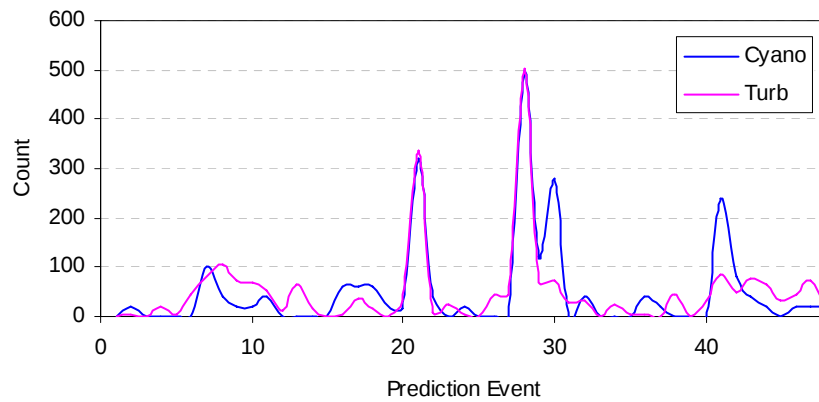


Figure 3. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with turbidity as the sole chemical input (second model set).

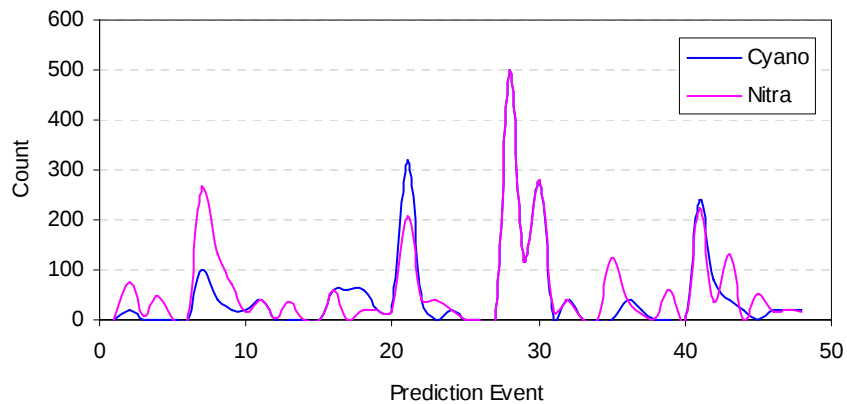


Figure 4. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with nitrite/nitrate as the sole chemical input (second model set).

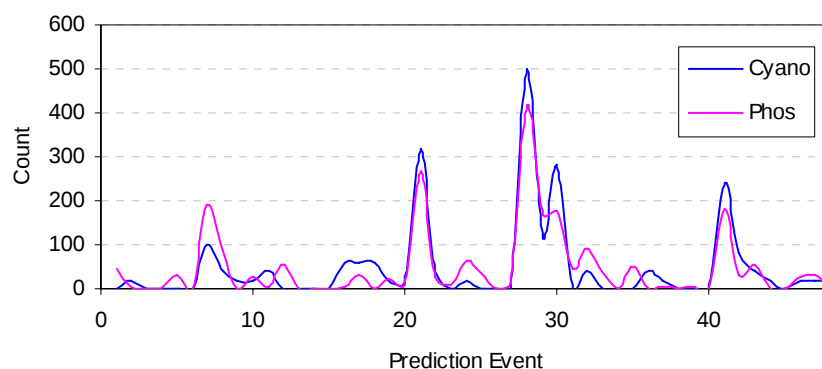


Figure 5. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with phosphorous as the sole chemical input (second model set).

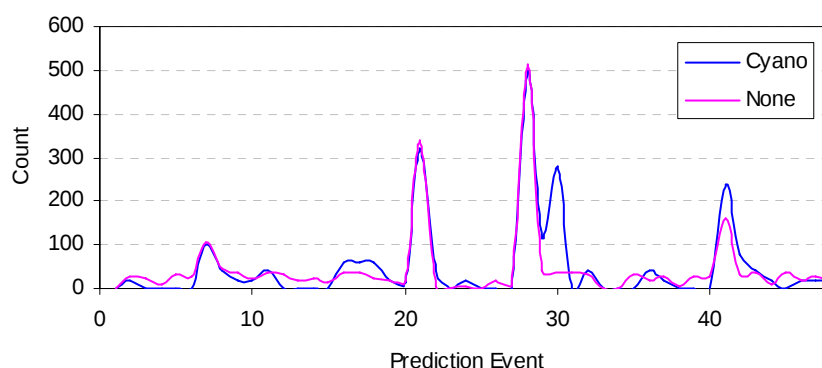


Figure 6. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with no chemical inputs (second model set).

For both model sets, the algal bloom that occurred during event 30 was the one that was most consistently missed by the models. A review of the input data for event 30 does not reveal any obvious anomalous condition that could be a source of difficulty for the ANN models.

Because of the very limited data set, particularly relative to the number of ANN input variables, it is difficult to draw firm conclusions. It may be weakly inferred that inclusion of chemical inputs in this data set increases model sensitivity for algal blooms. Undoubtedly chemical variables as part of the dynamics responsible for producing algal bloom events are important, and inclusion of them increases the likelihood of the ANN model for accurately forecasting such an event. However, in this case, because of the

limited number of data events, the ability of the ANNs to generalize system behavior is reduced.

Further supporting the relatively non-robust data set is the fact that the validation or testing error was generally higher than the training error. Table 3 presents a statistical comparison of the different models overall performance, as well as training and validation, for the second model set with chemical inputs.

Table 3. Performance Statistics of Second Iteration, for Overall Data, Training Data, and Validation Data for Chemical ANN Models

Parameter	Overall		Training		Test	
	MAE	Corr	MAE	Corr	MAE	Corr
All	29.71	0.86	15.70	0.98	59.96	0.59
Ammonia	33.44	0.89	26.42	0.90	29.67	0.46
Nitrate	29.27	0.88	1.92	1.00	71.41	0.63
Turbidity	33.04	0.86	31.15	0.88	43.56	0.45
Phosphorous	40.22	0.87	33.32	0.95	52.19	0.14

The ANN model with all the chemical inputs has a relatively low mean absolute error. What is most important, however, is that often, though not always, there is a large difference between training and validation performance. For example, the mean absolute training error for the model with nitrate as the sole chemical input was just 1.92; during validation, it increased to 71.4. This is the most extreme case, but in general, ANN training performance consistently exceeded model validation performance. This discrepancy indicates that additional data events are necessary to further improve ANN learning for generalization of system behavior, and that the ANNs may be overfitting the training data. However, the consistently relatively low training errors and overall performance does suggest that the ANNs are learning some general behavior, the possibility for achieving robust algae forecasting models for Swimming River with as additional data records are collected over time. This is further supported by the clearly superior performance of ANN relative to linear regression models obtained during the preliminary study.

As a further assessment of ANN capability, different combinations of the four chemical input variables were used to develop and assess ANN forecasting capability. Table 4 summarizes the statistical results, with figures 7 through 9 presenting measured versus predicted values for these models. Note that the abbreviated headings Ni, Pho, Tub, and Am designate nitrite/nitrates, total total phosphorous, turbidity, and ammonia. Thus, the heading Ni/Pho signifies the ANN model that used both nitrite/nitrate and total phosphate as the ANN input variables.

Table 4. Statistical Comparison of ANN performance with all chemical inputs Versus ANNs with different combinations of the four chemical inputs – Iteration 3

Statistical Measure	All	Ni/Am	Tur/Ni	Am/Pho
Data Mean	47.40	47.40	47.40	47.40
Data Standard Deviation	95.31	95.31	95.31	95.31
Error Mean	9.57	-7.58	0.87	0.97
Error Standard Deviation	49.56	49.33	58.25	43.99
Mean Absolute Error	29.71	23.16	33.16	26.99
Standard Deviation Ratio	0.52	0.52	0.61	0.46
Correlation	0.86	0.86	0.79	0.89
No. of False Positives	3	1	1	1
No. of False Negatives	0	2	1	1

Using two chemical inputs versus only one does not seem to improve performance; in fact, based upon the statistical results and the algal bloom prediction criterion, these models had lower performance. The Am/Pho model and the Tur/Ni models both predicted four out of the five algal blooms, while producing one false positive. The Ni/Am model performed the worst, predicting just three of the five blooms with one false positive.

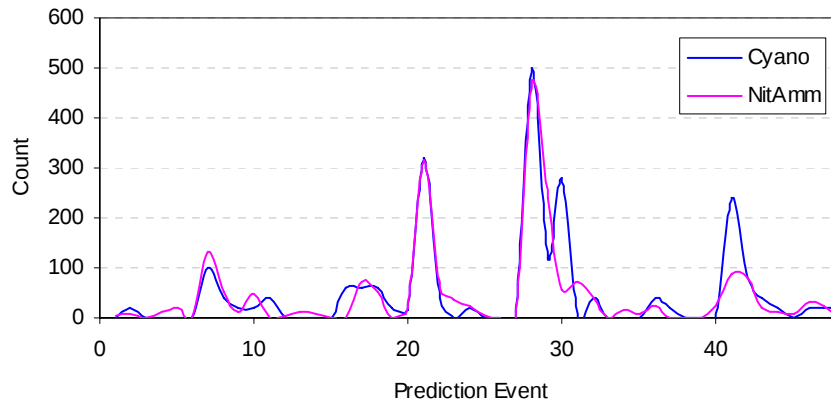


Figure 7. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with nitrite/nitrate and ammonia chemical inputs

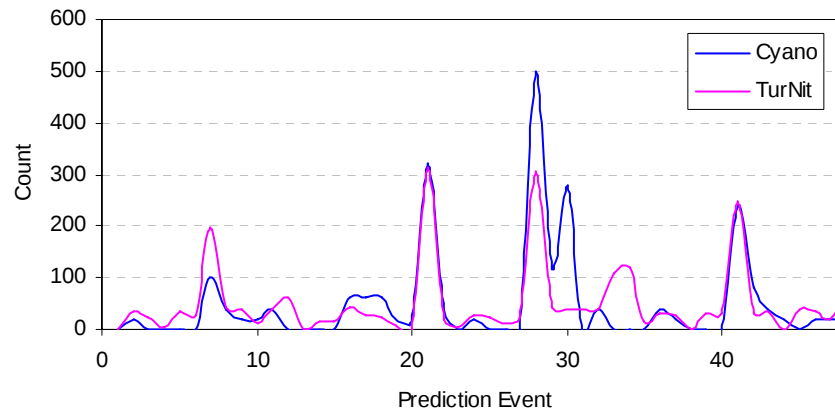


Figure 8. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with turbidity and nitrite/nitrate chemical inputs

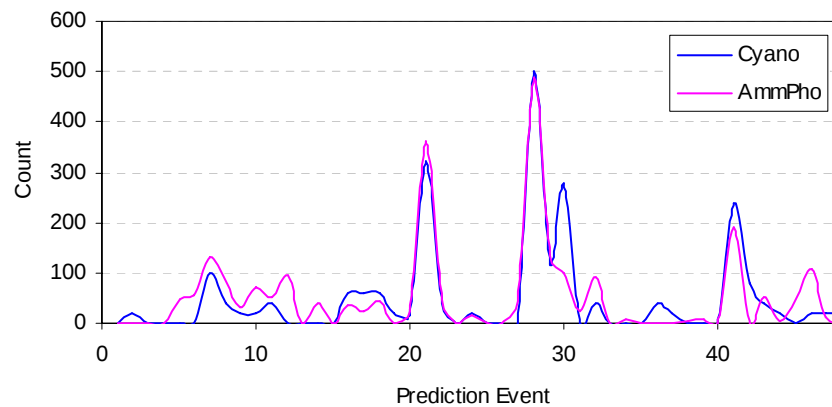


Figure 9. Measured versus predicted ANN model predicted cyanophyta counts for Swimming River Reservoir with ammonia and phosphorous chemical inputs

The sensitivity analysis results further demonstrate the apparent non-robustness of the data sets. The ratio for a given input predictor variable is the factor by which the RMSE increases by eliminating the variable as an input from the ANN model.

Formally, the ratio for a given ANN predictor variable is:

$$\text{Ratio Value} = \frac{\text{RMSE without ANN predictor variable}}{\text{RMSE with ANN predictor variable}} \quad (4)$$

Therefore, a ratio value > 1.0 signifies that inclusion of the predictor variable improves ANN accuracy, a ratio value < 1.0 signifies that elimination of the input variable actually increases ANN predictive accuracy, and a ratio value $= 1.0$ signifies neutrality, where the variable neither increases or decreases ANN predictive accuracy. The rank is a numerical ranking of the variables from most (rank 1) to least (rank 18) important for accurately predicting final cyanobacteria counts on the basis of the computed ratio values.

Tables 5 and 6 below summarize the sensitivity analysis results, with the corresponding ratios and ranks provided for each of the predictor variables, where ratio values < 1.0 have been highlighted.

Inspection of the ratio table does not reveal an obvious pattern. Only five variables had a ratio value < 1.0 for at least one model, with this outcome occurring twice for two variables, turbidity and average dissolved oxygen (over depth). To facilitate analysis, the average ratio ranking of each variable for all the models in which it was used for the second phase of modeling were computed, and are presented in Table 6 below, with the variables listed in order of importance.

In terms of the order of the most important variables, there is some consistency, albeit weak. Wind direction (4.7) is generally high, which agrees with the preliminary modeling findings. The next three highest ranking variables, wind speed, secchi depth, and nitrate are clustered near each other, and have average rankings between 5.2 and 5.8.

Of the four lowest ranking variables, three are chemical input variables, ammonia, total phosphorous, and turbidity.

Table 5. Ratio Values of the Variables for the different ANN Cyanobacteria Prediction Models for Swimming River Reservoir

	All	Nit/ Amm	Tur/ Nit	Am/ Pho	Amm	Nit	Tur	Phos	None
Ammonia	1.051	1.153		0.979	1.245				
Nitrate	1.452	1.218	2.152	1.045		1.168			
Turbidity	0.988		0.912	1.083			1.010		
Phosphorus	1.069			1.352				1.086	
Temperature at Shallow depth	1.593	1.274	1.178	1.340	1.407	1.445	1.081	1.077	1.085
Average Temperature	1.245	1.092	1.102	0.972	1.856	1.121	1.264	1.487	1.129
Temperature at Deep depth	1.487	1.217	1.284	1.008	1.926	1.161	1.021	1.240	1.013
Precipitation for Previous week	1.025	1.009	1.037	1.706	1.157	1.237	1.013	1.090	1.037
Precipitation for current week	1.043	1.028	1.040	1.442	1.216	1.174	1.309	1.103	1.150
Wind Speed	1.132	1.365	1.337	1.239	1.037	1.741	2.226	1.108	1.840
Wind Direction	1.070	1.413	1.614	1.297	1.265	1.270	1.502	1.271	1.745
Solar	1.148	1.145	1.454	1.610	1.346	1.622	1.174	1.118	1.020
Secchi	1.133	1.077	1.432	1.187	1.697	1.949	1.204	1.275	1.398
Dissolved Oxygen at shallow depth	1.001	1.121	1.300	1.112	1.290	1.170	1.052	1.117	1.054
Dissolved Oxygen Average	1.096	1.060	1.210	1.118	0.963	1.252	1.220	0.971	1.054
Dissolved Oxygen deep depth	1.424	1.338	1.279	1.283	1.277	1.712	1.056	1.120	1.385
pH	1.603	1.091	1.033	0.979	1.185	1.682	1.057	1.159	1.378
Initial Cyano level	1.148	1.032	1.369	1.045	1.223	1.549	1.183	1.577	1.370

Table 6. Rankings of the Variables for the different ANN Cyanobacteria Prediction Models for Swimming River Reservoir

	All	Nit/ Amm	Tur/N it	Am /Pho	Amm	Nit	Tur	Phos	None	Avg
Wind Direction	12	1	2	3	8	8	2	4	2	4.7
Wind Speed	10	2	6	1	14	2	1	10	1	5.2
Secchi	9	12	4	6	3	1	6	3	3	5.2
Nitrite/Nitrate	4	5	1			13				5.8
Dissolved Oxygen at deep depth	5	3	9	11	7	3	11	7	4	6.7
Average Temperature	6	10	12	4	2	15	4	2	8	7.0
Initial Cyano counts	7	14	5	7	10	6	7	1	6	7.0
Solar	8	8	3	8	5	5	8	8	13	7.3
Temperature at Deep depth	3	6	8	5	1	14	13	5	14	7.7
Temperature at Shallow depth	2	4	11	12	4	7	9	14	9	8.0
pH	1	11	15	10	12	4	10	6	5	8.2
Dissolved Oxygen at shallow depth	17	9	7	2	6	12	12	9	10	9.3
Average DO	11	13	10	9	15	9	5	15	11	10.9
Current week Precipitation	15	15	13	14	11	11	3	11	7	11.1
Ammonia	14	7		15	9					11.3
Phosphorus	13			13				13		13.0
Previous week Precipitation	16	16	14	16	13	10	14	12	12	13.7
Turbidity	18		16				15			16.3

Lastly, Table 7 compares the sensitivity analysis results obtained with the complete chemical input variable set during the first and second iterations. Variables predictor types have been shaded with similar colors to help distinguish some patterns (i.e. chemical, weather, physical, and cyanobacteria).

Table 7. Sensitivity analysis results for ANN Cyanobacteria Prediction Models for Swimming River Reservoir that used all four chemical inputs.

Iteration 1	ANN Ratio	ANN Rank	Iteration 2	ANN Ratio	ANN Rank
Wind Speed	1.624441	1	pH	1.603	1
Nitrite/nitrate	1.529473	2	Shallower Temp	1.593	2
Wind Direction	1.370768	3	Deep Temperature	1.487	3
Shallower D.O.	1.313101	4	Nitrite/nitrate	1.452	4
Deeper D.O.	1.310284	5	Deeper D.O.	1.424	5
Secchi Depth	1.209016	6	Average Temperature	1.245	6
Total Phosphorus	1.162749	7	Initial Cyano	1.148	7
pH	1.153351	8	Solar Radiation	1.148	8
Previous Week Precipitation	1.049101	9	Secchi Depth	1.133	9
Initial Cyano	1.040749	10	Wind Speed	1.132	10
Shallower Temp	1.035106	11	Average. D.O.	1.096	11
Average. D.O.	1.030823	12	Wind Direction	1.070	12
Current Week Precipitation	1.019911	13	Total Phosphorus	1.069	13
Ammonia	1.016448	14	Ammonia	1.051	14
Solar Radiation	1.011603	15	Current Week Precipitation	1.043	15
Turbidity	1.001922	16	Previous Week Precipitation	1.025	16
Average Temperature	0.995978	17	Shallower D.O.	1.001	17
Deep Temperature	0.995449	18	Turbidity	0.988	18

There is some consistency in the results. The two models have similar extreme ratio values, and both have relatively few variables with a ratio value < 1.0. For both models, ammonia and turbidity rank near the bottom. Wind speed and wind direction both rank

very high for the first model, which is consistent with the overall sensitivity analyses results presented in Table 7 above, which excluded this model in its tabulation. Nitrite/nitrate is the top ranking chemical variable for both models, and ranks within the top four for both models. Deeper depth dissolved oxygen ranks fifth for both models. There are, however, significant inconsistencies. For example, average temperature not only had the second to last lowest ranking in the first model iteration, but its ratio value was < 1.0 . In contrast, for the second model iteration, average temperature ranked as the sixth most important variable, with a relatively large ratio value of approximately 1.25.

The inconsistency of the sensitivity analyses results in combination with the relatively large discrepancy between training and validation only serves to support the following preliminary finding stated in the interim report (page 25, paragraph 1):

The sensitivity analysis results achieved with different ANNs are not always consistent. That is, while one particular predictor variable may be relatively important for one ANN for predicting algae levels, it may be relatively non-important for another ANN. This inconsistency is probably due primarily to the relatively small data set as well as inherent noise associated with many of the measured variables, including algae levels... Additional data should be collected for additional ANN development and assessment before conclusions regarding the relative importance of different variables for accurately predicting algae levels can be drawn with confidence.

While chemical data would undoubtedly improve model performance, it has not been clearly demonstrated in this modeling work. The ANN model that did not use the chemical inputs for the chemical data set performed relatively well in the second iteration, and in fact had the lowest mean absolute error. However, it also failed to predict all five algal blooms, unlike four of the five ANN models that used one chemical input. Collectively, the modeling results, both in terms of predictive accuracy and overall sensitivity analyses results, demonstrate the *potential* for using ANN technology as a method for forecasting algae levels at this site. This is supported by the relatively accurate overall performance of the models and their superiority over the linear models as demonstrated in the preliminary analysis.

INCREMENTAL SENSITIVITY ANALYSIS FOR SWIMMING RIVER

As a final modeling exercise, an incremental sensitivity analysis was performed. The objective is to assess how algae counts change with respect to changes in input values for select variables. For example, a utility may want to assess how algae counts computed by the ANN model change in response to a range of different values for temperature. This type of analysis can help determine in what manner the ANN model correlates algae counts with select variables (i.e. negative, positive, inverse, etc.). In an ideal situation, where the ANN has truly learned the underlying system behavior, the results of this analysis could be extended to the physical system being modeled by the ANN. It should be emphasized, however, that in non-linear systems, such relationships may not be straightforward. Rather, the corresponding change of the system with respect to a given variable is undoubtedly related to the other states (i.e. variables) of the system. For example, similar increases in temperature for two events may product two different outcomes, depending upon other system states (i.e. inputs), such as dissolved oxygen. The relative lack of data for developing the ANN models limits the degree of confidence in the results. However, at the same time, some consistent patterns may emerge that help to foster system understanding.

In this exercise, four historical algae events were selected for which the values of individual input variables were changed to their minimum, average, and maximum observed values over the complete data record, while holding all values for all other input variables constant, from which the corresponding algae levels were computed. As part of this analysis, the relative effect of the different input variables on the computed outputs was also computed. That is, because different input variables exhibit significantly different range of values, a direct comparison of the range of computed outputs for minimum and maximum input values has limited value. Consequently, the relative effect of each input variable on the corresponding algae level was computed using a normalized sensitivity ratio. Mathematically, the normalized sensitivity ratio was computed as:

$$\text{Sensitivity Ratio} = (\text{ANN Output (Maximum Input Value)} - \text{ANN Output (Minimum Input Value)}) / (\text{Maximum Input Value} - \text{Minimum Input Value})$$

(5)

In this analysis, six input variables were systematically changed, and they are: ammonia, nitrite/nitrate, turbidity, phosphorous, deep temperature, and deep dissolved oxygen. The computed results for one representative event is depicted by Figure 10, a bar graph, where the algae count for the actual input value is compared against the corresponding minimum, mean, and maximum values for each input variable.

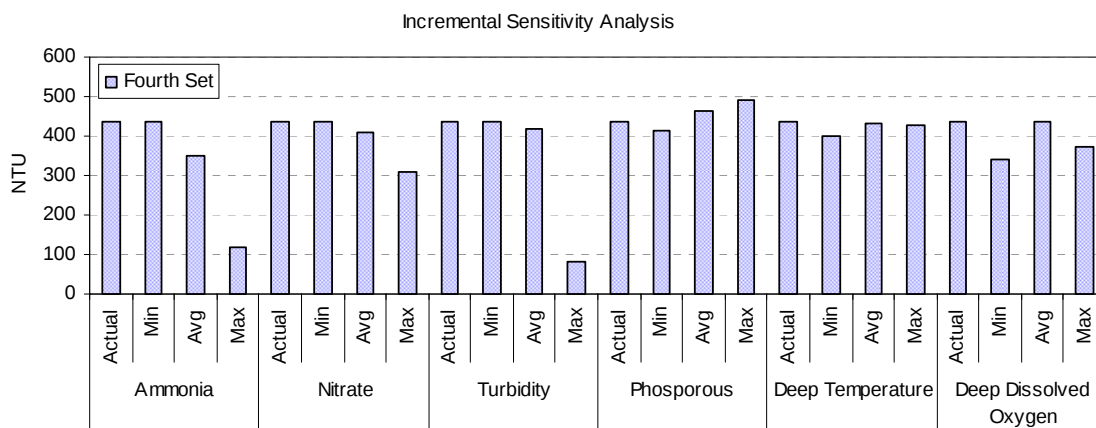


Figure 1. Bar graph depicting algae counts for actual input value compared to algae counts for minimum, average, and maximum values for six selected input variables for a representative event for Swimming River.

In this case, ammonia, nitrate, and turbidity are negatively correlated with algae count. That is, as concentrations of these chemicals increase, computed algae counts decrease. Contrary, increases in phosphorous and deep temperature increase algae counts. Deep dissolved oxygen displays a changing relationship with algae counts, with an increase in algae counts occurring as oxygen increases from its minimum to average value, but then a decrease in algae counts as oxygen increases from its average to the maximum value.

There was not complete consistency with respect to negative and positive correlations for some variables for different events. That is, for some events, a given variable may be positively correlated with algae counts, while in another case, negatively correlated.

Table 8 below is a computed average range change and sensitivity ratio values for all four events. Negative values reflect a negative correlation, and in this case, increases in deep temperature, nitrate, and turbidity actually produced a decrease in algae counts. For this model, and for the four events, increases in deep dissolved oxygen, phosphorous, and ammonia led to increases in algae counts, on average.

Inconsistency with respect to positive and negative correlations for certain variables, however, highlights the seemingly contradictory behavior that can result with a non-linear and complex system. The state of the other variables in this open system would likely have some effect on the corresponding changes induced by certain variables. From an intuitive perspective, this type of behavior makes sense. Depending upon the other conditions of the system, increases in a certain variable could promote or suppress algae levels. For example, while an increase in turbidity during a low precipitation period could be indicative of higher algae counts, among other things, during a high precipitation period, it could be indicative of higher sediment loading, which could in fact suppress algae formation by inhibiting sunlight penetration.

Table 8. Comparison of RMSE Ratios, Range Change and Sensitivity Ratios for Cyanobacteria Modeling with all four chemical inputs for Swimming River

Variable Name	RMSE Ratio Ranking	Range Change	Range Ranking	Sensitivity Ratio	Sensitivity Ranking
Deeper Temperature	2	-308.759	1	-14.564	1
Deeper DO	1	39.243	6	4.0878	2
Phosphorous	10	208.165	2	2.657	3
Nitrate	9	-198.451	3	-0.437	4
Turbidity	15	-82.852	4	-0.279	5
Ammonia	18	39.379	5	0.0424	6

Another issue to consider is the possibility for violation of certain physical laws or conditions with this simplified modeling analysis. For example, increases in turbidity levels likely reduce the secchi depth, which in turn reduces sunlight penetration,

inhibiting cyanobacteria growth. However, in this analysis, it is assumed that all other variables remain constant; thus, a corresponding increase in turbidity would not be accompanied by a decrease in secchi depth. Future work should attempt to correlate these changes during the sensitivity analysis. And then lastly, the most serious concern in this analysis is the relative lack of data which constrains efforts to develop robust models. All of these issues, then, reduce confidence in any inferences that drawn from this analysis at this time. It is believed, however, that more robust data sets coupled with a more systematic and directed incremental sensitivity analysis would likely produce important insights into system behavior.

 APPENDIX A-2

SWIMMING RIVER
Water Treatment Modeling

Seasonal ANN Models

Water quality conditions of the reservoir, and hence the raw water, are to some extent influenced by seasonal conditions. Figure 1 is a time series comparing raw water temperature against raw water turbidity and exhibits a distinct seasonal pattern. In general, these two variables for the period of record are unexpectedly inversely correlated, with higher raw water temperatures corresponding with lower raw water turbidity, and lower temperatures corresponding with higher raw water turbidity.

Figures 2 and 3 below are time series depicting, by season, average turbidity readings and daily readings, respectively, for finished (i.e. effluent) water. Similarly, Table 1 summarizes statistical measures for average turbidity and number of turbidity readings > 0.1 NTU of finished water for each of the four seasons.

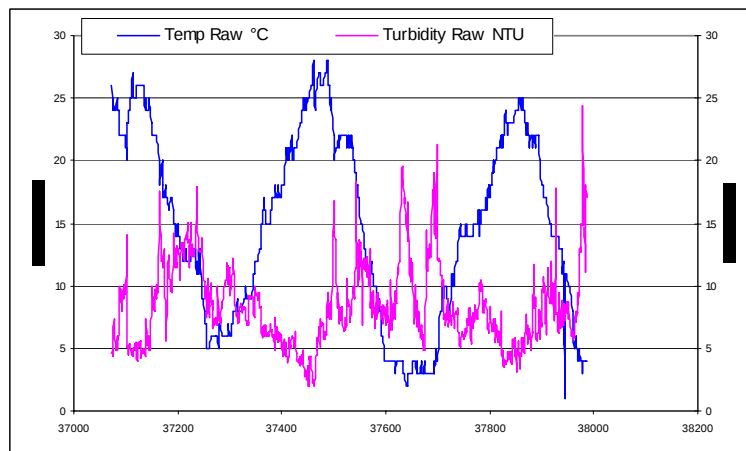


Figure 1. Raw water temperature versus raw water turbidity over time for Swimming River.

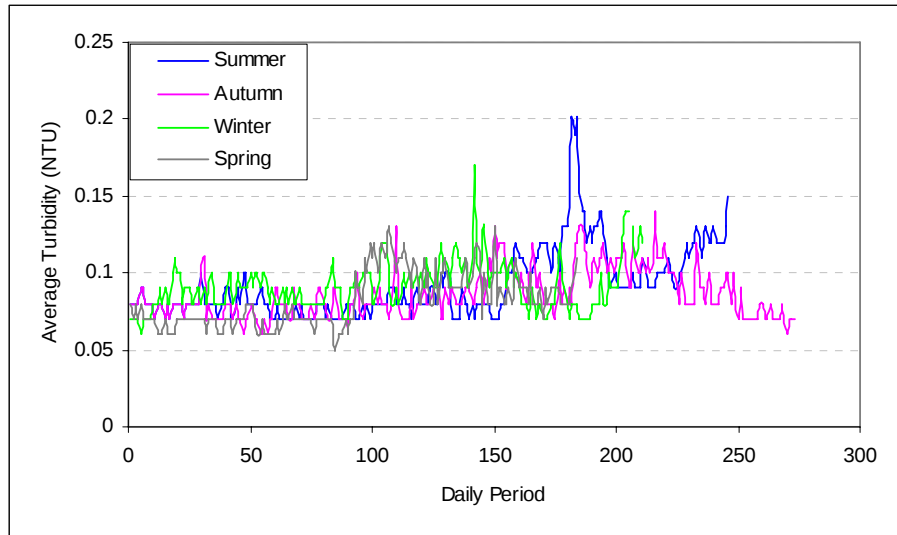


Figure 2. Seasonal comparison of average daily turbidity for Swimming River.

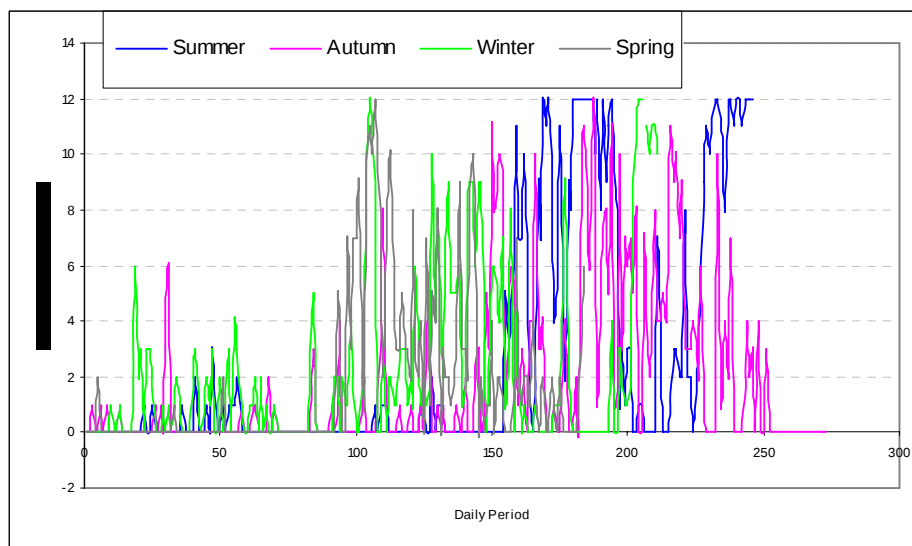


Figure 2. Seasonal comparison of highest daily turbidity for Swimming River.

Table 1. Seasonal Statistical Measures of Daily Average Turbidity and Number of Readings > 0.1 NTU for Swimming River

		Average Turbidity	No. of Readings
Spring	Minimum	0.05	0
	Average	0.08	1.71
	Maximum	0.13	12
Summer	Minimum	0.07	0
	Average	0.09	2.66
	Maximum	0.2	12
Autumn	Minimum	0.06	0
	Average	0.09	1.82
	Maximum	0.14	12
Winter	Minimum	0.06	0
	Average	0.09	2.26
	Maximum	0.17	12

In general, there does not appear to be significant variations in finished water quality between seasons, except perhaps for some rare anomalously high average turbidity events during warmer seasons (i.e. spring and summer).

Because distinct raw water quality conditions are expected for different seasons of the year, separate ANN models were developed and tested for each season. For the 2.5 years of available records, data was separated by season into Spring (March, April, May), Summer (June, July, August), Fall (September, October, November), and Winter (December, January, February). Due to the lower model predictive capability achieved for highest turbidity, ANN model development and testing was conducted for average turbidity and daily readings, only.

Table 2 compares the seasonal ANN models against the best ANN models developed for the entire data set (annual) for the average turbidity and daily reading prediction variables. For both cases, the seasonal models always outperformed the annual model in terms of mean absolute errors. It is interesting and perhaps important to note that the two summer ANN models significantly outperformed their corresponding annual models. This suggests that the summer season has some unique conditions and/or behavior that are distinctly different from the other times of the year. It is possible, then, that when this

season is individually modeled, the ANN models are more able to capture this distinct behavior. In contrast, autumn and winter do not appear to have as distinct behavior, particularly with regarding to daily readings.

Table 2. Statistical Performance Comparison of Annual versus Seasonal ANN Models for Swimming River

	Average Turbidity				
	Spring	Summer	Autumn	Winter	Annual
MAE	0.00683	0.00890	0.00827	0.00758	0.00948
Corr	0.856	0.824	0.728	0.720	0.720
	Daily Readings				
	Spring	Summer	Autumn	Winter	Annual
MAE	1.12	1.22	1.35	1.45	1.48
Corr	0.738	0.888	0.554	0.615	0.721

Figures 4 through 7 are time series for the four seasons, comparing measured predictions made by the seasonal ANN models against the corresponding against the models against the annual models for average turbidity. Similar figures for readings can be seen The annual models have a tendency to smooth out the predictions, whereas the seasonal models do a more effective job, in general, of capturing higher and lower values. The corresponding figures for daily readings can be found in Appendix B-1.

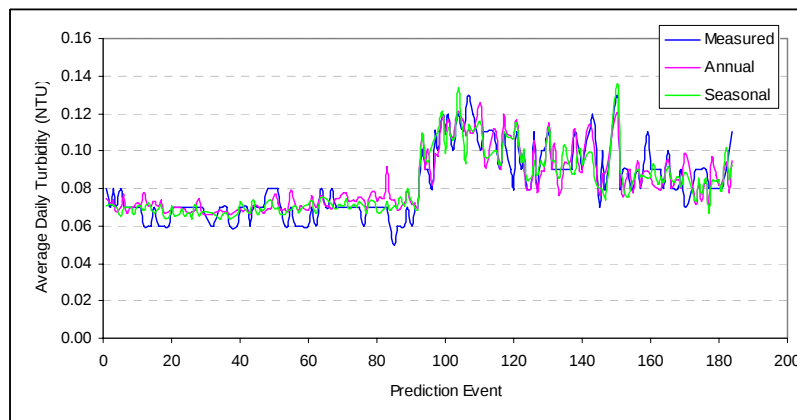


Figure 4. Spring ANN vs Annual ANN for Average Daily Turbidity for Swimming River

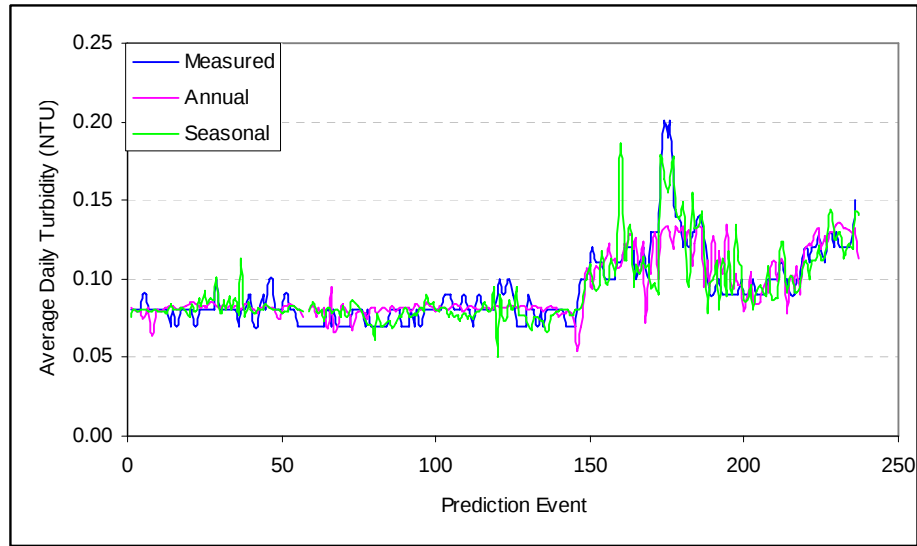


Figure 5. Summer ANN vs Annual ANN for Average Daily Turbidity for Swimming River.

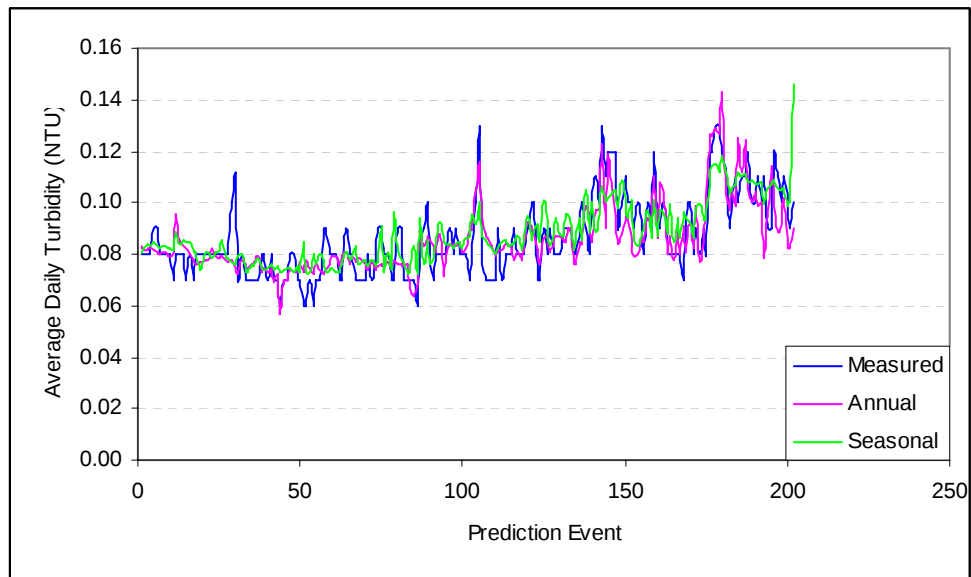


Figure 6. Autumn ANN versus Annual ANN for Average Daily Turbidity for Swimming River.

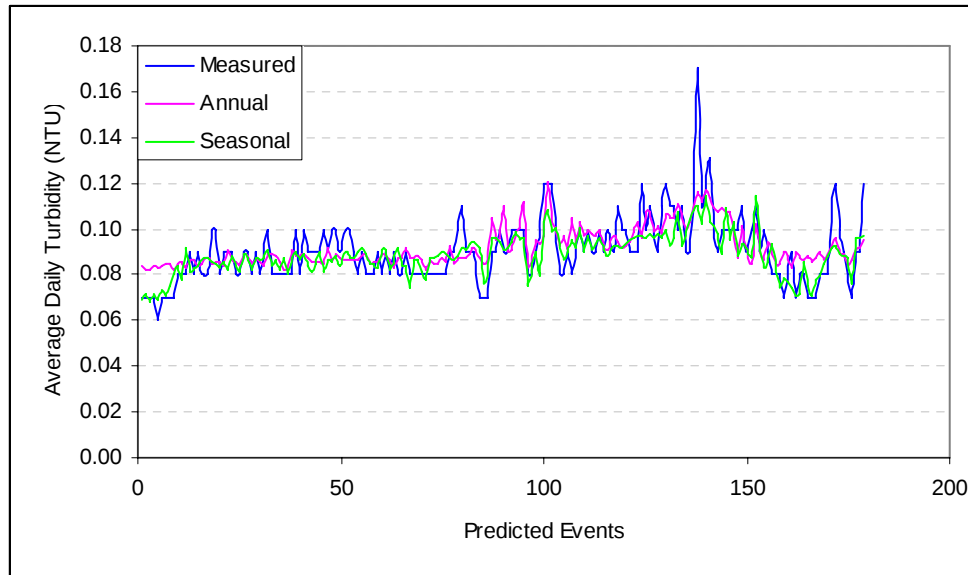


Figure 7. Winter ANN vs Annual ANN for Average Daily Turbidity for Swimming River.

Train One Season Test Another

To further confirm seasonal differences in system conditions and behavior, ANN models that were trained with data for a particular season were then validated with data for another season. For example, an ANN model trained with summer data was then validated or tested with data for spring. If there is little or no seasonal variability in system conditions, then ANN models trained with one season of data should perform well when presented with a data set for another season. Conversely, for a system that is characterized by seasonal differences, poor ANN model performance for the different validation season would be expected.

Initially, the ANN models developed with the summer data were validated with the winter data, and vice versa, for both average turbidity and average readings. Table 3 presents the results of this analysis, and compares ANN model performance against the ANN models that were trained and validated with a single season of data.

Table 1. Statistical Performance of ANN Models Trained with Summer and Tested with Winter Data, and Trained with Winter and Tested with Summer Data

	Trained Summer Tested Winter		Trained Winter Tested Summer	
	Turbidity	Readings	Turbidity	Readings
Mean Absolute Error	0.055	6.28	0.063	3.62
Correlation Coefficient	0.37	0.32	-0.44	0.098

As reflected by the low correlations, the models did not perform very well. In general, the ANN models developed with the summer data and tested with the winter data did significantly better than those developed with the winter data and tested with the summer data.

Figures 8 through 11 below present measures versus predicted values for these models. As shown by Figure 8, the ANN model trained with winter data has a tendency to seriously overestimate average turbidity levels for the summer season. The ANN model developed with the summer data and tested with the winter data also had a general tendency to overestimate average turbidity levels, with some notable exceptions where several negative values were predicted. The same tendencies occurred with the models developed and tested for the average readings data.

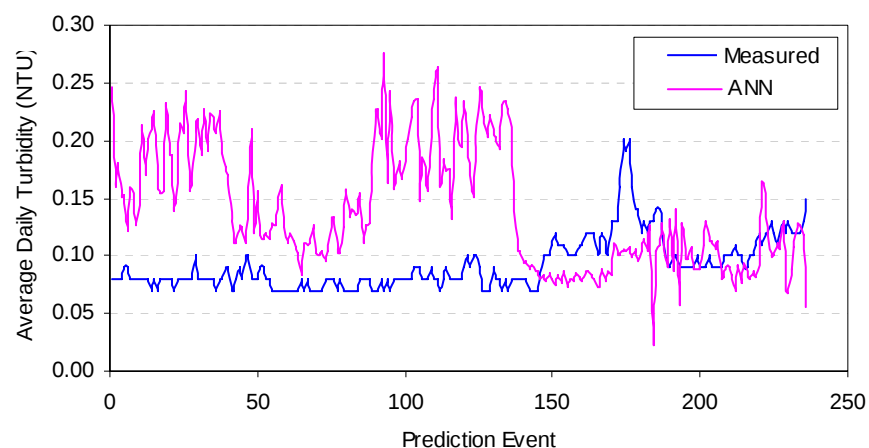


Figure 8. Average turbidity predictions for summer season with ANN model trained with winter data for Swimming River.

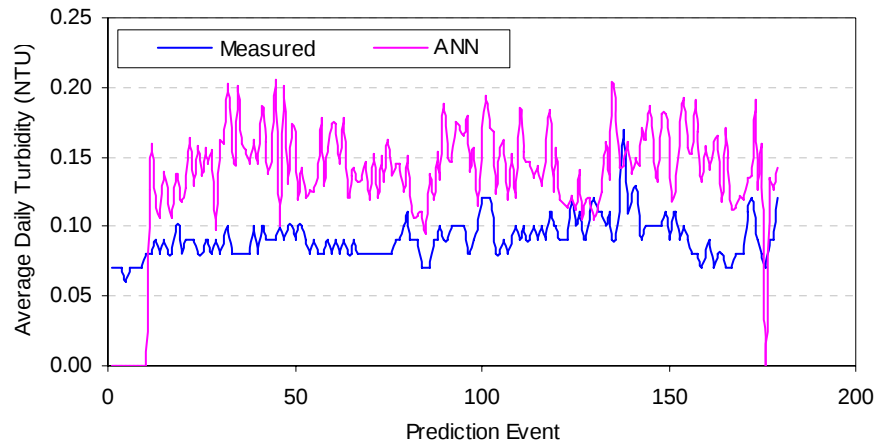


Figure 9. Average turbidity predictions for winter season with ANN model trained with summer data for Swimming River.

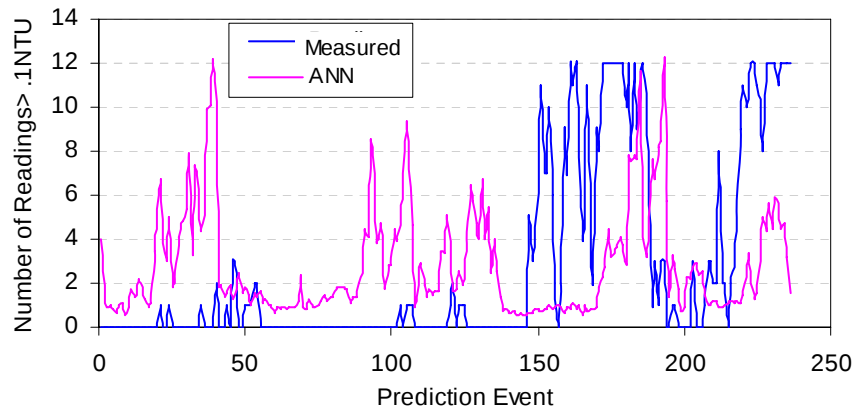


Figure 10. Number of daily readings predictions for summer season with ANN model trained with winter data for Swimming River.

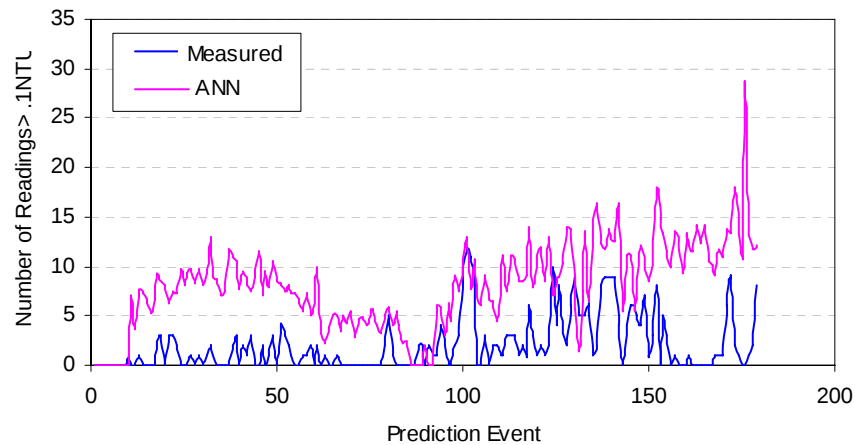


Figure 11. Number of daily reading predictions for winter season with ANN model trained with summer data for Swimming River.

As a final analysis, seasons that may exhibit more similar behavior, namely summer and spring, were selected for the same test. Thus, ANN models were developed with summer data for average turbidity and average readings, and then tested with spring data. Similarly, ANN models were developed with spring data and tested with summer data. Table 4 below summarizes statistical measures for model performance, with Figures 12 through 15.

Table 2. Statistical Performance of ANN Models Trained with Spring and Tested with Summer Data, and Trained with Summer and Tested with Spring Data for Swimming River.

	Trained Spring Tested Summer		Trained Summer Tested Spring	
	Turbidity	Readings	Turbidity	Readings
Mean Absolute Error	0.022	3.037	0.025	2.63
Correlation Coefficient	-0.003	-0.029	0.561	0.508

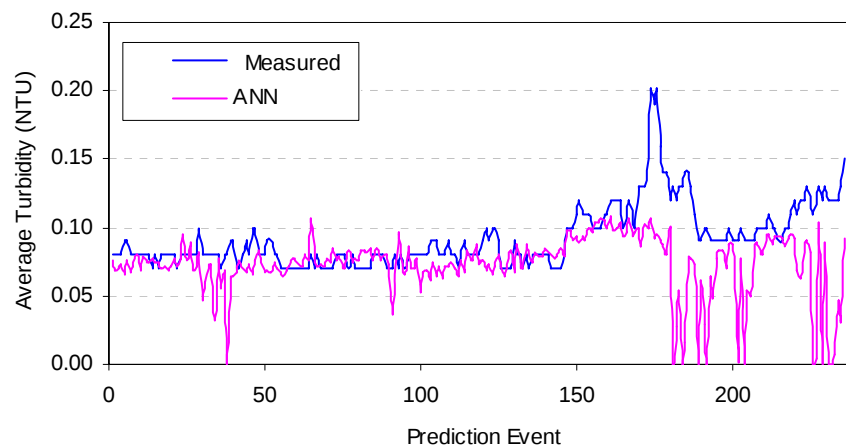


Figure 12. Average turbidity predictions for summer season with ANN model trained with spring data for Swimming River.

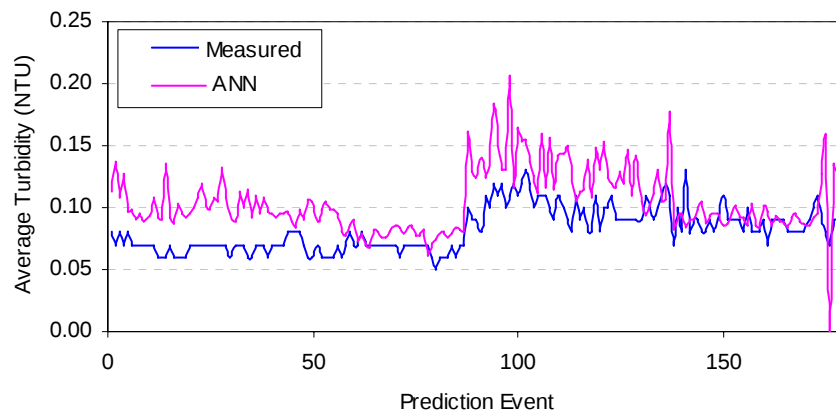


Figure13. Average turbidity predictions for spring season with ANN model trained with summer data for Swimming River.

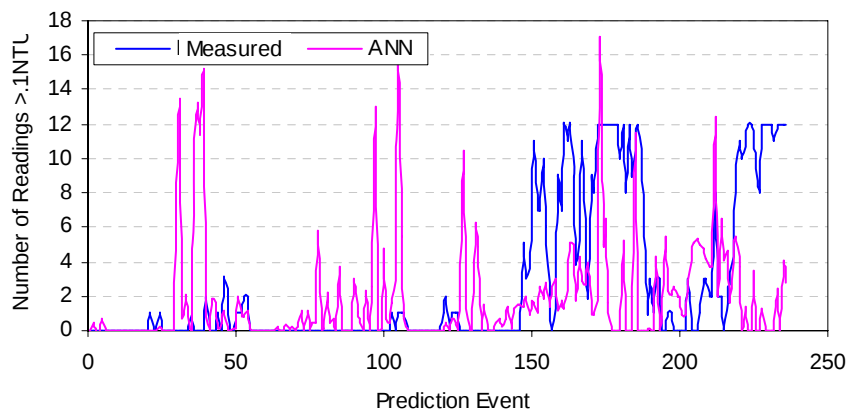


Figure 14. Number of reading predictions for summer season with ANN model trained with spring data for Swimming River.

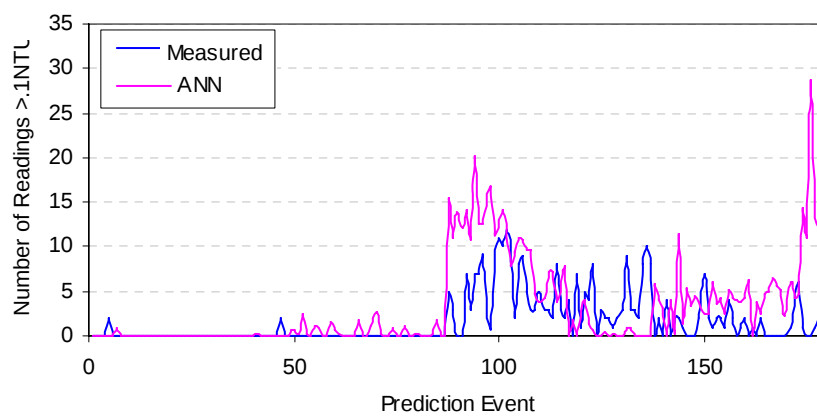


Figure 15. Number of reading predictions for spring season with ANN model trained with summer data for Swimming River.

As with the winter-summer exercise, the ANN models developed with the summer data performed the best during validation. This is likely due to the fact that the summer season exhibits the greatest variability in terms of conditions, and thus models trained with this data are the most robust. Conversely, a model validated or tested with the summer data is presented with a more difficult season to predict.

The seasonal modeling results strongly suggest that for certain seasons, namely summer and spring, which may have rather distinct characteristics, it might be best develop individual seasonal ANNs. For the winter and fall, it may be better to train them with all available data. This finding also demonstrates that the ANNs are able to learn relationships between the predictor or input variables and the prediction or output variables.

Dual Output Networks

ANN models are not restricted to predicting one output variable only; they can be used to predict any number of output variables simultaneously as dictated by the problem. In fact, one of the inherent strengths of ANN technology is that, unlike regression, which treats each output variable independent of the others, ANNs through interconnection via common arcs can account for inter-relationships between output variables. In cases where significant correlation exists between output variables, this capability can improve prediction performance.

In this modeling exercise, seasonal and annual ANN models were developed for simultaneously predicting two output variables; average turbidity and daily readings. Table 5 compares model performance of the previously developed ANN models that had only one output variable against the ANN models (dual) that simultaneously predicted two output variables, average turbidity, and daily number of readings (> 0.1 NTU).

The dual ANN models consistently outperformed their corresponding single ANN models when predicting daily readings, as reflected by the slightly lower mean absolute

errors (MAE). For predicting average turbidity, the dual ANN models outperformed the single ANN output models for just two of the five cases, though overall, there were relatively small differences between the two model types. Thus, the dual ANN models provided increased accuracy, though minor, for seven of the 10 cases, with consistent improvement for average readings. This indicates that the ANNs are able to infer some weak correlation between daily readings and average turbidity within the context of the inputs, which in particular enhanced predictive capability for the former output variable

Table 5. Statistical Performance Comparison of Single versus Dual Prediction ANN Models

Model		Daily Average Turbidity				
		Spring	Summer	Autumn	Winter	Annual
Single	Mean Absolute Error	0.00683	0.00890	0.00828	0.00758	0.00948
Dual	Mean Absolute Error	0.00693	0.00871	0.00764	0.00853	0.00984
Single	Correlation Coefficient	0.856	0.824	0.728	0.720	0.720
Dual	CorrelationCoefficient	0.859	0.805	0.767	0.664	0.702
Model		Number of Daily Readings				
		Spring	Summer	Autumn	Winter	Annual
Single	Mean Absolute Error	1.12	1.22	1.35	1.45	1.49
Dual	Mean Absolute Error	1.08	1.29	1.04	1.38	1.46
Single	Correlation Coefficient	0.738	0.888	0.555	0.615	0.721
Dual	CorrelationCoefficient	0.790	0.867	0.801	0.686	0.732

Figures 16 through 23 compare the single versus the dual ANN models for the different output variables by season. In general, there is discrepancy between the dual and single ANN models. In some cases, the single model appears to do better. However, on average, the dual model appears to reduce erroneous high and low values, perhaps providing some increased stability. For the summer turbidity, however, the single ANN model, while incorrectly predicting one peak, did correctly predict a later peak, unlike the dual ANN model.

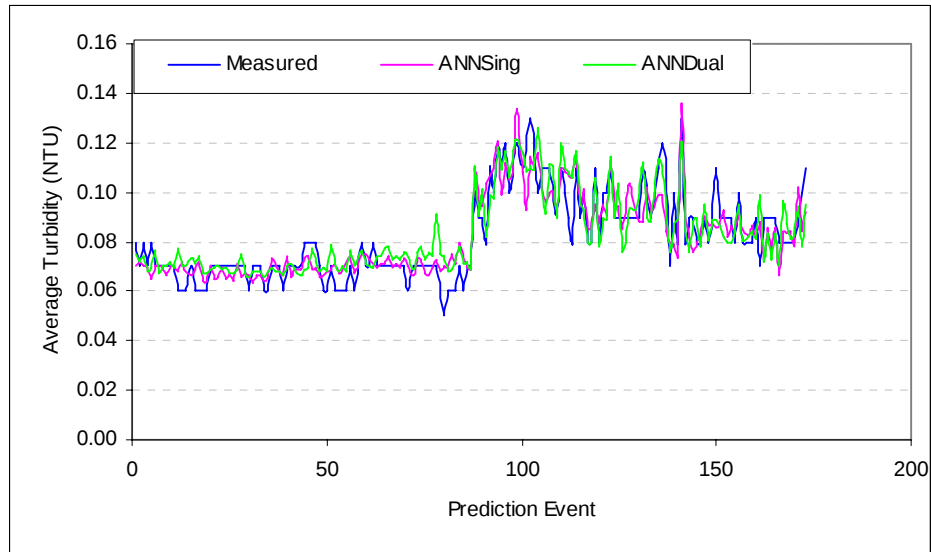


Figure 16. Comparison of average daily turbidity predictions by single and dual ANN output models for spring season for Swimming River.

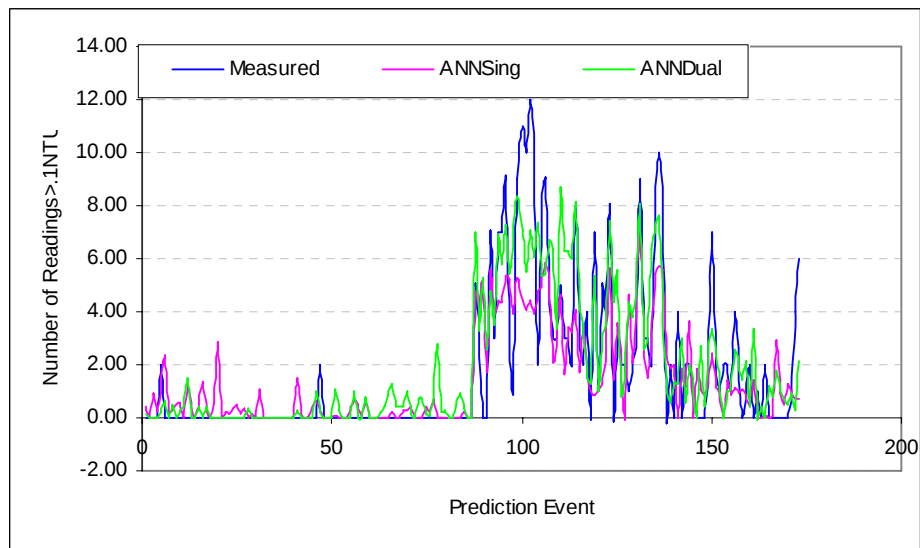


Figure 17. Comparison of number of reading predictions by single and dual ANN output models for spring season for Swimming River.

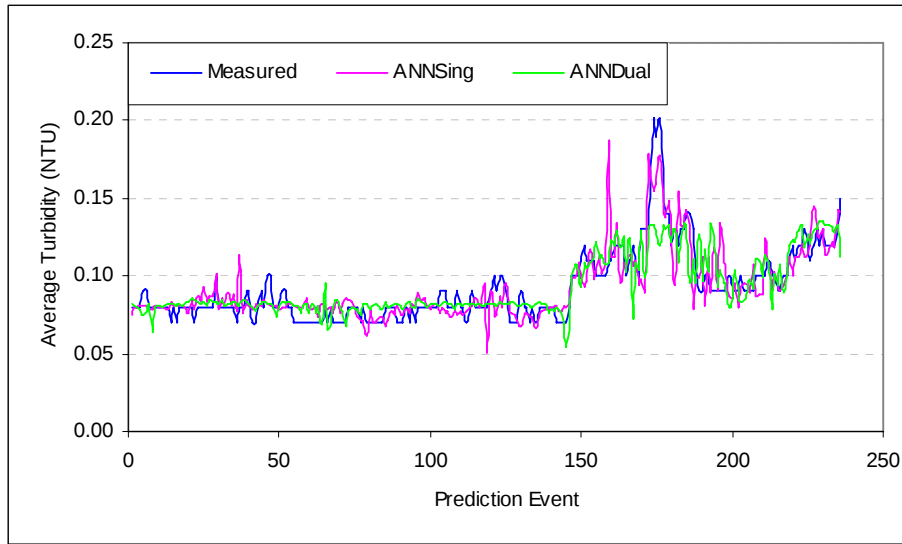


Figure 18. Comparison of average daily turbidity predictions by single and dual ANN output models for summer season for Swimming River.

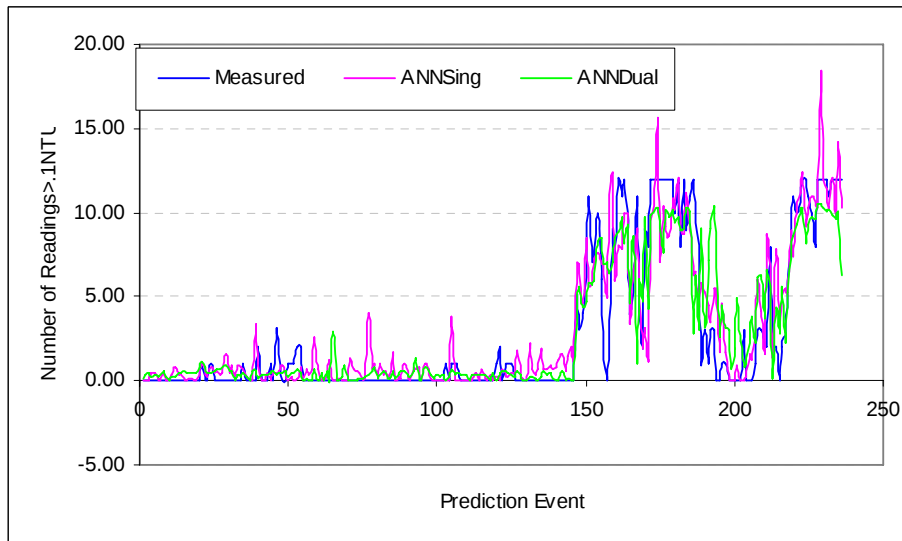


Figure 19. Comparison of number of daily predictions by single and dual ANN output models for summer season for Swimming River.

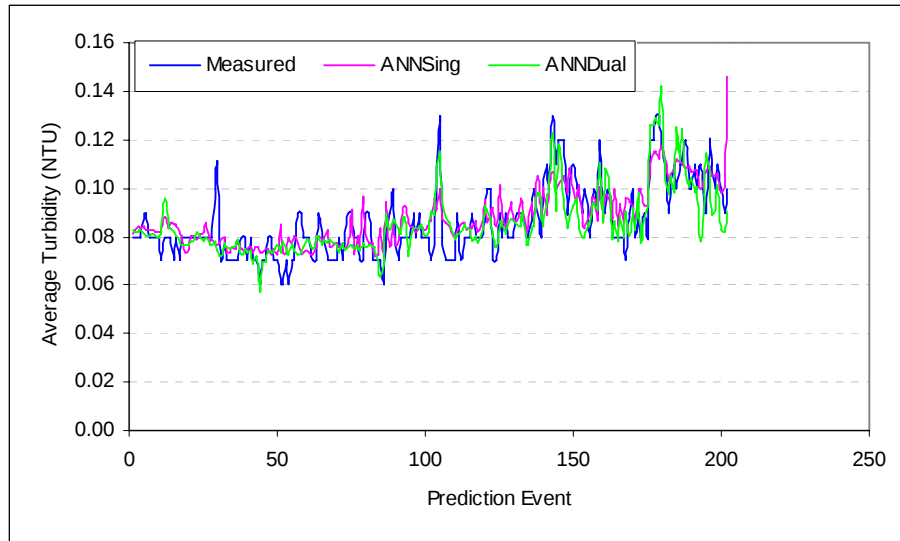


Figure 20. Comparison of average daily turbidity predictions by single and dual ANN output models for fall season for Swimming River.

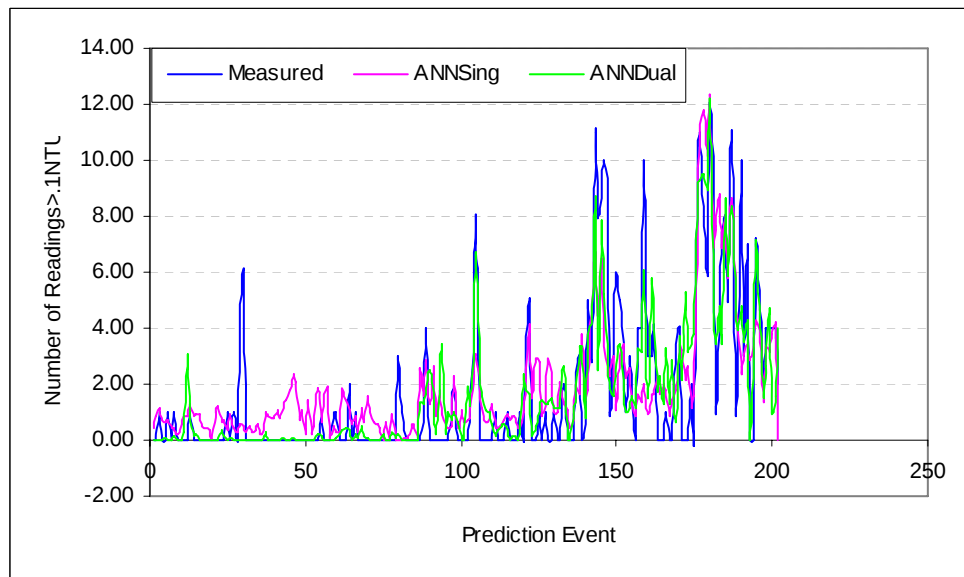


Figure 21. Comparison of number of reading predictions by single and dual ANN output models for fall season for Swimming River.

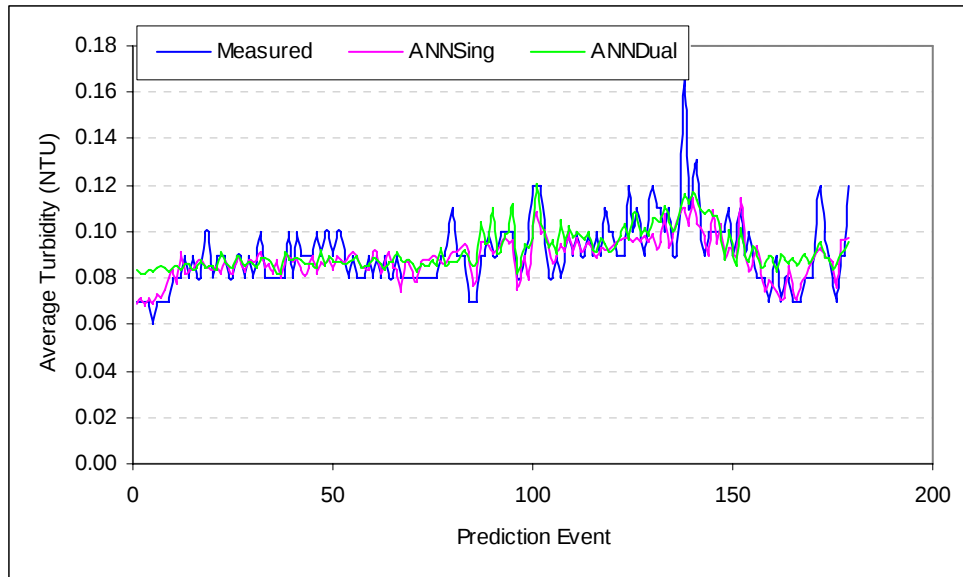


Figure 22. Comparison of average daily turbidity predictions by single and dual ANN output models for winter season for Swimming River.

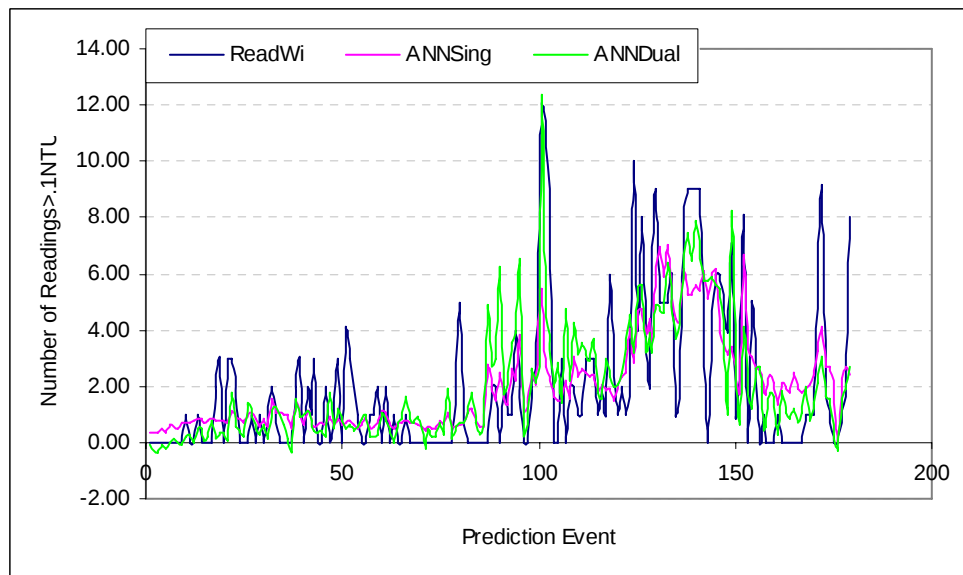


Figure 23. Comparison of number of reading predictions by single and dual ANN output models for winter season for Swimming River.

Lastly, figures 24 and 25 compare the modeling results obtained for the different models over the complete 2.5 year record of data for average turbidity and daily readings, respectively. Depicted by the figures for each of the two outputs are the predictions made

by the annual single output model, the predictions made by the seasonal single output model, and the predictions made by the seasonal dual output models. Again, the most striking difference is the dual seasonal models appear less likely to produce erroneously high or low output values. Thus, perhaps the dual output models provide some increased stability, in addition to some marginal improvement in overall predictive capability

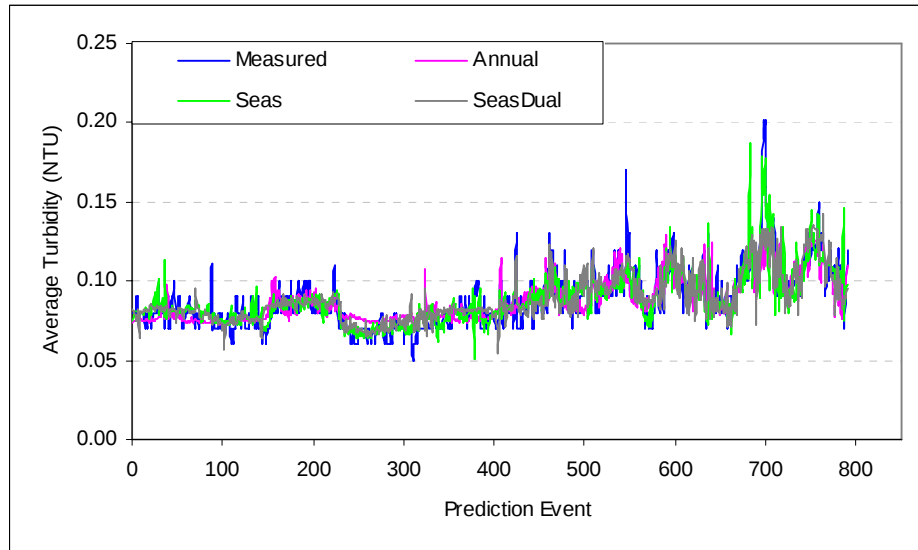


Figure 24. Comparison of annual dual ANN model against seasonal singular and seasonal dual ANN models for daily average turbidity for Swimming River.

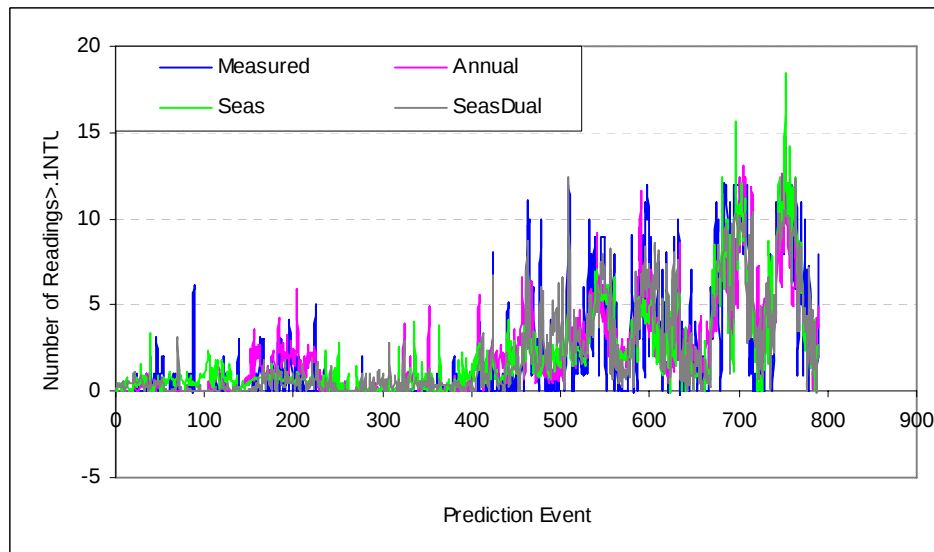


Figure 25. Comparison of annual dual ANN model against seasonal singular and seasonal dual ANN models for number of readings for Swimming River.



APPENDIX A-3a

PVWC (INITIAL) ORIGINAL MODELING Figures

1. CYANOBACTERIA

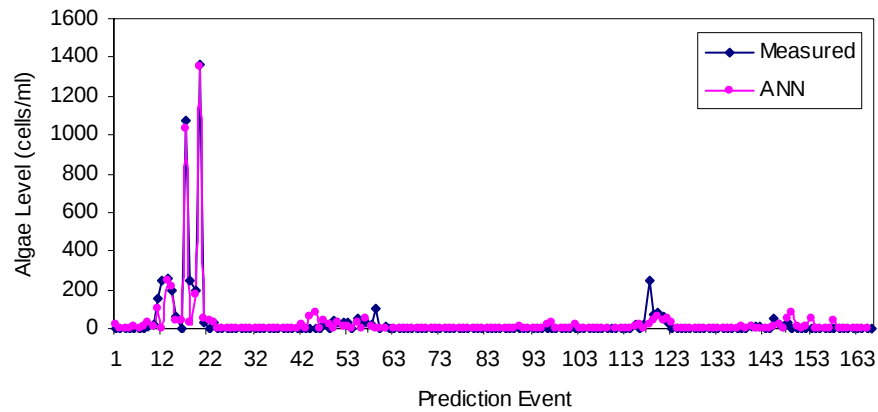


Figure 1.1. Station 100 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs

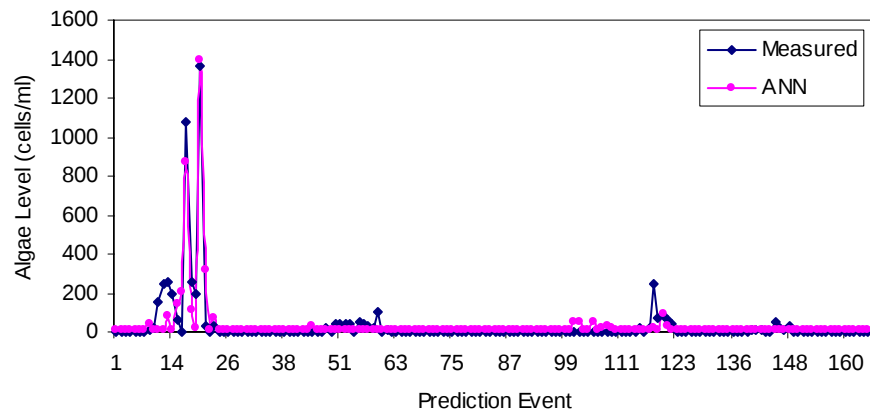


Figure 1.2. Station 100 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding dissolved oxygen (DO)

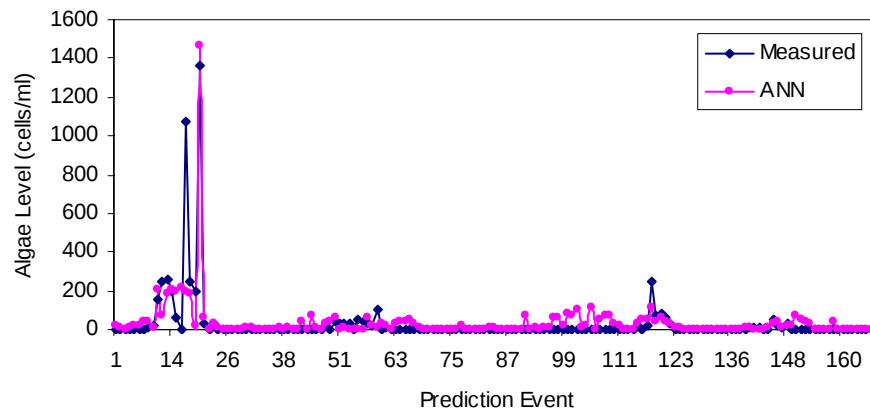


Figure 1.3. Station 100 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding total suspended solids (TSS)

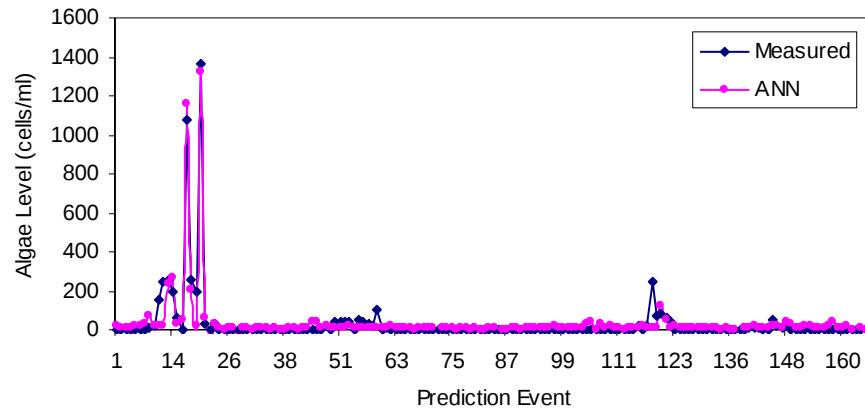


Figure 1.4. Station 100 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding Pompton river extraction

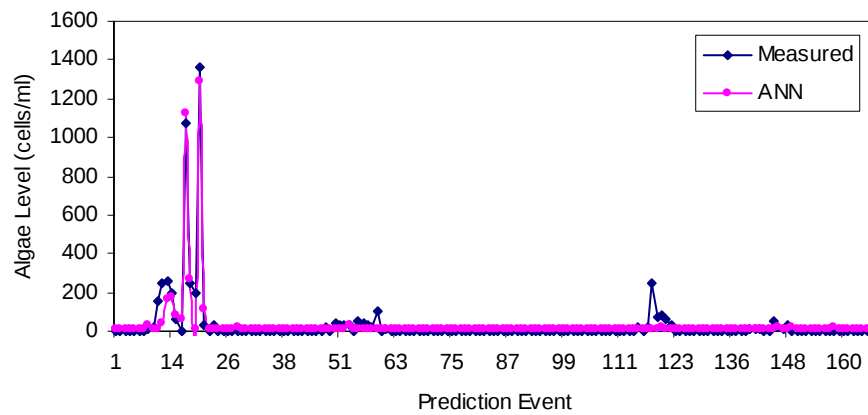


Figure 1.5. Station 100 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding conductivity

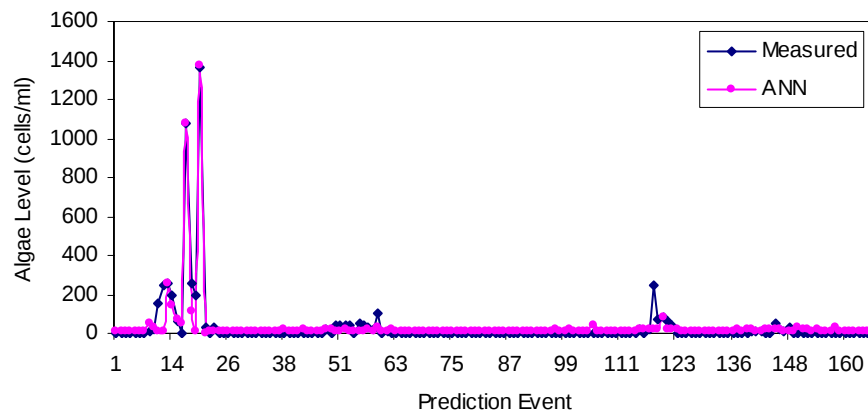


Figure 1.6. Station 100 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding pH

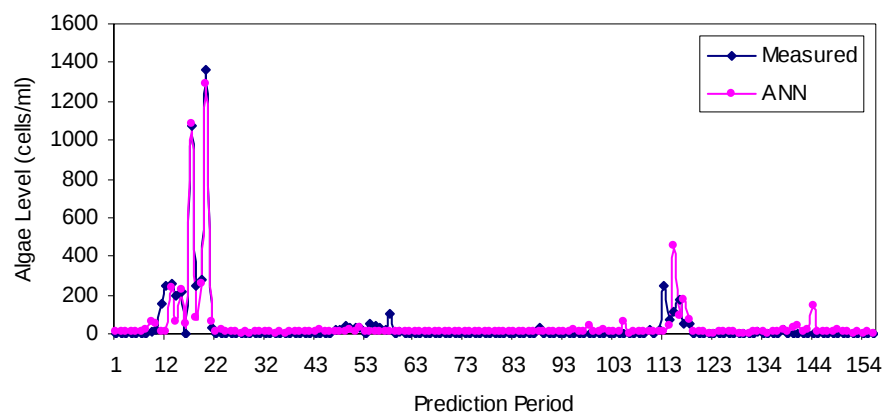


Figure 1.7. Station 100 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs

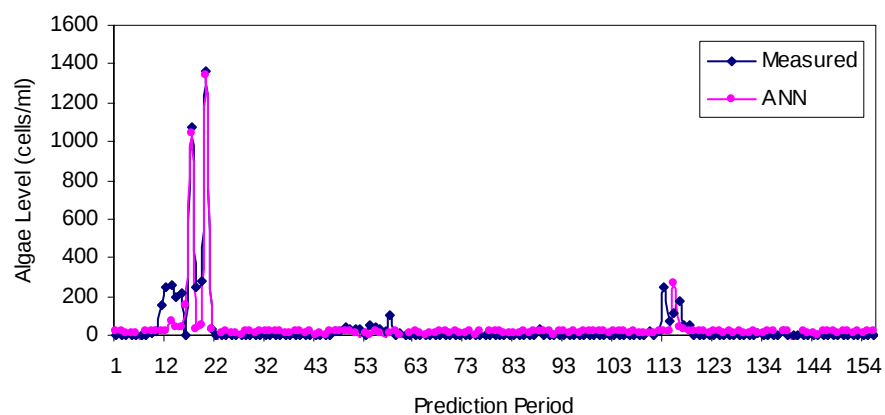


Figure 1.8. Station 100 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding total suspended solids

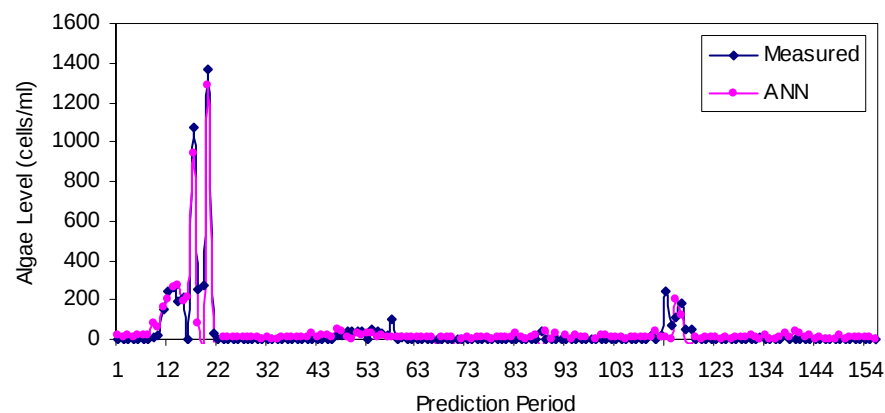


Figure 1.9. Station 100 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding Pompton river extractions

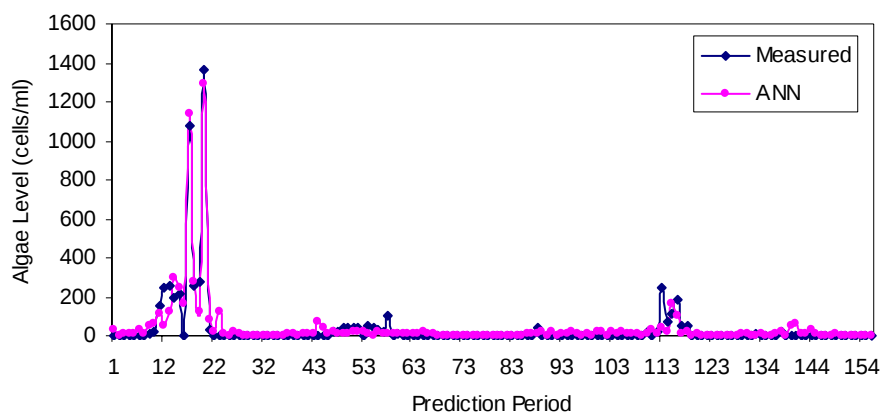


Figure 1.10. Station 100 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding wind directions

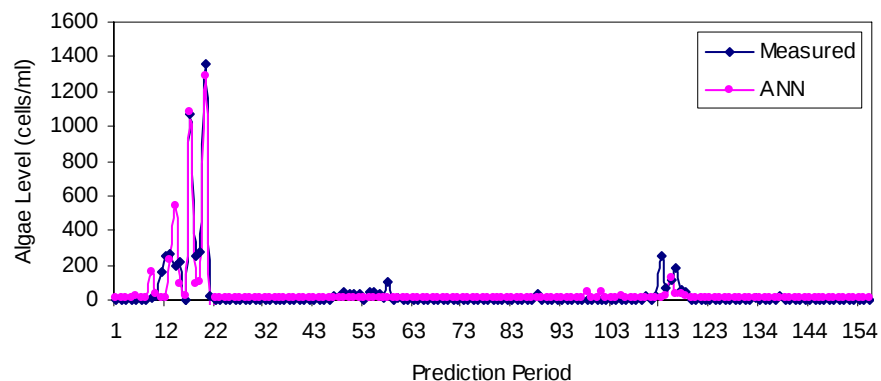


Figure 1.11. Station 100 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding extractions from Point View Reservoir

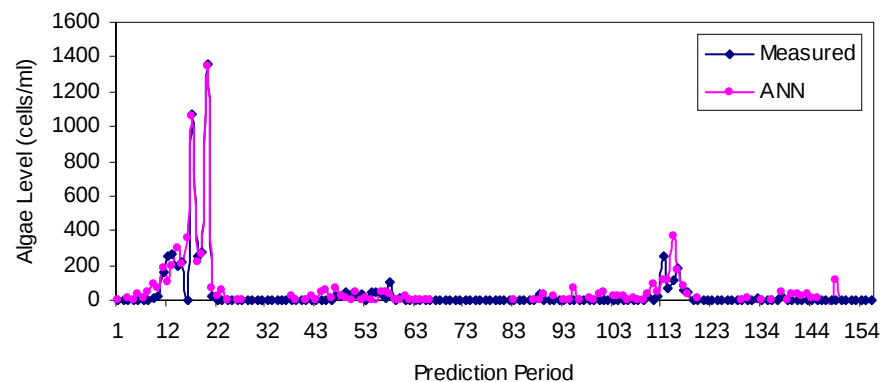


Figure 1.12. Station 100 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding conductivity

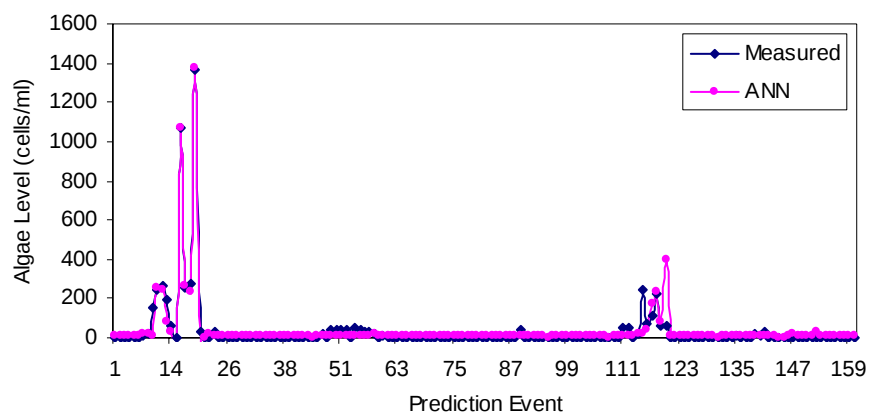


Figure 1.13. Station 100 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs

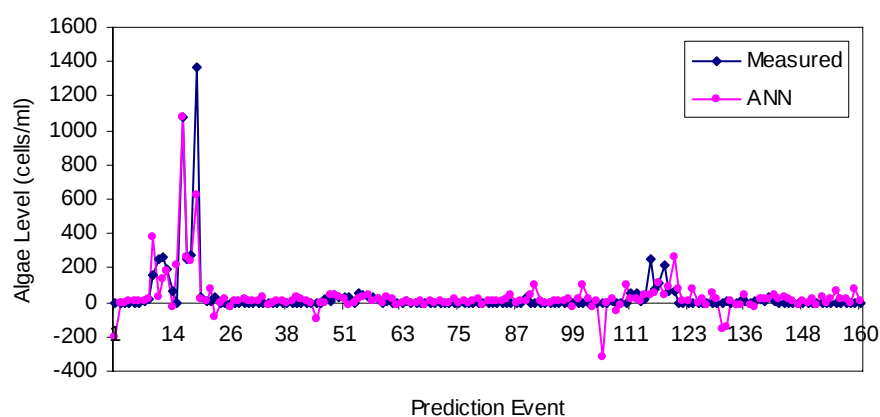


Figure 1.14. Station 100 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding sulfate

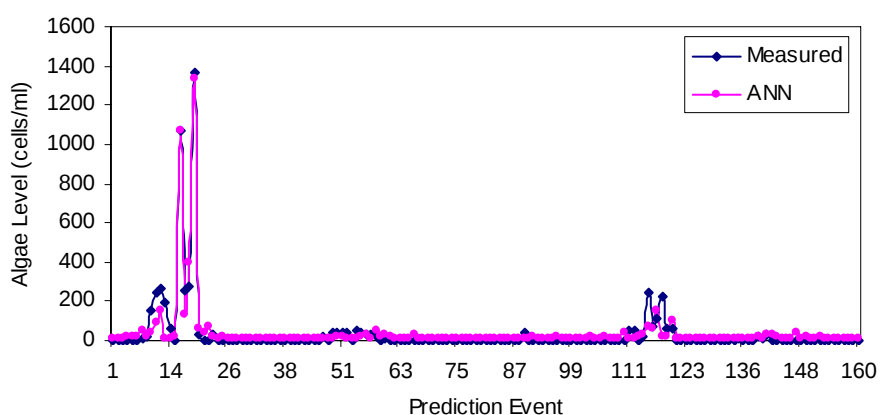


Figure 1.15. Station 100 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding total hardness

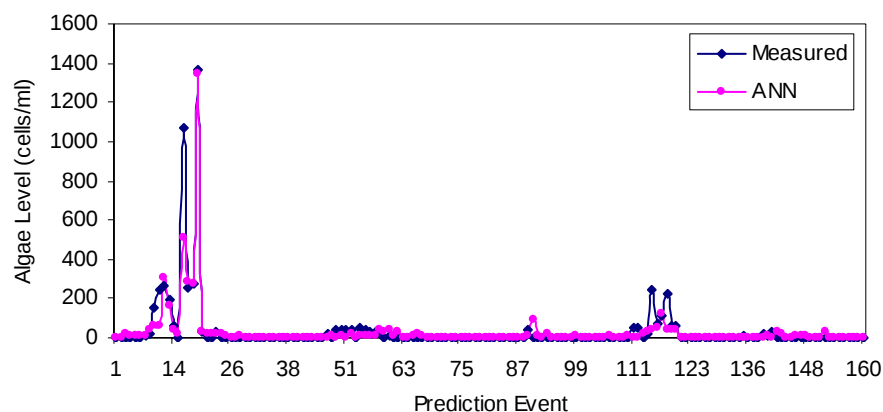


Figure 1.16. Station 100 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding nitrite/nitrate

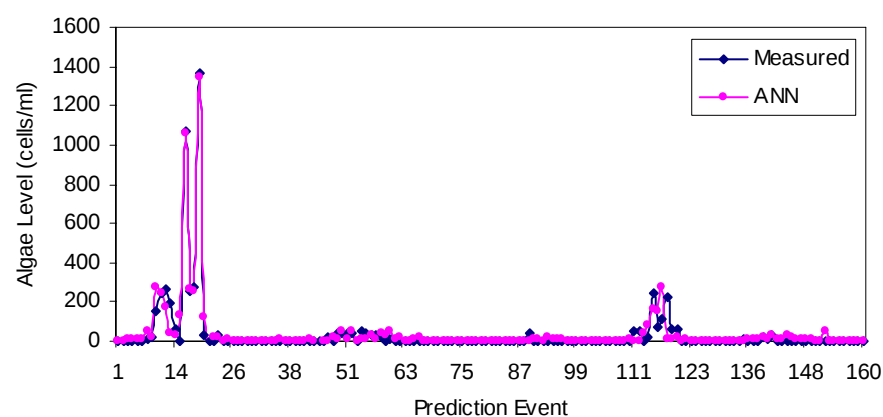


Figure 1.17. Station 100 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding UV_{254}

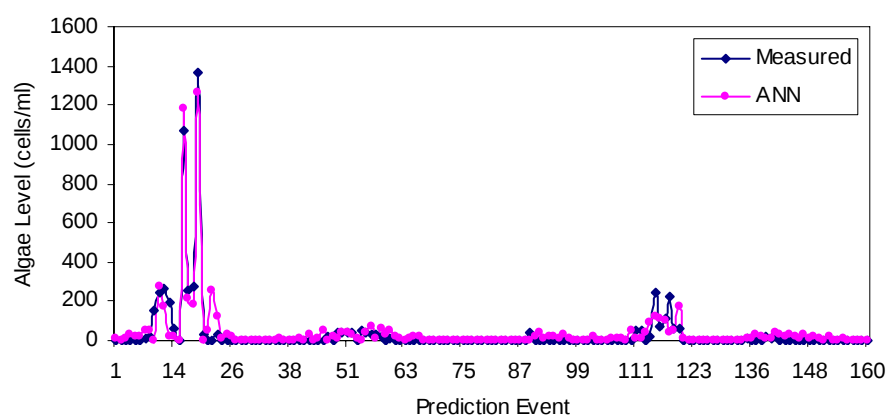


Figure 1.18. Station 100 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding Pompton streamflow (collected by USGS)

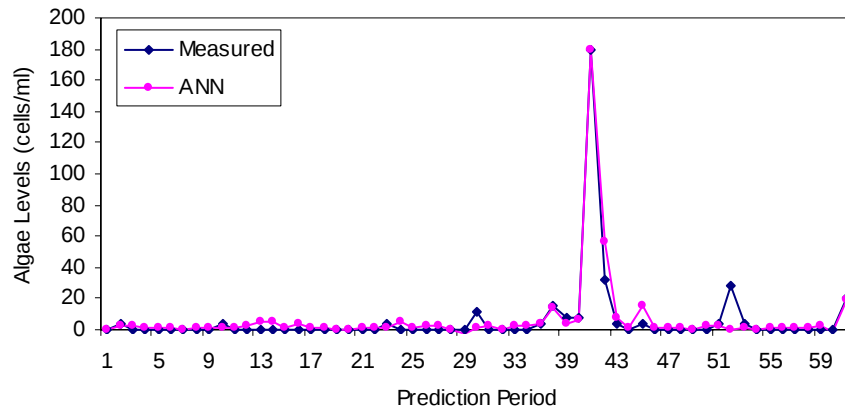


Figure 1.19. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs

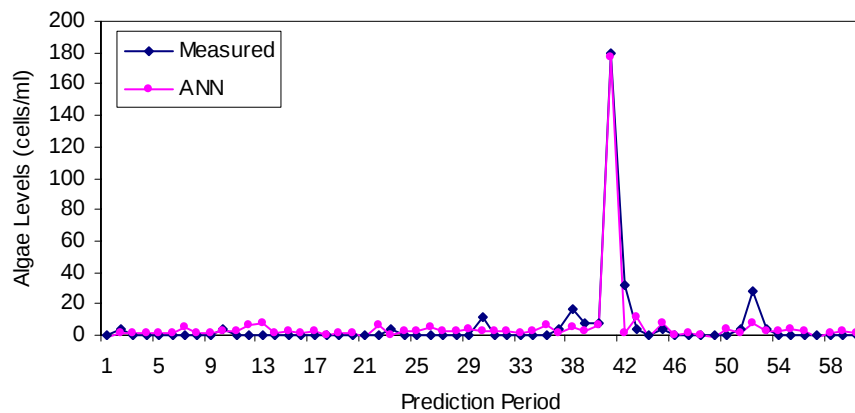


Figure 1.20. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding odor

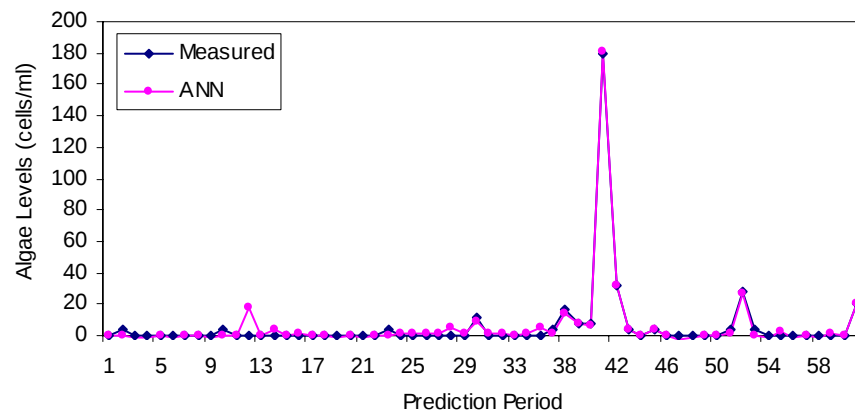


Figure 1.21. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding total amorphous materials

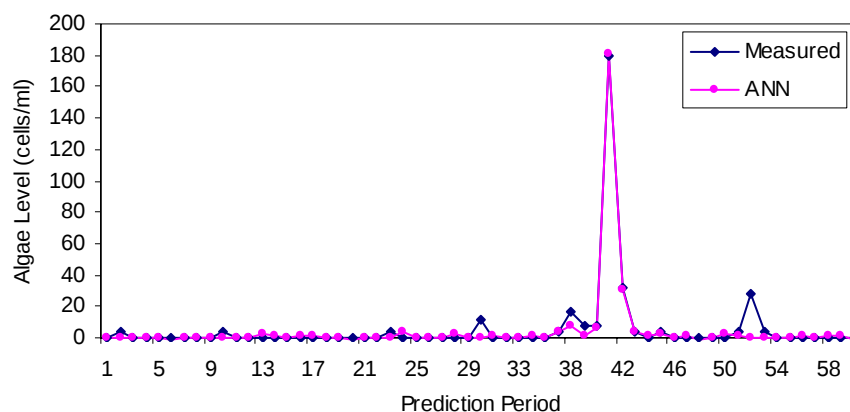


Figure 1.22. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding color

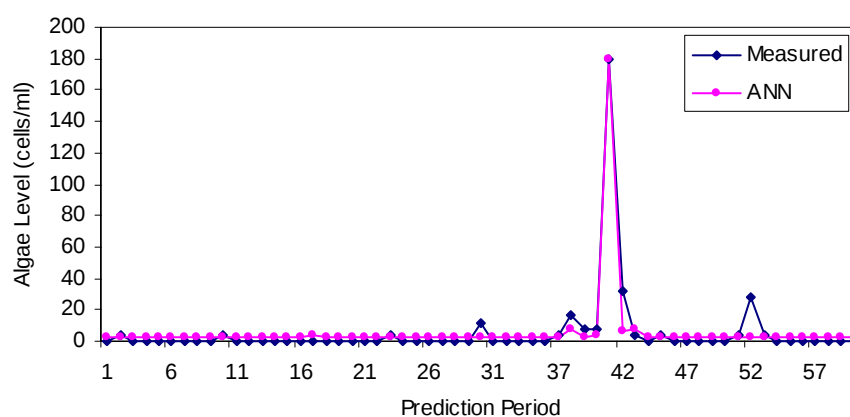


Figure 1.23. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding heating degree days

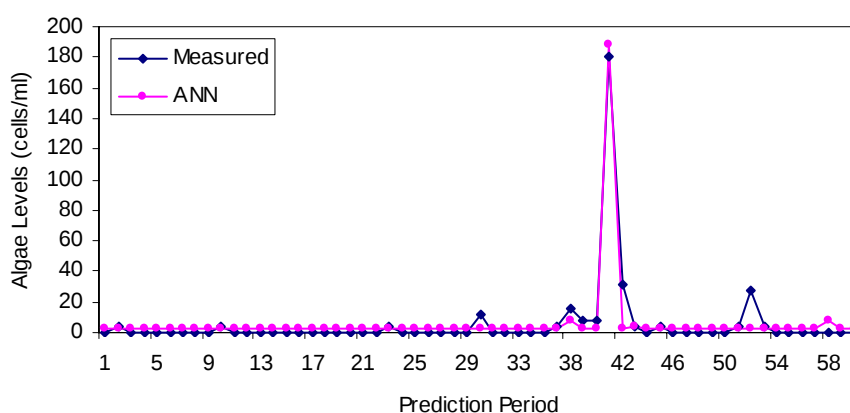


Figure 1.24. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding UV_{254}

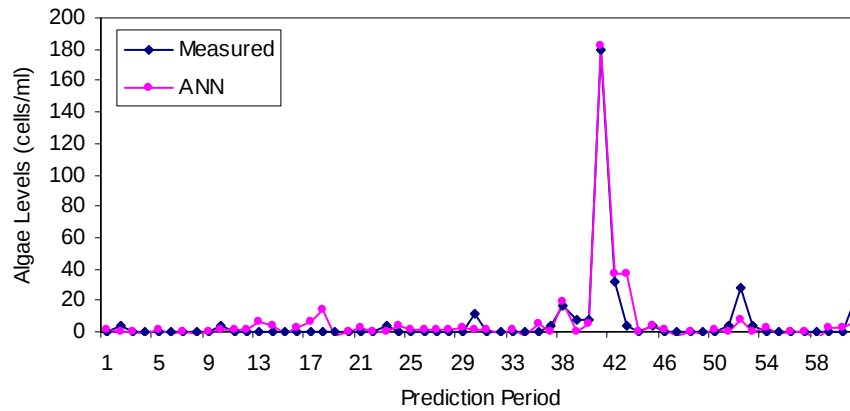


Figure 1.25. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding ammonia

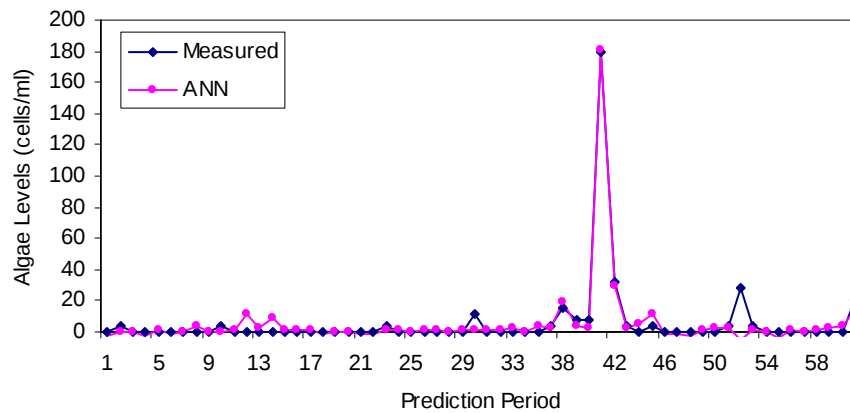


Figure 1.26. Station 101 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding initial cyanobacteria counts

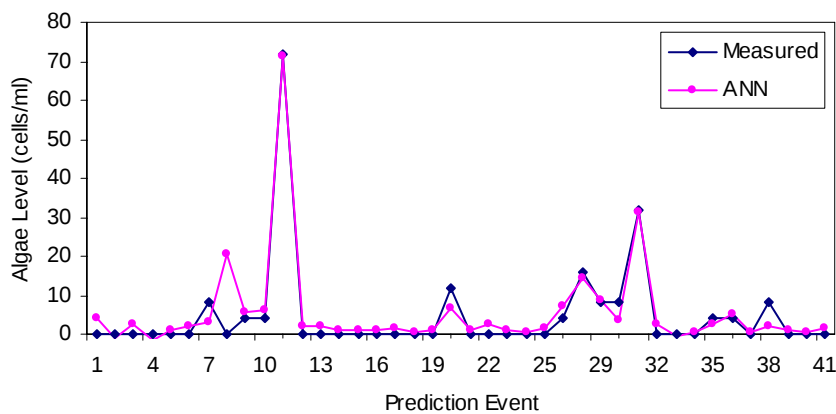


Figure 1.27. Station 101 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs

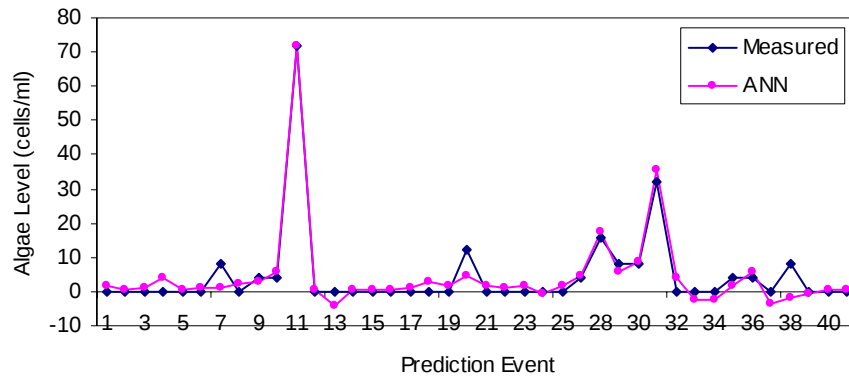


Figure 1.28. Station 101 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding odor

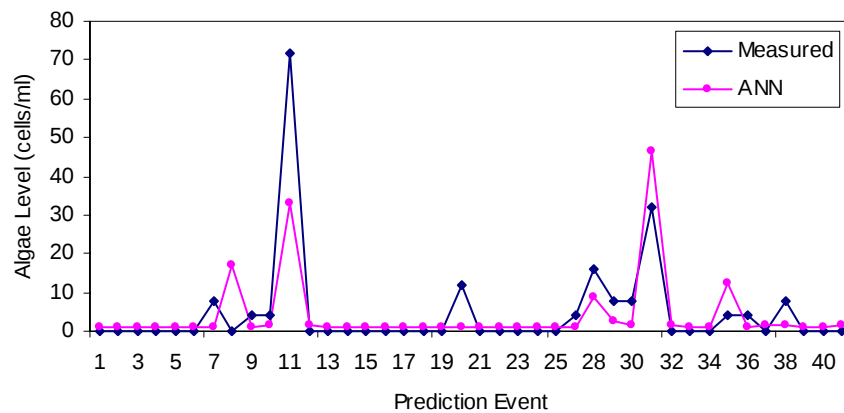


Figure 1.29. Station 101 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding current week's precipitation

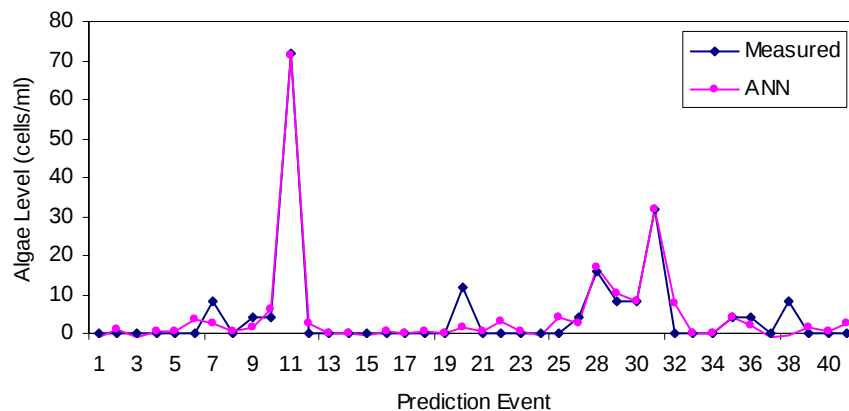


Figure 1.30. Station 101 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding wind speed

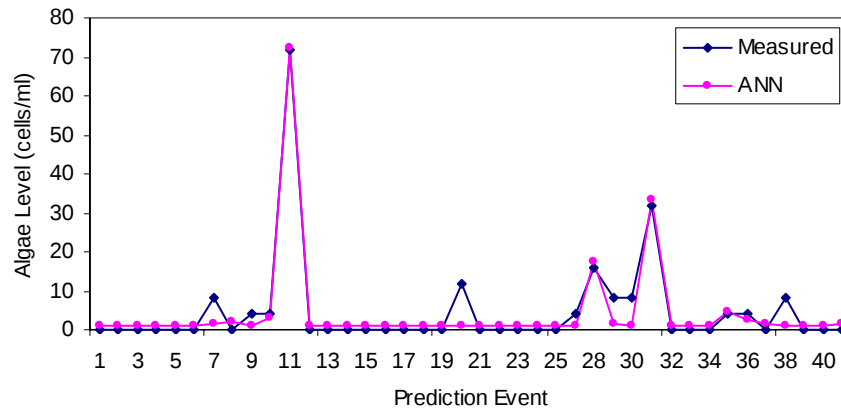


Figure 1.31. Station 101 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding wind direction

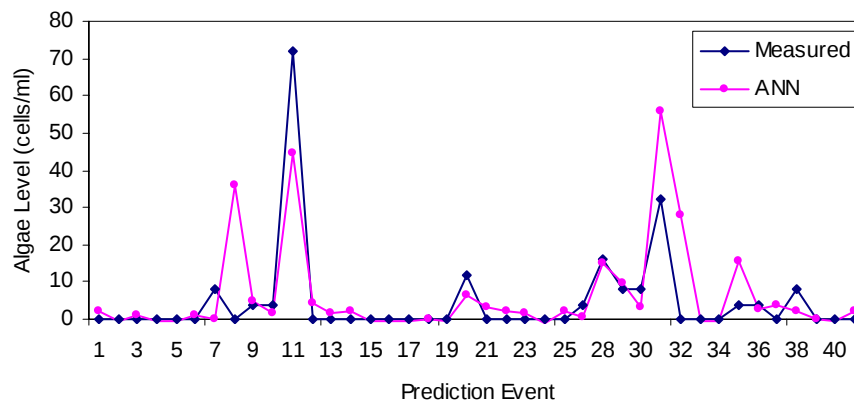


Figure 1.32. Station 101 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding Pompton river extractions

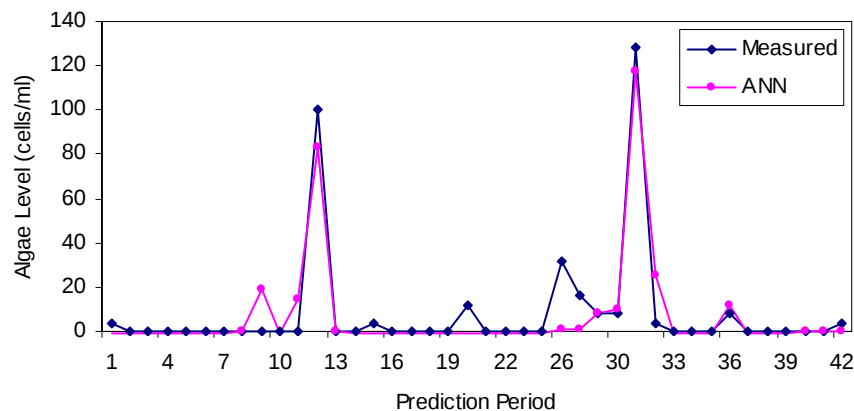


Figure 1.33. Station 101 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs

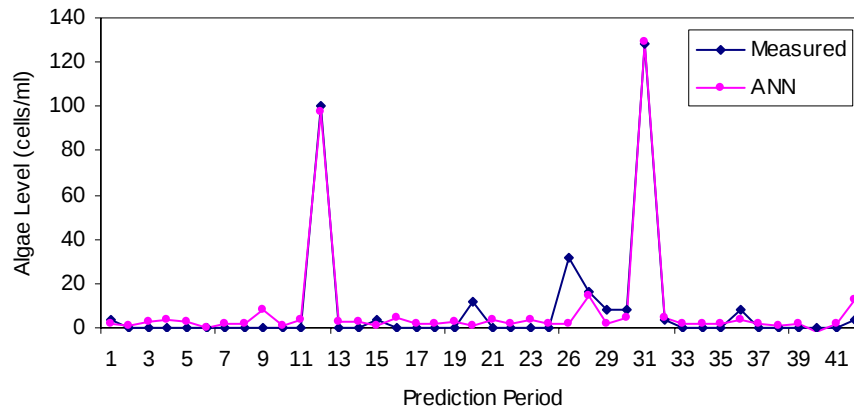


Figure 1.34. Station 101 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding extractions from Point View Reservoir

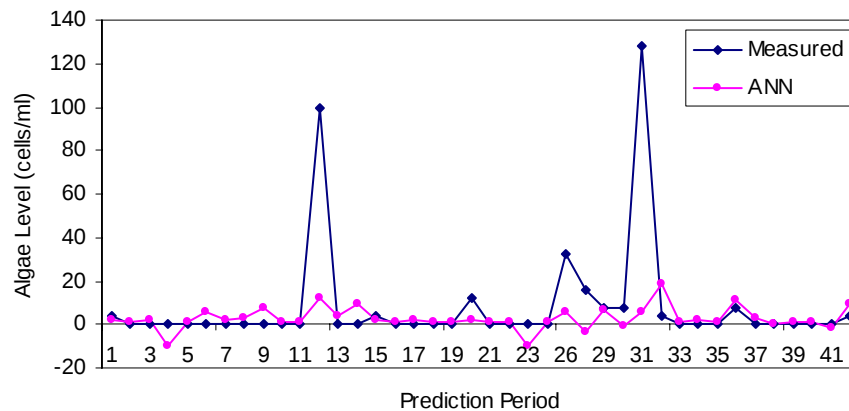


Figure 1.35. Station 101 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding sulfate

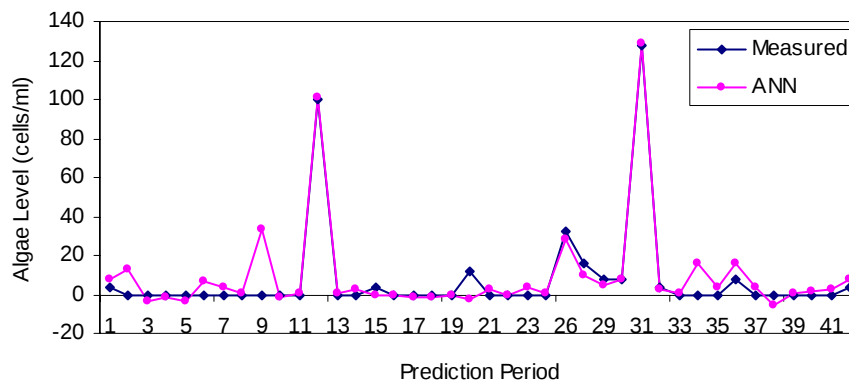


Figure 1.36. Station 101 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding total phosphorus/orthophosphate

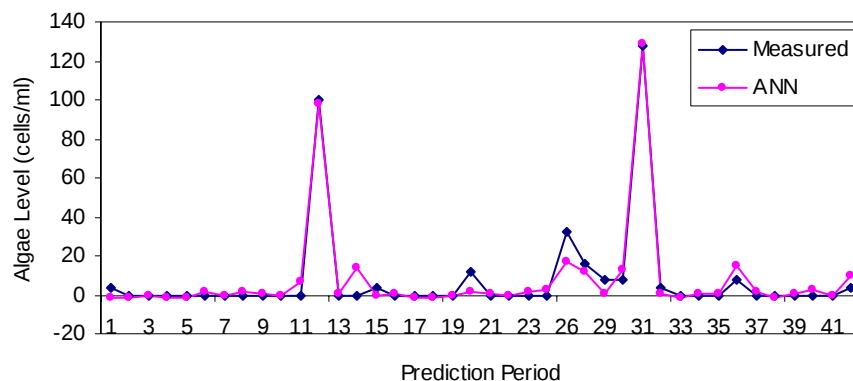


Figure 1.37. Station 101 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding turbidity

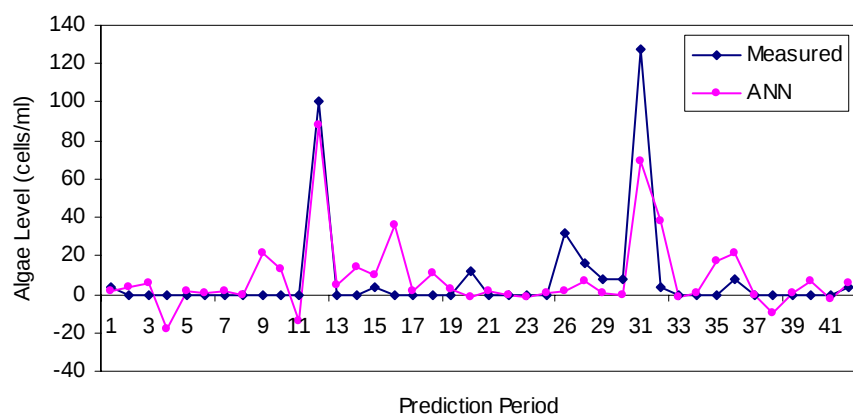


Figure 1.38. Station 101 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding total algal counts

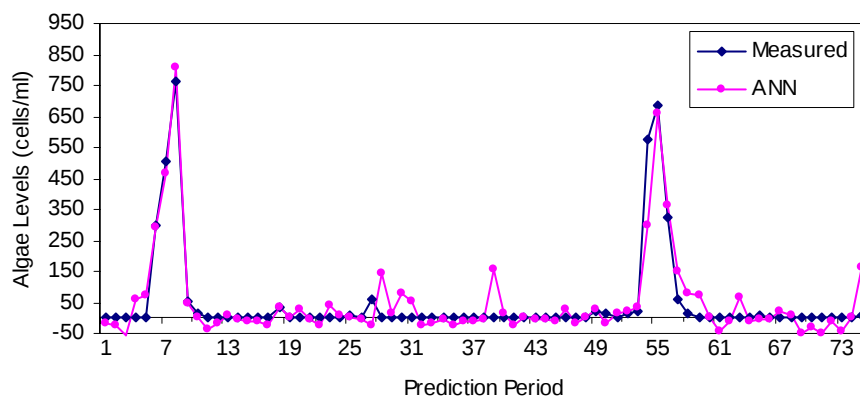


Figure 1.39. Station 612 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs

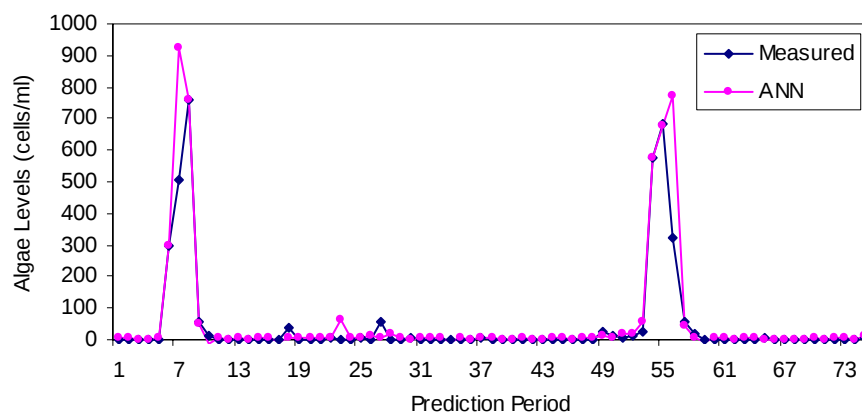


Figure 1.40. Station 612 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding temperature

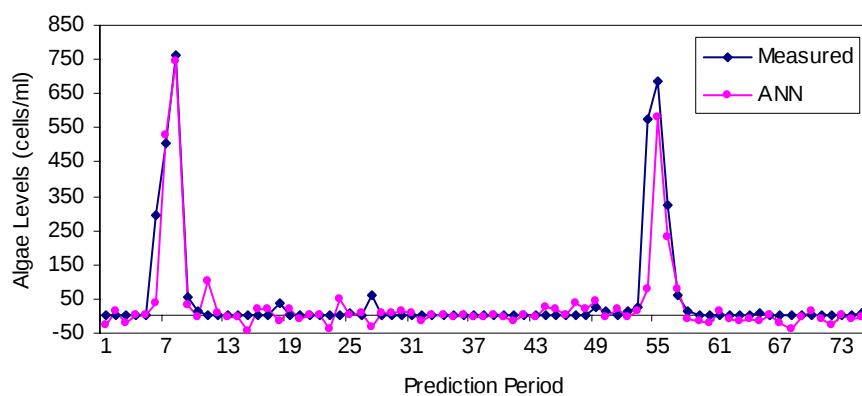


Figure 1.41. Station 612 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding ammonia

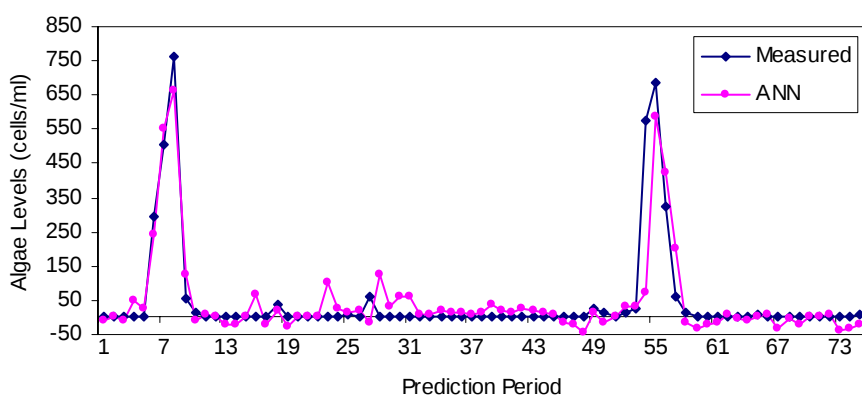


Figure 1.42. Station 612 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding color

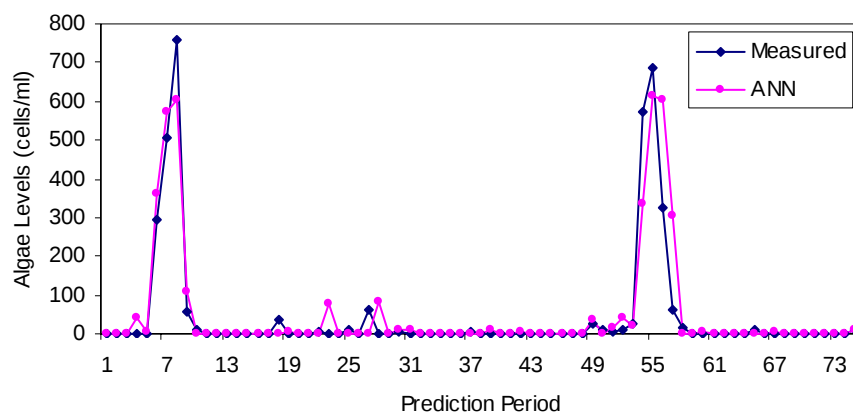


Figure 1.43. Station 612 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs excluding Pompton river extractions

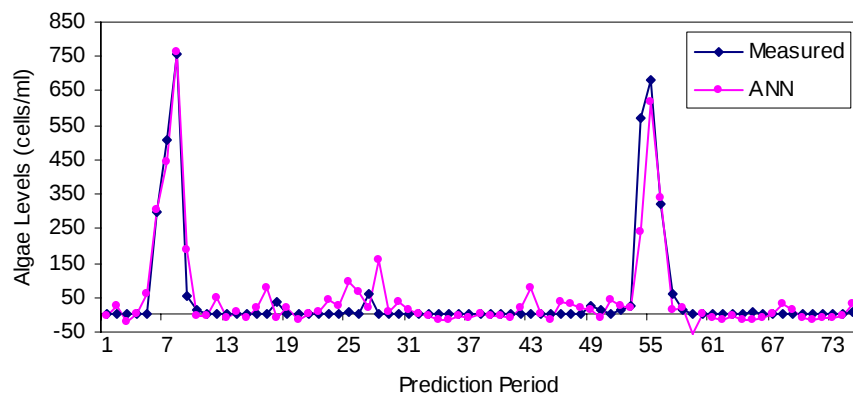


Figure 1.44. Station 612 time-series plots of measured cyanobacteria counts against ANN real-time predicted values using all variable inputs total organic carbon (TOC)

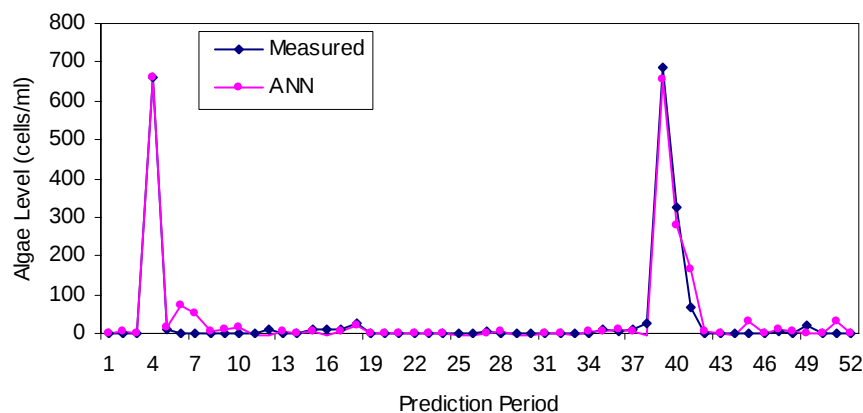


Figure 1.45. Station 612 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs

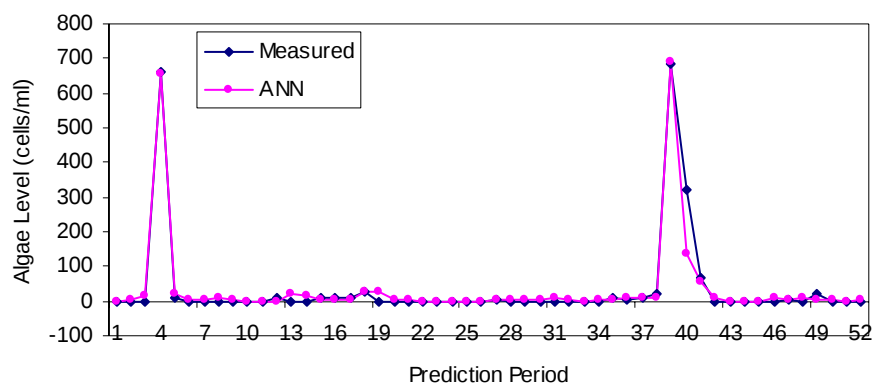


Figure 1.46. Station 612 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding initial cyanobacteria counts

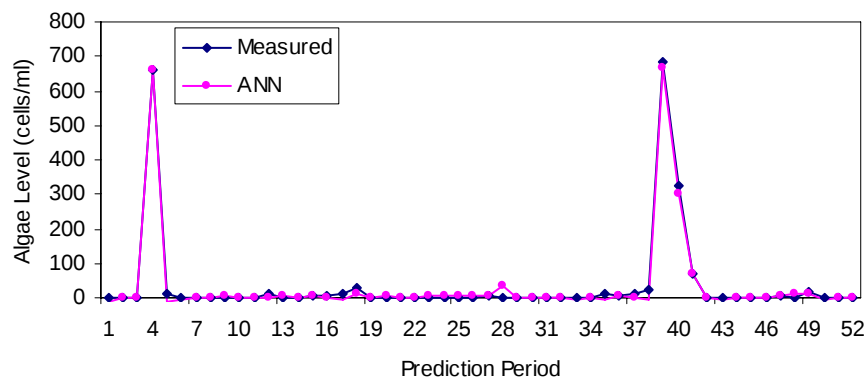


Figure 1.47. Station 612 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding turbidity

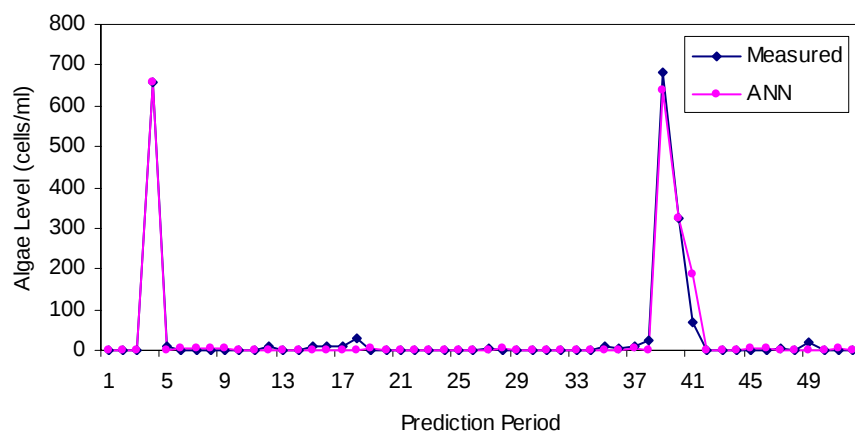


Figure 1.48. Station 612 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding color

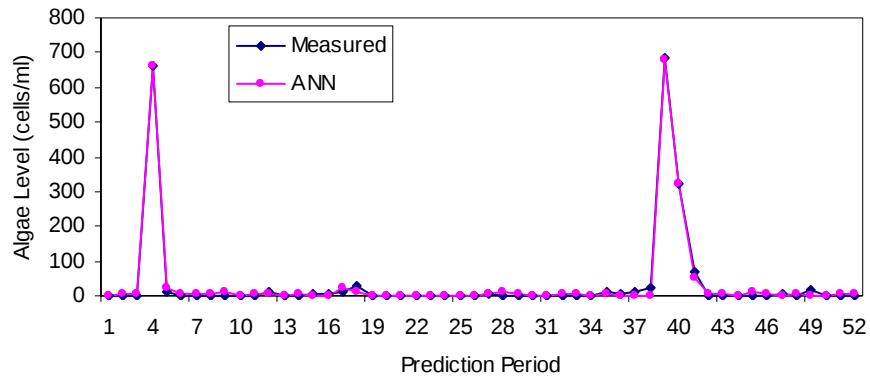


Figure 1.49. Station 612 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding total organic carbon (TOC)

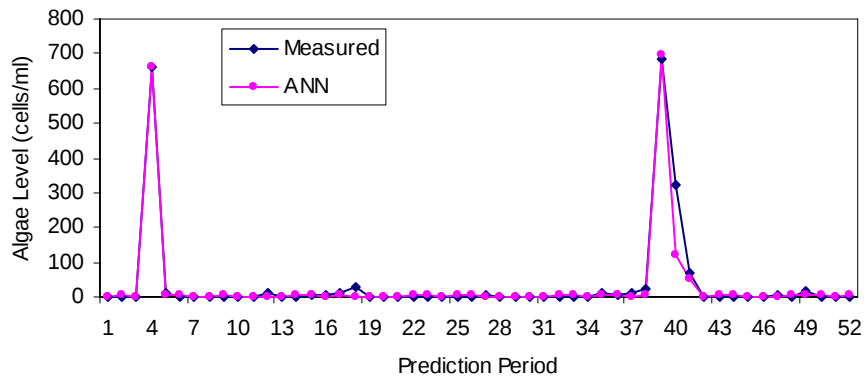


Figure 1.50. Station 612 time-series plots of measured cyanobacteria counts against ANN one-week ahead predicted values using all variable inputs excluding initial chrysophytes counts

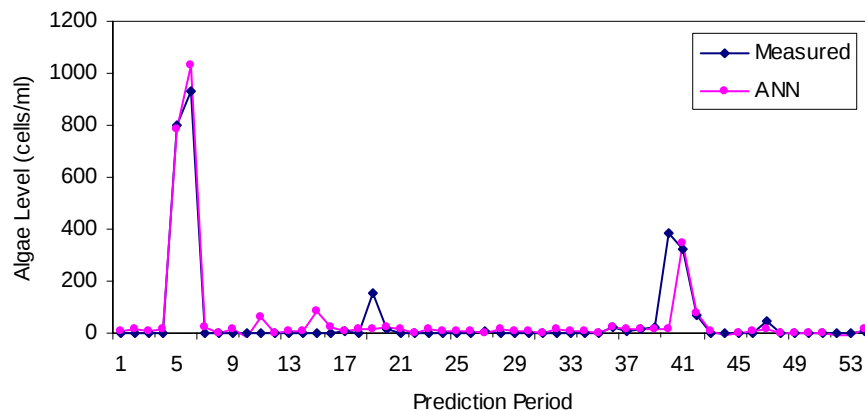


Figure 1.51. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs

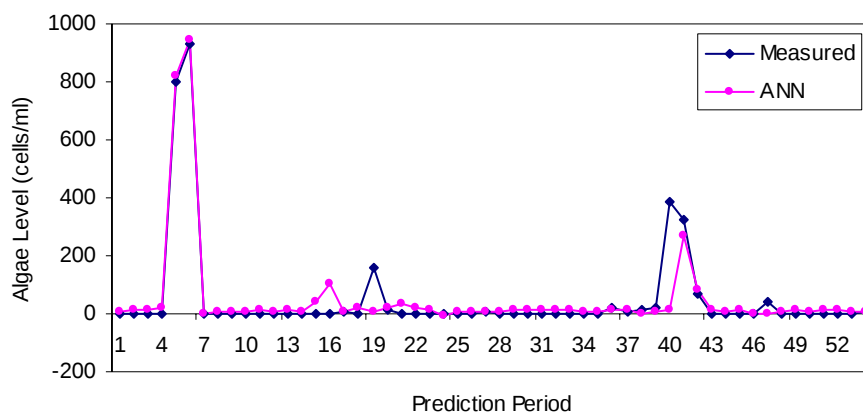


Figure 1.52. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding total amorphous materials

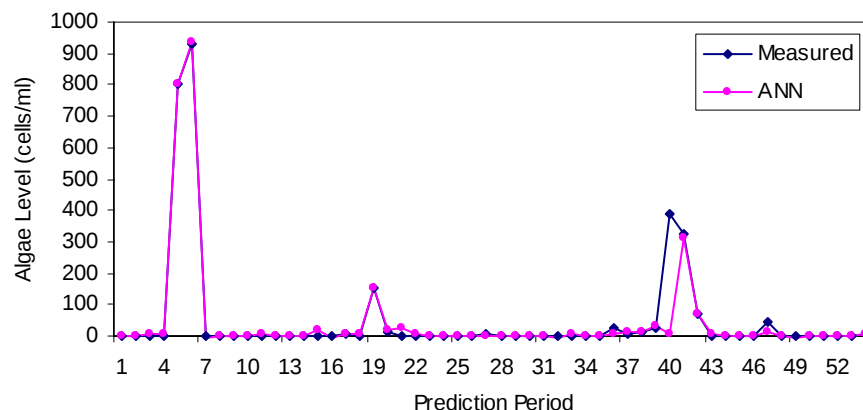


Figure 1.53. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding initial cyanobacteria counts

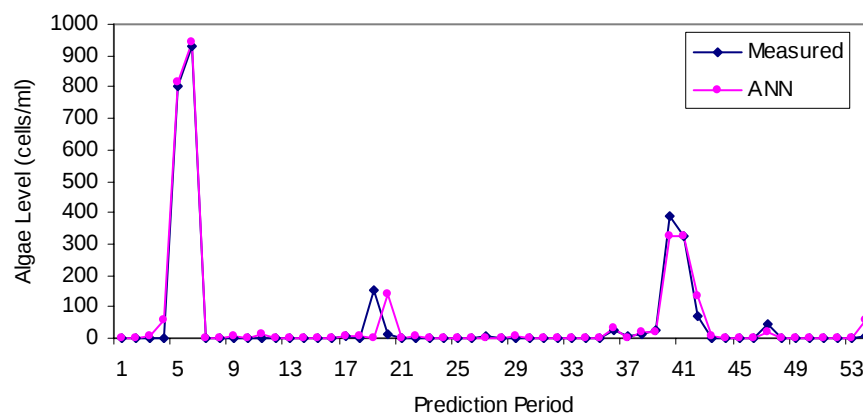


Figure 1.54. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding pH level

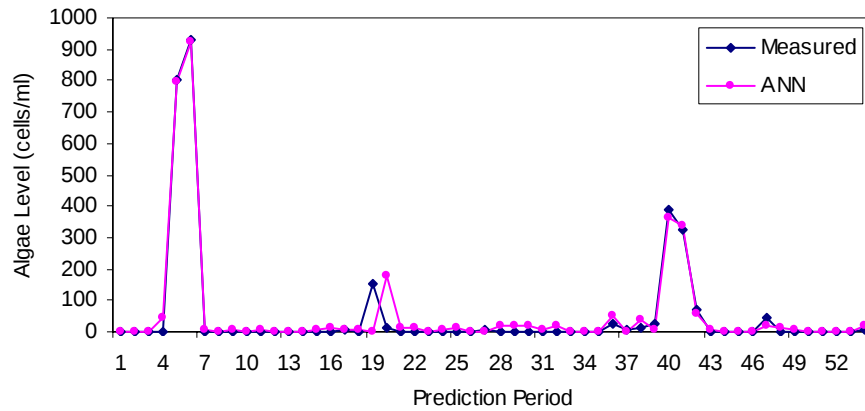


Figure 1.55. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding total algal counts

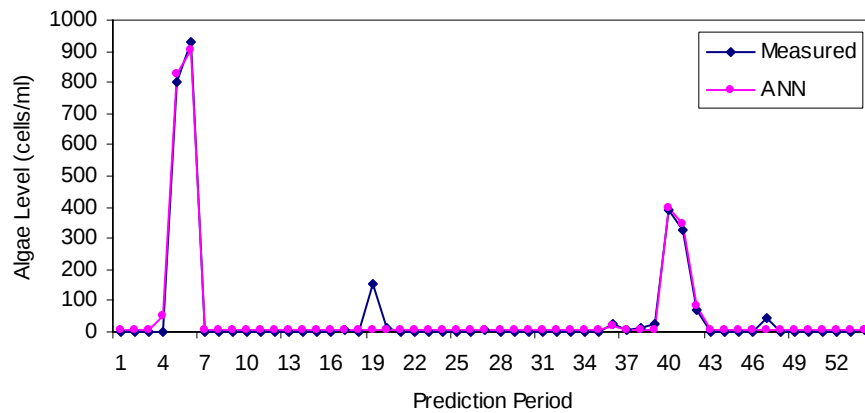


Figure 1.56. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding UV254

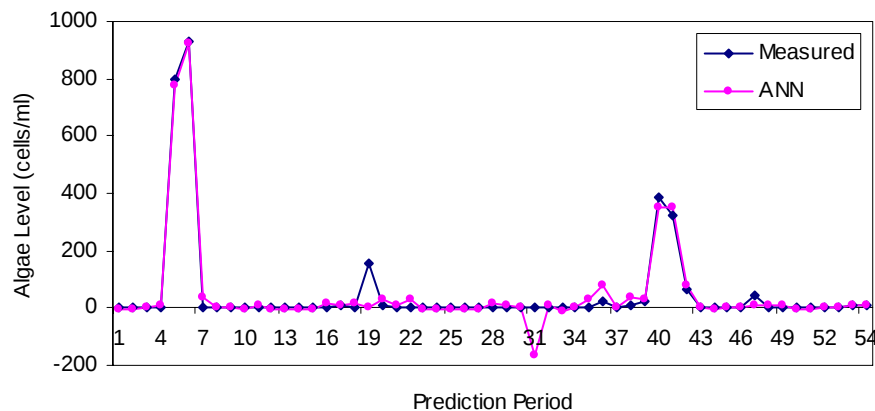


Figure 1.57. Station 612 time-series plots of measured cyanobacteria counts against ANN two-week ahead predicted values using all variable inputs excluding Passaic river extractions

2. CHRYOSPHYTA

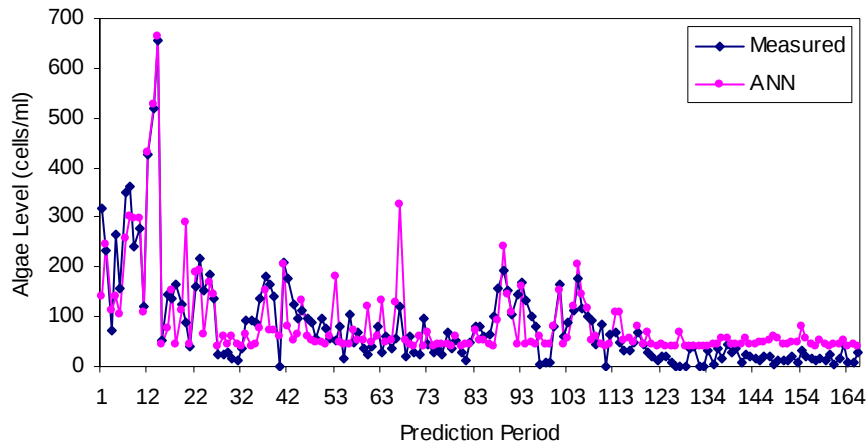


Figure 2.1. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs

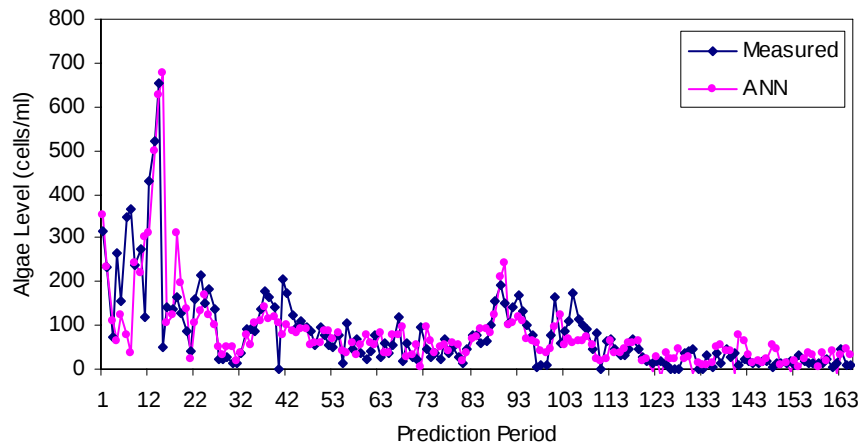


Figure 2.2. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding odor

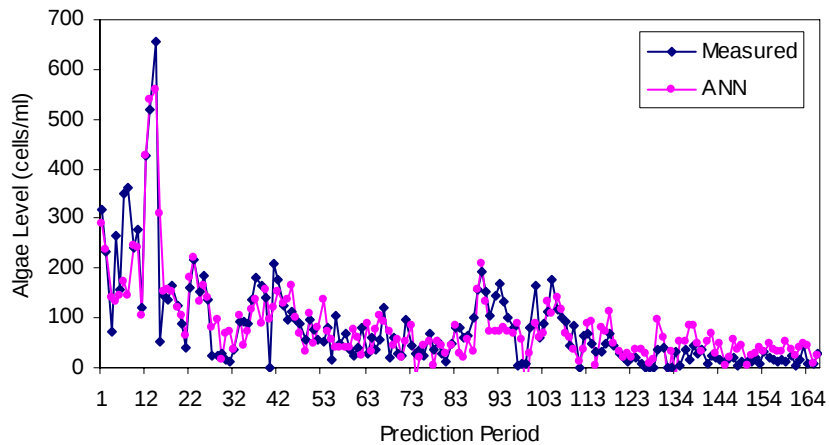


Figure 2.3. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding heating degree days

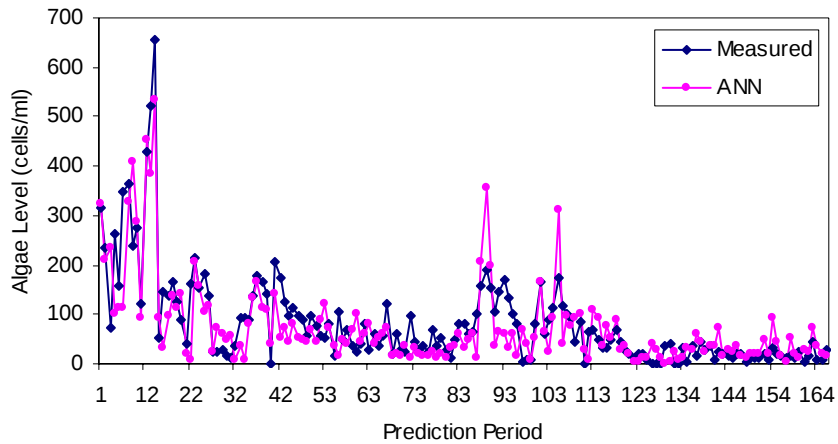


Figure 2.4. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding initial chrysophytes counts

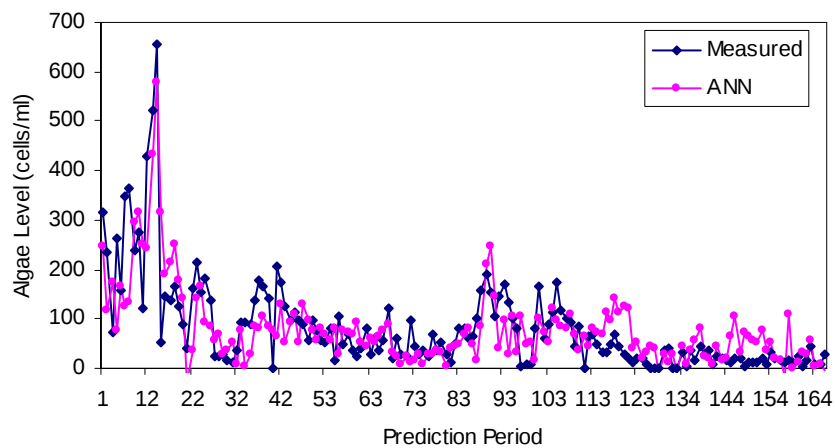


Figure 2.5. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding pH level

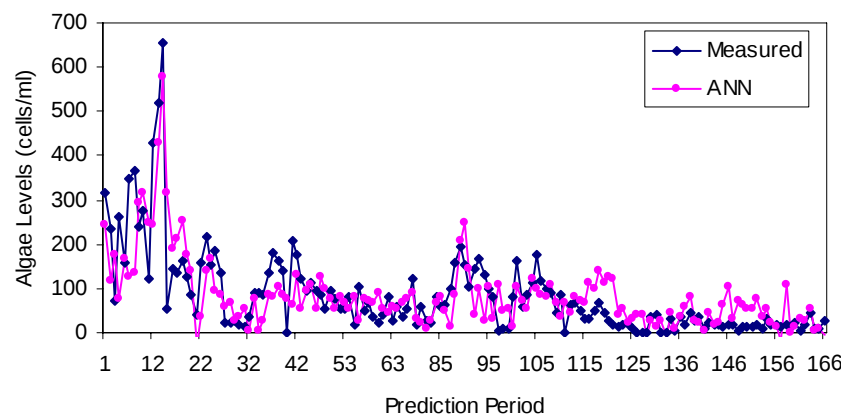


Figure 2.6. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding total suspended solids (TSS)

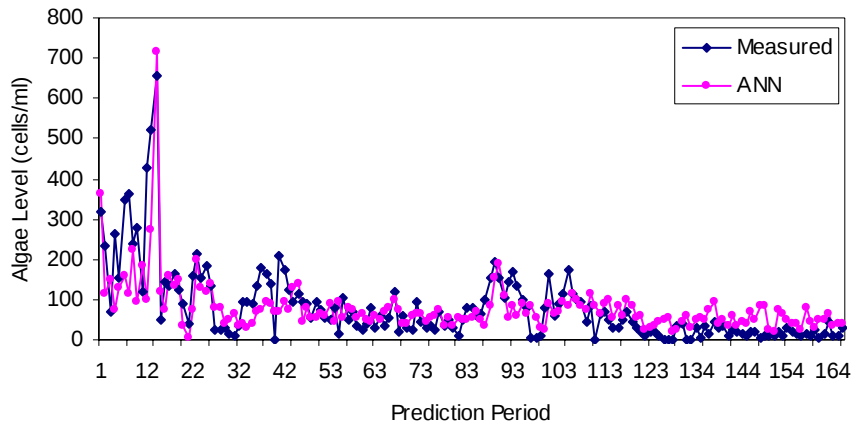


Figure 2.7. Station 100 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding current week's precipitation

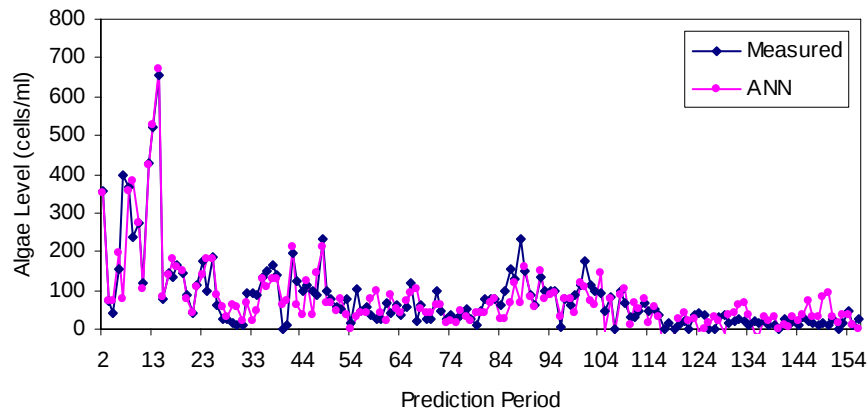


Figure 2.8. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs

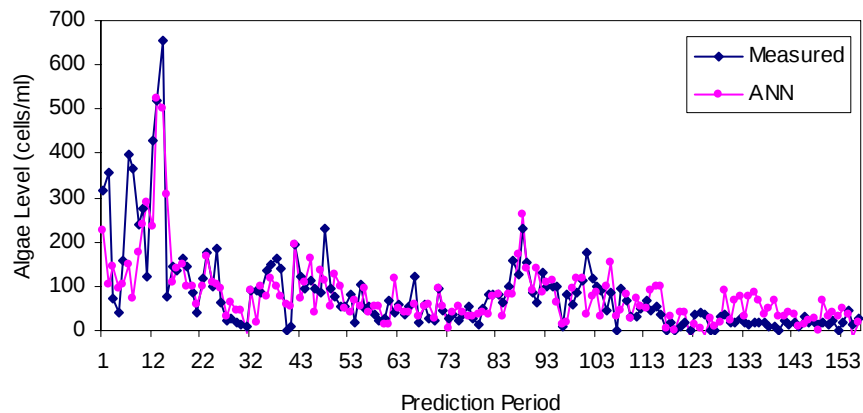


Figure 2.9. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding odor

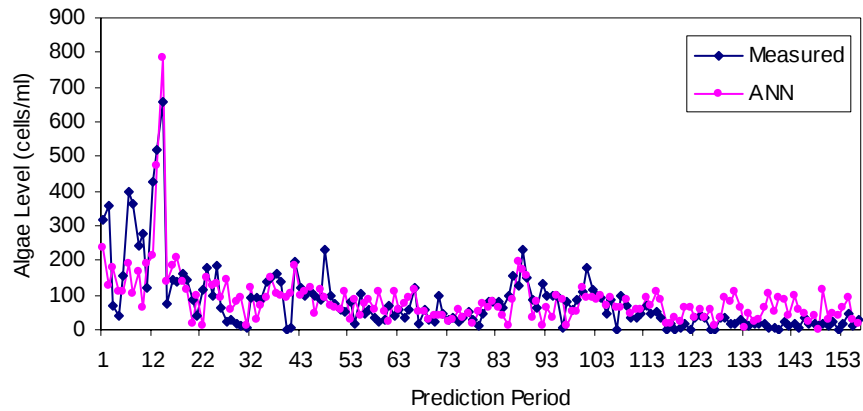


Figure 2.10. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chrysophytes counts

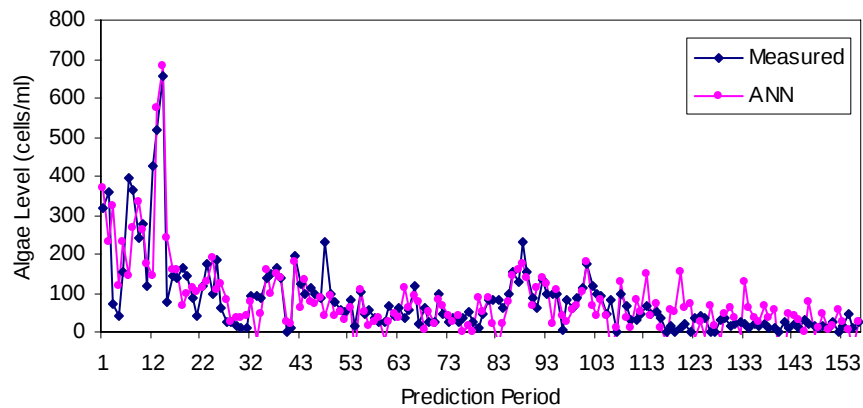


Figure 2.11. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding total hardness

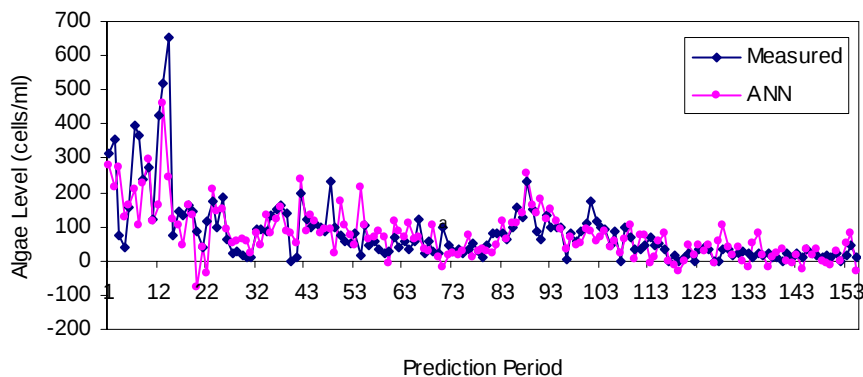


Figure 2.12. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding wind speed

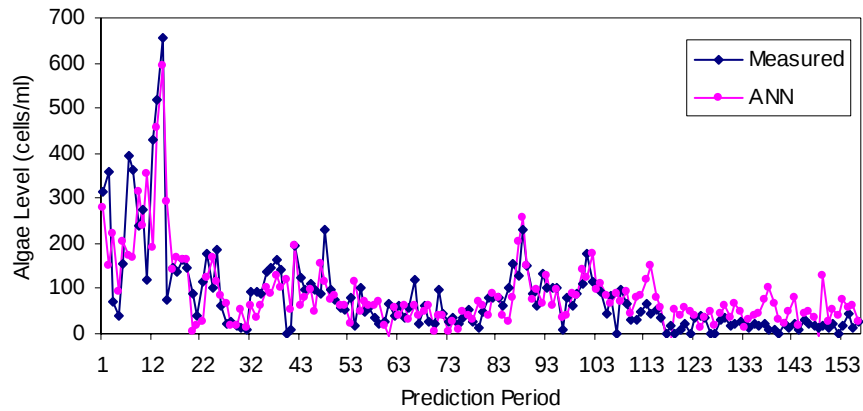


Figure 2.13. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding sky cover

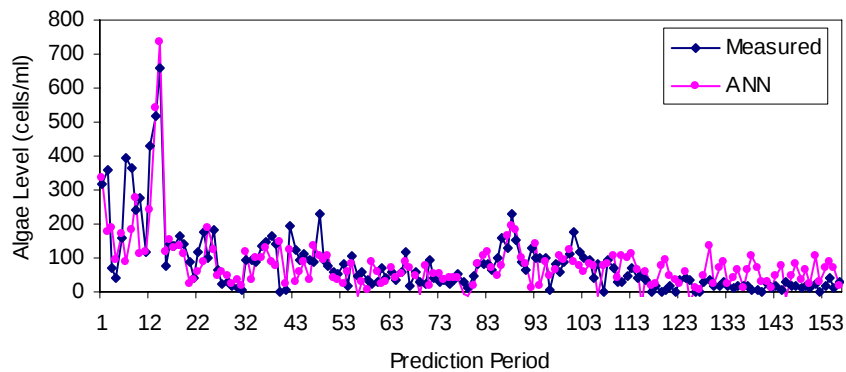


Figure 2.14. Station 100 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding current week's precipitation

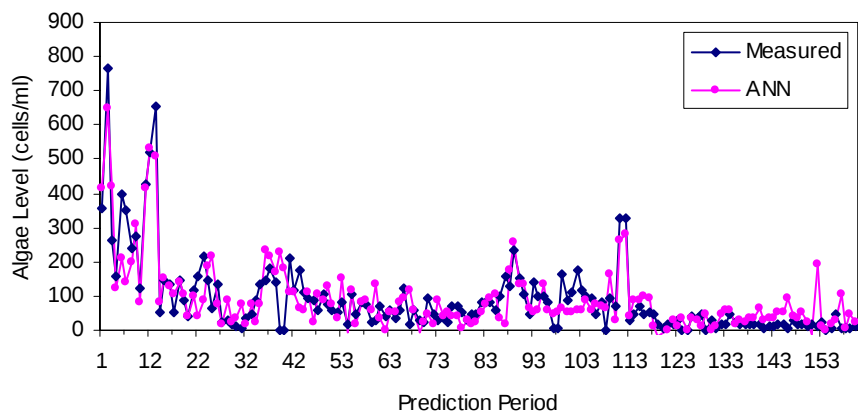


Figure 2.15. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs

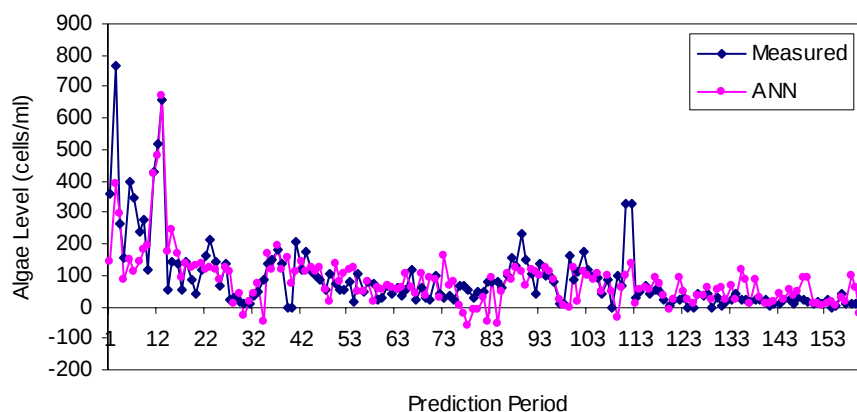


Figure2.17. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding odor

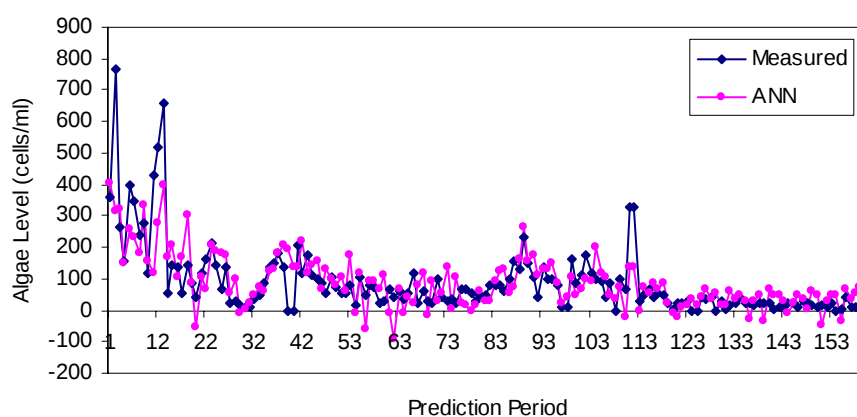


Figure 2.18. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding heating degree days

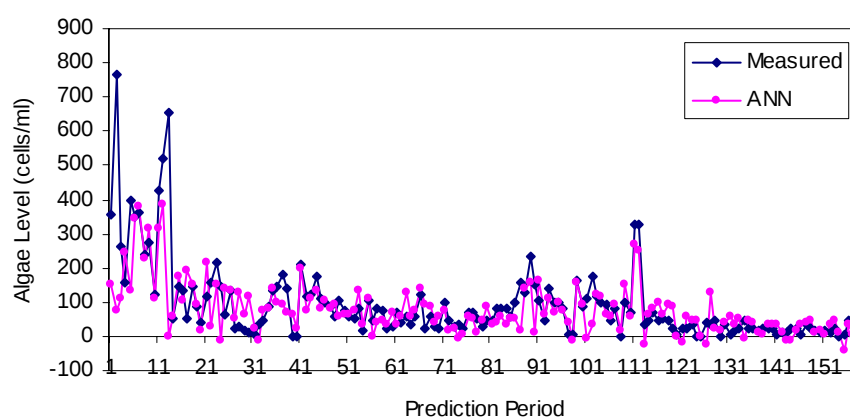


Figure 2.19. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding initial chrysophytes counts

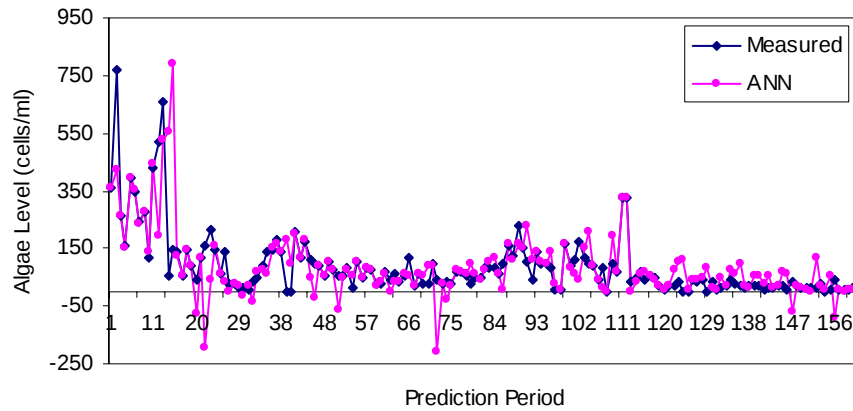


Figure 2.20. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total algal counts

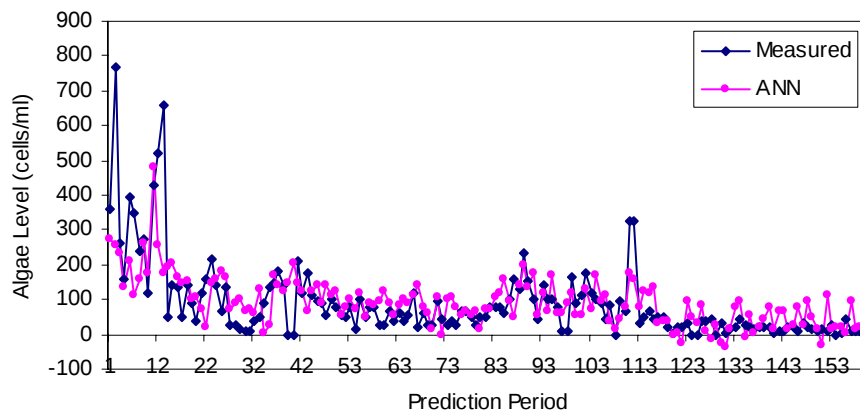


Figure 2.21. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding Passaic river extractions

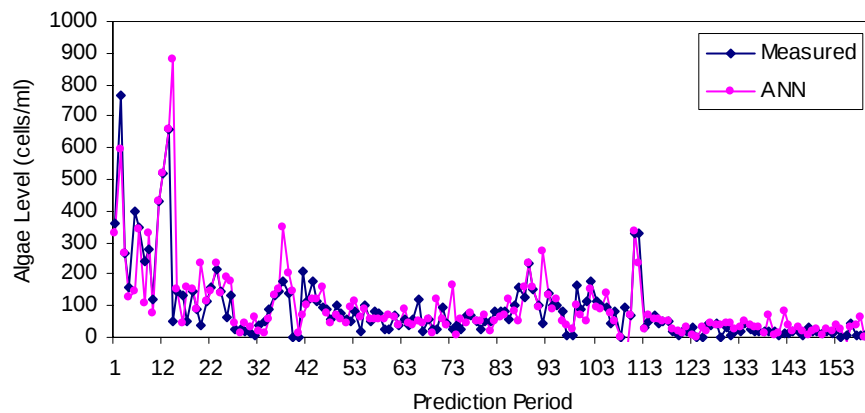


Figure 2.21. Station 100 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding sky cover

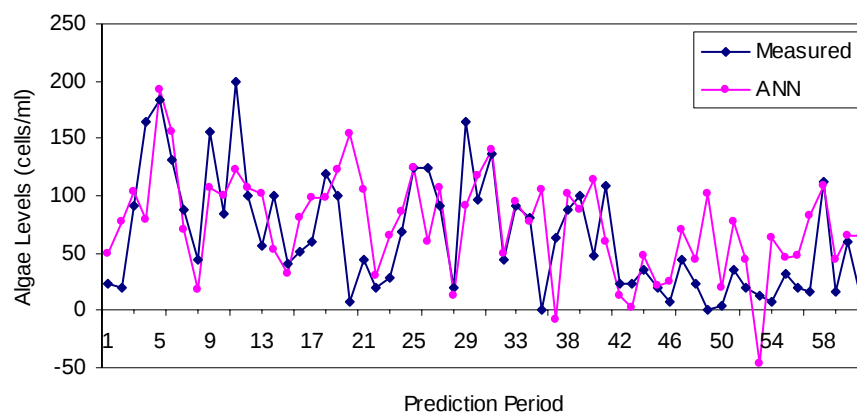


Figure 2.22. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs

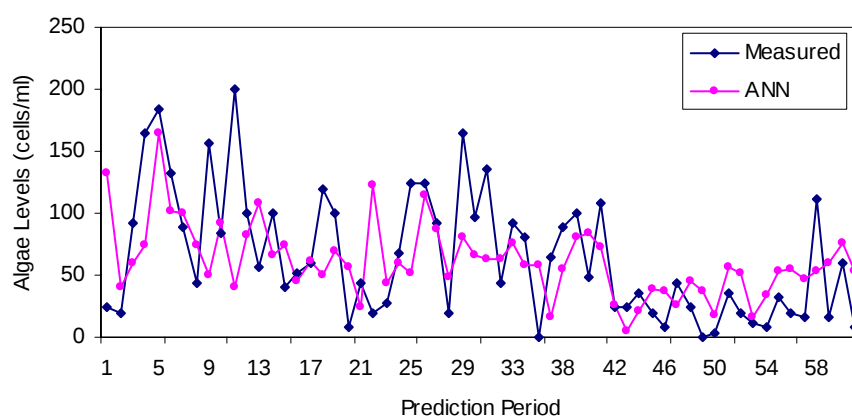


Figure 2.23. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding total amorphous materials

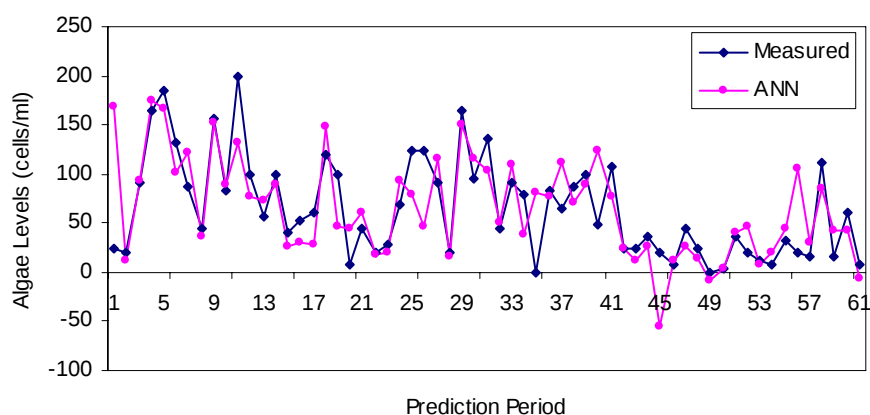


Figure 2.24. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding initial chrysophytes counts

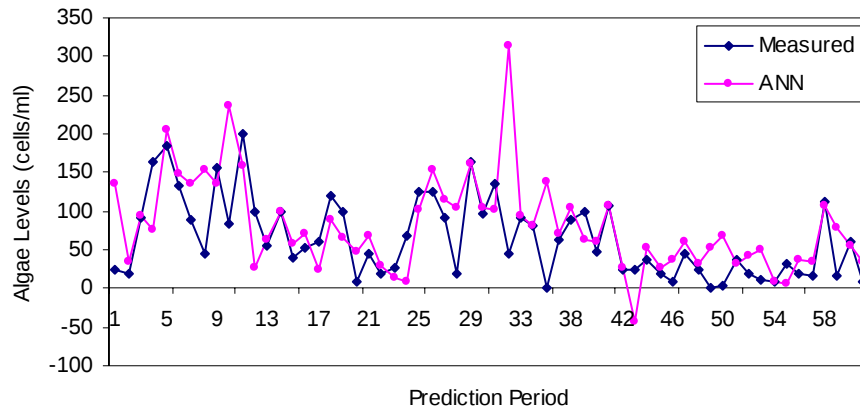


Figure 2.25. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding Pompton streamflow

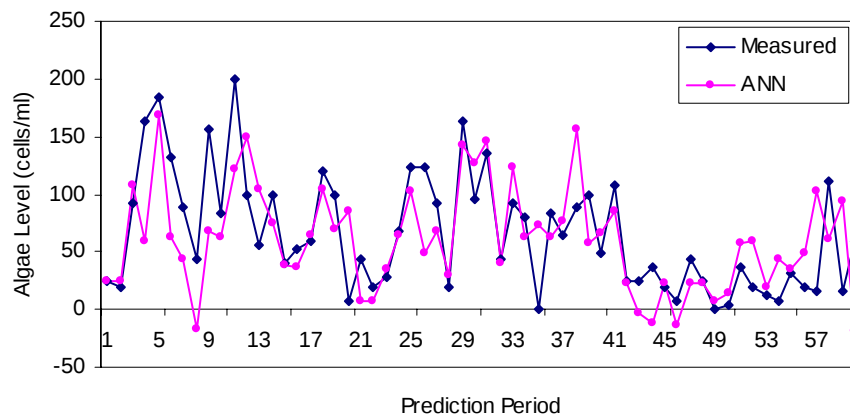


Figure 2.26. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding total hardness

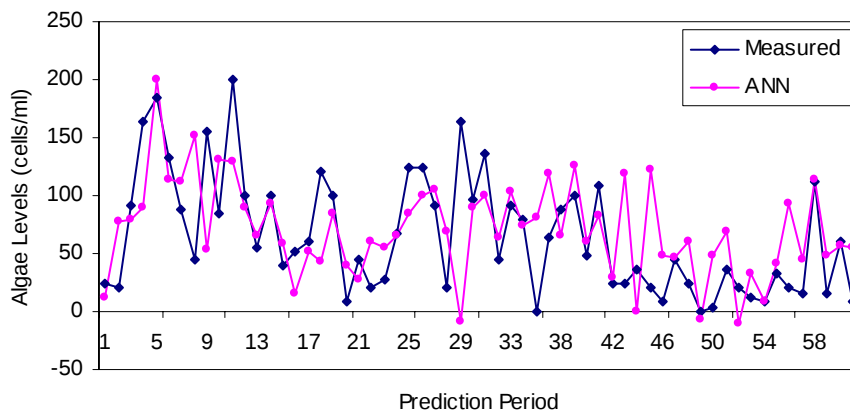


Figure 2.27. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding nitrite/nitrate

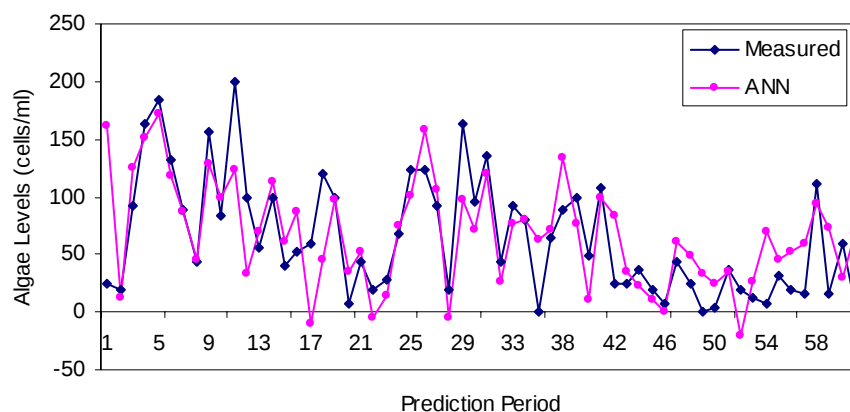


Figure 2.28. Station 101 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding extractions from JAPS

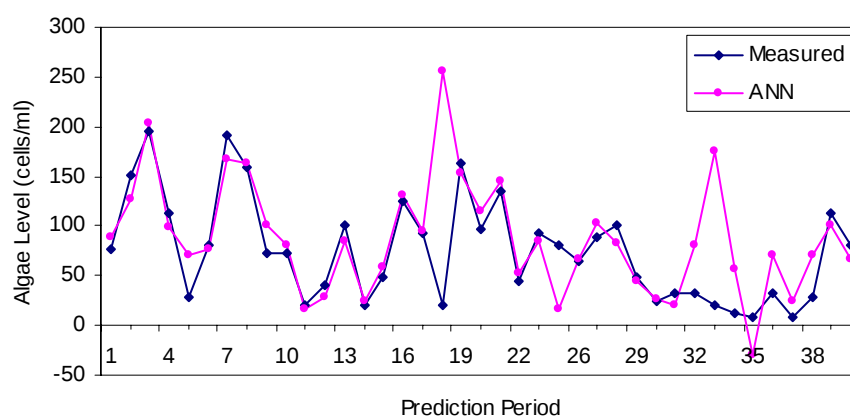


Figure 2.29. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs

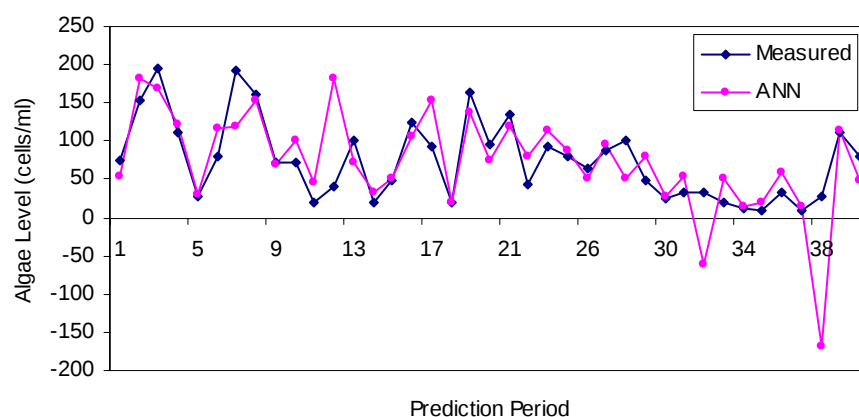


Figure 2.30. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding total amorphous materials

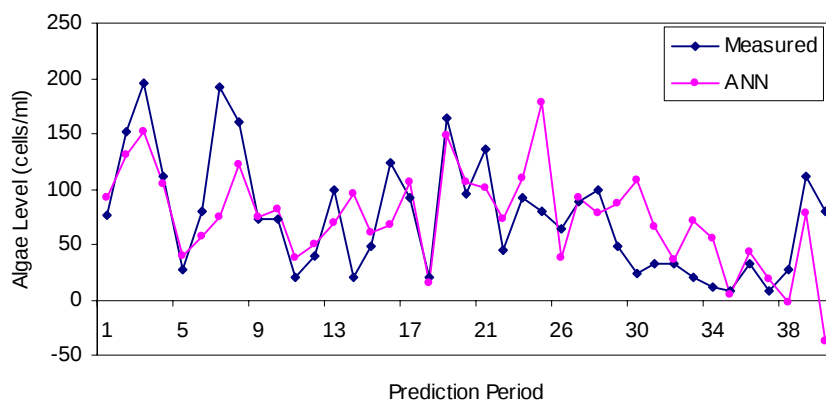


Figure 2.31. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding current week's precipitation

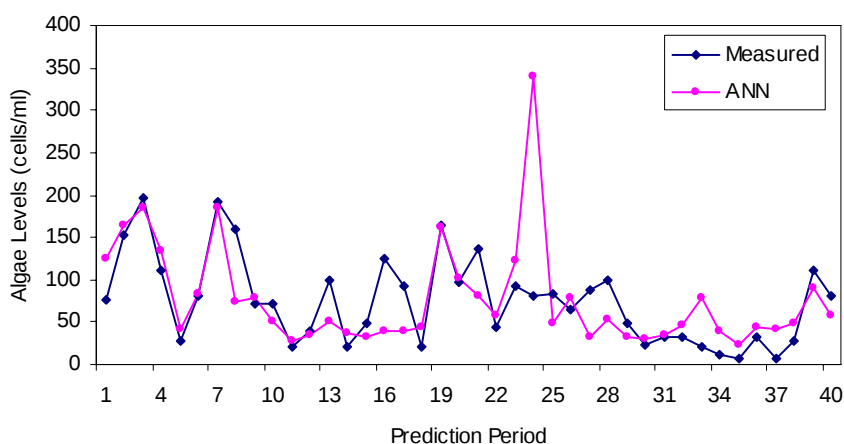


Figure 2.32. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chrysophytes counts

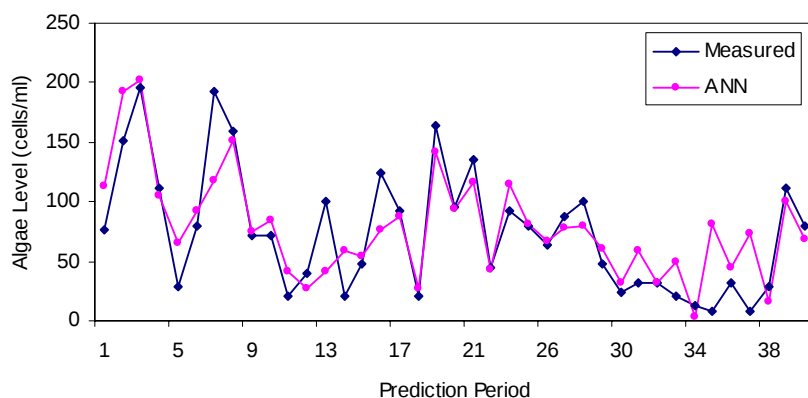


Figure 2.33. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding temperature

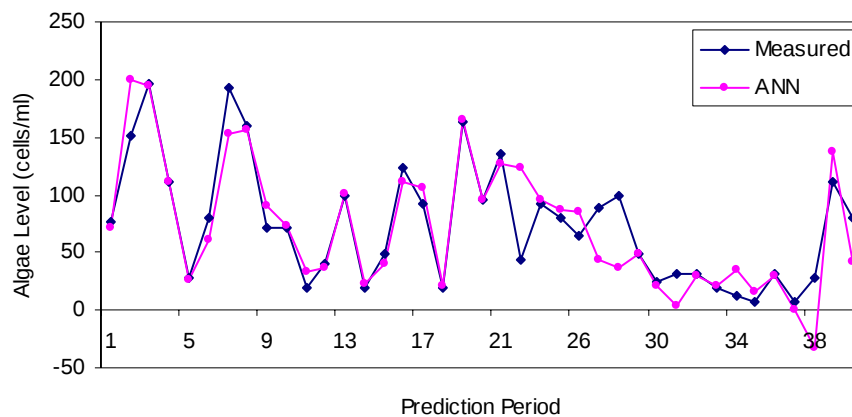


Figure 2.34. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding color

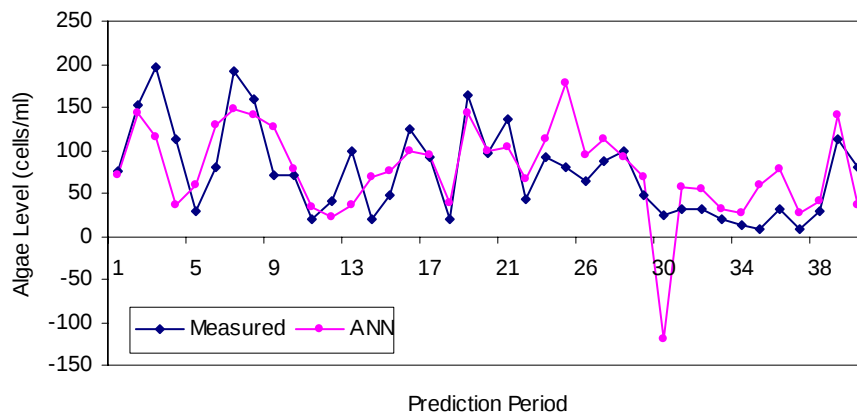


Figure 2.35. Station 101 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding extractions from JAPS

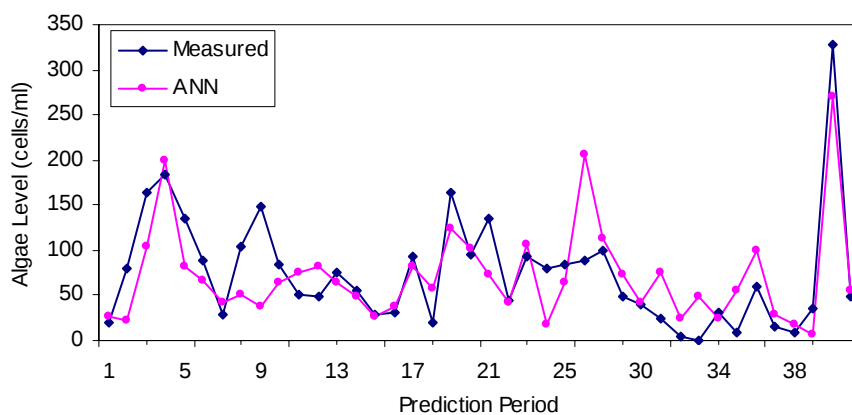


Figure 2.36. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs

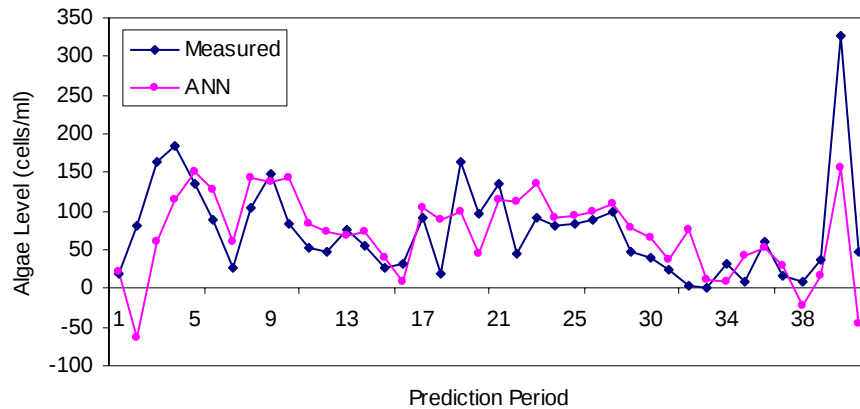


Figure 2.37. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total amorphous materials

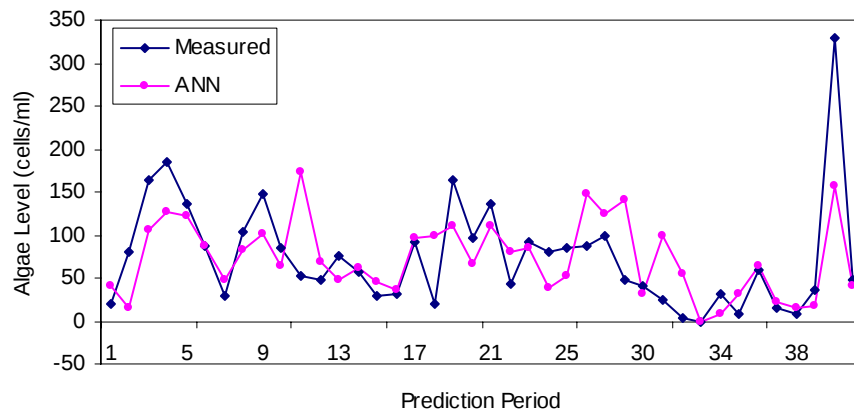


Figure 2.38. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding odor current week's precipitation

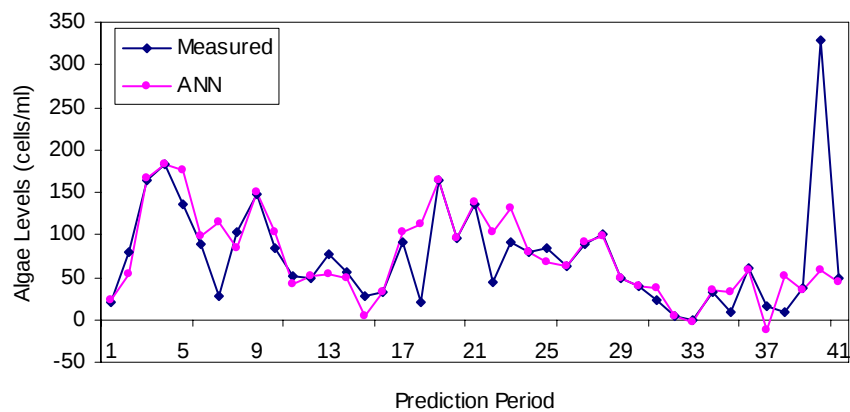


Figure 2.39. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding alkalinity

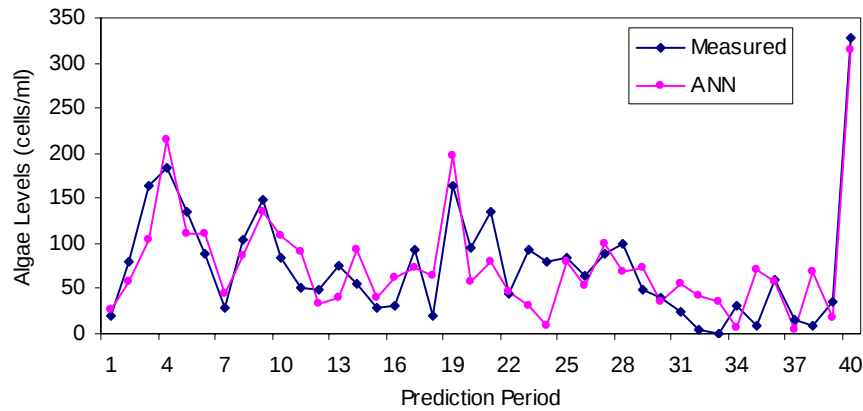


Figure 2.40. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding ammonia

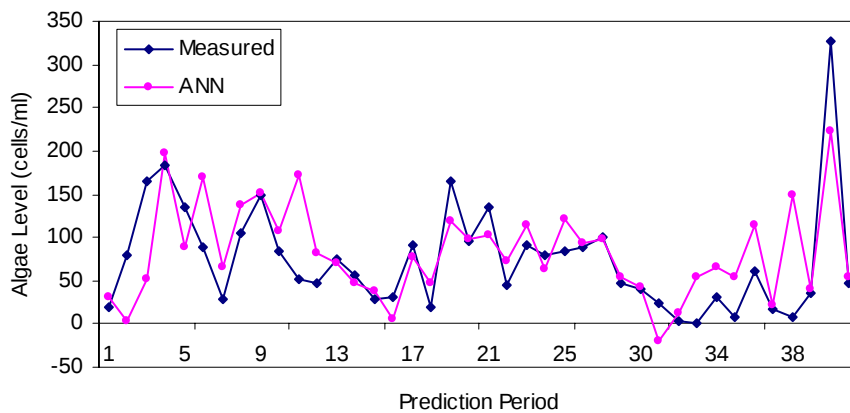


Figure 2.41. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding Passaic river extractions

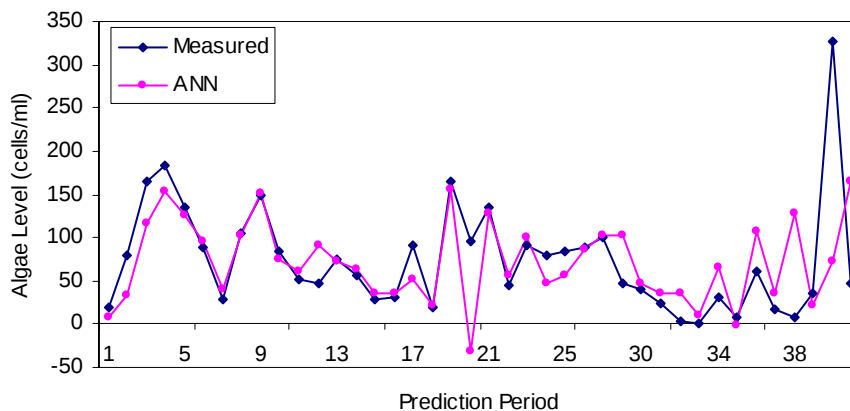


Figure 2.42. Station 101 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding heating degree days

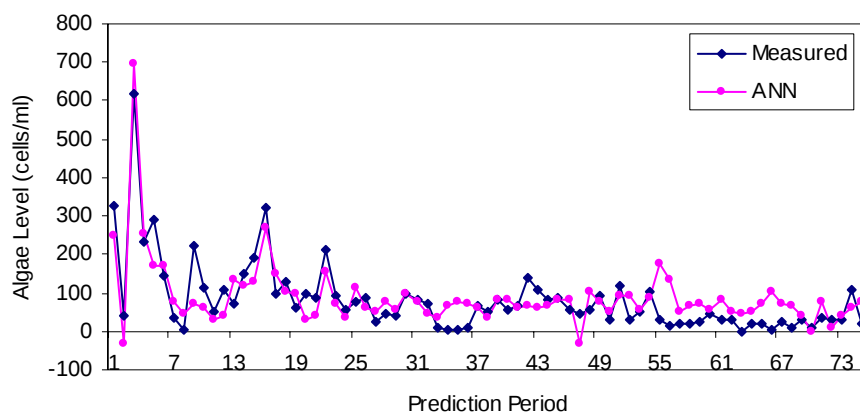


Figure 2.43. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs

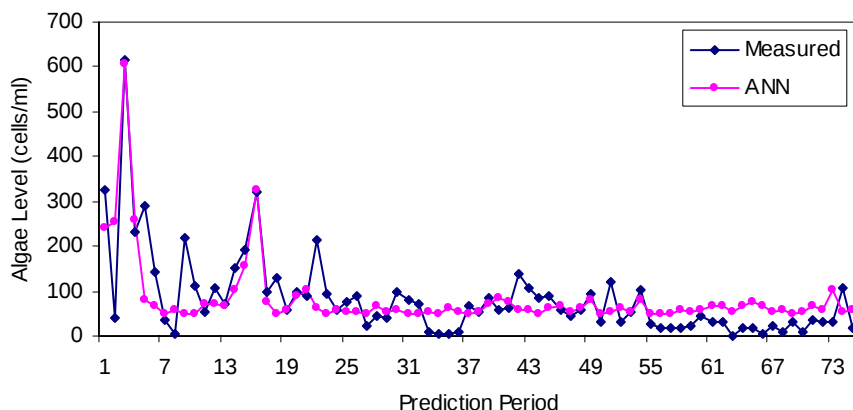


Figure 2.44. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding total amorphous materials

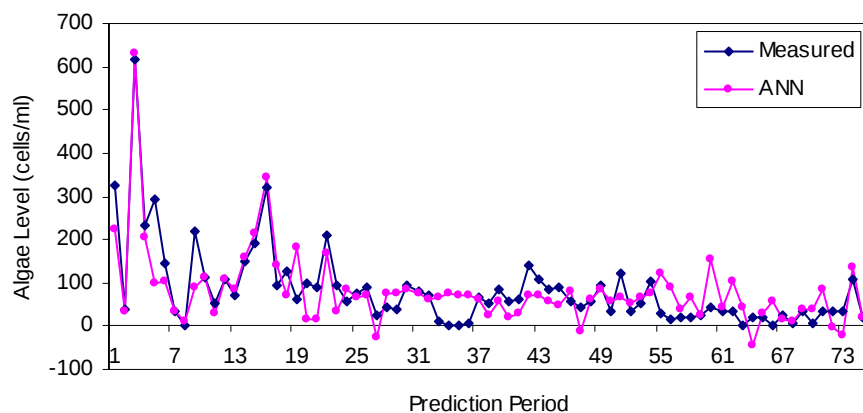


Figure 2.45. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding odor

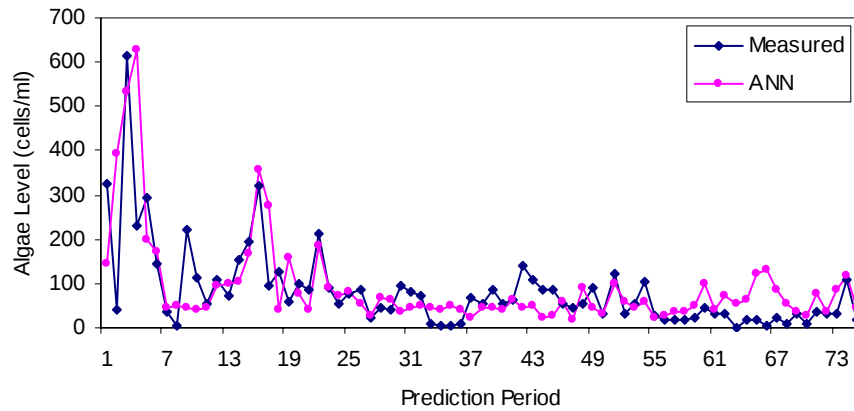


Figure 2.46. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding Pompton river extractions

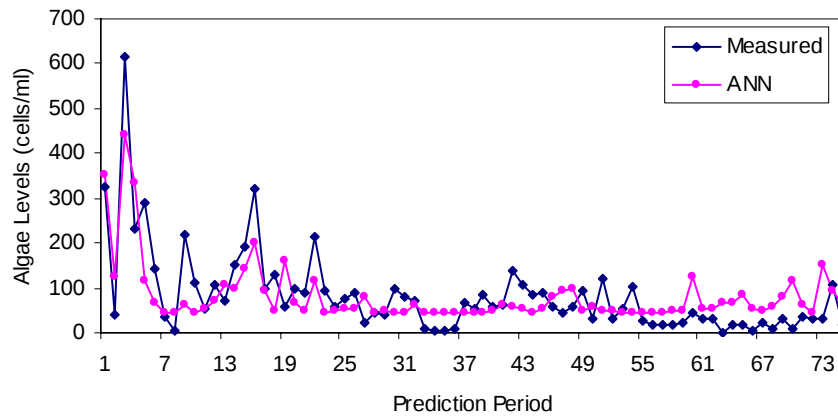


Figure 2.47. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding UV254

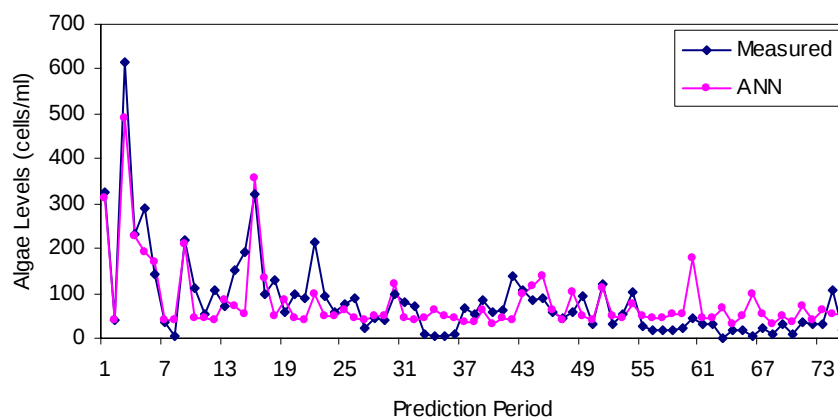


Figure 2.48. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding initial chrysophytes counts

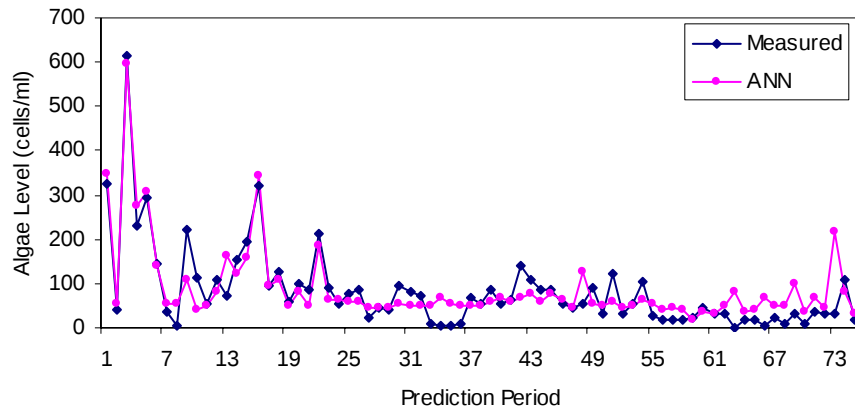


Figure 2.49. Station 612 time-series plots of measured chrysophytes counts against ANN real-time predicted values using all variable inputs excluding initial chlorophytes counts

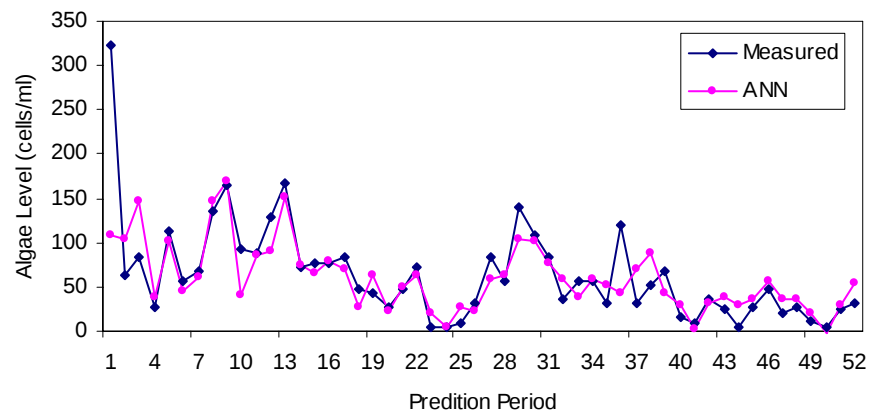


Figure 2.50. Station 612 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs

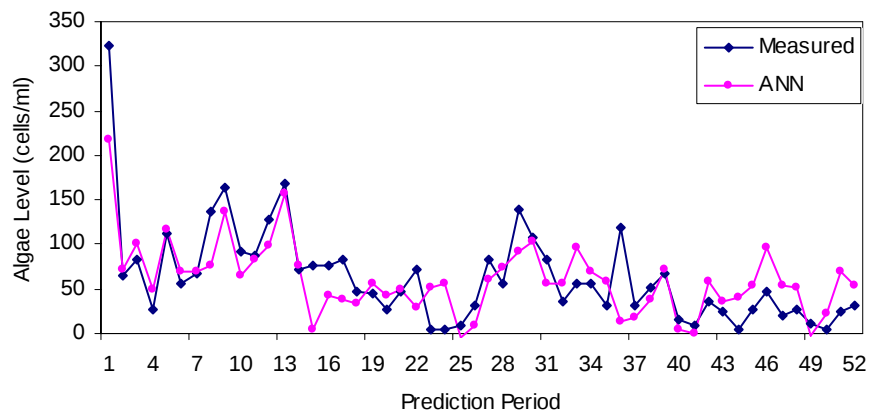


Figure 2.51. Station 612 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chrysophytes counts

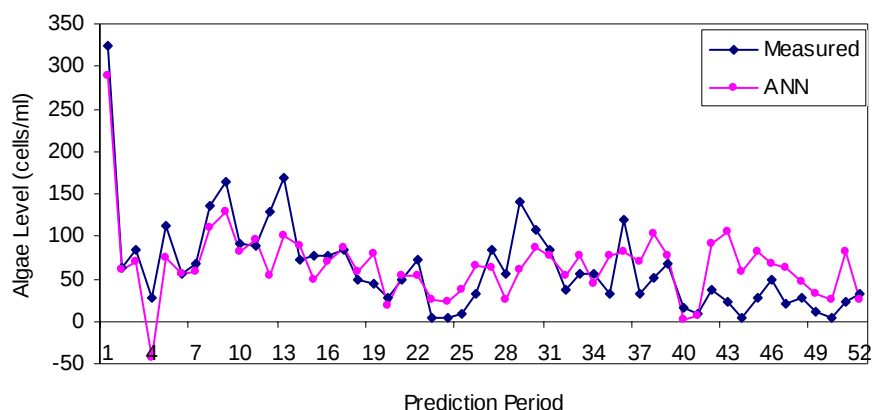


Figure 2.52. Station 612 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding total algal counts

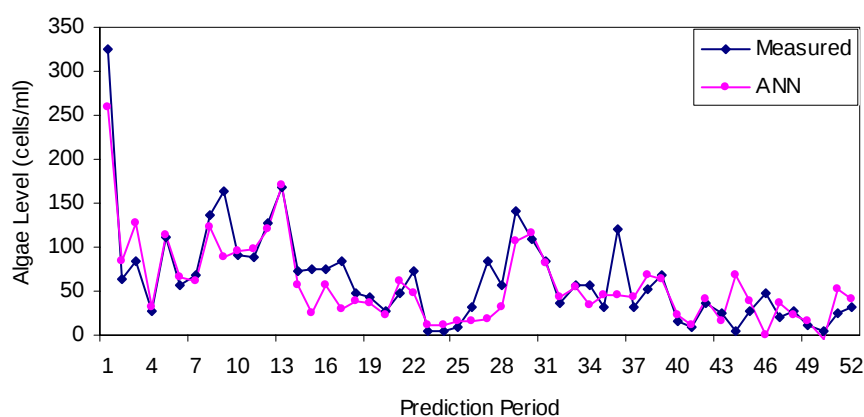


Figure 2.53. Station 612 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding Passaic river extractions

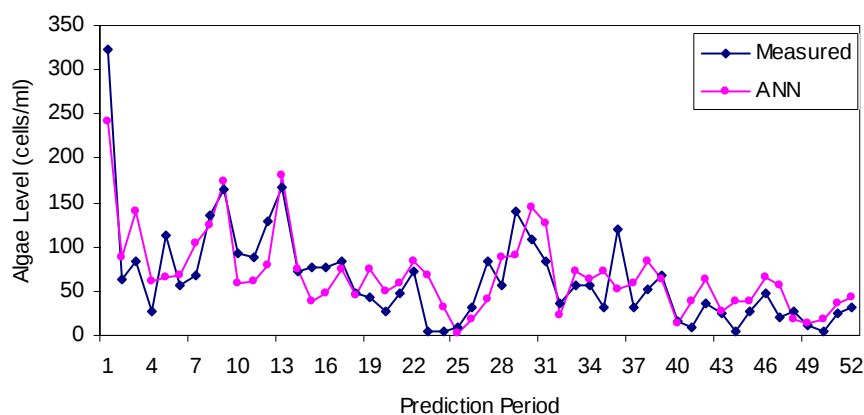


Figure 2.54. Station 612 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding Pompton river extractions

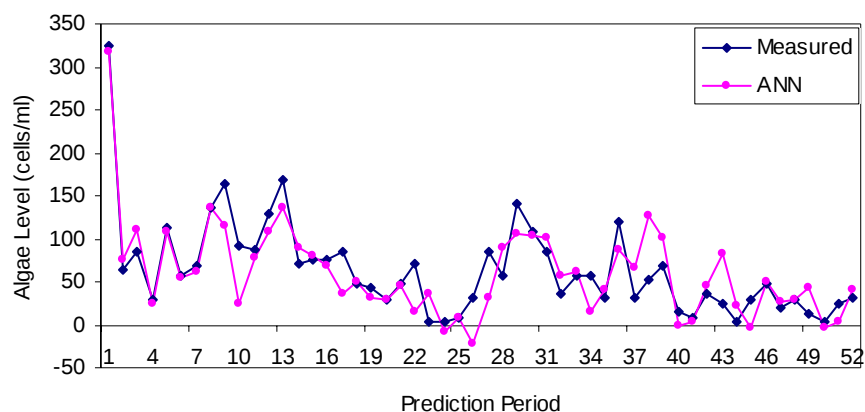


Figure 2.55. Station 612 time-series plots of measured chrysophytes counts against ANN one-week ahead predicted values using all variable inputs excluding ammonia

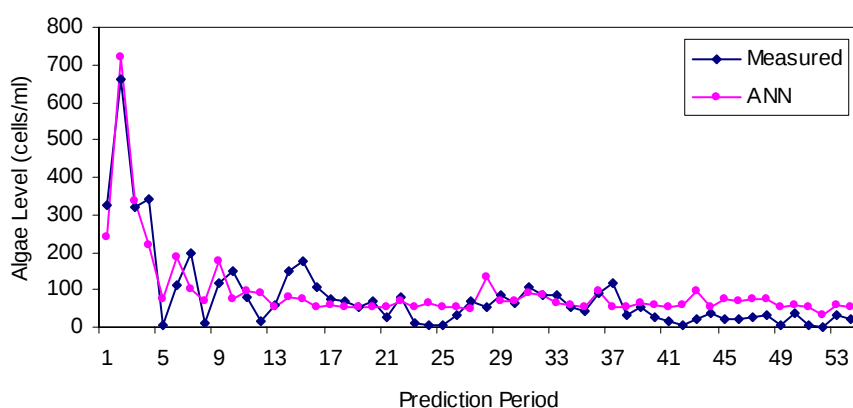


Figure 2.56. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs

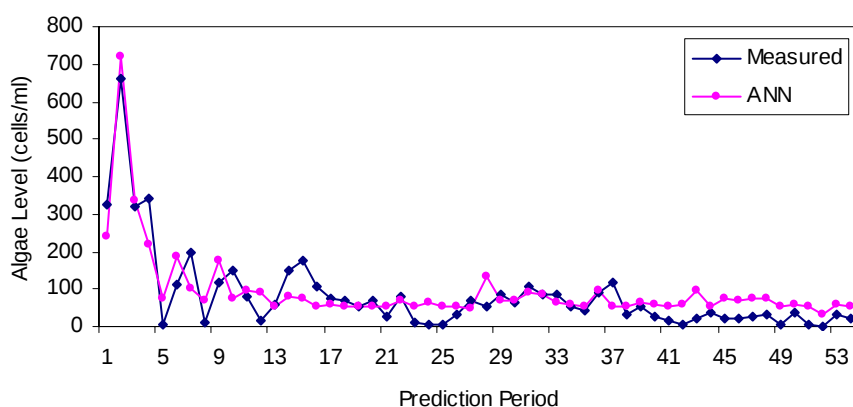


Figure 2.57. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding Pompton river extractions

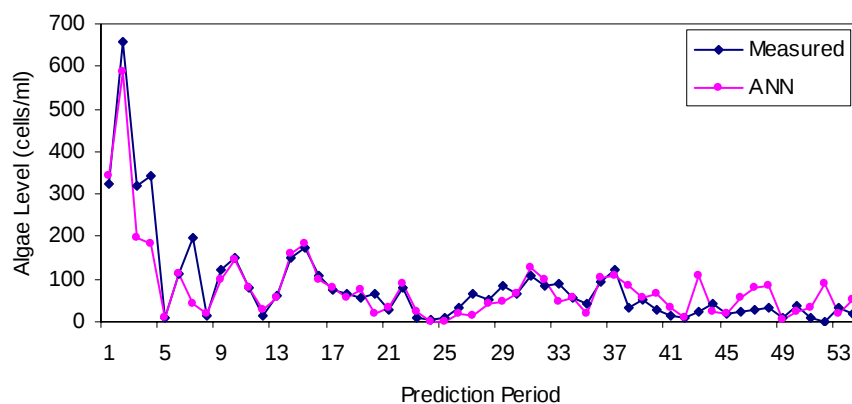


Figure 2.58. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding turbidity

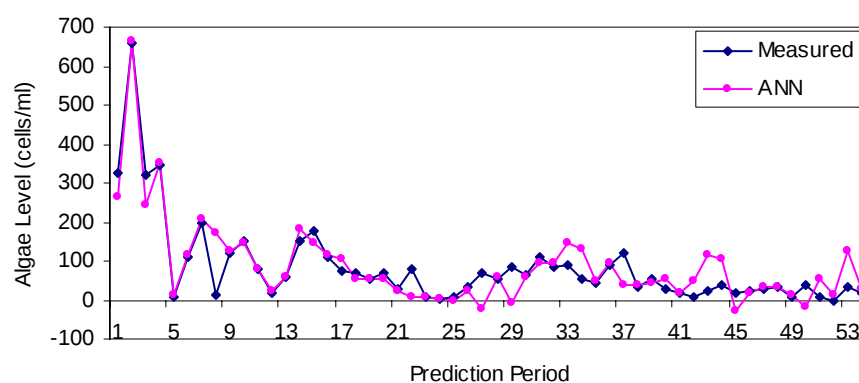


Figure 2.59. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding sulfate

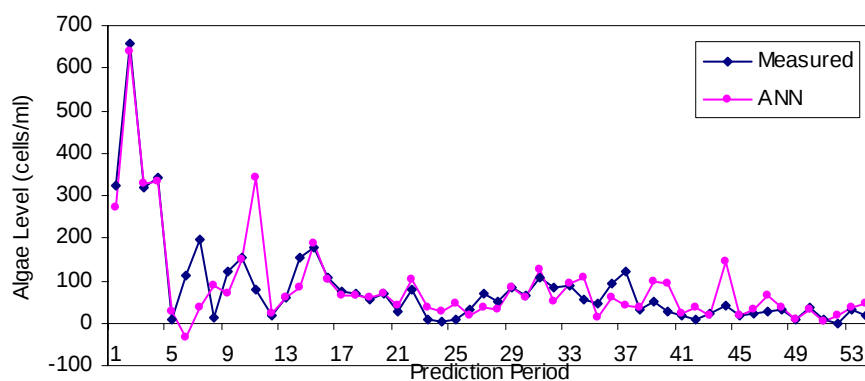


Figure 2.60. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding ammonia

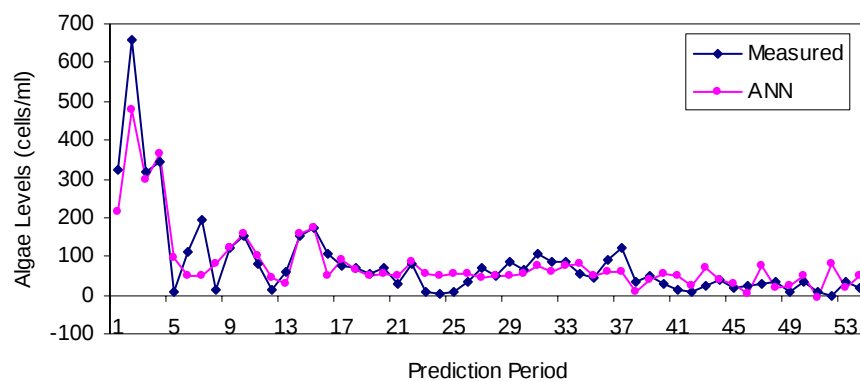


Figure 2.61. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total algal counts

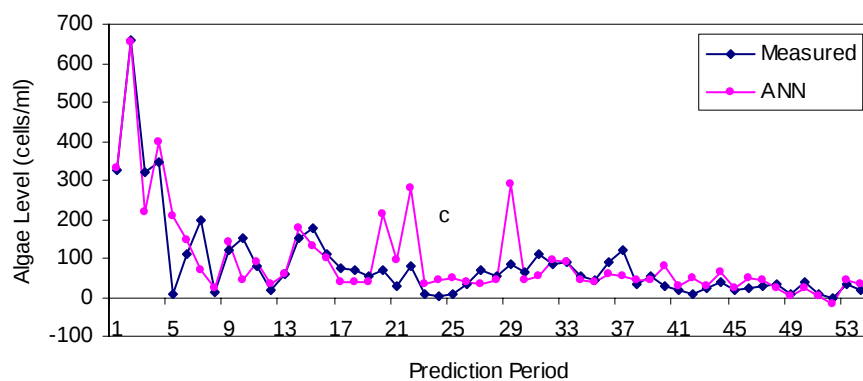


Figure 2.62. Station 612 time-series plots of measured chrysophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total amorphous materials

3. CHLOROPHYTA

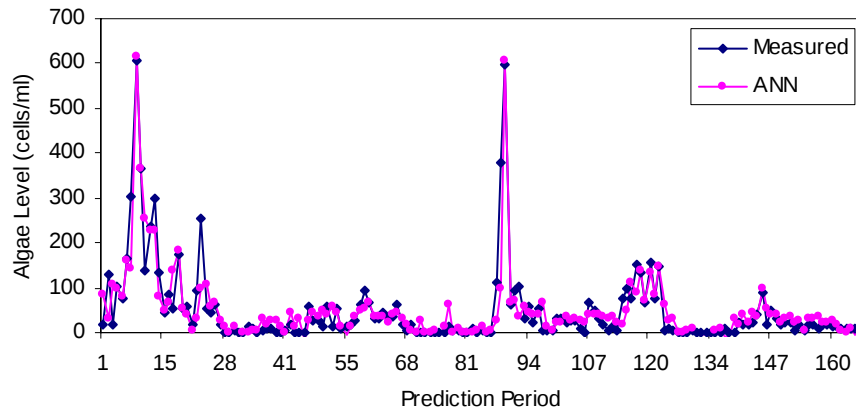


Figure 3.1. Station 100 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs

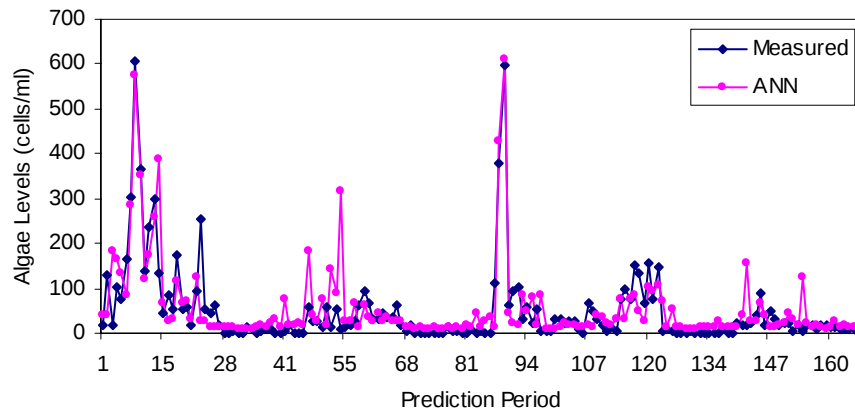


Figure 3.2. Station 100 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding initial chlorophytes counts

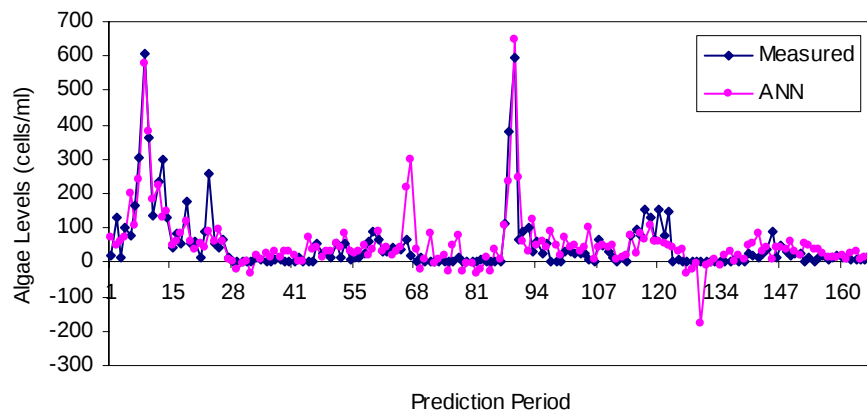


Figure 3.3. Station 100 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding total hardness

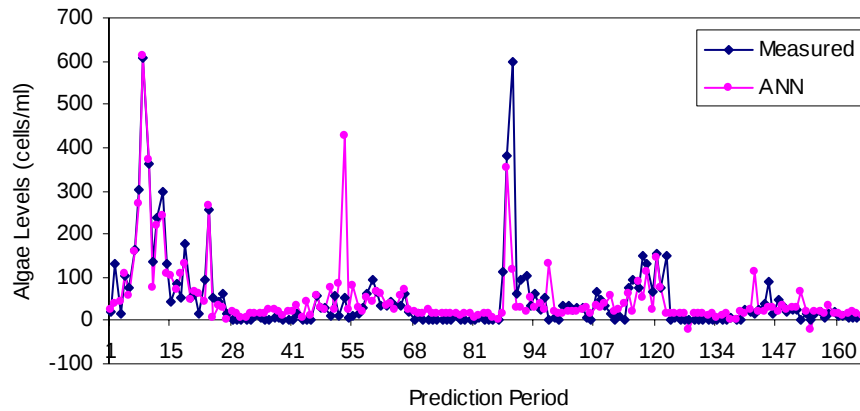


Figure 3.4. Station 100 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding total algal counts

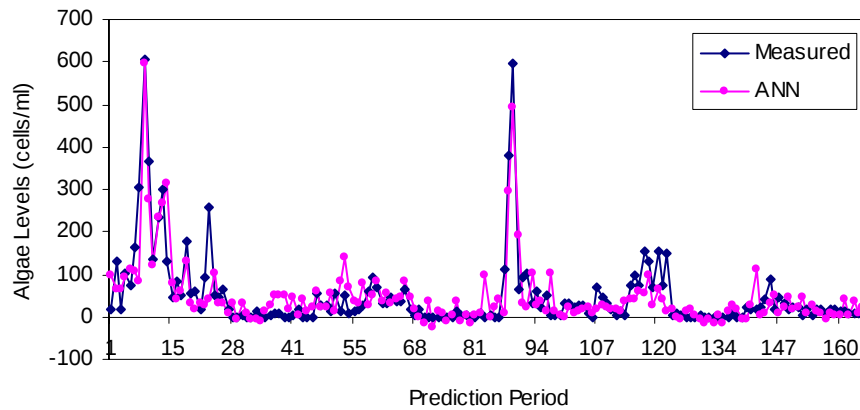


Figure 3.5. Station 100 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding total organic carbon (TOC)

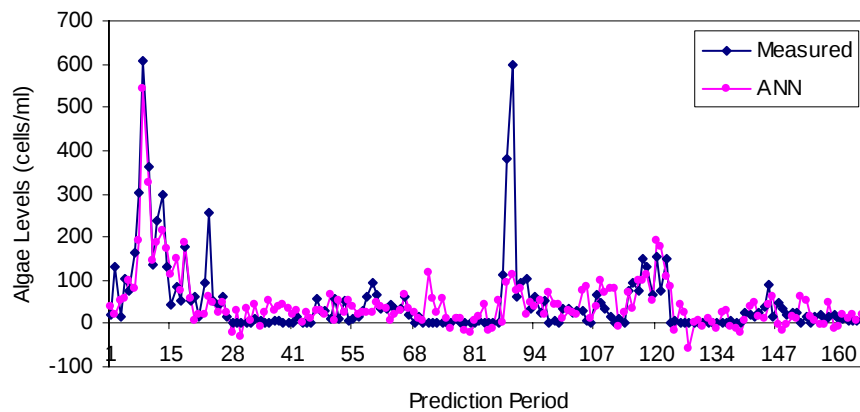


Figure 3.6. Station 100 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding biochemical oxygen demand (BOD)

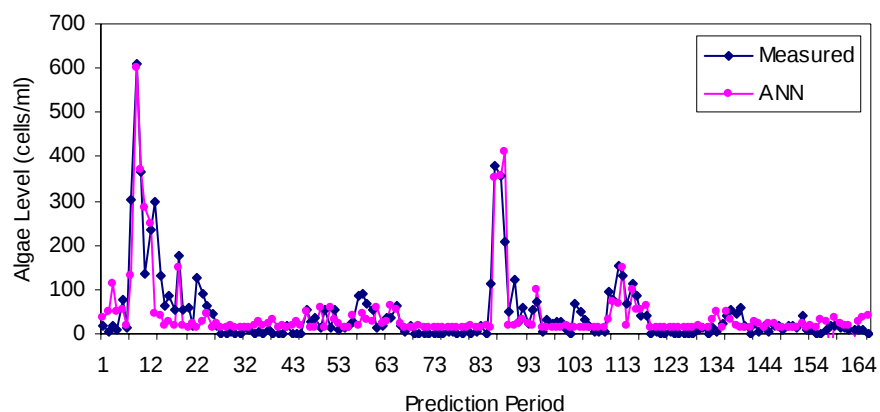


Figure 3.7. Station 100 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs

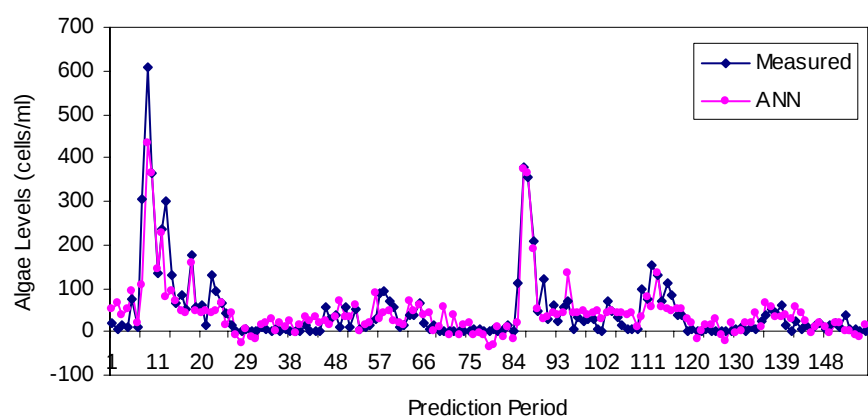


Figure 3.8. Station 100 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chlorophytes counts

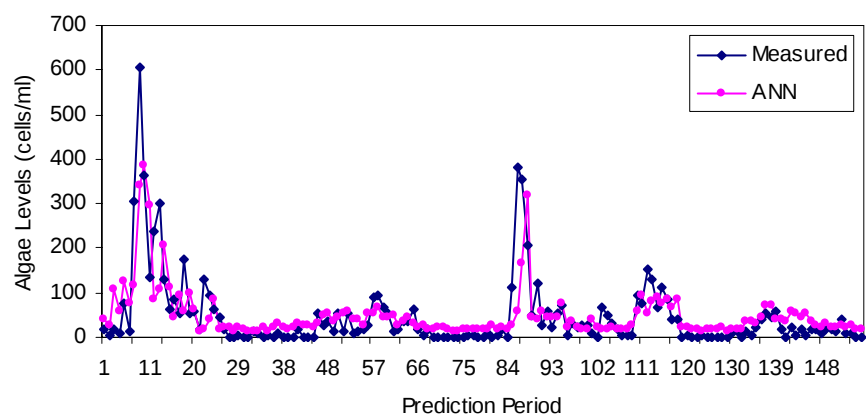


Figure 3.9. Station 100 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding total algal counts

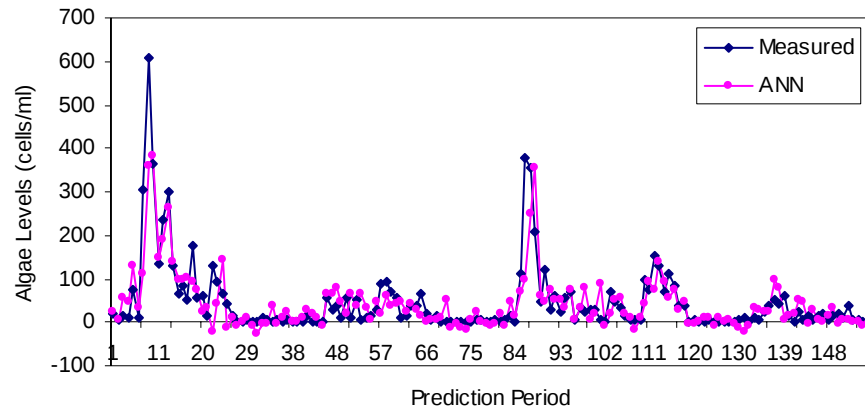


Figure 3.10. Station 100 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding temperature

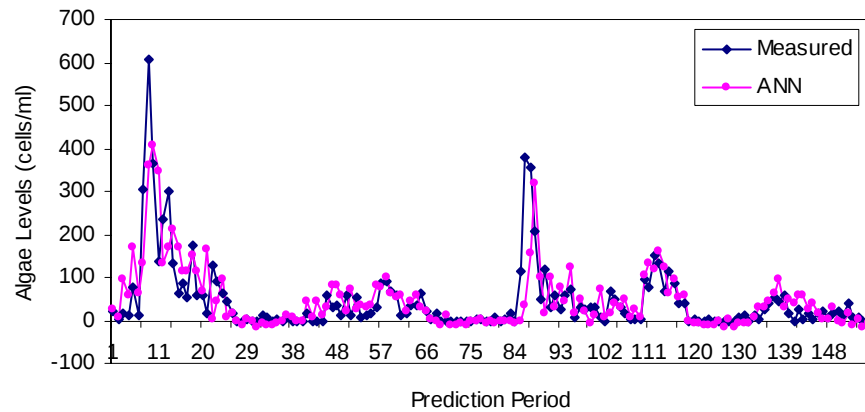


Figure 3.11. Station 100 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding turbidity

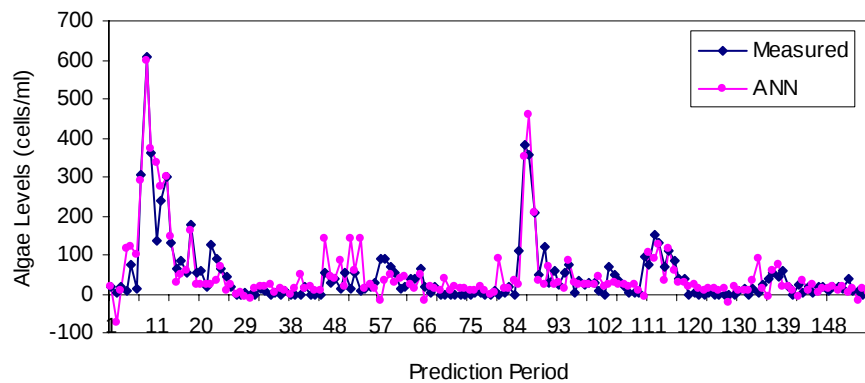


Figure 3.12. Station 100 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding biochemical oxygen demand (BOD)

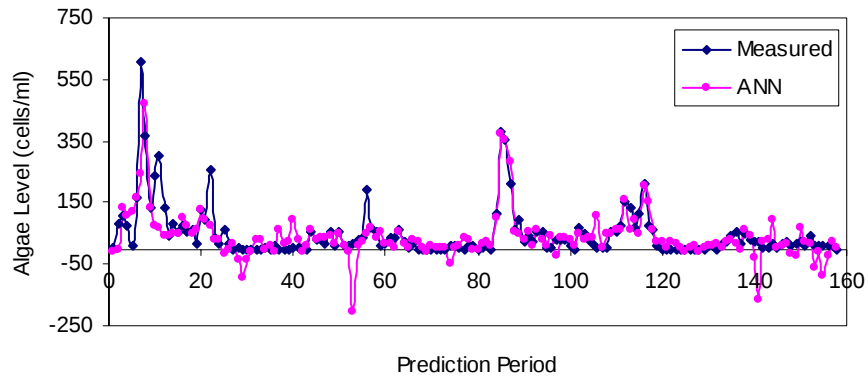


Figure 3.13. Station 100 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs

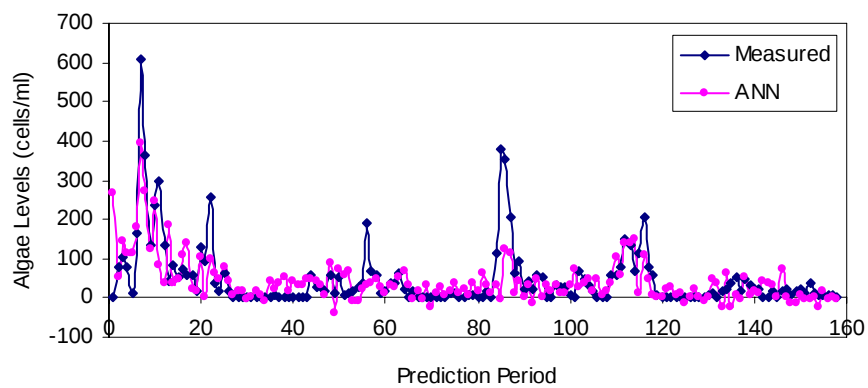


Figure 3.14. Station 100 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding Pompton river extractions

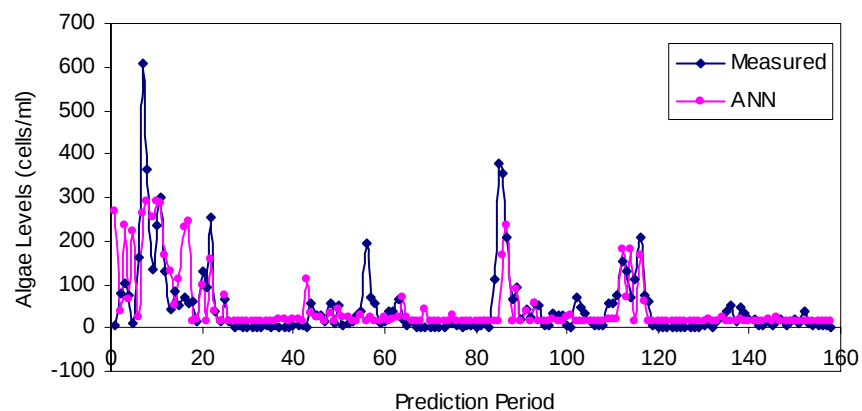


Figure 3.15. Station 100 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total suspended solids (TSS)

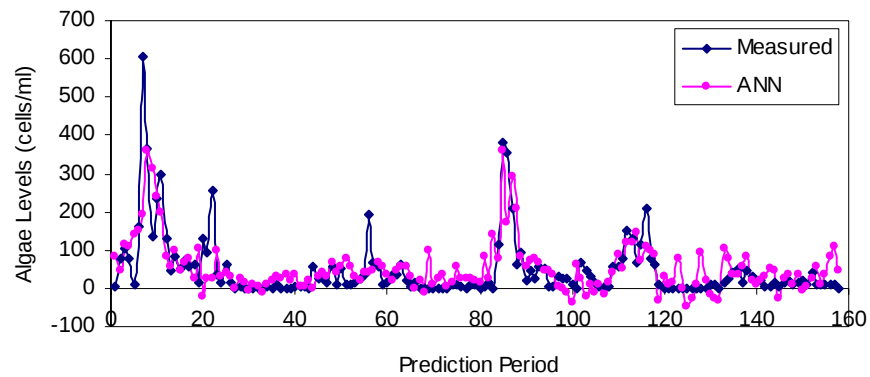


Figure 3.16. Station 100 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding wind direction

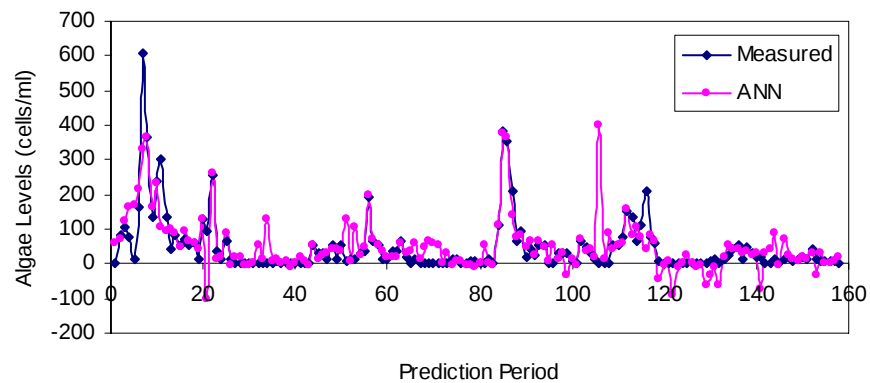


Figure 3.17. Station 100 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding UV254

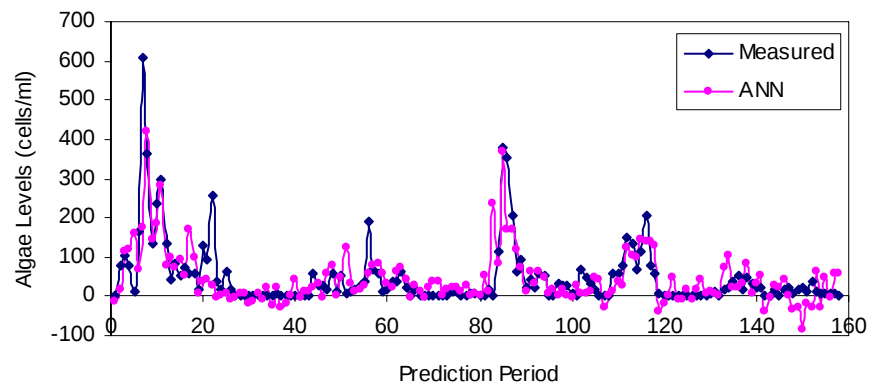


Figure 3.18. Station 100 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding biochemical oxygen demand (BOD)

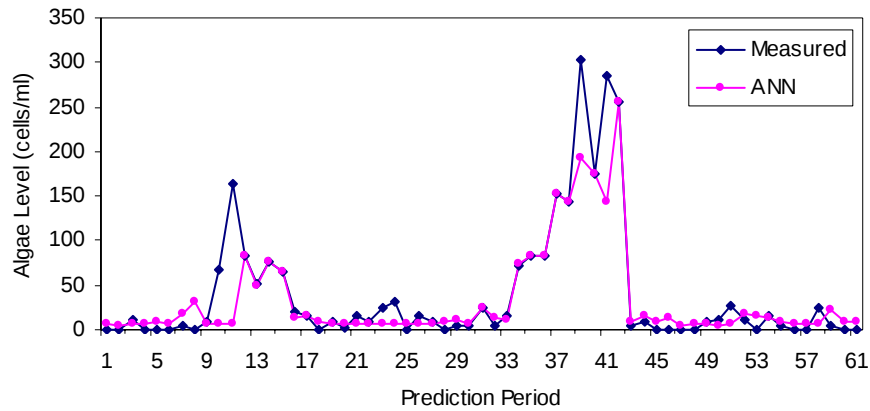


Figure 3.19. Station 101 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs

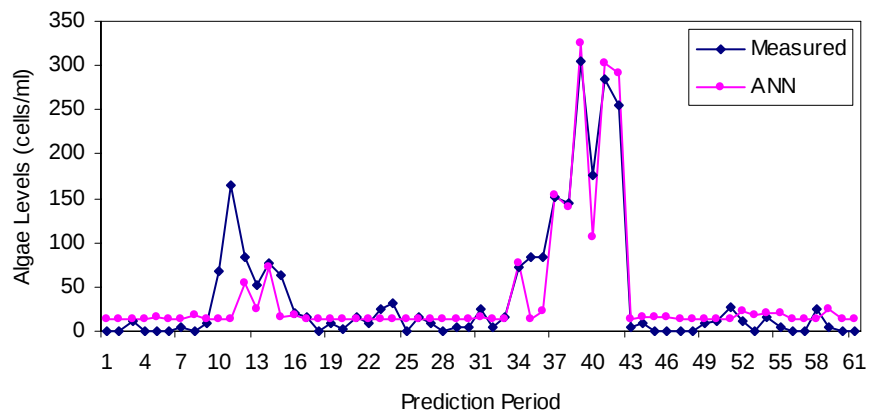


Figure 3.20. Station 101 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs initial chlorophytes counts

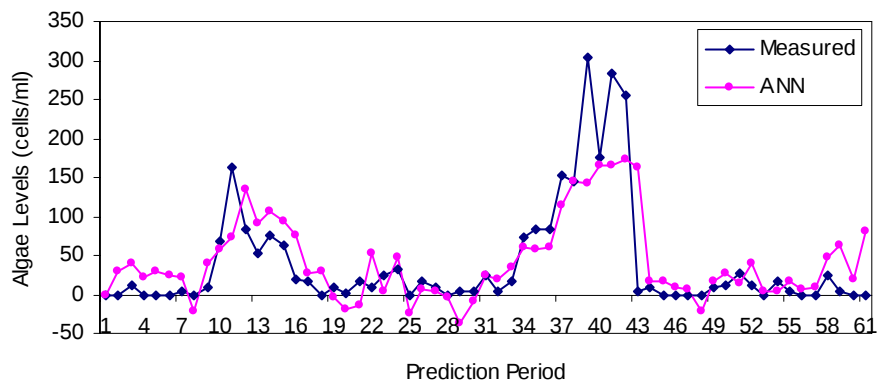


Figure 3.21. Station 101 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding heating degree days

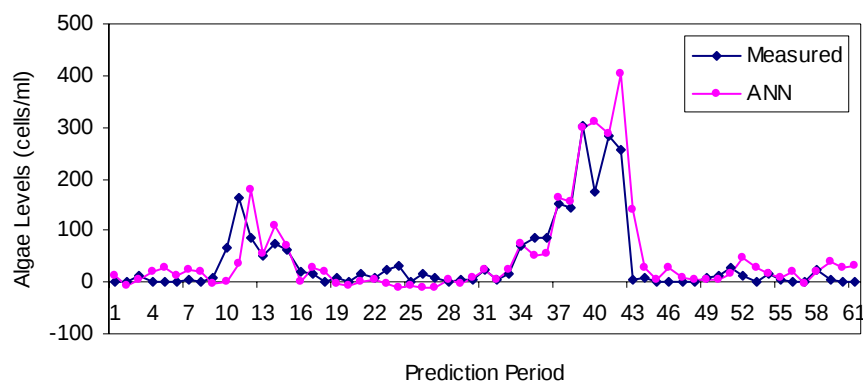


Figure 3.22. Station 101 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding total algal counts

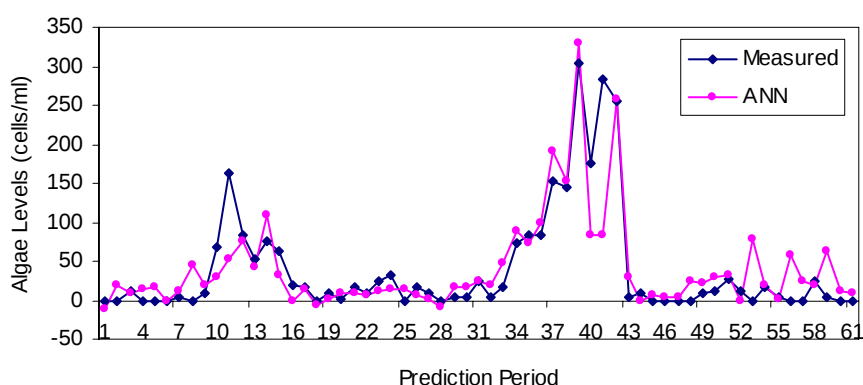


Figure 3.23 Station 101 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding sulfate

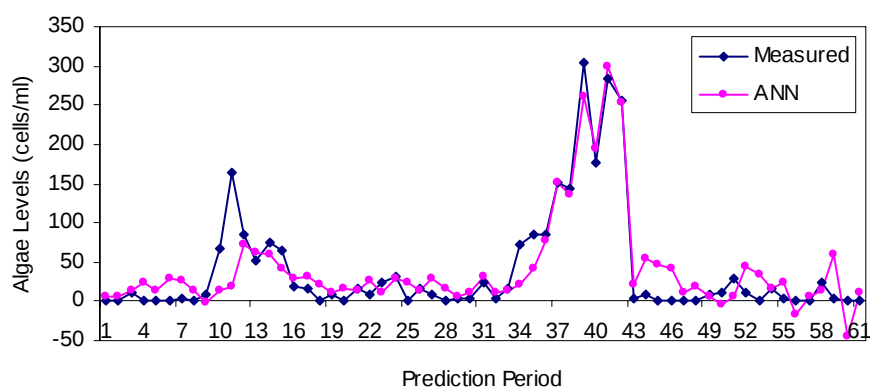


Figure 3.24. Station 101 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding conductivity

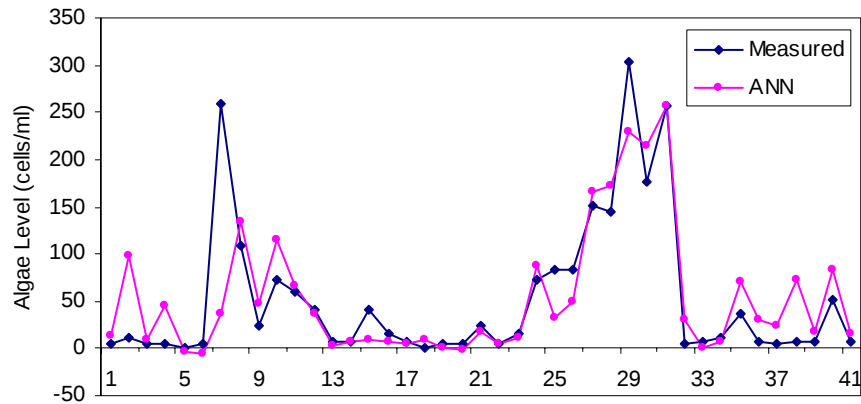


Figure 3.25. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs

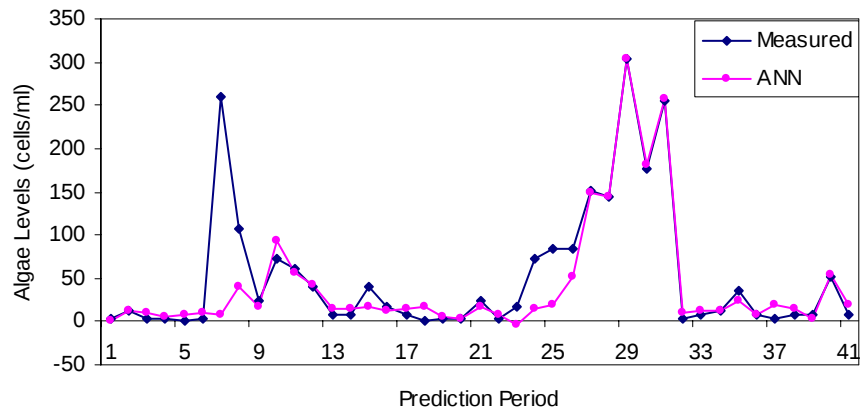


Figure 3.26. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chlorophytes counts

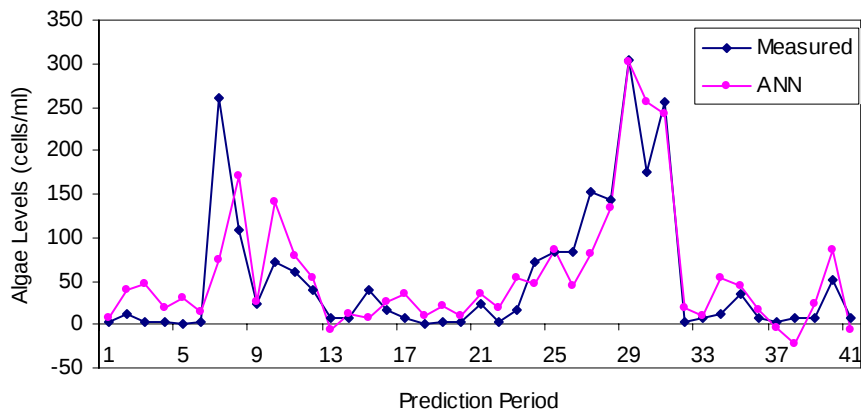


Figure 3.27. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial cyanobacteria counts

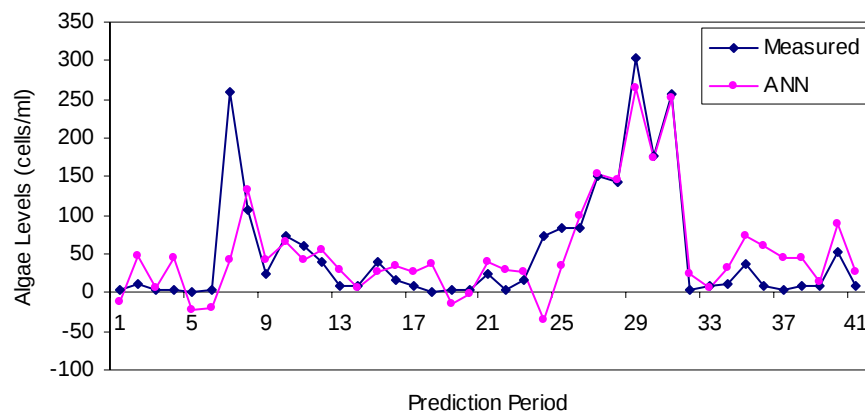


Figure 3.28. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding pH

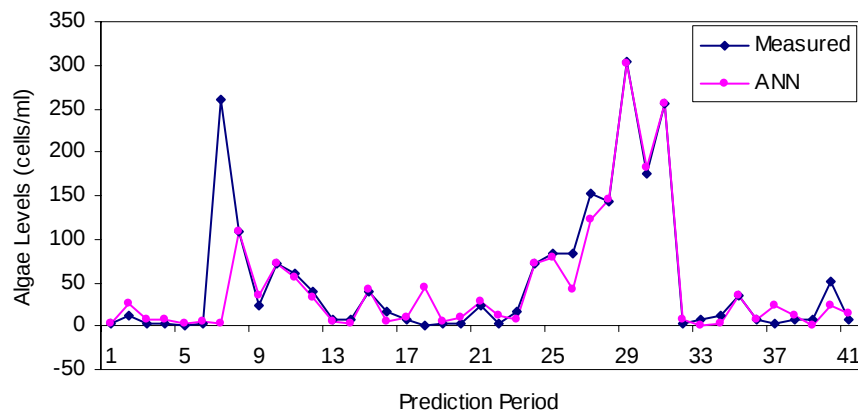


Figure 3.29. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding wind speed

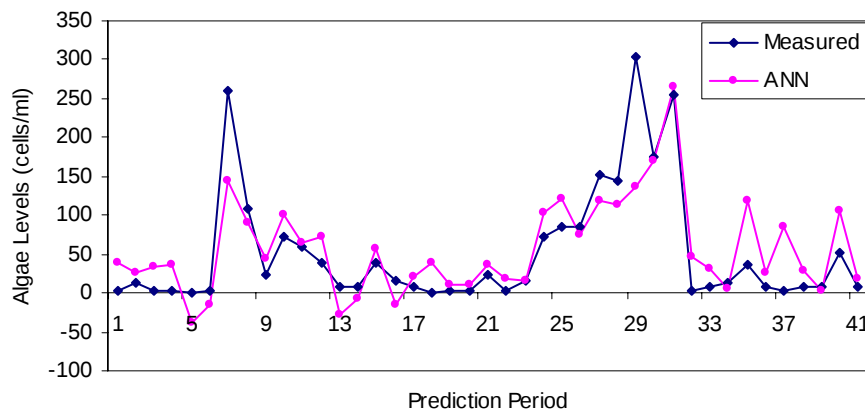


Figure 3.30. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding chloride

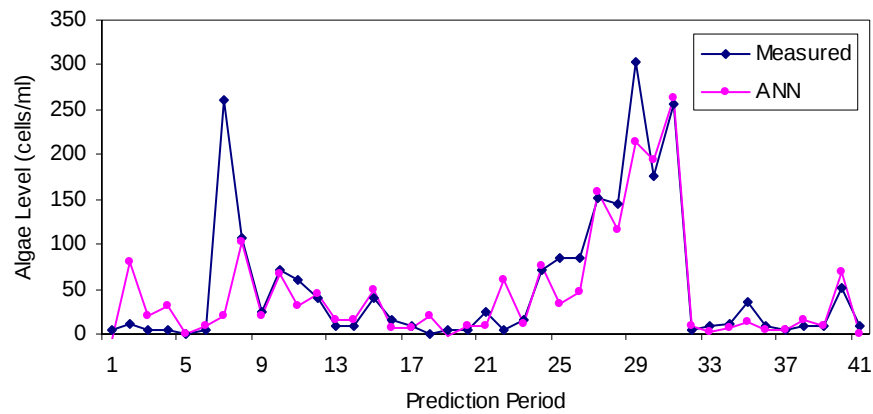


Figure 3.31. Station 101 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding odor

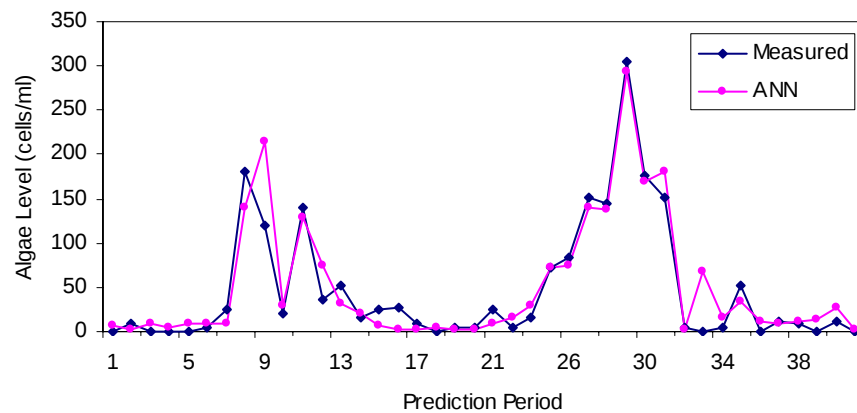


Figure 3.32. Station 101 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs

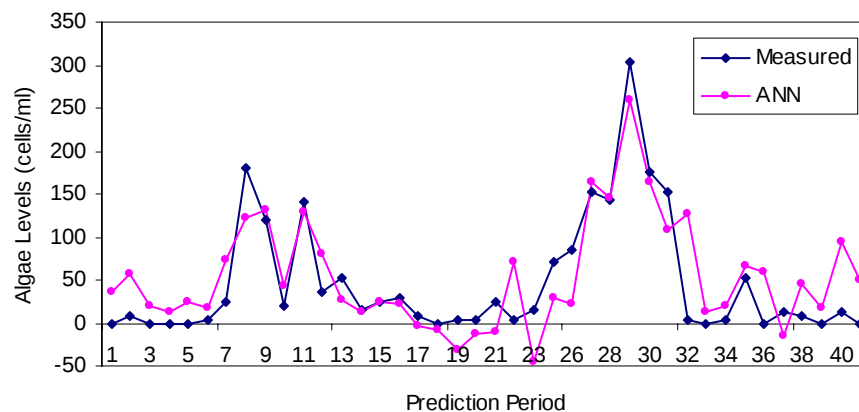


Figure 3.33. Station 101 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding extractions from Point View Reservoir

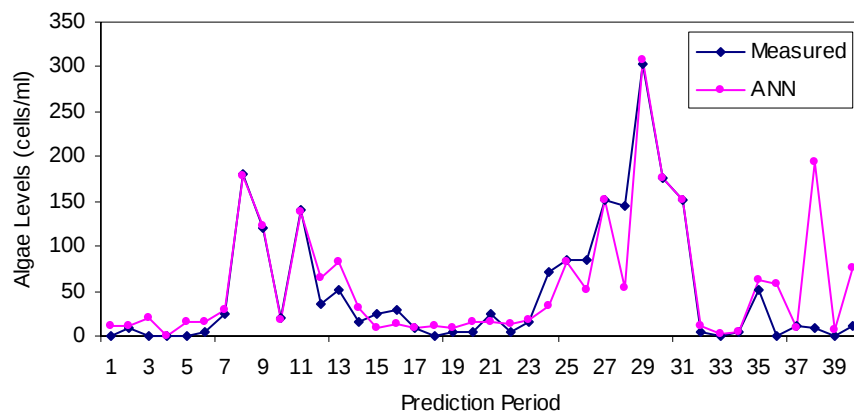


Figure 3.34. Station 101 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding initial chlorophytes counts

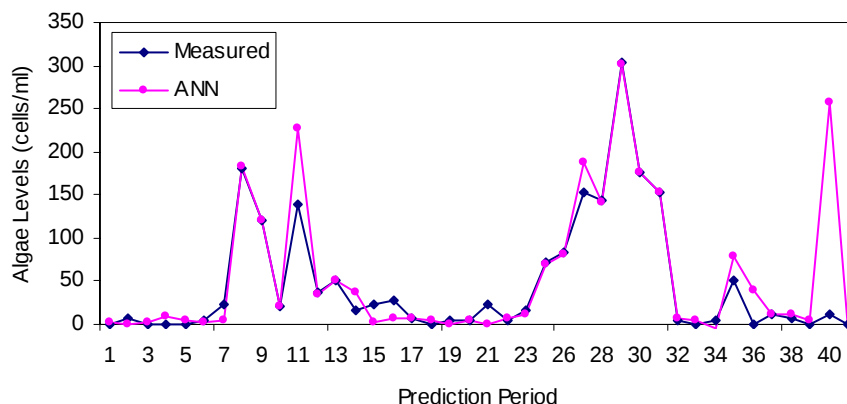


Figure 3.35. Station 101 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding conductivity

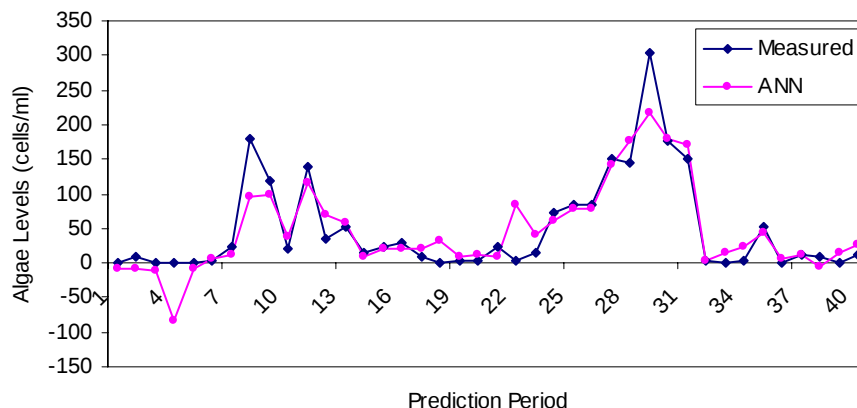


Figure 3.36. Station 101 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding color

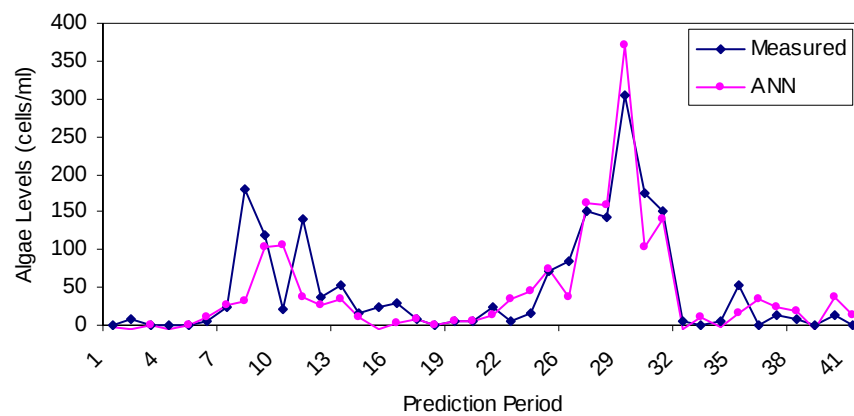


Figure 3.37. Station 101 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total hardness

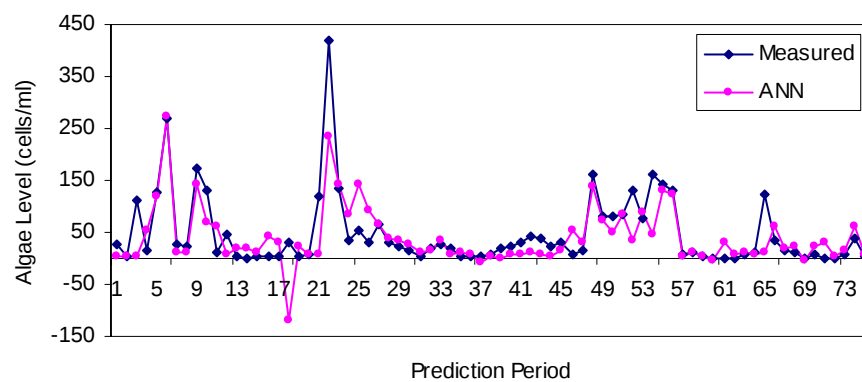


Figure 3.38. Station 612 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs

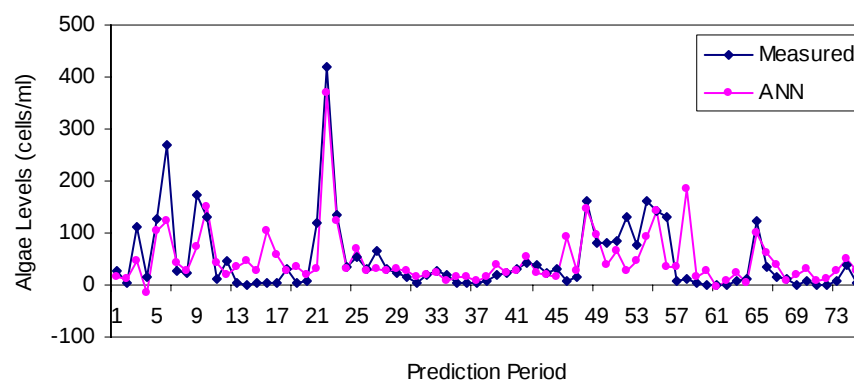


Figure 3.39. Station 612 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding total algal counts

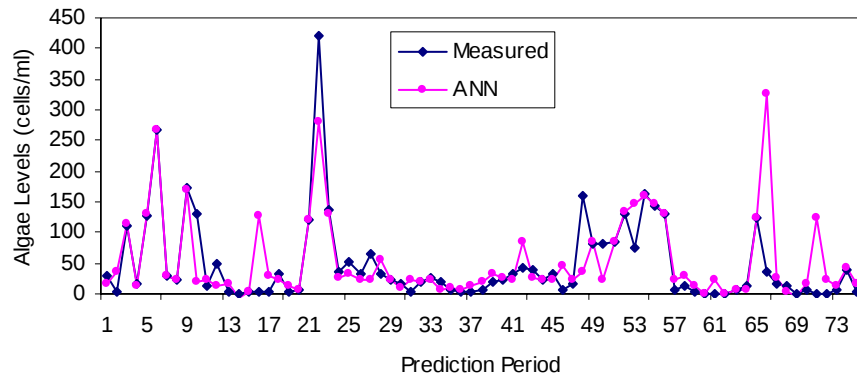


Figure 3.40. Station 612 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding chloride

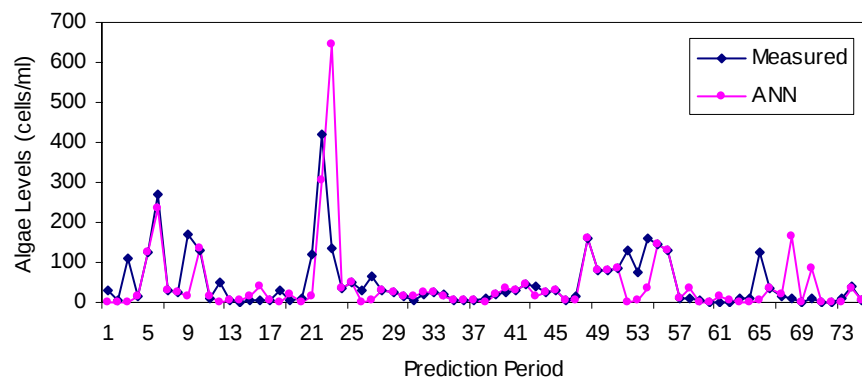


Figure 3.41. Station 612 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding sky cover

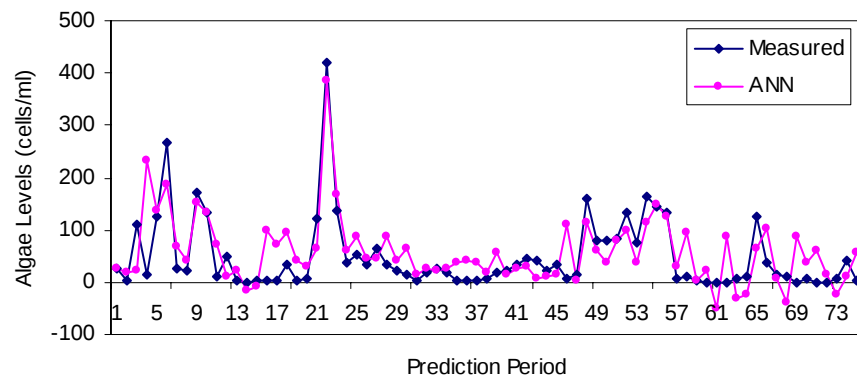


Figure 3.42. Station 612 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding Pompton streamflow

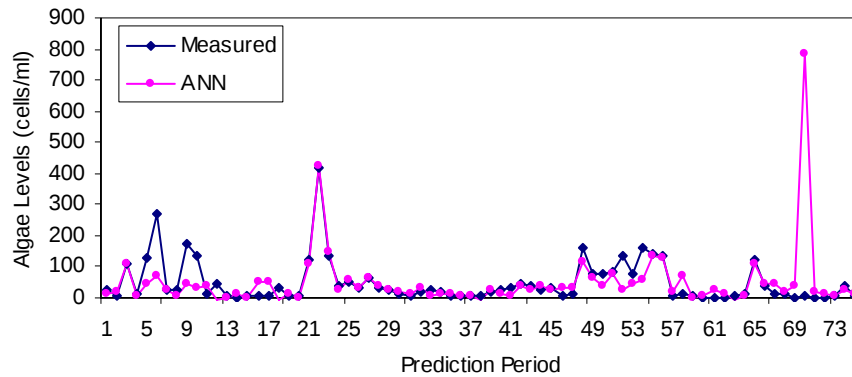


Figure 3.43. Station 612 time-series plots of measured chlorophytes counts against ANN real-time predicted values using all variable inputs excluding heating degree days

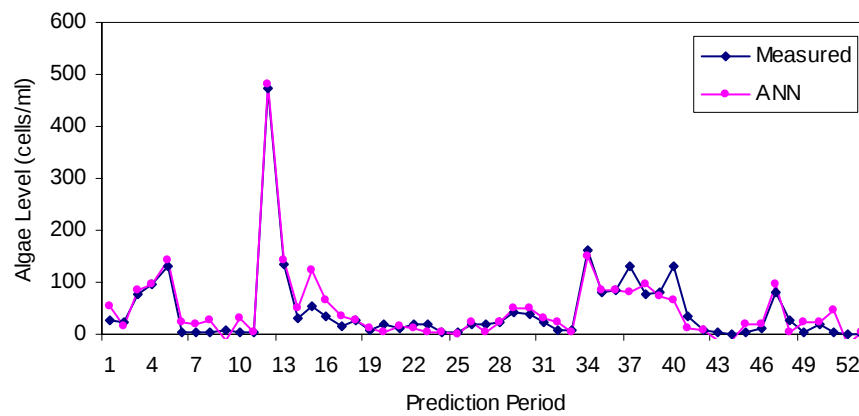


Figure 3.44. Station 612 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs

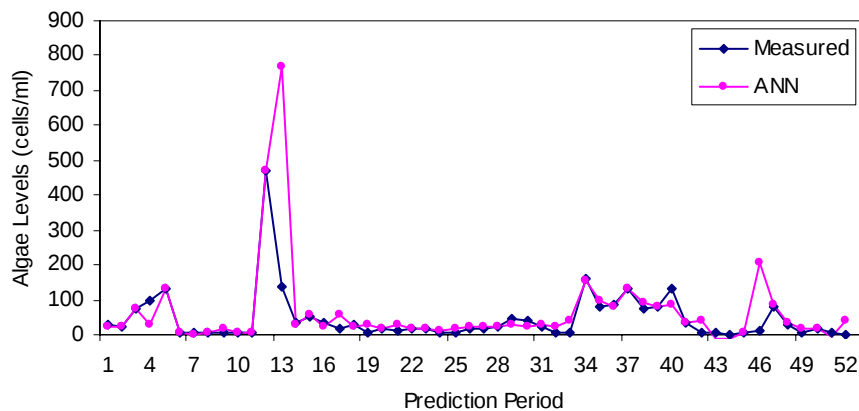


Figure 3.45. Station 612 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding total algal counts

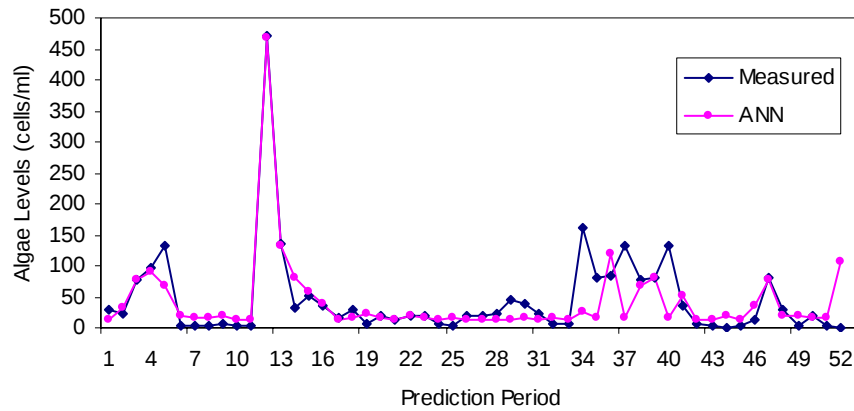


Figure 3.46. Station 612 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chlorophytes counts

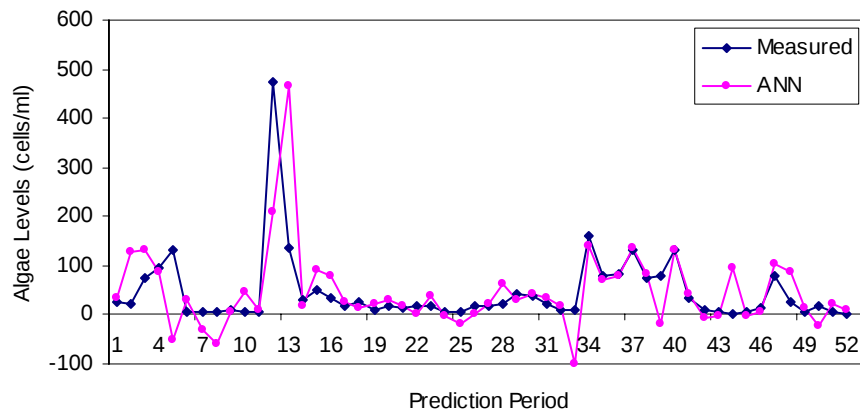


Figure 3.47. Station 612 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding initial chrysophytes counts

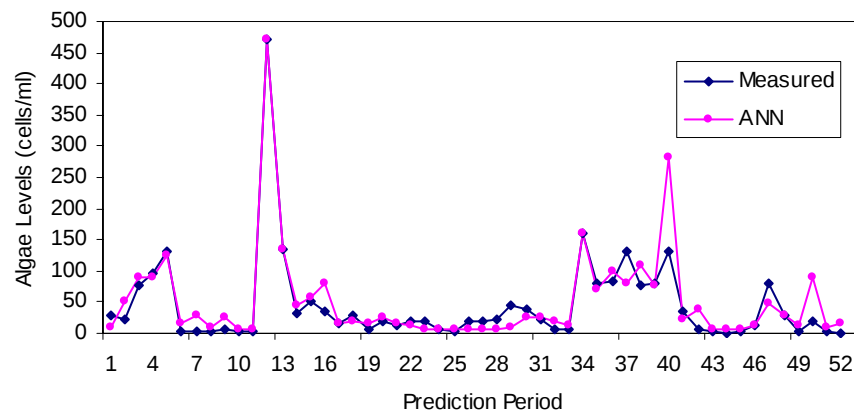


Figure 3.48. Station 612 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding total phosphorus/orthophosphates

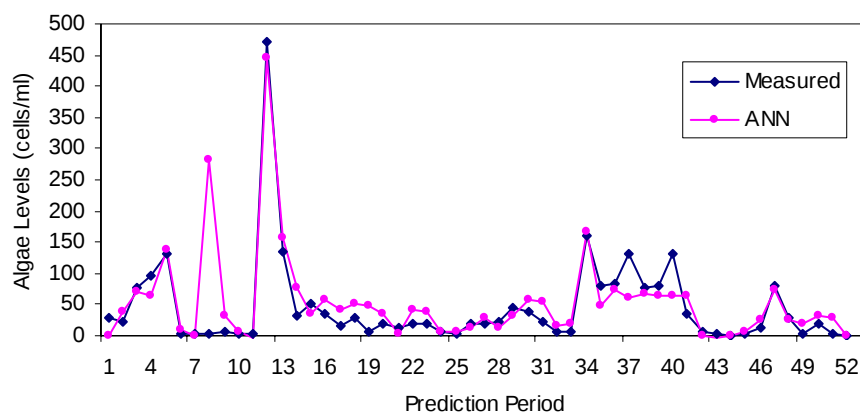


Figure 3.49. Station 612 time-series plots of measured chlorophytes counts against ANN one-week ahead predicted values using all variable inputs excluding Pompton river extractions

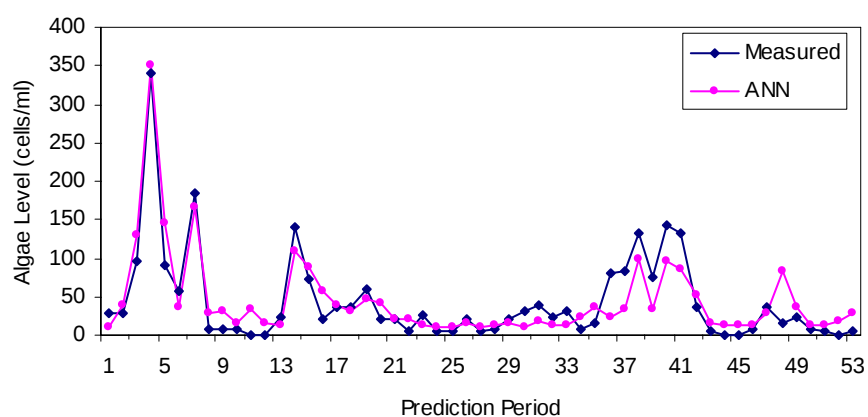


Figure 3.50. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs

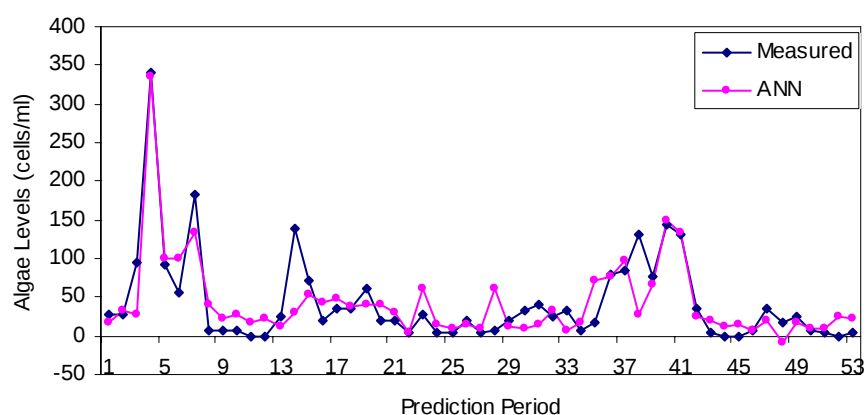


Figure 3.51. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding UV254

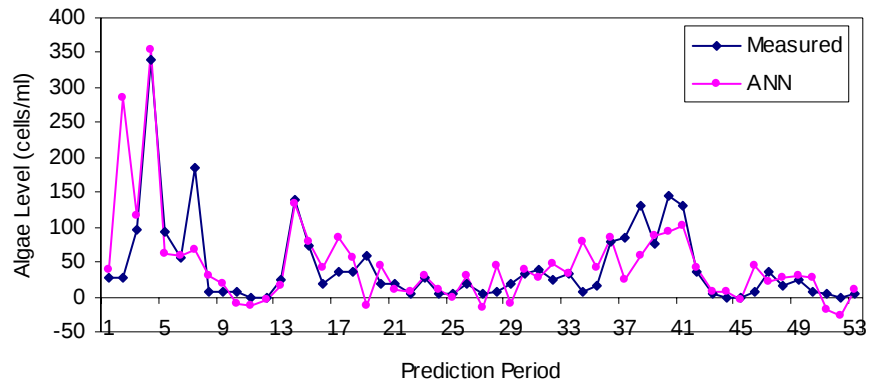


Figure 3.52. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding current week's precipitation

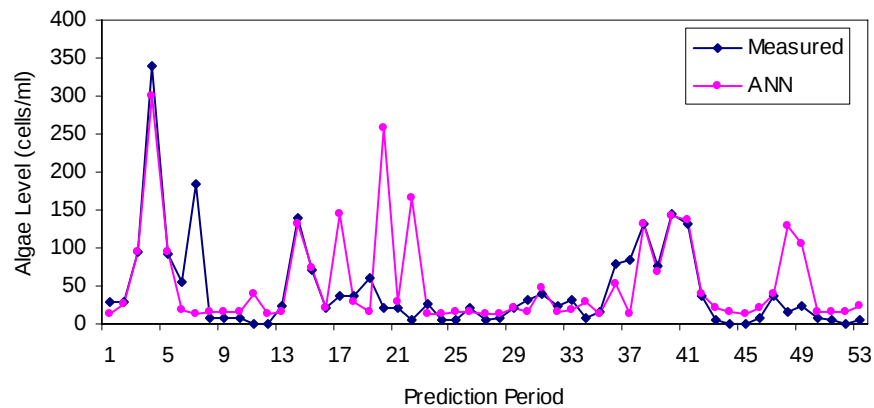


Figure 3.53. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding wind direction

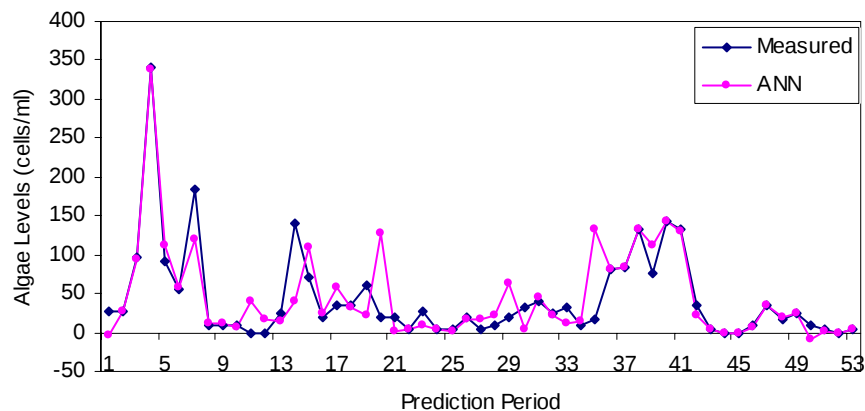


Figure 3.54. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding color

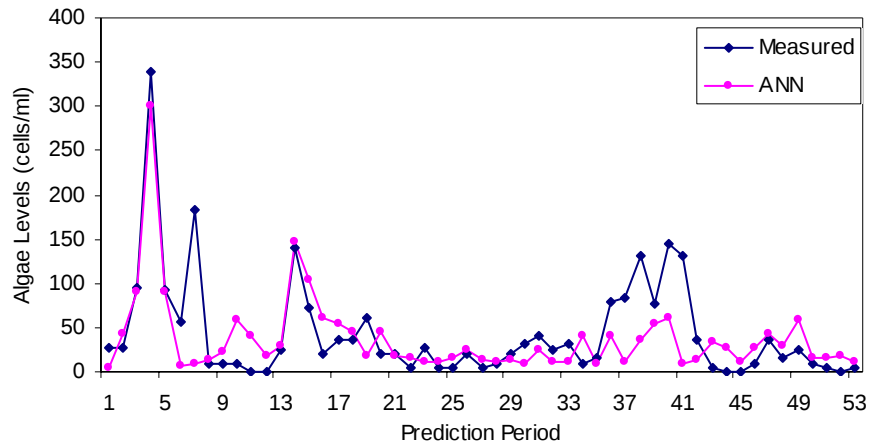


Figure 3.55. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total organic carbon (TOC)

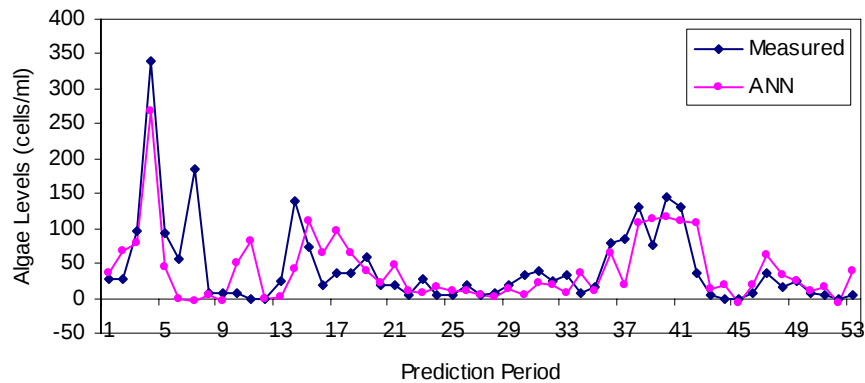


Figure 3.56. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding odor

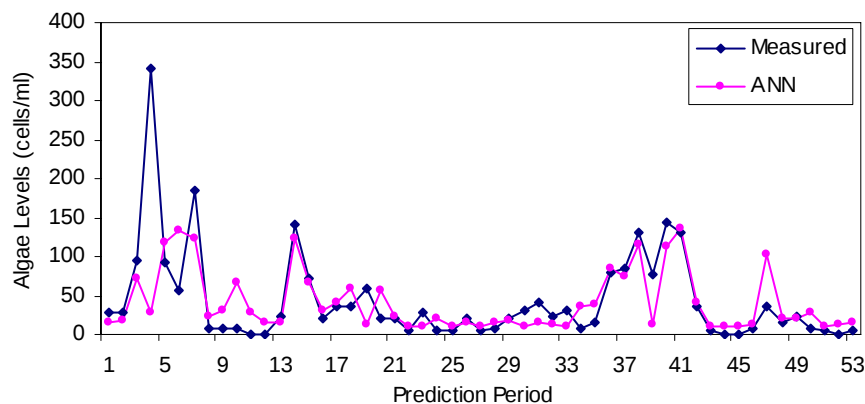


Figure 3.57. Station 612 time-series plots of measured chlorophytes counts against ANN two-week ahead predicted values using all variable inputs excluding total amorphous materials

4. ANN AND LINEAR MODELS

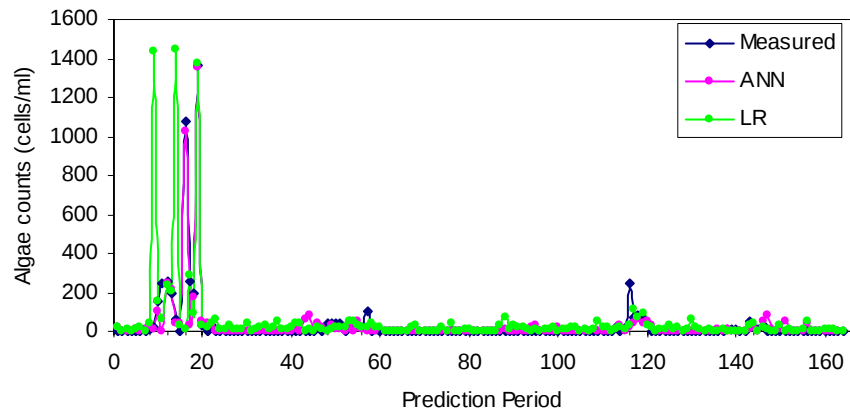


Figure 4.1. Comparison of ANN and LM performance for real-time predictions of cynophyta at Station 100

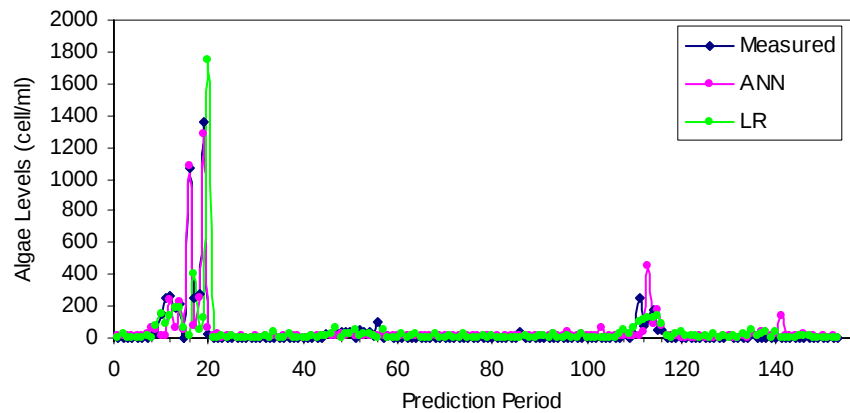


Figure 4.2. Comparison of ANN and LM performance for one-week ahead predictions of cynophyta at Station 100

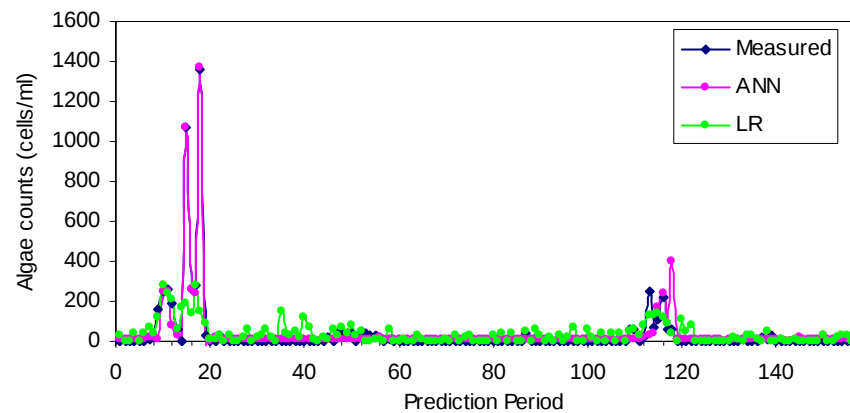


Figure 4.3. Comparison of ANN and LM performance for two-week ahead predictions of cynophyta at Station 100

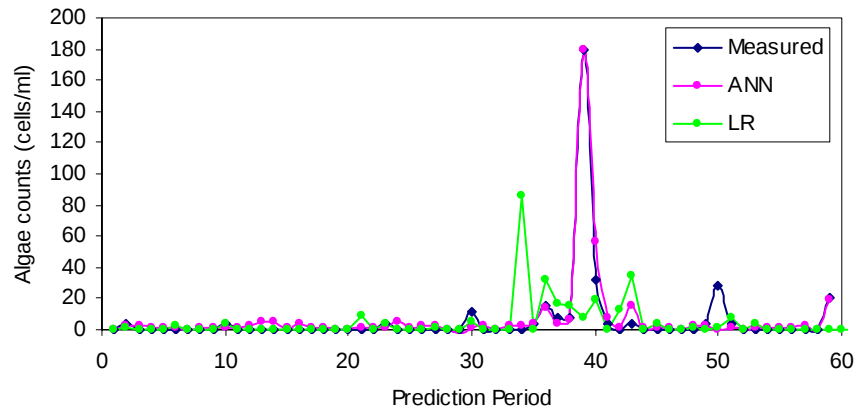


Figure 4.4. Comparison of ANN and LM performance for real-time predictions of cynophyta 101

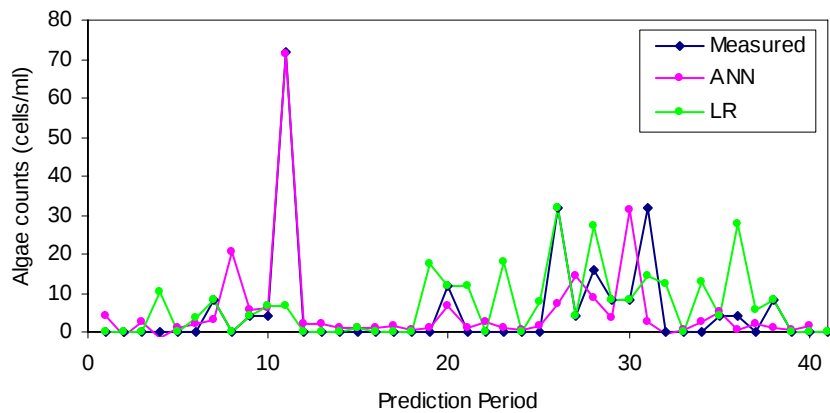


Figure 4.5. Comparison of ANN and LM performance for one-week ahead predictions of cynophyta at Station 101

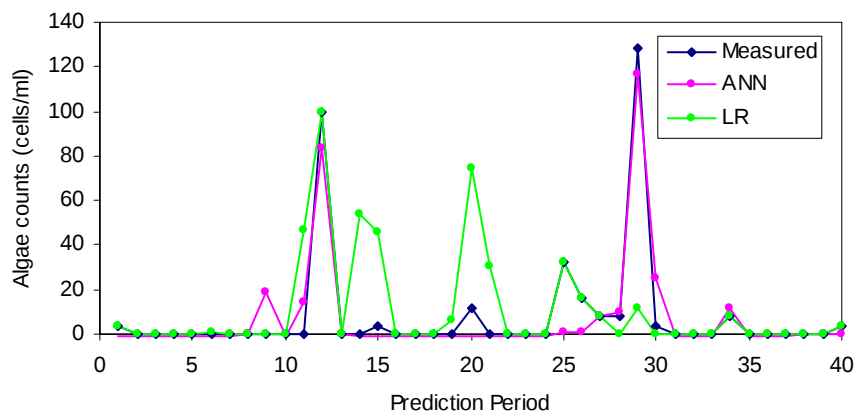


Figure 4.6. Comparison of ANN and LM performance for two-week ahead predictions of cynophyta at Station 101

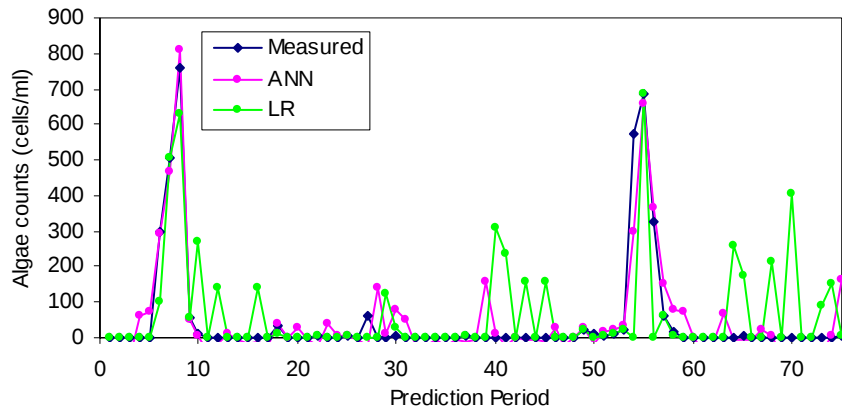


Figure 4.7. Comparison of ANN and LM performance for real-time predictions of cynophyta 612

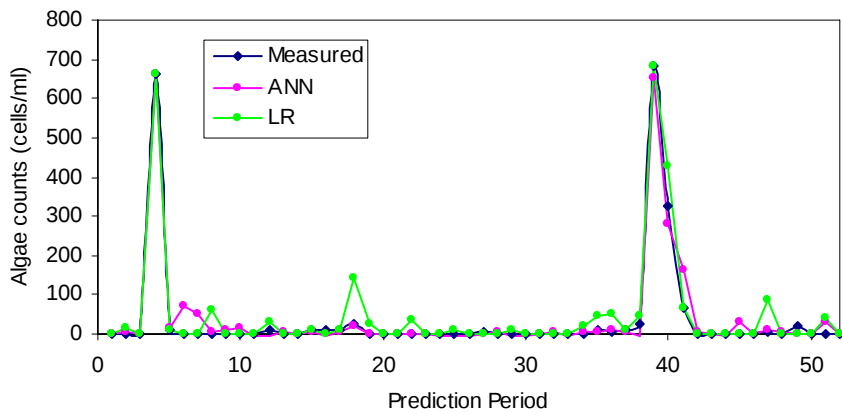


Figure 4.8. Comparison of ANN and LM performance for one-week ahead predictions of cynophyta at Station 612

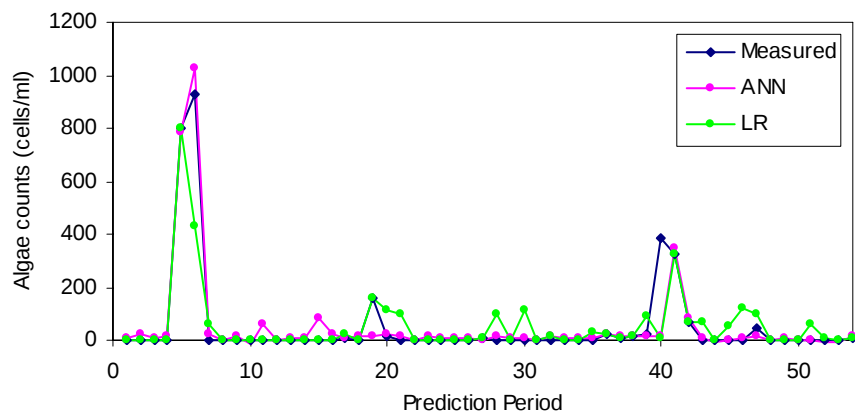


Figure 4.9. Comparison of ANN and LM performance for two-week ahead predictions of cynophyta at Station 612

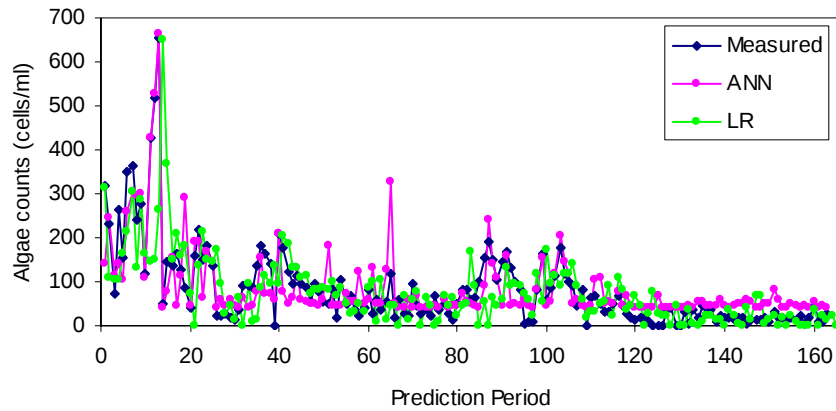


Figure 4.10. Comparison of ANN and LM performance for real-time predictions of chrysophyta at Station 100

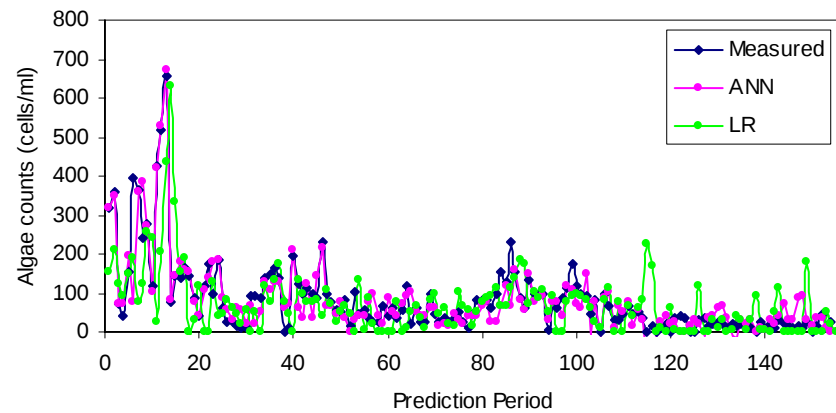


Figure 4.11. Comparison of ANN and LM performance for one-week ahead predictions of chrysophyta at Station 100

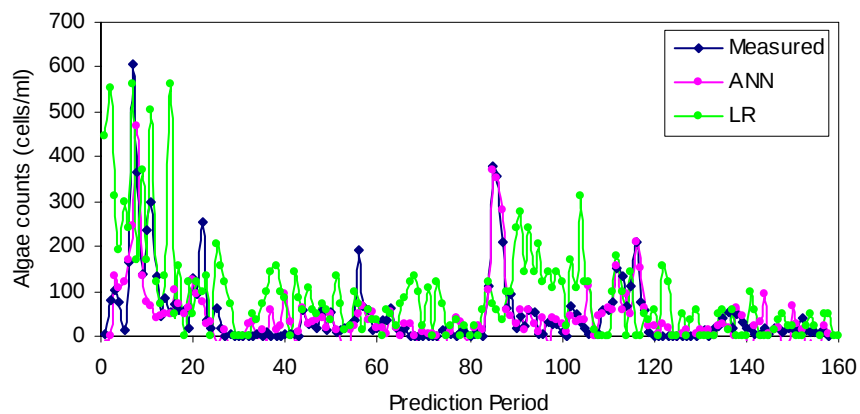


Figure 4.12. Comparison of ANN and LM performance for two-week ahead predictions of chrysophyta at Station 100

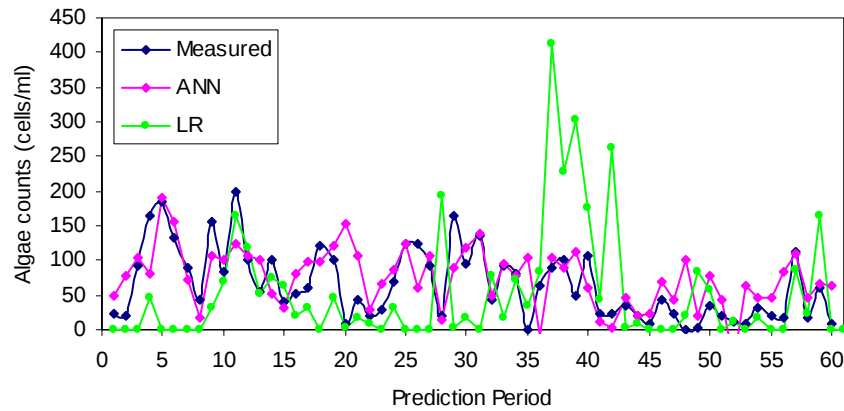


Figure 4.13. Comparison of ANN and LM performance for real-time predictions of chrysophyta at Station 101

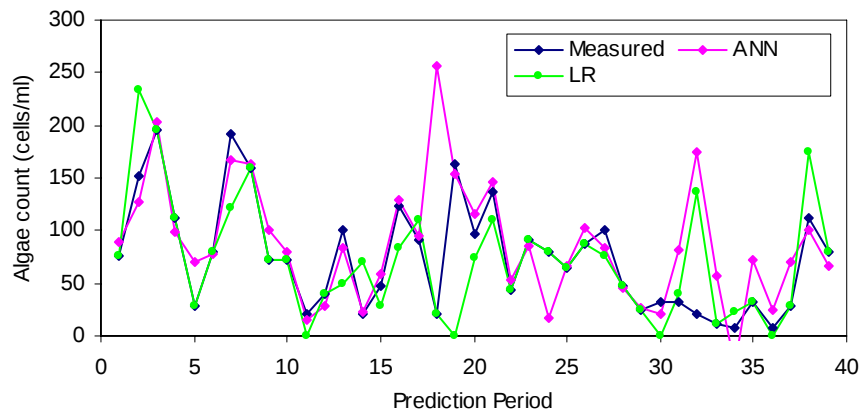


Figure 4.14. Comparison of ANN and LM performance for one-week ahead predictions of chrysophyta at Station 101

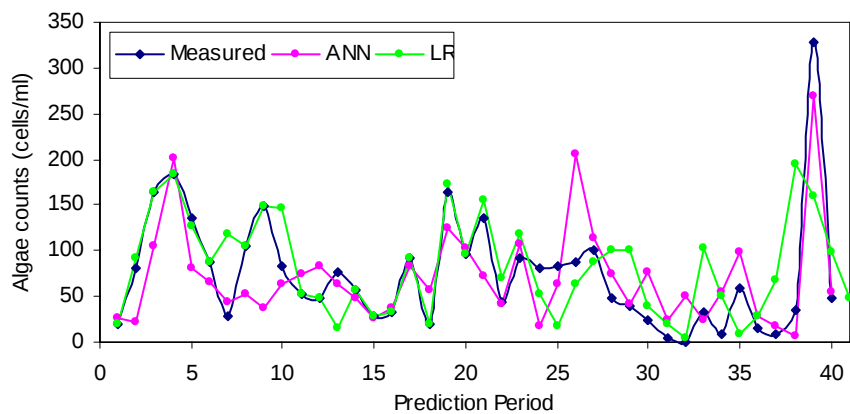


Figure 4.15. Comparison of ANN and LM performance for two-week ahead predictions of chrysophyta at Station 101

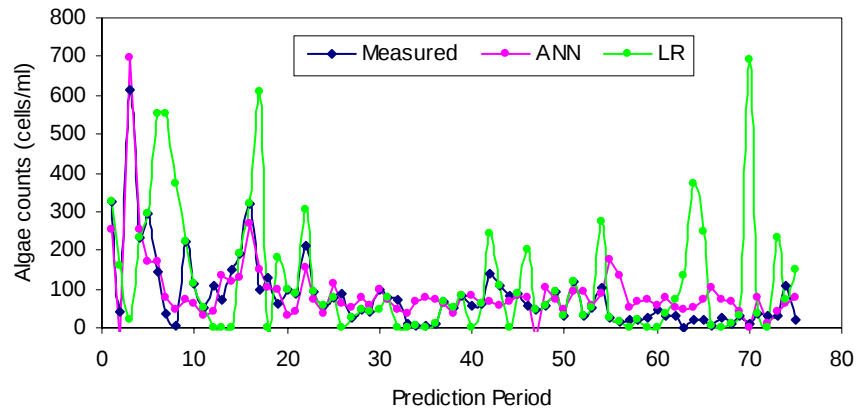


Figure 4.16. Comparison of ANN and LM performance for real-time predictions of chrysophyta 612

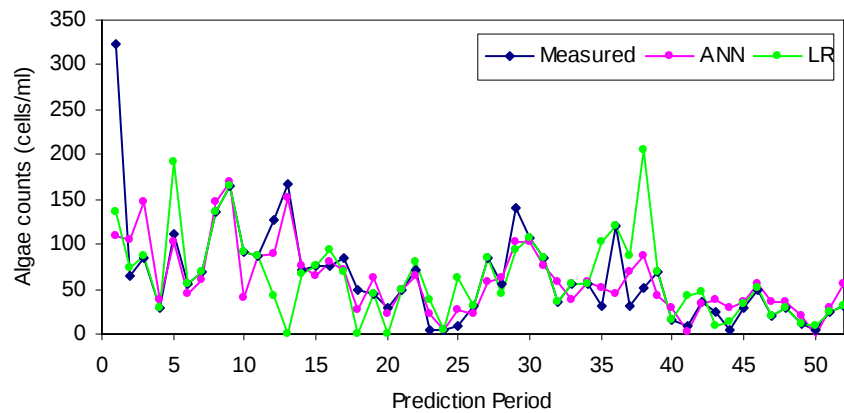


Figure 4.17. Comparison of ANN and LM performance for one-week ahead predictions of chrysophyta at Station 612

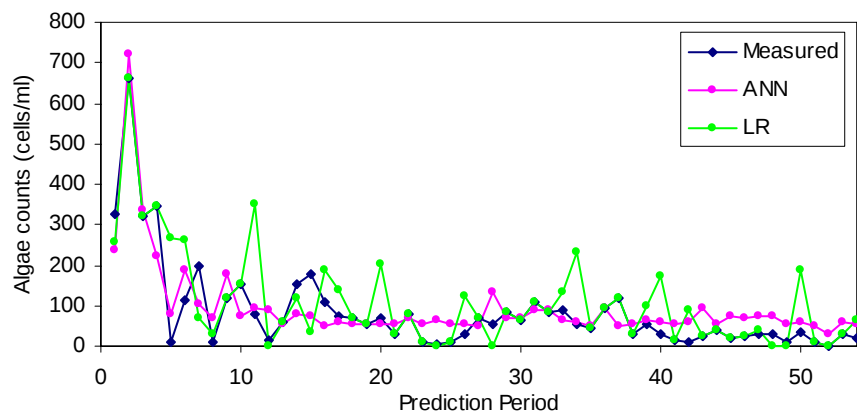


Figure 4.18. Comparison of ANN and LM performance for two-week ahead predictions of chrysophyta at Station 612

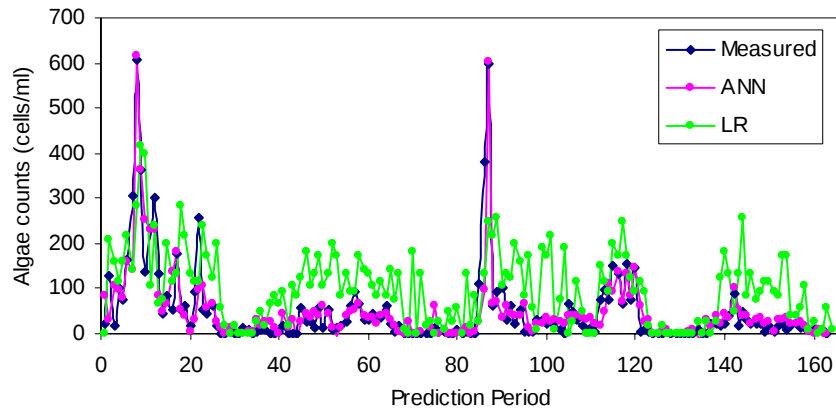


Figure 4.19. Comparison of ANN and LM performance for real-time predictions of chlorophyta at Station 100

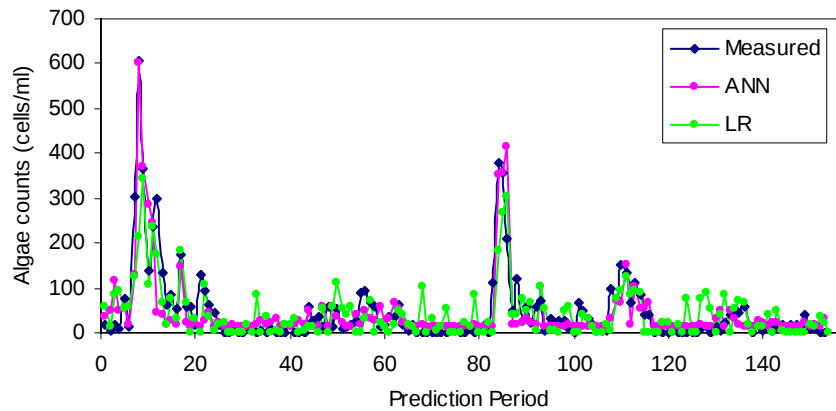


Figure 4.20. Comparison of ANN and LM performance for one-week ahead predictions of chlorophyta at Station 100

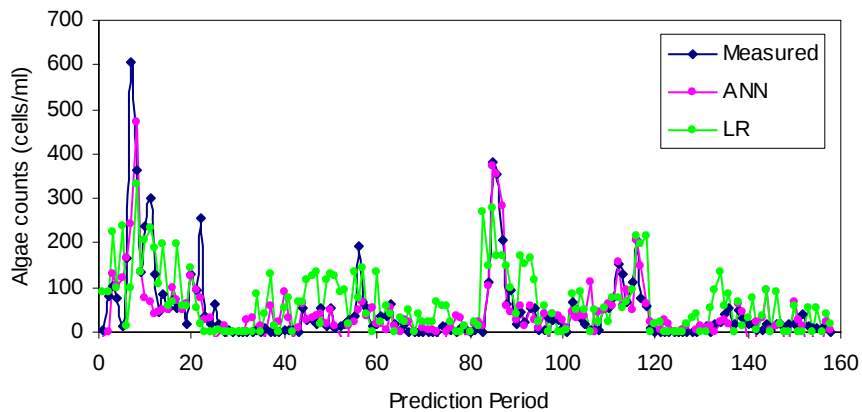


Figure 4.21. Comparison of ANN and LM performance for two-week ahead predictions of chlorophyta at Station 100

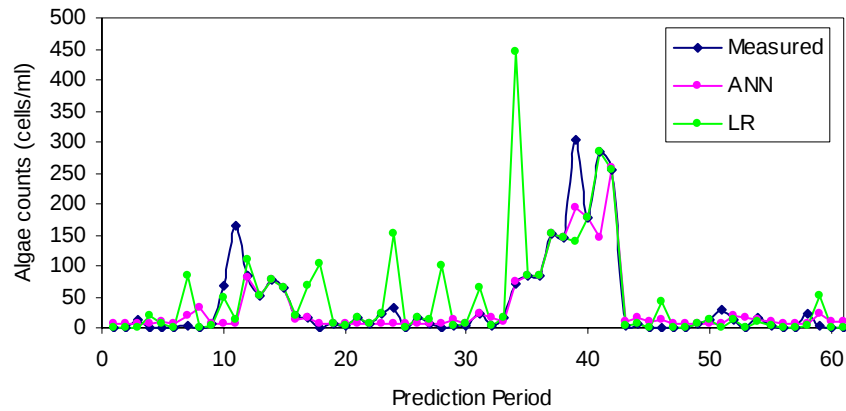


Figure 4.22. Comparison of ANN and LM performance for real-time predictions of chlorophyta at Station 101

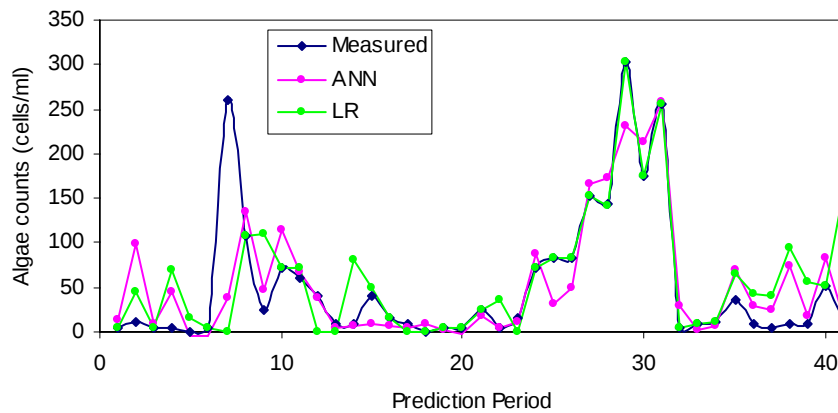


Figure 4.23. Comparison of ANN and LM performance for one-week ahead predictions of chlorophyta at Station 101

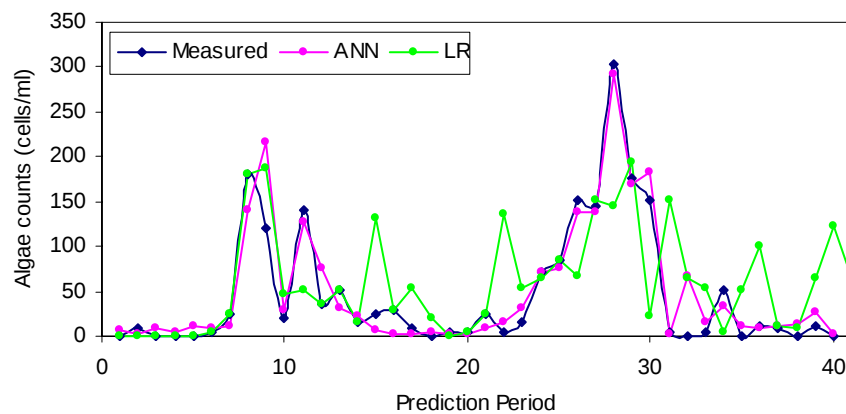


Figure 4.24. Comparison of ANN and LM performance for two-week ahead predictions of chlorophyta at Station 101

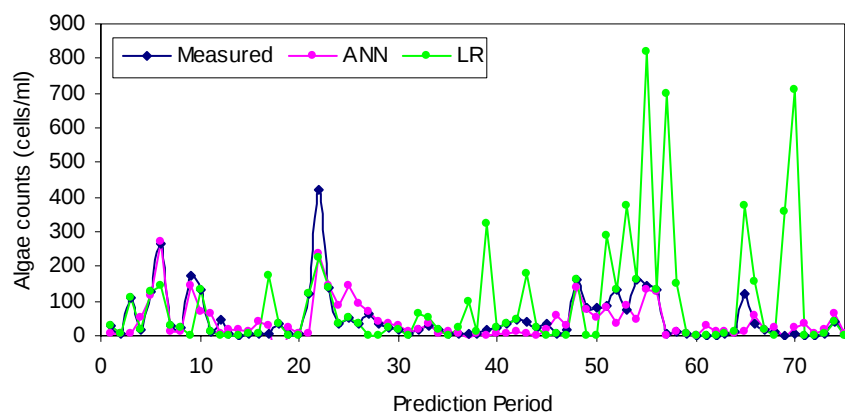


Figure 4.25. Comparison of ANN and LM performance for real-time predictions of chlorophyta 612

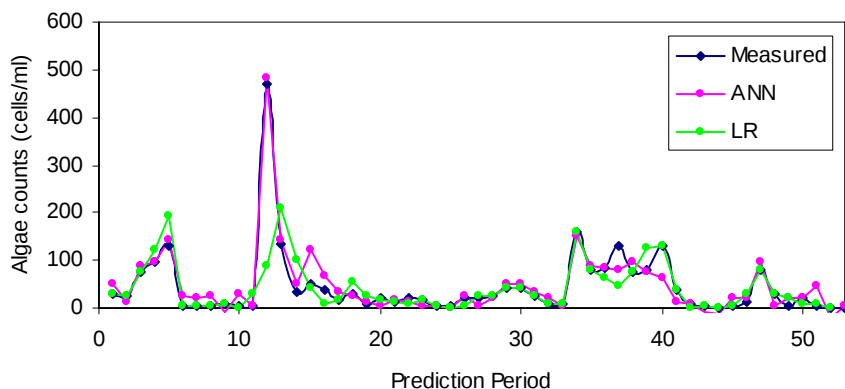


Figure 4.26. Comparison of ANN and LM performance for one-week ahead predictions of chlorophyta at Station 612

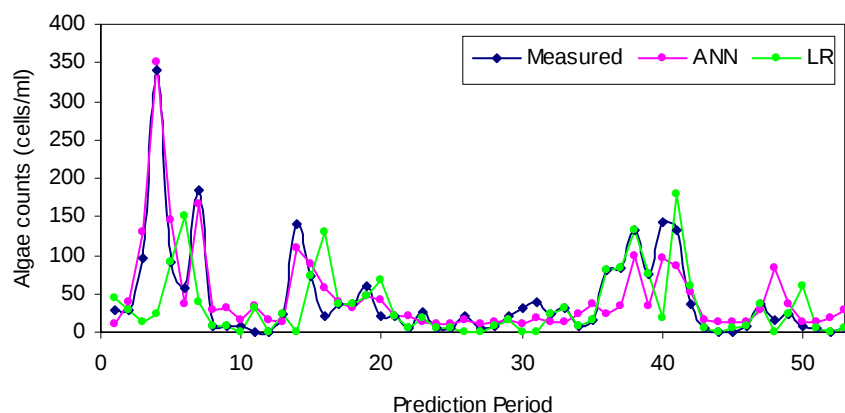


Figure 4.27. Comparison of ANN and LM performance for two-week ahead predictions of chlorophyta at Station 612

**PVWC (INITIAL) ORIGINAL MODELING
Descriptive Statistics**

Table 1.1. Station 100 Cyanobacteria real-time prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	30.8049	43.2683	14.3415	22.3415	0.0000
Data S.D.	140.9585	190.6406	44.1724	64.6912	0.0000
Error Mean	-5.2411	-1.4556	-1.0608	-16.9926	0.0000
Error S.D.	36.2954	15.4255	25.1513	63.0612	0.0000
Abs E. Mean	15.0101	9.4369	14.4890	26.6774	0.0000
S.D. Ratio	0.2575	0.0809	0.5694	0.9748	0.0000
Correlation	0.9663	0.9969	0.8278	0.2262	0.0000

Dissolved Oxygen

	Overall	Training	Selection	Test	Ignored
Data Mean	30.9939	24.7711	55.2000	19.7000	0.0000
Data S.D.	141.3695	121.1184	217.1768	55.1463	0.0000
Error Mean	-2.7977	1.1349	-8.0891	-5.6664	0.0000
Error S.D.	53.2336	53.2098	56.4765	49.1422	0.0000
Abs E. Mean	23.0986	21.7209	25.5909	23.4651	0.0000
S.D. Ratio	0.3766	0.4393	0.2600	0.8911	0.0000
Correlation	0.9264	0.8997	0.9660	0.4538	0.0000

Total Suspended Solids

	Overall	Training	Selection	Test	Ignored
Data Mean	30.9939	42.0723	22.2000	16.8000	0.0000
Data S.D.	141.3695	190.3953	61.5399	43.5908	0.0000
Error Mean	3.1258	-0.3695	2.5914	10.9131	0.0000
Error S.D.	80.7604	103.5839	33.4427	55.7625	0.0000
Abs E. Mean	28.4746	32.2353	18.7758	30.3699	0.0000
S.D. Ratio	0.5713	0.5440	0.5434	1.2792	0.0000
Correlation	0.8216	0.8392	0.8442	0.2629	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	30.9939	48.8675	11.6000	13.3000	0.0000
Data S.D.	141.3695	192.2820	41.0249	41.0793	0.0000
Error Mean	1.0812	-0.8989	6.5687	-0.2975	0.0000
Error S.D.	37.3378	41.5170	19.4465	41.0622	0.0000
Abs E. Mean	19.3423	20.7306	16.3231	19.4806	0.0000
S.D. Ratio	0.2641	0.2159	0.4740	0.9996	0.0000
Correlation	0.9647	0.9766	0.8823	0.2627	0.0000

pH

	Overall	Training	Selection	Test	Ignored
Data Mean	30.9939	48.5783	20.4000	5.1000	0.0000
Data S.D.	141.3695	191.5619	57.0600	24.8191	0.0000
Error Mean	-0.0604	-2.8898	-0.5409	6.2909	0.0000
Error S.D.	37.3376	40.6135	39.6462	25.0864	0.0000
Abs E. Mean	18.2182	20.7787	16.4459	14.6776	0.0000
S.D. Ratio	0.2641	0.2120	0.6948	1.0108	0.0000
Correlation	0.9645	0.9773	0.7193	0.0316	0.0000

Conductivity

	Overall	Training	Selection	Test	Ignored
Data Mean	30.9939	43.0843	17.1000	19.8000	0.0000
Data S.D.	141.3695	191.5440	50.1357	46.6386	0.0000
Error Mean	-3.5551	-0.2989	-3.1614	-10.7055	0.0000
Error S.D.	36.9936	30.5400	35.6780	47.9082	0.0000
Abs E. Mean	16.8260	14.8965	14.7847	22.8710	0.0000
S.D. Ratio	0.2617	0.1594	0.7116	1.0272	0.0000
Correlation	0.9652	0.9873	0.7189	-0.0237	0.0000

Table 1.2. Station 100 Cyanobacteria one-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	35.3987	57.0909	4.3158	22.5263	0.0000
Data S.D.	147.7265	202.8920	13.3734	46.7866	0.0000
Error Mean	2.8397	-5.0062	9.5798	11.9977	0.0000
Error S.D.	50.2739	47.8924	14.5439	71.1555	0.0000
Abs E. Mean	22.5577	20.9680	12.8323	35.5042	0.0000
S.D. Ratio	0.3403	0.2360	1.0875	1.5209	0.0000
Correlation	0.9406	0.9721	0.4277	0.4501	0.0000

Wind Direction

	Overall	Training	Selection	Test	Ignored
Data Mean	35.3987	42.2857	51.3684	5.4737	0.0000
Data S.D.	147.7265	134.2058	223.1196	18.4772	0.0000
Error Mean	2.3903	3.4805	-2.2141	4.7854	0.0000
Error S.D.	40.3738	45.3101	43.8810	21.1689	0.0000
Abs E. Mean	20.4058	23.9482	21.1242	12.5093	0.0000
S.D. Ratio	0.2733	0.3376	0.1967	1.1457	0.0000
Correlation	0.9619	0.9455	0.9825	0.0517	0.0000

Total Suspended Solids (TSS)

	Overall	Training	Selection	Test	Ignored
Data Mean	35.3987	26.1299	76.9474	12.6316	0.0000
Data S.D.	147.7265	125.0099	227.7236	43.8613	0.0000
Error Mean	-2.6729	1.2074	-16.0458	2.8376	0.0000
Error S.D.	53.2249	35.2656	82.6977	42.5141	0.0000
Abs E. Mean	28.2330	20.4630	49.2627	22.9477	0.0000
S.D. Ratio	0.3603	0.2821	0.3631	0.9693	0.0000
Correlation	0.9329	0.9598	0.9319	0.2637	0.0000

Point View Reservoir extractions

	Overall	Training	Selection	Test	Ignored
Data Mean	35.3987	48.9351	17.3684	26.0000	0.0000
Data S.D.	147.7265	198.5892	56.8305	62.7627	0.0000
Error Mean	2.9118	-1.8807	4.9938	10.5407	0.0000
Error S.D.	54.5845	46.0908	41.3797	76.6179	0.0000
Abs E. Mean	27.9003	25.2276	22.4538	38.7626	0.0000
S.D. Ratio	0.3695	0.2321	0.7281	1.2208	0.0000
Correlation	0.9299	0.9729	0.6881	0.5296	0.0000

Pompton river extractions

	Overall	Training	Selection	Test	Ignored
Data Mean	35.3987	48.7792	24.3158	19.3684	0.0000
Data S.D.	147.7265	198.7651	58.2364	60.6458	0.0000
Error Mean	-0.0930	3.5900	-3.8351	-3.8136	0.0000
Error S.D.	46.2659	29.8340	44.1997	69.3251	0.0000
Abs E. Mean	23.1426	19.1068	21.9736	32.4892	0.0000
S.D. Ratio	0.3132	0.1501	0.7590	1.1431	0.0000
Correlation	0.9506	0.9908	0.6513	0.0781	0.0000

Conductivity

	Overall	Training	Selection	Test	Ignored
Data Mean	35.3987	55.8961	18.6316	10.6316	0.0000
Data S.D.	147.7265	202.3272	50.9636	23.9522	0.0000
Error Mean	4.7113	-0.2957	1.5922	17.9763	0.0000
Error S.D.	47.3344	33.9298	25.6343	76.1234	0.0000
Abs E. Mean	24.2607	21.5504	18.2383	35.7750	0.0000
S.D. Ratio	0.3204	0.1677	0.5030	3.1781	0.0000
Correlation	0.9495	0.9859	0.8688	0.5409	0.0000

**Table 1.3. Station 100 Cyanobacteria two-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	34.1519	52.9500	17.4359	12.3077	0.0000
Data S.D.	144.9949	198.2365	44.2602	33.4834	0.0000
Error Mean	0.4918	0.0567	-4.2156	6.0917	0.0000
Error S.D.	39.3925	20.5181	39.4083	61.7752	0.0000
Abs E. Mean	15.4884	10.8503	17.4121	23.0785	0.0000
S.D. Ratio	0.2717	0.1035	0.8904	1.8450	0.0000
Correlation	0.9635	0.9946	0.4713	0.3993	0.0000

Nitrite/Nitrate

	Overall	Training	Selection	Test	Ignored
Data Mean	34.3694	37.1646	55.0769	8.0000	0.0000
Data S.D.	145.4302	160.2645	177.9230	17.8196	0.0000
Error Mean	-8.2052	0.5455	-33.4653	-0.6706	0.0000
Error S.D.	54.0639	14.0452	100.5277	20.2778	0.0000
Abs E. Mean	17.0314	9.4543	38.0793	11.3322	0.0000
S.D. Ratio	0.3718	0.0876	0.5650	1.1380	0.0000
Correlation	0.9340	0.9962	0.9690	0.3371	0.0000

Sulfate

	Overall	Training	Selection	Test	Ignored
Data Mean	34.3694	29.8734	66.0513	11.7949	0.0000
Data S.D.	145.4302	127.0915	221.7966	40.9322	0.0000
Error Mean	-6.6985	0.0760	-9.3822	-17.7373	0.0000
Error S.D.	84.7236	30.0655	139.6979	85.6028	0.0000
Abs E. Mean	36.2144	15.5827	65.8222	48.3988	0.0000
S.D. Ratio	0.5826	0.2366	0.6298	2.0913	0.0000
Correlation	0.8128	0.9717	0.8207	0.2144	0.0000

UV254

	Overall	Training	Selection	Test	Ignored
Data Mean	34.3694	43.4430	34.4615	15.8974	0.0000
Data S.D.	145.4302	193.9435	76.6671	50.6328	0.0000
Error Mean	1.7922	-0.2277	0.1154	7.5605	0.0000
Error S.D.	34.7015	22.1206	49.5889	36.7840	0.0000
Abs E. Mean	15.5638	12.0900	22.0381	16.1262	0.0000
S.D. Ratio	0.2386	0.1141	0.6468	0.7265	0.0000
Correlation	0.9712	0.9935	0.7813	0.7473	0.0000

Total Hardness

	Overall	Training	Selection	Test	Ignored
Data Mean	34.3694	55.7975	13.0256	12.3077	0.0000
Data S.D.	145.4302	199.5000	31.6872	40.5540	0.0000
Error Mean	3.0688	-0.8548	6.9189	7.1664	0.0000
Error S.D.	38.5788	45.9555	26.4207	30.8647	0.0000
Abs E. Mean	22.2787	25.1518	19.1012	19.6363	0.0000
S.D. Ratio	0.2653	0.2304	0.8338	0.7611	0.0000
Correlation	0.9642	0.9731	0.5798	0.7152	0.0000

Pompton streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	34.3694	55.4430	10.9744	15.0769	0.0000
Data S.D.	145.4302	199.0242	40.1200	38.4250	0.0000
Error Mean	3.1206	-0.7622	2.2304	11.8758	0.0000
Error S.D.	42.0770	39.5844	26.0976	56.2511	0.0000
Abs E. Mean	21.1968	22.0534	13.6955	26.9628	0.0000
S.D. Ratio	0.2893	0.1989	0.6505	1.4639	0.0000
Correlation	0.9574	0.9800	0.7777	0.2590	0.0000

Table 1.4. Station 100 Chrysophyta real-time prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test
Data Mean	64.8000	63.2000	67.2000	65.6000
Data S.D.	50.3841	52.4229	42.5131	53.2826
Error Mean	3.6557	4.9346	-4.8659	9.6195
Error S.D.	46.7237	45.1607	35.3006	57.4095
Abs E. Mean	37.9294	35.9151	31.7894	48.0979
S.D. Ratio	0.9274	0.8615	0.8303	1.0775
Correlation	0.3895	0.5085	0.5577	-0.1214

Total Hardness

	Overall	Training	Selection	Test
Data Mean	65.1148	62.0645	57.3333	79.2000
Data S.D.	50.0289	48.3948	54.8776	45.2595
Error Mean	-4.5113	-5.7449	1.7005	-8.1735
Error S.D.	42.0202	27.4280	37.9699	64.2566
Abs E. Mean	32.3079	20.3698	29.3889	59.8990
S.D. Ratio	0.8399	0.5668	0.6919	1.4197
Correlation	0.6096	0.8241	0.7392	-0.0245

Initial Chrysophyta Level

	Overall	Training	Selection	Test
Data Mean	65.1148	70.0645	59.2000	60.8000
Data S.D.	50.0289	56.7768	41.7280	40.8757
Error Mean	-0.0289	-9.8078	0.6521	19.5000
Error S.D.	36.5532	20.1248	26.3320	57.6521
Abs E. Mean	25.4176	16.7660	19.7815	48.9338
S.D. Ratio	0.7306	0.3545	0.6310	1.4104
Correlation	0.7323	0.9360	0.7909	0.2879

Nitrite/Nitrate

	Overall	Training	Selection	Test
Data Mean	64.8000	70.0000	50.4000	68.8000
Data S.D.	50.3841	50.3190	50.4021	47.6700
Error Mean	5.8804	3.9776	4.2128	11.3536
Error S.D.	47.3924	25.6178	46.8696	73.7215
Abs E. Mean	34.9030	20.8512	38.8955	59.0140
S.D. Ratio	0.9406	0.5091	0.9299	1.5465
Correlation	0.4753	0.8641	0.4422	-0.2981

Total Amorphous Materials

	Overall	Training	Selection	Test
Data Mean	64.8000	69.8667	50.6667	68.8000
Data S.D.	50.3841	51.0031	38.1063	56.8544
Error Mean	-3.5385	-7.6505	8.0487	-6.9016
Error S.D.	46.7331	32.2720	39.3492	70.1798
Abs E. Mean	35.8692	25.9508	36.4225	55.1527
S.D. Ratio	0.9275	0.6327	1.0326	1.2344
Correlation	0.4119	0.7861	0.2051	-0.2532

Flow from Jackson Ave Pumping Station

	Overall	Training	Selection	Test
Data Mean	64.8000	73.4667	66.4000	45.8667
Data S.D.	50.3841	56.4976	45.3208	34.7138
Error Mean	2.4564	-4.9594	-0.8803	20.6248
Error S.D.	37.7578	25.3921	30.7232	54.9359
Abs E. Mean	28.3943	19.4124	24.4657	50.2867
S.D. Ratio	0.7494	0.4494	0.6779	1.5825
Correlation	0.6937	0.8976	0.7510	0.1622

Pompton streamflow (from USGS)

	Overall	Training	Selection	Test
Data Mean	64.8000	68.2667	53.8667	68.8000
Data S.D.	50.3841	45.9789	59.3811	47.3331
Error Mean	15.7180	5.1207	8.7155	43.9151
Error S.D.	55.4648	16.8947	43.3941	93.7163
Abs E. Mean	35.9094	14.1654	36.9337	78.3730
S.D. Ratio	1.1008	0.3674	0.7308	1.9799
Correlation	0.5016	0.9303	0.7241	-0.0803

Table 1.5. Station 100 Chrysophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	90.9487	62.3421	83.6842	0.0000
Data S.D.	97.2699	99.7102	105.7202	78.7769	0.0000
Error Mean	-3.2509	-1.5680	1.3756	-11.3317	0.0000
Error S.D.	44.9296	22.8360	34.6979	76.2499	0.0000
Abs E. Mean	28.6428	17.1061	28.9044	52.0617	0.0000
S.D. Ratio	0.4619	0.2290	0.3282	0.9679	0.0000
Correlation	0.8918	0.9734	0.9480	0.5115	0.0000

Wind Speed

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	77.0897	69.7368	104.7368	0.0000
Data S.D.	97.2699	88.5994	73.3616	127.0122	0.0000
Error Mean	-6.9635	-4.7518	1.7726	-20.2394	0.0000
Error S.D.	68.2829	38.9103	53.7970	112.3884	0.0000
Abs E. Mean	41.9655	28.7009	37.7528	73.4056	0.0000
S.D. Ratio	0.7020	0.4392	0.7333	0.8849	0.0000
Correlation	0.7147	0.8984	0.6909	0.4865	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	88.6282	71.0526	79.7368	0.0000
Data S.D.	97.2699	104.2958	85.9985	91.6793	0.0000
Error Mean	-3.3314	4.0926	-8.1008	-13.8007	0.0000
Error S.D.	61.8868	61.5279	33.0838	80.0677	0.0000
Abs E. Mean	40.2746	41.5329	27.1355	50.8308	0.0000
S.D. Ratio	0.6362	0.5899	0.3847	0.8733	0.0000
Correlation	0.7715	0.8103	0.9244	0.4990	0.0000

Sky Cover

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	87.2436	83.2632	70.3684	0.0000
Data S.D.	97.2699	110.1221	88.8990	73.1802	0.0000
Error Mean	4.0759	0.3996	-2.9842	18.6823	0.0000
Error S.D.	61.9603	58.3171	56.0610	71.7205	0.0000
Abs E. Mean	42.9695	41.0196	36.6129	53.3286	0.0000
S.D. Ratio	0.6370	0.5296	0.6306	0.9801	0.0000
Correlation	0.7739	0.8484	0.7763	0.4937	0.0000

Initial Chrysophyta Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	90.3333	74.1842	73.1053	0.0000
Data S.D.	97.2699	113.7336	79.9730	71.5111	0.0000
Error Mean	3.0249	0.0082	13.2667	-1.0249	0.0000
Error S.D.	63.9288	61.3918	66.6541	65.1432	0.0000
Abs E. Mean	45.7157	43.0401	50.1270	46.7965	0.0000
S.D. Ratio	0.6572	0.5398	0.8335	0.9110	0.0000
Correlation	0.7567	0.8437	0.5556	0.4440	0.0000

current week Precipitation

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	82.4231	88.9474	74.5789	0.0000
Data S.D.	97.2699	98.0849	113.4806	74.9300	0.0000
Error Mean	-1.8838	-5.6682	2.3909	1.6097	0.0000
Error S.D.	60.7576	56.0250	53.8952	74.5176	0.0000
Abs E. Mean	43.7427	39.3184	41.1841	55.3826	0.0000
S.D. Ratio	0.6246	0.5712	0.4749	0.9945	0.0000
Correlation	0.7863	0.8209	0.8877	0.3597	0.0000

Total Hardness

	Overall	Training	Selection	Test	Ignored
Data Mean	82.0974	81.3974	87.7368	77.8947	0.0000
Data S.D.	97.2699	97.9239	110.1694	80.4552	0.0000
Error Mean	-2.9816	-1.0031	4.1711	-14.1956	0.0000
Error S.D.	62.3756	38.4226	73.7072	84.3781	0.0000
Abs E. Mean	42.7348	30.4564	51.4829	59.1900	0.0000
S.D. Ratio	0.6413	0.3924	0.6690	1.0488	0.0000
Correlation	0.7930	0.9227	0.7682	0.4565	0.0000

Table 1.6. Station 100 Chrysophyta two-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	88.7215	102.6750	80.9231	67.8974	0.0000
Data S.D.	113.0870	138.8088	90.2848	56.9335	0.0000
Error Mean	0.8378	1.7151	-8.0414	7.9173	0.0000
Error S.D.	60.4706	67.0429	41.7679	60.9853	0.0000
Abs E. Mean	42.8754	45.2890	33.9301	46.8699	0.0000
S.D. Ratio	0.5347	0.4830	0.4626	1.0712	0.0000
Correlation	0.8470	0.8758	0.8866	0.4618	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	88.7215	83.1000	124.6667	64.3077	0.0000
Data S.D.	113.0870	113.3596	141.5593	58.8114	0.0000
Error Mean	-6.9045	1.8873	-32.2851	0.4416	0.0000
Error S.D.	72.9442	44.3924	106.1018	73.4817	0.0000
Abs E. Mean	47.9659	31.2105	75.4818	54.8201	0.0000
S.D. Ratio	0.6450	0.3916	0.7495	1.2494	0.0000
Correlation	0.7645	0.9201	0.6711	0.1608	0.0000

Heating Degree Days

	Overall	Training	Selection	Test	Ignored
Data Mean	88.7215	107.7750	72.0000	66.3590	0.0000
Data S.D.	113.0870	133.9664	72.0456	91.0011	0.0000
Error Mean	-1.6666	-1.4491	-4.2269	0.4475	0.0000
Error S.D.	78.6075	87.5626	55.6216	78.7461	0.0000
Abs E. Mean	52.0436	57.0099	42.2350	51.6649	0.0000
S.D. Ratio	0.6951	0.6536	0.7720	0.8653	0.0000
Correlation	0.7198	0.7580	0.6830	0.5418	0.0000

Passaic streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	88.7215	98.7250	76.6154	80.3077	0.0000
Data S.D.	113.0870	119.4220	83.3333	123.2430	0.0000
Error Mean	2.9764	-0.5649	6.7224	6.4948	0.0000
Error S.D.	86.0001	84.7789	68.7729	102.1663	0.0000
Abs E. Mean	53.9514	50.0241	52.6163	63.3425	0.0000
S.D. Ratio	0.7605	0.7099	0.8253	0.8290	0.0000
Correlation	0.6501	0.7069	0.5821	0.5622	0.0000

Initial Chrysophyta Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	90.6625	67.8000	113.9500	113.1000	0.0000
Data S.D.	114.4833	70.3673	118.8995	162.1555	0.0000
Error Mean	-15.0450	0.9554	-24.0241	-38.0665	0.0000
Error S.D.	92.7843	25.8343	72.7429	163.3606	0.0000
Abs E. Mean	46.3406	20.6837	56.8764	87.1186	0.0000
S.D. Ratio	0.8105	0.3671	0.6118	1.0074	0.0000
Correlation	0.5899	0.9304	0.7923	0.2143	0.0000

Sky Cover

	Overall	Training	Selection	Test	Ignored
Data Mean	88.7215	88.9750	91.8974	85.0256	0.0000
Data S.D.	113.0870	118.0402	136.3630	67.8987	0.0000
Error Mean	7.5946	-0.1118	4.7532	26.2439	0.0000
Error S.D.	85.8650	17.6661	76.4764	151.3366	0.0000
Abs E. Mean	38.2118	13.9078	49.5192	76.7586	0.0000
S.D. Ratio	0.7593	0.1497	0.5608	2.2289	0.0000
Correlation	0.7375	0.9888	0.8302	0.1817	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	88.7215	90.9750	98.5641	74.2564	0.0000
Data S.D.	113.0870	91.1570	164.4571	86.0378	0.0000
Error Mean	-0.2177	-0.0131	-2.8613	2.0064	0.0000
Error S.D.	95.8973	4.0154	87.8924	171.7167	0.0000
Abs E. Mean	42.7556	2.9590	61.6873	105.4580	0.0000
S.D. Ratio	0.8480	0.0440	0.5344	1.9958	0.0000
Correlation	0.6685	0.9990	0.8543	0.2135	0.0000

**Table 1.7. Station 100 Chlorophyta real-time prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	48.5828	49.4217	45.6250	49.8000	0.0000
Data S.D.	89.9537	97.4249	83.4181	79.4239	0.0000
Error Mean	-0.5792	-0.2966	5.2505	-6.9952	0.0000
Error S.D.	39.1030	16.4139	37.7812	64.5683	0.0000
Abs E. Mean	20.7492	11.3348	24.2694	36.7638	0.0000
S.D. Ratio	0.4347	0.1685	0.4529	0.8130	0.0000
Correlation	0.9006	0.9858	0.8943	0.5833	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	48.5828	55.6145	38.3500	44.2250	0.0000
Data S.D.	89.9537	99.8020	53.8941	95.7850	0.0000
Error Mean	0.1248	0.3928	-1.9076	1.6014	0.0000
Error S.D.	57.5137	32.8315	29.3900	101.8456	0.0000
Abs E. Mean	26.5767	22.1663	17.4745	44.8304	0.0000
S.D. Ratio	0.6394	0.3290	0.5453	1.0633	0.0000
Correlation	0.7753	0.9444	0.8388	0.2758	0.0000

Initial Chlorophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	48.5828	51.5422	57.6750	33.3500	0.0000
Data S.D.	89.9537	97.2421	102.2835	50.5715	0.0000
Error Mean	6.3150	0.7216	-2.5500	26.7861	0.0000
Error S.D.	52.8662	28.8796	46.7847	83.1081	0.0000
Abs E. Mean	30.8767	21.0095	32.8738	49.3542	0.0000
S.D. Ratio	0.5877	0.2970	0.4574	1.6434	0.0000
Correlation	0.8297	0.9550	0.8897	0.2648	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	48.5828	45.0843	61.8250	42.6000	0.0000
Data S.D.	89.9537	89.3421	115.2922	53.6846	0.0000
Error Mean	-3.0006	0.3000	1.1937	-14.0438	0.0000
Error S.D.	47.8429	31.5432	67.7859	50.0579	0.0000
Abs E. Mean	31.8244	24.9038	44.2092	33.7999	0.0000
S.D. Ratio	0.5319	0.3531	0.5879	0.9324	0.0000
Correlation	0.8471	0.9362	0.8100	0.4190	0.0000

Total Hardness

	Overall	Training	Selection	Test	Ignored
Data Mean	48.5828	60.1928	37.1000	35.9750	0.0000
Data S.D.	89.9537	115.6112	41.3979	54.3592	0.0000
Error Mean	4.8251	-0.7545	4.0520	17.1758	0.0000
Error S.D.	52.0168	39.8375	37.6857	78.0698	0.0000
Abs E. Mean	32.7735	27.3862	26.2975	50.4281	0.0000
S.D. Ratio	0.5783	0.3446	0.9103	1.4362	0.0000
Correlation	0.8295	0.9388	0.4726	0.3471	0.0000

Biochemical Oxygen Demand

	Overall	Training	Selection	Test	Ignored
Data Mean	48.5828	51.3373	52.9500	38.5000	0.0000
Data S.D.	89.9537	86.7405	89.7396	95.7693	0.0000
Error Mean	-4.1358	2.0550	-14.4076	-6.7098	0.0000
Error S.D.	60.3392	38.7771	62.0664	87.5919	0.0000
Abs E. Mean	35.2551	29.5281	35.6151	46.7787	0.0000
S.D. Ratio	0.6708	0.4470	0.6916	0.9146	0.0000
Correlation	0.7419	0.8951	0.7224	0.4059	0.0000

**Table 1.8. Station 100 Chlorophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	45.9020	38.6364	50.0000	56.5263	0.0000
Data S.D.	83.0502	66.1519	79.8986	110.8291	0.0000
Error Mean	-7.4825	1.7095	-11.6637	-21.9271	0.0000
Error S.D.	57.6621	29.5597	64.1710	84.2698	0.0000
Abs E. Mean	30.5657	20.8668	33.9851	46.7992	0.0000
S.D. Ratio	0.6943	0.4468	0.8032	0.7604	0.0000
Correlation	0.7335	0.8961	0.6121	0.7288	0.0000

Temperature

	Overall	Training	Selection	Test	Ignored
Data Mean	45.9020	44.0909	51.5789	43.8947	0.0000
Data S.D.	83.0502	84.9767	85.2330	76.3619	0.0000
Error Mean	-4.6061	-0.0885	-5.9300	-12.4362	0.0000
Error S.D.	48.0385	42.3408	58.1950	46.5594	0.0000
Abs E. Mean	28.0413	24.9599	32.7444	29.5821	0.0000
S.D. Ratio	0.5784	0.4983	0.6828	0.6097	0.0000
Correlation	0.8162	0.8676	0.7445	0.7947	0.0000

Initial Chlorophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	45.9020	41.1169	53.0526	48.4474	0.0000
Data S.D.	83.0502	71.3815	76.7700	106.9975	0.0000
Error Mean	-3.2430	0.6761	-13.4831	-0.9445	0.0000
Error S.D.	39.4288	19.9830	45.0893	57.2362	0.0000
Abs E. Mean	24.6439	15.7371	29.8754	37.4605	0.0000
S.D. Ratio	0.4748	0.2799	0.5873	0.5349	0.0000
Correlation	0.8831	0.9602	0.8103	0.8747	0.0000

Turbidity

	Overall	Training	Selection	Test	Ignored
Data Mean	45.9020	43.0649	56.4474	41.1053	0.0000
Data S.D.	83.0502	86.9187	90.3539	64.4045	0.0000
Error Mean	0.1661	-2.7283	3.9638	2.2335	0.0000
Error S.D.	58.9832	69.3690	46.2594	45.6206	0.0000
Abs E. Mean	34.0573	39.9776	28.1239	27.9945	0.0000
S.D. Ratio	0.7102	0.7981	0.5120	0.7083	0.0000
Correlation	0.7178	0.6240	0.8647	0.7208	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	45.9020	51.5974	32.0000	48.2632	0.0000
Data S.D.	83.0502	95.1557	53.3745	79.4351	0.0000
Error Mean	2.0154	-6.1381	5.5078	15.0447	0.0000
Error S.D.	56.4062	66.5526	37.6781	45.8150	0.0000
Abs E. Mean	33.1885	37.7116	23.4948	33.7172	0.0000
S.D. Ratio	0.6792	0.6994	0.7059	0.5768	0.0000
Correlation	0.7364	0.7423	0.7372	0.8320	0.0000

Biochemical Oxygen Demand (BOD)

	Overall	Training	Selection	Test	Ignored
Data Mean	45.9020	43.3247	51.8947	45.1316	0.0000
Data S.D.	83.0502	79.5060	101.6309	67.6999	0.0000
Error Mean	2.2160	1.0711	-5.3046	12.0566	0.0000
Error S.D.	40.2139	21.5552	31.4811	66.5027	0.0000
Abs E. Mean	25.6230	15.5791	23.2964	48.3017	0.0000
S.D. Ratio	0.4842	0.2711	0.3098	0.9823	0.0000
Correlation	0.8912	0.9626	0.9530	0.7099	0.0000

**Table 1.9. Station 100 Chlorophyta two-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	46.5316	41.1500	67.1795	36.9231	0.0000
Data S.D.	82.4392	67.6378	121.2928	53.4700	0.0000
Error Mean	-8.7895	0.5712	-8.9728	-27.8075	0.0000
Error S.D.	56.6133	13.4527	89.8839	63.1887	0.0000
Abs E. Mean	30.9084	10.4011	55.8732	48.0100	0.0000
S.D. Ratio	0.6867	0.1989	0.7410	1.1818	0.0000
Correlation	0.7462	0.9800	0.6731	0.5283	0.0000

Wind Direction

	Overall	Training	Selection	Test	Ignored
Data Mean	46.5316	40.7000	71.4872	33.5385	0.0000
Data S.D.	82.4392	74.7389	115.7971	42.4831	0.0000
Error Mean	5.3256	1.7613	-10.2473	28.2099	0.0000
Error S.D.	61.3742	35.1371	100.4058	43.0603	0.0000
Abs E. Mean	37.7223	24.8113	62.8493	39.0795	0.0000
S.D. Ratio	0.7445	0.4701	0.8671	1.0136	0.0000
Correlation	0.6787	0.8826	0.5096	0.6397	0.0000

Total Suspended Solids (TSS)

	Overall	Training	Selection	Test	Ignored
Data Mean	46.5316	48.4500	47.7949	41.3333	0.0000
Data S.D.	82.4392	77.5990	101.9399	68.9457	0.0000
Error Mean	-1.3748	-3.5517	-0.7491	2.4649	0.0000
Error S.D.	65.6307	39.2906	70.9066	96.0790	0.0000
Abs E. Mean	33.7199	25.5495	32.2481	51.9514	0.0000
S.D. Ratio	0.7961	0.5063	0.6956	1.3935	0.0000
Correlation	0.6329	0.8624	0.7185	-0.0549	0.0000

UV254

	Overall	Training	Selection	Test	Ignored
Data Mean	46.5316	49.1000	48.7179	39.0769	0.0000
Data S.D.	82.4392	80.7365	106.5328	52.3378	0.0000
Error Mean	3.9224	0.2371	-0.2330	15.6371	0.0000
Error S.D.	57.0259	10.1903	69.4658	89.1834	0.0000
Abs E. Mean	28.7936	7.5027	44.9353	56.3255	0.0000
S.D. Ratio	0.6917	0.1262	0.6521	1.7040	0.0000
Correlation	0.7513	0.9920	0.7660	0.2006	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	46.5316	44.6000	32.6154	64.4103	0.0000
Data S.D.	82.4392	81.6042	63.5532	96.5063	0.0000
Error Mean	-5.1557	-2.4615	0.9267	-16.7648	0.0000
Error S.D.	62.6334	44.5341	51.2768	94.9143	0.0000
Abs E. Mean	36.8891	29.9828	31.7448	56.2001	0.0000
S.D. Ratio	0.7598	0.5457	0.8068	0.9835	0.0000
Correlation	0.6529	0.8433	0.5921	0.3742	0.0000

Biochemical Oxygen Demand (BOD)

	Overall	Training	Selection	Test	Ignored
Data Mean	46.5316	45.8000	44.6154	49.9487	0.0000
Data S.D.	82.4392	79.6666	102.8279	62.6451	0.0000
Error Mean	-3.0327	-0.7194	-3.5625	-7.2483	0.0000
Error S.D.	59.6539	34.1662	86.2682	67.4619	0.0000
Abs E. Mean	34.6102	21.9496	50.5499	44.6407	0.0000
S.D. Ratio	0.7236	0.4289	0.8390	1.0769	0.0000
Correlation	0.7011	0.9042	0.5445	0.4377	0.0000

**Table 2.1. Station 101 Cyanohyta real-time prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6949	7.8710	3.1429	3.4286	0.0000
Data S.D.	23.7753	31.8623	6.2662	8.5332	0.0000
Error Mean	0.7229	-0.0168	0.6998	2.3842	0.0000
Error S.D.	5.5045	5.3695	1.7088	7.5472	0.0000
Abs E. Mean	2.8229	2.6899	1.6467	4.2936	0.0000
S.D. Ratio	0.2315	0.1685	0.2727	0.8845	0.0000
Correlation	0.9736	0.9857	0.9664	0.9178	0.0000

Heating Degree Days

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	9.0667	2.1333	2.1333	0.0000
Data S.D.	23.5876	32.7566	3.5377	4.3492	0.0000
Error Mean	1.7698	-0.1816	-0.0530	7.4956	0.0000
Error S.D.	14.1826	6.8513	3.3161	25.6122	0.0000
Abs E. Mean	5.0361	3.5180	2.4431	10.6653	0.0000
S.D. Ratio	0.6013	0.2092	0.9374	5.8889	0.0000
Correlation	0.8414	0.9779	0.3504	-0.1409	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	8.5333	3.2000	2.1333	0.0000
Data S.D.	23.5876	32.4918	7.3321	5.0315	0.0000
Error Mean	-0.2081	-0.8011	0.5516	0.2181	0.0000
Error S.D.	6.3007	6.2365	6.9007	5.6502	0.0000
Abs E. Mean	3.8119	3.3002	4.8783	3.7688	0.0000
S.D. Ratio	0.2671	0.1919	0.9412	1.1230	0.0000
Correlation	0.9637	0.9815	0.3584	-0.0592	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	10.2667	0.2667	1.6000	0.0000
Data S.D.	23.5876	32.6384	0.9978	2.4440	0.0000
Error Mean	0.1030	-0.0698	0.0104	0.5412	0.0000
Error S.D.	2.9226	1.5875	0.9207	5.2933	0.0000
Abs E. Mean	1.6250	1.1038	0.7587	3.5339	0.0000
S.D. Ratio	0.1239	0.0486	0.9228	2.1658	0.0000
Correlation	0.9924	0.9988	0.6701	0.0093	0.0000

UV254

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	9.0667	1.8667	2.4000	0.0000
Data S.D.	23.5876	32.4129	5.0315	7.1255	0.0000
Error Mean	0.1192	-0.3094	1.3562	-0.2605	0.0000
Error S.D.	5.9361	6.5926	1.6066	7.0286	0.0000
Abs E. Mean	3.4455	3.8929	2.0749	3.9213	0.0000
S.D. Ratio	0.2517	0.2034	0.3193	0.9864	0.0000
Correlation	0.9688	0.9804	0.9720	0.8519	0.0000

Ammonia

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	7.2000	5.3333	2.6667	0.0000
Data S.D.	23.5876	32.2060	10.4987	5.1983	0.0000
Error Mean	0.2694	-0.0049	0.1142	0.9731	0.0000
Error S.D.	6.4075	2.9951	6.0561	10.4373	0.0000
Abs E. Mean	3.5788	2.1111	3.8960	6.1969	0.0000
S.D. Ratio	0.2716	0.0930	0.5768	2.0078	0.0000
Correlation	0.9640	0.9957	0.8255	0.1787	0.0000

Color

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	6.9333	4.2667	4.2667	0.0000
Data S.D.	23.5876	32.2975	8.9403	7.2246	0.0000
Error Mean	-1.2628	-0.0241	-1.6410	-3.3618	0.0000
Error S.D.	4.7703	2.0052	4.4529	7.4522	0.0000
Abs E. Mean	2.1317	1.1527	2.1898	4.0313	0.0000
S.D. Ratio	0.2022	0.0621	0.4981	1.0315	0.0000
Correlation	0.9794	0.9981	0.8672	-0.0947	0.0000

Initial Cyanobacteria Level

	Overall	Training	Selection	Test	Ignored
Data Mean	5.6000	6.9333	6.1333	2.4000	0.0000
Data S.D.	23.5876	32.2148	9.3371	6.9742	0.0000
Error Mean	-0.4077	0.1620	-1.7850	-0.1699	0.0000
Error S.D.	5.3542	2.2499	3.6025	9.4323	0.0000
Abs E. Mean	2.8863	1.8097	3.0322	4.8938	0.0000
S.D. Ratio	0.2270	0.0698	0.3858	1.3524	0.0000
Correlation	0.9741	0.9976	0.9235	-0.3449	0.0000

**Table 2.2. Station 101 Cyanophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	4.6000	7.4000	3.2000	0.4000	0.0000
Data S.D.	12.3467	16.6505	4.3081	1.2000	0.0000
Error Mean	0.8754	-0.0406	-0.1330	3.7156	0.0000
Error S.D.	3.8320	2.1636	2.5642	5.6603	0.0000
Abs E. Mean	2.2526	1.6323	2.0302	3.7156	0.0000
S.D. Ratio	0.3104	0.1299	0.5952	4.7169	0.0000
Correlation	0.9511	0.9916	0.8145	0.1703	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	4.6000	6.6000	3.6000	1.6000	0.0000
Data S.D.	12.3467	16.8416	4.1761	2.6533	0.0000
Error Mean	-0.0827	-0.0354	-0.1286	-0.1315	0.0000
Error S.D.	2.9395	2.5417	2.9686	3.5806	0.0000
Abs E. Mean	2.1210	1.9635	2.2352	2.3216	0.0000
S.D. Ratio	0.2381	0.1509	0.7108	1.3495	0.0000
Correlation	0.9721	0.9891	0.7048	0.0351	0.0000

current week's Precipitation

	Overall	Training	Selection	Test	Ignored
Data Mean	4.6000	7.6000	1.2000	2.0000	0.0000
Data S.D.	12.3467	16.6325	1.8330	4.0988	0.0000
Error Mean	-0.4733	-0.6800	0.1051	-0.6384	0.0000
Error S.D.	7.8381	10.6116	1.8408	4.0859	0.0000
Abs E. Mean	4.1577	6.0549	1.7287	2.7925	0.0000
S.D. Ratio	0.6348	0.6380	1.0042	0.9969	0.0000
Correlation	0.7746	0.7720	-0.1789	0.0994	0.0000

Wind Direction

	Overall	Training	Selection	Test	Ignored
Data Mean	4.6000	7.4000	1.6000	2.0000	0.0000
Data S.D.	12.3467	16.7940	2.6533	2.6833	0.0000
Error Mean	-0.2130	-0.1759	-0.0707	-0.4298	0.0000
Error S.D.	3.0020	3.4154	2.4626	2.5659	0.0000
Abs E. Mean	2.0733	2.2478	1.7960	2.0014	0.0000
S.D. Ratio	0.2431	0.2034	0.9281	0.9562	0.0000
Correlation	0.9702	0.9793	0.4106	0.3035	0.0000

Wind Speed

	Overall	Training	Selection	Test	Ignored
Data Mean	4.6000	6.4000	4.0000	1.6000	0.0000
Data S.D.	12.3467	15.7683	9.4657	2.6533	0.0000
Error Mean	0.0219	0.0418	0.1849	-0.1808	0.0000
Error S.D.	2.9445	2.9819	1.3823	3.8623	0.0000
Abs E. Mean	1.7832	1.7379	0.9321	2.7250	0.0000
S.D. Ratio	0.2385	0.1891	0.1460	1.4557	0.0000
Correlation	0.9712	0.9820	0.9893	-0.1520	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	4.6000	6.8000	2.8000	2.0000	0.0000
Data S.D.	12.3467	16.6421	5.0754	3.2249	0.0000
Error Mean	1.5817	0.9191	-0.6097	5.0983	0.0000
Error S.D.	9.5991	8.7045	3.0135	13.7807	0.0000
Abs E. Mean	4.8655	4.6058	2.0471	8.2035	0.0000
S.D. Ratio	0.7775	0.5230	0.5937	4.2732	0.0000
Correlation	0.7058	0.8531	0.8106	-0.2294	0.0000

**Table 2.3. Station 101 Cyanophyta two-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	8.2000	13.6000	1.6000	4.0000	0.0000
Data S.D.	25.1865	34.0447	3.2000	9.4657	0.0000
Error Mean	-1.5208	-0.5573	-0.3971	-4.5716	0.0000
Error S.D.	8.3668	9.6357	0.8230	9.0121	0.0000
Abs E. Mean	4.5658	6.4065	0.8391	4.6111	0.0000
S.D. Ratio	0.3322	0.2830	0.2572	0.9521	0.0000
Correlation	0.9445	0.9614	0.9937	0.7948	0.0000

Total Phosphorous/Orthophosphate

	Overall	Training	Selection	Test	Ignored
Data Mean	8.2000	13.4000	4.4000	1.6000	0.0000
Data S.D.	25.1865	34.0652	9.5415	3.6661	0.0000
Error Mean	1.4140	-0.2422	1.0125	5.1280	0.0000
Error S.D.	7.1374	2.3957	4.2418	12.4442	0.0000
Abs E. Mean	4.1806	1.8833	3.5710	9.3849	0.0000
S.D. Ratio	0.2834	0.0703	0.4446	3.3944	0.0000
Correlation	0.9605	0.9976	0.9019	-0.3428	0.0000

Point View Reservoir extractions

	Overall	Training	Selection	Test	Ignored
Data Mean	8.2000	14.2000	1.2000	3.2000	0.0000
Data S.D.	25.1865	33.8579	2.5612	9.6000	0.0000
Error Mean	0.1704	-0.1941	2.4480	-1.3781	0.0000
Error S.D.	5.9736	3.6445	3.6626	9.7420	0.0000
Abs E. Mean	3.4800	2.9081	3.3915	4.7124	0.0000
S.D. Ratio	0.2372	0.1076	1.4300	1.0148	0.0000
Correlation	0.9715	0.9942	0.3548	-0.0744	0.0000

Turbidity

	Overall	Training	Selection	Test	Ignored
Data Mean	8.2000	13.2727	2.6667	1.3333	0.0000
Data S.D.	25.1865	32.9051	5.3333	1.8856	0.0000
Error Mean	-0.2399	-1.6317	0.5301	2.3924	0.0000
Error S.D.	4.6443	4.4469	2.3567	5.4509	0.0000
Abs E. Mean	2.9372	2.8054	1.8404	4.3564	0.0000
S.D. Ratio	0.1844	0.1351	0.4419	2.8908	0.0000
Correlation	0.9829	0.9909	0.8972	-0.0732	0.0000

Sulfate

	Overall	Training	Selection	Test	Ignored
Data Mean	8.2000	12.4000	4.4000	3.6000	0.0000
Data S.D.	25.1865	34.2672	9.5415	5.2000	0.0000
Error Mean	-5.4544	-8.8949	-0.8187	-3.2091	0.0000
Error S.D.	24.2680	32.9221	8.6068	7.9823	0.0000
Abs E. Mean	9.5915	13.5522	4.4597	6.8019	0.0000
S.D. Ratio	0.9635	0.9607	0.9020	1.5351	0.0000
Correlation	0.2812	0.3580	0.4358	-0.0205	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	8.2000	7.4000	16.8000	1.2000	0.0000
Data S.D.	25.1865	21.6619	38.2330	3.6000	0.0000
Error Mean	0.2445	0.1069	0.5525	0.2118	0.0000
Error S.D.	15.4857	11.4557	25.5038	6.7959	0.0000
Abs E. Mean	9.7747	7.5713	19.0145	4.9417	0.0000
S.D. Ratio	0.6148	0.5288	0.6671	1.8877	0.0000
Correlation	0.7888	0.8594	0.7814	-0.2087	0.0000

**Table 2.4. Station 101 Chrysophyta real-time prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	64.8000	63.2000	67.2000	65.6000	0.0000
Data S.D.	50.3841	52.4229	42.5131	53.2826	0.0000
Error Mean	3.6557	4.9346	-4.8659	9.6195	0.0000
Error S.D.	46.7237	45.1607	35.3006	57.4095	0.0000
Abs E. Mean	37.9294	35.9151	31.7894	48.0979	0.0000
S.D. Ratio	0.9274	0.8615	0.8303	1.0775	0.0000
Correlation	0.3895	0.5085	0.5577	-0.1214	0.0000

Initial Chrysophyta level

	Overall	Training	Selection	Test	Ignored
Data Mean	65.1148	70.0645	59.2000	60.8000	0.0000
Data S.D.	50.0289	56.7768	41.7280	40.8757	0.0000
Error Mean	-0.0289	-9.8078	0.6521	19.5000	0.0000
Error S.D.	36.5532	20.1248	26.3320	57.6521	0.0000
Abs E. Mean	25.4176	16.7660	19.7815	48.9338	0.0000
S.D. Ratio	0.7306	0.3545	0.6310	1.4104	0.0000
Correlation	0.7323	0.9360	0.7909	0.2879	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	64.8000	69.8667	50.6667	68.8000	0.0000
Data S.D.	50.3841	51.0031	38.1063	56.8544	0.0000
Error Mean	-3.5385	-7.6505	8.0487	-6.9016	0.0000
Error S.D.	46.7331	32.2720	39.3492	70.1798	0.0000
Abs E. Mean	35.8692	25.9508	36.4225	55.1527	0.0000
S.D. Ratio	0.9275	0.6327	1.0326	1.2344	0.0000
Correlation	0.4119	0.7861	0.2051	-0.2532	0.0000

Pompton streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	64.8000	68.2667	53.8667	68.8000	0.0000
Data S.D.	50.3841	45.9789	59.3811	47.3331	0.0000
Error Mean	15.7180	5.1207	8.7155	43.9151	0.0000
Error S.D.	55.4648	16.8947	43.3941	93.7163	0.0000
Abs E. Mean	35.9094	14.1654	36.9337	78.3730	0.0000
S.D. Ratio	1.1008	0.3674	0.7308	1.9799	0.0000
Correlation	0.5016	0.9303	0.7241	-0.0803	0.0000

Total Hardness

	Overall	Training	Selection	Test	Ignored
Data Mean	65.1148	62.0645	57.3333	79.2000	0.0000
Data S.D.	50.0289	48.3948	54.8776	45.2595	0.0000
Error Mean	-4.5113	-5.7449	1.7005	-8.1735	0.0000
Error S.D.	42.0202	27.4280	37.9699	64.2566	0.0000
Abs E. Mean	32.3079	20.3698	29.3889	59.8990	0.0000
S.D. Ratio	0.8399	0.5668	0.6919	1.4197	0.0000
Correlation	0.6096	0.8241	0.7392	-0.0245	0.0000

Nitrite/Nitrate

	Overall	Training	Selection	Test	Ignored
Data Mean	64.8000	70.0000	50.4000	68.8000	0.0000
Data S.D.	50.3841	50.3190	50.4021	47.6700	0.0000
Error Mean	5.8804	3.9776	4.2128	11.3536	0.0000
Error S.D.	47.3924	25.6178	46.8696	73.7215	0.0000
Abs E. Mean	34.9030	20.8512	38.8955	59.0140	0.0000
S.D. Ratio	0.9406	0.5091	0.9299	1.5465	0.0000
Correlation	0.4753	0.8641	0.4422	-0.2981	0.0000

extraction from Jackson Ave Pumping Station

	Overall	Training	Selection	Test	Ignored
Data Mean	64.8000	73.4667	66.4000	45.8667	0.0000
Data S.D.	50.3841	56.4976	45.3208	34.7138	0.0000
Error Mean	2.4564	-4.9594	-0.8803	20.6248	0.0000
Error S.D.	37.7578	25.3921	30.7232	54.9359	0.0000
Abs E. Mean	28.3943	19.4124	24.4657	50.2867	0.0000
S.D. Ratio	0.7494	0.4494	0.6779	1.5825	0.0000
Correlation	0.6937	0.8976	0.7510	0.1622	0.0000

Table 2.5. Station 101 Chrysophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4615	90.0952	61.7778	50.6667	0.0000
Data S.D.	51.1819	54.2111	48.2995	29.3939	0.0000
Error Mean	12.7109	3.1038	-7.2473	55.0854	0.0000
Error S.D.	48.8585	14.2100	33.0195	79.8349	0.0000
Abs E. Mean	26.5241	10.8726	29.4580	60.1103	0.0000
S.D. Ratio	0.9546	0.2621	0.6836	2.7160	0.0000
Correlation	0.5912	0.9656	0.7534	-0.3213	0.0000

Temperature

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4615	71.4286	77.3333	78.6667	0.0000
Data S.D.	51.1819	43.9790	58.5757	57.9655	0.0000
Error Mean	3.6096	-0.8083	9.0851	8.4425	0.0000
Error S.D.	28.5842	10.6342	36.0317	43.3536	0.0000
Abs E. Mean	20.7630	8.9703	31.1462	37.8960	0.0000
S.D. Ratio	0.5585	0.2418	0.6151	0.7479	0.0000
Correlation	0.8296	0.9708	0.8292	0.6752	0.0000

current week's Precipitation

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4615	76.1905	56.4444	88.4444	0.0000
Data S.D.	51.1819	53.8566	36.6337	52.1006	0.0000
Error Mean	-10.3657	-9.8348	-2.9216	-19.0483	0.0000
Error S.D.	40.9091	41.1755	19.1334	52.9012	0.0000
Abs E. Mean	32.4069	35.1226	15.9341	42.5433	0.0000
S.D. Ratio	0.7993	0.7645	0.5223	1.0154	0.0000
Correlation	0.6153	0.6780	0.8897	0.1720	0.0000

Color

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4615	82.4762	64.0000	66.2222	0.0000
Data S.D.	51.1819	51.3954	63.5820	28.6037	0.0000
Error Mean	-1.9381	-0.3492	2.8702	-10.4540	0.0000
Error S.D.	25.3772	5.4350	26.3980	43.8562	0.0000
Abs E. Mean	15.9340	3.6760	21.6962	38.7736	0.0000
S.D. Ratio	0.4958	0.1057	0.4152	1.5332	0.0000
Correlation	0.8886	0.9945	0.9143	0.5142	0.0000

Initial Chrysophyta levels

	Overall	Training	Selection	Test	Ignored
Data Mean	74.7000	72.8000	62.8000	90.4000	0.0000
Data S.D.	50.5600	53.3906	49.5758	40.8784	0.0000
Error Mean	2.1006	-1.9517	14.0264	-1.7204	0.0000
Error S.D.	52.6282	24.4032	26.0846	94.9621	0.0000
Abs E. Mean	31.4933	18.6719	24.3936	64.2356	0.0000
S.D. Ratio	1.0409	0.4571	0.5262	2.3230	0.0000
Correlation	0.5673	0.8896	0.8586	0.0768	0.0000

extraction from Jackson Ave Pumping Station

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4615	75.2381	58.6667	88.4444	0.0000
Data S.D.	51.1819	53.9434	44.5421	46.1666	0.0000
Error Mean	2.7354	3.8167	11.2130	-8.2651	0.0000
Error S.D.	43.5319	33.5634	12.9572	72.2480	0.0000
Abs E. Mean	33.1244	29.1780	15.3616	60.0955	0.0000
S.D. Ratio	0.8505	0.6222	0.2909	1.5649	0.0000
Correlation	0.6421	0.7906	0.9773	0.5224	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4615	76.3810	80.8889	63.5556	0.0000
Data S.D.	51.1819	55.2315	53.9886	33.9120	0.0000
Error Mean	-1.4658	3.1318	-2.9412	-10.7181	0.0000
Error S.D.	48.8837	20.1150	37.3018	88.7827	0.0000
Abs E. Mean	30.3799	17.2709	32.6255	58.7218	0.0000
S.D. Ratio	0.9551	0.3642	0.6909	2.6180	0.0000
Correlation	0.6666	0.9328	0.7247	0.5716	0.0000

Table 2.6. Station 101 Chrysophyta two-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4000	79.0000	70.8000	68.8000	0.0000
Data S.D.	62.1340	73.7550	51.8783	42.2488	0.0000
Error Mean	-3.4471	1.4908	-5.5755	-11.1947	0.0000
Error S.D.	41.2784	35.6343	30.0706	57.0829	0.0000
Abs E. Mean	31.1093	30.0679	24.1550	40.1464	0.0000
S.D. Ratio	0.6643	0.4831	0.5796	1.3511	0.0000
Correlation	0.7542	0.9041	0.8450	0.2997	0.0000

Alkalinity

	Overall	Training	Selection	Test	Ignored
Data Mean	74.1463	76.5714	40.0000	103.2000	0.0000
Data S.D.	61.3926	50.7811	31.3943	83.8437	0.0000
Error Mean	0.5855	-0.1997	1.2813	1.5387	0.0000
Error S.D.	49.9817	4.5217	22.0499	98.5428	0.0000
Abs E. Mean	21.9495	2.7632	19.1661	65.0242	0.0000
S.D. Ratio	0.8141	0.0890	0.7024	1.1753	0.0000
Correlation	0.6120	0.9961	0.7629	-0.1938	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4000	79.6000	74.4000	64.0000	0.0000
Data S.D.	62.1340	70.3011	55.3158	48.3322	0.0000
Error Mean	-3.4229	-4.3308	10.6054	-15.6354	0.0000
Error S.D.	53.4775	55.1156	27.2202	65.3865	0.0000
Abs E. Mean	38.6894	38.2192	23.0493	55.2699	0.0000
S.D. Ratio	0.8607	0.7840	0.4921	1.3529	0.0000
Correlation	0.5758	0.6322	0.8816	0.3938	0.0000

Ammonia

	Overall	Training	Selection	Test	Ignored
Data Mean	74.1463	75.4286	71.2000	74.4000	0.0000
Data S.D.	61.3926	70.0942	58.2903	41.5384	0.0000
Error Mean	-0.1140	-0.7159	11.9722	-10.9362	0.0000
Error S.D.	33.0675	30.6407	27.1543	38.8622	0.0000
Abs E. Mean	27.8059	26.4591	23.9752	34.4650	0.0000
S.D. Ratio	0.5386	0.4371	0.4658	0.9356	0.0000
Correlation	0.8475	0.8995	0.9057	0.4901	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4000	68.0000	113.6000	48.0000	0.0000
Data S.D.	62.1340	36.5294	95.5690	36.3978	0.0000
Error Mean	10.4003	0.3440	-16.9244	57.8374	0.0000
Error S.D.	51.7230	10.3756	68.3909	51.0809	0.0000
Abs E. Mean	33.9951	8.7715	52.3674	66.0700	0.0000
S.D. Ratio	0.8324	0.2840	0.7156	1.4034	0.0000
Correlation	0.5660	0.9590	0.7595	0.1494	0.0000

Passaic streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4000	84.0000	59.2000	70.4000	0.0000
Data S.D.	62.1340	74.0702	48.2593	41.3454	0.0000
Error Mean	7.8430	4.8919	-6.5429	28.1310	0.0000
Error S.D.	48.7105	37.1985	41.2095	66.2510	0.0000
Abs E. Mean	34.8914	25.7237	34.3473	53.7710	0.0000
S.D. Ratio	0.7840	0.5022	0.8539	1.6024	0.0000
Correlation	0.6545	0.8655	0.5603	-0.4517	0.0000

current week's Precipitation

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4000	99.4000	43.2000	55.6000	0.0000
Data S.D.	62.1340	68.0855	30.4000	51.6744	0.0000
Error Mean	-1.3740	-12.8988	0.9896	19.3120	0.0000
Error S.D.	49.5978	52.7062	25.8190	54.0197	0.0000
Abs E. Mean	35.1657	37.6831	20.7880	44.5087	0.0000
S.D. Ratio	0.7982	0.7741	0.8493	1.0454	0.0000
Correlation	0.6092	0.6332	0.5331	0.4499	0.0000

Heating Degree Days

	Overall	Training	Selection	Test	Ignored
Data Mean	74.4000	66.0000	59.2000	106.4000	0.0000
Data S.D.	62.1340	46.6219	49.2114	85.3079	0.0000
Error Mean	-3.0605	3.8078	-3.3308	-16.5267	0.0000
Error S.D.	56.9545	10.9491	27.1291	108.2764	0.0000
Abs E. Mean	31.4389	9.4401	22.2497	84.6258	0.0000
S.D. Ratio	0.9166	0.2348	0.5513	1.2692	0.0000
Correlation	0.4804	0.9742	0.8344	-0.1936	0.0000

Table 2.7 Station 101 Chlorophyta real-time prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	39.5082	46.1290	7.2000	58.1333	0.0000
Data S.D.	69.5189	61.4091	8.0266	101.5597	0.0000
Error Mean	-5.9704	-0.2083	3.4046	-27.2538	0.0000
Error S.D.	32.2355	7.5045	10.0716	58.2963	0.0000
Abs E. Mean	14.2799	4.8753	9.2158	38.7801	0.0000
S.D. Ratio	0.4637	0.1222	1.2548	0.5740	0.0000
Correlation	0.8948	0.9925	-0.1294	0.8883	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	39.5082	43.1613	22.1333	49.3333	0.0000
Data S.D.	69.5189	79.9448	27.2026	72.6587	0.0000
Error Mean	8.0151	-0.7292	1.1917	32.9102	0.0000
Error S.D.	41.1243	28.7152	18.1462	63.4022	0.0000
Abs E. Mean	24.6371	18.3297	13.4612	48.8483	0.0000
S.D. Ratio	0.5916	0.3592	0.6671	0.8726	0.0000
Correlation	0.8779	0.9335	0.7666	0.9112	0.0000

Initial Chlorophyta Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	39.5082	37.3548	74.1333	9.3333	0.0000
Data S.D.	69.5189	61.8414	97.6728	9.5406	0.0000
Error Mean	-1.3885	1.1288	-13.1684	5.1888	0.0000
Error S.D.	28.9698	21.5878	46.6313	8.9566	0.0000
Abs E. Mean	17.7971	16.0754	30.1588	8.9935	0.0000
S.D. Ratio	0.4167	0.3491	0.4774	0.9388	0.0000
Correlation	0.9106	0.9373	0.8886	0.4937	0.0000

Sulfate

	Overall	Training	Selection	Test	Ignored
Data Mean	39.5082	28.4516	48.8000	53.0667	0.0000
Data S.D.	69.5189	61.6666	74.6790	75.4643	0.0000
Error Mean	0.5849	0.9950	2.2045	-1.8821	0.0000
Error S.D.	38.4473	23.4370	60.4385	34.8463	0.0000
Abs E. Mean	21.9931	13.3260	35.9326	25.9656	0.0000
S.D. Ratio	0.5530	0.3801	0.8093	0.4618	0.0000
Correlation	0.8341	0.9261	0.5944	0.8870	0.0000

Heating Degree Days

	Overall	Training	Selection	Test	Ignored
Data Mean	39.5082	49.5484	35.7333	22.5333	0.0000
Data S.D.	69.5189	87.5453	42.2934	38.9219	0.0000
Error Mean	2.5833	-7.8950	9.7553	17.0664	0.0000
Error S.D.	43.9635	54.3013	20.6034	29.2158	0.0000
Abs E. Mean	29.6496	35.4153	20.8173	26.5660	0.0000
S.D. Ratio	0.6324	0.6203	0.4872	0.7506	0.0000
Correlation	0.7751	0.7916	0.8773	0.8051	0.0000

Conductivity

	Overall	Training	Selection	Test	Ignored
Data Mean	39.5082	53.4839	30.9333	19.2000	0.0000
Data S.D.	69.5189	82.1014	64.8192	25.1375	0.0000
Error Mean	2.0291	-0.6146	3.5909	5.9308	0.0000
Error S.D.	29.5091	33.0461	21.8083	27.8673	0.0000
Abs E. Mean	20.0452	20.0084	18.0149	22.1514	0.0000
S.D. Ratio	0.4245	0.4025	0.3364	1.1086	0.0000
Correlation	0.9055	0.9154	0.9431	0.0806	0.0000

**Table 2.8. Station 101 Chlorophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	64.9524	55.2000	22.8000	0.0000
Data S.D.	76.1584	84.4108	83.2308	25.9877	0.0000
Error Mean	2.1605	-1.7917	9.6096	3.0113	0.0000
Error S.D.	45.1901	59.7418	15.2376	23.5905	0.0000
Abs E. Mean	25.5274	35.5499	12.5009	17.5066	0.0000
S.D. Ratio	0.5934	0.7078	0.1831	0.9078	0.0000
Correlation	0.8085	0.7108	0.9858	0.5051	0.0000

Wind Speed

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	60.9524	26.8000	59.6000	0.0000
Data S.D.	76.1584	81.1902	50.2490	80.9434	0.0000
Error Mean	-6.9679	-0.2660	2.9924	-31.0023	0.0000
Error S.D.	41.7143	4.2374	7.9569	79.1337	0.0000
Abs E. Mean	14.1931	3.2795	7.0008	44.3041	0.0000
S.D. Ratio	0.5477	0.0522	0.1583	0.9776	0.0000
Correlation	0.8380	0.9986	0.9886	0.2665	0.0000

Initial Chlorophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	52.9524	37.2000	66.0000	0.0000
Data S.D.	76.1584	84.8430	51.6620	74.6887	0.0000
Error Mean	-10.3163	-0.2961	3.5703	-45.2454	0.0000
Error S.D.	42.6633	6.3702	11.5640	74.9665	0.0000
Abs E. Mean	17.0565	4.3282	9.7764	51.0663	0.0000
S.D. Ratio	0.5602	0.0751	0.2238	1.0037	0.0000
Correlation	0.8304	0.9972	0.9766	0.0663	0.0000

Chloride

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	57.5238	55.6000	38.0000	0.0000
Data S.D.	76.1584	93.7228	54.6245	45.5807	0.0000
Error Mean	-3.1397	-0.6273	-0.6224	-10.9329	0.0000
Error S.D.	19.8697	9.5897	22.7663	28.7568	0.0000
Abs E. Mean	13.6936	7.2527	18.3961	22.5170	0.0000
S.D. Ratio	0.2609	0.1023	0.4168	0.6309	0.0000
Correlation	0.9654	0.9948	0.9142	0.8505	0.0000

Initial Cyanophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	48.3810	72.8000	40.0000	0.0000
Data S.D.	76.1584	82.7886	77.2073	53.1263	0.0000
Error Mean	4.6472	0.7738	-6.2964	23.7250	0.0000
Error S.D.	41.3731	22.5632	66.4366	31.9364	0.0000
Abs E. Mean	26.5663	16.7325	43.9314	29.8523	0.0000
S.D. Ratio	0.5432	0.2725	0.8605	0.6011	0.0000
Correlation	0.8446	0.9630	0.5222	0.9445	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	38.8571	83.2000	49.6000	0.0000
Data S.D.	76.1584	62.4837	93.0686	74.6876	0.0000
Error Mean	-7.1437	1.4411	-9.2576	-23.0576	0.0000
Error S.D.	44.3338	7.6390	32.7639	80.3118	0.0000
Abs E. Mean	21.3876	6.1608	24.1121	50.6394	0.0000
S.D. Ratio	0.5821	0.1223	0.3520	1.0753	0.0000
Correlation	0.8131	0.9928	0.9516	-0.0658	0.0000

pH

	Overall	Training	Selection	Test	Ignored
Data Mean	52.2927	60.0000	52.8000	35.6000	0.0000
Data S.D.	76.1584	85.9324	80.8515	36.5053	0.0000
Error Mean	0.3654	-0.4401	2.2339	0.1884	0.0000
Error S.D.	44.8187	53.4955	19.4836	42.9132	0.0000
Abs E. Mean	27.1660	30.7232	14.9307	31.9312	0.0000
S.D. Ratio	0.5885	0.6225	0.2410	1.1755	0.0000
Correlation	0.8097	0.7840	0.9716	0.4010	0.0000

Table 2.9. Station 101 Chlorophyta two-week prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	47.2000	49.0000	29.6000	61.2000	0.0000
Data S.D.	69.0229	79.0025	51.4805	58.4068	0.0000
Error Mean	3.4848	-1.3695	1.4297	15.2483	0.0000
Error S.D.	23.2298	8.4670	20.9365	37.2430	0.0000
Abs E. Mean	14.9488	7.1205	16.7078	28.8464	0.0000
S.D. Ratio	0.3366	0.1072	0.4067	0.6376	0.0000
Correlation	0.9437	0.9955	0.9201	0.8602	0.0000

Conductivity

	Overall	Training	Selection	Test	Ignored
Data Mean	47.2000	48.0000	59.2000	33.6000	0.0000
Data S.D.	69.0229	63.6113	94.2983	41.7306	0.0000
Error Mean	-3.8641	0.2458	-6.4839	-9.4639	0.0000
Error S.D.	26.6604	7.6816	40.9492	31.2449	0.0000
Abs E. Mean	17.5693	6.1131	31.3041	26.7467	0.0000
S.D. Ratio	0.3863	0.1208	0.4343	0.7487	0.0000
Correlation	0.9228	0.9930	0.9028	0.6651	0.0000

Point View Reservoir extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	47.2000	60.2000	47.6000	20.8000	0.0000
Data S.D.	69.0229	80.6818	55.0331	44.4270	0.0000
Error Mean	6.9036	0.0752	0.8163	26.6476	0.0000
Error S.D.	40.2043	46.3976	23.3724	33.0708	0.0000
Abs E. Mean	32.0039	34.9701	19.2325	38.8428	0.0000
S.D. Ratio	0.5825	0.5751	0.4247	0.7444	0.0000
Correlation	0.8175	0.8239	0.9148	0.7615	0.0000

Color

	Overall	Training	Selection	Test	Ignored
Data Mean	48.0976	41.5238	58.4000	51.6000	0.0000
Data S.D.	68.4119	52.1021	70.3409	91.2745	0.0000
Error Mean	-2.3203	-0.1808	6.4557	-15.5892	0.0000
Error S.D.	29.9248	15.2907	39.0349	37.3378	0.0000
Abs E. Mean	19.4975	12.5999	26.1160	27.3637	0.0000
S.D. Ratio	0.4374	0.2935	0.5549	0.4091	0.0000
Correlation	0.8993	0.9561	0.8356	0.9192	0.0000

Initial Chlorophyta Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	48.0976	48.5714	71.2000	24.0000	0.0000
Data S.D.	68.4119	72.6981	73.0545	40.4772	0.0000
Error Mean	6.9443	0.1005	-8.1355	36.3962	0.0000
Error S.D.	43.5721	2.2774	30.3192	75.2373	0.0000
Abs E. Mean	18.7310	1.8951	27.4413	45.3762	0.0000
S.D. Ratio	0.6369	0.0313	0.4150	1.8588	0.0000
Correlation	0.8011	0.9995	0.9199	0.2150	0.0000

Total Hardness

	Overall	Training	Selection	Test	Ignored
Data Mean	47.2000	63.0000	17.6000	45.2000	0.0000
Data S.D.	69.0229	81.3376	23.8126	62.2781	0.0000
Error Mean	-5.6438	-6.7384	-4.9580	-4.1402	0.0000
Error S.D.	38.5653	36.1132	11.3719	56.6246	0.0000
Abs E. Mean	23.4124	24.4337	8.9943	35.7881	0.0000
S.D. Ratio	0.5587	0.4440	0.4776	0.9092	0.0000
Correlation	0.8446	0.9120	0.8859	0.4736	0.0000

Table 3.1. Station 612 Cyanophyta real-time prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	72.9744	33.6667	2.4444	0.0000
Data S.D.	149.4134	182.4988	131.1255	6.1303	0.0000
Error Mean	2.1039	-2.6672	-1.4942	16.0393	0.0000
Error S.D.	54.8670	30.8736	88.7730	48.3836	0.0000
Abs E. Mean	32.9398	22.5193	55.3181	33.1392	0.0000
S.D. Ratio	0.3672	0.1692	0.6770	7.8926	0.0000
Correlation	0.9313	0.9865	0.7399	0.2530	0.0000

Initial Cyanophyta level

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	84.0000	4.0000	8.2222	0.0000
Data S.D.	149.4134	199.5549	13.7275	15.1714	0.0000
Error Mean	5.6224	0.4057	-1.0427	23.5904	0.0000
Error S.D.	53.1228	9.9826	18.4341	103.8098	0.0000
Abs E. Mean	12.8630	5.8452	9.2611	31.6701	0.0000
S.D. Ratio	0.3555	0.0500	1.3429	6.8424	0.0000
Correlation	0.9414	0.9988	-0.1223	0.7997	0.0000

Ammonia

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	35.5385	81.1111	36.1111	0.0000
Data S.D.	149.4134	142.2223	174.6809	130.8170	0.0000
Error Mean	-14.8589	-0.9962	-27.8129	-31.9408	0.0000
Error S.D.	68.9132	17.1544	69.4617	115.9703	0.0000
Abs E. Mean	28.6050	13.6993	42.7216	46.7841	0.0000
S.D. Ratio	0.4612	0.1206	0.3976	0.8865	0.0000
Correlation	0.8885	0.9928	0.9271	0.5380	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	59.1795	60.4444	5.5556	0.0000
Data S.D.	149.4134	170.7262	165.6389	14.4922	0.0000
Error Mean	5.3933	5.6177	-3.3134	13.6139	0.0000
Error S.D.	58.4394	68.0245	29.0264	56.7268	0.0000
Abs E. Mean	22.0962	27.8432	16.1207	15.6198	0.0000
S.D. Ratio	0.3911	0.3984	0.1752	3.9143	0.0000
Correlation	0.9219	0.9178	0.9850	0.9326	0.0000

Color

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	51.7949	78.6667	3.3333	0.0000
Data S.D.	149.4134	163.3846	179.3878	6.4291	0.0000
Error Mean	-1.6527	-0.6033	-1.1573	-4.4216	0.0000
Error S.D.	70.8245	41.0935	127.4436	31.4565	0.0000
Abs E. Mean	34.5983	27.4025	57.8315	26.9560	0.0000
S.D. Ratio	0.4740	0.2515	0.7104	4.8928	0.0000
Correlation	0.8805	0.9719	0.7161	0.1134	0.0000

Total Organic Carbon (TOC)

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	40.1026	102.6667	4.6667	0.0000
Data S.D.	149.4134	135.4604	219.4751	9.9107	0.0000
Error Mean	3.3324	1.2862	-7.3737	18.4721	0.0000
Error S.D.	53.6998	21.6796	91.1084	48.4074	0.0000
Abs E. Mean	28.8333	16.2059	50.3322	34.6936	0.0000
S.D. Ratio	0.3594	0.1600	0.4151	4.8844	0.0000
Correlation	0.9338	0.9875	0.9207	-0.1613	0.0000

Temperature

	Overall	Training	Selection	Test	Ignored
Data Mean	46.6133	47.8462	42.6667	47.8889	0.0000
Data S.D.	149.4134	153.3612	155.6920	133.4108	0.0000
Error Mean	12.9053	-0.1683	0.6737	53.4631	0.0000
Error S.D.	71.0913	11.8015	10.8813	135.9160	0.0000
Abs E. Mean	18.4026	6.7044	6.7039	55.4475	0.0000
S.D. Ratio	0.4758	0.0770	0.0699	1.0188	0.0000
Correlation	0.9371	0.9970	0.9976	0.9888	0.0000

Table 3.2. Station 612 Cyanophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	27.8462	86.7692	3.3846	0.0000
Data S.D.	134.9203	126.5761	192.2779	5.1670	0.0000
Error Mean	2.6056	-0.0552	4.5856	5.9472	0.0000
Error S.D.	21.2947	3.7739	35.6892	21.9638	0.0000
Abs E. Mean	11.3872	3.2145	25.3985	13.7214	0.0000
S.D. Ratio	0.1578	0.0298	0.1856	4.2508	0.0000
Correlation	0.9875	0.9996	0.9834	-0.2725	0.0000

Initial Cyanophyta Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	57.2308	4.9231	26.4615	0.0000
Data S.D.	134.9203	178.0260	8.8965	85.9701	0.0000
Error Mean	-2.0128	-0.5159	0.0915	-7.1110	0.0000
Error S.D.	27.1343	6.4036	5.0409	52.9410	0.0000
Abs E. Mean	9.2025	5.0464	3.4464	23.2709	0.0000
S.D. Ratio	0.2011	0.0360	0.5666	0.6158	0.0000
Correlation	0.9798	0.9994	0.8242	0.9671	0.0000

Turbidity

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	29.8462	29.5385	56.6154	0.0000
Data S.D.	134.9203	126.7498	85.1647	181.3511	0.0000
Error Mean	-2.2821	0.1567	-7.0428	-2.3989	0.0000
Error S.D.	9.6332	3.6561	9.2607	14.9709	0.0000
Abs E. Mean	6.1284	2.5379	8.0738	11.3642	0.0000
S.D. Ratio	0.0714	0.0288	0.1087	0.0826	0.0000
Correlation	0.9976	0.9996	0.9952	0.9969	0.0000

Color

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	40.1538	63.0769	2.4615	0.0000
Data S.D.	134.9203	138.6417	180.1617	4.5845	0.0000
Error Mean	0.5331	-0.0514	2.0581	0.1770	0.0000
Error S.D.	18.9033	6.1713	36.4236	4.8326	0.0000
Abs E. Mean	7.4394	3.7627	18.1785	4.0535	0.0000
S.D. Ratio	0.1401	0.0445	0.2022	1.0541	0.0000
Correlation	0.9902	0.9990	0.9797	-0.2565	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	31.2308	3.3846	80.0000	0.0000
Data S.D.	134.9203	126.4815	6.9894	194.2306	0.0000
Error Mean	-7.7870	-0.5113	-0.0660	-30.0595	0.0000
Error S.D.	40.8070	12.3116	6.9882	75.1485	0.0000
Abs E. Mean	13.5518	7.1921	5.1712	34.6516	0.0000
S.D. Ratio	0.3025	0.0973	0.9998	0.3869	0.0000
Correlation	0.9586	0.9953	0.3666	0.9451	0.0000

Total Organic Carbon (TOC)

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	40.9231	61.5385	2.4615	0.0000
Data S.D.	134.9203	138.4232	180.6419	5.9822	0.0000
Error Mean	0.4675	0.0924	0.9653	0.7201	0.0000
Error S.D.	7.2100	6.8286	8.4628	6.5165	0.0000
Abs E. Mean	5.1864	4.6207	6.9307	4.5734	0.0000
S.D. Ratio	0.0534	0.0493	0.0468	1.0893	0.0000
Correlation	0.9986	0.9988	0.9990	0.0071	0.0000

Initial Chrysophyta Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	36.4615	26.9231	60.9231	31.0769	0.0000
Data S.D.	134.9203	126.6931	180.7346	85.0723	0.0000
Error Mean	-4.6034	0.1864	-0.6752	-18.1113	0.0000
Error S.D.	28.3091	4.4896	8.0064	53.4549	0.0000
Abs E. Mean	8.5063	2.9199	6.3743	21.8108	0.0000
S.D. Ratio	0.2098	0.0354	0.0443	0.6283	0.0000
Correlation	0.9778	0.9994	0.9993	0.9918	0.0000

Table 3.3. Station 612 Cyanophyta two-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	90.4286	5.2308	16.0000	0.0000
Data S.D.	174.8345	234.2730	18.1199	42.0403	0.0000
Error Mean	-0.5241	-2.8803	6.1653	-2.1384	0.0000
Error S.D.	58.6287	74.7004	7.5090	46.2991	0.0000
Abs E. Mean	22.3903	28.1473	8.0155	24.3652	0.0000
S.D. Ratio	0.3353	0.3189	0.4144	1.1013	0.0000
Correlation	0.9442	0.9501	0.9390	0.0248	0.0000

pH

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	84.8571	30.1538	3.0769	0.0000
Data S.D.	174.8345	230.4340	85.7849	6.8664	0.0000
Error Mean	3.0282	2.6387	1.6539	5.2412	0.0000
Error S.D.	32.1900	43.1307	7.8491	15.1255	0.0000
Abs E. Mean	12.6718	18.8605	5.1221	6.8919	0.0000
S.D. Ratio	0.1841	0.1872	0.0915	2.2028	0.0000
Correlation	0.9830	0.9825	0.9958	0.2383	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	83.2857	6.7692	29.8462	0.0000
Data S.D.	174.8345	227.3325	18.0519	103.3901	0.0000
Error Mean	-1.2940	-1.2810	8.6520	-11.2682	0.0000
Error S.D.	58.7092	33.7564	9.8457	107.5533	0.0000
Abs E. Mean	23.8148	19.4290	10.7419	46.3338	0.0000
S.D. Ratio	0.3358	0.1485	0.5454	1.0403	0.0000
Correlation	0.9421	0.9890	0.8842	-0.0598	0.0000

UV254

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	97.0000	6.7692	0.3077	0.0000
Data S.D.	174.8345	233.6313	18.0519	1.0659	0.0000
Error Mean	1.0999	-2.2271	4.5710	4.7947	0.0000
Error S.D.	23.7415	32.4327	4.9741	1.2163	0.0000
Abs E. Mean	10.6844	15.6022	5.9819	4.7947	0.0000
S.D. Ratio	0.1358	0.1388	0.2755	1.1411	0.0000
Correlation	0.9908	0.9904	0.9793	-0.1059	0.0000

Initial Cyanophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	81.5714	6.1538	34.1538	0.0000
Data S.D.	174.8345	227.8905	17.9993	102.3973	0.0000
Error Mean	-6.3198	-0.2837	0.7773	-26.4176	0.0000
Error S.D.	52.2492	8.1368	2.5557	103.2377	0.0000
Abs E. Mean	11.3704	5.0528	2.1755	34.1724	0.0000
S.D. Ratio	0.2988	0.0357	0.1420	1.0082	0.0000
Correlation	0.9544	0.9994	0.9901	-0.0244	0.0000

Passaic streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	90.2857	7.0769	14.4615	0.0000
Data S.D.	174.8345	234.4073	18.1042	41.3775	0.0000
Error Mean	-1.9173	-1.5461	10.6880	-15.3222	0.0000
Error S.D.	34.0447	12.5785	12.5530	63.0653	0.0000
Abs E. Mean	15.9107	8.1929	12.8323	35.6122	0.0000
S.D. Ratio	0.1947	0.0537	0.6934	1.5241	0.0000
Correlation	0.9809	0.9987	0.8372	0.1032	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	52.0000	68.4286	66.7692	1.8462	0.0000
Data S.D.	174.8345	191.1240	212.0516	3.7179	0.0000
Error Mean	4.4525	0.2894	-0.8607	18.7323	0.0000
Error S.D.	33.3906	33.0600	10.3516	43.5952	0.0000
Abs E. Mean	14.2891	15.4230	6.6952	19.4409	0.0000
S.D. Ratio	0.1910	0.1730	0.0488	11.7259	0.0000
Correlation	0.9816	0.9850	0.9988	0.8022	0.0000

Table 3.4. Station 612 Chrysophyta real-time prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	92.2051	84.0000	59.7778	0.0000
Data S.D.	93.8643	109.2434	85.4894	53.1241	0.0000
Error Mean	5.3886	-0.6240	10.3782	13.4263	0.0000
Error S.D.	51.9193	45.3996	61.6526	52.8875	0.0000
Abs E. Mean	42.1518	35.8372	49.1962	48.7891	0.0000
S.D. Ratio	0.5531	0.4156	0.7212	0.9955	0.0000
Correlation	0.8393	0.9134	0.6994	0.4125	0.0000

UV254

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	94.8718	63.5556	74.4444	0.0000
Data S.D.	93.8643	116.4067	64.1788	49.7664	0.0000
Error Mean	-1.9911	-1.5163	-1.2394	-3.7713	0.0000
Error S.D.	60.4220	66.2151	57.0161	49.5686	0.0000
Abs E. Mean	47.3459	51.1806	43.3998	42.9833	0.0000
S.D. Ratio	0.6437	0.5688	0.8884	0.9960	0.0000
Correlation	0.7660	0.8244	0.4668	0.3221	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	94.1538	62.0000	77.5556	0.0000
Data S.D.	93.8643	113.3240	72.2619	54.0804	0.0000
Error Mean	-1.3187	-4.7996	6.5697	-1.6652	0.0000
Error S.D.	57.3981	54.9185	39.9850	74.1963	0.0000
Abs E. Mean	40.7641	38.3085	34.7098	52.1386	0.0000
S.D. Ratio	0.6115	0.4846	0.5533	1.3720	0.0000
Correlation	0.7927	0.8748	0.8792	-0.0940	0.0000

Initial Chrysophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	94.8718	63.5556	74.4444	0.0000
Data S.D.	93.8643	116.4067	64.1788	49.7664	0.0000
Error Mean	-1.9911	-1.5163	-1.2394	-3.7713	0.0000
Error S.D.	60.4220	66.2151	57.0161	49.5686	0.0000
Abs E. Mean	47.3459	51.1806	43.3998	42.9833	0.0000
S.D. Ratio	0.6437	0.5688	0.8884	0.9960	0.0000
Correlation	0.7660	0.8244	0.4668	0.3221	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	90.3077	83.0000	64.8889	0.0000
Data S.D.	93.8643	113.4002	78.2879	47.7131	0.0000
Error Mean	-2.5430	-0.1001	-17.6098	7.2309	0.0000
Error S.D.	51.8959	59.2997	32.8774	46.7571	0.0000
Abs E. Mean	38.5880	44.7330	27.7262	36.1358	0.0000
S.D. Ratio	0.5529	0.5229	0.4200	0.9800	0.0000
Correlation	0.8394	0.8577	0.9505	0.6710	0.0000

Initial Chlorophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	89.0769	77.7778	72.7778	0.0000
Data S.D.	93.8643	117.8150	53.3204	59.8559	0.0000
Error Mean	-2.6262	-3.4141	8.1796	-11.7251	0.0000
Error S.D.	48.0040	38.7253	34.5486	70.4120	0.0000
Abs E. Mean	36.2413	28.8033	31.2067	57.3914	0.0000
S.D. Ratio	0.5114	0.3287	0.6479	1.1764	0.0000
Correlation	0.8603	0.9528	0.7804	-0.0669	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	81.7436	60.4444	106.0000	0.0000
Data S.D.	93.8643	105.3231	53.8457	93.4689	0.0000
Error Mean	8.8344	-5.8051	-0.0344	49.4221	0.0000
Error S.D.	82.7555	50.6932	36.1689	139.5308	0.0000
Abs E. Mean	50.7052	37.6623	30.6999	98.9700	0.0000
S.D. Ratio	0.8816	0.4813	0.6717	1.4928	0.0000
Correlation	0.6617	0.8811	0.7419	0.4689	0.0000

Initial Cyanophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	82.4533	90.3590	52.0000	95.7778	0.0000
Data S.D.	93.8643	105.2303	62.9038	86.7228	0.0000
Error Mean	9.4930	-0.4495	4.2401	36.2881	0.0000
Error S.D.	80.8553	17.2881	39.6693	155.1095	0.0000
Abs E. Mean	42.5441	13.6988	32.7707	114.8157	0.0000
S.D. Ratio	0.8614	0.1643	0.6306	1.7886	0.0000
Correlation	0.6590	0.9864	0.7792	-0.1256	0.0000

Table 3.5. Station 612 Chrysophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	63.7692	58.1538	57.5385	81.2308	0.0000
Data S.D.	55.0324	45.7986	40.3535	76.7074	0.0000
Error Mean	-3.6228	-1.5388	1.0042	-12.4177	0.0000
Error S.D.	37.4465	15.9067	27.5314	65.0959	0.0000
Abs E. Mean	20.8285	13.2252	18.9483	37.9153	0.0000
S.D. Ratio	0.6804	0.3473	0.6823	0.8486	0.0000
Correlation	0.7340	0.9416	0.7693	0.5471	0.0000

Passaic streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	63.7692	58.0000	80.3077	58.7692	0.0000
Data S.D.	55.0324	43.1277	79.8685	40.6224	0.0000
Error Mean	-6.3363	0.6985	-17.6759	-9.0666	0.0000
Error S.D.	27.3186	11.8595	27.9206	41.1016	0.0000
Abs E. Mean	19.2228	9.5748	23.3834	34.3584	0.0000
S.D. Ratio	0.4964	0.2750	0.3496	1.0118	0.0000
Correlation	0.8684	0.9615	0.9499	0.3885	0.0000

Initial Chrysophyt Levels

	Overall	Training	Selection	Test	Ignored
Data Mean	63.7692	61.3846	66.4615	65.8462	0.0000
Data S.D.	55.0324	61.2580	41.5556	53.4730	0.0000
Error Mean	-3.3572	-0.3235	-7.9981	-4.7838	0.0000
Error S.D.	34.8296	32.3070	29.8897	42.7731	0.0000
Abs E. Mean	26.7437	24.4337	24.9528	33.1546	0.0000
S.D. Ratio	0.6329	0.5274	0.7193	0.7999	0.0000
Correlation	0.7753	0.8864	0.7549	0.6159	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	63.7692	73.8462	50.7692	56.6154	0.0000
Data S.D.	55.0324	66.3532	42.8919	32.3384	0.0000
Error Mean	4.7751	3.0008	0.0949	13.0037	0.0000
Error S.D.	31.1679	32.9151	23.2941	32.8697	0.0000
Abs E. Mean	25.5671	26.0487	18.1361	32.0351	0.0000
S.D. Ratio	0.5664	0.4961	0.5431	1.0164	0.0000
Correlation	0.8242	0.8712	0.8401	0.4168	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	63.7692	64.1538	62.7692	64.0000	0.0000
Data S.D.	55.0324	65.1576	35.5141	48.5862	0.0000
Error Mean	2.1687	2.7277	3.0706	0.1487	0.0000
Error S.D.	35.4093	30.9131	24.0220	50.2142	0.0000
Abs E. Mean	28.2554	26.0828	18.8833	41.9727	0.0000
S.D. Ratio	0.6434	0.4744	0.6764	1.0335	0.0000
Correlation	0.7661	0.8848	0.7434	0.3972	0.0000

Ammonia

	Overall	Training	Selection	Test	Ignored
Data Mean	63.7692	62.7692	72.3077	57.2308	0.0000
Data S.D.	55.0324	64.0170	46.1826	40.8339	0.0000
Error Mean	-3.5057	0.0282	0.3932	-14.4726	0.0000
Error S.D.	28.6472	12.6997	27.5463	45.1757	0.0000
Abs E. Mean	21.2630	9.5956	22.8585	43.0023	0.0000
S.D. Ratio	0.5206	0.1984	0.5965	1.1063	0.0000
Correlation	0.8624	0.9802	0.8026	0.4673	0.0000

Table 3.6. Station 612 Chrysophyta two-week ahead prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	112.0714	61.2308	46.4615	0.0000
Data S.D.	110.2768	141.3046	53.2370	32.4028	0.0000
Error Mean	12.5830	-1.6977	11.7972	44.1270	0.0000
Error S.D.	73.8329	84.8177	42.0034	62.8477	0.0000
Abs E. Mean	50.5494	58.5165	34.1303	49.8086	0.0000
S.D. Ratio	0.6695	0.6002	0.7890	1.9396	0.0000
Correlation	0.7482	0.8019	0.6348	-0.2779	0.0000

Ammonia

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	73.7857	127.0769	63.0769	0.0000
Data S.D.	110.2768	83.6410	173.6639	52.6271	0.0000
Error Mean	2.3748	1.5868	-4.2545	10.7014	0.0000
Error S.D.	56.0624	14.6823	44.5424	102.4331	0.0000
Abs E. Mean	32.2738	11.1379	37.4576	72.6136	0.0000
S.D. Ratio	0.5084	0.1755	0.2565	1.9464	0.0000
Correlation	0.8701	0.9845	0.9671	-0.0254	0.0000

Pompton river extractions

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	95.6429	92.9231	50.1538	0.0000
Data S.D.	110.2768	96.5313	167.2375	30.9686	0.0000
Error Mean	2.4002	-0.5206	-0.9949	12.0862	0.0000
Error S.D.	56.0328	64.5468	53.9078	32.2244	0.0000
Abs E. Mean	43.8035	50.7065	43.7794	28.9597	0.0000
S.D. Ratio	0.5081	0.6687	0.3223	1.0406	0.0000
Correlation	0.8617	0.7479	0.9521	0.2633	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	85.0714	100.6154	65.2308	0.0000
Data S.D.	110.2768	127.5712	110.6273	50.9210	0.0000
Error Mean	10.1577	2.5392	-13.0643	49.7889	0.0000
Error S.D.	62.5316	23.7446	51.8744	100.5096	0.0000
Abs E. Mean	38.9658	18.7563	38.9346	82.5251	0.0000
S.D. Ratio	0.5670	0.1861	0.4689	1.9738	0.0000
Correlation	0.8466	0.9826	0.8848	0.1427	0.0000

Turbidity

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	73.3571	132.9231	58.1538	0.0000
Data S.D.	110.2768	67.7813	185.9108	52.4505	0.0000
Error Mean	-4.5864	0.3778	-19.0021	-0.8630	0.0000
Error S.D.	45.1208	13.4675	66.5997	57.9297	0.0000
Abs E. Mean	27.7596	9.8219	51.5087	42.6455	0.0000
S.D. Ratio	0.4092	0.1987	0.3582	1.1045	0.0000
Correlation	0.9159	0.9821	0.9459	0.1210	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	80.9286	68.6154	106.1538	0.0000
Data S.D.	110.2768	83.7368	90.5076	162.7049	0.0000
Error Mean	-3.5121	3.0925	-3.4597	-17.7899	0.0000
Error S.D.	47.6026	29.1413	64.1017	56.3624	0.0000
Abs E. Mean	32.3922	22.7082	45.6654	39.9769	0.0000
S.D. Ratio	0.4317	0.3480	0.7082	0.3464	0.0000
Correlation	0.9141	0.9375	0.7160	0.9784	0.0000

Sulfate

	Overall	Training	Selection	Test	Ignored
Data Mean	84.0370	87.4286	99.8462	60.9231	0.0000
Data S.D.	110.2768	130.4441	102.9905	49.4935	0.0000
Error Mean	2.5344	1.0419	-5.0044	13.2878	0.0000
Error S.D.	44.9885	8.6022	52.7284	72.7346	0.0000
Abs E. Mean	28.4957	6.8671	44.2293	59.3467	0.0000
S.D. Ratio	0.4080	0.0659	0.5120	1.4696	0.0000
Correlation	0.9161	0.9979	0.8595	0.1401	0.0000

Table 3.7 Station 612 Chlorophyta real-time prediction models
DESCRIPTIVE STATISTICS

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	48.4267	42.3846	57.9444	52.0000	0.0000
Data S.D.	69.1854	55.7621	99.8858	55.2047	0.0000
Error Mean	-8.7006	1.3255	-13.8199	-25.3045	0.0000
Error S.D.	45.2187	23.3804	49.9184	65.7556	0.0000
Abs E. Mean	27.7548	17.0565	26.3669	52.3226	0.0000
S.D. Ratio	0.6536	0.4193	0.4998	1.1911	0.0000
Correlation	0.7586	0.9108	0.9366	0.2802	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	48.4267	53.3077	27.3889	58.8889	0.0000
Data S.D.	69.1854	78.3219	26.7688	73.0273	0.0000
Error Mean	-0.9849	1.2997	-1.7038	-5.2159	0.0000
Error S.D.	43.6931	29.1980	15.5996	76.3828	0.0000
Abs E. Mean	28.0267	20.5462	13.3195	58.9415	0.0000
S.D. Ratio	0.6315	0.3728	0.5828	1.0459	0.0000
Correlation	0.7754	0.9330	0.8206	0.2037	0.0000

Chloride

	Overall	Training	Selection	Test	Ignored
Data Mean	48.4267	56.8974	44.0556	34.4444	0.0000
Data S.D.	69.1854	64.0356	93.6331	43.8460	0.0000
Error Mean	4.4487	0.0403	1.0225	17.4266	0.0000
Error S.D.	49.2385	10.0717	48.6509	85.3981	0.0000
Abs E. Mean	22.3790	6.2856	29.2004	50.4268	0.0000
S.D. Ratio	0.7117	0.1573	0.5196	1.9477	0.0000
Correlation	0.7394	0.9876	0.8751	0.0758	0.0000

Sky Cover

	Overall	Training	Selection	Test	Ignored
Data Mean	48.4267	38.4103	45.7778	72.7778	0.0000
Data S.D.	69.1854	43.9334	97.7454	73.4216	0.0000
Error Mean	-5.2404	0.0633	-11.4410	-10.5311	0.0000
Error S.D.	74.1886	2.1759	59.0739	138.9451	0.0000
Abs E. Mean	28.8939	1.4201	35.8873	81.4272	0.0000
S.D. Ratio	1.0723	0.0495	0.6044	1.8924	0.0000
Correlation	0.5862	0.9988	0.7973	0.4025	0.0000

Pompton streamflow

	Overall	Training	Selection	Test	Ignored
Data Mean	48.4267	53.3846	52.0556	34.0556	0.0000
Data S.D.	69.1854	82.1158	54.7321	45.4514	0.0000
Error Mean	9.0568	9.4707	-9.6942	26.9112	0.0000
Error S.D.	47.8647	44.4765	33.1035	59.1045	0.0000
Abs E. Mean	36.2295	36.3700	29.4657	42.6887	0.0000
S.D. Ratio	0.6918	0.5416	0.6048	1.3004	0.0000
Correlation	0.7469	0.8406	0.8005	0.5250	0.0000

Heating Degree Days

	Overall	Training	Selection	Test	Ignored
Data Mean	48.4267	45.8974	53.3333	49.0000	0.0000
Data S.D.	69.1854	72.9326	54.8655	73.2863	0.0000
Error Mean	1.4915	1.0172	-17.3670	21.3777	0.0000
Error S.D.	97.9475	11.7274	36.6883	193.8510	0.0000
Abs E. Mean	33.2390	9.7828	29.9000	87.3996	0.0000
S.D. Ratio	1.4157	0.1608	0.6687	2.6451	0.0000
Correlation	0.3993	0.9870	0.7437	-0.0794	0.0000

**Table 3.8. Station 612 Chlorophyta one-week ahead prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	45.6731	54.6154	48.9231	24.5385	0.0000
Data S.D.	72.7233	95.9419	29.5256	35.4414	0.0000
Error Mean	2.5785	-0.7814	4.5201	7.3569	0.0000
Error S.D.	21.2259	15.0809	16.6214	31.9660	0.0000
Abs E. Mean	15.3043	10.7396	14.7994	24.9387	0.0000
S.D. Ratio	0.2919	0.1572	0.5629	0.9019	0.0000
Correlation	0.9580	0.9878	0.8926	0.5898	0.0000

Total Count

	Overall	Training	Selection	Test	Ignored
Data Mean	45.6731	57.0385	38.1538	30.4615	0.0000
Data S.D.	72.7233	94.3123	38.2257	36.8461	0.0000
Error Mean	17.3008	0.3241	-4.3695	72.9248	0.0000
Error S.D.	91.6739	7.5616	25.2887	169.4771	0.0000
Abs E. Mean	26.2386	5.6481	16.4029	77.2553	0.0000
S.D. Ratio	1.2606	0.0802	0.6616	4.5996	0.0000
Correlation	0.6710	0.9968	0.7518	0.8306	0.0000

Initial Chlorophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	45.6731	47.9615	28.0000	58.7692	0.0000
Data S.D.	72.7233	91.4425	24.5075	57.7610	0.0000
Error Mean	-3.9743	-0.2591	1.5452	-16.9242	0.0000
Error S.D.	37.3478	15.1723	12.7552	68.7792	0.0000
Abs E. Mean	20.9285	9.7806	10.0609	54.0920	0.0000
S.D. Ratio	0.5136	0.1659	0.5205	1.1908	0.0000
Correlation	0.8603	0.9862	0.8540	-0.0213	0.0000

Initial Chrysophyta Level

	Overall	Training	Selection	Test	Ignored
Data Mean	45.6731	37.4231	74.4615	33.3846	0.0000
Data S.D.	72.7233	43.0940	121.7163	38.8558	0.0000
Error Mean	0.6889	1.3829	-28.5413	28.5313	0.0000
Error S.D.	73.2113	11.5963	89.1064	107.7037	0.0000
Abs E. Mean	38.0081	10.0437	57.0093	74.9355	0.0000
S.D. Ratio	1.0067	0.2691	0.7321	2.7719	0.0000
Correlation	0.5545	0.9633	0.6900	0.7538	0.0000

Total Phosphorous/Orthophosphate

	Overall	Training	Selection	Test	Ignored
Data Mean	45.6731	72.0000	12.4615	26.2308	0.0000
Data S.D.	72.7233	92.4138	10.2928	33.1805	0.0000
Error Mean	5.3511	-0.4713	-0.0907	22.4377	0.0000
Error S.D.	27.5958	16.2678	8.9063	45.2565	0.0000
Abs E. Mean	15.6509	10.9230	7.2012	33.5563	0.0000
S.D. Ratio	0.3795	0.1760	0.8653	1.3639	0.0000
Correlation	0.9349	0.9844	0.5555	0.8932	0.0000

Pompton river extraction

	Overall	Training	Selection	Test	Ignored
Data Mean	45.6731	59.2308	32.1538	32.0769	0.0000
Data S.D.	72.7233	95.6469	27.8508	36.7035	0.0000
Error Mean	6.9174	0.0573	4.2781	23.2771	0.0000
Error S.D.	43.9091	21.5311	19.1966	77.7665	0.0000
Abs E. Mean	21.8449	15.0025	17.3043	40.0702	0.0000
S.D. Ratio	0.6038	0.2251	0.6893	2.1188	0.0000
Correlation	0.8213	0.9749	0.7310	0.0390	0.0000

**Table 3.9. Station 612 Chlorophyta two-week prediction models
DESCRIPTIVE STATISTICS**

All Inputs

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	55.8519	33.0000	28.5385	0.0000
Data S.D.	59.7010	73.7522	42.8055	27.3963	0.0000
Error Mean	1.2390	-0.2371	-2.8845	8.4282	0.0000
Error S.D.	25.0725	20.0515	27.6132	29.8683	0.0000
Abs E. Mean	19.8913	15.7009	23.5160	24.9695	0.0000
S.D. Ratio	0.4200	0.2719	0.6451	1.0902	0.0000
Correlation	0.9080	0.9624	0.8352	0.5270	0.0000

Odor

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	46.8519	44.6154	35.6154	0.0000
Data S.D.	59.7010	69.4117	46.7753	47.4318	0.0000
Error Mean	-3.3029	1.0636	-0.1139	-15.5610	0.0000
Error S.D.	42.3058	38.6567	25.4825	57.8255	0.0000
Abs E. Mean	28.3540	30.3160	18.3443	34.2886	0.0000
S.D. Ratio	0.7086	0.5569	0.5448	1.2191	0.0000
Correlation	0.7117	0.8314	0.8397	-0.0923	0.0000

UV254

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	53.6296	23.0769	43.0769	0.0000
Data S.D.	59.7010	72.7879	23.2262	48.5536	0.0000
Error Mean	-0.5471	-0.3963	9.8035	-11.2110	0.0000
Error S.D.	30.4567	20.9233	12.6999	49.9035	0.0000
Abs E. Mean	20.5617	15.0227	15.3561	37.2714	0.0000
S.D. Ratio	0.5102	0.2875	0.5468	1.0278	0.0000
Correlation	0.8608	0.9578	0.8460	0.1314	0.0000

Total Amorphous Materials

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	47.8148	33.6154	44.6154	0.0000
Data S.D.	59.7010	50.2645	39.9914	86.8717	0.0000
Error Mean	-2.6532	-0.7351	3.5713	-12.8615	0.0000
Error S.D.	49.8569	24.3309	22.6146	90.7883	0.0000
Abs E. Mean	24.4821	17.7615	17.2677	45.6547	0.0000
S.D. Ratio	0.8351	0.4841	0.5655	1.0451	0.0000
Correlation	0.5571	0.8764	0.8388	0.0043	0.0000

current week's Precipitation

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	45.3333	44.9231	38.4615	0.0000
Data S.D.	59.7010	72.4477	45.0136	39.6147	0.0000
Error Mean	2.2159	0.5699	-5.8772	13.7275	0.0000
Error S.D.	46.9430	26.8120	23.9884	81.9264	0.0000
Abs E. Mean	26.2009	16.5712	17.9095	54.4926	0.0000
S.D. Ratio	0.7863	0.3701	0.5329	2.0681	0.0000
Correlation	0.7206	0.9300	0.8470	0.0342	0.0000

Color

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	47.8889	51.0769	27.0000	0.0000
Data S.D.	59.7010	72.1133	52.8138	23.9037	0.0000
Error Mean	2.0440	0.0577	-5.5223	13.7357	0.0000
Error S.D.	31.2042	2.3699	41.5662	45.0351	0.0000
Abs E. Mean	16.6262	1.7873	33.4700	30.6015	0.0000
S.D. Ratio	0.5227	0.0329	0.7870	1.8840	0.0000
Correlation	0.8641	0.9995	0.6431	0.2980	0.0000

Wind Direction

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	47.5556	61.5385	17.2308	0.0000
Data S.D.	59.7010	45.9221	93.2702	20.0544	0.0000
Error Mean	9.2885	0.3379	-12.0916	49.2582	0.0000
Error S.D.	54.2250	14.0806	60.0921	75.7870	0.0000
Abs E. Mean	28.1217	9.3451	38.8377	56.4035	0.0000
S.D. Ratio	0.9083	0.3066	0.6443	3.7791	0.0000
Correlation	0.6082	0.9519	0.7696	0.0473	0.0000

Total Organic Carbon (TOC)

	Overall	Training	Selection	Test	Ignored
Data Mean	43.5472	35.2593	43.3077	61.0000	0.0000
Data S.D.	59.7010	63.8149	42.5882	61.7414	0.0000
Error Mean	-6.4757	4.4567	-9.5890	-26.0682	0.0000
Error S.D.	41.1985	22.5787	26.1839	67.3321	0.0000
Abs E. Mean	27.3926	19.5379	19.4076	51.6911	0.0000
S.D. Ratio	0.6901	0.3538	0.6148	1.0906	0.0000
Correlation	0.7251	0.9386	0.7987	0.0063	0.0000

Table 3.10. Comparison of ANN and LM models for Algae predictions at the three stations

CYANOBACTERIA	Station 100		Station 101		Station 612	
	ANN	LM	ANN	LM	ANN	LM
Real-Time Mean Absolute Error	15.01	41.25	2.82	10.37	32.93	93.2
Real-Time Correlation Coefficient	0.96	0.46	0.97	0.0039	0.93	0.5
One-Week Mean Absolute Error	22.55	50.08	2.25	5.85	11.38	24.19
One-Week Correlation Coefficient	0.94	0.13	0.95	0.35	0.99	0.5
Two-Week Mean Absolute Error	15.48	42.86	4.56	16.8	22.39	43.57
Two-Week Correlation Coefficient	0.96	0.49	0.94	0.42	0.94	0.5

CHRYSTOPHYTA	Station 100		Station 101		Station 612	
	ANN	LM	ANN	LM	ANN	LM
Real-Time Mean Absolute Error	35.97	66.0471	37.93	38.72	42.15	106.25
Real-Time Correlation Coefficient	0.86	0.2310	0.39	0.65	0.84	0.18
One-Week Mean Absolute Error	42.88	89.9135	31.11	29.40	50.55	44.39
One-Week Correlation Coefficient	0.85	0.1818	0.75	0.48	0.75	0.78
Two-Week Mean Absolute Error	28.64	78.1125	26.52	23.56	20.83	23.33
Two-Week Correlation Coefficient	0.89	0.4744	0.59	0.62	0.73	0.54

CHLOROPHYTA	Station 100		Station 101		Station 612	
	ANN	LM	ANN	LM	ANN	LM
Real-Time Mean Absolute Error	37.47	71.7835	14.28	30.99	27.75	94.34
Real-Time Correlation Coefficient	0.75	0.5899	0.89	0.65	0.76	0.24
One-Week Mean Absolute Error	30.57	40.5150	14.95	33.43	19.89	29.03
One-Week Correlation Coefficient	0.73	0.6825	0.94	0.65	0.91	0.32
Two-Week Mean Absolute Error	30.91	53.5609	25.53	30.02	15.30	20.12
Two-Week Correlation Coefficient	0.75	0.5038	0.81	0.57	0.96	0.61



APPENDIX A-3C

PVWC (INITIAL) ORIGINAL MODELING Sensitivity Analyses

Table 4.1. Station 100 Cyanobacteria real-time predictions: Sensitivity Analysis

All Input			Dissolved Oxygen (DO)			Total Suspended Solids		
TSS, mg/L	2.656298	1	Alkalinity mg/L as CaCO ₃	2.271221	1	Odor	1.633813	1
DO, mg/L	2.531148	2	Pompton extraction	1.905625	2	Pompton extraction	1.353477	2
WindDir	2.177556	3	TSS, mg/L	1.890795	3	WindDir	1.153735	3
Pompton extraction	2.150194	4	Nitrite/Nitrate	1.685554	4	DO, mg/L	1.150629	4
HeatingDays	1.857288	5	WindDir	1.672311	5	Alkalinity mg/L as CaCO ₃	1.144782	5
Passaic extractions	1.662716	6	T.Phosphorus/Orthophosph	1.529044	6	HeatingDays	1.062784	6
Temp (OC)	1.659592	7	HeatingDays	1.502498	7	PrevPrecip	1.056823	7
Total Count, cells/ml	1.613225	8	Temp (OC)	1.367439	8	Ammonia, mg/L	1.040613	8
Ammonia, mg/L	1.565445	9	PrevPrecip	1.303646	9	Nitrite/Nitrate	1.035340	9
PrevPrecip	1.45653	10	WindSpeed	1.26361	10	Pompton streamflow	1.03004	10
Alkalinity mg/L as CaCO ₃	1.42249	11	Pompton streamflow	1.25286	11	Initial Chrysophyta	1.02993	11
WindSpeed	1.31262	12	Sulfate, mg/L	1.23154	12	Sulfate, mg/L	1.02940	12
Odor	1.19008	13	Turbidity NTU	1.20110	13	Total Count, cells/ml	1.02460	13
T.Phosphorus/Orthophosph	1.11931	14	Odor	1.18870	14	Turbidity NTU	1.02429	14
Initial Chrysophyta	1.10090	15	Total Count, cells/ml	1.09498	15	WindSpeed	1.01630	15
Pompton streamflow	1.09488	16	BOD, mg/L	1.09298	16	T.Phosphorus/Orthophosph	1.01625	16
Turbidity NTU	1.06669	17	Ammonia, mg/L	1.06932	17	UV-254, cm-1	1.01067	17
SkyCover	1.05816	18	Initial Cyanophyta	1.05924	18	Initial Cyanophyta	1.00708	18
TOC, mg/L	1.05700	19	TOC, mg/L	1.01558	19	SkyCover	1.00660	19
JAPS extractions	1.05149	20	UV-254, cm-1	1.01375	20	pH	1.00272	20
Initial Chlorophyta	1.04423	21	PointRes extractions	1.00810	21	WkPrecip	1.00182	21
WkPrecip	1.04376	22	Initial Chlorophyta	1.00137	22	PointRes extractions	0.99953	22
Chloride, mg/L	1.04222	23	JAPS extractions	1.00017	23	Conductivity, umhos/cm	0.99851	23
Nitrite/Nitrate	1.02735	24	Initial Chrysophyta	0.99960	24	JAPS extractions	0.99511	24
Initial Cyanophyta	1.01336	25	Chloride, mg/L	0.99819	25	Passaic extractions	0.99480	25
PointRes extractions	1.01169	26	WkPrecip	0.99658	26	BOD, mg/L	0.99404	26
BOD, mg/L	1.00751	27	Conductivity, umhos/cm	0.99614	27	Initial Chlorophyta	0.99366	27
Sulfate, mg/L	1.00323	28	Passaic extractions	0.99562	28	TOC, mg/L	0.99327	28
UV-254, cm-1	1.00300	29	Hardness, Total mg/L as Ca	0.99286	29	Chloride, mg/L	0.99009	29
Hardness, Total mg/L as Ca	1.00247	30	pH	0.97963	30	Temp (OC)	0.98765	30
Conductivity, umhos/cm	1.00068	31	SkyCover	0.97055	31	Hardness, Total mg/L as Ca	0.97632	31
pH	0.99373	32						

Table 4.1. Station 100 Cyanobacteria real-time predictions: Sensitivity Analysis (continued)

Pompton extraction (WSPS)		
TSS, mg/L	2.571796	1
DO, mg/L	2.502710	2
Alkalinity mg/L as CaCO ₃	2.147737	3
WindDir	2.056945	4
Passaic extractions	1.791554	5
Nitrite/Nitrate	1.570824	6
BOD, mg/L	1.532795	7
T.Phosphorus/Orthophosph	1.466004	8
Turbidity NTU	1.210338	9
Ammonia, mg/L	1.20745	10
TOC, mg/L	1.15166	11
Odor	1.10933	12
pH	1.10843	13
Sulfate, mg/L	1.04362	14
Total Count, cells/ml	1.03863	15
Temp (OC)	1.03275	16
PrevPrecip	1.02587	17
HeatingDays	1.02205	18
PointRes extractions	1.02177	19
Pompton streamflow	1.01994	20
Conductivity, umhos/cm	1.01416	21
UV-254, cm-1	1.01317	22
SkyCover	1.01230	23
Chloride, mg/L	1.01009	24
WkPrecip	1.00982	25
Initial Chrysophyta	1.00729	26
Initial Cyanophyta	1.00624	27
Initial Chlorophyta	1.00019	28
JAPS extractions	0.99921	29
Hardness, Total mg/L as Ca	0.99860	30
WindSpeed	0.98458	31

Conductivity		
Odor	1.615528	1
TSS, mg/L	1.501171	2
T.Phosphorus/Orthophosph	1.446625	3
DO, mg/L	1.361237	4
Nitrite/Nitrate	1.285877	5
Turbidity NTU	1.277718	6
PointRes extractions	1.238084	7
Passaic extractions	1.237371	8
BOD, mg/L	1.226334	9
Pompton extraction	1.21641	10
SkyCover	1.19001	11
Alkalinity mg/L as CaCO ₃	1.18491	12
Hardness, Total mg/L as Ca	1.17061	13
Ammonia, mg/L	1.12903	14
UV-254, cm-1	1.11373	15
WindDir	1.09515	16
Initial Chrysophyta	1.07692	17
WindSpeed	1.07194	18
TOC, mg/L	1.03493	19
Pompton streamflow	1.03491	20
pH	1.03309	21
WkPrecip	1.01302	22
Temp (OC)	1.01142	23
Initial Cyanophyta	1.01061	24
Total Count, cells/ml	1.00110	25
Sulfate, mg/L	1.00094	26
JAPS extractions	1.00043	27
Chloride, mg/L	1.00008	28
PrevPrecip	0.99991	29
HeatingDays	0.99984	30
Initial Chlorophyta	0.99011	31

pH Level		
PrevPrecip	3.342597	1
Odor	3.328447	2
TSS, mg/L	2.815842	3
WindDir	2.593109	4
Pompton extraction	2.551475	5
DO, mg/L	2.532642	6
Alkalinity mg/L as CaCO ₃	2.402860	7
Nitrite/Nitrate	2.156453	8
Turbidity NTU	2.031704	9
BOD, mg/L	1.53327	10
WindSpeed	1.47502	11
Pompton streamflow	1.37965	12
Ammonia, mg/L	1.36459	13
T.Phosphorus/Orthophosph	1.31943	14
WkPrecip	1.24671	15
SkyCover	1.24124	16
Initial Cyanophyta	1.13316	17
Temp (OC)	1.11528	18
TOC, mg/L	1.07296	19
UV-254, cm-1	1.06425	20
Sulfate, mg/L	1.05733	21
Passaic extractions	1.04727	22
HeatingDays	1.03853	23
Conductivity, umhos/cm	1.03390	24
Initial Chrysophyta	1.03080	25
PointRes extractions	1.02311	26
Chloride, mg/L	1.00838	27
Total Count, cells/ml	1.00757	28
Hardness, Total mg/L as Ca	1.00607	29
JAPS extractions	1.00224	30
Initial Chlorophyta	0.99002	31

Table 4.2. Station 100 Cyanobacteria one-week ahead predictions: Sensitivity Analysis

All Input			Total Suspended Solids			Wind Direction		
TSS, mg/L	1.707758	1	Pompton extraction	2.254715	1	DO, mg/L	2.317179	1
WindDir	1.690551	2	DO, mg/L	2.251864	2	Alkalinity mg/L as CaCO3	2.128899	2
Alkalinity mg/L as CaCO3	1.643495	3	WindDir	2.038830	3	Odor	1.646587	3
Pompton extraction	1.526106	4	Alkalinity mg/L as CaCO3	1.963103	4	Pompton extraction	1.567837	4
HeatingDays	1.479285	5	Odor	1.838503	5	Nitrite/Nitrate	1.343262	5
PrevPrecip	1.406209	6	Sulfate, mg/L	1.791942	6	Passaic extractions	1.256501	6
Ammonia, mg/L	1.309682	7	Turbidity NTU	1.749568	7	T.Phosphorus/Orthophosph	1.246215	7
Odor	1.309053	8	BOD, mg/L	1.547533	8	Sulfate, mg/L	1.180967	8
Nitrite/Nitrate	1.243477	9	Nitrite/Nitrate	1.401355	9	Turbidity NTU	1.120314	9
T.Phosphorus/Orthophosph	1.15696	10	PrevPrecip	1.37288	10	Initial Cyanophyta	1.11786	10
SkyCover	1.13916	11	WindSpeed	1.23402	11	SkyCover	1.10700	11
Chloride, mg/L	1.11992	12	HeatingDays	1.23389	12	BOD, mg/L	1.08772	12
DO, mg/L	1.09915	13	TOC, mg/L	1.23114	13	Ammonia, mg/L	1.08605	13
Turbidity NTU	1.09622	14	Temp (OC)	1.19181	14	Hardness, Total mg/L as Ca	1.08300	14
BOD, mg/L	1.05614	15	Ammonia, mg/L	1.10404	15	UV-254, cm-1	1.07650	15
TOC, mg/L	1.04318	16	pH	1.06383	16	Temp (OC)	1.07343	16
Temp (OC)	1.03837	17	Passaic extractions	1.05934	17	TSS, mg/L	1.06632	17
Sulfate, mg/L	1.02625	18	SkyCover	1.05533	18	PointRes extractions	1.05095	18
Initial Chlorophyta	1.01692	19	UV-254, cm-1	1.04918	19	HeatingDays	1.04489	19
Hardness, Total mg/L as Ca	1.01442	20	Pompton streamflow	1.02741	20	Total Count, cells/ml	1.04362	20
WindSpeed	1.00976	21	Initial Chlorophyta	1.01804	21	WindSpeed	1.04214	21
Initial Cyanophyta	1.00941	22	WkPrecip	1.01144	22	pH	1.03939	22
pH	1.00678	23	Chloride, mg/L	1.00459	23	Pompton streamflow	1.03515	23
JAPS extractions	1.00189	24	PointRes extractions	1.00366	24	Conductivity, umhos/cm	1.02834	24
Initial Chrysophyta	1.00042	25	JAPS extractions	1.00187	25	Initial Chlorophyta	1.01948	25
Pompton streamflow	0.99999	26	Hardness, Total mg/L as Ca	1.00160	26	Chloride, mg/L	1.00715	26
Passaic extractions	0.99692	27	Initial Cyanophyta	1.00135	27	JAPS extractions	1.00521	27
WkPrecip	0.99277	28	T.Phosphorus/Orthophosph	1.00000	28	TOC, mg/L	1.00332	28
Total Count, cells/ml	0.99152	29	Conductivity, umhos/cm	0.99879	29	WkPrecip	1.00000	29
UV-254, cm-1	0.99026	30	Total Count, cells/ml	0.97919	30	Initial Chrysophyta	0.99652	30
Conductivity, umhos/cm	0.97659	31	Initial Chrysophyta	0.93464	31	PrevPrecip	0.99627	31
PointRes extractions	0.83975	32						

Table 4.2. Station 100 Cyanobacteria one-week ahead predictions: Sensitivity Analysis (cont.)

Pompton extraction (WSPS)			Conductivity			PointRes extractions		
Odor	2.283424	1	DO, mg/L	1.688212	1	TSS, mg/L	2.149711	1
TSS, mg/L	1.891304	2	PointRes extractions	1.521401	2	WindDir	2.082613	2
Nitrite/Nitrate	1.782804	3	Alkalinity mg/L as CaCO ₃	1.413659	3	DO, mg/L	1.934959	3
BOD, mg/L	1.780079	4	Odor	1.293821	4	Pompton extraction	1.852019	4
DO, mg/L	1.754019	5	TSS, mg/L	1.278063	5	Alkalinity mg/L as CaCO ₃	1.629735	5
Total Count, cells/ml	1.548822	6	Initial Chrysophyta	1.198936	6	T.Phosphorus/Orthophosph	1.625930	6
Hardness, Total mg/L as Ca	1.515699	7	WindDir	1.153704	7	WindSpeed	1.387102	7
Alkalinity mg/L as CaCO ₃	1.455126	8	UV-254, cm-1	1.144870	8	Total Count, cells/ml	1.323525	8
Ammonia, mg/L	1.305248	9	Sulfate, mg/L	1.135760	9	Ammonia, mg/L	1.314639	9
Passaic extractions	1.21241	10	Turbidity NTU	1.11763	10	PrevPrecip	1.28950	10
WindSpeed	1.20784	11	Temp (0C)	1.08504	11	Nitrite/Nitrate	1.28567	11
SkyCover	1.18787	12	T.Phosphorus/Orthophosph	1.07946	12	Turbidity NTU	1.24208	12
UV-254, cm-1	1.10238	13	Initial Cyanophyta	1.07057	13	Passaic extractions	1.20299	13
Pompton streamflow	1.08972	14	Hardness, Total mg/L as Ca	1.06958	14	Odor	1.17777	14
Sulfate, mg/L	1.07251	15	Ammonia, mg/L	1.05255	15	Hardness, Total mg/L as Ca	1.13402	15
PrevPrecip	1.06823	16	Pompton extraction	1.04746	16	Temp (0C)	1.12013	16
HeatingDays	1.06311	17	HeatingDays	1.04713	17	Pompton streamflow	1.11915	17
TOC, mg/L	1.02841	18	PrevPrecip	1.04619	18	Chloride, mg/L	1.08301	18
Turbidity NTU	1.02518	19	WkPrecip	1.04423	19	Conductivity, umhos/cm	1.07291	19
Initial Chrysophyta	1.02411	20	Initial Chlorophyta	1.01484	20	UV-254, cm-1	1.06867	20
Initial Chlorophyta	1.02102	21	BOD, mg/L	1.00158	21	Initial Chlorophyta	1.03825	21
T.Phosphorus/Orthophosph	1.01757	22	Total Count, cells/ml	0.99997	22	WkPrecip	1.02894	22
Temp (0C)	1.01742	23	JAPS extractions	0.99795	23	HeatingDays	1.02862	23
Chloride, mg/L	1.01250	24	WindSpeed	0.99617	24	TOC, mg/L	1.02757	24
Conductivity, umhos/cm	1.01166	25	Chloride, mg/L	0.99381	25	SkyCover	1.02193	25
Initial Cyanophyta	1.00898	26	TOC, mg/L	0.98928	26	pH	1.01753	26
JAPS extractions	1.00683	27	Passaic extractions	0.98893	27	Sulfate, mg/L	1.00743	27
pH	1.00408	28	SkyCover	0.97829	28	Initial Cyanophyta	1.00418	28
PointRes extractions	0.99005	29	Pompton streamflow	0.96198	29	JAPS extractions	0.99491	29
WindDir	0.98984	30	Nitrite/Nitrate	0.95208	30	BOD, mg/L	0.96485	30
WkPrecip	0.96749	31	pH	0.94638	31	Initial Chrysophyta	0.93967	31

Table 4.3. Station 100 Cyanobacteria two-week ahead predictions: Sensitivity Analysis

All Input		
Sulfate, mg/L	2.467837	1
Nitrite/Nitrate	2.458814	2
Hardness, Total mg/L as Ca	2.425212	3
pH	2.112513	4
Turbidity NTU	2.033659	5
TSS, mg/L	1.868083	6
DO, mg/L	1.794440	7
WindDir	1.676114	8
Conductivity, umhos/cm	1.627026	9
Initial Chrysophyta	1.53643	10
Odor	1.49187	11
HeatingDays	1.42294	12
Passaic extractions	1.40099	13
Alkalinity mg/L as CaCO3	1.36501	14
PointRes extractions	1.34289	15
Total Count, cells/ml	1.34184	16
Initial Cyanophyta	1.29873	17
SkyCover	1.20175	18
Temp (0C)	1.16366	19
Ammonia, mg/L	1.14068	20
Initial Chlorophyta	1.10231	21
TOC, mg/L	1.08969	22
WindSpeed	1.04890	23
Pompton extraction	1.04214	24
WkPrecip	1.02692	25
PrevPrecip	1.01865	26
T.Phosphorus/Orthophosph	1.00837	27
BOD, mg/L	1.00568	28
Chloride, mg/L	1.00321	29
JAPS extractions	0.99109	30
UV-254, cm-1	0.98593	31
Pompton streamflow	0.97335	32

Sulfate		
Initial Chrysophyta	1.435304	1
Nitrite/Nitrate	1.372073	2
Pompton extraction	1.314645	3
HeatingDays	1.298006	4
WkPrecip	1.280172	5
Passaic extractions	1.259798	6
UV-254, cm-1	1.190626	7
Odor	1.176839	8
DO, mg/L	1.116307	9
BOD, mg/L	1.10848	10
Chloride, mg/L	1.09739	11
Pompton streamflow	1.09217	12
Initial Chlorophyta	1.08900	13
Turbidity NTU	1.08539	14
Conductivity, umhos/cm	1.08091	15
TOC, mg/L	1.07212	16
T.Phosphorus/Orthophosph	1.07148	17
WindSpeed	1.06785	18
pH	1.04388	19
TSS, mg/L	1.03644	20
Alkalinity mg/L as CaCO3	1.03015	21
SkyCover	1.02792	22
PrevPrecip	1.02508	23
Initial Cyanophyta	1.02332	24
JAPS extractions	1.01597	25
PointRes extractions	1.01523	26
Total Count, cells/ml	1.00696	27
Hardness, Total mg/L as Ca	1.00334	28
Temp (0C)	1.00261	29
Ammonia, mg/L	0.99856	30
WindDir	0.97620	31

Total Hardness		
Passaic extractions	2.375180	1
Nitrite/Nitrate	2.259148	2
Sulfate, mg/L	2.090625	3
HeatingDays	1.992810	4
pH	1.909499	5
TOC, mg/L	1.517145	6
DO, mg/L	1.363047	7
SkyCover	1.306976	8
WkPrecip	1.267681	9
TSS, mg/L	1.16976	10
Ammonia, mg/L	1.16056	11
WindDir	1.15831	12
Initial Chrysophyta	1.13532	13
Alkalinity mg/L as CaCO3	1.10189	14
WindSpeed	1.09558	15
Turbidity NTU	1.06967	16
PrevPrecip	1.06899	17
Temp (0C)	1.03088	18
BOD, mg/L	1.03071	19
Pompton streamflow	1.02348	20
T.Phosphorus/Orthophosph	1.01298	21
Chloride, mg/L	1.00470	22
PointRes extractions	1.00202	23
JAPS extractions	1.00106	24
Initial Cyanophyta	1.00026	25
Odor	0.99706	26
Conductivity, umhos/cm	0.99665	27
TOTAL COUNT, CELLS/ML	0.99499	28
Pompton extraction	0.97942	29
UV-254, cm-1	0.97366	30
Initial Chlorophyta	0.96373	31

Table 4.3. Station 100 Cyanobacteria two-week ahead predictions: Sensitivity Analysis (cont.)

Nitrite/Nitrate		
Sulfate, mg/L	1.754537	1
pH	1.666891	2
HeatingDays	1.463843	3
Turbidity NTU	1.375960	4
Ammonia, mg/L	1.354598	5
TOC, mg/L	1.353729	6
SkyCover	1.309883	7
Initial Chlorophyta	1.281707	8
DO, mg/L	1.269960	9
Odor	1.24403	10
Conductivity, umhos/cm	1.23939	11
Alkalinity mg/L as CaCO3	1.16924	12
Pompton extraction	1.16420	13
Pompton streamflow	1.12859	14
T.Phosphorus/Orthophosph	1.08165	15
Chloride, mg/L	1.07889	16
Initial Chrysophyta	1.06902	17
TSS, mg/L	1.06265	18
Temp (OC)	1.05556	19
WkPrecip	1.05297	20
Total Count, cells/ml	1.02312	21
JAPS extractions	1.02057	22
WindSpeed	1.01499	23
WindDir	1.01145	24
Initial Cyanophyta	1.00796	25
UV-254, cm-1	0.99703	26
PointRes extractions	0.98522	27
BOD, mg/L	0.96936	28
PrevPrecip	0.95153	29
Passaic extractions	0.85179	30
Hardness, Total mg/L as Ca	0.70173	31

UV254		
Nitrite/Nitrate	2.786798	1
Sulfate, mg/L	2.536960	2
DO, mg/L	2.119257	3
TSS, mg/L	2.115843	4
pH	1.950561	5
HeatingDays	1.854371	6
TOC, mg/L	1.788475	7
Passaic extractions	1.780163	8
Ammonia, mg/L	1.717885	9
Turbidity NTU	1.67844	10
Hardness, Total mg/L as Ca	1.58301	11
SkyCover	1.57636	12
BOD, mg/L	1.49211	13
Alkalinity mg/L as CaCO3	1.29809	14
Initial Chrysophyta	1.27375	15
Temp (OC)	1.25017	16
Pompton extraction	1.24518	17
WindDir	1.23821	18
WkPrecip	1.16848	19
WindSpeed	1.10688	20
Total Count, cells/ml	1.10647	21
Odor	1.07352	22
Pompton streamflow	1.05822	23
Chloride, mg/L	1.05711	24
Conductivity, umhos/cm	1.04951	25
Initial Chlorophyta	1.04234	26
Initial Cyanophyta	1.00252	27
JAPS extractions	1.00177	28
PrevPrecip	0.99670	29
PointRes extractions	0.99440	30
T.Phosphorus/Orthophosph	0.99323	31

Pompton streamflow (Pompton streamflow)		
Nitrite/Nitrate	2.435652	1
HeatingDays	1.973367	2
Sulfate, mg/L	1.827476	3
Passaic extractions	1.818289	4
DO, mg/L	1.625066	5
pH	1.589752	6
TOC, mg/L	1.405555	7
SkyCover	1.384630	8
Hardness, Total mg/L as Ca	1.275761	9
TSS, mg/L	1.27477	10
WindDir	1.19291	11
Pompton extraction	1.14213	12
Chloride, mg/L	1.11867	13
WkPrecip	1.08584	14
Total Count, cells/ml	1.07858	15
PrevPrecip	1.07495	16
Ammonia, mg/L	1.05828	17
Initial Chlorophyta	1.05270	18
Turbidity NTU	1.04719	19
WindSpeed	1.03026	20
Odor	1.02746	21
BOD, mg/L	1.02208	22
Alkalinity mg/L as CaCO3	1.01438	23
JAPS extractions	1.00848	24
Conductivity, umhos/cm	1.00254	25
PointRes extractions	1.00111	26
T.Phosphorus/Orthophosph	0.99965	27
Temp (OC)	0.99383	28
Initial Cyanophyta	0.97123	29
Initial Chrysophyta	0.95342	30
UV-254, cm-1	0.94331	31

Table 4.4. Station 101 Cyanobacteria real-time predictions: Sensitivity Analysis

All Input		
Odor	2.463794	1
UV254	2.019682	2
Total Amorphous Material	1.811064	3
Color	1.781754	4
HeatingDays	1.781167	5
Chloride	1.653677	6
TOC	1.568962	7
pH	1.488918	8
PointRes extractions	1.467453	9
Conductivity	1.45049	10
Sulfate	1.43051	11
Alkalinity	1.29447	12
Passaic extractions	1.22610	13
Hardness Total	1.22256	14
Turbidity NTU	1.21444	15
PrevPrecip	1.11760	16
DO	1.07286	17
Total Count, cells/ml	1.06482	18
Initial Chrysophyta	1.05096	19
T.Phosphorus/Orthophosph	1.03715	20
BOD	1.01793	21
WindDir	1.01292	22
Nitrite/Nitrate	1.00816	23
JAPS extractions	1.00684	24
Temp 0C	1.00627	25
WkPrecip	1.00132	26
Pompton extractions	0.99110	27
Pompton streamflow	0.98975	28
SkyCover	0.95157	29
Initial Chlorophyta	0.95129	30
Initial Cyanophyta	0.94782	31
WindSpeed	0.93696	32
Ammonia	0.93072	33

UV254		
Total Amorphous Material	3.884360	1
DO, mg/L	1.102475	2
BOD, mg/L	1.078928	3
HeatingDays	1.044452	4
Odor	1.035457	5
WkPrecip	1.027327	6
Passaic extractions	1.023281	7
Temp 0C	1.022480	8
PointRes extractions	1.020897	9
WindDir	1.01640	10
Pompton extractions	1.01532	11
WindSpeed	1.01289	12
PrevPrecip	1.01235	13
T.Phosphorus/Orthophosph	1.01201	14
pH	1.01081	15
Sulfate mg/L	1.01070	16
Ammonia mg/L	1.00854	17
Initial Chlorophyta	1.00773	18
Total Count, cells/ml	1.00331	19
Color, Cu	1.00189	20
JAPS extractions	1.00115	21
Initial Cyanophyta	1.00089	22
Nitrite/Nitrate	0.99952	23
SkyCover	0.99625	24
Turbidity NTU	0.99574	25
Hardness Total, mg/L as Ca	0.99344	26
Initial Chrysophyta	0.99164	27
Pompton streamflow	0.98971	28
Alkalinity mg/L as CaCO3	0.98924	29
Conductivity umhos/cm	0.98583	30
Chloride mg/L	0.98247	31
TOC, mg/L	0.97770	32

Color		
PointRes extractions	5.885022	1
Total Amorphous Material	3.521186	2
UV254 cm-1	1.900803	3
Sulfate mg/L	1.458726	4
Initial Cyanophyta	1.360434	5
HeatingDays	1.357852	6
Conductivity umhos/cm	1.335931	7
Chloride mg/L	1.239934	8
Alkalinity mg/L as CaCO3	1.127773	9
TOC, mg/L	1.12305	10
PrevPrecip	1.07738	11
SkyCover	1.06920	12
T.Phosphorus/Orthophosph	1.05978	13
Temp 0C	1.04736	14
Odor	1.04458	15
Turbidity NTU	1.04298	16
Hardness Total, mg/L as Ca	1.03770	17
BOD, mg/L	1.03360	18
WkPrecip	1.02669	19
WindSpeed	1.02405	20
pH	1.01516	21
Initial Chrysophyta	1.01112	22
Total Count, cells/ml	1.00994	23
Nitrite/Nitrate	1.00798	24
Passaic extractions	1.00235	25
Initial Chlorophyta	1.00189	26
Pompton streamflow	1.00094	27
Ammonia mg/L	1.00084	28
WindDir	0.99999	29
DO, mg/L	0.99987	30
JAPS extractions	0.99919	31
Pompton extractions	0.99755	32

Table 4.4. Station 101 Cyanobacteria real-time predictions: Sensitivity Analysis (continued)

Heating Degree Days		
Conductivity umhos/cm	1.614678	1
Sulfate mg/L	1.463761	2
Initial Chlorophyta	1.394282	3
Nitrite/Nitrate	1.268965	4
WkPrecip	1.208284	5
T.Phosphorus/Orthophosphate	1.152879	6
TOC, mg/L	1.140386	7
BOD, mg/L	1.139256	8
SkyCover	1.129202	9
Total Count, cells/ml	1.09568	10
Ammonia mg/L	1.05664	11
Initial Chrysophyta	1.04313	12
WindDir	1.03854	13
Temp 0C	1.03709	14
Pompton streamflow	1.03090	15
Chloride mg/L	1.02962	16
PrevPrecip	1.02502	17
Color, Cu	1.02501	18
Passaic extractions	1.00712	19
WindSpeed	1.00328	20
Alkalinity mg/L as CaCO3	1.00167	21
pH	1.00163	22
UV254 cm-1	1.00032	23
Total Amorphous Material	0.99995	24
JAPS extractions	0.99963	25
Turbidity NTU	0.99795	26
Initial Cyanophyta	0.99470	27
Pompton extractions	0.99340	28
Hardness Total, mg/L as CaCO3	0.99153	29
Odor	0.99031	30
PointRes extractions	0.98696	31
DO, mg/L	0.83349	32

Ammonia		
PointRes extractions	2.293876	1
Conductivity umhos/cm	1.664685	2
T.Phosphorus/Orthophosphate	1.622270	3
Chloride mg/L	1.502857	4
WkPrecip	1.425608	5
Alkalinity mg/L as CaCO3	1.362363	6
Initial Chlorophyta	1.352123	7
Color, Cu	1.329516	8
Temp 0C	1.323101	9
HeatingDays	1.32122	10
SkyCover	1.28260	11
BOD, mg/L	1.27984	12
Passaic extractions	1.09611	13
Total Count, cells/ml	1.05390	14
Nitrite/Nitrate	1.05123	15
UV254 cm-1	1.04700	16
pH	1.04435	17
Initial Chrysophyta	1.03773	18
Sulfate mg/L	1.02092	19
Total Amorphous Material	1.02060	20
Odor	1.01562	21
Hardness Total, mg/L as CaCO3	1.01357	22
Turbidity NTU	1.01007	23
WindDir	1.00629	24
JAPS extractions	1.00629	25
Pompton streamflow	1.00593	26
DO, mg/L	1.00470	27
WindSpeed	1.00020	28
PrevPrecip	0.99987	29
Initial Cyanophyta	0.99908	30
TOC, mg/L	0.98924	31
Pompton extractions	0.98524	32

Initial Cyanobacteria level		
PointRes extractions	4.936578	1
UV254 cm-1	3.199476	2
HeatingDays	1.835109	3
PrevPrecip	1.758042	4
Sulfate mg/L	1.587518	5
TOC, mg/L	1.508543	6
Color, Cu	1.404736	7
Initial Chlorophyta	1.221644	8
Conductivity umhos/cm	1.214580	9
Chloride mg/L	1.17402	10
pH	1.16796	11
Hardness Total, mg/L as CaCO3	1.10958	12
Total Count, cells/ml	1.09571	13
Odor	1.06810	14
Alkalinity mg/L as CaCO3	1.04209	15
Pompton streamflow	1.02591	16
Pompton extractions	1.02277	17
WindDir	1.01753	18
Total Amorphous Material	1.01626	19
Ammonia mg/L	1.01322	20
Nitrite/Nitrate	1.01039	21
T.Phosphorus/Orthophosphate	1.00848	22
Initial Chrysophyta	1.00394	23
DO, mg/L	1.00181	24
JAPS extractions	1.00021	25
BOD, mg/L	1.00002	26
SkyCover	0.99967	27
Temp 0C	0.99853	28
Turbidity NTU	0.99779	29
Passaic extractions	0.99403	30
WindSpeed	0.99051	31
WkPrecip	0.98059	32

Table 4.5. Station 101 Cyanobacteria one-week ahead predictions: Sensitivity Analysis

All Input		
WkPrecip	2.375960	1
Odor		
WindSpeed	1.497471	3
BOD, mg/L	1.475692	4
Total Amorphous Material	1.433807	5
Hardness Total, mg/L as Ca	1.302327	6
Temp 0C	1.289236	7
Alkalinity mg/L as CaCO3	1.284141	8
T.Phosphorus/Orthophosph	1.180530	9
Pompton streamflow	1.11581	10
Initial Chlorophyta	1.10272	11
TOC, mg/L	1.09565	12
PointRes extractions	1.02963	13
Conductivity umhos/cm	1.02829	14
Nitrite/Nitrate	1.02528	15
Chloride mg/L	1.01134	16
Color, Cu	1.00867	17
Turbidity NTU	1.00586	18
pH	1.00338	19
Initial Cyanophyta	1.00106	20
HeatingDays	0.99575	21
Sulfate mg/L	0.99532	22
JAPS extractions	0.99337	23
UV254 cm-1	0.99271	24
DO, mg/L	0.98928	25
Ammonia mg/L	0.98680	26
Total Count, cells/ml	0.98352	27
Passaic extractions	0.98289	28
Pompton extractions	0.97628	29
PrevPrecip	0.97003	30
SkyCover	0.96602	31
WindDir	0.94659	32
Initial Chrysophyta	0.86828	33

current week Precipitation		
Odor	1.440140	1
BOD, mg/L		
Total Amorphous Material	1.164254	3
HeatingDays	1.161231	4
T.Phosphorus/Orthophosph	1.157781	5
WindSpeed	1.148149	6
Temp 0C	1.107819	7
Initial Chrysophyta	1.092060	8
Pompton streamflow	1.069130	9
Pompton extractions	1.04872	10
Conductivity umhos/cm	1.03976	11
WindDir	1.03519	12
Passaic extractions	1.02533	13
DO, mg/L	1.01978	14
Initial Chlorophyta	1.01780	15
Chloride mg/L	1.01497	16
PrevPrecip	1.01386	17
Nitrite/Nitrate	1.00750	18
Turbidity NTU	1.00696	19
Color, Cu	1.00584	20
Alkalinity mg/L as CaCO3	1.00578	21
Sulfate mg/L	1.00428	22
pH	1.00217	23
UV254 cm-1	1.00074	24
TOC, mg/L	0.99738	25
Initial Cyanophyta	0.99437	26
PointRes extractions	0.99339	27
JAPS extractions	0.99320	28
Hardness Total, mg/L as Ca	0.99280	29
Total Count, cells/ml	0.99010	30
Ammonia mg/L	0.97122	31
SkyCover	0.91778	32

Wind Speed		
Initial Cyanophyta	5.428742	1
WkPrecip		
T.Phosphorus/Orthophosph	2.438786	3
UV254 cm-1	2.406714	4
Alkalinity mg/L as CaCO3	1.827316	5
TOC, mg/L	1.810535	6
Total Amorphous Material	1.744769	7
BOD, mg/L	1.679110	8
Temp 0C	1.666047	9
Total Count, cells/ml	1.55283	10
Odor	1.40823	11
pH	1.39239	12
PointRes extractions	1.38450	13
Initial Chlorophyta	1.31863	14
Pompton extractions	1.27620	15
Ammonia mg/L	1.23577	16
Sulfate mg/L	1.22533	17
SkyCover	1.21528	18
Hardness Total, mg/L as Ca	1.15503	19
Initial Chrysophyta	1.15217	20
Passaic extractions	1.11694	21
HeatingDays	1.09776	22
PrevPrecip	1.08995	23
Turbidity NTU	1.08854	24
DO, mg/L	1.06809	25
Chloride mg/L	1.03864	26
Nitrite/Nitrate	1.03790	27
WindDir	1.03534	28
Conductivity umhos/cm	1.02918	29
Color, Cu	0.99069	30
Pompton streamflow	0.98792	31
JAPS extractions	0.98762	32

Table 4.5. Station 101 Cyanobacteria one-week ahead predictions: Sensitivity Analysis (cont.)

Wind Direction		
Total Amorphous Material	3.807815	1
BOD, mg/L		
WindSpeed	3.135347	3
HeatingDays	2.573351	4
WkPrecip	2.397991	5
PrevPrecip	2.295884	6
TOC, mg/L	2.286281	7
JAPS extractions	2.017245	8
Hardness Total, mg/L as Ca	1.910305	9
Temp 0C	1.76076	10
Initial Cyanophyta	1.67988	11
T.Phosphorus/Orthophosph	1.58544	12
PointRes extractions	1.55781	13
Ammonia mg/L	1.45289	14
Passaic extractions	1.38528	15
Initial Chlorophyta	1.25641	16
pH	1.23157	17
Alkalinity mg/L as CaCO3	1.21313	18
Chloride mg/L	1.17908	19
SkyCover	1.16891	20
Color, Cu	1.10757	21
Total Count, cells/ml	1.06327	22
Initial Chrysophyta	1.04604	23
DO, mg/L	1.04157	24
Turbidity NTU	1.03405	25
Pompton extractions	1.03229	26
Pompton streamflow	1.02620	27
Conductivity umhos/cm	1.02102	28
UV254 cm-1	1.02032	29
Sulfate mg/L	1.01527	30
Nitrite/Nitrate	1.01116	31
Odor	0.99999	32

Pompton extractions		
WkPrecip	1.169728	1
WindSpeed		
Alkalinity mg/L as CaCO3	1.024587	3
HeatingDays	1.024209	4
TOC, mg/L	1.018587	5
T.Phosphorus/Orthophosph	1.017614	6
JAPS extractions	1.013135	7
Sulfate mg/L	1.008506	8
PointRes extractions	1.005035	9
Initial Chrysophyta	1.00385	10
Conductivity umhos/cm	1.00290	11
Hardness Total, mg/L as Ca	1.00255	12
Initial Cyanophyta	1.00241	13
DO, mg/L	1.00236	14
Color, Cu	0.99503	15
Chloride mg/L	0.99421	16
Turbidity NTU	0.99340	17
Nitrite/Nitrate	0.99287	18
pH	0.99002	19
Temp 0C	0.98847	20
PrevPrecip	0.98827	21
Pompton streamflow	0.98739	22
Total Count, cells/ml	0.98036	23
WindDir	0.97894	24
Initial Chlorophyta	0.97679	25
UV254 cm-1	0.97339	26
Ammonia mg/L	0.97116	27
BOD, mg/L	0.96792	28
Total Amorphous Material	0.96336	29
SkyCover	0.96264	30
Passaic extractions	0.94645	31
Odor	0.91253	32

Table 4.6. Station 101 Cyanobacteria two-week ahead predictions: Sensitivity Analysis

All Input			PointRes extractions			Sulfate		
PointRes extractions	1.668657	1	Conductivity umhos/cm	2.422956	1	Temp 0C	1.019789	1
BOD, mg/L	1.472355	2	WkPrecip	2.150426	2	Color, Cu	1.011617	2
Sulfate mg/L	1.416568	3	Chloride mg/L	2.040962	3	Nitrite/Nitrate	1.010873	3
PrevPrecip	1.350115	4	Odor	1.940527	4	DO, mg/L	1.009484	4
Initial Chlorophyta	1.331149	5	Sulfate mg/L	1.938236	5	Initial Chlorophyta	1.009322	5
SkyCover	1.281632	6	Total Amorphous Material	1.906110	6	PrevPrecip	1.009317	6
Chloride mg/L	1.261790	7	BOD, mg/L	1.889180	7	T.Phosphorus/Orthophosph	1.008753	7
T.Phosphorus/Orthophosph	1.259234	8	WindDir	1.870918	8	Pompton extractions	1.005605	8
HeatingDays	1.253517	9	Color, Cu	1.510106	9	Passaic extractions	1.004587	9
Conductivity umhos/cm	1.21105	10	Temp 0C	1.45593	10	Pompton streamflow	1.00401	10
Initial Cyanophyta	1.17616	11	PrevPrecip	1.44181	11	Initial Cyanophyta	1.00363	11
WindDir	1.16712	12	HeatingDays	1.39202	12	Total Amorphous Material	1.00275	12
Temp 0C	1.15920	13	Total Count, cells/ml	1.35574	13	JAPS extractions	1.00271	13
Odor	1.15858	14	Nitrite/Nitrate	1.30784	14	Odor	1.00258	14
pH	1.15706	15	Pompton streamflow	1.28680	15	SkyCover	1.00241	15
WkPrecip	1.12722	16	UV254 cm-1	1.22528	16	Alkalinity mg/L as CaCO3	1.00218	16
Hardness Total, mg/L as Ca	1.09142	17	Hardness Total, mg/L as Ca	1.21456	17	Hardness Total, mg/L as Ca	1.00158	17
WindSpeed	1.07881	18	Initial Chlorophyta	1.18026	18	Ammonia mg/L	1.00153	18
DO, mg/L	1.07102	19	DO, mg/L	1.16929	19	WindSpeed	1.00081	19
Alkalinity mg/L as CaCO3	1.06728	20	Alkalinity mg/L as CaCO3	1.15713	20	BOD, mg/L	0.99923	20
TOC, mg/L	1.06260	21	TOC, mg/L	1.09360	21	Total Count, cells/ml	0.99894	21
Initial Chrysophyta	1.05258	22	Pompton extractions	1.08937	22	pH	0.99880	22
JAPS extractions	1.04868	23	WindSpeed	1.08244	23	Turbidity NTU	0.99858	23
Color, Cu	1.03327	24	Initial Chrysophyta	1.08011	24	Initial Chrysophyta	0.99747	24
Pompton extractions	1.02942	25	SkyCover	1.05705	25	WkPrecip	0.99663	25
Pompton streamflow	1.01960	26	JAPS extractions	1.05011	26	PointRes extractions	0.99534	26
Nitrite/Nitrate	1.01946	27	Passaic extractions	1.04527	27	Conductivity umhos/cm	0.99360	27
UV254 cm-1	1.00870	28	T.Phosphorus/Orthophosph	1.02601	28	HeatingDays	0.99240	28
Passaic extractions	0.99663	29	Turbidity NTU	1.02431	29	WindDir	0.98879	29
Ammonia mg/L	0.99438	30	Initial Cyanophyta	1.01138	30	Chloride mg/L	0.98758	30
Total Amorphous Material	0.98634	31	Ammonia mg/L	0.99896	31	TOC, mg/L	0.98104	31
Total Count, cells/ml	0.98385	32	pH	0.99692	32	UV254 cm-1	0.97505	32
Turbidity NTU	0.93853	33						

Table 4.6. Station 101 Cyanobacteria two-week ahead predictions: Sensitivity Analysis (cont.)

Total Phosphorous		
Sulfate mg/L	1.648329	1
Total Amorphous Material	1.557007	2
PrevPrecip	1.506649	3
Temp 0C	1.440068	4
SkyCover	1.432059	5
WkPrecip	1.368913	6
DO, mg/L	1.307842	7
Hardness Total, mg/L as Ca	1.297457	8
Chloride mg/L	1.251756	9
Odor	1.24755	10
Ammonia mg/L	1.17488	11
Pompton extractions	1.11711	12
Initial Cyanophyta	1.09301	13
pH	1.08407	14
TOC, mg/L	1.08266	15
Passaic extractions	1.07418	16
WindSpeed	1.04623	17
Nitrite/Nitrate	1.03422	18
PointRes extractions	1.02807	19
Alkalinity mg/L as CaCO3	1.01790	20
Conductivity umhos/cm	1.01689	21
Pompton streamflow	1.01592	22
Turbidity NTU	1.01009	23
UV254 cm-1	1.00695	24
Color, Cu	1.00280	25
JAPS extractions	0.99352	26
Initial Chlorophyta	0.98571	27
HeatingDays	0.95645	28
BOD, mg/L	0.89297	29
WindDir	0.86668	30
Total Count, cells/ml	0.83309	31
Initial Chrysophyta	0.75459	32

Turbidity		
T.Phosphorus/Orthophosph	3.038790	1
WkPrecip	2.321076	2
Sulfate mg/L	2.242010	3
HeatingDays	2.157462	4
UV254 cm-1	1.938595	5
Hardness Total, mg/L as Ca	1.934710	6
Color, Cu	1.894899	7
PointRes extractions	1.782926	8
Total Amorphous Material	1.695734	9
Nitrite/Nitrate	1.47101	10
SkyCover	1.38487	11
PrevPrecip	1.38410	12
WindSpeed	1.31122	13
Initial Chlorophyta	1.30379	14
BOD, mg/L	1.29707	15
Pompton extractions	1.26088	16
DO, mg/L	1.25993	17
Conductivity umhos/cm	1.22793	18
Alkalinity mg/L as CaCO3	1.21274	19
Temp 0C	1.18598	20
pH	1.16607	21
TOC, mg/L	1.15333	22
Pompton streamflow	1.13759	23
Odor	1.12243	24
Chloride mg/L	1.10070	25
WindDir	1.08138	26
Initial Cyanophyta	1.05796	27
Ammonia mg/L	1.02589	28
Total Count, cells/ml	1.00415	29
JAPS extractions	0.99372	30
Initial Chrysophyta	0.98544	31
Passaic extractions	0.97849	32

Total Count		
WkPrecip	1.221294	1
Initial Chlorophyta	1.218456	2
HeatingDays	1.185675	3
Odor	1.151959	4
TOC, mg/L	1.109734	5
PointRes extractions	1.079715	6
Nitrite/Nitrate	1.078581	7
Alkalinity mg/L as CaCO3	1.074844	8
Sulfate mg/L	1.072327	9
DO, mg/L	1.06014	10
WindDir	1.05952	11
Pompton streamflow	1.05703	12
Initial Chrysophyta	1.05580	13
Ammonia mg/L	1.02895	14
Conductivity umhos/cm	1.02482	15
SkyCover	1.02283	16
UV254 cm-1	1.02262	17
PrevPrecip	1.01931	18
Hardness Total, mg/L as Ca	1.01354	19
T.Phosphorus/Orthophosph	1.00945	20
Passaic extractions	1.00553	21
Turbidity NTU	1.00200	22
JAPS extractions	1.00151	23
BOD, mg/L	1.00150	24
Initial Cyanophyta	0.99951	25
WindSpeed	0.99814	26
Chloride mg/L	0.98361	27
Color, Cu	0.98215	28
Total Amorphous Material	0.97058	29
pH	0.96766	30
Pompton extractions	0.94250	31
Temp 0C	0.92099	32

Table 4.7. 612 Cyanobacteria real-time predictions: Sensitivity Analysis

All Input		
Ammonia mg/L	1.534490	1
Odor	1.300776	2
Color, Cu	1.293387	3
Temp 0C	1.232146	4
WkPrecip	1.214887	5
Total Amorphous Material	1.208770	6
Sulfate mg/L	1.160632	7
Passaic extractions	1.153723	8
BOD, mg/L	1.130447	9
DO, mg/L	1.13043	10
Turbidity NTU	1.10166	11
Initial Chlorophyta	1.08693	12
Total Count, cells/ml	1.08506	13
Hardness Total, mg/L as Ca	1.07094	14
WindDir	1.06319	15
SkyCover	1.06167	16
Initial Cyanophyta	1.04892	17
PrevPrecip	1.03929	18
WindSpeed	1.03849	19
UV254 cm-1	1.03118	20
Conductivity umhos/cm	1.02264	21
PointRes extractions	1.01968	22
Chloride mg/L	1.01552	23
TotalPhosphorus/Orthophos	1.00632	24
Alkalinity mg/L as CaCO3	1.00498	25
Pompton streamflow	1.00495	26
HeatingDays	1.00310	27
Initial Chrysophyta	1.00288	28
pH	1.00243	29
Nitrite/Nitrate	0.99984	30
TOC, mg/L	0.98792	31
Pompton extractions	0.98720	32
JAPS extractions	0.98222	33

Temperature		
Odor	1.835449	1
DO, mg/L	1.735790	2
WkPrecip	1.717052	3
Color, Cu	1.562639	4
HeatingDays	1.512905	5
TotalPhosphorus/Orthophos	1.398574	6
Total Amorphous Material	1.368873	7
BOD, mg/L	1.309531	8
Sulfate mg/L	1.165397	9
Conductivity umhos/cm	1.13546	10
SkyCover	1.11824	11
Turbidity NTU	1.11593	12
pH	1.10849	13
Alkalinity mg/L as CaCO3	1.10130	14
TOC, mg/L	1.04163	15
Initial Chrysophyta	1.02356	16
Passaic extractions	1.02181	17
Hardness Total, mg/L as Ca	1.00217	18
WindSpeed	0.99646	19
Nitrite/Nitrate	0.98486	20
JAPS extractions	0.96486	21
Chloride mg/L	0.95892	22
WindDir	0.95837	23
Pompton extractions	0.93345	24
PointRes extractions	0.93062	25
Initial Chlorophyta	0.92230	26
UV254 cm-1	0.89540	27
PrevPrecip	0.89321	28
Initial Cyanophyta	0.89252	29
Pompton streamflow	0.80490	30
Total Count, cells/ml	0.80331	31
Ammonia mg/L	0.73609	32

Ammonia		
Initial Cyanophyta	1.910801	1
Color, Cu	1.725183	2
Total Amorphous Material	1.463307	3
BOD, mg/L	1.229598	4
PointRes extractions	1.219697	5
pH	1.167427	6
Alkalinity mg/L as CaCO3	1.160631	7
Total Count, cells/ml	1.143973	8
HeatingDays	1.112484	9
Temp 0C	1.10921	10
Odor	1.09886	11
Initial Chrysophyta	1.09403	12
DO, mg/L	1.09296	13
Turbidity NTU	1.07715	14
SkyCover	1.06047	15
Conductivity umhos/cm	1.05730	16
Sulfate mg/L	1.05311	17
WindDir	1.05088	18
UV254 cm-1	1.04473	19
TotalPhosphorus/Orthophos	1.03019	20
WkPrecip	1.02779	21
PrevPrecip	1.02751	22
Hardness Total, mg/L as Ca	1.02659	23
WindSpeed	1.02279	24
Initial Chlorophyta	1.01793	25
Chloride mg/L	0.99695	26
TOC, mg/L	0.99630	27
Passaic extractions	0.99606	28
Nitrite/Nitrate	0.99553	29
Pompton extractions	0.99325	30
JAPS extractions	0.98095	31
Pompton streamflow	0.97866	32

Table 4.7. 612 Cyanobacteria real-time predictions: Sensitivity Analysis (cont.)

Color		
Total Count, cells/ml	1.286662	1
BOD, mg/L	1.177008	2
Initial Cyanophyta	1.176869	3
HeatingDays	1.118468	4
Odor	1.117975	5
Ammonia mg/L	1.077856	6
PrevPrecip	1.077556	7
Turbidity NTU	1.054768	8
Nitrite/Nitrate	1.050339	9
TotalPhosphorus/Orthophosph	1.03889	10
WkPrecip	1.03812	11
WindDir	1.02865	12
Pompton extractions	1.02836	13
pH	1.02674	14
PointRes extractions	1.02063	15
Alkalinity mg/L as CaCO3	1.01796	16
Total Amorphous Material	1.01681	17
SkyCover	1.01235	18
Chloride mg/L	1.00660	19
Initial Chrysophyta	1.00333	20
Sulfate mg/L	1.00332	21
UV254 cm-1	1.00273	22
Temp 0C	1.00191	23
DO, mg/L	1.00110	24
Pompton streamflow	1.00097	25
Hardness Total, mg/L as CaCO	1.00055	26
WindSpeed	0.99855	27
JAPS extractions	0.99840	28
TOC, mg/L	0.99819	29
Initial Chlorophyta	0.99730	30
Conductivity umhos/cm	0.99670	31
Passaic extractions	0.99580	32

Pompton extractions		
Odor	1.648928	1
PrevPrecip	1.362462	2
DO, mg/L	1.197961	3
Turbidity NTU	1.181921	4
SkyCover	1.165362	5
Color, Cu	1.156353	6
Ammonia mg/L	1.144237	7
Sulfate mg/L	1.144204	8
WindDir	1.068663	9
Total Amorphous Material	1.05239	10
Nitrite/Nitrate	1.04057	11
Conductivity umhos/cm	1.03553	12
BOD, mg/L	1.03345	13
Initial Chrysophyta	1.02758	14
TOC, mg/L	1.02353	15
WkPrecip	1.01704	16
TotalPhosphorus/Orthophosph	1.01650	17
Temp 0C	1.01555	18
Alkalinity mg/L as CaCO3	1.00512	19
Hardness Total, mg/L as CaCO	1.00217	20
Passaic extractions	0.99987	21
Chloride mg/L	0.99486	22
UV254 cm-1	0.99276	23
Pompton streamflow	0.98927	24
JAPS extractions	0.98746	25
HeatingDays	0.98530	26
WindSpeed	0.98215	27
pH	0.98110	28
Initial Chlorophyta	0.95135	29
Initial Cyanophyta	0.91764	30
PointRes extractions	0.84164	31
Total Count, cells/ml	0.82607	32

Total Organic Carbon (TOC)		
Color, Cu	1.594600	1
Turbidity NTU	1.487938	2
Odor	1.400429	3
Total Count, cells/ml	1.214893	4
Total Amorphous Material	1.182006	5
Ammonia mg/L	1.161017	6
SkyCover	1.143709	7
Temp 0C	1.134768	8
Sulfate mg/L	1.089343	9
Passaic extractions	1.08842	10
PrevPrecip	1.08468	11
Alkalinity mg/L as CaCO3	1.08074	12
Pompton extractions	1.07141	13
WkPrecip	1.05742	14
pH	1.05147	15
Nitrite/Nitrate	1.05096	16
UV254 cm-1	1.03415	17
Initial Chlorophyta	1.03278	18
BOD, mg/L	1.02794	19
WindDir	1.02684	20
TotalPhosphorus/Orthophosph	1.02280	21
Initial Cyanophyta	1.01998	22
DO, mg/L	1.01109	23
WindSpeed	1.00372	24
HeatingDays	1.00294	25
PointRes extractions	1.00228	26
Conductivity umhos/cm	1.00185	27
Initial Chrysophyta	0.99896	28
Pompton streamflow	0.99705	29
Chloride mg/L	0.99430	30
JAPS extractions	0.99318	31
Hardness Total, mg/L as CaCO	0.97370	32

Table 4.8. Station 612 Cyanobacteria one-week ahead predictions: Sensitivity Analysis

All Input			Initial Cyanobacteria level			Turbidity		
Initial Cyanophyta	3.429483	1	Color, Cu	2.715833	1	Initial Cyanophyta	10.899936	1
Turbidity NTU	2.667634	2	Total Count, cells/ml	2.409606	2	Color, Cu	9.069299	2
Total Amorphous Material	2.516674	3	Turbidity NTU	2.073950	3	Total Count, cells/ml	4.933325	3
Color, Cu	2.086754	4	TotalPhosphorus/Orthophos	1.658668	4	PointRes extractions	4.450310	4
Total Count, cells/ml	1.820608	5	HeatingDays	1.631856	5	pH	4.248417	5
pH	1.345663	6	Total Amorphous Material	1.572717	6	HeatingDays	1.960222	6
Odor	1.175509	7	Ammonia mg/L	1.539952	7	Initial Chrysophyta	1.644684	7
Alkalinity mg/L as CaCO3	1.161541	8	pH	1.335608	8	PrevPrecip	1.640934	8
HeatingDays	1.096879	9	DO, mg/L	1.197333	9	WkPrecip	1.635183	9
DO, mg/L	1.05219	10	Pompton extractions	1.13755	10	Alkalinity mg/L as CaCO3	1.59066	10
BOD, mg/L	1.03766	11	Sulfate mg/L	1.11259	11	Odor	1.51352	11
Temp 0C	1.03483	12	PrevPrecip	1.11183	12	Ammonia mg/L	1.46059	12
Pompton streamflow	1.01949	13	Alkalinity mg/L as CaCO3	1.06901	13	SkyCover	1.22644	13
WkPrecip	1.01817	14	Hardness Total, mg/L as Ca	1.04632	14	Sulfate mg/L	1.20190	14
WindDir	1.01221	15	SkyCover	1.04532	15	Conductivity umhos/cm	1.17904	15
UV254 cm-1	1.01201	16	Initial Chrysophyta	1.02998	16	WindSpeed	1.17629	16
TotalPhosphorus/Orthophos	1.01043	17	WindSpeed	1.02767	17	TotalPhosphorus/Orthophos	1.14228	17
Sulfate mg/L	1.01003	18	UV254 cm-1	1.02358	18	Total Amorphous Material	1.13564	18
WindSpeed	1.00926	19	Odor	1.02213	19	Pompton extractions	1.08915	19
Chloride mg/L	1.00796	20	Chloride mg/L	1.02067	20	BOD, mg/L	1.08115	20
Initial Chlorophyta	1.00683	21	BOD, mg/L	1.02039	21	Hardness Total, mg/L as Ca	1.07664	21
PrevPrecip	1.00525	22	Pompton streamflow	1.01585	22	Initial Chlorophyta	1.07095	22
PointRes extractions	1.00458	23	Nitrite/Nitrate	1.01100	23	DO, mg/L	1.05064	23
Ammonia mg/L	0.99998	24	Initial Chlorophyta	1.00008	24	WindDir	1.02233	24
Passaic extractions	0.99908	25	JAPS extractions	0.99431	25	JAPS extractions	1.01394	25
SkyCover	0.99804	26	Conductivity umhos/cm	0.99361	26	Passaic extractions	1.01224	26
JAPS extractions	0.99591	27	TOC, mg/L	0.98686	27	Pompton streamflow	0.98833	27
Pompton extractions	0.99456	28	WindDir	0.97775	28	Temp 0C	0.97424	28
Conductivity umhos/cm	0.99434	29	Passaic extractions	0.96994	29	UV254 cm-1	0.96665	29
Nitrite/Nitrate	0.99419	30	Temp 0C	0.96182	30	TOC, mg/L	0.96224	30
Hardness Total, mg/L as Ca	0.99034	31	PointRes extractions	0.96041	31	Chloride mg/L	0.95751	31
Initial Chrysophyta	0.98404	32	WkPrecip	0.92449	32	Nitrite/Nitrate	0.94710	32
TOC, mg/L	0.92386	33						

Table 4.8. Station 612 Cyanobacteria one-week ahead predictions: Sensitivity Analysis (cont.)

Color		
Turbidity NTU	5.889727	1
Initial Cyanophyta	4.429869	2
PointRes extractions	3.913289	3
Total Count, cells/ml	3.251304	4
Total Amorphous Material	2.601089	5
Ammonia mg/L	2.246021	6
DO, mg/L	2.234065	7
BOD, mg/L	2.144503	8
Alkalinity mg/L as CaCO ₃	1.722991	9
Temp 0C	1.57910	10
Hardness Total, mg/L as CaCO ₃	1.54426	11
PrevPrecip	1.44583	12
WkPrecip	1.33562	13
Passaic extractions	1.29419	14
Conductivity umhos/cm	1.27029	15
Pompton extractions	1.26096	16
Initial Chlorophyta	1.20291	17
pH	1.14380	18
Sulfate mg/L	1.13444	19
WindSpeed	1.10203	20
Nitrite/Nitrate	1.07060	21
UV254 cm-1	1.03451	22
TotalPhosphorus/Orthophosph	1.01624	23
WindDir	0.99939	24
TOC, mg/L	0.99205	25
Chloride mg/L	0.99042	26
Pompton streamflow	0.98632	27
HeatingDays	0.98523	28
JAPS extractions	0.97382	29
Odor	0.95481	30
SkyCover	0.88333	31
Initial Chrysophyta	0.86872	32

TOC		
Turbidity NTU	12.081841	1
Color, Cu	9.935443	2
Initial Cyanophyta	5.720426	3
DO, mg/L	2.941575	4
BOD, mg/L	2.845495	5
Ammonia mg/L	2.352102	6
Total Count, cells/ml	2.144256	7
UV254 cm-1	1.877955	8
WindSpeed	1.648907	9
WkPrecip	1.55626	10
Passaic extractions	1.44135	11
Sulfate mg/L	1.38076	12
SkyCover	1.33215	13
pH	1.28997	14
PointRes extractions	1.25619	15
PrevPrecip	1.24266	16
Pompton streamflow	1.22645	17
HeatingDays	1.18481	18
Total Amorphous Material	1.17660	19
Nitrite/Nitrate	1.17613	20
Initial Chrysophyta	1.17469	21
WindDir	1.15780	22
Conductivity umhos/cm	1.15733	23
Temp 0C	1.14358	24
Pompton extractions	1.09282	25
JAPS extractions	1.06157	26
Chloride mg/L	1.05874	27
Odor	1.02945	28
Alkalinity mg/L as CaCO ₃	1.01719	29
Hardness Total, mg/L as CaCO ₃	0.99209	30
Initial Chlorophyta	0.96305	31
TotalPhosphorus/Orthophosph	0.94915	32

Initial Chrysophyta level		
Color, Cu	3.292300	1
Turbidity NTU	2.590321	2
Initial Cyanophyta	2.135257	3
PointRes extractions	1.719382	4
pH	1.464313	5
Total Amorphous Material	1.377234	6
WindDir	1.234439	7
UV254 cm-1	1.219319	8
TotalPhosphorus/Orthophosph	1.100046	9
BOD, mg/L	1.09715	10
Temp 0C	1.09481	11
WkPrecip	1.05196	12
Ammonia mg/L	1.05088	13
Odor	1.05079	14
Pompton streamflow	1.03034	15
TOC, mg/L	1.02732	16
Conductivity umhos/cm	1.02665	17
Alkalinity mg/L as CaCO ₃	1.01820	18
Sulfate mg/L	1.00910	19
Chloride mg/L	1.00849	20
HeatingDays	1.00399	21
JAPS extractions	1.00029	22
Nitrite/Nitrate	0.99640	23
Initial Chlorophyta	0.98990	24
Hardness Total, mg/L as CaCO ₃	0.98986	25
Pompton extractions	0.98577	26
PrevPrecip	0.98531	27
Passaic extractions	0.98356	28
DO, mg/L	0.98276	29
WindSpeed	0.96983	30
Total Count, cells/ml	0.96536	31
SkyCover	0.95562	32

Table 4.9. Station 612 Cyanobacteria two-week ahead predictions: Sensitivity Analysis

All Input		
Total Amorphous Material	1.849556	1
Total Count, cells/ml	1.130197	2
Initial Cyanophyta	1.118654	3
Odor	1.106885	4
pH	1.102334	5
HeatingDays	1.098789	6
BOD, mg/L	1.046581	7
Alkalinity mg/L as CaCO3	1.046181	8
PrevPrecip	1.030285	9
WindDir	1.02449	10
Turbidity NTU	1.02161	11
Initial Chlorophyta	1.02126	12
PointRes extractions	1.01731	13
Temp 0C	1.00647	14
Hardness Total, mg/L as Ca	1.00555	15
Initial Chrysophyta	1.00472	16
Nitrite/Nitrate	1.00462	17
SkyCover	1.00335	18
Ammonia mg/L	1.00199	19
Color, Cu	1.00090	20
TOC, mg/L	1.00043	21
TotalPhosphorus/Orthophos	0.99991	22
JAPS extractions	0.99951	23
Chloride mg/L	0.99764	24
DO, mg/L	0.99724	25
Pompton streamflow	0.99660	26
Conductivity umhos/cm	0.99649	27
Sulfate mg/L	0.99562	28
WkPrecip	0.99551	29
Pompton extractions	0.99384	30
WindSpeed	0.99285	31
Passaic extractions	0.98825	32
UV254 cm-1	0.98472	33

Initial Cyanophyta level		
Odor	2.115679	1
Total Amorphous Material	2.011052	2
pH	1.862064	3
Turbidity NTU	1.834786	4
HeatingDays	1.815682	5
Temp 0C	1.591622	6
WindDir	1.556734	7
DO, mg/L	1.365383	8
TotalPhosphorus/Orthophos	1.327688	9
Total Count, cells/ml	1.25532	10
PrevPrecip	1.22520	11
BOD, mg/L	1.21869	12
Ammonia mg/L	1.18048	13
Alkalinity mg/L as CaCO3	1.14728	14
Color, Cu	1.14634	15
Pompton extractions	1.12510	16
Initial Chlorophyta	1.08038	17
Sulfate mg/L	1.05676	18
Passaic extractions	1.04663	19
UV254 cm-1	1.03739	20
PointRes extractions	1.03639	21
SkyCover	1.02889	22
Conductivity umhos/cm	1.02673	23
Nitrite/Nitrate	1.02123	24
Chloride mg/L	1.01987	25
Pompton streamflow	1.01103	26
WindSpeed	1.00730	27
TOC, mg/L	1.00303	28
Initial Chrysophyta	1.00191	29
WkPrecip	1.00147	30
Hardness Total, mg/L as Ca	1.00009	31
JAPS extractions	1.00003	32

Total Count		
Total Amorphous Material	1.892747	1
Turbidity NTU	1.475623	2
Color, Cu	1.470421	3
WkPrecip	1.410272	4
Ammonia mg/L	1.169351	5
Pompton extractions	1.166250	6
BOD, mg/L	1.144955	7
SkyCover	1.117559	8
WindDir	1.105014	9
Initial Cyanophyta	1.08628	10
Initial Chlorophyta	1.07013	11
Alkalinity mg/L as CaCO3	1.06628	12
Sulfate mg/L	1.04391	13
HeatingDays	1.03795	14
DO, mg/L	1.01736	15
PointRes extractions	1.01574	16
Hardness Total, mg/L as Ca	1.01286	17
Nitrite/Nitrate	1.01012	18
pH	1.00291	19
JAPS extractions	1.00183	20
TOC, mg/L	1.00053	21
Chloride mg/L	0.99778	22
Passaic extractions	0.99767	23
Odor	0.99733	24
Conductivity umhos/cm	0.99064	25
PrevPrecip	0.99024	26
Temp 0C	0.98686	27
Initial Chrysophyta	0.97478	28
UV254 cm-1	0.96757	29
WindSpeed	0.95428	30
Pompton streamflow	0.95408	31
TotalPhosphorus/Orthophos	0.92726	32

Table 4.9. Station 612 Cyanobacteria two-week ahead predictions: Sensitivity Analysis (cont.)

pH		
Total Amorphous Material	2.574277	1
Turbidity NTU	1.856367	2
PointRes extractions	1.545818	3
Sulfate mg/L	1.436625	4
WkPrecip	1.415024	5
PrevPrecip	1.297332	6
WindDir	1.278549	7
BOD, mg/L	1.269651	8
Conductivity umhos/cm	1.254139	9
Initial Cyanophyta	1.20948	10
Color, Cu	1.17962	11
Temp 0C	1.16985	12
Odor	1.16079	13
Ammonia mg/L	1.10880	14
HeatingDays	1.08641	15
DO, mg/L	1.06578	16
Alkalinity mg/L as CaCO3	1.02942	17
Pompton extractions	1.02630	18
SkyCover	1.01734	19
Initial Chlorophyta	1.01430	20
Initial Chrysophyta	1.01018	21
Total Count, cells/ml	1.00766	22
Hardness Total, mg/L as Ca	0.99961	23
TOC, mg/L	0.99922	24
UV254 cm-1	0.99897	25
Nitrite/Nitrate	0.99815	26
Pompton streamflow	0.98562	27
JAPS extractions	0.98396	28
WindSpeed	0.98370	29
Chloride mg/L	0.98213	30
Passaic extractions	0.98204	31
TotalPhosphorus/Orthophos	0.90639	32

UV254		
Total Amorphous Material	4.216232	1
WkPrecip	3.102156	2
WindDir	3.076739	3
Total Count, cells/ml	2.809666	4
Turbidity NTU	2.724043	5
DO, mg/L	2.631624	6
Temp 0C	2.360474	7
Ammonia mg/L	2.309327	8
Initial Cyanophyta	2.077078	9
SkyCover	1.96285	10
Passaic extractions	1.90373	11
PrevPrecip	1.87055	12
HeatingDays	1.86446	13
Sulfate mg/L	1.74673	14
PointRes extractions	1.70783	15
Color, Cu	1.67784	16
Alkalinity mg/L as CaCO3	1.58365	17
Odor	1.38638	18
Initial Chlorophyta	1.38120	19
WindSpeed	1.17542	20
pH	1.13632	21
TotalPhosphorus/Orthophos	1.11209	22
Chloride mg/L	1.09043	23
Conductivity umhos/cm	1.04128	24
JAPS extractions	1.02200	25
Hardness Total, mg/L as Ca	1.00909	26
TOC, mg/L	1.00466	27
Pompton extractions	0.99618	28
Initial Chrysophyta	0.99399	29
BOD, mg/L	0.99392	30
Pompton streamflow	0.99046	31
Nitrite/Nitrate	0.98848	32

Passaic extractions		
Total Amorphous Material	2.430170	1
Sulfate mg/L	2.284002	2
Odor	1.966158	3
Initial Cyanophyta	1.936658	4
Turbidity NTU	1.374403	5
Total Count, cells/ml	1.313313	6
WindDir	1.253490	7
Color, Cu	1.217354	8
pH	1.151814	9
TotalPhosphorus/Orthophos	1.14181	10
DO, mg/L	1.13721	11
HeatingDays	1.10457	12
PrevPrecip	1.08252	13
SkyCover	1.07713	14
Ammonia mg/L	1.06066	15
Alkalinity mg/L as CaCO3	1.05775	16
PointRes extractions	1.05624	17
BOD, mg/L	1.02513	18
WkPrecip	1.02193	19
Pompton streamflow	1.02098	20
UV254 cm-1	1.01678	21
Pompton extractions	1.01639	22
Initial Chrysophyta	1.00784	23
Temp 0C	1.00737	24
Initial Chlorophyta	1.00151	25
WindSpeed	0.99676	26
Chloride mg/L	0.99380	27
TOC, mg/L	0.98500	28
Conductivity umhos/cm	0.98358	29
Hardness Total, mg/L as Ca	0.97473	30
Nitrite/Nitrate	0.94845	31
JAPS extractions	0.79664	32

Table 5.1. Station 100 Chrysophyta real-time predictions: Sensitivity Analysis

All Input			Heating Days			initial Chrysophyta level		
Odor	1.439141	1	Initial Chrysophyta	1.309694	1	HeatingDays	1.510352	1
HeatingDays	1.270610	2	Odor	1.205482	2	TOTAL COUNT, CELLS/M	1.368042	2
Initial Chrysophyta	1.246146	3	Hardness, Total mg/L as Ca	1.145899	3	Hardness, Total mg/L as Ca	1.260132	3
pH	1.146152	4	Passaic Streamflow	1.083866	4	Odor	1.134722	4
Pompton extraction	1.145812	5	Initial Chlorophyta	1.078649	5	Turbidity NTU	1.061965	5
Temp (OC)	1.119222	6	SkyCover	1.069544	6	Initial Chlorophyta	1.056379	6
WindSpeed	1.114208	7	Pompton extraction	1.058765	7	pH	1.054054	7
TOC, mg/L	1.109885	8	Conductivity, umhos/cm	1.044685	8	WkPrecip	1.036440	8
Nitrite/Nitrate	1.105814	9	pH	1.044134	9	BOD, mg/L	1.034954	9
Initial Chlorophyta	1.09386	10	Turbidity NTU	1.04408	10	WindSpeed	1.03390	10
Turbidity NTU	1.09186	11	Sulfate, mg/L	1.04131	11	Sulfate, mg/L	1.02963	11
DO, mg/L	1.08959	12	TOTAL COUNT, CELLS/M	1.03772	12	UV-254, cm-1	1.02624	12
Sulfate, mg/L	1.06262	13	Ammonia, mg/L	1.03597	13	Temp (OC)	1.02459	13
BOD, mg/L	1.05409	14	TOC, mg/L	1.03163	14	TOC, mg/L	1.02321	14
Hardness, Total mg/L as Ca	1.04852	15	WindSpeed	1.03070	15	Passaic Streamflow	1.02124	15
SkyCover	1.03024	16	Nitrite/Nitrate	1.03035	16	Alkalinity mg/L as CaCO3	1.02046	16
Passaic Streamflow	1.02417	17	BOD, mg/L	1.02801	17	SkyCover	1.01132	17
Alkalinity mg/L as CaCO3	1.02310	18	Alkalinity mg/L as CaCO3	1.01969	18	PointRes extractions	1.00998	18
Conductivity, umhos/cm	1.02019	19	DO, mg/L	1.01721	19	DO, mg/L	1.00738	19
TOTAL COUNT, CELLS/M	1.00599	20	Passaic extractions	1.01714	20	PrevPrecip	1.00580	20
UV-254, cm-1	1.00514	21	Pompton streamflow	1.01348	21	T.Phosphorus/Orthophosph	1.00576	21
Initial Cyanophyta	1.00430	22	PointRes extractions	1.00841	22	Nitrite/Nitrate	1.00575	22
Chloride, mg/L	1.00133	23	T.Phosphorus/Orthophosph	1.00671	23	Ammonia, mg/L	1.00415	23
PointRes extractions	0.99909	24	WkPrecip	1.00552	24	Conductivity, umhos/cm	1.00344	24
T.Phosphorus/Orthophosph	0.99813	25	Initial Cyanophyta	1.00472	25	WindDir	1.00071	25
Pompton streamflow	0.99598	26	WindDir	1.00394	26	TSS, mg/L	0.99991	26
PrevPrecip	0.99572	27	UV-254, cm-1	1.00105	27	Passaic extractions	0.99888	27
Passaic extractions	0.99453	28	Temp (OC)	1.00028	28	Pompton streamflow	0.99872	28
WindDir	0.99375	29	PrevPrecip	1.00015	29	Chloride, mg/L	0.99863	29
Ammonia, mg/L	0.99076	30	TSS, mg/L	1.00015	30	Initial Cyanophyta	0.98077	30
WkPrecip	0.97987	31	Chloride, mg/L	0.99025	31	Pompton extraction	0.98008	31
TSS, mg/L	0.95963	32						

Table 5.1. Station 100 Chrysophyta real-time predictions: Sensitivity Analysis(cont.)

pH		
Odor	1.140756	1
Initial Chrysophyta	1.055469	2
T.Phosphorus/Orthophosph	1.049894	3
Hardness, Total mg/L as Ca	1.031690	4
Initial Chlorophyta	1.031313	5
WindSpeed	1.021259	6
Alkalinity mg/L as CaCO3	1.016709	7
PointRes extractions	1.013623	8
TOC, mg/L	1.002882	9
Pompton extraction	1.00172	10
Chloride, mg/L	1.00143	11
TOTAL COUNT, CELLS/M	1.00129	12
Passaic extractions	1.00121	13
Conductivity, umhos/cm	1.00048	14
WkPrecip	0.99932	15
Passaic Streamflow	0.99919	16
Turbidity NTU	0.99891	17
SkyCover	0.99871	18
WindDir	0.99853	19
Pompton streamflow	0.99820	20
PrevPrecip	0.99795	21
Temp (OC)	0.99764	22
BOD, mg/L	0.99751	23
UV-254, cm-1	0.99511	24
TSS, mg/L	0.99396	25
DO, mg/L	0.99236	26
Initial Cyanophyta	0.98987	27
Nitrite/Nitrate	0.98857	28
Ammonia, mg/L	0.98754	29
HeatingDays	0.98716	30
Sulfate, mg/L	0.98226	31

TSS		
Initial Chrysophyta	1.175846	1
Nitrite/Nitrate	1.117533	2
Sulfate, mg/L	1.108814	3
Hardness, Total mg/L as Ca	1.101210	4
Pompton extraction	1.085457	5
Turbidity NTU	1.067302	6
HeatingDays	1.054893	7
Ammonia, mg/L	1.052390	8
Odor	1.052268	9
Passaic Streamflow	1.05072	10
TOC, mg/L	1.04781	11
TOTAL COUNT, CELLS/M	1.04724	12
Alkalinity mg/L as CaCO3	1.04629	13
BOD, mg/L	1.04272	14
SkyCover	1.03973	15
pH	1.03226	16
Initial Cyanophyta	1.01536	17
Initial Chlorophyta	1.01440	18
DO, mg/L	1.01439	19
WindDir	1.01407	20
T.Phosphorus/Orthophosph	1.01387	21
Chloride, mg/L	1.01358	22
Pompton streamflow	1.01186	23
Passaic extractions	1.00910	24
Temp (OC)	1.00631	25
UV-254, cm-1	0.99907	26
PrevPrecip	0.99676	27
WindSpeed	0.99667	28
PointRes extractions	0.98873	29
WkPrecip	0.98511	30
Conductivity, umhos/cm	0.97903	31

Weekly Precip		
Initial Chrysophyta	1.155736	1
Odor	1.144995	2
Initial Chlorophyta	1.064076	3
TOTAL COUNT, CELLS/M	1.022826	4
HeatingDays	1.020930	5
PrevPrecip	1.019179	6
Turbidity NTU	1.013917	7
Sulfate, mg/L	1.011784	8
PointRes extractions	1.009233	9
T.Phosphorus/Orthophosph	1.00870	10
Alkalinity mg/L as CaCO3	1.00650	11
Pompton extraction	1.00530	12
Passaic Streamflow	1.00305	13
Initial Cyanophyta	1.00303	14
TOC, mg/L	1.00297	15
DO, mg/L	1.00241	16
Passaic extractions	1.00216	17
Pompton streamflow	1.00142	18
UV-254, cm-1	1.00132	19
SkyCover	1.00096	20
WindSpeed	1.00093	21
TSS, mg/L	1.00045	22
Nitrite/Nitrate	1.00001	23
WindDir	0.99979	24
Ammonia, mg/L	0.99911	25
Chloride, mg/L	0.99863	26
Hardness, Total mg/L as Ca	0.99686	27
Conductivity, umhos/cm	0.99525	28
Temp (OC)	0.99360	29
BOD, mg/L	0.99210	30
pH	0.98775	31

Table 5.2. Station 100 Chrysophyta one-week ahead predictions: Sensitivity Analysis

All Inputs		
Odor	1.521446	1
Initial Chrysophyta	1.360829	2
Hardness, Total mg/L as Ca	1.294863	3
WindSpeed	1.286118	4
TOTAL COUNT, CELLS/M	1.224270	5
HeatingDays	1.194645	6
Turbidity NTU	1.171724	7
Pompton extraction	1.149709	8
Alkalinity mg/L as CaCO3	1.146786	9
Sulfate, mg/L	1.14351	10
Conductivity, umhos/cm	1.14095	11
Initial Cyanophyta	1.13048	12
pH	1.10245	13
PrevPrecip	1.09297	14
BOD, mg/L	1.09179	15
TOC, mg/L	1.09174	16
TSS, mg/L	1.09056	17
Passaic Streamflow	1.08779	18
Nitrite/Nitrate	1.08300	19
Chloride, mg/L	1.07045	20
Temp (OC)	1.06524	21
Ammonia, mg/L	1.04878	22
Initial Chlorophyta	1.04733	23
UV-254, cm-1	1.04686	24
PointRes extractions	1.04620	25
WindDir	1.02197	26
DO, mg/L	1.01103	27
Pompton streamflow	1.00795	28
T.Phosphorus/Orthophosph	1.00781	29
Passaic extractions	1.00402	30
WkPrecip	1.00373	31
SkyCover	0.99898	32

initChrysop		
TOTAL COUNT, CELLS/M	1.132248	1
Odor	1.077437	2
HeatingDays	1.073765	3
Initial Cyanophyta	1.042965	4
Initial Chlorophyta	1.029886	5
TOC, mg/L	1.029012	6
WkPrecip	1.025820	7
T.Phosphorus/Orthophosph	1.017465	8
PrevPrecip	1.015716	9
PointRes extractions	1.01408	10
Temp (OC)	1.01324	11
Turbidity NTU	1.01317	12
BOD, mg/L	1.01301	13
UV-254, cm-1	1.00825	14
Passaic Streamflow	1.00702	15
WindSpeed	1.00550	16
Passaic extractions	1.00294	17
Conductivity, umhos/cm	1.00152	18
pH	1.00077	19
Pompton streamflow	1.00071	20
DO, mg/L	1.00036	21
Ammonia, mg/L	1.00021	22
Pompton extraction	1.00006	23
Chloride, mg/L	0.99939	24
Alkalinity mg/L as CaCO3	0.99933	25
Sulfate, mg/L	0.99923	26
Hardness, Total mg/L as Ca	0.99914	27
WindDir	0.99710	28
Nitrite/Nitrate	0.99483	29
TSS, mg/L	0.99408	30
SkyCover	0.99269	31

Hardness		
Odor	1.202124	1
Initial Chrysophyta	1.141478	2
Temp (OC)	1.074029	3
HeatingDays	1.053165	4
WindSpeed	1.037704	5
Conductivity, umhos/cm	1.035255	6
Chloride, mg/L	1.030076	7
TOTAL COUNT, CELLS/M	1.029534	8
Pompton streamflow	1.026190	9
BOD, mg/L	1.02165	10
T.Phosphorus/Orthophosph	1.02063	11
TSS, mg/L	1.01937	12
Turbidity NTU	1.01928	13
TOC, mg/L	1.01910	14
Passaic Streamflow	1.01408	15
Sulfate, mg/L	1.01379	16
DO, mg/L	1.00903	17
PrevPrecip	1.00901	18
Pompton extraction	1.00830	19
Ammonia, mg/L	1.00314	20
Alkalinity mg/L as CaCO3	1.00262	21
Initial Chlorophyta	1.00057	22
PointRes extractions	0.99965	23
Initial Cyanophyta	0.99515	24
Passaic extractions	0.99514	25
pH	0.99441	26
Nitrite/Nitrate	0.98731	27
UV-254, cm-1	0.98360	28
WkPrecip	0.98337	29
SkyCover	0.97615	30
WindDir	0.96864	31

Table 5.2. Station 100 Chrysophyta one-week ahead predictions: Sensitivity Analysis (cont.)

WindSpeed		
TOTAL COUNT, CELLS/M	1.279477	1
Passaic Streamflow	1.251466	2
BOD, mg/L	1.129827	3
Hardness, Total mg/L as Ca	1.118425	4
Pompton extraction	1.104410	5
Nitrite/Nitrate	1.067198	6
Turbidity NTU	1.057599	7
Pompton streamflow	1.051405	8
Temp (OC)	1.049346	9
Initial Chlorophyta	1.04311	10
WkPrecip	1.03481	11
SkyCover	1.03441	12
Initial Chrysophyta	1.02954	13
T.Phosphorus/Orthophosph	1.01916	14
Ammonia, mg/L	1.01063	15
PrevPrecip	1.00956	16
Initial Cyanophyta	1.00937	17
DO, mg/L	1.00745	18
Chloride, mg/L	1.00586	19
WindDir	1.00542	20
Passaic extractions	1.00500	21
HeatingDays	1.00461	22
TOC, mg/L	1.00375	23
PointRes extractions	1.00158	24
UV-254, cm-1	0.99489	25
Alkalinity mg/L as CaCO3	0.99383	26
Sulfate, mg/L	0.99319	27
Conductivity, umhos/cm	0.99296	28
TSS, mg/L	0.98954	29
Odor	0.97792	30
pH	0.97649	31

SkyCover		
Odor	1.104889	1
Initial Chrysophyta	1.102143	2
Passaic Streamflow	1.027748	3
Hardness, Total mg/L as Ca	1.019397	4
PointRes extractions	1.017602	5
Initial Chlorophyta	1.014602	6
Pompton extraction	1.011959	7
WindSpeed	1.011038	8
Turbidity NTU	1.010418	9
Nitrite/Nitrate	1.00753	10
BOD, mg/L	1.00705	11
WkPrecip	1.00699	12
TOTAL COUNT, CELLS/M	1.00612	13
TOC, mg/L	1.00604	14
Temp (OC)	1.00552	15
Pompton streamflow	1.00352	16
HeatingDays	1.00253	17
Passaic extractions	1.00205	18
Conductivity, umhos/cm	1.00182	19
T.Phosphorus/Orthophosph	1.00143	20
UV-254, cm-1	1.00130	21
Chloride, mg/L	1.00098	22
Initial Cyanophyta	0.99950	23
WindDir	0.99910	24
Ammonia, mg/L	0.99870	25
TSS, mg/L	0.99859	26
DO, mg/L	0.99767	27
pH	0.99659	28
Sulfate, mg/L	0.99644	29
Alkalinity mg/L as CaCO3	0.99348	30
PrevPrecip	0.99279	31

WkPrecip		
HeatingDays	1.160695	1
Odor	1.136484	2
Initial Chrysophyta	1.128300	3
BOD, mg/L	1.097827	4
Temp (OC)	1.063753	5
Initial Chlorophyta	1.054119	6
Nitrite/Nitrate	1.045015	7
WindSpeed	1.033937	8
UV-254, cm-1	1.032817	9
Chloride, mg/L	1.03001	10
Sulfate, mg/L	1.02951	11
TOTAL COUNT, CELLS/M	1.02817	12
Pompton extraction	1.02815	13
Hardness, Total mg/L as Ca	1.02666	14
Turbidity NTU	1.02510	15
TSS, mg/L	1.01978	16
SkyCover	1.01635	17
Pompton streamflow	1.01586	18
Passaic Streamflow	1.01434	19
Alkalinity mg/L as CaCO3	1.01290	20
PointRes extractions	1.00839	21
pH	1.00828	22
Ammonia, mg/L	1.00791	23
Initial Cyanophyta	1.00531	24
PrevPrecip	1.00436	25
TOC, mg/L	1.00325	26
Conductivity, umhos/cm	1.00061	27
T.Phosphorus/Orthophosph	1.00001	28
WindDir	0.99626	29
Passaic extractions	0.99261	30
DO, mg/L	0.98872	31

Table 5.3. Station 100 Chrysophyta two-week ahead predictions: Sensitivity Analysis

All Inputs			Heating Days			initial Chrysophyta level		
HeatingDays	1.369502	1	Initial Chrysophyta	1.162948	1	Pompton extraction	1.099987	1
Initial Chrysophyta	1.345050	2	Odor	1.103051	2	Passaic Streamflow	1.094457	2
Odor	1.319412	3	Pompton extraction	1.088157	3	Hardness, Total mg/L as Ca	1.090044	3
TOTAL COUNT, CELLS/M	1.129684	4	TOTAL COUNT, CELLS/M	1.069700	4	HeatingDays	1.066225	4
WindSpeed	1.117134	5	Temp (0C)	1.036843	5	Initial Chlorophyta	1.054302	5
Hardness, Total mg/L as Ca	1.062057	6	WindSpeed	1.032075	6	Sulfate, mg/L	1.053777	6
Pompton extraction	1.054839	7	Hardness, Total mg/L as Ca	1.031393	7	Odor	1.046903	7
WindDir	1.043277	8	T.Phosphorus/Orthophosph	1.027745	8	Temp (0C)	1.046726	8
Chloride, mg/L	1.037207	9	Initial Chlorophyta	1.016594	9	WindSpeed	1.046397	9
DO, mg/L	1.03692	10	TOC, mg/L	1.01643	10	Conductivity, umhos/cm	1.04105	10
PrevPrecip	1.03425	11	DO, mg/L	1.01243	11	pH	1.03934	11
Turbidity NTU	1.03239	12	UV-254, cm-1	1.01065	12	WkPrecip	1.03243	12
Nitrite/Nitrate	1.02915	13	Passaic Streamflow	1.00947	13	TOTAL COUNT, CELLS/M	1.03072	13
Sulfate, mg/L	1.01875	14	Ammonia, mg/L	1.00688	14	UV-254, cm-1	1.02671	14
TOC, mg/L	1.01841	15	Turbidity NTU	1.00518	15	DO, mg/L	1.02639	15
Alkalinity mg/L as CaCO3	1.01781	16	pH	1.00473	16	Nitrite/Nitrate	1.02263	16
Ammonia, mg/L	1.01375	17	SkyCover	1.00449	17	Alkalinity mg/L as CaCO3	1.01539	17
pH	1.01361	18	WindDir	1.00312	18	Chloride, mg/L	1.01416	18
UV-254, cm-1	1.00616	19	PointRes extractions	1.00237	19	Pompton streamflow	1.00779	19
Initial Chlorophyta	1.00580	20	WkPrecip	1.00134	20	T.Phosphorus/Orthophosph	1.00574	20
WkPrecip	1.00158	21	Alkalinity mg/L as CaCO3	1.00089	21	PrevPrecip	1.00405	21
Temp (0C)	1.00125	22	PrevPrecip	1.00047	22	PointRes extractions	1.00250	22
Conductivity, umhos/cm	1.00120	23	Initial Cyanophyta	0.99970	23	Initial Cyanophyta	1.00062	23
Passaic extractions	1.00061	24	Passaic extractions	0.99937	24	TOC, mg/L	1.00006	24
Initial Cyanophyta	1.00002	25	Pompton streamflow	0.99927	25	Ammonia, mg/L	1.00001	25
TSS, mg/L	0.99965	26	Sulfate, mg/L	0.99746	26	Passaic extractions	0.99681	26
T.Phosphorus/Orthophosph	0.99717	27	Conductivity, umhos/cm	0.99716	27	WindDir	0.99676	27
Pompton streamflow	0.99568	28	BOD, mg/L	0.99669	28	TSS, mg/L	0.99446	28
BOD, mg/L	0.99530	29	TSS, mg/L	0.99557	29	BOD, mg/L	0.98454	29
PointRes extractions	0.99431	30	Nitrite/Nitrate	0.99536	30	SkyCover	0.97477	30
SkyCover	0.99396	31	Chloride, mg/L	0.97838	31	Turbidity NTU	0.95370	31
Passaic Streamflow	0.99216	32						

Table 5.3. Station 100 Chrysophyta two-week ahead predictions: Sensitivity Analysis (cont.)

Total Count		
Temp (OC)	1.222363	1
Initial Chlorophyta	1.131276	2
Initial Chrysophyta	1.125115	3
Pompton extraction	1.124591	4
PrevPrecip	1.082978	5
Odor	1.073291	6
Conductivity, umhos/cm	1.072499	7
SkyCover	1.061792	8
Passaic Streamflow	1.061662	9
HeatingDays	1.04932	10
TSS, mg/L	1.04336	11
DO, mg/L	1.04297	12
Nitrite/Nitrate	1.03586	13
WindSpeed	1.03222	14
TOC, mg/L	1.02034	15
Sulfate, mg/L	1.01061	16
Hardness, Total mg/L as Ca	1.00910	17
UV-254, cm-1	1.00608	18
T.Phosphorus/Orthophosph	1.00404	19
pH	1.00126	20
WindDir	0.99982	21
PointRes extractions	0.99906	22
Passaic extractions	0.99816	23
Ammonia, mg/L	0.99236	24
Initial Cyanophyta	0.98943	25
Alkalinity mg/L as CaCO3	0.98082	26
BOD, mg/L	0.97664	27
WkPrecip	0.96680	28
Chloride, mg/L	0.96387	29
Turbidity NTU	0.95362	30
Pompton streamflow	0.94463	31

Passaic Streamflow		
Initial Chrysophyta	1.094478	1
Odor	1.042687	2
WindSpeed	1.041707	3
TOTAL COUNT, CELLS/M	1.035010	4
HeatingDays	1.017126	5
WindDir	1.009761	6
PrevPrecip	1.008771	7
pH	1.008229	8
TSS, mg/L	1.007835	9
Conductivity, umhos/cm	1.00671	10
Temp (OC)	1.00545	11
Alkalinity mg/L as CaCO3	1.00508	12
Pompton extraction	1.00457	13
Initial Chlorophyta	1.00440	14
BOD, mg/L	1.00418	15
Hardness, Total mg/L as Ca	1.00372	16
TOC, mg/L	1.00351	17
T.Phosphorus/Orthophosph	1.00140	18
DO, mg/L	1.00127	19
WkPrecip	1.00127	20
Pompton streamflow	1.00093	21
Chloride, mg/L	1.00080	22
SkyCover	1.00052	23
UV-254, cm-1	1.00031	24
Sulfate, mg/L	1.00023	25
Nitrite/Nitrate	1.00020	26
PointRes extractions	0.99994	27
Passaic extractions	0.99988	28
Ammonia, mg/L	0.99979	29
Initial Cyanophyta	0.99840	30
Turbidity NTU	0.98485	31

SkyCover		
Temp (OC)	1.687350	1
Hardness, Total mg/L as Ca	1.477586	2
HeatingDays	1.424567	3
Pompton extraction	1.282256	4
Ammonia, mg/L	1.190907	5
Passaic Streamflow	1.142239	6
Odor	1.113555	7
Initial Chrysophyta	1.094975	8
WindSpeed	1.078744	9
TOC, mg/L	1.03008	10
WindDir	1.02630	11
WkPrecip	1.02625	12
pH	1.01471	13
BOD, mg/L	1.01334	14
Conductivity, umhos/cm	1.00627	15
Alkalinity mg/L as CaCO3	1.00454	16
TSS, mg/L	1.00354	17
Nitrite/Nitrate	0.99981	18
T.Phosphorus/Orthophosph	0.99799	19
PointRes extractions	0.99669	20
Initial Cyanophyta	0.99608	21
Chloride, mg/L	0.99530	22
DO, mg/L	0.99527	23
Passaic extractions	0.98904	24
Pompton streamflow	0.98883	25
PrevPrecip	0.98318	26
Sulfate, mg/L	0.97715	27
Initial Chlorophyta	0.93762	28
UV-254, cm-1	0.90223	29
TOTAL COUNT, CELLS/M	0.86645	30
Turbidity NTU	0.84067	31

Table 5.4. Station 101 Chrysophyta real-time predictions: Sensitivity Analysis

All Input		
Initial Chrysophyta	1.073253	1
Total Amorphous Material	1.046389	2
Pompton streamflow	1.045826	3
Odor	1.018599	4
Hardness Total, mg/L as Ca	1.015229	5
WkPrecip	1.008524	6
Temp 0C	1.006809	7
PrevPrecip	1.006508	8
Ammonia mg/L	1.005956	9
Conductivity umhos/cm	1.00481	10
Turbidity NTU	1.00479	11
WindDir	1.00372	12
Total Count, cells/ml	1.00326	13
WindSpeed	1.00291	14
UV254 cm-1	1.00287	15
DO, mg/L	1.00269	16
SkyCover	1.00265	17
HeatingDays	1.00238	18
PointRes extractions	1.00197	19
Color, Cu	0.99989	20
Chloride mg/L	0.99887	21
pH	0.99874	22
T.Phosphorus/Orthophosph	0.99783	23
Initial Chlorophyta	0.99742	24
BOD, mg/L	0.99654	25
Alkalinity mg/L as CaCO3	0.99602	26
Sulfate mg/L	0.99520	27
Initial Cyanophyta	0.99515	28
Passaic extractions	0.99386	29
TOC, mg/L	0.99340	30
Pompton extraction	0.99286	31
Nitrite/Nitrate	0.98760	32
JAPS extractions	0.98144	33

initial Chrysophyta level		
Nitrite/Nitrate	1.179575	1
T.Phosphorus/Orthophosph	1.161097	2
Total Amorphous Material	1.151384	3
SkyCover	1.121052	4
HeatingDays	1.101415	5
TOC, mg/L	1.060648	6
pH	1.056937	7
Odor	1.056462	8
Temp 0C	1.053802	9
Conductivity umhos/cm	1.04937	10
Sulfate mg/L	1.04380	11
Pompton extraction	1.04165	12
PrevPrecip	1.03956	13
BOD, mg/L	1.03762	14
JAPS extractions	1.02700	15
WkPrecip	1.02040	16
WindSpeed	1.01560	17
UV254 cm-1	1.01367	18
Hardness Total, mg/L as Ca	1.01157	19
Initial Chlorophyta	1.00916	20
Ammonia mg/L	1.00793	21
Turbidity NTU	1.00577	22
Initial Cyanophyta	1.00357	23
PointRes extractions	1.00050	24
WindDir	0.99626	25
DO, mg/L	0.99075	26
Pompton streamflow	0.98960	27
Total Count, cells/ml	0.98751	28
Alkalinity mg/L as CaCO3	0.98405	29
Passaic extractions	0.96706	30
Chloride mg/L	0.96405	31
Color, Cu	0.96147	32

Pompton streamflow		
Total Amorphous Material	1.200780	1
Color, Cu	1.168425	2
Ammonia mg/L	1.068740	3
Passaic extractions	1.054717	4
WkPrecip	1.048759	5
Temp 0C	1.046028	6
BOD, mg/L	1.043518	7
Pompton extraction	1.035491	8
Conductivity umhos/cm	1.035470	9
Initial Chrysophyta	1.03485	10
TOC, mg/L	1.03401	11
Sulfate mg/L	1.02773	12
HeatingDays	1.02281	13
WindSpeed	1.01574	14
Turbidity NTU	1.00940	15
Nitrite/Nitrate	1.00689	16
Total Count, cells/ml	1.00400	17
JAPS extractions	1.00348	18
Odor	1.00067	19
UV254 cm-1	0.99698	20
SkyCover	0.99292	21
PrevPrecip	0.98690	22
WindDir	0.98610	23
DO, mg/L	0.98574	24
Initial Cyanophyta	0.98455	25
PointRes extractions	0.98270	26
pH	0.98002	27
T.Phosphorus/Orthophosph	0.97720	28
Initial Chlorophyta	0.95779	29
Alkalinity mg/L as CaCO3	0.95169	30
Chloride mg/L	0.93873	31
Hardness Total, mg/L as Ca	0.92886	32

Table 5.4. Station 101 Chrysophyta real-time predictions: Sensitivity Analysis (cont.)

Total Hardness			Nitrite/Nitrate			JAPS extractions			Total Amorphous Materials		
T.Phosphorus/Orthophosph	1.176839	1	Total Amorphous Material	1.151112	1	Color, Cu	1.184033	1	Initial Chrysophyta	1.056908	1
Temp 0C	1.171748	2	Initial Chrysophyta	1.150694	2	SkyCover	1.113545	2	T.Phosphorus/Orthophosph	1.033379	2
Total Amorphous Material	1.161617	3	Passaic extractions	1.136191	3	Total Amorphous Material	1.111609	3	TOC, mg/L	1.025763	3
Passaic extractions	1.158385	4	Odor	1.135714	4	Initial Chlorophyta	1.102582	4	WindDir	1.020496	4
Odor	1.158305	5	Temp 0C	1.126398	5	Total Count, cells/ml	1.098532	5	Pompton extraction	1.016161	5
Sulfate mg/L	1.146857	6	Pompton streamflow	1.118767	6	WindDir	1.095804	6	Nitrite/Nitrate	1.014760	6
BOD, mg/L	1.145556	7	Conductivity umhos/cm	1.087240	7	WkPrecip	1.094101	7	Sulfate mg/L	1.011031	7
pH	1.135018	8	WindDir	1.073090	8	Odor	1.092980	8	Initial Chlorophyta	1.010519	8
Total Count, cells/ml	1.120272	9	Pompton extraction	1.047185	9	T.Phosphorus/Orthophosph	1.084005	9	Hardness Total, mg/L as Ca	1.007204	9
Alkalinity mg/L as CaCO3	1.09180	10	UV254 cm-1	1.03721	10	Alkalinity mg/L as CaCO3	1.07259	10	PrevPrecip	1.00719	10
Ammonia mg/L	1.08079	11	SkyCover	1.03660	11	Initial Chrysophyta	1.05899	11	Conductivity umhos/cm	1.00694	11
HeatingDays	1.05918	12	T.Phosphorus/Orthophosph	1.03478	12	PrevPrecip	1.05013	12	PointRes extractions	1.00480	12
Chloride mg/L	1.05760	13	Alkalinity mg/L as CaCO3	1.03010	13	pH	1.04909	13	Color, Cu	1.00449	13
WindSpeed	1.05654	14	Color, Cu	1.02809	14	Initial Cyanophyta	1.04382	14	WindSpeed	1.00330	14
Conductivity umhos/cm	1.05100	15	Total Count, cells/ml	1.02735	15	Sulfate mg/L	1.03388	15	Initial Cyanophyta	1.00326	15
Color, Cu	1.04990	16	Sulfate mg/L	1.02572	16	UV254 cm-1	1.03244	16	pH	1.00290	16
PointRes extractions	1.04795	17	Initial Cyanophyta	1.02467	17	Conductivity umhos/cm	1.02645	17	Passaic extractions	1.00238	17
TOC, mg/L	1.04490	18	WkPrecip	1.02449	18	TOC, mg/L	1.02632	18	Alkalinity mg/L as CaCO3	1.00232	18
Initial Chrysophyta	1.03614	19	Hardness Total, mg/L as Ca	1.02390	19	Hardness Total, mg/L as Ca	1.01770	19	JAPS extractions	1.00152	19
WindDir	1.02953	20	pH	1.02294	20	Passaic extractions	1.01576	20	Pompton streamflow	1.00102	20
Pompton streamflow	1.02549	21	PrevPrecip	1.02253	21	Nitrite/Nitrate	1.01526	21	WkPrecip	1.00008	21
DO, mg/L	1.02290	22	TOC, mg/L	1.02078	22	WindSpeed	1.01239	22	Temp 0C	1.00006	22
WkPrecip	1.01756	23	Ammonia mg/L	1.01982	23	DO, mg/L	1.01228	23	Total Count, cells/ml	0.99868	23
Nitrite/Nitrate	1.01405	24	JAPS extractions	1.01663	24	PointRes extractions	1.00991	24	DO, mg/L	0.99849	24
PrevPrecip	1.01377	25	BOD, mg/L	1.01485	25	Pompton streamflow	1.00901	25	SkyCover	0.99817	25
Turbidity NTU	1.01172	26	WindSpeed	1.01434	26	Temp 0C	1.00838	26	BOD, mg/L	0.99792	26
Pompton extraction	1.00566	27	Turbidity NTU	1.01320	27	BOD, mg/L	1.00262	27	Chloride mg/L	0.99676	27
JAPS extractions	1.00034	28	Initial Chlorophyta	1.00705	28	Turbidity NTU	1.00045	28	Turbidity NTU	0.99592	28
UV254 cm-1	0.99566	29	Chloride mg/L	0.99867	29	Ammonia mg/L	0.99747	29	HeatingDays	0.99555	29
Initial Cyanophyta	0.99048	30	DO, mg/L	0.99855	30	Chloride mg/L	0.99495	30	UV254 cm-1	0.99456	30
SkyCover	0.97873	31	HeatingDays	0.99840	31	Pompton extraction	0.99403	31	Ammonia mg/L	0.99433	31
Initial Chlorophyta	0.96594	32	PointRes extractions	0.98517	32	HeatingDays	0.96280	32	Odor	0.98663	32

Table 5.5. Station 101 Chrysophyta one-week ahead prediction: Sensitivity Analyses

All Inputs		
WkPrecip	1.254895	1
Total Amorphous Material	1.146450	2
Temp 0C	1.117837	3
Initial Chrysophyta	1.111987	4
Pompton extraction	1.059052	5
SkyCover	1.056696	6
HeatingDays	1.046195	7
WindSpeed	1.041512	8
Initial Chlorophyta	1.036407	9
BOD, mg/L	1.03573	10
Chloride mg/L	1.03470	11
TOC, mg/L	1.03100	12
Ammonia mg/L	1.02686	13
PointRes extractions	1.02372	14
Sulfate mg/L	1.02348	15
WindDir	1.01896	16
Total Count, cells/ml	1.01870	17
UV254 cm-1	1.01746	18
Turbidity NTU	1.01077	19
Conductivity umhos/cm	1.00666	20
Odor	1.00568	21
PrevPrecip	1.00511	22
Initial Cyanophyta	1.00482	23
Nitrite/Nitrate	0.98698	24
pH	0.98479	25
DO, mg/L	0.98394	26
T.Phosphorus/Orthophosph	0.97900	27
Hardness Total, mg/L as Ca	0.97625	28
Alkalinity mg/L as CaCO3	0.96108	29
Pompton streamflow	0.95042	30
Passaic extractions	0.94585	31
Color, Cu	0.94433	32
JAPS extractions	0.91467	33

Weekly Precip		
Pompton extraction	1.085568	1
Initial Cyanophyta	1.061365	2
Initial Chlorophyta	1.046331	3
HeatingDays	1.033268	4
DO, mg/L	1.032708	5
Chloride mg/L	1.029676	6
Sulfate mg/L	1.024887	7
JAPS extractions	1.017837	8
Turbidity NTU	1.014765	9
Initial Chrysophyta	1.01311	10
Ammonia mg/L	1.01234	11
PrevPrecip	1.01150	12
PointRes extractions	1.00850	13
UV254 cm-1	1.00798	14
BOD, mg/L	1.00759	15
Temp 0C	1.00745	16
Color, Cu	1.00726	17
SkyCover	1.00677	18
TOC, mg/L	1.00433	19
Nitrite/Nitrate	1.00415	20
WindSpeed	1.00007	21
Total Amorphous Material	0.99966	22
Total Count, cells/ml	0.99728	23
pH	0.99630	24
Passaic extractions	0.99199	25
Alkalinity mg/L as CaCO3	0.98973	26
Conductivity umhos/cm	0.98757	27
Odor	0.98607	28
Pompton streamflow	0.97556	29
T.Phosphorus/Orthophosph	0.96922	30
Hardness Total, mg/L as Ca	0.96584	31
WindDir	0.00000	32

initial Chrysophyta level		
Total Amorphous Material	1.194037	1
WkPrecip	1.059465	2
Hardness Total, mg/L as Ca	1.051633	3
Ammonia mg/L	1.044773	4
JAPS extractions	1.040282	5
Odor	1.030377	6
SkyCover	1.028811	7
WindDir	1.015680	8
Total Count, cells/ml	1.015464	9
PrevPrecip	1.01392	10
Pompton streamflow	1.01366	11
Passaic extractions	1.01120	12
Turbidity NTU	1.00992	13
Chloride mg/L	1.00786	14
UV254 cm-1	1.00550	15
WindSpeed	1.00531	16
pH	1.00257	17
TOC, mg/L	1.00253	18
Color, Cu	1.00172	19
Initial Cyanophyta	1.00132	20
Initial Chlorophyta	0.99998	21
PointRes extractions	0.99931	22
Pompton extraction	0.99907	23
Alkalinity mg/L as CaCO3	0.99629	24
Temp 0C	0.99208	25
Sulfate mg/L	0.99199	26
BOD, mg/L	0.99121	27
Conductivity umhos/cm	0.99079	28
Nitrite/Nitrate	0.98888	29
HeatingDays	0.98678	30
T.Phosphorus/Orthophosph	0.98631	31
DO, mg/L	0.64311	32

Table 5.5. Station 101 Chrysophyta one-week ahead prediction: Sensitivity Analyses (cont.)

Temperature			Color			JAPS extractions			Total Amorphous Materials		
Total Amorphous Material	1.198263	1	WkPrecip	1.378420	1	Initial Chrysophyta	1.133837	1	T.Phosphorus/Orthophosph	1.440685	1
Odor	1.146379	2	Turbidity NTU	1.331938	2	Total Amorphous Material	1.130847	2	Odor	1.265549	2
Ammonia mg/L	1.136185	3	WindSpeed	1.181706	3	Pompton streamflow	1.089498	3	Nitrite/Nitrate	1.164088	3
Initial Chrysophyta	1.131821	4	Initial Chrysophyta	1.145049	4	Odor	1.069622	4	TOC, mg/L	1.117758	4
T.Phosphorus/Orthophosph	1.121202	5	Temp 0C	1.113968	5	WkPrecip	1.034079	5	Conductivity umhos/cm	1.114637	5
WkPrecip	1.119827	6	BOD, mg/L	1.110555	6	T.Phosphorus/Orthophosph	1.029579	6	HeatingDays	1.097790	6
Total Count, cells/ml	1.114277	7	Odor	1.109214	7	TOC, mg/L	1.019630	7	Initial Chlorophyta	1.092208	7
Nitrite/Nitrate	1.083003	8	Alkalinity mg/L as CaCO3	1.079995	8	Turbidity NTU	1.017916	8	Passaic extractions	1.079644	8
WindSpeed	1.080656	9	Hardness Total, mg/L as Ca	1.075211	9	Hardness Total, mg/L as Ca	1.017117	9	Initial Chrysophyta	1.068846	9
Turbidity NTU	1.07509	10	Ammonia mg/L	1.04978	10	Chloride mg/L	1.01696	10	Ammonia mg/L	1.05573	10
TOC, mg/L	1.04817	11	Sulfate mg/L	1.04972	11	HeatingDays	1.01324	11	JAPS extractions	1.05526	11
WindDir	1.04561	12	PrevPrecip	1.04404	12	Passaic extractions	1.01242	12	Total Count, cells/ml	1.04502	12
BOD, mg/L	1.04491	13	JAPS extractions	1.04325	13	WindDir	1.01181	13	WindDir	1.03940	13
HeatingDays	1.04252	14	Pompton extraction	1.04220	14	WindSpeed	1.01015	14	Pompton streamflow	1.03351	14
Hardness Total, mg/L as Ca	1.04232	15	Total Amorphous Material	1.03458	15	Color, Cu	1.00946	15	pH	1.03172	15
Sulfate mg/L	1.03772	16	pH	1.02829	16	Alkalinity mg/L as CaCO3	1.00625	16	BOD, mg/L	1.03109	16
UV254 cm-1	1.03573	17	Initial Chlorophyta	1.02431	17	Total Count, cells/ml	1.00575	17	WindSpeed	1.02921	17
Initial Chlorophyta	1.03453	18	Passaic extractions	1.00944	18	BOD, mg/L	1.00471	18	Initial Cyanophyta	1.02294	18
Pompton extraction	1.02588	19	Total Count, cells/ml	1.00734	19	Ammonia mg/L	1.00140	19	PrevPrecip	1.01664	19
Conductivity umhos/cm	1.02501	20	UV254 cm-1	1.00408	20	pH	1.00031	20	Pompton extraction	1.01325	20
Passaic extractions	1.02431	21	WindDir	1.00374	21	Conductivity umhos/cm	1.00022	21	UV254 cm-1	1.01241	21
Color, Cu	1.01932	22	DO, mg/L	0.99940	22	SkyCover	0.99667	22	Chloride mg/L	1.01101	22
pH	1.01330	23	PointRes extractions	0.99829	23	UV254 cm-1	0.99615	23	DO, mg/L	1.00911	23
Chloride mg/L	1.01052	24	T.Phosphorus/Orthophosph	0.99646	24	Nitrite/Nitrate	0.99396	24	Hardness Total, mg/L as Ca	1.00758	24
DO, mg/L	1.00952	25	Initial Cyanophyta	0.99557	25	Initial Chlorophyta	0.99301	25	Turbidity NTU	1.00451	25
PointRes extractions	1.00804	26	TOC, mg/L	0.99509	26	Sulfate mg/L	0.99280	26	PointRes extractions	1.00411	26
Alkalinity mg/L as CaCO3	1.00761	27	Pompton streamflow	0.99297	27	Temp 0C	0.99103	27	WkPrecip	1.00355	27
PrevPrecip	1.00731	28	SkyCover	0.99251	28	PrevPrecip	0.98947	28	Color, Cu	0.99929	28
Initial Cyanophyta	1.00343	29	Chloride mg/L	0.99029	29	Pompton extraction	0.98735	29	Alkalinity mg/L as CaCO3	0.97577	29
SkyCover	0.99951	30	HeatingDays	0.98421	30	DO, mg/L	0.97864	30	SkyCover	0.97280	30
JAPS extractions	0.99625	31	Conductivity umhos/cm	0.98414	31	Initial Cyanophyta	0.93283	31	Sulfate mg/L	0.91529	31
Pompton streamflow	0.97037	32	Nitrite/Nitrate	0.97826	32	PointRes extractions	0.86997	32	Temp 0C	0.91276	32

Table 5.6. Station 101 Chrysophyta two-week ahead prediction: Sensitivity Analyses

All Inputs		
Total Amorphous Material	1.192245	1
Odor	1.160446	2
WkPrecip	1.089413	3
Alkalinity mg/L as CaCO ₃	1.057529	4
Ammonia mg/L	1.047529	5
Initial Cyanophyta	1.045941	6
Sulfate mg/L	1.040462	7
JAPS extractions	1.039249	8
DO, mg/L	1.036102	9
SkyCover	1.03311	10
Pompton extraction	1.03188	11
Initial Chrysophyta	1.03146	12
Nitrite/Nitrate	1.02717	13
Hardness Total, mg/L as Ca	1.01983	14
pH	1.01700	15
Initial Chlorophyta	1.01630	16
Turbidity NTU	1.01037	17
PointRes extractions	1.00389	18
Color, Cu	1.00387	19
BOD, mg/L	1.00271	20
UV254 cm-1	1.00046	21
Temp 0C	0.99859	22
Chloride mg/L	0.99414	23
T.Phosphorus/Orthophosph	0.99342	24
Total Count, cells/ml	0.99090	25
Pompton streamflow	0.99066	26
TOC, mg/L	0.98694	27
WindDir	0.98675	28
WindSpeed	0.98459	29
Conductivity umhos/cm	0.98006	30
PrevPrecip	0.97439	31
Passaic extractions	0.97264	32
HeatingDays	0.97021	33

Weekly Precip		
Total Amorphous Material	1.078492	1
Initial Chrysophyta	1.048187	2
UV254 cm-1	1.044152	3
JAPS extractions	1.041199	4
Chloride mg/L	1.040541	5
pH	1.034808	6
Nitrite/Nitrate	1.029987	7
Odor	1.028958	8
Temp 0C	1.018894	9
Color, Cu	1.01730	10
SkyCover	1.01476	11
DO, mg/L	1.01213	12
HeatingDays	1.01159	13
Conductivity umhos/cm	1.01151	14
TOC, mg/L	1.00982	15
Initial Cyanophyta	1.00947	16
PrevPrecip	1.00653	17
Initial Chlorophyta	1.00213	18
WindSpeed	1.00134	19
Passaic extractions	1.00093	20
Pompton extraction	0.99976	21
Sulfate mg/L	0.99573	22
Alkalinity mg/L as CaCO ₃	0.99556	23
Ammonia mg/L	0.99500	24
Hardness Total, mg/L as Ca	0.99494	25
BOD, mg/L	0.99437	26
Turbidity NTU	0.99330	27
Total Count, cells/ml	0.99244	28
T.Phosphorus/Orthophosph	0.98696	29
PointRes extractions	0.98086	30
WindDir	0.97380	31
Pompton streamflow	0.97187	32

Alkalinity		
HeatingDays	1.056241	1
Initial Chlorophyta	1.048184	2
Odor	1.039568	3
Conductivity umhos/cm	1.038182	4
Pompton streamflow	1.020725	5
WkPrecip	1.019652	6
Initial Chrysophyta	1.018667	7
TOC, mg/L	1.016638	8
BOD, mg/L	1.015654	9
pH	1.01527	10
T.Phosphorus/Orthophosph	1.01412	11
PrevPrecip	1.01302	12
SkyCover	1.01243	13
Hardness Total, mg/L as Ca	1.01195	14
Chloride mg/L	1.00987	15
Passaic extractions	1.00823	16
Ammonia mg/L	1.00613	17
Total Count, cells/ml	1.00424	18
Nitrite/Nitrate	1.00412	19
PointRes extractions	1.00221	20
Sulfate mg/L	1.00091	21
DO, mg/L	1.00039	22
UV254 cm-1	0.99949	23
Turbidity NTU	0.99926	24
JAPS extractions	0.99684	25
Color, Cu	0.99671	26
Initial Cyanophyta	0.99634	27
Temp 0C	0.99506	28
WindDir	0.99253	29
Pompton extraction	0.99010	30
WindSpeed	0.98345	31
Total Amorphous Material	0.96732	32

Table 5.6. Station 101 Chrysophyta two-week ahead prediction: Sensitivity Analyses (cont.)

Ammonia		
Total Amorphous Material	1.735225	1
Initial Cyanophyta	1.471929	2
Color, Cu	1.284074	3
Odor	1.282435	4
Turbidity NTU	1.201516	5
TOC, mg/L	1.163607	6
WkPrecip	1.155703	7
WindDir	1.081048	8
Pompton streamflow	1.076306	9
Chloride mg/L	1.07075	10
PrevPrecip	1.06752	11
JAPS extractions	1.06313	12
Initial Chrysophyta	1.05359	13
UV254 cm-1	1.04949	14
Temp 0C	1.04437	15
HeatingDays	1.04290	16
pH	1.03111	17
BOD, mg/L	1.02971	18
Passaic extractions	1.02829	19
T.Phosphorus/Orthophosph	1.02815	20
Alkalinity mg/L as CaCO3	1.01911	21
Total Count, cells/ml	1.01811	22
DO, mg/L	1.00950	23
SkyCover	1.00347	24
Sulfate mg/L	0.99972	25
Pompton extraction	0.99520	26
WindSpeed	0.98989	27
Nitrite/Nitrate	0.98859	28
Initial Chlorophyta	0.98849	29
PointRes extractions	0.98811	30
Conductivity umhos/cm	0.95183	31
Hardness Total, mg/L as Ca	0.93123	32

Passaic extractions		
Initial Cyanophyta	1.112667	1
WkPrecip	1.093473	2
Initial Chrysophyta	1.090499	3
Total Amorphous Material	1.059887	4
Alkalinity mg/L as CaCO3	1.025537	5
TOC, mg/L	1.019806	6
SkyCover	1.012752	7
Color, Cu	1.012467	8
Sulfate mg/L	1.011644	9
DO, mg/L	1.00937	10
Total Count, cells/ml	1.00878	11
PrevPrecip	1.00827	12
Initial Chlorophyta	1.00557	13
Turbidity NTU	1.00220	14
BOD, mg/L	1.00090	15
JAPS extractions	1.00076	16
Odor	0.99868	17
pH	0.99816	18
Hardness Total, mg/L as Ca	0.99769	19
PointRes extractions	0.99592	20
UV254 cm-1	0.99399	21
Pompton extraction	0.99151	22
Ammonia mg/L	0.98888	23
T.Phosphorus/Orthophosph	0.98878	24
Chloride mg/L	0.98489	25
WindDir	0.98467	26
Conductivity umhos/cm	0.98115	27
WindSpeed	0.97999	28
Nitrite/Nitrate	0.97993	29
Temp 0C	0.97792	30
HeatingDays	0.96965	31
Pompton streamflow	0.96479	32

Heating Days		
Total Amorphous Material	1.104495	1
Ammonia mg/L	1.048916	2
T.Phosphorus/Orthophosph	1.039721	3
Pompton streamflow	1.039050	4
pH	1.035641	5
UV254 cm-1	1.035288	6
Odor	1.026262	7
Conductivity umhos/cm	1.025448	8
BOD, mg/L	1.024946	9
PointRes extractions	1.02343	10
TOC, mg/L	1.02002	11
Pompton extraction	1.01974	12
Nitrite/Nitrate	1.01926	13
Alkalinity mg/L as CaCO3	1.01759	14
Color, Cu	1.01606	15
WindSpeed	1.01204	16
Chloride mg/L	1.00986	17
Initial Chrysophyta	1.00691	18
Temp 0C	1.00574	19
Initial Cyanophyta	1.00573	20
Total Count, cells/ml	1.00553	21
Hardness Total, mg/L as Ca	1.00543	22
Passaic extractions	1.00497	23
Initial Chlorophyta	1.00479	24
Sulfate mg/L	1.00273	25
WindDir	0.99636	26
SkyCover	0.99425	27
PrevPrecip	0.99280	28
WkPrecip	0.98761	29
JAPS extractions	0.97190	30
DO, mg/L	0.95801	31
Turbidity NTU	0.95113	32

Table 5.6. Station 101 Chrysophyta two-week ahead prediction: Sensitivity Analyses (cont.)

Total Amorphous Material			Odor		
Initial Chrysophyta	1.065364	1	Total Amorphous Material	1.266751	1
SkyCover	1.034509	2	Initial Cyanophyta	1.101840	2
Initial Cyanophyta	1.032684	3	Alkalinity mg/L as CaCO ₃	1.094590	3
TOC, mg/L	1.018945	4	Initial Chlorophyta	1.086225	4
Passaic extractions	1.017028	5	WkPrecip	1.085294	5
Conductivity umhos/cm	1.013937	6	TOC, mg/L	1.068619	6
Odor	1.013629	7	Initial Chrysophyta	1.066937	7
JAPS extractions	1.011485	8	pH	1.059968	8
Sulfate mg/L	1.010888	9	T.Phosphorus/Orthophosph	1.053120	9
Temp 0C	1.00800	10	WindDir	1.04820	10
Chloride mg/L	1.00784	11	Nitrite/Nitrate	1.04813	11
Color, Cu	1.00702	12	Total Count, cells/ml	1.03369	12
Ammonia mg/L	1.00478	13	Ammonia mg/L	1.03052	13
HeatingDays	1.00449	14	WindSpeed	1.02993	14
pH	1.00289	15	JAPS extractions	1.02871	15
Pompton streamflow	1.00250	16	BOD, mg/L	1.02612	16
WindDir	1.00081	17	UV254 cm-1	1.02603	17
Hardness Total, mg/L as Ca	1.00027	18	Turbidity NTU	1.01931	18
Alkalinity mg/L as CaCO ₃	0.99884	19	Passaic extractions	1.01337	19
WkPrecip	0.99835	20	Color, Cu	1.00838	20
PointRes extractions	0.99754	21	PointRes extractions	1.00582	21
UV254 cm-1	0.99516	22	Conductivity umhos/cm	1.00309	22
WindSpeed	0.99515	23	Chloride mg/L	1.00282	23
Nitrite/Nitrate	0.99496	24	Pompton extraction	1.00027	24
Pompton extraction	0.99146	25	Hardness Total, mg/L as Ca	1.00019	25
BOD, mg/L	0.98885	26	SkyCover	0.99783	26
PrevPrecip	0.98735	27	HeatingDays	0.99642	27
DO, mg/L	0.98624	28	DO, mg/L	0.99242	28
T.Phosphorus/Orthophosph	0.98592	29	Temp 0C	0.98883	29
Initial Chlorophyta	0.98085	30	Sulfate mg/L	0.98180	30
Total Count, cells/ml	0.97969	31	PrevPrecip	0.96411	31
Turbidity NTU	0.95520	32	Pompton streamflow	0.92051	32

Table 5.7. Station 612 Chrysophyta real-time predictions: Sensitivity Analysis

All Input		
Total Amorphous Mater	1.4594	1
Odor	1.2498	2
Pompton extraction	1.2341	3
UV254 cm-1	1.1401	4
Initial Chrysophyta	1.1018	5
Conductivity umhos/cm	1.0955	6
Alkalinity mg/L as CaCO ₃	1.0388	7
Passaic extractions	1.0361	8
Chloride mg/L	1.0296	9
Turbidity NTU	1.0288	10
Total Count, cells/ml	1.0285	11
Total Phosphorus/Orthophosphate	1.0230	12
pH	1.0208	13
DO, mg/L	1.0200	14
SkyCover	1.0178	15
Ammonia mg/L	1.0164	16
Nitrite/Nitrate	1.0087	17
JAPS extractions	1.0084	18
HeatingDays	1.0048	19
PointRes extractions	1.0011	20
Pompton streamflow	0.9971	21
TOC, mg/L	0.9970	22
Temp 0C	0.9966	23
Sulfate mg/L	0.9959	24
BOD, mg/L	0.9952	25
WindSpeed	0.9862	26
PrevPrecip	0.9832	27
Hardness Total, mg/L as CaCO ₃	0.9810	28
Color, Cu	0.9799	29
WindDir	0.9764	30
WkPrecip	0.9736	31
Initial Chlorophyta	0.9726	32
Initial Cyanophyta	0.9703	33

Total Amorphous		
Alkalinity mg/L as CaCO ₃	1.2640	1
Pompton extraction	1.1957	2
Odor	1.1884	3
Total Count, cells/ml	1.1763	4
Temp 0C	1.1121	5
Pompton streamflow	1.0710	6
Conductivity umhos/cm	1.0578	7
Sulfate mg/L	1.0570	8
Initial Chrysophyta	1.0568	9
WindSpeed	1.0514	10
WkPrecip	1.0461	11
WindDir	1.0321	12
Passaic extractions	1.0308	13
UV254 cm-1	1.0308	14
Hardness Total, mg/L as CaCO ₃	1.0261	15
PrevPrecip	1.0245	16
HeatingDays	1.0152	17
pH	1.0058	18
Ammonia mg/L	1.0029	19
BOD, mg/L	1.0006	20
Initial Chlorophyta	1.0004	21
PointRes extractions	1.0002	22
TOC, mg/L	0.9997	23
Total Phosphorus/Orthophosphate	0.9993	24
Initial Cyanophyta	0.9990	25
Nitrite/Nitrate	0.9963	26
JAPS extractions	0.9911	27
DO, mg/L	0.9906	28
SkyCover	0.9875	29
Color, Cu	0.9850	30
Turbidity NTU	0.9849	31
Chloride mg/L	0.9808	32

Odor		
UV254 cm-1	1.5796	1
Total Amorphous Mater	1.5576	2
WkPrecip	1.3144	3
Hardness Total, mg/L as CaCO ₃	1.2076	4
Total Count, cells/ml	1.1657	5
Pompton extraction	1.1529	6
pH	1.1433	7
Turbidity NTU	1.1266	8
SkyCover	1.1252	9
BOD, mg/L	1.1237	10
Passaic extractions	1.1149	11
WindSpeed	1.0923	12
Conductivity umhos/cm	1.0749	13
Sulfate mg/L	1.0700	14
DO, mg/L	1.0565	15
PrevPrecip	1.0538	16
Chloride mg/L	1.0500	17
Color, Cu	1.0468	18
Pompton streamflow	1.0461	19
Temp 0C	1.0320	20
Initial Chlorophyta	1.0273	21
Initial Cyanophyta	1.0234	22
Total Phosphorus/Orthophosphate	1.0161	23
HeatingDays	1.0123	24
Alkalinity mg/L as CaCO ₃	1.0085	25
PointRes extractions	1.0007	26
WindDir	0.9993	27
TOC, mg/L	0.9977	28
Ammonia mg/L	0.9951	29
Initial Chrysophyta	0.9951	30
JAPS extractions	0.9944	31
Nitrite/Nitrate	0.9746	32

Table 5.7. Station 612 Chrysophyta real-time predictions: Sensitivity Analysis (cont.)

Pompton extraction			UV254			initChrysop			initChlorop		
UV254 cm-1	1.0998	1	Total Amorphous Mater	1.4149	1	Total Amorphous Mater	1.6789	1	Pompton extraction	1.4902	1
WindSpeed	1.0896	2	Pompton extraction	1.2025	2	Pompton extraction	1.4992	2	Total Amorphous Mater	1.3897	2
pH	1.0302	3	Odor	1.0703	3	Odor	1.2172	3	Odor	1.3590	3
Odor	1.0296	4	WkPrecip	1.0686	4	UV254 cm-1	1.1205	4	HeatingDays	1.3043	4
Initial Chlorophyta	1.0200	5	Total Count, cells/ml	1.0579	5	WkPrecip	1.1123	5	UV254 cm-1	1.3001	5
Conductivity umhos/cm	1.0183	6	Alkalinity mg/L as CaCO ₃	1.0571	6	Alkalinity mg/L as CaCO ₃	1.0904	6	WkPrecip	1.2962	6
WkPrecip	1.0182	7	Hardness Total, mg/L as CaCO ₃	1.0427	7	DO, mg/L	1.0394	7	Ammonia mg/L	1.0931	7
Ammonia mg/L	1.0165	8	PrevPrecip	1.0395	8	Temp 0C	1.0372	8	Sulfate mg/L	1.0790	8
Initial Cyanophyta	1.0097	9	Sulfate mg/L	1.0346	9	HeatingDays	1.0336	9	DO, mg/L	1.0672	9
Total Amorphous Mater	1.0086	10	Temp 0C	1.0293	10	Hardness Total, mg/L as CaCO ₃	1.0273	10	Alkalinity mg/L as CaCO ₃	1.0636	10
Temp 0C	1.0084	11	Passaic extractions	1.0289	11	Chloride mg/L	1.0260	11	TOC, mg/L	1.0604	11
Color, Cu	1.0073	12	Ammonia mg/L	1.0274	12	Total Count, cells/ml	1.0251	12	Initial Chrysophyta	1.0461	12
HeatingDays	1.0023	13	Initial Chlorophyta	1.0238	13	WindDir	1.0234	13	WindSpeed	1.0438	13
BOD, mg/L	1.0010	14	WindDir	1.0216	14	Sulfate mg/L	1.0230	14	Temp 0C	1.0365	14
DO, mg/L	1.0004	15	TotalPhosphorus/Orthophosphate	1.0083	15	Ammonia mg/L	1.0191	15	WindDir	1.0359	15
TOC, mg/L	1.0001	16	TOC, mg/L	1.0070	16	SkyCover	1.0165	16	JAPS extractions	1.0340	16
PointRes extractions	0.9991	17	JAPS extractions	1.0068	17	Initial Cyanophyta	1.0095	17	pH	1.0211	17
SkyCover	0.9990	18	pH	1.0057	18	PrevPrecip	1.0075	18	Hardness Total, mg/L as CaCO ₃	1.0182	18
TotalPhosphorus/Orthophosphate	0.9971	19	Conductivity umhos/cm	1.0038	19	BOD, mg/L	1.0054	19	Total Count, cells/ml	1.0141	19
Chloride mg/L	0.9957	20	Chloride mg/L	1.0016	20	Initial Chlorophyta	1.0052	20	Initial Cyanophyta	1.0130	20
Pompton streamflow	0.9951	21	PointRes extractions	1.0004	21	JAPS extractions	1.0045	21	PrevPrecip	1.0096	21
JAPS extractions	0.9935	22	Turbidity NTU	1.0004	22	TOC, mg/L	1.0043	22	Chloride mg/L	1.0058	22
WindDir	0.9915	23	Initial Chrysophyta	1.0002	23	Conductivity umhos/cm	1.0039	23	Conductivity umhos/cm	1.0055	23
Turbidity NTU	0.9903	24	BOD, mg/L	0.9999	24	Turbidity NTU	1.0036	24	BOD, mg/L	1.0019	24
Sulfate mg/L	0.9896	25	Pompton streamflow	0.9984	25	Nitrite/Nitrate	1.0013	25	Color, Cu	1.0007	25
Total Count, cells/ml	0.9860	26	Nitrite/Nitrate	0.9983	26	PointRes extractions	1.0010	26	PointRes extractions	0.9953	26
PrevPrecip	0.9847	27	SkyCover	0.9967	27	TotalPhosphorus/Orthophosphate	0.9991	27	Nitrite/Nitrate	0.9861	27
Nitrite/Nitrate	0.9757	28	WindSpeed	0.9950	28	WindSpeed	0.9981	28	Pompton streamflow	0.9851	28
Hardness Total, mg/L as CaCO ₃	0.9404	29	Color, Cu	0.9922	29	Color, Cu	0.9912	29	Turbidity NTU	0.9757	29
Passaic extractions	0.9207	30	HeatingDays	0.9912	30	Passaic extractions	0.9852	30	Passaic extractions	0.9707	30
Alkalinity mg/L as CaCO ₃	0.8707	31	Initial Cyanophyta	0.9883	31	pH	0.9783	31	TotalPhosphorus/Orthophosphate	0.9662	31
Initial Chrysophyta	0.7877	32	DO, mg/L	0.9871	32	Pompton streamflow	0.9781	32	SkyCover	0.9424	32

Table 5.8. Station 612 Chrysophyta one-week ahead prediction: Sensitivity Analyses

All Inputs			initChrysop			Total Count		
Initial Chrysophyta	1.2197	1	pH	1.2122	1	Color, Cu	1.1401	1
Total Count, cells/ml	1.0636	2	Total Count, cells/ml	1.1800	2	Passaic extractions	1.1387	2
Passaic extractions	1.0520	3	Alkalinity mg/L as CaCO ₃	1.1772	3	Initial Chrysophyta	1.0840	3
Nitrite/Nitrate	1.0254	4	UV254 cm-1	1.1559	4	Temp 0C	1.0699	4
Color, Cu	1.0229	5	Total Amorphous Material	1.1316	5	Odor	1.0686	5
UV254 cm-1	1.0222	6	Temp 0C	1.1194	6	WkPrecip	1.0506	6
WkPrecip	1.0222	7	Initial Chlorophyta	1.0743	7	HeatingDays	1.0443	7
WindSpeed	1.0186	8	PointRes extractions	1.0659	8	Total Amorphous Material	1.0443	8
Conductivity umhos/cm	1.0173	9	Initial Cyanophyta	1.0438	9	Alkalinity mg/L as CaCO ₃	1.0288	9
Initial Cyanophyta	1.0140	10	Passaic extractions	1.0361	10	Initial Chlorophyta	1.0284	10
Alkalinity mg/L as CaCO ₃	1.0105	11	Color, Cu	1.0343	11	Conductivity umhos/cm	1.0231	11
BOD, mg/L	1.0104	12	Turbidity NTU	1.0314	12	TotalPhosphorus/Orthophosphate	1.0222	12
pH	1.0084	13	WindDir	1.0297	13	PrevPrecip	1.0161	13
TotalPhosphorus/Orthophosphate	1.0067	14	Ammonia mg/L	1.0235	14	Pompton extraction	1.0130	14
PointRes extractions	1.0055	15	Pompton extraction	1.0182	15	JAPS extractions	1.0125	15
Chloride mg/L	1.0053	16	WindSpeed	1.0175	16	Chloride mg/L	1.0095	16
Hardness Total, mg/L as CaCO ₃	1.0040	17	Conductivity umhos/cm	1.0160	17	Pompton streamflow	1.0083	17
Sulfate mg/L	1.0038	18	SkyCover	1.0146	18	UV254 cm-1	1.0079	18
HeatingDays	1.0037	19	TOC, mg/L	1.0127	19	DO, mg/L	1.0038	19
JAPS extractions	1.0024	20	Hardness Total, mg/L as CaCO ₃	1.0104	20	Sulfate mg/L	1.0027	20
Odor	1.0023	21	Nitrite/Nitrate	1.0101	21	PointRes extractions	1.0014	21
Temp 0C	1.0020	22	Sulfate mg/L	1.0087	22	WindSpeed	0.9996	22
Pompton streamflow	1.0016	23	TotalPhosphorus/Orthophosphate	1.0082	23	Hardness Total, mg/L as CaCO ₃	0.9994	23
DO, mg/L	1.0011	24	WkPrecip	1.0079	24	WindDir	0.9984	24
Initial Chlorophyta	1.0004	25	Odor	1.0071	25	SkyCover	0.9951	25
WindDir	1.0002	26	BOD, mg/L	1.0007	26	Nitrite/Nitrate	0.9950	26
PrevPrecip	1.0000	27	Chloride mg/L	0.9990	27	Ammonia mg/L	0.9895	27
Total Amorphous Material	0.9974	28	PrevPrecip	0.9987	28	BOD, mg/L	0.9753	28
Turbidity NTU	0.9946	29	JAPS extractions	0.9930	29	Turbidity NTU	0.9747	29
SkyCover	0.9943	30	DO, mg/L	0.9878	30	TOC, mg/L	0.9639	30
TOC, mg/L	0.9933	31	Pompton streamflow	0.9864	31	pH	0.9617	31
Pompton extraction	0.9840	32	HeatingDays	0.9840	32	Initial Cyanophyta	0.9615	32
Ammonia mg/L	0.9741	33						

Table 5.8. Station 612 Chrysophyta one-week ahead prediction: Sensitivity Analyses (cont.)

Passaic extractions			Pompton Flow			Ammonia		
Initial Chrysophyta	1.5640	1	Initial Chrysophyta	1.4047	1	Initial Chrysophyta	1.2322	1
Total Count, cells/ml	1.1725	2	Total Amorphous Mater	1.1375	2	UV254 cm-1	1.1895	2
WindSpeed	1.0923	3	Hardness Total, mg/L as	1.0956	3	Color, Cu	1.1772	3
DO, mg/L	1.0867	4	Pompton streamflow	1.0936	4	HeatingDays	1.1464	4
Total Amorphous Mater	1.0821	5	Ammonia mg/L	1.0635	5	JAPS extractions	1.1303	5
Initial Cyanophyta	1.0698	6	Total Count, cells/ml	1.0479	6	Total Amorphous Mater	1.1017	6
JAPS extractions	1.0641	7	DO, mg/L	1.0381	7	Hardness Total, mg/L as	1.0918	7
Initial Chlorophyta	1.0543	8	Initial Cyanophyta	1.0283	8	Pompton extraction	1.0729	8
Alkalinity mg/L as CaCO ₃	1.0439	9	Initial Chlorophyta	1.0244	9	WkPrecip	1.0678	9
Hardness Total, mg/L as	1.0406	10	UV254 cm-1	1.0227	10	pH	1.0674	10
pH	1.0399	11	Conductivity umhos/cm	1.0197	11	Nitrite/Nitrate	1.0630	11
BOD, mg/L	1.0383	12	Color, Cu	1.0177	12	Passaic extractions	1.0618	12
Color, Cu	1.0378	13	Passaic extractions	1.0172	13	Initial Chlorophyta	1.0588	13
Odor	1.0296	14	Temp 0C	1.0163	14	Initial Cyanophyta	1.0538	14
UV254 cm-1	1.0226	15	HeatingDays	1.0126	15	Alkalinity mg/L as CaCO ₃	1.0321	15
HeatingDays	1.0216	16	WkPrecip	1.0091	16	DO, mg/L	1.0290	16
Ammonia mg/L	1.0166	17	pH	1.0091	17	Temp 0C	1.0253	17
Turbidity NTU	1.0147	18	Odor	1.0086	18	Odor	1.0229	18
PrevPrecip	1.0122	19	WindDir	1.0062	19	Total Count, cells/ml	1.0200	19
Sulfate mg/L	1.0090	20	BOD, mg/L	1.0058	20	Turbidity NTU	1.0148	20
Conductivity umhos/cm	1.0052	21	Sulfate mg/L	1.0010	21	PrevPrecip	1.0141	21
Pompton extraction	1.0038	22	Turbidity NTU	1.0004	22	BOD, mg/L	1.0076	22
SkyCover	1.0031	23	PointRes extractions	1.0002	23	TotalPhosphorus/Orthop	1.0047	23
Chloride mg/L	1.0029	24	Chloride mg/L	0.9998	24	PointRes extractions	1.0025	24
Pompton streamflow	1.0020	25	SkyCover	0.9996	25	Pompton streamflow	0.9970	25
Nitrite/Nitrate	1.0016	26	TOC, mg/L	0.9995	26	TOC, mg/L	0.9969	26
PointRes extractions	0.9997	27	Nitrite/Nitrate	0.9981	27	Chloride mg/L	0.9964	27
TotalPhosphorus/Orthop	0.9977	28	TotalPhosphorus/Orthop	0.9957	28	WindSpeed	0.9953	28
WindDir	0.9951	29	JAPS extractions	0.9945	29	Sulfate mg/L	0.9831	29
TOC, mg/L	0.9941	30	WindSpeed	0.9936	30	Conductivity umhos/cm	0.9785	30
Temp 0C	0.9904	31	Alkalinity mg/L as CaCO ₃	0.9934	31	SkyCover	0.9614	31
WkPrecip	0.9792	32	PrevPrecip	0.9821	32	WindDir	0.9225	32

Table 5.9. Station 612 Chrysophyta two-week ahead prediction: Sensitivity Analyses

All Inputs			PomptonFlow			Turbidity		
Pompton extraction	1.1055	1	Initial Chrysophyta	1.6024	1	Initial Chrysophyta	1.7061	1
Turbidity NTU	1.0566	2	Total Amorphous Mater	1.1467	2	Total Amorphous Mater	1.3950	2
Sulfate mg/L	1.0531	3	Total Count, cells/ml	1.1195	3	HeatingDays	1.2550	3
Initial Chrysophyta	1.0375	4	WkPrecip	1.0996	4	Alkalinity mg/L as CaCO ₃	1.1990	4
SkyCover	1.0295	5	UV254 cm-1	1.0843	5	Odor	1.1707	5
UV254 cm-1	1.0255	6	DO, mg/L	1.0574	6	Hardness Total, mg/L as CaCO ₃	1.1334	6
Chloride mg/L	1.0242	7	Sulfate mg/L	1.0377	7	UV254 cm-1	1.1105	7
pH	1.0235	8	Hardness Total, mg/L as CaCO ₃	1.0321	8	Pompton extraction	1.1041	8
BOD, mg/L	1.0216	9	Passaic extractions	1.0286	9	Total Count, cells/ml	1.0854	9
Odor	1.0191	10	Chloride mg/L	1.0274	10	WkPrecip	1.0710	10
Conductivity umhos/cm	1.0148	11	Nitrite/Nitrate	1.0270	11	Ammonia mg/L	1.0685	11
Nitrite/Nitrate	1.0130	12	Turbidity NTU	1.0265	12	PrevPrecip	1.0510	12
Hardness Total, mg/L as CaCO ₃	1.0091	13	BOD, mg/L	1.0243	13	Initial Cyanophyta	1.0489	13
Temp 0C	1.0073	14	PointRes extractions	1.0217	14	SkyCover	1.0354	14
TOC, mg/L	1.0060	15	TOC, mg/L	1.0153	15	Temp 0C	1.0274	15
PointRes extractions	1.0049	16	SkyCover	1.0131	16	Chloride mg/L	1.0237	16
Initial Cyanophyta	1.0043	17	pH	1.0127	17	Color, Cu	1.0232	17
DO, mg/L	1.0042	18	Initial Cyanophyta	1.0064	18	Passaic extractions	1.0206	18
Pompton streamflow	1.0033	19	WindDir	0.9994	19	BOD, mg/L	1.0205	19
TotalPhosphorus/Orthophosphate	1.0019	20	Pompton streamflow	0.9962	20	Sulfate mg/L	1.0187	20
JAPS extractions	1.0003	21	Color, Cu	0.9932	21	Initial Chlorophyta	1.0134	21
WindSpeed	1.0002	22	JAPS extractions	0.9931	22	TotalPhosphorus/Orthophosphate	1.0112	22
Color, Cu	0.9998	23	Ammonia mg/L	0.9930	23	PointRes extractions	1.0106	23
WkPrecip	0.9977	24	Odor	0.9919	24	WindSpeed	1.0088	24
WindDir	0.9954	25	Alkalinity mg/L as CaCO ₃	0.9915	25	Nitrite/Nitrate	1.0083	25
PrevPrecip	0.9944	26	WindSpeed	0.9911	26	Conductivity umhos/cm	1.0072	26
Passaic extractions	0.9867	27	HeatingDays	0.9852	27	DO, mg/L	1.0059	27
Alkalinity mg/L as CaCO ₃	0.9828	28	Temp 0C	0.9793	28	WindDir	1.0027	28
HeatingDays	0.9713	29	Conductivity umhos/cm	0.9777	29	pH	1.0000	29
Initial Chlorophyta	0.9623	30	PrevPrecip	0.9757	30	JAPS extractions	1.0000	30
Total Count, cells/ml	0.9601	31	TotalPhosphorus/Orthophosphate	0.9732	31	TOC, mg/L	0.9957	31
Ammonia mg/L	0.9577	32	Initial Chlorophyta	0.9469	32	Pompton streamflow	0.9950	32
Total Amorphous Material	0.9267	33						

Table 5.9. Station 612 Chrysophyta two-week ahead prediction: Sensitivity Analyses (cont.)

Sulfate			Ammonia			TotalCount			Total Amorphous		
Initial Chrysophyta	1.3981	1	Initial Chrysophyta	1.7297	1	Initial Chrysophyta	2.1446	1	Nitrite/Nitrate	1.4023	1
Total Count, cells/ml	1.2530	2	Odor	1.0758	2	Odor	1.2804	2	Initial Chrysophyta	1.2966	2
Total Amorphous Mater	1.2377	3	Alkalinity mg/L as CaC	1.0357	3	Total Amorphous Mater	1.1114	3	Pompton extraction	1.2366	3
Pompton streamflow	1.2243	4	Temp 0C	1.0333	4	SkyCover	1.0592	4	Turbidity NTU	1.1473	4
Odor	1.1273	5	WkPrecip	1.0207	5	DO, mg/L	1.0451	5	Initial Cyanophyta	1.0973	5
UV254 cm-1	1.1245	6	Total Count, cells/ml	1.0193	6	Hardness Total, mg/L as	1.0289	6	Initial Chlorophyta	1.0929	6
HeatingDays	1.0682	7	HeatingDays	1.0172	7	Ammonia mg/L	1.0248	7	SkyCover	1.0834	7
Pompton extraction	1.0647	8	JAPS extractions	1.0165	8	Chloride mg/L	1.0203	8	Conductivity umhos/cm	1.0822	8
WindSpeed	1.0561	9	Pompton extraction	1.0060	9	Initial Chlorophyta	1.0187	9	pH	1.0577	9
Nitrite/Nitrate	1.0391	10	Sulfate mg/L	1.0058	10	Conductivity umhos/cm	1.0134	10	HeatingDays	1.0536	10
BOD, mg/L	1.0357	11	Passaic extractions	1.0049	11	pH	1.0126	11	Odor	1.0505	11
Initial Cyanophyta	1.0287	12	Initial Cyanophyta	1.0026	12	Temp 0C	1.0100	12	Total Count, cells/ml	1.0340	12
JAPS extractions	1.0263	13	UV254 cm-1	0.9999	13	PointRes extractions	1.0100	13	PointRes extractions	1.0309	13
Turbidity NTU	1.0218	14	PointRes extractions	0.9996	14	PrevPrecip	1.0089	14	Passaic extractions	1.0301	14
WindDir	1.0190	15	Turbidity NTU	0.9992	15	JAPS extractions	1.0089	15	Hardness Total, mg/L as	1.0299	15
TOC, mg/L	1.0187	16	WindDir	0.9975	16	WindDir	1.0074	16	Temp 0C	1.0253	16
Passaic extractions	1.0098	17	TotalPhosphorus/Orthop	0.9967	17	Nitrite/Nitrate	1.0066	17	WindSpeed	1.0199	17
SkyCover	1.0096	18	Color, Cu	0.9964	18	Pompton streamflow	1.0027	18	Pompton streamflow	1.0192	18
Color, Cu	1.0074	19	pH	0.9955	19	TotalPhosphorus/Orthop	1.0009	19	Alkalinity mg/L as CaC	1.0097	19
DO, mg/L	1.0019	20	TOC, mg/L	0.9940	20	UV254 cm-1	1.0005	20	WkPrecip	1.0097	20
pH	1.0011	21	WindSpeed	0.9923	21	Alkalinity mg/L as CaC	1.0003	21	Color, Cu	1.0080	21
Temp 0C	1.0009	22	Initial Chlorophyta	0.9921	22	Passaic extractions	0.9998	22	TOC, mg/L	1.0036	22
TotalPhosphorus/Orthop	1.0006	23	Hardness Total, mg/L as	0.9921	23	BOD, mg/L	0.9993	23	DO, mg/L	0.9952	23
Ammonia mg/L	1.0004	24	BOD, mg/L	0.9895	24	Sulfate mg/L	0.9963	24	Ammonia mg/L	0.9896	24
Initial Chlorophyta	0.9988	25	Nitrite/Nitrate	0.9891	25	Initial Cyanophyta	0.9960	25	JAPS extractions	0.9895	25
PointRes extractions	0.9985	26	Pompton streamflow	0.9855	26	TOC, mg/L	0.9953	26	WindDir	0.9892	26
WkPrecip	0.9937	27	Chloride mg/L	0.9853	27	Turbidity NTU	0.9923	27	Chloride mg/L	0.9575	27
Alkalinity mg/L as CaC	0.9773	28	SkyCover	0.9845	28	Color, Cu	0.9918	28	UV254 cm-1	0.9572	28
Hardness Total, mg/L as	0.9694	29	Conductivity umhos/cm	0.9767	29	WkPrecip	0.9872	29	BOD, mg/L	0.9490	29
Conductivity umhos/cm	0.9653	30	DO, mg/L	0.9732	30	Pompton extraction	0.9813	30	PrevPrecip	0.9362	30
PrevPrecip	0.9588	31	Total Amorphous Mater	0.9701	31	WindSpeed	0.9805	31	Sulfate mg/L	0.7812	31
Chloride mg/L	0.9273	32	PrevPrecip	0.9575	32	HeatingDays	0.9749	32	TotalPhosphorus/Orthop	0.6700	32

Table 6.1. Station 100 Chlorophyta real-time predictions: Sensitivity Analysis

All Inputs		
Initial Chlorophyta	1.281750	1
Odor	1.261100	2
Hardness, Total mg/L as Ca	1.025934	3
SkyCover	1.022173	4
BOD, mg/L	1.009857	5
Nitrite/Nitrate	1.008824	6
Initial Chrysophyta	1.008073	7
TOC, mg/L	1.006693	8
TSS, mg/L	1.006438	9
WkPrecip	1.00591	10
Conductivity, umhos/cm	1.00411	11
Alkalinity mg/L as CaCO3	1.00365	12
Ammonia, mg/L	1.00317	13
Passaic extractions	1.00252	14
Sulfate, mg/L	1.00233	15
T.Phosphorus/Orthophosph	1.00134	16
Initial Cyanophyta	1.00071	17
PrevPrecip	1.00034	18
Turbidity NTU	0.99991	19
Chloride, mg/L	0.99991	20
Temp (0C)	0.99972	21
HeatingDays	0.99930	22
Total Count	0.99916	23
Pompton extractions	0.99892	24
JAPS extractions	0.99822	25
UV-254, cm-1	0.99790	26
Pompton streamflow	0.99777	27
PointRes extractions	0.99396	28
DO, mg/L	0.99107	29
pH	0.99072	30
WindDir	0.98417	31
WindSpeed	0.97570	32

Initial Chlorophyta Level		
Total Count	1.648109	1
WkPrecip	1.586708	2
Hardness, Total mg/L as Ca	1.442138	3
Pompton extractions	1.324828	4
SkyCover	1.142668	5
Odor	1.130442	6
Initial Cyanophyta	1.126053	7
HeatingDays	1.110791	8
Initial Chrysophyta	1.073880	9
Conductivity, umhos/cm	1.06665	10
UV-254, cm-1	1.05455	11
WindSpeed	1.04700	12
JAPS extractions	1.04264	13
TOC, mg/L	1.03792	14
Sulfate, mg/L	1.03775	15
Turbidity NTU	1.03611	16
Temp (0C)	1.02386	17
Ammonia, mg/L	1.02229	18
Alkalinity mg/L as CaCO3	1.01907	19
Chloride, mg/L	1.01725	20
PointRes extractions	1.01671	21
Pompton streamflow	1.00699	22
TSS, mg/L	0.99989	23
pH	0.99756	24
T.Phosphorus/Orthophosph	0.99574	25
WindDir	0.99109	26
Nitrite/Nitrate	0.98493	27
Passaic extractions	0.96719	28
DO, mg/L	0.96248	29
BOD, mg/L	0.94884	30
PrevPrecip	0.94649	31

Total Hardness		
Odor	1.423534	1
Initial Chlorophyta	1.372274	2
HeatingDays	1.150668	3
BOD, mg/L	1.105103	4
Total Count	1.098167	5
Pompton extractions	1.090051	6
Nitrite/Nitrate	1.063858	7
DO, mg/L	1.054350	8
Passaic extractions	1.041736	9
T.Phosphorus/Orthophosph	1.03857	10
Conductivity, umhos/cm	1.03656	11
Ammonia, mg/L	1.03623	12
Sulfate, mg/L	1.03525	13
Temp (0C)	1.02308	14
UV-254, cm-1	1.01282	15
Initial Cyanophyta	1.01252	16
Initial Chrysophyta	1.01072	17
SkyCover	1.00557	18
TSS, mg/L	1.00144	19
Pompton streamflow	0.99904	20
Chloride, mg/L	0.99857	21
TOC, mg/L	0.99835	22
PointRes extractions	0.99788	23
PrevPrecip	0.99492	24
pH	0.99268	25
JAPS extractions	0.98985	26
WkPrecip	0.98907	27
WindSpeed	0.98598	28
WindDir	0.97715	29
Alkalinity mg/L as CaCO3	0.97043	30
Turbidity NTU	0.96687	31

Table 6.1. Station 100 Chlorophyta real-time predictions: Sensitivity Analysis (cont.)

TotalCount		
Nitrite/Nitrate	1.568263	1
TSS, mg/L	1.428364	2
Initial Chlorophyta	1.420116	3
HeatingDays	1.383860	4
Sulfate, mg/L	1.365570	5
Odor	1.298430	6
Pompton extractions	1.277101	7
Passaic extractions	1.217977	8
Temp (OC)	1.187153	9
Hardness, Total mg/L as Ca	1.18638	10
BOD, mg/L	1.17652	11
Alkalinity mg/L as CaCO3	1.17088	12
DO, mg/L	1.16297	13
WkPrecip	1.10591	14
Chloride, mg/L	1.08864	15
Initial Chrysophyta	1.08402	16
Conductivity, umhos/cm	1.07952	17
WindSpeed	1.06325	18
pH	1.06018	19
TOC, mg/L	1.03294	20
Turbidity NTU	1.01798	21
JAPS extractions	1.00598	22
Pompton streamflow	1.00547	23
Ammonia, mg/L	1.00546	24
PrevPrecip	1.00407	25
UV-254, cm-1	1.00175	26
Initial Cyanophyta	1.00093	27
T.Phosphorus/Orthophosph	0.99965	28
PointRes extractions	0.99954	29
WindDir	0.98447	30
SkyCover	0.92969	31

Total Organic Carbon (TOC)		
Odor	1.574653	1
Initial Chlorophyta	1.563348	2
BOD, mg/L	1.193752	3
WkPrecip	1.156286	4
Nitrite/Nitrate	1.123759	5
HeatingDays	1.120192	6
Passaic extractions	1.113737	7
SkyCover	1.112534	8
Pompton extractions	1.112374	9
Initial Chrysophyta	1.10715	10
PrevPrecip	1.05026	11
Alkalinity mg/L as CaCO3	1.04499	12
Temp (OC)	1.03927	13
DO, mg/L	1.03483	14
WindSpeed	1.02995	15
Chloride, mg/L	1.02536	16
Pompton streamflow	1.02528	17
TSS, mg/L	1.01701	18
pH	1.01268	19
Turbidity NTU	1.01097	20
T.Phosphorus/Orthophosph	1.00368	21
Initial Cyanophyta	1.00301	22
Sulfate, mg/L	1.00203	23
Ammonia, mg/L	1.00203	24
JAPS extractions	1.00112	25
Total Count	0.99982	26
UV-254, cm-1	0.99838	27
Hardness, Total mg/L as Ca	0.99733	28
WindDir	0.99691	29
PointRes extractions	0.99648	30
Conductivity, umhos/cm	0.99255	31

Biological Oxygen Demand (BOD)		
Initial Chlorophyta	1.176859	1
HeatingDays	1.158747	2
Nitrite/Nitrate	1.140247	3
Odor	1.087205	4
Pompton extractions	1.074838	5
Total Count	1.045054	6
Sulfate, mg/L	1.026180	7
Passaic extractions	1.023583	8
WindDir	1.021550	9
TOC, mg/L	1.01649	10
Hardness, Total mg/L as Ca	1.01593	11
PrevPrecip	1.01555	12
TSS, mg/L	1.01160	13
Chloride, mg/L	1.01103	14
WindSpeed	1.00970	15
pH	1.00930	16
Conductivity, umhos/cm	1.00839	17
Initial Chrysophyta	1.00822	18
Turbidity NTU	1.00782	19
DO, mg/L	1.00764	20
UV-254, cm-1	1.00570	21
Temp (OC)	1.00564	22
Pompton streamflow	1.00354	23
Initial Cyanophyta	1.00135	24
Ammonia, mg/L	1.00060	25
T.Phosphorus/Orthophosph	1.00012	26
SkyCover	0.99578	27
PointRes extractions	0.99517	28
WkPrecip	0.99110	29
Alkalinity mg/L as CaCO3	0.99028	30
JAPS extractions	0.99015	31

Table 6.2. Station 100 Chlorophyta one-week ahead: Sensitivity Analysis

All Inputs		
Initial Chlorophyta	1.239026	1
Total Count	1.134465	2
Odor	1.048919	3
Temp (OC)	1.043805	4
Nitrite/Nitrate	1.042051	5
T.Phosphorus/Orthophosph	1.032525	6
TSS, mg/L	1.026284	7
Pompton extractions	1.014156	8
HeatingDays	1.013947	9
WindSpeed	1.00941	10
Sulfate, mg/L	1.00912	11
TOC, mg/L	1.00612	12
Passaic extractions	1.00439	13
WkPrecip	1.00360	14
PrevPrecip	1.00357	15
Initial Cyanophyta	1.00354	16
SkyCover	1.00214	17
DO, mg/L	1.00118	18
UV-254, cm-1	1.00008	19
Pompton streamflow	0.99983	20
PointRes extractions	0.99943	21
Alkalinity mg/L as CaCO3	0.99912	22
Chloride, mg/L	0.99792	23
JAPS extractions	0.99452	24
Ammonia, mg/L	0.99244	25
WindDir	0.99203	26
pH	0.98975	27
Conductivity, umhos/cm	0.98881	28
Hardness, Total mg/L as Ca	0.98637	29
Initial Chrysophyta	0.98569	30
Turbidity NTU	0.98380	31
BOD, mg/L	0.98318	32

Initial Chlorophyta Level		
Total Count	1.762184	1
HeatingDays	1.427612	2
Odor	1.289688	3
Pompton extractions	1.270339	4
Nitrite/Nitrate	1.153973	5
WkPrecip	1.151181	6
T.Phosphorus/Orthophosph	1.106473	7
BOD, mg/L	1.103998	8
Sulfate, mg/L	1.082924	9
WindDir	1.07913	10
TOC, mg/L	1.07564	11
PrevPrecip	1.07563	12
Temp (OC)	1.06758	13
DO, mg/L	1.06748	14
Ammonia, mg/L	1.06020	15
WindSpeed	1.03856	16
Pompton streamflow	1.03432	17
pH	1.02004	18
TSS, mg/L	1.01919	19
SkyCover	1.01287	20
UV-254, cm-1	1.00671	21
Initial Cyanophyta	1.00594	22
PointRes extractions	1.00088	23
JAPS extractions	0.99816	24
Passaic extractions	0.99777	25
Chloride, mg/L	0.98460	26
Alkalinity mg/L as CaCO3	0.97874	27
Conductivity, umhos/cm	0.97181	28
Initial Chrysophyta	0.96859	29
Hardness, Total mg/L as Ca	0.96234	30
Turbidity NTU	0.94119	31

Total Count		
Initial Chlorophyta	1.260112	1
Nitrite/Nitrate	1.055072	2
HeatingDays	1.018180	3
WindDir	1.015507	4
Pompton extractions	1.012003	5
Temp (OC)	1.009513	6
Odor	1.009355	7
Initial Chrysophyta	1.005116	8
WkPrecip	1.004800	9
WindSpeed	1.00442	10
Initial Cyanophyta	1.00259	11
PrevPrecip	1.00227	12
UV-254, cm-1	1.00203	13
Conductivity, umhos/cm	1.00186	14
Hardness, Total mg/L as Ca	1.00071	15
Turbidity NTU	1.00071	16
TSS, mg/L	1.00067	17
BOD, mg/L	1.00004	18
Alkalinity mg/L as CaCO3	1.00001	19
JAPS extractions	0.99995	20
Pompton streamflow	0.99986	21
Chloride, mg/L	0.99968	22
PointRes extractions	0.99965	23
SkyCover	0.99962	24
Sulfate, mg/L	0.99962	25
TOC, mg/L	0.99956	26
Passaic extractions	0.99943	27
Ammonia, mg/L	0.99941	28
T.Phosphorus/Orthophosph	0.99678	29
pH	0.99627	30
DO, mg/L	0.99564	31

Table 6.2. Station 100 Chlorophyta one-week ahead: Sensitivity Analysis (cont.)

Temperature		
Initial Chlorophyta	1.414721	1
Odor	1.116413	2
HeatingDays	1.052038	3
Pompton extractions	1.046926	4
Nitrite/Nitrate	1.042233	5
TOC, mg/L	1.034920	6
SkyCover	1.027590	7
Sulfate, mg/L	1.024739	8
Passaic extractions	1.022050	9
Total Count	1.02183	10
Hardness, Total mg/L as Ca	1.02100	11
Chloride, mg/L	1.01853	12
DO, mg/L	1.01100	13
Turbidity NTU	1.01031	14
PointRes extractions	1.01022	15
TSS, mg/L	1.00954	16
Pompton streamflow	1.00943	17
Ammonia, mg/L	1.00905	18
PrevPrecip	1.00250	19
T.Phosphorus/Orthophosph	1.00192	20
Initial Cyanophyta	1.00179	21
Conductivity, umhos/cm	1.00168	22
Alkalinity mg/L as CaCO3	1.00133	23
UV-254, cm-1	1.00054	24
WindDir	1.00053	25
Initial Chrysophyta	1.00025	26
pH	0.99986	27
JAPS extractions	0.99977	28
BOD, mg/L	0.99885	29
WindSpeed	0.99742	30
WkPrecip	0.99692	31

Turbidity		
Initial Chlorophyta	1.127143	1
Pompton extractions	1.017046	2
Odor	1.008750	3
TOC, mg/L	1.008178	4
WindDir	1.006315	5
Passaic extractions	1.003492	6
Initial Cyanophyta	1.003013	7
Nitrite/Nitrate	1.002250	8
Pompton streamflow	1.001947	9
UV-254, cm-1	1.00081	10
JAPS extractions	1.00074	11
BOD, mg/L	1.00053	12
WkPrecip	1.00035	13
PointRes extractions	1.00007	14
Ammonia, mg/L	0.99999	15
Initial Chrysophyta	0.99970	16
pH	0.99969	17
Alkalinity mg/L as CaCO3	0.99960	18
Chloride, mg/L	0.99808	19
PrevPrecip	0.99800	20
TSS, mg/L	0.99773	21
Sulfate, mg/L	0.99706	22
Conductivity, umhos/cm	0.99549	23
Total Count	0.99396	24
T.Phosphorus/Orthophosph	0.99329	25
Hardness, Total mg/L as Ca	0.98655	26
WindSpeed	0.98370	27
HeatingDays	0.98158	28
Temp (OC)	0.97849	29
SkyCover	0.97355	30
DO, mg/L	0.97171	31

Biological Oxygen Demand (BOD)		
Odor	1.812162	1
Initial Chlorophyta	1.632833	2
HeatingDays	1.338975	3
Nitrite/Nitrate	1.331936	4
WkPrecip	1.311877	5
Chloride, mg/L	1.264274	6
SkyCover	1.205583	7
Pompton extractions	1.205278	8
Temp (OC)	1.192345	9
Hardness, Total mg/L as Ca	1.15013	10
Turbidity NTU	1.08720	11
TSS, mg/L	1.07466	12
WindDir	1.07442	13
pH	1.07175	14
Pompton streamflow	1.06187	15
Total Count	1.04466	16
Initial Chrysophyta	1.02723	17
TOC, mg/L	1.02565	18
PointRes extractions	1.02537	19
Passaic extractions	1.01923	20
JAPS extractions	1.01134	21
Alkalinity mg/L as CaCO3	1.00966	22
Conductivity, umhos/cm	1.00829	23
Sulfate, mg/L	1.00779	24
Initial Cyanophyta	0.99874	25
UV-254, cm-1	0.99603	26
T.Phosphorus/Orthophosph	0.99505	27
WindSpeed	0.99052	28
Ammonia, mg/L	0.98557	29
DO, mg/L	0.98485	30
PrevPrecip	0.97480	31

Table 6.3. Station 100 Chlorophyta two-week ahead: Sensitivity Analysis

All Inputs		
Odor	1.367970	1
Pompton extractions	1.228128	2
TSS, mg/L	1.117581	3
WindDir	1.098201	4
Initial Chlorophyta	1.089286	5
TOC, mg/L	1.088152	6
Pompton streamflow	1.075544	7
BOD, mg/L	1.067879	8
Alkalinity mg/L as CaCO3	1.061340	9
Passaic extractions	1.05478	10
HeatingDays	1.04758	11
DO, mg/L	1.04467	12
WkPrecip	1.03250	13
Initial Chrysophyta	1.03164	14
Hardness, Total mg/L as Ca	1.02913	15
PrevPrecip	1.02379	16
Turbidity NTU	1.01788	17
pH	1.01730	18
Nitrite/Nitrate	1.01324	19
PointRes extractions	1.00374	20
Chloride, mg/L	1.00206	21
T.Phosphorus/Orthophosph	1.00203	22
Initial Cyanophyta	0.99817	23
Total Count	0.99266	24
Ammonia, mg/L	0.99238	25
Temp (OC)	0.98837	26
JAPS extractions	0.98718	27
SkyCover	0.98694	28
Conductivity, umhos/cm	0.98275	29
WindSpeed	0.96758	30
Sulfate, mg/L	0.96079	31
UV-254, cm-1	0.94133	32

Pompton extractions		
Passaic extractions	1.186309	1
Odor	1.169165	2
Nitrite/Nitrate	1.122885	3
HeatingDays	1.095486	4
Temp (OC)	1.094520	5
Total Count	1.089963	6
TSS, mg/L	1.067330	7
Initial Chlorophyta	1.056496	8
Conductivity, umhos/cm	1.045989	9
WkPrecip	1.04058	10
Sulfate, mg/L	1.03869	11
WindDir	1.03805	12
UV-254, cm-1	1.03693	13
DO, mg/L	1.01555	14
BOD, mg/L	1.01202	15
T.Phosphorus/Orthophosph	1.01052	16
SkyCover	1.01026	17
Hardness, Total mg/L as Ca	1.00994	18
Chloride, mg/L	1.00890	19
PrevPrecip	1.00716	20
pH	1.00325	21
Initial Cyanophyta	1.00089	22
JAPS extractions	0.99954	23
Pompton streamflow	0.99889	24
PointRes extractions	0.99834	25
Turbidity NTU	0.99692	26
Alkalinity mg/L as CaCO3	0.99354	27
Initial Chrysophyta	0.99071	28
Ammonia, mg/L	0.98965	29
WindSpeed	0.98710	30
TOC, mg/L	0.98418	31

Total Suspended Solids (TSS)		
Odor	1.223861	1
Hardness, Total mg/L as Ca	1.078404	2
Pompton extractions	1.068525	3
HeatingDays	1.037840	4
Turbidity NTU	1.035971	5
TOC, mg/L	1.032389	6
Conductivity, umhos/cm	1.022542	7
Ammonia, mg/L	1.020799	8
Pompton streamflow	1.014880	9
UV-254, cm-1	1.01092	10
BOD, mg/L	1.01062	11
Initial Cyanophyta	1.00923	12
WindSpeed	1.00832	13
Chloride, mg/L	1.00749	14
SkyCover	1.00716	15
Nitrite/Nitrate	1.00706	16
WindDir	1.00573	17
Initial Chlorophyta	1.00506	18
PointRes extractions	1.00321	19
T.Phosphorus/Orthophosph	0.99956	20
PrevPrecip	0.99749	21
JAPS extractions	0.99723	22
Alkalinity mg/L as CaCO3	0.99706	23
pH	0.99657	24
Passaic extractions	0.99555	25
DO, mg/L	0.98562	26
Sulfate, mg/L	0.98403	27
WkPrecip	0.98193	28
Temp (OC)	0.98153	29
Total Count	0.94912	30
Initial Chrysophyta	0.93738	31

Table 6.3. Station 100 Chlorophyta two-week ahead: Sensitivity Analysis (cont.)

Wind Direction		
TSS, mg/L	1.103298	1
Odor	1.102476	2
Nitrite/Nitrate	1.074975	3
Initial Chlorophyta	1.070559	4
Pompton extractions	1.056536	5
HeatingDays	1.029506	6
SkyCover	1.025022	7
PointRes extractions	1.020117	8
WkPrecip	1.013360	9
Ammonia, mg/L	1.01299	10
Initial Chrysophyta	1.01296	11
Pompton streamflow	1.01269	12
WindSpeed	1.00917	13
Temp (OC)	1.00836	14
PrevPrecip	1.00672	15
Total Count	1.00605	16
DO, mg/L	1.00601	17
Sulfate, mg/L	1.00552	18
Turbidity NTU	1.00491	19
UV-254, cm-1	1.00385	20
JAPS extractions	1.00327	21
Initial Cyanophyta	1.00257	22
Alkalinity mg/L as CaCO3	1.00188	23
BOD, mg/L	1.00026	24
Hardness, Total mg/L as Ca	0.99970	25
Chloride, mg/L	0.99942	26
Passaic extractions	0.99595	27
pH	0.99452	28
Conductivity, umhos/cm	0.99422	29
T.Phosphorus/Orthophosph	0.99069	30
TOC, mg/L	0.98451	31

UV254		
Pompton extractions	1.180075	1
Odor	1.179062	2
WindDir	1.150384	3
HeatingDays	1.134862	4
Hardness, Total mg/L as Ca	1.126561	5
SkyCover	1.117963	6
TSS, mg/L	1.115313	7
Nitrite/Nitrate	1.083264	8
Sulfate, mg/L	1.074582	9
Initial Chlorophyta	1.06844	10
PrevPrecip	1.05572	11
DO, mg/L	1.04808	12
BOD, mg/L	1.04179	13
WindSpeed	1.04045	14
pH	1.04037	15
Alkalinity mg/L as CaCO3	1.03886	16
Chloride, mg/L	1.03025	17
Conductivity, umhos/cm	1.02572	18
Initial Chrysophyta	1.02161	19
WkPrecip	1.01468	20
Temp (OC)	1.01014	21
Turbidity NTU	1.00861	22
T.Phosphorus/Orthophosph	1.00785	23
Initial Cyanophyta	1.00427	24
Total Count	1.00299	25
PointRes extractions	1.00057	26
Pompton streamflow	0.98790	27
TOC, mg/L	0.98266	28
Passaic extractions	0.97962	29
JAPS extractions	0.97320	30
Ammonia, mg/L	0.89302	31

Biological Oxygen Demand (BOD)		
Nitrite/Nitrate	1.176551	1
Odor	1.152154	2
HeatingDays	1.127099	3
Pompton extractions	1.105380	4
Initial Chlorophyta	1.098734	5
Initial Cyanophyta	1.074545	6
Turbidity NTU	1.049385	7
PrevPrecip	1.039092	8
TSS, mg/L	1.033321	9
Ammonia, mg/L	1.02538	10
WindDir	1.02395	11
WindSpeed	1.01321	12
Hardness, Total mg/L as Ca	1.01320	13
Pompton streamflow	1.01217	14
Sulfate, mg/L	1.01040	15
WkPrecip	1.00914	16
PointRes extractions	1.00811	17
T.Phosphorus/Orthophosph	1.00779	18
Passaic extractions	1.00636	19
Initial Chrysophyta	1.00543	20
Temp (OC)	1.00436	21
Total Count	1.00404	22
Alkalinity mg/L as CaCO3	1.00368	23
TOC, mg/L	1.00283	24
Chloride, mg/L	1.00237	25
Conductivity, umhos/cm	1.00105	26
JAPS extractions	1.00008	27
UV-254, cm-1	0.99777	28
SkyCover	0.99289	29
pH	0.99272	30
DO, mg/L	0.99098	31

Table 6.4. Station 101 Chlorophyta real-time predictions: Sensitivity Analysis

All Inputs		
Initial Chlorophyta	1.421731	1
HeatingDays	1.367347	2
Total Amorphous Material	1.200328	3
Total Count, cells/ml	1.163760	4
Chloride mg/L	1.150006	5
T.Phosphorus/Orthophosph	1.140828	6
pH	1.095427	7
Temp 0C	1.093145	8
Pompton streamflow	1.080394	9
JAPS extractions	1.07461	10
UV254 cm-1	1.05942	11
PrevPrecip	1.05923	12
TOC, mg/L	1.05809	13
PointRes extractions	1.05662	14
Hardness Total, mg/L as Ca	1.04457	15
WindDir	1.02502	16
Initial Cyanophyta	1.02409	17
WindSpeed	1.01598	18
WkPrecip	1.01572	19
BOD, mg/L	1.01507	20
Alkalinity mg/L as CaCO3	1.01431	21
Color, Cu	1.01229	22
DO, mg/L	1.00628	23
Initial Chrysophyta	1.00176	24
Passaic extractions	1.00164	25
Turbidity NTU	0.99969	26
Pompton extractions	0.99657	27
Odor	0.99082	28
Ammonia mg/L	0.98726	29
Nitrite/Nitrate	0.97669	30
SkyCover	0.97607	31
Sulfate mg/L	0.96781	32
Conductivity umhos/cm	0.90765	33

Initial Chlorophyta Level		
PointRes extractions	2.315708	1
Total Amorphous Material	1.760214	2
Initial Cyanophyta	1.693744	3
Total Count, cells/ml	1.547738	4
SkyCover	1.326540	5
UV254 cm-1	1.173389	6
Odor	1.171671	7
Color, Cu	1.103165	8
Temp 0C	1.082197	9
WkPrecip	1.05691	10
Passaic extractions	1.04697	11
TOC, mg/L	1.04167	12
HeatingDays	1.04017	13
WindDir	1.03851	14
BOD, mg/L	1.03186	15
Hardness Total, mg/L as Ca	1.02996	16
Chloride mg/L	1.02790	17
Initial Chrysophyta	1.02257	18
DO, mg/L	1.01480	19
pH	1.01053	20
Pompton streamflow	1.00636	21
Sulfate mg/L	1.00454	22
Alkalinity mg/L as CaCO3	1.00444	23
Nitrite/Nitrate	1.00343	24
Conductivity umhos/cm	1.00312	25
T.Phosphorus/Orthophosph	1.00248	26
Ammonia mg/L	1.00104	27
JAPS extractions	1.00017	28
PrevPrecip	0.99996	29
Turbidity NTU	0.99963	30
Pompton extractions	0.99487	31
WindSpeed	0.99137	32

Heating Days		
Initial Chlorophyta	1.155996	1
Temp 0C	1.064685	2
Hardness Total, mg/L as Ca	1.044026	3
Conductivity umhos/cm	1.042725	4
Total Count, cells/ml	1.038313	5
TOC, mg/L	1.025636	6
WindDir	1.019359	7
Total Amorphous Material	1.016442	8
T.Phosphorus/Orthophosph	1.015045	9
Turbidity NTU	1.01101	10
UV254 cm-1	1.01077	11
SkyCover	1.00974	12
PrevPrecip	1.00650	13
Ammonia mg/L	1.00266	14
Nitrite/Nitrate	1.00249	15
Pompton streamflow	1.00216	16
Color, Cu	1.00216	17
Initial Cyanophyta	1.00169	18
Initial Chrysophyta	1.00106	19
PointRes extractions	1.00039	20
Chloride mg/L	1.00008	21
Sulfate mg/L	0.99977	22
DO, mg/L	0.99936	23
WkPrecip	0.99921	24
WindSpeed	0.99910	25
Alkalinity mg/L as CaCO3	0.99770	26
Odor	0.99753	27
BOD, mg/L	0.99606	28
pH	0.99513	29
Passaic extractions	0.98960	30
JAPS extractions	0.98837	31
Pompton extractions	0.97786	32

Table 6.4. Station 101Chlorophyta real-time predictions: Sensitivity Analysis (cont.)

Total Count		
PointRes extractions	1.366046	1
Initial Chlorophyta	1.120021	2
Hardness Total, mg/L as Ca	1.067889	3
Conductivity umhos/cm	1.046559	4
pH	1.036516	5
TOC, mg/L	1.028338	6
Sulfate mg/L	1.014930	7
PrevPrecip	1.007893	8
Nitrite/Nitrate	1.005969	9
Initial Chrysophyta	1.00370	10
BOD, mg/L	1.00219	11
Turbidity NTU	1.00095	12
Passaic extractions	0.99809	13
WindSpeed	0.99723	14
Pompton streamflow	0.99706	15
Chloride mg/L	0.99697	16
WindDir	0.99656	17
DO, mg/L	0.99615	18
JAPS extractions	0.99529	19
Color, Cu	0.99120	20
Alkalinity mg/L as CaCO3	0.98909	21
Pompton extractions	0.98720	22
T.Phosphorus/Orthophosph	0.98464	23
WkPrecip	0.98398	24
Ammonia mg/L	0.98108	25
Temp 0C	0.97443	26
UV254 cm-1	0.97305	27
Total Amorphous Material	0.96791	28
HeatingDays	0.96659	29
SkyCover	0.96211	30
Odor	0.95814	31
Initial Cyanophyta	0.85973	32

Sulfate		
Initial Chlorophyta	1.742778	1
Initial Cyanophyta	1.351989	2
Total Count, cells/ml	1.248747	3
PointRes extractions	1.141899	4
DO, mg/L	1.140954	5
Total Amorphous Material	1.088081	6
Odor	1.071832	7
TOC, mg/L	1.053476	8
PrevPrecip	1.046632	9
pH	1.04551	10
Color, Cu	1.04314	11
WindDir	1.04255	12
SkyCover	1.03569	13
Pompton extractions	1.02655	14
UV254 cm-1	1.02154	15
Alkalinity mg/L as CaCO3	1.01900	16
Nitrite/Nitrate	1.01886	17
Chloride mg/L	1.01574	18
Conductivity umhos/cm	1.01502	19
HeatingDays	1.01383	20
Ammonia mg/L	1.01028	21
Temp 0C	1.00832	22
Initial Chrysophyta	1.00245	23
JAPS extractions	1.00036	24
Turbidity NTU	0.99664	25
WindSpeed	0.99622	26
BOD, mg/L	0.99451	27
WkPrecip	0.99441	28
Passaic extractions	0.99142	29
Pompton streamflow	0.98223	30
Hardness Total, mg/L as Ca	0.97456	31
T.Phosphorus/Orthophosph	0.95950	32

Conductivity		
PointRes extractions	2.300281	1
Initial Cyanophyta	1.509903	2
Total Amorphous Material	1.354182	3
HeatingDays	1.306848	4
Total Count, cells/ml	1.252143	5
UV254 cm-1	1.142082	6
Alkalinity mg/L as CaCO3	1.069049	7
Initial Chlorophyta	1.066804	8
Odor	1.044285	9
SkyCover	1.03617	10
WindSpeed	1.01435	11
Hardness Total, mg/L as Ca	1.01000	12
Ammonia mg/L	1.00984	13
DO, mg/L	1.00715	14
TOC, mg/L	1.00678	15
PrevPrecip	1.00661	16
T.Phosphorus/Orthophosph	1.00597	17
JAPS extractions	1.00560	18
Chloride mg/L	1.00489	19
WindDir	1.00394	20
Nitrite/Nitrate	1.00261	21
Color, Cu	1.00190	22
BOD, mg/L	1.00150	23
Temp 0C	1.00039	24
pH	0.99988	25
WkPrecip	0.99887	26
Sulfate mg/L	0.99446	27
Passaic extractions	0.99373	28
Initial Chrysophyta	0.99356	29
Pompton extractions	0.99157	30
Turbidity NTU	0.99054	31
Pompton streamflow	0.98985	32

Table 6.6. Station 101 Chlorophyta one-week ahead: Sensitivity Analysis

All Inputs		
Initial Chlorophyta	1.199592	1
Initial Cyanophyta	1.118203	2
pH	1.053455	3
Pompton streamflow	1.052429	4
Total Amorphous Material	1.044186	5
SkyCover	1.031766	6
WindDir	1.018561	7
PointRes extractions	1.016731	8
Hardness Total, mg/L as Ca	1.015178	9
Ammonia mg/L	1.01468	10
UV254 cm-1	1.01425	11
WkPrecip	1.00998	12
T.Phosphorus/Orthophosph	1.00942	13
Pompton extractions	1.00924	14
TOC, mg/L	1.00576	15
Sulfate mg/L	1.00523	16
PrevPrecip	1.00519	17
HeatingDays	1.00430	18
Nitrite/Nitrate	1.00374	19
DO, mg/L	1.00358	20
Initial Chrysophyta	1.00280	21
Color, Cu	1.00275	22
Total Count, cells/ml	1.00132	23
JAPS extractions	0.99916	24
Alkalinity mg/L as CaCO3	0.99749	25
Passaic extractions	0.99734	26
Temp 0C	0.99383	27
Turbidity NTU	0.99276	28
Conductivity umhos/cm	0.99275	29
BOD, mg/L	0.99265	30
Chloride mg/L	0.99258	31
WindSpeed	0.96477	32
Odor	0.92541	33

Initial Chlorophyta Level		
Total Amorphous Material	1.289474	1
T.Phosphorus/Orthophosph	1.202950	2
Total Count, cells/ml	1.198182	3
SkyCover	1.074913	4
Temp 0C	1.067624	5
DO, mg/L	1.055285	6
Odor	1.035987	7
PointRes extractions	1.033139	8
WindDir	1.029155	9
JAPS extractions	1.02405	10
Ammonia mg/L	1.02226	11
UV254 cm-1	1.01811	12
HeatingDays	1.01635	13
BOD, mg/L	1.01555	14
Turbidity NTU	1.01269	15
WkPrecip	1.01052	16
Pompton streamflow	1.01034	17
Pompton extractions	1.00724	18
Chloride mg/L	1.00616	19
Initial Cyanophyta	1.00572	20
Conductivity umhos/cm	1.00562	21
WindSpeed	1.00427	22
pH	1.00403	23
Alkalinity mg/L as CaCO3	1.00392	24
Color, Cu	1.00349	25
Sulfate mg/L	1.00298	26
Nitrite/Nitrate	1.00191	27
TOC, mg/L	1.00145	28
Hardness Total, mg/L as Ca	1.00005	29
PrevPrecip	0.99873	30
Passaic extractions	0.99747	31
Initial Chrysophyta	0.99210	32

Initial Cyanobacteria Level		
Total Amorphous Material	1.234029	1
HeatingDays	1.126178	2
Initial Chlorophyta	1.086147	3
Pompton streamflow	1.083754	4
pH	1.081516	5
BOD, mg/L	1.047186	6
Turbidity NTU	1.046796	7
Initial Chrysophyta	1.040051	8
Sulfate mg/L	1.034229	9
Odor	1.03053	10
Hardness Total, mg/L as Ca	1.02393	11
WkPrecip	1.02182	12
Nitrite/Nitrate	1.01972	13
PointRes extractions	1.01834	14
UV254 cm-1	1.01379	15
Pompton extractions	1.00936	16
Passaic extractions	1.00842	17
Alkalinity mg/L as CaCO3	1.00682	18
TOC, mg/L	1.00589	19
JAPS extractions	1.00445	20
Chloride mg/L	1.00388	21
Ammonia mg/L	0.99931	22
DO, mg/L	0.99656	23
WindSpeed	0.99532	24
Conductivity umhos/cm	0.99245	25
PrevPrecip	0.99243	26
Temp 0C	0.99241	27
Total Count, cells/ml	0.99161	28
WindDir	0.99103	29
T.Phosphorus/Orthophosph	0.98501	30
SkyCover	0.97396	31
Color, Cu	0.93859	32

Table 6.6. Station 101 Chlorophyta one-week ahead: Sensitivity Analysis (cont.)

pH Level		
Initial Cyanophyta	1.414460	1
Total Amorphous Material	1.165987	2
Odor	1.070169	3
Total Count, cells/ml	1.045213	4
T.Phosphorus/Orthophosph	1.042813	5
PointRes extractions	1.039296	6
WkPrecip	1.039023	7
Sulfate mg/L	1.038493	8
Initial Chlorophyta	1.037693	9
Pompton streamflow	1.03139	10
Color, Cu	1.02600	11
Ammonia mg/L	1.01703	12
Conductivity umhos/cm	1.01577	13
HeatingDays	1.01027	14
SkyCover	1.00961	15
Temp 0C	1.00908	16
Alkalinity mg/L as CaCO3	1.00539	17
BOD, mg/L	1.00456	18
Nitrite/Nitrate	1.00411	19
Turbidity NTU	1.00168	20
Chloride mg/L	1.00130	21
WindDir	1.00054	22
Passaic extractions	1.00048	23
WindSpeed	0.99998	24
Hardness Total, mg/L as Ca	0.99966	25
JAPS extractions	0.99822	26
PrevPrecip	0.99731	27
TOC, mg/L	0.99645	28
UV254 cm-1	0.99425	29
Initial Chrysophyta	0.99420	30
Pompton extractions	0.99325	31
DO, mg/L	0.92299	32

Wind Speed		
Total Amorphous Material	1.276763	1
SkyCover	1.113989	2
JAPS extractions	1.083444	3
Hardness Total, mg/L as Ca	1.076541	4
Passaic extractions	1.060385	5
Initial Chlorophyta	1.056926	6
Temp 0C	1.043817	7
T.Phosphorus/Orthophosph	1.039347	8
HeatingDays	1.034509	9
TOC, mg/L	1.03166	10
Pompton extractions	1.02078	11
Odor	1.02020	12
Nitrite/Nitrate	1.01584	13
BOD, mg/L	1.01381	14
Color, Cu	1.01367	15
pH	1.01226	16
PointRes extractions	1.01210	17
Total Count, cells/ml	1.01110	18
WkPrecip	1.01055	19
Initial Chrysophyta	1.00877	20
Initial Cyanophyta	1.00832	21
DO, mg/L	1.00505	22
Alkalinity mg/L as CaCO3	1.00244	23
UV254 cm-1	1.00221	24
Sulfate mg/L	1.00171	25
Chloride mg/L	1.00138	26
Ammonia mg/L	1.00077	27
Turbidity NTU	0.99944	28
Conductivity umhos/cm	0.99885	29
PrevPrecip	0.99754	30
WindDir	0.99742	31
Pompton streamflow	0.93758	32

Chloride		
Initial Chlorophyta	1.311291	1
Total Amorphous Material	1.195894	2
Odor	1.064403	3
Pompton streamflow	1.049318	4
WkPrecip	1.048905	5
Temp 0C	1.046194	6
BOD, mg/L	1.044802	7
PrevPrecip	1.042257	8
Passaic extractions	1.038128	9
Nitrite/Nitrate	1.03666	10
Initial Chrysophyta	1.03303	11
Ammonia mg/L	1.02733	12
PointRes extractions	1.02478	13
Hardness Total, mg/L as Ca	1.02028	14
DO, mg/L	1.02027	15
Initial Cyanophyta	1.01717	16
WindDir	1.01483	17
Sulfate mg/L	1.01220	18
UV254 cm-1	1.01049	19
Turbidity NTU	1.00904	20
Alkalinity mg/L as CaCO3	1.00825	21
Total Count, cells/ml	1.00813	22
SkyCover	1.00766	23
JAPS extractions	1.00652	24
TOC, mg/L	1.00346	25
Color, Cu	1.00203	26
Pompton extractions	0.99877	27
Conductivity umhos/cm	0.99735	28
pH	0.99646	29
WindSpeed	0.99100	30
HeatingDays	0.98496	31
T.Phosphorus/Orthophosph	0.98452	32

Table 6.7. Station 101 Chlorophyta two-week ahead: Sensitivity Analysis

All Inputs		
PointRes extractions	2.809965	1
Initial Chlorophyta	2.445626	2
Odor	1.722810	3
Conductivity umhos/cm	1.557692	4
Total Count, cells/ml	1.395877	5
WkPrecip	1.194609	6
Initial Chrysophyta	1.193266	7
Turbidity NTU	1.143334	8
Alkalinity mg/L as CaCO3	1.133159	9
Initial Cyanophyta	1.09815	10
BOD, mg/L	1.06748	11
TOC, mg/L	1.05178	12
Ammonia mg/L	1.04791	13
Total Amorphous Material	1.04481	14
UV254 cm-1	1.03295	15
PrevPrecip	1.03192	16
WindSpeed	1.03096	17
T.Phosphorus/Orthophosph	1.02906	18
pH	1.02414	19
HeatingDays	1.01657	20
Passaic extractions	1.01506	21
Chloride mg/L	1.01025	22
Temp 0C	1.00855	23
SkyCover	1.00715	24
Nitrite/Nitrate	1.00162	25
Pompton extractions	0.99803	26
DO, mg/L	0.99399	27
Sulfate mg/L	0.98693	28
WindDir	0.97419	29
JAPS extractions	0.97113	30
Pompton streamflow	0.96561	31
Color, Cu	0.96389	32
Hardness Total, mg/L as Ca	0.96251	33

Point View Reservoir		
Total Amorphous Material	1.285735	1
BOD, mg/L	1.130398	2
Sulfate mg/L	1.095817	3
Odor	1.084567	4
Conductivity umhos/cm	1.078270	5
Turbidity NTU	1.077877	6
Initial Chlorophyta	1.054878	7
Pompton extractions	1.047978	8
Passaic extractions	1.043987	9
UV254 cm-1	1.03963	10
PrevPrecip	1.03642	11
Total Count, cells/ml	1.02414	12
T.Phosphorus/Orthophosph	1.02027	13
TOC, mg/L	1.01768	14
SkyCover	1.01605	15
Alkalinity mg/L as CaCO3	1.01333	16
Color, Cu	1.01026	17
Pompton streamflow	1.00638	18
Ammonia mg/L	1.00580	19
Initial Chrysophyta	1.00489	20
Temp 0C	1.00407	21
Hardness Total, mg/L as Ca	1.00370	22
WindSpeed	0.99932	23
WkPrecip	0.99510	24
DO, mg/L	0.98570	25
HeatingDays	0.98530	26
pH	0.97090	27
Nitrite/Nitrate	0.96762	28
Initial Cyanophyta	0.96193	29
WindDir	0.96051	30
JAPS extractions	0.94866	31
Chloride mg/L	0.93350	32

Initial Chlorophyta Level		
PointRes extractions	1.292639	1
Total Amorphous Material	1.284148	2
Total Count, cells/ml	1.198862	3
BOD, mg/L	1.158460	4
Color, Cu	1.115282	5
Odor	1.079854	6
Hardness Total, mg/L as Ca	1.056583	7
Initial Cyanophyta	1.051906	8
Temp 0C	1.042717	9
DO, mg/L	1.03610	10
Nitrite/Nitrate	1.03424	11
Sulfate mg/L	1.03358	12
UV254 cm-1	1.02980	13
HeatingDays	1.02820	14
TOC, mg/L	1.02174	15
Chloride mg/L	1.01170	16
Pompton extractions	1.01041	17
SkyCover	1.00738	18
PrevPrecip	1.00434	19
Turbidity NTU	1.00376	20
WkPrecip	1.00275	21
Conductivity umhos/cm	1.00254	22
Initial Chrysophyta	0.98459	23
JAPS extractions	0.97999	24
Alkalinity mg/L as CaCO3	0.97780	25
Passaic extractions	0.97572	26
pH	0.97409	27
WindSpeed	0.97309	28
WindDir	0.95868	29
Ammonia mg/L	0.95575	30
T.Phosphorus/Orthophosph	0.95474	31
Pompton streamflow	0.77659	32

Table 6.7. Station 101 Chlorophyta two-week ahead: Sensitivity Analysis (cont.)

Conductivity		
Initial Chlorophyta	2.446241	1
PointRes extractions	1.804198	2
Total Amorphous Material	1.178761	3
BOD, mg/L	1.131614	4
Odor	1.111713	5
Pompton extractions	1.077993	6
Initial Cyanophyta	1.063180	7
Ammonia mg/L	1.060472	8
Alkalinity mg/L as CaCO3	1.050481	9
Sulfate mg/L	1.05042	10
UV254 cm-1	1.04974	11
Color, Cu	1.04960	12
Hardness Total, mg/L as Ca	1.03072	13
Initial Chrysophyta	1.02596	14
HeatingDays	1.02258	15
Nitrite/Nitrate	1.02132	16
WkPrecip	1.01483	17
Temp 0C	1.01104	18
WindDir	1.01084	19
Passaic extractions	1.00976	20
Total Count, cells/ml	1.00916	21
PrevPrecip	1.00911	22
Pompton streamflow	1.00907	23
JAPS extractions	1.00515	24
SkyCover	1.00294	25
WindSpeed	1.00112	26
T.Phosphorus/Orthophosph	1.00029	27
DO, mg/L	1.00002	28
Chloride mg/L	0.99772	29
pH	0.99461	30
Turbidity NTU	0.99199	31
TOC, mg/L	0.98779	32

Color		
PointRes extractions	1.651958	1
Initial Chlorophyta	1.459006	2
Total Amorphous Material	1.157379	3
Temp 0C	1.151950	4
BOD, mg/L	1.143379	5
Turbidity NTU	1.095591	6
Initial Cyanophyta	1.077217	7
Total Count, cells/ml	1.070158	8
JAPS extractions	1.069775	9
Ammonia mg/L	1.05573	10
Pompton extractions	1.05002	11
WkPrecip	1.04796	12
Nitrite/Nitrate	1.03740	13
DO, mg/L	1.03601	14
SkyCover	1.02391	15
HeatingDays	1.02318	16
PrevPrecip	1.01013	17
Chloride mg/L	1.00830	18
Alkalinity mg/L as CaCO3	1.00757	19
WindSpeed	1.00646	20
WindDir	1.00557	21
Hardness Total, mg/L as Ca	1.00423	22
Sulfate mg/L	1.00249	23
Conductivity umhos/cm	1.00189	24
Passaic extractions	0.99805	25
Pompton streamflow	0.99772	26
pH	0.99098	27
Odor	0.98665	28
Initial Chrysophyta	0.98505	29
T.Phosphorus/Orthophosph	0.98289	30
TOC, mg/L	0.97365	31
UV254 cm-1	0.96505	32

Total Hardness		
Initial Chlorophyta	1.354768	1
PointRes extractions	1.317083	2
TOC, mg/L	1.216018	3
Nitrite/Nitrate	1.138564	4
BOD, mg/L	1.118192	5
Total Amorphous Material	1.056985	6
Initial Cyanophyta	1.046686	7
Passaic extractions	1.035449	8
SkyCover	1.026812	9
Sulfate mg/L	1.02507	10
Chloride mg/L	1.02138	11
Color, Cu	1.02096	12
pH	1.02081	13
WindDir	1.01365	14
Pompton streamflow	1.01305	15
HeatingDays	1.01288	16
Pompton extractions	1.00748	17
JAPS extractions	1.00637	18
Initial Chrysophyta	1.00529	19
WindSpeed	1.00485	20
Turbidity NTU	1.00360	21
DO, mg/L	1.00302	22
Total Count, cells/ml	1.00241	23
T.Phosphorus/Orthophosph	1.00203	24
WkPrecip	1.00006	25
Temp 0C	1.00000	26
UV254 cm-1	0.99573	27
Ammonia mg/L	0.99441	28
Conductivity umhos/cm	0.99287	29
Odor	0.94916	30
Alkalinity mg/L as CaCO3	0.94179	31
PrevPrecip	0.93635	32

Table 6.7. Station 612 Chlorophyta real-time predictions: Sensitivity Analysis

Real time Prediction

All Inputs		
Total Count, cells/ml	1.216237	1
Total Amorphous Material	1.146256	2
Chloride mg/L	1.113846	3
SkyCover	1.109945	4
Initial Cyanophyta	1.105973	5
UV254 cm-1	1.085981	6
Pompton extractions	1.081929	7
Turbidity NTU	1.049824	8
Initial Chrysophyta	1.049660	9
Initial Chlorophyta	1.03463	10
BOD, mg/L	1.03028	11
WindSpeed	1.02966	12
Color, Cu	1.02943	13
Hardness Total, mg/L as Ca	1.02237	14
Conductivity umhos/cm	1.02143	15
Sulfate mg/L	1.01945	16
WkPrecip	1.01723	17
PrevPrecip	1.01666	18
pH	1.01598	19
TotalPhosphorus/Orthophos	1.01596	20
DO, mg/L	1.01568	21
TOC, mg/L	1.01406	22
Odor	1.01329	23
PointRes extractions	1.00601	24
WindDir	1.00467	25
Passaic extractions	1.00286	26
Ammonia mg/L	1.00074	27
Alkalinity mg/L as CaCO3	0.99747	28
Temp 0C	0.99404	29
JAPS extractions	0.99288	30
Nitrite/Nitrate	0.98189	31
Pompton streamflow	0.98082	32
HeatingDays	0.97527	33

Total Count		
UV254 cm-1	1.460400	1
Initial Chlorophyta	1.263191	2
Total Amorphous Material	1.178476	3
Odor	1.121083	4
Hardness Total, mg/L as Ca	1.116396	5
WkPrecip	1.111598	6
Conductivity umhos/cm	1.079944	7
Initial Chrysophyta	1.077507	8
HeatingDays	1.059798	9
TotalPhosphorus/Orthophos	1.04656	10
Alkalinity mg/L as CaCO3	1.04593	11
Sulfate mg/L	1.03462	12
WindSpeed	1.02239	13
Pompton streamflow	1.02183	14
DO, mg/L	1.02117	15
Turbidity NTU	1.01730	16
Initial Cyanophyta	1.01648	17
Temp 0C	1.01287	18
SkyCover	1.00822	19
Nitrite/Nitrate	1.00786	20
pH	1.00684	21
Color, Cu	1.00584	22
JAPS extractions	1.00163	23
PointRes extractions	0.99944	24
Passaic extractions	0.99750	25
Chloride mg/L	0.99747	26
Ammonia mg/L	0.98711	27
TOC, mg/L	0.98472	28
PrevPrecip	0.97849	29
WindDir	0.95165	30
Pompton extractions	0.94403	31
BOD, mg/L	0.93088	32

Chloride		
Alkalinity mg/L as CaCO3	2.273833	1
Odor	1.585574	2
Turbidity NTU	1.409454	3
Total Amorphous Material	1.323109	4
Ammonia mg/L	1.295478	5
HeatingDays	1.266574	6
DO, mg/L	1.229185	7
Initial Chlorophyta	1.210368	8
Sulfate mg/L	1.177427	9
WkPrecip	1.16046	10
Hardness Total, mg/L as Ca	1.12275	11
SkyCover	1.11489	12
Pompton extractions	1.09252	13
WindSpeed	1.07896	14
Initial Chrysophyta	1.07201	15
Conductivity umhos/cm	1.03943	16
Total Count, cells/ml	1.03834	17
pH	1.03700	18
Temp 0C	1.03131	19
Pompton streamflow	1.02829	20
PointRes extractions	1.02660	21
JAPS extractions	1.02439	22
Initial Cyanophyta	1.00746	23
TOC, mg/L	1.00391	24
WindDir	1.00280	25
Color, Cu	1.00141	26
Passaic extractions	0.99690	27
TotalPhosphorus/Orthophos	0.98946	28
BOD, mg/L	0.98763	29
Nitrite/Nitrate	0.96966	30
UV254 cm-1	0.94312	31
PrevPrecip	0.93664	32

Table 6.7. Station 612 Chlorophyta real-time predictions: Sensitivity Analysis (cont.)

Sky Cover			Pompton streamflow			Heating Days		
Alkalinity mg/L as CaCO3	1.821475	1	Odor	1.115067	1	UV254 cm-1	1.044705	1
Total Amorphous Material	1.627167	2	Initial Chlorophyta	1.100318	2	Initial Chlorophyta	1.040541	2
Hardness Total, mg/L as Ca	1.468328	3	Total Amorphous Material	1.061637	3	Odor	1.030498	3
HeatingDays	1.230011	4	BOD, mg/L	1.051187	4	WkPrecip	1.015859	4
Temp 0C	1.221178	5	Conductivity umhos/cm	1.051166	5	DO, mg/L	1.014205	5
Color, Cu	1.204079	6	Pompton extractions	1.042638	6	Temp 0C	1.013155	6
UV254 cm-1	1.159043	7	HeatingDays	1.033645	7	Nitrite/Nitrate	1.011871	7
Odor	1.108238	8	Sulfate mg/L	1.023902	8	Initial Cyanophyta	1.010263	8
Pompton streamflow	1.051568	9	WkPrecip	1.020220	9	TOC, mg/L	1.010069	9
WindDir	1.04569	10	PrevPrecip	1.01958	10	WindSpeed	1.00974	10
Sulfate mg/L	1.03431	11	Passaic extractions	1.01693	11	SkyCover	1.00952	11
Initial Cyanophyta	1.03206	12	UV254 cm-1	1.01477	12	Sulfate mg/L	1.00832	12
PrevPrecip	1.03138	13	SkyCover	1.01160	13	Conductivity umhos/cm	1.00676	13
Pompton extractions	1.02172	14	Hardness Total, mg/L as Ca	1.00970	14	Turbidity NTU	1.00653	14
TotalPhosphorus/Orthophos	1.01639	15	Alkalinity mg/L as CaCO3	1.00877	15	Ammonia mg/L	1.00538	15
pH	1.00881	16	Ammonia mg/L	1.00692	16	Color, Cu	1.00426	16
DO, mg/L	1.00736	17	WindSpeed	1.00661	17	Chloride mg/L	1.00412	17
Turbidity NTU	1.00561	18	Color, Cu	1.00648	18	Passaic extractions	1.00323	18
TOC, mg/L	1.00406	19	Total Count, cells/ml	1.00629	19	Total Count, cells/ml	1.00286	19
Passaic extractions	1.00348	20	TOC, mg/L	1.00451	20	Pompton extractions	1.00236	20
JAPS extractions	1.00280	21	Chloride mg/L	1.00040	21	WindDir	1.00210	21
WkPrecip	1.00079	22	Initial Chrysophyta	1.00027	22	JAPS extractions	1.00185	22
PointRes extractions	1.00046	23	PointRes extractions	0.99989	23	PointRes extractions	1.00153	23
WindSpeed	1.00036	24	TotalPhosphorus/Orthophos	0.99889	24	pH	1.00122	24
Conductivity umhos/cm	0.99953	25	Turbidity NTU	0.99846	25	PrevPrecip	1.00084	25
BOD, mg/L	0.99903	26	Initial Cyanophyta	0.99767	26	TotalPhosphorus/Orthophos	1.00069	26
Chloride mg/L	0.99702	27	Temp 0C	0.99725	27	Total Amorphous Material	1.00016	27
Ammonia mg/L	0.99672	28	DO, mg/L	0.99653	28	Initial Chrysophyta	0.99277	28
Initial Chrysophyta	0.99280	29	pH	0.99446	29	BOD, mg/L	0.99239	29
Total Count, cells/ml	0.98166	30	JAPS extractions	0.99392	30	Alkalinity mg/L as CaCO3	0.99006	30
Nitrite/Nitrate	0.95822	31	WindDir	0.99046	31	Hardness Total, mg/L as Ca	0.97616	31
Initial Chlorophyta	0.80032	32	Nitrite/Nitrate	0.98240	32	Pompton streamflow	0.54252	32

Table 6.8. Station 612 Chlorophyta one-week ahead: Sensitivity Analysis

All Inputs		
Total Count, cells/ml	1.893741	1
Initial Chlorophyta	1.469271	2
Initial Chrysophyta	1.359864	3
Total Amorphous Material	1.311196	4
Pompton streamflow	1.279299	5
Temp 0C	1.271309	6
Nitrite/Nitrate	1.264677	7
Initial Cyanophyta	1.257147	8
Hardness Total, mg/L as Ca	1.251432	9
TOC, mg/L	1.21370	10
BOD, mg/L	1.18365	11
Turbidity NTU	1.17951	12
Conductivity umhos/cm	1.12453	13
Ammonia mg/L	1.09679	14
WindDir	1.09399	15
Odor	1.08295	16
pH	1.06335	17
Sulfate mg/L	1.06191	18
WindSpeed	1.04368	19
PrevPrecip	1.04032	20
WkPrecip	1.03475	21
Color, Cu	1.02210	22
Alkalinity mg/L as CaCO3	1.02134	23
Passaic extractions	1.01209	24
SkyCover	1.01140	25
UV254 cm-1	1.00441	26
PointRes extractions	1.00108	27
JAPS extractions	1.00065	28
Chloride mg/L	1.00017	29
DO, mg/L	0.99172	30
HeatingDays	0.99117	31
TotalPhosphorus/Orthophos	0.98125	32
Pompton extractions	0.98046	33

Total Count		
Hardness Total, mg/L as Ca	1.200786	1
Odor	1.183910	2
Nitrite/Nitrate	1.134341	3
WkPrecip	1.082445	4
BOD, mg/L	1.059896	5
Chloride mg/L	1.057246	6
Pompton streamflow	1.054184	7
Alkalinity mg/L as CaCO3	1.052035	8
Total Amorphous Material	1.051552	9
SkyCover	1.04397	10
Conductivity umhos/cm	1.03406	11
Initial Cyanophyta	1.00995	12
WindSpeed	1.00331	13
PointRes extractions	1.00290	14
TotalPhosphorus/Orthophos	1.00188	15
pH	1.00079	16
JAPS extractions	0.99626	17
Pompton extractions	0.99580	18
Passaic extractions	0.99553	19
PrevPrecip	0.99408	20
Turbidity NTU	0.99225	21
Temp 0C	0.98786	22
Color, Cu	0.98547	23
Sulfate mg/L	0.98010	24
TOC, mg/L	0.97903	25
Initial Chrysophyta	0.96387	26
Ammonia mg/L	0.92350	27
UV254 cm-1	0.91841	28
DO, mg/L	0.88845	29
WindDir	0.88199	30
HeatingDays	0.86527	31
Initial Chlorophyta	0.77207	32

Initial Chlorophyta Level		
UV254 cm-1	1.443685	1
Pompton streamflow	1.265532	2
Conductivity umhos/cm	1.252007	3
Total Count, cells/ml	1.232338	4
WkPrecip	1.222923	5
Hardness Total, mg/L as Ca	1.178474	6
Nitrite/Nitrate	1.173689	7
Total Amorphous Material	1.133498	8
TOC, mg/L	1.125819	9
Odor	1.09438	10
Ammonia mg/L	1.06903	11
Chloride mg/L	1.04482	12
Sulfate mg/L	1.04022	13
PrevPrecip	1.03796	14
PointRes extractions	1.03601	15
BOD, mg/L	1.03427	16
pH	1.02995	17
HeatingDays	1.02292	18
Initial Cyanophyta	1.01899	19
Passaic extractions	1.01663	20
SkyCover	1.01258	21
WindDir	1.01252	22
DO, mg/L	1.00691	23
Color, Cu	1.00467	24
JAPS extractions	1.00445	25
Temp 0C	1.00201	26
Turbidity NTU	1.00093	27
Alkalinity mg/L as CaCO3	0.99769	28
TotalPhosphorus/Orthophos	0.99589	29
WindSpeed	0.99579	30
Initial Chrysophyta	0.99187	31
Pompton extractions	0.99142	32

Table 6.8. Station 612 Chlorophyta one-week ahead: Sensitivity Analysis (cont.)

Initial Chrysophyta Level		
Pompton streamflow	1.120408	1
Total Amorphous Material	1.106618	2
BOD, mg/L	1.056037	3
Temp 0C	1.043641	4
TOC, mg/L	1.038774	5
TotalPhosphorus/Orthophos	1.026642	6
Conductivity umhos/cm	1.022334	7
SkyCover	1.022305	8
Passaic extractions	1.020373	9
Ammonia mg/L	1.01478	10
Turbidity NTU	1.00682	11
Initial Cyanophyta	1.00550	12
JAPS extractions	1.00511	13
Sulfate mg/L	1.00439	14
WkPrecip	1.00354	15
pH	1.00039	16
Nitrite/Nitrate	0.99714	17
PointRes extractions	0.99499	18
Pompton extractions	0.99424	19
DO, mg/L	0.99401	20
UV254 cm-1	0.99245	21
HeatingDays	0.98846	22
Total Count, cells/ml	0.98584	23
Hardness Total, mg/L as Ca	0.98445	24
Color, Cu	0.98345	25
Initial Chlorophyta	0.98250	26
Odor	0.97980	27
Chloride mg/L	0.97881	28
Alkalinity mg/L as CaCO3	0.97465	29
WindSpeed	0.97360	30
WindDir	0.94019	31
PrevPrecip	0.88140	32

Total Phosphorous		
UV254 cm-1	2.534786	1
Passaic extractions	1.961012	2
Hardness Total, mg/L as Ca	1.769942	3
Nitrite/Nitrate	1.727551	4
Conductivity umhos/cm	1.605322	5
Pompton streamflow	1.602616	6
WkPrecip	1.493034	7
Initial Chlorophyta	1.488465	8
PrevPrecip	1.358238	9
Total Amorphous Material	1.26591	10
pH	1.22075	11
BOD, mg/L	1.21983	12
WindDir	1.17736	13
HeatingDays	1.16047	14
Sulfate mg/L	1.13014	15
Color, Cu	1.12016	16
Total Count, cells/ml	1.11410	17
SkyCover	1.11049	18
Chloride mg/L	1.04947	19
WindSpeed	1.01818	20
Alkalinity mg/L as CaCO3	1.01496	21
Initial Chrysophyta	1.00364	22
DO, mg/L	0.98197	23
Pompton extractions	0.96202	24
JAPS extractions	0.95171	25
Ammonia mg/L	0.94041	26
Odor	0.93177	27
Temp 0C	0.91029	28
Turbidity NTU	0.89728	29
TOC, mg/L	0.87311	30
Initial Cyanophyta	0.78231	31
PointRes extractions	0.78125	32

Pompton extractions		
Nitrite/Nitrate	1.385281	1
Initial Chlorophyta	1.266899	2
WindSpeed	1.170518	3
Pompton streamflow	1.129236	4
HeatingDays	1.110737	5
PrevPrecip	1.097176	6
Initial Chrysophyta	1.082522	7
Hardness Total, mg/L as Ca	1.075616	8
TotalPhosphorus/Orthophos	1.062107	9
JAPS extractions	1.04660	10
WkPrecip	1.03628	11
Total Count, cells/ml	1.02991	12
DO, mg/L	1.02772	13
TOC, mg/L	1.02234	14
SkyCover	1.02076	15
WindDir	1.01912	16
Ammonia mg/L	1.01556	17
pH	1.01378	18
Alkalinity mg/L as CaCO3	1.01296	19
Passaic extractions	1.01083	20
Initial Cyanophyta	1.00135	21
BOD, mg/L	1.00023	22
Sulfate mg/L	1.00003	23
PointRes extractions	0.99923	24
Total Amorphous Material	0.99540	25
Color, Cu	0.99432	26
Turbidity NTU	0.98278	27
UV254 cm-1	0.96694	28
Temp 0C	0.92622	29
Conductivity umhos/cm	0.90044	30
Chloride mg/L	0.89470	31
Odor	0.53152	32

Table 6.9. Station 612 Chlorophyta two-week ahead: Sensitivity Analysis

All Inputs		
Odor	1.864002	1
Total Amorphous Material	1.367747	2
UV254 cm-1	1.234113	3
WkPrecip	1.216126	4
WindDir	1.177500	5
Pompton extractions	1.130850	6
DO, mg/L	1.125240	7
Ammonia mg/L	1.118466	8
Initial Chlorophyta	1.050733	9
Turbidity NTU	1.04935	10
WindSpeed	1.04866	11
Sulfate mg/L	1.04768	12
Hardness Total, mg/L as Ca	1.04491	13
pH	1.04478	14
Chloride mg/L	1.04047	15
HeatingDays	1.03384	16
Initial Cyanophyta	1.03040	17
BOD, mg/L	1.02834	18
Total Count, cells/ml	1.02443	19
TotalPhosphorus/Orthophos	1.01585	20
Nitrite/Nitrate	1.01540	21
Pompton streamflow	1.01251	22
PrevPrecip	1.01212	23
Conductivity umhos/cm	1.01091	24
Initial Chrysophyta	0.99948	25
Passaic extractions	0.99845	26
Temp 0C	0.99738	27
PointRes extractions	0.99728	28
JAPS extractions	0.99631	29
Alkalinity mg/L as CaCO3	0.99288	30
SkyCover	0.98577	31
Color, Cu	0.97930	32
TOC, mg/L	0.97665	33

UV254		
Odor	1.357717	1
DO, mg/L	1.274950	2
Initial Chlorophyta	1.078414	3
BOD, mg/L	1.077971	4
WindDir	1.069943	5
Total Amorphous Material	1.061871	6
Color, Cu	1.057715	7
WkPrecip	1.050494	8
Pompton extractions	1.038281	9
Chloride mg/L	1.03593	10
Total Count, cells/ml	1.03556	11
TotalPhosphorus/Orthophos	1.03297	12
Passaic extractions	1.02895	13
PrevPrecip	1.02881	14
SkyCover	1.02829	15
HeatingDays	1.02389	16
PointRes extractions	1.02278	17
Hardness Total, mg/L as Ca	1.02208	18
Initial Cyanophyta	1.01888	19
Ammonia mg/L	1.01062	20
Conductivity umhos/cm	1.00877	21
pH	1.00662	22
Turbidity NTU	1.00361	23
Alkalinity mg/L as CaCO3	1.00301	24
JAPS extractions	1.00162	25
Temp 0C	1.00159	26
TOC, mg/L	1.00046	27
WindSpeed	1.00019	28
Sulfate mg/L	0.99974	29
Initial Chrysophyta	0.99919	30
Pompton streamflow	0.99717	31
PrevPrecip	0.94649	31

Weekly Precip		
Pompton extractions	1.147850	1
Total Amorphous Material	1.136221	2
Pompton streamflow	1.083261	3
Nitrite/Nitrate	1.075072	4
Odor	1.072119	5
Color, Cu	1.056793	6
WindDir	1.051409	7
UV254 cm-1	1.037164	8
TotalPhosphorus/Orthophos	1.018050	9
PrevPrecip	1.01773	10
HeatingDays	1.01390	11
Temp 0C	1.00895	12
BOD, mg/L	1.00865	13
SkyCover	1.00577	14
PointRes extractions	1.00497	15
JAPS extractions	1.00410	16
Initial Cyanophyta	0.99852	17
DO, mg/L	0.99448	18
Passaic extractions	0.99428	19
TOC, mg/L	0.99141	20
Turbidity NTU	0.98983	21
Initial Chlorophyta	0.98825	22
Chloride mg/L	0.97518	23
WindSpeed	0.97054	24
Ammonia mg/L	0.95988	25
Hardness Total, mg/L as Ca	0.95810	26
Sulfate mg/L	0.94937	27
Conductivity umhos/cm	0.93760	28
pH	0.91552	29
Alkalinity mg/L as CaCO3	0.90996	30
Total Count, cells/ml	0.88228	31
Turbidity NTU	0.96687	31

Table 6.9. Station 612 Chlorophyta two-week ahead: Sensitivity Analysis (cont.)

WindDirection		
Hardness Total, mg/L as Ca	1.182814	1
Ammonia mg/L	1.123820	2
Initial Chlorophyta	1.078373	3
PrevPrecip	1.057439	4
Pompton streamflow	1.034531	5
UV254 cm-1	1.033335	6
Color, Cu	1.029335	7
Odor	1.023149	8
Turbidity NTU	1.022418	9
TOC, mg/L	1.01760	10
Passaic extractions	1.00917	11
JAPS extractions	1.00517	12
Chloride mg/L	1.00109	13
SkyCover	1.00069	14
Conductivity umhos/cm	0.99931	15
pH	0.99926	16
BOD, mg/L	0.99852	17
PointRes extractions	0.99613	18
WkPrecip	0.99499	19
Initial Cyanophyta	0.99465	20
Sulfate mg/L	0.99320	21
Alkalinity mg/L as CaCO3	0.98905	22
Temp 0C	0.98713	23
Total Count, cells/ml	0.98680	24
Initial Chrysophyta	0.98301	25
DO, mg/L	0.97326	26
Nitrite/Nitrate	0.95925	27
HeatingDays	0.94781	28
WindSpeed	0.92713	29
Pompton extractions	0.91612	30
Total Amorphous Material	0.87429	31
SkyCover	0.92969	31

Color		
Odor	1.515678	1
Initial Chlorophyta	1.287332	2
Temp 0C	1.276527	3
Ammonia mg/L	1.260693	4
Total Amorphous Material	1.208859	5
WindDir	1.148828	6
HeatingDays	1.119587	7
DO, mg/L	1.115082	8
Chloride mg/L	1.094062	9
SkyCover	1.09002	10
UV254 cm-1	1.08309	11
WkPrecip	1.07043	12
JAPS extractions	1.05431	13
Turbidity NTU	1.05269	14
WindSpeed	1.04223	15
BOD, mg/L	1.04114	16
Sulfate mg/L	1.03688	17
Nitrite/Nitrate	1.03551	18
Initial Chrysophyta	1.03061	19
pH	1.02985	20
Passaic extractions	1.02721	21
Pompton extractions	1.02138	22
Initial Cyanophyta	1.01086	23
Total Count, cells/ml	1.00916	24
PointRes extractions	1.00419	25
Conductivity umhos/cm	1.00343	26
Hardness Total, mg/L as Ca	1.00104	27
TOC, mg/L	1.00086	28
PrevPrecip	0.99245	29
Alkalinity mg/L as CaCO3	0.98684	30
Pompton streamflow	0.97132	31
Conductivity, umhos/cm	0.99255	31

Total Organic Carbon (TOC)		
Odor	1.331649	1
Total Amorphous Material	1.124594	2
Initial Chlorophyta	1.083793	3
Pompton extractions	1.076756	4
PrevPrecip	1.070329	5
HeatingDays	1.060034	6
BOD, mg/L	1.058214	7
Nitrite/Nitrate	1.052286	8
Pompton streamflow	1.044558	9
DO, mg/L	1.03737	10
UV254 cm-1	1.03003	11
SkyCover	1.02831	12
Ammonia mg/L	1.02704	13
pH	1.02619	14
WkPrecip	1.01545	15
WindDir	1.01429	16
Chloride mg/L	1.00627	17
JAPS extractions	1.00382	18
WindSpeed	1.00317	19
Initial Chrysophyta	1.00191	20
Total Count, cells/ml	1.00189	21
PointRes extractions	1.00108	22
TotalPhosphorus/Orthophos	1.00014	23
Passaic extractions	0.99949	24
Turbidity NTU	0.99941	25
Temp 0C	0.99923	26
Conductivity umhos/cm	0.99906	27
Initial Cyanophyta	0.99877	28
Hardness Total, mg/L as Ca	0.99859	29
Color, Cu	0.99110	30
Alkalinity mg/L as CaCO3	0.98994	31
JAPS extractions	0.99015	31

Table 6.9. Station 612 Chlorophyta two-week ahead: Sensitivity Analysis (cont.)

Odor			Total Amorphous Materials		
DO, mg/L	1.127136	1	WkPrecip	1.213818	1
WindSpeed	1.083826	2	Sulfate mg/L	1.171231	2
PointRes extractions	1.074182	3	UV254 cm-1	1.082317	3
Pompton extractions	1.045053	4	Total Count, cells/ml	1.077943	4
Sulfate mg/L	1.040699	5	Hardness Total, mg/L as Ca	1.058659	5
WindDir	1.033659	6	Initial Cyanophyta	1.057412	6
WkPrecip	1.028533	7	HeatingDays	1.037176	7
Ammonia mg/L	1.026697	8	WindDir	1.021696	8
UV254 cm-1	1.025438	9	TotalPhosphorus/Orthophos	1.019635	9
Temp 0C	1.02045	10	TOC, mg/L	1.01802	10
Alkalinity mg/L as CaCO3	1.01635	11	JAPS extractions	1.01674	11
Nitrite/Nitrate	1.01454	12	Odor	1.01499	12
pH	1.01133	13	WindSpeed	1.00992	13
Chloride mg/L	1.01044	14	Pompton extractions	1.00847	14
HeatingDays	1.00944	15	Chloride mg/L	1.00474	15
Total Count, cells/ml	1.00757	16	Passaic extractions	1.00246	16
Passaic extractions	1.00701	17	PointRes extractions	1.00210	17
BOD, mg/L	1.00658	18	Color, Cu	1.00170	18
Hardness Total, mg/L as Ca	1.00514	19	SkyCover	1.00153	19
Initial Chrysophyta	1.00403	20	DO, mg/L	1.00149	20
PrevPrecip	1.00263	21	Temp 0C	1.00036	21
Pompton streamflow	1.00009	22	Alkalinity mg/L as CaCO3	0.99900	22
TOC, mg/L	1.00008	23	Conductivity umhos/cm	0.99885	23
SkyCover	0.99949	24	Turbidity NTU	0.99875	24
JAPS extractions	0.99915	25	PrevPrecip	0.99810	25
Conductivity umhos/cm	0.99895	26	Initial Chlorophyta	0.99600	26
Initial Chlorophyta	0.99786	27	Pompton streamflow	0.99473	27
TotalPhosphorus/Orthophos	0.99222	28	Ammonia mg/L	0.99246	28
Color, Cu	0.98977	29	BOD, mg/L	0.99082	29
Initial Cyanophyta	0.98011	30	Nitrite/Nitrate	0.98373	30
Turbidity NTU	0.97858	31	pH	0.97526	31
Total Amorphous Material	0.96750	32	Initial Chrysophyta	0.97524	32

Table 6.10. Average Parameter Ratio values and Rankings from Sensitivity Analysis for predicting Cyanobacteria prediction at Station 100

Real time Prediction			2-week Prediction Period			1-week Prediction Period		
TSS, mg/L	1.9608	11	Nitrite/Nitrate	2.2134	3	DO, mg/L	1.9892	2
DO, mg/L	1.8868	4	Sulfate, mg/L	2.0524	6	Alkalinity mg/L as CaCO ₃	1.7181	4
Alkalinity mg/L as CaCO ₃	1.8303	7	HeatingDays	1.7165	4	Pompton extraction	1.6805	6
Odor	1.7752	6	pH	1.6321	12	Odor	1.6480	5
Pompton extraction	1.7567	10	Passaic extraction	1.6170	4	TSS, mg/L	1.5964	6
WindDir	1.6868	19	DO, mg/L	1.4987	7	WindDir	1.5662	14
Nitrite/Nitrate	1.5468	8	TOC, mg/L	1.4274	11	Nitrite/Nitrate	1.3530	12
PrevPrecip	1.5458	16	TSS, mg/L	1.3319	10	BOD, mg/L	1.2764	15
T.Phosphorus/Orthophospha	1.3555	14	SkyCover	1.3212	10	Turbidity NTU	1.2510	14
Turbidity NTU	1.3502	14	Ammonia, mg/L	1.2580	14	Sulfate, mg/L	1.2377	13
BOD, mg/L	1.2759	11	Turbidity NTU	1.2513	15	T.Phosphorus/Orthophospha	1.1938	15
Passaic extraction	1.2133	15	Initial Chrysophyta	1.1734	15	Total Count, cells/ml	1.1790	17
Ammonia, mg/L	1.1622	9	WkPrecip	1.1710	12	WindSpeed	1.1735	19
WindSpeed	1.1594	21	Pompton extraction	1.1691	18	Ammonia, mg/L	1.1725	12
Pompton streamflow	1.1396	20	Hardness, Total mg/L as CaCO ₃	1.1410	20	Hardness, Total mg/L as CaCO ₃	1.1608	15
HeatingDays	1.1251	17	BOD, mg/L	1.1245	18	PrevPrecip	1.1546	17
Temp (0C)	1.1029	21	Alkalinity mg/L as CaCO ₃	1.1228	17	Passaic extraction	1.1440	15
SkyCover	1.0841	16	WindDir	1.1154	19	PointRes	1.1415	18
Sulfate, mg/L	1.0726	17	Odor	1.1038	21	Temp (0C)	1.0976	16
UV-254, cm-1	1.0717	14	Initial Chlorophyta	1.0859	19	UV-254, cm-1	1.0883	12
WkPrecip	1.0665	23	Pompton streamflow	1.0756	20	HeatingDays	1.0835	18
PointRes	1.0581	18	Conductivity, umhos/cm	1.0738	21	SkyCover	1.0701	19
TOC, mg/L	1.0537	21	Chloride, mg/L	1.0714	17	TOC, mg/L	1.0559	22
Initial Cyanophyta	1.0433	19	Temp (0C)	1.0666	19	Pompton streamflow	1.0467	20
Total Count, cells/ml	1.0334	18	WindSpeed	1.0631	19	Initial Cyanophyta	1.0406	21
pH	1.0310	17	Total Count, cells/ml	1.0420	22	Conductivity, umhos/cm	1.0279	24
Initial Chrysophyta	1.0289	18	T.Phosphorus/Orthophospha	1.0318	23	Initial Chlorophyta	1.0223	22
Hardness, Total mg/L as CaCO ₃	1.0289	22	UV-254, cm-1	1.0262	23	Chloride, mg/L	1.0202	23
Conductivity, umhos/cm	1.0107	18	PrevPrecip	1.0234	18	Initial Chrysophyta	1.0188	24
Chloride, mg/L	1.0014	22	JAPS	1.0096	25	pH	1.0142	25
JAPS	0.9994	24	Initial Cyanophyta	1.0011	26	WkPrecip	1.0104	24
Initial Chlorophyta	0.9951	25	PointRes	0.9996	24	JAPS	1.0014	26

Table 6.11. Average Parameter Ratio values and Rankings from Sensitivity Analysis for predicting Cyanobacteria prediction at Station 101

Real time			2-week Prediction Period			1-week Prediction Period		
PointResPVR	3.0247	9	Sulfate mg/L	1.7252	10	Initial Cyanophyta	2.2764	13
Total Amorphous Material	2.0885	13	WkPrecip	1.6117	9	WkPrecip	2.0303	1
UV254	1.7869	11	T.Phosphorus/Orthophospha	1.5046	8	Total Amorphous Materi	1.9201	10
HeatingDays	1.3897	6	Total Amorphous Material	1.4264	13	WindSpeed	1.7700	4
Conductivity	1.3699	11	Conductivity umhos/cm	1.3372	16	BOD, mg/L	1.7638	10
Sulfate	1.3083	9	HeatingDays	1.3368	15	T.Phosphorus/Orthophos	1.5499	7
Color	1.2194	12	Odor	1.2930	11	TOC, mg/L	1.5282	11
Initial Chlorophyta	1.1955	12	Hardness Total, mg/L as Ca	1.2924	13	HeatingDays	1.4641	9
Chloride	1.1858	14	Color, Cu	1.2803	14	Temp 0C	1.3808	12
PrevPrecip	1.1745	15	Chloride mg/L	1.2729	19	UV254 cm-1	1.3503	21
T.Phosphorus/Orthophospha	1.1711	12	PrevPrecip	1.2722	13	PrevPrecip	1.3470	17
TOC	1.1478	17	UV254 cm-1	1.2337	17	Alkalinity mg/L as CaCO	1.2677	12
WkPrecip	1.1337	13	PointResPVR	1.2215	16	Hardness Total, mg/L as	1.2652	17
BOD	1.1063	13	BOD, mg/L	1.2160	19	JAPS	1.2528	19
Alkalinity	1.1046	16	Nitrite/Nitrate	1.1805	10	PointResPVR	1.2352	16
SkyCover	1.0954	17	SkyCover	1.1798	10	Odor	1.1902	19
Initial Cyanophyta	1.0888	21	WindDir	1.1735	24	Ammonia mg/L	1.1578	22
Temp 0C	1.0857	15	DO, mg/L	1.1613	11	pH	1.1540	18
Nitrite/Nitrate	1.0676	17	Initial Chlorophyta	1.1395	13	Total Count, cells/ml	1.1466	21
Total Count, cells/ml	1.0517	16	Temp 0C	1.1331	18	Initial Chlorophyta	1.1424	18
pH	1.0480	17	Pompton streamflow	1.1003	17	Pompton extraction	1.1191	17
Odor	1.0308	17	Alkalinity mg/L as CaCO3	1.0930	17	Passaic extraction	1.1185	20
Hardness Total	1.0292	21	WindSpeed	1.0878	15	Initial Chrysophyta	1.0735	15
Passaic extraction	1.0246	19	TOC, mg/L	1.0844	16	SkyCover	1.0662	25
Ammonia	1.0198	19	Pompton extraction	1.0831	16	Sulfate mg/L	1.0633	19
Initial Chrysophyta	1.0175	20	Total Count, cells/ml	1.0480	28	Chloride mg/L	1.0567	19
WindDir	1.0157	19	Ammonia mg/L	1.0460	20	DO, mg/L	1.0330	19
Pompton streamflow	1.0107	22	pH	1.0427	24	Turbidity NTU	1.0307	21
Turbidity NTU	1.0089	24	Initial Cyanophyta	1.0331	21	Color, Cu	1.0248	22
WindSpeed	1.0062	22	Passaic extraction	1.0216	21	Conductivity umhos/cm	1.0232	20
Pompton extraction	1.0029	24	Turbidity NTU	1.0087	21	Pompton streamflow	1.0177	22
JAPS	1.0013	25	JAPS	1.0083	24	WindDir	1.0165	17
DO	0.9885	23	Initial Chrysophyta	0.9747	25	Nitrite/Nitrate	1.0124	24

Table 6.12. Average Parameter Ratio values and Rankings from Sensitivity Analysis for predicting Cyanobacteria prediction at Station 612

Real time			2-week Prediction Period			1-week Prediction Period		
Color, Cu	1.5097	3	Total Amorphous Material	2.6249	1	Color, Cu	6.2532	2
Odor	1.4203	4	Turbidity NTU	1.8530	4	Initial Cyanophyta	5.7964	2
Total Amorphous Material	1.2167	8	Total Count, cells/ml	1.5965	11	Turbidity NTU	5.6590	2
DO, mg/L	1.2078	13	WkPrecip	1.5902	12	Total Count, cells/ml	2.7408	9
Initial Cyanophyta	1.1836	17	Initial Cyanophyta	1.5774	8	PointRes	2.4599	11
Turbidity NTU	1.1835	8	Odor	1.5253	12	pH	1.8964	10
WkPrecip	1.1715	13	Sulfate mg/L	1.5136	10	Ammonia mg/L	1.7299	9
BOD, mg/L	1.1555	9	DO, mg/L	1.4435	11	DO, mg/L	1.6813	14
HeatingDays	1.1464	14	Temp 0C	1.4232	15	BOD, mg/L	1.6377	13
TotalPhosphorus/Orthophos	1.1014	15	UV254 cm-1	1.4195	20	Total Amorphous Mater	1.5727	11
SkyCover	1.1000	11	HeatingDays	1.3818	12	HeatingDays	1.3532	16
Sulfate mg/L	1.0911	13	Ammonia mg/L	1.3657	11	WkPrecip	1.3007	15
PrevPrecip	1.0891	14	Color, Cu	1.3383	11	PrevPrecip	1.2853	15
Alkalinity mg/L as CaCO3	1.0732	14	WindDir	1.2984	8	Alkalinity mg/L as CaCO	1.2836	16
pH	1.0670	15	PrevPrecip	1.2932	14	UV254 cm-1	1.2244	17
Temp 0C	1.0654	15	pH	1.2883	13	WindSpeed	1.1849	18
Total Count, cells/ml	1.0550	15	PointRes	1.2724	14	Initial Chrysophyta	1.1795	19
Conductivity umhos/cm	1.0454	19	SkyCover	1.2408	15	TotalPhosphorus/Orthop	1.1733	17
Ammonia mg/L	1.0298	13	Passaic extraction	1.2325	21	Sulfate mg/L	1.1678	15
Initial Chrysophyta	1.0295	18	Alkalinity mg/L as CaCO3	1.1769	15	Temp 0C	1.1507	21
WindDir	1.0267	16	BOD, mg/L	1.1305	15	Passaic extraction	1.1403	22
Nitrite/Nitrate	1.0244	17	Initial Chlorophyta	1.1095	18	Hardness Total, mg/L as	1.1298	20
Passaic extraction	1.0204	22	TotalPhosphorus/Orthophos	1.0830	21	Conductivity umhos/cm	1.1254	19
TOC, mg/L	1.0149	22	Pompton extraction	1.0660	18	Odor	1.1141	20
Pompton extraction	1.0066	20	Conductivity umhos/cm	1.0593	22	Pompton extraction	1.1133	19
PointRes	1.0030	20	WindSpeed	1.0235	26	SkyCover	1.0886	21
Hardness Total, mg/L as Ca	1.0010	24	Chloride mg/L	1.0168	25	WindDir	1.0783	21
WindSpeed	1.0007	24	Hardness Total, mg/L as Ca	0.9993	25	Pompton streamflow	1.0495	22
UV254 cm-1	0.9940	22	TOC, mg/L	0.9985	26	Initial Chlorophyta	1.0454	24
Chloride mg/L	0.9903	24	Initial Chrysophyta	0.9977	26	Nitrite/Nitrate	1.0402	24
JAPS	0.9850	27	Nitrite/Nitrate	0.9933	26	JAPS	1.0088	25
Initial Chlorophyta	0.9843	26	Pompton streamflow	0.9924	27	Chloride mg/L	1.0072	25
Pompton streamflow	0.9542	28	JAPS	0.9609	27	TOC, mg/L	0.9921	25

Table 6.13. Average Parameter Ratio values and Rankings from Sensitivity Analysis for Chrysophyta predictions at Station 100

Real time Prediction			1-week Prediction Period			2-week Prediction Period		
Variable	Ratio	Rank	Variable	Ratio	Rank	Variable	Ratio	Rank
Initial Chrysophyta	1.1742	12	Initial Chrysophyta	1.1004	5	Temp (OC)	1.1997	6
HeatingDays	1.1433	10	Odor	1.0998	7	HeatingDays	1.1393	6
Odor	1.1356	6	TOTAL COUNT, CELLS/M	1.0951	7	Hardness, Total mg/L as Ca	1.1224	9
Hardness, Total mg/L as Ca	1.1072	8	Passaic Streamflow	1.0629	11	Pompton Streamflow	1.1199	9
TOTAL COUNT, CELLS/M	1.0954	17	HeatingDays	1.0590	9	Initial Chrysophyta	1.1194	9
Initial Chlorophyta	1.0490	7	BOD, mg/L	1.0539	8	Passaic Streamflow	1.0770	8
Turbidity NTU	1.0372	19	Temp (OC)	1.0412	9	Odor	1.0759	7
Sulfate, mg/L	1.0348	17	Hardness, Total mg/L as Ca	1.0409	12	WindSpeed	1.0462	11
Passaic Streamflow	1.0316	11	Pompton Streamflow	1.0306	13	Ammonia, mg/L	1.0380	19
pH	1.0295	22	Initial Chlorophyta	1.0285	10	Initial Chlorophyta	1.0288	10
Nitrite/Nitrate	1.0284	12	Turbidity NTU	1.0251	11	Conductivity, umhos/cm	1.0247	14
Pompton Streamflow	1.0263	15	WindSpeed	1.0220	10	PrevPrecip	1.0159	15
SkyCover	1.0241	15	Nitrite/Nitrate	1.0204	16	DO, mg/L	1.0157	16
Alkalinity mg/L as CaCO3	1.0219	13	USGS Pompton	1.0195	14	TOC, mg/L	1.0141	14
TOC, mg/L	1.0217	10	Chloride, mg/L	1.0133	16	pH	1.0137	14
BOD, mg/L	1.0191	19	WkPrecip	1.0127	16	Nitrite/Nitrate	1.0108	15
T.Phosphorus/Orthophospha	1.0170	15	TOC, mg/L	1.0122	17	SkyCover	1.0104	22
WindSpeed	1.0167	18	T.Phosphorus/Orthophospha	1.0117	16	TSS, mg/L	1.0090	16
Ammonia, mg/L	1.0158	20	Initial Cyanophyta	1.0105	18	Sulfate, mg/L	1.0078	16
DO, mg/L	1.0067	20	PointRes	1.0083	17	T.Phosphorus/Orthophos	1.0074	16
WkPrecip	1.0066	15	Sulfate, mg/L	1.0064	22	WindDir	1.0072	14
PointRes	1.0060	17	Conductivity, umhos/cm	1.0064	20	WkPrecip	1.0056	18
JAPS	1.0057	18	PrevPrecip	1.0063	20	Alkalinity mg/L as CaCO	1.0013	18
USGS Pompton	1.0047	21	SkyCover	1.0049	23	TOTAL COUNT, CELL	1.0005	19
Conductivity, umhos/cm	1.0046	21	TSS, mg/L	1.0043	23	PointRes	1.0001	19
UV-254, cm-1	1.0046	23	UV-254, cm-1	1.0042	19	Initial Cyanophyta	0.9968	25
Temp (OC)	1.0045	21	Ammonia, mg/L	1.0041	21	JAPS	0.9967	26
PrevPrecip	1.0040	15	DO, mg/L	1.0006	23	BOD, mg/L	0.9951	23
WindDir	1.0034	19	Alkalinity mg/L as CaCO3	1.0004	24	Chloride, mg/L	0.9905	24
Chloride, mg/L	1.0005	24	JAPS	0.9996	22	UV-254, cm-1	0.9892	21
Initial Cyanophyta	0.9987	21	pH	0.9953	25	USGS Pompton	0.9883	22
TSS, mg/L	0.9986	14	WindDir	0.9933	26	Turbidity NTU	0.9476	30

Table 6.14. Average Parameter Ratio values and Rankings from Sensitivity Analysis for Chrysophyta predictions at Station 101

Real time Prediction			1-week Prediction Period			2-week Prediction Period		
Variable	Ratio	Rank	Variable	Ratio	Rank	Variable	Ratio	Rank
Total Amorphous Material	1.1553	2	Initial Chrysophyta	1.1363	5	Total Amorphous Material	1.2020	7
T.Phosphorus/Orthophosphate	1.0779	9	Odor	1.1063	9	Initial Cyanophyta	1.1044	10
Odor	1.0718	13	Turbidity NTU	1.0966	10	Odor	1.0649	8
Temp 0C	1.0677	12	T.Phosphorus/Orthophosphate	1.0841	16	WkPrecip	1.0567	12
Initial Chrysophyta	1.0675	9	Total Amorphous Material	1.0814	12	Initial Chrysophyta	1.0500	7
Color, Cu	1.0661	13	Ammonia mg/L	1.0506	12	Color, Cu	1.0489	13
Passaic WSPS	1.0557	13	Nitrite/Nitrate	1.0505	16	TOC, mg/L	1.0454	8
Sulfate mg/L	1.0482	11	TOC, mg/L	1.0472	12	pH	1.0254	11
Nitrite/Nitrate	1.0461	14	Chloride mg/L	1.0471	16	Alkalinity mg/L as CaCO3	1.0252	14
Conductivity umhos/cm	1.0427	12	HeatingDays	1.0441	12	UV254 cm-1	1.0205	15
pH	1.0411	15	Hardness Total, mg/L as CaCO3	1.0433	15	Chloride mg/L	1.0181	15
BOD, mg/L	1.0403	18	BOD, mg/L	1.0427	14	Turbidity NTU	1.0174	22
SkyCover	1.0402	16	JAPS	1.0412	14	Initial Chlorophyta	1.0166	17
Total Count, cells/ml	1.0394	16	Pompton WSPSQ	1.0372	16	JAPS	1.0163	16
TOC, mg/L	1.0354	13	Initial Chlorophyta	1.0364	15	T.Phosphorus/Orthophosphate	1.0138	18
WkPrecip	1.0342	15	WkPrecip	1.0342	15	HeatingDays	1.0135	17
WindDir	1.0335	14	Color, Cu	1.0307	17	Ammonia mg/L	1.0124	15
USGSPompton	1.0288	20	Total Count, cells/ml	1.0262	18	Passaic WSPS	1.0121	17
Ammonia mg/L	1.0282	20	Conductivity umhos/cm	1.0246	21	BOD, mg/L	1.0115	17
Pompton WSPSQ	1.0234	15	Passaic WSPS	1.0215	18	WindDir	1.0111	21
HeatingDays	1.0234	20	Alkalinity mg/L as CaCO3	1.0198	20	SkyCover	1.0100	16
Alkalinity mg/L as CaCO3	1.0221	18	WindSpeed	1.0197	18	Nitrite/Nitrate	1.0093	19
PrevPrecip	1.0200	17	pH	1.0171	20	Total Count, cells/ml	1.0061	20
WindSpeed	1.0197	18	Temp 0C	1.0151	19	PrevPrecip	1.0057	20
UV254 cm-1	1.0118	21	USGSPompton	1.0094	22	Temp 0C	1.0055	20
JAPS	1.0098	21	DO, mg/L	1.0077	21	Conductivity umhos/cm	1.0036	16
Initial Chlorophyta	1.0088	20	UV254 cm-1	1.0043	21	Sulfate mg/L	1.0005	20
Initial Cyanophyta	1.0084	21	Initial Cyanophyta	1.0043	22	USGSPompton	0.9994	19
Turbidity NTU	1.0061	24	SkyCover	1.0025	24	PointResPVR	0.9991	22
PointResPVR	1.0052	23	PrevPrecip	1.0022	22	WindSpeed	0.9988	23
DO, mg/L	1.0015	25	Sulfate mg/L	1.0012	20	Pompton WSPSQ	0.9983	23
Hardness Total, mg/L as CaCO3	0.9978	20	PointResPVR	0.9773	25	DO, mg/L	0.9954	22
Chloride mg/L	0.9918	27	WindDir	0.8601	17	Hardness Total, mg/L as CaCO3	0.9917	22

Table 6.15. Average Parameter Ratio values and Rankings from Sensitivity Analysis for Chrysophyta predictions at Station 612

Real time Prediction			1-week Prediction Period			2-week Prediction Period		
Variable	Ratio	Rank	Variable	Ratio	Rank	Variable	Ratio	Rank
Total Amorphous Material	1.4099	3	Initial Chrysophyta	1.3212	2	Initial Chrysophyta	1.6463	1
Pompton Streamflow	1.3081	3	Total Count, cells/ml	1.1051	7	Total Amorphous Material	1.1722	8
UV254 cm-1	1.2262	5	Total Amorphous Material	1.0995	5	Odor	1.1161	8
Odor	1.1729	3	Color, Cu	1.0814	8	Total Count, cells/ml	1.1023	6
WkPrecip	1.1426	6	UV254 cm-1	1.0797	10	Nitrite/Nitrate	1.0787	15
Total Count, cells/ml	1.0708	12	Passaic Streamflow	1.0634	9	Pompton Streamflow	1.0785	12
HeatingDays	1.0598	16	pH	1.0581	14	HeatingDays	1.0590	14
Alkalinity mg/L as CaCO3	1.0590	13	Alkalinity mg/L as CaCO3	1.0551	13	UV254 cm-1	1.0462	13
WindSpeed	1.0450	16	Initial Chlorophyta	1.0480	9	Turbidity NTU	1.0374	14
Hardness Total, mg/L as CaCO3	1.0437	14	Hardness Total, mg/L as CaCO3	1.0476	13	USGSPompton	1.0371	20
Temp 0C	1.0426	11	Temp 0C	1.0443	14	Alkalinity mg/L as CaCO3	1.0356	17
Sulfate mg/L	1.0422	13	HeatingDays	1.0418	15	Hardness Total, mg/L as CaCO3	1.0310	15
pH	1.0307	16	JAPS	1.0389	17	SkyCover	1.0309	15
Conductivity umhos/cm	1.0274	15	Initial Cyanophyta	1.0314	14	WkPrecip	1.0303	16
Ammonia mg/L	1.0257	15	DO, mg/L	1.0291	15	Initial Cyanophyta	1.0300	14
DO, mg/L	1.0235	18	Odor	1.0274	16	Passaic Streamflow	1.0156	15
BOD, mg/L	1.0221	19	Pompton Streamflow	1.0270	15	Ammonia mg/L	1.0153	18
PrevPrecip	1.0199	18	Ammonia mg/L	1.0233	16	pH	1.0133	18
WindDir	1.0173	17	WkPrecip	1.0229	17	DO, mg/L	1.0131	19
Initial Chlorophyta	1.0153	16	WindSpeed	1.0197	20	Temp 0C	1.0127	16
Turbidity NTU	1.0136	23	USGSPompton	1.0175	20	PointRes	1.0119	17
USGSPompton	1.0123	22	PointRes	1.0140	21	Initial Chlorophyta	1.0105	19
TOC, mg/L	1.0115	19	Nitrite/Nitrate	1.0136	22	WindSpeed	1.0081	21
SkyCover	1.0112	22	Conductivity umhos/cm	1.0085	18	JAPS	1.0057	19
Chloride mg/L	1.0100	20	Turbidity NTU	1.0072	20	TOC, mg/L	1.0038	22
Passaic Streamflow	1.0085	21	TotalPhosphorus/Orthophosphorus	1.0057	23	Conductivity umhos/cm	1.0037	22
Initial Cyanophyta	1.0072	21	BOD, mg/L	1.0055	22	Color, Cu	1.0033	21
JAPS	1.0041	22	PrevPrecip	1.0046	23	BOD, mg/L	1.0031	20
Color, Cu	1.0039	24	Chloride mg/L	1.0015	24	WindDir	1.0026	20
PointRes	0.9994	23	Sulfate mg/L	1.0009	22	Chloride mg/L	0.9903	20
TotalPhosphorus/Orthophosphorus	0.9977	23	SkyCover	0.9948	24	PrevPrecip	0.9814	25
Nitrite/Nitrate	0.9887	27	TOC, mg/L	0.9934	26	Sulfate mg/L	0.9679	18
Initial Chrysophyta	0.9772	21	WindDir	0.9904	23	TotalPhosphorus/Orthophosphorus	0.9421	24

Table 6.16. Average Parameter Ratio values and Rankings from Sensitivity Analysis for Chlorophyta predictions at Station 100

Real time Prediction			1-week Prediction Period			2-week Prediction Period		
Variable	Ratio	Rank	Variable	Ratio	Rank	Variable	Ratio	Rank
Initial Chlorophyta	1.3629	2	Initial Chlorophyta	1.3348	1	Odor	1.1991	2
Odor	1.2959	3	Odor	1.2142	3	Pompton Streamflow	1.1277	3
TOTAL COUNT, CELLS/M	1.1581	12	TOTAL COUNT, CELLS/M	1.1914	11	TSS, mg/L	1.0874	5
HeatingDays	1.1539	8	HeatingDays	1.1387	8	Nitrite/Nitrate	1.0797	8
Nitrite/Nitrate	1.1483	8	Nitrite/Nitrate	1.1046	5	HeatingDays	1.0787	5
Pompton Streamflow	1.1464	9	Pompton Streamflow	1.0943	5	Initial Chlorophyta	1.0648	8
WkPrecip	1.1392	14	WkPrecip	1.0781	13	WindDir	1.0633	9
Hardness, Total mg/L as CaCO ₃	1.1335	11	Temp (0C)	1.0583	12	Hardness, Total mg/L as CaCO ₃	1.0428	13
BOD, mg/L	1.0868	11	Chloride, mg/L	1.0438	18	Passaic Streamflow	1.0364	19
Sulfate, mg/L	1.0782	13	SkyCover	1.0369	18	BOD, mg/L	1.0265	14
TSS, mg/L	1.0775	14	WindDir	1.0280	14	SkyCover	1.0234	17
Passaic Streamflow	1.0611	12	TOC, mg/L	1.0250	13	PrevPrecip	1.0217	15
Initial Chrysophyta	1.0487	13	TSS, mg/L	1.0213	15	Turbidity NTU	1.0189	16
Temp (0C)	1.0465	16	T.Phosphorus/Orthophosphate	1.0210	19	USGS Pompton	1.0170	16
DO, mg/L	1.0356	19	Sulfate, mg/L	1.0202	17	Alkalinity mg/L as CaCO ₃	1.0161	20
SkyCover	1.0347	16	USGS Pompton	1.0179	17	WkPrecip	1.0154	16
Alkalinity mg/L as CaCO ₃	1.0332	19	Hardness, Total mg/L as CaCO ₃	1.0178	20	DO, mg/L	1.0152	19
Conductivity, umhos/cm	1.0313	16	BOD, mg/L	1.0173	20	Initial Cyanophyta	1.0149	18
Initial Cyanophyta	1.0241	19	pH	1.0129	22	Temp (0C)	1.0145	19
Chloride, mg/L	1.0235	18	PrevPrecip	1.0095	18	TOC, mg/L	1.0125	21
WindSpeed	1.0186	20	Ammonia, mg/L	1.0078	22	Sulfate, mg/L	1.0123	19
TOC, mg/L	1.0185	15	Passaic Streamflow	1.0077	17	Conductivity, umhos/cm	1.0120	20
UV-254, cm-1	1.0119	21	PointRes	1.0059	19	Chloride, mg/L	1.0084	20
Ammonia, mg/L	1.0116	19	DO, mg/L	1.0053	23	TOTAL COUNT, CELLS/M	1.0075	21
pH	1.0105	22	Turbidity NTU	1.0046	21	pH	1.0075	23
Turbidity NTU	1.0066	21	WindSpeed	1.0040	20	PointRes	1.0057	19
T.Phosphorus/Orthophosphate	1.0065	21	Initial Cyanophyta	1.0026	17	WindSpeed	1.0043	19
USGS Pompton	1.0063	22	UV-254, cm-1	1.0010	19	T.Phosphorus/Orthophosphate	1.0031	22
JAPS	1.0047	24	JAPS	1.0007	21	Initial Chrysophyta	1.0000	21
PrevPrecip	1.0019	20	Alkalinity mg/L as CaCO ₃	0.9981	22	UV-254, cm-1	0.9982	21
PointRes	1.0000	27	Initial Chrysophyta	0.9978	21	JAPS	0.9934	25
WindDir	0.9926	26	Conductivity, umhos/cm	0.9947	23	Ammonia, mg/L	0.9890	19

Table 6.17. Average Parameter Ratio values and Rankings from Sensitivity Analysis for Chlorophyta predictions at Station 101

Real time Prediction			1-week Prediction Period			2-week Prediction Period		
Variable	Ratio	Rank	Variable	Ratio	Rank	Variable	Ratio	Rank
PointResPVR	1.6249	5	Total Amorphous Material	1.2324	1	Initial Chlorophyta	1.5787	3
Initial Cyanophyta	1.2834	11	Initial Chlorophyta	1.1230	5	PointResPVR	1.5165	2
Total Count, cells/ml	1.2717	4	Initial Cyanophyta	1.1114	15	Total Amorphous Material	1.1926	3
Initial Chlorophyta	1.2714	3	T.Phosphorus/Orthophosphate	1.0509	15	BOD, mg/L	1.1364	4
Total Amorphous Material	1.2374	9	Total Count, cells/ml	1.0508	15	Total Count, cells/ml	1.0609	13
HeatingDays	1.0819	17	Odor	1.0443	7	Color, Cu	1.0490	12
SkyCover	1.0740	14	SkyCover	1.0360	15	TOC, mg/L	1.0434	19
UV254 cm-1	1.0642	13	HeatingDays	1.0345	14	Odor	1.0424	15
Odor	1.0487	16	Temp 0C	1.0318	12	Temp 0C	1.0420	16
DO, mg/L	1.0317	16	WkPrecip	1.0262	12	Sulfate mg/L	1.0415	12
TOC, mg/L	1.0312	9	PointResPVR	1.0255	12	Initial Cyanophyta	1.0402	12
Color, Cu	1.0283	16	BOD, mg/L	1.0252	12	Nitrite/Nitrate	1.0398	14
Conductivity umhos/cm	1.0269	13	Hardness Total, mg/L as CaCO3	1.0241	17	Pompton WSPSQ	1.0388	12
Temp 0C	1.0260	17	pH	1.0236	18	Turbidity NTU	1.0346	17
Hardness Total, mg/L as CaCO3	1.0253	13	JAPS	1.0233	17	Hardness Total, mg/L as CaCO3	1.0238	16
WindDir	1.0202	14	USGSPompton	1.0225	13	Conductivity umhos/cm	1.0189	20
pH	1.0175	18	Passaic WSPS	1.0210	17	UV254 cm-1	1.0160	19
Alkalinity mg/L as CaCO3	1.0159	19	Sulfate mg/L	1.0179	17	SkyCover	1.0154	16
PrevPrecip	1.0135	15	Nitrite/Nitrate	1.0156	16	Ammonia mg/L	1.0144	19
Chloride mg/L	1.0091	18	Turbidity NTU	1.0139	18	HeatingDays	1.0144	17
WkPrecip	1.0067	22	Initial Chrysophyta	1.0136	20	Passaic WSPS	1.0126	18
Nitrite/Nitrate	1.0067	17	Ammonia mg/L	1.0133	17	DO, mg/L	1.0122	20
BOD, mg/L	1.0052	21	TOC, mg/L	1.0078	22	WkPrecip	1.0121	20
Initial Chrysophyta	1.0047	20	UV254 cm-1	1.0078	20	JAPS	1.0020	21
Passaic WSPS	1.0040	22	WindDir	1.0066	22	Initial Chrysophyta	1.0012	21
Sulfate mg/L	1.0034	20	Pompton WSPSQ	1.0059	21	PrevPrecip	0.9993	20
Ammonia mg/L	1.0010	20	PrevPrecip	1.0057	24	Alkalinity mg/L as CaCO3	0.9982	20
Turbidity NTU	0.9998	22	Alkalinity mg/L as CaCO3	1.0054	21	WindSpeed	0.9970	23
WindSpeed	0.9997	22	Chloride mg/L	1.0032	22	Chloride mg/L	0.9945	21
JAPS	0.9980	24	Conductivity umhos/cm	1.0020	23	T.Phosphorus/Orthophosphate	0.9920	25
Pompton WSPSQ	0.9956	26	DO, mg/L	1.0000	20	pH	0.9903	25
USGSPompton	0.9955	23	WindSpeed	0.9976	25	WindDir	0.9899	23
T.Phosphorus/Orthophosphate	0.9935	21	Color, Cu	0.9968	22	USGSPompton	0.9606	23

Table 6.18. Average Parameter Ratio values and Rankings from Sensitivity Analysis for Chlorophyta predictions at Station 612

Real time Prediction			1-week Prediction Period			2-week Prediction Period		
Variable	Ratio	Rank	Variable	Ratio	Rank	Variable	Ratio	Rank
Alkalinity mg/L as CaCO ₃	1.4280	12	UV254 cm-1	1.3713	16	Odor	1.2192	5
Total Amorphous Material	1.2381	8	Nitrite/Nitrate	1.2836	6	DO, mg/L	1.0748	12
Odor	1.1921	4	Hardness Total, mg/L as CaCO ₃	1.2419	8	Initial Chlorophyta	1.0729	12
HeatingDays	1.1475	7	USGSPompton	1.2344	4	WkPrecip	1.0623	10
Hardness Total, mg/L as CaCO ₃	1.1387	13	Passaic Streamflow	1.2009	14	Total Amorphous Material	1.0622	13
UV254 cm-1	1.1244	10	WkPrecip	1.1676	8	Ammonia mg/L	1.0573	14
Turbidity NTU	1.0875	15	Conductivity umhos/cm	1.1628	11	WindDir	1.0566	8
Initial Chlorophyta	1.0829	9	Initial Chlorophyta	1.1275	17	UV254 cm-1	1.0486	8
WkPrecip	1.0618	10	Total Amorphous Material	1.1106	11	Temp 0C	1.0420	17
Ammonia mg/L	1.0583	18	Total Count, cells/ml	1.0905	14	Pompton Streamflow	1.0363	12
Sulfate mg/L	1.0557	10	BOD, mg/L	1.0741	12	Hardness Total, mg/L as CaCO ₃	1.0323	18
Temp 0C	1.0552	15	PrevPrecip	1.0738	16	HeatingDays	1.0303	13
DO, mg/L	1.0537	14	pH	1.0531	16	BOD, mg/L	1.0260	15
Color, Cu	1.0444	18	SkyCover	1.0420	14	PrevPrecip	1.0239	15
SkyCover	1.0361	14	WindSpeed	1.0323	19	SkyCover	1.0220	15
Conductivity umhos/cm	1.0354	13	Sulfate mg/L	1.0310	18	Sulfate mg/L	1.0216	19
Initial Chrysophyta	1.0271	20	HeatingDays	1.0296	18	Color, Cu	1.0211	16
WindSpeed	1.0236	16	TotalPhosphorus/Orthophosphorus	1.0216	15	Chloride mg/L	1.0182	14
Pompton Streamflow	1.0207	17	Color, Cu	1.0176	23	USGSPompton	1.0180	18
Initial Cyanophyta	1.0128	17	Initial Chrysophyta	1.0105	22	Nitrite/Nitrate	1.0167	19
TotalPhosphorus/Orthophosphorus	1.0104	21	Alkalinity mg/L as CaCO ₃	1.0105	21	PointRes	1.0151	17
pH	1.0097	22	TOC, mg/L	1.0078	17	JAPS	1.0121	17
Total Count, cells/ml	1.0073	21	WindDir	1.0062	22	Passaic Streamflow	1.0098	17
PointRes	1.0056	23	Chloride mg/L	1.0050	19	Initial Cyanophyta	1.0085	20
JAPS	1.0049	24	JAPS	1.0008	18	Turbidity NTU	1.0065	21
Passaic Streamflow	1.0036	20	Ammonia mg/L	0.9927	18	WindSpeed	1.0053	19
TOC, mg/L	1.0015	20	Pompton Streamflow	0.9859	23	TOC, mg/L	1.0047	20
Chloride mg/L	0.9998	23	DO, mg/L	0.9798	22	Total Count, cells/ml	1.0002	19
WindDir	0.9985	23	Turbidity NTU	0.9760	23	pH	0.9949	21
PrevPrecip	0.9934	22	Temp 0C	0.9740	22	Conductivity umhos/cm	0.9923	24
BOD, mg/L	0.9922	24	Initial Cyanophyta	0.9636	19	Alkalinity mg/L as CaCO ₃	0.9849	24
Nitrite/Nitrate	0.9860	24	PointRes	0.9629	21	TotalPhosphorus/Orthophosphorus	0.9648	21
USGSPompton	0.9110	19	Odor	0.9443	20	Initial Chrysophyta	0.9635	25

Table 6.19. Statistical Comparison of ANN and LM performance

CYANOBACTERIA	Station 100		Station 101		Station 612	
	ANN	LM	ANN	LM	ANN	LM
Real-Time Mean Absolute Error	15.01	41.25	2.82	10.37	32.93	93.2
Real-Time Correlation Coefficient	0.96	0.46	0.97	0.0039	0.93	0.5
One-Week Mean Absolute Error	22.55	50.08	2.25	5.85	11.38	24.19
One-Week Correlation Coefficient	0.94	0.13	0.95	0.35	0.99	0.5
Two-Week Mean Absolute Error	15.48	42.86	4.56	16.8	22.39	43.57
Two-Week Correlation Coefficient	0.96	0.49	0.94	0.42	0.94	0.5

CHRYSTOPHYTA	Station 100		Station 101		Station 612	
	ANN	LM	ANN	LM	ANN	LM
Real-Time Mean Absolute Error	35.97	66.0471	37.93	38.72	42.15	106.25
Real-Time Correlation Coefficient	0.86	0.2310	0.39	0.65	0.84	0.18
One-Week Mean Absolute Error	42.88	89.9135	31.11	29.40	50.55	44.39
One-Week Correlation Coefficient	0.85	0.1818	0.75	0.48	0.75	0.78
Two-Week Mean Absolute Error	28.64	78.1125	26.52	23.56	20.83	23.33
Two-Week Correlation Coefficient	0.89	0.4744	0.59	0.62	0.73	0.54

CHLOROPHYTA	Station 100		Station 101		Station 612	
	ANN	LM	ANN	LM	ANN	LM
Real-Time Mean Absolute Error	37.47	71.7835	14.28	30.99	27.75	94.34
Real-Time Correlation Coefficient	0.75	0.5899	0.89	0.65	0.76	0.24
One-Week Mean Absolute Error	30.57	40.5150	14.95	33.43	19.89	29.03
One-Week Correlation Coefficient	0.73	0.6825	0.94	0.65	0.91	0.32
Two-Week Mean Absolute Error	30.91	53.5609	25.53	30.02	15.30	20.12
Two-Week Correlation Coefficient	0.75	0.5038	0.81	0.57	0.96	0.61



APPENDIX A-3d

**PVWC (INITIAL) ORIGINAL MODELING
ANN Models for combined data
from three stations**

1. DESCRIPTIVE STATISTICS

Statistics	Real-time Predictions			
	Overall	Training	Selection	Test
Data Mean	29.52	38.22	22.96	18.45
Data S.D.	128.99	169.30	75.57	53.63
Error Mean	3.60	-0.87	-10.94	27.21
Error S.D.	147.57	95.37	70.19	252.02
Abs E. Mean	38.05	34.32	28.94	54.70
S.D. Ratio	1.14	0.56	0.93	4.70
Correlation	0.45	0.84	0.38	0.06

Statistics	One-week ahead Predictions			
	Overall	Training	Selection	Test
Data Mean	30.23	48.70	8.65	14.58
Data S.D.	131.82	179.28	33.17	49.89
Error Mean	3.03	-3.11	16.70	1.72
Error S.D.	84.81	113.86	19.87	45.71
Abs E. Mean	32.09	43.10	20.09	21.91
S.D. Ratio	0.64	0.64	0.60	0.92
Correlation	0.77	0.77	0.83	0.51

Statistics	Two-weeks ahead Predictions			
	Overall	Training	Selection	Test
Data Mean	33.74	59.50	9.40	6.16
Data S.D.	141.18	193.93	35.86	15.81
Error Mean	-1.62	-12.33	9.95	8.39
Error S.D.	66.12	89.14	28.16	16.83
Abs E. Mean	27.21	36.99	19.10	15.59
S.D. Ratio	0.47	0.46	0.79	1.06
Correlation	0.88	0.89	0.62	-0.03

2. CHRYSOPHYTA

Statistics	Real-time Predictions			
	Overall	Training	Selection	Test
Data Mean	78.24	75.16	84.96	77.75
Data S.D.	86.99	86.04	101.41	71.54
Error Mean	0.31	4.88	-11.76	3.13
Error S.D.	66.61	54.44	79.98	72.58
Abs E. Mean	43.74	38.78	43.80	53.72
S.D. Ratio	0.77	0.63	0.79	1.01
Correlation	0.65	0.77	0.62	0.37

Statistics	One-week ahead Predictions			
	Overall	Training	Selection	Test
Data Mean	77.21	75.85	83.61	73.61
Data S.D.	83.73	80.88	104.01	64.10
Error Mean	-3.26	-1.93	-6.30	-2.95
Error S.D.	61.47	51.15	71.97	68.90
Abs E. Mean	38.58	33.72	44.84	42.28
S.D. Ratio	0.73	0.63	0.69	1.07
Correlation	0.69	0.77	0.72	0.45

Statistics	Two- weeks ahead Predictions			
	Overall	Training	Selection	Test
Data Mean	86.60	95.24	77.43	78.10
Data S.D.	106.97	121.53	102.11	73.04
Error Mean	1.21	-2.53	9.04	1.03
Error S.D.	63.55	62.12	52.49	74.82
Abs E. Mean	45.16	43.60	41.06	52.43
S.D. Ratio	0.59	0.51	0.51	1.02
Correlation	0.81	0.86	0.87	0.31

3. CHLOROPHYTA

Statistics	Real-time Predictions			
	Overall	Training	Selection	Test
Data Mean	46.69	42.89	57.72	43.43
Data S.D.	81.31	69.19	96.61	86.30
Error Mean	-3.88	0.60	-1.15	-15.78
Error S.D.	54.46	36.65	62.48	71.74
Abs E. Mean	31.48	23.13	40.69	39.31
S.D. Ratio	0.67	0.53	0.65	0.83
Correlation	0.74	0.85	0.76	0.56

Statistics	One-week ahead Predictions			
	Overall	Training	Selection	Test
Data Mean	46.63	43.47	50.79	48.82
Data S.D.	79.50	68.74	104.94	69.29
Error Mean	-1.77	0.68	-6.96	-1.52
Error S.D.	48.87	29.27	53.38	70.55
Abs E. Mean	28.58	20.55	33.20	40.16
S.D. Ratio	0.61	0.43	0.51	1.02
Correlation	0.80	0.91	0.86	0.57

Statistics	Two-weeks ahead Predictions			
	Overall	Training	Selection	Test
Data Mean	46.99	44.59	44.38	54.49
Data S.D.	77.45	68.42	67.34	100.31
Error Mean	-0.86	-0.07	-0.30	-3.00
Error S.D.	61.73	52.91	47.78	85.93
Abs E. Mean	34.42	30.66	31.90	44.59
S.D. Ratio	0.80	0.77	0.71	0.86
Correlation	0.60	0.63	0.70	0.52

1. CYANOBACTERIA

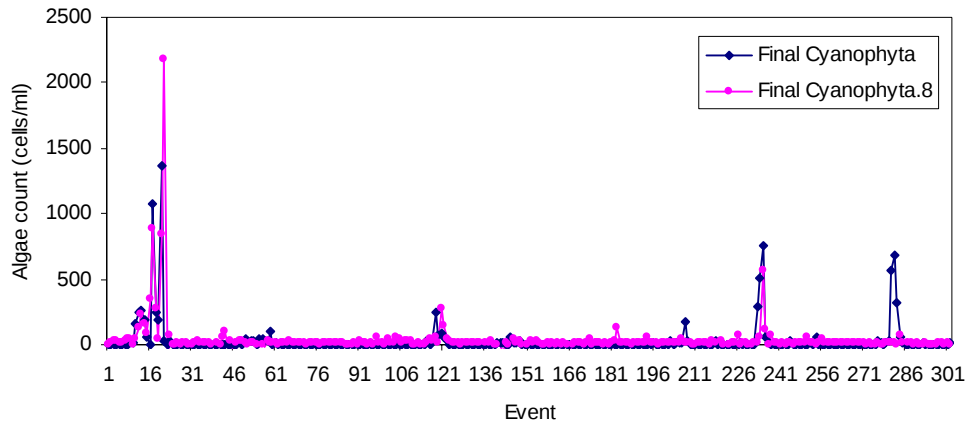


Figure 1.1. Time-series plot of measured cyanobacteria counts from all three stations against ANN real-time predicted values

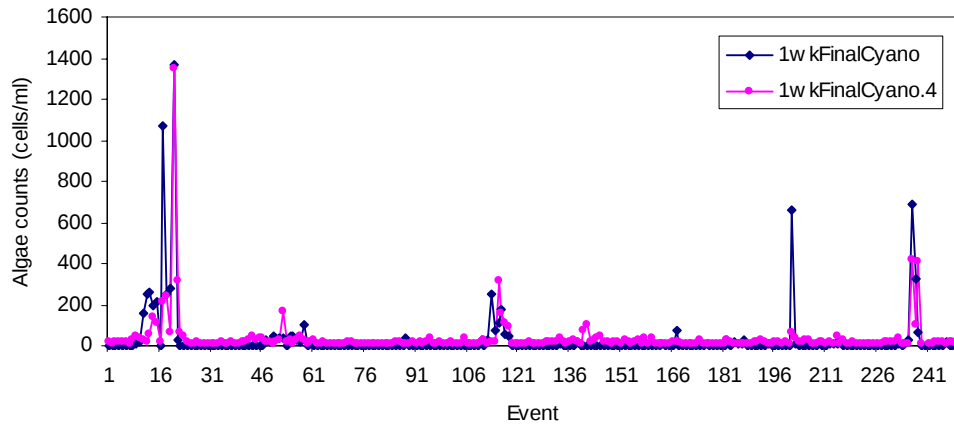


Figure 1.2. Time-series plot of measured cyanobacteria counts from all three stations against ANN one-week ahead predicted values

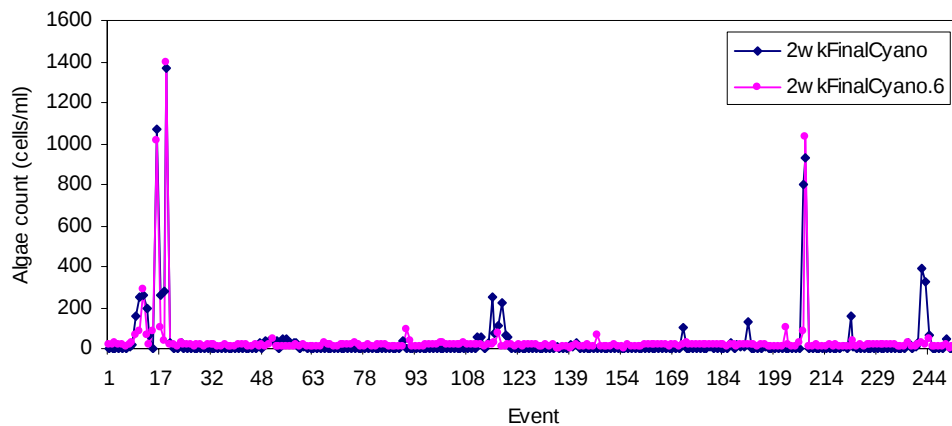


Figure 2.3. Time-series plot of measured cyanobacteria counts from all three stations against ANN two-week ahead predicted values

2. CHRYSOPHYTA

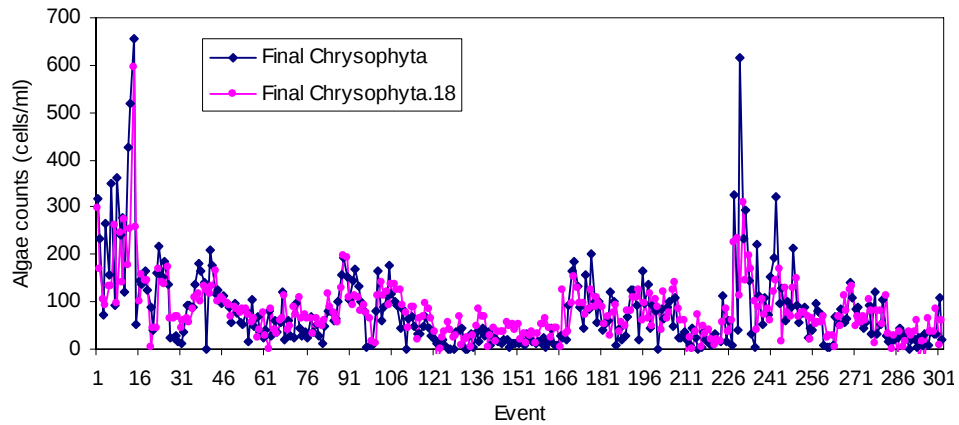


Figure 2.1. Time-series plot of measured chrysophytes counts from all three stations against ANN real-time predicted values

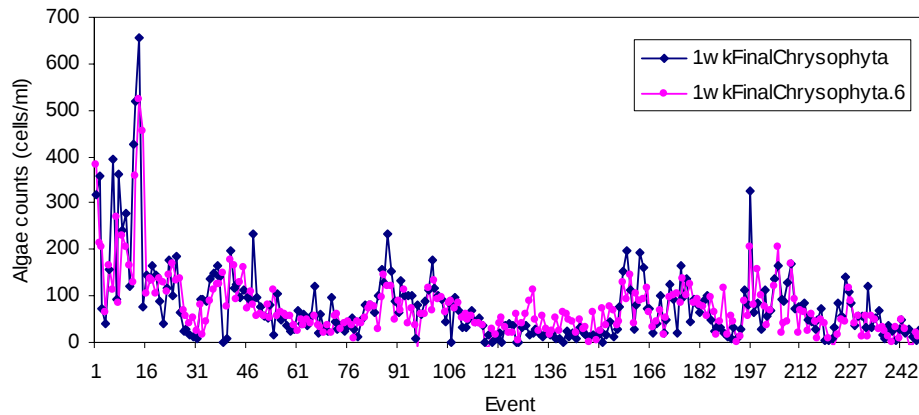


Figure 2.2. Time-series plot of measured chrysophytes counts from all three stations against ANN one-week ahead predicted values

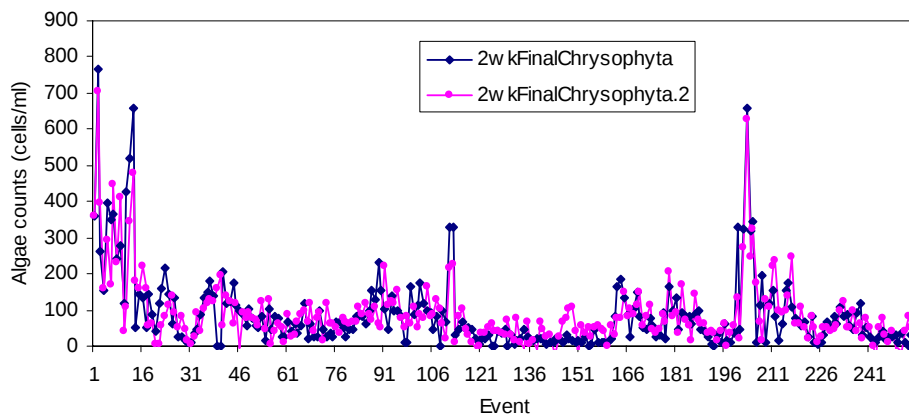


Figure 2.3. Time-series plot of measured chrysophytes counts from all three stations against ANN two-week ahead predicted values

3. CHLOROPHYTA

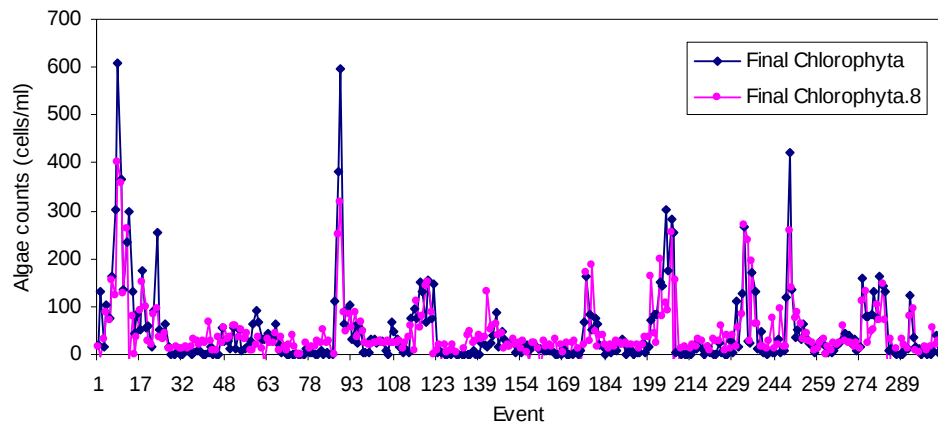


Figure 2.1. Time-series plot of measured chlorophyta counts from all three stations against ANN real-time predicted values

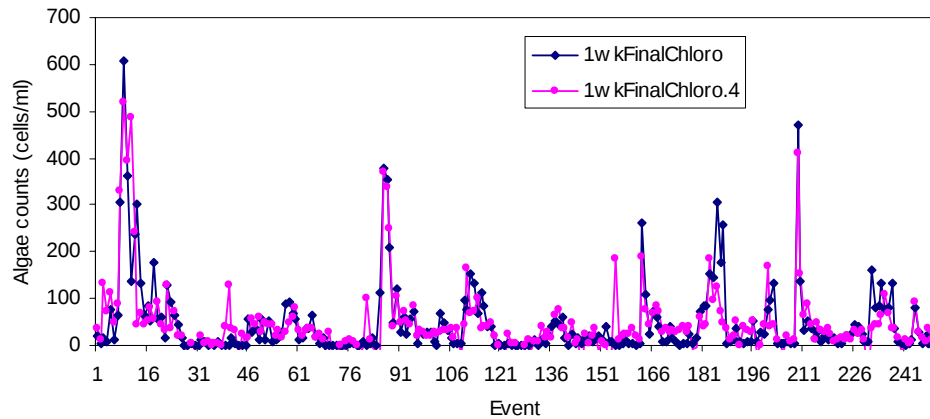


Figure 3.2. Time-series plot of measured chlorophyta counts from all three stations against ANN one-week ahead predicted values

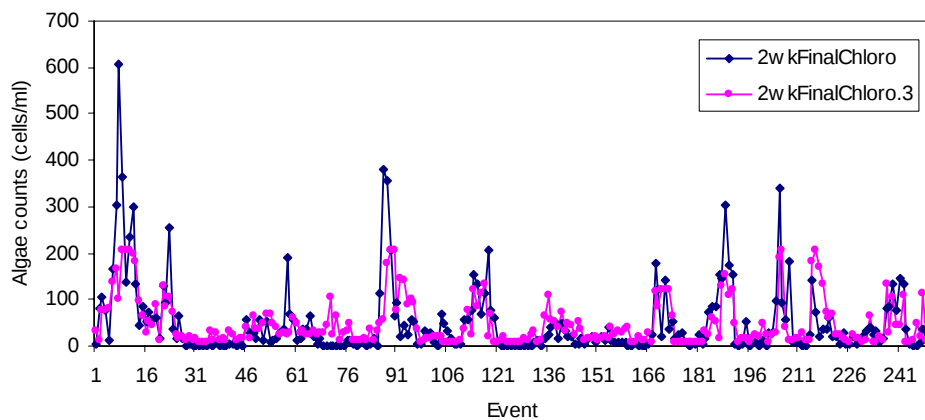


Figure 3.3. Time-series plot of measured chlorophyta counts from all three stations against ANN two-week ahead predicted values

NOAH[®] **APPENDIX B-1**

WATER TREATMENT MODELING
Figures

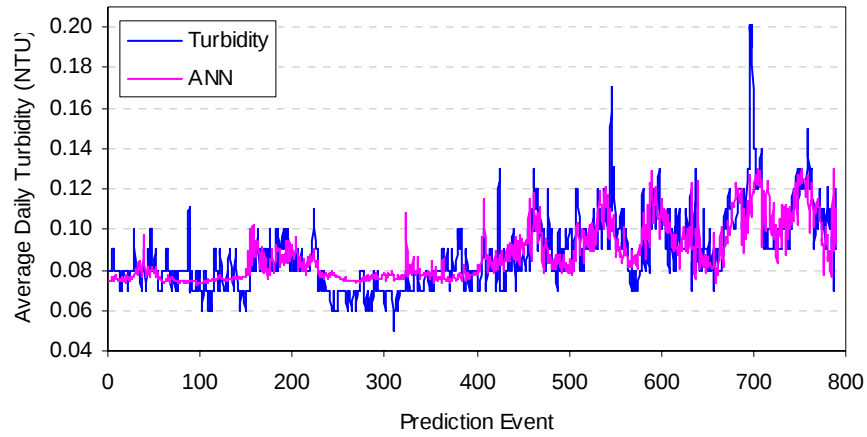


Figure 1.

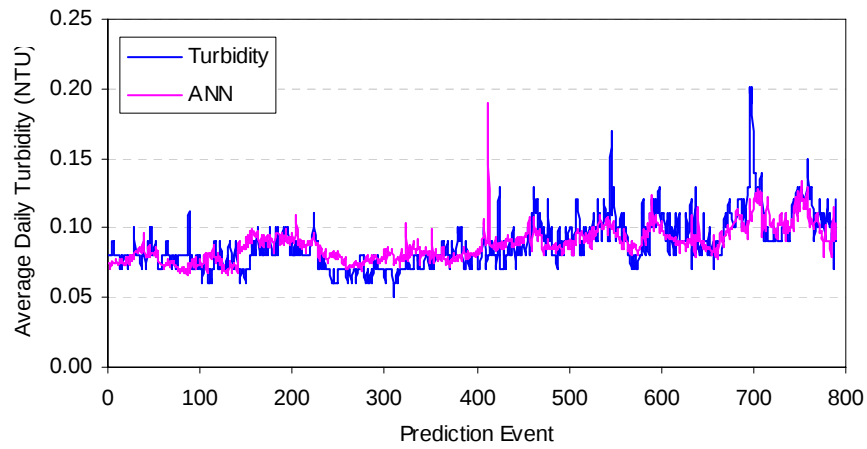


Figure 2.

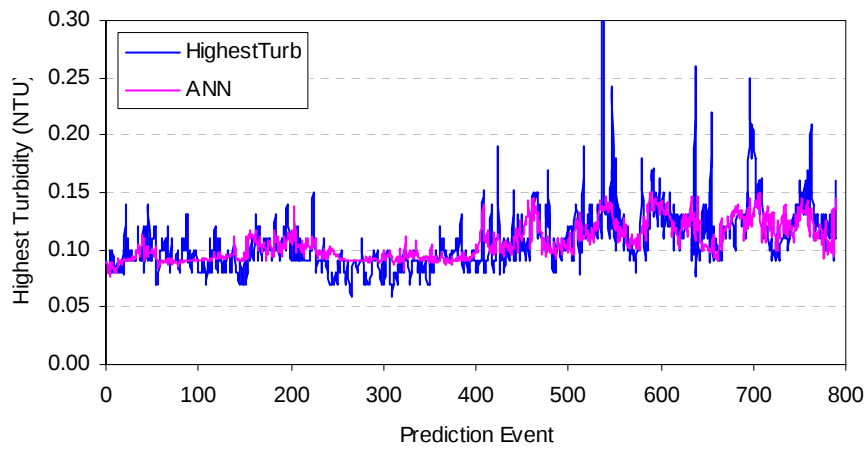


Figure 3.

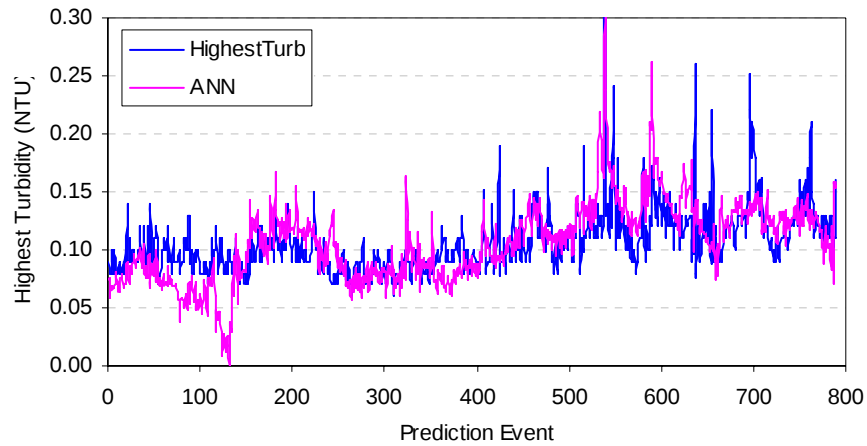


Figure 4.

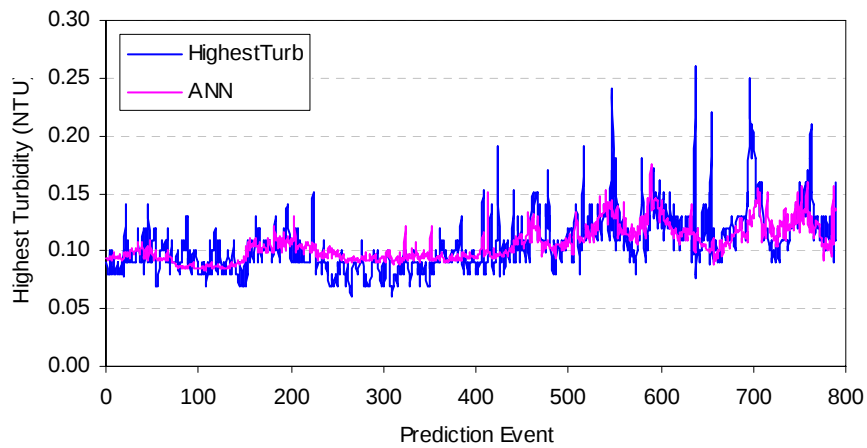


Figure 5.

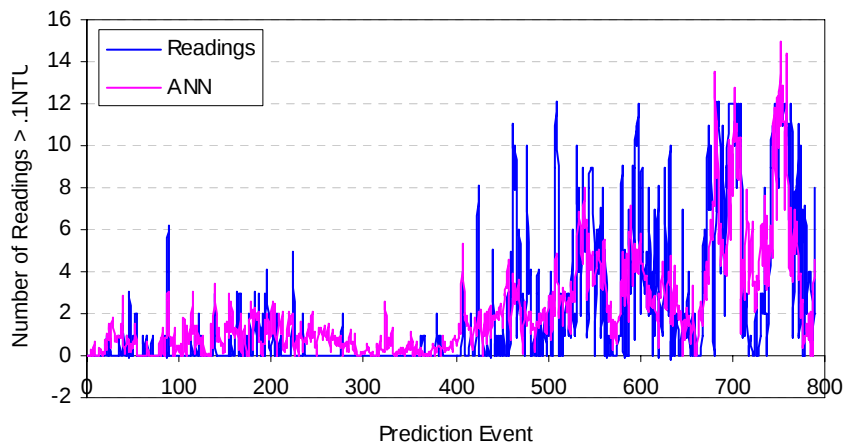


Figure 6.

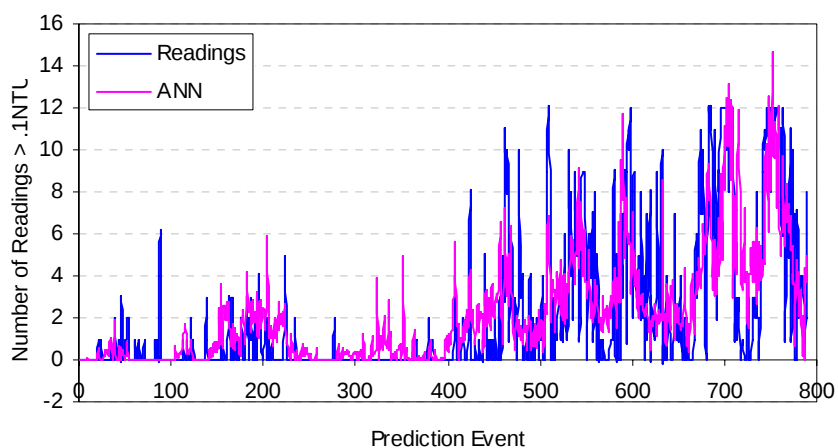


Figure 7. (from worksheet RegResults up to this point)

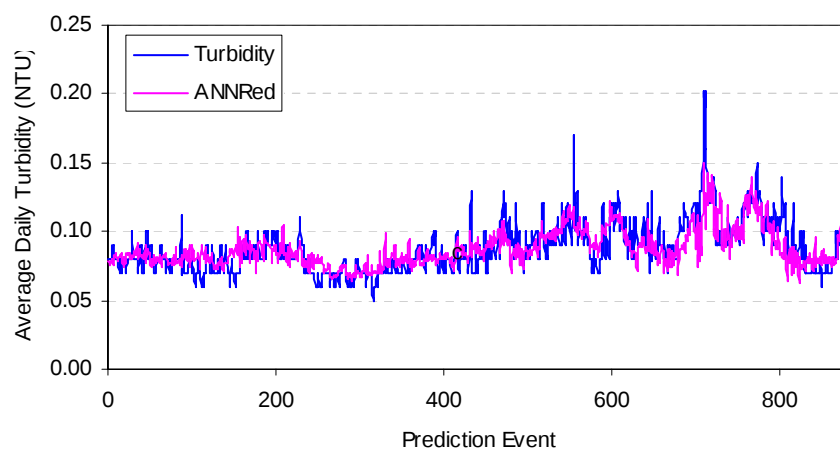


Figure 8. (from worksheet RegResFewer from this point onward)

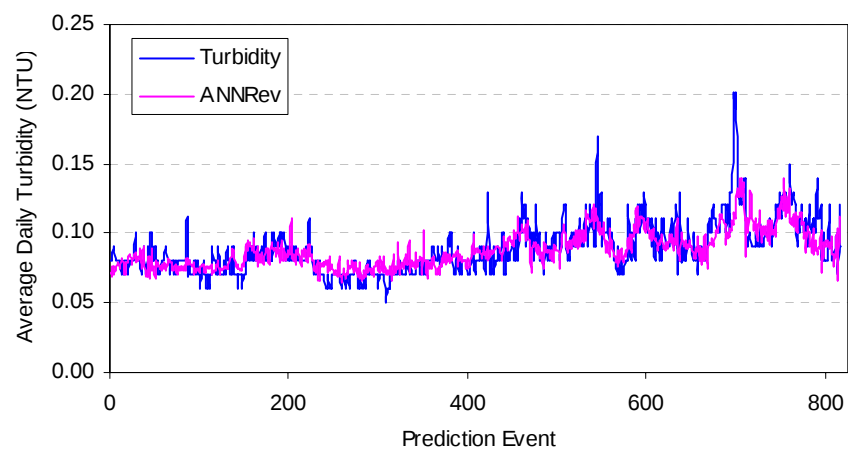


Figure 9.

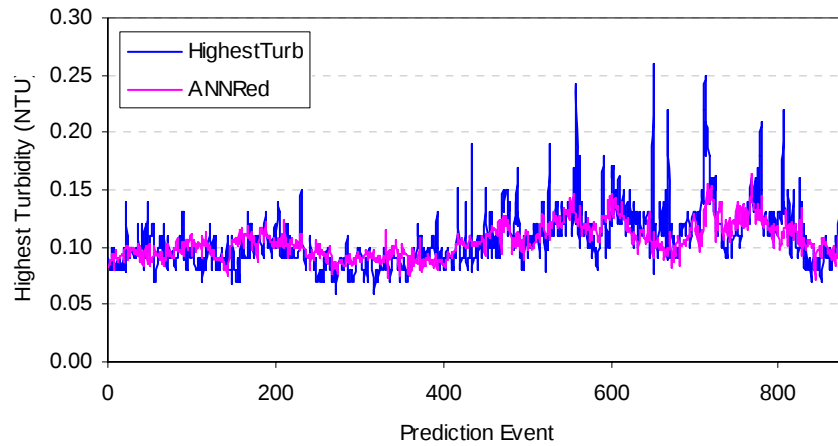


Figure 10.

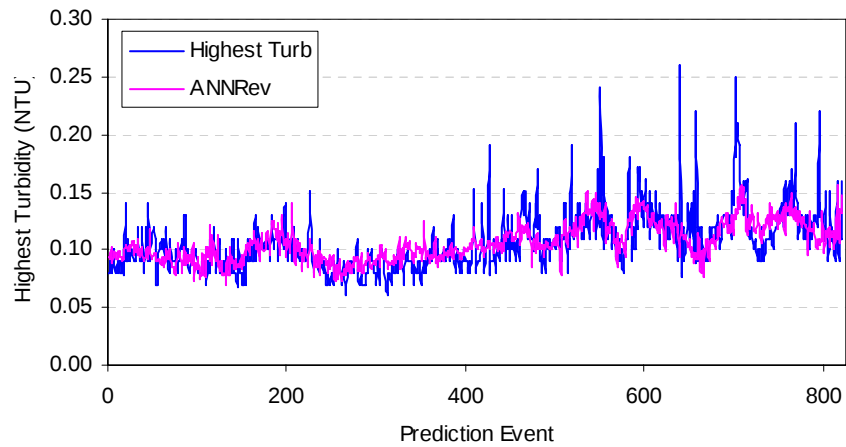


Figure 11.

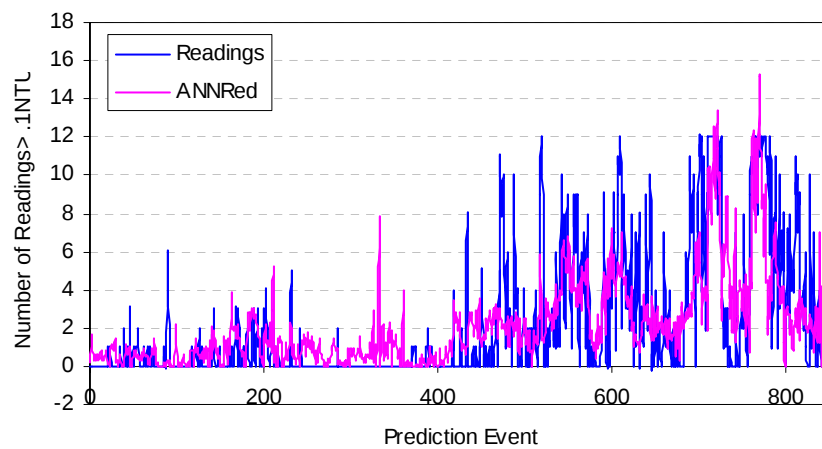


Figure 12.

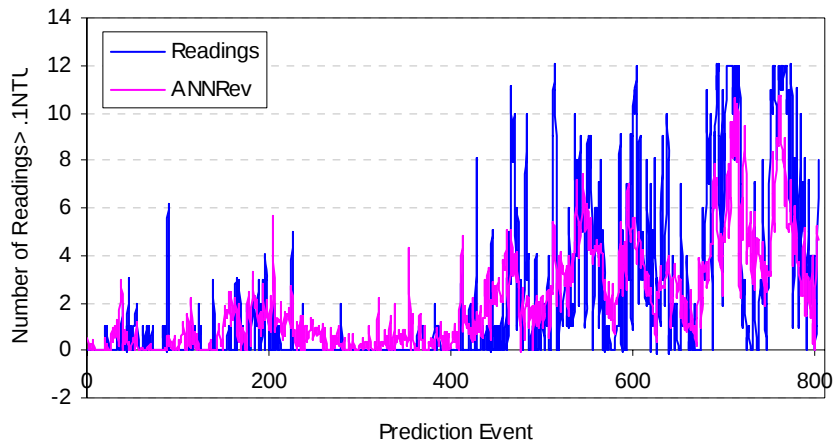


Figure 13. (end of RegResFewer figures)

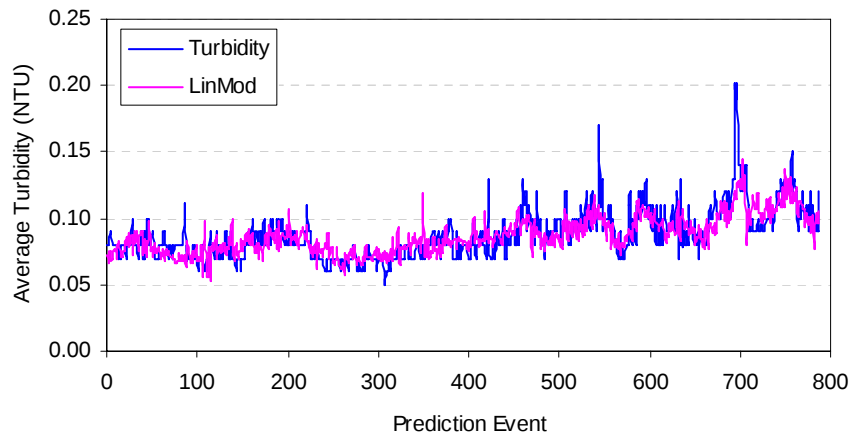


Figure 14. (start of figures from worksheet RegLinMod)

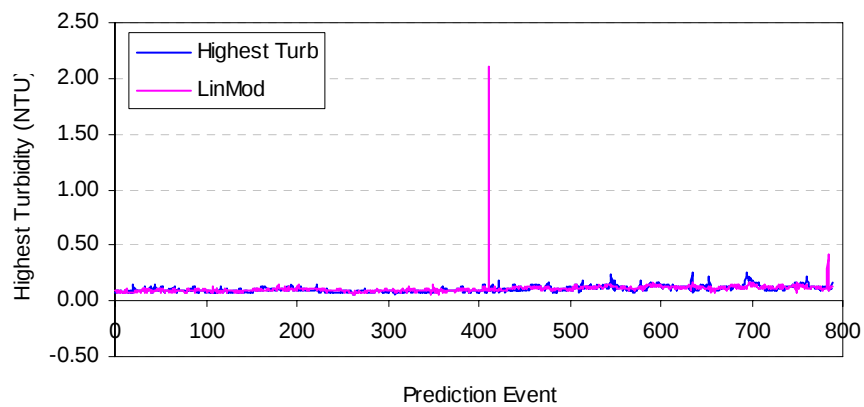


Figure 15.

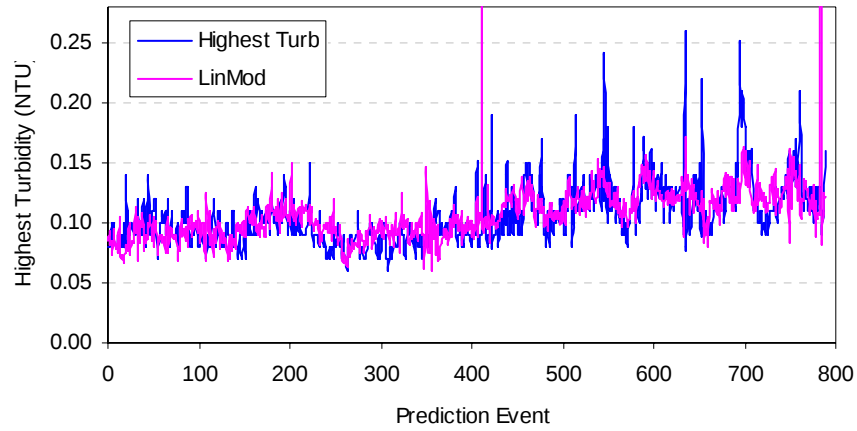


Figure 16.

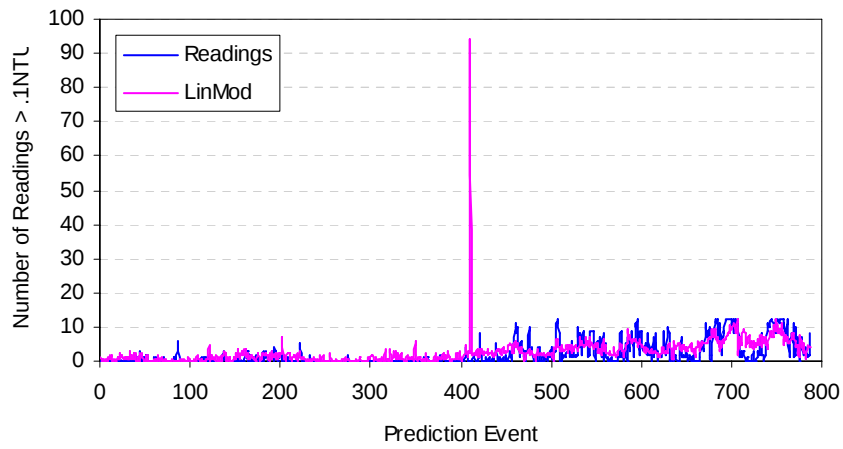


Figure 17.

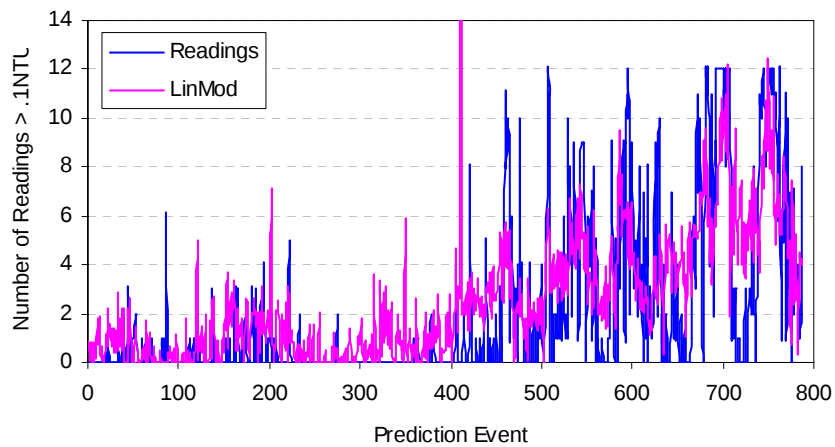


Figure 18. (end of RegLinMod)

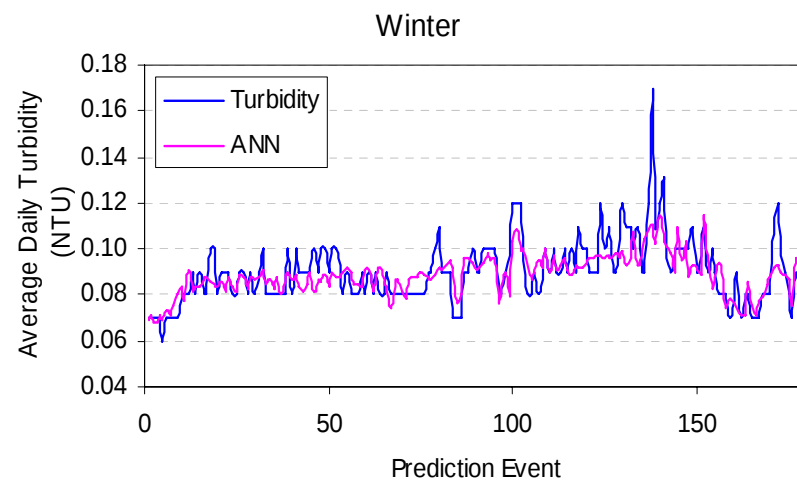
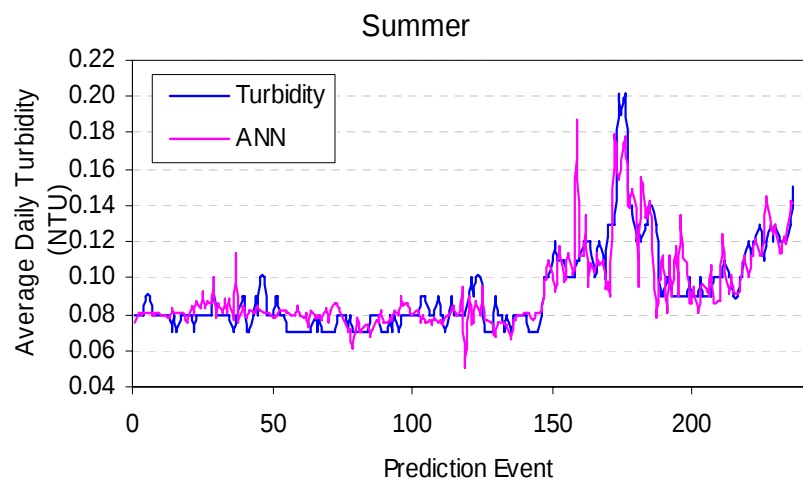
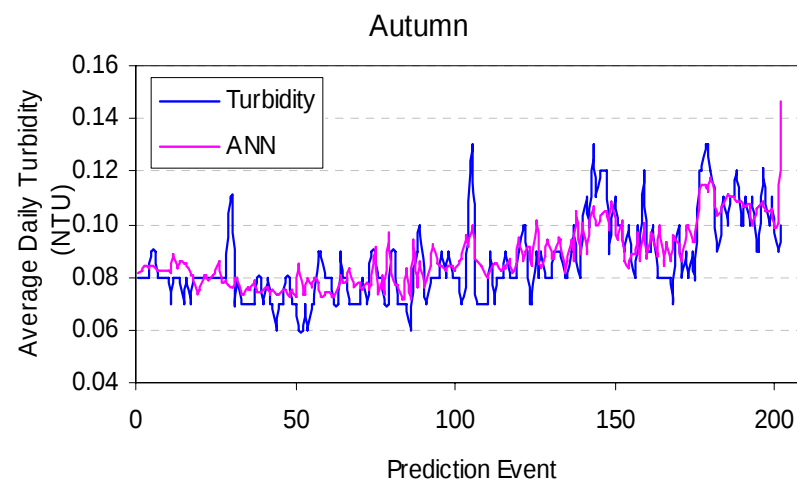
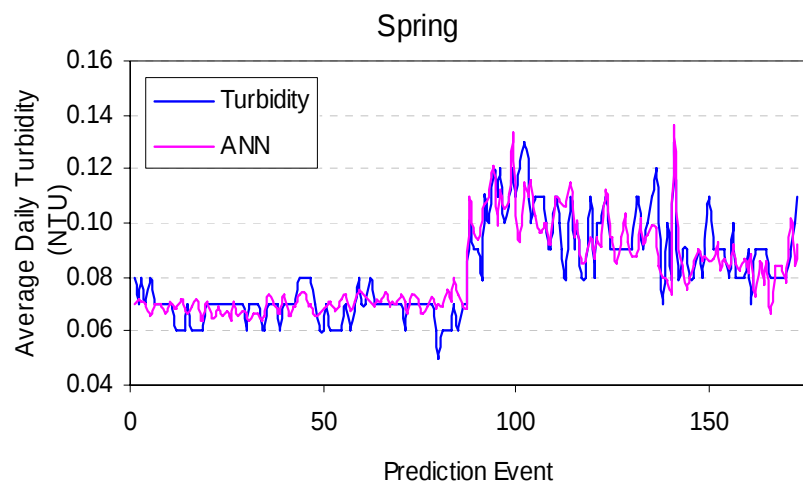


Figure 19. SeasonalRes

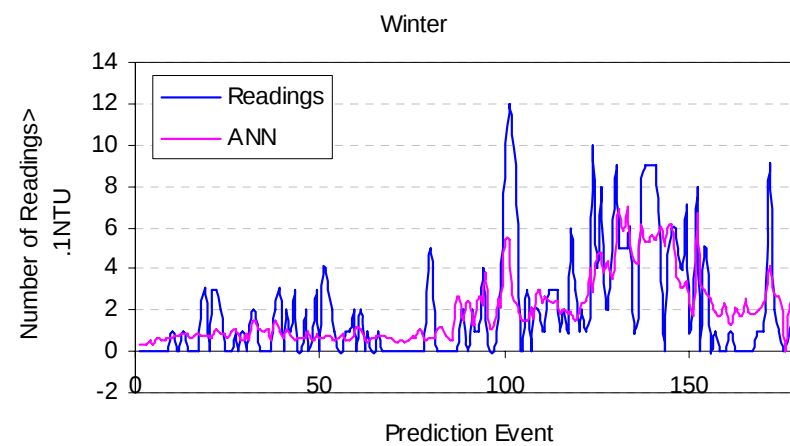
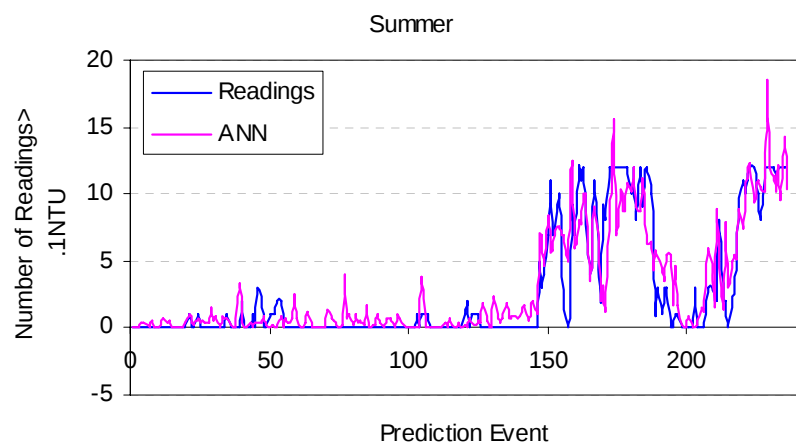
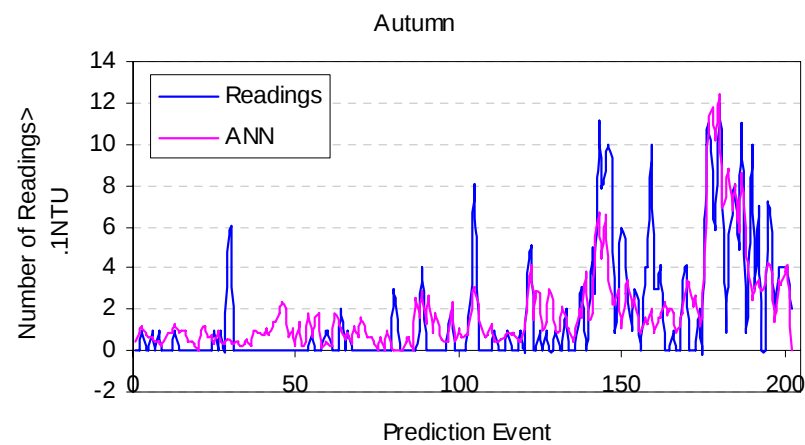
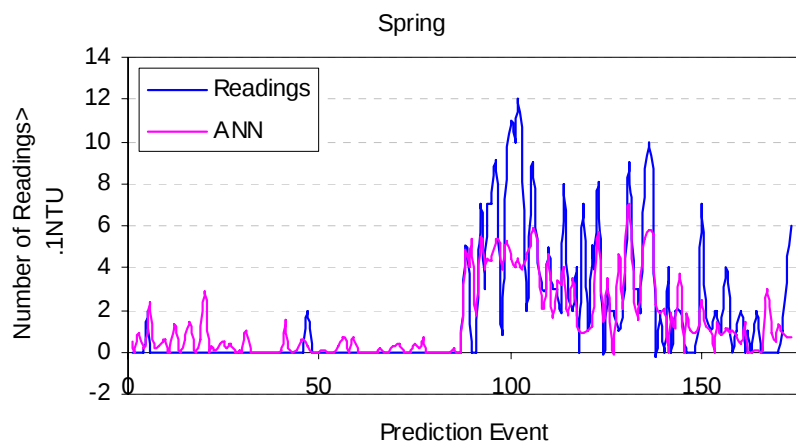


Figure 20. Seasonal

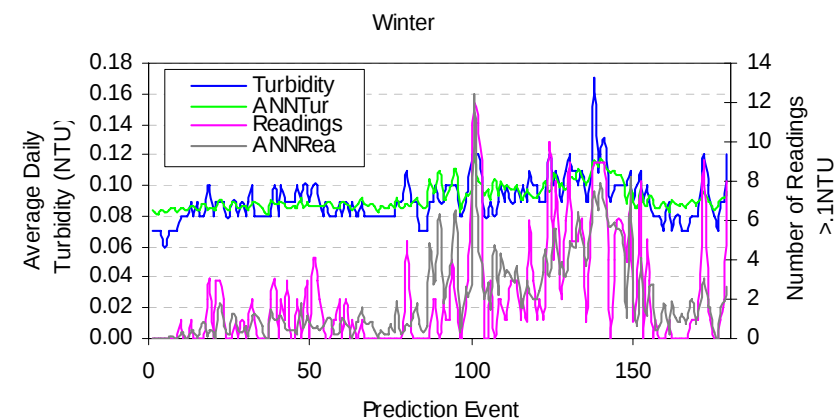
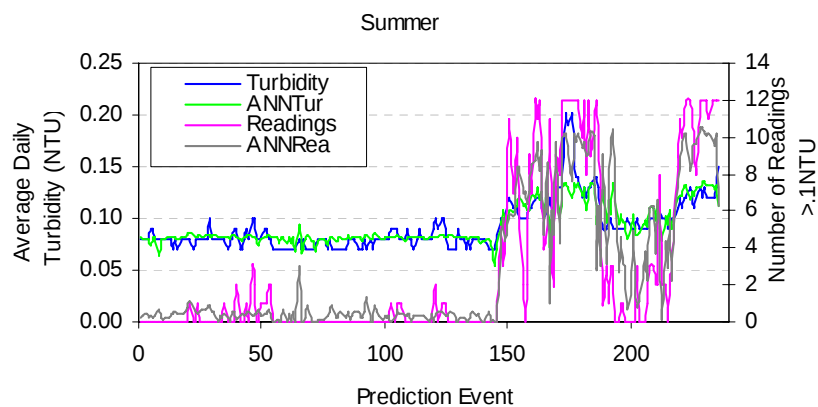
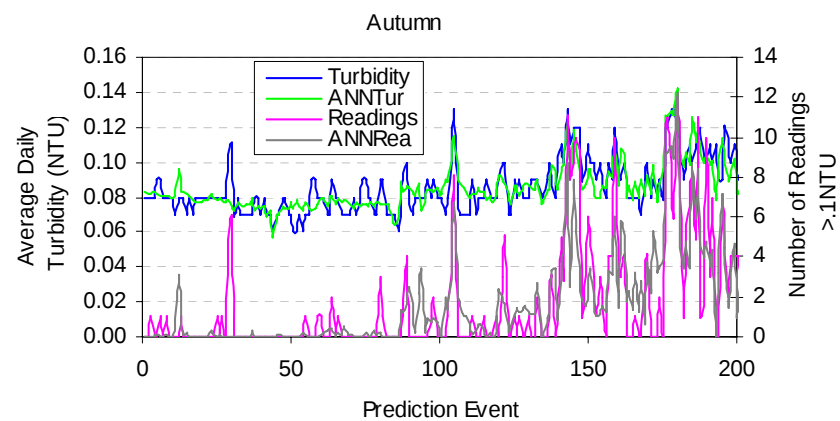
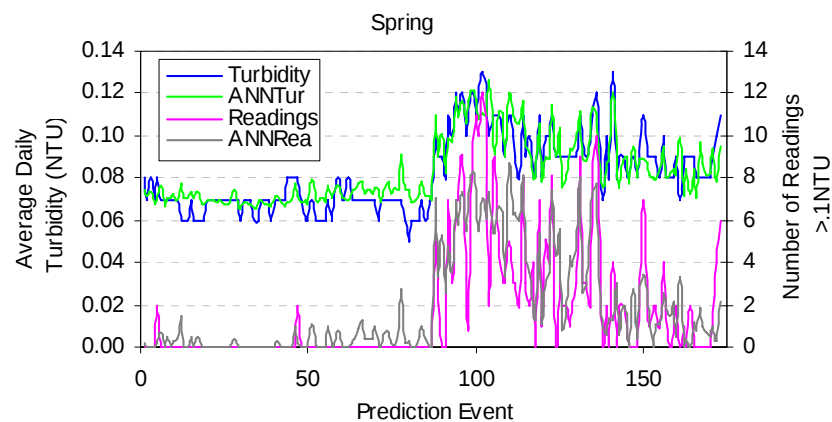


Figure 21. (end of SeasRes)

WATER TREATMENT MODELING
Sensitivity Analyses Tables

Table 1.

A				B			
1	Temp Raw °C	Var45	1.087	1	Turbidity Settled NTU	Var35	1.0618
2	Turbidity Settled NTU	Var35	1.037	2	Chlorine mix mg/l	Var41	1.0213
3	Chlorine mix mg/l	Var41	1.0348	3	Filters Washed/24H	Var3	1.0156
4	Chlorine Eff mg/l	Var44	1.0286	4	Chlorine Eff mg/l	Var44	1.0143
5	Filters Washed/24H	Var3	1.0206	5	Chlorine PPM/24H	Var24	1.0127
6	Temp Eff °C	Var46	1.0203	6	Temp Raw °C	Var45	1.0115
7	Chlorine PPM/24H	Var24	1.0164	7	Polyaluminum chloride gals/24H	Var15	1.0114
8	Hydrofluosilicic acid PPM/24H	Var26	1.0151	8	Sysdel SR Midd MGD	Var31	1.011
9	Fluoride avg.mg/l/24H	Var47	1.0117	9	pH Settled	Var39	1.0106
10	Air temp °C min/24H	Var54	1.011	10	Fluoride avg.mg/l/24H	Var47	1.0105
11	CW Lowest level/24H	Var51	1.0092	11	Polyaluminum chloride PPM/24H	Var21	1.0087
12	Sodium hydroxide gals/24H	Var17	1.0076	12	Sysdel NS Midd MGD	Var33	1.007
13	Sysdel NS Midd MGD	Var33	1.0076	13	Chlorine lowest mg/l/24H	Var50	1.0057
14	Zinc orthophosphate lbs/24H	Var12	1.0069	14	Sysdel SR Main MGD	Var30	1.0052
15	Chlorine CW mg/l	Var43	1.0067	15	Zinc orthophosphate lbs/24H	Var12	1.0052
16	pH Settled	Var39	1.0062	16	NaOH PPM/24H	Var23	1.0049
17	Sysdel NS Main MGD	Var32	1.0061	17	pH Raw	Var37	1.0048
18	Raw MGD/24H	Var1	1.0059	18	Temp Eff °C	Var46	1.004
19	Polyaluminum chloride PPM/24H	Var21	1.0058	19	Hydrofluosilicic acid PPM/24H	Var26	1.0037
20	Polymer lbs/24H	Var7	1.0047	20	Polyaluminum chloride lbs/24H	Var6	1.003
21	System Delivery MGD	Var2	1.0045	21	Turbidity Raw NTU	Var34	1.0027
22	Average % solids/liter	Var14	1.0037	22	Average % solids/liter	Var14	1.0027
23	Hydrofluosilicic acid lbs/24H	Var11	1.0035	23	Zinc orthophosphate gals/24H	Var19	1.0024
24	Zinc orthophosphate PPM/24H	Var27	1.0026	24	Polymer PPM/24H	Var22	1.0024
25	pH Raw	Var37	1.0023	25	Sodium hydroxide gals/24H	Var17	1.0023
26	Turbidity Raw NTU	Var34	1.002	26	Peak flow eff MGD/24H	Var53	1.002
27	NaOH PPM/24H	Var23	1.002	27	Carbon lbs/24H	Var5	1.0017
28	Air temp °C max/24H	Var55	1.0015	28	Sodium hydroxide lbs/24H	Var10	1.0014
29	Polyaluminum chloride lbs/24H	Var6	1.0014	29	Ferric chloride PPM/24H	Var28	1.0014
30	Sodium Chlorite gals/24H	Var20	1.0013	30	Chlorine Settled mg/l	Var42	1.0013
31	Hydrofluosilicic acid gals/24H	Var18	1.0012	31	Sodium chlorite lbs/24H	Var9	1.001
32	Sodium chlorite lbs/24H	Var9	1.001	32	Sodium Chlorite gals/24H	Var20	1.0009
33	Ferric chloride PPM/24H	Var28	1.001	33	Sodium chlorite PPM/24H	Var29	1.0008
34	Ferric chloride lbs/24H	Var13	1.0008	34	Hydrofluosilicic acid gals/24H	Var18	1.0007
35	Peak flow eff MGD/24H	Var53	1.0008	35	Ferric chloride lbs/24H	Var13	1.0006
36	Sodium chlorite PPM/24H	Var29	1.0007	36	Chlorine CW mg/l	Var43	1.0006
37	Polyaluminum chloride gals/24H	Var15	1.0006	37	Sysdel NS Main MGD	Var32	1.0004
38	Chlorine Settled mg/l	Var42	1.0006	38	Settled readings >2,0 NTU/24H	Var57	1.0003
39	Sodium hydroxide lbs/24H	Var10	1.0005	39	Polymer lbs/24H	Var7	1.0003
40	Sysdel SR Main MGD	Var30	1.0003	40	Chlorine lbs/24H	Var8	1.0002
41	pH Effluent	Var40	1.0001	41	Polymer gals/24H	Var16	1.0001
42	Chlorine lbs/24H	Var8	1.0001	42	Carbon PPM/24H	Var25	1.0001
43	Sysdel SR Midd MGD	Var31	1	43	CW Lowest level/24H	Var51	1.0001
44	Carbon lbs/24H	Var5	1	44	Hydrofluosilicic acid lbs/24H	Var11	1
45	Turbidities measured/24H	Var49	1	45	Washwater MGD	Var4	1
46	Turbidities required/24H	Var48	1	46	Turbidities required/24H	Var48	1
47	NTU over limit	Var36	1	47	NTU over limit	Var36	1
48	Washwater MGD	Var4	1	48	Turbidities measured/24H	Var49	1
49	pH Mix	Var38	0.9998	49	pH Mix	Var38	1
50	Peak flow raw MGD/24H	Var52	0.9998	50	Zinc orthophosphate PPM/24H	Var27	0.9999
51	Air temp °C avg/24H	Var56	0.9998	51	Air temp °C min/24H	Var54	0.9998
52	Chlorine lowest mg/l/24H	Var50	0.9997	52	Raw MGD/24H	Var1	0.9997
53	Zinc orthophosphate gals/24H	Var19	0.9997	53	Air temp °C avg/24H	Var56	0.9994
54	Polymer PPM/24H	Var22	0.999	54	Air temp °C max/24H	Var55	0.9993
55	Settled readings >2,0 NTU/24H	Var57	0.9983	55	Peak flow raw MGD/24H	Var52	0.9992
56	Polymer gals/24H	Var16	0.9976	56	System Delivery MGD	Var2	0.9978
57	Carbon PPM/24H	Var25	0.9976	57	pH Effluent	Var40	0.9626

Table 2.

A			B			C		
1	Turbidity Settled NTU	1.003	1	Settled readings >2,0 NTU/24H	1.0079	1	Turbidity Settled NTU	1.0283
2	Temp Raw °C	1.0013	2	Turbidity Settled NTU	1.0026	2	pH Raw	1.0151
3	Turbidity Raw NTU	1.001	3	Temp Raw °C	1.0012	3	NaOH PPM/24H	1.015
4	Air temp °C min/24H	1.0006	4	Turbidity Raw NTU	1.0009	4	Chlorine mix mg/l	1.0129
5	Sysdel SR Main MGD	1.0003	5	Temp Eff °C	1.0009	5	Temp Raw °C	1.012
6	Chlorine lbs/24H	1.0003	6	Chlorine lbs/24H	1.0004	6	Chlorine PPM/24H	1.0114
7	Zinc orthophosphate gals/24H	1.0003	7	Zinc orthophosphate PPM/24H	1.0004	7	Raw MGD/24H	1.0114
8	Hydrofluosilicic acid PPM/24H	1.0003	8	Chlorine CW mg/l	1.0003	8	Fluoride avg.mg/l/24H	1.0102
9	Fluoride avg.mg/l/24H	1.0002	9	Sysdel SR Main MGD	1.0002	9	Filters Washed/24H	1.007
10	Polymer lbs/24H	1.0002	10	Fluoride avg.mg/l/24H	1.0002	10	Polyaluminum chloride PPM/24H	1.007
11	Zinc orthophosphate PPM/24H	1.0002	11	Sysdel SR Midd MGD	1.0002	11	Temp Eff °C	1.0065
12	Air temp °C avg/24H	1.0001	12	pH Settled	1.0002	12	Sysdel NS Midd MGD	1.0062
13	Sysdel NS Main MGD	1.0001	13	Air temp °C min/24H	1.0002	13	Chlorine Eff mg/l	1.0057
14	Polymer PPM/24H	1.0001	14	Air temp °C avg/24H	1.0002	14	pH Settled	1.0054
15	Hydrofluosilicic acid lbs/24H	1.0001	15	Polymer gals/24H	1.0002	15	Hydrofluosilicic acid PPM/24H	1.0045
16	Sodium Chlorite gals/24H	1.0001	16	Air temp °C max/24H	1.0001	16	Polyaluminum chloride lbs/24H	1.0041
17	Sodium chlorite lbs/24H	1.0001	17	Polymer lbs/24H	1.0001	17	Sysdel SR Main MGD	1.004
18	pH Settled	1	18	Ferric chloride PPM/24H	1.0001	18	Chlorine CW mg/l	1.0035
19	Sodium hydroxide lbs/24H	1	19	Zinc orthophosphate gals/24H	1	19	Air temp °C min/24H	1.0025
20	Peak flow raw MGD/24H	1	20	Average % solids/liter	1	20	Chlorine lowest mg/l/24H	1.0023
21	Peak flow eff MGD/24H	1	21	System Delivery MGD	1	21	Sysdel NS Main MGD	1.002
22	System Delivery MGD	1	22	Polymer PPM/24H	1	22	Chlorine Settled mg/l	1.0019
23	Zinc orthophosphate lbs/24H	1	23	Sodium hydroxide gals/24H	1	23	Sodium hydroxide gals/24H	1.0016
24	Chlorine CW mg/l	1	24	Carbon PPM/24H	1	24	Hydrofluosilicic acid lbs/24H	1.0014
25	Sysdel SR Midd MGD	1	25	Zinc orthophosphate lbs/24H	1	25	Sodium chlorite lbs/24H	1.0014
26	Filters Washed/24H	1	26	Sodium hydroxide lbs/24H	1	26	Zinc orthophosphate gals/24H	1.0013
27	Chlorine Settled mg/l	1	27	Filters Washed/24H	1	27	Peak flow raw MGD/24H	1.001
28	pH Effluent	1	28	Peak flow raw MGD/24H	1	28	Sodium hydroxide lbs/24H	1.0007
29	CW Lowest level/24H	1	29	Sysdel NS Main MGD	1	29	Peak flow eff MGD/24H	1.0006
30	Raw MGD/24H	1	30	Peak flow eff MGD/24H	1	30	Polymer lbs/24H	1.0005
31	Hydrofluosilicic acid gals/24H	1	31	Turbidities required/24H	1	31	Average % solids/liter	1.0005
32	Turbidities required/24H	1	32	Turbidities measured/24H	1	32	Ferric chloride lbs/24H	1.0005
33	NTU over limit	1	33	NTU over limit	1	33	Carbon PPM/24H	1.0005
34	Turbidities measured/24H	1	34	Sodium chlorite PPM/24H	1	34	System Delivery MGD	1.0004
35	Ferric chloride lbs/24H	1	35	Ferric chloride lbs/24H	1	35	Sodium chlorite PPM/24H	1.0003
36	Polyaluminum chloride gals/24H	1	36	Hydrofluosilicic acid gals/24H	1	36	CW Lowest level/24H	1.0002
37	Ferric chloride PPM/24H	1	37	Chlorine lowest mg/l/24H	1	37	Polymer PPM/24H	1.0002
38	pH Mix	1	38	pH Effluent	1	38	Hydrofluosilicic acid gals/24H	1.0002
39	Sodium chlorite PPM/24H	1	39	pH Mix	1	39	Polyaluminum chloride gals/24H	1.0001
40	Chlorine lowest mg/l/24H	1	40	NaOH PPM/24H	0.9999	40	pH Mix	1.0001
41	Sodium hydroxide gals/24H	1	41	Chlorine Eff mg/l	0.9999	41	Sysdel SR Midd MGD	1
42	Sysdel NS Midd MGD	1	42	Raw MGD/24H	0.9999	42	Washwater MGD	1
43	Carbon lbs/24H	1	43	Hydrofluosilicic acid PPM/24H	0.9999	43	NTU over limit	1
44	pH Raw	0.9999	44	Chlorine mix mg/l	0.9999	44	Turbidities measured/24H	1
45	Washwater MGD	0.9999	45	Polyaluminum chloride lbs/24H	0.9999	45	Turbidities required/24H	1
46	Polyaluminum chloride PPM/24H	0.9999	46	Sysdel NS Midd MGD	0.9999	46	Sodium Chlorite gals/24H	1
47	Chlorine Eff mg/l	0.9999	47	Sodium chlorite lbs/24H	0.9999	47	Carbon lbs/24H	0.9998
48	Polyaluminum chloride lbs/24H	0.9999	48	CW Lowest level/24H	0.9999	48	Polymer gals/24H	0.9997
49	Carbon PPM/24H	0.9999	49	Sodium Chlorite gals/24H	0.9998	49	Zinc orthophosphate lbs/24H	0.9996
50	Polymer gals/24H	0.9998	50	Chlorine PPM/24H	0.9998	50	Turbidity Raw NTU	0.9996
51	Settled readings >2,0 NTU/24H	0.9998	51	Polyaluminum chloride PPM/24H	0.9998	51	Chlorine lbs/24H	0.9994
52	Average % solids/liter	0.9998	52	Polyaluminum chloride gals/24H	0.9998	52	Air temp °C avg/24H	0.9993
53	Chlorine PPM/24H	0.9998	53	Washwater MGD	0.9998	53	Settled readings >2,0 NTU/24H	0.9991
54	Temp Eff °C	0.9997	54	Carbon lbs/24H	0.9998	54	Zinc orthophosphate PPM/24H	0.9986
55	NaOH PPM/24H	0.9997	55	Hydrofluosilicic acid lbs/24H	0.9998	55	Ferric chloride PPM/24H	0.9981
56	Chlorine mix mg/l	0.9997	56	Chlorine Settled mg/l	0.9997	56	Air temp °C max/24H	0.9976
57	Air temp °C max/24H	0.9995	57	pH Raw	0.9997	57	pH Effluent	0.9961

Table 3.

A				B			
1	Sodium chlorite lbs/24H	Var9	1.1478	1	Turbidity Settled NTU	Var35	1.0953
2	Chlorine mix mg/l	Var41	1.107	2	Temp Raw °C	Var45	1.0807
3	Air temp °C min/24H	Var54	1.0756	3	Chlorine mix mg/l	Var41	1.062
4	Temp Raw °C	Var45	1.0598	4	Fluoride avg.mg/l/24H	Var47	1.0214
5	Turbidity Settled NTU	Var35	1.0589	5	Hydrofluosilicic acid lbs/24H	Var11	1.018
6	Air temp °C max/24H	Var55	1.0567	6	CW Lowest level/24H	Var51	1.0111
7	Hydrofluosilicic acid PPM/24H	Var26	1.0371	7	Chlorine Settled mg/l	Var42	1.01
8	Chlorine lbs/24H	Var8	1.0368	8	Filters Washed/24H	Var3	1.0097
9	System Delivery MGD	Var2	1.0342	9	pH Raw	Var37	1.0083
10	Chlorine CW mg/l	Var43	1.0313	10	Sodium chlorite lbs/24H	Var9	1.0083
11	Temp Eff °C	Var46	1.0286	11	Chlorine PPM/24H	Var24	1.0081
12	pH Raw	Var37	1.0268	12	Chlorine CW mg/l	Var43	1.0075
13	CW Lowest level/24H	Var51	1.0264	13	Temp Eff °C	Var46	1.0067
14	Washwater MGD	Var4	1.0241	14	Hydrofluosilicic acid PPM/24H	Var26	1.0065
15	Polyaluminum chloride PPM/24H	Var21	1.0238	15	Polymer PPM/24H	Var22	1.0052
16	pH Settled	Var39	1.0216	16	NaOH PPM/24H	Var23	1.0051
17	Sodium Chlorite gals/24H	Var20	1.0199	17	System Delivery MGD	Var2	1.0044
18	Average % solids/liter	Var14	1.0186	18	Polyaluminum chloride lbs/24H	Var6	1.0025
19	Sysdel SR Main MGD	Var30	1.0183	19	Sodium hydroxide lbs/24H	Var10	1.0025
20	Filters Washed/24H	Var3	1.0181	20	Hydrofluosilicic acid gals/24H	Var18	1.0022
21	Zinc orthophosphate PPM/24H	Var27	1.0174	21	Washwater MGD	Var4	1.0021
22	Sodium hydroxide gals/24H	Var17	1.0145	22	Carbon PPM/24H	Var25	1.0016
23	pH Mix	Var38	1.0139	23	Polymer lbs/24H	Var7	1.0015
24	NaOH PPM/24H	Var23	1.0138	24	Chlorine lbs/24H	Var8	1.0013
25	Peak flow raw MGD/24H	Var52	1.0136	25	Carbon lbs/24H	Var5	1.0013
26	Chlorine PPM/24H	Var24	1.0123	26	Air temp °C max/24H	Var55	1.0013
27	Chlorine Settled mg/l	Var42	1.0108	27	Sysdel NS Main MGD	Var32	1.001
28	Zinc orthophosphate gals/24H	Var19	1.0106	28	Turbidity Raw NTU	Var34	1.0009
29	Raw MGD/24H	Var1	1.0105	29	Chlorine Eff mg/l	Var44	1.0009
30	Sodium hydroxide lbs/24H	Var10	1.009	30	Sodium hydroxide gals/24H	Var17	1.0008
31	Chlorine lowest mg/l/24H	Var50	1.0074	31	Ferric chloride PPM/24H	Var28	1.0005
32	Polymer lbs/24H	Var7	1.0058	32	Air temp °C min/24H	Var54	1.0005
33	Settled readings >2,0 NTU/24H	Var57	1.0051	33	Peak flow raw MGD/24H	Var52	1.0005
34	Polymer PPM/24H	Var22	1.004	34	Chlorine lowest mg/l/24H	Var50	1.0005
35	Fluoride avg.mg/l/24H	Var47	1.004	35	Air temp °C avg/24H	Var56	1.0003
36	Polymer gals/24H	Var16	1.0034	36	Sodium Chlorite gals/24H	Var20	1.0001
37	Chlorine Eff mg/l	Var44	1.0033	37	Sodium chlorite PPM/24H	Var29	1.0001
38	Turbidity Raw NTU	Var34	1.0031	38	Ferric chloride lbs/24H	Var13	1.0001
39	Peak flow eff MGD/24H	Var53	1.0031	39	Settled readings >2,0 NTU/24H	Var57	1.0001
40	Air temp °C avg/24H	Var56	1.0029	40	pH Mix	Var38	1
41	Sysdel NS Main MGD	Var32	1.0027	41	Turbidities required/24H	Var48	1
42	Carbon PPM/24H	Var25	1.0024	42	NTU over limit	Var36	1
43	Polyaluminum chloride gals/24H	Var15	1.0024	43	Turbidities measured/24H	Var49	1
44	Hydrofluosilicic acid gals/24H	Var18	1.0014	44	Polymer gals/24H	Var16	1
45	Polyaluminum chloride lbs/24H	Var6	1.0012	45	Zinc orthophosphate lbs/24H	Var12	0.9999
46	Sysdel NS Midd MGD	Var33	1.001	46	Zinc orthophosphate PPM/24H	Var27	0.9997
47	Hydrofluosilicic acid lbs/24H	Var11	1.0009	47	Peak flow eff MGD/24H	Var53	0.9996
48	Ferric chloride lbs/24H	Var13	1.0002	48	Polyaluminum chloride gals/24H	Var15	0.9996
49	Sodium chlorite PPM/24H	Var29	1.0002	49	Sysdel NS Midd MGD	Var33	0.9996
50	Turbidities required/24H	Var48	1	50	Raw MGD/24H	Var1	0.9993
51	NTU over limit	Var36	1	51	Sysdel SR Midd MGD	Var31	0.9992
52	Turbidities measured/24H	Var49	1	52	Sysdel SR Main MGD	Var30	0.999
53	pH Effluent	Var40	0.9998	53	Polyaluminum chloride PPM/24H	Var21	0.9983
54	Sysdel SR Midd MGD	Var31	0.9993	54	Average % solids/liter	Var14	0.9983
55	Carbon lbs/24H	Var5	0.9991	55	pH Settled	Var39	0.9983
56	Zinc orthophosphate lbs/24H	Var12	0.9989	56	Zinc orthophosphate gals/24H	Var19	0.9975
57	Ferric chloride PPM/24H	Var28	0.9951	57	pH Effluent	Var40	0.9941

Table 4.

WaterPhysical	WaterTreatment	WaterChem	Climate	Output
Raw MGD/24H	Carbon lbs/24H	Turbidity Raw NTU	Air temp °C min/24H	Turbidity Effluent NTU
System Delivery MGD	Polyaluminum chloride lbs/24H	Turbidity Settled NTU	Air temp °C max/24H	Eff Highest NTU/24H
Filters Washed/24H	Polymer lbs/24H	NTU over limit	Air temp °C avg/24H	Effluent readings >0,10 NTU/24H
Washwater MGD	Chlorine lbs/24H	pH Raw		
Sysdel SR Main MGD	Sodium chlorite lbs/24H	pH Mix		
Sysdel SR Midd MGD	Sodium hydroxide lbs/24H	pH Settled		
Sysdel NS Main MGD	Hydrofluosilicic acid lbs/24H	pH Effluent		
Sysdel NS Midd MGD	Zinc orthophosphate lbs/24H	Chlorine mix mg/l		
Temp Raw °C	Ferric chloride lbs/24H	Chlorine Settled mg/l		
Temp Eff °C	Average % solids/liter	Chlorine CW mg/l		
Peak flow raw MGD/24H	Polyaluminum chloride gals/24H	Chlorine Eff mg/l		
Peak flow eff MGD/24H	Polymer gals/24H	Fluoride avg.mg/l/24H		
	Sodium hydroxide gals/24H	Turbidities required/24H		
	Hydrofluosilicic acid gals/24H	Turbidities measured/24H		
	Zinc orthophosphate gals/24H	Chlorine lowest mg/l/24H		
	Sodium Chlorite gals/24H	CW Lowest level/24H		
	Polyaluminum chloride PPM/24H	Peak flow raw MGD/24H		
	Polymer PPM/24H	Peak flow eff MGD/24H		
	NaOH PPM/24H	Settled readings >2,0 NTU/24H		
	Chlorine PPM/24H			
	Carbon PPM/24H			
	Hydryfluosilicic acid PPM/24H			
	Zinc orthophosphate PPM/24H			
	Ferric chloride PPM/24H			
	Sodium chlorite PPM/24H			

Table 5.

ANN				Linear Model			
Temp Raw °C	Var45	1.087	1	Chlorine PPM/24H	Var24	1.44E+14	1
Turbidity Settled NTU	Var35	1.037	2	Polyaluminum chloride PPM/24H	Var21	1.44E+14	2
Chlorine mix mg/l	Var41	1.035	3	Hydrofluosilicic acid lbs/24H	Var11	1.40E+14	3
Chlorine Eff mg/l	Var44	1.029	4	Sodium Chlorite gals/24H	Var20	1.27E+14	4
Filters Washed/24H	Var3	1.021	5	Average % solids/liter	Var14	9.28E+13	5
Temp Eff °C	Var46	1.02	6	Zinc orthophosphate gals/24H	Var19	9.28E+13	6
Chlorine PPM/24H	Var24	1.016	7	Ferric chloride lbs/24H	Var13	6.24E+13	7
Hydryfluosilicic acid PPM/24H	Var26	1.015	8	Hydrofluosilicic acid gals/24H	Var18	6.24E+13	8
Fluoride avg.mg/l/24H	Var47	1.012	9	Polymer PPM/24H	Var22	4.79E+13	9
Air temp °C min/24H	Var54	1.011	10	Carbon PPM/24H	Var25	4.79E+13	10
CW Lowest level/24H	Var51	1.009	11	Hydryfluosilicic acid PPM/24H	Var26	2.61E+13	11
Sodium hydroxide gals/24H	Var17	1.008	12	NaOH PPM/24H	Var23	2.61E+13	12
Sysdel NS Midd MGD	Var33	1.008	13	Zinc orthophosphate lbs/24H	Var12	1.76E+13	13
Zinc orthophosphate lbs/24H	Var12	1.007	14	Sodium chlorite lbs/24H	Var9	1.34E+13	14
Chlorine CW mg/l	Var43	1.007	15	Sodium hydroxide lbs/24H	Var10	9.02E+12	15
pH Settled	Var39	1.006	16	Sodium hydroxide gals/24H	Var17	8.54E+12	16
Sysdel NS Main MGD	Var32	1.006	17	Polymer lbs/24H	Var7	5.05E+12	17
Raw MGD/24H	Var1	1.006	18	Polymer gals/24H	Var16	5.05E+12	18
Polyaluminum chloride PPM/24H	Var21	1.006	19	Temp Raw °C	Var45	1.47	19
Polymer lbs/24H	Var7	1.005	20	System Delivery MGD	Var2	1.208	20
System Delivery MGD	Var2	1.005	21	Sysdel NS Main MGD	Var32	1.202	21
Average % solids/liter	Var14	1.004	22	Raw MGD/24H	Var1	1.193	22
Hydrofluosilicic acid lbs/24H	Var11	1.003	23	Sysdel SR Midd MGD	Var31	1.134	23
Zinc orthophosphate PPM/24H	Var27	1.003	24	Sysdel SR Main MGD	Var30	1.088	24
pH Raw	Var37	1.002	25	Carbon lbs/24H	Var5	1.085	25
Turbidity Raw NTU	Var34	1.002	26	Zinc orthophosphate PPM/24H	Var27	1.083	26
NaOH PPM/24H	Var23	1.002	27	Polyaluminum chloride gals/24H	Var15	1.07	27
Air temp °C max/24H	Var55	1.002	28	Turbidity Settled NTU	Var35	1.065	28
Polyaluminum chloride lbs/24H	Var6	1.001	29	Ferric chloride PPM/24H	Var28	1.058	29
Sodium Chlorite gals/24H	Var20	1.001	30	Temp Eff °C	Var46	1.056	30
Hydrofluosilicic acid gals/24H	Var18	1.001	31	Air temp °C min/24H	Var54	1.04	31
Sodium chlorite lbs/24H	Var9	1.001	32	Chlorine lbs/24H	Var8	1.039	32
Ferric chloride PPM/24H	Var28	1.001	33	Chlorine mix mg/l	Var41	1.015	33
Ferric chloride lbs/24H	Var13	1.001	34	Fluoride avg.mg/l/24H	Var47	1.012	34
Peak flow eff MGD/24H	Var53	1.001	35	Polyaluminum chloride lbs/24H	Var6	1.011	35
Sodium chlorite PPM/24H	Var29	1.001	36	Air temp °C avg/24H	Var56	1.006	36
Polyaluminum chloride gals/24H	Var15	1.001	37	Filters Washed/24H	Var3	1.005	37
Chlorine Settled mg/l	Var42	1.001	38	Turbidity Raw NTU	Var34	1.005	38
Sodium hydroxide lbs/24H	Var10	1	39	Washwater MGD	Var4	1.004	39
Sysdel SR Main MGD	Var30	1	40	Peak flow eff MGD/24H	Var53	1.004	40
pH Effluent	Var40	1	41	pH Settled	Var39	1.003	41
Chlorine lbs/24H	Var8	1	42	Chlorine Settled mg/l	Var42	1.003	42
Sysdel SR Midd MGD	Var31	1	43	Peak flow raw MGD/24H	Var52	1.001	43
Carbon lbs/24H	Var5	1	44	pH Raw	Var37	1.001	44
Turbidities measured/24H	Var49	1	45	Chlorine Eff mg/l	Var44	1	45
Turbidities required/24H	Var48	1	46	NTU over limit	Var36	1	46
NTU over limit	Var36	1	47	Turbidities required/24H	Var48	1	47
Washwater MGD	Var4	1	48	Turbidities measured/24H	Var49	1	48
pH Mix	Var38	1	49	pH Mix	Var38	1	49
Peak flow raw MGD/24H	Var52	1	50	pH Effluent	Var40	1	50
Air temp °C avg/24H	Var56	1	51	Settled readings >2,0 NTU/24H	Var57	1	51
Chlorine lowest mg/l/24H	Var50	1	52	Chlorine lowest mg/l/24H	Var50	0.999	52
Zinc orthophosphate gals/24H	Var19	1	53	Air temp °C max/24H	Var55	0.997	53
Polymer PPM/24H	Var22	0.999	54	Sodium chlorite PPM/24H	Var29	0.997	54
Settled readings >2,0 NTU/24H	Var57	0.998	55	Sysdel NS Midd MGD	Var33	0.995	55
Polymer gals/24H	Var16	0.998	56	Chlorine CW mg/l	Var43	0.972	56
Carbon PPM/24H	Var25	0.998	57	CW Lowest level/24H	Var51	0.894	57

Table 6.

ANN				Linear Model			
Turbidity Settled NTU	Var35	1.028	1	Polyaluminum chloride PPM/24H	Var21	5.57E+13	1
pH Raw	Var37	1.015	2	Chlorine PPM/24H	Var24	5.57E+13	2
NaOH PPM/24H	Var23	1.015	3	Hydrofluosilicic acid gals/24H	Var18	3.85E+13	3
Chlorine mix mg/l	Var41	1.013	4	Ferric chloride lbs/24H	Var13	3.85E+13	4
Temp Raw °C	Var45	1.012	5	Hydrofluosilicic acid lbs/24H	Var11	3.77E+13	5
Chlorine PPM/24H	Var24	1.011	6	Zinc orthophosphate gals/24H	Var19	3.41E+13	6
Raw MGD/24H	Var1	1.011	7	Average % solids/liter	Var14	3.41E+13	7
Fluoride avg.mg/l/24H	Var47	1.01	8	Polymer gals/24H	Var16	2.40E+13	8
Filters Washed/24H	Var3	1.007	9	Polymer lbs/24H	Var7	2.40E+13	9
Polyaluminum chloride PPM/24H	Var21	1.007	10	Sodium hydroxide lbs/24H	Var10	2.40E+13	10
Temp Eff °C	Var46	1.006	11	Hydrofluosilicic acid PPM/24H	Var26	1.91E+13	11
Sysdel NS Midd MGD	Var33	1.006	12	NaOH PPM/24H	Var23	1.91E+13	12
Chlorine Eff mg/l	Var44	1.006	13	Sodium chlorite lbs/24H	Var9	1.91E+13	13
pH Settled	Var39	1.005	14	Sodium Chlorite gals/24H	Var20	1.86E+13	14
Hydrofluosilicic acid PPM/24H	Var26	1.004	15	Zinc orthophosphate lbs/24H	Var12	1.44E+13	15
Polyaluminum chloride lbs/24H	Var6	1.004	16	Polymer PPM/24H	Var22	1.29E+13	16
Sysdel SR Main MGD	Var30	1.004	17	Carbon PPM/24H	Var25	1.29E+13	17
Chlorine CW mg/l	Var43	1.004	18	Sodium hydroxide gals/24H	Var17	9.59E+12	18
Air temp °C min/24H	Var54	1.002	19	Polyaluminum chloride lbs/24H	Var6	1.06	19
Chlorine lowest mg/l/24H	Var50	1.002	20	Sysdel SR Main MGD	Var30	1.049	20
Sysdel NS Main MGD	Var32	1.002	21	Temp Raw °C	Var45	1.023	21
Chlorine Settled mg/l	Var42	1.002	22	Sysdel SR Midd MGD	Var31	1.019	22
Sodium hydroxide gals/24H	Var17	1.002	23	Sysdel NS Main MGD	Var32	1.017	23
Hydrofluosilicic acid lbs/24H	Var11	1.001	24	System Delivery MGD	Var2	1.012	24
Sodium chlorite lbs/24H	Var9	1.001	25	Turbidity Settled NTU	Var35	1.011	25
Zinc orthophosphate gals/24H	Var19	1.001	26	CW Lowest level/24H	Var51	1.011	26
Peak flow raw MGD/24H	Var52	1.001	27	Polyaluminum chloride gals/24H	Var15	1.01	27
Sodium hydroxide lbs/24H	Var10	1.001	28	Temp Eff °C	Var46	1.008	28
Peak flow eff MGD/24H	Var53	1.001	29	Zinc orthophosphate PPM/24H	Var27	1.005	29
Polymer lbs/24H	Var7	1.001	30	Carbon lbs/24H	Var5	1.004	30
Average % solids/liter	Var14	1.001	31	Air temp °C min/24H	Var54	1.002	31
Ferric chloride lbs/24H	Var13	1	32	Air temp °C avg/24H	Var56	1.002	32
Carbon PPM/24H	Var25	1	33	Raw MGD/24H	Var1	1.002	33
System Delivery MGD	Var2	1	34	Peak flow raw MGD/24H	Var52	1.002	34
Sodium chlorite PPM/24H	Var29	1	35	Chlorine Settled mg/l	Var42	1.002	35
CW Lowest level/24H	Var51	1	36	Sodium chlorite PPM/24H	Var29	1.002	36
Polymer PPM/24H	Var22	1	37	pH Mix	Var38	1.001	37
Hydrofluosilicic acid gals/24H	Var18	1	38	Chlorine Eff mg/l	Var44	1.001	38
Polyaluminum chloride gals/24H	Var15	1	39	Ferric chloride PPM/24H	Var28	1.001	39
pH Mix	Var38	1	40	Turbidity Raw NTU	Var34	1.001	40
Sysdel SR Midd MGD	Var31	1	41	Sysdel NS Midd MGD	Var33	1	41
Washwater MGD	Var4	1	42	Fluoride avg.mg/l/24H	Var47	1	42
NTU over limit	Var36	1	43	Washwater MGD	Var4	1	43
Turbidities measured/24H	Var49	1	44	Air temp °C max/24H	Var55	1	44
Turbidities required/24H	Var48	1	45	Chlorine lbs/24H	Var8	1	45
Sodium Chlorite gals/24H	Var20	1	46	Turbidities measured/24H	Var49	1	46
Carbon lbs/24H	Var5	1	47	Turbidities required/24H	Var48	1	47
Polymer gals/24H	Var16	1	48	NTU over limit	Var36	1	48
Zinc orthophosphate lbs/24H	Var12	1	49	Settled readings >2,0 NTU/24H	Var57	1	49
Turbidity Raw NTU	Var34	1	50	Chlorine mix mg/l	Var41	1	50
Chlorine lbs/24H	Var8	0.999	51	pH Settled	Var39	1	51
Air temp °C avg/24H	Var56	0.999	52	Chlorine lowest mg/l/24H	Var50	0.999	52
Settled readings >2,0 NTU/24H	Var57	0.999	53	pH Raw	Var37	0.999	53
Zinc orthophosphate PPM/24H	Var27	0.999	54	Chlorine CW mg/l	Var43	0.999	54
Ferric chloride PPM/24H	Var28	0.998	55	Filters Washed/24H	Var3	0.998	55
Air temp °C max/24H	Var55	0.998	56	Peak flow eff MGD/24H	Var53	0.997	56
pH Effluent	Var40	0.996	57	pH Effluent	Var40	0.313	57

Table 7.

ANN				Linear Model			
Sodium chlorite lbs/24H	Var9	1.148	1	Average % solids/liter	Var14	6.22E+13	1
Chlorine mix mg/l	Var41	1.107	2	Zinc orthophosphate gals/24H	Var19	6.22E+13	2
Air temp °C min/24H	Var54	1.076	3	Polymer gals/24H	Var16	5.72E+13	3
Temp Raw °C	Var45	1.06	4	Polymer lbs/24H	Var7	5.72E+13	4
Turbidity Settled NTU	Var35	1.059	5	Hydrofluosilicic acid lbs/24H	Var11	5.12E+13	5
Air temp °C max/24H	Var55	1.057	6	Sodium hydroxide gals/24H	Var17	4.85E+13	6
Hydrofluosilicic acid PPM/24H	Var26	1.037	7	Chlorine PPM/24H	Var24	3.32E+13	7
Chlorine lbs/24H	Var8	1.037	8	Polyaluminum chloride PPM/24H	Var21	3.32E+13	8
System Delivery MGD	Var2	1.034	9	Sodium chlorite lbs/24H	Var9	3.07E+13	9
Chlorine CW mg/l	Var43	1.031	10	Sodium hydroxide lbs/24H	Var10	2.52E+13	10
Temp Eff °C	Var46	1.029	11	Hydrofluosilicic acid gals/24H	Var18	2.35E+13	11
pH Raw	Var37	1.027	12	Ferric chloride lbs/24H	Var13	2.35E+13	12
CW Lowest level/24H	Var51	1.026	13	Zinc orthophosphate lbs/24H	Var12	2.33E+13	13
Washwater MGD	Var4	1.024	14	Sodium Chlorite gals/24H	Var20	2.05E+13	14
Polyaluminum chloride PPM/24H	Var21	1.024	15	Carbon PPM/24H	Var25	1.58E+13	15
pH Settled	Var39	1.022	16	Polymer PPM/24H	Var22	1.58E+13	16
Sodium Chlorite gals/24H	Var20	1.02	17	Hydrofluosilicic acid PPM/24H	Var26	9.60E+12	17
Average % solids/liter	Var14	1.019	18	NaOH PPM/24H	Var23	9.60E+12	18
Sysdel SR Main MGD	Var30	1.018	19	Temp Raw °C	Var45	1.313	19
Filters Washed/24H	Var3	1.018	20	Temp Eff °C	Var46	1.146	20
Zinc orthophosphate PPM/24H	Var27	1.017	21	System Delivery MGD	Var2	1.114	21
Sodium hydroxide gals/24H	Var17	1.014	22	Raw MGD/24H	Var1	1.052	22
pH Mix	Var38	1.014	23	Turbidity Settled NTU	Var35	1.051	23
NaOH PPM/24H	Var23	1.014	24	Sysdel SR Midd MGD	Var31	1.043	24
Peak flow raw MGD/24H	Var52	1.014	25	Chlorine lbs/24H	Var8	1.029	25
Chlorine PPM/24H	Var24	1.012	26	Polyaluminum chloride gals/24H	Var15	1.027	26
Chlorine Settled mg/l	Var42	1.011	27	Carbon lbs/24H	Var5	1.024	27
Zinc orthophosphate gals/24H	Var19	1.011	28	Peak flow eff MGD/24H	Var53	1.023	28
Raw MGD/24H	Var1	1.011	29	Chlorine mix mg/l	Var41	1.02	29
Sodium hydroxide lbs/24H	Var10	1.009	30	Air temp °C avg/24H	Var56	1.015	30
Chlorine lowest mg/l/24H	Var50	1.007	31	Air temp °C max/24H	Var55	1.012	31
Polymer lbs/24H	Var7	1.006	32	Polyaluminum chloride lbs/24H	Var6	1.008	32
Settled readings >2,0 NTU/24H	Var57	1.005	33	Fluoride avg.mg/l/24H	Var47	1.007	33
Polymer PPM/24H	Var22	1.004	34	Chlorine Settled mg/l	Var42	1.006	34
Fluoride avg.mg/l/24H	Var47	1.004	35	Sysdel SR Main MGD	Var30	1.003	35
Polymer gals/24H	Var16	1.003	36	Air temp °C min/24H	Var54	1.003	36
Chlorine Eff mg/l	Var44	1.003	37	Peak flow raw MGD/24H	Var52	1.002	37
Turbidity Raw NTU	Var34	1.003	38	Sodium chlorite PPM/24H	Var29	1.001	38
Peak flow eff MGD/24H	Var53	1.003	39	Sysdel NS Main MGD	Var32	1.001	39
Air temp °C avg/24H	Var56	1.003	40	pH Raw	Var37	1.001	40
Sysdel NS Main MGD	Var32	1.003	41	Ferric chloride PPM/24H	Var28	1.001	41
Carbon PPM/24H	Var25	1.002	42	pH Mix	Var38	1.001	42
Polyaluminum chloride gals/24H	Var15	1.002	43	Chlorine lowest mg/l/24H	Var50	1	43
Hydrofluosilicic acid gals/24H	Var18	1.001	44	Settled readings >2,0 NTU/24H	Var57	1	44
Polyaluminum chloride lbs/24H	Var6	1.001	45	NTU over limit	Var36	1	45
Sysdel NS Midd MGD	Var33	1.001	46	Turbidities measured/24H	Var49	1	46
Hydrofluosilicic acid lbs/24H	Var11	1.001	47	Turbidities required/24H	Var48	1	47
Ferric chloride lbs/24H	Var13	1	48	Sysdel NS Midd MGD	Var33	1	48
Sodium chlorite PPM/24H	Var29	1	49	Chlorine Eff mg/l	Var44	1	49
Turbidities required/24H	Var48	1	50	Filters Washed/24H	Var3	1	50
NTU over limit	Var36	1	51	Turbidity Raw NTU	Var34	1	51
Turbidities measured/24H	Var49	1	52	pH Settled	Var39	0.999	52
pH Effluent	Var40	1	53	Washwater MGD	Var4	0.998	53
Sysdel SR Midd MGD	Var31	0.999	54	Zinc orthophosphate PPM/24H	Var27	0.998	54
Carbon lbs/24H	Var5	0.999	55	Chlorine CW mg/l	Var43	0.989	55
Zinc orthophosphate lbs/24H	Var12	0.999	56	CW Lowest level/24H	Var51	0.974	56
Ferric chloride PPM/24H	Var28	0.995	57	pH Effluent	Var40	0.619	57

Table 8.

A				B			
1	Temp Raw °C	Var45	1.087	1	Turbidity Settled NTU	Var35	1.0618
2	Turbidity Settled NTU	Var35	1.037	2	Chlorine mix mg/l	Var41	1.0213
3	Chlorine mix mg/l	Var41	1.0348	3	Filters Washed/24H	Var3	1.0156
4	Chlorine Eff mg/l	Var44	1.0286	4	Chlorine Eff mg/l	Var44	1.0143
5	Filters Washed/24H	Var3	1.0206	5	Chlorine PPM/24H	Var24	1.0127
6	Temp Eff °C	Var46	1.0203	6	Temp Raw °C	Var45	1.0115
7	Chlorine PPM/24H	Var24	1.0164	7	Polyaluminum chloride gals/24H	Var15	1.0114
8	Hydrufluosilicic acid PPM/24H	Var26	1.0151	8	Sysdel SR Midd MGD	Var31	1.011
9	Fluoride avg.mg/l/24H	Var47	1.0117	9	pH Settled	Var39	1.0106
10	Air temp °C min/24H	Var54	1.011	10	Fluoride avg.mg/l/24H	Var47	1.0105
11	CW Lowest level/24H	Var51	1.0092	11	Polyaluminum chloride PPM/24H	Var21	1.0087
12	Sodium hydroxide gals/24H	Var17	1.0076	12	Sysdel NS Midd MGD	Var33	1.007
13	Sysdel NS Midd MGD	Var33	1.0076	13	Chlorine lowest mg/l/24H	Var50	1.0057
14	Zinc orthophosphate lbs/24H	Var12	1.0069	14	Sysdel SR Main MGD	Var30	1.0052
15	Chlorine CW mg/l	Var43	1.0067	15	Zinc orthophosphate lbs/24H	Var12	1.0052
16	pH Settled	Var39	1.0062	16	NaOH PPM/24H	Var23	1.0049
17	Sysdel NS Main MGD	Var32	1.0061	17	pH Raw	Var37	1.0048
18	Raw MGD/24H	Var1	1.0059	18	Temp Eff °C	Var46	1.004
19	Polyaluminum chloride PPM/24H	Var21	1.0058	19	Hydrufluosilicic acid PPM/24H	Var26	1.0037
20	Polymer lbs/24H	Var7	1.0047	20	Polyaluminum chloride lbs/24H	Var6	1.003
21	System Delivery MGD	Var2	1.0045	21	Turbidity Raw NTU	Var34	1.0027
22	Average % solids/liter	Var14	1.0037	22	Average % solids/liter	Var14	1.0027
23	Hydrofluosilicic acid lbs/24H	Var11	1.0035	23	Zinc orthophosphate gals/24H	Var19	1.0024
24	Zinc orthophosphate PPM/24H	Var27	1.0026	24	Polymer PPM/24H	Var22	1.0024
25	pH Raw	Var37	1.0023	25	Sodium hydroxide gals/24H	Var17	1.0023
26	Turbidity Raw NTU	Var34	1.002	26	Peak flow eff MGD/24H	Var53	1.002
27	NaOH PPM/24H	Var23	1.002	27	Carbon lbs/24H	Var5	1.0017
28	Air temp °C max/24H	Var55	1.0015	28	Sodium hydroxide lbs/24H	Var10	1.0014
29	Polyaluminum chloride lbs/24H	Var6	1.0014	29	Ferric chloride PPM/24H	Var28	1.0014
30	Sodium Chlorite gals/24H	Var20	1.0013	30	Chlorine Settled mg/l	Var42	1.0013
31	Hydrofluosilicic acid gals/24H	Var18	1.0012	31	Sodium chlorite lbs/24H	Var9	1.001
32	Sodium chlorite lbs/24H	Var9	1.001	32	Sodium Chlorite gals/24H	Var20	1.0009
33	Ferric chloride PPM/24H	Var28	1.001	33	Sodium chlorite PPM/24H	Var29	1.0008
34	Ferric chloride lbs/24H	Var13	1.0008	34	Hydrofluosilicic acid gals/24H	Var18	1.0007
35	Peak flow eff MGD/24H	Var53	1.0008	35	Ferric chloride lbs/24H	Var13	1.0006
36	Sodium chlorite PPM/24H	Var29	1.0007	36	Chlorine CW mg/l	Var43	1.0006
37	Polyaluminum chloride gals/24H	Var15	1.0006	37	Sysdel NS Main MGD	Var32	1.0004
38	Chlorine Settled mg/l	Var42	1.0006	38	Settled readings >2,0 NTU/24H	Var57	1.0003
39	Sodium hydroxide lbs/24H	Var10	1.0005	39	Polymer lbs/24H	Var7	1.0003
40	Sysdel SR Main MGD	Var30	1.0003	40	Chlorine lbs/24H	Var8	1.0002
41	pH Effluent	Var40	1.0001	41	Polymer gals/24H	Var16	1.0001
42	Chlorine lbs/24H	Var8	1.0001	42	Carbon PPM/24H	Var25	1.0001
43	Sysdel SR Midd MGD	Var31	1	43	CW Lowest level/24H	Var51	1.0001
44	Carbon lbs/24H	Var5	1	44	Hydrofluosilicic acid lbs/24H	Var11	1
45	Turbidities measured/24H	Var49	1	45	Washwater MGD	Var4	1
46	Turbidities required/24H	Var48	1	46	Turbidities required/24H	Var48	1
47	NTU over limit	Var36	1	47	NTU over limit	Var36	1
48	Washwater MGD	Var4	1	48	Turbidities measured/24H	Var49	1
49	pH Mix	Var38	0.9998	49	pH Mix	Var38	1
50	Peak flow raw MGD/24H	Var52	0.9998	50	Zinc orthophosphate PPM/24H	Var27	0.9999
51	Air temp °C avg/24H	Var56	0.9998	51	Air temp °C min/24H	Var54	0.9998
52	Chlorine lowest mg/l/24H	Var50	0.9997	52	Raw MGD/24H	Var1	0.9997
53	Zinc orthophosphate gals/24H	Var19	0.9997	53	Air temp °C avg/24H	Var56	0.9994
54	Polymer PPM/24H	Var22	0.999	54	Air temp °C max/24H	Var55	0.9993
55	Settled readings >2,0 NTU/24H	Var57	0.9983	55	Peak flow raw MGD/24H	Var52	0.9992
56	Polymer gals/24H	Var16	0.9976	56	System Delivery MGD	Var2	0.9978
57	Carbon PPM/24H	Var25	0.9976	57	pH Effluent	Var40	0.9626

Table 9.

A			B			C		
1	Turbidity Settled NTU	1.003	1	Settled readings >2,0 NTU/24H	1.0079	1	Turbidity Settled NTU	1.0283
2	Temp Raw °C	1.0013	2	Turbidity Settled NTU	1.0026	2	pH Raw	1.0151
3	Turbidity Raw NTU	1.001	3	Temp Raw °C	1.0012	3	NaOH PPM/24H	1.015
4	Air temp °C min/24H	1.0006	4	Turbidity Raw NTU	1.0009	4	Chlorine mix mg/l	1.0129
5	Sysdel SR Main MGD	1.0003	5	Temp Eff °C	1.0009	5	Temp Raw °C	1.012
6	Chlorine lbs/24H	1.0003	6	Chlorine lbs/24H	1.0004	6	Chlorine PPM/24H	1.0114
7	Zinc orthophosphate gals/24H	1.0003	7	Zinc orthophosphate PPM/24H	1.0004	7	Raw MGD/24H	1.0114
8	Hydrofluosilicic acid PPM/24H	1.0003	8	Chlorine CW mg/l	1.0003	8	Fluoride avg.mg/l/24H	1.0102
9	Fluoride avg.mg/l/24H	1.0002	9	Sysdel SR Main MGD	1.0002	9	Filters Washed/24H	1.007
10	Polymer lbs/24H	1.0002	10	Fluoride avg.mg/l/24H	1.0002	10	Polyaluminum chloride PPM/24H	1.007
11	Zinc orthophosphate PPM/24H	1.0002	11	Sysdel SR Midd MGD	1.0002	11	Temp Eff °C	1.0065
12	Air temp °C avg/24H	1.0001	12	pH Settled	1.0002	12	Sysdel NS Midd MGD	1.0062
13	Sysdel NS Main MGD	1.0001	13	Air temp °C min/24H	1.0002	13	Chlorine Eff mg/l	1.0057
14	Polymer PPM/24H	1.0001	14	Air temp °C avg/24H	1.0002	14	pH Settled	1.0054
15	Hydrofluosilicic acid lbs/24H	1.0001	15	Polymer gals/24H	1.0002	15	Hydrofluosilicic acid PPM/24H	1.0045
16	Sodium Chlorite gals/24H	1.0001	16	Air temp °C max/24H	1.0001	16	Polyaluminum chloride lbs/24H	1.0041
17	Sodium chlorite lbs/24H	1.0001	17	Polymer lbs/24H	1.0001	17	Sysdel SR Main MGD	1.004
18	pH Settled	1	18	Ferric chloride PPM/24H	1.0001	18	Chlorine CW mg/l	1.0035
19	Sodium hydroxide lbs/24H	1	19	Zinc orthophosphate gals/24H	1	19	Air temp °C min/24H	1.0025
20	Peak flow raw MGD/24H	1	20	Average % solids/liter	1	20	Chlorine lowest mg/l/24H	1.0023
21	Peak flow eff MGD/24H	1	21	System Delivery MGD	1	21	Sysdel NS Main MGD	1.002
22	System Delivery MGD	1	22	Polymer PPM/24H	1	22	Chlorine Settled mg/l	1.0019
23	Zinc orthophosphate lbs/24H	1	23	Sodium hydroxide gals/24H	1	23	Sodium hydroxide gals/24H	1.0016
24	Chlorine CW mg/l	1	24	Carbon PPM/24H	1	24	Hydrofluosilicic acid lbs/24H	1.0014
25	Sysdel SR Midd MGD	1	25	Zinc orthophosphate lbs/24H	1	25	Sodium chlorite lbs/24H	1.0014
26	Filters Washed/24H	1	26	Sodium hydroxide lbs/24H	1	26	Zinc orthophosphate gals/24H	1.0013
27	Chlorine Settled mg/l	1	27	Filters Washed/24H	1	27	Peak flow raw MGD/24H	1.001
28	pH Effluent	1	28	Peak flow raw MGD/24H	1	28	Sodium hydroxide lbs/24H	1.0007
29	CW Lowest level/24H	1	29	Sysdel NS Main MGD	1	29	Peak flow eff MGD/24H	1.0006
30	Raw MGD/24H	1	30	Peak flow eff MGD/24H	1	30	Polymer lbs/24H	1.0005
31	Hydrofluosilicic acid gals/24H	1	31	Turbidities required/24H	1	31	Average % solids/liter	1.0005
32	Turbidities required/24H	1	32	Turbidities measured/24H	1	32	Ferric chloride lbs/24H	1.0005
33	NTU over limit	1	33	NTU over limit	1	33	Carbon PPM/24H	1.0005
34	Turbidities measured/24H	1	34	Sodium chlorite PPM/24H	1	34	System Delivery MGD	1.0004
35	Ferric chloride lbs/24H	1	35	Ferric chloride lbs/24H	1	35	Sodium chlorite PPM/24H	1.0003
36	Polyaluminum chloride gals/24H	1	36	Hydrofluosilicic acid gals/24H	1	36	CW Lowest level/24H	1.0002
37	Ferric chloride PPM/24H	1	37	Chlorine lowest mg/l/24H	1	37	Polymer PPM/24H	1.0002
38	pH Mix	1	38	pH Effluent	1	38	Hydrofluosilicic acid gals/24H	1.0002
39	Sodium chlorite PPM/24H	1	39	pH Mix	1	39	Polyaluminum chloride gals/24H	1.0001
40	Chlorine lowest mg/l/24H	1	40	NaOH PPM/24H	0.9999	40	pH Mix	1.0001
41	Sodium hydroxide gals/24H	1	41	Chlorine Eff mg/l	0.9999	41	Sysdel SR Midd MGD	1
42	Sysdel NS Midd MGD	1	42	Raw MGD/24H	0.9999	42	Washwater MGD	1
43	Carbon lbs/24H	1	43	Hydrofluosilicic acid PPM/24H	0.9999	43	NTU over limit	1
44	pH Raw	0.9999	44	Chlorine mix mg/l	0.9999	44	Turbidities measured/24H	1
45	Washwater MGD	0.9999	45	Polyaluminum chloride lbs/24H	0.9999	45	Turbidities required/24H	1
46	Polyaluminum chloride PPM/24H	0.9999	46	Sysdel NS Midd MGD	0.9999	46	Sodium Chlorite gals/24H	1
47	Chlorine Eff mg/l	0.9999	47	Sodium chlorite lbs/24H	0.9999	47	Carbon lbs/24H	0.9998
48	Polyaluminum chloride lbs/24H	0.9999	48	CW Lowest level/24H	0.9999	48	Polymer gals/24H	0.9997
49	Carbon PPM/24H	0.9999	49	Sodium Chlorite gals/24H	0.9998	49	Zinc orthophosphate lbs/24H	0.9996
50	Polymer gals/24H	0.9998	50	Chlorine PPM/24H	0.9998	50	Turbidity Raw NTU	0.9996
51	Settled readings >2,0 NTU/24H	0.9998	51	Polyaluminum chloride PPM/24H	0.9998	51	Chlorine lbs/24H	0.9994
52	Average % solids/liter	0.9998	52	Polyaluminum chloride gals/24H	0.9998	52	Air temp °C avg/24H	0.9993
53	Chlorine PPM/24H	0.9998	53	Washwater MGD	0.9998	53	Settled readings >2,0 NTU/24H	0.9991
54	Temp Eff °C	0.9997	54	Carbon lbs/24H	0.9998	54	Zinc orthophosphate PPM/24H	0.9986
55	NaOH PPM/24H	0.9997	55	Hydrofluosilicic acid lbs/24H	0.9998	55	Ferric chloride PPM/24H	0.9981
56	Chlorine mix mg/l	0.9997	56	Chlorine Settled mg/l	0.9997	56	Air temp °C max/24H	0.9976
57	Air temp °C max/24H	0.9995	57	pH Raw	0.9997	57	pH Effluent	0.9961

Table 10.

A				B			
1	Sodium chlorite lbs/24H	Var9	1.1478	1	Turbidity Settled NTU	Var35	1.0953
2	Chlorine mix mg/l	Var41	1.107	2	Temp Raw °C	Var45	1.0807
3	Air temp °C min/24H	Var54	1.0756	3	Chlorine mix mg/l	Var41	1.062
4	Temp Raw °C	Var45	1.0598	4	Fluoride avg.mg/l/24H	Var47	1.0214
5	Turbidity Settled NTU	Var35	1.0589	5	Hydrofluosilicic acid lbs/24H	Var11	1.018
6	Air temp °C max/24H	Var55	1.0567	6	CW Lowest level/24H	Var51	1.0111
7	Hydryfluosilicic acid PPM/24H	Var26	1.0371	7	Chlorine Settled mg/l	Var42	1.01
8	Chlorine lbs/24H	Var8	1.0368	8	Filters Washed/24H	Var3	1.0097
9	System Delivery MGD	Var2	1.0342	9	pH Raw	Var37	1.0083
10	Chlorine CW mg/l	Var43	1.0313	10	Sodium chlorite lbs/24H	Var9	1.0083
11	Temp Eff °C	Var46	1.0286	11	Chlorine PPM/24H	Var24	1.0081
12	pH Raw	Var37	1.0268	12	Chlorine CW mg/l	Var43	1.0075
13	CW Lowest level/24H	Var51	1.0264	13	Temp Eff °C	Var46	1.0067
14	Washwater MGD	Var4	1.0241	14	Hydryfluosilicic acid PPM/24H	Var26	1.0065
15	Polyaluminum chloride PPM/24H	Var21	1.0238	15	Polymer PPM/24H	Var22	1.0052
16	pH Settled	Var39	1.0216	16	NaOH PPM/24H	Var23	1.0051
17	Sodium Chlorite gals/24H	Var20	1.0199	17	System Delivery MGD	Var2	1.0044
18	Average % solids/liter	Var14	1.0186	18	Polyaluminum chloride lbs/24H	Var6	1.0025
19	Sysdel SR Main MGD	Var30	1.0183	19	Sodium hydroxide lbs/24H	Var10	1.0025
20	Filters Washed/24H	Var3	1.0181	20	Hydrofluosilicic acid gals/24H	Var18	1.0022
21	Zinc orthophosphate PPM/24H	Var27	1.0174	21	Washwater MGD	Var4	1.0021
22	Sodium hydroxide gals/24H	Var17	1.0145	22	Carbon PPM/24H	Var25	1.0016
23	pH Mix	Var38	1.0139	23	Polymer lbs/24H	Var7	1.0015
24	NaOH PPM/24H	Var23	1.0138	24	Chlorine lbs/24H	Var8	1.0013
25	Peak flow raw MGD/24H	Var52	1.0136	25	Carbon lbs/24H	Var5	1.0013
26	Chlorine PPM/24H	Var24	1.0123	26	Air temp °C max/24H	Var55	1.0013
27	Chlorine Settled mg/l	Var42	1.0108	27	Sysdel NS Main MGD	Var32	1.001
28	Zinc orthophosphate gals/24H	Var19	1.0106	28	Turbidity Raw NTU	Var34	1.0009
29	Raw MGD/24H	Var1	1.0105	29	Chlorine Eff mg/l	Var44	1.0009
30	Sodium hydroxide lbs/24H	Var10	1.009	30	Sodium hydroxide gals/24H	Var17	1.0008
31	Chlorine lowest mg/l/24H	Var50	1.0074	31	Ferric chloride PPM/24H	Var28	1.0005
32	Polymer lbs/24H	Var7	1.0058	32	Air temp °C min/24H	Var54	1.0005
33	Settled readings >2,0 NTU/24H	Var57	1.0051	33	Peak flow raw MGD/24H	Var52	1.0005
34	Polymer PPM/24H	Var22	1.004	34	Chlorine lowest mg/l/24H	Var50	1.0005
35	Fluoride avg.mg/l/24H	Var47	1.004	35	Air temp °C avg/24H	Var56	1.0003
36	Polymer gals/24H	Var16	1.0034	36	Sodium Chlorite gals/24H	Var20	1.0001
37	Chlorine Eff mg/l	Var44	1.0033	37	Sodium chlorite PPM/24H	Var29	1.0001
38	Turbidity Raw NTU	Var34	1.0031	38	Ferric chloride lbs/24H	Var13	1.0001
39	Peak flow eff MGD/24H	Var53	1.0031	39	Settled readings >2,0 NTU/24H	Var57	1.0001
40	Air temp °C avg/24H	Var56	1.0029	40	pH Mix	Var38	1
41	Sysdel NS Main MGD	Var32	1.0027	41	Turbidities required/24H	Var48	1
42	Carbon PPM/24H	Var25	1.0024	42	NTU over limit	Var36	1
43	Polyaluminum chloride gals/24H	Var15	1.0024	43	Turbidities measured/24H	Var49	1
44	Hydrofluosilicic acid gals/24H	Var18	1.0014	44	Polymer gals/24H	Var16	1
45	Polyaluminum chloride lbs/24H	Var6	1.0012	45	Zinc orthophosphate lbs/24H	Var12	0.9999
46	Sysdel NS Midd MGD	Var33	1.001	46	Zinc orthophosphate PPM/24H	Var27	0.9997
47	Hydrofluosilicic acid lbs/24H	Var11	1.0009	47	Peak flow eff MGD/24H	Var53	0.9996
48	Ferric chloride lbs/24H	Var13	1.0002	48	Polyaluminum chloride gals/24H	Var15	0.9996
49	Sodium chlorite PPM/24H	Var29	1.0002	49	Sysdel NS Midd MGD	Var33	0.9996
50	Turbidities required/24H	Var48	1	50	Raw MGD/24H	Var1	0.9993
51	NTU over limit	Var36	1	51	Sysdel SR Midd MGD	Var31	0.9992
52	Turbidities measured/24H	Var49	1	52	Sysdel SR Main MGD	Var30	0.999
53	pH Effluent	Var40	0.9998	53	Polyaluminum chloride PPM/24H	Var21	0.9983
54	Sysdel SR Midd MGD	Var31	0.9993	54	Average % solids/liter	Var14	0.9983
55	Carbon lbs/24H	Var5	0.9991	55	pH Settled	Var39	0.9983
56	Zinc orthophosphate lbs/24H	Var12	0.9989	56	Zinc orthophosphate gals/24H	Var19	0.9975
57	Ferric chloride PPM/24H	Var28	0.9951	57	pH Effluent	Var40	0.9941

Table 11.

WaterPhysical	WaterTreatment	WaterChem	Climate	Output
Raw MGD/24H	Carbon lbs/24H	Turbidity Raw NTU	Air temp °C min/24H	Turbidity Effluent NTU
System Delivery MGD	Polyaluminum chloride lbs/24H	Turbidity Settled NTU	Air temp °C max/24H	Eff Highest NTU/24H
Filters Washed/24H	Polymer lbs/24H	NTU over limit	Air temp °C avg/24H	Effluent readings >0,10 NTU/24H
Washwater MGD	Chlorine lbs/24H	pH Raw		
Sysdel SR Main MGD	Sodium chlorite lbs/24H	pH Mix		
Sysdel SR Midd MGD	Sodium hydroxide lbs/24H	pH Settled		
Sysdel NS Main MGD	Hydrofluosilicic acid lbs/24H	pH Effluent		
Sysdel NS Midd MGD	Zinc orthophosphate lbs/24H	Chlorine mix mg/l		
Temp Raw °C	Ferric chloride lbs/24H	Chlorine Settled mg/l		
Temp Eff °C	Average % solids/liter	Chlorine CW mg/l		
Peak flow raw MGD/24H	Polyaluminum chloride gals/24H	Chlorine Eff mg/l		
Peak flow eff MGD/24H	Polymer gals/24H	Fluoride avg.mg/l/24H		
	Sodium hydroxide gals/24H	Turbidities required/24H		
	Hydrofluosilicic acid gals/24H	Turbidities measured/24H		
	Zinc orthophosphate gals/24H	Chlorine lowest mg/l/24H		
	Sodium Chlorite gals/24H	CW Lowest level/24H		
	Polyaluminum chloride PPM/24H	Peak flow raw MGD/24H		
	Polymer PPM/24H	Peak flow eff MGD/24H		
	NaOH PPM/24H	Settled readings >2,0 NTU/24H		
	Chlorine PPM/24H			
	Carbon PPM/24H			
	Hydryfluosilicic acid PPM/24H			
	Zinc orthophosphate PPM/24H			
	Ferric chloride PPM/24H			
	Sodium chlorite PPM/24H			

Table 12.

ANN				Linear Model			
Temp Raw °C	Var45	1.087	1	Chlorine PPM/24H	Var24	1.44E+14	1
Turbidity Settled NTU	Var35	1.037	2	Polyaluminum chloride PPM/24H	Var21	1.44E+14	2
Chlorine mix mg/l	Var41	1.035	3	Hydrofluosilicic acid lbs/24H	Var11	1.4E+14	3
Chlorine Eff mg/l	Var44	1.029	4	Sodium Chlorite gals/24H	Var20	1.27E+14	4
Filters Washed/24H	Var3	1.021	5	Average % solids/liter	Var14	9.28E+13	5
Temp Eff °C	Var46	1.02	6	Zinc orthophosphate gals/24H	Var19	9.28E+13	6
Chlorine PPM/24H	Var24	1.016	7	Ferric chloride lbs/24H	Var13	6.24E+13	7
Hydryfluosilicic acid PPM/24H	Var26	1.015	8	Hydrofluosilicic acid gals/24H	Var18	6.24E+13	8
Fluoride avg.mg/l/24H	Var47	1.012	9	Polymer PPM/24H	Var22	4.79E+13	9
Air temp °C min/24H	Var54	1.011	10	Carbon PPM/24H	Var25	4.79E+13	10
CW Lowest level/24H	Var51	1.009	11	Hydryfluosilicic acid PPM/24H	Var26	2.61E+13	11
Sodium hydroxide gals/24H	Var17	1.008	12	NaOH PPM/24H	Var23	2.61E+13	12
Sysdel NS Midd MGD	Var33	1.008	13	Zinc orthophosphate lbs/24H	Var12	1.76E+13	13
Zinc orthophosphate lbs/24H	Var12	1.007	14	Sodium chlorite lbs/24H	Var9	1.34E+13	14
Chlorine CW mg/l	Var43	1.007	15	Sodium hydroxide lbs/24H	Var10	9.02E+12	15
pH Settled	Var39	1.006	16	Sodium hydroxide gals/24H	Var17	8.54E+12	16
Sysdel NS Main MGD	Var32	1.006	17	Polymer lbs/24H	Var7	5.05E+12	17
Raw MGD/24H	Var1	1.006	18	Polymer gals/24H	Var16	5.05E+12	18
Polyaluminum chloride PPM/24H	Var21	1.006	19	Temp Raw °C	Var45	1.47	19
Polymer lbs/24H	Var7	1.005	20	System Delivery MGD	Var2	1.208	20
System Delivery MGD	Var2	1.005	21	Sysdel NS Main MGD	Var32	1.202	21
Average % solids/liter	Var14	1.004	22	Raw MGD/24H	Var1	1.193	22
Hydrofluosilicic acid lbs/24H	Var11	1.003	23	Sysdel SR Midd MGD	Var31	1.134	23
Zinc orthophosphate PPM/24H	Var27	1.003	24	Sysdel SR Main MGD	Var30	1.088	24
pH Raw	Var37	1.002	25	Carbon lbs/24H	Var5	1.085	25
Turbidity Raw NTU	Var34	1.002	26	Zinc orthophosphate PPM/24H	Var27	1.083	26
NaOH PPM/24H	Var23	1.002	27	Polyaluminum chloride gals/24H	Var15	1.07	27
Air temp °C max/24H	Var55	1.002	28	Turbidity Settled NTU	Var35	1.065	28
Polyaluminum chloride lbs/24H	Var6	1.001	29	Ferric chloride PPM/24H	Var28	1.058	29
Sodium Chlorite gals/24H	Var20	1.001	30	Temp Eff °C	Var46	1.056	30
Hydrofluosilicic acid gals/24H	Var18	1.001	31	Air temp °C min/24H	Var54	1.04	31
Sodium chlorite lbs/24H	Var9	1.001	32	Chlorine lbs/24H	Var8	1.039	32
Ferric chloride PPM/24H	Var28	1.001	33	Chlorine mix mg/l	Var41	1.015	33
Ferric chloride lbs/24H	Var13	1.001	34	Fluoride avg.mg/l/24H	Var47	1.012	34
Peak flow eff MGD/24H	Var53	1.001	35	Polyaluminum chloride lbs/24H	Var6	1.011	35
Sodium chlorite PPM/24H	Var29	1.001	36	Air temp °C avg/24H	Var56	1.006	36
Polyaluminum chloride gals/24H	Var15	1.001	37	Filters Washed/24H	Var3	1.005	37
Chlorine Settled mg/l	Var42	1.001	38	Turbidity Raw NTU	Var34	1.005	38
Sodium hydroxide lbs/24H	Var10	1	39	Washwater MGD	Var4	1.004	39
Sysdel SR Main MGD	Var30	1	40	Peak flow eff MGD/24H	Var53	1.004	40
pH Effluent	Var40	1	41	pH Settled	Var39	1.003	41
Chlorine lbs/24H	Var8	1	42	Chlorine Settled mg/l	Var42	1.003	42
Sysdel SR Midd MGD	Var31	1	43	Peak flow raw MGD/24H	Var52	1.001	43
Carbon lbs/24H	Var5	1	44	pH Raw	Var37	1.001	44
Turbidities measured/24H	Var49	1	45	Chlorine Eff mg/l	Var44	1	45
Turbidities required/24H	Var48	1	46	NTU over limit	Var36	1	46
NTU over limit	Var36	1	47	Turbidities required/24H	Var48	1	47
Washwater MGD	Var4	1	48	Turbidities measured/24H	Var49	1	48
pH Mix	Var38	1	49	pH Mix	Var38	1	49
Peak flow raw MGD/24H	Var52	1	50	pH Effluent	Var40	1	50
Air temp °C avg/24H	Var56	1	51	Settled readings >2,0 NTU/24H	Var57	1	51
Chlorine lowest mg/l/24H	Var50	1	52	Chlorine lowest mg/l/24H	Var50	0.999	52
Zinc orthophosphate gals/24H	Var19	1	53	Air temp °C max/24H	Var55	0.997	53
Polymer PPM/24H	Var22	0.999	54	Sodium chlorite PPM/24H	Var29	0.997	54
Settled readings >2,0 NTU/24H	Var57	0.998	55	Sysdel NS Midd MGD	Var33	0.995	55
Polymer gals/24H	Var16	0.998	56	Chlorine CW mg/l	Var43	0.972	56
Carbon PPM/24H	Var25	0.998	57	CW Lowest level/24H	Var51	0.894	57

Table 13

ANN				Linear Model			
Turbidity Settled NTU	Var35	1.028	1	Polyaluminum chloride PPM/24H	Var21	5.57469E+13	1
pH Raw	Var37	1.015	2	Chlorine PPM/24H	Var24	5.57469E+13	2
NaOH PPM/24H	Var23	1.015	3	Hydrofluosilicic acid gals/24H	Var18	3.85179E+13	3
Chlorine mix mg/l	Var41	1.013	4	Ferric chloride lbs/24H	Var13	3.85179E+13	4
Temp Raw °C	Var45	1.012	5	Hydrofluosilicic acid lbs/24H	Var11	3.76786E+13	5
Chlorine PPM/24H	Var24	1.011	6	Zinc orthophosphate gals/24H	Var19	3.41211E+13	6
Raw MGD/24H	Var1	1.011	7	Average % solids/liter	Var14	3.41211E+13	7
Fluoride avg.mg/l/24H	Var47	1.01	8	Polymer gals/24H	Var16	2.40457E+13	8
Filters Washed/24H	Var3	1.007	9	Polymer lbs/24H	Var7	2.40457E+13	9
Polyaluminum chloride PPM/24H	Var21	1.007	10	Sodium hydroxide lbs/24H	Var10	2.39978E+13	10
Temp Eff °C	Var46	1.006	11	Hydryfluosilicic acid PPM/24H	Var26	1.90768E+13	11
Sysdel NS Midd MGD	Var33	1.006	12	NaOH PPM/24H	Var23	1.90768E+13	12
Chlorine Eff mg/l	Var44	1.006	13	Sodium chlorite lbs/24H	Var9	1.90596E+13	13
pH Settled	Var39	1.005	14	Sodium Chlorite gals/24H	Var20	1.86191E+13	14
Hydryfluosilicic acid PPM/24H	Var26	1.004	15	Zinc orthophosphate lbs/24H	Var12	1.44122E+13	15
Polyaluminum chloride lbs/24H	Var6	1.004	16	Polymer PPM/24H	Var22	1.28786E+13	16
Sysdel SR Main MGD	Var30	1.004	17	Carbon PPM/24H	Var25	1.28786E+13	17
Chlorine CW mg/l	Var43	1.004	18	Sodium hydroxide gals/24H	Var17	9.58553E+12	18
Air temp °C min/24H	Var54	1.002	19	Polyaluminum chloride lbs/24H	Var6	1.06	19
Chlorine lowest mg/l/24H	Var50	1.002	20	Sysdel SR Main MGD	Var30	1.049	20
Sysdel NS Main MGD	Var32	1.002	21	Temp Raw °C	Var45	1.023	21
Chlorine Settled mg/l	Var42	1.002	22	Sysdel SR Midd MGD	Var31	1.019	22
Sodium hydroxide gals/24H	Var17	1.002	23	Sysdel NS Main MGD	Var32	1.017	23
Hydrofluosilicic acid lbs/24H	Var11	1.001	24	System Delivery MGD	Var2	1.012	24
Sodium chlorite lbs/24H	Var9	1.001	25	Turbidity Settled NTU	Var35	1.011	25
Zinc orthophosphate gals/24H	Var19	1.001	26	CW Lowest level/24H	Var51	1.011	26
Peak flow raw MGD/24H	Var52	1.001	27	Polyaluminum chloride gals/24H	Var15	1.01	27
Sodium hydroxide lbs/24H	Var10	1.001	28	Temp Eff °C	Var46	1.008	28
Peak flow eff MGD/24H	Var53	1.001	29	Zinc orthophosphate PPM/24H	Var27	1.005	29
Polymer lbs/24H	Var7	1.001	30	Carbon lbs/24H	Var5	1.004	30
Average % solids/liter	Var14	1.001	31	Air temp °C min/24H	Var54	1.002	31
Ferric chloride lbs/24H	Var13	1	32	Air temp °C avg/24H	Var56	1.002	32
Carbon PPM/24H	Var25	1	33	Raw MGD/24H	Var1	1.002	33
System Delivery MGD	Var2	1	34	Peak flow raw MGD/24H	Var52	1.002	34
Sodium chlorite PPM/24H	Var29	1	35	Chlorine Settled mg/l	Var42	1.002	35
CW Lowest level/24H	Var51	1	36	Sodium chlorite PPM/24H	Var29	1.002	36
Polymer PPM/24H	Var22	1	37	pH Mix	Var38	1.001	37
Hydrofluosilicic acid gals/24H	Var18	1	38	Chlorine Eff mg/l	Var44	1.001	38
Polyaluminum chloride gals/24H	Var15	1	39	Ferric chloride PPM/24H	Var28	1.001	39
pH Mix	Var38	1	40	Turbidity Raw NTU	Var34	1.001	40
Sysdel SR Midd MGD	Var31	1	41	Sysdel NS Midd MGD	Var33	1	41
Washwater MGD	Var4	1	42	Fluoride avg.mg/l/24H	Var47	1	42
NTU over limit	Var36	1	43	Washwater MGD	Var4	1	43
Turbidities measured/24H	Var49	1	44	Air temp °C max/24H	Var55	1	44
Turbidities required/24H	Var48	1	45	Chlorine lbs/24H	Var8	1	45
Sodium Chlorite gals/24H	Var20	1	46	Turbidities measured/24H	Var49	1	46
Carbon lbs/24H	Var5	1	47	Turbidities required/24H	Var48	1	47
Polymer gals/24H	Var16	1	48	NTU over limit	Var36	1	48
Zinc orthophosphate lbs/24H	Var12	1	49	Settled readings >2,0 NTU/24H	Var57	1	49
Turbidity Raw NTU	Var34	1	50	Chlorine mix mg/l	Var41	1	50
Chlorine lbs/24H	Var8	0.999	51	pH Settled	Var39	1	51
Air temp °C avg/24H	Var56	0.999	52	Chlorine lowest mg/l/24H	Var50	0.999	52
Settled readings >2,0 NTU/24H	Var57	0.999	53	pH Raw	Var37	0.999	53
Zinc orthophosphate PPM/24H	Var27	0.999	54	Chlorine CW mg/l	Var43	0.999	54
Ferric chloride PPM/24H	Var28	0.998	55	Filters Washed/24H	Var3	0.998	55
Air temp °C max/24H	Var55	0.998	56	Peak flow eff MGD/24H	Var53	0.997	56
pH Effluent	Var40	0.996	57	pH Effluent	Var40	0.313	57

Table 14.

ANN				Linear Model			
Sodium chlorite lbs/24H	Var9	1.148	1	Average % solids/liter	Var14	6.22E+13	1
Chlorine mix mg/l	Var41	1.107	2	Zinc orthophosphate gals/24H	Var19	6.22E+13	2
Air temp °C min/24H	Var54	1.076	3	Polymer gals/24H	Var16	5.72E+13	3
Temp Raw °C	Var45	1.06	4	Polymer lbs/24H	Var7	5.72E+13	4
Turbidity Settled NTU	Var35	1.059	5	Hydrofluosilicic acid lbs/24H	Var11	5.12E+13	5
Air temp °C max/24H	Var55	1.057	6	Sodium hydroxide gals/24H	Var17	4.85E+13	6
Hydryfluosilicic acid PPM/24H	Var26	1.037	7	Chlorine PPM/24H	Var24	3.32E+13	7
Chlorine lbs/24H	Var8	1.037	8	Polyaluminum chloride PPM/24H	Var21	3.32E+13	8
System Delivery MGD	Var2	1.034	9	Sodium chlorite lbs/24H	Var9	3.07E+13	9
Chlorine CW mg/l	Var43	1.031	10	Sodium hydroxide lbs/24H	Var10	2.52E+13	10
Temp Eff °C	Var46	1.029	11	Hydrofluosilicic acid gals/24H	Var18	2.35E+13	11
pH Raw	Var37	1.027	12	Ferric chloride lbs/24H	Var13	2.35E+13	12
CW Lowest level/24H	Var51	1.026	13	Zinc orthophosphate lbs/24H	Var12	2.33E+13	13
Washwater MGD	Var4	1.024	14	Sodium Chlorite gals/24H	Var20	2.05E+13	14
Polyaluminum chloride PPM/24H	Var21	1.024	15	Carbon PPM/24H	Var25	1.58E+13	15
pH Settled	Var39	1.022	16	Polymer PPM/24H	Var22	1.58E+13	16
Sodium Chlorite gals/24H	Var20	1.02	17	Hydryfluosilicic acid PPM/24H	Var26	9.60E+12	17
Average % solids/liter	Var14	1.019	18	NaOH PPM/24H	Var23	9.60E+12	18
Sysdel SR Main MGD	Var30	1.018	19	Temp Raw °C	Var45	1.313	19
Filters Washed/24H	Var3	1.018	20	Temp Eff °C	Var46	1.146	20
Zinc orthophosphate PPM/24H	Var27	1.017	21	System Delivery MGD	Var2	1.114	21
Sodium hydroxide gals/24H	Var17	1.014	22	Raw MGD/24H	Var1	1.052	22
pH Mix	Var38	1.014	23	Turbidity Settled NTU	Var35	1.051	23
NaOH PPM/24H	Var23	1.014	24	Sysdel SR Midd MGD	Var31	1.043	24
Peak flow raw MGD/24H	Var52	1.014	25	Chlorine lbs/24H	Var8	1.029	25
Chlorine PPM/24H	Var24	1.012	26	Polyaluminum chloride gals/24H	Var15	1.027	26
Chlorine Settled mg/l	Var42	1.011	27	Carbon lbs/24H	Var5	1.024	27
Zinc orthophosphate gals/24H	Var19	1.011	28	Peak flow eff MGD/24H	Var53	1.023	28
Raw MGD/24H	Var1	1.011	29	Chlorine mix mg/l	Var41	1.02	29
Sodium hydroxide lbs/24H	Var10	1.009	30	Air temp °C avg/24H	Var56	1.015	30
Chlorine lowest mg/l/24H	Var50	1.007	31	Air temp °C max/24H	Var55	1.012	31
Polymer lbs/24H	Var7	1.006	32	Polyaluminum chloride lbs/24H	Var6	1.008	32
Settled readings >2,0 NTU/24H	Var57	1.005	33	Fluoride avg.mg/l/24H	Var47	1.007	33
Polymer PPM/24H	Var22	1.004	34	Chlorine Settled mg/l	Var42	1.006	34
Fluoride avg.mg/l/24H	Var47	1.004	35	Sysdel SR Main MGD	Var30	1.003	35
Polymer gals/24H	Var16	1.003	36	Air temp °C min/24H	Var54	1.003	36
Chlorine Eff mg/l	Var44	1.003	37	Peak flow raw MGD/24H	Var52	1.002	37
Turbidity Raw NTU	Var34	1.003	38	Sodium chlorite PPM/24H	Var29	1.001	38
Peak flow eff MGD/24H	Var53	1.003	39	Sysdel NS Main MGD	Var32	1.001	39
Air temp °C avg/24H	Var56	1.003	40	pH Raw	Var37	1.001	40
Sysdel NS Main MGD	Var32	1.003	41	Ferric chloride PPM/24H	Var28	1.001	41
Carbon PPM/24H	Var25	1.002	42	pH Mix	Var38	1.001	42
Polyaluminum chloride gals/24H	Var15	1.002	43	Chlorine lowest mg/l/24H	Var50	1	43
Hydrofluosilicic acid gals/24H	Var18	1.001	44	Settled readings >2,0 NTU/24H	Var57	1	44
Polyaluminum chloride lbs/24H	Var6	1.001	45	NTU over limit	Var36	1	45
Sysdel NS Midd MGD	Var33	1.001	46	Turbidities measured/24H	Var49	1	46
Hydrofluosilicic acid lbs/24H	Var11	1.001	47	Turbidities required/24H	Var48	1	47
Ferric chloride lbs/24H	Var13	1	48	Sysdel NS Midd MGD	Var33	1	48
Sodium chlorite PPM/24H	Var29	1	49	Chlorine Eff mg/l	Var44	1	49
Turbidities required/24H	Var48	1	50	Filters Washed/24H	Var3	1	50
NTU over limit	Var36	1	51	Turbidity Raw NTU	Var34	1	51
Turbidities measured/24H	Var49	1	52	pH Settled	Var39	0.999	52
pH Effluent	Var40	1	53	Washwater MGD	Var4	0.998	53
Sysdel SR Midd MGD	Var31	0.999	54	Zinc orthophosphate PPM/24H	Var27	0.998	54
Carbon lbs/24H	Var5	0.999	55	Chlorine CW mg/l	Var43	0.989	55
Zinc orthophosphate lbs/24H	Var12	0.999	56	CW Lowest level/24H	Var51	0.974	56
Ferric chloride PPM/24H	Var28	0.995	57	pH Effluent	Var40	0.619	57

Table 15.

Turbidity			Turbidity Reduced		
Temp Raw °C	1.087	1	Temp Raw °C	2.059332	1
Turbidity Settled NTU	1.03699	2	Temp Eff °C	1.620327	2
Chlorine mix mg/l	1.03483	3	Turbidity Settled NTU	1.126475	3
Chlorine Eff mg/l	1.02858	4	Hydryfluosilicic acid PPM/24H	1.062644	4
Filters Washed/24H	1.020621	5	Filters Washed/24H	1.059522	5
Temp Eff °C	1.02025	6	Chlorine PPM/24H	1.056567	6
Chlorine PPM/24H	1.01637	7	Chlorine mix mg/l	1.051521	7
Hydryfluosilicic acid PPM/24H	1.01506	8	Fluoride avg.mg/l/24H	1.047177	8
Fluoride avg.mg/l/24H	1.01173	9	Air temp °C min/24H	1.035181	9
Air temp °C min/24H	1.01104	10	Chlorine Eff mg/l	0.99799	10

Highest Turbidity			Highest Turbidity Reduced		
Turbidity Settled NTU	1.02825	1	Temp Raw °C	1.172367	1
pH Raw	1.01506	2	Turbidity Settled NTU	1.070007	2
NaOH PPM/24H	1.01502	3	Chlorine PPM/24H	1.038624	3
Chlorine mix mg/l	1.01294	4	NaOH PPM/24H	1.035102	4
Temp Raw °C	1.01199	5	Chlorine mix mg/l	1.033076	5
Chlorine PPM/24H	1.01144	6	Filters Washed/24H	1.018472	6
Raw MGD/24H	1.011406	7	Raw MGD/24H	1.01644	7
Fluoride avg.mg/l/24H	1.01024	8	Fluoride avg.mg/l/24H	1.009059	8
Filters Washed/24H	1.006998	9	pH Raw	1.003328	9

Readings			Readings Reduced		
Sodium chlorite lbs/24H	1.147799	1	Temp Raw °C	1.257054	1
Chlorine mix mg/l	1.107004	2	Hydryfluosilicic acid PPM/24H	1.182786	2
Air temp °C min/24H	1.075601	3	Turbidity Settled NTU	1.11108	3
Temp Raw °C	1.059846	4	Chlorine mix mg/l	1.107227	4
Turbidity Settled NTU	1.058936	5	Air temp °C min/24H	1.084027	5
Air temp °C max/24H	1.056682	6	System Delivery MGD	1.053657	6
Hydryfluosilicic acid PPM/24H	1.037087	7	Chlorine lbs/24H	1.038624	7
Chlorine lbs/24H	1.036777	8	Sodium chlorite lbs/24H	1.036901	8
System Delivery MGD	1.034205	9	Air temp °C max/24H	1.009533	9
Chlorine CW mg/l	1.031279	10	Chlorine CW mg/l	0.99912	10

Table 16.

Turbidity				FewerTurbidity			
Temp Raw °C	Var45	1.087	1	Temp Raw °C	Var45	1.177	1
Turbidity Settled NTU	Var35	1.037	2	Temp Eff °C	Var46	1.118	2
Chlorine mix mg/l	Var41	1.035	3	Turbidity Settled NTU	Var35	1.101	3
Chlorine Eff mg/l	Var44	1.029	4	Hydryfluosilicic acid PPM/24H	Var26	1.095	4
Filters Washed/24H	Var3	1.021	5	System Delivery MGD	Var2	1.077	5
Temp Eff °C	Var46	1.02	6	Sodium hydroxide gals/24H	Var17	1.046	6
Chlorine PPM/24H	Var24	1.016	7	Chlorine mix mg/l	Var41	1.041	7
Hydryfluosilicic acid PPM/24H	Var26	1.015	8	Filters Washed/24H	Var3	1.04	8
Fluoride avg.mg/l/24H	Var47	1.012	9	Sysdel NS Main MGD	Var32	1.031	9
Air temp °C min/24H	Var54	1.011	10	Fluoride avg.mg/l/24H	Var47	1.025	10
CW Lowest level/24H	Var51	1.009	11	Polyaluminum chloride PPM/24H	Var21	1.025	11
Sodium hydroxide gals/24H	Var17	1.008	12	Turbidity Raw NTU	Var34	1.024	12
Sysdel NS Midd MGD	Var33	1.008	13	pH Settled	Var39	1.022	13
Zinc orthophosphate lbs/24H	Var12	1.007	14	Sysdel NS Midd MGD	Var33	1.022	14
Chlorine CW mg/l	Var43	1.007	15	Zinc orthophosphate PPM/24H	Var27	1.021	15
pH Settled	Var39	1.006	16	Air temp °C min/24H	Var54	1.019	16
Sysdel NS Main MGD	Var32	1.006	17	Chlorine PPM/24H	Var24	1.018	17
Raw MGD/24H	Var1	1.006	18	Polymer lbs/24H	Var7	1.017	18
Polyaluminum chloride PPM/24H	Var21	1.006	19	NaOH PPM/24H	Var23	1.016	19
Polymer lbs/24H	Var7	1.005	20	Raw MGD/24H	Var1	1.015	20
System Delivery MGD	Var2	1.005	21	Zinc orthophosphate lbs/24H	Var12	1.014	21
Average % solids/liter	Var14	1.004	22	pH Raw	Var37	1.011	22
Hydrofluosilicic acid lbs/24H	Var11	1.003	23	Sodium chlorite lbs/24H	Var9	1.01	23
Zinc orthophosphate PPM/24H	Var27	1.003	24	Hydrofluosilicic acid lbs/24H	Var11	1.009	24
pH Raw	Var37	1.002	25	CW Lowest level/24H	Var51	1.007	25
Turbidity Raw NTU	Var34	1.002	26	Polyaluminum chloride lbs/24H	Var6	1.007	26
NaOH PPM/24H	Var23	1.002	27	Chlorine Eff mg/l	Var44	1.005	27
Air temp °C max/24H	Var55	1.002	28	Hydrofluosilicic acid gals/24H	Var18	1.004	28
Polyaluminum chloride lbs/24H	Var6	1.001	29	Average % solids/liter	Var14	1.001	29
Sodium Chlorite gals/24H	Var20	1.001	30	Sodium Chlorite gals/24H	Var20	1.001	30
Hydrofluosilicic acid gals/24H	Var18	1.001	31	Air temp °C max/24H	Var55	1	31
Sodium chlorite lbs/24H	Var9	1.001	32	Chlorine CW mg/l	Var43	0.999	32

Table 17.

EffHighest				EffHighest Fewer			
Turbidity Settled NTU	Var35	1.028	1	Temp Raw °C	Var45	1.123	1
pH Raw	Var37	1.015	2	Turbidity Settled NTU	Var35	1.049	2
NaOH PPM/24H	Var23	1.015	3	Hydrofluosilicic acid lbs/24H	Var11	1.045	3
Chlorine mix mg/l	Var41	1.013	4	Hydryfluosilicic acid PPM/24H	Var26	1.044	4
Temp Raw °C	Var45	1.012	5	Polyaluminum chloride PPM/24H	Var21	1.044	5
Chlorine PPM/24H	Var24	1.011	6	Raw MGD/24H	Var1	1.028	6
Raw MGD/24H	Var1	1.011	7	Temp Eff °C	Var46	1.024	7
Fluoride avg.mg/l/24H	Var47	1.01	8	Chlorine mix mg/l	Var41	1.02	8
Filters Washed/24H	Var3	1.007	9	Chlorine CW mg/l	Var43	1.017	9
Polyaluminum chloride PPM/24H	Var21	1.007	10	Sodium hydroxide lbs/24H	Var10	1.016	10
Temp Eff °C	Var46	1.006	11	Peak flow raw MGD/24H	Var52	1.015	11
Sysdel NS Midd MGD	Var33	1.006	12	Filters Washed/24H	Var3	1.014	12
Chlorine Eff mg/l	Var44	1.006	13	Air temp °C min/24H	Var54	1.01	13
pH Settled	Var39	1.005	14	pH Raw	Var37	1.009	14
Hydryfluosilicic acid PPM/24H	Var26	1.004	15	Sysdel NS Main MGD	Var32	1.009	15
Polyaluminum chloride lbs/24H	Var6	1.004	16	Sysdel NS Midd MGD	Var33	1.008	16
Sysdel SR Main MGD	Var30	1.004	17	Chlorine PPM/24H	Var24	1.007	17
Chlorine CW mg/l	Var43	1.004	18	Fluoride avg.mg/l/24H	Var47	1.007	18
Air temp °C min/24H	Var54	1.002	19	NaOH PPM/24H	Var23	1.006	19
Chlorine lowest mg/l/24H	Var50	1.002	20	Sodium chlorite lbs/24H	Var9	1.005	20
Sysdel NS Main MGD	Var32	1.002	21	Chlorine Eff mg/l	Var44	1.005	21
Chlorine Settled mg/l	Var42	1.002	22	Chlorine Settled mg/l	Var42	1.004	22
Sodium hydroxide gals/24H	Var17	1.002	23	Sodium hydroxide gals/24H	Var17	1.004	23
Hydrofluosilicic acid lbs/24H	Var11	1.001	24	Sysdel SR Main MGD	Var30	1.003	24
Sodium chlorite lbs/24H	Var9	1.001	25	pH Settled	Var39	1.002	25
Zinc orthophosphate gals/24H	Var19	1.001	26	Polyaluminum chloride lbs/24H	Var6	1.001	26
Peak flow raw MGD/24H	Var52	1.001	27	Chlorine lowest mg/l/24H	Var50	1	27
Sodium hydroxide lbs/24H	Var10	1.001	28	Zinc orthophosphate gals/24H	Var19	0.994	28

Table 18.

Readings				Readings Fewer			
Sodium chlorite lbs/24H	Var9	1.148	1	Temp Raw °C	Var45	1.164	1
Chlorine mix mg/l	Var41	1.107	2	Turbidity Settled NTU	Var35	1.131	2
Air temp °C min/24H	Var54	1.076	3	Sodium hydroxide lbs/24H	Var10	1.093	3
Temp Raw °C	Var45	1.06	4	Temp Eff °C	Var46	1.087	4
Turbidity Settled NTU	Var35	1.059	5	Polyaluminum chloride PPM/24H	Var21	1.084	5
Air temp °C max/24H	Var55	1.057	6	Chlorine mix mg/l	Var41	1.079	6
Hydryfluosilicic acid PPM/24H	Var26	1.037	7	NaOH PPM/24H	Var23	1.052	7
Chlorine lbs/24H	Var8	1.037	8	Sodium hydroxide gals/24H	Var17	1.049	8
System Delivery MGD	Var2	1.034	9	Air temp °C min/24H	Var54	1.041	9
Chlorine CW mg/l	Var43	1.031	10	Raw MGD/24H	Var1	1.026	10
Temp Eff °C	Var46	1.029	11	Chlorine Settled mg/l	Var42	1.017	11
pH Raw	Var37	1.027	12	Zinc orthophosphate PPM/24H	Var27	1.017	12
CW Lowest level/24H	Var51	1.026	13	Average % solids/liter	Var14	1.014	13
Washwater MGD	Var4	1.024	14	Chlorine lbs/24H	Var8	1.01	14
Polyaluminum chloride PPM/24H	Var21	1.024	15	Hydryfluosilicic acid PPM/24H	Var26	1.01	15
pH Settled	Var39	1.022	16	pH Raw	Var37	1.009	16
Sodium Chlorite gals/24H	Var20	1.02	17	Chlorine CW mg/l	Var43	1.008	17
Average % solids/liter	Var14	1.019	18	Sodium chlorite lbs/24H	Var9	1.008	18
Sysdel SR Main MGD	Var30	1.018	19	Zinc orthophosphate gals/24H	Var19	1.007	19
Filters Washed/24H	Var3	1.018	20	Sodium Chlorite gals/24H	Var20	1.003	20
Zinc orthophosphate PPM/24H	Var27	1.017	21	Peak flow raw MGD/24H	Var52	1.003	21
Sodium hydroxide gals/24H	Var17	1.014	22	pH Mix	Var38	1.002	22
pH Mix	Var38	1.014	23	Chlorine PPM/24H	Var24	1.002	23
NaOH PPM/24H	Var23	1.014	24	Air temp °C max/24H	Var55	1.002	24
Peak flow raw MGD/24H	Var52	1.014	25	Settled readings >2,0 NTU/24H	Var57	1.001	25
Chlorine PPM/24H	Var24	1.012	26	Polymer lbs/24H	Var7	1.001	26
Chlorine Settled mg/l	Var42	1.011	27	System Delivery MGD	Var2	1.001	27
Zinc orthophosphate gals/24H	Var19	1.011	28	CW Lowest level/24H	Var51	1	28
Raw MGD/24H	Var1	1.011	29	pH Settled	Var39	1	29
Sodium hydroxide lbs/24H	Var10	1.009	30	Filters Washed/24H	Var3	1	30
Chlorine lowest mg/l/24H	Var50	1.007	31	Chlorine lowest mg/l/24H	Var50	0.998	31
Polymer lbs/24H	Var7	1.006	32	Sysdel SR Main MGD	Var30	0.997	32
Settled readings >2,0 NTU/24H	Var57	1.005	33	Washwater MGD	Var4	0.994	33

Table 19.

Spring		
Raw MGD/24H	1.002306	25
System Delivery MGD	1.006145	17
Filters Washed/24H	0.99928	44
Washwater MGD	1.013835	7
Carbon lbs/24H	0.998833	46
Polyaluminum chloride lbs/24H	0.99572	52
Polymer lbs/24H	1.026545	4
Chlorine lbs/24H	1.003496	23
Sodium chlorite lbs/24H	1	36
Sodium hydroxide lbs/24H	0.990162	56
Hydrofluosilicic acid lbs/24H	1	37
Zinc orthophosphate lbs/24H	1.004501	21
Ferric chloride lbs/24H	1.000053	34
Average % solids/liter	0.995073	53
Polyaluminum chloride gals/24H	1	38
Polymer gals/24H	0.998863	45
Sodium hydroxide gals/24H	0.990264	55
Hydrofluosilicic acid gals/24H	1.006313	16
Zinc orthophosphate gals/24H	1.001197	31
Sodium Chlorite gals/24H	1	41
Polyaluminum chloride PPM/24H	1.001919	27
Polymer PPM/24H	1.005408	19
NaOH PPM/24H	1.002202	26
Chlorine PPM/24H	1.001224	29
Carbon PPM/24H	1.000763	32
Hydrofluosilicic acid PPM/24H	1.007461	14
Zinc orthophosphate PPM/24H	1.009778	10
Ferric chloride PPM/24H	0.996537	49
Sodium chlorite PPM/24H	1.001249	28
Sysdel SR Main MGD	1.005316	20
Sysdel SR Midd MGD	1	42
Sysdel NS Main MGD	1	40
Sysdel NS Midd MGD	1.016572	6
Turbidity Raw NTU	1.007114	15
Turbidity Settled NTU	1.008022	13
NTU over limit	1	35
pH Raw	0.983731	57
pH Mix	1.0081	12
pH Settled	1.013116	8
pH Effluent	1.045771	2
Chlorine mix mg/l	1.000377	33
Chlorine Settled mg/l	0.997358	48
Chlorine CW mg/l	1.00432	22
Chlorine Eff mg/l	1.002306	24
Temp Raw °C	1.110257	1
Temp Eff °C	1.01039	9
Fluoride avg.mg/l/24H	0.993047	54
Turbidities required/24H	1	43
Turbidities measured/24H	1	39
Chlorine lowest mg/l/24H	1.001211	30
CW Lowest level/24H	0.998405	47
Peak flow raw MGD/24H	0.995774	51
Peak flow eff MGD/24H	1.005988	18
Air temp °C min/24H	0.995844	50
Air temp °C max/24H	1.040954	3
Air temp °C avg/24H	1.00867	11
Settled readings >2,0 NTU/24H	1.024493	5

Summer		
Raw MGD/24H	0.999027	45
System Delivery MGD	1.047182	4
Filters Washed/24H	0.989807	51
Washwater MGD	0.969856	57
Carbon lbs/24H	0.991074	50
Polyaluminum chloride lbs/24H	0.994011	49
Polymer lbs/24H	0.996817	46
Chlorine lbs/24H	1.004011	28
Sodium chlorite lbs/24H	1	34
Sodium hydroxide lbs/24H	0.995966	48
Hydrofluosilicic acid lbs/24H	1	42
Zinc orthophosphate lbs/24H	1.006269	24
Ferric chloride lbs/24H	0.996493	47
Average % solids/liter	0.985673	55
Polyaluminum chloride gals/24H	1	41
Polymer gals/24H	1.002142	30
Sodium hydroxide gals/24H	0.989799	52
Hydrofluosilicic acid gals/24H	1.010261	21
Zinc orthophosphate gals/24H	1.01433	16
Sodium Chlorite gals/24H	1	36
Polyaluminum chloride PPM/24H	0.988726	54
Polymer PPM/24H	1.004398	26
NaOH PPM/24H	1.010266	20
Chlorine PPM/24H	1.03376	8
Carbon PPM/24H	1.012253	17
Hydrofluosilicic acid PPM/24H	1.00121	32
Zinc orthophosphate PPM/24H	1.002666	29
Ferric chloride PPM/24H	1.036687	6
Sodium chlorite PPM/24H	0.999645	44
Sysdel SR Main MGD	0.989037	53
Sysdel SR Midd MGD	1	39
Sysdel NS Main MGD	1	37
Sysdel NS Midd MGD	1.008351	22
Turbidity Raw NTU	1.045224	5
Turbidity Settled NTU	1.022947	10
NTU over limit	1	35
pH Raw	1.023091	9
pH Mix	1.011478	18
pH Settled	1.021624	12
pH Effluent	1.004095	27
Chlorine mix mg/l	1.053566	3
Chlorine Settled mg/l	1.035029	7
Chlorine CW mg/l	1.001795	31
Chlorine Eff mg/l	1.017503	13
Temp Raw °C	1.09897	1
Temp Eff °C	1.077648	2
Fluoride avg.mg/l/24H	1.011292	19
Turbidities required/24H	1	40
Turbidities measured/24H	1	38
Chlorine lowest mg/l/24H	0.999812	43
CW Lowest level/24H	1.000888	33
Peak flow raw MGD/24H	1.016943	14
Peak flow eff MGD/24H	1.004897	25
Air temp °C min/24H	1.0223	11
Air temp °C max/24H	0.975053	56
Air temp °C avg/24H	1.007559	23
Settled readings >2,0 NTU/24H	1.014751	15

Table 20.

Fall		
Raw MGD/24H	1.026485	9
System Delivery MGD	1.003694	34
Filters Washed/24H	1.051514	4
Washwater MGD	1.00817	27
Carbon lbs/24H	1.000578	42
Polyaluminum chloride lbs/24H	0.999179	49
Polymer lbs/24H	1.004173	33
Chlorine lbs/24H	1.011919	19
Sodium chlorite lbs/24H	1.010045	23
Sodium hydroxide lbs/24H	1.008144	28
Hydrofluosilicic acid lbs/24H	0.998326	50
Zinc orthophosphate lbs/24H	0.999758	48
Ferric chloride lbs/24H	1.021616	13
Average % solids/liter	1.009951	24
Polyaluminum chloride gals/24H	1.002943	37
Polymer gals/24H	1.022617	12
Sodium hydroxide gals/24H	1.001408	41
Hydrofluosilicic acid gals/24H	1.004396	32
Zinc orthophosphate gals/24H	0.991714	57
Sodium Chlorite gals/24H	1.002578	39
Polyaluminum chloride PPM/24H	1.022848	11
Polymer PPM/24H	1.011611	20
NaOH PPM/24H	1.014686	16
Chlorine PPM/24H	1.007826	29
Carbon PPM/24H	1.008228	26
Hydrofluosilicic acid PPM/24H	1.048858	5
Zinc orthophosphate PPM/24H	1.012671	18
Ferric chloride PPM/24H	1.001455	40
Sodium chlorite PPM/24H	0.997837	53
Sysdel SR Main MGD	0.997627	54
Sysdel SR Midd MGD	1.008305	25
Sysdel NS Main MGD	1.077267	3
Sysdel NS Midd MGD	1.003635	35
Turbidity Raw NTU	1.030981	7
Turbidity Settled NTU	0.997885	52
NTU over limit	1	44
pH Raw	1.039871	6
pH Mix	1.005546	31
pH Settled	0.996641	56
pH Effluent	1.030239	8
Chlorine mix mg/l	1.018322	15
Chlorine Settled mg/l	1.026049	10
Chlorine CW mg/l	1.000391	43
Chlorine Eff mg/l	1.010704	22
Temp Raw °C	0.997307	55
Temp Eff °C	1.00296	36
Fluoride avg.mg/l/24H	1.090768	2
Turbidities required/24H	1	46
Turbidities measured/24H	1	45
Chlorine lowest mg/l/24H	1.014471	17
CW Lowest level/24H	1.010755	21
Peak flow raw MGD/24H	0.998231	51
Peak flow eff MGD/24H	1.021165	14
Air temp °C min/24H	0.9998	47
Air temp °C max/24H	1.006389	30
Air temp °C avg/24H	1.097822	1
Settled readings >2,0 NTU/24H	1.002811	38

Winter		
Raw MGD/24H	1.009727	8
System Delivery MGD	0.998755	45
Filters Washed/24H	0.996912	51
Washwater MGD	1.017212	5
Carbon lbs/24H	0.989615	57
Polyaluminum chloride lbs/24H	0.993328	54
Polymer lbs/24H	1.001831	23
Chlorine lbs/24H	1.000554	33
Sodium chlorite lbs/24H	1.000801	30
Sodium hydroxide lbs/24H	1.003299	20
Hydrofluosilicic acid lbs/24H	1.001048	28
Zinc orthophosphate lbs/24H	0.999595	43
Ferric chloride lbs/24H	1.005235	16
Average % solids/liter	1.010599	7
Polyaluminum chloride gals/24H	1	39
Polymer gals/24H	1.000485	34
Sodium hydroxide gals/24H	1.001852	22
Hydrofluosilicic acid gals/24H	1.000324	35
Zinc orthophosphate gals/24H	0.998477	47
Sodium Chlorite gals/24H	1.002221	21
Polyaluminum chloride PPM/24H	0.990371	56
Polymer PPM/24H	1.000655	31
NaOH PPM/24H	1.001579	25
Chlorine PPM/24H	0.995315	52
Carbon PPM/24H	1.001469	26
Hydrofluosilicic acid PPM/24H	1.000963	29
Zinc orthophosphate PPM/24H	1.009474	9
Ferric chloride PPM/24H	0.994165	53
Sodium chlorite PPM/24H	1.001716	24
Sysdel SR Main MGD	1.011355	6
Sysdel SR Midd MGD	1	42
Sysdel NS Main MGD	0.997409	48
Sysdel NS Midd MGD	0.997226	50
Turbidity Raw NTU	1.003757	19
Turbidity Settled NTU	1.043882	1
NTU over limit	1	41
pH Raw	1.004953	17
pH Mix	1.005659	15
pH Settled	1.006482	14
pH Effluent	1.001146	27
Chlorine mix mg/l	1.007065	13
Chlorine Settled mg/l	1.007726	11
Chlorine CW mg/l	1.004432	18
Chlorine Eff mg/l	1.000154	37
Temp Raw °C	0.99889	44
Temp Eff °C	1.021741	4
Fluoride avg.mg/l/24H	1.00059	32
Turbidities required/24H	1	38
Turbidities measured/24H	1	40
Chlorine lowest mg/l/24H	1.027784	3
CW Lowest level/24H	1.007278	12
Peak flow raw MGD/24H	0.998678	46
Peak flow eff MGD/24H	1.040706	2
Air temp °C min/24H	0.992514	55
Air temp °C max/24H	1.000185	36
Air temp °C avg/24H	0.997279	49
Settled readings >2,0 NTU/24H	1.008538	10

APPENDIX C-1

PVWC MODELING Classification Modeling Results

Table 1. Comparison of measured Chlorophytes counts against ANN One-week Ahead Class-predicted values at Station 101 without Chemical Inputs

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
1	368	>200	Correct	49	8	0-10	Correct
2	28	11-50	Correct	50	16	11-50	Correct
3	64	51-200	Correct	51	8	0-10	Correct
4	204	>200	Correct	52	4	0-10	Correct
5	124	51-200	Correct	53	24	11-50	Correct
6	420	>200	Correct	54	4	0-10	Correct
7	252	>200	Correct	55	16	11-50	Correct
8	32	0-10	Incorrect	56	72	51-200	Correct
9	8	0-10	Correct	57	84	51-200	Correct
10	0	0-10	Correct	58	84	51-200	Correct
11	12	11-50	Correct	59	304	>200	Correct
12	4	0-10	Correct	60	4	0-10	Correct
13	0	0-10	Correct	61	0	0-10	Correct
14	12	11-50	Correct	62	8	0-10	Correct
15	0	0-10	Correct	63	16	11-50	Correct
16	4	0-10	Correct	64	8	0-10	Correct
17	0	0-10	Correct	65	28	11-50	Correct
18	4	0-10	Correct	66	28	11-50	Correct
19	0	0-10	Correct	67	36	11-50	Correct
20	4	0-10	Correct	68	52	51-200	Correct
21	0	0-10	Correct	69	52	51-200	Correct
22	0	0-10	Correct	70	12	11-50	Correct
23	0	0-10	Correct	71	8	0-10	Correct
24	0	0-10	Correct	72	0	0-10	Correct
25	0	0-10	Correct	73	4	0-10	Correct
26	0	0-10	Correct	74	0	0-10	Correct
27	20	11-50	Correct	75	16	11-50	Correct
28	0	0-10	Correct	76	16	11-50	Correct
29	68	51-200	Correct	77	8	0-10	Correct
30	260	>200	Correct	78	12	11-50	Correct
31	180	51-200	Correct	79	4	0-10	Correct
32	164	51-200	Correct	80	4	0-10	Correct
33	108	51-200	Correct	81	0	0-10	Correct
34	120	51-200	Correct	82	0	0-10	Correct
35	32	11-50	Correct	83	0	0-10	Correct
36	24	11-50	Correct	84	0	0-10	Correct
37	20	11-50	Correct	85	0	0-10	Correct
38	32	11-50	Correct	86	8	0-10	Correct
39	52	51-200	Correct	87	24	11-50	Correct
40	72	51-200	Correct	88	52	51-200	Correct
41	140	51-200	Correct	89	12	11-50	Correct
42	320	>200	Correct	90	12	11-50	Correct
43	148	51-200	Correct	91	8	0-10	Correct
44	76	51-200	Correct	92	0	0-10	Correct
45	60	51-200	Correct	93	4	0-10	Correct
46	36	11-50	Correct	94	0	0-10	Correct
47	20	11-50	Correct	95	0	0-10	Correct
48	8	0-10	Correct	96	4	0-10	Correct

Table 2. Comparison of measured Chlorophytes counts against ANN One-week Ahead Class-predicted values at Station 101 with Chemical Inputs

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
1	4	0-10	Correct	25	24	11-50	Correct
2	0	0-10	Correct	26	4	0-10	Correct
3	12	11-50	Correct	27	16	11-50	Correct
4	0	0-10	Correct	28	72	51-200	Correct
5	0	0-10	Correct	29	84	51-200	Correct
6	0	0-10	Correct	30	84	51-200	Correct
7	68	51-200	Correct	31	152	51-200	Correct
8	164	51-200	Correct	32	144	51-200	Correct
9	84	51-200	Correct	33	304	>200	Correct
10	52	51-200	Correct	34	176	51-200	Correct
11	76	51-200	Correct	35	92	51-200	Correct
12	64	51-200	Correct	36	284	>200	Correct
13	20	11-50	Correct	37	284	>200	Correct
14	0	0-10	Correct	38	0	0-10	Correct
15	8	0-10	Correct	39	8	0-10	Correct
16	8	0-10	Correct	40	28	11-50	Correct
17	40	11-50	Correct	41	12	11-50	Correct
18	28	11-50	Correct	42	0	0-10	Correct
19	32	11-50	Correct	43	16	11-50	Correct
20	16	11-50	Correct	44	4	0-10	Correct
21	8	0-10	Correct	45	0	0-10	Correct
22	0	0-10	Correct	46	24	11-50	Correct
23	4	0-10	Correct	47	0	0-10	Correct
24	4	0-10	Correct				

Table 3. Comparison of measured Chrysophytes counts against ANN One-week Ahead class-predicted values Station at 612 without Chemical Inputs

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
1	324	>200	Correct	45	12	11-50	Correct
2	300	>200	Correct	46	28	11-50	Correct
3*	232	51-200	Incorrect	47	32	11-50	Correct
4	64	51-200	Correct	48	44	11-50	Correct
5	60	51-200	Correct	49	20	11-50	Correct
6	320	>200	Correct	50	40	11-50	Correct
7	500	>200	Correct	51	60	51-200	Correct
8	280	>200	Correct	52	92	51-200	Correct
9	84	51-200	Correct	53	16	11-50	Correct
10	44	51-200	Incorrect	54	20	11-50	Correct
11	344	>200	Correct	55	68	51-200	Correct
12	236	>200	Correct	56	100	51-200	Correct
13	212	>200	Correct	57	88	51-200	Correct
14*	84	>200	Incorrect	58	60	51-200	Correct
15	28	51-200	Incorrect	59	64	51-200	Correct
16	112	51-200	Correct	60	80	51-200	Correct
17	64	51-200	Correct	61	88	51-200	Correct
18*	4	51-200	Incorrect	62	128	51-200	Correct
19	112	51-200	Correct	63	152	51-200	Correct
20	152	51-200	Correct	64*	212	51-200	Incorrect
21	152	51-200	Correct	65	168	51-200	Correct
22	108	51-200	Correct	66	176	51-200	Correct
23	56	51-200	Correct	67	108	51-200	Correct
24	12	11-50	Correct	68	168	51-200	Correct
25	40	11-50	Correct	69	92	>200	Incorrect
26	72	51-200	Incorrect	70	72	51-200	Correct
27	24	11-50	Correct	71	108	51-200	Correct
28	80	51-200	Correct	72	100	51-200	Correct
29	56	51-200	Correct	73	56	51-200	Correct
30	152	51-200	Correct	74	76	51-200	Correct
31	68	51-200	Correct	75	76	51-200	Correct
32	120	51-200	Correct	76	68	51-200	Correct
33	136	51-200	Correct	77	84	51-200	Correct
34	192	51-200	Correct	78	88	51-200	Correct
35	136	51-200	Correct	79	84	51-200	Correct
36	152	51-200	Correct	80	56	51-200	Correct
37	208	>200	Correct	81	48	51-200	Correct
38	320	>200	Correct	82	68	51-200	Correct
39	164	51-200	Correct	83	200	51-200	Incorrect
40	80	51-200	Correct	84	100	51-200	Correct
41*	156	>200	Incorrect	85*	44	51-200	Incorrect
42	116	51-200	Correct	86	44	11-50	Correct
43	52	51-200	Correct	87	28	11-50	Correct
44	128	51-200	Correct	88	40	11-50	Correct

Table 3. Comparison of measured Chrysophytes counts against ANN One-week Ahead class-predicted values Station at 612 without Chemical Inputs (continuation)

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
89	28	11-50	Correct	132	28	11-50	Correct
90	48	11-50	Correct	133	40	11-50	Correct
91	80	51-200	Correct	134	48	11-50	Correct
92	72	51-200	Correct	135	24	11-50	Correct
93	4	51-200	Incorrect	136	24	11-50	Correct
94*	4	11-50	Incorrect	137	20	11-50	Correct
95	8	11-50	Incorrect	138	12	11-50	Correct
96	32	11-50	Correct	139	20	11-50	Correct
97	68	51-200	Correct	140*	28	51-200	Incorrect
98	84	51-200	Correct	141	16	11-50	Correct
99	84	51-200	Correct	142	8	11-50	Incorrect
100	56	51-200	Correct	143	20	11-50	Correct
101	108	51-200	Correct	144	16	11-50	Correct
102	140	51-200	Correct	145	8	11-50	Incorrect
103	108	51-200	Correct	146	28	11-50	Correct
104	84	51-200	Correct	147	32	11-50	Correct
105	76	51-200	Correct	148*	8	11-50	Incorrect
106	56	51-200	Correct	149	24	11-50	Correct
107	44	11-50	Correct	150	12	11-50	Correct
108	56	51-200	Correct	151	8	11-50	Incorrect
109	32	51-200	Incorrect	152	12	11-50	Correct
110	120	51-200	Correct	153	8	11-50	Incorrect
111	32	51-200	Incorrect	154	4	11-50	Incorrect
112	52	51-200	Correct	155	36	11-50	Correct
113	68	51-200	Correct	156	28	11-50	Correct
114*	16	51-200	Incorrect	157	8	11-50	Incorrect
115	8	51-200	Incorrect	158	32	11-50	Correct
116	36	11-50	Correct	159	24	11-50	Correct
117	24	11-50	Correct	160*	0	11-50	Incorrect
118	24	11-50	Correct	161	36	11-50	Correct
119	40	11-50	Correct	162	36	11-50	Correct
120	24	11-50	Correct	163	28	11-50	Correct
121	32	11-50	Correct	164	32	11-50	Correct
122	32	11-50	Correct	165	32	11-50	Correct
123	4	11-50	Incorrect	166	32	11-50	Correct
124	0	11-50	Incorrect	167	364	>200	Correct
125	28	11-50	Correct	168	108	51-200	Correct
126	20	11-50	Correct	169	76	51-200	Correct
127	32	11-50	Correct	170*	304	51-200	Incorrect
128	24	11-50	Correct	171	280	>200	Correct
129	20	11-50	Correct	172	24	11-50	Correct
130	48	11-50	Correct	173	84	51-200	Correct
131	24	11-50	Correct	174	16	11-50	Correct
89	28	11-50	Correct	132	28	11-50	Correct

Table 4. Comparison of measured Chrysophytes counts against ANN One-week Ahead class-predicted values Station at 612 with Chemical Inputs

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
1	232	>200	Correct	27	56	51-200	Correct
2	280	>200	Correct	28	108	51-200	Correct
3	112	51-200	Correct	29	140	51-200	Correct
4	108	51-200	Correct	30	108	51-200	Correct
5	72	51-200	Correct	31	84	51-200	Correct
6	152	51-200	Correct	32	76	51-200	Correct
7	192	51-200	Correct	33	44	11-50	Correct
8	320	>200	Correct	34	56	51-200	Correct
9	128	51-200	Correct	35	32	11-50	Correct
10	60	51-200	Correct	36	120	51-200	Correct
11	100	51-200	Correct	37	32	11-50	Correct
12	88	51-200	Correct	38	52	51-200	Correct
13	212	>200	Correct	39	68	51-200	Correct
14	92	51-200	Correct	40	16	11-50	Correct
15	56	51-200	Correct	41	32	11-50	Correct
16	76	51-200	Correct	42	0	0-10	Correct
17	88	51-200	Correct	43	20	11-50	Correct
18	44	11-50	Correct	44	20	11-50	Correct
19	40	11-50	Correct	45	24	11-50	Correct
20	80	51-200	Correct	46	8	0-10	Correct
21	72	51-200	Correct	47	8	0-10	Correct
22	4	0-10	Correct	48	32	11-50	Correct
23	4	0-10	Correct	49	32	11-50	Correct
24	8	0-10	Correct	50	108	51-200	Correct
25	68	51-200	Correct	51	84	51-200	Correct
26	84	51-200	Correct				

Table 5. Comparison of measured Chlorophytes counts against ANN Two-week Ahead class-predicted values Station at 612 without Chemical Inputs

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
1	108	11-50	Incorrect	36	0	0-10	Correct
2	16	11-50	Correct	37	8	0-10	Correct
3	24	11-50	Correct	38	4	0-10	Correct
4	96	51-200	Correct	39	4	0-10	Correct
5	72	51-200	Correct	40	0	0-10	Correct
6	140	51-200	Correct	41	0	0-10	Correct
7	72	51-200	Correct	42	4	0-10	Correct
8	340	>200	Correct	43	8	0-10	Correct
9	268	>200	Correct	44	4	0-10	Correct
10	324	>200	Correct	45	24	11-50	Correct
11	56	51-200	Correct	46	8	0-10	Correct
12	56	51-200	Correct	47	0	0-10	Correct
13	24	11-50	Correct	48	120	51-200	Correct
14	48	11-50	Correct	49	472	>200	Correct
15	4	0-10	Correct	50	140	51-200	Correct
16	8	0-10	Correct	51	420	51-200	Incorrect
17	4	0-10	Correct	52	136	>200	Incorrect
18	4	0-10	Correct	53	72	51-200	Correct
19	4	0-10	Correct	54	136	51-200	Correct
20	4	0-10	Correct	55	80	51-200	Correct
21	0	0-10	Correct	56	136	51-200	Correct
22	4	0-10	Correct	57	32	11-50	Correct
23	8	0-10	Correct	58	20	11-50	Correct
24	16	11-50	Correct	59	44	11-50	Correct
25	4	0-10	Correct	60	36	11-50	Correct
26	4	0-10	Correct	61	52	51-200	Correct
27	8	0-10	Correct	62	36	51-200	Incorrect
28	16	0-10	Incorrect	63	36	11-50	Correct
29	4	51-200	Incorrect	64	32	11-50	Correct
30	8	0-10	Correct	65	32	11-50	Correct
31	0	11-50	Incorrect	66	16	11-50	Correct
32	16	11-50	Correct	67	60	11-50	Incorrect
33	4	0-10	Correct	68	20	11-50	Correct
34	32	11-50	Correct	69	52	51-200	Correct
35	4	0-10	Correct	70	44	11-50	Correct

Table 5. Comparison of measured Chlorophytes counts against ANN Two-week Ahead class-predicted values Station at 612 without Chemical Inputs (continuation)

Event	Measured	Bin	Accuracy	Event	Measured	Bin	Accuracy
71	32	11-50	Correct	106	12	0-10	Incorrect
72	8	11-50	Incorrect	107	8	0-10	Correct
73	20	11-50	Correct	108	0	11-50	Incorrect
74	24	11-50	Correct	109	12	11-50	Correct
75	20	11-50	Correct	110	24	11-50	Correct
76	4	0-10	Correct	111	12	11-50	Correct
77	20	0-10	Incorrect	112	36	11-50	Correct
78	5	0-10	Correct	113	36	11-50	Correct
79	4	0-10	Correct	114	40	11-50	Correct
80	20	11-50	Correct	115	24	11-50	Correct
81	4	0-10	Correct	116	20	11-50	Correct
82	20	11-50	Correct	117	20	11-50	Correct
83	24	11-50	Correct	118	16	11-50	Correct
84	44	11-50	Correct	119	32	11-50	Correct
85	40	11-50	Correct	120	16	11-50	Correct
86	24	11-50	Correct	121	4	0-10	Correct
87	8	0-10	Correct	122	24	11-50	Correct
88	16	11-50	Correct	123	24	11-50	Correct
89	160	51-200	Correct	124	12	11-50	Correct
90	84	51-200	Correct	125	20	11-50	Correct
91	132	51-200	Correct	126	8	0-10	Correct
92	76	51-200	Correct	127	8	0-10	Correct
93	132	51-200	Correct	128	4	0-10	Correct
94	36	11-50	Correct	129	0	0-10	Correct
95	4	0-10	Correct	130	0	0-10	Correct
96	0	0-10	Correct	131	4	0-10	Correct
97	4	0-10	Correct	132	0	0-10	Correct
98	0	0-10	Correct	133	8	0-10	Correct
99	0	0-10	Correct	134	0	11-50	Incorrect
100	0	0-10	Correct	135	0	0-10	Correct
101	4	0-10	Correct	136	40	11-50	Correct
102	0	0-10	Correct	137	122	51-200	Correct
103	0	0-10	Correct	138	12	11-50	Correct
104	0	0-10	Correct	139	20	11-50	Correct
105	12	0-10	Incorrect	140	4	11-50	Incorrect

Table 6. Comparison of measured Chlorophytes counts against ANN Two-week Ahead class-predicted values Station at 612 with Chemical Inputs

Event	Measured	Bin	Accuracy
1	16	11-50	Correct
2	140	51-200	Correct
3	48	11-50	Correct
4	0	0-10	Correct
5	4	0-10	Correct
6*	4	11-50	Incorrect
7	32	11-50	Correct
8	4	0-10	Correct
9	8	0-10	Correct
10	120	0-10	Incorrect
11	420	>200	Correct
12	136	11-50	Incorrect
13	36	51-200	Incorrect
14	52	11-50	Correct
15	32	11-50	Correct
16	32	11-50	Correct
17	4	0-10	Correct
18	20	11-50	Correct
19	5	0-10	Correct
20	4	0-10	Correct
21	4	0-10	Correct
22	20	11-50	Correct
23	24	11-50	Correct
24	44	11-50	Correct
25	40	11-50	Correct
26	24	11-50	Correct
27	16	11-50	Correct
28	160	51-200	Correct
29	84	51-200	Correct
30	132	51-200	Correct
31	76	51-200	Correct
32	132	51-200	Correct
33	12	11-50	Correct
34	24	11-50	Correct
35	16	11-50	Correct
36	12	11-50	Correct
37	8	0-10	Correct
38	8	11-50	Incorrect
39	40	11-50	Correct
40	4	11-50	Incorrect



APPENDIX C-2

PVWC LINEAR MODELING Figures, Statistics and Sensitivity Analyses Tables

A. FIGURES

5. Original Models with Complete Input Sets

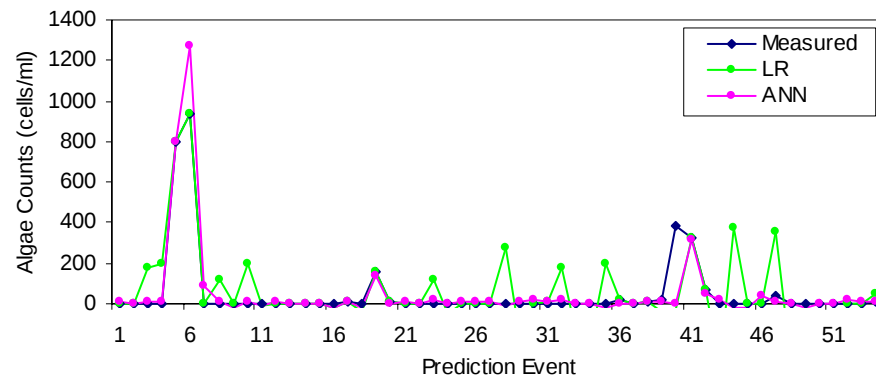


Figure 3.1 Comparison of Original ANN and LM performance for two week-ahead predictions of cyanobacteria at Station 612 with complete input sets

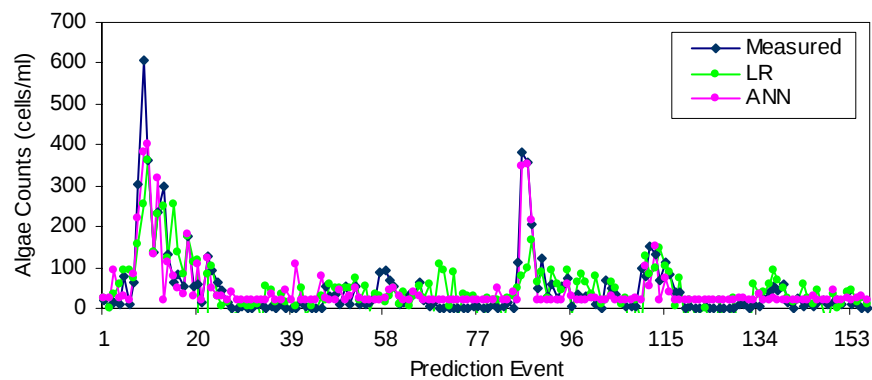


Figure 4.2 Comparison of Original ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 100 with complete input sets

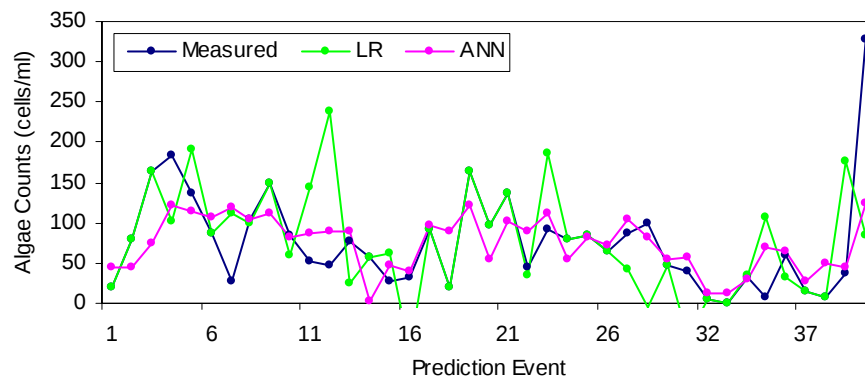


Figure 5.3 Comparison of Original ANN and LM performance for two week-ahead predictions of chrysophytes counts at Station 101 with complete input sets

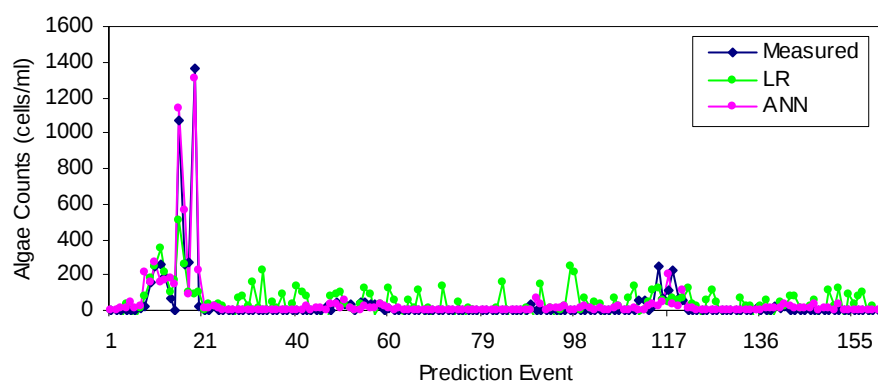


Figure 6.4 Comparison of Original ANN and LM performance for two week-ahead predictions of cyanobacteria counts at Station 100 with complete input sets

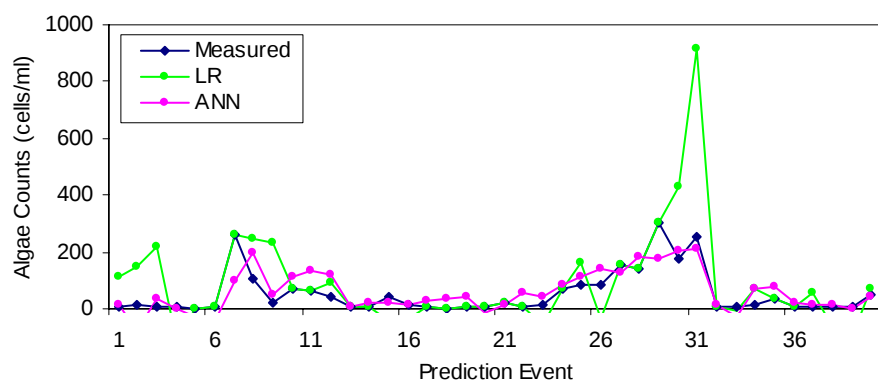


Figure 7.5 Comparison of Original ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 101 with complete input sets

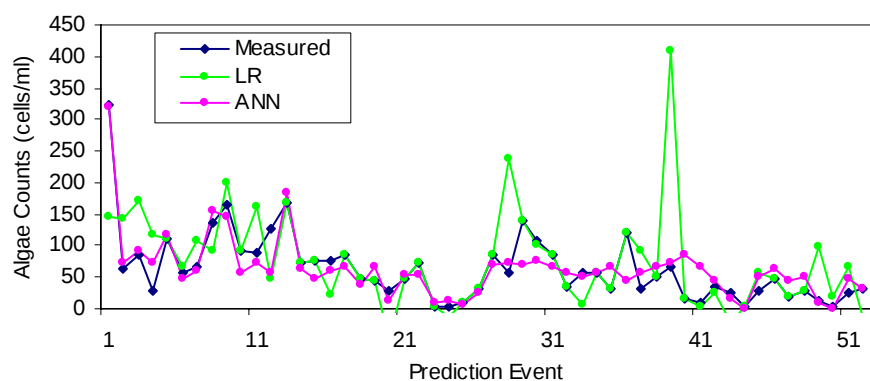


Figure 8.6 Comparison of Original ANN and LM performance for one week-ahead predictions of chrysophytes counts at Station 612 with complete input sets

6. Original Models with Reduced Input Sets

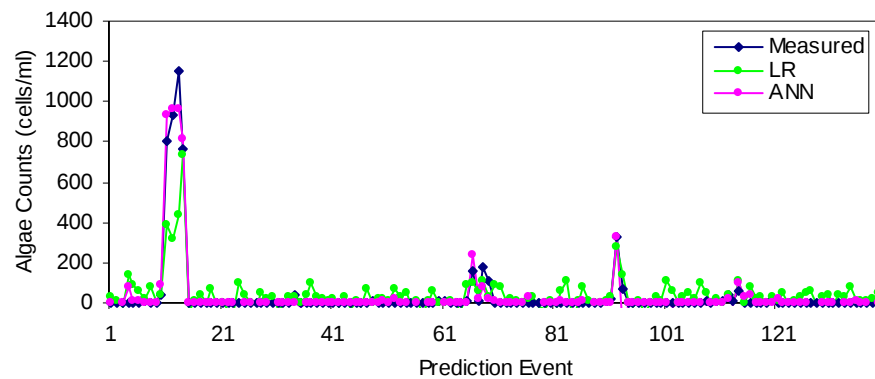


Figure 2.1 Comparison of Original ANN and LM performance for two week-ahead predictions of cyanobacteria at Station 612 excluding five water quality inputs

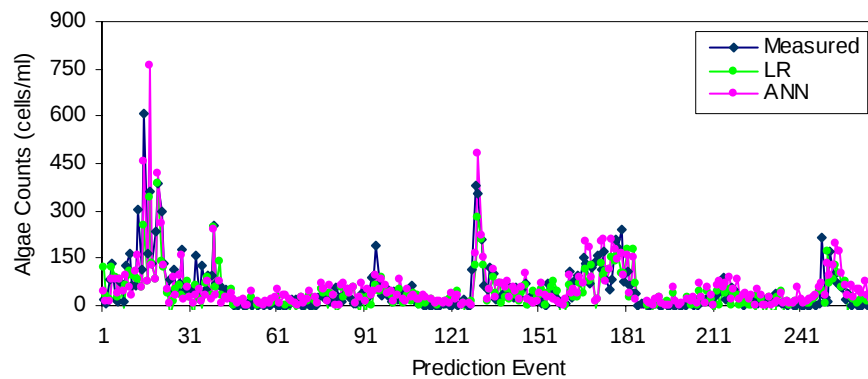


Figure 2.2 Comparison of Original ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 100 excluding five water quality inputs

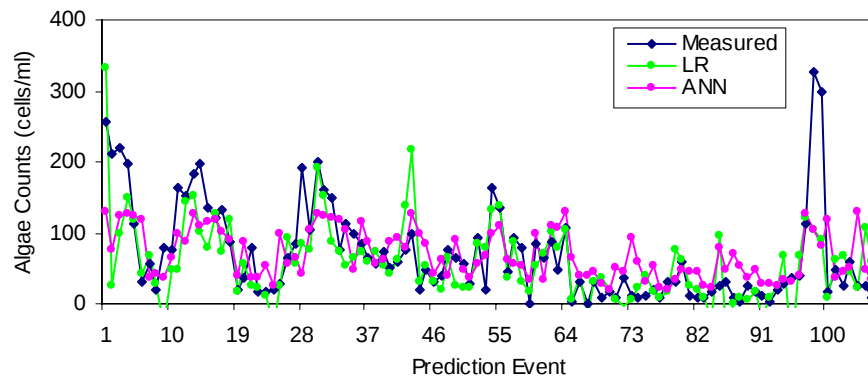


Figure 2.3 Comparison of Original ANN and LM performance for two week-ahead predictions of chrysophytes counts at Station 101 excluding five water quality inputs

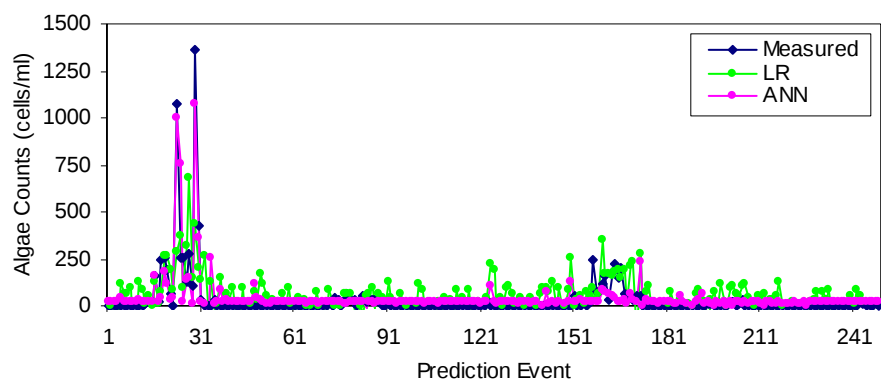


Figure 2.4 Comparison of Original ANN and LM performance for two week-ahead predictions of cyanobacteria counts at Station 100 excluding five water quality inputs

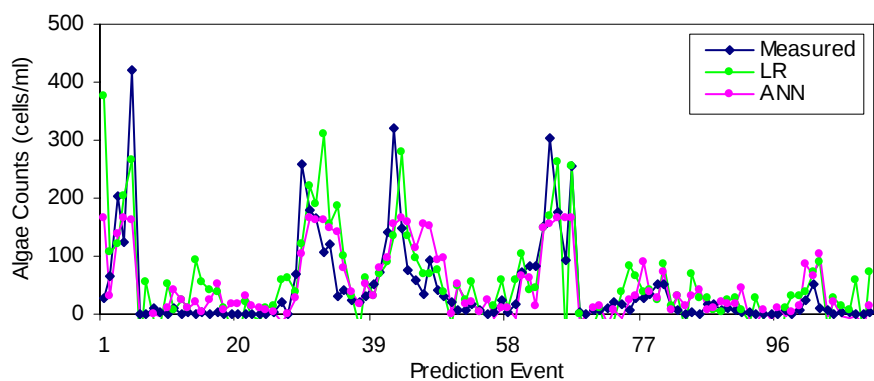


Figure 2.5 Comparison of Original ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 101 excluding five water quality inputs

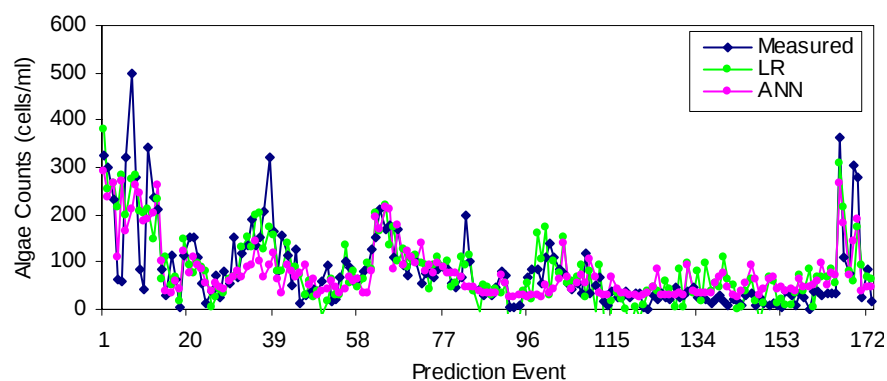


Figure 2.6 Comparison of Original ANN and LM performance for one week-ahead predictions of chrysophytes counts at Station 612 excluding five water quality inputs

7. Revised Models with Complete Input Sets

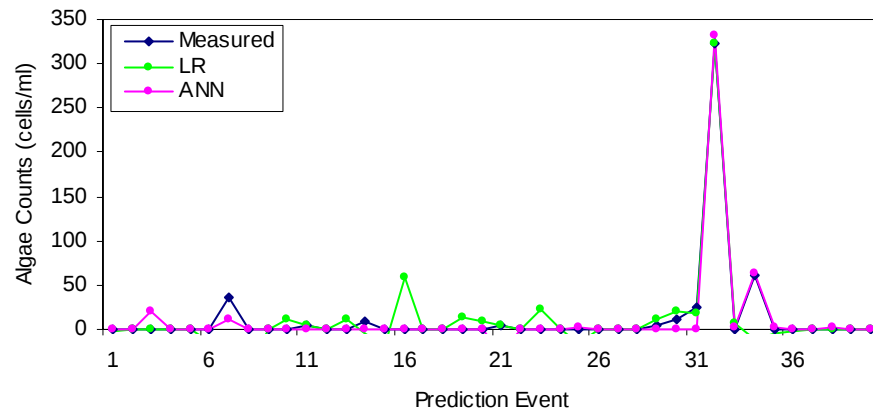


Figure 3.1 Comparison of Revised ANN and LM performance for two week-ahead predictions of cyanobacteria at Station 612 with complete input sets

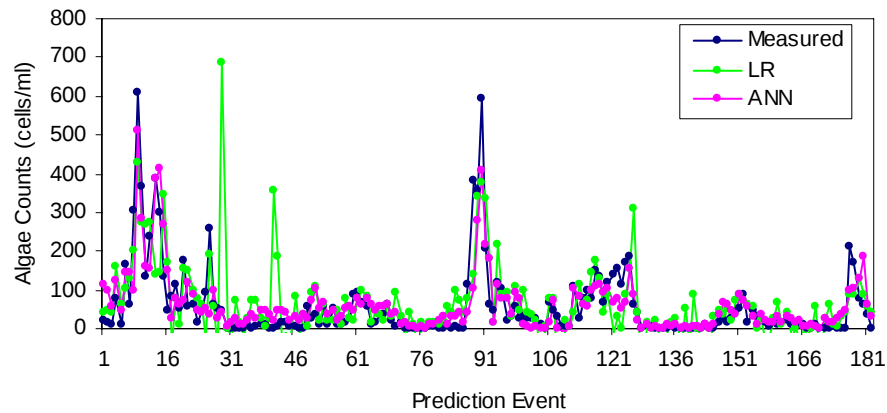


Figure 3.2 Comparison of Revised ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 100 with complete input sets

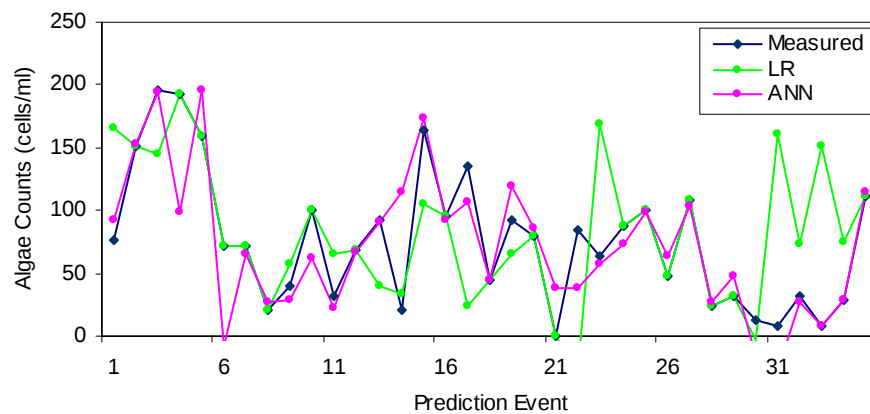


Figure 3.3 Comparison of Revised ANN and LM performance for two week-ahead predictions of chrysophytes counts at Station 101 with complete input sets

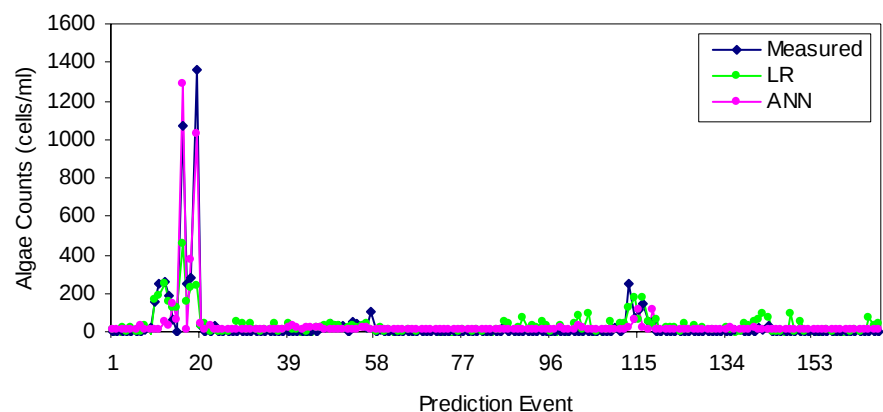


Figure 3.4 Comparison of Revised ANN and LM performance for two week-ahead predictions of cyanobacteria counts at Station 100 with complete input sets

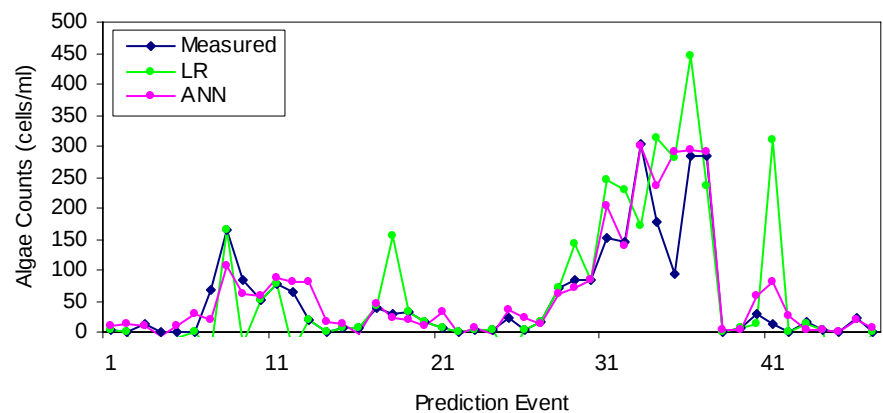


Figure 3.5 Comparison of Revised ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 101 with complete input sets

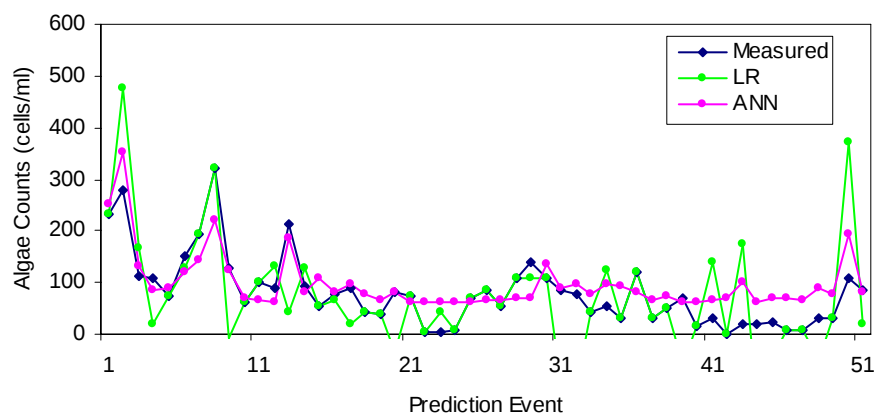


Figure 3.6 Comparison of Revised ANN and LM performance for one week-ahead predictions of chrysophytes counts at Station 612 with complete input sets

8. Revised Models with Reduced Input Sets

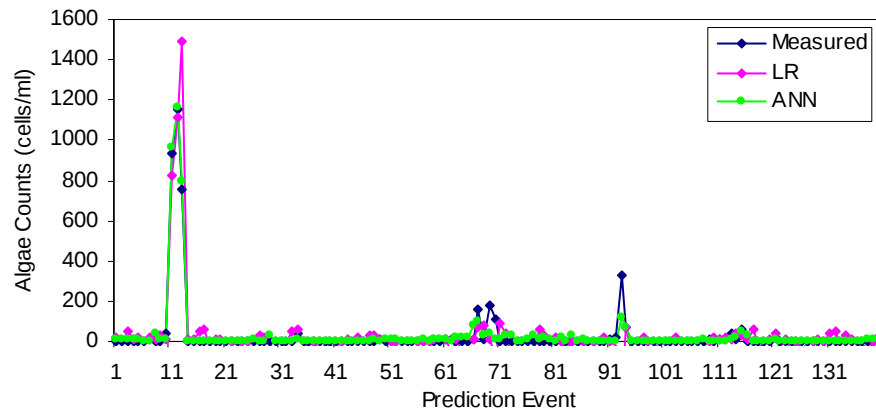


Figure 4.1 Comparison of Revised ANN and LM performance for two week-ahead predictions of cyanobacteria at Station 612 with reduced input sets

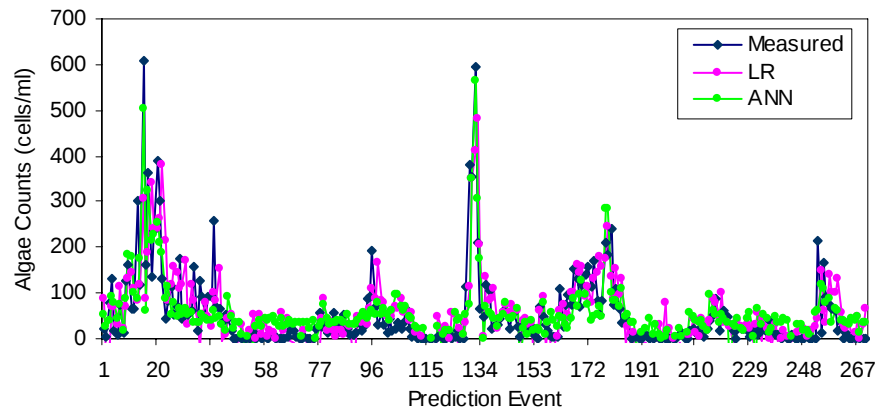


Figure 4.2 Comparison of Revised ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 100 with reduced input sets

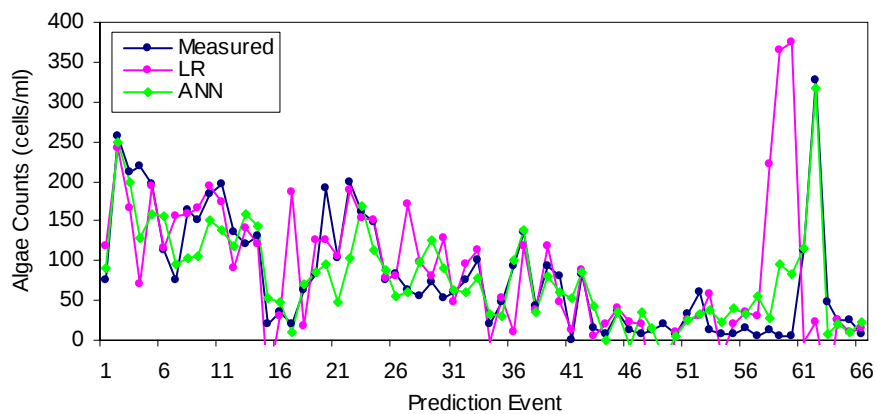


Figure 4.3 Comparison of Revised ANN and LM performance for two week-ahead predictions of chrysophytes counts at Station 101 with reduced input sets

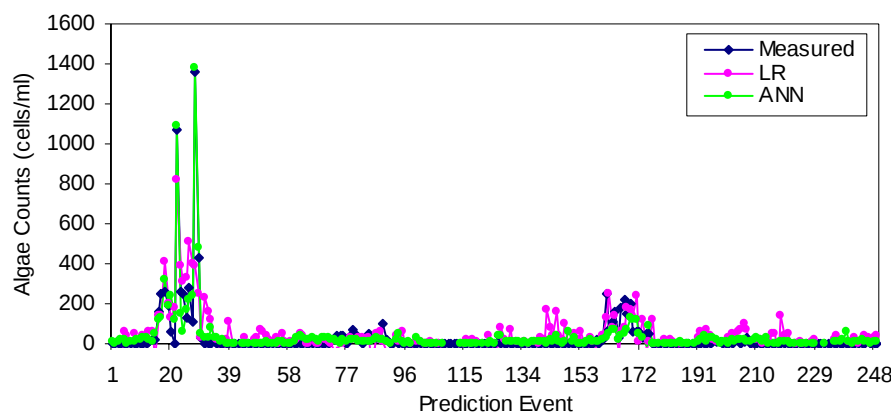


Figure 4.4 Comparison of Revised ANN and LM performance for two week-ahead predictions of cyanobacteria counts at Station 100 with reduced input sets

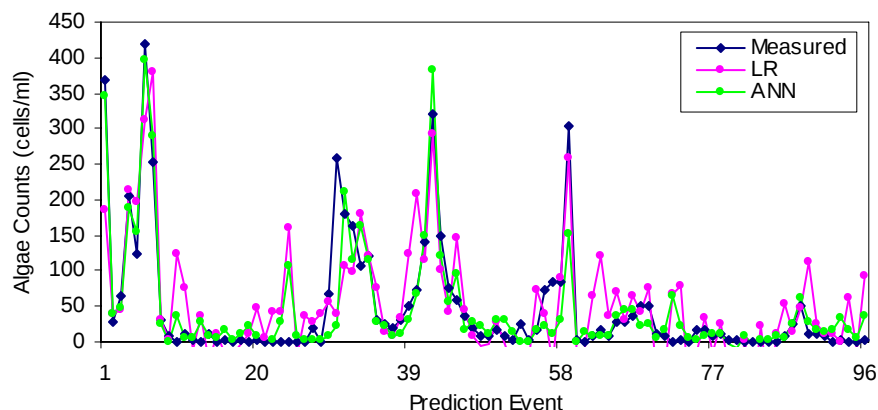


Figure 4.5 Comparison of Revised ANN and LM performance for one week-ahead predictions of chlorophytes counts at Station 101 with reduced input sets

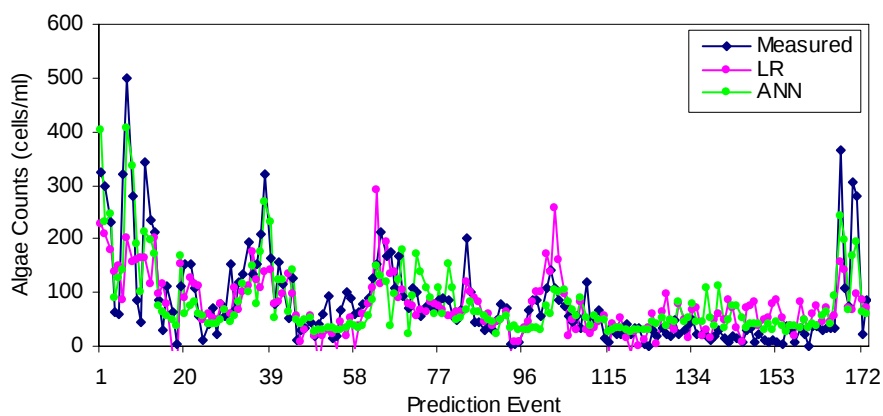


Figure 4.6 Comparison of Revised ANN and LM performance for one week-ahead predictions of chrysophytes counts at Station 612 with reduced input sets

B. DESCRIPTIVE STATISTICS

1. Original Models with Complete Input Sets

Table 9.1. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria at Station 612 with complete input sets

	Overall	Training	Selection	Test
Data Mean	52.000	83.714	33.231	2.462
Data S.D.	174.835	227.352	103.077	6.571
Error Mean	-29.291	0.000	-84.599	-37.070
Error S.D.	228.608	0.000	411.308	207.233
Abs E. Mean	110.536	0.000	292.297	166.854
S.D. Ratio	1.308	0.000	3.990	31.540
Correlation	0.592	1.000	0.052	0.033

Table 1.2. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 100 with complete input sets

	Overall	Training	Selection	Test
Data Mean	45.455	43.026	37.282	58.487
Data S.D.	82.410	69.978	68.410	111.549
Error Mean	-34.048	-2.429	1.546	-132.880
Error S.D.	393.485	30.785	67.125	774.523
Abs E. Mean	67.271	22.001	44.183	180.902
S.D. Ratio	4.775	0.440	0.981	6.943
Correlation	0.139	0.898	0.424	0.117

Table 1.3. Overall, Training and Validation Statistics for two week-ahead predictions of chrysophytes counts at Station 101 with complete input sets

	Overall	Training	Selection	Test
Data Mean	75.400	70.800	97.200	62.800
Data S.D.	61.635	51.086	89.336	36.312
Error Mean	0.708	0.000	-38.860	41.691
Error S.D.	69.458	0.000	104.424	71.743
Abs E. Mean	38.995	0.000	92.724	63.256
S.D. Ratio	1.127	0.000	1.169	1.976
Correlation	0.404	1.000	0.232	0.153

Table 1.4. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria counts at Station 100 with complete input sets

	Overall	Training	Selection	Test
Data Mean	34.152	32.550	16.205	55.385
Data S.D.	144.995	128.566	54.920	217.881
Error Mean	1.826	0.000	26.360	-18.961
Error S.D.	133.030	83.999	87.000	220.483
Abs E. Mean	66.790	49.965	74.244	93.850
S.D. Ratio	0.917	0.653	1.584	1.012
Correlation	0.435	0.757	0.123	0.159

Table 1.5. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 101 with complete input sets

	Overall	Training	Selection	Test
Data Mean	52.293	56.381	54.000	42.000
Data S.D.	76.158	85.451	75.710	50.699
Error Mean	32.820	0.000	62.914	71.650
Error S.D.	128.299	0.000	217.576	124.392
Abs E. Mean	64.086	0.000	140.156	122.596
S.D. Ratio	1.685	0.000	2.874	2.454
Correlation	0.734	1.000	0.917	0.665

Table 1.6. Overall, Training and Validation Statistics for one week-ahead predictions of chrysophytes counts at Station 612 with complete input sets

	Overall	Training	Selection	Test
Data Mean	63.769	60.769	67.692	65.846
Data S.D.	55.032	41.183	82.596	43.156
Error Mean	10.706	0.000	-0.281	43.105
Error S.D.	68.225	0.000	113.323	66.159
Abs E. Mean	34.317	0.000	70.976	66.291
S.D. Ratio	1.240	0.000	1.372	1.533
Correlation	0.485	1.000	0.356	0.393

2. Original Models with Reduced Input Sets

Table 2.1. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria at Station 612 excluding five water quality inputs

	Overall	Training	Selection	Test
Data Mean	34.849	22.535	34.824	60.588
Data S.D.	157.155	98.693	194.497	204.505
Error Mean	3.905	4.790	12.938	-6.976
Error S.D.	97.188	25.788	136.167	135.954
Abs E. Mean	44.180	19.217	70.992	69.494
S.D. Ratio	0.618	0.261	0.700	0.665
Correlation	0.823	0.965	0.809	0.879

Table 2.2. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 100 excluding five water quality inputs

	Overall	Training	Selection	Test
Data Mean	49.455	52.209	53.561	39.758
Data S.D.	77.028	77.728	92.378	54.650
Error Mean	-14.533	-8.120	-30.826	-11.259
Error S.D.	53.676	43.664	68.023	52.481
Abs E. Mean	34.756	27.455	46.965	37.369
S.D. Ratio	0.697	0.562	0.736	0.960
Correlation	0.720	0.827	0.683	0.530

Table 2.3. Overall, Training and Validation Statistics for two week-ahead predictions of chrysophytes counts at Station 101 excluding five water quality inputs

	Overall	Training	Selection	Test
Data Mean	69.736	66.963	76.000	69.231
Data S.D.	67.014	53.329	94.397	58.618
Error Mean	-12.705	-7.472	-24.077	-12.200
Error S.D.	51.512	21.268	79.402	58.202
Abs E. Mean	32.792	16.336	58.649	41.113
S.D. Ratio	0.769	0.399	0.841	0.993
Correlation	0.662	0.917	0.572	0.458

Table 2.4. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria counts at Station 100 excluding five water quality inputs

	Overall	Training	Selection	Test
Data Mean	30.297	40.864	21.161	18.129
Data S.D.	121.847	160.462	67.119	52.468
Error Mean	8.902	0.000	6.442	29.309
Error S.D.	114.290	129.744	90.516	98.720
Abs E. Mean	69.781	65.742	69.897	77.809
S.D. Ratio	0.938	0.809	1.349	1.882
Correlation	0.492	0.588	0.436	0.599

Table 2.5. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 101 excluding five water quality inputs

	Overall	Training	Selection	Test
Data Mean	44.367	52.218	53.926	18.815
Data S.D.	75.159	82.356	83.858	32.964
Error Mean	9.921	0.000	7.800	32.253
Error S.D.	64.239	41.833	82.547	74.680
Abs E. Mean	42.364	29.756	60.619	49.792
S.D. Ratio	0.855	0.508	0.984	2.266
Correlation	0.662	0.861	0.557	0.540

Table 2.6. Overall, Training and Validation Statistics for one week-ahead predictions of chrysophytes counts at Station 612 excluding five water quality inputs

	Overall	Training	Selection	Test
Data Mean	80.231	90.851	63.256	75.721
Data S.D.	82.210	92.573	55.145	79.212
Error Mean	0.354	0.000	-1.443	2.867
Error S.D.	59.266	52.532	56.667	72.988
Abs E. Mean	42.832	37.441	40.228	56.347
S.D. Ratio	0.721	0.567	1.028	0.921
Correlation	0.715	0.823	0.607	0.512

3. Revised Models with Complete Input Sets

Table 3.1. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria at Station 612 with complete input sets

	Overall	Training	Selection	Test
Data Mean	11.900	16.600	6.800	7.600
Data S.D.	51.244	70.533	17.893	12.060
Error Mean	-2.072	0.000	-5.715	-2.575
Error S.D.	19.111	0.000	25.084	28.453
Abs E. Mean	9.622	0.000	16.837	21.652
S.D. Ratio	0.373	0.000	1.402	2.359
Correlation	0.932	1.000	-0.387	-0.061

Table 3.2. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 100 with complete input sets

	Overall	Training	Selection	Test
Data Mean	55.582	71.500	52.756	25.867
Data S.D.	95.147	117.832	74.561	35.494
Error Mean	5.849	0.000	8.911	14.744
Error S.D.	88.009	67.331	121.928	83.864
Abs E. Mean	53.680	46.879	66.885	54.380
S.D. Ratio	0.925	0.571	1.635	2.363
Correlation	0.596	0.821	0.260	0.239

Table 3.3. Overall, Training and Validation Statistics for two week-ahead predictions of chrysophytes counts at Station 101 with complete input sets

	Overall	Training	Selection	Test
Data Mean	75.771	82.526	62.500	73.000
Data S.D.	52.424	48.648	51.456	58.847
Error Mean	6.104	0.000	12.527	14.178
Error S.D.	53.857	0.000	89.262	67.284
Abs E. Mean	30.568	0.000	75.080	58.657
S.D. Ratio	1.027	0.000	1.735	1.143
Correlation	0.491	1.000	-0.308	0.372

Table 3.4. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria counts at Station 100 with complete input sets

	Overall	Training	Selection	Test
Data Mean	31.760	24.894	64.195	13.561
Data S.D.	140.813	62.042	263.587	42.716
Error Mean	-5.875	0.000	-23.451	-0.479
Error S.D.	104.614	28.675	203.633	31.566
Abs E. Mean	34.471	19.733	76.052	23.444
S.D. Ratio	0.743	0.462	0.773	0.739
Correlation	0.728	0.887	0.772	0.697

Table 3.5. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 101 with complete input sets

	Overall	Training	Selection	Test
Data Mean	53.277	23.360	114.545	60.000
Data S.D.	77.348	38.077	102.354	77.187
Error Mean	2.731	0.000	23.264	-11.595
Error S.D.	81.302	0.000	104.266	129.335
Abs E. Mean	46.146	0.000	91.510	105.658
S.D. Ratio	1.051	0.000	1.019	1.676
Correlation	0.736	1.000	0.657	0.702

Table 3.6. Overall, Training and Validation Statistics for one week-ahead predictions of chrysophytes counts at Station 612 with complete input sets

	Overall	Training	Selection	Test
Data Mean	81.020	72.889	92.333	88.000
Data S.D.	67.909	72.266	56.414	65.889
Error Mean	-10.331	0.000	-40.112	-3.792
Error S.D.	81.767	0.000	94.897	135.053
Abs E. Mean	47.958	0.000	87.387	116.436
S.D. Ratio	1.204	0.000	1.682	2.050
Correlation	0.661	1.000	0.175	0.720

4. Revised Models with Reduced Input Sets

Table 4.1. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria at Station 612 with reduced input sets

	Overall	Training	Selection	Test
Data Mean	28.886	22.114	54.400	16.914
Data S.D.	142.553	137.668	196.986	60.754
Error Mean	-7.425	0.000	1.170	-30.870
Error S.D.	88.662	29.812	131.789	107.537
Abs E. Mean	35.487	21.477	53.371	45.623
S.D. Ratio	0.622	0.217	0.669	1.770
Correlation	0.863	0.976	0.912	-0.664

Table 4.2. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 100 with reduced input sets

	Overall	Training	Selection	Test
Data Mean	51.167	52.368	62.343	37.552
Data S.D.	83.488	87.849	100.595	44.624
Error Mean	1.502	0.000	-2.244	8.296
Error S.D.	62.262	49.419	87.591	54.108
Abs E. Mean	40.959	33.463	56.354	40.779
S.D. Ratio	0.746	0.563	0.871	1.213
Correlation	0.702	0.827	0.618	0.454

Table 4.3. Overall, Training and Validation Statistics for two week-ahead predictions of chrysophytes counts at Station 101 with reduced input sets

	Overall	Training	Selection	Test
Data Mean	80.606	84.353	92.500	60.750
Data S.D.	72.390	65.406	93.636	56.502
Error Mean	4.454	0.000	-11.547	29.921
Error S.D.	92.150	18.386	146.807	108.677
Abs E. Mean	49.810	12.885	103.867	74.218
S.D. Ratio	1.273	0.281	1.568	1.923
Correlation	0.361	0.960	-0.025	0.264

Table 4.4. Overall, Training and Validation Statistics for two week-ahead predictions of cyanobacteria counts at Station 100 with reduced input sets

	Overall	Training	Selection	Test
Data Mean	29.921	28.730	40.190	22.032
Data S.D.	121.225	110.387	175.514	58.614
Error Mean	1.265	0.000	-12.313	17.374
Error S.D.	88.743	55.497	143.128	66.398
Abs E. Mean	47.504	38.859	65.742	46.557
S.D. Ratio	0.732	0.503	0.815	1.133
Correlation	0.693	0.864	0.581	0.881

Table 4.5. Overall, Training and Validation Statistics for one week-ahead predictions of chlorophytes counts at Station 101 with reduced input sets

	Overall	Training	Selection	Test
Data Mean	47.542	54.417	48.667	32.667
Data S.D.	83.662	88.418	92.978	58.306
Error Mean	2.771	0.000	1.905	9.178
Error S.D.	59.361	33.415	80.764	72.677
Abs E. Mean	42.271	24.074	60.378	60.558
S.D. Ratio	0.710	0.378	0.869	1.246
Correlation	0.745	0.926	0.525	0.670

Table 4.6. Overall, Training and Validation Statistics for one week-ahead predictions of chrysophytes counts at Station 612 with reduced input sets

	Overall	Training	Selection	Test
Data Mean	79.885	67.682	94.233	90.512
Data S.D.	82.099	59.967	102.991	93.192
Error Mean	-6.096	0.000	-18.175	-6.492
Error S.D.	63.627	36.427	84.363	79.541
Abs E. Mean	43.212	27.435	59.827	58.882
S.D. Ratio	0.775	0.607	0.819	0.854
Correlation	0.632	0.794	0.581	0.546

C. SENSITIVITY ANALYSES

1. Original Models with Complete Input Sets

Table 10.1 Sensitivity Analysis for two week-ahead predictions of cyanobacteria at Station 612 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Conductivity	1.1705	1	Prediction Period's Precipitation Total	0.9988	18
Dissolved Oxygen	1.1599	2	Heating Degree Days	0.9984	19
Initial Chlorophytes counts	1.0620	3	Temperature	0.9970	20
River A Extraction	1.0470	4	River B Extraction	0.9953	21
Turbidity	1.0420	5	Ammonia	0.9936	22
Wind Direction	1.0371	6	Total Algal Count	0.9924	23
Length of Day	1.0308	7	Sulfate	0.9897	24
Biochemical Oxygen Demand	1.0241	8	Odor	0.9894	25
Initial Cyanophyta	1.0117	9	Chloride	0.9802	26
Total Phosphorus/Orthophosphate	1.0100	10	pH	0.9797	27
Initial Chrysophytes counts	1.0099	11	Sky Cover	0.9787	28
Alkalinity	1.0089	12	Nitrite/Nitrate	0.9757	29
Reservoir A Extraction	1.0065	13	Wind Speed	0.9606	30
Total Hardness	1.0062	14	Prediction Period's Lagged Precipitation Total	0.9382	31
Color	1.0037	15	River A Streamflow	0.9367	32
Total Amorphous Material	1.0011	16	UV254	0.8948	33
Pumping Station 1 Extraction	1.0000	17	Total Organic Carbon	0.8325	34

Table 11.2 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 100 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
River B Extraction	1.0252	1	River A Streamflow	1.0000	18
Conductivity	1.0150	2	Length of Day	0.9999	19
Total Algal Count	1.0143	3	Pumping Station 1 Extraction	0.9999	20
Sulfate	1.0101	4	Sky Cover	0.9999	21
Heating Degree Days	1.0063	5	Reservoir A Extraction	0.9999	22
Nitrite/Nitrate	1.0055	6	UV254	0.9998	23
Initial Cyanobacteria counts	1.0045	7	Biochemical Oxygen Demand	0.9996	24
Chloride	1.0030	8	Dissolved Oxygen	0.9996	25
Initial Chlorophytes counts	1.0015	9	Total Organic Carbon	0.9993	26
Odor	1.0011	10	Total Suspended Solids	0.9990	27
Alkalinity	1.0009	11	Ammonia	0.9983	28
Wind Speed	1.0006	12	Turbidity	0.9971	29
Prediction Period's Precipitation Total	1.0006	13	Total Hardness	0.9966	30
Prediction Period's Lagged Precipitation Total	1.0005	14	pH	0.9952	31
Temperature	1.0005	15	River A Extraction	0.9885	32
Initial Chrysophytes counts	1.0001	16	Total Phosphorus/Orthophosphate	0.1723	33
Wind Direction	1.0000	17	River A Streamflow	1.0000	18

Table 12.3 Sensitivity Analysis for two week-ahead predictions of chrysophytes counts at Station 101 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Phosphorus/Orthophosphate	1.1291	1	Pumping Station 1 Extraction	1.0008	18
Conductivity	1.0385	2	Wind Speed	1.0004	19
Initial Chrysophyta	1.0274	3	Reservoir A Extraction	1.0000	20
Total Organic Carbon	1.0271	4	Wind Direction	0.9995	21
Color	1.0209	5	Initial Cyanobacteria counts	0.9982	22
River A Streamflow	1.0198	6	Temperature	0.9969	23
Dissolved Oxygen	1.0176	7	Total Algal Count	0.9951	24
Dissolved Oxygen	1.0173	8	River B Extraction	0.9950	25
Turbidity	1.0162	9	Chloride	0.9933	26
pH	1.0131	10	Sulfate	0.9893	27
Heating Degree Days	1.0092	11	Initial Chlorophytes counts	0.9864	28
Length of Day	1.0081	12	Biochemical Oxygen Demand	0.9836	29
UV254	1.0071	13	Nitrite/Nitrate	0.9819	30
Prediction Period's Precipitation Total	1.0054	14	Total Amorphous Material	0.9531	31
River A Extraction	1.0053	15	Prediction Period's Lagged Precipitation Total	0.9421	32
Ammonia	1.0032	16	Sky Cover	0.9335	33
Alkalinity	1.0026	17	Odor	0.9322	34

Table 13.4 Sensitivity Analysis for two week-ahead predictions of cyanobacteria counts at Station 100 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Nitrite/Nitrate	1.2642	1	UV-254	1.0077	18
Total Algal Count	1.1345	2	Total Phosphorus/Orthophosphate	1.0030	19
Temperature	1.0955	3	Pumping Station 1 Extraction	1.0007	20
Turbidity	1.0464	4	Reservoir A Extraction	1.0002	21
Initial Cyanobacteria counts	1.0314	5	Prediction Period's Precipitation Total	1.0002	22
Ammonia	1.0270	6	Total Organic Carbon	1.0000	23
Conductivity	1.0244	7	River A Streamflow	0.9998	24
Initial Chrysophytes counts	1.0233	8	Wind Speed	0.9993	25
River A Extraction	1.0228	9	Prediction Period's Lagged Precipitation Total	0.9992	26
Sulfate	1.0182	10	Sky Cover	0.9989	27
Heating Degree Days	1.0159	11	Total Suspended Solids	0.9961	28
pH	1.0153	12	Biochemical Oxygen Demand	0.9943	29
Alkalinity	1.0146	13	Initial Chlorophytes counts	0.9940	30
Dissolved Oxygen	1.0143	14	Length of Day	0.9935	31
River B Extraction	1.0130	15	Odor	0.9920	32
Chloride	1.0122	16	Wind Direction	0.9903	33
Total Hardness	1.0086	17			

Table 14.5 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 101 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Temperature	1.3716	1	Turbidity	1.0113	18
Length of Day	1.3345	2	Sulfate	1.0107	19
Heating Degree Days	1.0960	3	Prediction Period's Lagged Precipitation Total	1.0080	20
Wind Speed	1.0776	4	Color	1.0051	21
Sky Cover	1.0714	5	Reservoir A Extraction	1.0000	22
Total Phosphorus/Orthophosphate	1.0703	6	Initial Chrysophytes counts	0.9999	23
Total Hardness	1.0573	7	Conductivity	0.9970	24
Chloride	1.0567	8	Wind Direction	0.9925	25
UV254	1.0510	9	Biochemical Oxygen Demand	0.9896	26
Alkalinity	1.0449	10	Nitrite/Nitrate	0.9854	27
Ammonia	1.0350	11	Total Amorphous Material	0.9843	28
River B Extraction	1.0311	12	Total Organic Carbon	0.9809	29
Pumping Station 1 Extraction	1.0278	13	Prediction Period's Precipitation Total	0.9228	30
River A Streamflow	1.0257	14	pH	0.8934	31
Odor	1.0242	15	Initial Chlorophytes counts	0.7609	32
Dissolved Oxygen	1.0206	16	Initial Cyanobacteria counts	0.7606	33
River A Extraction	1.0162	17	Total Algal Count	0.6885	34

Table 15.6 Sensitivity Analysis for one week-ahead predictions of chrysophytes counts at Station 612 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Turbidity	1.2027	1	Prediction Period's Lagged Precipitation Total	0.9989	18
Initial Chrysophytes counts	1.1142	2	Sulfate	0.9988	19
Dissolved Oxygen	1.0565	3	Prediction Period's Precipitation Total	0.9984	20
Temperature	1.0502	4	Odor	0.9981	21
River A Extraction	1.0414	5	Total Algal Count	0.9980	22
Heating Degree Days	1.0405	6	Initial Chlorophytes counts	0.9977	23
Total Hardness	1.0383	7	Total Phosphorus/Orthophosphate	0.9972	24
Biochemical Oxygen Demand	1.0337	8	Total Organic Carbon	0.9948	25
Length of Day	1.0274	9	Nitrite/Nitrate	0.9945	26
Reservoir A Extraction	1.0233	10	Wind Speed	0.9915	27
Wind Direction	1.0192	11	Conductivity	0.9899	28
Initial Cyanobacteria counts	1.0186	12	Alkalinity	0.9828	29
UV254	1.0169	13	Ammonia	0.9765	30
Chloride	1.0082	14	Total Amorphous Material	0.9662	31
Sky Cover	1.0060	15	River B Extraction	0.9638	32
Pumping Station 1 Extraction	1.0036	16	pH	0.9285	33
River A Streamflow	0.9997	17	Color	0.6952	34

2. Original Models with Reduced Input Sets

Table 2.1 Sensitivity Analysis for two week-ahead predictions of cyanobacteria at Station 612 excluding five water quality inputs

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal counts	1.7652	1	Wind Speed	1.0029	16
Initial Chrysophytes counts	1.1954	2	Sky Cover	1.0023	17
Turbidity	1.1830	3	Total Amorphous Material	1.0018	18
Color	1.1686	4	Conductivity	1.0015	19
Dissolved Oxygen	1.1039	5	Pumping Station 1 Extraction	1.0005	20
Temperature	1.0845	6	Chloride	1.0000	21
River B Extraction	1.0589	7	Prediction Period's Precipitation Total	1.0000	22
Initial Cyanobacteria counts	1.0437	8	Total Hardness	0.9999	23
Reservoir A Extraction	1.0179	9	UV254	0.9998	24
Alkalinity	1.0106	10	River A Extraction	0.9992	25
Wind Direction	1.0092	11	Prediction Period's Lagged Precipitation Total	0.9954	26
Length of Day	1.0088	12	River A Streamflow	0.9917	27
Initial Chlorophytes counts	1.0081	13	pH	0.9844	28
Ammonia	1.0066	14	Heating Degree Days	0.9826	29
Odor	1.0060	15			

Table 2.2 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 100 excluding five water quality inputs

Variable	Ratio	Rank	Variable	Ratio	Rank
Initial Chlorophytes	1.3939	1	Heating Degree Days	1.0006	16
Odor	1.0930	2	Wind Direction	1.0003	17
Temperature	1.0602	3	Pumping Station 1 Extraction	1.0002	18
River B Extraction	1.0546	4	Dissolved Oxygen	1.0000	19
River A Extraction	1.0490	5	Alkalinity	0.9999	20
Initial Chrysophytes counts	1.0453	6	Total Organic Carbon	0.9988	21
Sky Cover	1.0323	7	UV254	0.9984	22
Total Algal Counts	1.0241	8	Total Hardness	0.9979	23
Initial Cyanobacteria counts	1.0235	9	Reservoir A Extraction	0.9976	24
Conductivity	1.0087	10	pH	0.9973	25
River A Streamflow	1.0051	11	Prediction Period's Lagged Precipitation Total	0.9971	26
Chloride	1.0046	12	Length of Day	0.9959	27
Biochemical Oxygen Demand	1.0028	13	Total Suspended Solids	0.9953	28
Wind Speed	1.0020	14	Turbidity	0.9929	29
Ammonia	1.0013	15	Prediction Period's Precipitation Total	0.9893	30

Table 2.3 Sensitivity Analysis for two week-ahead predictions of chrysophytes counts at Station 101 excluding five water quality inputs

Variable	Ratio	Rank	Variable	Ratio	Rank
Initial Chlorophytes counts	1.2785	1	River B Extraction	1.0230	16
Total Algal counts	1.2078	2	Dissolved Oxygen	1.0207	17
Initial Chrysophytes counts	1.1864	3	Ammonia	1.0187	18
pH	1.1513	4	Temperature	1.0130	19
Conductivity	1.0677	5	Total Hardness	1.0126	20
Pumping Station 1 Extraction	1.0565	6	Alkalinity	1.0107	21
Heating Degree Days	1.0468	7	Odor	1.0104	22
Wind Speed	1.0456	8	Chloride	1.0091	23
Total Amorphous Material	1.0415	9	River A Extraction	1.0090	24
Prediction Period's Precipitation Total	1.0364	10	River A Streamflow	1.0017	25
Prediction Period's Lagged Precipitation Total	1.0291	11	Reservoir A Extraction	1.0014	26
Turbidity	1.0287	12	Color	1.0012	27
Length of Day	1.0285	13	Sky Cover	1.0001	28
UV254	1.0266	14	Initial Cyanobacteria counts	0.9955	29
Wind Direction	1.0254	15			

Table 2.4 Sensitivity Analysis for two week-ahead predictions of cyanobacteria counts at Station 100 excluding five water quality inputs

Variable	Ratio	Rank	Variable	Ratio	Rank
Temperature	1.2000	1	Conductivity	1.0071	16
Length of Day	1.0734	2	Wind Speed	1.0070	17
Total Algal Counts	1.0658	3	Initial Chrysophytes counts	1.0062	18
River B Extraction	1.0616	4	Sky Cover	1.0061	19
Dissolved Oxygen	1.0267	5	Prediction Period's Lagged Precipitation Total	1.0049	20
Initial Cyanobacteria counts	1.0266	6	Reservoir A Extraction	1.0045	21
Initial Chlorophytes counts	1.0259	7	Ammonia	1.0037	22
Turbidity	1.0212	8	pH	1.0004	23
Wind Direction	1.0146	9	Heating Degree Days	0.9998	24
Odor	1.0116	10	Prediction Period's Precipitation Total	0.9997	25
Total Hardness	1.0105	11	Biochemical Oxygen Demand	0.9978	26
Total Suspended Solids	1.0098	12	Chloride	0.9968	27
Alkalinity	1.0096	13	UV254	0.9961	28
River A Extraction	1.0076	14	Total Organic Carbon	0.9948	29
Pumping Station 1 Extraction	1.0076	15	River A Streamflow	0.9921	30

Table 2.5 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 101 excluding five water quality inputs

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal counts	2.5870	1	pH	1.0155	16
Initial Chrysophytes counts	1.8662	2	Sky Cover	1.0155	17
Initial Chlorophytes counts	1.4026	3	Ammonia	1.0125	18
Dissolved Oxygen	1.1630	4	River B Extraction	1.0083	19
Temperature	1.0984	5	Odor	1.0065	20
River A Streamflow	1.0932	6	Color	1.0040	21
UV254	1.0688	7	Pumping Station 1 Extraction	1.0038	22
Initial Cyanobacteria counts	1.0623	8	Total Hardness	1.0009	23
Alkalinity	1.0581	9	Prediction Period's Lagged Precipitation Total	0.9999	24
Prediction Period's Precipitation Total	1.0419	10	Reservoir A Extraction	0.9978	25
Heating Degree Days	1.0350	11	Conductivity	0.9957	26
Total Amorphous Material	1.0285	12	Wind Direction	0.9826	27
Length of Day	1.0260	13	River A Extraction	0.9811	28
Turbidity	1.0173	14	Chloride	0.9792	29
Wind Speed	1.0161	15			

Table 2.6 Sensitivity Analysis for one week-ahead predictions of chrysophytes counts at Station 612 excluding five water quality inputs

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal counts	1.9120	1	Wind Speed	1.0023	16
Initial Chrysophytes counts	1.7381	2	pH	1.0018	17
Initial Cyanobacteria counts	1.3142	3	River A Streamflow	1.0016	18
Color	1.1740	4	Pumping Station 1 Extraction	1.0012	19
Length of Day	1.1724	5	Prediction Period's Lagged Precipitation Total	1.0007	20
Temperature	1.1607	6	UV254	1.0004	21
Initial Chlorophytes counts	1.1325	7	Ammonia	1.0001	22
Total Hardness	1.0660	8	Odor	1.0000	23
Conductivity	1.0365	9	Prediction Period's Precipitation Total	0.9997	24
Heating Degree Days	1.0335	10	Alkalinity	0.9991	25
Turbidity	1.0304	11	Dissolved Oxygen	0.9985	26
Chloride	1.0222	12	Reservoir A Extraction	0.9971	27
Sky Cover	1.0188	13	River A Extraction	0.9952	28
Total Amorphous Material	1.0055	14	Wind Direction	0.9941	29
River B Extraction	1.0041	15			

3. Revised Models with Complete Input Sets

Table 3.1 Sensitivity Analysis for two week-ahead predictions of cyanobacteria at Station 612 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Reservoir A Extraction	1.2831	1	Ammonia	0.9989	18
River A Streamflow	1.2391	2	pH	0.9977	19
Initial Cyanobacteria counts	1.2143	3	Conductivity	0.9968	20
UV254	1.1753	4	River A Extraction	0.9963	21
Wind Direction	1.1014	5	Biochemical Oxygen Demand	0.9957	22
Turbidity	1.1008	6	Alkalinity	0.9926	23
Temperature	1.0976	7	Total Algal Counts	0.9910	24
Initial Chrysophytes counts	1.0856	8	Color	0.9875	25
River B Extraction	1.0775	9	Heating Degree Days	0.9853	26
Length of Day	1.0284	10	Total Organic Carbon	0.9835	27
Dissolved Oxygen	1.0244	11	Nitrate/Nitrite	0.9552	28
Odor	1.0224	12	Prediction Period's Precipitation Total	0.9523	29
Initial Chlorophytes counts	1.0183	13	Wind Speed	0.9483	30
Pumping Station 1 Extraction	1.0172	14	Total Hardness	0.9384	31
Chloride	1.0075	15	Total Phosphorus/Orthophosphate	0.9325	32
Total Amorphous Material	1.0047	16	Prediction Period's Lagged Precipitation Total	0.9303	33
Sulfate	1.0036	17	Sky Cover	0.9047	34

Table 3.2 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 100 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal Counts	2.3759	1	River B Extraction	1.0129	18
Initial Chrysophytes counts	1.5684	2	River A Streamflow	1.0096	19
Initial Cyanobacteria counts	1.4646	3	UV-254	1.0087	20
Temperature	1.1388	4	Prediction Period Precipitation Total	1.0050	21
Length of Day	1.1354	5	Dissolved Oxygen	1.0046	22
Total Organic Carbon	1.0544	6	Wind Direction	1.0045	23
River A Extraction	1.0480	7	Pumping Station 1 Extraction	1.0038	24
Total Hardness	1.0409	8	Odor	1.0019	25
Sulfate	1.0407	9	pH	1.0013	26
Wind Speed	1.0360	10	Conductivity	1.0004	27
Initial Chlorophytes counts	1.0345	11	Prediction Period's Lagged Precipitation	0.9995	28
Chloride	1.0302	12	Alkalinity	0.9960	29
Heating Degree Days	1.0292	13	Turbidity	0.9917	30
Total Phosphorus/Orthophosphate	1.0265	14	Reservoir A Extraction	0.9913	31
Nitrite/Nitrate	1.0183	15	Biochemical Oxygen Demand	0.9800	32
Ammonia	1.0130	16	Total Suspended Solids	0.8638	33
Sky Cover	1.0129	17			

Table 3.3 Sensitivity Analysis for two week-ahead predictions of chrysophytes counts at Station 101 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Ammonia	1.2272	1	Initial Chlorophytes counts	1.0035	18
River A Streamflow	1.0974	2	Biochemical Oxygen Demand	1.0027	19
Alkalinity	1.0723	3	Wind Direction	1.0000	20
Wind Speed	1.0658	4	Initial Cyanobacteria counts	0.9994	21
Prediction Period Precipitation	1.0640	5	Reservoir A Extraction	0.9989	22
River B Extraction	1.0511	6	Dissolved Oxygen	0.9982	23
UV254	1.0394	7	Nitrite/Nitrate	0.9981	24
Sky Cover	1.0391	8	Chloride	0.9971	25
pH	1.0360	9	Odor	0.9914	26
Conductivity	1.0291	10	Sulfate	0.9899	27
Total Organic Carbon	1.0264	11	T.Phosphorus/Orthophosphate	0.9897	28
Temperature	1.0257	12	Initial Chrysophytes counts	0.9892	29
Turbidity	1.0221	13	River A Extraction	0.9785	30
Prediction Period Precipitation Lag time	1.0160	14	Initial Total Algal Counts	0.9726	31
Total Amorphous Materials	1.0157	15	Pump Station 1 Extraction	0.9718	32
Colro	1.0142	16	Length of Day	0.9693	33
Heating Degree Days	1.0082	17	Total Hardness	0.9322	34

Table 3.4 Sensitivity Analysis for two week-ahead predictions of cyanobacteria counts at Station 100 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Turbidity	1.3611	1	Prediction Period's Lagged Precipitation Total	1.0019	18
Temperature	1.1139	2	Initial Chrysophytes counts	1.0019	19
Heating Degree Days	1.0450	3	Total Organic Carbon	1.0014	20
Dissolved Oxygen	1.0248	4	Total Phosphorus/Orthophosphate	1.0013	21
River A Extraction	1.0197	5	Chloride	1.0007	22
Initial Chlorophytes counts	1.0185	6	pH	1.0007	23
Total Hardness	1.0120	7	Biochemical Oxygen Demand	1.0004	24
Initial Cyanobacteria counts	1.0085	8	Prediction Period's Precipitation Total	1.0000	25
Length of Day	1.0073	9	UV-254	0.9997	26
Odor	1.0048	10	Sky Cover	0.9994	27
Reservoir A Extraction	1.0041	11	Wind Direction	0.9983	28
River A Streamflow	1.0039	12	Pumping Station 1 Extraction	0.9972	29
Total Suspended Solids	1.0036	13	Total Algal Counts	0.9961	30
Sulfate	1.0036	14	Alkalinity	0.9928	31
Conductivity	1.0035	15	Nitrite/Nitrate	0.9918	32
Wind Speed	1.0027	16	River B Extraction	0.9868	33
Ammonia	1.0024	17			

Table 3.5 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 101 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Temperature	1.6721	1	Color	1.0008	18
Heating Degree Days	1.3349	2	Initial Cyanobacteria counts	1.0000	19
Wind Speed	1.2141	3	Reservoir A Extraction	1.0000	20
Sulfate	1.1980	4	Ammonia	0.9997	21
Length of Day	1.1427	5	Prediction Period's Lagged Precipitation Total	0.9985	22
UV254	1.0733	6	Sky Cover	0.9970	23
Total Organic Carbon	1.0503	7	Initial Chrysophytes counts	0.9966	24
Turbidity	1.0485	8	Chloride	0.9954	25
River A Streamflow	1.0326	9	River B Extraction	0.9951	26
Dissolved Oxygen	1.0307	10	Conductivity	0.9938	27
Wind Direction	1.0238	11	Alkalinity	0.9895	28
pH	1.0138	12	Total Algal Counts	0.9876	29
Pumping Station 1 Extraction	1.0138	13	River A Extraction	0.9868	30
Biochemical Oxygen Demand	1.0131	14	Prediction Period's Precipitation Total	0.9804	31
Nitrite/Nitrate	1.0067	15	Total Phosphorus/Orthophosphate	0.9718	32
Total Hardness	1.0054	16	Initial Chlorophytes counts	0.9711	33
Odor	1.0042	17	Total Amorphous Materials	0.8655	34

Table 3.6 Sensitivity Analysis for one week-ahead predictions of chrysophytes counts at Station 612 with complete input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
River A Extraction	1.1290	1	Ammonia	0.9981	18
Heating Degree Days	1.1187	2	Biochemical Oxygen Demand	0.9974	19
Initial Chrysophytes counts	1.1059	3	Prediction Period's Lagged Precipitation Total	0.9972	20
Temperature	1.1023	4	Initial Cyanobacteria counts	0.9969	21
Dissolved Oxygen	1.0881	5	Total Hardness	0.9967	22
Alkalinity	1.0765	6	Chloride	0.9923	23
Nitrate/Nitrite	1.0443	7	Total Algal Count	0.9920	24
Reservoir A Extraction	1.0252	8	Color	0.9919	25
River A Streamflow	1.0244	9	Initial Chlorophytes counts	0.9911	26
River B Extraction	1.0154	10	Odor	0.9867	27
Total Phosphorus/Orthophosphate	1.0151	11	Pumping Station 1 Extraction	0.9827	28
Total Amorphous Material	1.0139	12	Sky Cover	0.9803	29
pH	1.0111	13	Wind Direction	0.9769	30
Total Organic Carbon	1.0091	14	Prediction Period's Precipitation Total	0.9702	31
Sulfate	1.0063	15	UV254	0.9571	32
Length of Day	1.0021	16	Turbidity	0.9565	33
Conductivity	1.0002	17	Wind Speed	0.9513	34

4. Revised Models with Reduced Input Sets

Table 4.1 Sensitivity Analysis for two week-ahead predictions of cyanobacteria at Station 612 with reduced input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal Counts	1.9131	1	Color	1.0046	16
Initial Chrysophytes counts	1.5612	2	Wind Direction	1.0044	17
Reservoir A Extraction	1.4555	3	River A Streamflow	1.0003	18
Initial Chlorophytes counts	1.1948	4	UV254	1.0000	19
Turbidity	1.1062	5	Ammonia	0.9999	20
Initial Cyanobacteria counts	1.0936	6	Alkalinity	0.9998	21
Temperature	1.0507	7	Chloride	0.9995	22
Length of Day	1.0470	8	River A Extraction	0.9991	23
pH	1.0300	9	Dissolved Oxygen	0.9974	24
Prediction Period's Precipitation Total	1.0218	10	Conductivity	0.9972	25
Pumping Station 1 Extraction	1.0092	11	Odor	0.9952	26
Total Hardness	1.0069	12	Total Amorphous Material	0.9939	27
River B Extraction	1.0055	13	Prediction Period's Lagged Precipitation Total	0.9919	28
Heating Degree Days	1.0052	14	Sky Cover	0.9909	29
Wind Speed	1.0051	15			

Table 4.2 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 100 with reduced input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Temperature	1.0945	1	Ammonia	1.0032	16
Heating Degree Days	1.0775	2	Odor	1.0024	17
Initial Chrysophytes Counts	1.0613	3	Prediction Period's Lagged Precipitation Total	1.0017	18
Initial Chlorophytes Counts	1.0524	4	Dissolved Oxygen	1.0016	19
Total Algal Counts	1.0390	5	Chloride	1.0012	20
Initial Cyanobacteria Counts	1.0373	6	Total Hardness	1.0005	21
River A Extractions	1.0363	7	Wind Direction	1.0000	22
Reservoir A Extraction	1.0268	8	Total Suspended Solids	0.9999	23
River B Extraction	1.0200	9	Length of Day	0.9999	24
Biochemical Oxygen Demand	1.0135	10	pH	0.9992	25
Sky Cover	1.0131	11	River A Streamflow	0.9988	26
Alkalinity	1.0115	12	UV254	0.9975	27
Total Organic Carbon	1.0110	13	Wind Speed	0.9972	28

Table 4.3 Sensitivity Analysis for two week-ahead predictions of chrysophytes counts at Station 101 with reduced input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal Count	3.0052	1	pH	1.0146	15
Initial Chrysophytes Counts	1.8361	2	River A Extraction	1.0057	16
Length of Day	1.5600	3	Pumping Station 1 Extraction	1.0041	17
Initial Chlorophytes Counts	1.4537	4	Chloride	0.9977	18
Prediction Period's Lagged Precipitation Total	1.1710	5	Total Hardness	0.9941	19
Initial Cyanobacteria counts	1.0806	6	Odor	0.9920	20
Wind Direction	1.0675	7	Color	0.9902	21
Dissolved Oxygen	1.0471	8	Prediction Period's Precipitation Total	0.9876	22
Alkalinity	1.0293	9	Turbidity	0.9872	23
Conductivity	1.0266	10	UV254	0.9828	24
River B Extraction	1.0242	11	Ammonia	0.9825	25
Total Amorphous Materials	1.0225	12	Temperature	0.9675	26
Sky Cover	1.0190	13	Wind Speed	0.8919	27
River A Streamflow	1.0152	14	Heating Degree Days	0.8012	28

Table 4.4 Sensitivity Analysis for two week-ahead predictions of cyanobacteria counts at Station 100 with reduced input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Turbidity	1.3511	1	Ammonia	1.0051	16
Heating Degree Days	1.1770	2	Chloride	1.0050	17
Dissolved Oxygen	1.0736	3	Total Organic Carbon	1.0019	18
Total Algal Counts	1.0557	4	River A Streamflow	1.0012	19
Alkalinity	1.0329	5	Length of Day	1.0011	20
Reservoir A Extraction	1.0308	6	Initial Chrysophytes Counts	1.0009	21
Prediction Period's Precipitation Total	1.0274	7	Wind Direction	0.9997	22
Biochemical Oxygen Demand	1.0238	8	Odor	0.9996	23
UV254	1.0158	9	Conductivity	0.9994	24
Sky Cover	1.0126	10	pH	0.9993	25
Initial Chlorophytes Counts	1.0113	11	Wind Speed	0.9991	26
River B Extraction	1.0073	12	Prediction Period's Lagged Precipitation Total	0.9990	27
Pumping Station 1 Extraction	1.0066	13	Total Hardness	0.9968	28
Temperature	1.0063	14	Initial Cyanobacteria Counts	0.9966	29
River A Extractions	1.0052	15	Total Suspended Solids	0.9958	30

Table 4.5 Sensitivity Analysis for one week-ahead predictions of chlorophytes counts at Station 101 with reduced input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal Count	6.3468	1	Color	1.0122	15
Initial Chlorophytes Counts	3.7918	2	Ammonia	1.0104	16
Initial Chrysophytes Counts	3.6781	3	River B Extraction	1.0099	17
Length of Day	1.4414	4	Odor	1.0091	18
Temperature	1.3229	5	Sky Cover	1.0090	19
Alkalinity	1.2047	6	Prediction Period's Lagged Precipitation Total	1.0046	20
Heating Degree Days	1.1984	7	Wind Speed	1.0042	21
Dissolved Oxygen	1.1973	8	Chloride	1.0031	22
Initial Cyanobacteria Counts	1.0991	9	Pumping Station 1 Extraction	1.0001	23
Total Hardness	1.0747	10	Turbidity	0.9998	24
pH	1.0708	11	Total Amorphous Materials	0.9998	25
River A Streamflow	1.0172	12	River A Extraction	0.9935	26
UV254	1.0172	13	Conductivity	0.9862	27
Prediction Period's Precipitation Total	1.0168	14	Wind Direction	0.9821	28

Table 4.6 Sensitivity Analysis for one week-ahead predictions of chrysophytes counts at Station 612 with reduced input sets

Variable	Ratio	Rank	Variable	Ratio	Rank
Total Algal Counts	1.7531	1	Conductivity	1.0058	16
Initial Chrysophytes Counts	1.6910	2	Odor	1.0023	17
Initial Chlorophytes Counts	1.3148	3	Alkalinity	1.0015	18
Initial Cyanobacteria Counts	1.2678	4	pH	1.0011	19
River B Extraction	1.0735	5	Reservoir A Extraction	1.0011	20
Color	1.0723	6	UV254	1.0007	21
Heating Degree Days	1.0627	7	Prediction Period's Lagged Precipitation Total	1.0000	22
Turbidity	1.0602	8	Ammonia	0.9999	23
Length of Day	1.0349	9	Total Hardness	0.9996	24
Prediction Period's Precipitation Total	1.0300	10	Wind Speed	0.9994	25
Total Amorphous Materials	1.0256	11	Chloride	0.9979	26
Temperature	1.0173	12	Sky Cover	0.9934	27
Dissolved Oxygen	1.0149	13	Wind Direction	0.9914	28
River A Extraction	1.0091	14	Pumping Station 1 Extraction	0.9836	29
River A Streamflow	1.0081	15			