To:	Moira Homann, DEP; Woo-Jun Kang, DEP; Chandler Keenan, DEP; Tony Tomalewski, DEP; Diana Turner, DEP
From:	Tetra Tech
Date:	August 21, 2025
Subject:	Draft Task 2. Recalibration of Caloosahatchee River and Estuary HSPF Model Water Quality

1.0 INTRODUCTION

Tetra Tech was contracted by the Florida Department of Environmental Protection (DEP) to extend the Caloosahatchee River and Estuary Hydrological Simulation Program – FORTRAN (HSPF) Model simulation period from January 1, 1996 – December 31, 2014, in the 2017 HSPF Model through December 31, 2023, in what is referred to as the 2025 HSPF Model. The 2025 HSPF Model will be used to support future updates to the load allocations in the basin management action plan (BMAP). This memo documents the updates and adjustments made to calibrate the water quality modeling in the 2025 HSPF Model.

2.0 HSPF MODEL SETUP FOR WATER QUALITY

The 2025 HSPF Model was set up and developed during Task 1, Hydrology Calibration. General model setup components included revising the subbasin delineation, updating the reach representation, and processing weather data. Several of the Task 1 setup components are directly related to water quality parameterization and watershed loading, such as land use setup and development of National Pollutant Discharge Elimination System (NPDES) facilities, reuse, and septic system loads. The Task 1 setup components directly related to water quality are described in the sections below, along with the atmospheric deposition load development. Detailed information on other model setup can be found in the Task 1 memo.

2.1 LAND USE COVERAGE

The land use/land cover (Figure 1) was updated to a land cover created from the combination of 2020–2023 DEP Statewide Land Use Land Cover (DEP 2025), 2023 National Land Cover Dataset (NLCD) land uses (Multi-Resolution Land Characteristics Consortium [MRLC] 2023), Florida Department of Agriculture and Consumer Services (FDACS) Florida Statewide Agricultural Irrigation Demand (FSAID) 12, and Florida Department of Transportation (FDOT) roads and rights-of-way (ROW).

The land use processing was completed by combining the 2020–2023 DEP Statewide geographic information system (GIS) coverage, FDACS FSAID 12 coverage and associated crosswalk for the model land use type for each FDACS crop type, and FDOT ROW coverage using GIS clipping and intersecting techniques. DEP Statewide is a complete coverage of the watershed whereas FDACS FSAID 12 and FDOT ROW cover only portions of the watershed. Where the FDACS FSAID 12 and FDOT ROW coverages exist, they replaced what is contained in the DEP Statewide coverage. The resulting DEP Statewide, FSAID, and FDOT combined processed land use coverage was then intersected with the 2023 NLCD impervious coverage to determine the total impervious area in the watershed.

Overall, land use processing (i.e., grouping similar land uses and effective impervious area calculations) followed the same steps detailed in the 2017 HSPF Model report (Tetra Tech 2017). However, for the 2025 model, there was one additional step of incorporating the FSAID 12 coverage.

Table 1 presents a comparison of the land use in the 2017 HSPF Model and 2025 HSPF Model. As noted in the Task 1 memo, the overall boundary of the watershed was revised as part of the 2025 HSPF Model, resulting in slightly less acreage than the 2017 HSPF Model. Additionally, for the 2025 HSPF Model, two new land use class codes were created (Agricultural Wetland and Agricultural Fallow) to allow for the integration of FSAID12.

Table 1. Caloosahatchee River Watershed HSPF model pervious land use and impervious land use classification codes and areas for the 2017 and 2025 HSPF models

Numeric Land Use Code	Land Use Description	Land Segment	Total Acreage in the 2017 Model	% of Area in the 2017 Model	Total Acreage in the 2025 Model	% of Area in the 2025 Model	% of Area Change
1	Low Density Residential (Pervious)	PERLND	74,606	8.5%	75,693	8.6%	1.5%
2	Medium Density Residential (Pervious)	PERLND	31,118	3.5%	28,694	3.3%	-7.8%
3	High Density Residential (Pervious)	PERLND	6,162	0.7%	7,246	0.8%	17.6%
4	Commercial/Institutional/Transportation (Pervious)	PERLND	8,234	0.9%	8,338	1.0%	1.3%
5	FDOT Right-of-Way (Pervious)	PERLND	4,300	0.5%	3,797	0.4%	-11.7%
6	Industrial/Extractive (Pervious)	PERLND	7,408	0.8%	8,576	1.0%	15.8%
7	Developed Open Space/Disturbed (Pervious)	PERLND	21,587	2.5%	15,970	1.8%	-26.0%
8	Sugar Cane	PERLND	90,632	10.3%	96,014	11.0%	5.9%
9	Row and Field Crops	PERLND	13,753	1.6%	34,465	3.9%	150.6%
10	Nurseries, Ornamentals, and Vineyards	PERLND	3,670	0.4%	3,200	0.4%	-12.8%
11	Citrus Groves/Other Groves	PERLND	91,032	10.3%	36,358	4.1%	-60.1%
12	Improved Pasture	PERLND	128,792	14.6%	109,280	12.5%	-15.2%
13	Rangeland/Unimproved Pasture/Woodland Pasture/ Shrub	PERLND	102,272	11.6%	107,329	12.2%	4.9%
14	Upland Forests	PERLND	121,115	13.8%	110,820	12.6%	-8.5%
15	Wetlands	PERLND	133,590	15.2%	78,380	8.9%	-41.3%
16	Water	PERLND	13,963	1.6%	14,607	1.7%	4.6%
17	Agricultural Wetland	PERLND	Not applicable (N/A)	N/A	32,816	3.7%	N/A
18	Agricultural Fallow	PERLND	N/A	N/A	60,010	6.8%	N/A
1	Low Density Residential (Impervious)	IMPLND	4,691	0.5%	9,447	1.1%	101.4%
2	Medium Density Residential (Impervious)	IMPLND	9,924	1.1%	14,435	1.6%	45.5%
3	High Density Residential (Impervious)	IMPLND	3,760	0.4%	5,622	0.6%	49.5%
4	Commercial/Institutional/Transportation/Industrial/ Extractive (Impervious)	IMPLND	7,017	0.8%	8,978	1.0%	27.9%
5	FDOT Right-of-Way (Impervious)	IMPLND	844	0.1%	1,265	0.1%	49.9%
6	Agriculture (Impervious)	IMPLND	699	0.1%	2,195	0.3%	214.0%
7	Other (Impervious)	IMPLND	1,242	0.1%	2,792	0.3%	124.8%
-	**Total**	**-**	**880,408**	**100.0%**	**876,323**	**100.0%**	**-0.5%**

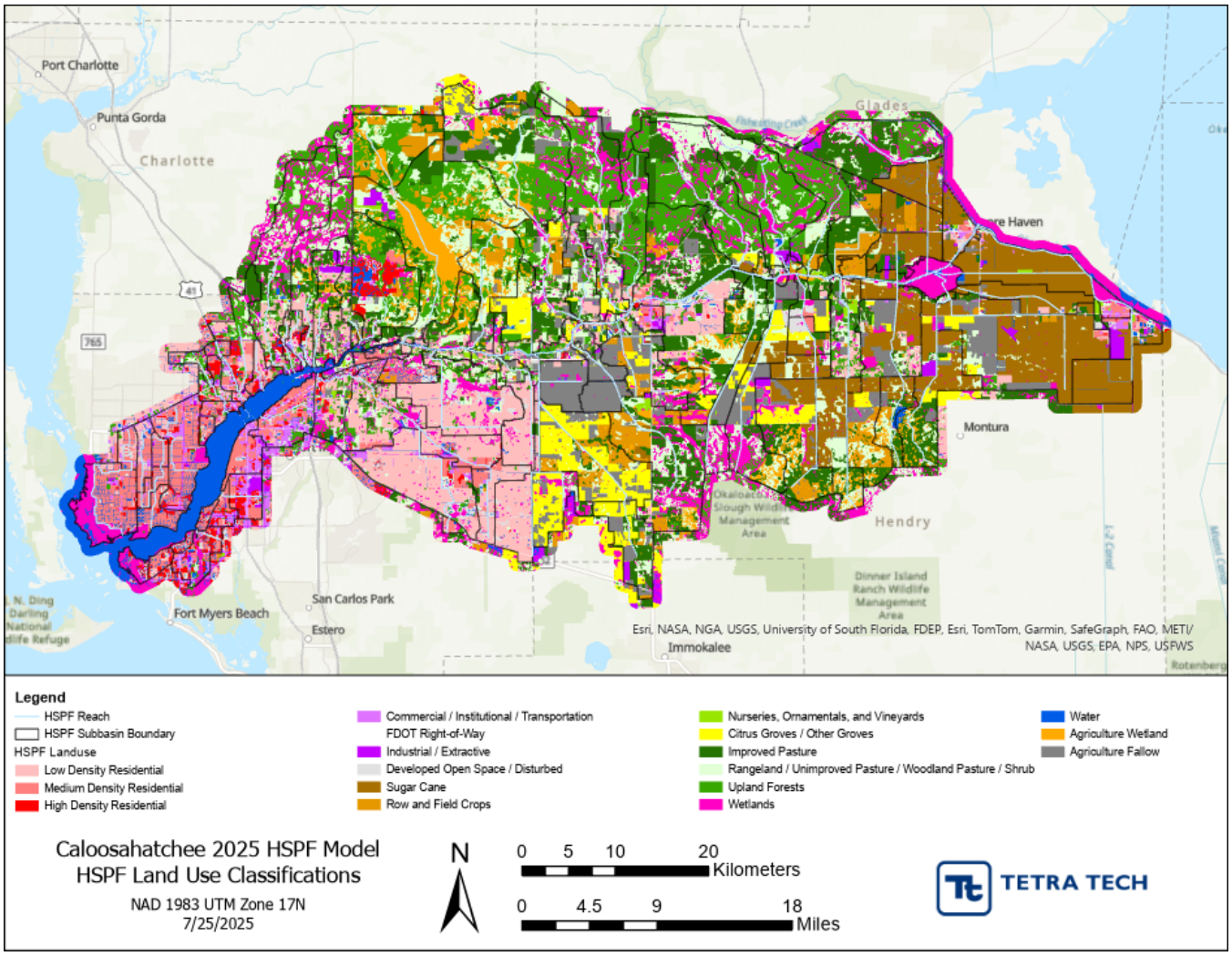


Figure 1. Processed land use classifications in the 2025 HSPF Model

2.2 NPDES AND REUSE FACILITIES

The 2025 HSPF Model includes point source data from three NPDES domestic wastewater (DW) and industrial wastewater (IW) treatment facilities and 11 reuse facilities (Figure 2). The DW, IW, and reuse facilities included in the 2025 HSPF Model are the same facilities included in the 2017 HSPF Model (Tetra Tech 2017). DEP provided Tetra Tech with the permit and discharge monitoring report (DMR) data for the NPDES facilities with surface water discharges (Table 2) as well as the reuse facilities with permitted discharges greater than 0.09 million gallons per day (mgd) (Table 3) for the period from January 1, 2015 through December 31, 2023. The extended data were combined with the data used in the 2017 HSPF Model and then incorporated into the 2025 Model.

Table 2. NPDES facilities included in the 2025 HSPF Model

NPDES ID	Facility Name	Type	Design Capacity (mgd)	Average Flow (mgd)	Period of Record
FL0037541	E R Jahna Ind - Ortona Mine	IW	20.00	4.62	Oct 2002 – Dec 2023

NPDES ID	Facility Name	Type	Design Capacity (mgd)	Average Flow (mgd)	Period of Record
FL0040088	Cape Coral, City of – Reverse Osmosis (RO) Water Treatment Plant (WTP)	IW	3.05	2.04	Jan 1999 – Jun 2010
FL0040665	Clewiston, City of – Wastewater Treatment Facility (WWTF)	DW	1.50	1.33	Apr 1999 – Dec 2023

Table 3. Reuse facilities included in the 2025 HSPF Model

Facility ID	Facility Name	Type	Usage(s)	Permitted Capacity (mgd)	Average Flow (mgd)	Period of Record
FL0021261	Fort Myers Central Advanced WWTF	DW	Irrigation and commercial uses	11.000	3.35	Sep 2000 – Dec 2023
FL0030007	Cape Coral, City of - Everest Water Reclamation Facility (WRF)	DW	Irrigation	13.400	7.30	Nov 2011 – Dec 2023
FL0039829	Fiesta Village Advance Wastewater Treatment Plant	DW	Stormwater lake storage	5.000	1.80	Sep 2003 – Dec 2023
FL0040665	Clewiston, City of - WWTF	DW	Land application system (LAS) and irrigation	1.500	1.36	Apr 1998 – Dec 2023
FLA014283	LaBelle, City of	DW	LAS	0.750	0.46	Jun 2011 – Dec 2023
FLA014290	Port LaBelle	DW	Percolation pond	0.250	0.22	Feb 2011 – Dec 2023
FLA014548	Del Prado WWTF (formerly North Fort Myers Utility)	DW	Irrigation	4.250	1.79	Jan 2012 – Mar 2023
FLA014565	Lehigh Acres Wastewater Treatment Plant (WWTP)	DW	Percolation ponds and irrigation	2.480	0.94	Jan 2012 – Nov 2023
FLA014676	River Trails Mobile Home Park	DW	Percolation pond	0.097	0.06	Feb 2010 – Dec 2023
FLA016891	Glades County Correctional	DW	LAS and wetland application site	0.405	0.18	Dec 2012 – Dec 2023
FLA144215	Fort Myers Beach Sewage Treatment Plant (STP)	DW	Irrigation, commercial uses, and ponds	6.000	3.20	Jan 2015 – Dec 2023

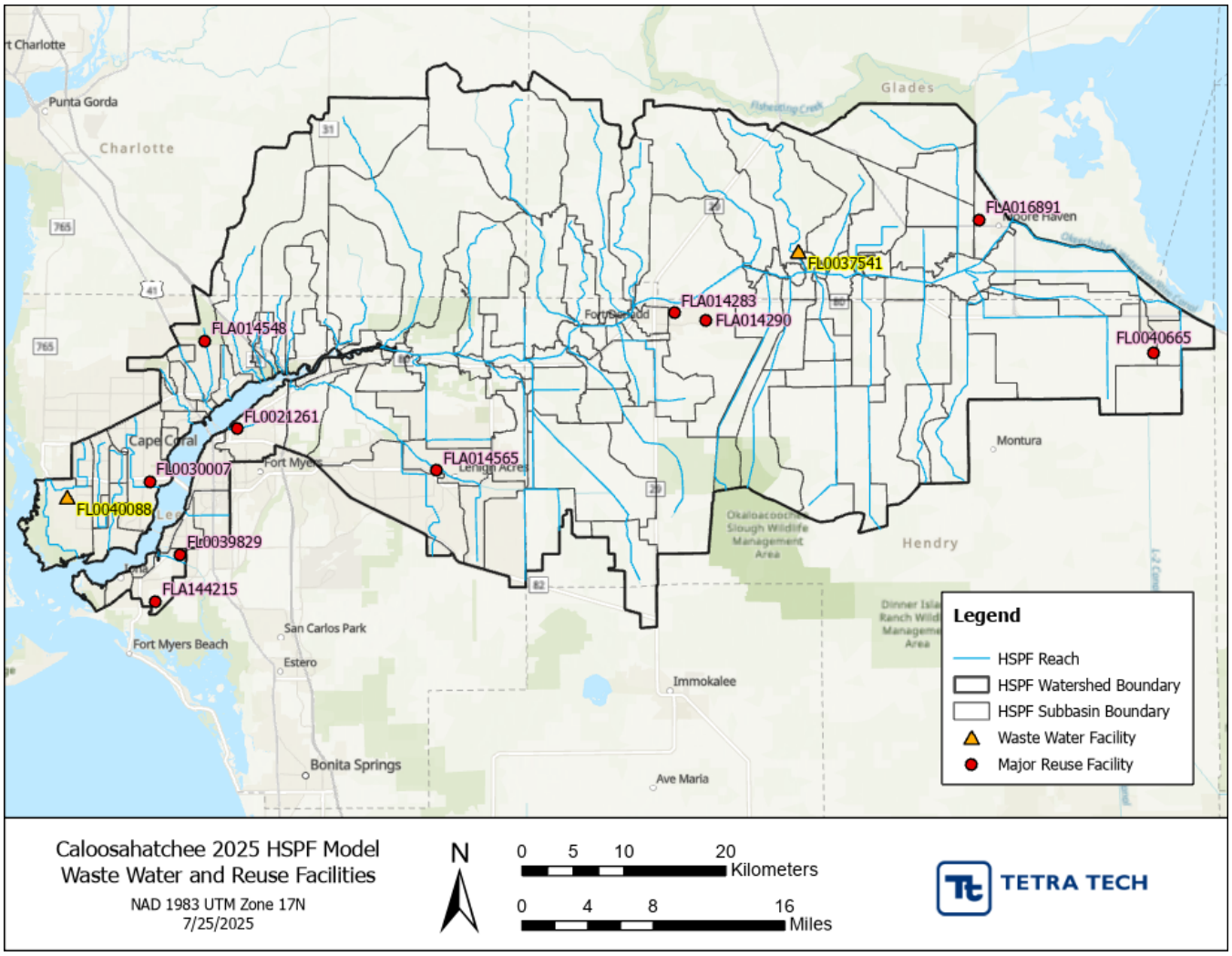


Figure 2. Wastewater and reuse facilities in the 2025 HSPF Model watershed

2.2.1 Available Data

Observed average flow and water quality constituent data, for the 1997 through 2023 simulation period, for each of the facilities are shown in Table 4. The number of end of pipe flow and water quality parameter observations, for the 1997 through 2023 simulation period, reported by each facility are shown in

Table 5. For most parameters, results were reported monthly. The period of record for the available data for the 1997 through 2023 simulation period is shown in

Table 6. The available measured data for these facilities were used in the HSPF model to determine the total loading from each facility.

Observed biochemical oxygen demand (BOD) is reported as carbonaceous biochemical oxygen demand 5-day (CBOD5). For the 2017 and 2025 HSPF Model water quality setups, Tetra Tech assumed that CBOD5 is equal to CBOD, which is simulated by the HSPF model. The HSPF model only has a single CBOD class, and it can be used as either CBOD5 or CBOD-ultimate (CBODU) depending in part on the residence time in the model. CBOD5 decay is typically much faster than CBODU and more representative of conditions in smaller to medium sized watersheds, such as the Caloosahatchee River Watershed, and most in-stream data are CBOD5. CBODU is typically more representative of large, long-residence river systems, such as the Mississippi River.

Table 4: Observed average value for available flow and water quality data for NPDES and reuse facilities

Facility Type	Permit	Flow (cubic feet per second [cfs])	Ammonia (NH_3) (milligrams per liter [mg/L])	Nitrate + Nitrite (NOx) (mg/L)	Organic Nitrogen (OrgN) (mg/L)	Total Nitrogen (TN) (mg/L)	Phosphate (PO_4) (mg/L)	Organic Phosphorus (OrgP) (mg/L)	Total Phosphorus (TP) (mg/L)	CBOD5 (mg/L)	Total Suspended Solids (TSS) (mg/L)	Dissolved Oxygen (DO) (mg/L)	Water Temperature (WTEM) (Deg C)
NPDES (HSPF)	FL0037541	7.15	0.021*	>0.1*	-	0.29*	-	-	0.77	>2.0*	3.6*	-	-
NPDES (HSPF)	FL0040088	3.15	-	-	-	1.81	-	-	0.23	-	-	7.56	-
NPDES (HSPF)	FL0040665	2.06	0.67	0.31	1.51**	2.36	-	-	0.31	3.59	3.97	5.05	25.75
Reuse	FL0021261	3.68	-	-	-	-	-	-	-	2.14	3.59	-	-
Reuse	FL0030007	11.15	-	-	-	-	-	-	-	2.04	1.84	-	-
Reuse	FL0039829	2.79	0.06	0.53	0.8	-	-	-	-	1.29	1.16	-	-
Reuse	FL0040665	2.11	-	-	-	12.43	-	-	1.94	5.16	6.85	-	-
Reuse	FLA014283	0.72	-	1.83	-	-	-	-	-	3.44	10.38	-	-
Reuse	FLA014290	0.34	-	2.39	-	-	-	-	-	5.27	2.39	-	-
Reuse	FLA014548	2.76	-	6.82	-	-	-	-	-	2.23	1.93	-	-
Reuse	FLA014565	1.45	-	5.11	-	13.62	-	-	-	3.12	1.78	-	-
Reuse	FLA014676	0.10	0.14	2.85	1.30	-	-	-	0.85	5.06	6.89	-	-
Reuse	FLA016891	0.29	-	-	-	-	-	-	-	2.57	2.32	-	-
Reuse	FLA144215	4.95	-	8.60	-	9.84	-	-	3.55	1.44	1.27	-	-

* Denotes single sample reported in permit application.

** Calculated.

- = No data.

Table 5: Number of observations for available flow and water quality data for NPDES and reuse facilities

Facility Type	Permit	Flow	NH3	NOx	OrgN	TN	PO4	OrgP	TP	CBOD5	TSS	DO	WTEM
NPDES	FL0037541	273	1	1	-	1	-	-	6	1	1	-	-
NPDES	FL0040088	113	-	-	-	10	-	-	6	-	-	153	-
NPDES	FL0040665	267	120	140	141	266	-	-	246	243	246	181	119
Reuse	FL0021261	249	-	-	-	-	-	-	-	217	217	-	-
Reuse	FL0030007	144	-	-	-	-	-	-	-	219	219	-	-
Reuse	FL0039829	205	2	2	3	-	-	-	-	185	186	-	-
Reuse	FL0040665	146	-	-	-	141	-	-	142	287	259	-	-
Reuse	FLA014283	138	-	138	-	-	-	-	-	138	138	-	-
Reuse	FLA014290	155	-	216	-	-	-	-	-	217	215	-	-
Reuse	FLA014548	124	-	111	-	-	-	-	-	123	123	-	-
Reuse	FLA014565	124	-	124	-	26	-	-	-	123	122	-	-
Reuse	FLA014676	142	39	135	39	-	-	-	39	124	124	-	-
Reuse	FLA016891	111	-	-	-	-	-	-	-	113	127	-	-
Reuse	FLA144215	106	-	30	-	106	-	-	106	106	106	-	-

- = No data.

Table 6: Period of record for available flow and water quality data for NPDES and reuse facilities

Facility Type	Permit	Flow	NH3	NOx	OrgN	TN	PO4	OrgP	TP	CBOD5	TSS	DO	WTEM
NPDES	FL0037541	10/1/2002-12/31/2023	11/1/2011	11/1/2011	-	11/1/2011	-	-	9/1/2022 - 12/31/2023	11/1/2011	11/1/2011	-	-
NPDES	FL0040088	1/1/1999 - 6/1/2010	-	-	-	6/1/2008 - 12/1/2011	-	-	6/1/2008 - 12/1/2011	-	-	1/1/1999 - 1/1/2012	-
NPDES	FL0040665	4/1/1999 - 12/31/2023	4/1/2012 - 4/30/2022	4/1/2012 - 12/31/2023	4/1/2012 - 12/31/2023	4/1/1999 - 12/31/2023	-	-	4/1/1999 - 12/31/2023	4/1/1999 - 4/30/2022	4/1/1999 - 4/30/2022	4/1/1999 - 10/31/2016	4/1/2012 - 12/31/2023
Reuse	FL0021261	9/1/2000 - 12/31/2023	-	-	-	-	-	-	-	10/1/2005-12/31/2023	10/1/2005-12/31/2023	-	-
Reuse	FL0030007	11/1/2011-12/31/2023	-	-	-	-	-	-	-	9/1/2005 - 12/31/2023	9/1/2005 - 12/31/2023	-	-
Reuse	FL0039829	9/1/2003 - 12/31/2023	2/1/2009 - 5/1/2009	2/1/2009 - 5/1/2009	2/1/2009 - 5/1/2009	-	-	-	-	9/1/2003 - 12/31/2023	9/1/2003 - 12/31/2023	-	-
Reuse	FL0040665	4/1/1998 - 12/31/2023	-	-	-	4/1/1998 - 4/1/2011	-	-	4/1/1998 - 4/1/2011	4/1/1998 - 12/31/2023	4/1/1998 - 12/31/2023	-	-
Reuse	FLA014283	6/1/2011 - 12/31/2023	-	6/1/2011 - 12/31/2023	-	-	-	-	-	6/1/2011 - 12/31/2023	6/1/2011 - 12/31/2023	-	-
Reuse	FLA014290	2/1/2011 - 12/31/2023	-	8/1/2005 - 12/31/2023	-	-	-	-	-	8/1/2005 - 12/31/2023	8/1/2005 - 12/31/2023	-	-
Reuse	FLA014548	1/1/2012 - 3/31/2023	-	3/1/2013 - 3/31/2023	-	-	-	-	-	1/1/2012 - 3/31/2023	1/1/2012 - 3/31/2023	-	-
Reuse	FLA014565	1/1/2012 - 11/30/2023	-	1/1/2012 - 11/30/2023	-	1/1/2012 - 12/31/2014	-	-	-	1/1/2012 - 11/30/2023	1/1/2012 - 11/30/2023	-	-
Reuse	FLA014676	2/1/2010 - 12/31/2023	10/1/2020-12/31/2023	1/1/2012 - 12/31/2023	10/1/2020-12/31/2023	-	-	-	10/1/2020-12/31/2023	1/1/2012 - 12/31/2023	1/1/2012 - 12/31/2023	-	-
Reuse	FLA016891	12/1/2012-12/31/2023	-	-	-	-	-	-	-	1/1/2011 - 12/31/2023	1/1/2011 - 12/31/2023	-	-
Reuse	FLA144215	1/1/2015 - 12/31/2023	-	6/1/2015 - 11/30/2020	-	1/1/2015 - 12/31/2023	-	-	1/1/2015 - 12/31/2023	1/1/2015 - 12/31/2023	1/1/2015 - 12/31/2023	-	-

- = No data.

2.2.2 Model Implementation and Missing Data Assumptions

The extended NPDES and reuse data were incorporated into the 2025 HSPF Model using the same approaches used in the 2017 HSPF Model (i.e., NPDES direct input time series to RCHRES in the EXT SOURCES and reuse lateral input time series to specific PERLND land uses) (Tetra Tech 2017). Additionally, when available, measured water quality data were used to represent the NPDES and reuse facilities discharge flows and concentrations and to fill gaps in the data record. However, as shown above, measured data were not available for many parameters and Tetra Tech used the same missing data assumptions applied in the 2017 HSPF Model (Tetra Tech 2017) for the 2025 HSPF Model (Table 7 and Table 8).

Table 7:Default assumptions for missing flow and water quality data for NPDES facilities

Constituent	Minor (<1.0 mgd)	Major (>1.0 mgd)	Rationale
TP	0.15 mg/L	0.15 mg/L	Average of available data = 0.15 mg/L; range of 0.08 - 0.25 mg/L
PO4 e	0.135 mg/L (90% of TP)	0.105 mg/L (70% of TP)	Professional recommendation
OrgP	0.015 mg/L (10% TP)	0.045 mg/L (30% of TP)	Professional recommendation
TN	1.50 mg/L (sum of species)	1.50 mg/L (sum of species)	Average of available data = 1.38 mg/L; range of 0.29 - 2.28 mg/L
NH3	0.15 mg/L (10% of TN)	0.15 mg/L (10% of TN)	Average of available data = 0.15 mg/L; range of 0.021 - 0.38 mg/L
NOx	0.15 mg/L (10% of TN)	0.15 mg/L (10% of TN)	Average of available data = 0.16 mg/L; range of 0.08 - 0.23 mg/L
OrgN	1.20 mg/L (80% of TN)	1.20 mg/L (80% of TN)	Average of available data = 1.09 mg/L; range of 0.63 - 1.77 mg/L
CBOD5	2.0 mg/L	2.0 mg/L	Average of available data = 2.16 mg/L; range of 0.63 - 6.50 mg/L
DO	6.0 mg/L	6.0 mg/L	Average of available data = 6.12 mg/L; range of 5.06 - 7.56 mg/L
TSS	3.5 mg/L	3.5 mg/L	Average of available data = 3.25 mg/L; range of 0.59 - 7.36 mg/L
WTEM	20.0 °C October through March 30.0 °C April through September	20.0 °C October through March 30.0 °C April through September	Professional recommendation

Table 8:Default assumptions for missing flow and water quality data for reuse facilities

Constituent	Minor (<1.0 mgd)	Major (>1.0 mgd)	Rationale
TP	3.0 mg/L	3.0 mg/L	Average of available data = 2.91 mg/L; range of 0.078 - 3.98 mg/L
PO4 e	2.7 mg/L (90% of TP)	2.1 mg/L (70% of TP)	Professional recommendation
OrgP	0.3 mg/L (10% TP)	0.9 mg/L (30% of TP)	Professional recommendation
TN	12.0 mg/L (sum of species)	12.0 mg/L (sum of species)	Average of available data = 12.27 mg/L; range of 0.0 - 25.5 mg/L
NH3	0.6 mg/L (5% of TN)	0.6 mg/L (5% of TN)	Average percent of TN
NOx	6.0 mg/L (50% of TN)	6.0 mg/L (50% of TN)	Average percent of TN
OrgN	5.4 mg/L (45% of TN)	5.4 mg/L (45% of TN)	Difference between TN and (NOx + NH3)
CBOD5	3.0 mg/L	3.0 mg/L	Average of available data = 2.96 mg/L
DO	6.0 mg/L	6.0 mg/L	Professional recommendation
TSS	3.5 mg/L	3.5 mg/L	Average of available data = 3.38 mg/L
WTEM	20.0 °C October through March 30.0 °C April through September	20.0 °C October through March 30.0 °C April through September	Professional recommendation

2.3 SEPTIC SYSTEMS

Septic systems are designed to collect and treat wastewater that is eventually discharged into the surrounding soil, and this loading from septic systems can increase nutrient loads in waterbodies. Properly functioning septic systems do not fully remove nutrients from the wastewater supply and these nutrients leach into the local surface and subsurface waters. Conventional septic systems, for example, have an average nitrogen removal efficiency of 20% (Swann 2001) and failing septic systems can be even less efficient. Tetra Tech developed estimated septic flows and loads for each subbasin in the 2017 HSPF Model. For the 2025 HSPF Model Tetra Tech used the ArcGIS-Based Nutrient Load Estimation Toolbox in Python (ArcNLET-Py) to simulate the fate and transport of nutrients (TN and TP) from each septic system in the Caloosahatchee River and Estuary Watershed (Tetra Tech 2025).

The ArcNLET-Py water quality loads were aggregated to the subbasin level and incorporated into the 2025 HSPF model. Static subbasin loads are represented in the model using the HSPF GENER module. Non-failing septic system inputs are loaded directly to the simulated reach or, for the subbasins with no reaches, directly to the Caloosahatchee River and Estuary.

Failing septic systems were simulated implicitly in the 2025 HSPF Model upland buildup/wash off algorithms. The unit area export coefficients established by Harper (1994) and SWET (2008) indicate that the Residential Low Density land use assumes failing septic systems are present. Therefore, calibration of the Low Density Residential land use to those target loads implicitly implies failing septic systems are represented.

2.4 UPSTREAM BOUNDARY CONDITION

The Task 1 memo and 2017 HSPF Model report (Tetra Tech 2017) included detailed information describing the movement of water from Lake Okeechobee into the Caloosahatchee River and Estuary Watershed and into Lake Okeechobee from the Caloosahatchee River and Estuary Watershed via the S-77 lock, S-310 lock, and LD-1 culverts. For the 2025 HSPF Model, measured water quality data from South Florida Water Management District DBHYDRO station S-77, were used to construct the water quality time series associated with water moving from Lake Okeechobee into the Caloosahatchee River and Estuary Watershed (i.e., positive flows). A daily concentration time series for the simulated constituents were created by using: (1) observed data on days when observations were available, (2) monthly average by year to fill in gaps between daily observations, and (3) long-term monthly average (monthly average for entire model simulation period) in months where data were not collected. Input loads were tabulated for days with positive flows by using the positive flow volume and concentration for that day from the timeseries. For the 2025 HSPF Model, the S-77 station water quality concentration timeseries was used for all three boundary conditions because no closer water quality monitoring data was available for the S-310 lock and LD-1 culverts. This is the same approach used in the 2017 HSPF Model (Tetra Tech 2017).

The 2017 HSPF Model included corrective flow timeseries for Jacks Branch and Fast Creek. These timeseries were not used in the 2025 HSPF Model (see Task 1 memo); therefore, the water quality timeseries were also not needed.

2.5 ATMOSPHERIC DEPOSITION

Atmospheric deposition is an important source of nitrogen loading to waterbodies and watersheds. The 2025 HSPF Model includes both wet deposition and dry deposition as in the 2017 Model. Wet deposition, specified as concentrations, are applied to precipitation falling on the land and streams/waterbodies. Dry deposition is represented as a mass flux to both land surfaces and directly to streams/waterbodies. Time series data were available for quantifying nitrogen deposition, but time series data were not available for phosphorus deposition. Atmospheric deposition of

nitrogen was explicitly represented in the model as a time series input, while atmospheric deposition of phosphorus was implicitly represented in the model through setup and parameterization as a sediment-sorbed constituent.

2.5.1 Wet Deposition

Wet deposition occurs primarily as ammonium (NH_4+) and nitrate (NO_3-/ HNO_3) ions and has been monitored throughout the country by the National Trends Network (NTN) of the National Atmospheric Deposition Program (NADP). The active NTN sites closest to the Caloosahatchee River and Estuary Watershed are FL41 (Verna Well Field in Sarasota County, FL) and FL11 (Everglades National Park Research Center in Dade County, FL). Data from NADP are provided as monthly precipitation-weighted average concentrations during January 1996 – December 2022.

Monitoring at the NTN stations (NADP 2024) showed that the wet atmospheric deposition concentration of NH_4^+ typically ranged between 0.01 – 0.40 mg/L during the HSPF model simulation period, with no clear trend over time (Figure 3). NO_3- concentrations decreased slightly throughout the model simulation period (Figure 4), and typically varied between 0.05 – 0.40 mg/L.

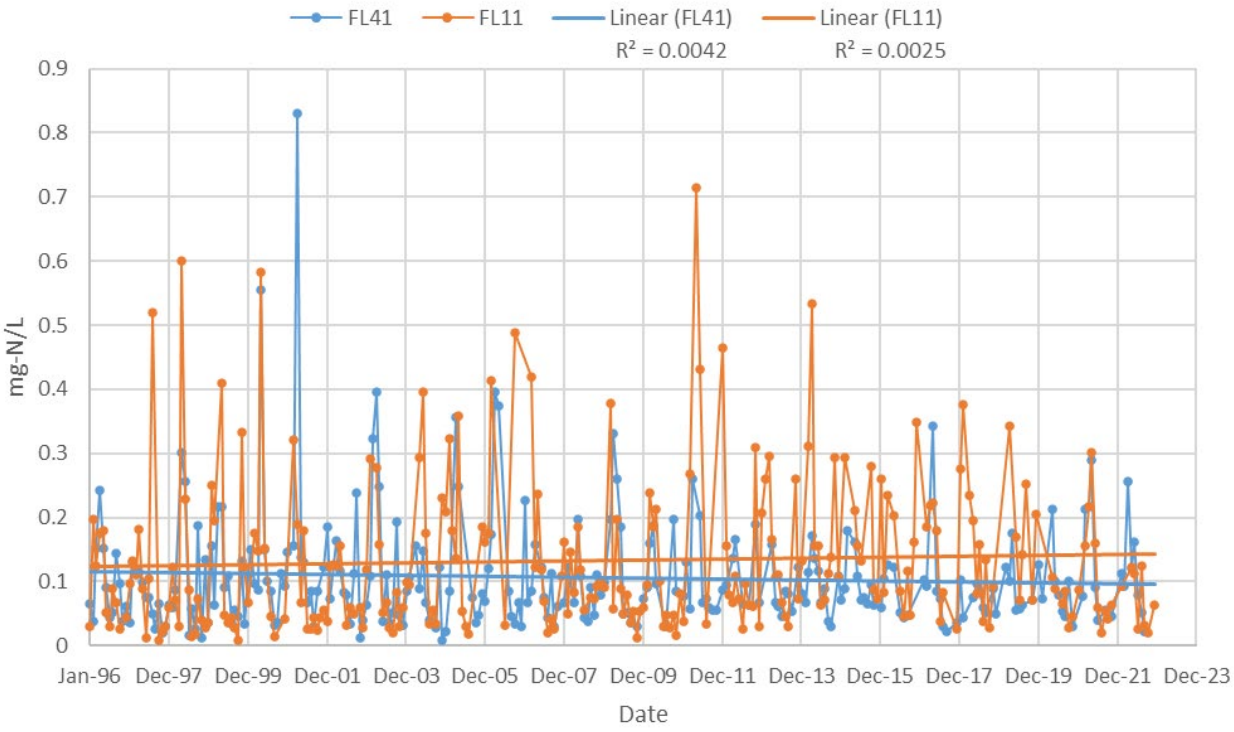


Figure 3. NADP NTN precipitation-weighted concentration of NH_4+

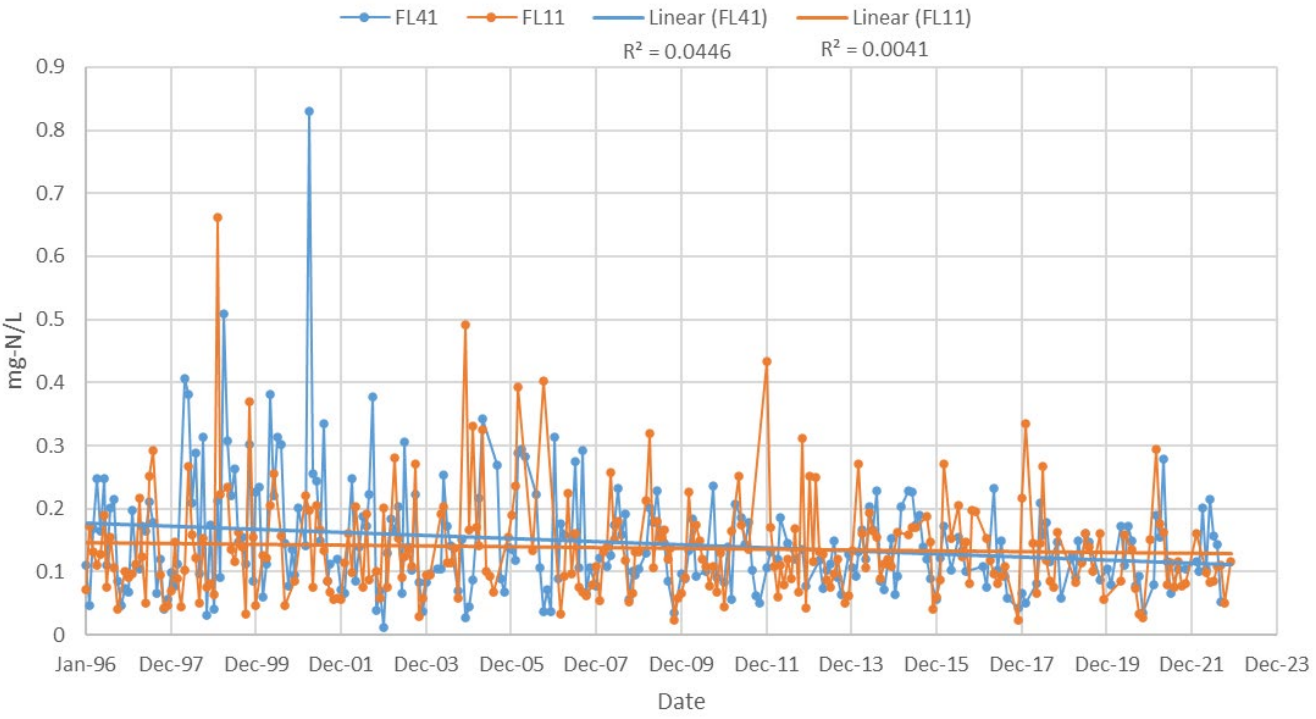


Figure 4. NADP NTN precipitation-weighted concentration of NO_3-

2.5.2 Dry Deposition

Dry deposition of nitrogen is subject to much greater uncertainty than wet deposition because it is difficult to directly measure. The U.S. Environmental Protection Agency's (USEPA) Clean Air Status and Trends Network (CASTNET) monitors air concentrations of NH_4+, HNO_3-, and NO_3, and calculates net dry deposition fluxes using the Multi-Layer Model. The closest active CASTNET sites to the Caloosahatchee River and Estuary Watershed are the Indian River Lagoon in Indian River County, FL (IRL141) and Everglades National Park in Dade County, FL (EVE419). Data from CASTNET are provided as seasonal three-month totals.

Monitoring at the CASTNET stations (USEPA 2024) showed that the dry atmospheric deposition loads of HNO_3- typically ranged between 0.02 – 0.15 kilograms per hectare per three-months (kg/ha/3-months) during the 2025 HSPF Model simulation period, with a decreasing trend over time (Figure 5). Loads of NO_3- decreased over time (Figure 6) and typically varied between 0.01 – 0.04 kg/ha/3-months. Loads of NH_4+ also decreased over time (Figure 7) and typically varied between 0.01 – 0.05 kg/ha/3-months.

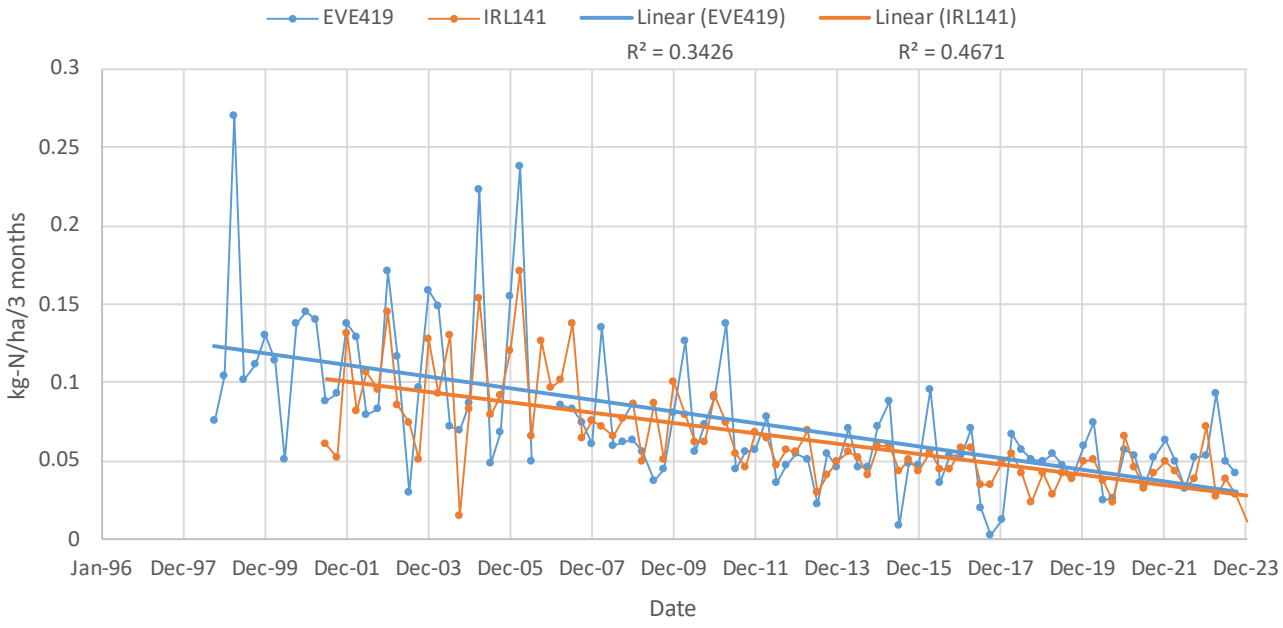


Figure 5. CASTNET three-month total mass of nitrate as N from HNO_3- ion

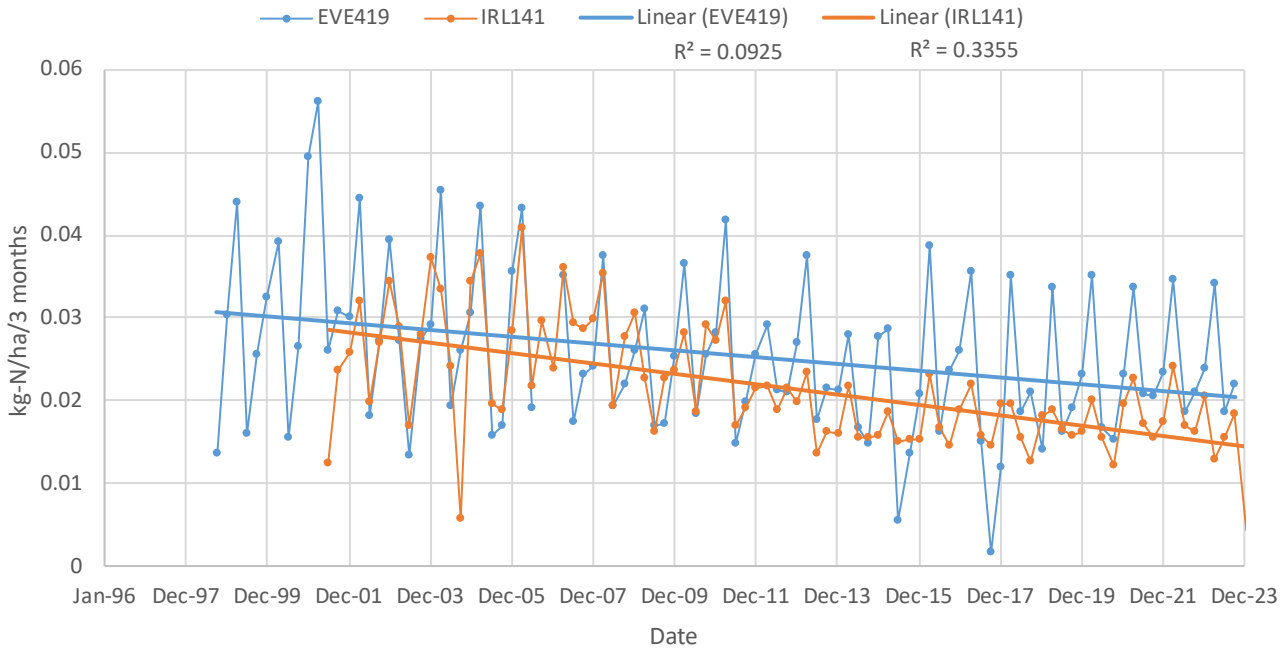


Figure 6. CASTNET three-month total mass of nitrate as N from NO_3- ion

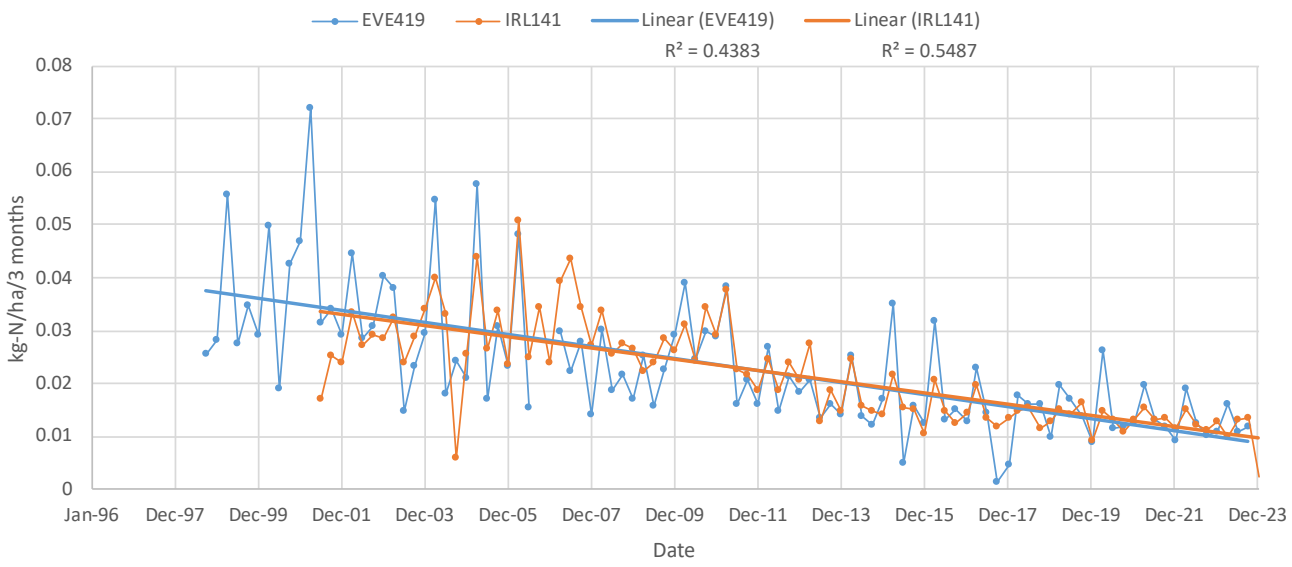


Figure 7. CASTNET three-month total mass of ammonia as N from NH_4+ ion

2.5.3 Model Implementation

To account for seasonal and yearly variability in atmospheric deposition as shown in Figure 3 through Figure 7, Tetra Tech represented wet and dry atmospheric deposition as time series input into the 2025 HSPF Model using the same processing and model implementation approaches used in the 2017 HSPF Model (Tetra Tech 2017).

2.6 MODEL PARAMETERIZATION

The water quality parameters for the HSPF SED (pervious sediment related parameters), PQUAL (pervious water quality constituents), PSTEMP (pervious soil temperatures), PWTGAS (pervious concentrations of dissolved oxygen), SLD (impervious washoff of solids), IQUAL (pervious water quality constituents), IWTGAS (impervious water temperature and concentrations of DO and carbon dioxide), and RQUAL (instream biochemical transformations) modules were mapped from the 2017 HSPF Model to the 2025 HSPF Model and used for the initial 2025 HSPF Model water quality run, which represents a baseline for model improvement. The 2025 HSPF Model land modules (like the 2017 HSPF Model land modules) are represented as a three-digit number that indicates both the Next Generation Weather Radar (NEXRAD) zone and land use and are reclassified from the numeric processing ID (Table 1) to the HSPF land segment and resultant three-digit number (i.e. NEXRAD zone x 20 + HSPF base land use). Individual RCHRES parameterization in the 2017 HSPF Model were mapped 1:1 for in the initial 2017 HSPF Model. The 2025 HSPF Model includes 18 pervious land segments and seven impervious land segments. Both pervious and impervious land segments are included for each of the 15 NEXRAD zones. The land use constituent numeric processing ID reclassification to the HSPF land segment and parameter mapping from the 2017 HSPF Model to the 2025 HSPF Model is shown below in Table 9.

Overall, the 2017 HSPF Model (Tetra Tech 2017) water quality parameters remained unchanged in the 2025 HSPF Model except PQUAL NOx and NH_3 were slightly increased for Row and Field Crops (9); Nurseries, Ornamentals, and Vineyards (10); Citrus Groves / Other Groves (11); Improved Pasture (12); and Rangeland / Unimproved Pasture / Woodland Pasture / Shrub (13), and slightly decreased for Sugar Cane (8). Additionally, Agricultural Wetland and Agricultural Fallow did not exist in the 2017 HSPF model so Agricultural Wetland was set to be 25% greater than Wetland (15) and Agricultural Fallow

was set to be 50% less than Citrus Groves / Other Groves (11) as most of the fallow agricultural lands were previously in citrus production.

Table 9: Water quality parameter mapping for HSPF model water quality modules

Land Use Description	Land Segment	Numeric Land Use Code	2017 HSPF Land Segment ID	2025 HSPF Land Segment ID
Low Density Residential (Pervious)	PERLND	1	1	1
Developed Open Space / Disturbed (Pervious)	PERLND	7	2	2
Medium Density Residential (Pervious)	PERLND	2	3	3
High Density Residential (Pervious)	PERLND	3	4	4
Commercial/Institutional/Transportation (Pervious)	PERLND	4	5	5
Industrial / Extractive (Pervious)	PERLND	6	6	6
FDOT Right-of-Way (Pervious)	PERLND	5	7	7
Sugar Cane	PERLND	8	8	8
Row and Field Crops	PERLND	9	9	9
Nurseries, Ornamentals, and Vineyards	PERLND	10	10	10
Citrus Groves / Other Groves	PERLND	11	11	11
Improved Pasture	PERLND	12	12	12
Rangeland / Unimproved Pasture / Woodland Pasture / Shrub	PERLND	13	13	13
Upland Forests	PERLND	14	14	14
Wetlands	PERLND	15	15	15
Water	PERLND	16	16	16
Agricultural Wetland	PERLND	17	N/A	17
Agricultural Fallow	PERLND	18	N/A	18
Low Density Residential (Impervious)	IMPLND	1	1	1
Medium Density Residential (Impervious)	IMPLND	2	2	2
High Density Residential (Impervious)	IMPLND	3	3	3
Commercial / Institutional / Transportation / Industrial / Extractive (Impervious)	IMPLND	4	4	4
FDOT Right-of-Way (Impervious)	IMPLND	5	5	5
Agriculture (Impervious)	IMPLND	6	6	6
Other (Impervious)	IMPLND	7	7	7

2.6.1 Upland Land Use Loading Rate

Literature upland land use nutrient loading rates for TN and TP represent “edge of field” values (Harper 1994 and SWET 2008). The upland land use nutrient loading rates were assumed to represent “delivered to stream” values for the combination of surface runoff, interflow, and baseflow. Table 10 presents TN and TP unit area loads provided in Harper 1994 and SWET 2008 and are the same values used for the 2017 HSPF Model (Tetra Tech 2017). Loads from each land use from Harper 1994 and SWET 2008 were assigned to similar 2025 HSPF Model land uses classifications. Harper and SWET values were similar for urban and natural land uses but were different for agricultural land uses. DEP provided guidance for the 2017 HSPF Model that more weight should be given to Harper 1994 for urban areas and to SWET 2008 for agricultural areas and the same assumption was used for the 2025 HSPF Model.

Table 10: Comparison of Harper (1994) and SWET (2008) TN and TP loads per acre

2025 HSPF Land Uses	Land use Classes (Harper 1994)	TN pounds per acre per year (lb/acre/yr) (Harper 1994)	TP lb/acre/yr (Harper 1994)	Sediment lb/acre/yr (Harper 1994)	Land Use Classes (SWET 2008)	TN lb/acre/yr (SWET 2008)	TP lb/acre/yr (SWET 2008)
Low Density Residential (Pervious)	Low Density Residential	1.7 - 7.3	0.26-1.11	75	Low Density Residential	7.26	0.68
Low Density Residential (Impervious)	Low Density Residential	1.7 - 7.3	0.26-1.11	75	Low Density Residential	7.26	0.68
Medium Density Residential (Pervious)	Medium Density Residential	3.0 - 14.4	0.43-2.07	125	Medium Density Residential	10.56	1.93
Medium Density Residential (Impervious)	Medium Density Residential	3.0 - 14.4	0.43-2.07	125	Medium Density Residential	10.56	1.93
High Density Residential (Pervious)	High Density Residential	6.1 - 30.1	1.51-7.45	570	High Density Residential	15.84	4.14
High Density Residential (Impervious)	High Density Residential	6.1 - 30.1	1.51-7.45	570	High Density Residential	15.84	4.14
Commercial / Institutional / Transportation (Pervious)	Industrial and Commercial	5.2 - 21.7	0.93-3.89	750	Other Urban	9.24 - 14.52	0.91 - 3.31
Industrial / Extractive (Pervious)	Industrial and Commercial	5.2 - 21.7	0.93-3.89	750	Other Urban	9.24 - 14.52	0.91 - 3.31
Commercial / Institutional / Transportation / Industrial / Extractive (Impervious)	Industrial and Commercial	5.2 - 21.7	0.93-3.89	750	Other Urban	9.24 - 14.52	0.91 - 3.31
Commercial / Institutional / Transportation / Industrial / Extractive (Impervious)	Mining	0.9 - 5.5	0.12-0.77	390	N/A	N/A	N/A
Developed Open Space / Disturbed (Pervious)	Open Land	2.6 - 7.1	0.18-0.51	10	Open Land	5.28	0.39
Rangeland / Unimproved Pasture / Woodland Pasture / Shrub	Pasture	3.6 - 16.3	0.35-1.57	280	Unimproved Pasture	7.26	0.99
Improved Pasture	Pasture	3.6 - 16.3	0.35-1.57	280	Improved Pasture	14.65	1.93
Row and Field Crops	Agriculture General	2.8 - 13.4	0.61-2.96	175	Row crops	19.8	3.45
Agriculture (Impervious)	Agriculture General	2.8 - 13.4	0.61-2.96	175	Row crops	19.8	3.45
Sugar Cane	Agriculture Tree Crop	2.0 - 9.0	0.46-2.12	40	Sugar Cane	10.56	0.55
Nurseries / Ornamentals / Vineyards	Agriculture Tree Crop	2.0 - 9.0	0.46-2.12	40	Ornamentals	15.84	4
Citrus Groves / Other Groves	Agriculture Tree Crop	2.0 - 9.0	0.46-2.12	40	Citrus	11.22	0.9
Rangeland / Unimproved Pasture / Woodland Pasture / Shrub	Rangeland	1.7 - 6.5	0.09-0.33	10	Rangeland	5.41	0.25
Upland Forests	Forest	0.8 - 7.2	0.11-0.92	50	Upland Forest	3.3	0.1
Wetlands	Wetland	0.0 - 5.3	0.00-0.76	15	Wetland	1.98	0.01
Water	Water	0.0 - 5.3	0.00-0.76	0	Water	1.19	0.07
FDOT Right-of-Way (Pervious)	N/A	N/A	N/A	N/A	Transportation	12.14	2.28
FDOT Right-of-Way (Impervious)	N/A	N/A	N/A	N/A	Transportation	12.14	2.28
Other (Impervious)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

For the 2017 HSPF model, FDOT provided a report that included event mean concentration (EMC) values for the land uses under its jurisdiction (ATM 2010). The HSPF model does not allow for the explicit input of EMC data, so Tetra Tech processed the FDOT EMC data into unit area loads (Tetra Tech 2017). The results of that analysis, reproduced here for reference (Table 11) was used for the 2025 HSPF Model.

Table 11: TN and TP loads per acre for FDOT land uses

FDOT Land Use Classes	Average % Impervious	TN mg/L (ATM 2010)	TP mg/L (ATM 2010)	Runoff in/year	TN load lb/acre/year	TP load lb/acre/year
FDOT Right-of-Way (Pervious)	35	1.16	0.157	27.43	7.21	0.26
FDOT Right-of-Way (Impervious)	65	1.16	0.157	49.88	11.30	2.56

3.0 UPDATED WATER QUALITY CALIBRATION

Tetra Tech completed the 2025 HSPF Model initial water quality setup and evaluated the calibration and validation results. For sediment, TN, and TP, Tetra Tech compared the simulated average annual unit area export loads to target unit area export loads. Figure 8 shows simulated and target loads for sediment. Target loads for sediment were only obtained from Harper 1994, as SWET 2008 does not provide information for sediment exports. Figure 9 shows simulated and target loads for TN. Figure 10 shows simulated and target loads for TP.

Results indicated that the 2025 HSPF Model produced 20% to 30% higher loads of sediment, TN, and TP when compared to the 2017 HSPF Model (Tetra Tech 2017) unit area loads. After review of the model setup, it was found that Hurricane Irma in September 2017 had an outsized influence on the 2017 results as well as the full simulation period sediment, TN, and TP unit area loads. The 2025 HSPF Model simulation period unit area loads without the influence of Hurricane Irma for sediment (Figure 11), TN (Figure 12), and TP (Figure 13) are nearly identical to the final 2017 HSPF Model (Tetra Tech 2017) unit area loads where average annual loads compare favorably with target average annual loads for all land uses. As previously stated, urban areas are compared to the Harper (1994) values and agricultural areas are compared to the SWET (2008) values. Generally, the target export values in Harper (1994) and SWET (2008) were near the median and average of the simulated range. Occasionally target export values in Harper (1994) and SWET (2008) fell above or below the median of the simulated range due to balancing the upland load comparison and instream calibration.

Target export values were not available in Harper (1994) and SWET (2008) for Agricultural Wetlands and Agricultural Fallow land use types. Agricultural Wetlands are wetland areas that experience seasonal grazing, therefore, it was assumed that Agricultural Wetlands produce slightly elevated loads compared to wetlands. Agricultural Fallow represents agricultural land uses that once were in production but are fallow in the 2020–2023 DEP Statewide coverage and FDACS FSAID 12 coverage. It was assumed that Agricultural Fallow produces reduced loads compared to production land uses but elevated loads compared to natural land uses.

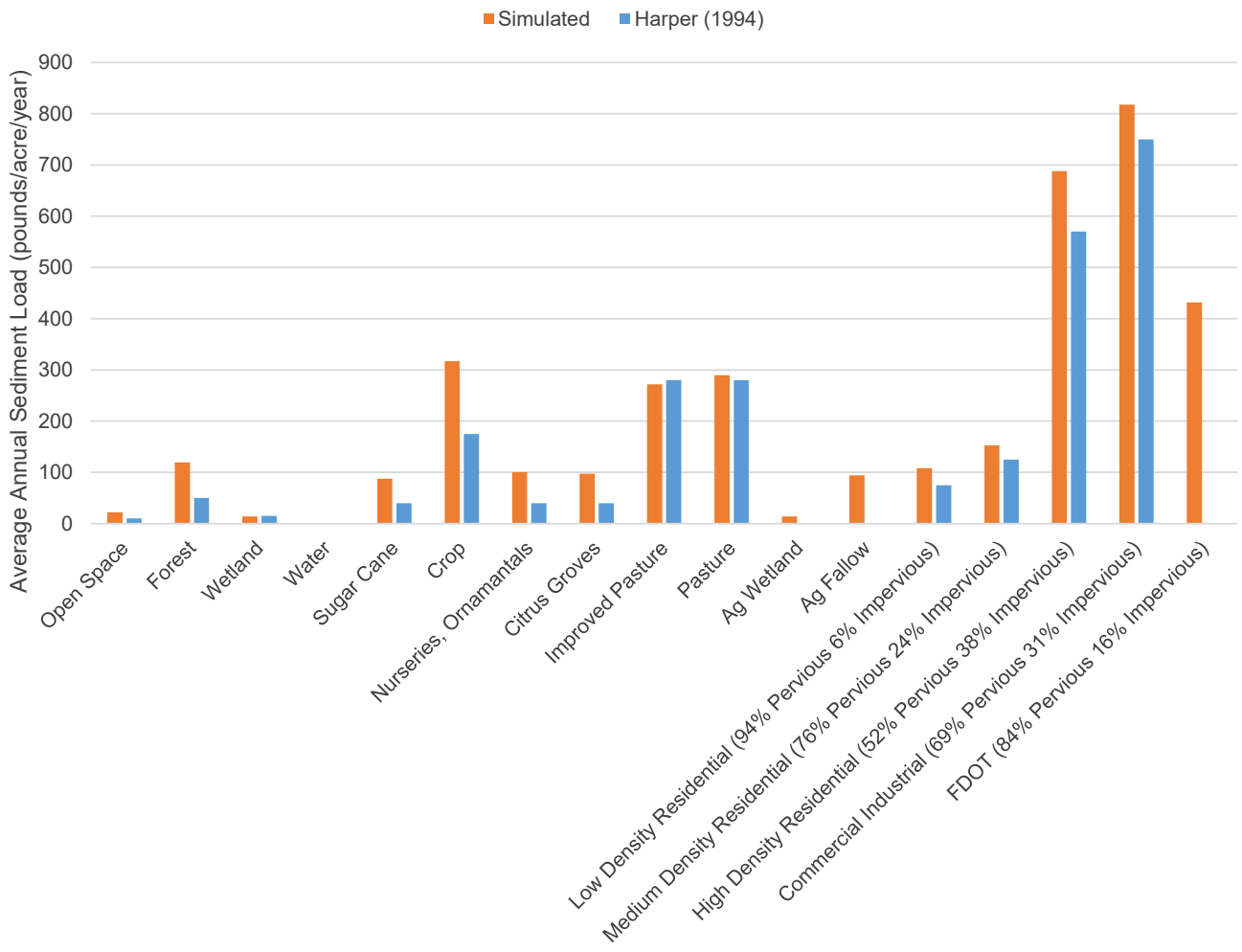


Figure 8: Comparison of 2025 HSPF initial simulated and target sediment average annual sediment loads (Harper 1994)

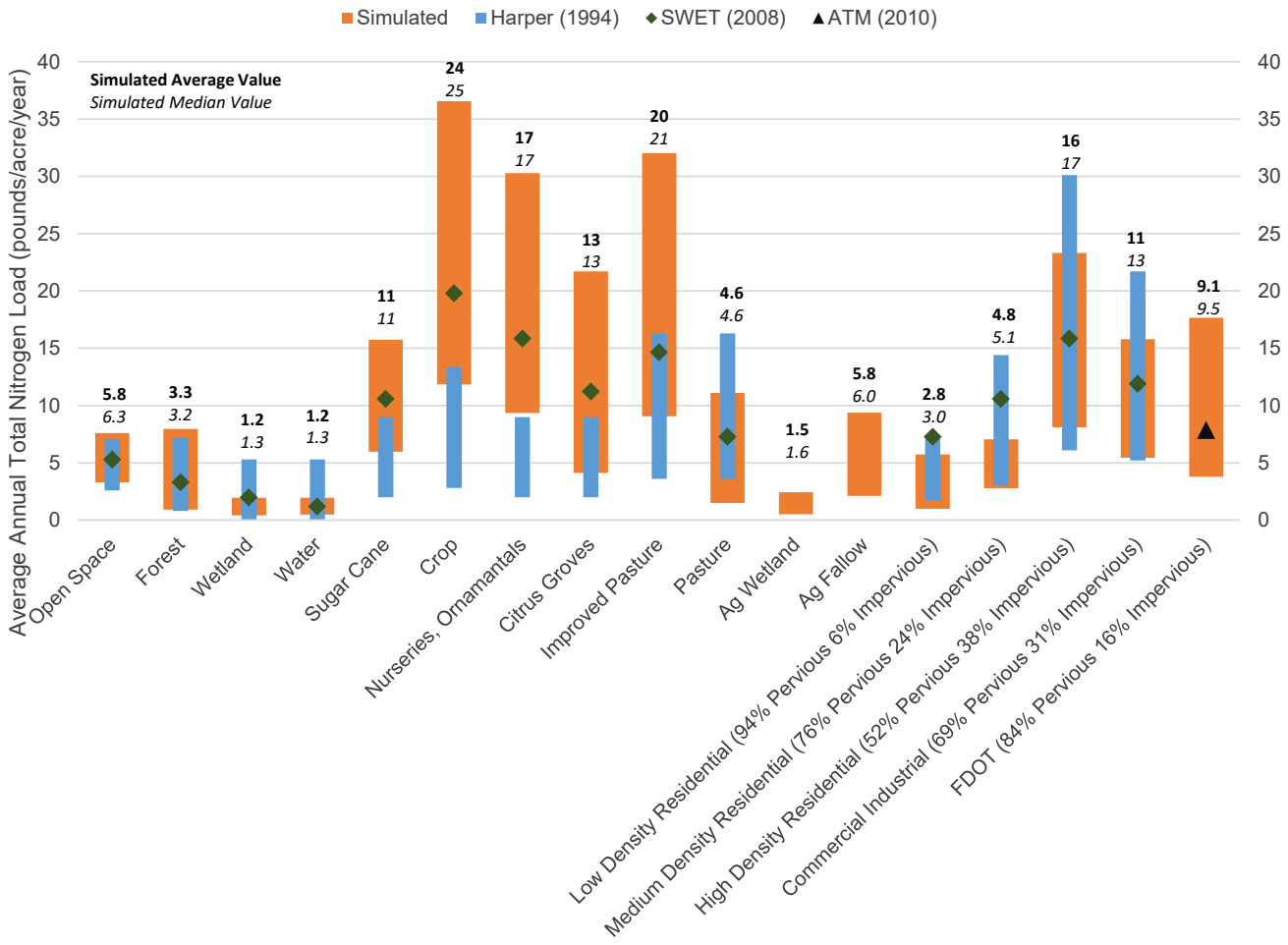


Figure 9: Comparison of 2025 HSPF initial simulated and target sediment average annual TN loads (Harper 1994, SWET 2008, and ATM 2010)

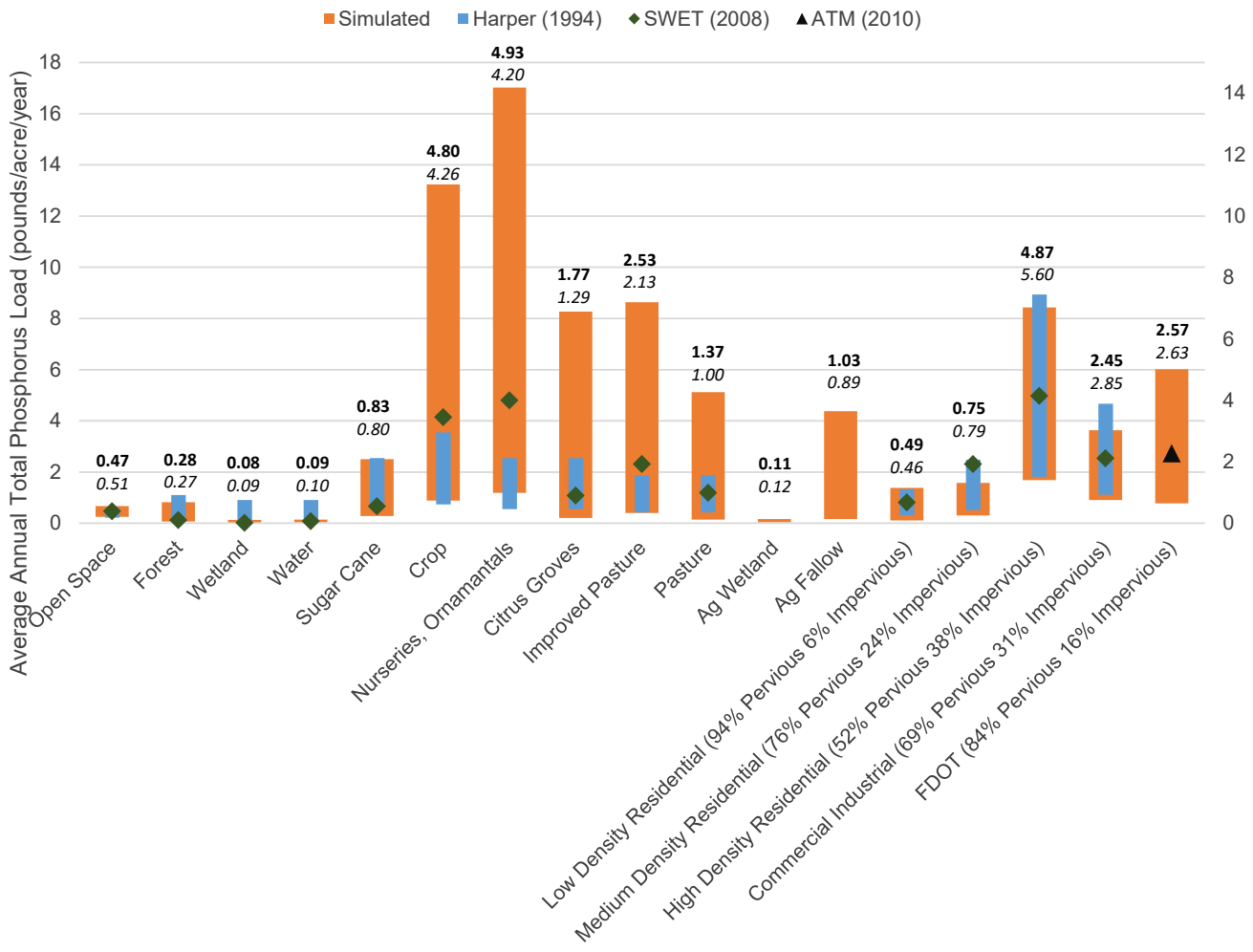


Figure 10: Comparison of 2025 HSPF final simulated and target sediment average annual TP loads (Harper 1994, SWET 2008, and ATM 2010)

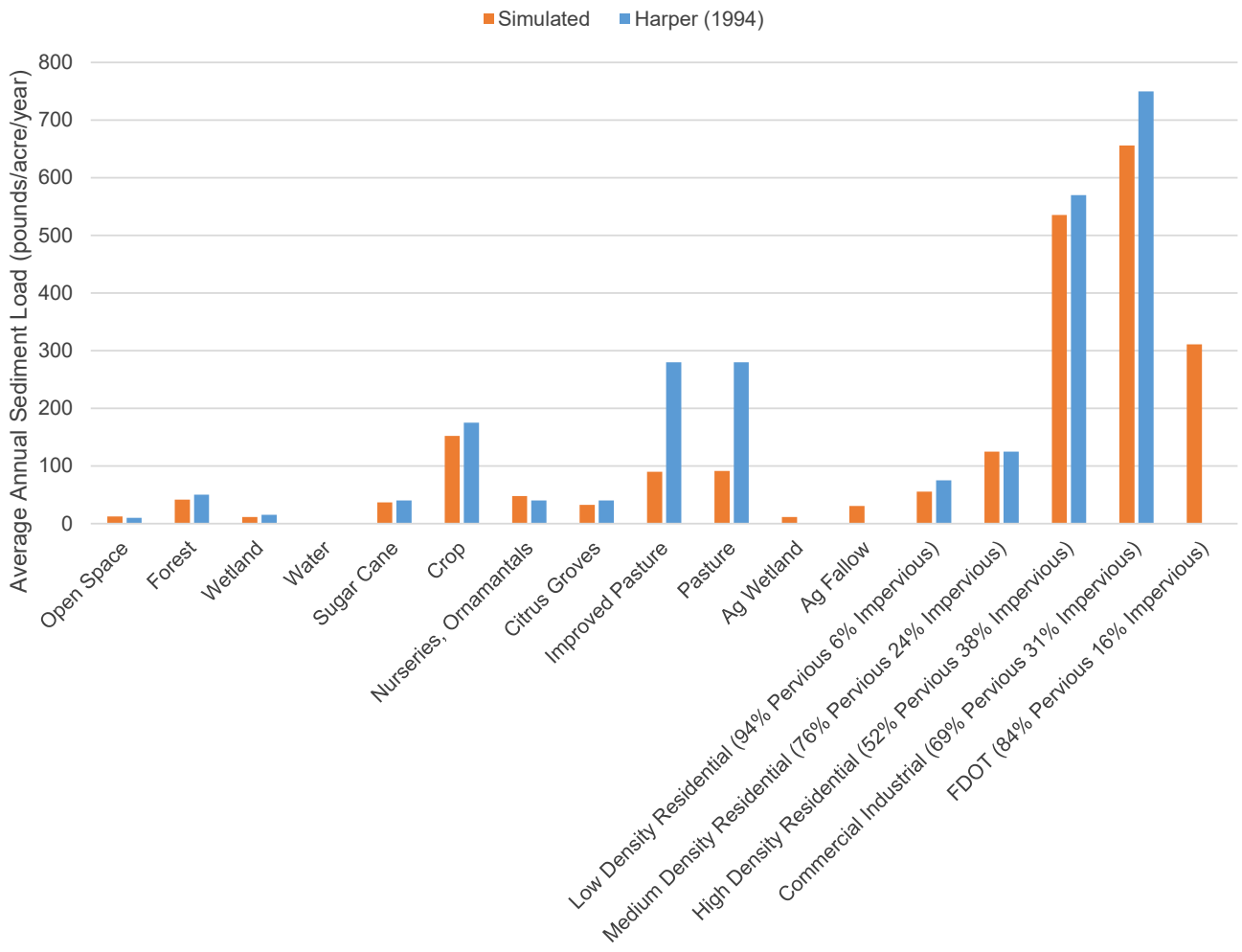


Figure 11: Comparison of 2025 HSPF final simulated and target sediment average annual sediment loads (Harper 1994)

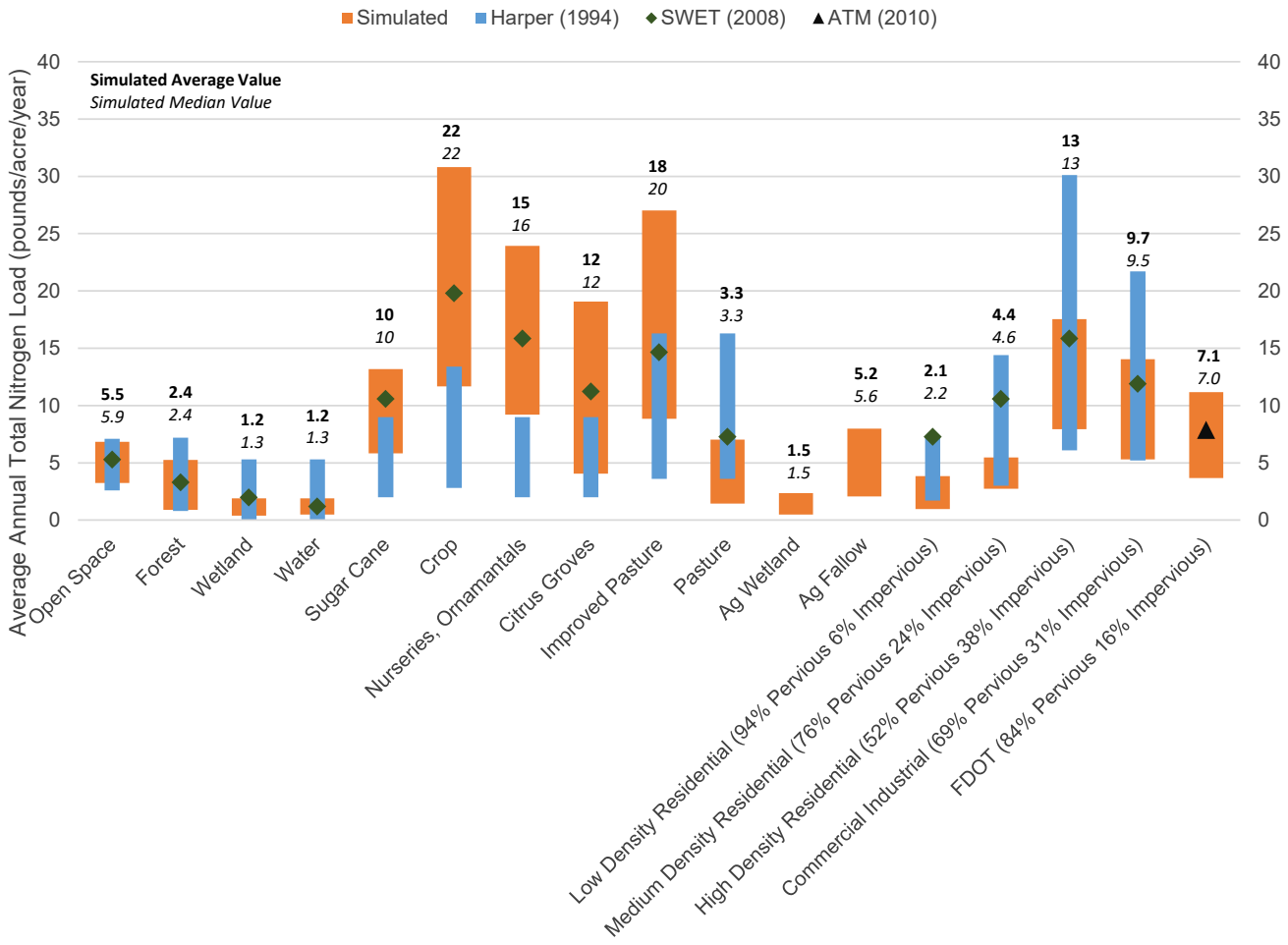


Figure 12: Comparison of 2025 HSPF final simulated and target sediment average annual TN loads (Harper 1994, SWET 2008, and ATM 2010)

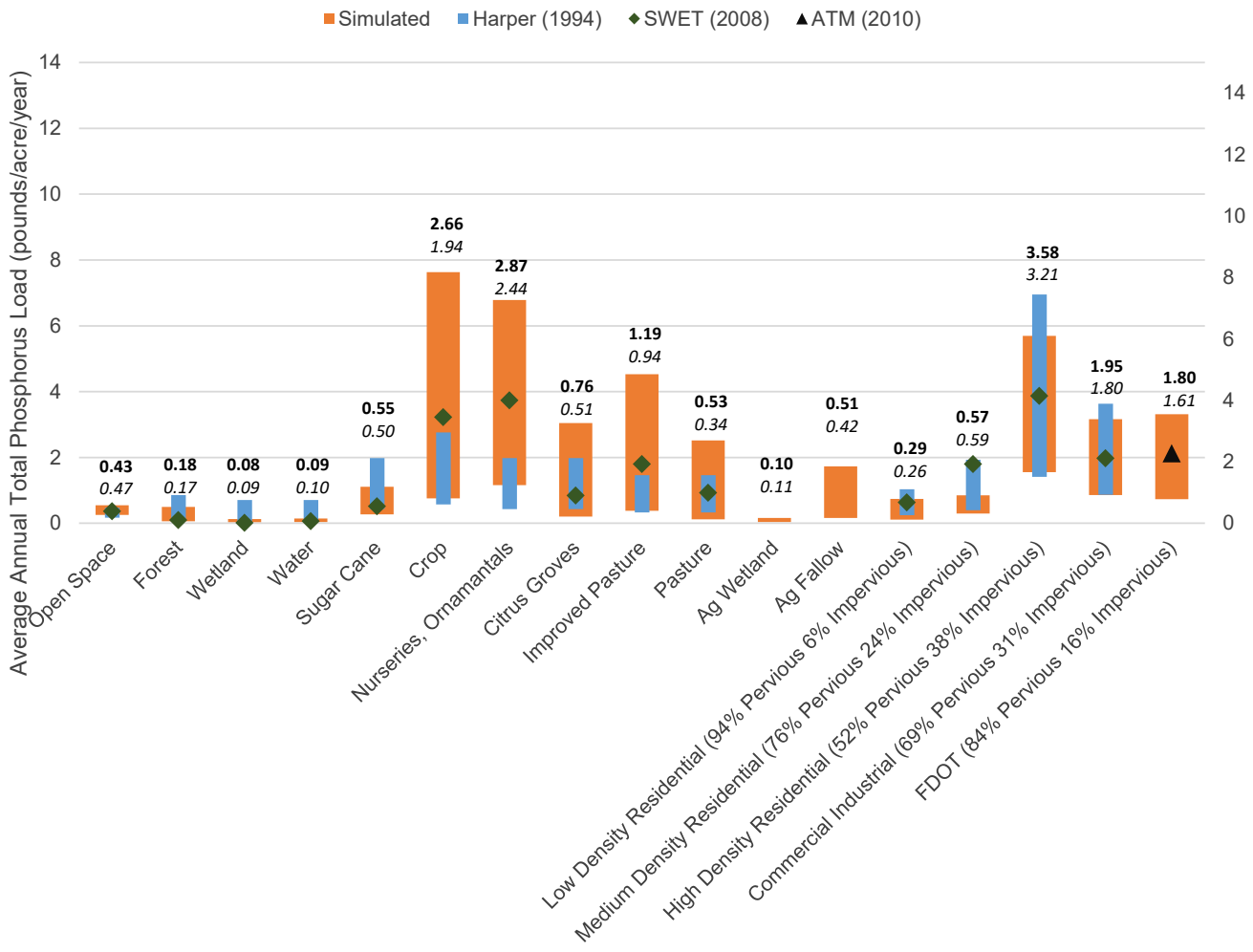


Figure 13: Comparison of 2025 HSPF initial simulated and target sediment average annual TP loads (Harper 1994, SWET 2008, and ATM 2010)

Instream model calibration and validation for the 2017 HSPF Model were to 50 water quality stations at 33 unique locations (14 locations for calibration and 19 locations for validation). The calibration stations were dispersed throughout the watershed and were typically located in subbasins that were listed on the 2010 verified impaired list (Tetra Tech 2017).

For the 2025 HSPF Model, DEP provided a Watershed Information Network (WIN) extract of the water quality monitoring data collected in the Caloosahatchee River and Estuary Watershed between January 1, 2015 and December 31, 2023. The data file included 376,717 records across 966 stations. The data were filtered to: 1) remove constituents outside HSPF usable/simulated constituents (e.g., pesticides, dissolved minerals, and dissolved metals), 2) exclude stations below S-79 in the Caloosahatchee River and Estuary, 3) exclude stations from matrix AQUEOUS-Groundwater, and 4) eliminate duplicate records. This resulted in a data file of 135,701 records across 494 stations potentially suitable for use in the 2025 HSPF Model. Next, Tetra Tech assigned stations to HSPF reaches if located within 0.1 mile of the reach resulting in: 1) 41,218 records from 172 stations assigned to 27 reaches that were included in the 2017 Model calibration and validation, 2) 43,947 records from 121 stations assigned to 42 reaches that were not included in the 2017 Model calibration and validation, and 3) 50,536 records from 201 stations not assigned to any HSPF reaches.

The stations and data assigned to reaches that were included in the 2017 Model calibration and validation were appended to the data used for the 2017 HSPF Model. Table 12 provides a summary of locations used in the 2017 HSPF Model and the records and stations appended for the 2025 HSPF Model.

Table 12: Summary of water quality calibration and validation locations for the 2017 HSPF Model and appended data for the 2025 HSPF Model

Reach	Type	2017 Model Start Year	2017 Model End Year	2017 Model Station Count	2017 Model Data Count	2025 Model Start Year	2025 Model End Year	2025 Model Station Count	2025 Model Data Count
RCH107 San Carlos Canal	Cal	1986	2014	1	17,286	2017	2023	2	4,005
RCH112 Yellow Fever Creek	Val	1992	2014	2	6,308	2018	2023	3	884
RCH115 Powell Creek	Val	1990	2014	2	6,925	2017	2023	6	2,174
RCH120 Popash Creek	Cal	1992	2014	1	6,419	2017	2023	7	1,761
RCH121 Stroud Creek	Val	1992	2014	2	6,880	2018	2023	4	1,684
RCH127 Telegraph Creek	Cal	1992	2014	2	7,300	2017	2023	6	2,080
RCH132 Deep Lagoon	Val	1990	2014	1	7,119	2018	2023	5	886
RCH135 Whiskey Creek	Cal	1990	2014	1	6,745	2017	2023	3	818
RCH137 Billy Creek	Val	1990	2014	1	6,784	2017	2023	16	4,927
RCH139 Orange River	Cal	1992	2014	2	7,446	2017	2023	4	1,686
RCH147 Caloosahatchee River (S-79)	Cal	2006	2014	1	99	2016	2023	42	5,287
RCH148 Hickey Creek	Val	1992	2014	1	6,218	2017	2023	10	2,437
RCH152 Bedman Creek	Val	1992	2014	1	6,207	2017	2023	2	1,253
RCH166 Robert's Canal	Val	2000	2008	1	556	2017	2023	2	557
RCH169 Jack's Branch	Val	1999	2013	3	634	2019	2023	3	125
RCH173 Fast Creek	Val	1999	2008	2	1,063	2020	2023	1	511
RCH179 Pollywog Creek	Val	1999	2013	2	877	2017	2023	5	767
RCH180 Caloosahatchee River	Val	2001	2008	1	681	2018	2023	20	391
RCH181 Cypress Branch	Cal	1999	2013	1	767	2022	2023	2	134
RCH188 Caloosahatchee River (S-78)	Val	1979	2013	3	12,940	2018	2023	11	119
RCH192 Long Hammock Canal	Cal	2000	2013	1	961	NA	NA	NA	NA
RCH197 Lake Hicpochee LH1	Val	2001	2004	1	604	NA	NA	NA	NA
RCH199 C-4 Canal	Cal	2000	2008	1	681	NA	NA	NA	NA
RCH207 Lake Hicpochee LH2	Val	2001	2008	1	628	2021	2021	1	14
RCH208 C-19	Cal	1979	2009	1	4,332	2018	2023	2	522
RCH214 9 Mile Canal	Cal	1999	2003	1	735	2021	2021	1	12
RCH215 Caloosahatchee (S-77)	Val	1978	2013	6	17,282	2017	2023	6	3,497
RCH216 Disston Canal	Cal	1999	2008	1	782	NA	NA	NA	NA
RCH219 Industrial Canal	Val	1982	2013	1	7,201	2016	2023	1	1,448
RCH990 C-19 Canal	Val	2001	2008	1	606	NA	NA	NA	NA
RCH991 Whidden	Cal	2001	2008	1	742	NA	NA	NA	NA
RCH996 Townsend Canal	Cal	1999	2011	2	1,408	2017	2023	3	965
RCH997 Jacks Branch	Val	1999	2013	1	757	2020	2023	3	559

The stations and data assigned to reaches that were not included in the 2017 Model calibration and validation were reviewed for inclusion for the 2025 HSPF Model. Criteria for inclusion were to have data counts greater than 500 and not be downstream of an existing calibration and validation reach. This resulted in 15 new locations for the 2025 HSPF Model, which were used as verification stations. The remainder of the stations were not used for the 2025 HSPF Model because the data are not on an HSPF representative reach.

Table 13 provides the locations, associated water quality stations assigned to each location, how each location was employed in the modeling effort, and the data source for the water quality station name. The water quality station name for the 2017 Model dataset was kept the same as provided in the 2017 model report and was presumably a combination of organization identification and monitoring location identification. In the WIN dataset, many data points were missing monitoring location identifications, so unique stations identifications were established based on the combination of organization, monitoring location, latitude, and longitude. Figure 14 provides the spatial distribution of the water quality locations. If observed OrgN concentrations were not provided at the water quality stations, OrgN concentrations were calculated using total Kjeldahl nitrogen (TKN) and NH_3 data, when available. In addition, data listed below the detection limit and with a < flag were included in the analysis. When data were below detection, the goal of the calibration was to achieve concentrations near to or less than the constituent's detection limit. Constituents frequently at detection limits included NH_3, NOx, and CBOD.

Table 13: Water quality calibration and validation stations for the 2025 HSPF Model

Location	RCHRES	Station Name	Purpose	Source
Aries	101	CAPECRD_580_26.543401471_-82.018021399	New	2025 WIN
Aries	101	21FLGW_24063_26.578912488_-82.03741	New	2025 WIN
Aries	101	CAPECRD_445_26.599851907_-82.029919534	New	2025 WIN
Aries	101	CAPECRD_550_26.549202647_-82.034217229	New	2025 WIN
Aries	101	CAPECRD_450_26.583780304_-82.035813907	New	2025 WIN
Aries	101	CAPECRD_590_26.543739057_-82.010728076	New	2025 WIN
Aries	101	21FLFTM__26.599957987_-82.007356	New	2025 WIN
Aries	101	21FLSCCF__26.543589988_-82.01052	New	2025 WIN
Aries	101	21FLGW_24182_26.578920821_-82.037426667	New	2025 WIN
Aries	101	CAPECRD_570_26.5475_-82.02472	New	2025 WIN
Aries	101	CAPECRD_435_26.599999503_-82.007355696	New	2025 WIN
Aries	101	21FLSCCF__26.541169988_-82.00714	New	2025 WIN
Aries	101	21FLGW_24071_26.54921471_-82.031225833	New	2025 WIN
Aries	101	21FLSCCF__26.537999988_-82.00623	New	2025 WIN
San Carlos Canal	107	CAPECRD 390	Calibration	2017 Model
San Carlos Canal	107	CAPECRD_390_26.605_-81.96472	Calibration	2025 WIN
San Carlos Canal	107	CAPECRD_310_26.62944_-81.96778	Calibration	2025 WIN
Mackinac	108	CAPECRD_295_26.63639_-81.95806	New	2025 WIN
Mackinac	108	CAPECRD_400_26.59997804_-81.941824518	New	2025 WIN
Mackinac	108	CAPECRD_243_26.652062258_-81.948325686	New	2025 WIN
Mackinac	108	21FLWQA__26.599831388_-81.94133573	New	2025 WIN
Mackinac	108	CAPECRD_315_26.63052883_-81.950825686	New	2025 WIN
Yellow Fever Creek	112	21FLEECO16-18GR	Validation	2017 Model

Location	RCHRES	Station Name	Purpose	Source
Yellow Fever Creek	112	21FLFTM 28020337FTM	Validation	2017 Model
Yellow Fever Creek	112	21FLEECO__26.681925_-81.910913	Validation	2025 WIN
Yellow Fever Creek	112	21FLFTM__26.682001_-81.910914	Validation	2025 WIN
Yellow Fever Creek	112	21FLFTM__26.6978538_-81.9202369	Validation	2025 WIN
Powell Creek	115	21FLEECOPOWLGR20	Validation	2017 Model
Powell Creek	115	21FLFTM POWLGR20	Validation	2017 Model
Powell Creek	115	21FLEECO__26.683622_-81.874903	Validation	2025 WIN
Powell Creek	115	21FLEECO__26.683132_-81.877392	Validation	2025 WIN
Powell Creek	115	21FLFTM__26.683145493_-81.87734329	Validation	2025 WIN
Powell Creek	115	21FLFTM__26.68755_-81.87559	Validation	2025 WIN
Powell Creek	115	21FLEECO__26.689801_-81.874989	Validation	2025 WIN
Powell Creek	115	21FLFTM__26.68275395_-81.87741422	Validation	2025 WIN
Marshpoint	116	21FLEECO__26.691442_-81.858878	New	2025 WIN
Daughtrey Branch1	117	21FLEECO__26.755381_-81.851405	New	2025 WIN
Daughtrey Branch1	117	21FLFTM__26.704199306_-81.844767018	New	2025 WIN
Daughtrey Branch1	117	21FLEECO__26.704175_-81.844789	New	2025 WIN
Chapel Creek	118	21FLEECO__26.715281_-81.828997	New	2025 WIN
Chapel Creek	118	21FLGW_58938_26.707799154_-81.825766389	New	2025 WIN
Chapel Creek	118	21FLGW_62925_26.709940821_-81.826884167	New	2025 WIN
Bayshore Creek	119	21FLEECO__26.715253_-81.821958	New	2025 WIN
Bayshore Creek	119	21FLFTM__26.71514356_-81.82196937	New	2025 WIN
Bayshore Creek	119	21FLEECO__26.74263_-81.81866	New	2025 WIN
Popash Creek	120	21FLEECO23-5GR	Calibration	2017 Model
Popash Creek	120	21FLEECO__26.755464_-81.809495	Calibration	2025 WIN
Popash Creek	120	21FLGW_51902_26.766997223_-81.806944444	Calibration	2025 WIN
Popash Creek	120	21FLGW_53944_26.729234167_-81.8085525	Calibration	2025 WIN
Popash Creek	120	21FLGW_56327_26.723873612_-81.808969167	Calibration	2025 WIN
Popash Creek	120	21FLEECO__26.715748_-81.808624	Calibration	2025 WIN
Popash Creek	120	21FLSCCF__26.703239988_-81.80525	Calibration	2025 WIN
Popash Creek	120	21FLFTM__26.715808_-81.808628	Calibration	2025 WIN
Stroud Creek	121	21FLEECO24-7GR	Validation	2017 Model
Stroud Creek	121	21FLFTM 28020039	Validation	2017 Model
Stroud Creek	121	21FLFTM__26.72622_-81.79791	Validation	2025 WIN
Stroud Creek	121	21FLEECO__26.746092_-81.795403	Validation	2025 WIN
Stroud Creek	121	21FLFTM__26.715071_-81.799807	Validation	2025 WIN
Stroud Creek	121	21FLEECO__26.715065_-81.799786	Validation	2025 WIN
Owl Creek	124	21FLFTM__26.740295645_-81.755704807	New	2025 WIN
Owl Creek	124	21FLFTM__26.740289_-81.755697	New	2025 WIN
Owl Creek	124	21FLEECO__26.740298_-81.755697	New	2025 WIN
Owl Creek	124	21FLFTM__26.740067987_-81.755534	New	2025 WIN

Location	RCHRES	Station Name	Purpose	Source
Owl Creek	124	21FLFTM__26.740068_-81.755534	New	2025 WIN
Owl Creek	124	21FLFTM__26.740298_-81.755748	New	2025 WIN
Trout Creek	125	21FLGW_58936_26.730551377_-81.736641389	New	2025 WIN
Trout Creek	125	21FLEECO__26.740151_-81.736947	New	2025 WIN
Trout Creek	125	21FLFTM__26.73994629_-81.73693571	New	2025 WIN
Telegraph Creek	127	21FLEECO29-8GR	Calibration	2017 Model
Telegraph Creek	127	21FLFTM CALUSA0024FTM	Calibration	2017 Model
Telegraph Creek	127	21FLFTM__26.730561095_-81.701668921	Calibration	2025 WIN
Telegraph Creek	127	21FLFTM__26.730050001_-81.701737	Calibration	2025 WIN
Telegraph Creek	127	21FLFTM__26.73044746_-81.70167508	Calibration	2025 WIN
Telegraph Creek	127	21FLFTM__26.862750001_-81.712357	Calibration	2025 WIN
Telegraph Creek	127	21FLEECO__26.730658_-81.701564	Calibration	2025 WIN
Telegraph Creek	127	21FLFTM__26.86275_-81.71236	Calibration	2025 WIN
Deep Lagoon	132	21FLEECODEEPGR10	Validation	2017 Model
Deep Lagoon	132	21FLEECO__26.541019987_-81.92618	Validation	2025 WIN
Deep Lagoon	132	21FLEECO__26.536599987_-81.9257	Validation	2025 WIN
Deep Lagoon	132	21FLEECO__26.539153_-81.918514	Validation	2025 WIN
Deep Lagoon	132	21FLWQA__26.538671298_-81.92524052	Validation	2025 WIN
Deep Lagoon	132	21FLWQA__26.539032051_-81.92508108	Validation	2025 WIN
Whiskey Creek	135	21FLEECOWHISGR10	Calibration	2017 Model
Whiskey Creek	135	21FLFTM__26.57503_-81.891023	Calibration	2025 WIN
Whiskey Creek	135	21FLEECO__26.57501_-81.890989	Calibration	2025 WIN
Whiskey Creek	135	21FLFTM__26.57502308_-81.89095265	Calibration	2025 WIN
Billy Creek	137	21FLEECOBILLGR20	Validation	2017 Model
Billy Creek	137	21FLFTM__26.654299987_-81.8406	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.651099987_-81.8527	Validation	2025 WIN
Billy Creek	137	21FLCOFM__26.662390001_-81.8208	Validation	2025 WIN
Billy Creek	137	21FLEECO__26.665215_-81.812236	Validation	2025 WIN
Billy Creek	137	21FLEECO__26.654238_-81.840397	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.653999987_-81.83355	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.652686_-81.845156	Validation	2025 WIN
Billy Creek	137	21FLWQA__26.651982758_-81.85699687	Validation	2025 WIN
Billy Creek	137	21FLCOFM__26.652781001_-81.845553	Validation	2025 WIN
Billy Creek	137	21FLCOFM__26.654000001_-81.83355	Validation	2025 WIN
Billy Creek	137	21FLWQA__26.651977878_-81.85692988	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.662499987_-81.8203	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.665214987_-81.812236	Validation	2025 WIN
Billy Creek	137	21FLCOFM__26.660670001_-81.82361	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.652780987_-81.845553	Validation	2025 WIN
Billy Creek	137	21FLFTM__26.655629987_-81.83437	Validation	2025 WIN

Location	RCHRES	Station Name	Purpose	Source
Orange River	139	21FLEECO40-18GR	Calibration	2017 Model
Orange River	139	21FLFTM CALUSA0023FTM	Calibration	2017 Model
Orange River	139	21FLGW_3091_26.682631099_-81.741685556	Calibration	2025 WIN
Orange River	139	21FLEECO__26.670333_-81.731972	Calibration	2025 WIN
Orange River	139	21FLGW_56329_26.684967779_-81.742132222	Calibration	2025 WIN
Orange River	139	21FLLEHI__26.643102_-81.689173	Calibration	2025 WIN
Orange River	139	21FLLEHI__26.651861_-81.69891	Calibration	2025 WIN
Able Canal	142	21FLGW_58145_26.636928599_-81.679966111	New	2025 WIN
Able Canal	142	21FLGW_38279_26.608379154_-81.630949722	New	2025 WIN
Able Canal	142	21FLGW_54733_26.624470834_-81.662210833	New	2025 WIN
Able Canal	142	21FLEECO__26.640761_-81.685127	New	2025 WIN
Able Canal	142	21FLLEHI__26.605762_-81.613673	New	2025 WIN
Able Canal	142	21FLFTM__26.624799987_-81.6653	New	2025 WIN
Able Canal	142	21FLLEHI__26.611009_-81.640007	New	2025 WIN
Caloosahatchee River (S-79)	147	21FLEECOCES01SUR	Calibration	2017 Model
Caloosahatchee River (S-79)	147	21FLWQA__26.723244708_-81.69290278	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722780888_-81.69098943	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722745908_-81.6909984	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722767538_-81.69098635	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722759988_-81.690999	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722745458_-81.69100075	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722749798_-81.6910037	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722690488_-81.69102341	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLFTM__26.722999987_-81.691	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLFTM__26.722799987_-81.69099	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722748008_-81.69099799	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722770028_-81.69100491	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722752558_-81.69099575	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLFTM__26.722999987_-81.693	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722751138_-81.69099454	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722808258_-81.69096047	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLFTM__26.721079987_-81.69267	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLSFWM_18245_26.722734649_-81.691018943	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722743048_-81.69099835	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLFTM__26.723299987_-81.69289	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLSCCF__26.721389988_-81.6932	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLFTM__26.721091987_-81.692769	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722748218_-81.69101118	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722746098_-81.69099833	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.720971468_-81.69302289	Calibration	2025 WIN

Location	RCHRES	Station Name	Purpose	Source
Caloosahatchee River (S-79)	147	21FLWQA__26.723220618_-81.6911762	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722714348_-81.69101174	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722693078_-81.69104545	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLGW_3568_26.721205665_-81.693248056	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722737358_-81.69097397	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722761448_-81.69097573	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722741608_-81.69099756	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLEECO__26.7211_-81.692778	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722744948_-81.69099923	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722816338_-81.69091201	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722701358_-81.691016	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722741988_-81.690987	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722741838_-81.69100344	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722781138_-81.6910284	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722758898_-81.69099934	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722999988_-81.691	Calibration	2025 WIN
Caloosahatchee River (S-79)	147	21FLWQA__26.722748568_-81.69099931	Calibration	2025 WIN
Hickey Creek	148	21FLEECO38-3GR	Validation	2017 Model
Hickey Creek	148	21FLGW_58940_26.708730543_-81.6627825	Validation	2025 WIN
Hickey Creek	148	21FLFTM__26.714989247_-81.67260492	Validation	2025 WIN
Hickey Creek	148	21FLLEHI__26.683856_-81.66312	Validation	2025 WIN
Hickey Creek	148	21FLFTM__26.714777987_-81.672556	Validation	2025 WIN
Hickey Creek	148	21FLLEHI__26.708495456_-81.664768775	Validation	2025 WIN
Hickey Creek	148	21FLEECO__26.715142_-81.672561	Validation	2025 WIN
Hickey Creek	148	21FLLEHI__26.708529_-81.66475	Validation	2025 WIN
Hickey Creek	148	21FLLEHI__26.711153101_-81.67595628	Validation	2025 WIN
Hickey Creek	148	21FLLEHI__26.711213_-81.675908	Validation	2025 WIN
Hickey Creek	148	21FLLEHI__26.642885_-81.662711	Validation	2025 WIN
Cypress Creek	150	21FLFTM__26.72602617_-81.62701608	New	2025 WIN
Cypress Creek	150	21FLGW_60969_26.725391377_-81.627123889	New	2025 WIN
Cypress Creek	150	21FLGW_62263_26.719294988_-81.633745278	New	2025 WIN
Cypress Creek	150	21FLGW_62932_26.725055543_-81.627222222	New	2025 WIN
Cypress Creek	150	21FLFTM__26.725993_-81.62705	New	2025 WIN
Cypress Creek	150	21FLEECO__26.726014_-81.627003	New	2025 WIN
Cypress Creek	150	21FLFTM__26.721068027_-81.63186693	New	2025 WIN
Cypress Creek	150	21FLGW_58858_26.719221099_-81.634295556	New	2025 WIN
Cypress Creek	150	21FLGW_56335_26.729017223_-81.623184444	New	2025 WIN
Bedman Creek	152	21FLEECO37-4GR	Validation	2017 Model
Bedman Creek	152	21FLLEHI__26.69974744_-81.578670192	Validation	2025 WIN
Bedman Creek	152	21FLEECO__26.708828_-81.599338	Validation	2025 WIN

Location	RCHRES	Station Name	Purpose	Source
Hendry Canal Ext	160	21FLLEHI__26.570292_-81.565086	New	2025 WIN
Hendry Canal Ext	160	21FLLEHI__26.59591_-81.565521	New	2025 WIN
Robert's Canal	166	21FLFTM 28020252FTM	Validation	2017 Model
Robert's Canal	166	21FLFTM_28020241_26.720280001_-81.516674	Validation	2025 WIN
Robert's Canal	166	21FLFTM__26.712792462_-81.504321822	Validation	2025 WIN
Jack's Branch	169	21FLFTM 28020238	Validation	2017 Model
Jack's Branch	169	21FLFTM CALUSA0047FTM	Validation	2017 Model
Jack's Branch	169	21FLWQSPHEN640GS	Validation	2017 Model
Jack's Branch	169	21FLGW_56322_26.755950834_-81.533924167	Validation	2025 WIN
Jack's Branch	169	21FLFTM__26.752872987_-81.525037	Validation	2025 WIN
Jack's Branch	169	21FLFTM__26.755982987_-81.53414997	Validation	2025 WIN
Fast Creek	173	21FLFTM 28020057	Validation	2017 Model
Fast Creek	173	21FLFTM 28020058	Validation	2017 Model
Fast Creek	173	21FLSFWM_32278_26.737550265_-81.470787778	Validation	2025 WIN
Bee Branch	177	21FLFTM__26.758725154_-81.472012653	New	2025 WIN
Bee Branch	177	21FLGW_58934_26.828838043_-81.48863	New	2025 WIN
Bee Branch	177	21FLFTM__26.827582799_-81.488991136	New	2025 WIN
Pollywog Creek	179	21FLFTM 28020268FTM	Validation	2017 Model
Pollywog Creek	179	21FLFTM POLLYCRK	Validation	2017 Model
Pollywog Creek	179	21FLFTM__26.7689_-81.45862	Validation	2025 WIN
Pollywog Creek	179	21FLGW_62931_26.761888877_-81.459277778	Validation	2025 WIN
Pollywog Creek	179	21FLSFWM_40097_26.768874987_-81.458594444	Validation	2025 WIN
Pollywog Creek	179	21FLFTM__26.768900001_-81.458616	Validation	2025 WIN
Pollywog Creek	179	21FLFTM__26.774506568_-81.463137641	Validation	2025 WIN
Caloosahatchee River	180	21FLFTM 28020274FTM	Validation	2017 Model
Caloosahatchee River	180	21FLFTM__26.769289987_-81.43354	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_57501_26.787405821_-81.370785556	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768947841_-81.43633811	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768920001_-81.43636	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_55410_26.767705556_-81.447369444	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768971931_-81.43780601	Validation	2025 WIN
Caloosahatchee River	180	21FLFTM__26.797174987_-81.353561	Validation	2025 WIN
Caloosahatchee River	180	21FLFTM__26.768969987_-81.43635	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768775378_-81.43790798	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768866808_-81.4379294	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768767808_-81.43790793	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768812761_-81.44405007	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_62276_26.769493877_-81.4388125	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_62271_26.766003877_-81.421928056	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_53174_26.768972501_-81.431322222	Validation	2025 WIN

Location	RCHRES	Station Name	Purpose	Source
Caloosahatchee River	180	21FLWQA__26.768901378_-81.43740144	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_58854_26.769010821_-81.443497778	Validation	2025 WIN
Caloosahatchee River	180	21FLGW_60227_26.795647488_-81.357804722	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.768807068_-81.43787469	Validation	2025 WIN
Caloosahatchee River	180	21FLWQA__26.770058061_-81.44069871	Validation	2025 WIN
Cypress Branch	181	21FLFTM 28020239	Calibration	2017 Model
Cypress Branch	181	21FLFTM__26.862971987_-81.369083	Calibration	2025 WIN
Cypress Branch	181	21FLFTM__26.813610987_-81.335278	Calibration	2025 WIN
Canal 1	183	21FLSFWM_32273_26.768466931_-81.324376667	New	2025 WIN
Canal 2	186	21FLSFWM_32272_26.768545542_-81.304071111	New	2025 WIN
Canal 2	186	21FLSCCF__26.788499988_-81.30561	New	2025 WIN
Caloosahatchee River (S-78)	188	21FLFTM CALUSA0026FTM	Validation	2017 Model
Caloosahatchee River (S-78)	188	21FLFTM S78	Validation	2017 Model
Caloosahatchee River (S-78)	188	21FLSFWMS78	Validation	2017 Model
Caloosahatchee River (S-78)	188	21FLWQA__26.789901158_-81.301603	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789792548_-81.30151763	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789798768_-81.30151858	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789826038_-81.30152403	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789794688_-81.30151559	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789803968_-81.30151696	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLFTM__26.789538_-81.301462	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789818978_-81.30153041	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789792608_-81.30152425	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789795748_-81.30152249	Validation	2025 WIN
Caloosahatchee River (S-78)	188	21FLWQA__26.789819988_-81.30154	Validation	2025 WIN
Long Hammock Canal	192	21FLFTM 28020256FTM	Calibration	2017 Model
Lake Hicpochee LH1	197	21FLFTM 28020245FTM	Validation	2017 Model
C-4 Canal	199	21FLFTM 28020257FTM	Calibration	2017 Model
Lake Hicpochee LH2	207	21FLFTM 28020246FTM	Validation	2017 Model
Lake Hicpochee LH2	207	21FLGW_58148_26.78885721_-81.150164722	Validation	2025 WIN
C-19	208	21FLSFWMCR-04.8T	Calibration	2017 Model
C-19	208	21FLSFWM_17971_26.809784709_-81.139510556	Calibration	2025 WIN
C-19	208	21FLFTM__26.83397_-81.13914	Calibration	2025 WIN
FlagHole5	213	21FLSFWM_32267_26.752989709_-81.113205833	New	2025 WIN
FlagHole5	213	21FLFTM__26.75328_-81.11322	New	2025 WIN
9 Mile Canal	214	21FLFTM 28020139	Calibration	2017 Model
9 Mile Canal	214	21FLFTM__26.775912987_-81.091173	Calibration	2025 WIN
Caloosahatchee (S-77)	215	21FLFTM 28020247FTM	Validation	2017 Model
Caloosahatchee (S-77)	215	21FLFTM RECON-MH2-FTM	Validation	2017 Model
Caloosahatchee (S-77)	215	21FLFTM RECON-MH-FTM	Validation	2017 Model

Location	RCHRES	Station Name	Purpose	Source
Caloosahatchee (S-77)	215	21FLSFWMMHASRDIS	Validation	2017 Model
Caloosahatchee (S-77)	215	21FLSFWMS77	Validation	2017 Model
Caloosahatchee (S-77)	215	21FLSFWMS77-SW	Validation	2017 Model
Caloosahatchee (S-77)	215	21FLGW_52963_26.806714723_-81.112079167	Validation	2025 WIN
Caloosahatchee (S-77)	215	21FLSCCF__26.836136165_-81.087955614	Validation	2025 WIN
Caloosahatchee (S-77)	215	21FLFTM__26.833593347_-81.088877	Validation	2025 WIN
Caloosahatchee (S-77)	215	21FLFTM__26.840999987_-81.089	Validation	2025 WIN
Caloosahatchee (S-77)	215	21FLSFWM_17545_26.838264709_-81.084147778	Validation	2025 WIN
Caloosahatchee (S-77)	215	21FLSCCF__26.836069988_-81.08737	Validation	2025 WIN
Disston Canal	216	21FLFTM 28020254FTM	Calibration	2017 Model
Industrial Canal	219	21FLSFWMINDUSCAN	Validation	2017 Model
Industrial Canal	219	21FLSFWM_9690_26.739925_-80.918966667	Validation	2025 WIN
C-19 Canal	990	21FLFTM 28020248FTM	Validation	2017 Model
Whidden	991	21FLFTM 28020269FTM	Calibration	2017 Model
Townsend Canal	996	21FLFTM 28020030	Calibration	2017 Model
Townsend Canal	996	21FLFTM 28020250FTM	Calibration	2017 Model
Townsend Canal	996	21FLSFWM_32281_26.709429431_-81.558256944	Calibration	2025 WIN
Townsend Canal	996	21FLLEHI__26.696372_-81.558043	Calibration	2025 WIN
Townsend Canal	996	21FLSCCF__26.713929988_-81.56266	Calibration	2025 WIN
Jacks Branch	997	21FLFTM 28020044	Validation	2017 Model
Jacks Branch	997	21FLFTM__26.747321987_-81.513011	Validation	2025 WIN
Jacks Branch	997	21FLSFWM_32289_26.747264709_-81.513019444	Validation	2025 WIN
Jacks Branch	997	21FLSCCF__26.745196755_-81.511295364	Validation	2025 WIN

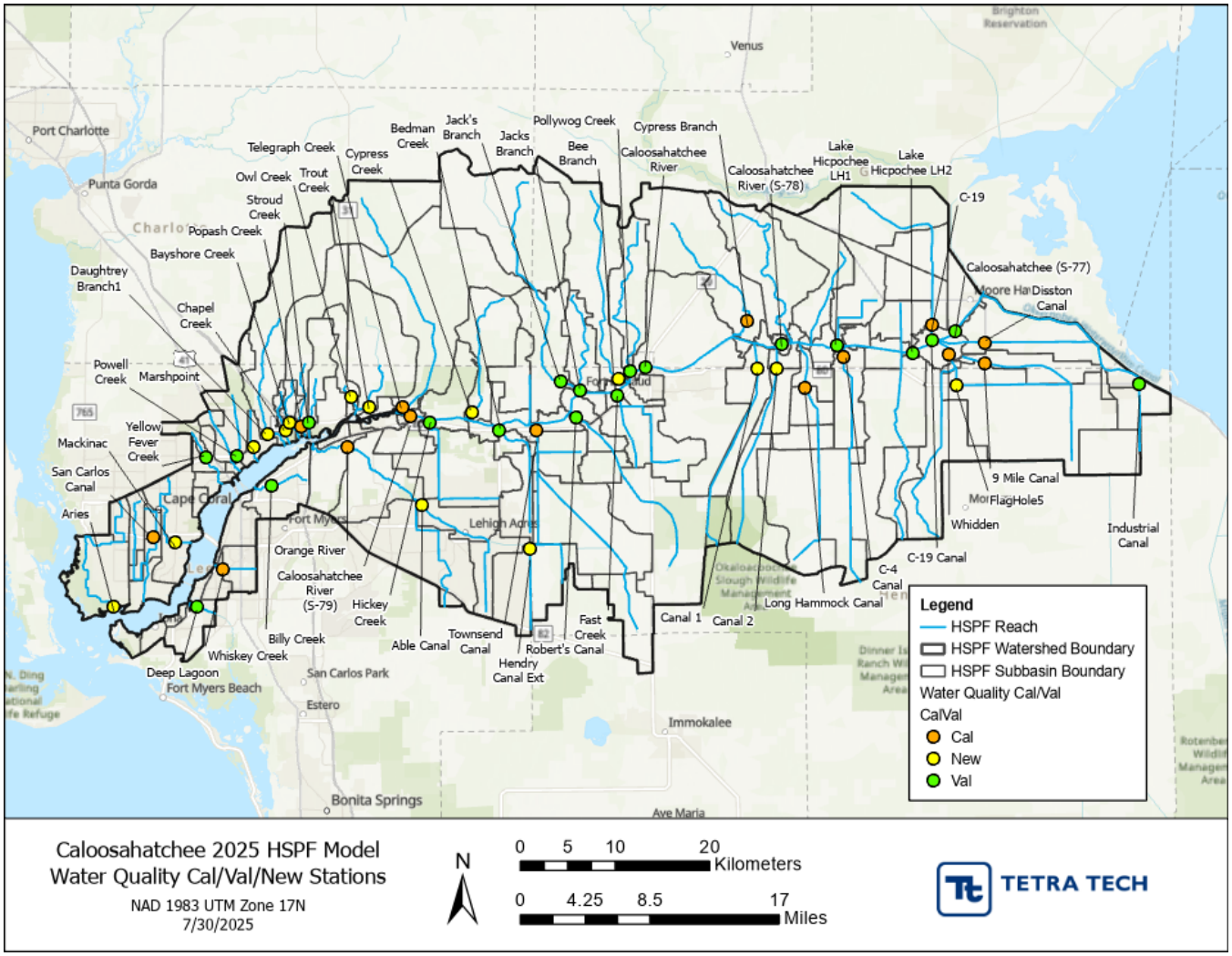


Figure 14. Water quality locations for the 2025 HSPF Model watershed

In Appendix A for the calibration stations, Tetra Tech provided simulated daily average concentration versus point in time observed concentration temporal comparison plots and yearly box and whisker plots of simulated and observed concentration for all stations and constituents with observed data. Also included are plots of daily paired concentration regressions for TSS, TN, and TP; and monthly, annual, and daily paired statistical summaries for the six locations having this information included for the 2017 HSPF Model (Tetra Tech 2017). Information for these specific stations was included for the 2017 Model because these stations had more than 98 sampling days of data.

In Appendix B for the validation stations, Tetra Tech provided simulated daily average concentration versus point in time observed concentration temporal comparison plots and yearly box and whisker plots of simulated and observed concentration for all stations and constituents with observed data. Also included are plots of daily paired concentration regressions for TSS, TN, and TP; and monthly, annual, and daily paired statistical summaries for ten locations having this information included for the 2017 HSPF Model (Tetra Tech 2017). Information for these specific stations was included for the 2017 model because these stations had more than 98 sampling days of data.

In Appendix C for the new/verification stations, Tetra Tech provided simulated daily average concentration versus point in time observed concentration temporal comparison plots and yearly box and whisker plots of simulated and observed concentration for all stations and constituents with observed data.

In Appendix D for both the calibration and validation stations, Tetra Tech provided simulated and observed daily paired load regressions and simulated and observed annual and daily paired load statistics for TSS, TN, and TP. Loads were developed at the six water quality calibration stations and three water quality validation stations that were co-located with USGS flow monitoring gages.

The statistical analysis of monthly, yearly, and daily paired concentrations along with yearly and daily paired loads were compared to Donigian (2002) and McCutcheon et. al. 1990 performance metrics and given a qualitative rating of Very Good (VG), Good (G), Fair (F), and Poor (P) (Table 14 and Table 15).

Table 14: Donigian 2002 and McCutcheon et al. 1990 calibration/validation targets or tolerances for percent difference between modeled observed results for water quality parameters

Category	Water Quality/DO	Nutrients/Chlorophyll-*a*
Very Good (VG)	<15%	<30%
Good (G)	15%-25%	30%-45%
Fair (F)	25%-35%	45%-60%
Poor (P)	>35%	>60%

Table 15: Donigian 2002 R^2 ranges for model performance

Category	Range
Very Good (VG)	>0.8
Good (G)	0.7 - 0.8
Fair (F)	0.6 - 0.7
Poor (P)	<0.6

The summary of the annual comparison of TSS, TN, and TP concentrations at each of the calibration and validation locations are shown in Table 16, Table 17, and Table 18, respectively. The statistics were prepared by first tabulating observed average and simulated average on an annual basis and then tabulating average and median percent error and R^2 across the annual average concentration values. At most stations, only one observed data point was collected during a month, and observed data were not collected each month. Therefore, the error statistics comparing simulated and observed means, medians, and R^2 compare many simulated data points (i.e., one per day) to very few observed data points. Large percent errors and low R^2 do not indicate a bad or poor calibration due to the disparity in the number of simulated data points compared to the number of observed data points. A large component of water quality calibration is a qualitative visual assessment of simulated daily average concentration versus point in time observed concentration temporal comparison plots.

Table 16: Summary of annual TSS concentration comparisons

Station Name	Average Annual % Error	Average Annual % Error Rating	Median Annual % Error	Median Annual % Error Rating	R^2	R^2 Rating
Caloosahatchee River (S-79)	160.8	P	134.4	P	0.05	P
San Carlos Canal	-10.2	VG	-6.9	VG	0.01	P
Whiskey Creek	875.2	P	1413.2	P	0.12	P
Orange River	0.2	VG	52.4	P	0.01	P
Popash Creek	9.3	VG	35.2	P	0.00	P
Telegraph Creek	127.4	P	158.9	P	0.00	P
Caloosahatchee River (S-78)	48.9	P	83.0	P	0.31	P
Caloosahatchee (S-77)	-4.3	VG	1.4	VG	0.76	G
Deep Lagoon	472.2	P	683.8	P	0.17	P
Billy Creek	55.4	P	79.9	P	0.20	P
Hickey Creek	31.3	F	107.9	P	0.00	P
Bedman Creek	67.1	P	77.4	P	0.09	P
Yellow Fever Creek	204.4	P	371.5	P	0.24	P
Powell Creek	358.4	P	396.6	P	0.01	P
Stroud Creek	21.5	G	17.6	G	0.00	P
Industrial Canal	4.6	VG	3.6	VG	0.40	P

Table 17: Summary of annual TN concentration comparisons

Station Name	Average Annual % Error	Average Annual % Error Rating	Median Annual % Error	Median Annual % Error Rating	R^2	R^2 Rating
Caloosahatchee River (S-79)	12.1	VG	14.5	VG	0.08	P
San Carlos Canal	23.2	VG	27.3	VG	0.06	P
Whiskey Creek	73.6	P	87.5	P	0.16	P
Orange River	110.7	P	110.7	P	0.02	P
Popash Creek	9.2	VG	22.6	VG	0.00	P
Telegraph Creek	88.6	P	87.3	P	0.00	P
Caloosahatchee River (S-78)	18.6	VG	16.5	VG	0.37	P
Caloosahatchee (S-77)	11.0	VG	10.3	VG	0.27	P
Deep Lagoon	19.8	VG	17.3	VG	0.00	P
Billy Creek	-31.0	G	-29.0	VG	0.00	P
Hickey Creek	73.8	P	78.8	P	0.00	P

Station Name	Average Annual % Error	Average Annual % Error Rating	Median Annual % Error	Median Annual % Error Rating	R^2	R^2 Rating
Bedman Creek	86.8	P	93.8	P	0.01	P
Yellow Fever Creek	50.5	F	64.0	P	0.00	P
Powell Creek	51.2	F	59.0	F	0.02	P
Stroud Creek	20.9	VG	27.9	VG	0.01	P
Industrial Canal	-8.4	VG	-8.0	VG	0.07	P

Table 18: Summary of annual TP concentration comparisons

Station Name	Average Annual % Error	Average Annual % Error Rating	Median Annual % Error	Median Annual % Error Rating	R^2	R^2 Rating
Caloosahatchee River (S-79)	11.5	VG	-0.5	VG	0.12	P
San Carlos Canal	101.1	P	348.5	P	0.06	P
Whiskey Creek	311.5	P	338.1	P	0.42	P
Orange River	320.1	P	330.0	P	0.19	P
Popash Creek	-36.8	G	-34.3	G	0.25	P
Telegraph Creek	55.6	F	56.1	F	0.08	P
Caloosahatchee River (S-78)	13.9	VG	15.5	VG	0.45	P
Caloosahatchee (S-77)	19.4	VG	18.3	VG	0.32	P
Deep Lagoon	70.4	P	67.4	P	0.20	P
Billy Creek	-66.8	P	-65.6	P	0.07	P
Hickey Creek	212.2	P	233.5	P	0.03	P
Bedman Creek	362.1	P	384.1	P	0.05	P
Yellow Fever Creek	-47.9	F	-42.7	G	0.00	P
Powell Creek	-24.7	VG	-25.3	VG	0.01	P
Stroud Creek	5.2	VG	5.4	VG	0.01	P
Industrial Canal	15.6	VG	17.3	VG	0.14	P

The appendices and the discussion below have been structured to present results information based on stream location and upstream land uses. Behavior of the instream water quality, including concentration magnitudes and seasonal trends, was similar among stations with similar dominant contributing land uses. In the results and appendices, the mainstem Caloosahatchee River stations were grouped together because they receive most of their load from Lake Okeechobee. In addition, stations with predominantly urban contributing land uses were grouped together, stations with predominantly natural contributing land uses were grouped together, and stations with predominantly agricultural contributing land uses were grouped together.

3.1 CALIBRATION RESULTS

A brief summary of the final water quality results at each group of stations is provided below for the calibration. The narrative preserved the analysis for the 2017 HSPF Model with the analysis for the 2025 HSPF Model focusing on comparing the 2025 Model to the 2017 Model and the additional data in the 2015–2023 dataset.

3.1.1 Caloosahatchee River Mainstem

- RCH147 Caloosahatchee River (S-79):
    - TSS concentrations were slightly higher than observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation slightly higher than observed data in the 2015 through 2023 extended dataset.
        - Concentration regression analysis as well as concentration statistical summaries indicate the simulation as being biased high compared to observed data. The load scatter does not indicate the same high simulation bias but statistics for the loads indicate a high bias in the simulation likely due to simulated loads being higher than observe loads in the highest 15% of flows according to the load duration curve.
    - NH_3 concentrations were in range to low compared to the observed data for the 2017 HSPF Model and visually the results look slightly better and more in range with the observed data in the 2025 HSPF Model with the simulation in range with the 2015 through 2023 extended dataset.
    - OrgN concentrations were in range to slightly low compared to the observed data for the 2017 HSPF Model and visually the results look slightly better and more in range with the observed data in the 2025 HSPF Model with the simulation in range with the 2015 through 2023 extended dataset.
    - TKN concentrations were in range to slightly low compared to the observed data for the 2017 HSPF Model and visually the results look slightly better and more in range with the observed data in the 2025 HSPF Model with the simulation in range with the 2015 through 2023 extended dataset.
    - NOx concentrations were in range to slightly high compared to the observed data for the 2017 HSPF Model and visually the results look slightly higher than the observed data in the 2025 HSPF Model with the simulation in range to high with the 2015 through 2023 extended dataset.
    - TN concentrations were in range to slightly low compared to the observed data for the 2017 HSPF Model and visually the results look slightly better and more in range with the observed data in the 2025 HSPF Model with the simulation in range with the 2015 through 2023 extended dataset.
        - The concentration regression analysis as well as the concentration statistical summaries indicate the simulation is unbiased compared to observed data. The load scatter generally shows an equal distribution around a 1:1 line, and statistics for the loads generally show acceptable agreement between simulated and observed loads.

- TP concentrations were high in 2007 and 2008, in range in 2009 through 2011, and high in 2012 through 2014 when compared to the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model the simulation in range in 2015 through 2023 extended dataset.
    - The concentration regression analysis as well as the concentration statistical summaries indicate the simulation as a whole is unbiased compared to observed data, although there were biases in individual years. The load scatter generally shows an equal distribution around a 1:1 line and statistics for the loads generally show acceptable agreement between simulated and observed loads.
- CBOD concentrations were in range to low compared to the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to low with the 2015 through 2023 extended dataset.
- DO concentrations and percent saturations were in range to low compared to the observed data for the 2017 HSPF Model and visually the results look slightly greater and more in range with the observed data in the 2025 HSPF Model with the simulation in range to low with the 2015 through 2023 extended dataset.
- Chlorophyll-a concentrations were in range to slightly high compared to the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to low with the 2015 through 2023 extended dataset.
- Temperatures were in range with observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range with the 2015 through 2023 extended dataset.

3.1.2 Urban Drainages

- RCH107 San Carlos Canal, RCH135 Whiskey Creek, and RCH139 Orange River:
    - TSS concentrations were generally in range with observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
        - Daily paired regression generally shows a slight high bias in simulated compared to observed concentrations. Concentration statistics show a wide range of simulated and observed fit when looking at monthly and yearly statistics at Orange River and San Carlos Canal but mainly shows a high bias when looking at Whiskey Creek. Loads generally show the same trends as observed with concentration.
    - NH_3 concentrations were generally in range compared to the observed data for the 2017 HSPF Model and visually the results look slightly low for San Carlos Canal and high compared to the observed data for Whiskey Creek and Orange River in the 2025 HSPF Model with the simulation slightly low for San Carlos Canal and higher for Whiskey Creek and Orange River in comparison with the 2015 through 2023 extended dataset.
        - Whiskey Creek and Orange River are higher in the 2025 HSPF Model due to septic system representation.
    - OrgN concentrations were generally in range compared to the observed data but were slightly low for Orange River for the 2017 HSPF Model and visually the results look slightly better and more in range with the observed data at all three stations in the 2025 HSPF Model with the simulation in range in comparison with the 2015 through 2023 extended dataset.

- TKN concentrations were generally in range compared to the observed data but were slightly low for Orange River for the 2017 HSPF Model and visually the results look slightly better and more in range with the observed data at all three stations in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
- NOx concentrations were generally in range compared to the observed data at Whiskey Creek but were high at San Carlos Canal and Orange River for the 2017 HSPF Model and visually the results look slightly less for San Carlos Canal and high compared to the observed data for Whiskey Creek and Orange River in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
    - Whiskey Creek and Orange River are higher in the 2025 HSPF Model due to septic system representation.
- TN concentrations were generally in range with observed data but were slightly low for Orange River for the 2017 HSPF Model and visually the results look slightly better for San Carlos Canal and high compared to the observed data for Whiskey Creek and Orange River in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
    - Daily paired regression shows an equal distribution between high and low biases at all three urban drainage locations. Statistical summaries of concentration generally show a very favorable comparison between simulated and observed for San Carlos Canal but a high bias for Whiskey Creek and Orange River. Loads generally show the same trends as observed with concentrations. The increased concentrations and loadings in the 2025 HSPF Model are due to septic system representation.
- TP concentrations were generally in range to slightly higher compared to the observed data for the 2017 HSPF Model and visually the results look better and higher than the observed data in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
    - Observed TP at Whiskey Creek and Orange River show a decreasing concentration with time. This is something that cannot be replicated in the HSPF model since parameterization cannot vary through time. Daily paired regression generally shows a slight high bias in simulated compared to observed concentrations. Concentration statistics also show a high bias in simulated compared to observed concentrations. Loads generally show the same trends as observed with concentrations. The increased concentrations and loadings in the 2025 HSPF Model are due to septic system representation.
- CBOD concentrations were generally in range with observed data but were low for San Carlos Canal for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to low in comparison with the 2015 through 2023 extended dataset.
- DO concentrations and percent saturations were generally in range with observed data but biased high for Orange River compared to observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
    - The Orange River location was not responsive to benthic oxygen demand increases or changes to reaeration methods for the 2017 HSPF Model or 2025 HSPF Model.
- Chlorophyll-a concentrations were generally in range with observed data at Whiskey Creek, the simulation missed timing and magnitude at Orange River, and were not well represented at San Carlos Canal for the 2017 HSPF Model. Visually the results look similar for San Carlos Canal but higher than observed data for Whiskey Creek and Orange River in the 2025 HSPF Model with the simulation low for

San Carlos Canal and high for Whiskey Creek and Orange River in comparison with the 2015 through 2023 extended dataset.
    - Whiskey Creek and Orange River are higher in the 2025 HSPF Model due to septic system representation providing more nutrients for algal growth
  - Temperatures were in range with observed data at all locations for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range in comparison with the 2015 through 2023 extended dataset.

3.1.3 Natural Drainages

- RCH120 Popash Creek, RCH127 Telegraph Creek, and RCH181 Cypress Branch:
  - TSS concentrations were generally in range with observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range in comparison with the 2015 through 2023 extended dataset.
    - Daily paired concentration regression analysis shows both low and high bias when comparing simulated to observed. Concentration statistical analysis show a wide range of model fit when looking at monthly and yearly comparisons. Load analysis shows an unbiased spread of over and under prediction when comparing simulated and observed at Telegraph Creek but indicates the simulation is higher than observed at Popash Creek.
  - NH_3 concentrations were generally in range to high compared to the observed data for the 2017 HSPF Model and visually the results look slightly higher but in range with the observed data for Cypress Branch and high compared to the observed data for Popash Creek and Telegraph Creek in the 2025 HSPF Model with the simulation high in comparison with the 2015 through 2023 extended dataset.
    - Popash Creek and Telegraph Creek are higher in the 2025 HSPF Model due to septic system representation.
  - OrgN concentrations were generally in range compared to the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range in comparison with the 2015 through 2023 extended dataset.
  - TKN concentrations were generally in range compared to the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Mode with the simulation in range in comparison with the 2015 through 2023 extended dataset.
  - NOx concentrations were generally in range compared to the observed data but biased high at Telegraph Creek and Cypress Branch for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation high in comparison with the 2015 through 2023 extended dataset.
    - The high bias in Telegraph Creek and Cypress Branch is likely due to septic system representation.
  - TN concentrations were generally in range compared to the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
    - Daily paired concentration regression analysis shows both low and high bias when comparing simulated to observed. Concentration statistical analysis shows a very favorable fit between simulated and observed concentrations for Popash Creek but a high bias for Telegraph Creek. Load analysis shows an unbiased spread of over and under prediction but indicates the simulation is lower than observed.

- TP concentrations were generally in range compared to the observed data but the simulation is biased low at Popash Creek for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in rage in comparison with the 2015 through 2023 extended dataset but missed timing and magnitude in Popash Creek.
    - Daily paired concentration regression analysis shows both low and high bias when comparing simulated to observed at Whiskey Creek but shows the low bias at Popash Creek. Concentration statistical analysis show a wide range of model fit when looking at monthly and yearly comparisons. Load analysis shows an unbiased spread of over and under prediction but indicates the simulation is lower than observed.
- CBOD concentrations were generally in range to slightly biased high compared to observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to high in comparison with the 2015 through 2023 extended dataset.
- DO concentrations and percent saturations were generally in range compared to the observed data for Cypress Branch and, but biased high for Telegraph Creek when compared to observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range for Popash Creek and high for Telegraph Creek in comparison with the 2015 through 2023 extended dataset.
    - The Telegraph Creek location was not responsive to benthic oxygen demand increases or changes to reaeration methods for the 2017 HSPF Model or 2025 HSPF Model.
- Chlorophyll-a concentrations were missing the timing and magnitude at all three locations for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation missed timing and magnitudes in comparison with the 2015 through 2023 extended dataset.
- Temperatures were in range with observed data at all locations for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range in comparison with the 2015 through 2023 extended dataset.

3.1.4 Agricultural Drainages

None of the stations associated with agricultural drainages had enough sample points for daily paired regression analysis and were not associated with U.S. Geological Survey (USGS) flow gages for load analysis. Additionally, only Townsend Canal and C-19 had extended 2015–2023 monitoring data available. Therefore, the analysis below is based only on the time series results compared to the limited data set at each location.

- RCH192 Long Hammock Canal, RCH199 C-4 Canal, RCH208 C-19, RCH214 9 Mile Canal, RCH216 Disston Canal, RCH991 Whidden, and RCH996 Townsend Canal.
    - TSS C-19 simulated concentrations were biased low for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to slightly less than observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
        - The other six locations have only a few measurements so bias determination was not assessed.
    - NH_3 concentrations were generally in range compared to observed data but biased low at Disston Canal and C-19 Canal for the 2017 HSPF Model and visually the results look slightly higher but still in range with the observed data in the 2025 HSPF Model with the simulation in range with the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
    - OrgN concentrations were generally in range to high compared to observed data and in the S-4 Basin, the simulation is generally biased low at Nine Mile Canal and Disston Canal and unbiased and in range at Whidden Canal for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model

with the simulation in range to slightly more than the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.

- TKN concentrations were generally in range to high compared to observed data and in the S-4 Basin, the simulation is generally biased low at Nine Mile Canal and Disston Canal and unbiased and in range at Whidden Canal for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to slightly more than the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
- NOx concentrations were generally biased high when comparing simulated and observed concentrations but were unbiased and in range at Whidden Canal and Townsend Canal for the 2017 HSPF Model and visually the results look slightly higher in the 2025 HSPF Model with the simulation in range to slightly more than the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
- TN concentrations were generally in range to high compared to observed data and in the S-4 Basin, the simulation is generally biased low at Nine Mile Canal and Disston Canal and unbiased and in range at Whidden Canal for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to slightly more than the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
- TP concentrations were generally in range compared to observed data but biased high at Long Hammock Canal and Whidden Canal for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range to slightly less than the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
- CBOD concentrations were generally in range with observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range with observed data in the Townsend Canal 2015 through 2023 extended dataset.
- DO concentrations and percent saturations were generally in range with observed data but biased high at Townsend Canal for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model but biased high at Nine Mile Canal and Disston Canal with the simulation in range with but missing timing and magnitude in comparison to the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
- Chlorophyll-a was measured sporadically at these stations and when it was measured, the simulation is in range with the observed data for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range with but missing timing and magnitude in comparison to the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.
- Temperatures were in range compared to observed data at all locations for the 2017 HSPF Model and visually the results look similar in the 2025 HSPF Model with the simulation in range with the observed data in the Townsend Canal and C-19 2015 through 2023 extended dataset.

3.2 VALIDATION RESULTS

A brief summary of the final water quality results at each group of stations is provided below for the validation. The narrative preserved the analysis for the 2017 HSPF model where the focus was on looking at the validation of each group of stations and comparing the validation results to trends and observations made at the calibration stations. The analysis for the 2025 HSPF model focusing on comparing the 2025 Model to the 2017 Model and the additional data in the 2015–2023 dataset.

3.2.1 Caloosahatchee River Mainstem

The mainstem Caloosahatchee River has a forced boundary from Lake Okeechobee. Generally, the results for this group of gages were a result of the concentrations of the forced boundary.

- RCH180 Caloosahatchee River, RCH188 Caloosahatchee River (S-78), RCH197 Lake Hicpochee LH1, RCH207 Lake Hicpochee LH2, and RCH215 Caloosahatchee (S-77):
    - TSS results were in range compared to observed data, but there was a simulated high bias further from the forced boundary and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - NH_3 results were in range compared to observed data throughout the entire mainstem reach for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - OrgN results were in range compared to observed data throughout the entire mainstem reach and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in rage in comparison the observed data in the 2015 through 2023 extended dataset.
    - TKN results were in range compared to observed data throughout the entire mainstem reach and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - NOx concentrations were in range compared to observed data, but there was a simulated high bias further away from the forced boundary and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range to high in comparison the observed data in the 2015 through 2023 extended dataset.
    - TN results were in range compared to observed data throughout the entire mainstem reach and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - TP results were higher than observed data throughout the entire mainstem reach and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - CBOD results were in range compared to observed data throughout the entire mainstem reach and the validation compared similarly to the calibration but the validation stations have few samples for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with no additional data in the 2015 through 2023 extended dataset.
    - DO concentrations and percent saturation results were in range compared to observed data throughout the entire mainstem reach and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation low in comparison the limited observed data in the 2015 through 2023 extended dataset.
    - Chlorophyll-a results were high compared to observed data and there were limited data on the mainstem to check the simulation against and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in

range to high at Caloosahatchee (S-77) and in range to low at Caloosahatchee River (S-78) in comparison the observed data in the 2015 through 2023 extended dataset.

- Temperature results were in range compared to observed data throughout the entire mainstem reach and the validation compared similarly to the calibration for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.

3.2.2 Urban Drainages

- RCH132 Deep Lagoon, RCH137 Billy Creek, RCH148 Hickey Creek, RCH152 Bedman Creek:
  - TSS concentrations showed a slightly high bias at all four stations and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar at all four locations in the 2025 HSPF Model with the simulation slightly high in comparison the observed data in the 2015 through 2023 extended dataset.
  - NH_3 concentrations showed a wide range of results. Deep Lagoon and Billy Creek were both low, Hickey Creek was in range, and Bedman Creek was slightly high. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher and in range with observed data for Deep Lagoon and Billy Creek and higher for Hickey Creek and Bedman Creek in the 2025 HSPF Model with the simulation in range for Deep Lagoon and Billy Creek and biased high for Hickey Creek and Bedman Creek in comparison the observed data in the 2015 through 2023 extended dataset.
  - OrgN concentrations showed a wide range of results. Deep Lagoon and Billy Creek were both low, Hickey Creek was in range, and Bedman was slightly high. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation slightly low for Billy Creek but in range for the other three locations in comparison the observed data in the 2015 through 2023 extended dataset.
  - TKN concentrations showed a wide range of results. Deep Lagoon and Billy Creek were both low, Hickey Creek was in range, and Bedman was slightly high. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher and in more in range with observed data for Deep Lagoon and Billy Creek and higher for Hickey Creek and Bedman Creek in the 2025 HSPF Model with the simulation in range for Deep Lagoon and Hickey Creek, biased high for Bedman Creek, and biased low for Billy Creek in comparison the observed data in the 2015 through 2023 extended dataset.
  - NOx concentrations were biased both high and low at each station but generally cut through the average of the observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher in the 2025 HSPF Model with the simulation biased high in comparison the observed data in the 2015 through 2023 extended dataset.
  - TN concentrations showed a wide range of results. Deep Lagoon and Billy Creek were both low, Hickey Creek was in range, and Bedman was slightly high. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are slightly higher in the 2025 HSPF Model with the simulation in range at Deep Lagoon and Billy Creek and biased high at Hickey Creek and Bedman Creek in comparison the observed data in the 2015 through 2023 extended dataset.

- TP concentrations showed a wide range of results. Billy Creek was low, Hickey Creek and Deep Lagoon were in range, and Bedman Creek was slightly high. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher in the 2025 HSPF Model with the simulation in range to low for Billy Creek and biased high at the other three locations in comparison the observed data in the 2015 through 2023 extended dataset.
- CBOD concentrations showed a wide range of results. Deep Lagoon was low compared to observed data, Hickey Creek and Billy Creek were in range compared to observed data, and Bedman Creek was slightly high compared to observed data. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range for Deep Lagoon and Billy, Creek, low for Hickey Creek, and high for Bedman Creek in comparison the observed data in the 2015 through 2023 extended dataset.
- DO concentrations and percent saturations were in range with observed data at Deep Lagoon and Billy Creek, but were biased high at Bedman Creek and Hickey Creek. The response at Bedman Creek and Hickey Creek was similar to the response at the Orange River calibration station, which indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range for Deep Lagoon and Billy Creek but biased high at Bedman Creek and Hickey Creek in comparison the observed data in the 2015 through 2023 extended dataset.
- Chlorophyll-a concentrations were in range with observed data at Deep Lagoon, generally lower than observed at Bedman Creek and Hickey Creek, and were generally higher than observed at Billy Creek. The results were similar to the calibration results, where at some stations the simulation was within range and some stations the simulation was low which indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher at Deep Lagoon and Hickey Creek and similar at Billy Creek and Bedman Creek in the 2025 HSPF Model with the simulation high at Deep Lagoon and Hickey Creek and low at Billy Creek and Bedman Creek in comparison the observed data in the 2015 through 2023 extended dataset.
- Temperatures were in range with observed data at all locations and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.

3.2.3 Natural Drainages

- RCH112 Yellow Fever Creek, RCH115 Powell Creek, RCH121 Stroud Creek, and RCH179 Pollywog Creek:
  - TSS results showed the simulation was generally in range to biased slightly high compared to observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation biased slightly high in comparison the observed data in the 2015 through 2023 extended dataset.
  - NH_3 results showed the simulation was generally in range compared to observed data, but biased slightly high at Powell Creek and Stroud Creek for the 2017 HSPF Model. Visually the results are higher in the 2025 HSPF Model with the simulation high at all four locations in comparison the observed data in the 2015 through 2023 extended dataset.

- OrgN concentrations were in range compared to observed data at all four locations and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation slightly high for Yellow Fever and in range at the other three locations in comparison the observed data in the 2015 through 2023 extended dataset.
- TKN concentrations were in range compared to observed data at all four locations and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are slightly higher in the 2025 HSPF Model with the simulation slightly high for Yellow Fever and Pollywog Creek and in range for Powell Creek and Stroud Creek in comparison the observed data in the 2015 through 2023 extended dataset.
- NOx results were biased both high and low at each station but generally cut through the average of the observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are slightly higher in the 2025 HSPF Model with the simulation high in comparison the observed data in the 2015 through 2023 extended dataset.
- TN concentrations were in range compared to observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are slightly higher in the 2025 HSPF Model with the simulation in range to slightly high in comparison the observed data in the 2015 through 2023 extended dataset.
- TP concentrations showed a low bias compared to observed data at Pollywog Creek, Yellow Fever Creek, and Powell Creek, but were in range compared to observed data at Stroud Creek and this was the same response at the calibration stations which indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are slightly higher in the 2025 HSPF Model with the simulation in range to low in comparison the observed data in the 2015 through 2023 extended dataset.
- CBOD concentrations were in range compared to observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
- DO concentrations and percent saturations were high compared to observed data at Pollywog Creek and Yellow Fever Creek, and were in range with observed data at Powell Creek and Stroud Creek and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation high for Pollywog Creek and Yellow Fever Creek and in range for Powell Creek and Stroud Creek in comparison the observed data in the 2015 through 2023 extended dataset.
- Chlorophyll-a concentrations were low compared to observed data at Pollywog Creek and Powell Creek, and missed the timing and magnitude compared to observed data at Yellow Fever Creek and Stroud Creek for the 2017 HSPF Model. Visually the results are higher and miss timing and magnitude in the 2025 HSPF Model with the simulation high for Yellow Fever Creek, Powell Creek, and Stroud Creek, and low for Pollywog Creek in comparison the observed data in the 2015 through 2023 extended dataset.
- Temperatures were in range with observed data at all locations and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the

results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.

3.2.4 Agricultural Drainages

- RCH166 Robert's Canal, RCH169 Jack's Branch, RCH173 Fast Creek, RCH219 Industrial Canal, RCH990 C-19 Canal, and RCH997 Jacks Branch:
    - TSS concentrations were generally in range compared to observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - NH_3 concentrations were in range compared to observed data but the simulation is biased high at Fast Creek and Jacks Branch and biased low at Industrial Canal and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher in the 2025 HSPF Model with the simulation in range for Roberts Canal, high for Jacks Branch and Fast Creek, and low for Industrial Canal in comparison the observed data in the 2015 through 2023 extended dataset.
    - OrgN concentrations were generally in range compared to observed data but the simulation was biased high at Jacks Branch and Fast Creek and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range to high in comparison the observed data in the 2015 through 2023 extended dataset.
    - TKN concentrations were generally in range compared to observed data, but the simulation was biased high at Jacks Branch and Fast Creek and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range to high in comparison the observed data in the 2015 through 2023 extended dataset.
    - NOx concentrations were biased high compared to observed data at Roberts Canal, Jacks Branch, and C-19 Canal; biased low compared to observed data at Industrial Canal; and in range with observed data at Fast Creek. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are slightly higher in the 2025 HSPF Model with the simulation in range for Industrial Canal but high at the other locations in comparison the observed data in the 2015 through 2023 extended dataset.
    - TN concentrations were generally in range compared to observed data but the simulation was biased low at Industrial Canal and these results indicate the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are higher in the 2025 HSPF Model with the simulation in range for Industrial Canal but slightly high at the other locations in comparison the observed data in the 2015 through 2023 extended dataset.
    - TP concentrations were generally in range with observed data but were biased slightly high at Jacks Branch and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.
    - CBOD concentrations were biased slightly high compared to the limited observed data and these results indicated the model was not over fit to the observations at the calibration stations for the 2017

HSPF Model. Visually the results are similar in the 2025 HSPF Model with no observed data in the 2015 through 2023 extended dataset.

- DO concentrations and percent saturations were biased high compared to observed data at Jacks Branch and C-19 Canal, and were in range with observed data at Roberts Canal, Fast Creek, and Industrial Canal. These results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation high for Jacks Branch and Fast Creek and in range for Roberts Canal and Industrial Canal in comparison the observed data in the 2015 through 2023 extended dataset.
- Chlorophyll-a concentrations were generally biased high compared to the few data points measured in this group of gages and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are similar in the 2025 HSPF Model with the simulation biased high in comparison the observed data in the 2015 through 2023 extended dataset.
- Temperatures were in range with observed data at all locations and these results indicated the model was not over fit to the observations at the calibration stations for the 2017 HSPF Model. Visually the results are the same in the 2025 HSPF Model with the simulation in range in comparison the observed data in the 2015 through 2023 extended dataset.

3.3 VERIFICATION RESULTS

A brief summary of the final water quality verification results at each station is provided below. The focus was on looking at each verification station in comparison to neighboring calibration and validation stations and identifying similarities and differences.

- RCH101 Aries and RCH108 Mackinac (San Carlos Canal):
  - TSS concentrations are generally in range compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - NH_3 concentrations are generally low compared observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - OrgN concentrations are generally in compared range with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - TKN concentrations are generally in range compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - NOx concentrations are generally in range compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - TN concentrations are generally in range compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - TP concentrations are generally in range compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - CBOD concentrations are generally lower than observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - DO concentrations are generally in range to high compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.
  - Chlorophyll-a concentrations are generally lower than observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.

  - Temperatures are generally in range compared with observed data and are in a similar range in comparison to the neighboring San Carlos Canal calibration station.

- RCH116 Marshpoint and RCH117 Daughtrey Branch1 (Powell Creek):
  - TSS concentrations are generally in range to high compared with observed data and are in a similar range in comparison to the neighboring Powell Creek validation station.
  - NH_3 concentrations are generally high compared with observed data and are slightly higher in comparison to the neighboring Powell Creek validation station.
  - OrgN concentrations are generally in range compared with observed data and are in a similar range in comparison to the Powell Creek validation station.
  - TKN concentrations are generally in range compared with observed data and are in a similar range in comparison to the Powell Creek validation station.
  - NOx concentrations are generally high compared with observed data and are slightly higher in comparison to the neighboring Powell Creek validation station.
  - TN concentrations are generally in range compared with observed data and are in a similar range in comparison to the Powell Creek validation station.
  - TP concentrations are generally in range to high in comparison with observed data and are in a similar range in comparison to the neighboring Powell Creek validation station.
  - CBOD concentrations are generally in range to high in comparison with observed data and are in a similar range in comparison to the neighboring Powell Creek validation station.
  - DO concentrations are generally high in comparison with observed data and are in an elevated range in comparison to the neighboring Powell Creek validation station.
  - Chlorophyll-a concentrations are generally miss timing and magnitude in comparison with observed data and are in a similar range in comparison to the neighboring Powell Creek validation station.
  - Temperatures concentrations are generally in range compared with observed data and are in a similar range in comparison to the neighboring Powell Creek validation station.

- RCH118 Chapel Creek and RCH119 Bayshore Creek (Popash Creek and Stroud Creek):
  - TSS concentrations are generally in range to high in comparison with observed data and are in a similar range in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - NH_3 concentrations are generally in range to high in comparison with observed data and are slightly higher in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - OrgN concentrations are generally in range in comparison with observed data and are in a similar range in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - TKN concentrations are generally in range in comparison with observed data and are slightly higher in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - NOx concentrations are generally in range to high in comparison with observed data and are slightly higher in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - TN concentrations are generally in range in comparison with observed data and are slightly higher in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - TP concentrations are generally in range in comparison with observed data and are in a similar range to slightly higher in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.

  - CBOD concentrations are generally in range to high in comparison with observed data and are in a similar range in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - DO concentrations are generally high in comparison with observed data and are higher in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - Chlorophyll-a concentrations are generally low and miss timing and magnitude in comparison with observed data and are lower in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.
  - Temperatures are generally in range in comparison with observed data and are in a similar range in comparison to the neighboring Popash Creek calibration station and Stroud Creek validation station.

- RCH124 Owl Creek, RCH125 Trout Creek, and RCH150 Cypress Creek (Telegraph Creek):
  - TSS concentrations are generally in range to high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - NH_3 concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - OrgN concentrations are generally in range to high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - TKN concentrations are generally in range to high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - NOx concentrations are high for Owl Creek and Trout Creek but low for Cypress Creek compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - TN concentrations are generally high for Owl Creek and Trout Creek but low for Cypress Creek compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - TP concentrations are generally in range to high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - CBOD concentrations are generally in range to high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - DO concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - Chlorophyll-a concentrations are generally low and miss timing and magnitude in comparison with observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.
  - Temperatures are generally in range in comparison with observed data and are in a similar range in comparison to the neighboring Telegraph Creek calibration station.

- RCH142 Able Canal and (Orange River):
  - TSS concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Orange River calibration station.
  - NH_3 concentrations are generally high compared to observed data and are in a lower range in comparison to the neighboring Orange River calibration station.
  - OrgN concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Orange River calibration station.

  - TKN concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Orange River calibration station.
  - NOx concentrations are generally high compared to observed data and are in a lower range in comparison to the neighboring Orange River calibration station.
  - TN concentrations are generally high compared to observed data and are in a lower range in comparison to the neighboring Orange River calibration station.
  - TP concentrations are generally high compared to observed data and are in a lower range in comparison to the neighboring Orange River calibration station.
  - CBOD concentrations are generally low compared to observed data and are in a similar range in comparison to the neighboring Orange River calibration station.
  - DO concentrations are generally in range to low compared to observed data and are in a lower range in comparison to the neighboring Orange River calibration station.
  - Chlorophyll-a concentrations are generally high compared to observed data and are in a higher range in comparison to the neighboring Orange River calibration station.
  - Temperatures are generally in range compared to observed data and are in a similar range in comparison to the neighboring Orange River calibration station.

- RCH160 Hendry Canal Ext (Townsend Canal):
  - TSS concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.
  - NH_3 concentrations are generally in range compared to observed data and are in a higher range in comparison to the neighboring Townsend Canal calibration station.
  - OrgN concentrations are generally in range compared to observed data and are in a lower range in comparison to the neighboring Townsend Canal calibration station.
  - TKN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.
  - NOx concentrations are generally high compared to observed data and are in a higher range in comparison to the neighboring Townsend Canal calibration station.
  - TN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.
  - TP concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.
  - CBOD concentrations are generally low compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.
  - DO concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.
  - Chlorophyll-a concentrations could not be assessed due to no observed data for the Hendry Canal Extension.
  - Temperatures are generally in range compared to observed data and are in a similar range in comparison to the neighboring Townsend Canal calibration station.

- RCH177 Bee Branch (Pollywog Creek):
  - TSS concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - NH_3 concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.

  - OrgN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - TKN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - NOx concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - TN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - TP concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - CBOD concentrations could not be assessed due to no observed data for Bee Branch.
  - DO concentrations are high compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - Chlorophyll-a concentrations are low compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.
  - Temperatures are generally in range compared to observed data and are in a similar range in comparison to the neighboring Pollywog Creek validation station.

- RCH183 Canal 1 and RCH186 Canal 2 (Long Hammock Canal):
  - TSS concentrations could not be assessed due to no observed data for Canal 1 and Canal 2.
  - NH_3 concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - OrgN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - TKN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - NOx concentrations are generally high compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - TN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - TP concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - CBOD could not be assessed due to no observed data for Canal 1 and Canal 2.
  - DO concentrations are generally in range to low compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.
  - Chlorophyll-a concentrations are generally in range compared to observed data and are in a lower range in comparison to the neighboring Long Hammock Canal calibration station.
  - Temperatures are generally in range compared to observed data and are in a similar range in comparison to the neighboring Long Hammock Canal calibration station.

- RCH213 FlagHole5 (Whidden):
  - TSS concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
  - NH_3 concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.

- OrgN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- TKN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- NOx concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- TN concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- TP concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- CBOD could not be assessed due to no observed data for FlagHole5.
- DO concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- Chlorophyll-a concentrations are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.
- Temperatures are generally in range compared to observed data and are in a similar range in comparison to the neighboring Whidden calibration station.

3.4 CALIBRATION CONCLUSIONS

Based on the above results, the 2025 HSPF Model does an acceptable job of simulating water quality in the Caloosahatchee River and Estuary Watershed. Mean and median upland loading rates of TSS, TN, and TP with the outsized effect of Hurricane Irma removed compare very favorably with the target loading rates, although minimum and maximum upland loading rates deviate from their targets. The deviation in loading rates was due to precipitation patterns across the watershed and not constraining the model to produce the target loading rate in each NEXRAD zone.

Overall, the model was able to represent the instream concentration for all water quality parameters. There are some biases, both high and low for various constituents, when comparing the simulated instream output to instream monitoring data. These are likely due to localized conditions (i.e., internal cycling and/or benthic releases of nutrients) that cannot be represented exactly in a one-dimensional large-scale watershed model. However, simulated output is generally in range with instream observations and compares very favorably to the measured data, especially when taking into account the complexities of the Caloosahatchee River and Estuary Watershed.

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APPENDIX A: 2025 HSPF WATER QUALITY CALIBRATION RESULTS

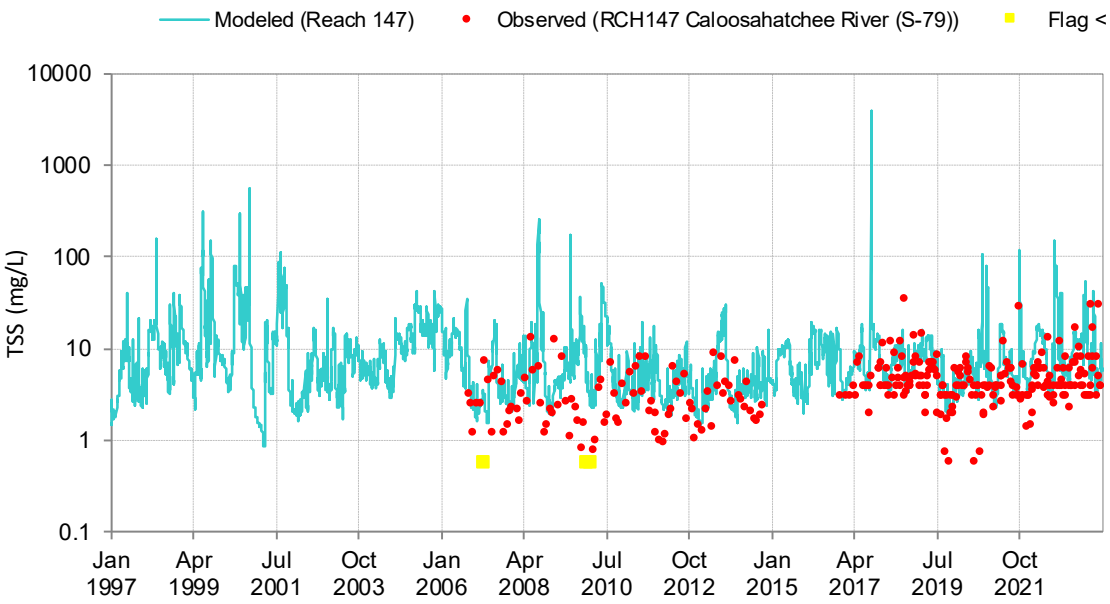


Figure A-1 Modeled Vs Observed TSS (mg/L) at RCH147 Caloosahatchee River (S-79)

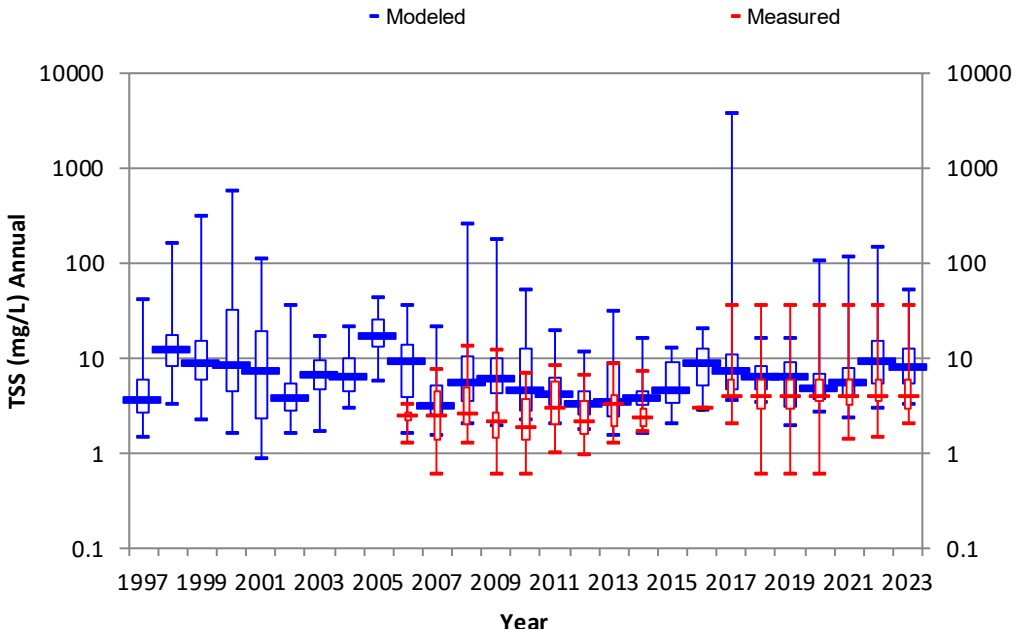


Figure A-2 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH147 Caloosahatchee River (S-79)

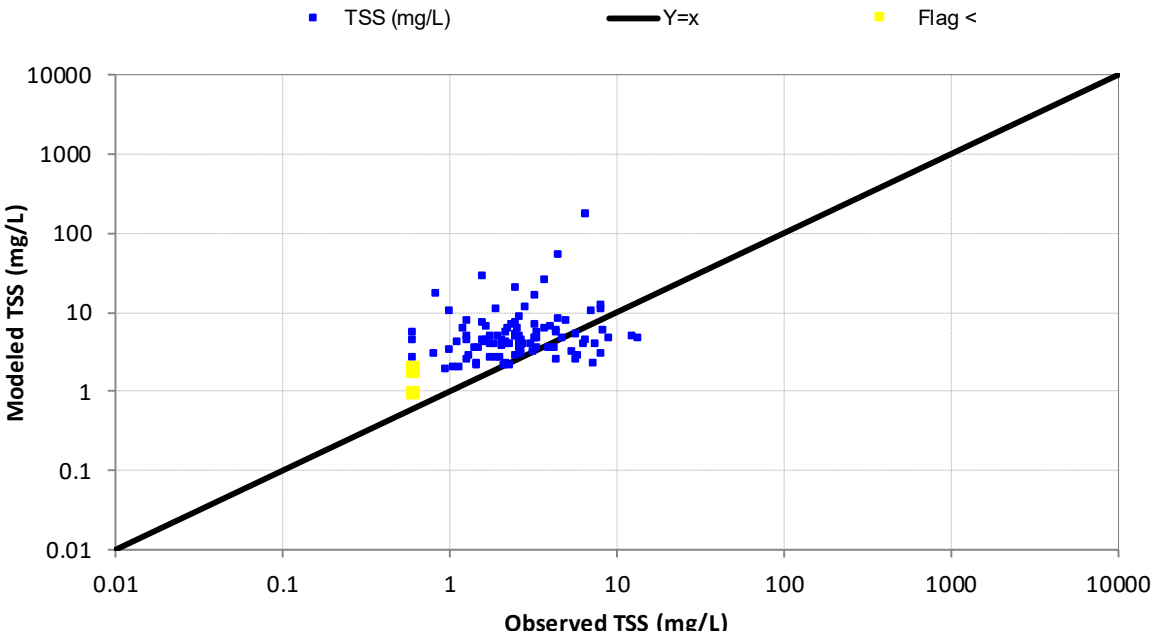


Figure A-3 Concentration at RCH147 Caloosahatchee River (S-79)

Table A- 1 Monthly TSS Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	3.97	5.63	41.8	P
Feb	4.28	5.91	38.2	P
Mar	3.81	7.08	85.8	P
Apr	5.75	8.23	43.2	P
May	5.98	11.54	93.0	P
Jun	5.22	12.97	148.4	P
Jul	4.94	13.18	166.8	P
Aug	5.27	11.88	125.6	P
Sep	3.94	23.78	503.1	P
Oct	4.71	12.46	164.6	P
Nov	5.18	8.06	55.6	P
Dec	3.57	5.67	59.0	P
Average*	4.72	10.53	123.3	P
Median**	4.83	9.89	104.9	P
R^2	N/A	N/A	0.01	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 2 Annual TSS Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.83	N/A	N/A
1998	N/A	14.03	N/A	N/A
1999	N/A	20.15	N/A	N/A
2000	N/A	25.16	N/A	N/A
2001	N/A	16.43	N/A	N/A
2002	N/A	5.02	N/A	N/A
2003	N/A	7.22	N/A	N/A
2004	N/A	7.56	N/A	N/A
2005	N/A	18.75	N/A	N/A
2006	2.38	9.36	294.2	P
2007	3.19	4.58	43.7	P
2008	3.96	12.77	222.6	P
2009	3.17	9.29	192.9	P
2010	2.62	10.00	281.6	P
2011	3.83	5.25	37.1	P
2012	2.75	3.73	35.3	P
2013	3.73	6.57	76.2	P
2014	2.96	4.17	41.1	P
2015	N/A	6.00	N/A	N/A
2016	3.00	8.99	199.5	P
2017	4.44	28.78	548.6	P
2018	6.83	6.92	1.3	VG
2019	4.30	6.52	51.7	P
2020	4.17	7.55	81.1	P
2021	5.30	9.77	84.3	P
2022	4.86	13.94	186.9	P
2023	7.22	11.21	55.3	P
Average*	4.04	10.54	160.8	P
Median**	3.83	8.99	134.4	P
R^2	N/A	N/A	0.05	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.
** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 3 Daily TSS Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Statistic	Results	Rating
Count (number)	311	N/A
Average Error (%)	151.1	P
Median Error (%)	60.9	P
RMSE (mg/L)	14.96	N/A
R^2	0.01	P

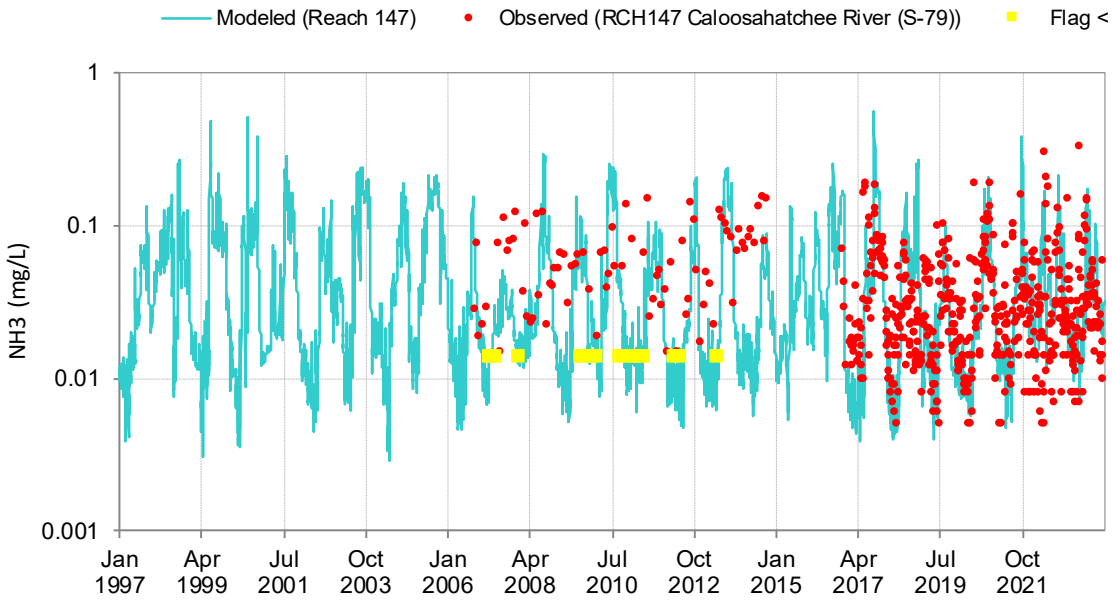


Figure A-4 Modeled Vs Observed NH3 (mg/L) at RCH147 Caloosahatchee River (S-79)

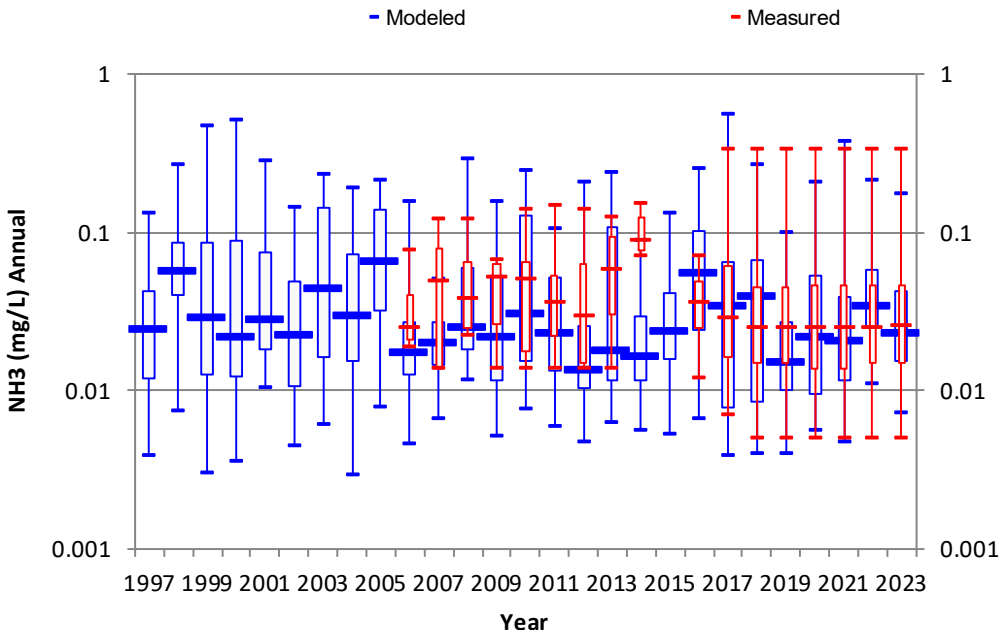


Figure A-5 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH147 Caloosahatchee River (S-79)

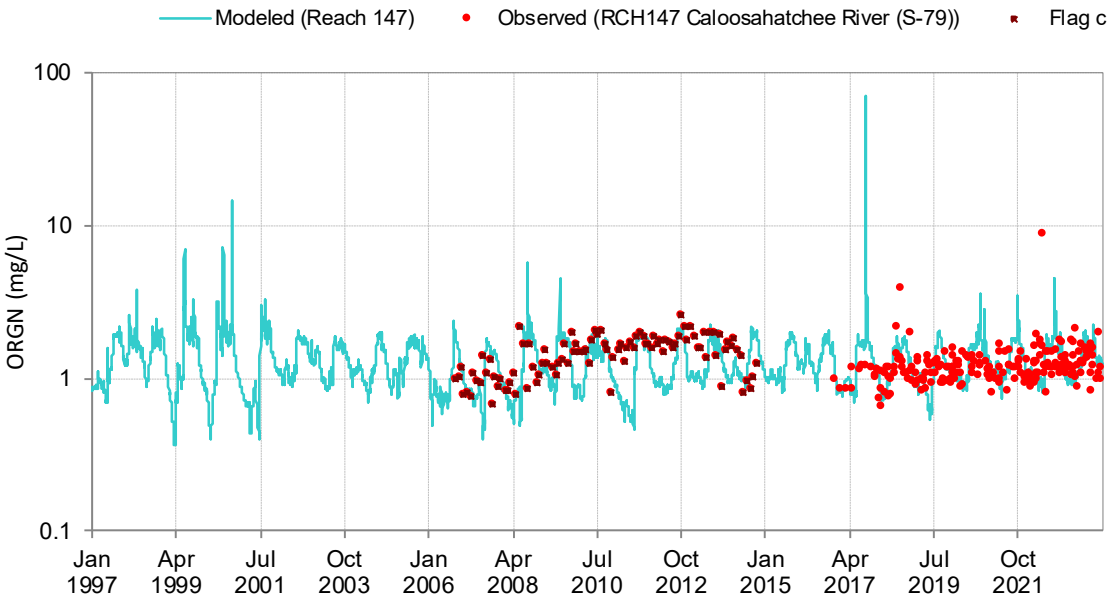


Figure A-6 Modeled Vs Observed ORGN (mg/L) at RCH147 Caloosahatchee River (S-79)

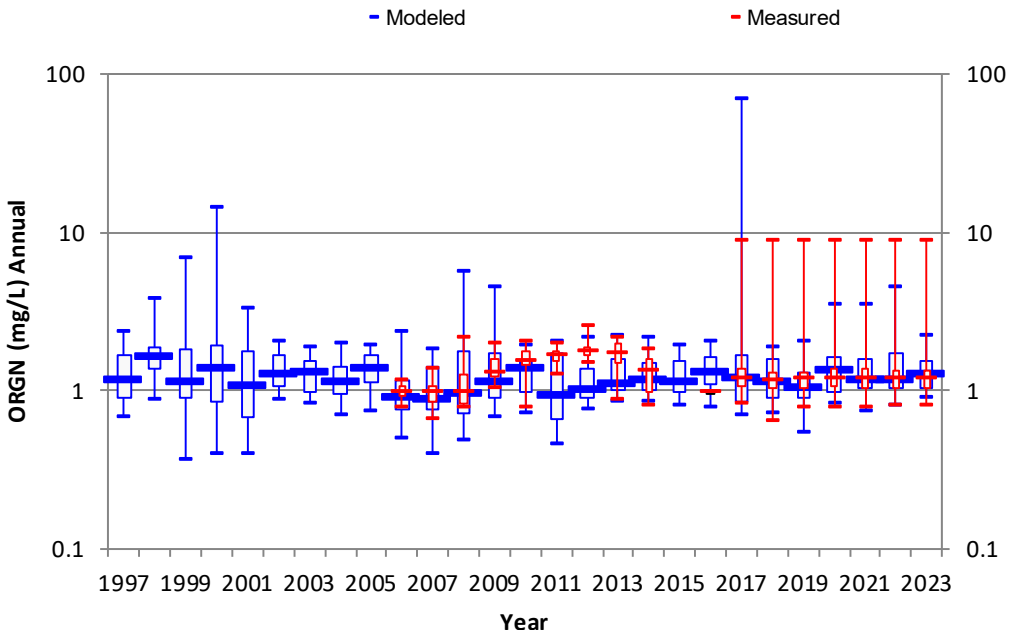


Figure A-7 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH147 Caloosahatchee River (S-79)

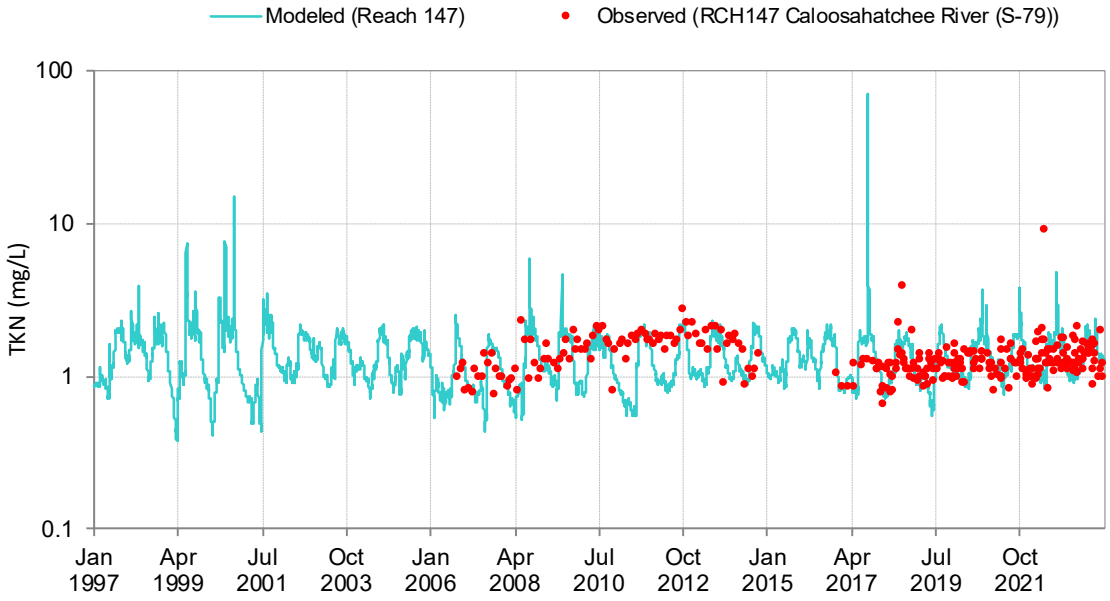


Figure A-8 Modeled Vs Observed TKN (mg/L) at RCH147 Caloosahatchee River (S-79)

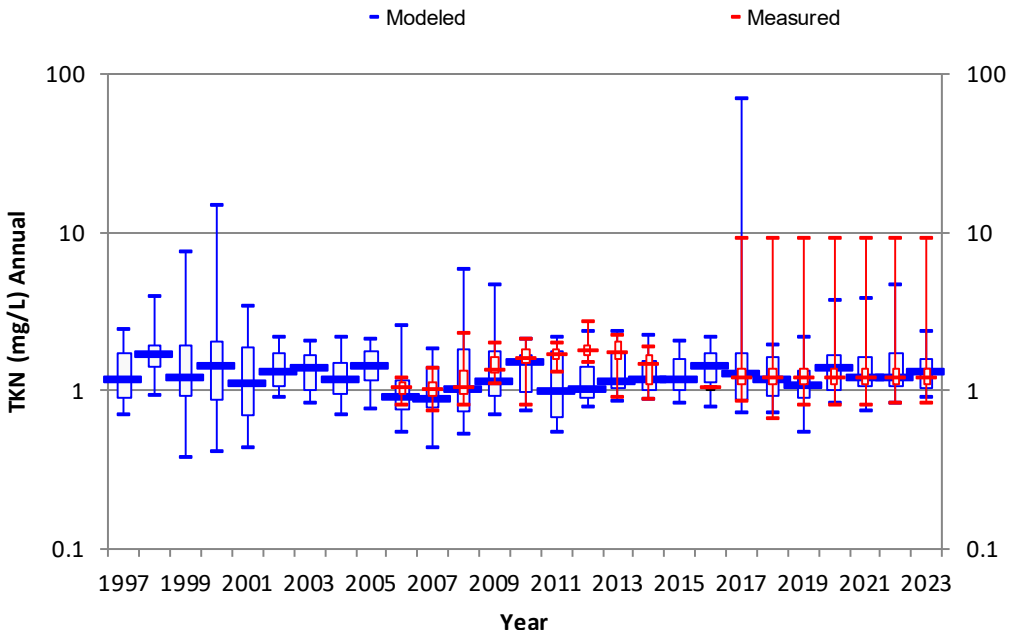


Figure A-9 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH147 Caloosahatchee River (S-79)

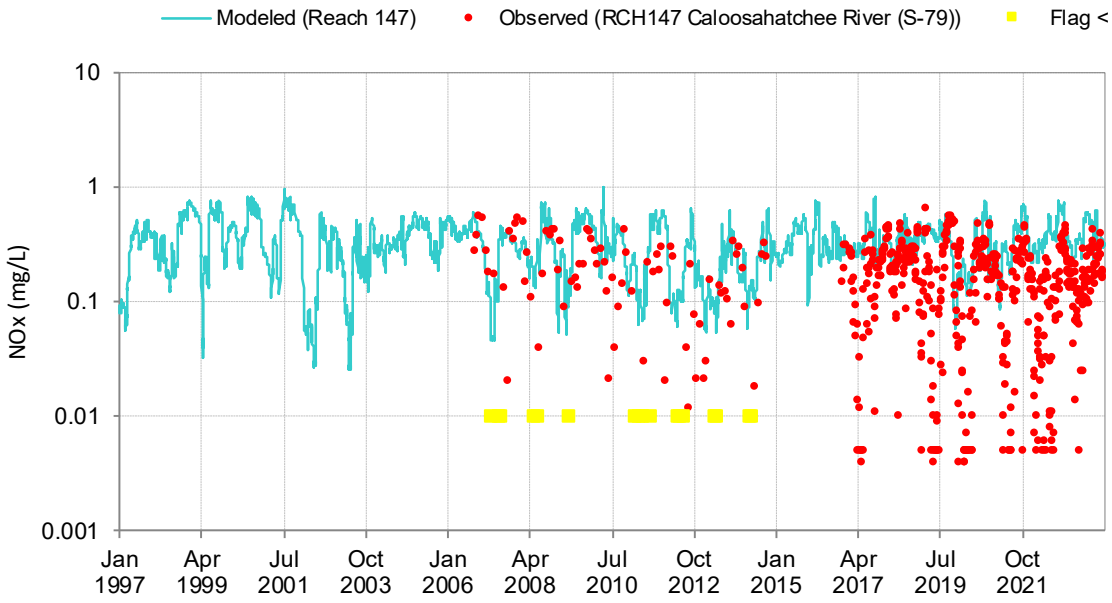


Figure A-10 Modeled Vs Observed NOx (mg/L) at RCH147 Caloosahatchee River (S-79)

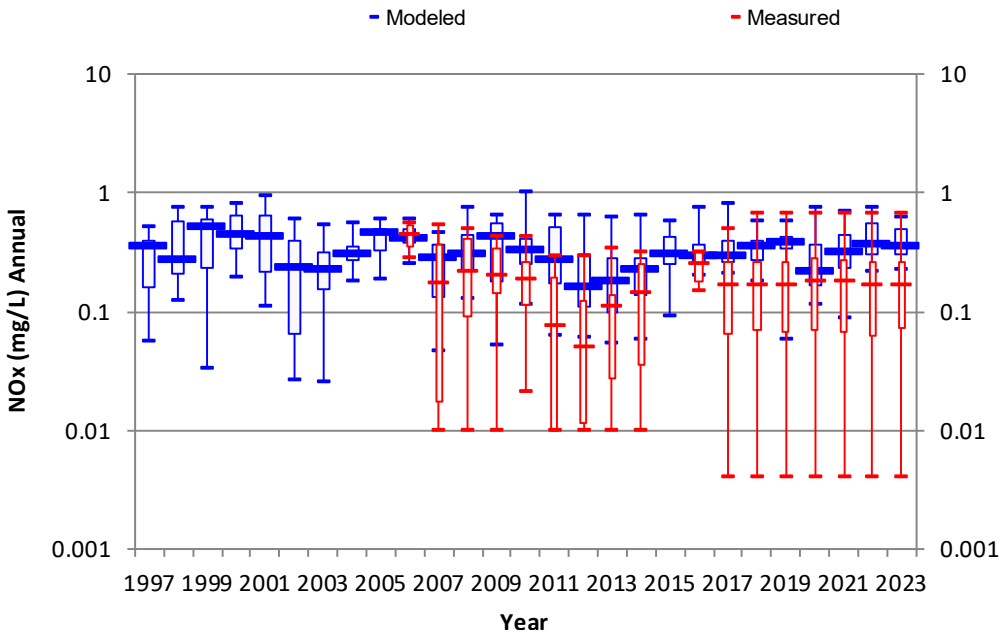


Figure A-11 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH147 Caloosahatchee River (S-79)

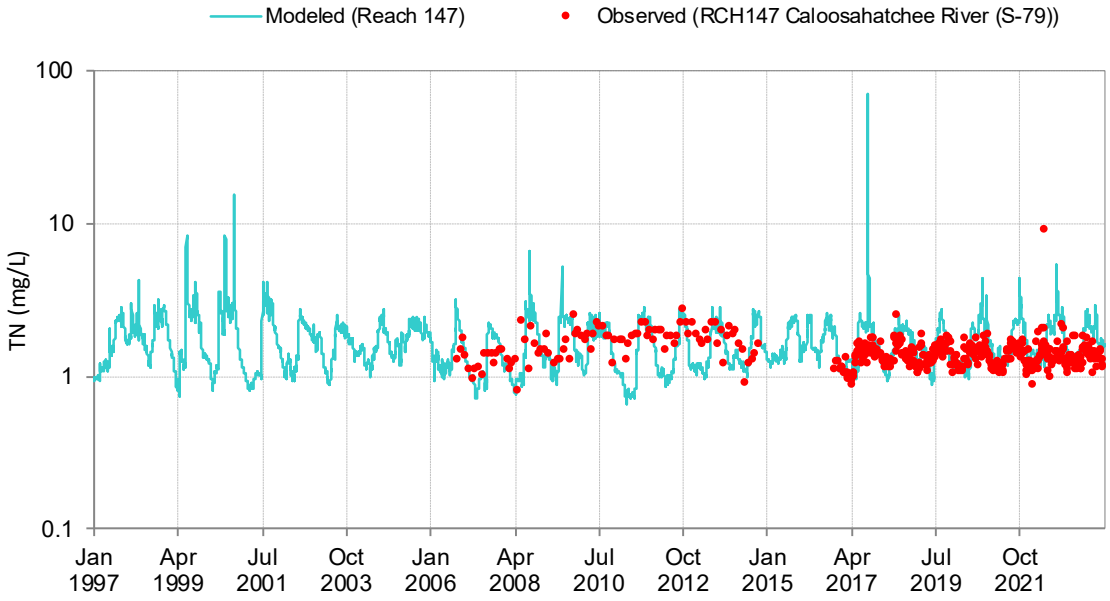


Figure A-12 Modeled Vs Observed TN (mg/L) at RCH147 Caloosahatchee River (S-79)

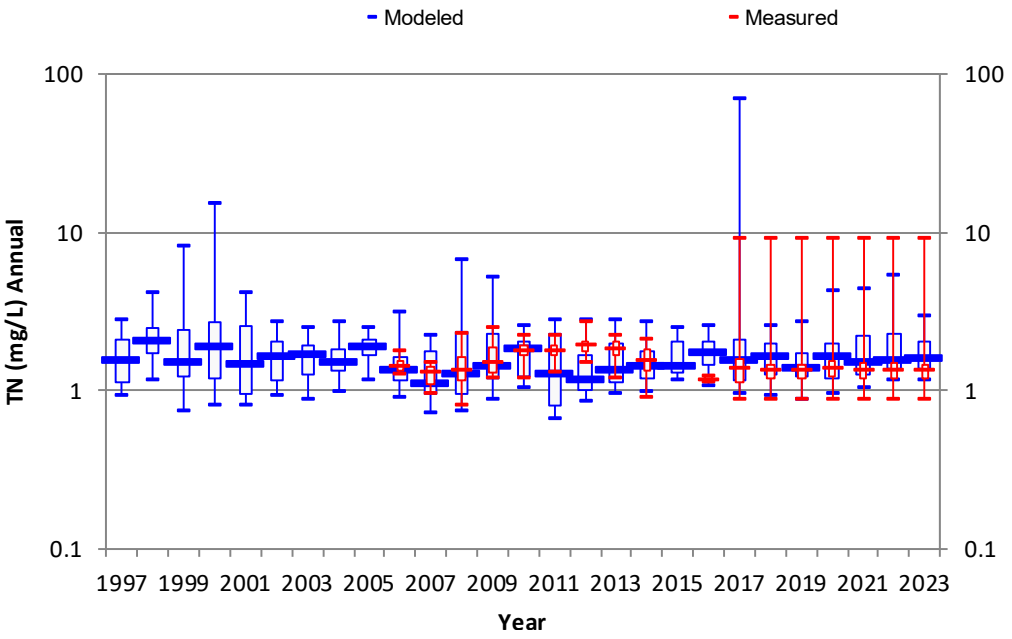


Figure A-13 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH147 Caloosahatchee River (S-79)

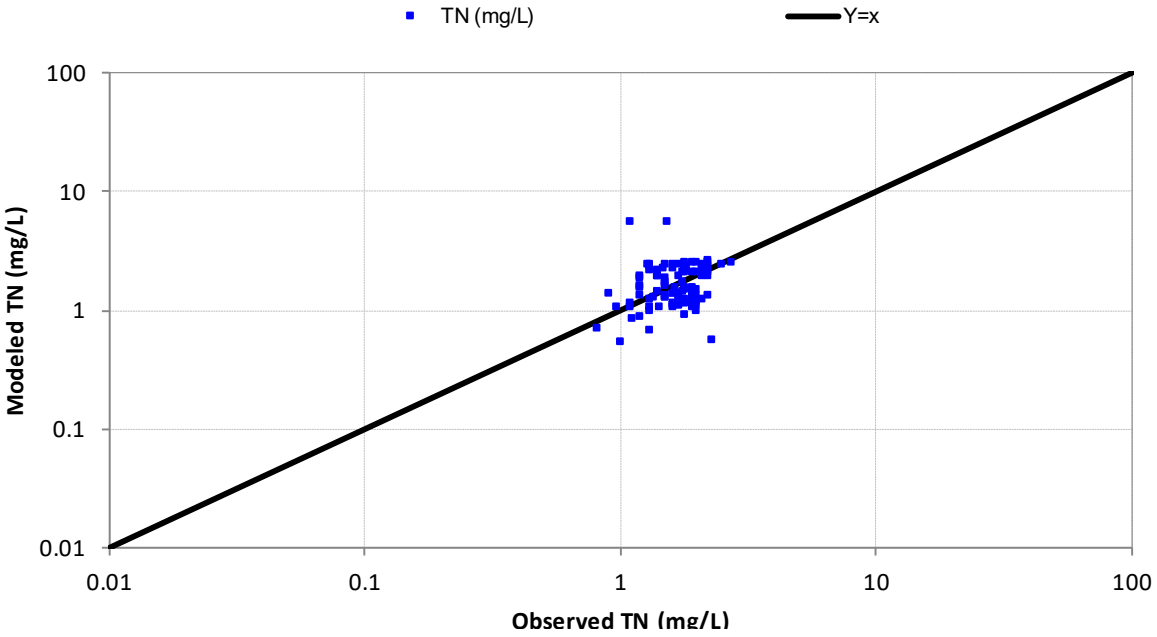


Figure A-14 Concentration at RCH147 Caloosahatchee River (S-79)

Table A- 4 Monthly TN Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.32	1.32	0.1	VG
Feb	1.32	1.28	-2.6	VG
Mar	1.27	1.23	-3.2	VG
Apr	1.28	1.20	-6.4	VG
May	1.38	1.30	-6.0	VG
Jun	1.74	1.55	-10.7	VG
Jul	1.52	2.09	37.5	G
Aug	1.48	2.28	54.3	F
Sep	1.49	2.56	71.9	P
Oct	1.53	2.21	44.2	G
Nov	1.53	1.75	14.9	VG
Dec	1.36	1.46	7.6	VG
Average*	1.43	1.69	17.6	VG
Median**	1.43	1.51	5.6	VG
R^2	N/A	N/A	0.30	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 5 Annual TN Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.60	N/A	N/A
1998	N/A	2.07	N/A	N/A
1999	N/A	1.89	N/A	N/A
2000	N/A	2.06	N/A	N/A
2001	N/A	1.72	N/A	N/A
2002	N/A	1.62	N/A	N/A
2003	N/A	1.61	N/A	N/A
2004	N/A	1.60	N/A	N/A
2005	N/A	1.87	N/A	N/A
2006	1.46	1.49	2.1	VG
2007	1.26	1.32	4.4	VG
2008	1.45	1.66	14.5	VG
2009	1.62	1.71	5.3	VG
2010	1.81	1.72	-4.8	VG
2011	1.82	1.52	-16.6	VG
2012	1.96	1.45	-26.1	VG
2013	1.84	1.55	-16.0	VG
2014	1.55	1.57	1.5	VG
2015	N/A	1.63	N/A	N/A
2016	1.18	1.75	47.8	F
2017	1.32	2.02	53.6	F
2018	1.39	1.62	16.5	VG
2019	1.39	1.51	8.8	VG
2020	1.39	1.69	21.3	VG
2021	1.32	1.73	31.5	G
2022	1.50	1.88	25.1	VG
2023	1.36	1.75	28.6	VG
Average*	1.51	1.69	12.1	VG
Median**	1.45	1.66	14.5	VG
R^2	N/A	N/A	0.08	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 6 Daily TN Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Statistic	Results	Rating
Count (number)	486	N/A
Average Error (%)	20.9	VG
Median Error (%)	15.9	VG
RMSE (mg/L)	0.80	N/A
R^2	0.01	P

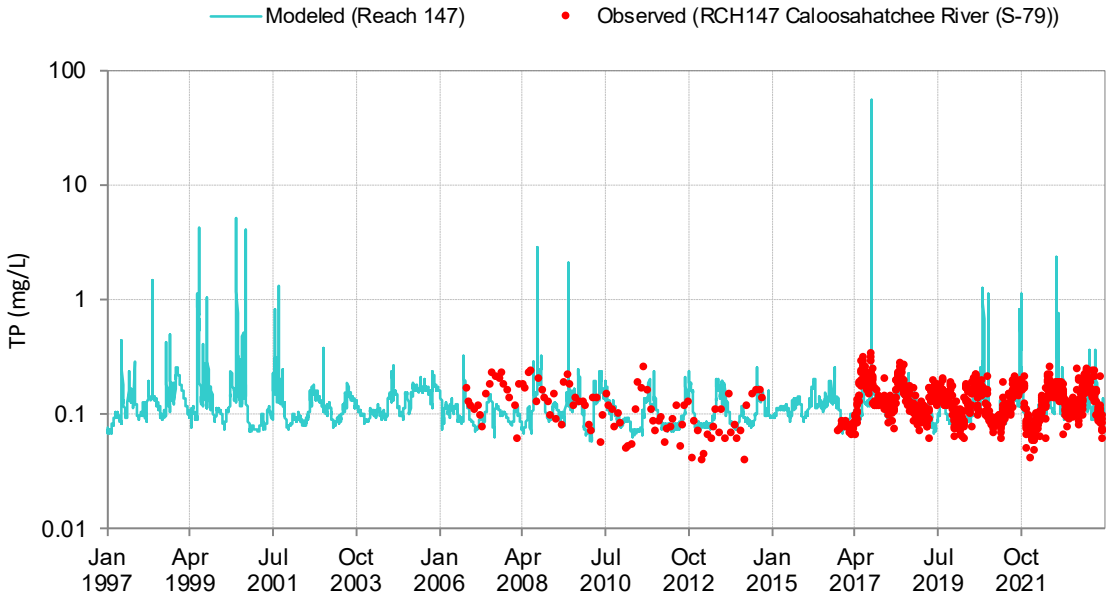


Figure A-15 Modeled Vs Observed TP (mg/L) at RCH147 Caloosahatchee River (S-79)

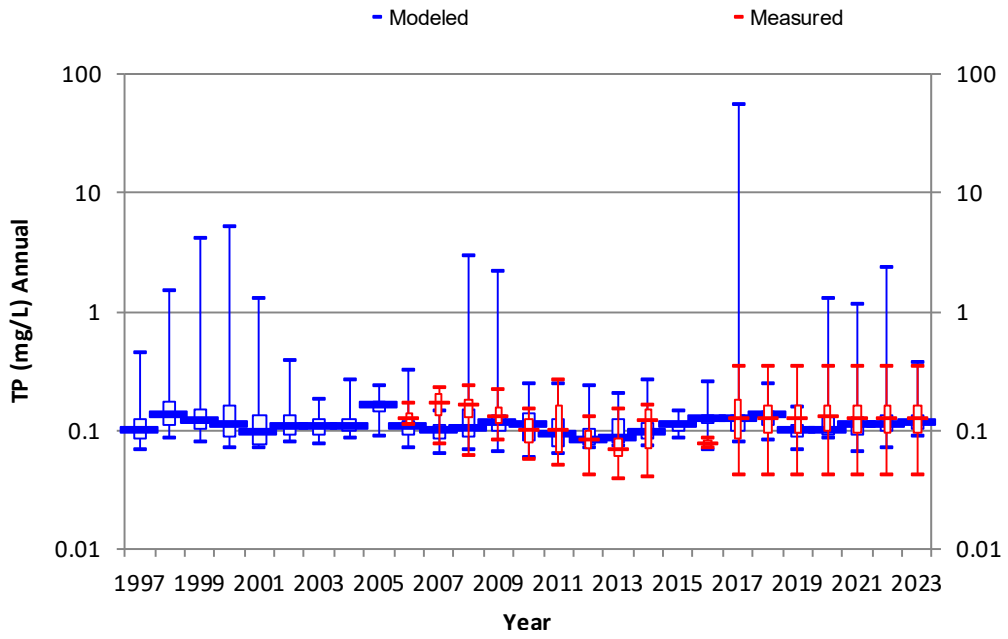


Figure A-16 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH147 Caloosahatchee River (S-79)

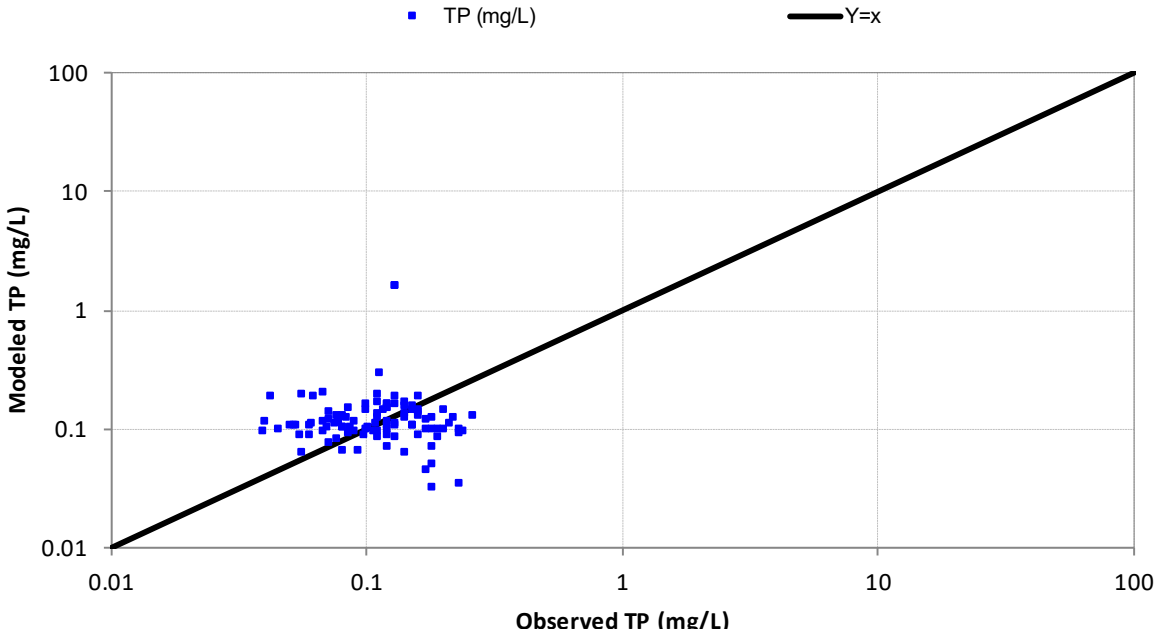


Figure A-17 Concentration at RCH147 Caloosahatchee River (S-79)

Table A- 7 Monthly TP Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.09	0.10	2.9	VG
Feb	0.09	0.10	10.8	VG
Mar	0.09	0.10	12.7	VG
Apr	0.11	0.11	-7.8	VG
May	0.13	0.11	-10.9	VG
Jun	0.17	0.14	-16.9	VG
Jul	0.19	0.17	-9.5	VG
Aug	0.16	0.16	-1.3	VG
Sep	0.16	0.29	77.4	P
Oct	0.14	0.15	4.2	VG
Nov	0.13	0.12	-9.9	VG
Dec	0.10	0.10	1.1	VG
Average*	0.13	0.14	4.8	VG
Median**	0.13	0.12	-10.4	VG
R^2	N/A	N/A	0.47	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 8 Annual TP Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.11	N/A	N/A
1998	N/A	0.15	N/A	N/A
1999	N/A	0.18	N/A	N/A
2000	N/A	0.21	N/A	N/A
2001	N/A	0.13	N/A	N/A
2002	N/A	0.11	N/A	N/A
2003	N/A	0.11	N/A	N/A
2004	N/A	0.12	N/A	N/A
2005	N/A	0.16	N/A	N/A
2006	0.13	0.11	-16.3	VG
2007	0.16	0.10	-38.8	G
2008	0.16	0.16	-1.3	VG
2009	0.14	0.13	-4.9	VG
2010	0.10	0.12	14.2	VG
2011	0.12	0.10	-13.3	VG
2012	0.09	0.10	18.9	VG
2013	0.08	0.11	36.7	G
2014	0.11	0.11	-3.3	VG
2015	N/A	0.11	N/A	N/A
2016	0.08	0.13	63.5	P
2017	0.15	0.39	157.8	P
2018	0.14	0.14	-3.5	VG
2019	0.13	0.10	-20.7	VG
2020	0.13	0.13	2.2	VG
2021	0.12	0.13	8.6	VG
2022	0.13	0.14	11.4	VG
2023	0.14	0.13	-3.7	VG
Average*	0.12	0.14	11.5	VG
Median**	0.13	0.13	-0.5	VG
R^2	N/A	N/A	0.12	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 9 Daily TP Concentration Comparisons at RCH147 Caloosahatchee River (S-79)

Statistic	Results	Rating
Count (number)	983	N/A
Average Error (%)	5.1	VG
Median Error (%)	-3.5	VG
RMSE (mg/L)	0.16	N/A
R^2	0.05	P

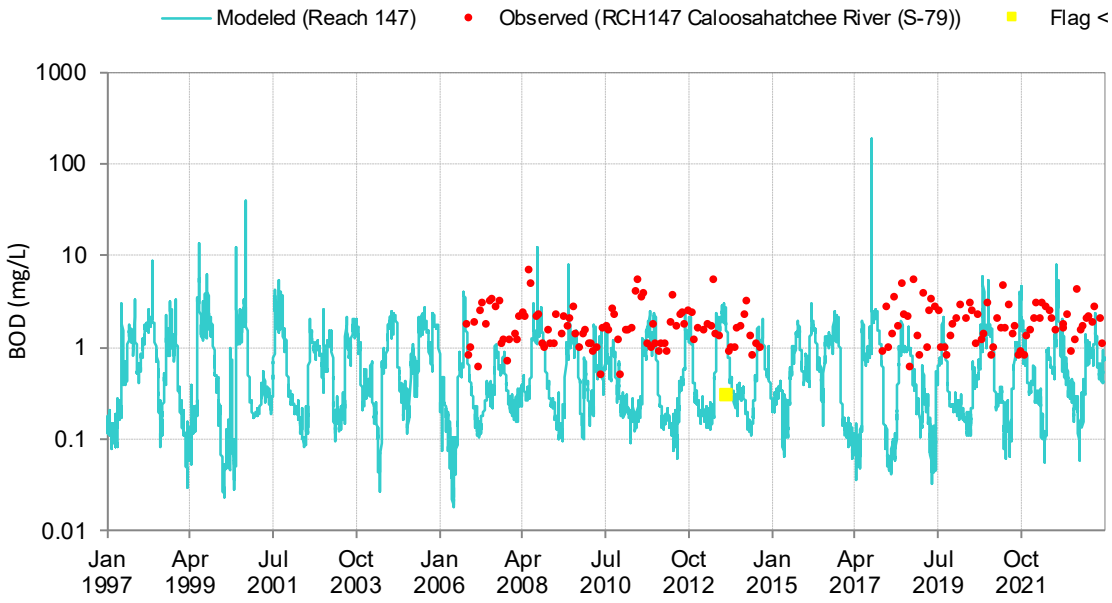


Figure A-18 Modeled Vs Observed BOD (mg/L) at RCH147 Caloosahatchee River (S-79)

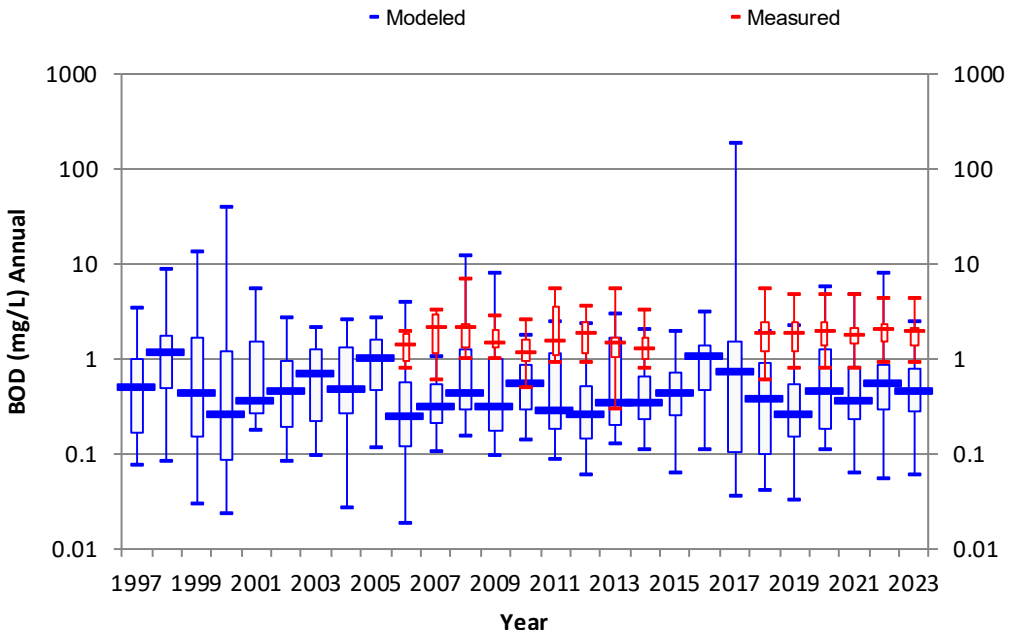


Figure A-19 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH147 Caloosahatchee River (S-79)

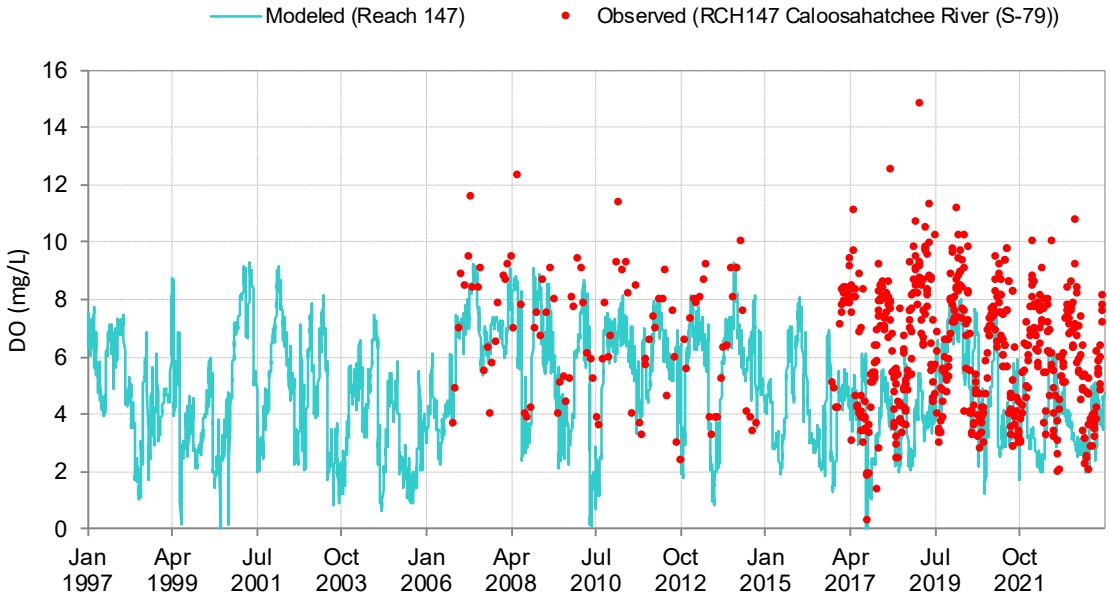


Figure A-20 Modeled Vs Observed DO (mg/L) at RCH147 Caloosahatchee River (S-79)

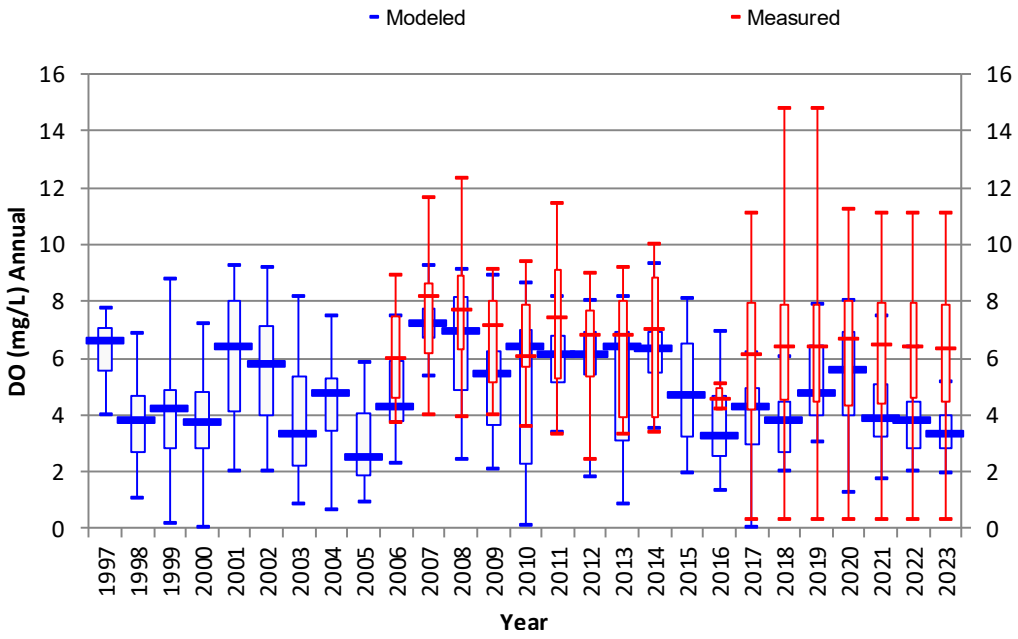


Figure A-21 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH147 Caloosahatchee River (S-79)

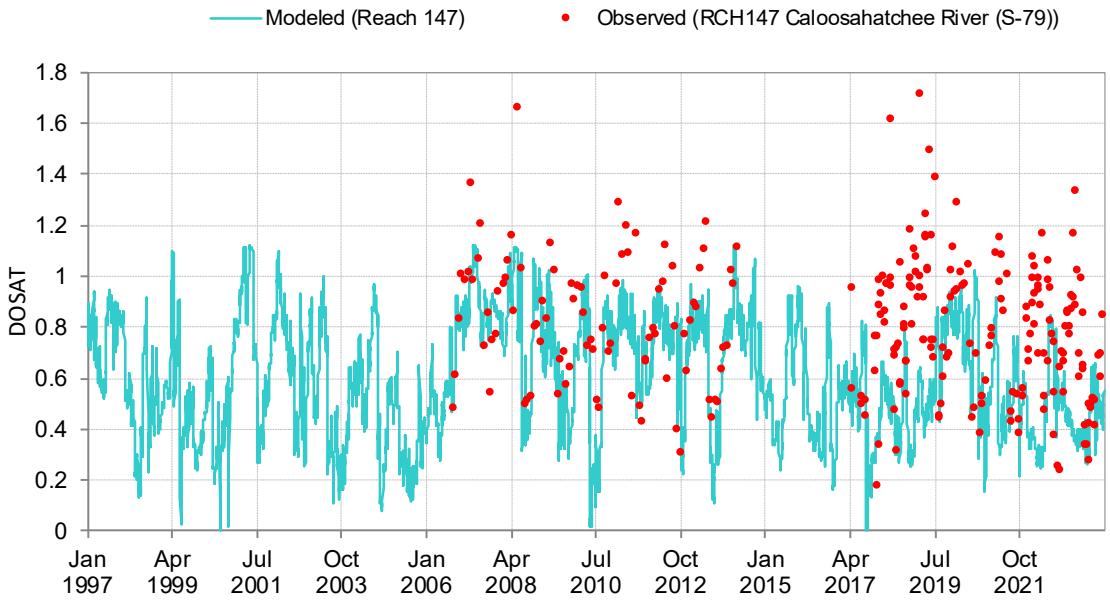


Figure A-22 Modeled Vs Observed DOSAT at RCH147 Caloosahatchee River (S-79)

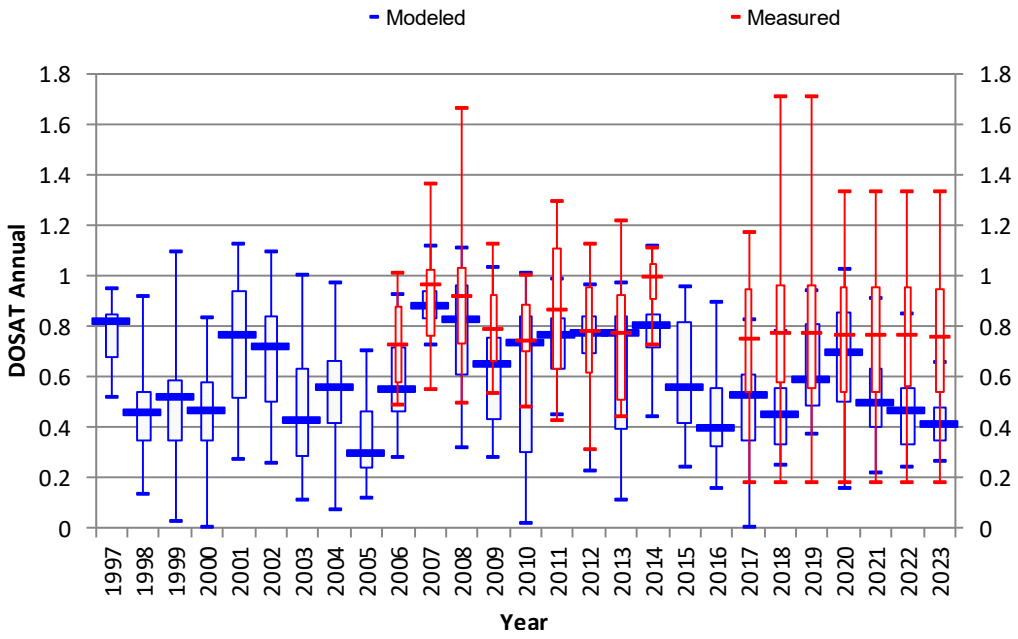


Figure A-23 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH147 Caloosahatchee River (S-79)

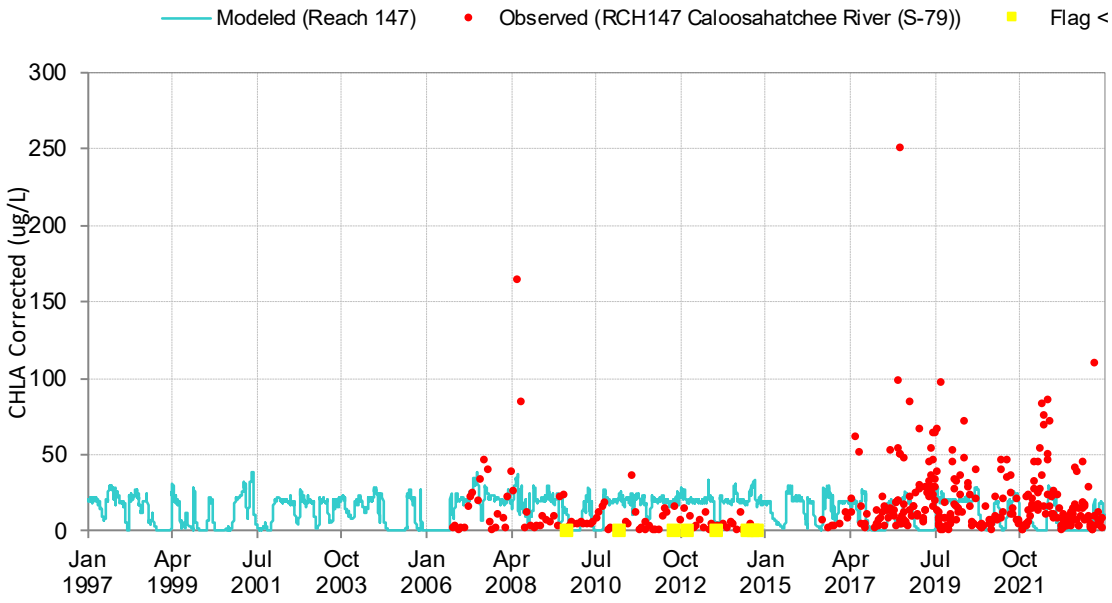


Figure A-24 Modeled Vs Observed CHLA Corrected (ug/L) at RCH147 Caloosahatchee River (S-79)

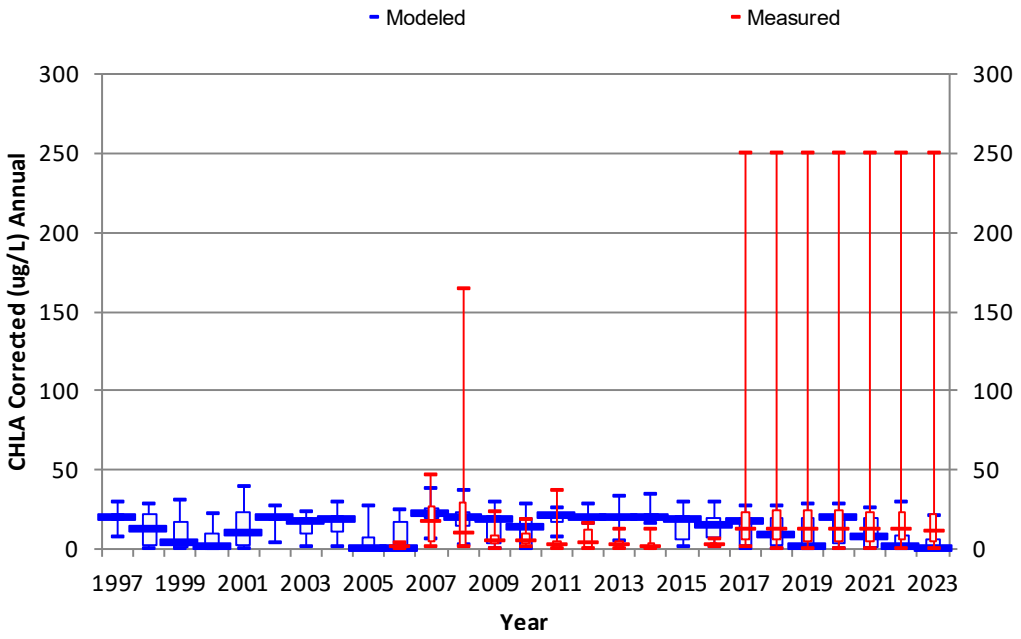


Figure A-25 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH147 Caloosahatchee River (S-79)

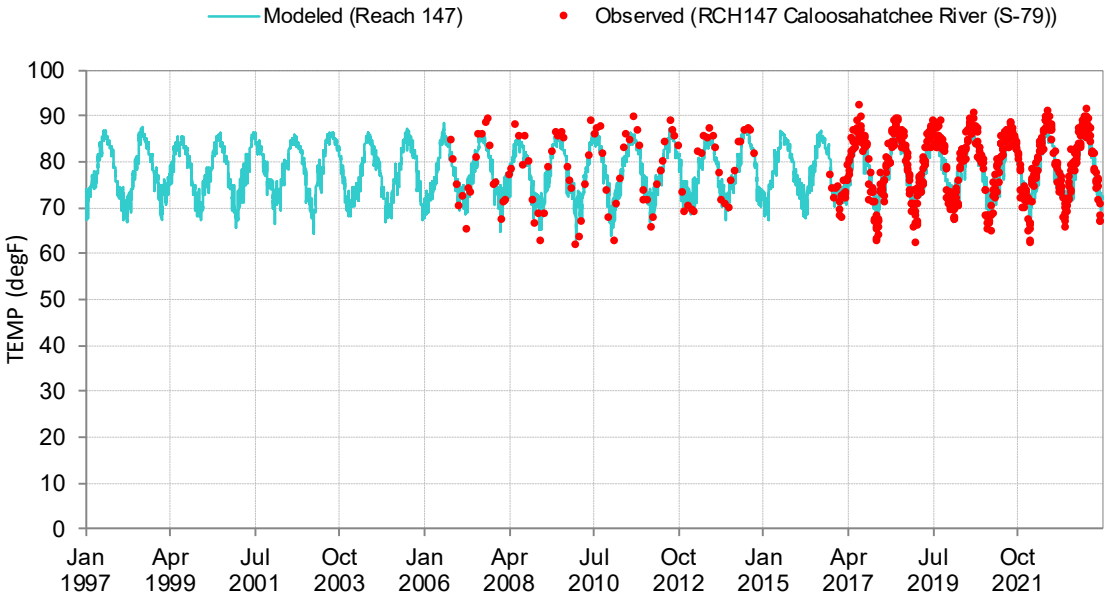


Figure A-26 Modeled Vs Observed TEMP (deg F) at RCH147 Caloosahatchee River (S-79)

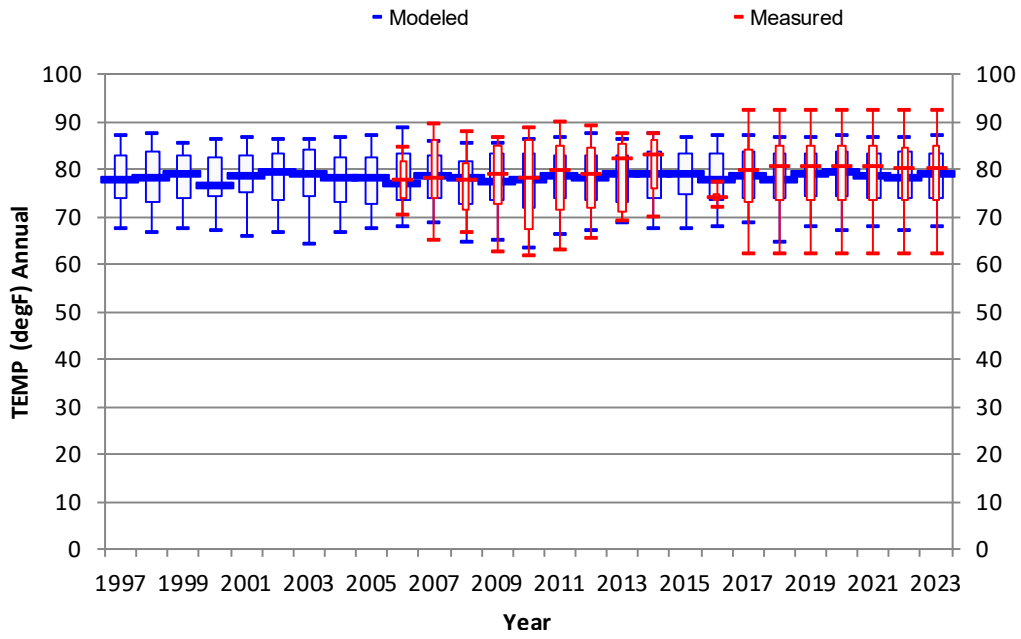


Figure A-27 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH147 Caloosahatchee River (S-79)

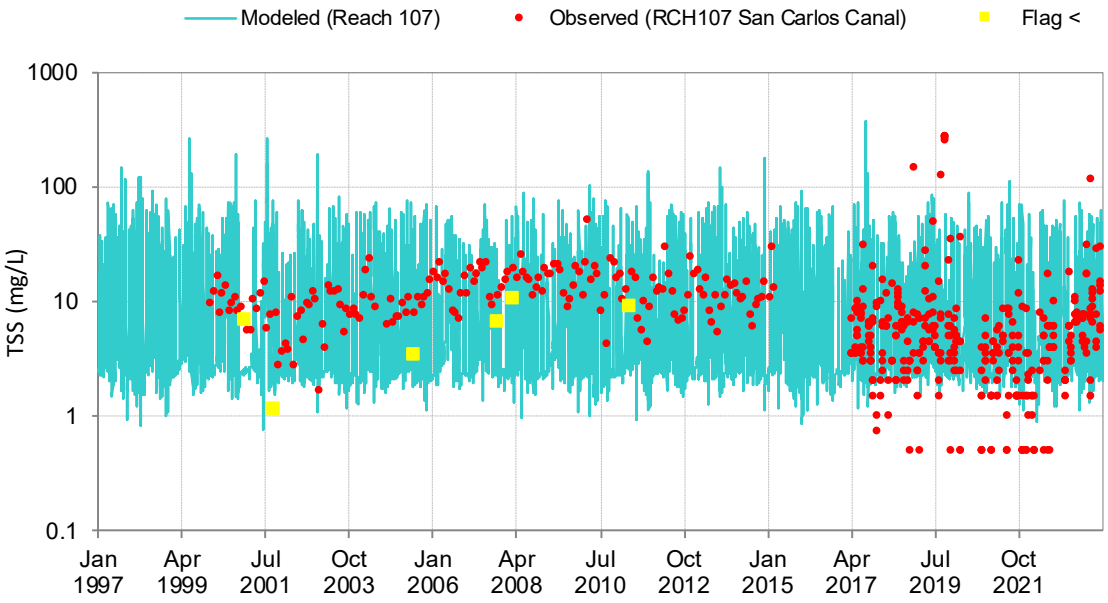


Figure A-28 Modeled Vs Observed TSS (mg/L) at RCH107 San Carlos Canal

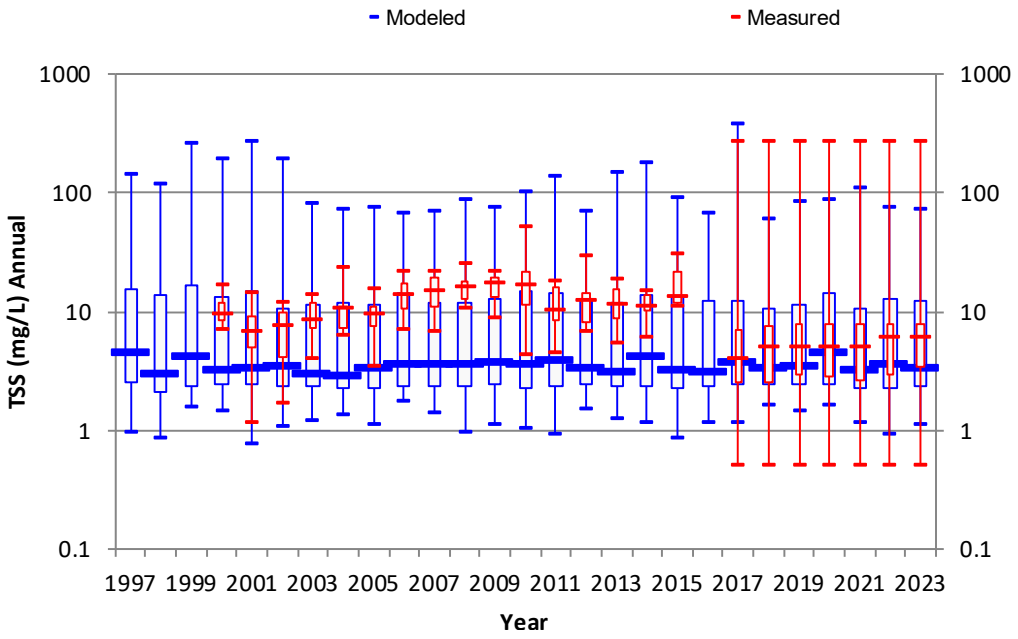


Figure A-29 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH107 San Carlos Canal

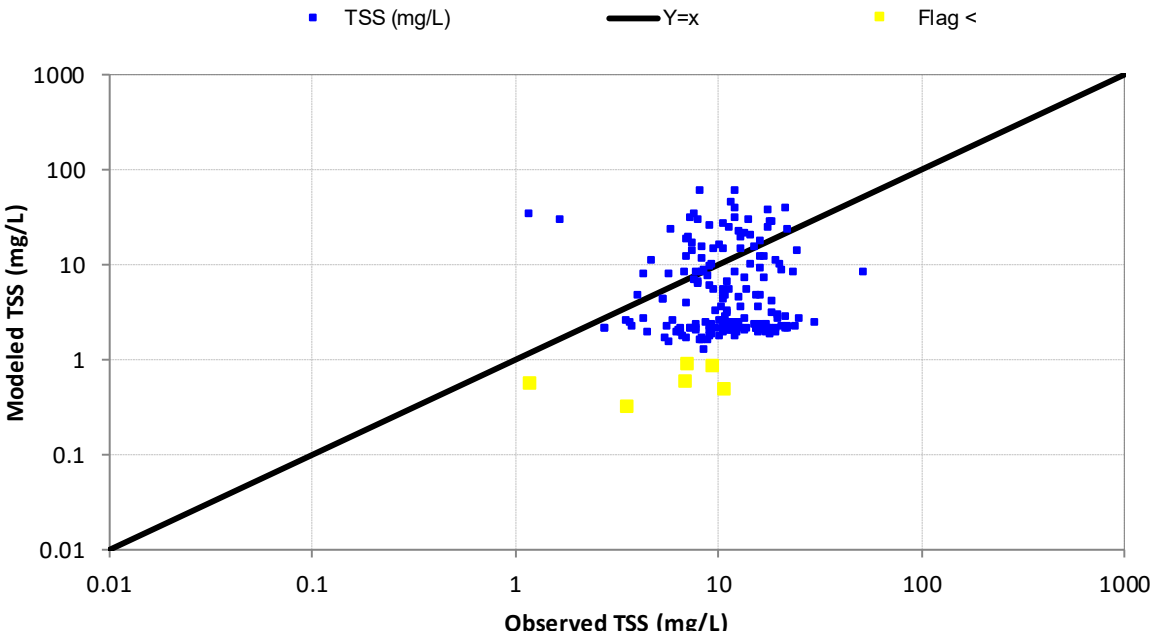


Figure A-30 Concentration at RCH107 San Carlos Canal

Table A- 10 Monthly TSS Concentration Comparisons at RCH107 San Carlos Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	6.18	6.30	2.0	VG
Feb	7.57	6.55	-13.4	VG
Mar	9.12	7.75	-15.0	G
Apr	10.42	10.11	-2.9	VG
May	9.73	13.61	39.9	P
Jun	8.67	19.67	127.0	P
Jul	6.98	13.29	90.4	P
Aug	8.07	13.35	65.5	P
Sep	10.45	13.35	27.8	F
Oct	33.28	6.71	-79.8	P
Nov	7.65	6.52	-14.8	VG
Dec	12.35	6.90	-44.1	P
Average*	10.87	10.34	-4.9	VG
Median**	8.90	8.93	0.4	VG
R^2	N/A	N/A	0.06	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 11 Annual TSS Concentration Comparisons at RCH107 San Carlos Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	11.90	N/A	N/A
1998	N/A	11.50	N/A	N/A
1999	N/A	12.77	N/A	N/A
2000	10.08	11.15	10.6	VG
2001	7.06	11.66	65.2	P
2002	7.08	9.68	36.8	P
2003	8.99	9.42	4.9	VG
2004	11.56	9.51	-17.7	G
2005	9.20	9.36	1.7	VG
2006	13.69	9.96	-27.2	F
2007	14.78	8.84	-40.2	P
2008	15.51	10.09	-34.9	F
2009	16.36	9.09	-44.4	P
2010	18.58	11.07	-40.4	P
2011	10.94	11.33	3.6	VG
2012	13.59	10.18	-25.1	F
2013	11.90	10.39	-12.7	VG
2014	11.17	10.31	-7.7	VG
2015	18.06	10.54	-41.6	P
2016	N/A	10.12	N/A	N/A
2017	6.06	11.67	92.7	P
2018	8.12	8.63	6.3	VG
2019	30.48	10.02	-67.1	P
2020	4.47	10.55	136.1	P
2021	3.56	9.57	169.1	P
2022	3.72	10.27	175.9	P
2023	10.16	9.86	-3.0	VG
Average*	11.53	10.35	-10.2	VG
Median**	10.94	10.18	-6.9	VG
R^2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 12 Daily TSS Concentration Comparisons at RCH107 San Carlos Canal

Statistic	Results	Rating
Count (number)	530	N/A
Average Error (%)	140.1	P
Median Error (%)	-18.0	G
RMSE (mg/L)	29.14	N/A
R^2	0.00	N/A

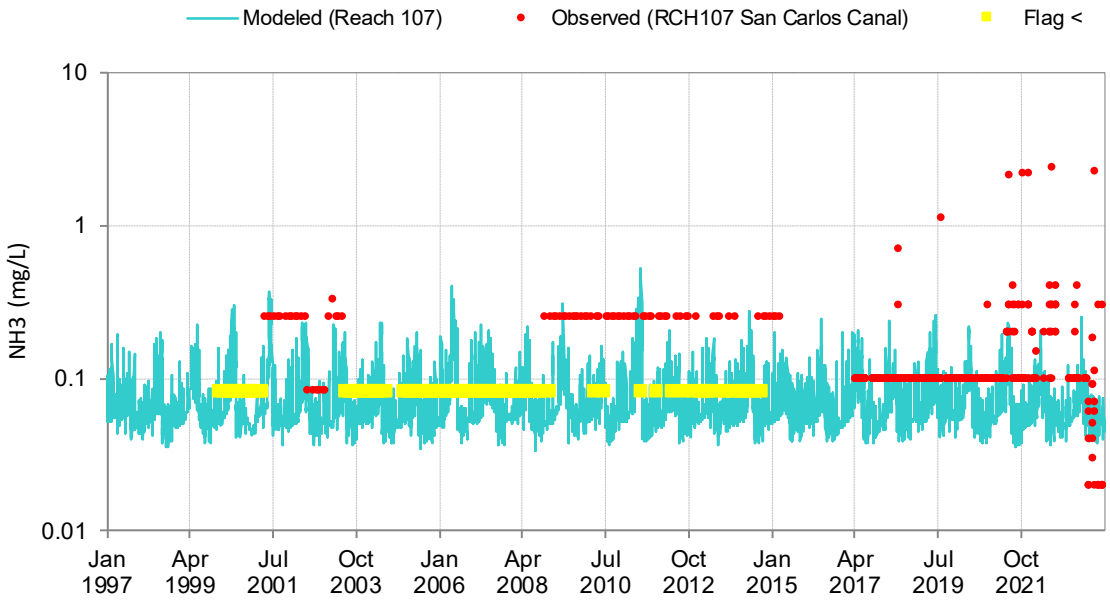


Figure A-31 Modeled Vs Observed NH3 (mg/L) at RCH107 San Carlos Canal

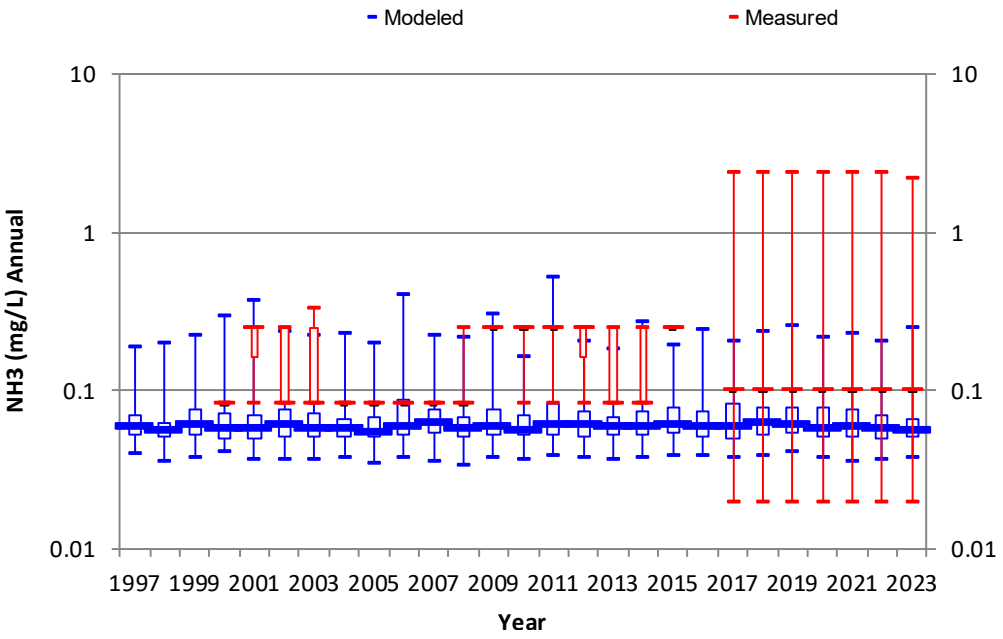


Figure A-32 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH107 San Carlos Canal

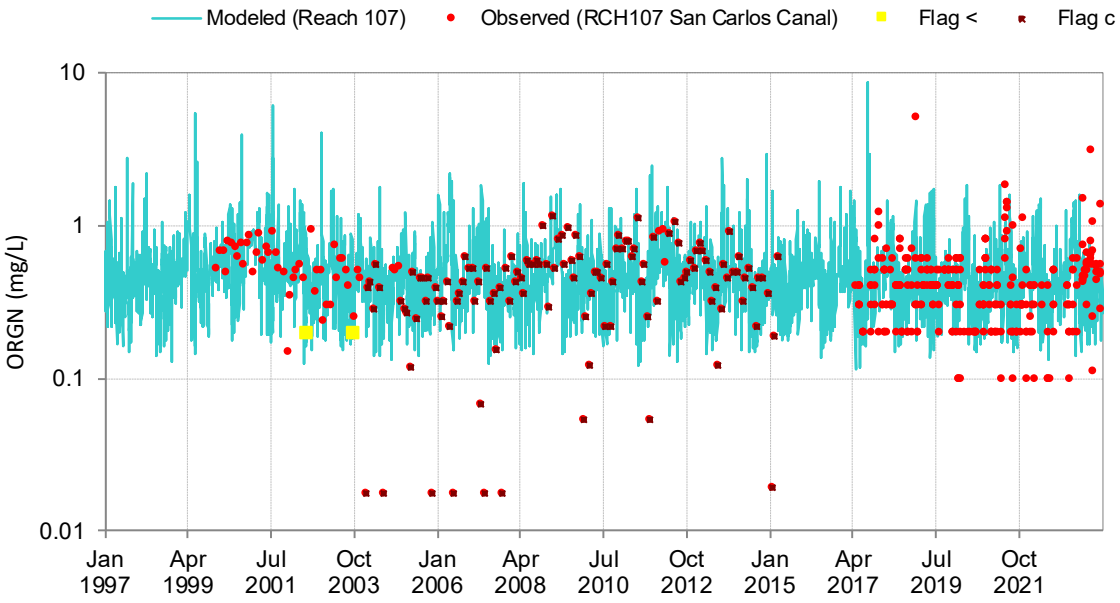


Figure A-33 Modeled Vs Observed ORGN (mg/L) at RCH107 San Carlos Canal

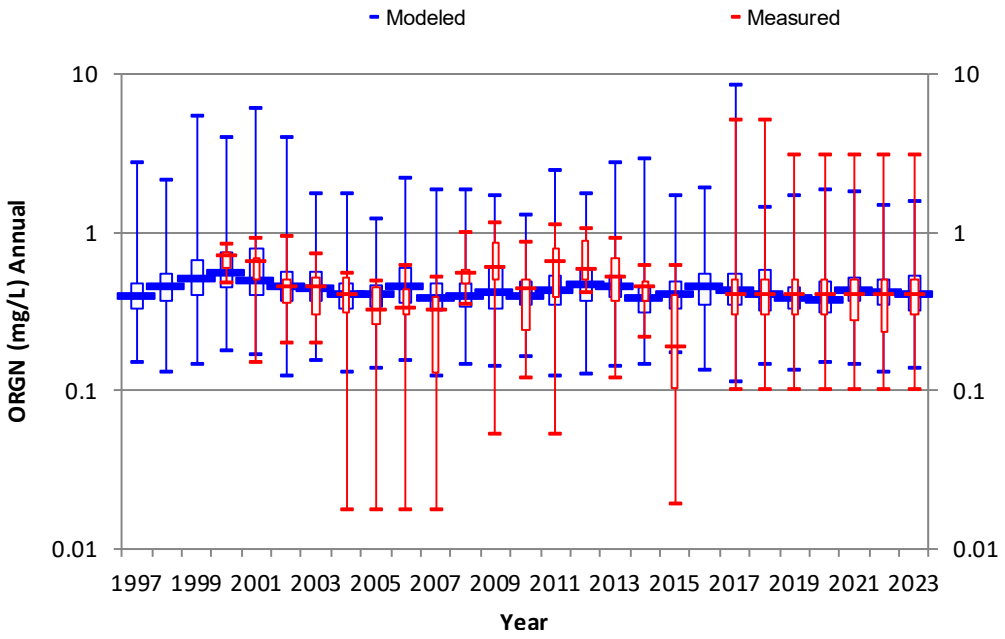


Figure A-34 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH107 San Carlos Canal

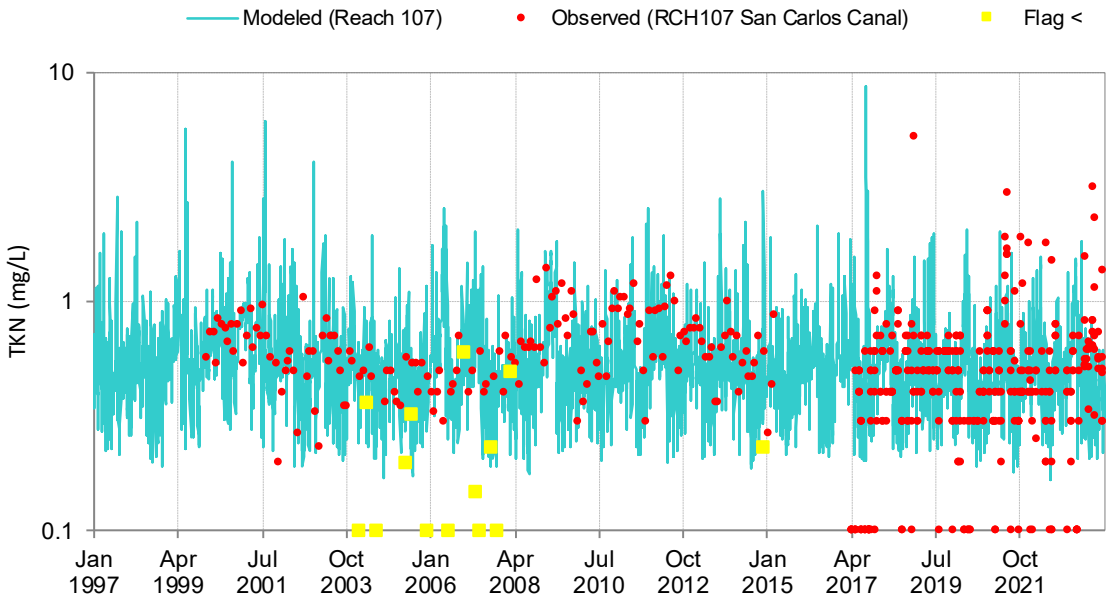


Figure A-35 Modeled Vs Observed TKN (mg/L) at RCH107 San Carlos Canal

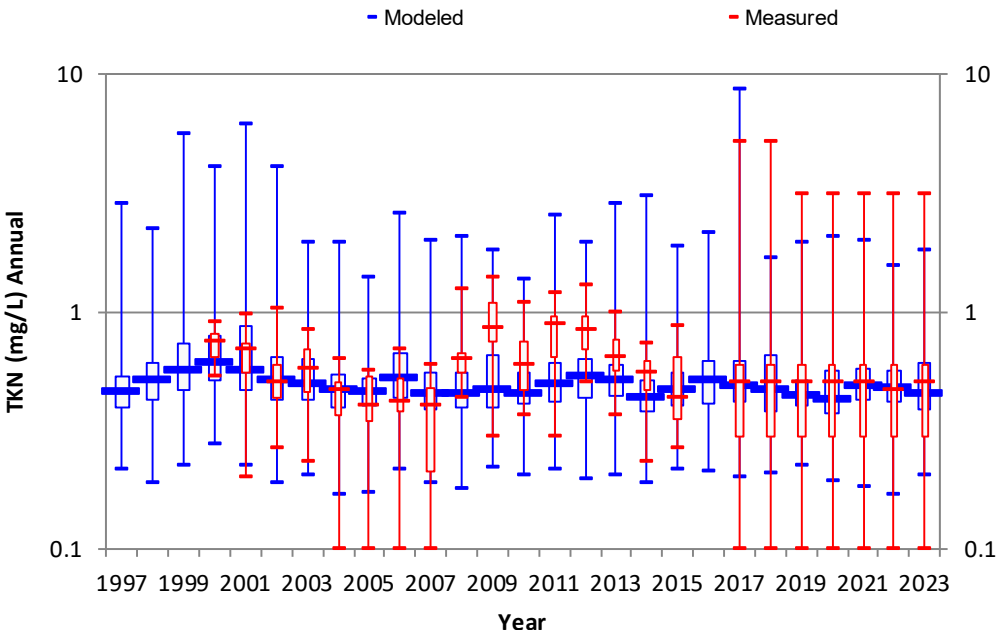


Figure A-36 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH107 San Carlos Canal

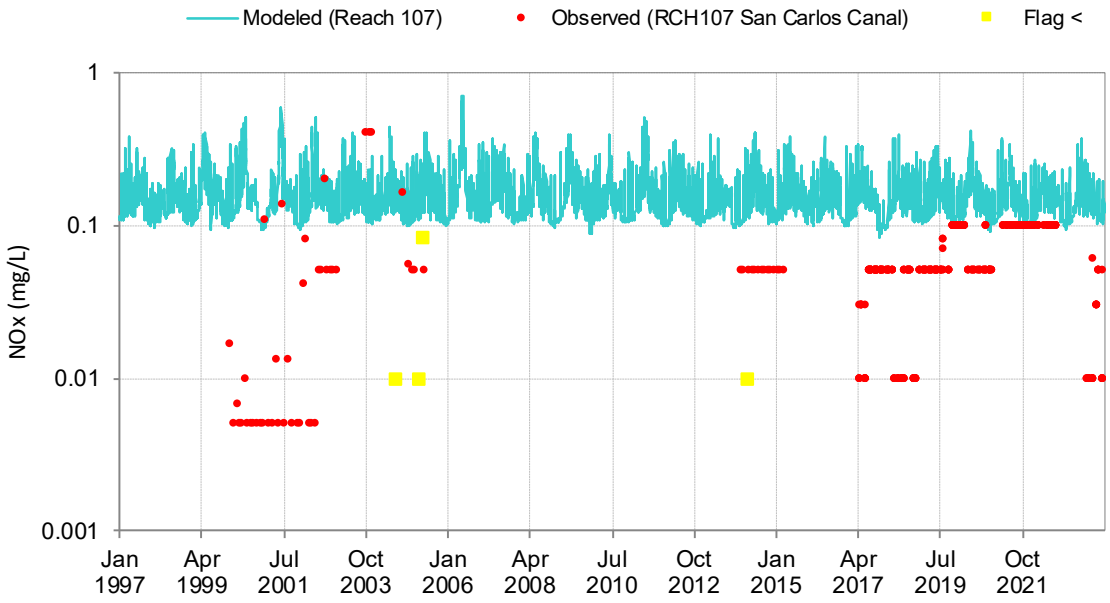


Figure A-37 Modeled Vs Observed NOx (mg/L) at RCH107 San Carlos Canal

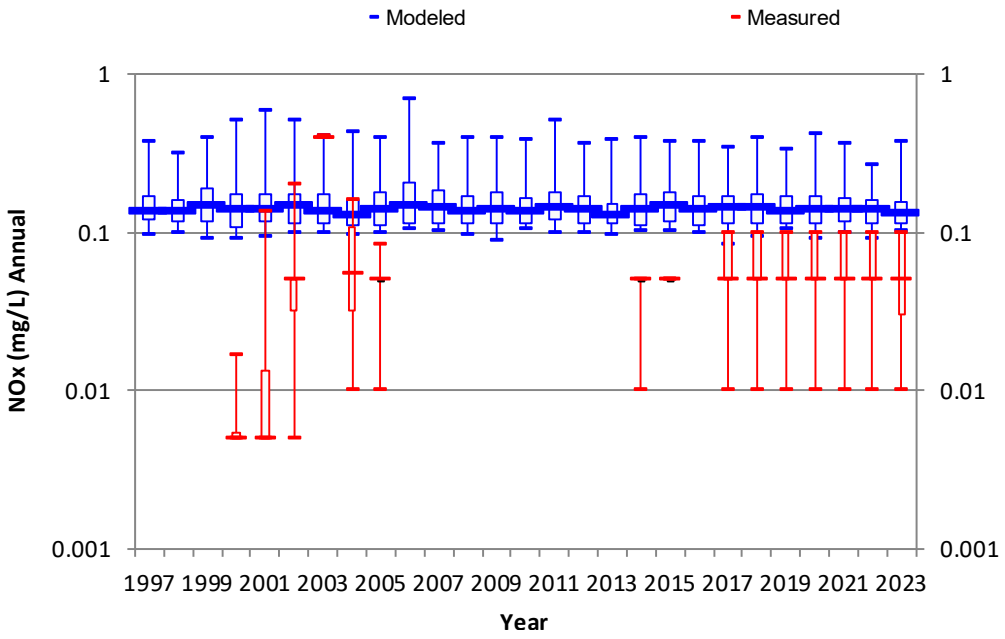


Figure A-38 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH107 San Carlos Canal

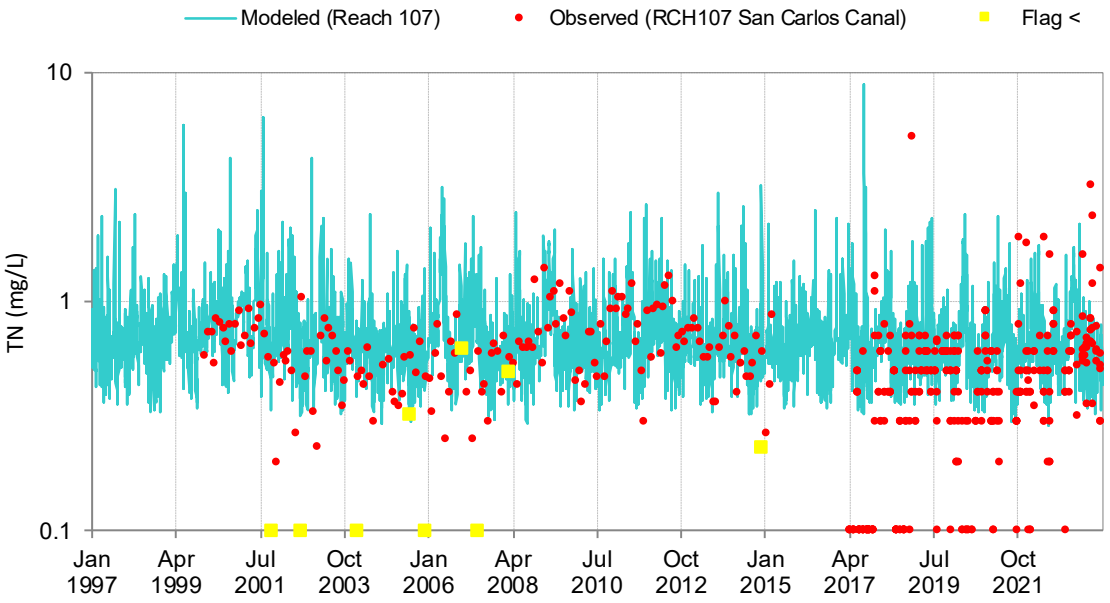


Figure A-39 Modeled Vs Observed TN (mg/L) at RCH107 San Carlos Canal

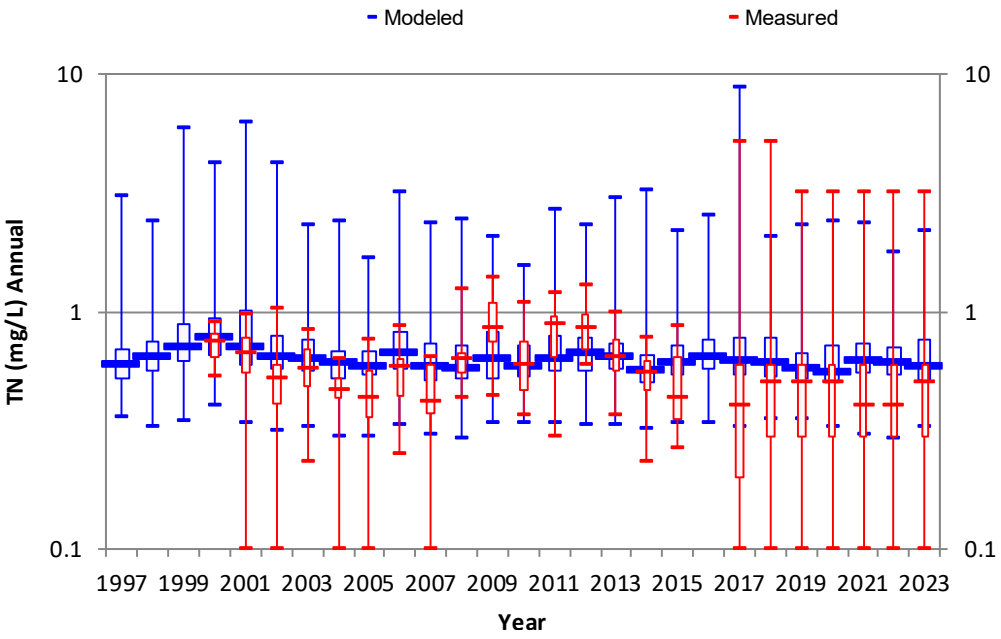


Figure A-40 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH107 San Carlos Canal

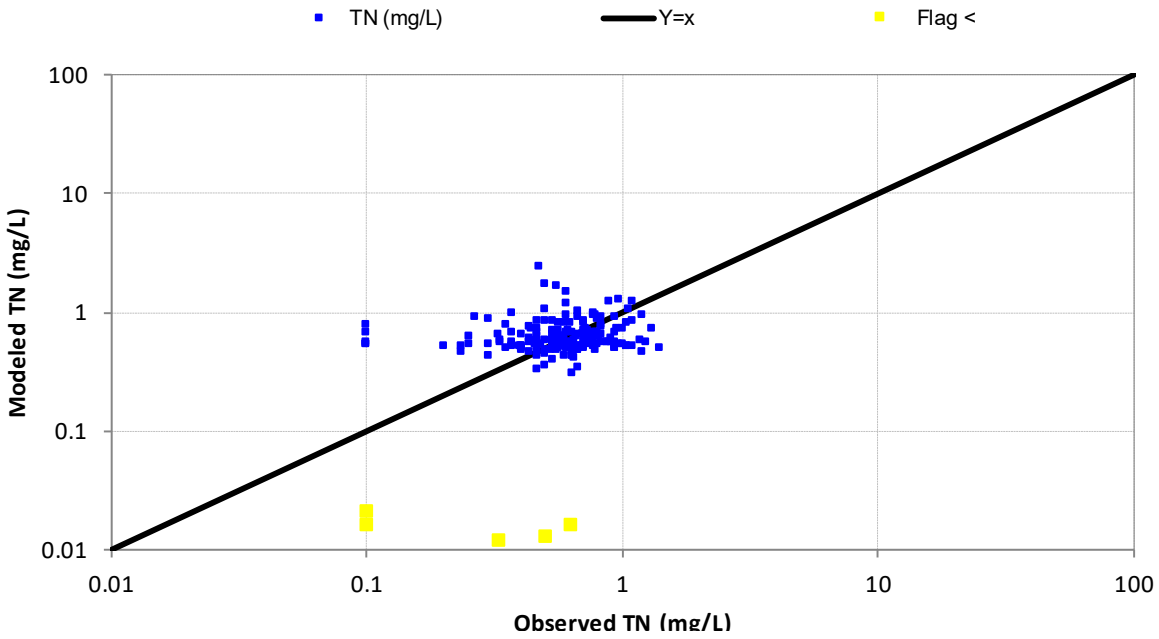


Figure A-41 Concentration at RCH107 San Carlos Canal

Table A- 13 Monthly TN Concentration Comparisons at RCH107 San Carlos Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.48	0.69	44.5	G
Feb	0.49	0.72	47.0	F
Mar	0.57	0.80	41.3	G
Apr	0.47	0.83	78.3	P
May	0.52	0.89	70.2	P
Jun	0.57	0.73	29.3	VG
Jul	0.41	0.60	46.8	F
Aug	0.46	0.61	30.2	G
Sep	0.51	0.67	31.4	G
Oct	0.57	0.60	4.8	VG
Nov	0.56	0.67	20.7	VG
Dec	0.70	0.66	-5.4	VG
Average*	0.53	0.71	34.5	G
Median**	0.52	0.68	32.2	G
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 14 Annual TN Concentration Comparisons at RCH107 San Carlos Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.66	N/A	N/A
1998	N/A	0.68	N/A	N/A
1999	N/A	0.82	N/A	N/A
2000	0.73	0.84	15.4	VG
2001	0.63	0.87	37.7	G
2002	0.50	0.75	49.5	F
2003	0.57	0.70	23.3	VG
2004	0.44	0.62	42.2	G
2005	0.44	0.63	44.7	G
2006	0.53	0.83	56.5	F
2007	0.43	0.67	54.9	F
2008	0.64	0.65	1.3	VG
2009	0.90	0.75	-17.1	VG
2010	0.64	0.65	1.3	VG
2011	0.81	0.73	-10.3	VG
2012	0.87	0.71	-18.1	VG
2013	0.66	0.70	7.5	VG
2014	0.54	0.65	20.9	VG
2015	0.52	0.66	26.9	VG
2016	N/A	0.70	N/A	N/A
2017	0.22	0.75	248.1	P
2018	0.47	0.70	48.9	F
2019	0.51	0.65	29.0	VG
2020	0.44	0.66	50.8	F
2021	0.48	0.68	43.7	G
2022	0.54	0.67	24.1	VG
2023	0.71	0.68	-2.9	VG
Average*	0.57	0.71	23.2	VG
Median**	0.54	0.68	27.3	VG
R^2	N/A	N/A	0.06	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 15 Daily TN Concentration Comparisons at RCH107 San Carlos Canal

Statistic	Results	Rating
Count (number)	525	N/A
Average Error (%)	109.6	P
Median Error (%)	24.7	VG
RMSE (mg/L)	0.48	N/A
R^2	0.00	N/A

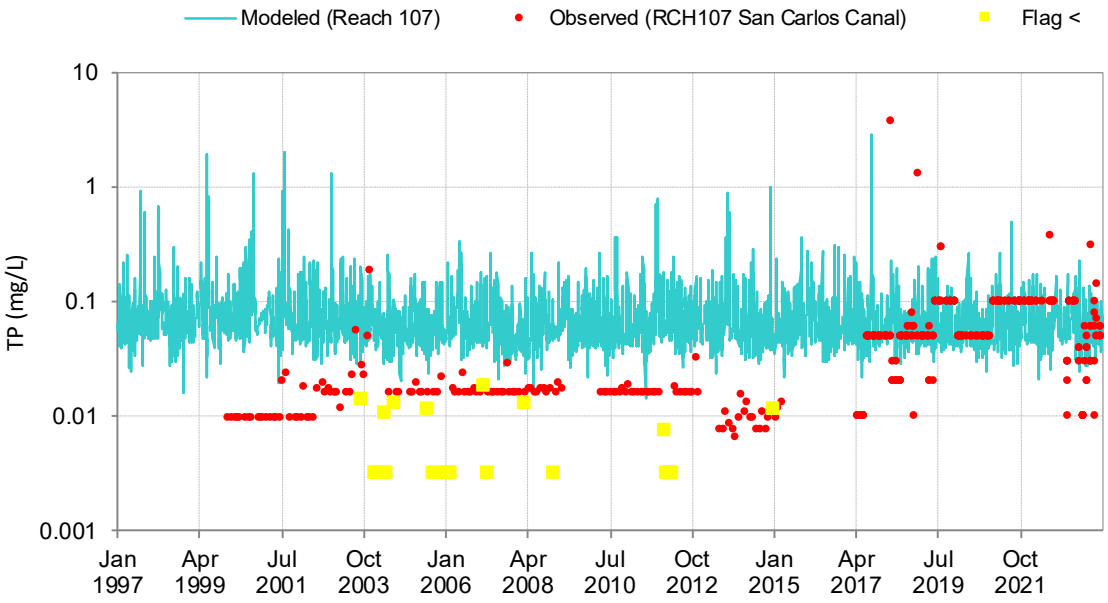


Figure A-42 Modeled Vs Observed TP (mg/L) at RCH107 San Carlos Canal

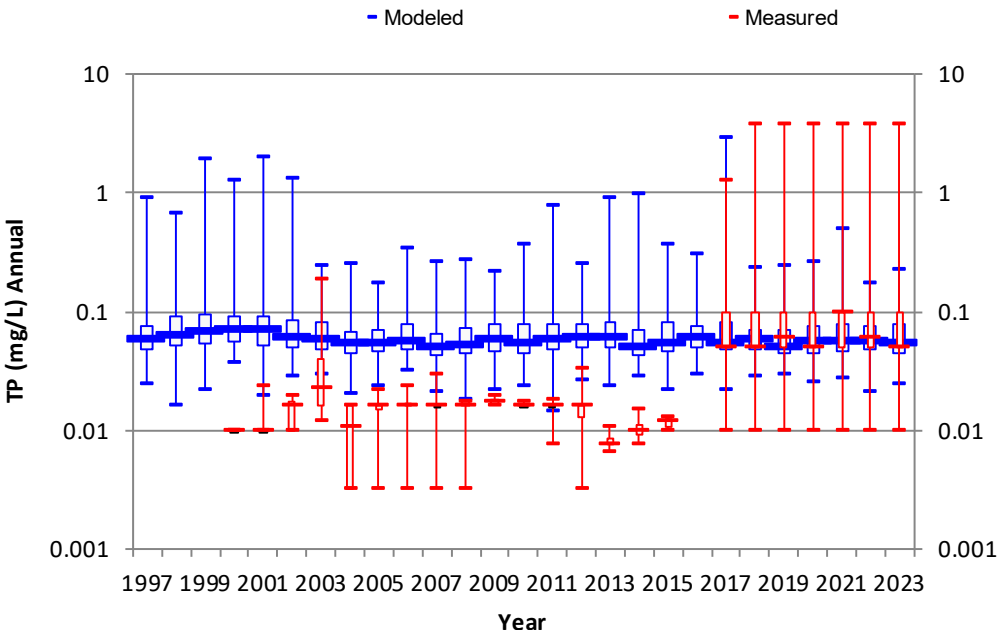


Figure A-43 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH107 San Carlos Canal

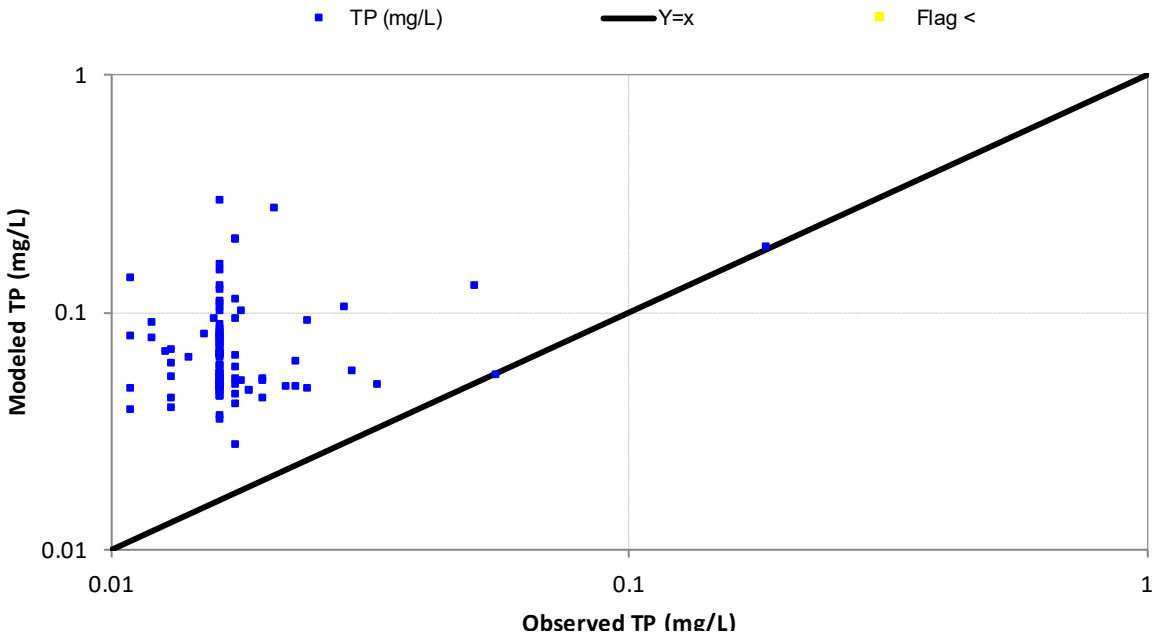


Figure A-44 Concentration at RCH107 San Carlos Canal

Table A- 16 Monthly TP Concentration Comparisons at RCH107 San Carlos Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.05	0.06	34.5	G
Feb	0.05	0.07	23.1	VG
Mar	0.15	0.07	-49.5	F
Apr	0.04	0.07	88.9	P
May	0.04	0.08	115.4	P
Jun	0.04	0.07	101.6	P
Jul	0.06	0.07	20.0	VG
Aug	0.06	0.07	19.5	VG
Sep	0.06	0.09	45.4	F
Oct	0.06	0.07	19.4	VG
Nov	0.06	0.07	17.7	VG
Dec	0.09	0.06	-27.1	VG
Average*	0.06	0.07	16.0	VG
Median**	0.06	0.07	28.2	VG
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 17 Annual TP Concentration Comparisons at RCH107 San Carlos Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.07	N/A	N/A
1998	N/A	0.08	N/A	N/A
1999	N/A	0.09	N/A	N/A
2000	0.01	0.09	778.4	P
2001	0.01	0.09	629.7	P
2002	0.01	0.08	428.3	P
2003	0.04	0.07	76.9	P
2004	0.01	0.06	677.8	P
2005	0.01	0.06	353.1	P
2006	0.01	0.07	408.2	P
2007	0.02	0.06	280.7	P
2008	0.01	0.06	325.5	P
2009	0.02	0.07	285.7	P
2010	0.02	0.07	323.7	P
2011	0.02	0.08	393.1	P
2012	0.01	0.07	390.2	P
2013	0.01	0.08	834.1	P
2014	0.01	0.06	556.3	P
2015	0.01	0.07	498.7	P
2016	N/A	0.07	N/A	N/A
2017	0.04	0.09	122.8	P
2018	0.13	0.07	-51.0	F
2019	0.09	0.06	-25.4	VG
2020	0.05	0.06	29.9	VG
2021	0.10	0.07	-32.5	G
2022	0.11	0.07	-39.6	G
2023	0.06	0.06	7.6	VG
Average*	0.04	0.07	101.1	P
Median**	0.02	0.07	348.5	P
R2	N/A	N/A	0.06	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 18 Daily TP Concentration Comparisons at RCH107 San Carlos Canal

Statistic	Results	Rating
Count (number)	513	N/A
Average Error (%)	205.0	P
Median Error (%)	27.7	VG
RMSE (mg/L)	0.18	N/A
R2	0.01	P

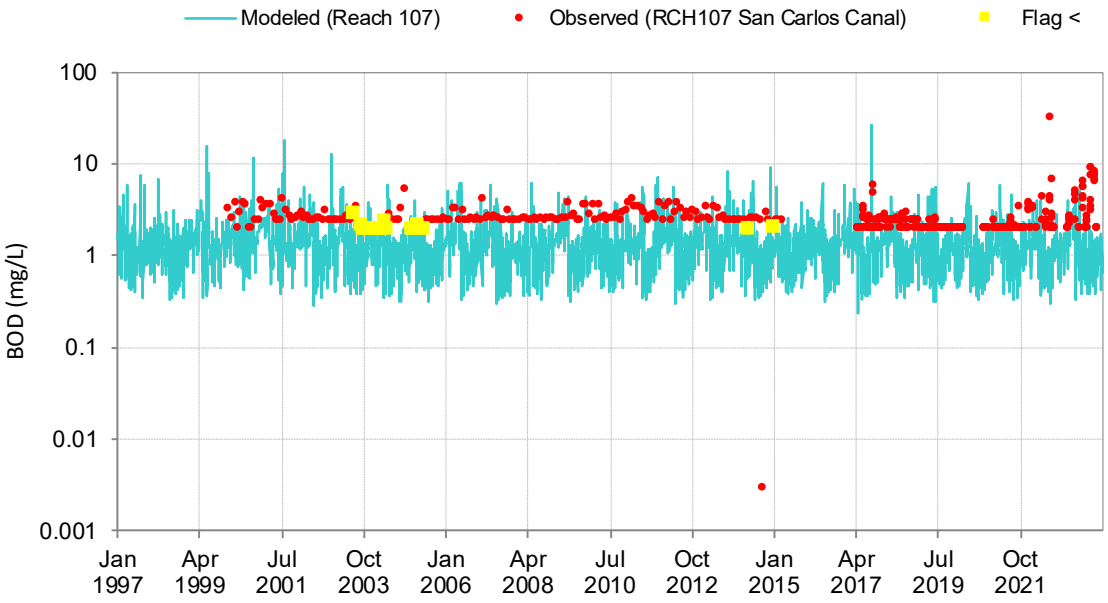


Figure A-45 Modeled Vs Observed BOD (mg/L) at RCH107 San Carlos Canal

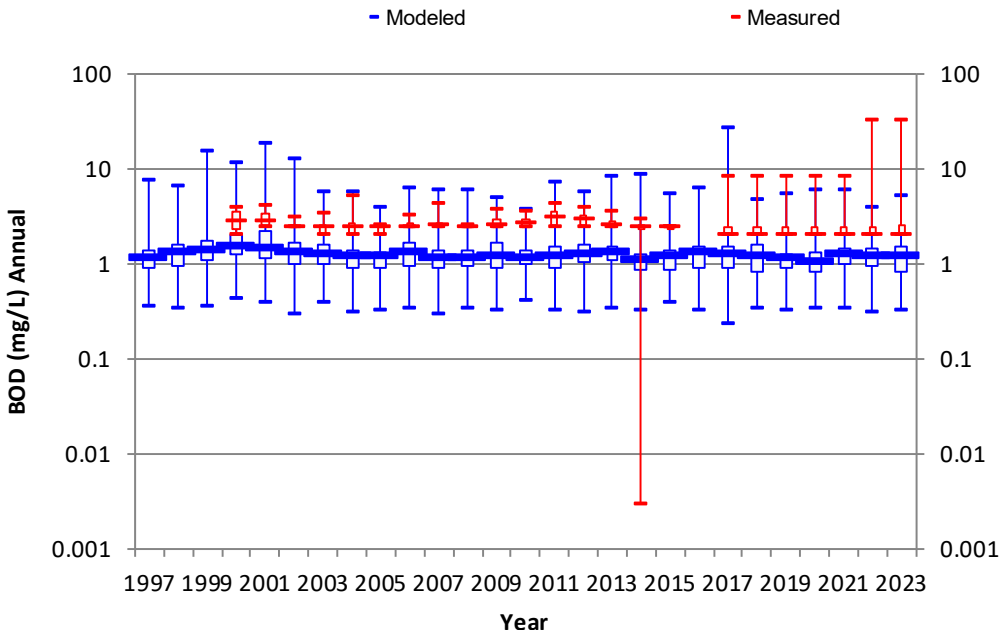


Figure A-46 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH107 San Carlos Canal

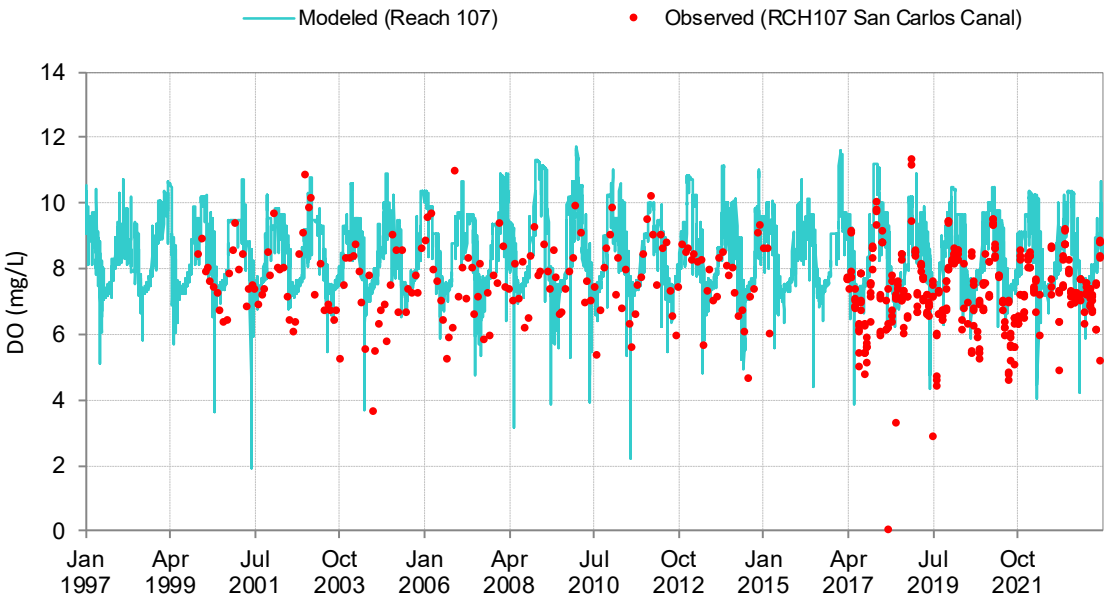


Figure A-47 Modeled Vs Observed DO (mg/L) at RCH107 San Carlos Canal

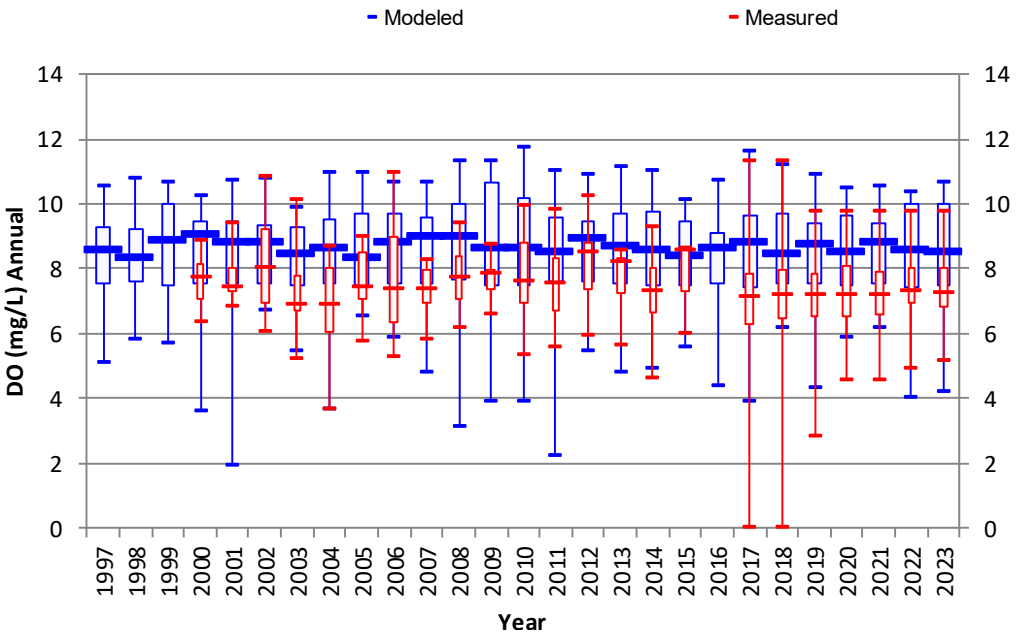


Figure A-48 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH107 San Carlos Canal

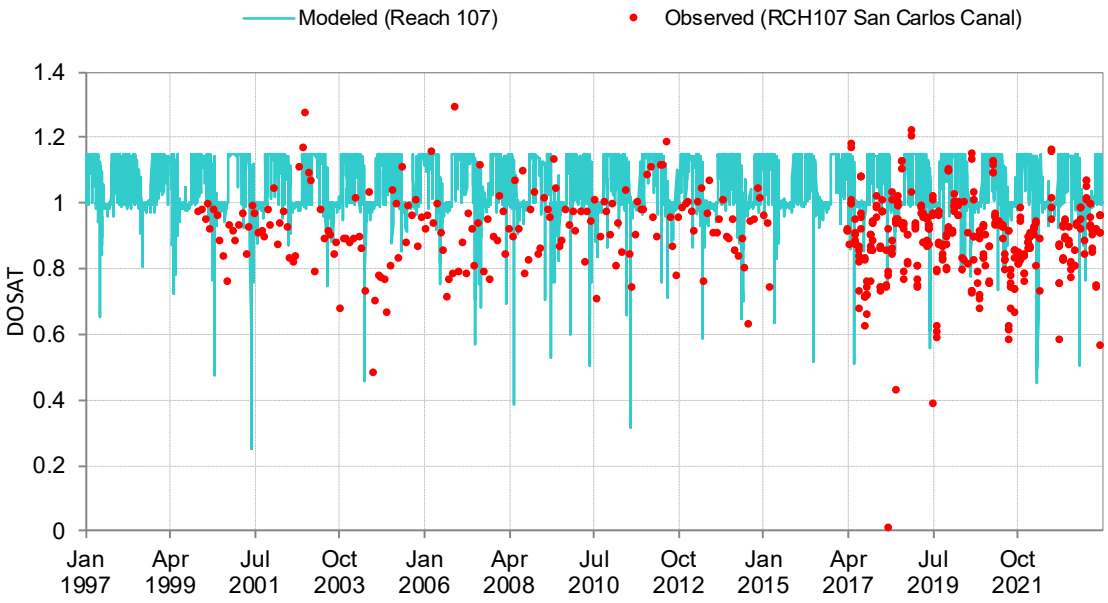


Figure A-49 Modeled Vs Observed DOSAT at RCH107 San Carlos Canal

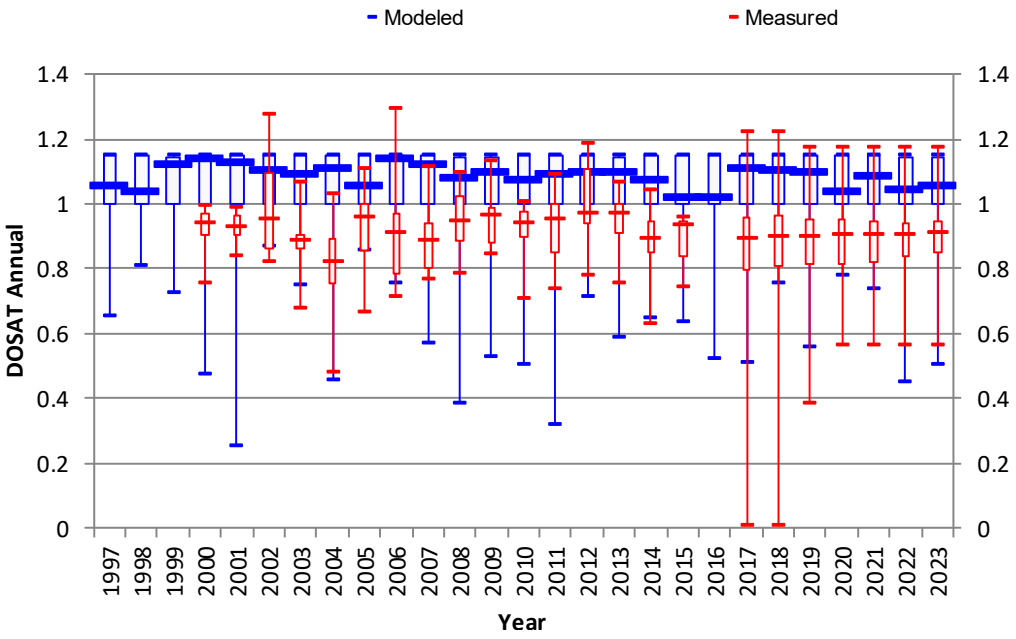


Figure A-50 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH107 San Carlos Canal

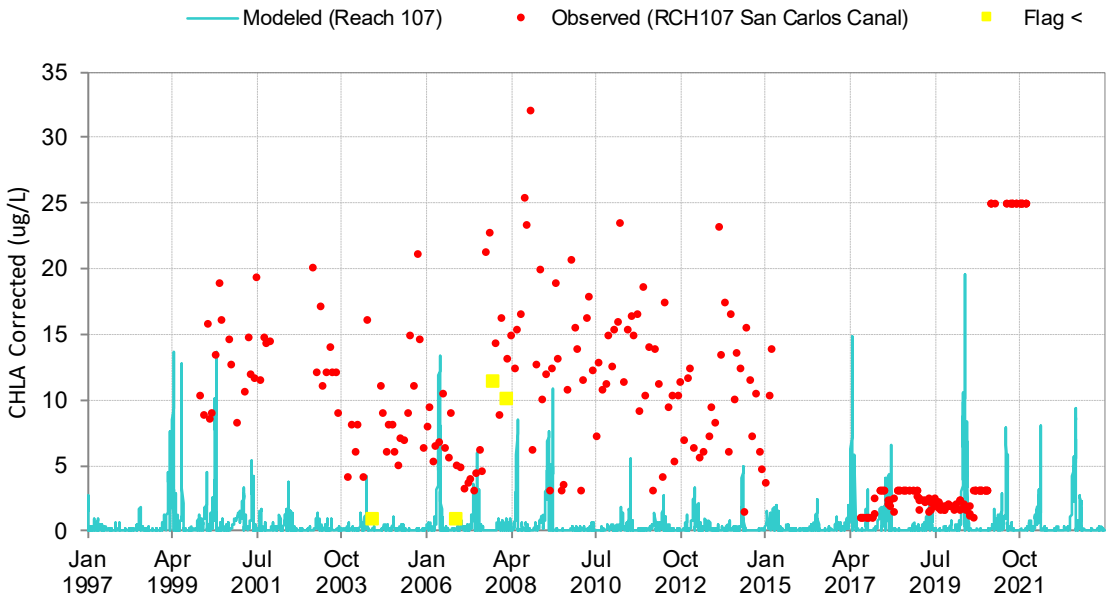


Figure A-51 Modeled Vs Observed CHLA Corrected (ug/L) at RCH107 San Carlos Canal

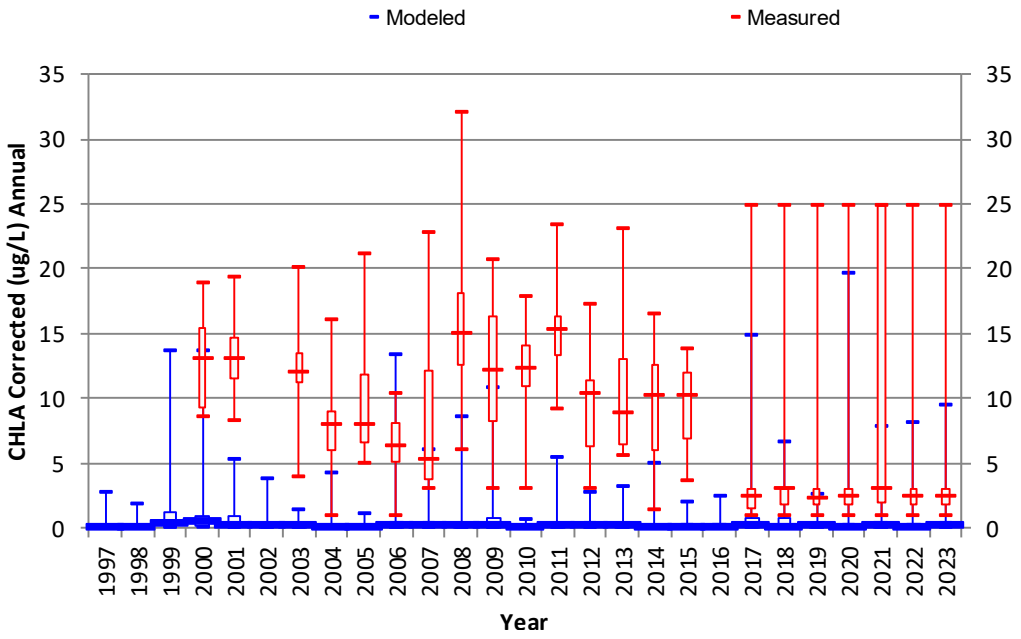


Figure A-52 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH107 San Carlos Canal

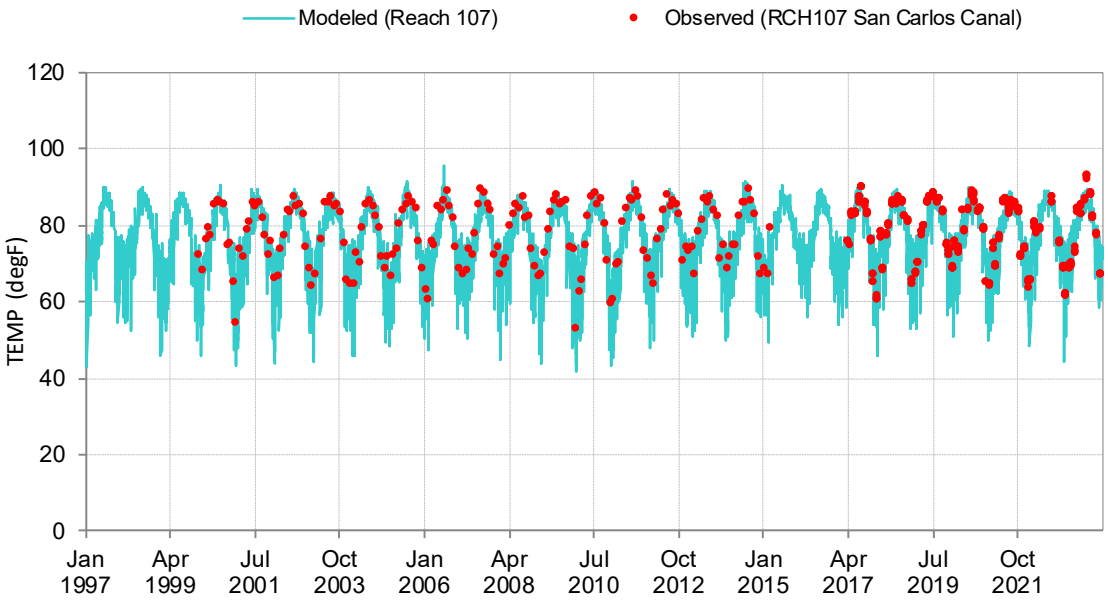


Figure A-53 Modeled Vs Observed TEMP (deg F) at RCH107 San Carlos Canal

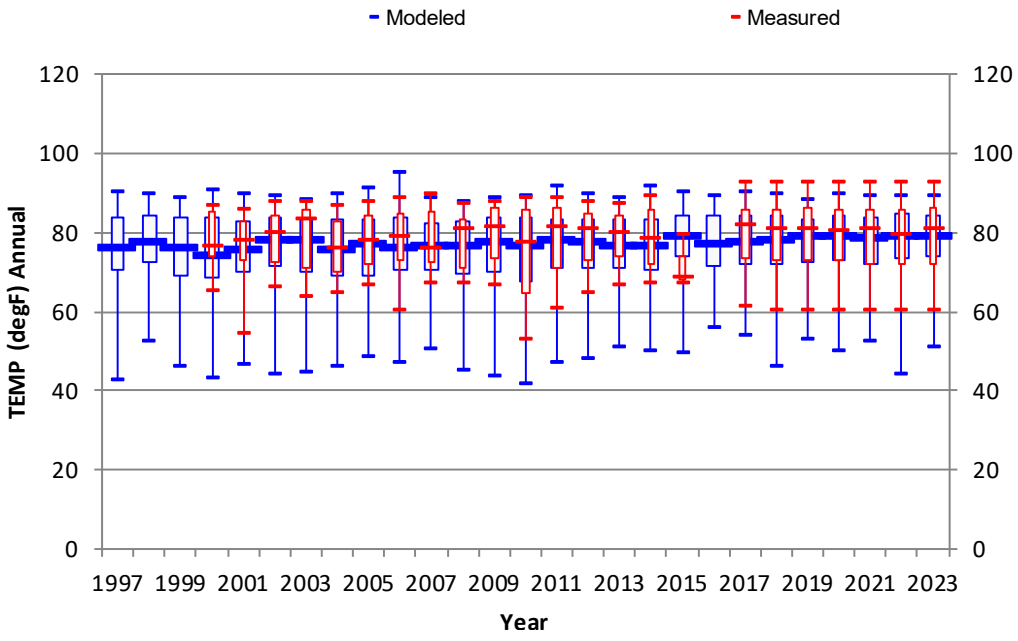


Figure A-54 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH107 San Carlos Canal

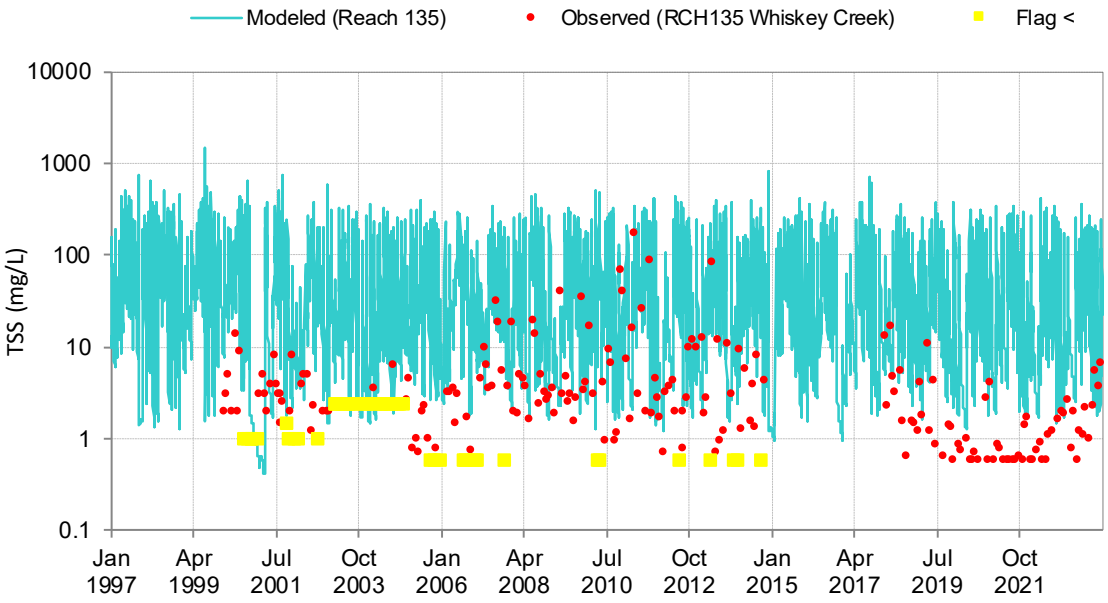


Figure A-55 Modeled Vs Observed TSS (mg/L) at RCH135 Whiskey Creek

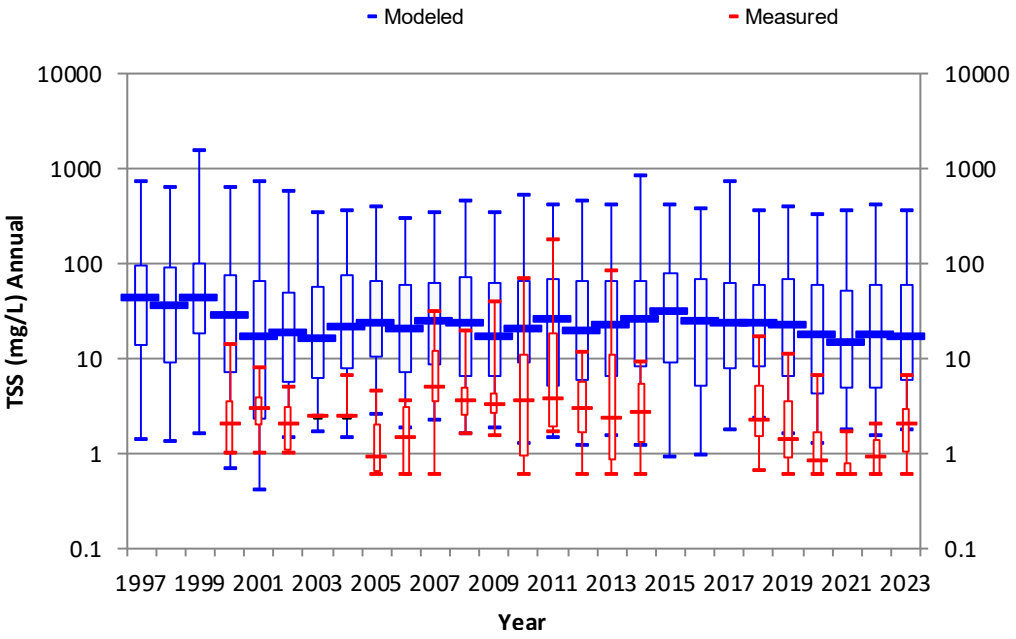


Figure A-56 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH135 Whiskey Creek

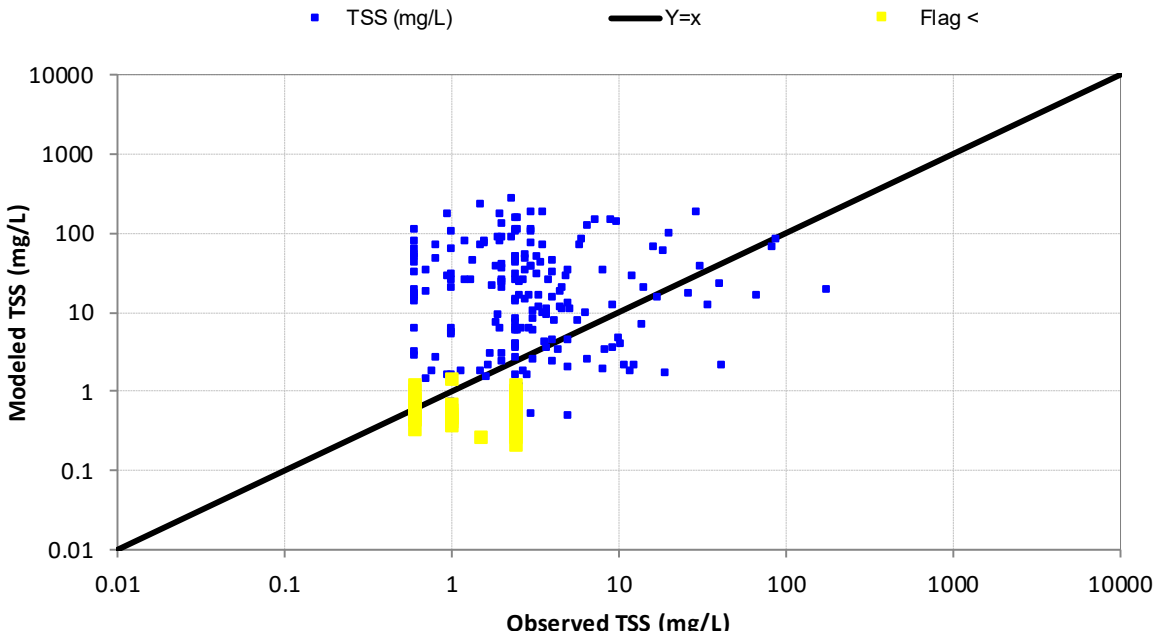


Figure A-57 Concentration at RCH135 Whiskey Creek

Table A- 19 Monthly TSS Concentration Comparisons at RCH135 Whiskey Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	4.01	27.24	579.5	P
Feb	3.05	28.41	832.6	P
Mar	6.23	31.45	404.7	P
Apr	10.48	42.80	308.5	P
May	6.75	59.54	782.6	P
Jun	5.41	98.54	1721.2	P
Jul	4.34	80.29	1750.5	P
Aug	5.82	83.12	1329.2	P
Sep	2.02	75.45	3637.5	P
Oct	4.26	30.47	615.5	P
Nov	6.44	27.75	331.2	P
Dec	4.60	29.36	538.5	P
Average*	5.28	51.20	869.3	P
Median**	5.00	37.12	641.8	P
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 20 Annual TSS Concentration Comparisons at RCH135 Whiskey Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	71.12	N/A	N/A
1998	N/A	69.35	N/A	N/A
1999	N/A	79.34	N/A	N/A
2000	3.29	60.21	1729.1	P
2001	3.35	51.90	1449.2	P
2002	2.27	41.38	1720.7	P
2003	1.42	46.81	3204.2	P
2004	1.83	51.32	2699.5	P
2005	1.39	50.63	3538.3	P
2006	1.65	43.35	2534.4	P
2007	8.96	44.43	396.0	P
2008	5.56	50.94	816.8	P
2009	8.72	44.90	415.1	P
2010	12.69	52.21	311.5	P
2011	27.45	54.54	98.6	P
2012	4.28	49.48	1055.1	P
2013	10.76	49.00	355.5	P
2014	3.64	50.18	1280.4	P
2015	N/A	53.43	N/A	N/A
2016	N/A	50.68	N/A	N/A
2017	N/A	49.81	N/A	N/A
2018	4.78	43.82	816.2	P
2019	2.74	47.31	1626.0	P
2020	1.26	44.91	3464.1	P
2021	0.80	40.72	4990.3	P
2022	1.08	48.40	4392.9	P
2023	2.49	44.01	1669.2	P
Average*	5.26	51.27	875.2	P
Median**	3.29	49.81	1413.2	P
R^2	N/A	N/A	0.12	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 21 Daily TSS Concentration Comparisons at RCH135 Whiskey Creek

Statistic	Results	Rating
Count (number)	245	N/A
Average Error (%)	2995.8	P
Median Error (%)	771.5	P
RMSE (mg/L)	78.38	N/A
R^2	0.00	P

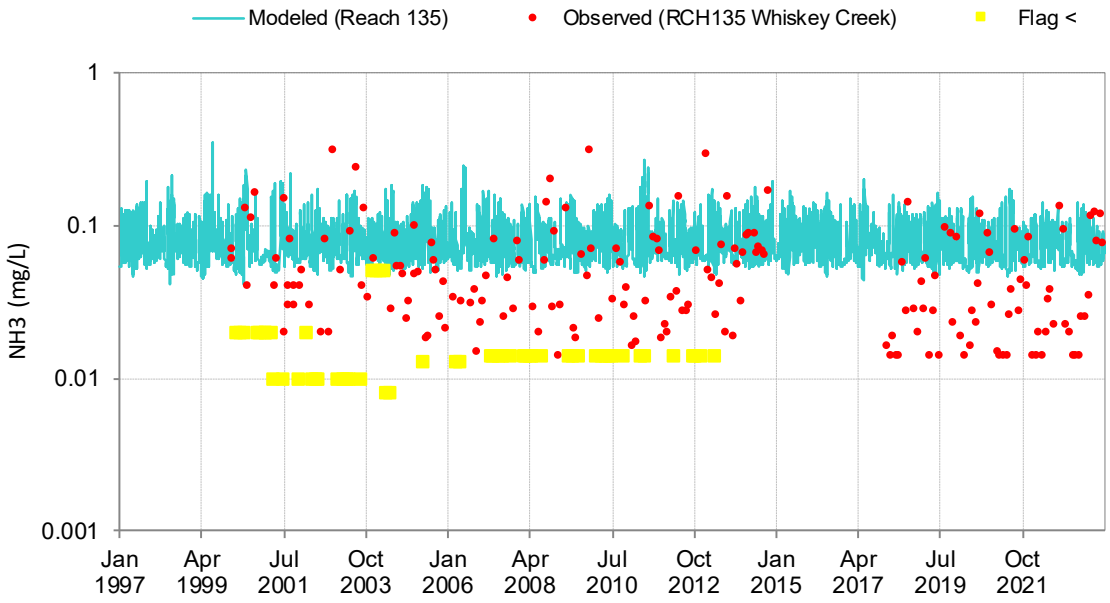


Figure A-58 Modeled Vs Observed NH3 (mg/L) at RCH135 Whiskey Creek

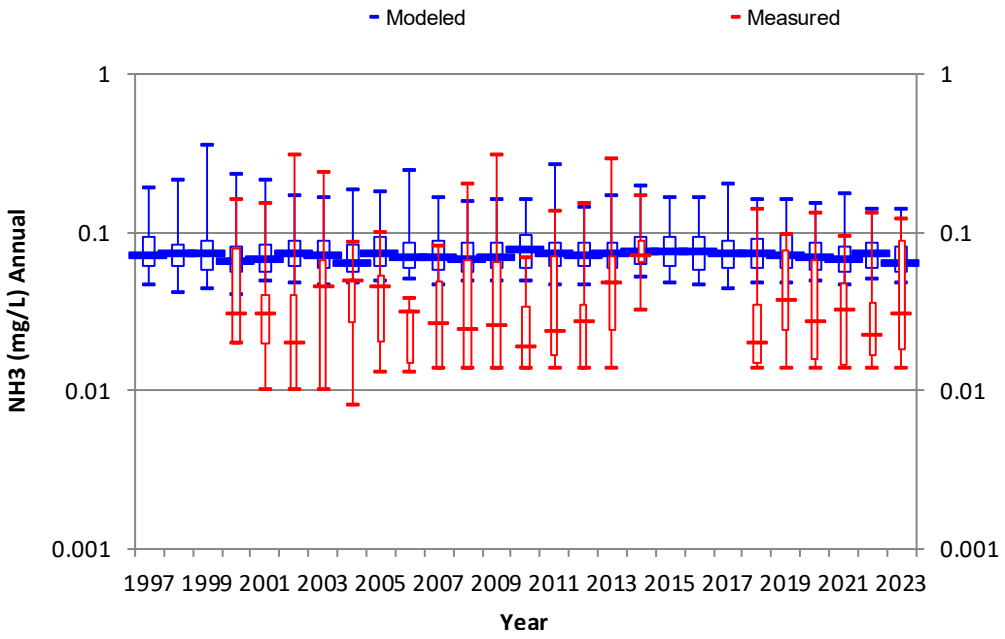


Figure A-59 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH135 Whiskey Creek

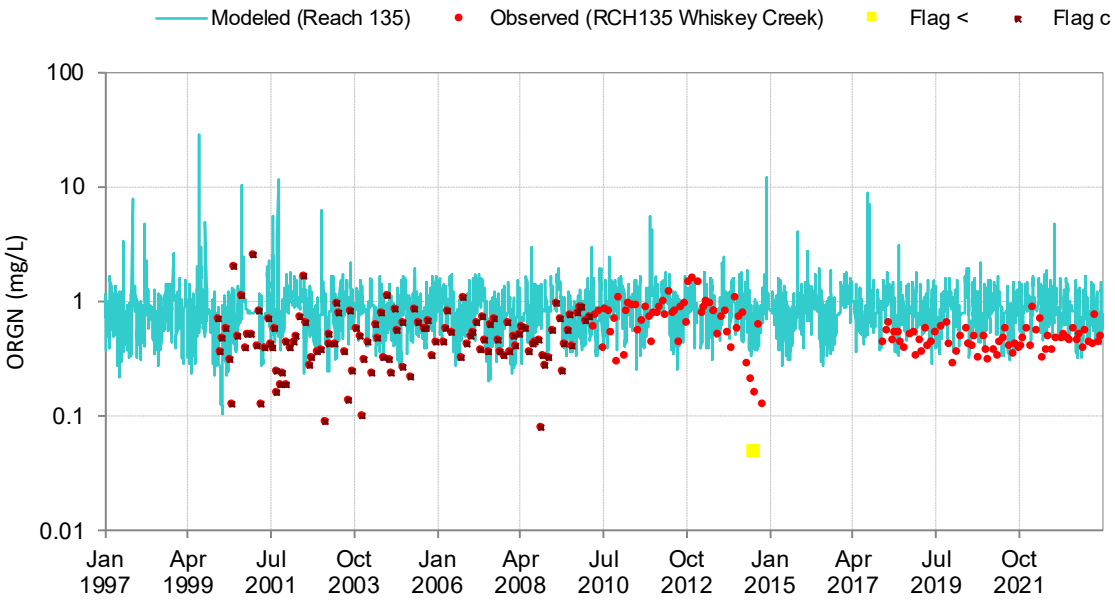


Figure A-60 Modeled Vs Observed ORGN (mg/L) at RCH135 Whiskey Creek

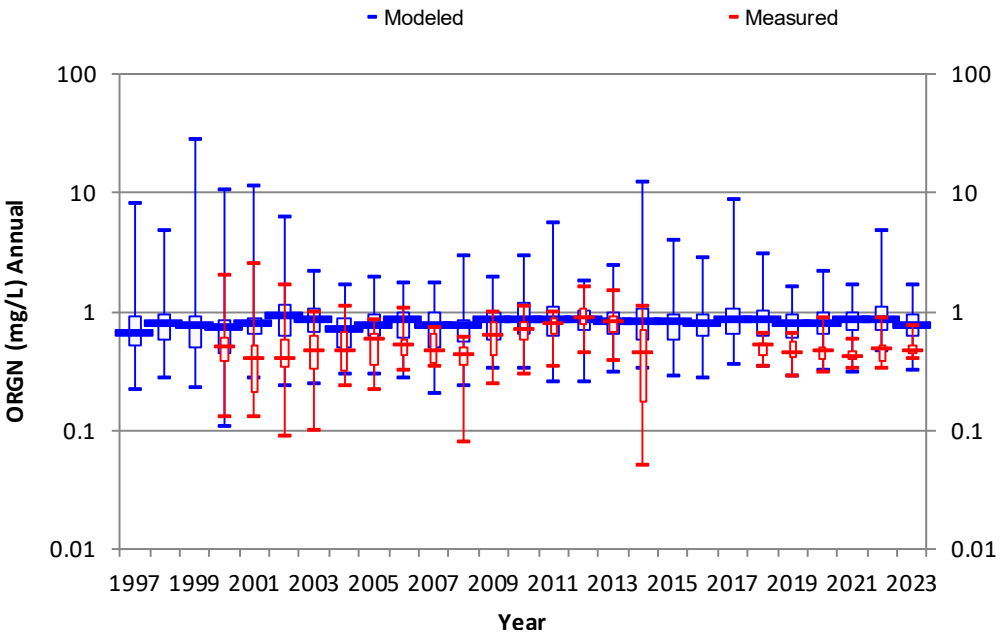


Figure A-61 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH135 Whiskey Creek

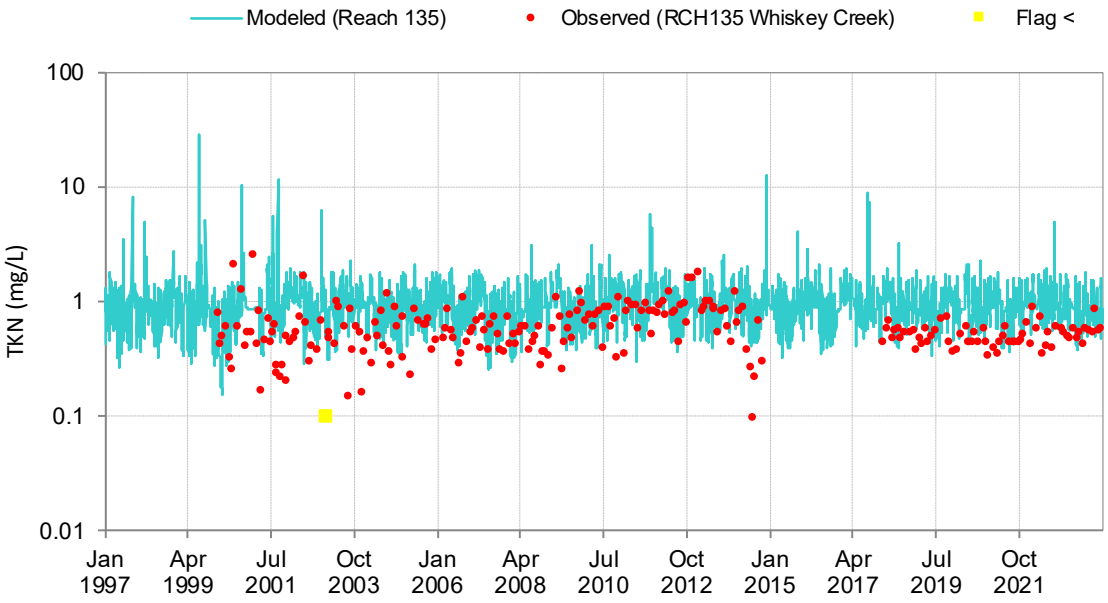


Figure A-62 Modeled Vs Observed TKN (mg/L) at RCH135 Whiskey Creek

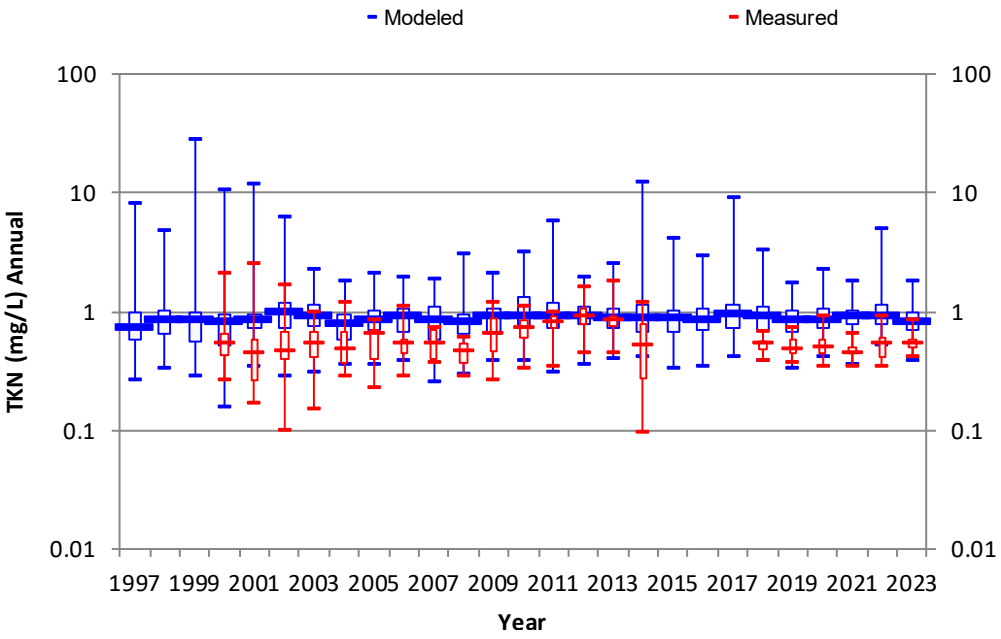


Figure A-63 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH135 Whiskey Creek

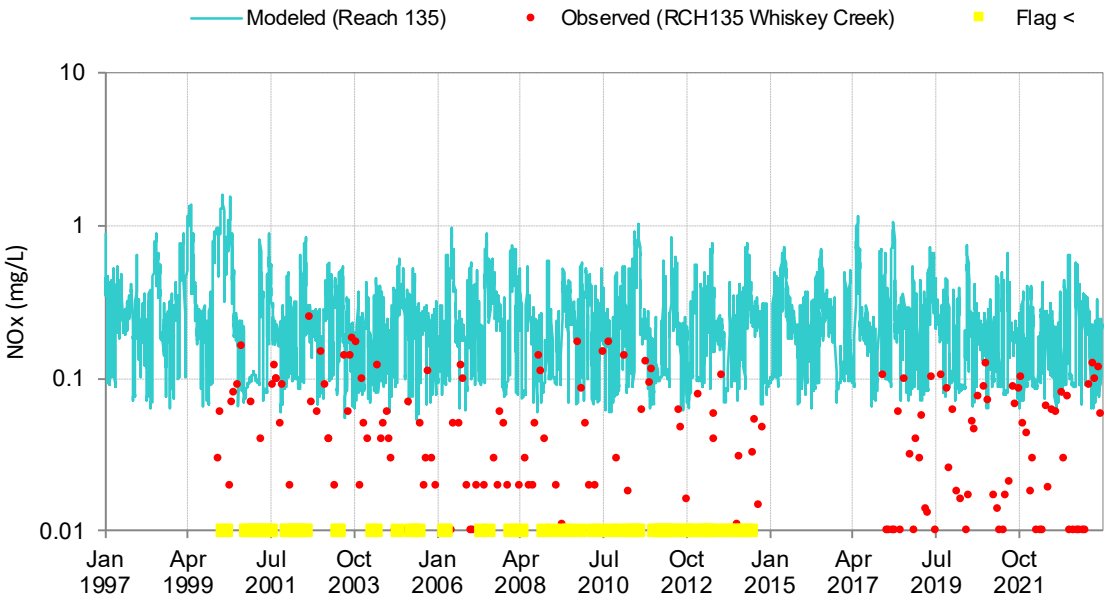


Figure A-64 Modeled Vs Observed NOx (mg/L) at RCH135 Whiskey Creek

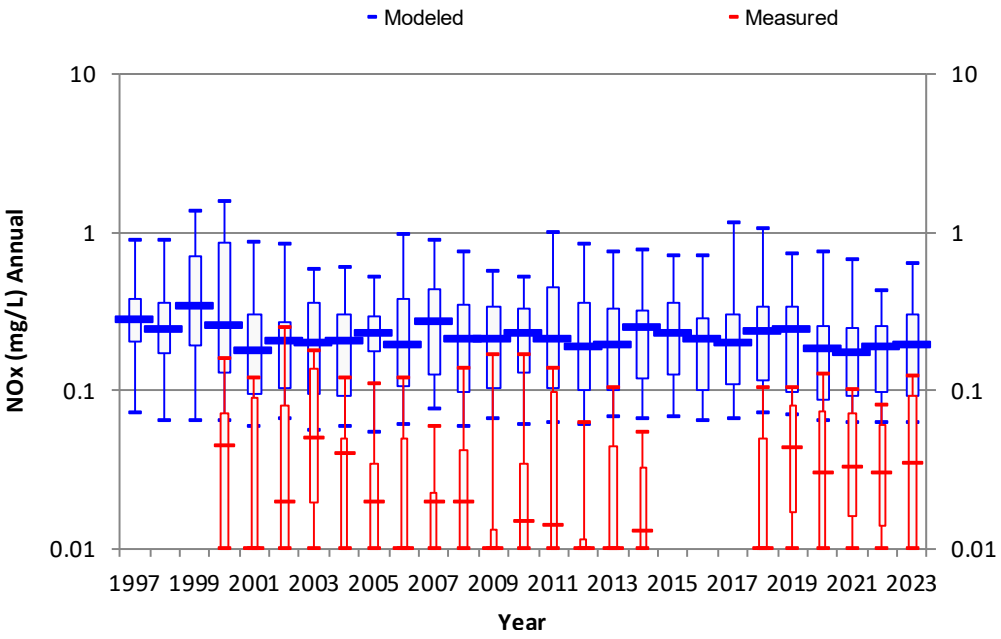


Figure A-65 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH135 Whiskey Creek

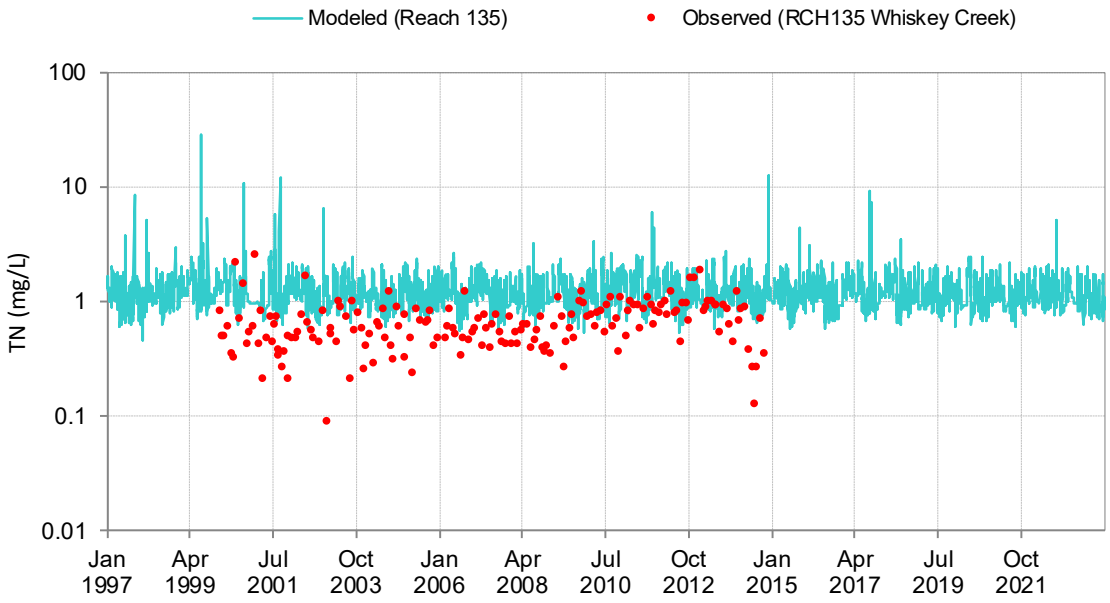


Figure A-66 Modeled Vs Observed TN (mg/L) at RCH135 Whiskey Creek

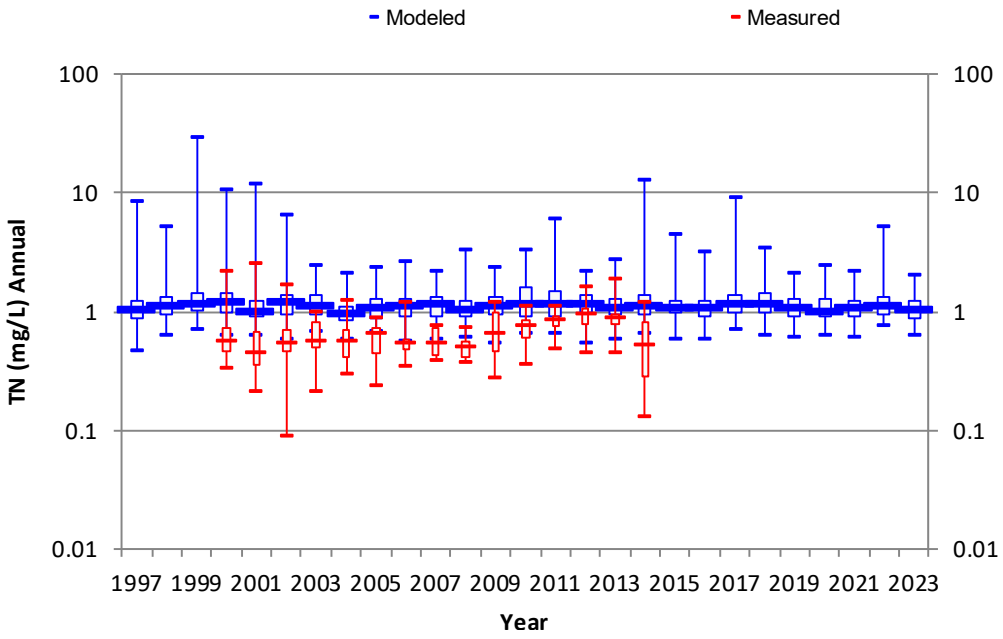


Figure A-67 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH135 Whiskey Creek

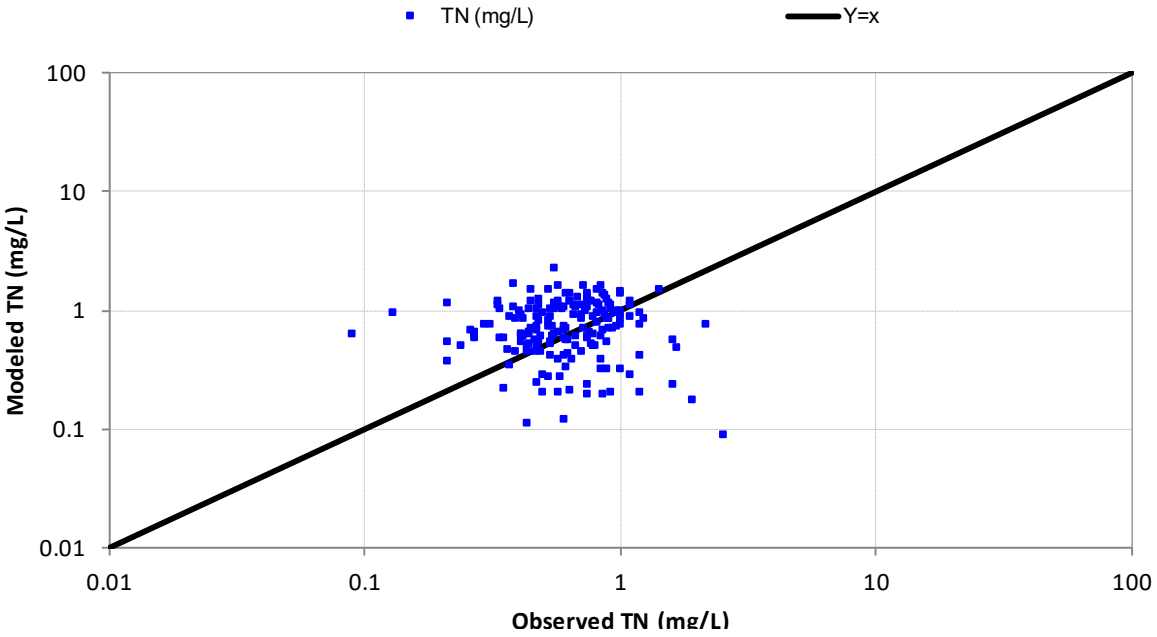


Figure A-68 Concentration at RCH135 Whiskey Creek

Table A- 22 Monthly TN Concentration Comparisons at RCH135 Whiskey Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.85	1.21	42.8	G
Feb	0.62	1.21	95.4	P
Mar	0.68	1.26	86.1	P
Apr	0.74	1.20	62.5	P
May	0.71	1.35	91.0	P
Jun	0.61	1.23	103.2	P
Jul	0.66	1.10	67.1	P
Aug	0.72	1.03	44.2	G
Sep	0.74	1.17	58.5	F
Oct	0.56	1.08	94.4	P
Nov	0.69	1.15	65.6	P
Dec	0.63	1.17	85.3	P
Average*	0.68	1.18	73.0	P
Median**	0.69	1.18	72.7	P
R^2	N/A	N/A	0.04	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 23 Annual TN Concentration Comparisons at RCH135 Whiskey Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.11	N/A	N/A
1998	N/A	1.18	N/A	N/A
1999	N/A	1.36	N/A	N/A
2000	0.74	1.31	75.5	P
2001	0.61	1.19	96.0	P
2002	0.63	1.21	91.5	P
2003	0.63	1.19	89.6	P
2004	0.60	1.01	67.1	P
2005	0.58	1.13	95.1	P
2006	0.60	1.19	97.7	P
2007	0.57	1.15	104.3	P
2008	0.51	1.09	114.4	P
2009	0.71	1.15	63.1	P
2010	0.75	1.26	67.1	P
2011	0.82	1.29	57.0	F
2012	0.98	1.20	22.8	VG
2013	0.90	1.16	28.9	VG
2014	0.57	1.24	117.3	P
2015	N/A	1.14	N/A	N/A
2016	N/A	1.14	N/A	N/A
2017	N/A	1.28	N/A	N/A
2018	N/A	1.22	N/A	N/A
2019	N/A	1.14	N/A	N/A
2020	N/A	1.14	N/A	N/A
2021	N/A	1.11	N/A	N/A
2022	N/A	1.19	N/A	N/A
2023	N/A	1.10	N/A	N/A
Average*	0.68	1.18	73.6	P
Median**	0.63	1.18	87.5	P
R^2	N/A	N/A	0.16	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 24 Daily TN Concentration Comparisons at RCH135 Whiskey Creek

Statistic	Results	Rating
Count (number)	178	N/A
Average Error (%)	114.6	P
Median Error (%)	87.9	P
RMSE (mg/L)	0.70	N/A
R^2	0.00	P

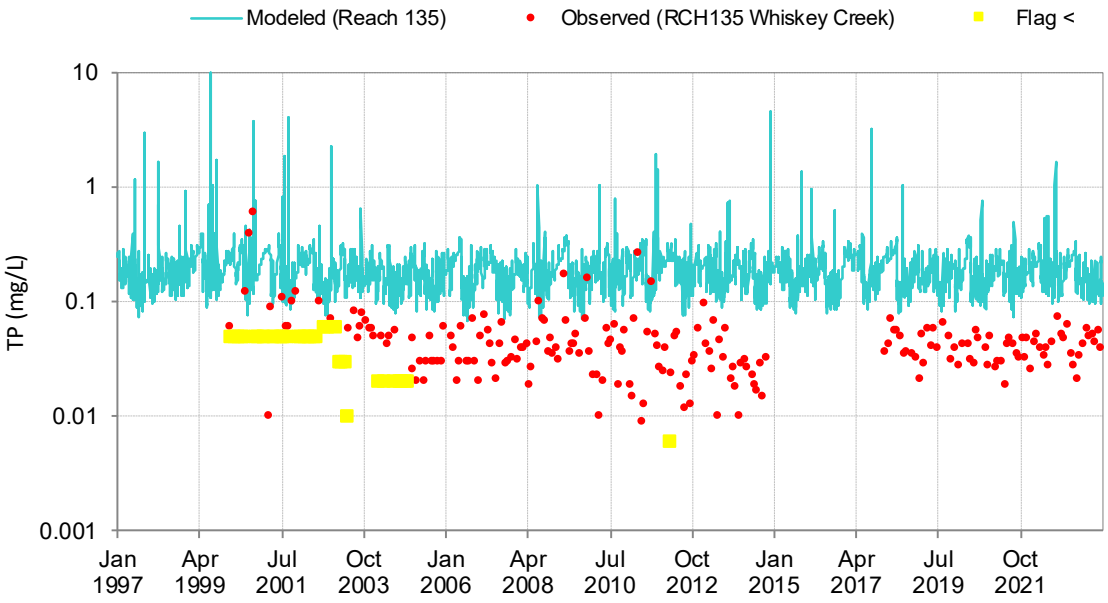


Figure A-69 Modeled Vs Observed TP (mg/L) at RCH135 Whiskey Creek

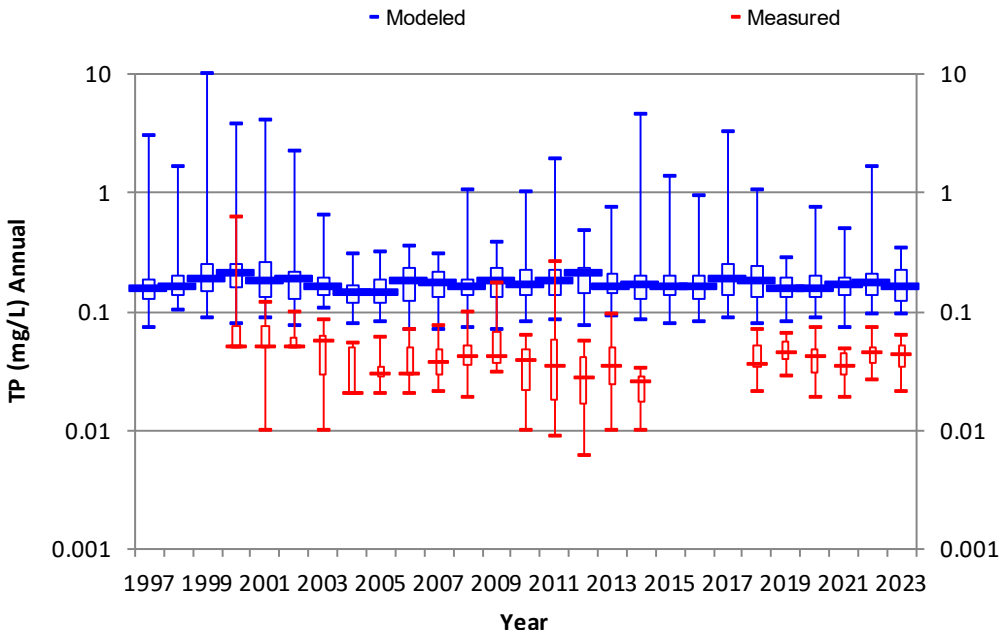


Figure A-70 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH135 Whiskey Creek

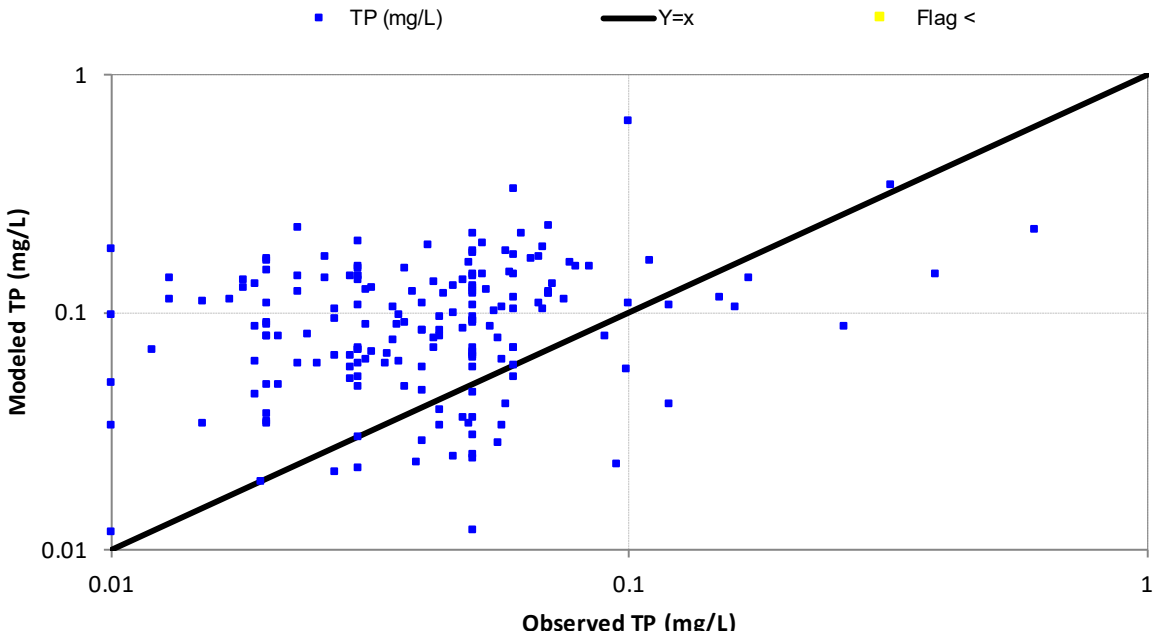


Figure A-71 Concentration at RCH135 Whiskey Creek

Table A- 25 Monthly TP Concentration Comparisons at RCH135 Whiskey Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.04	0.21	457.2	P
Feb	0.03	0.20	522.8	P
Mar	0.05	0.21	361.8	P
Apr	0.04	0.20	402.3	P
May	0.04	0.21	472.5	P
Jun	0.04	0.17	359.7	P
Jul	0.05	0.16	212.5	P
Aug	0.06	0.15	130.5	P
Sep	0.08	0.18	139.3	P
Oct	0.04	0.15	263.8	P
Nov	0.05	0.18	281.8	P
Dec	0.04	0.19	395.0	P
Average*	0.05	0.19	303.8	P
Median**	0.04	0.19	348.5	P
R^2	N/A	N/A	0.17	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.
** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 26 Annual TP Concentration Comparisons at RCH135 Whiskey Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.17	N/A	N/A
1998	N/A	0.18	N/A	N/A
1999	N/A	0.24	N/A	N/A
2000	0.12	0.23	96.9	P
2001	0.05	0.22	318.0	P
2002	0.04	0.19	402.9	P
2003	0.05	0.18	277.6	P
2004	0.03	0.15	459.6	P
2005	0.03	0.16	369.0	P
2006	0.04	0.18	368.2	P
2007	0.04	0.17	319.2	P
2008	0.05	0.17	251.3	P
2009	0.07	0.19	191.1	P
2010	0.04	0.19	410.5	P
2011	0.06	0.20	228.5	P
2012	0.03	0.19	555.0	P
2013	0.04	0.18	353.6	P
2014	0.02	0.19	699.3	P
2015	N/A	0.17	N/A	N/A
2016	N/A	0.18	N/A	N/A
2017	N/A	0.21	N/A	N/A
2018	0.04	0.19	355.8	P
2019	0.05	0.17	256.5	P
2020	0.04	0.18	346.8	P
2021	0.04	0.17	373.1	P
2022	0.04	0.19	336.6	P
2023	0.04	0.18	304.4	P
Average*	0.05	0.19	311.5	P
Median**	0.04	0.18	338.1	P
R^2	N/A	N/A	0.42	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 27 Daily TP Concentration Comparisons at RCH135 Whiskey Creek

Statistic	Results	Rating
Count (number)	245	N/A
Average Error (%)	431.9	P
Median Error (%)	327.8	P
RMSE (mg/L)	0.15	N/A
R^2	0.01	P

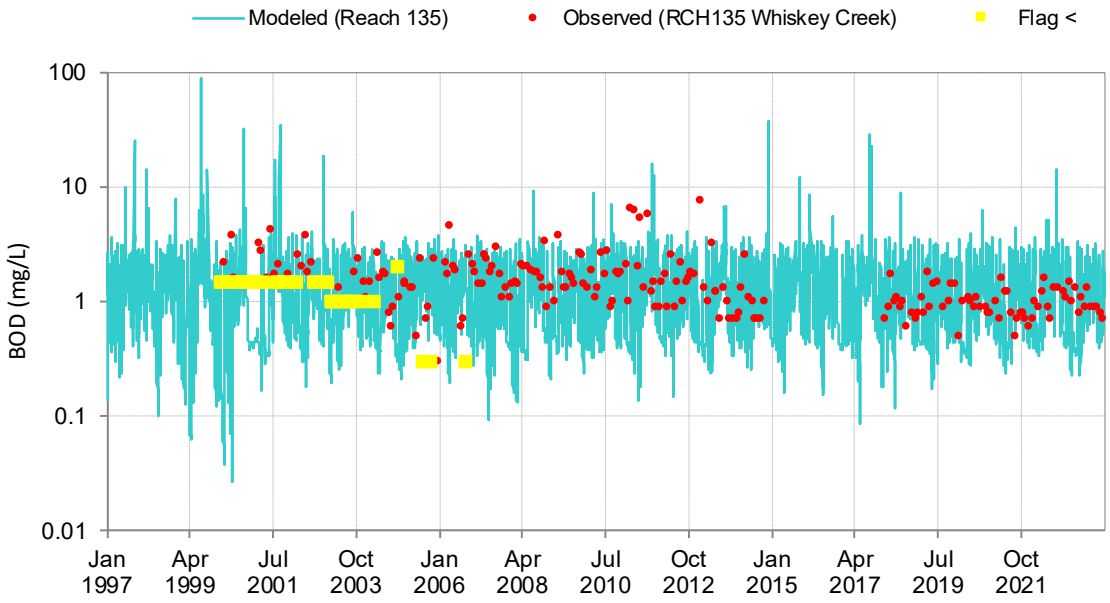


Figure A-72 Modeled Vs Observed BOD (mg/L) at RCH135 Whiskey Creek

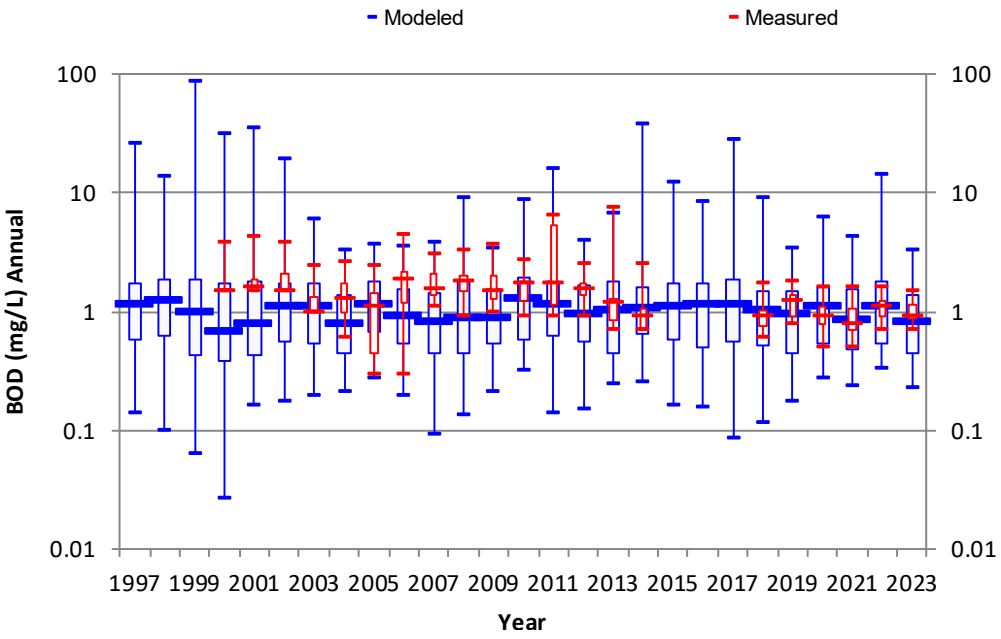


Figure A-73 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH135 Whiskey Creek

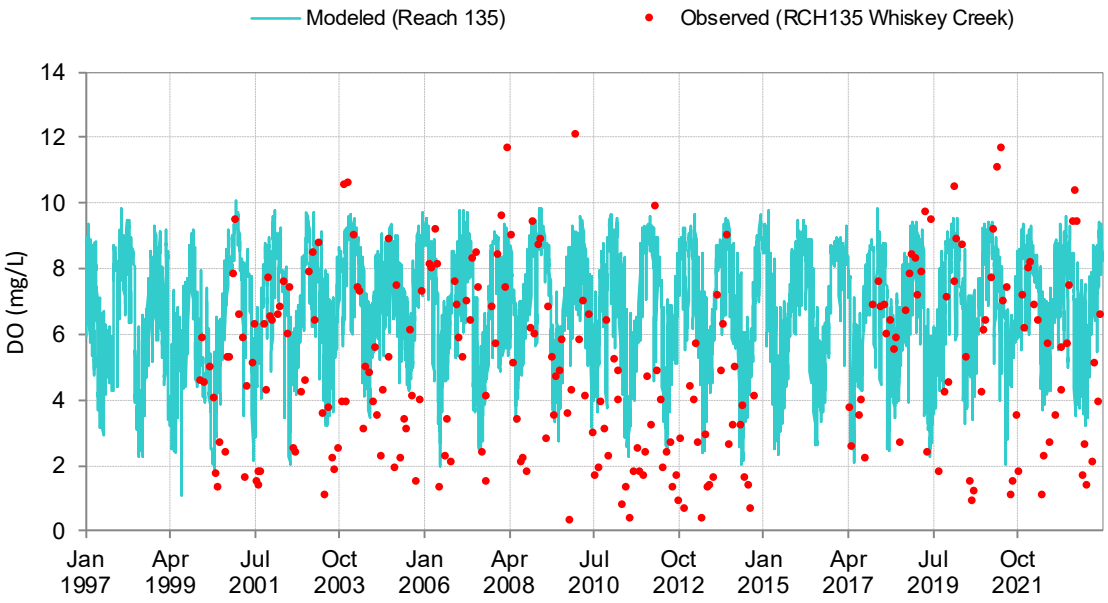


Figure A-74 Modeled Vs Observed DO (mg/L) at RCH135 Whiskey Creek

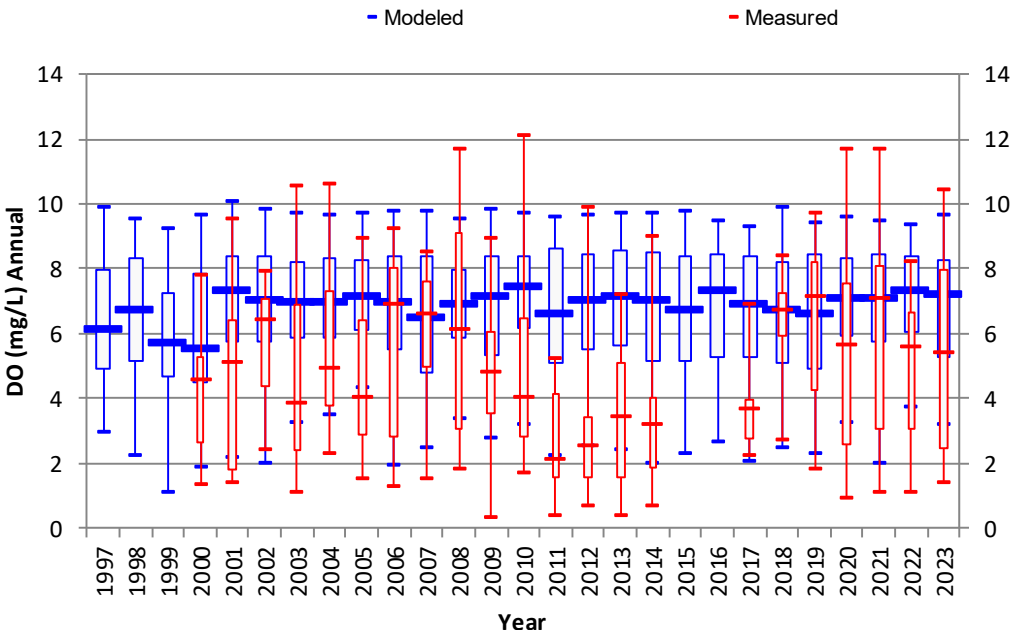


Figure A-75 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH135 Whiskey Creek

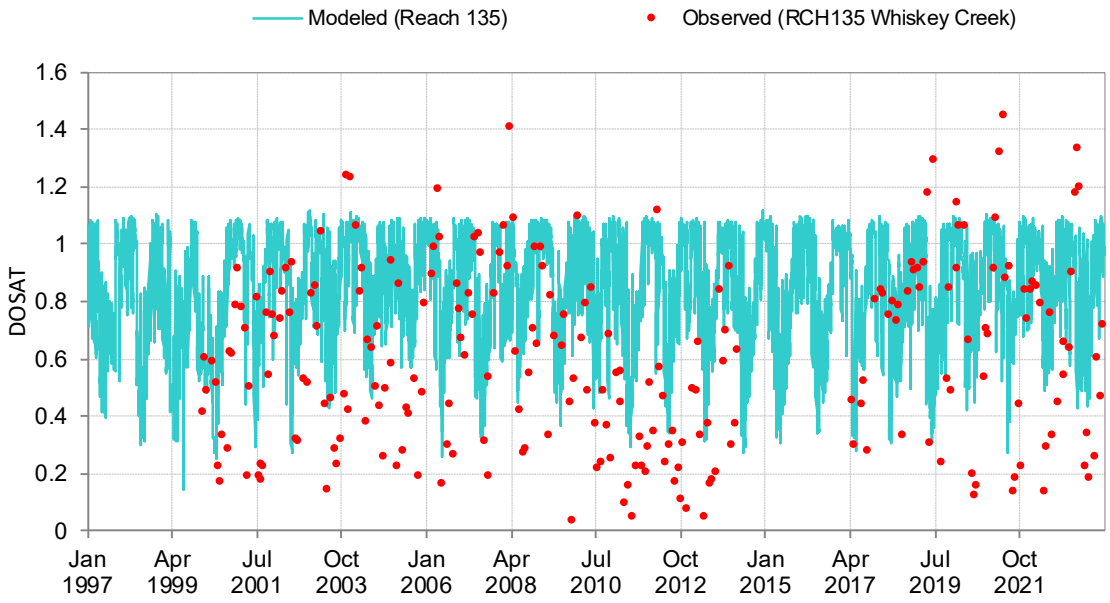


Figure A-76 Modeled Vs Observed DOSAT at RCH135 Whiskey Creek

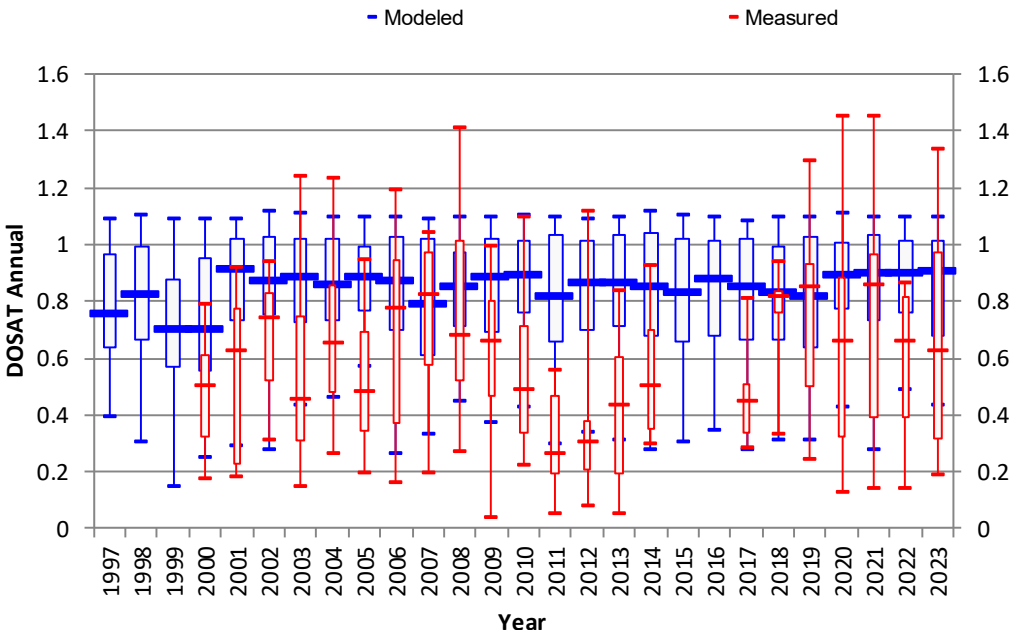


Figure A-77 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH135 Whiskey Creek

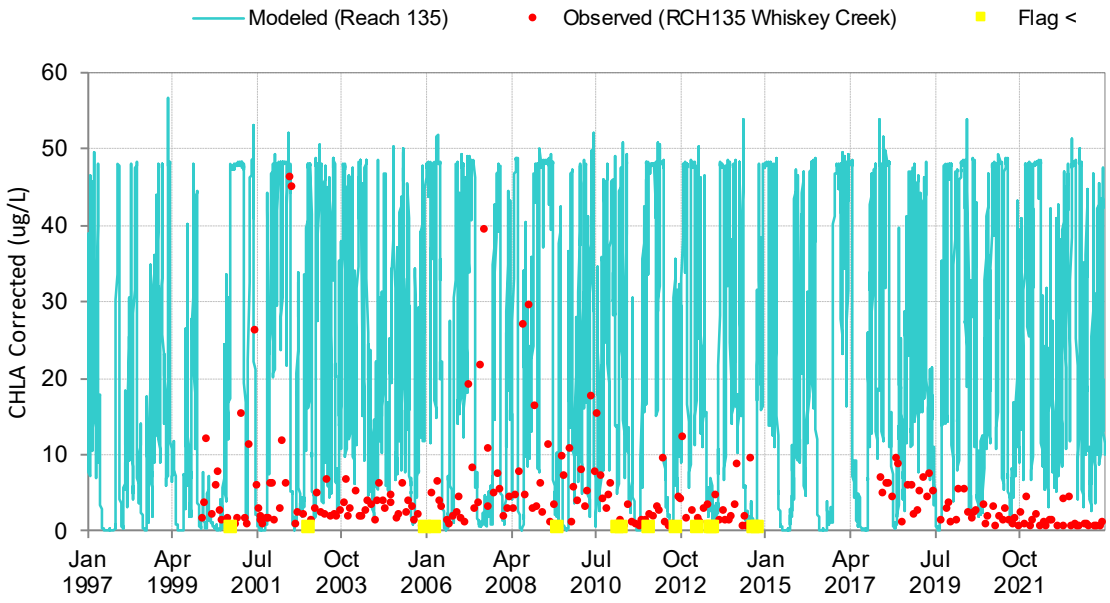


Figure A-78 Modeled Vs Observed CHLA Corrected (ug/L) at RCH135 Whiskey Creek

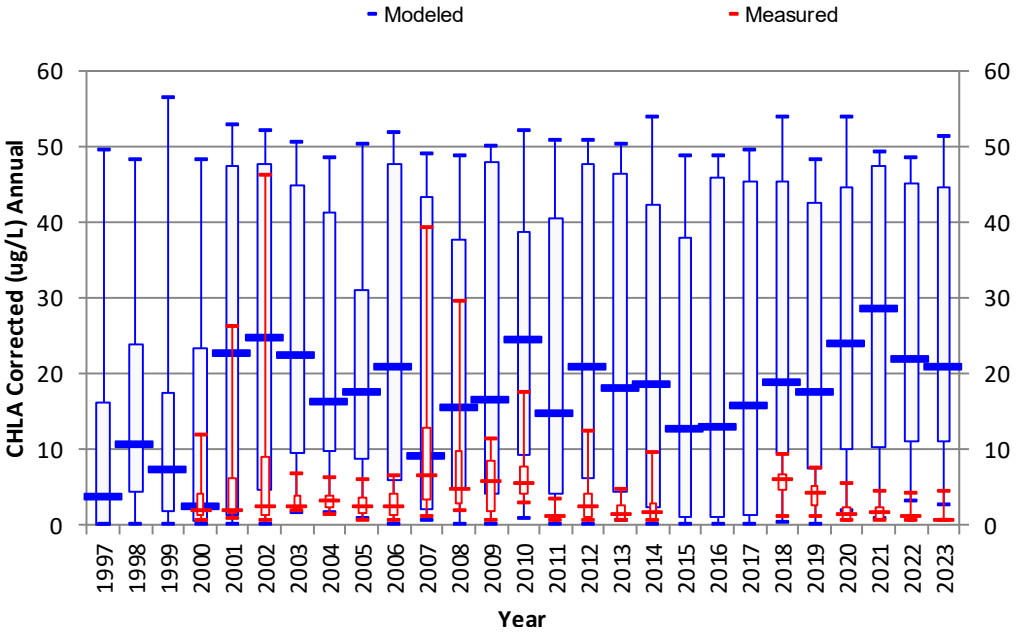


Figure A-79 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH135 Whiskey Creek

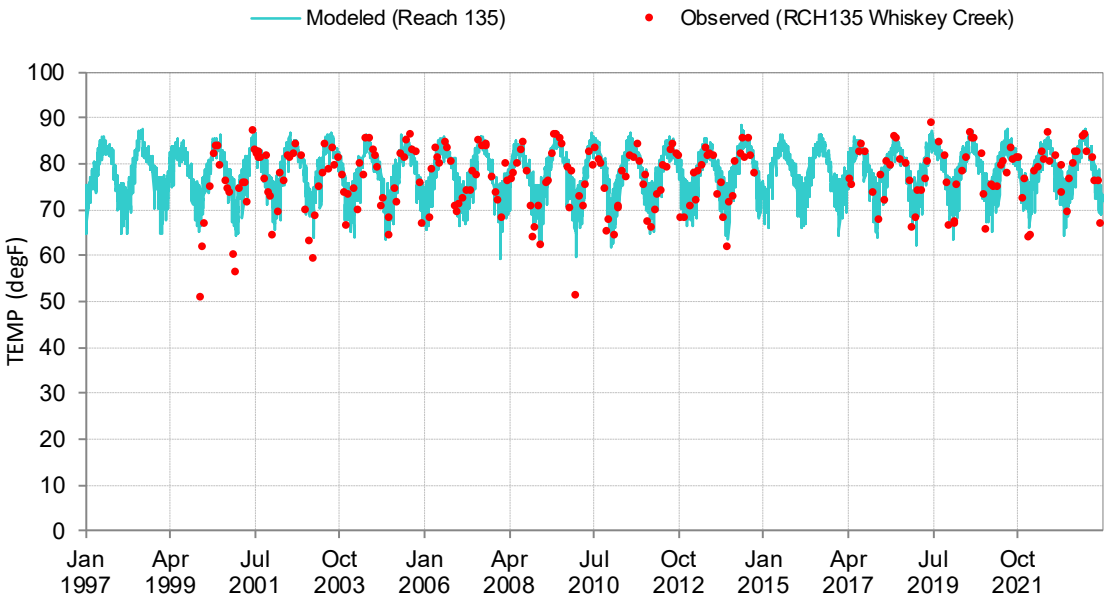


Figure A-80 Modeled Vs Observed TEMP (deg F) at RCH135 Whiskey Creek

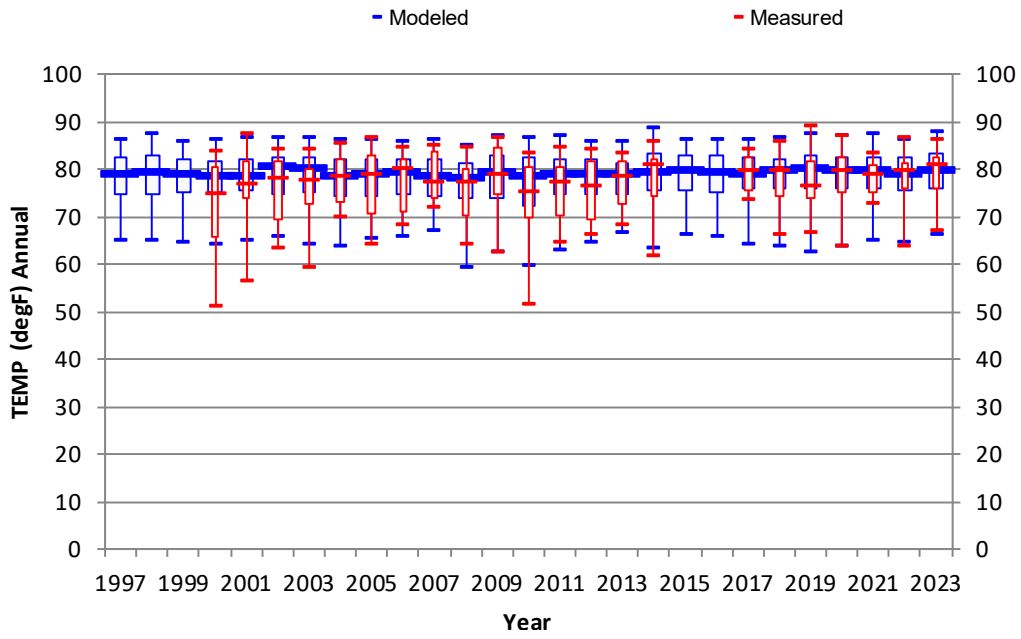


Figure A-81 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH135 Whiskey Creek

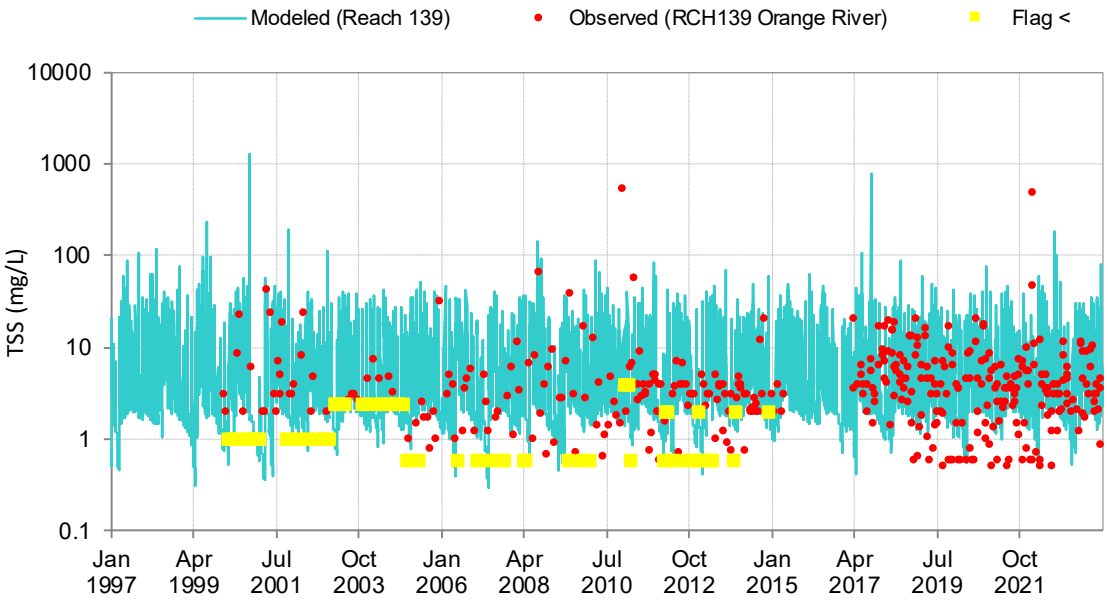


Figure A-82 Modeled Vs Observed TSS (mg/L) at RCH139 Orange River

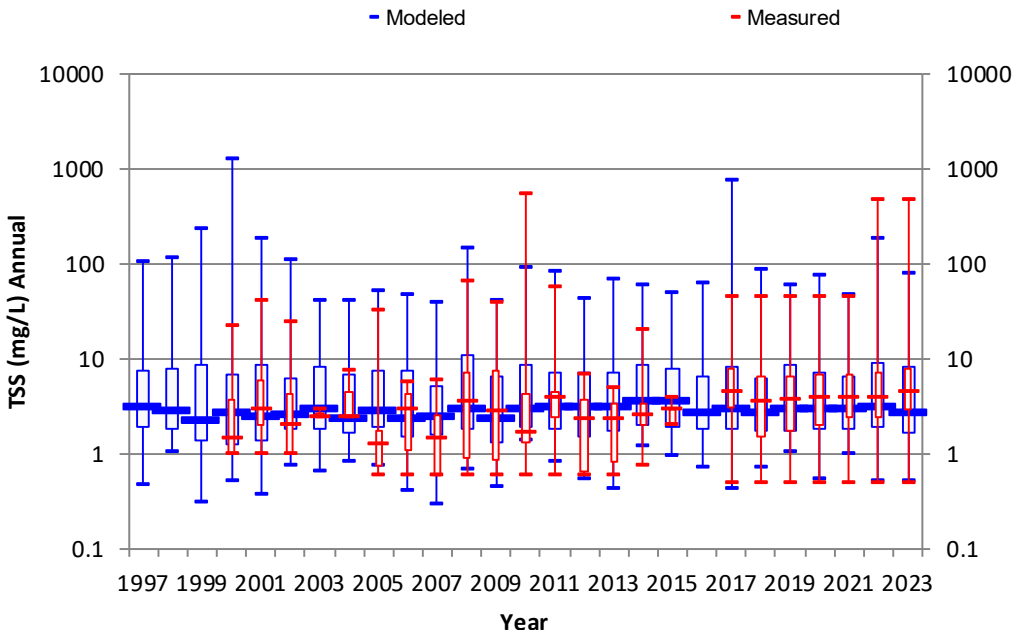


Figure A-83 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH139 Orange River

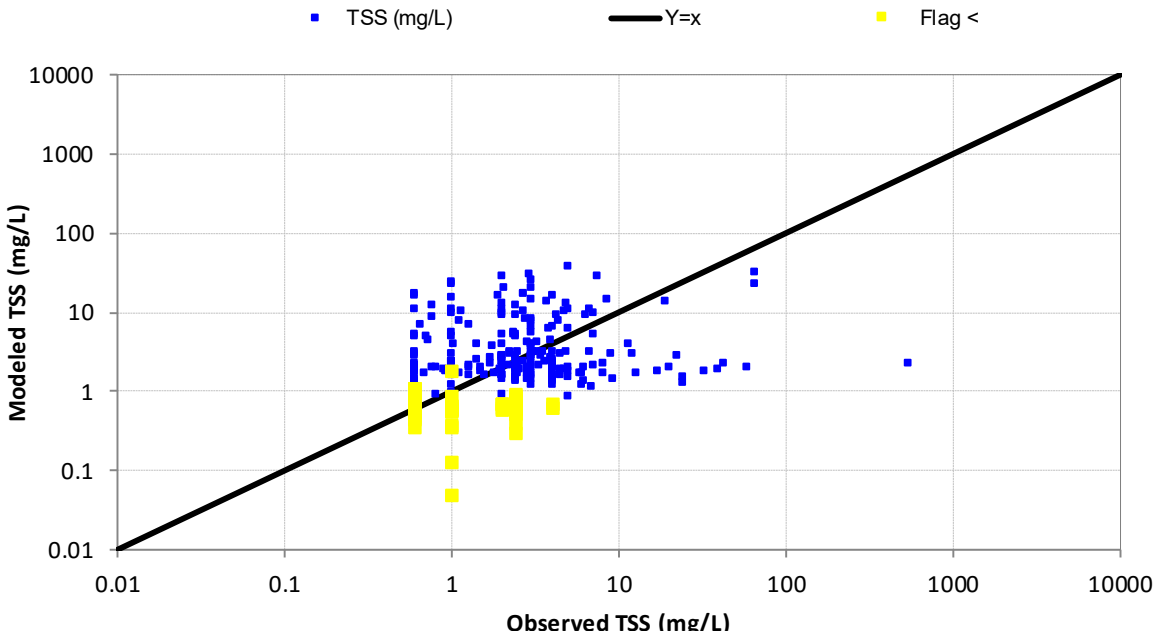


Figure A-84 Concentration at RCH139 Orange River

Table A- 28 Monthly TSS Concentration Comparisons at RCH139 Orange River

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	3.59	3.73	4.0	VG
Feb	17.27	3.93	-77.3	P
Mar	4.34	4.50	3.8	VG
Apr	7.16	6.22	-13.1	VG
May	3.92	9.45	141.2	P
Jun	3.82	13.94	264.4	P
Jul	5.57	7.82	40.4	P
Aug	4.62	8.01	73.5	P
Sep	4.23	10.92	157.9	P
Oct	4.47	6.88	53.9	P
Nov	3.70	4.27	15.1	G
Dec	19.16	3.85	-79.9	P
Average*	6.82	6.96	2.0	VG
Median**	4.40	6.55	48.7	P
R^2	N/A	N/A	0.20	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 29 Annual TSS Concentration Comparisons at RCH139 Orange River

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	6.98	N/A	N/A
1998	N/A	7.31	N/A	N/A
1999	N/A	8.45	N/A	N/A
2000	3.88	11.98	209.2	P
2001	7.77	7.32	-5.8	VG
2002	4.29	5.54	29.2	F
2003	1.86	6.48	248.5	P
2004	2.75	6.09	121.6	P
2005	3.76	6.40	70.4	P
2006	2.71	5.91	117.7	P
2007	1.99	5.16	159.4	P
2008	9.13	8.29	-9.1	VG
2009	7.16	5.34	-25.3	F
2010	47.38	6.89	-85.5	P
2011	5.68	6.79	19.5	G
2012	2.42	5.86	142.5	P
2013	2.23	6.65	198.6	P
2014	3.74	6.54	74.7	P
2015	2.80	6.55	133.8	P
2016	N/A	6.34	N/A	N/A
2017	5.82	11.51	97.7	P
2018	7.92	5.79	-27.0	F
2019	4.96	6.95	40.1	P
2020	5.04	6.36	26.2	F
2021	3.39	5.95	75.5	P
2022	18.54	8.07	-56.5	P
2023	4.53	6.48	43.1	P
Average*	6.94	6.96	0.2	VG
Median**	4.29	6.54	52.4	P
R^2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 30 Daily TSS Concentration Comparisons at RCH139 Orange River

Statistic	Results	Rating
Count (number)	449	N/A
Average Error (%)	241.4	P
Median Error (%)	23.6	G
RMSE (mg/L)	35.40	N/A
R^2	0.00	P

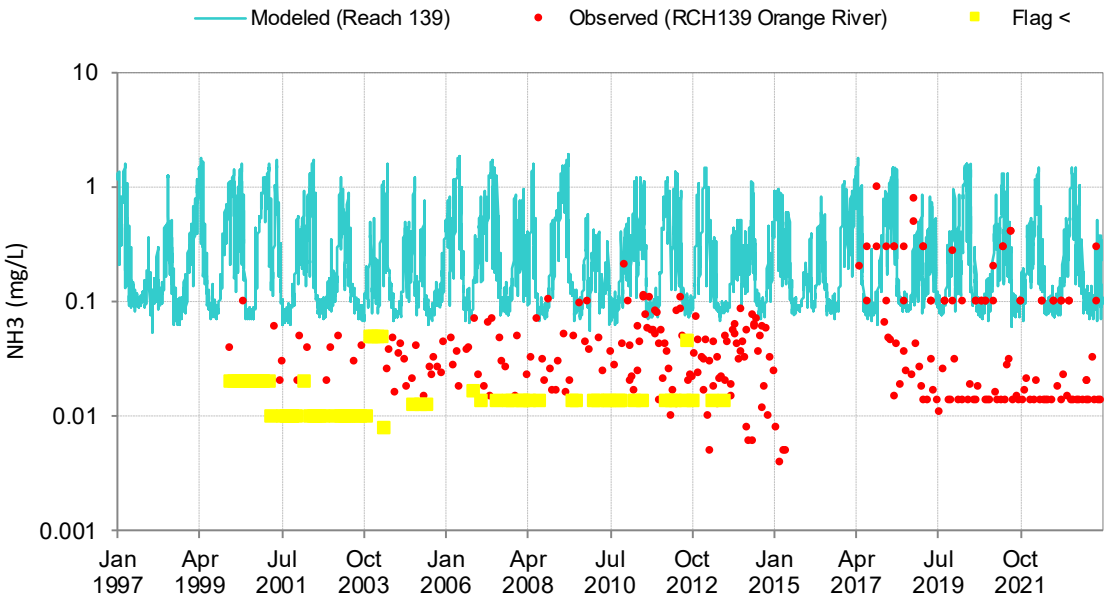


Figure A-85 Modeled Vs Observed NH3 (mg/L) at RCH139 Orange River

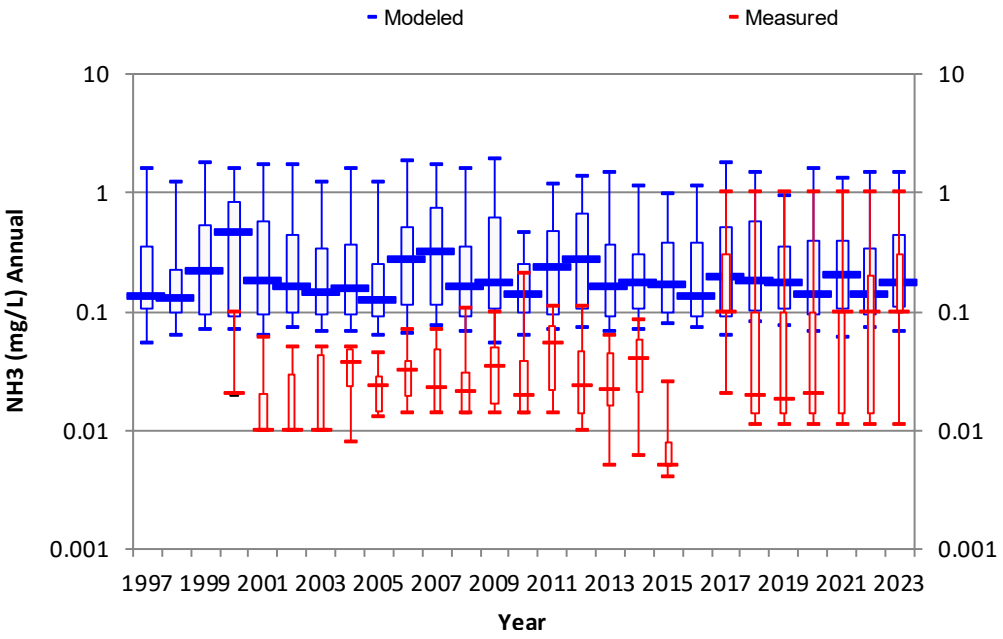


Figure A-86 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH139 Orange River

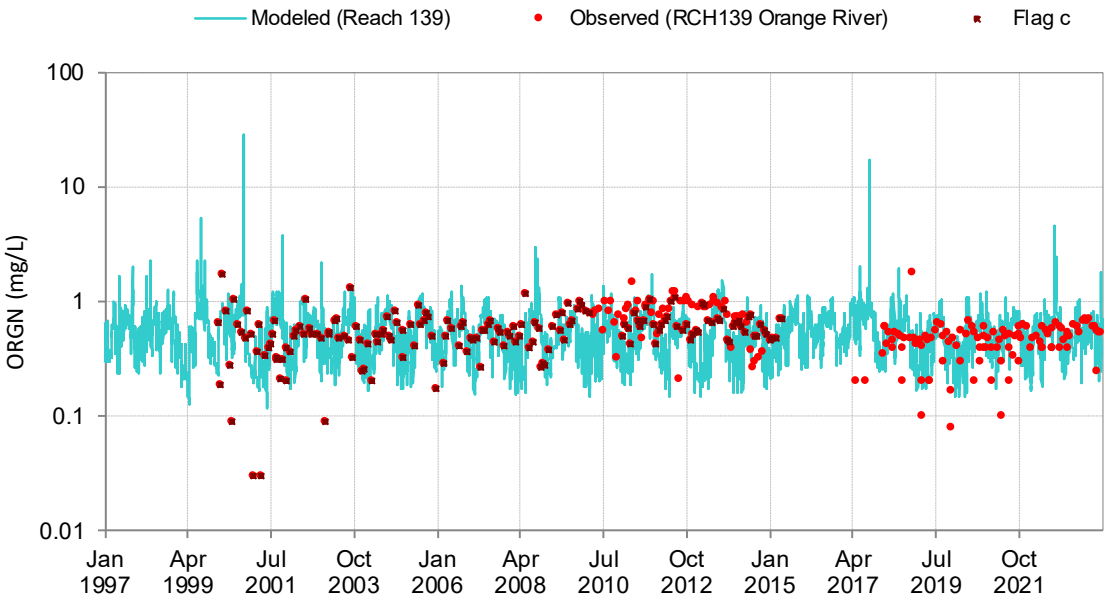


Figure A-87 Modeled Vs Observed ORGN (mg/L) at RCH139 Orange River

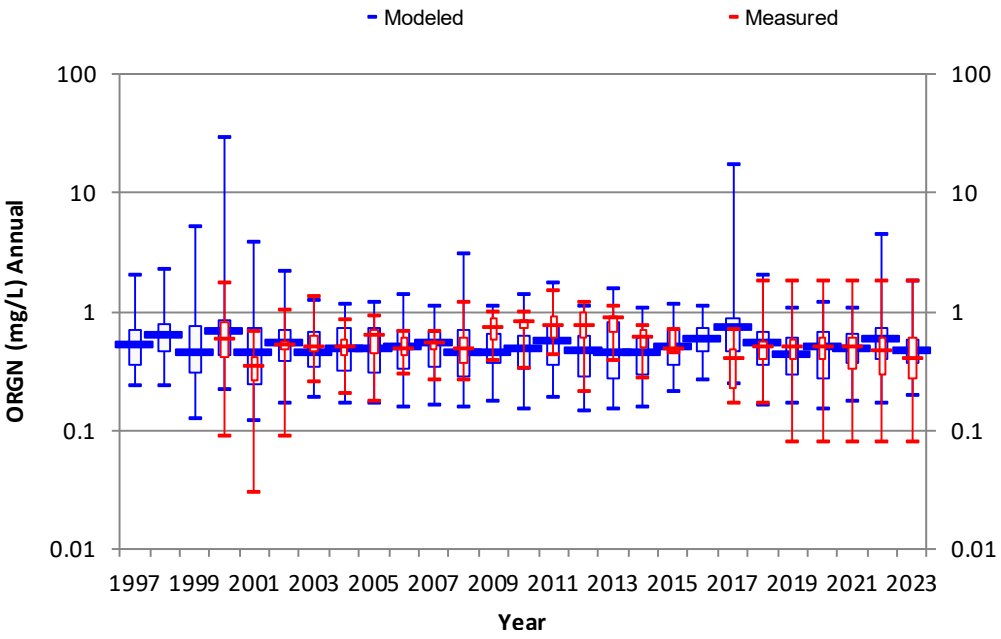


Figure A-88 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH139 Orange River

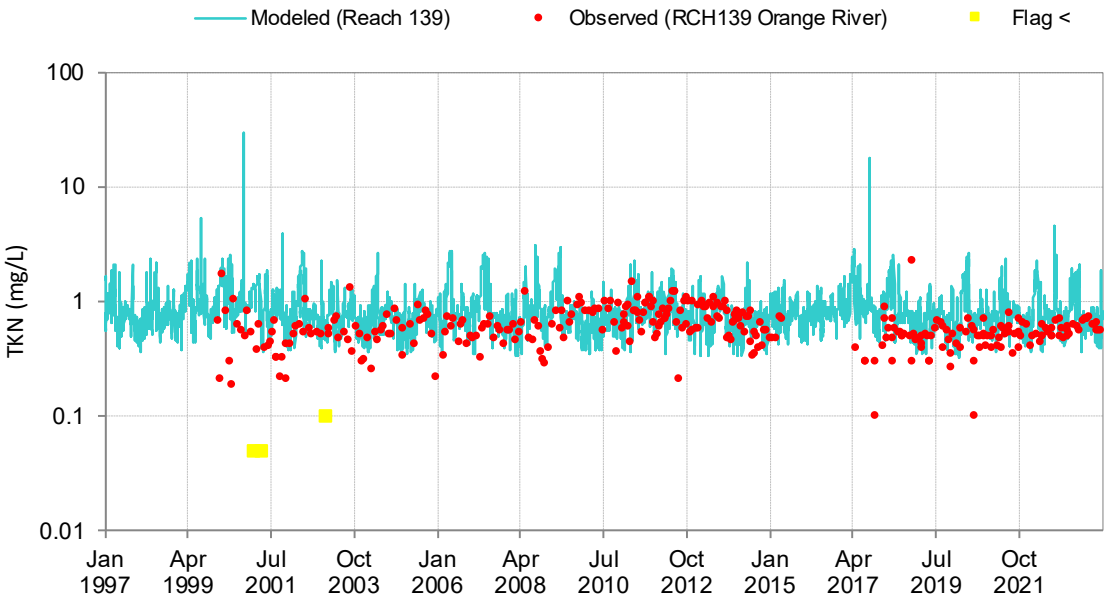


Figure A-89 Modeled Vs Observed TKN (mg/L) at RCH139 Orange River

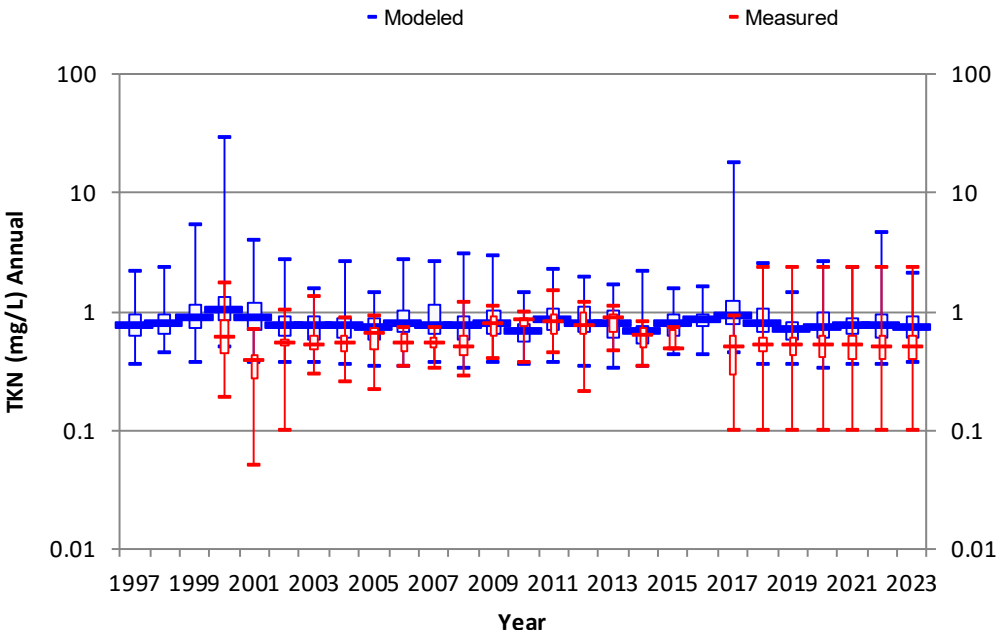


Figure A-90 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH139 Orange River

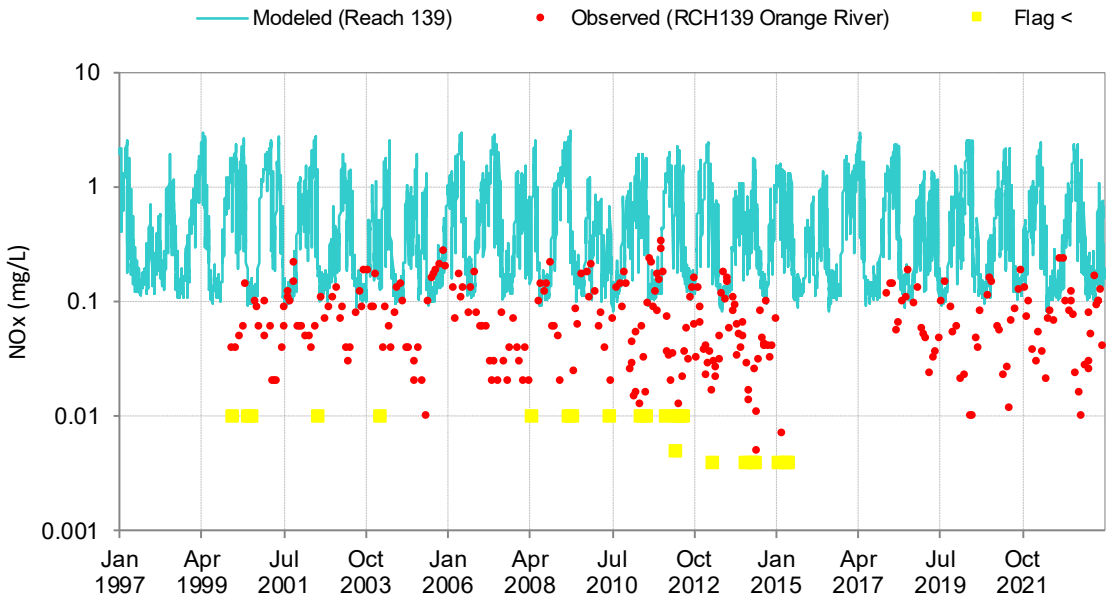


Figure A-91 Modeled Vs Observed NOx (mg/L) at RCH139 Orange River

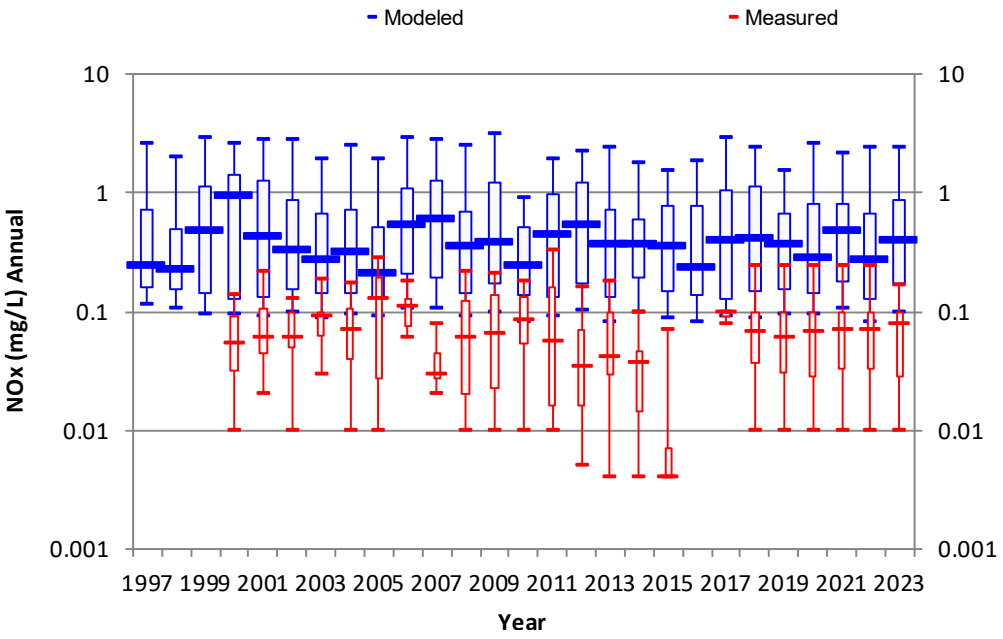


Figure A-92 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH139 Orange River

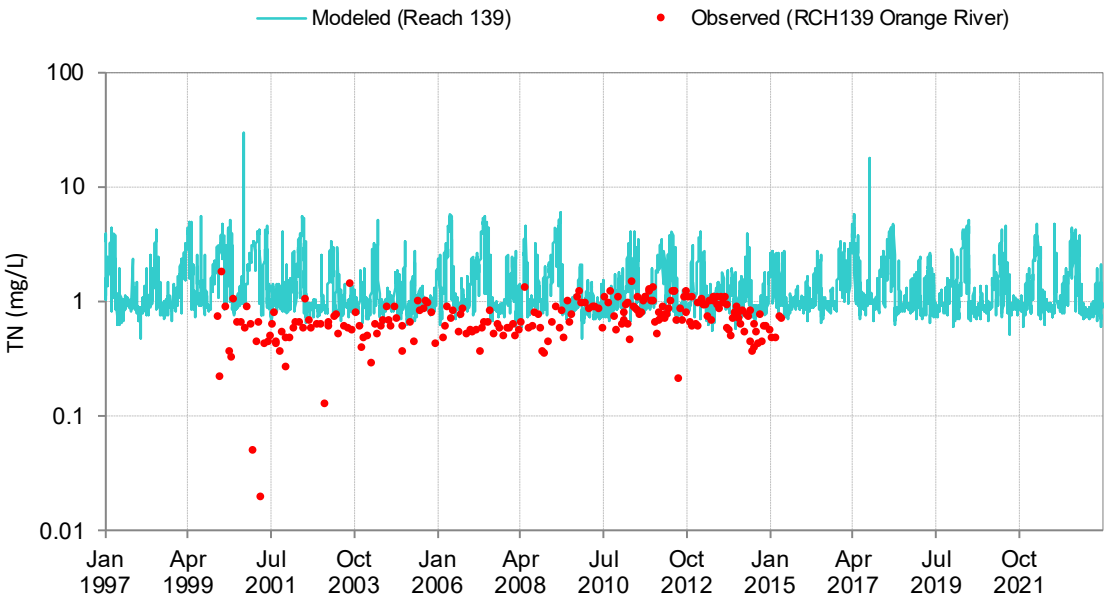


Figure A-93 Modeled Vs Observed TN (mg/L) at RCH139 Orange River

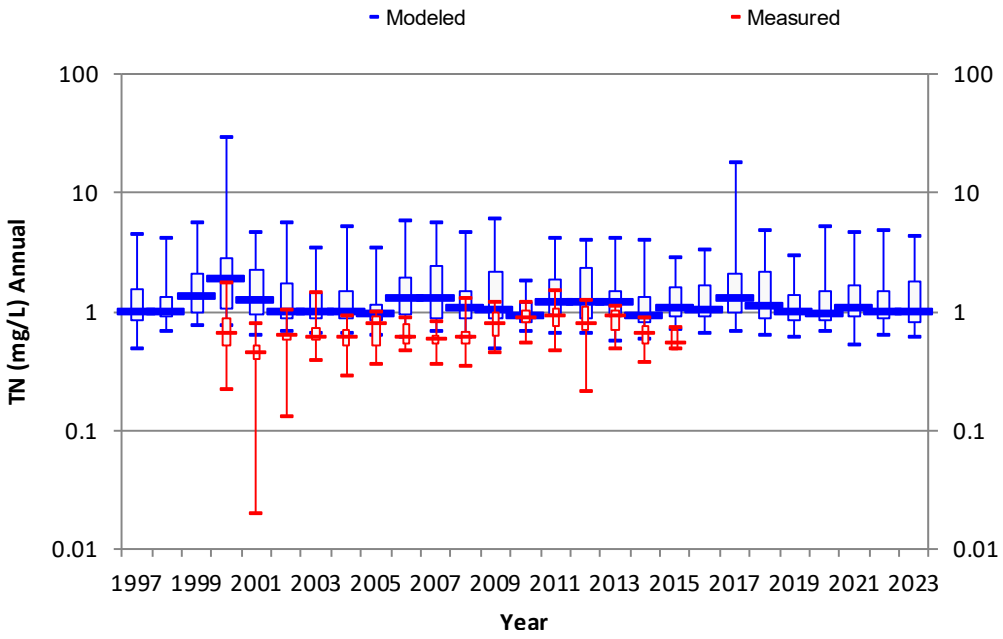


Figure A-94 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH139 Orange River

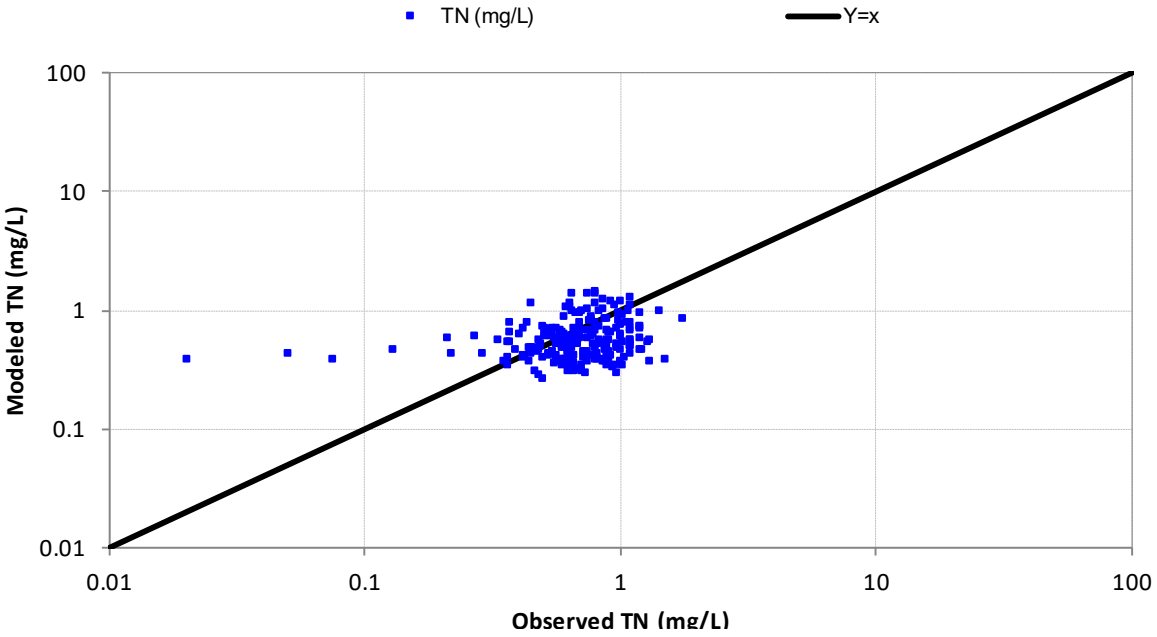


Figure A-95 Concentration at RCH139 Orange River

Table A- 31 Monthly TN Concentration Comparisons at RCH139 Orange River

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.63	1.64	163.0	P
Feb	0.63	1.76	177.5	P
Mar	0.77	2.14	178.4	P
Apr	0.74	2.25	202.2	P
May	0.75	2.28	205.8	P
Jun	0.77	1.12	45.7	F
Jul	0.70	0.94	33.1	G
Aug	0.82	0.99	21.5	VG
Sep	0.80	1.08	35.0	G
Oct	0.77	1.04	34.5	G
Nov	0.75	1.24	65.6	P
Dec	0.60	1.32	119.6	P
Average*	0.73	1.48	103.9	P
Median**	0.75	1.28	71.6	P
R^2	N/A	N/A	0.03	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 32 Annual TN Concentration Comparisons at RCH139 Orange River

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.40	N/A	N/A
1998	N/A	1.25	N/A	N/A
1999	N/A	1.76	N/A	N/A
2000	0.73	2.18	198.2	P
2001	0.43	1.72	296.3	P
2002	0.61	1.53	152.7	P
2003	0.69	1.26	83.5	P
2004	0.62	1.32	112.5	P
2005	0.72	1.13	55.9	F
2006	0.66	1.72	160.6	P
2007	0.59	1.86	218.7	P
2008	0.64	1.33	107.8	P
2009	0.80	1.82	129.3	P
2010	0.89	1.01	13.6	VG
2011	0.91	1.52	66.1	P
2012	0.86	1.60	86.6	P
2013	0.87	1.37	56.5	F
2014	0.64	1.15	78.1	P
2015	0.59	1.32	123.4	P
2016	N/A	1.35	N/A	N/A
2017	N/A	1.85	N/A	N/A
2018	N/A	1.62	N/A	N/A
2019	N/A	1.18	N/A	N/A
2020	N/A	1.49	N/A	N/A
2021	N/A	1.42	N/A	N/A
2022	N/A	1.36	N/A	N/A
2023	N/A	1.50	N/A	N/A
Average*	0.70	1.48	110.7	P
Median**	0.67	1.42	110.7	P
R^2	N/A	N/A	0.02	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 33 Daily TN Concentration Comparisons at RCH139 Orange River

Statistic	Results	Rating
Count (number)	229	N/A
Average Error (%)	173.4	P
Median Error (%)	71.5	P
RMSE (mg/L)	1.18	N/A
R^2	0.00	P

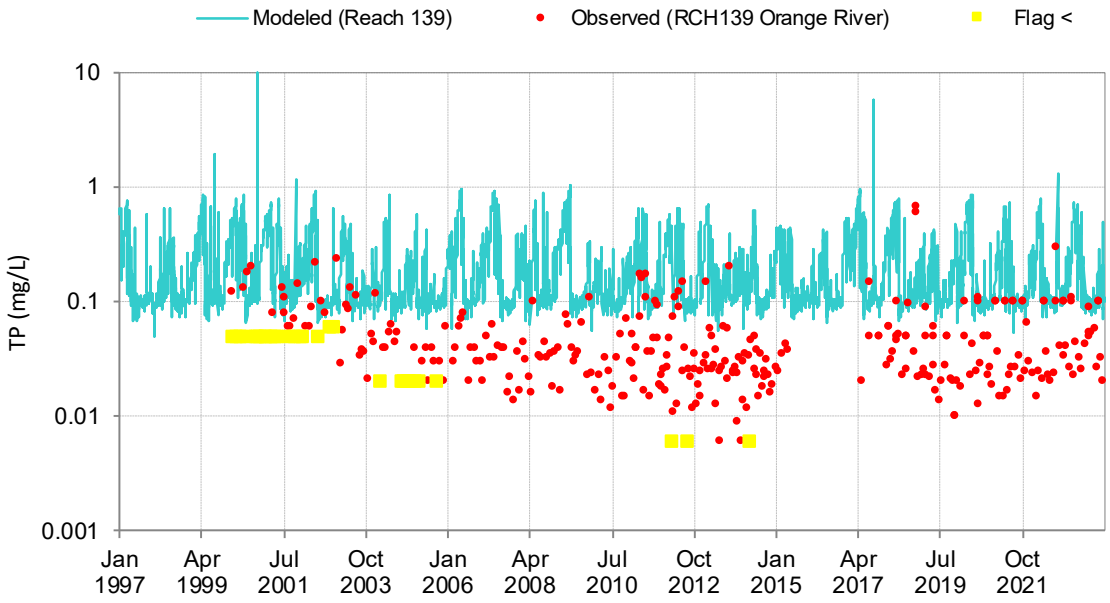


Figure A-96 Modeled Vs Observed TP (mg/L) at RCH139 Orange River

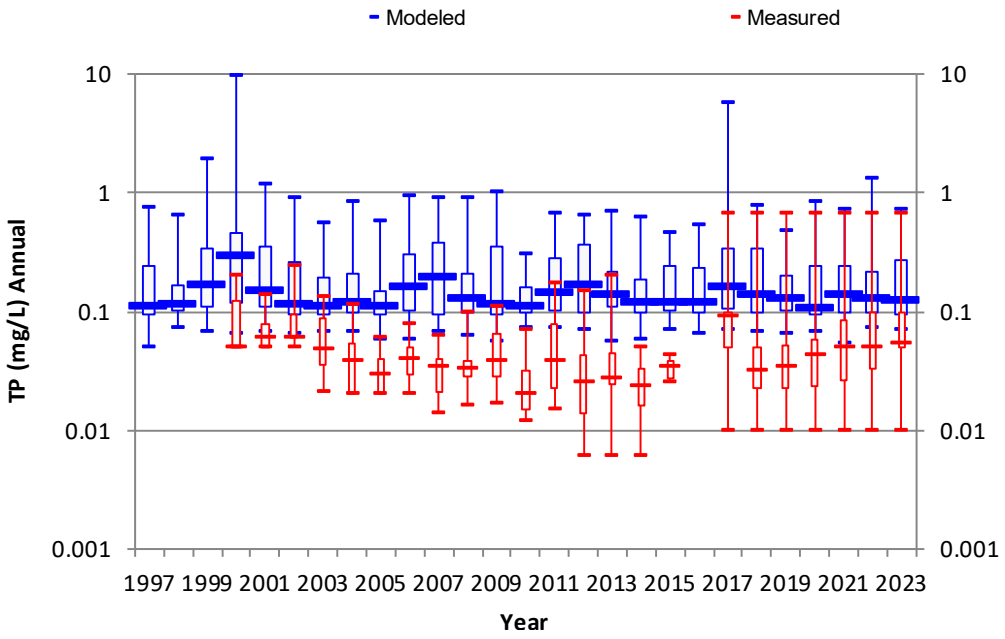


Figure A-97 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH139 Orange River

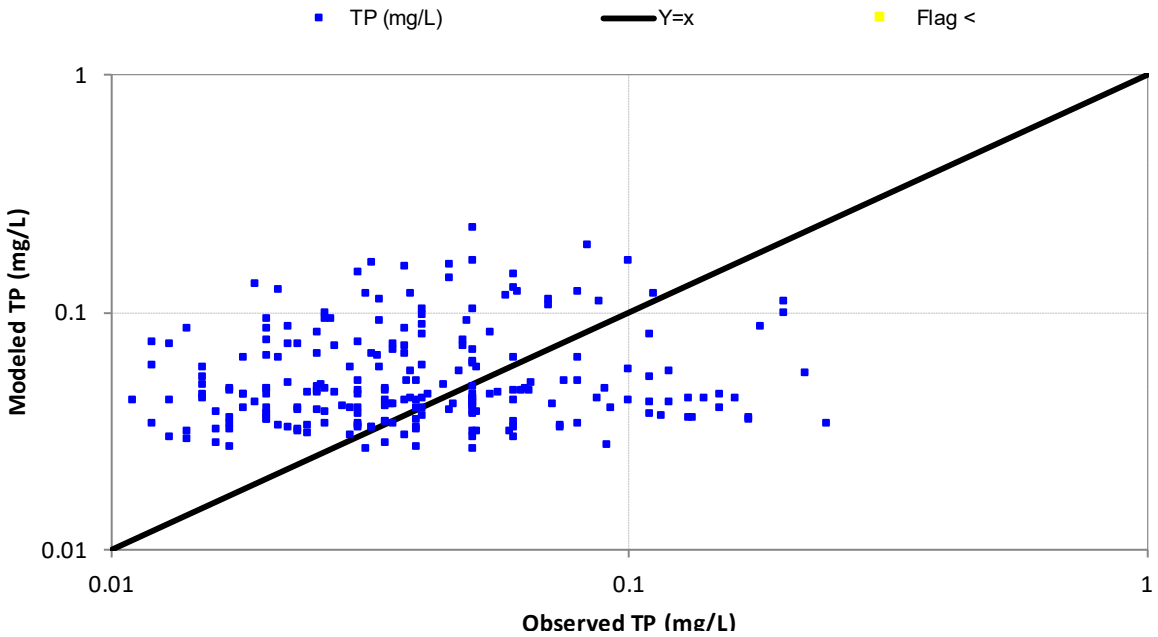


Figure A-98 Concentration at RCH139 Orange River

Table A- 34 Monthly TP Concentration Comparisons at RCH139 Orange River

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.04	0.25	519.5	P
Feb	0.04	0.27	538.0	P
Mar	0.04	0.34	744.7	P
Apr	0.05	0.35	612.6	P
May	0.06	0.35	452.5	P
Jun	0.05	0.14	178.0	P
Jul	0.05	0.10	103.4	P
Aug	0.06	0.11	78.7	P
Sep	0.04	0.13	230.8	P
Oct	0.04	0.13	212.2	P
Nov	0.08	0.17	104.9	P
Dec	0.03	0.19	461.7	P
Average*	0.05	0.21	326.3	P
Median**	0.05	0.18	286.0	P
R^2	N/A	N/A	0.01	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.
** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 35 Annual TP Concentration Comparisons at RCH139 Orange River

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.20	N/A	N/A
1998	N/A	0.16	N/A	N/A
1999	N/A	0.26	N/A	N/A
2000	0.07	0.35	408.3	P
2001	0.06	0.25	322.4	P
2002	0.09	0.22	149.5	P
2003	0.06	0.17	175.5	P
2004	0.04	0.18	371.8	P
2005	0.03	0.14	409.6	P
2006	0.04	0.25	494.7	P
2007	0.03	0.28	735.2	P
2008	0.04	0.19	398.3	P
2009	0.05	0.27	487.8	P
2010	0.03	0.13	382.7	P
2011	0.06	0.21	263.4	P
2012	0.04	0.23	476.6	P
2013	0.04	0.19	341.4	P
2014	0.03	0.16	525.6	P
2015	0.03	0.18	433.7	P
2016	N/A	0.18	N/A	N/A
2017	0.06	0.28	342.6	P
2018	0.11	0.24	117.5	P
2019	0.03	0.16	411.1	P
2020	0.05	0.22	370.4	P
2021	0.06	0.20	247.0	P
2022	0.06	0.19	197.5	P
2023	0.05	0.22	298.7	P
Average*	0.05	0.21	320.1	P
Median**	0.05	0.20	330.0	P
R^2	N/A	N/A	0.19	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 36 Daily TP Concentration Comparisons at RCH139 Orange River

Statistic	Results	Rating
Count (number)	345	N/A
Average Error (%)	540.0	P
Median Error (%)	320.9	P
RMSE (mg/L)	0.22	N/A
R^2	0.00	P

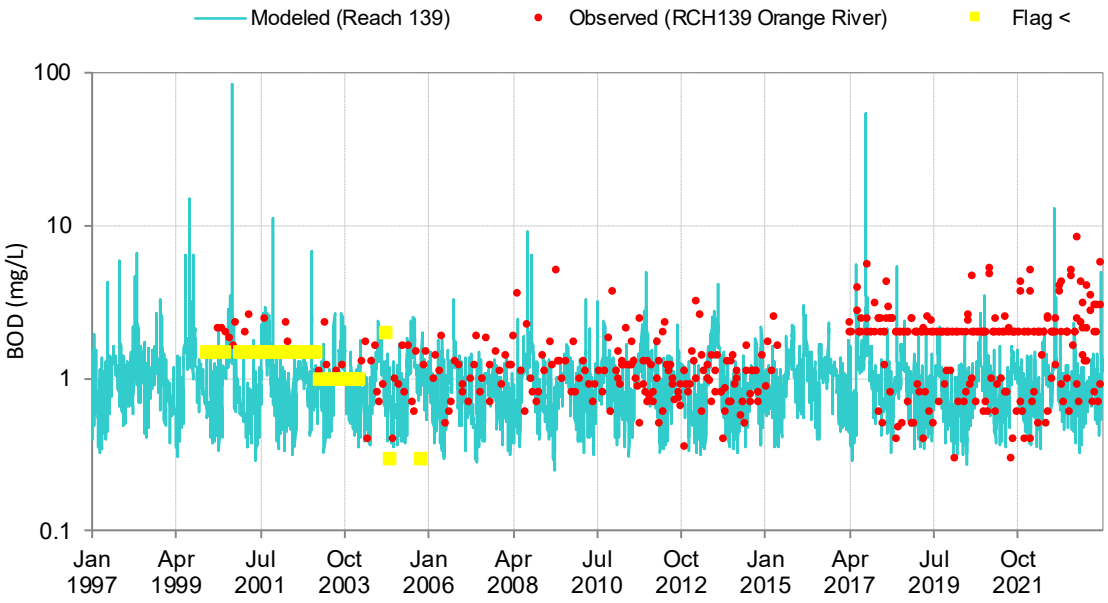


Figure A-99 Modeled Vs Observed BOD (mg/L) at RCH139 Orange River

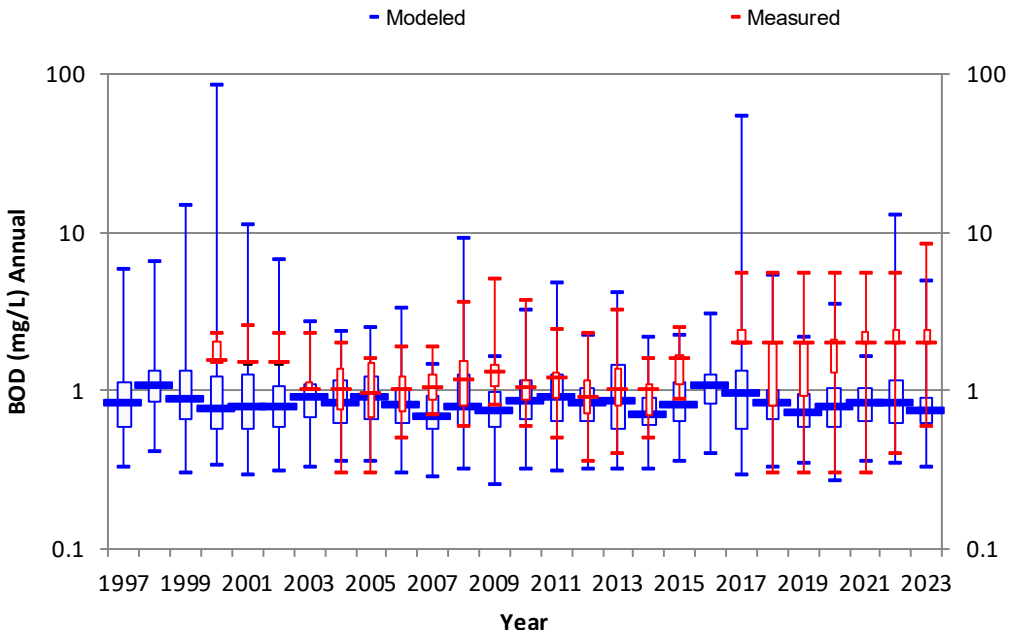


Figure A-100 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH139 Orange River

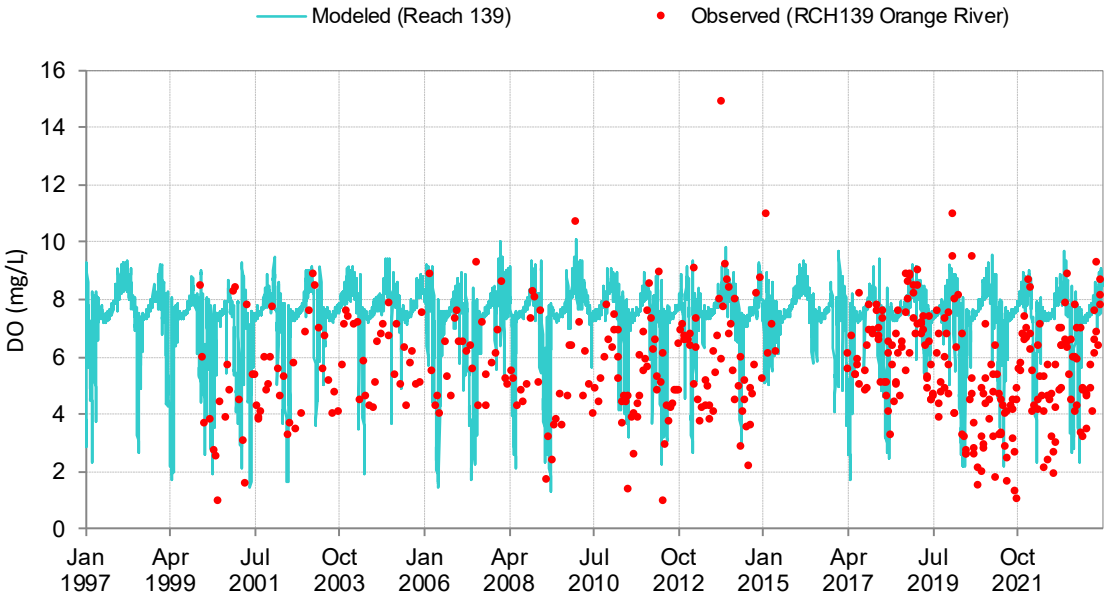


Figure A-101 Modeled Vs Observed DO (mg/L) at RCH139 Orange River

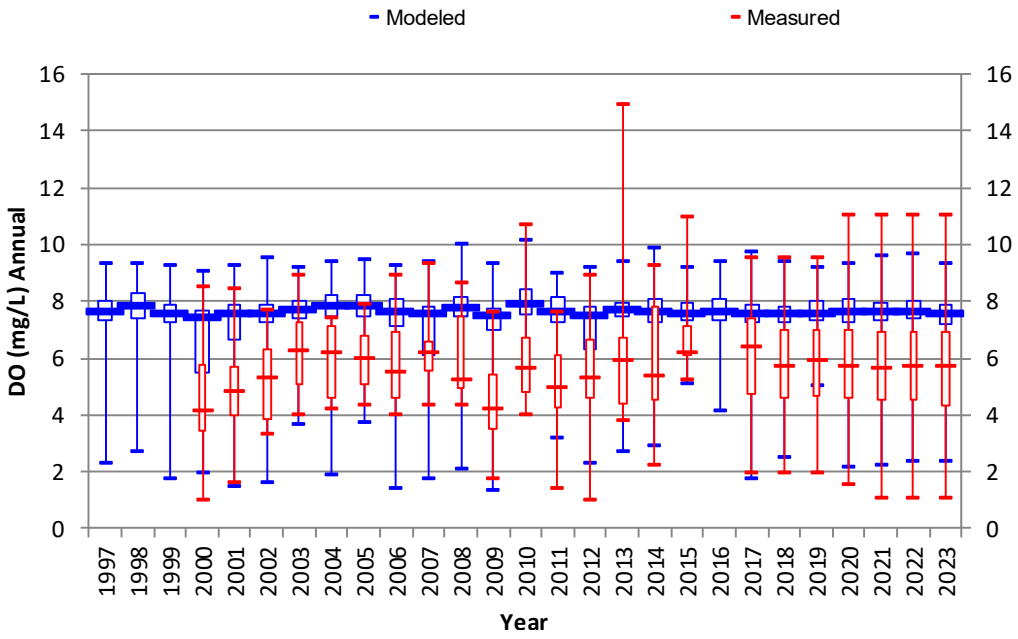


Figure A-102 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH139 Orange River

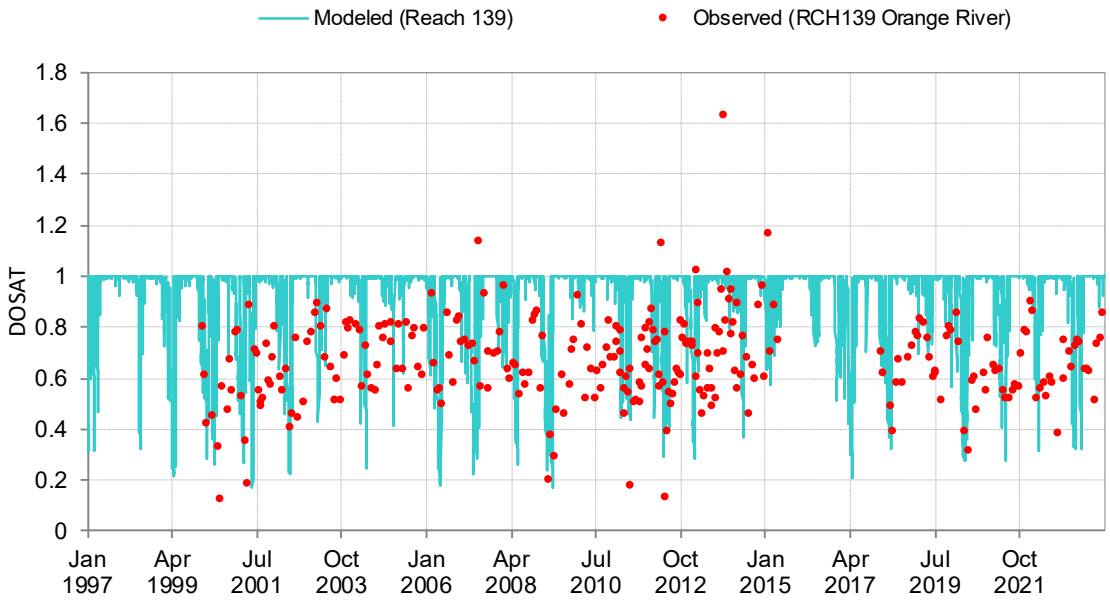


Figure A-103 Modeled Vs Observed DOSAT at RCH139 Orange River

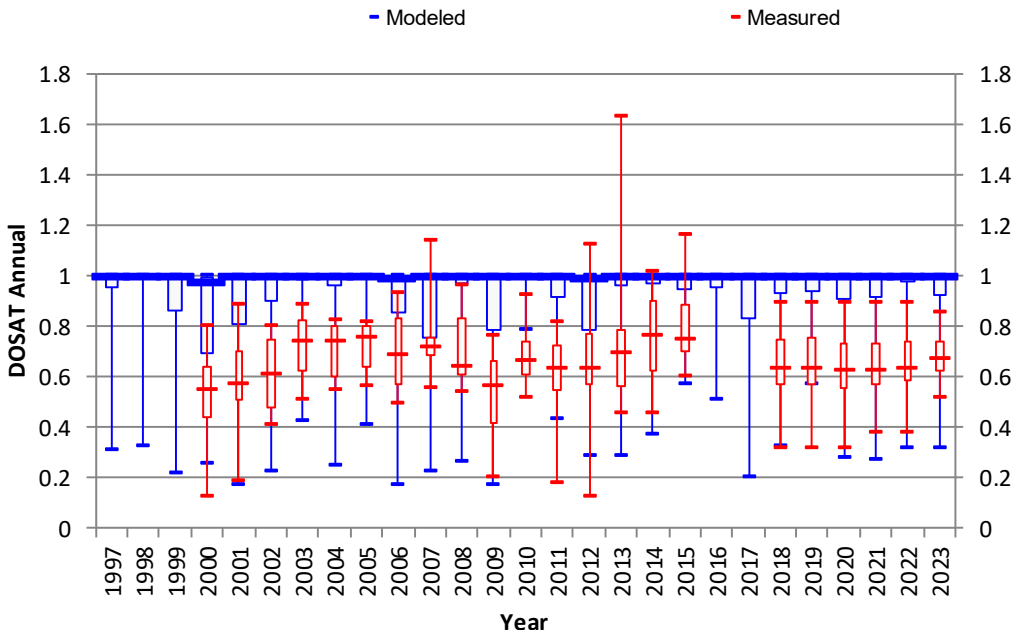


Figure A-104 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH139 Orange River

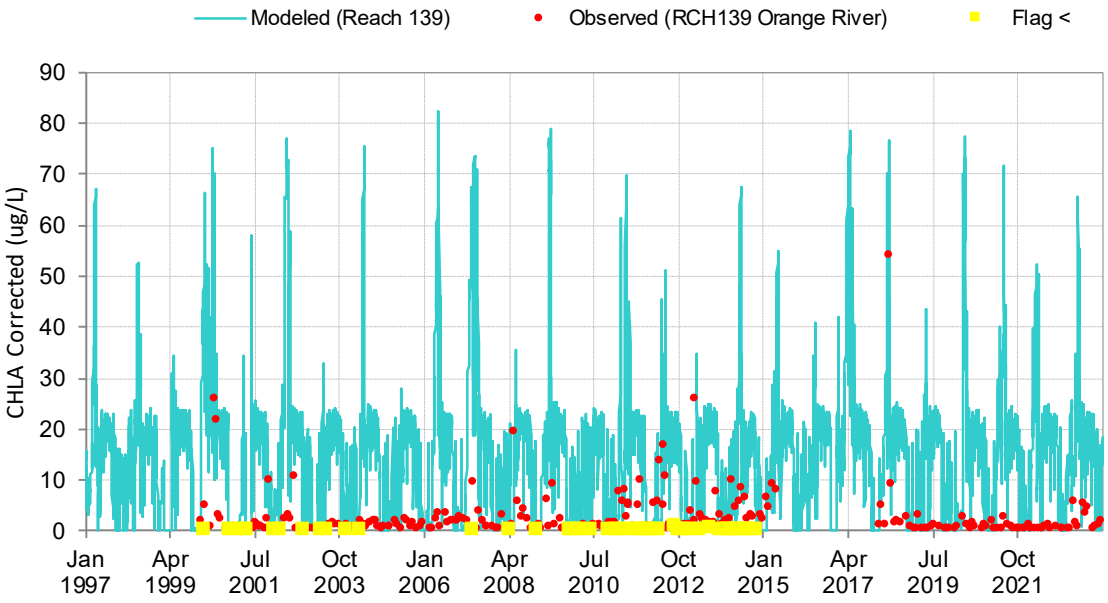


Figure A-105 Modeled Vs Observed CHLA Corrected (ug/L) at RCH139 Orange River

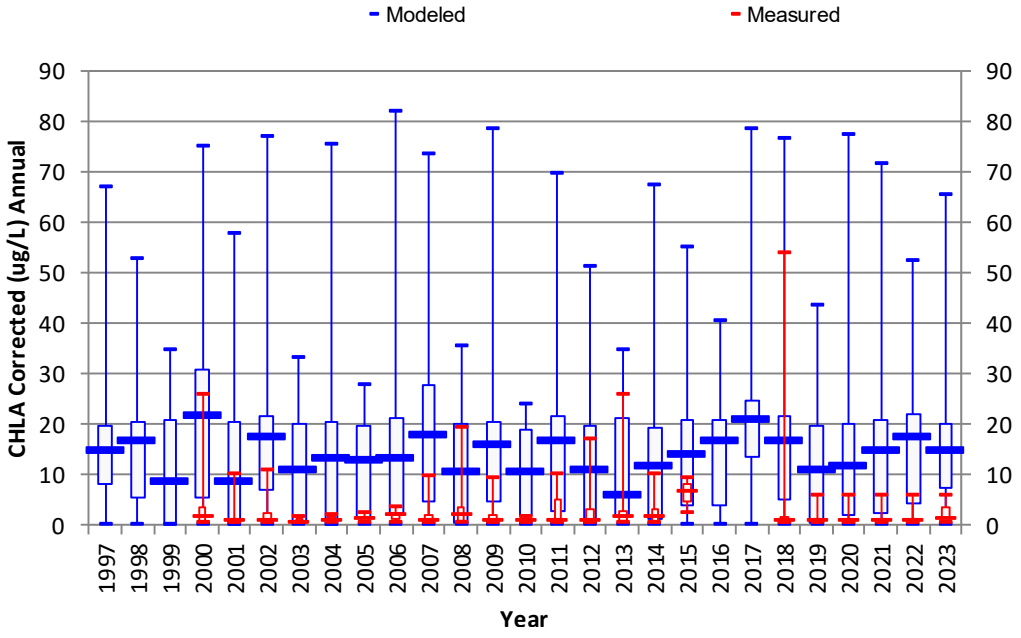


Figure A-106 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH139 Orange River

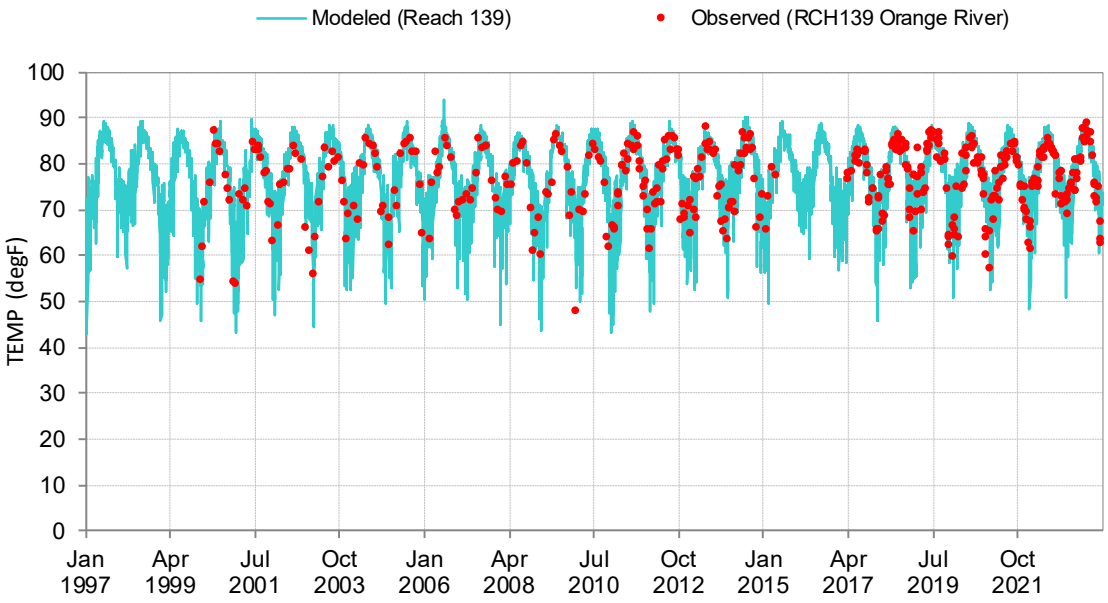


Figure A-107 Modeled Vs Observed TEMP (deg F) at RCH139 Orange River

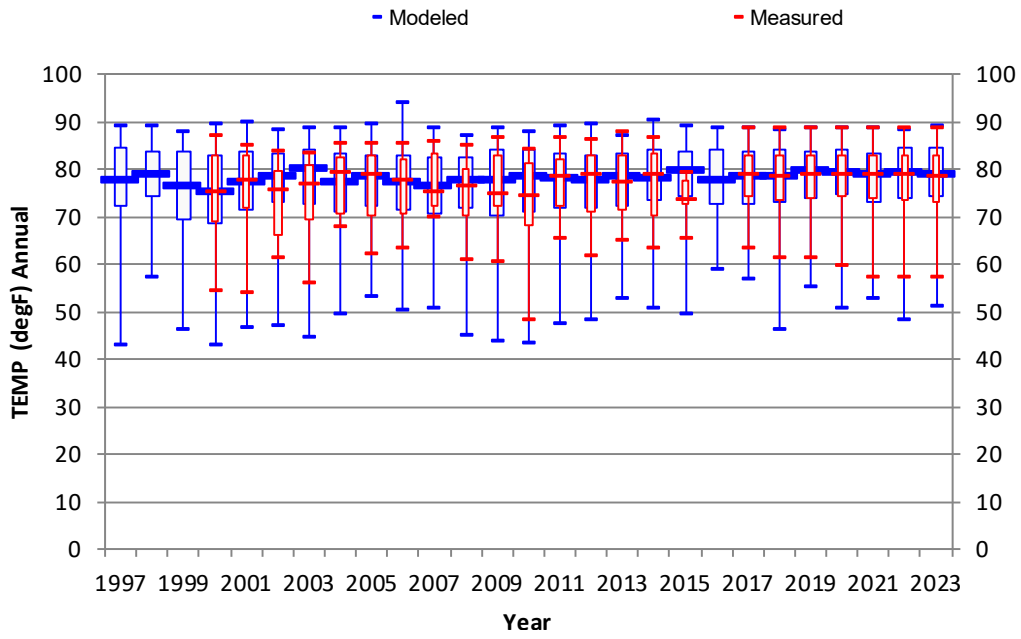


Figure A-108 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH139 Orange River

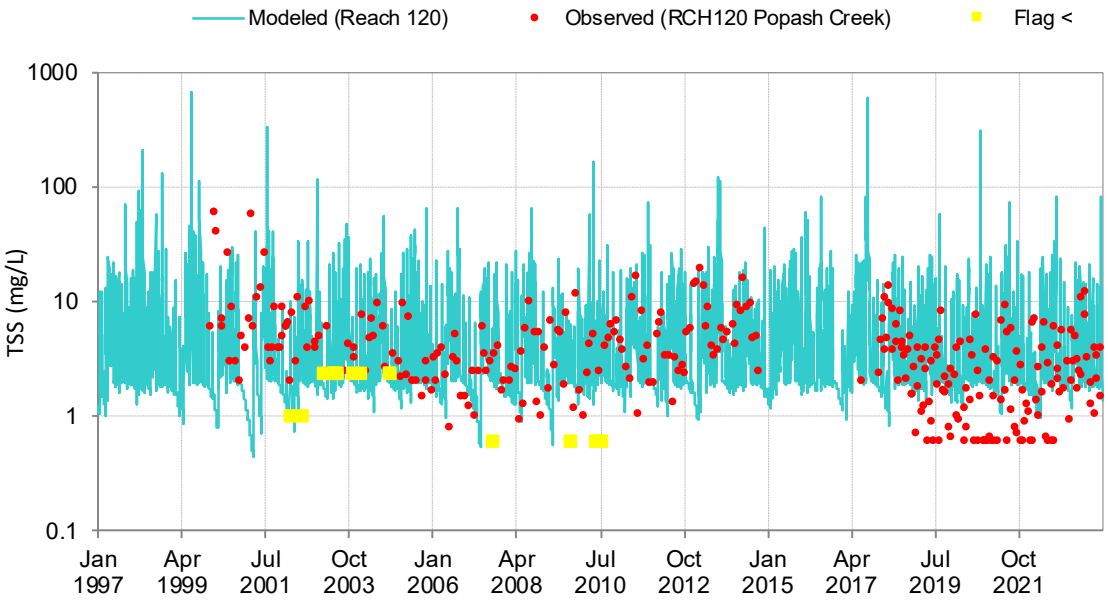


Figure A-109 Modeled Vs Observed TSS (mg/L) at RCH120 Popash Creek

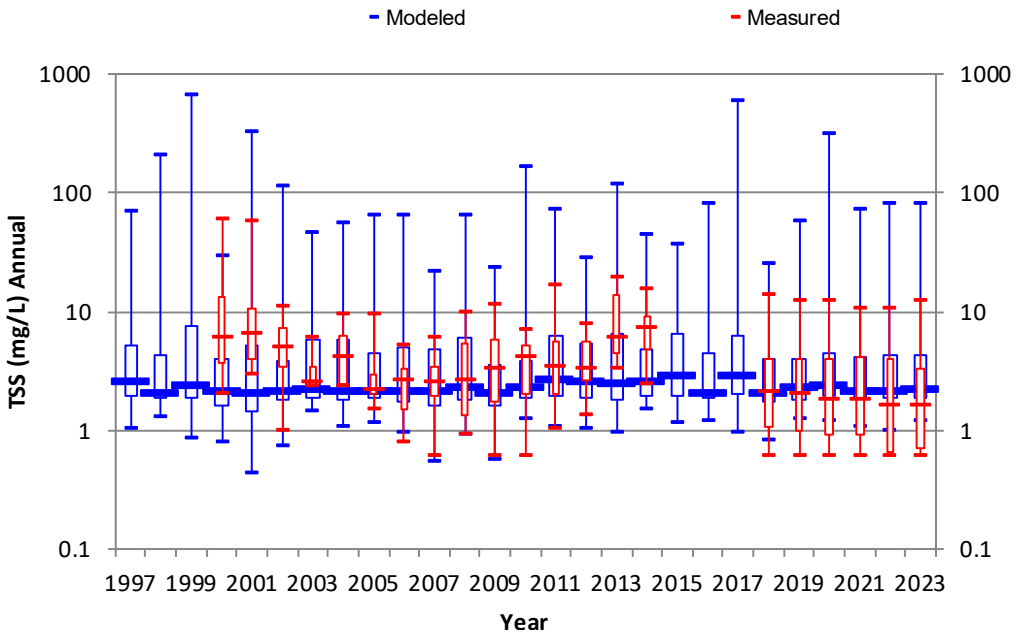


Figure A-110 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH120 Popash Creek

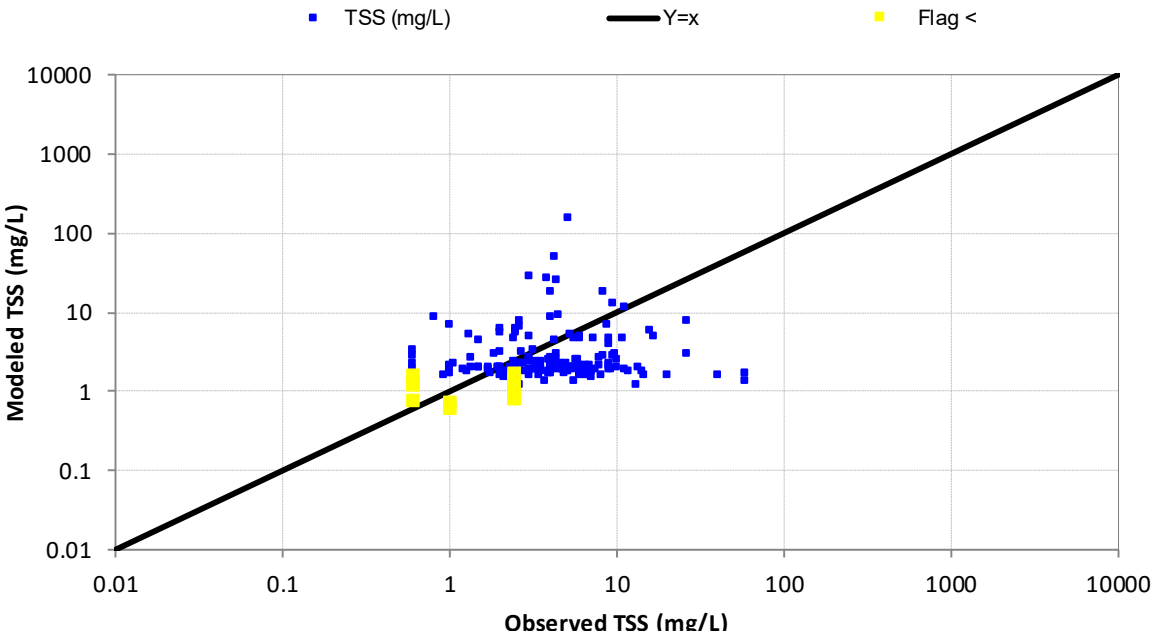


Figure A-111 Concentration at RCH120 Popash Creek

Table A- 37 Monthly TSS Concentration Comparisons at RCH120 Popash Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	3.61	2.81	-22.2	G
Feb	7.90	3.10	-60.8	P
Mar	6.18	3.59	-41.9	P
Apr	4.49	4.52	0.7	VG
May	5.06	6.01	18.8	G
Jun	5.75	7.74	34.5	F
Jul	4.07	6.97	71.3	P
Aug	4.04	6.66	64.6	P
Sep	3.36	11.08	229.8	P
Oct	2.79	3.38	21.0	G
Nov	3.22	3.01	-6.8	VG
Dec	2.94	2.76	-6.1	VG
Average*	4.45	5.13	15.3	G
Median**	4.05	4.06	0.0	VG
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 38 Annual TSS Concentration Comparisons at RCH120 Popash Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.77	N/A	N/A
1998	N/A	6.24	N/A	N/A
1999	N/A	9.53	N/A	N/A
2000	14.17	3.91	-72.4	P
2001	11.64	6.10	-47.6	P
2002	5.33	4.31	-19.3	G
2003	2.59	5.59	115.6	P
2004	4.34	4.96	14.1	VG
2005	3.31	4.82	45.6	P
2006	2.63	5.37	104.1	P
2007	2.72	3.97	45.8	P
2008	3.51	5.69	61.9	P
2009	4.22	3.22	-23.6	G
2010	3.59	4.51	25.6	F
2011	5.10	5.23	2.5	VG
2012	4.14	4.38	5.7	VG
2013	8.64	6.74	-22.0	G
2014	7.45	4.03	-45.8	P
2015	N/A	5.22	N/A	N/A
2016	N/A	5.01	N/A	N/A
2017	2.00	8.50	324.8	P
2018	4.92	3.68	-25.2	F
2019	2.33	4.17	79.1	P
2020	1.99	5.46	174.2	P
2021	2.35	4.06	72.7	P
2022	2.67	5.13	92.0	P
2023	3.74	4.03	7.9	VG
Average*	4.70	5.13	9.3	VG
Median**	3.66	4.96	35.2	P
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 39 Daily TSS Concentration Comparisons at RCH120 Popash Creek

Statistic	Results	Rating
Count (number)	327	N/A
Average Error (%)	110.8	P
Median Error (%)	-1.5	VG
RMSE (mg/L)	11.73	N/A
R^2	0.00	P

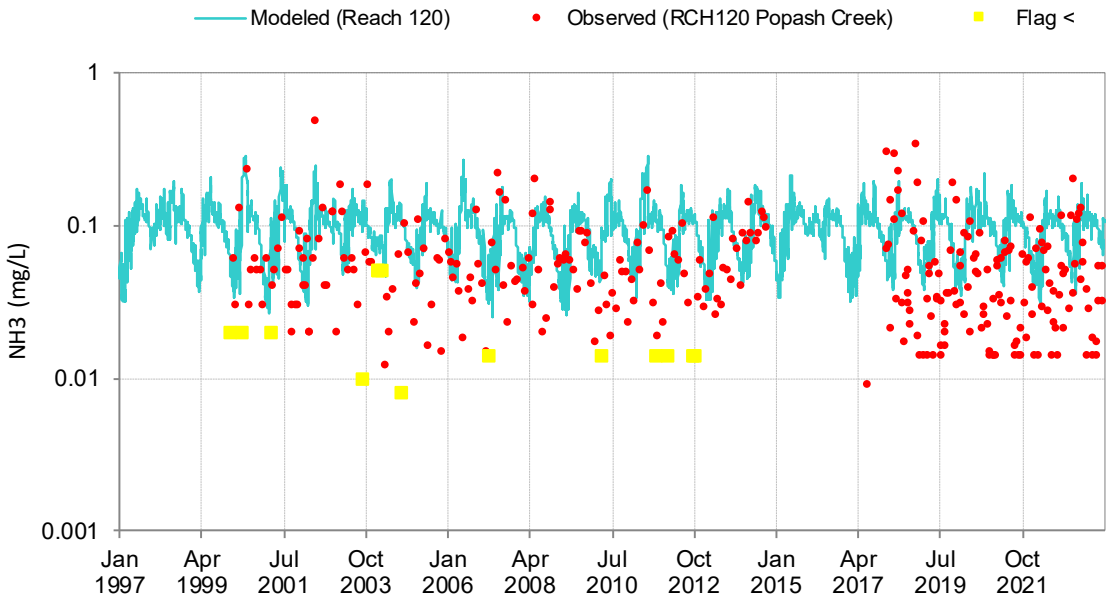


Figure A-112 Modeled Vs Observed NH3 (mg/L) at RCH120 Popash Creek

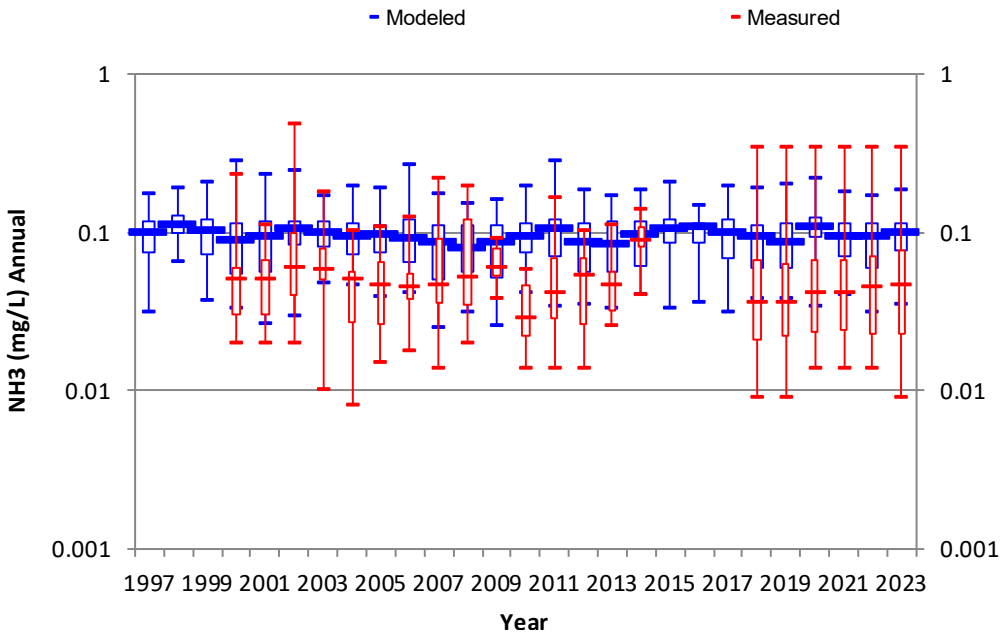


Figure A-113 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH120 Popash Creek

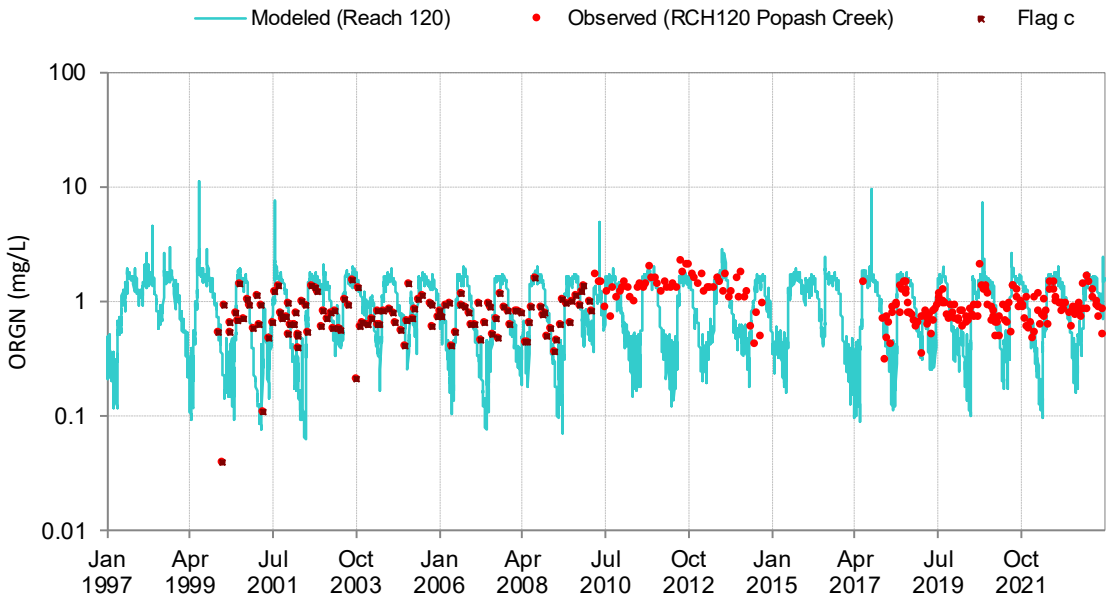


Figure A-114 Modeled Vs Observed ORGN (mg/L) at RCH120 Popash Creek

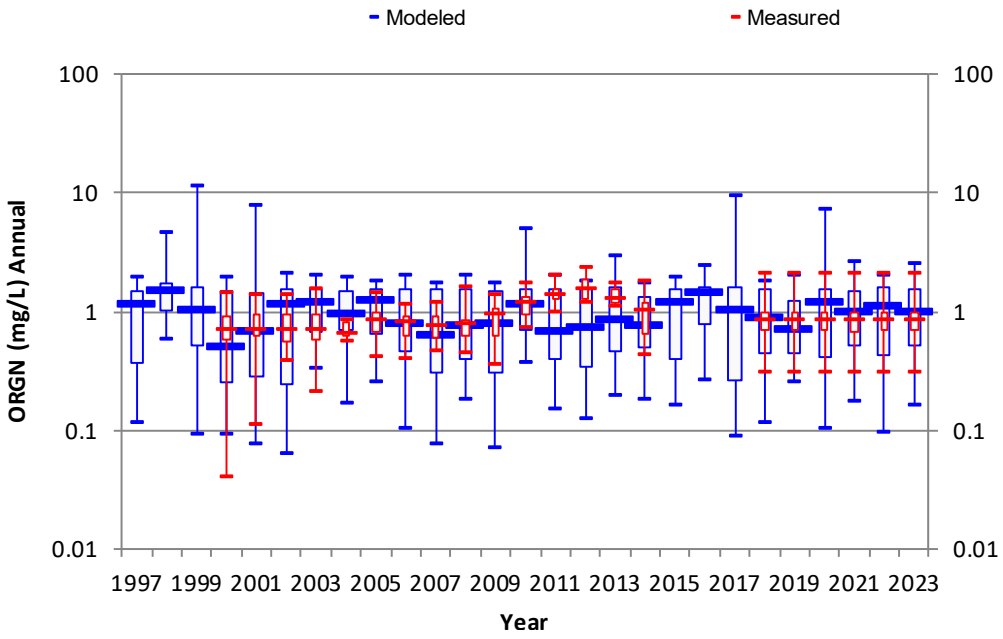


Figure A-115 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH120 Popash Creek

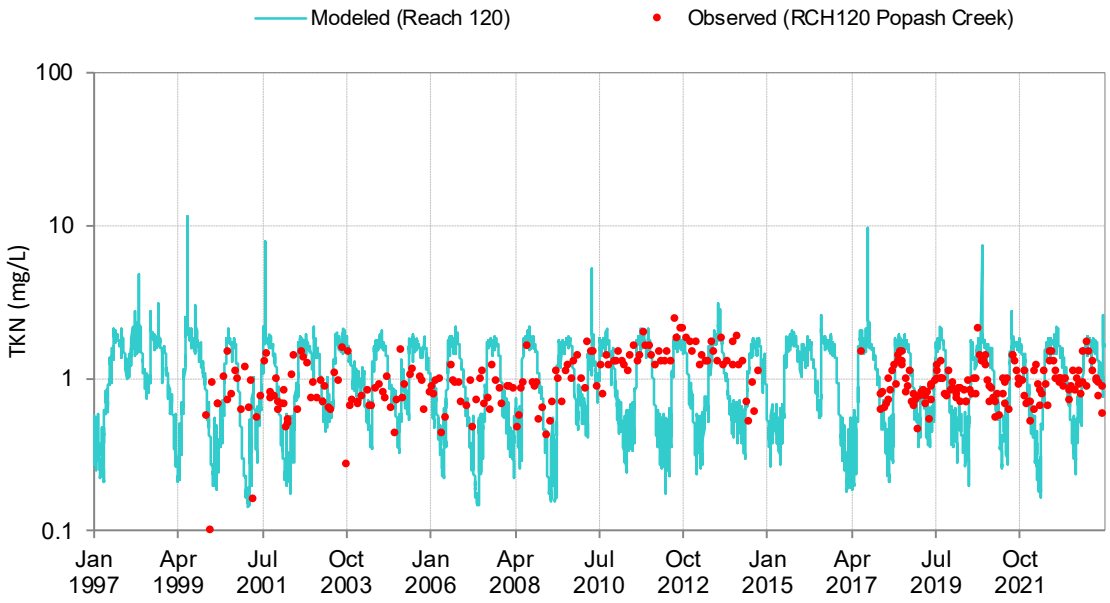


Figure A-116 Modeled Vs Observed TKN (mg/L) at RCH120 Popash Creek

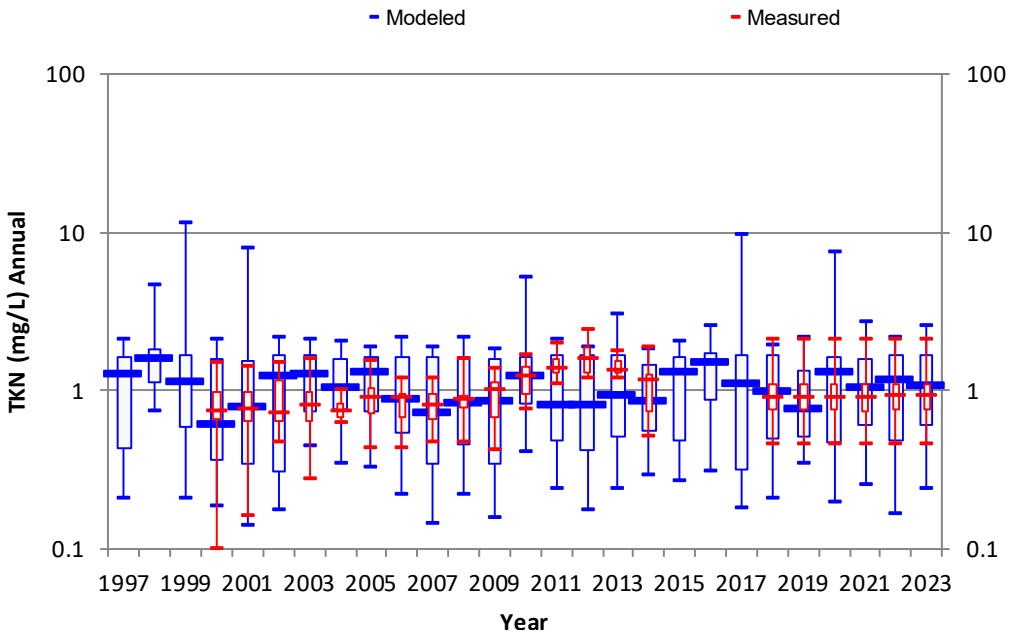


Figure A-117 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH120 Popash Creek

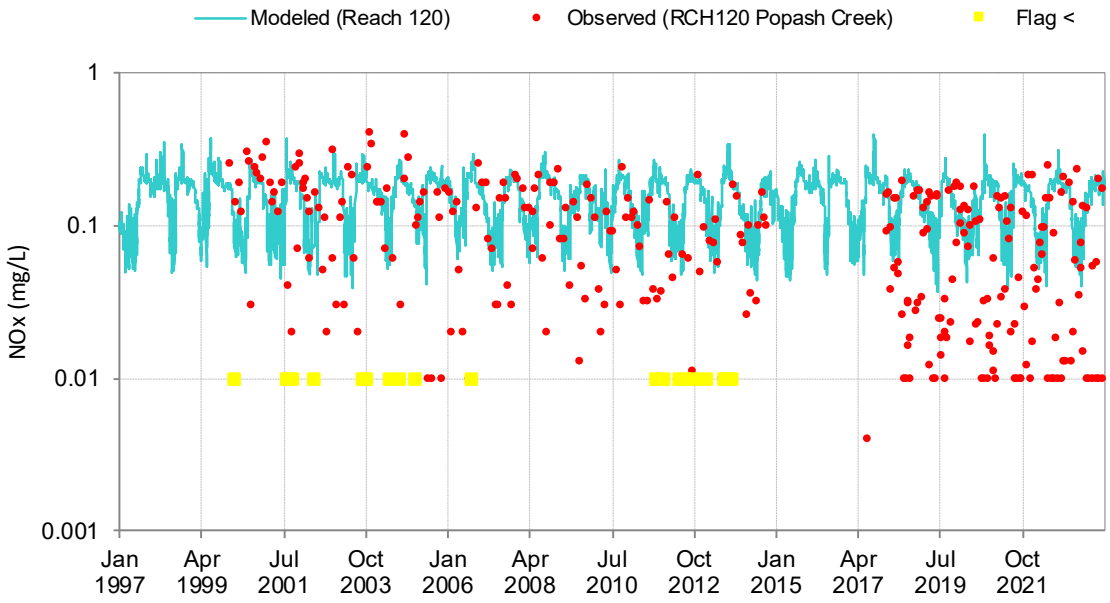


Figure A-118 Modeled Vs Observed NOx (mg/L) at RCH120 Popash Creek

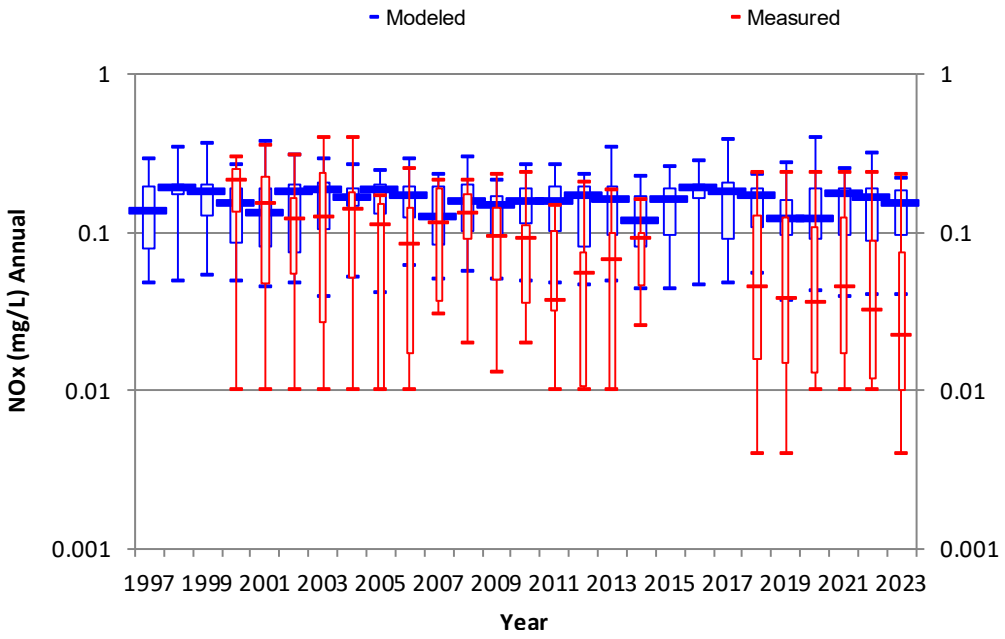


Figure A-119 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH120 Popash Creek

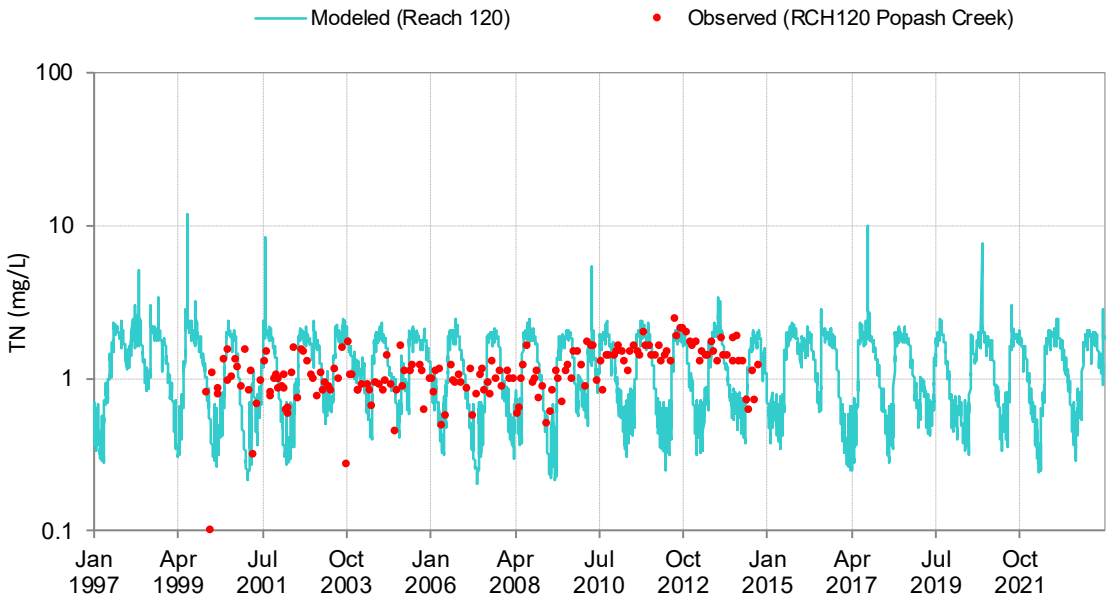


Figure A-120 Modeled Vs Observed TN (mg/L) at RCH120 Popash Creek

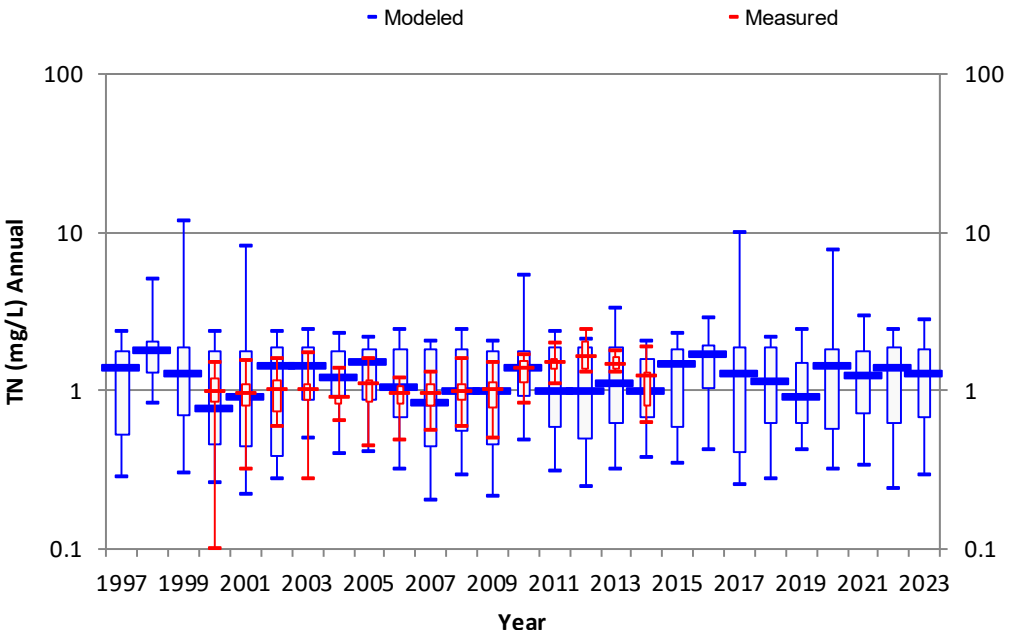


Figure A-121 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH120 Popash Creek

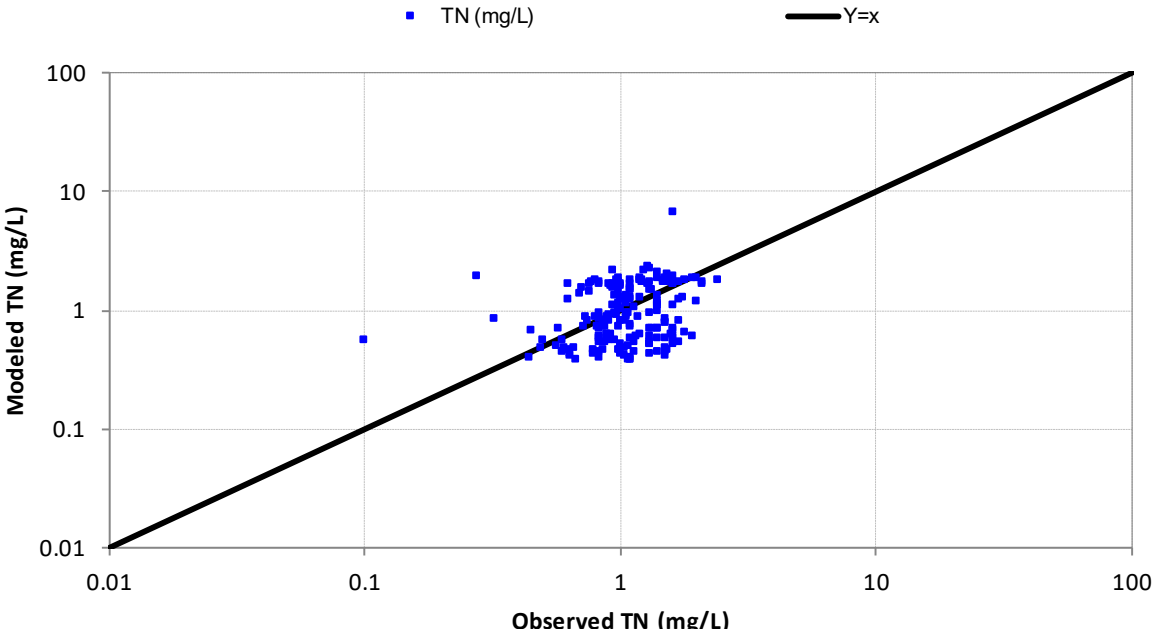


Figure A-122 Concentration at RCH120 Popash Creek

Table A- 40 Monthly TN Concentration Comparisons at RCH120 Popash Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.13	0.81	-28.7	VG
Feb	0.93	0.70	-24.6	VG
Mar	1.11	0.63	-43.5	G
Apr	1.03	0.63	-39.0	G
May	1.10	0.67	-38.6	G
Jun	1.02	1.30	27.4	VG
Jul	1.23	1.89	53.6	F
Aug	1.30	1.96	51.0	F
Sep	1.15	2.00	73.7	P
Oct	1.27	1.76	38.4	G
Nov	1.22	1.38	13.0	VG
Dec	1.09	1.09	-0.2	VG
Average*	1.13	1.23	9.1	VG
Median**	1.12	1.19	6.4	VG
R^2	N/A	N/A	0.53	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 41 Annual TN Concentration Comparisons at RCH120 Popash Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.23	N/A	N/A
1998	N/A	1.71	N/A	N/A
1999	N/A	1.36	N/A	N/A
2000	0.99	1.02	2.8	VG
2001	0.97	1.09	12.4	VG
2002	1.00	1.20	19.7	VG
2003	1.03	1.38	34.3	G
2004	0.90	1.28	42.3	G
2005	1.00	1.36	35.8	G
2006	0.92	1.18	28.2	VG
2007	0.95	1.04	8.9	VG
2008	0.99	1.17	18.5	VG
2009	0.99	1.09	10.0	VG
2010	1.31	1.38	5.1	VG
2011	1.51	1.19	-20.9	VG
2012	1.73	1.12	-35.2	G
2013	1.50	1.23	-17.9	VG
2014	1.20	1.12	-6.6	VG
2015	N/A	1.24	N/A	N/A
2016	N/A	1.50	N/A	N/A
2017	N/A	1.24	N/A	N/A
2018	N/A	1.20	N/A	N/A
2019	N/A	1.07	N/A	N/A
2020	N/A	1.28	N/A	N/A
2021	N/A	1.23	N/A	N/A
2022	N/A	1.25	N/A	N/A
2023	N/A	1.25	N/A	N/A
Average*	1.13	1.24	9.2	VG
Median**	1.00	1.23	22.6	VG
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 42 Daily TN Concentration Comparisons at RCH120 Popash Creek

Statistic	Results	Rating
Count (number)	182	N/A
Average Error (%)	14.5	VG
Median Error (%)	-0.9	VG
RMSE (mg/L)	0.71	N/A
R^2	0.07	P

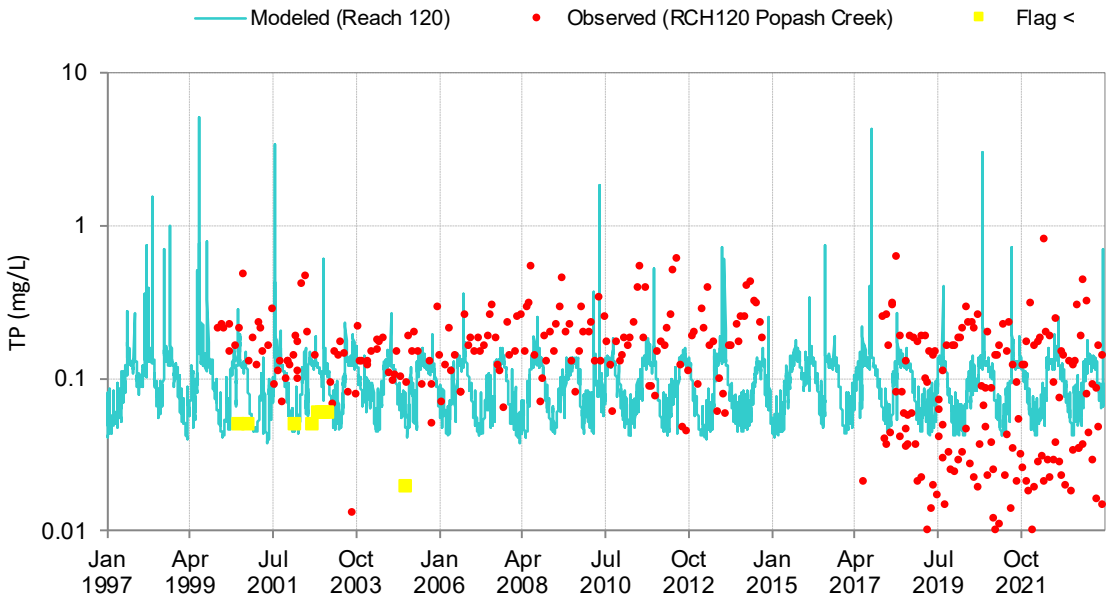


Figure A-123 Modeled Vs Observed TP (mg/L) at RCH120 Popash Creek

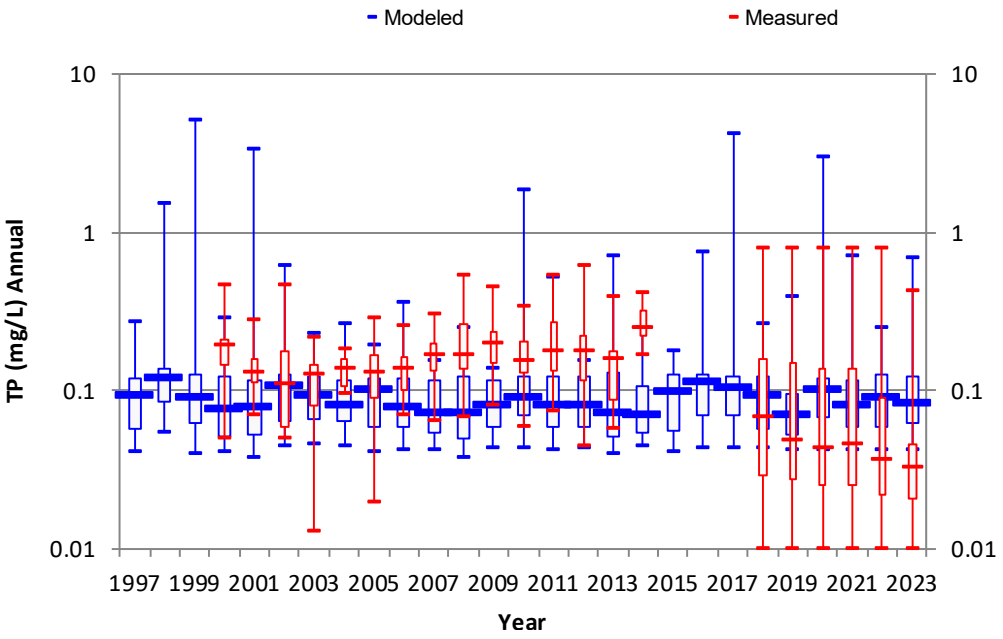


Figure A-124 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH120 Popash Creek

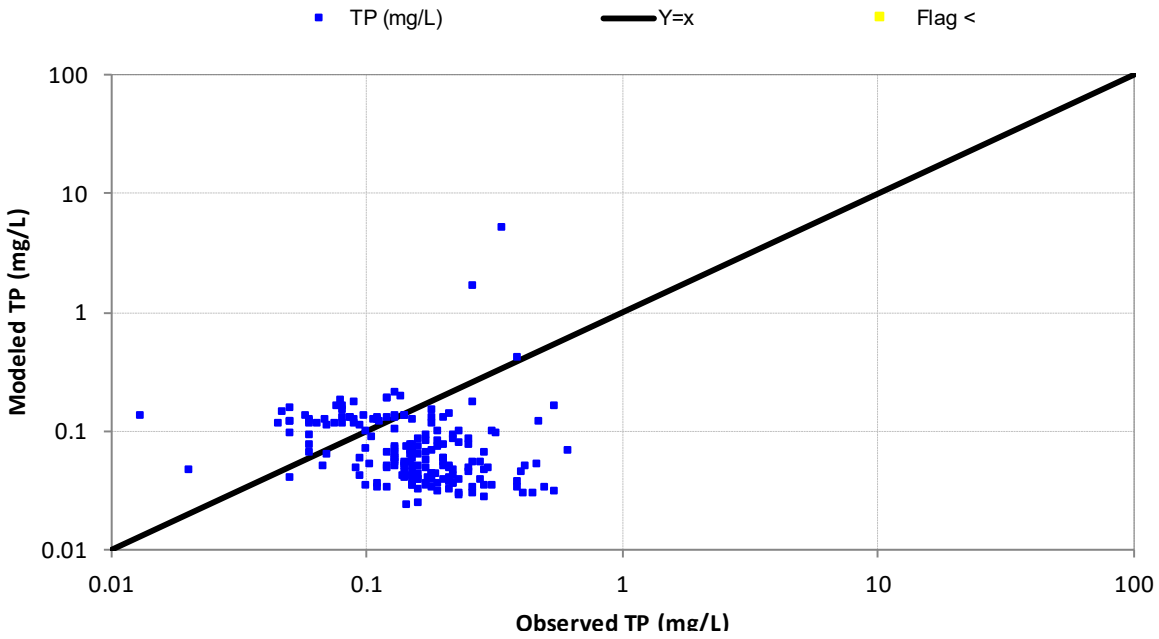


Figure A-125 Concentration at RCH120 Popash Creek

Table A- 43 Monthly TP Concentration Comparisons at RCH120 Popash Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.13	0.06	-52.1	F
Feb	0.14	0.06	-57.2	F
Mar	0.14	0.07	-54.1	F
Apr	0.20	0.07	-63.9	P
May	0.24	0.07	-68.7	P
Jun	0.21	0.10	-51.3	F
Jul	0.13	0.14	11.3	VG
Aug	0.11	0.13	19.3	VG
Sep	0.10	0.15	44.2	G
Oct	0.09	0.11	21.4	VG
Nov	0.12	0.09	-26.5	VG
Dec	0.12	0.07	-36.0	G
Average*	0.15	0.10	-34.4	G
Median**	0.13	0.08	-36.4	G
R^2	N/A	N/A	0.18	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 44 Annual TP Concentration Comparisons at RCH120 Popash Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.09	N/A	N/A
1998	N/A	0.13	N/A	N/A
1999	N/A	0.12	N/A	N/A
2000	0.18	0.09	-52.3	F
2001	0.15	0.10	-33.2	G
2002	0.14	0.10	-28.9	VG
2003	0.12	0.10	-18.7	VG
2004	0.14	0.09	-35.5	G
2005	0.13	0.09	-28.6	VG
2006	0.14	0.09	-36.9	G
2007	0.17	0.08	-52.2	F
2008	0.21	0.09	-59.7	F
2009	0.22	0.09	-60.2	P
2010	0.17	0.10	-40.3	G
2011	0.22	0.09	-58.4	F
2012	0.22	0.09	-59.6	F
2013	0.16	0.09	-41.1	G
2014	0.28	0.08	-70.4	P
2015	N/A	0.09	N/A	N/A
2016	N/A	0.10	N/A	N/A
2017	0.02	0.11	439.8	P
2018	0.14	0.09	-33.1	G
2019	0.08	0.08	-2.8	VG
2020	0.11	0.11	-1.5	VG
2021	0.08	0.09	7.0	VG
2022	0.13	0.09	-24.3	VG
2023	0.11	0.09	-18.2	VG
Average*	0.15	0.10	-36.8	G
Median**	0.14	0.09	-34.3	G
R^2	N/A	N/A	0.25	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 45 Daily TP Concentration Comparisons at RCH120 Popash Creek

Statistic	Results	Rating
Count (number)	327	N/A
Average Error (%)	38.2	G
Median Error (%)	-37.0	G
RMSE (mg/L)	0.16	N/A
R^2	0.00	P

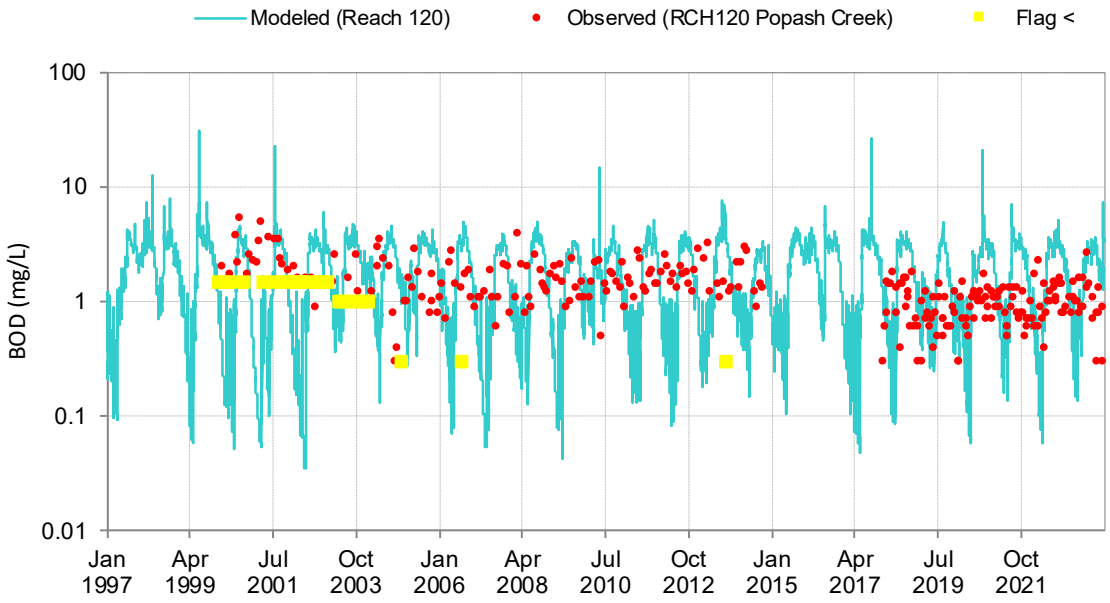


Figure A-126 Modeled Vs Observed BOD (mg/L) at RCH120 Popash Creek

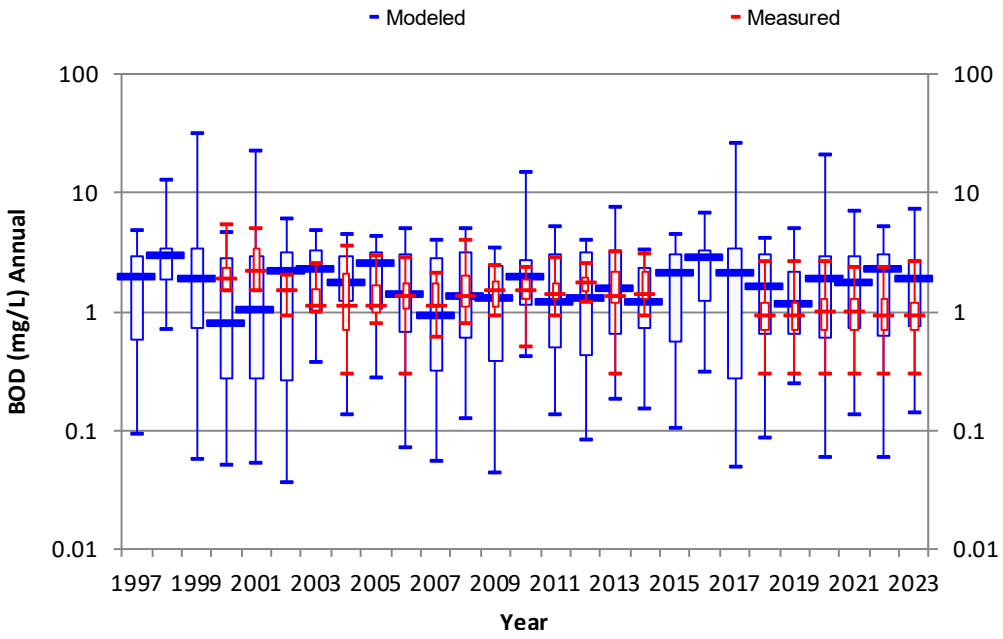


Figure A-127 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH120 Popash Creek

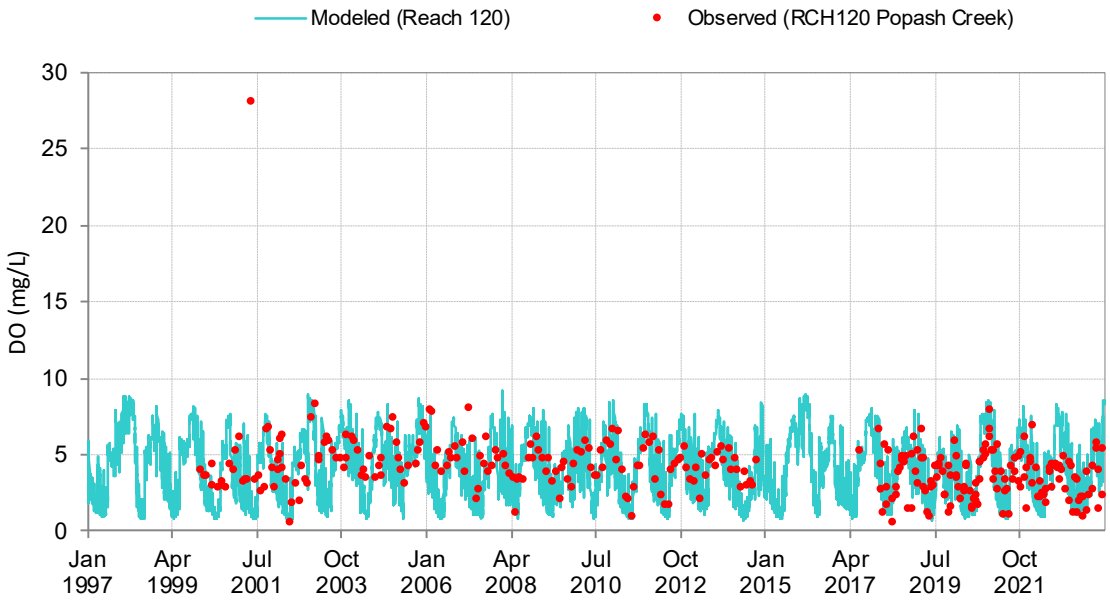


Figure A-128 Modeled Vs Observed DO (mg/L) at RCH120 Popash Creek

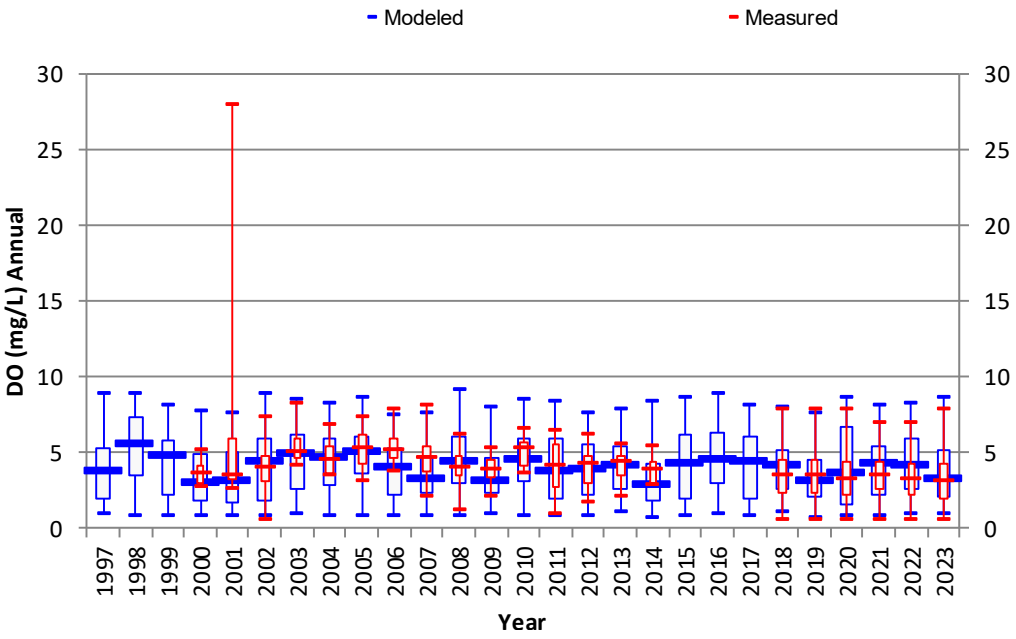


Figure A-129 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH120 Popash Creek

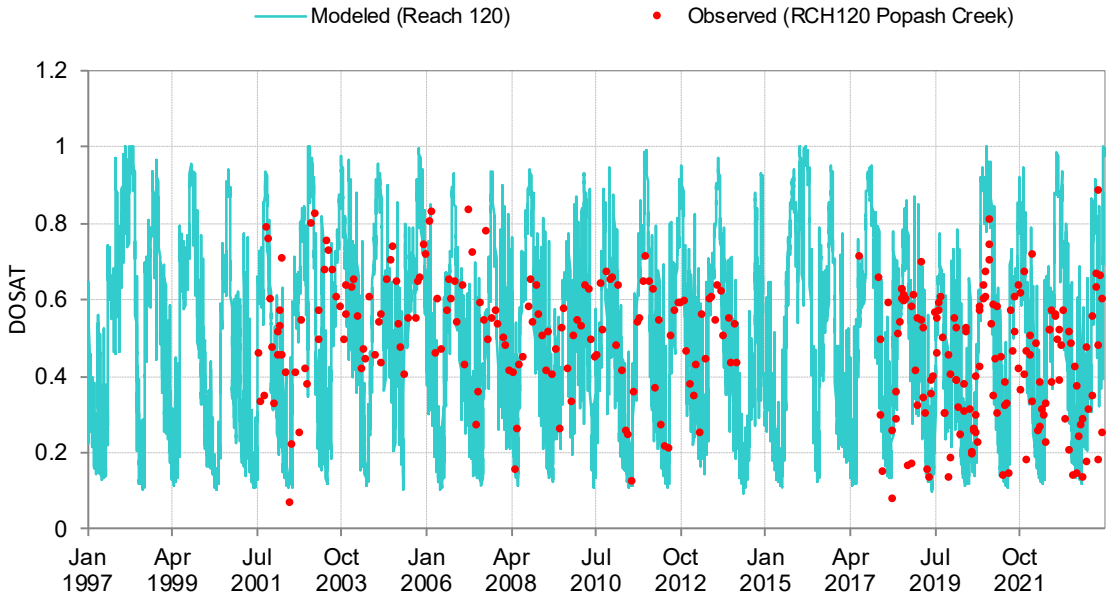


Figure A-130 Modeled Vs Observed DOSAT at RCH120 Popash Creek

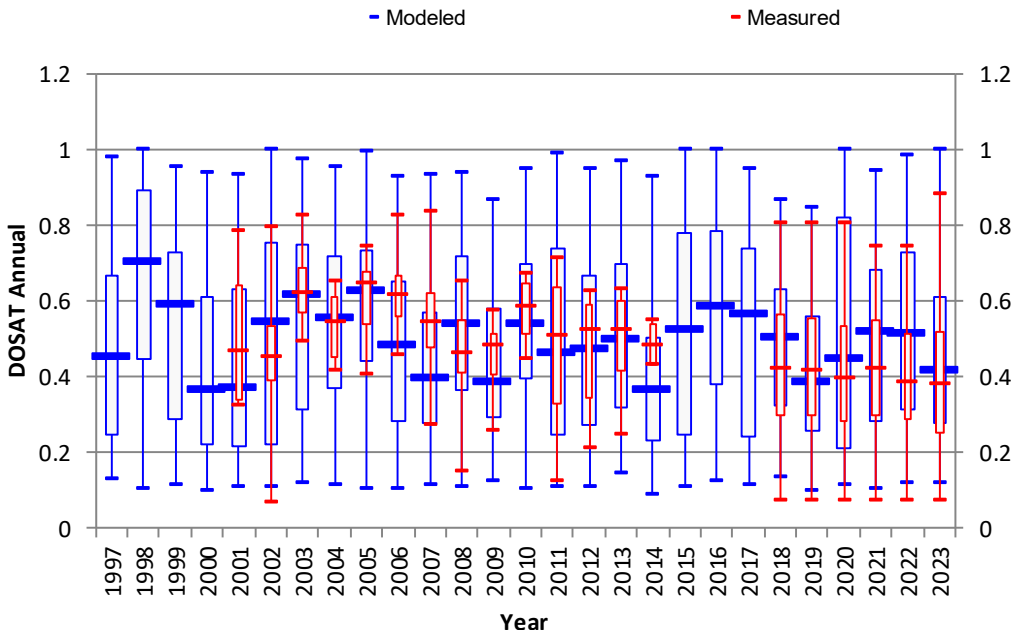


Figure A-131 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH120 Popash Creek

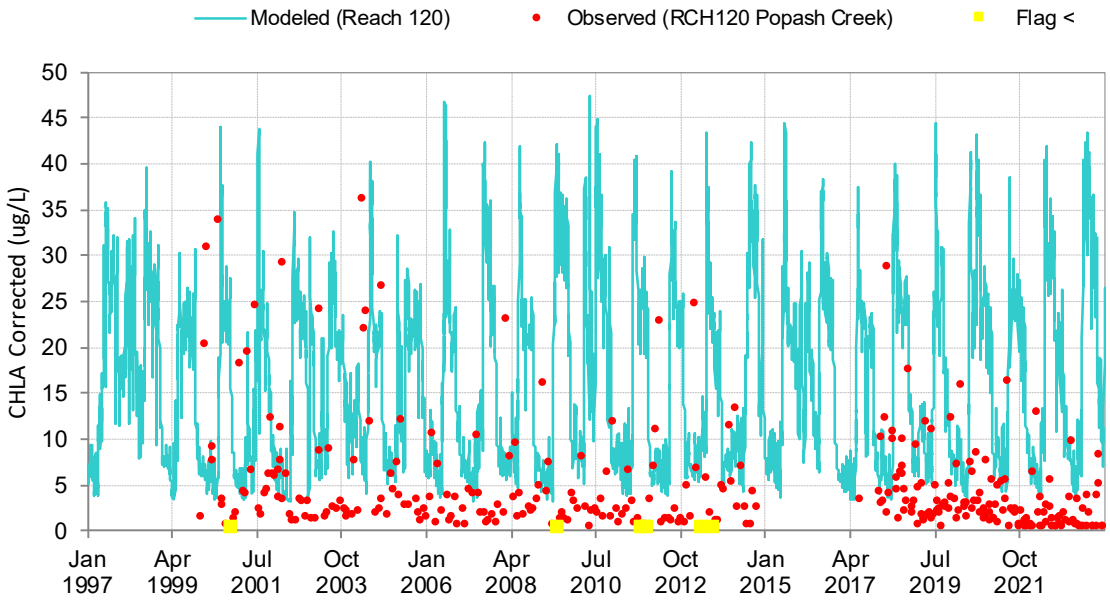


Figure A-132 Modeled Vs Observed CHLA Corrected (ug/L) at RCH120 Popash Creek

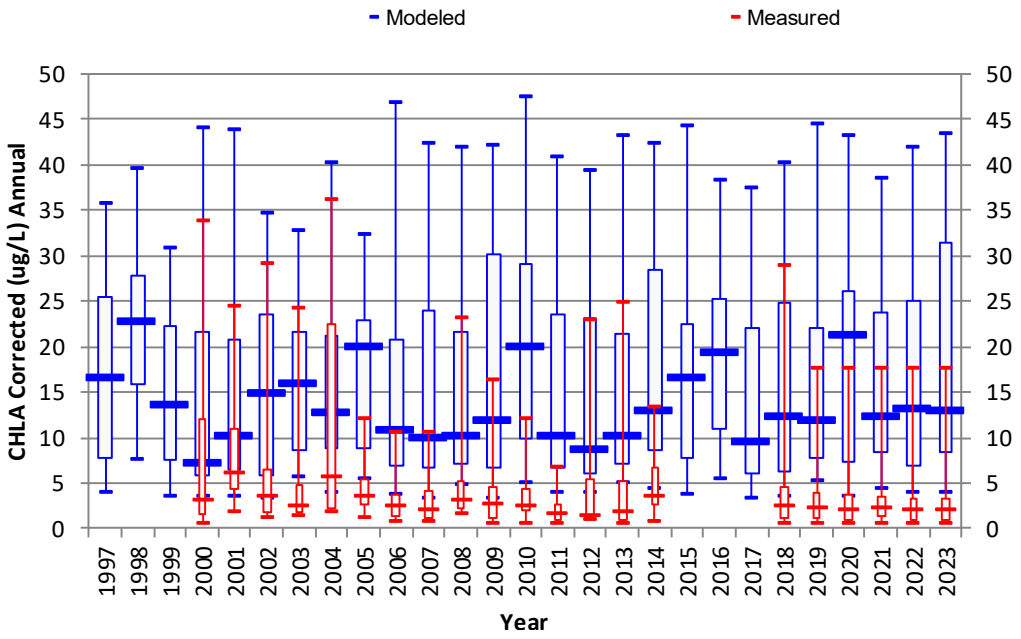


Figure A-133 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH120 Popash Creek

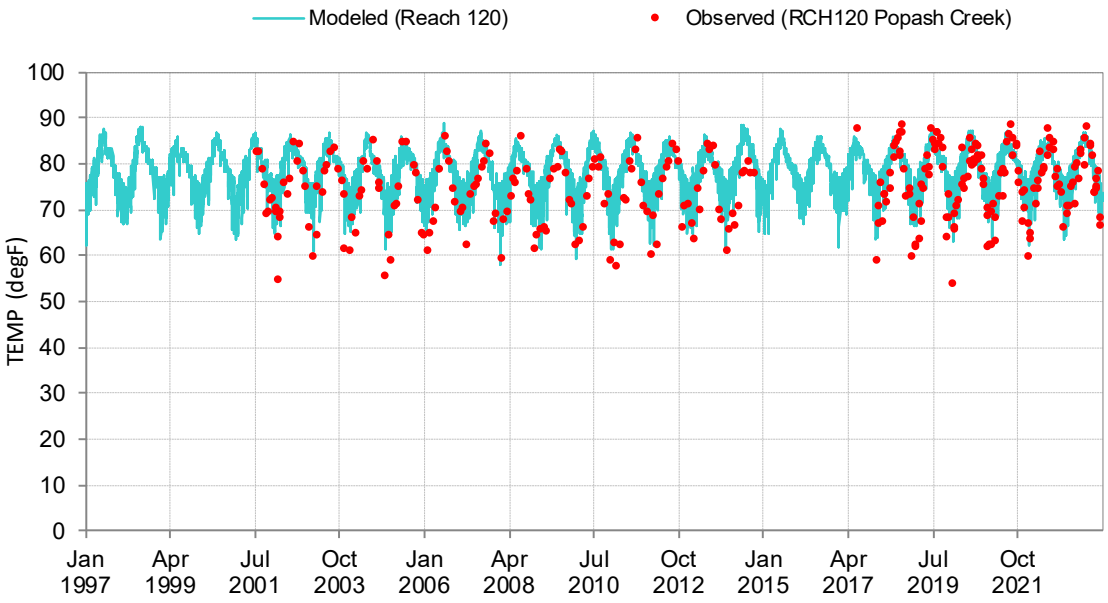


Figure A-134 Modeled Vs Observed TEMP (deg F) at RCH120 Popash Creek

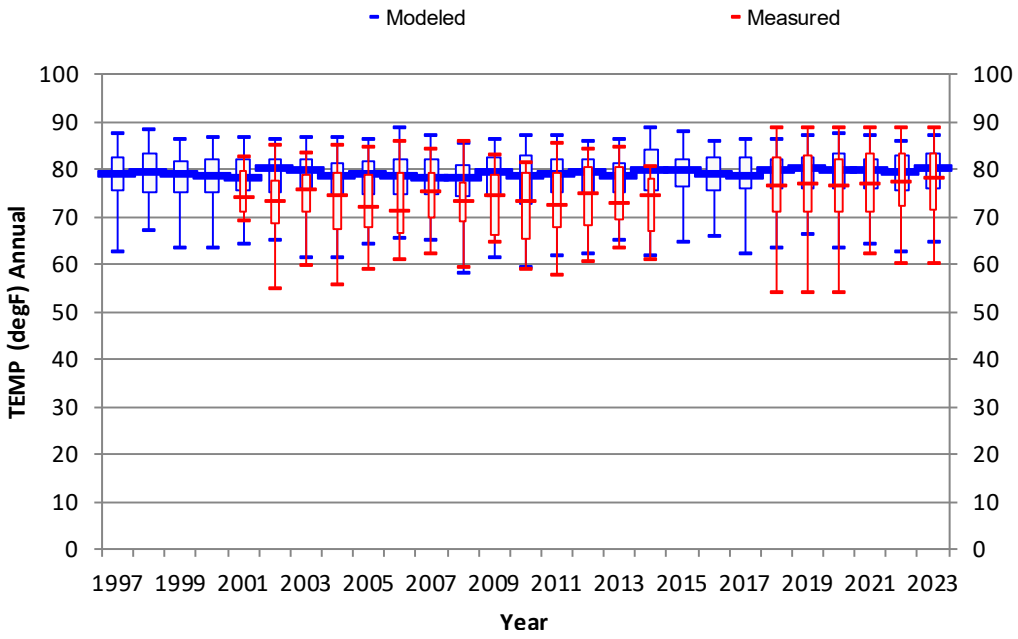


Figure A-135 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH120 Popash Creek

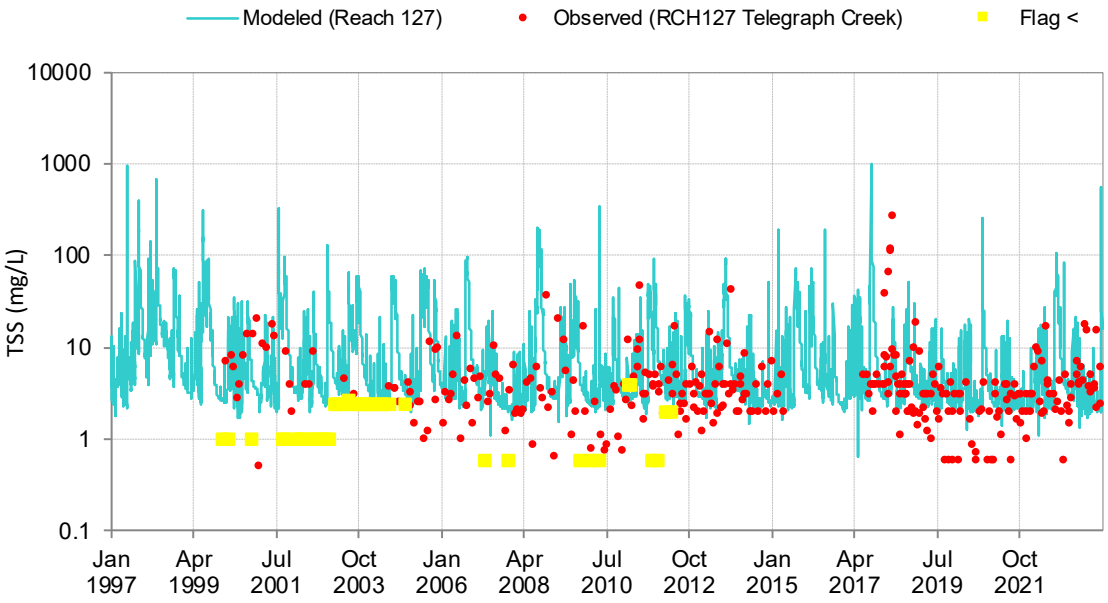


Figure A-136 Modeled Vs Observed TSS (mg/L) at RCH127 Telegraph Creek

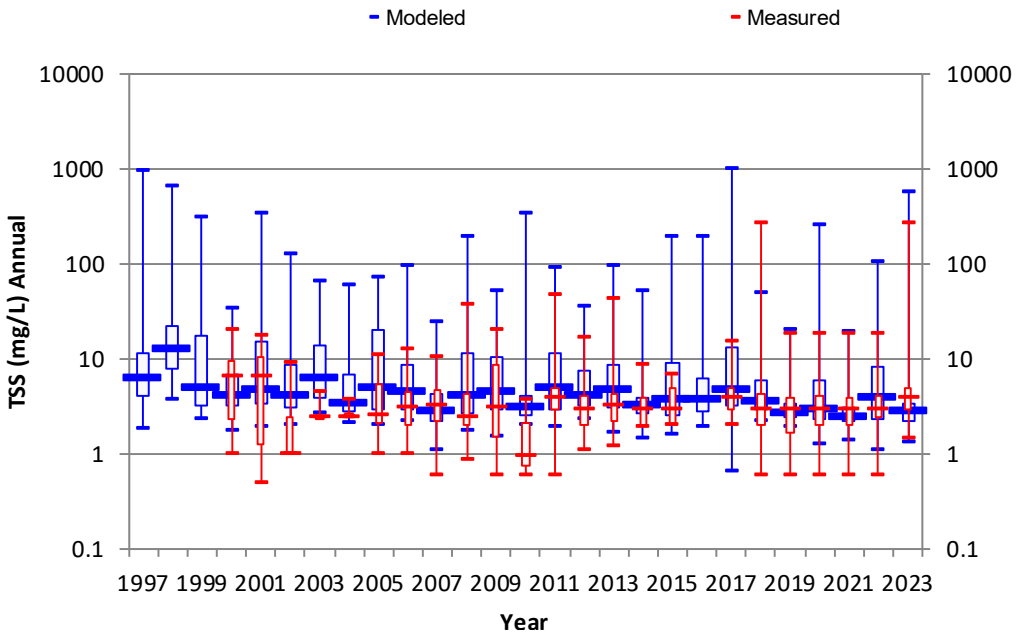


Figure A-137 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH127 Telegraph Creek

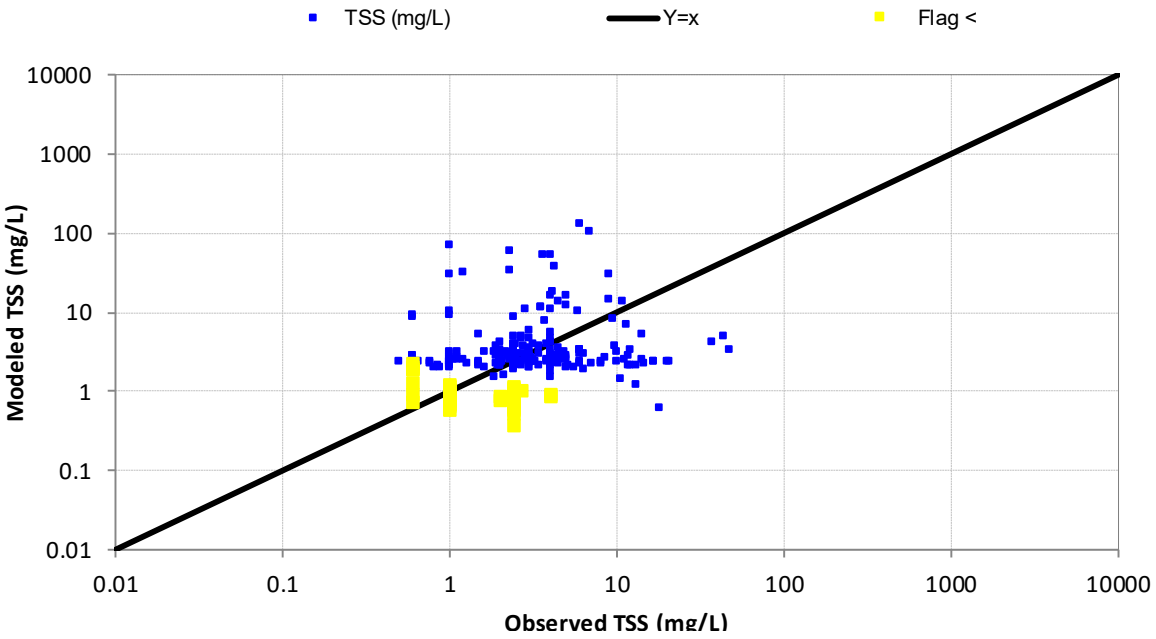


Figure A-138 Concentration at RCH127 Telegraph Creek

Table A- 46 Monthly TSS Concentration Comparisons at RCH127 Telegraph

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	3.87	4.50	16.2	G
Feb	3.54	5.51	55.3	P
Mar	11.97	8.12	-32.2	F
Apr	13.67	7.85	-42.6	P
May	4.86	7.25	49.0	P
Jun	6.13	10.07	64.2	P
Jul	3.52	10.69	204.0	P
Aug	3.90	15.99	309.8	P
Sep	3.22	30.34	842.7	P
Oct	3.69	15.85	329.3	P
Nov	6.47	7.35	13.6	VG
Dec	3.84	5.43	41.7	P
Average*	5.72	10.74	87.7	P
Median**	3.89	7.98	105.3	P
R^2	N/A	N/A	0.07	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 47 Annual TSS Concentration Comparisons at RCH127 Telegraph Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	19.65	N/A	N/A
1998	N/A	24.67	N/A	N/A
1999	N/A	19.03	N/A	N/A
2000	7.11	6.30	-11.4	VG
2001	6.85	14.53	112.1	P
2002	1.91	10.42	445.6	P
2003	1.64	11.99	632.1	P
2004	1.91	9.46	395.6	P
2005	4.33	14.52	235.3	P
2006	3.97	11.49	189.4	P
2007	3.72	4.00	7.7	VG
2008	5.74	17.89	211.9	P
2009	6.18	9.24	49.7	P
2010	1.47	5.60	281.7	P
2011	6.12	10.69	74.8	P
2012	3.68	6.79	84.3	P
2013	5.92	10.72	81.3	P
2014	3.49	3.97	13.6	VG
2015	3.80	10.28	170.5	P
2016	N/A	8.50	N/A	N/A
2017	4.00	25.07	526.7	P
2018	19.83	5.77	-70.9	P
2019	2.79	3.58	28.4	F
2020	1.93	7.19	272.5	P
2021	2.40	3.20	33.2	F
2022	4.48	10.44	133.1	P
2023	5.49	5.30	-3.5	VG
Average*	4.73	10.75	127.4	P
Median**	3.97	10.28	158.9	P
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 48 Daily TSS Concentration Comparisons at RCH127 Telegraph Creek

Statistic	Results	Rating
Count (number)	374	N/A
Average Error (%)	246.7	P
Median Error (%)	45.7	P
RMSE (mg/L)	23.45	N/A
R^2	0.00	P

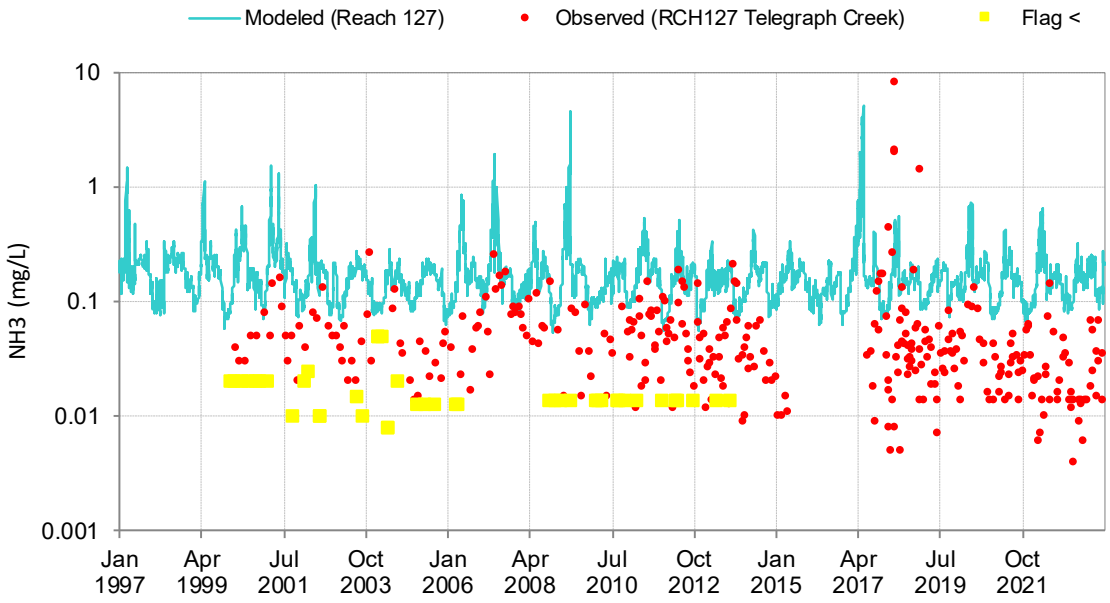


Figure A-139 Modeled Vs Observed NH3 (mg/L) at RCH127 Telegraph Creek

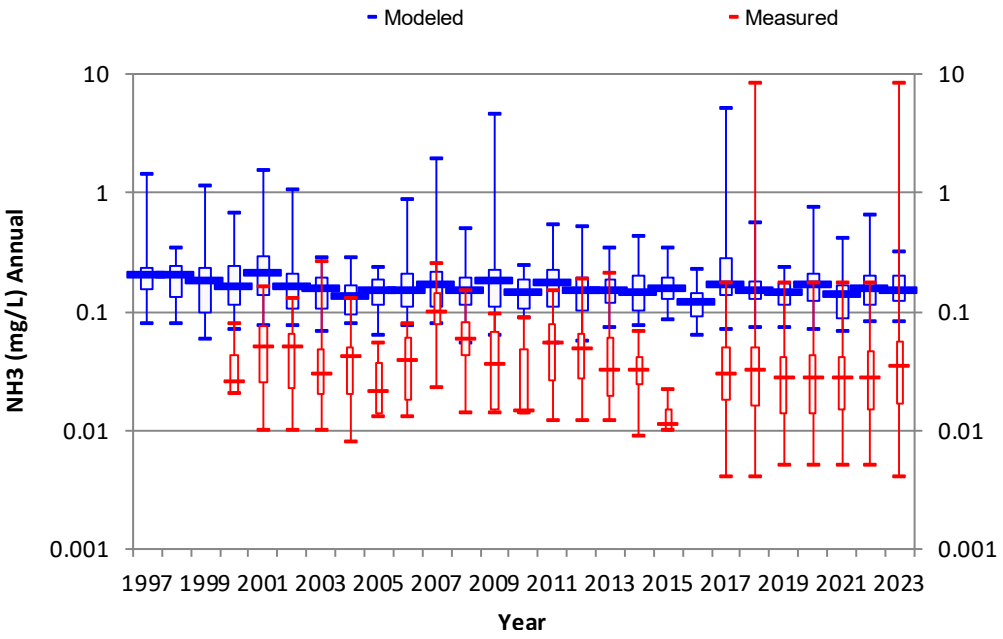


Figure A-140 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH127 Telegraph Creek

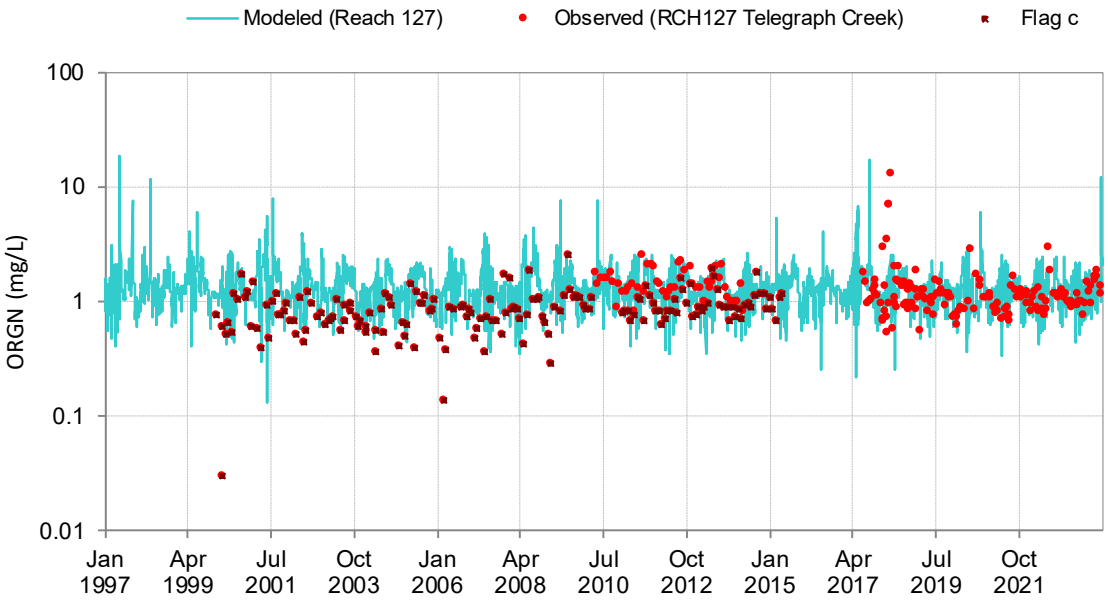


Figure A-141 Modeled Vs Observed ORGN (mg/L) at RCH127 Telegraph Creek

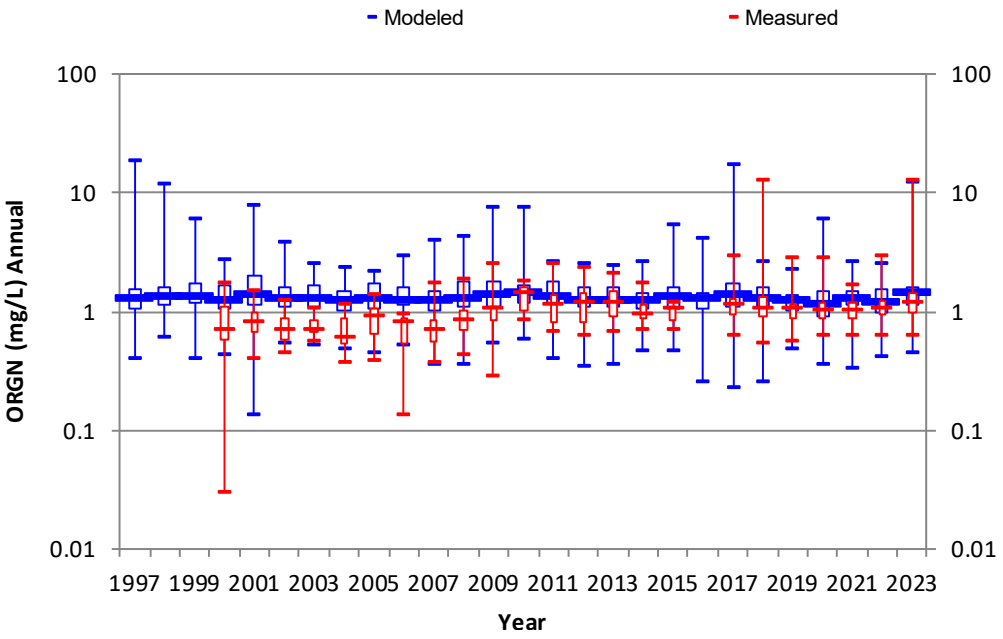


Figure A-142 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH127 Telegraph Creek

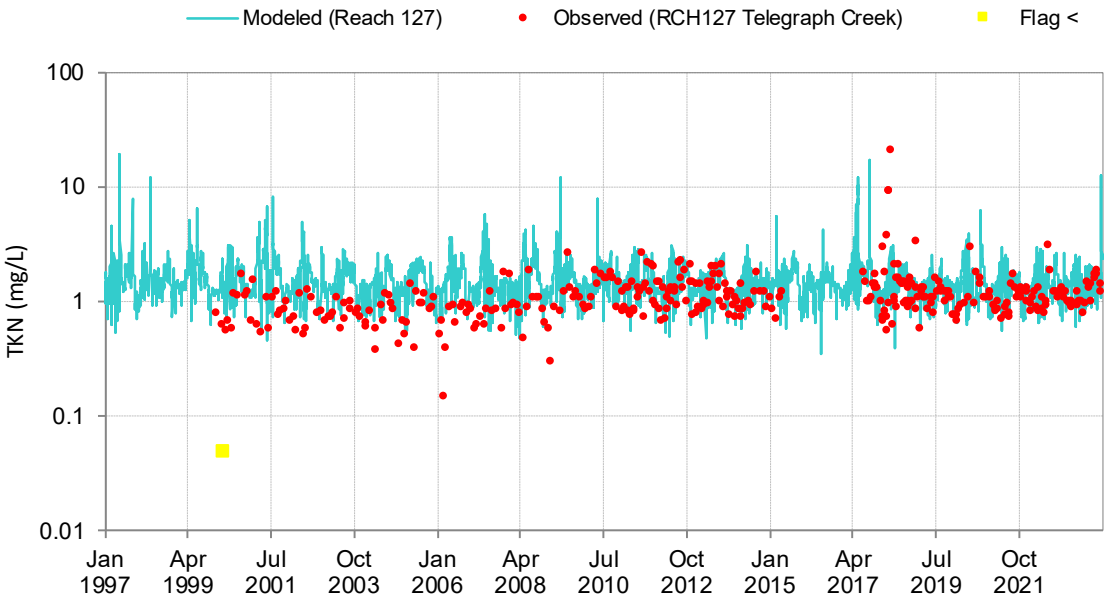


Figure A-143 Modeled Vs Observed TKN (mg/L) at RCH127 Telegraph Creek

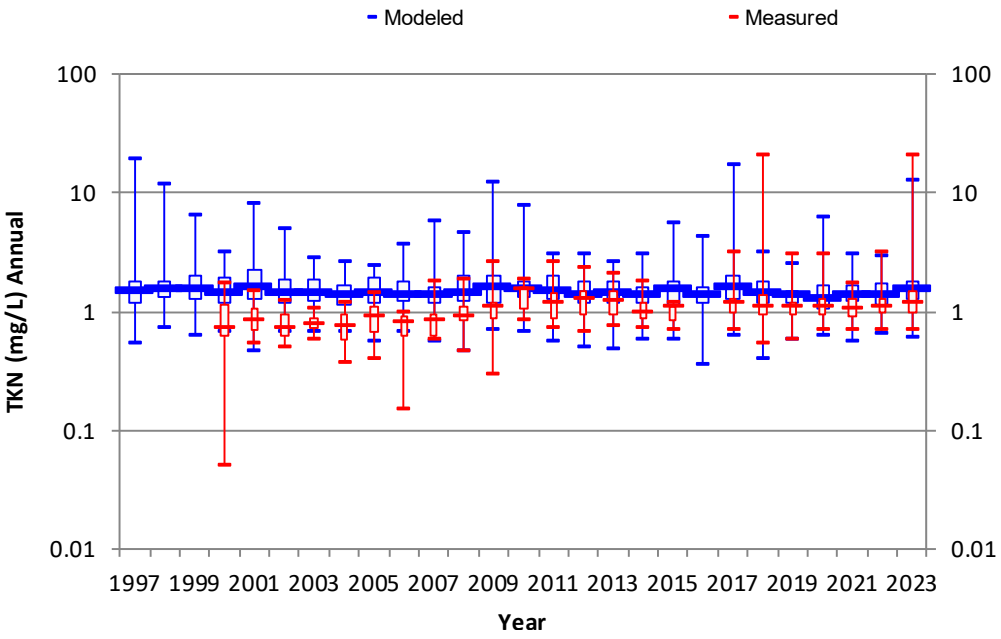


Figure A-144 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH127 Telegraph Creek

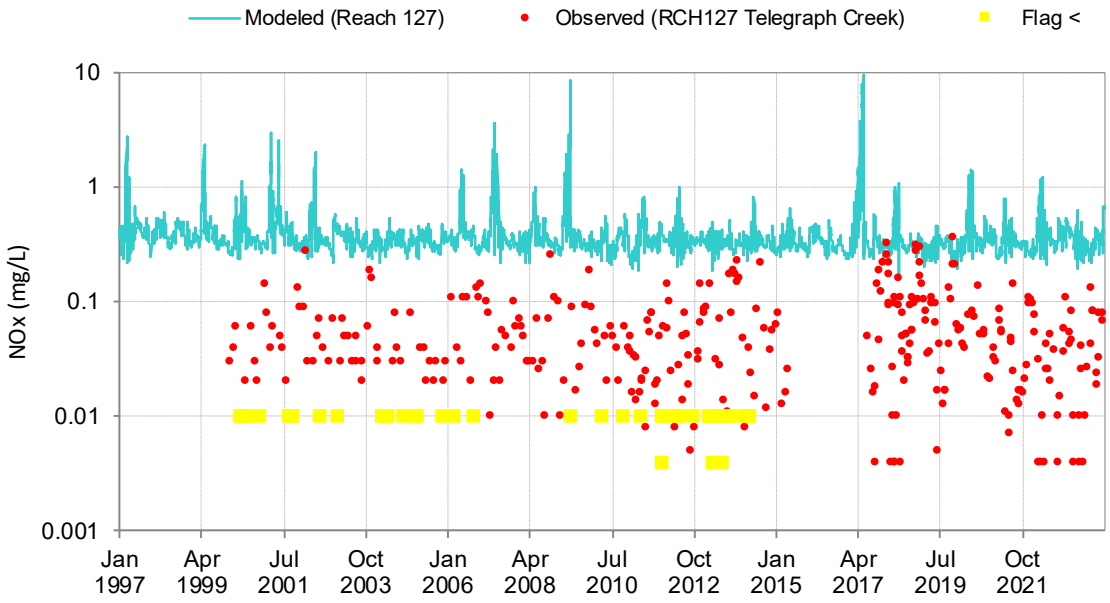


Figure A-145 Modeled Vs Observed NOx (mg/L) at RCH127 Telegraph Creek

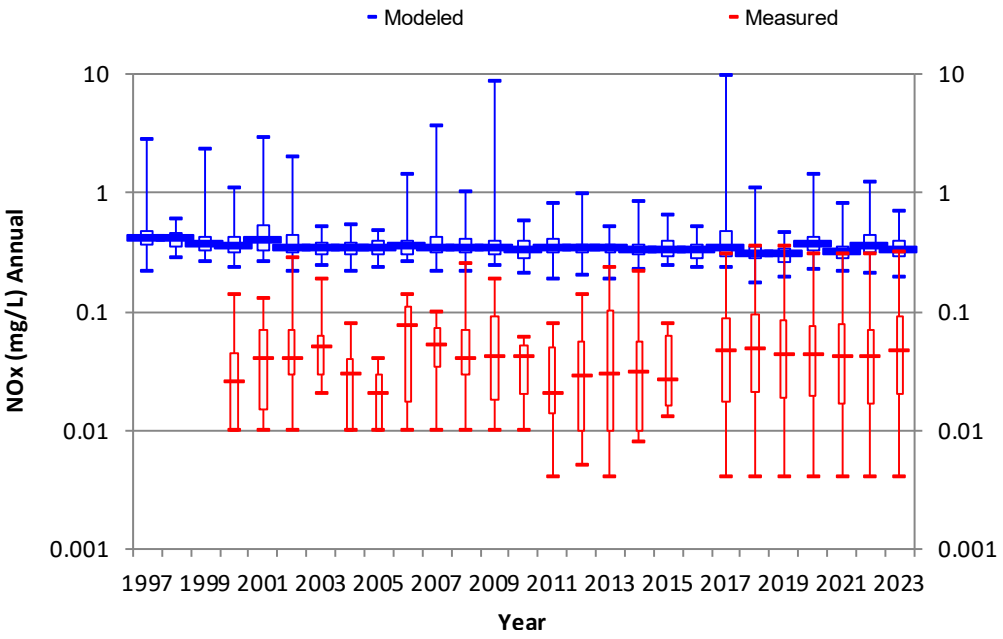


Figure A-146 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH127 Telegraph Creek

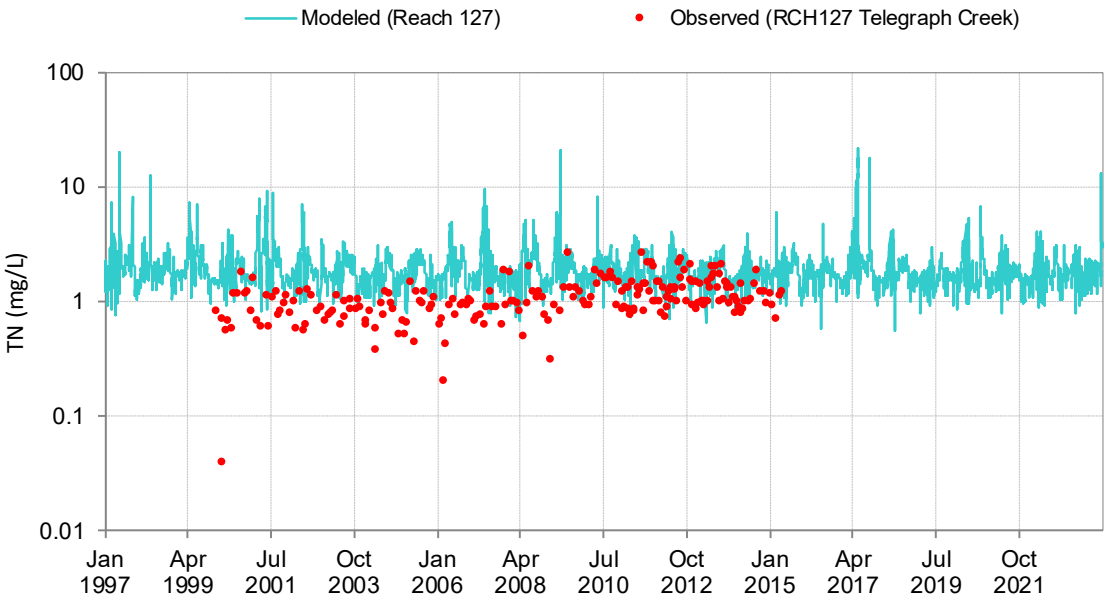


Figure A-147 Modeled Vs Observed TN (mg/L) at RCH127 Telegraph Creek

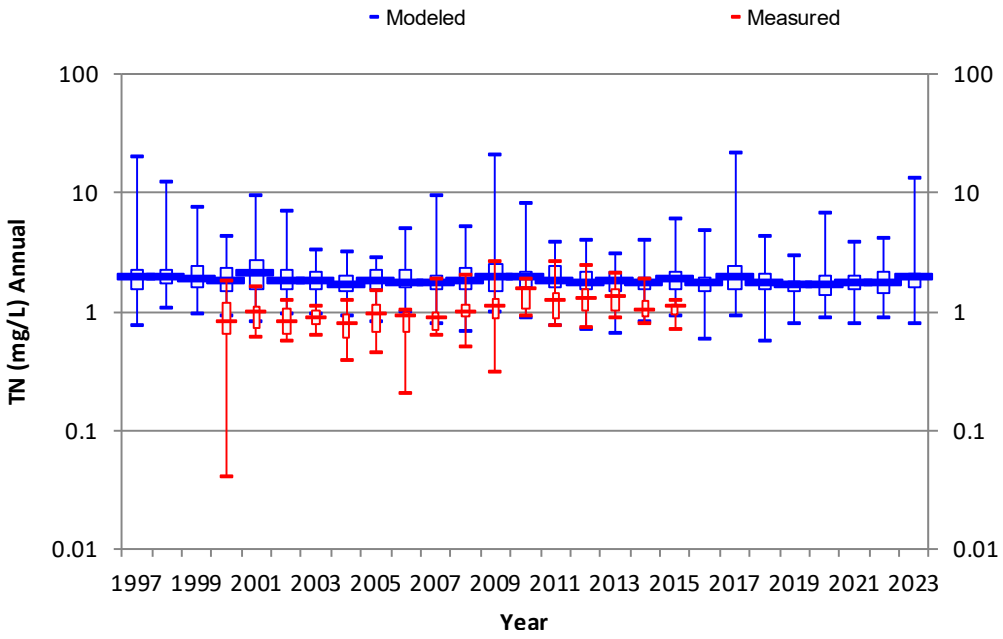


Figure A-148 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH127 Telegraph Creek

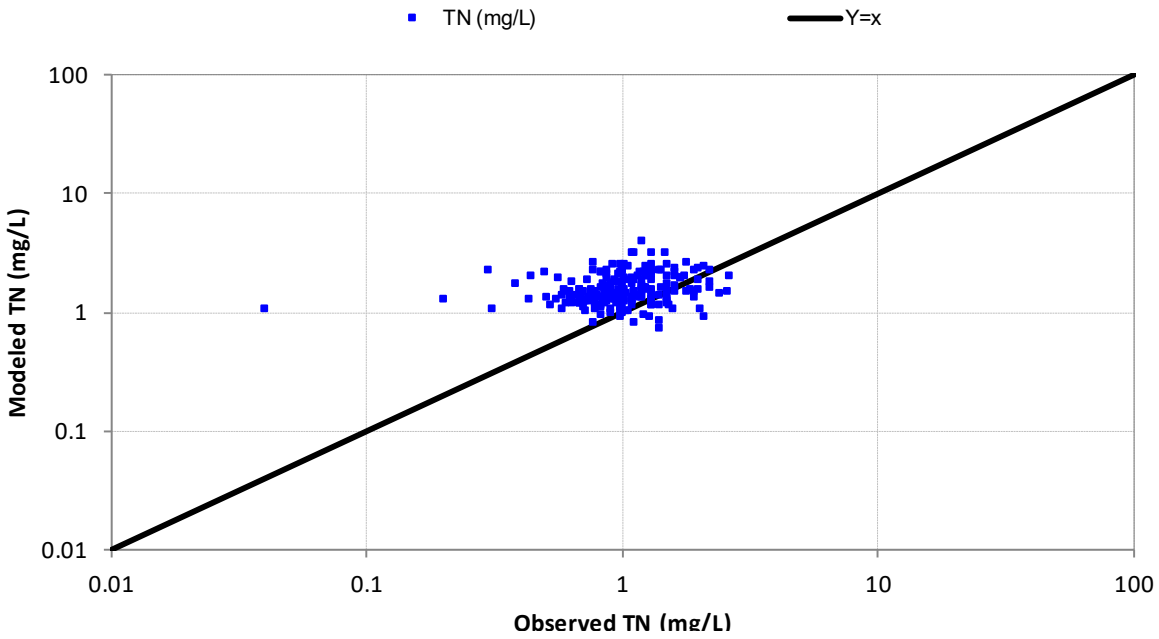


Figure A-149 Concentration at RCH127 Telegraph Creek

Table A- 49 Monthly TN Concentration Comparisons at RCH127 Telegraph Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.99	1.61	62.8	P
Feb	0.83	1.75	111.9	P
Mar	0.85	2.08	143.5	P
Apr	1.02	2.43	139.1	P
May	0.89	2.84	219.1	P
Jun	1.16	1.94	68.0	P
Jul	1.43	1.95	37.0	G
Aug	1.29	2.11	64.2	P
Sep	1.37	2.22	61.5	P
Oct	1.21	1.72	42.0	G
Nov	1.21	1.55	28.6	VG
Dec	1.07	1.61	49.7	F
Average*	1.11	1.98	79.0	P
Median**	1.11	1.95	74.8	P
R^2	N/A	N/A	0.02	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 50 Annual TN Concentration Comparisons at RCH127 Telegraph Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	2.15	N/A	N/A
1998	N/A	2.05	N/A	N/A
1999	N/A	2.16	N/A	N/A
2000	0.89	1.97	120.8	P
2001	0.96	2.43	152.2	P
2002	0.87	2.03	134.0	P
2003	0.88	1.88	112.8	P
2004	0.79	1.77	123.6	P
2005	0.92	1.88	104.1	P
2006	0.80	1.98	148.5	P
2007	1.00	2.10	111.4	P
2008	1.05	2.04	94.1	P
2009	1.14	2.47	116.0	P
2010	1.41	1.96	38.4	G
2011	1.31	2.00	52.9	F
2012	1.34	1.87	39.2	G
2013	1.35	1.82	34.7	G
2014	1.10	1.78	61.4	P
2015	1.03	1.88	82.0	P
2016	N/A	1.74	N/A	N/A
2017	N/A	2.72	N/A	N/A
2018	N/A	1.86	N/A	N/A
2019	N/A	1.66	N/A	N/A
2020	N/A	1.87	N/A	N/A
2021	N/A	1.79	N/A	N/A
2022	N/A	1.88	N/A	N/A
2023	N/A	1.90	N/A	N/A
Average*	1.05	1.99	88.6	P
Median**	1.01	1.90	87.3	P
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 51 Daily TN Concentration Comparisons at RCH127 Telegraph Creek

Statistic	Results	Rating
Count (number)	221	N/A
Average Error (%)	129.3	P
Median Error (%)	78.2	P
RMSE (mg/L)	1.25	N/A
R^2	0.00	P

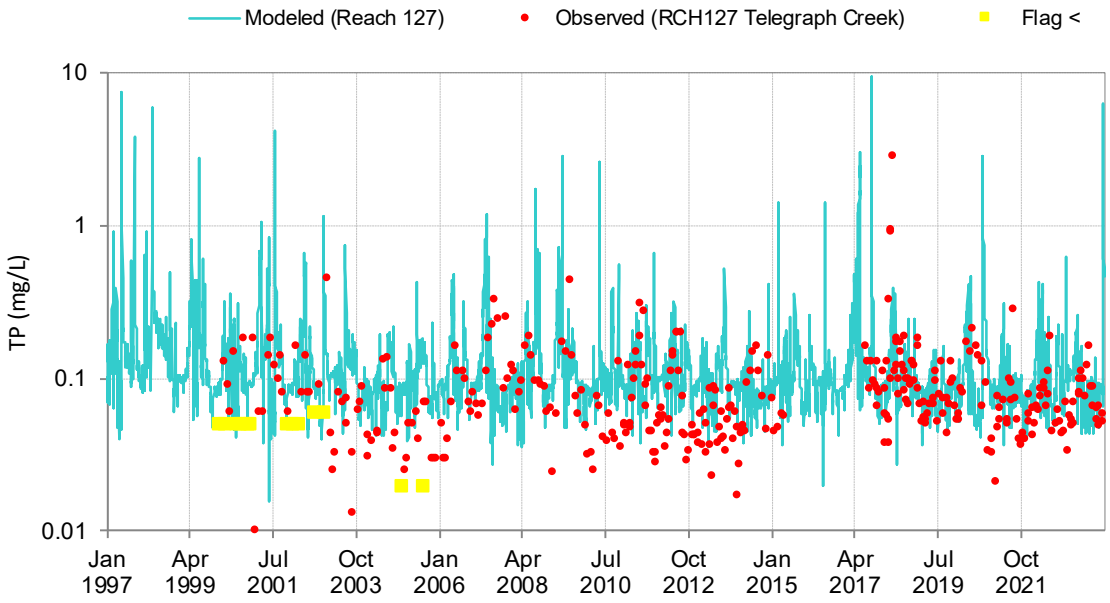


Figure A-150 Modeled Vs Observed TP (mg/L) at RCH127 Telegraph Creek

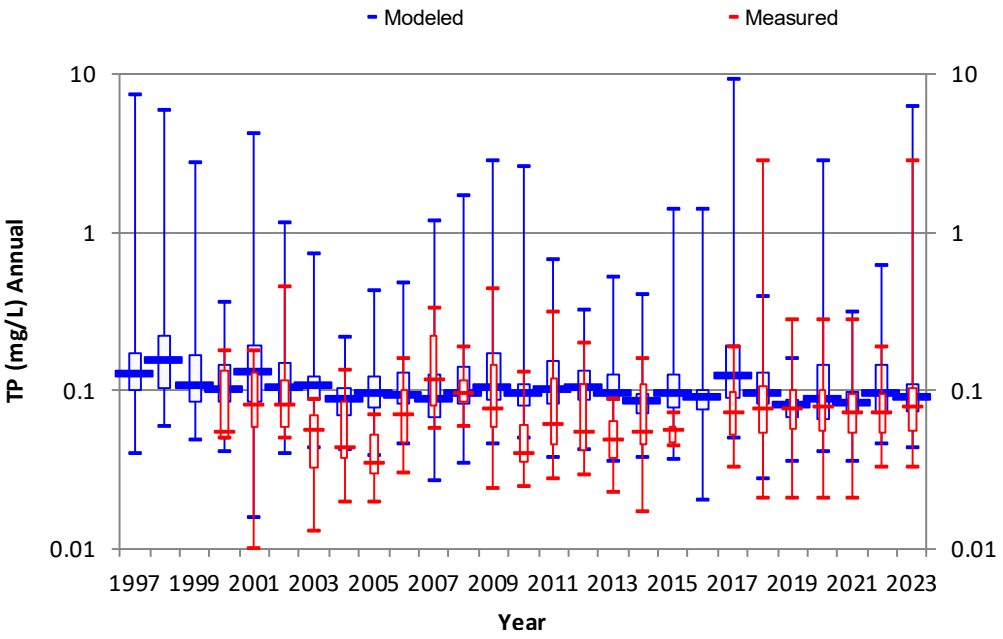


Figure A-151 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH127 Telegraph Creek

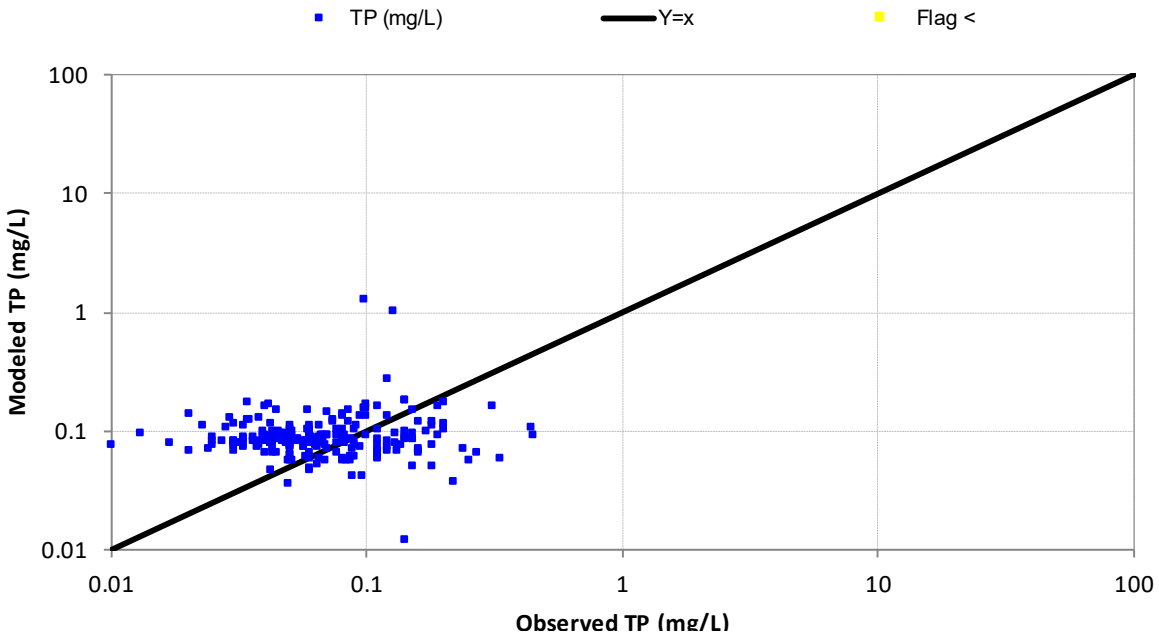


Figure A-152 Concentration at RCH127 Telegraph Creek

Table A- 52 Monthly TP Concentration Comparisons at RCH127 Telegraph Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.05	0.10	96.3	P
Feb	0.06	0.12	109.2	P
Mar	0.11	0.17	53.1	F
Apr	0.17	0.18	7.4	VG
May	0.10	0.21	101.2	P
Jun	0.13	0.13	-1.5	VG
Jul	0.13	0.11	-14.2	VG
Aug	0.09	0.13	36.6	G
Sep	0.08	0.19	143.9	P
Oct	0.07	0.10	45.3	F
Nov	0.07	0.09	39.4	G
Dec	0.08	0.10	18.6	VG
Average*	0.10	0.14	42.2	G
Median**	0.09	0.12	37.6	G
R^2	N/A	N/A	0.23	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 53 Annual TP Concentration Comparisons at RCH127 Telegraph Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.21	N/A	N/A
1998	N/A	0.21	N/A	N/A
1999	N/A	0.17	N/A	N/A
2000	0.08	0.12	56.2	F
2001	0.09	0.19	115.0	P
2002	0.11	0.14	27.5	VG
2003	0.05	0.11	108.1	P
2004	0.06	0.09	56.1	F
2005	0.04	0.10	150.8	P
2006	0.08	0.12	56.9	F
2007	0.15	0.14	-8.2	VG
2008	0.11	0.14	28.3	VG
2009	0.12	0.20	66.2	P
2010	0.05	0.11	119.6	P
2011	0.09	0.12	29.7	VG
2012	0.08	0.11	36.4	G
2013	0.05	0.11	104.3	P
2014	0.08	0.09	17.5	VG
2015	0.06	0.11	100.2	P
2016	N/A	0.10	N/A	N/A
2017	0.11	0.31	192.3	P
2018	0.22	0.11	-48.7	F
2019	0.07	0.08	9.8	VG
2020	0.10	0.14	44.2	G
2021	0.07	0.09	35.3	G
2022	0.07	0.12	67.7	P
2023	0.07	0.12	60.0	F
Average*	0.09	0.14	55.6	F
Median**	0.08	0.12	56.1	F
R^2	N/A	N/A	0.08	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 54 Daily TP Concentration Comparisons at RCH127 Telegraph Creek

Statistic	Results	Rating
Count (number)	375	N/A
Average Error (%)	82.7	P
Median Error (%)	47.1	F
RMSE (mg/L)	0.19	N/A
R^2	0.00	P

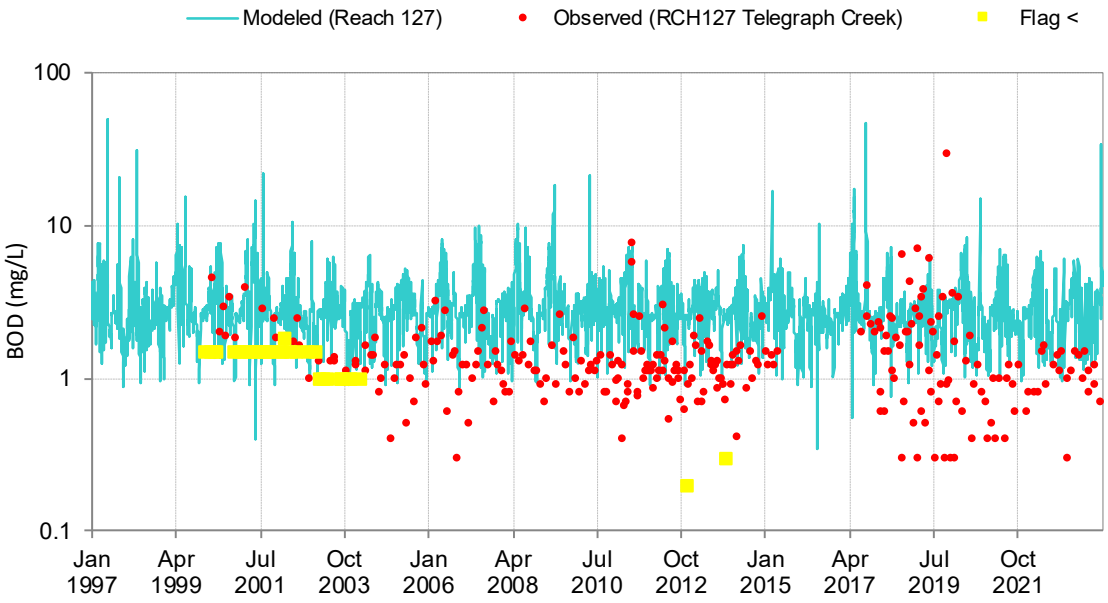


Figure A-153 Modeled Vs Observed BOD (mg/L) at RCH127 Telegraph Creek

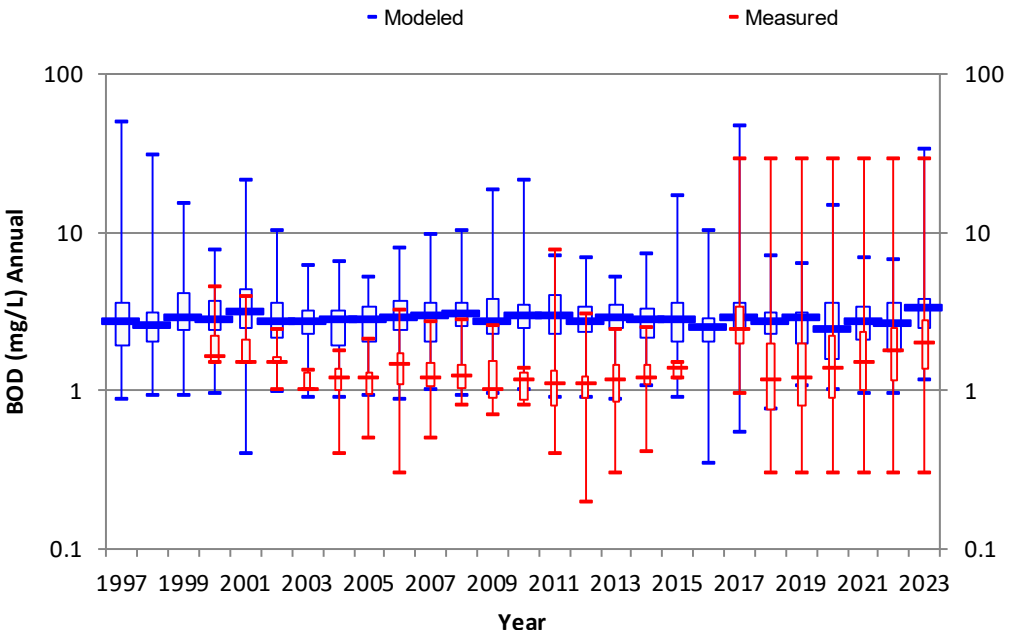


Figure A-154 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH127 Telegraph Creek

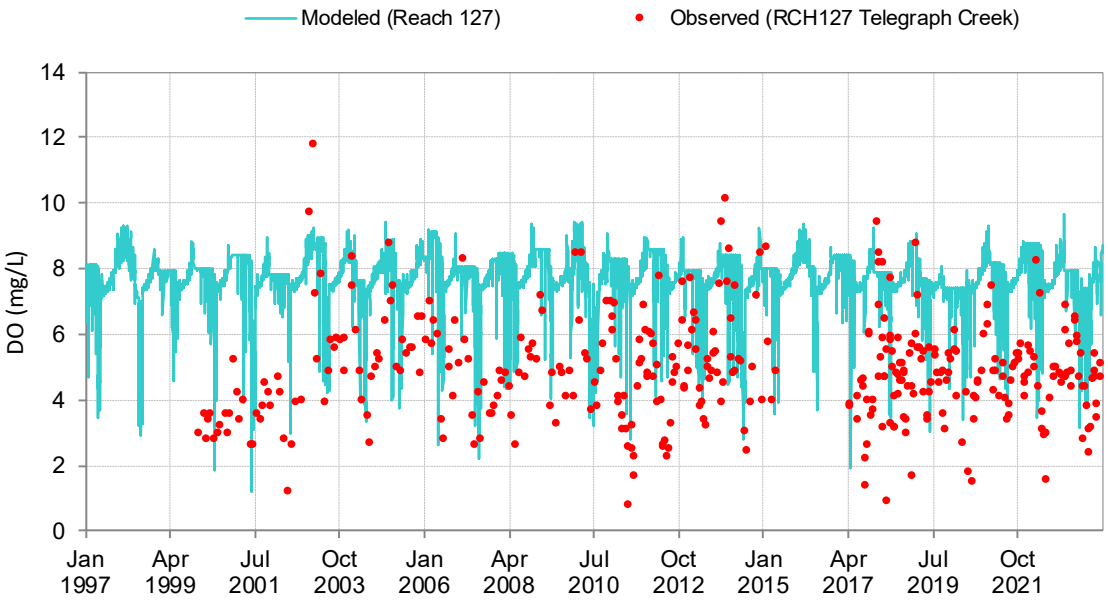


Figure A-155 Modeled Vs Observed DO (mg/L) at RCH127 Telegraph Creek

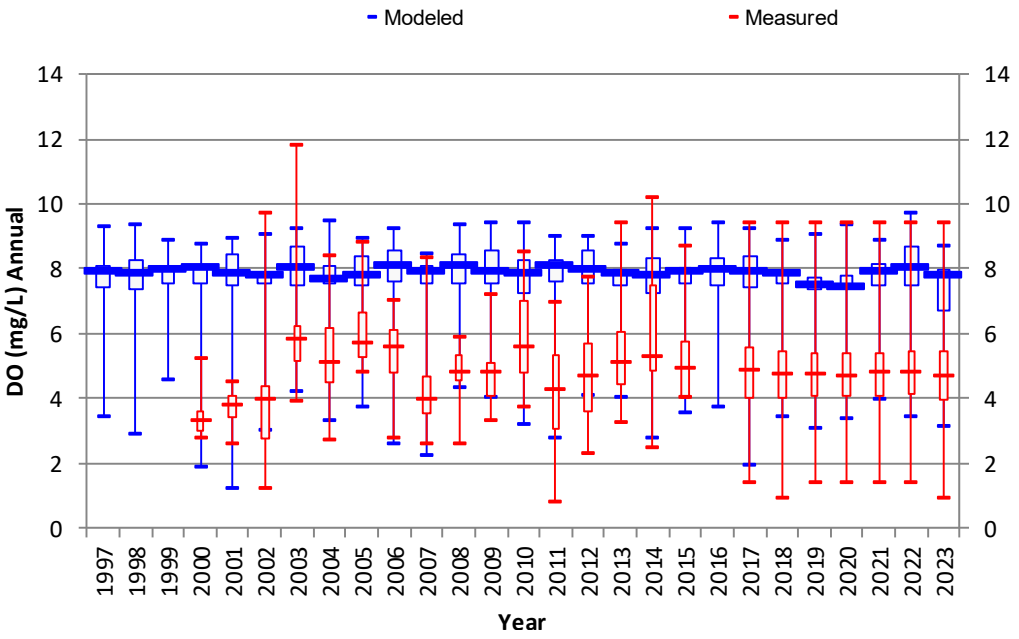


Figure A-156 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH127 Telegraph Creek

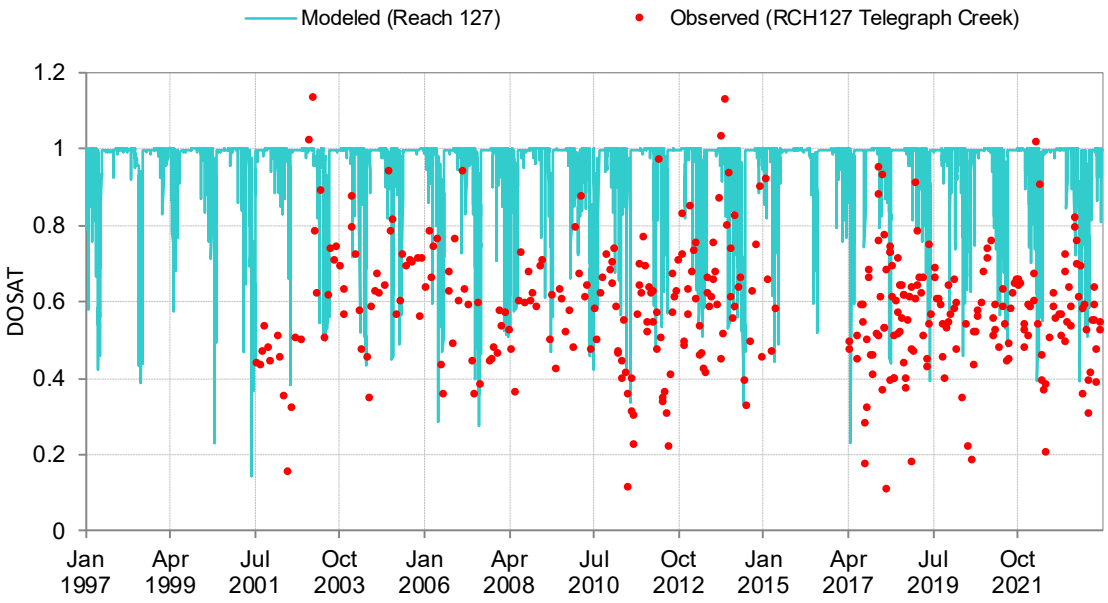


Figure A-157 Modeled Vs Observed DOSAT at RCH127 Telegraph Creek

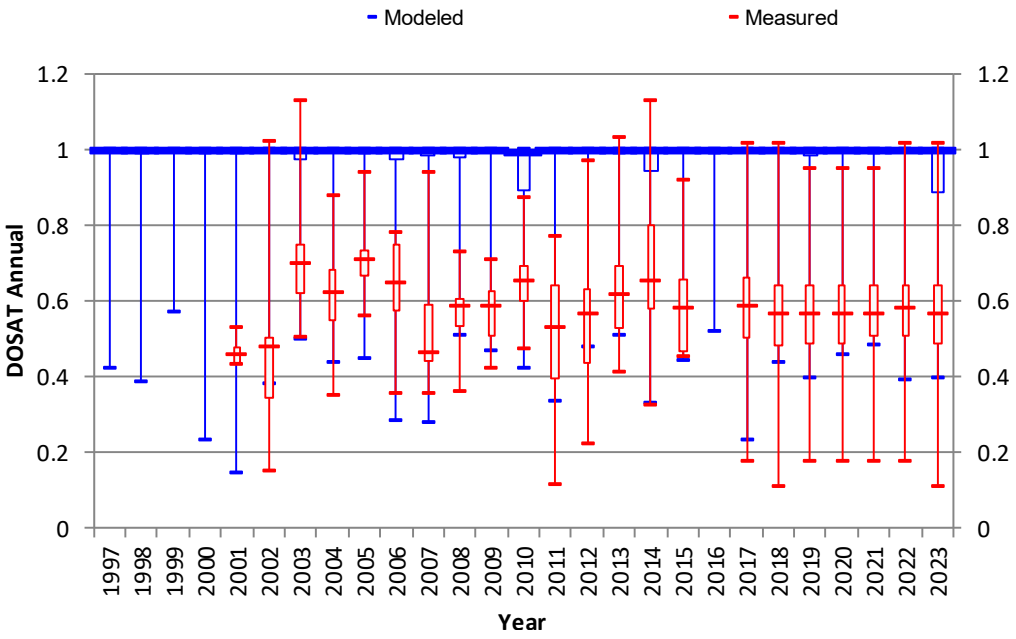


Figure A-158 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH127 Telegraph Creek

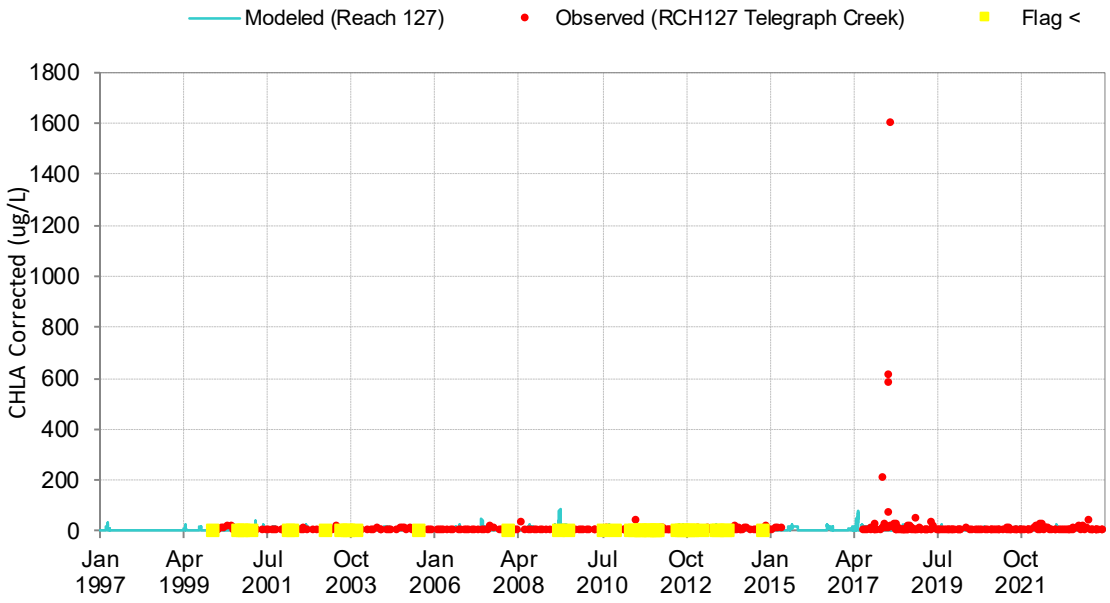


Figure A-159 Modeled Vs Observed CHLA Corrected (ug/L) at RCH127 Telegraph Creek

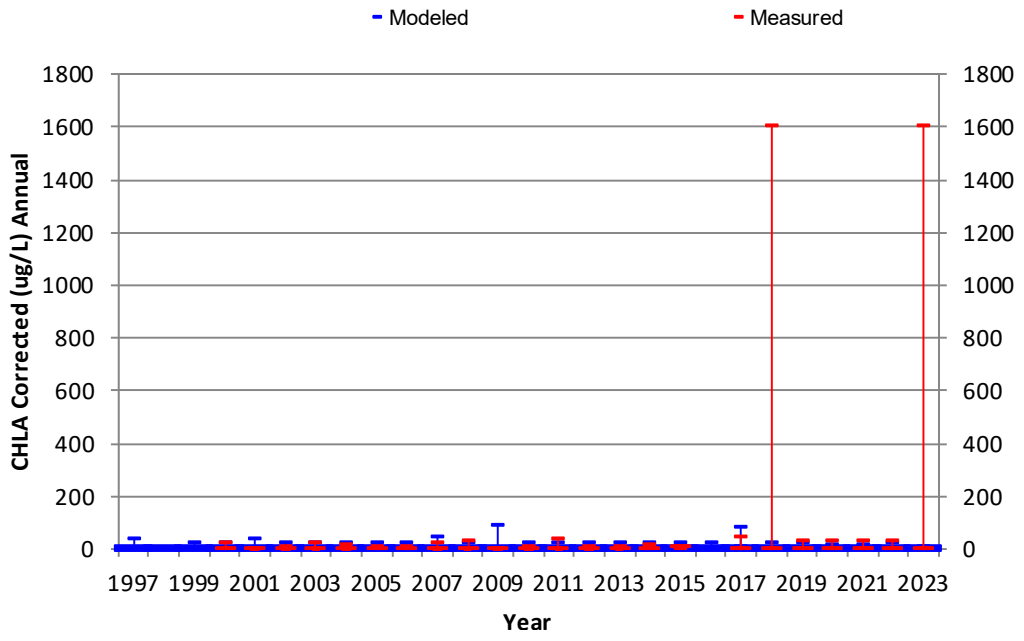


Figure A-160 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH127 Telegraph Creek

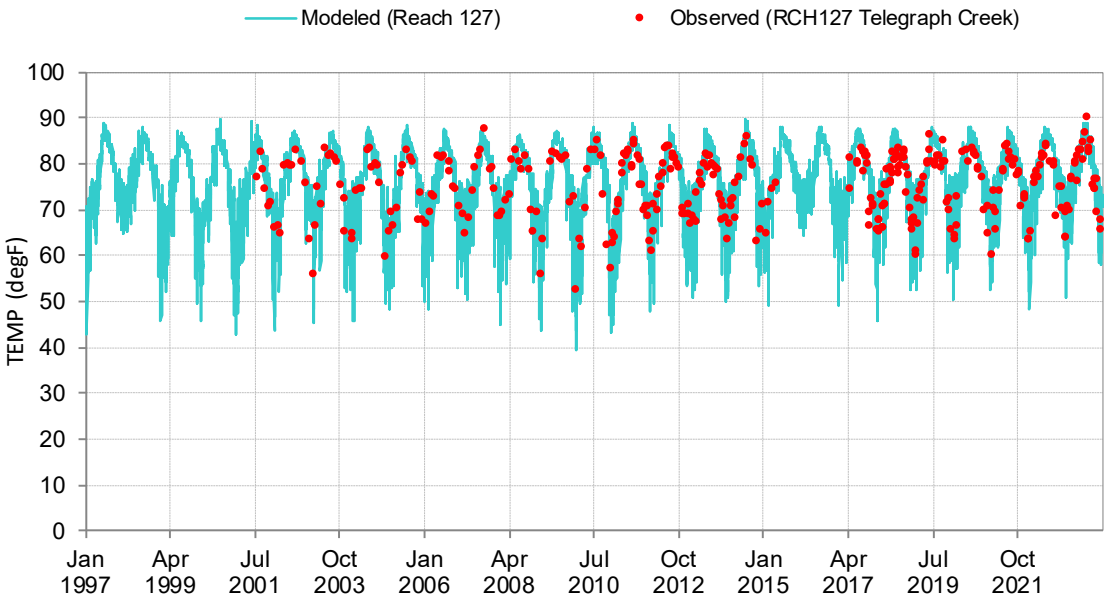


Figure A-161 Modeled Vs Observed TEMP (deg F) at RCH127 Telegraph Creek

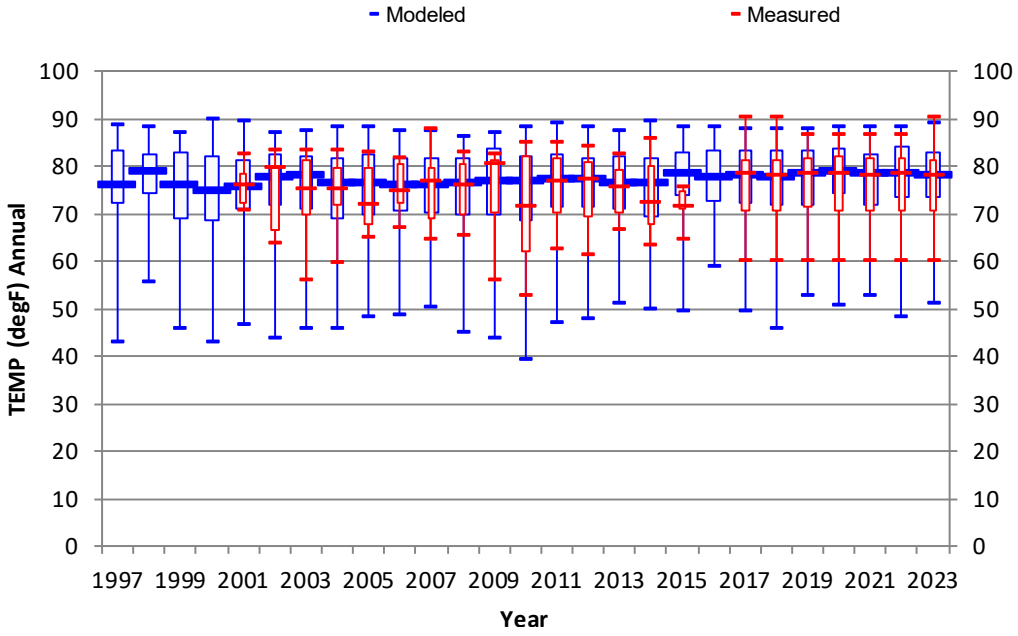


Figure A-162 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH127 Telegraph Creek

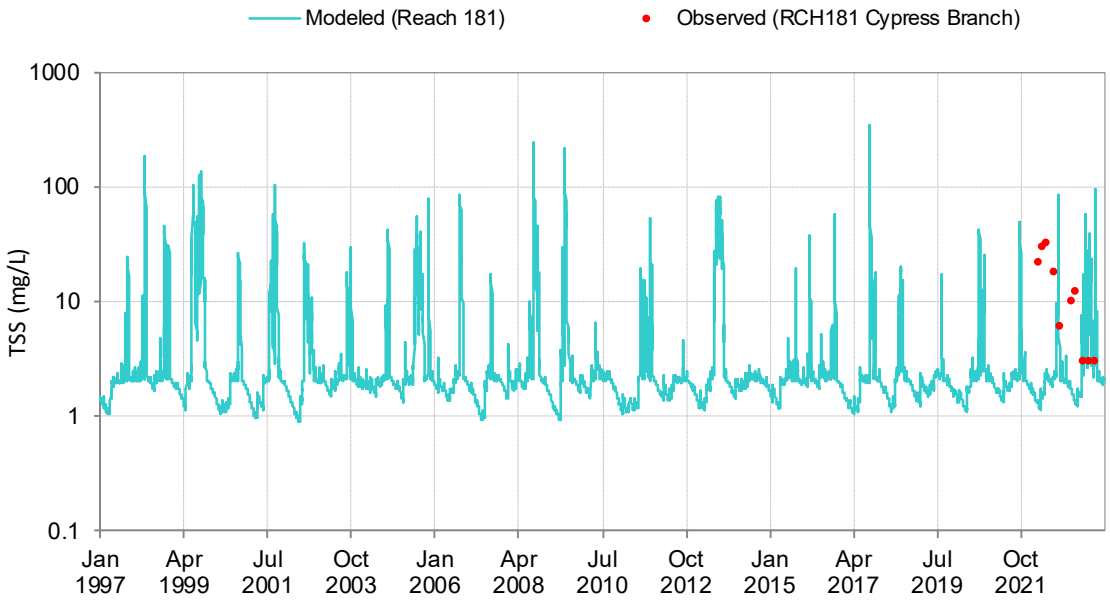


Figure A-163 Modeled Vs Observed TSS (mg/L) at RCH181 Cypress Branch

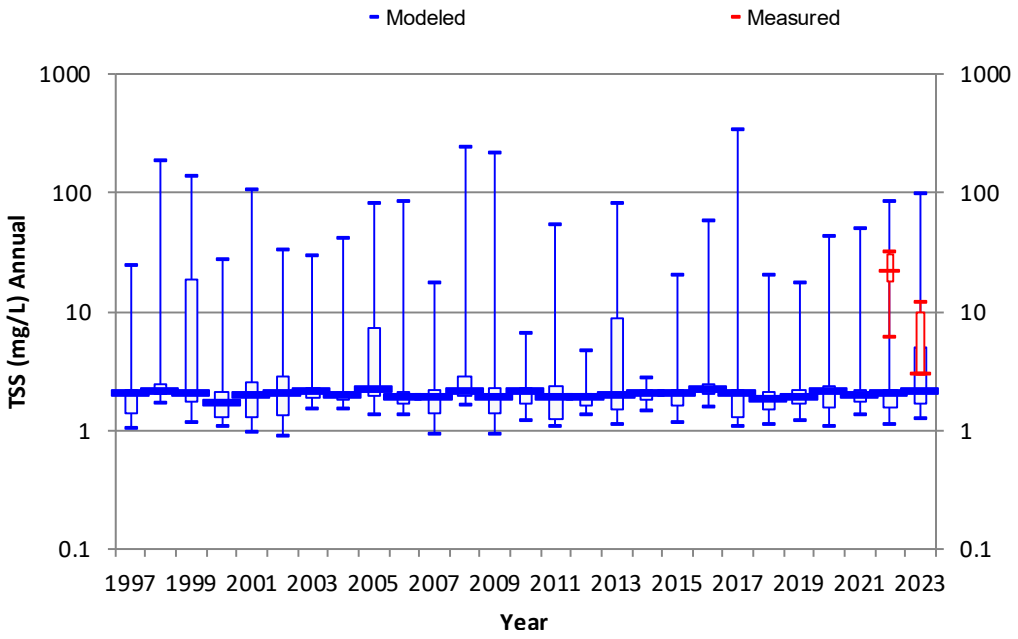


Figure A-164 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH181 Cypress Branch

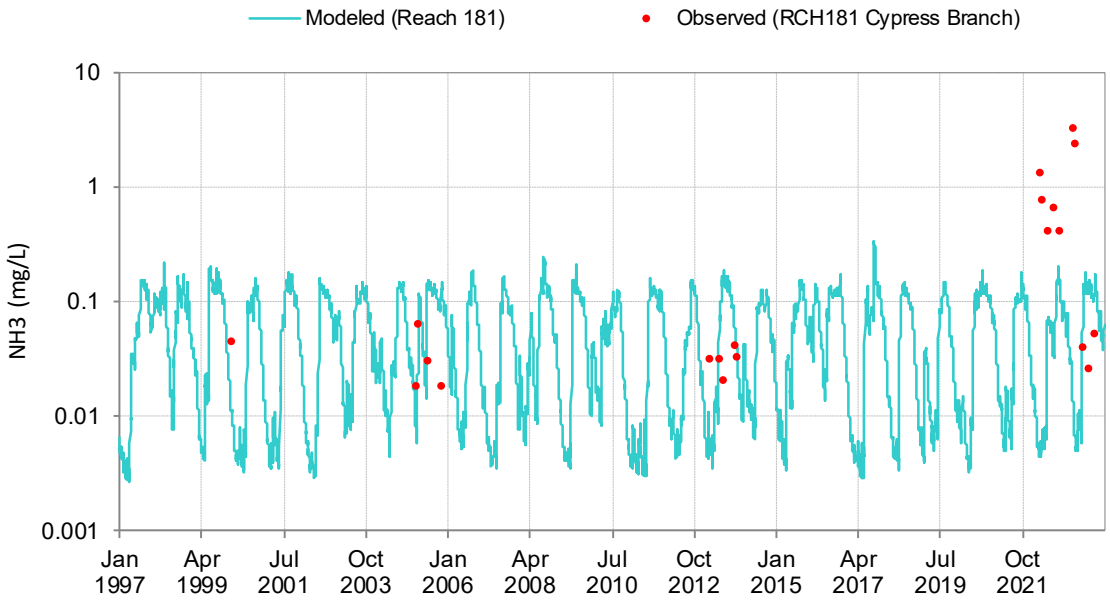


Figure A-165 Modeled Vs Observed NH3 (mg/L) at RCH181 Cypress Branch

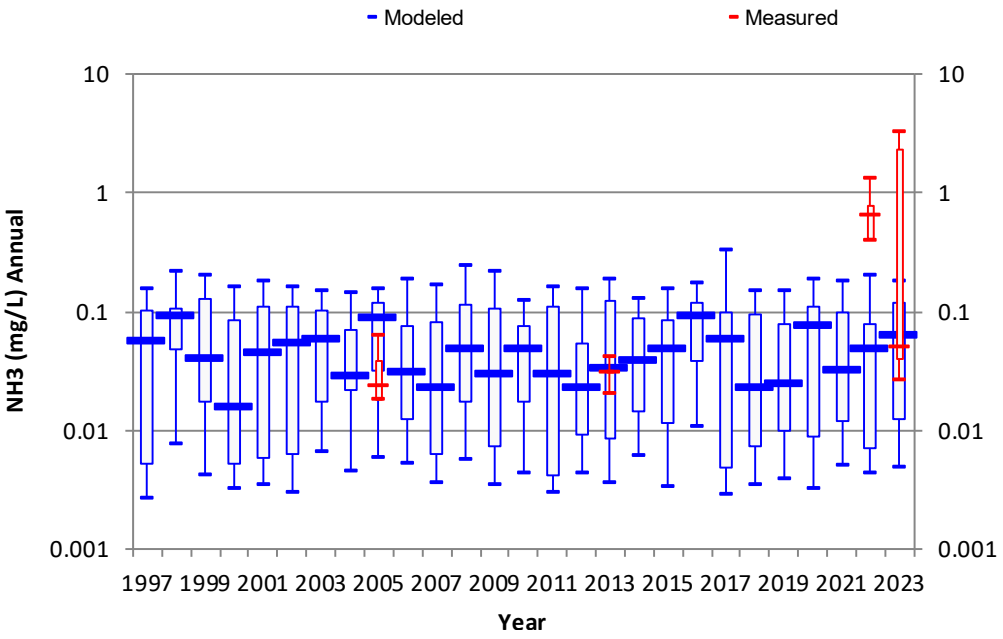


Figure A-166 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH181 Cypress Branch

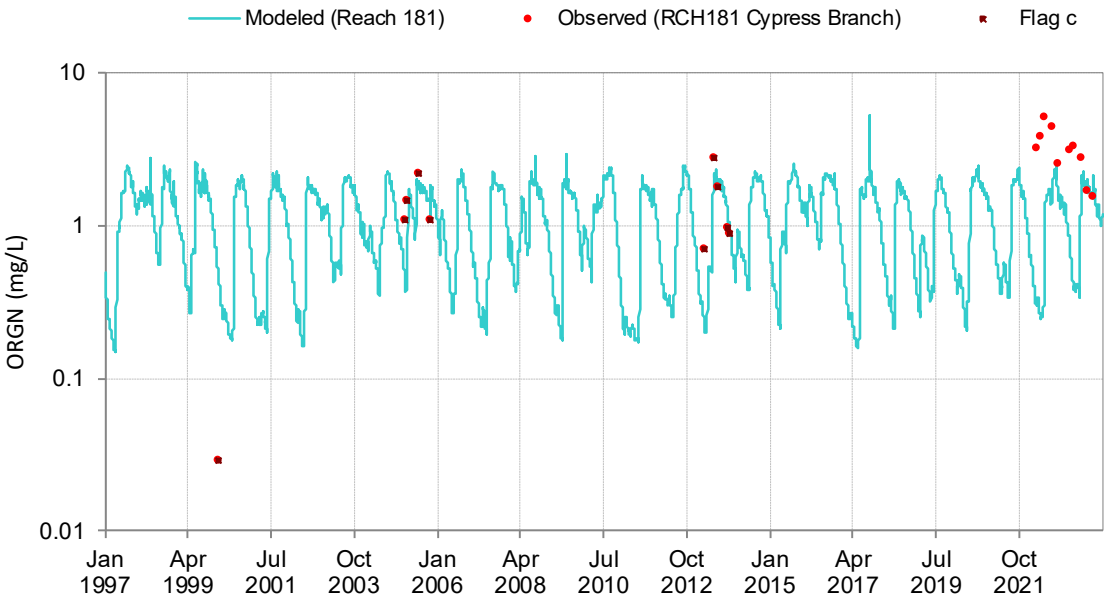


Figure A-167 Modeled Vs Observed ORGN (mg/L) at RCH181 Cypress Branch

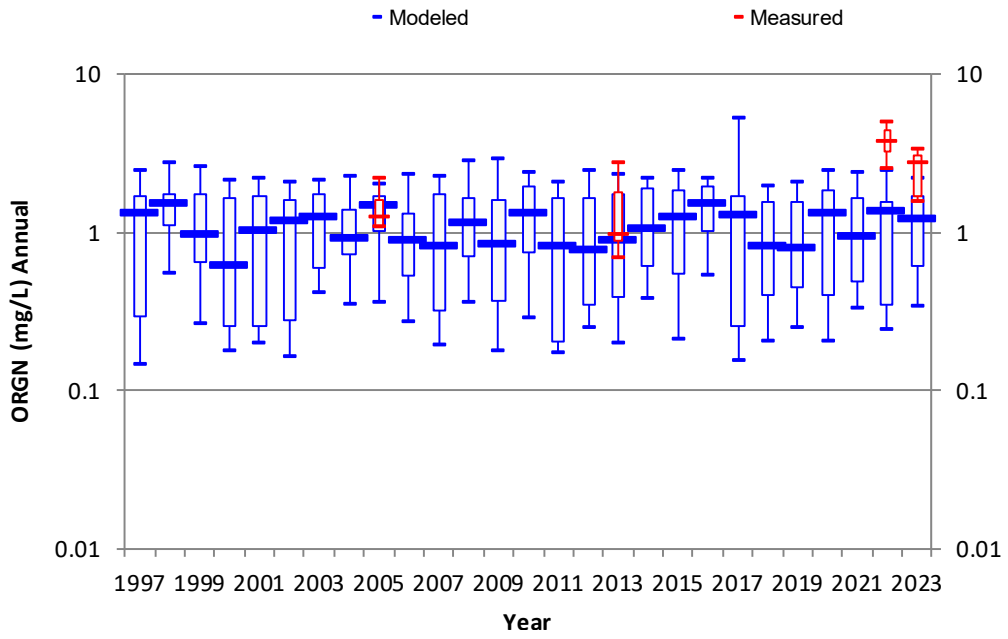


Figure A-168 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH181 Cypress Branch

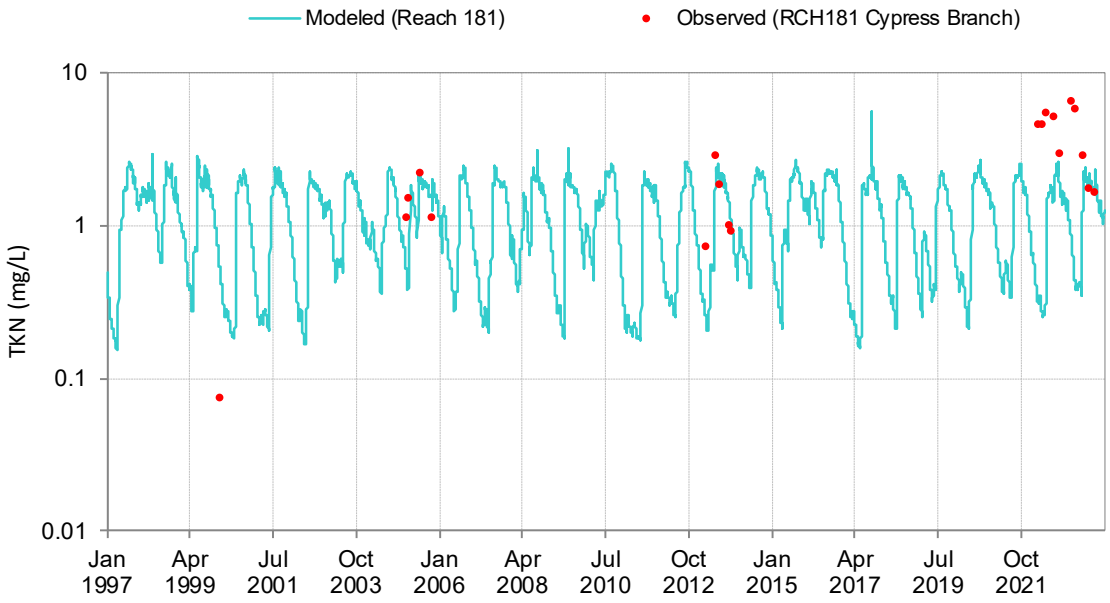


Figure A-169 Modeled Vs Observed TKN (mg/L) at RCH181 Cypress Branch

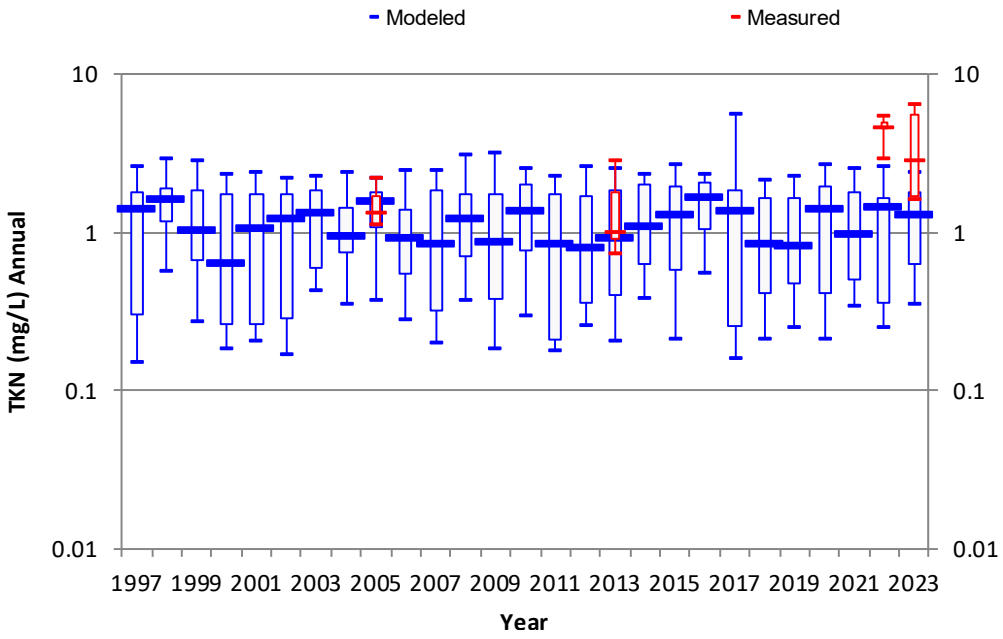


Figure A-170 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH181 Cypress Branch

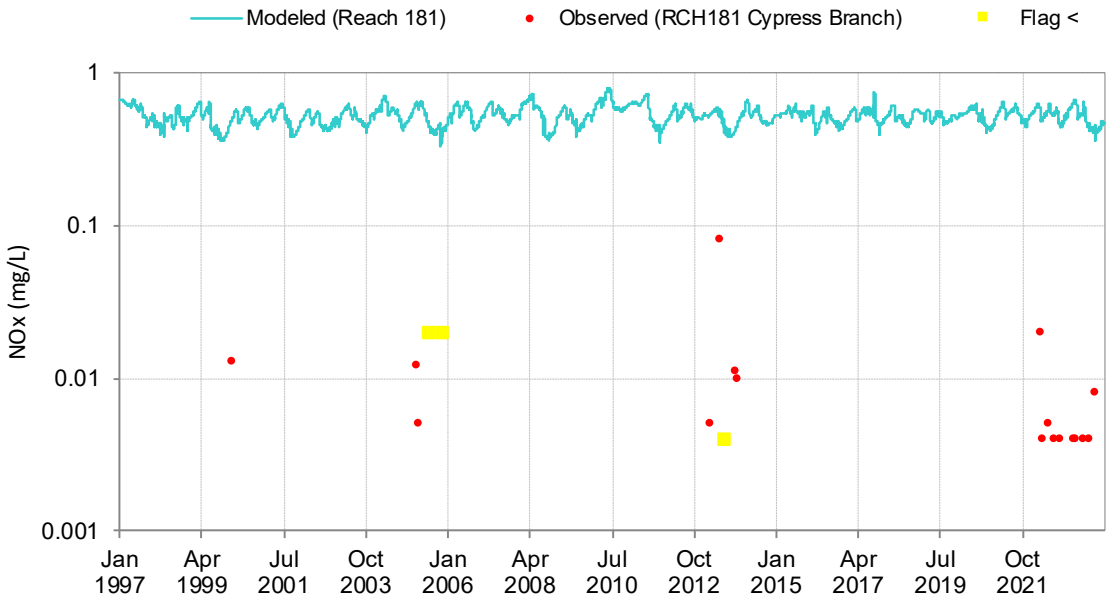


Figure A-171 Modeled Vs Observed NOx (mg/L) at RCH181 Cypress Branch

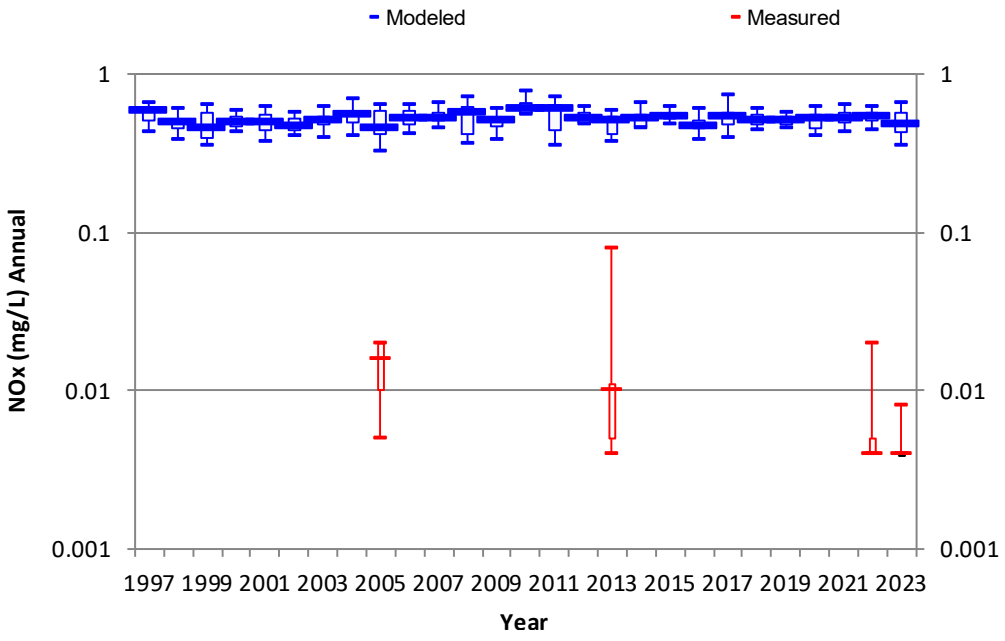


Figure A-172 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH181 Cypress Branch

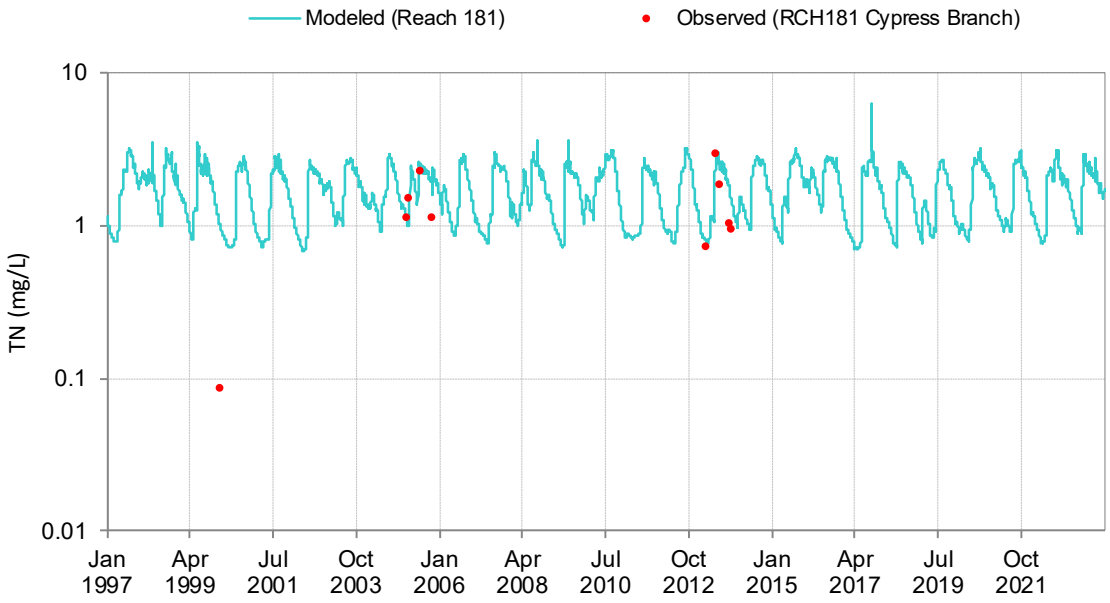


Figure A-173 Modeled Vs Observed TN (mg/L) at RCH181 Cypress Branch

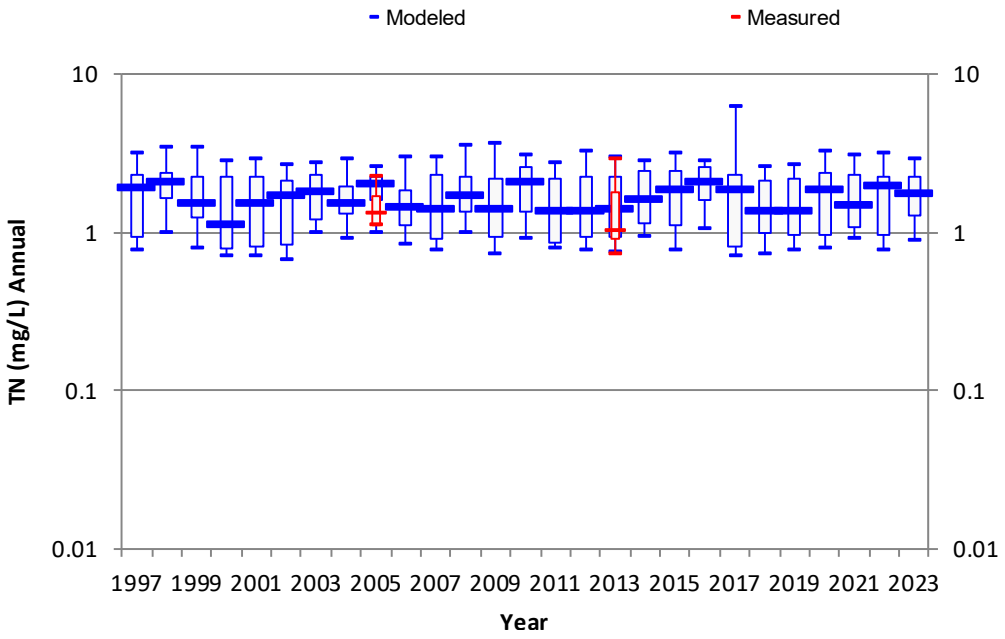


Figure A-174 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH181 Cypress Branch

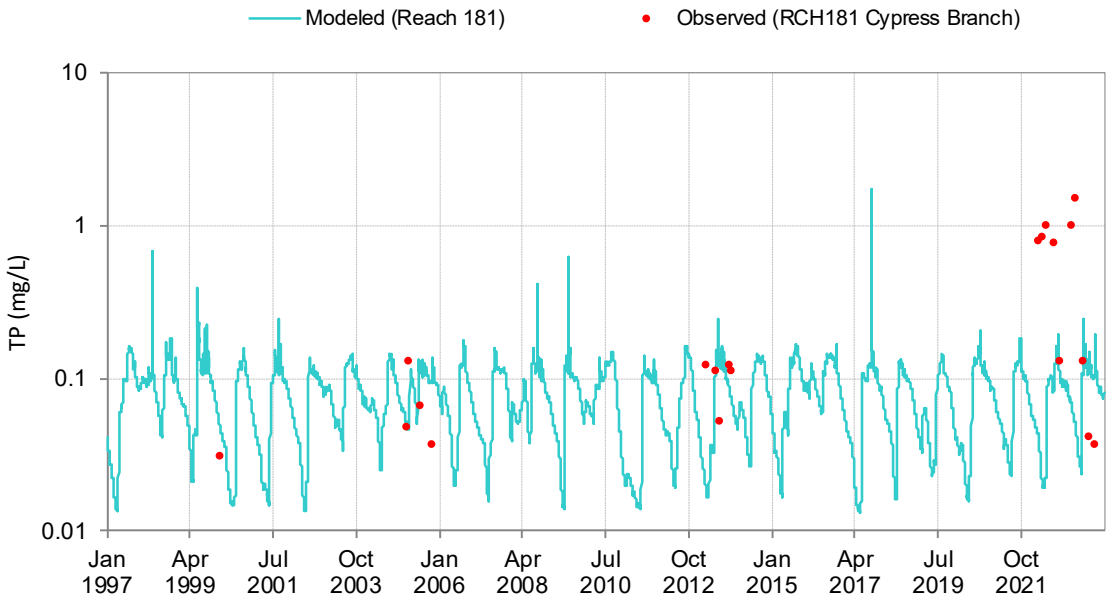


Figure A-175 Modeled Vs Observed TP (mg/L) at RCH181 Cypress Branch

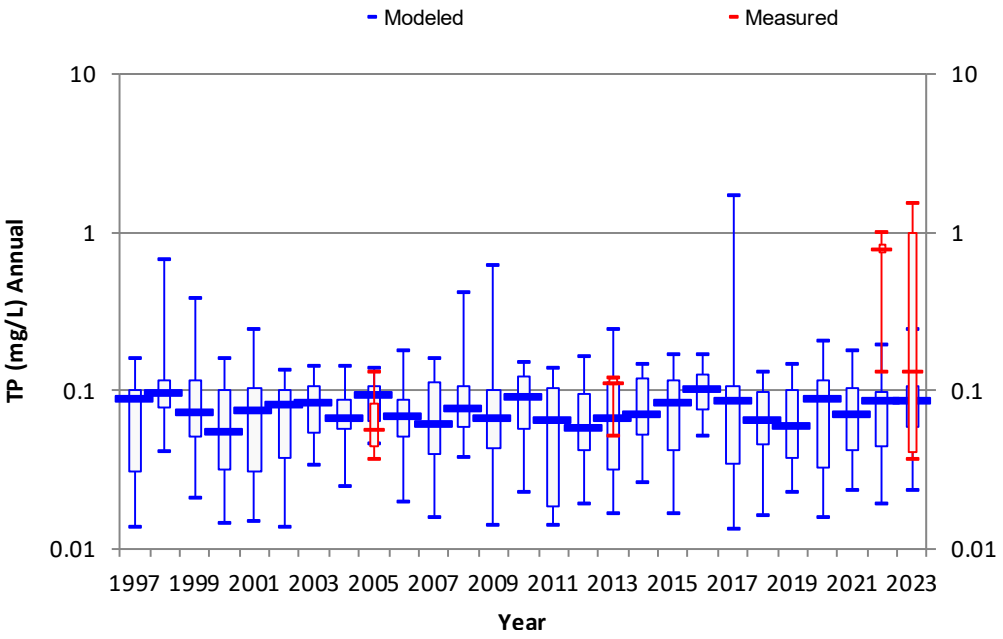


Figure A-176 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH181 Cypress Branch

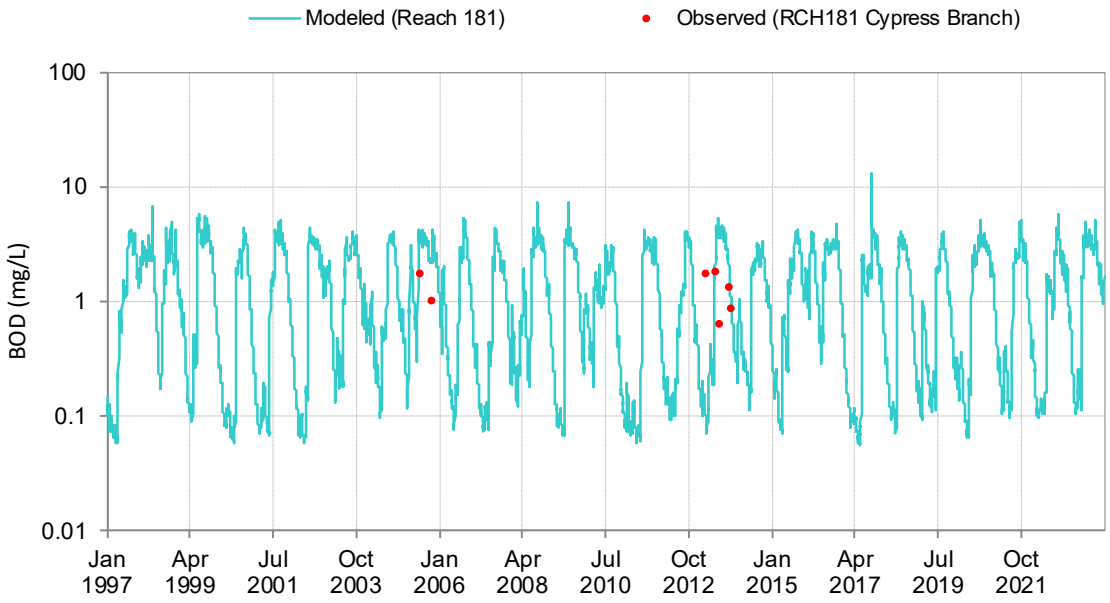


Figure A-177 Modeled Vs Observed BOD (mg/L) at RCH181 Cypress Branch

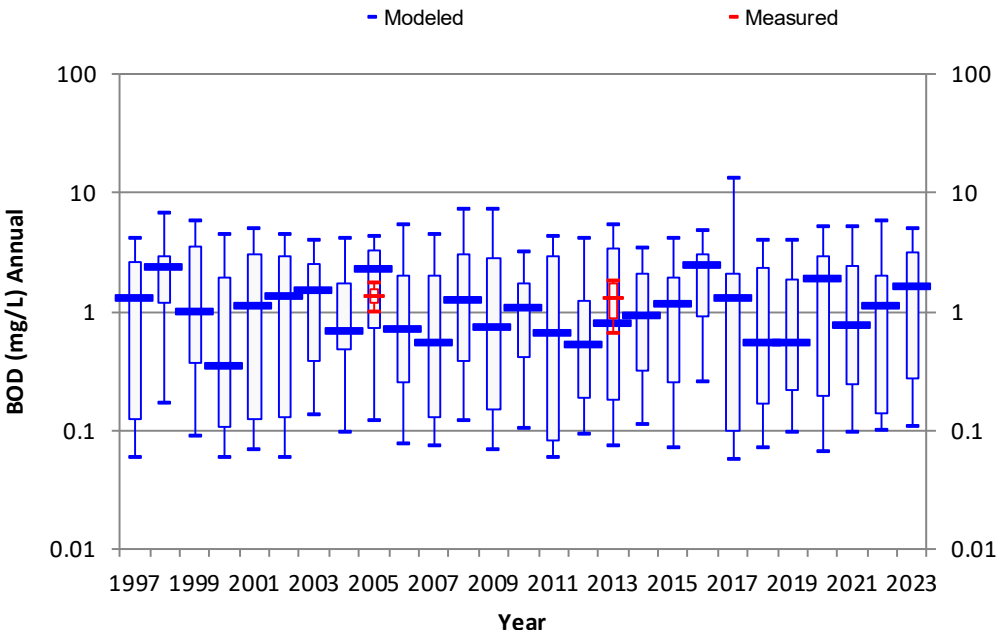


Figure A-178 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH181 Cypress Branch

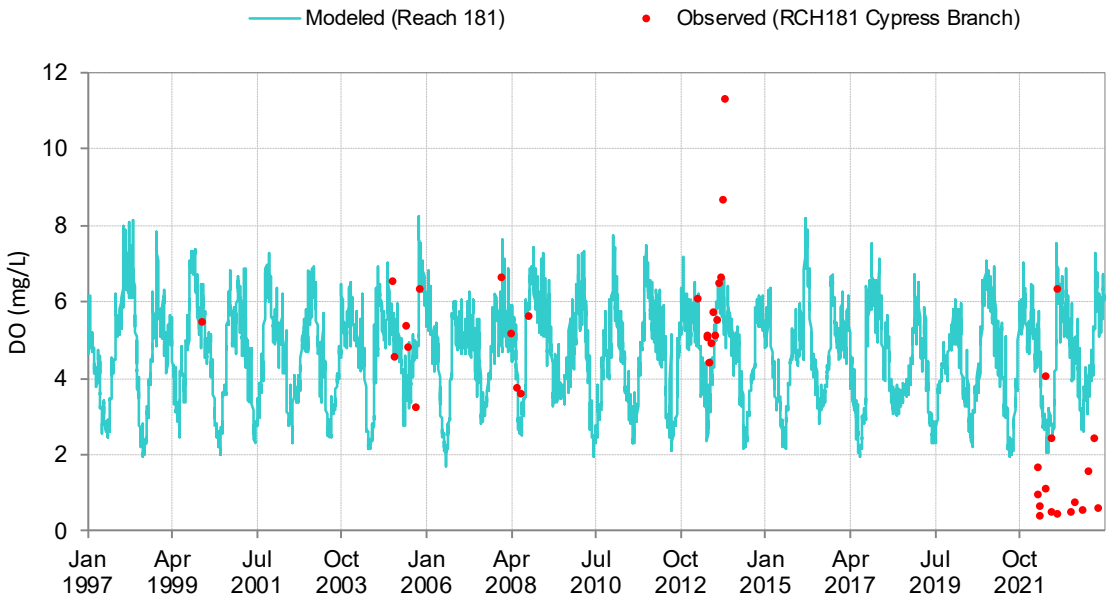


Figure A-179 Modeled Vs Observed DO (mg/L) at RCH181 Cypress Branch

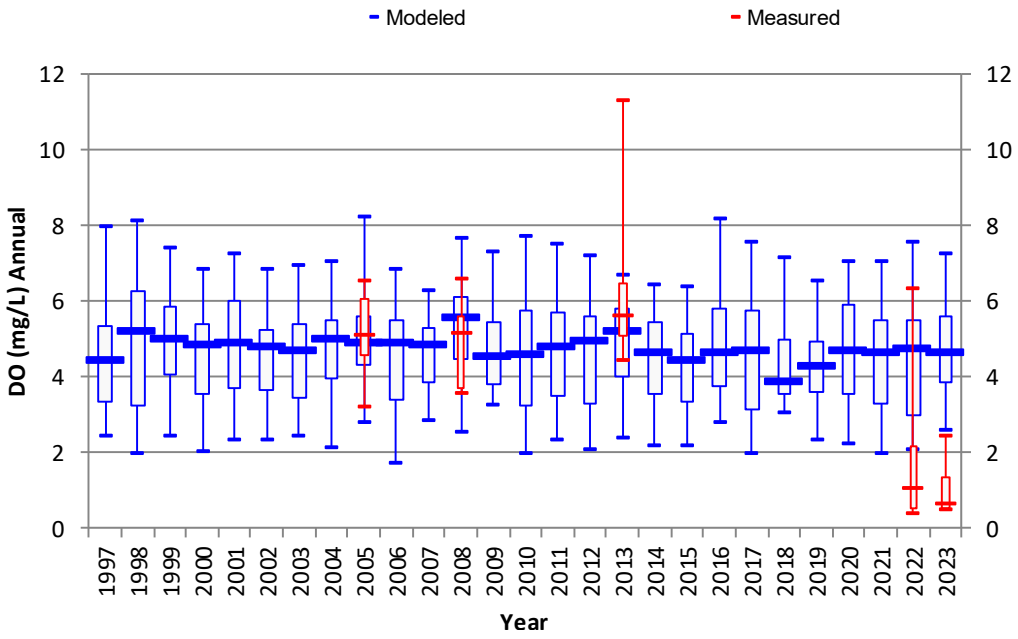


Figure A-180 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH181 Cypress Branch

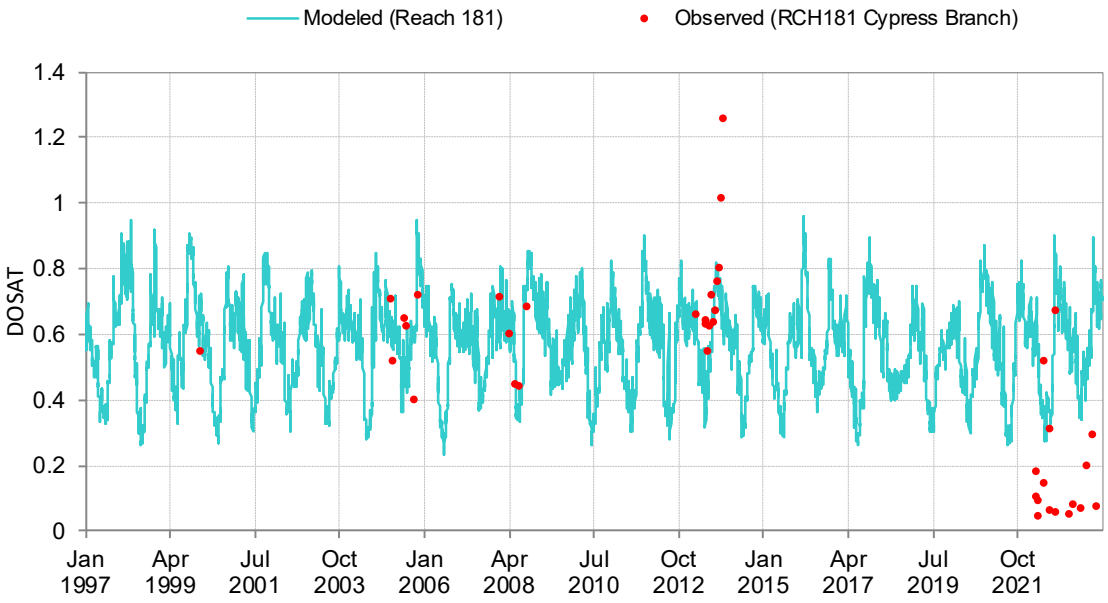


Figure A-181 Modeled Vs Observed DOSAT at RCH181 Cypress Branch

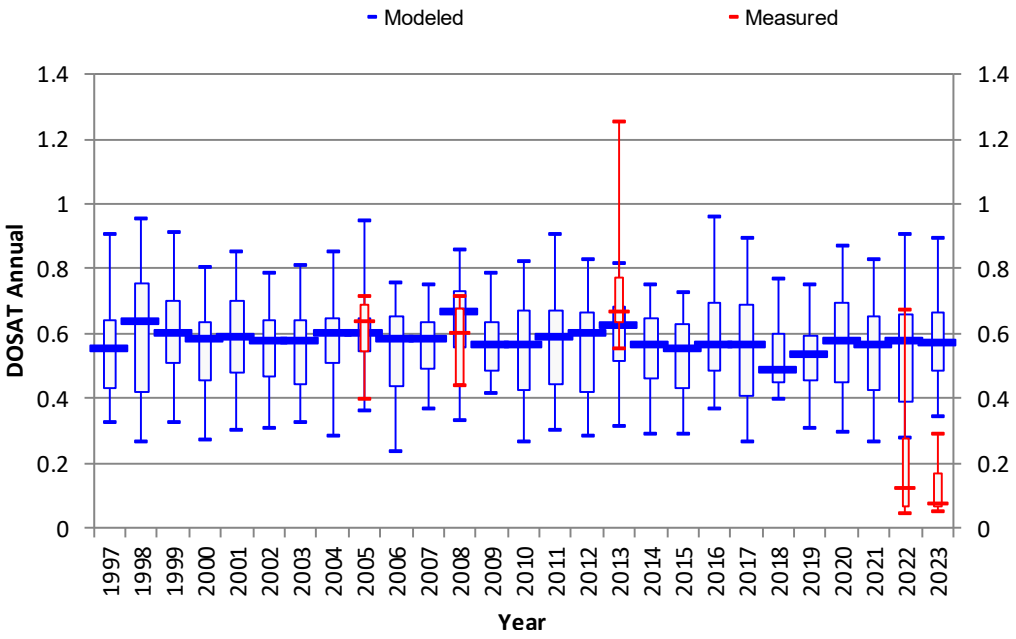


Figure A-182 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH181 Cypress Branch

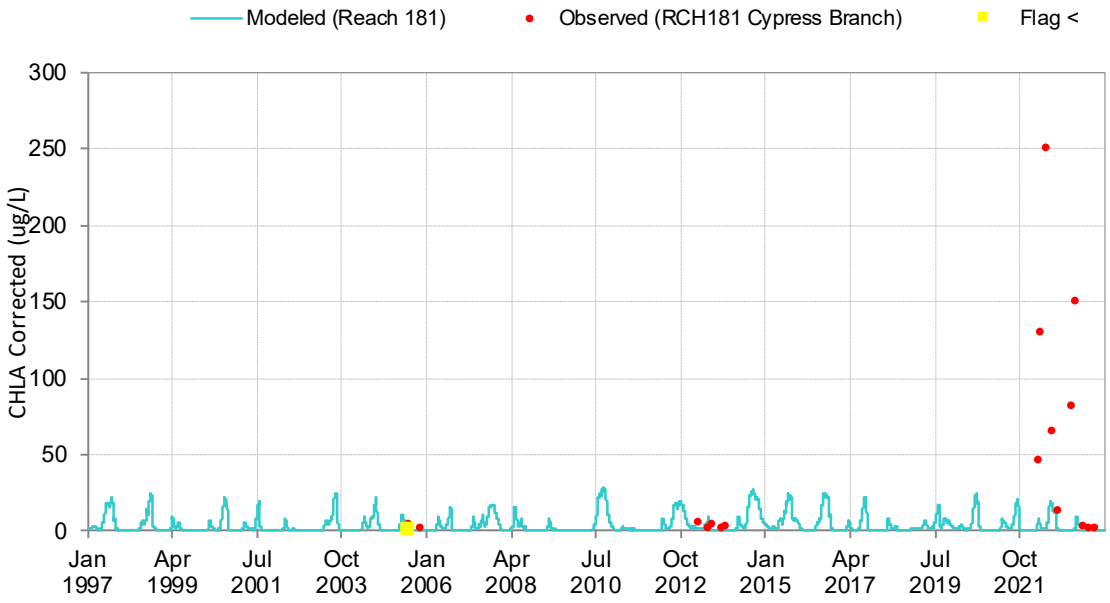


Figure A-183 Modeled Vs Observed CHLA Corrected (ug/L) at RCH181 Cypress Branch

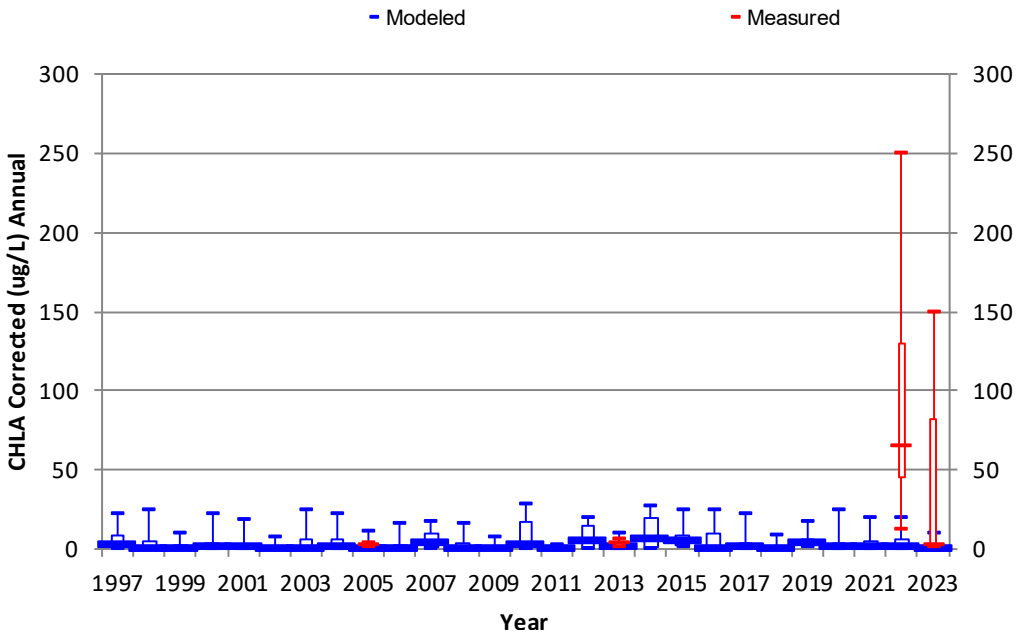


Figure A-184 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH181 Cypress Branch

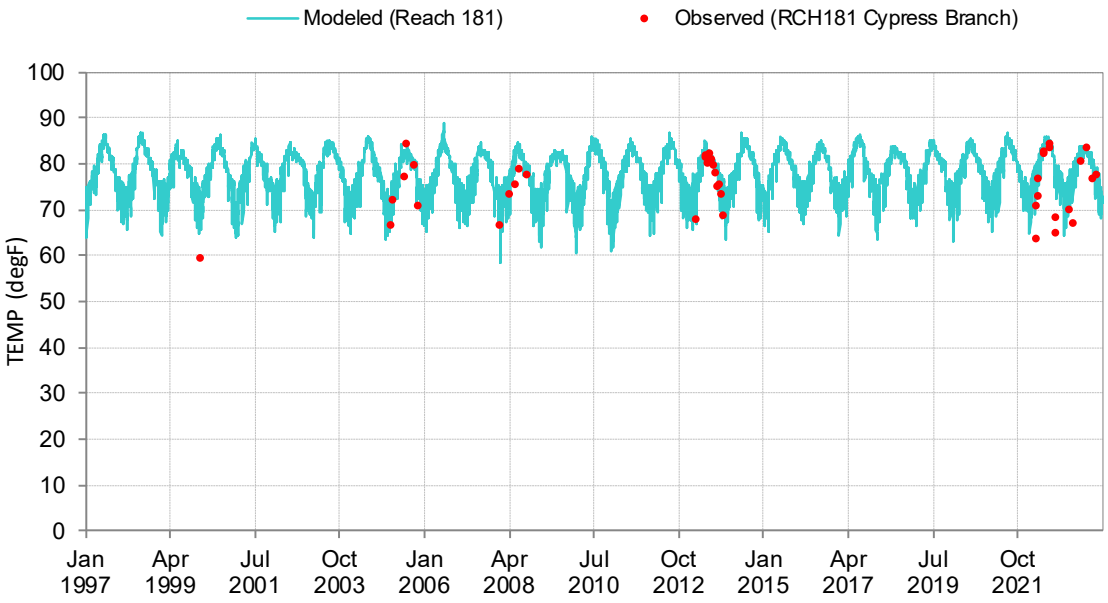


Figure A-185 Modeled Vs Observed TEMP (deg F) at RCH181 Cypress Branch

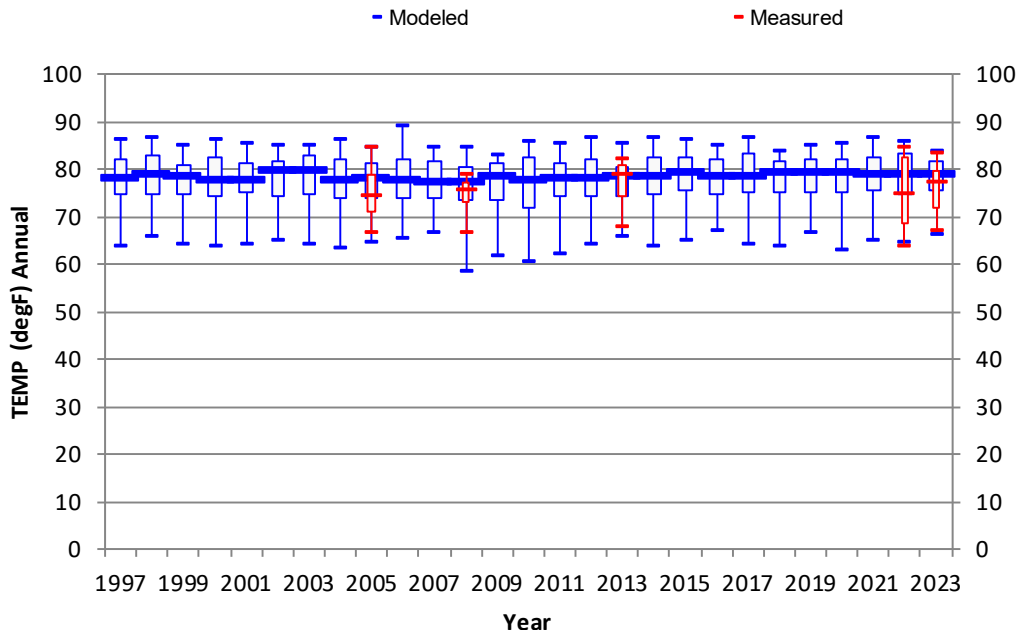


Figure A-186 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH181 Cypress Branch

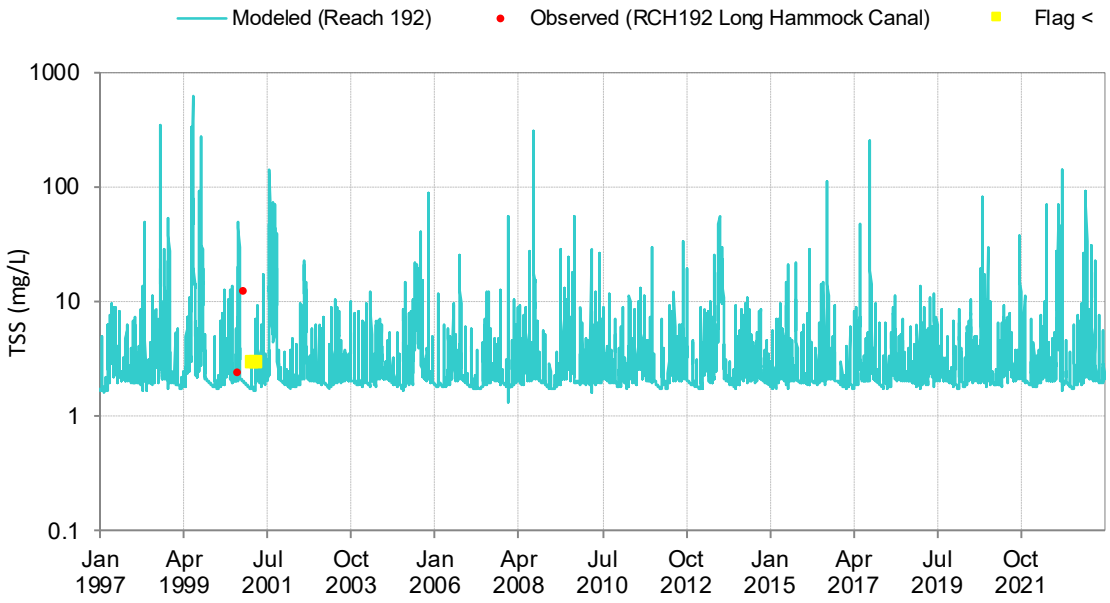


Figure A-187 Modeled Vs Observed TSS (mg/L) at RCH192 Long Hammock Canal

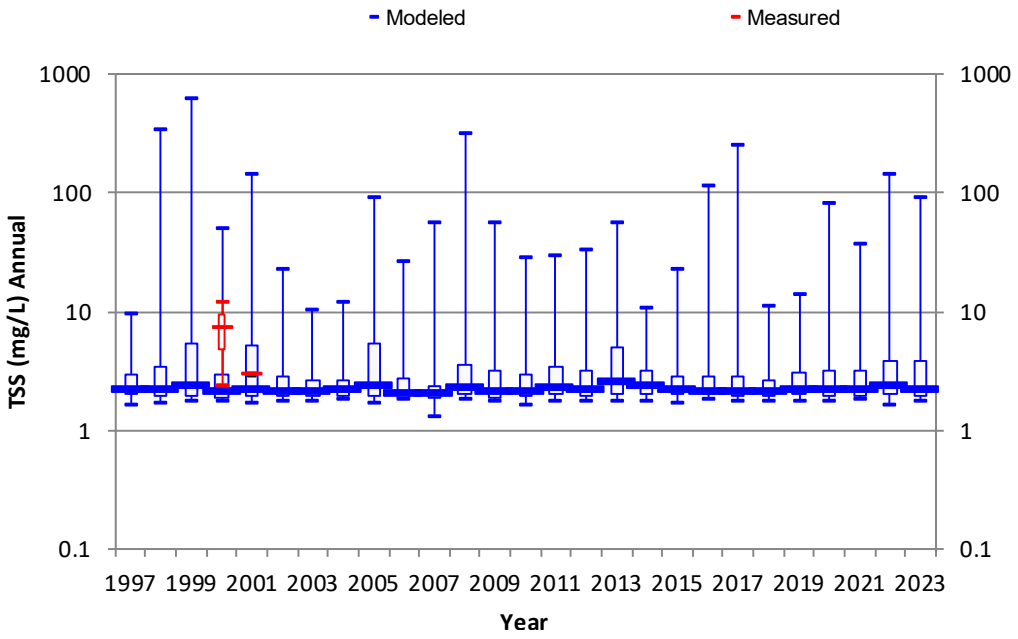


Figure A-188 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH192 Long Hammock Canal

Table A- 55 Monthly TSS Concentration Comparisons at RCH192 Long Hammock Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.50	2.30	53.5	P
Feb	1.50	2.40	60.2	P
Mar	N/A	2.57	N/A	N/A
Apr	N/A	2.96	N/A	N/A
May	N/A	3.50	N/A	N/A
Jun	N/A	6.86	N/A	N/A
Jul	N/A	5.62	N/A	N/A
Aug	N/A	6.32	N/A	N/A
Sep	2.40	8.11	238.1	P
Oct	N/A	3.43	N/A	N/A
Nov	12.00	2.97	-75.2	P
Dec	N/A	2.32	N/A	N/A
Average*	1.45	4.11	183.7	P
Median**	1.95	3.20	64.2	P
R^2	N/A	N/A	0.02	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 56 Annual TSS Concentration Comparisons at Long Hammock Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	2.79	N/A	N/A
1998	N/A	5.13	N/A	N/A
1999	N/A	11.71	N/A	N/A
2000	7.20	3.40	-52.8	P
2001	1.50	7.35	390.0	P
2002	N/A	3.25	N/A	N/A
2003	N/A	2.66	N/A	N/A
2004	N/A	2.60	N/A	N/A
2005	N/A	5.12	N/A	N/A
2006	N/A	2.98	N/A	N/A
2007	N/A	2.68	N/A	N/A
2008	N/A	5.84	N/A	N/A
2009	N/A	3.48	N/A	N/A
2010	N/A	2.96	N/A	N/A
2011	N/A	3.16	N/A	N/A
2012	N/A	3.06	N/A	N/A
2013	N/A	5.43	N/A	N/A
2014	N/A	2.91	N/A	N/A
2015	N/A	2.96	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2016	N/A	3.72	N/A	N/A
2017	N/A	4.83	N/A	N/A
2018	N/A	2.59	N/A	N/A
2019	N/A	2.86	N/A	N/A
2020	N/A	3.58	N/A	N/A
2021	N/A	3.46	N/A	N/A
2022	N/A	5.51	N/A	N/A
2023	N/A	5.06	N/A	N/A
Average*	4.35	4.11	-5.4	VG
Median**	4.35	3.40	-21.9	G
R^2	N/A	N/A	1.00	VG

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 57 Daily TSS Concentration Comparisons at RCH192 Long Hammock Canal

Statistic	Results	Rating
Count (number)	4	N/A
Average Error (%)	72.8	P
Median Error (%)	9.9	VG
RMSE (mg/L)	6.59	N/A
R^2	0.06	P

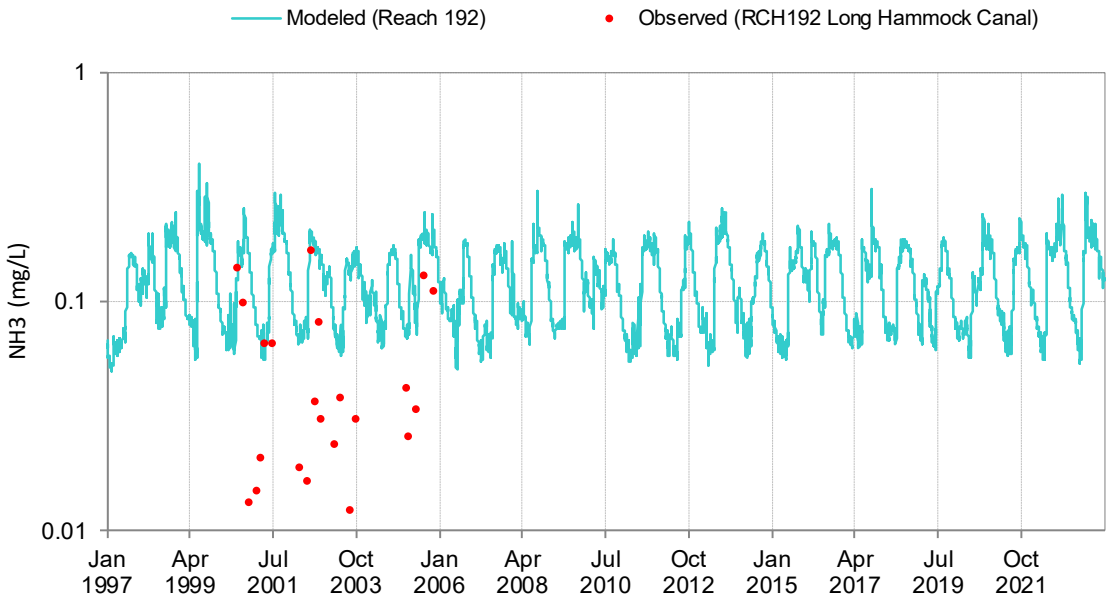


Figure A-189 Modeled Vs Observed NH3 (mg/L) at RCH192 Long Hammock Canal

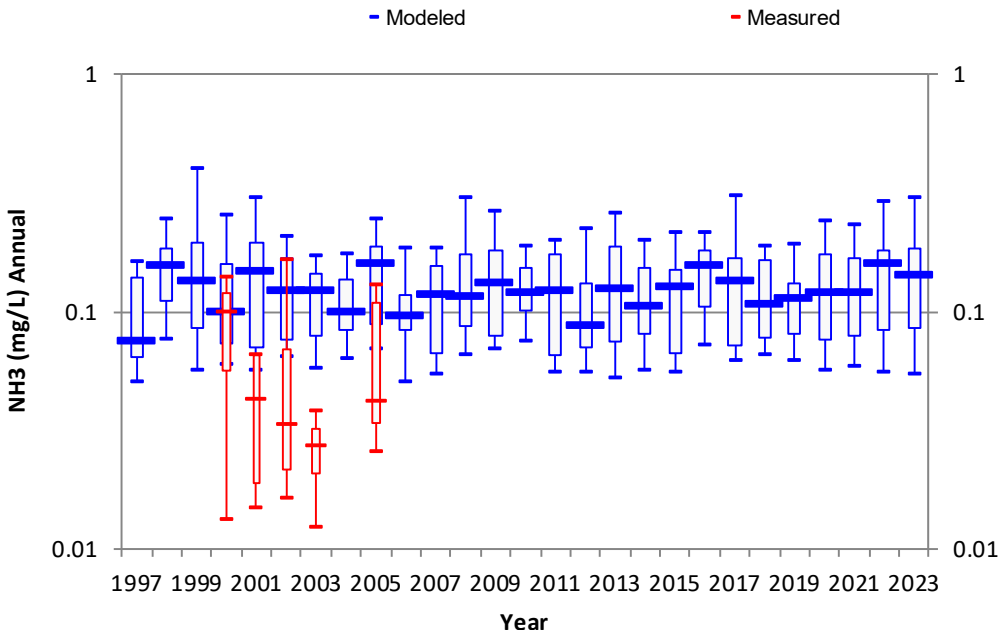


Figure A-190 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH192 Long Hammock Canal

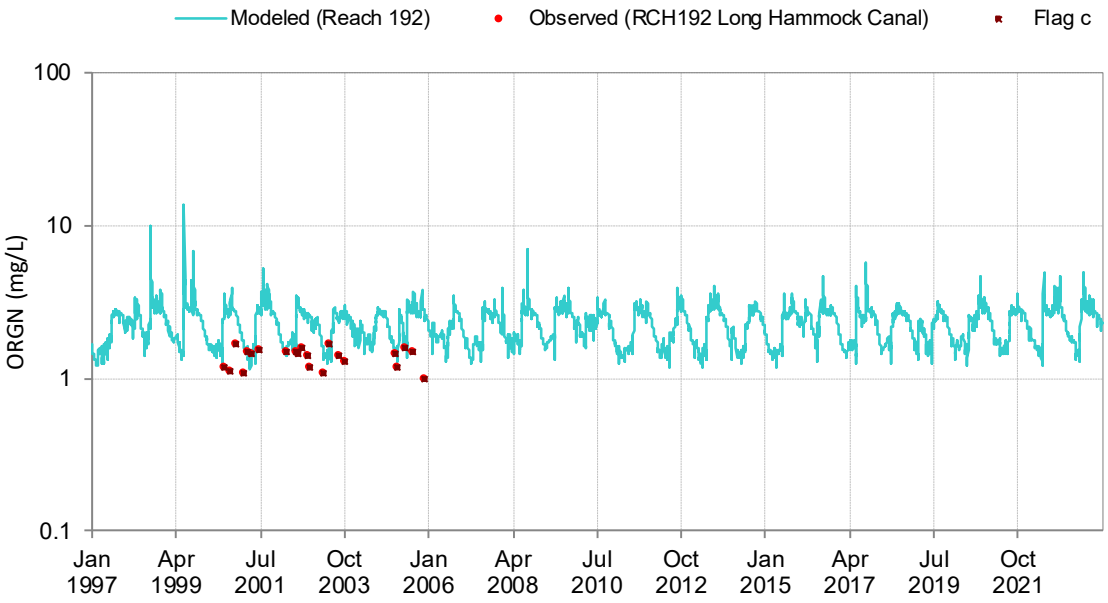


Figure A-191 Modeled Vs Observed ORGN (mg/L) at RCH192 Long Hammock Canal

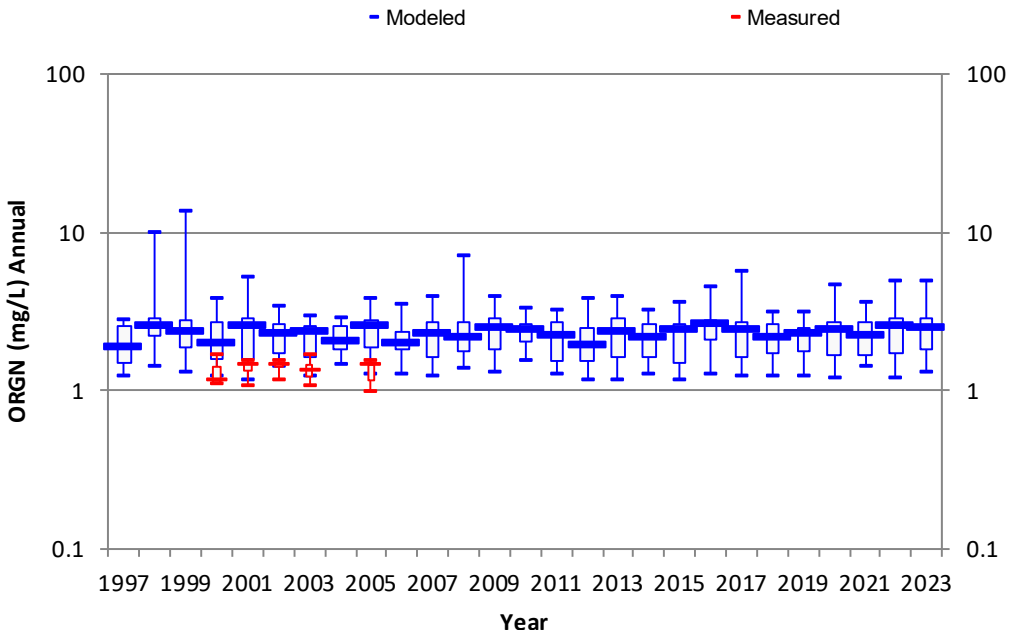


Figure A-192 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH192 Long Hammock Canal

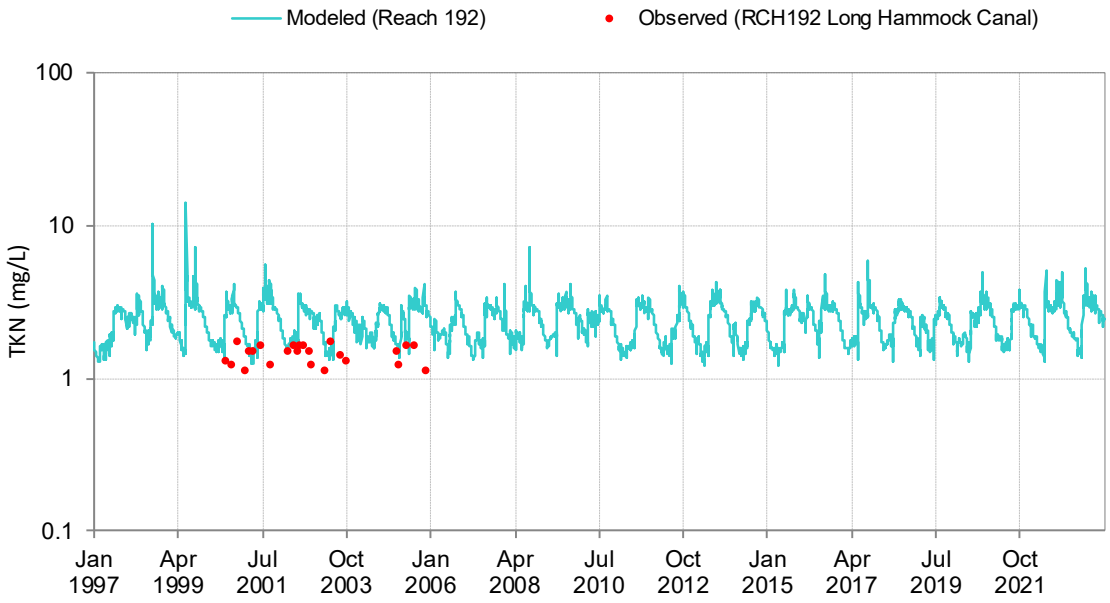


Figure A-193 Modeled Vs Observed TKN (mg/L) at RCH192 Long Hammock Canal

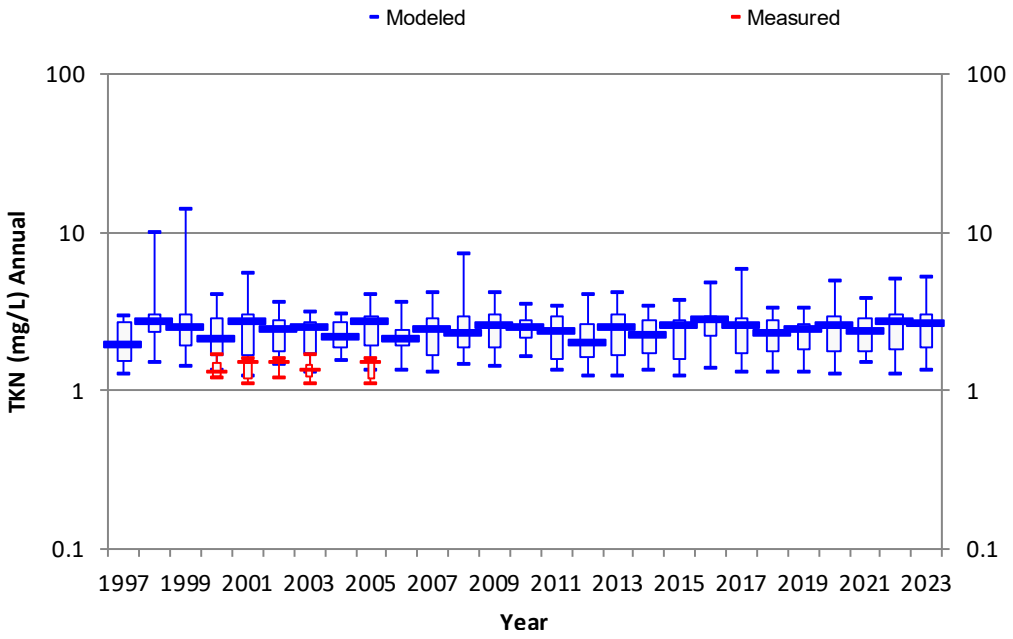


Figure A-194 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH192 Long Hammock Canal

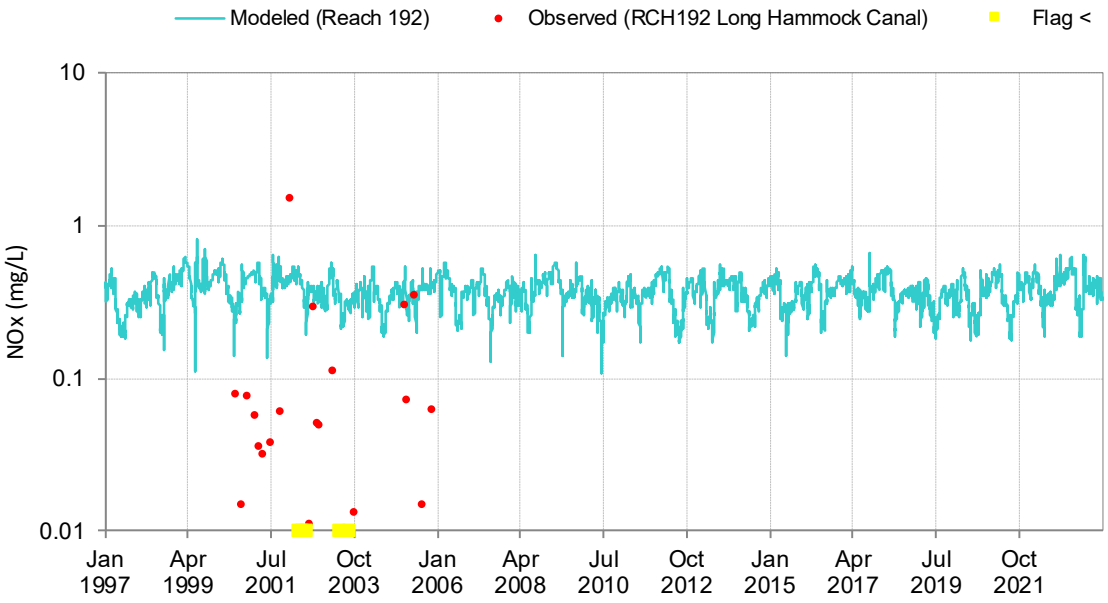


Figure A-195 Modeled Vs Observed NOx (mg/L) at RCH192 Long Hammock Canal

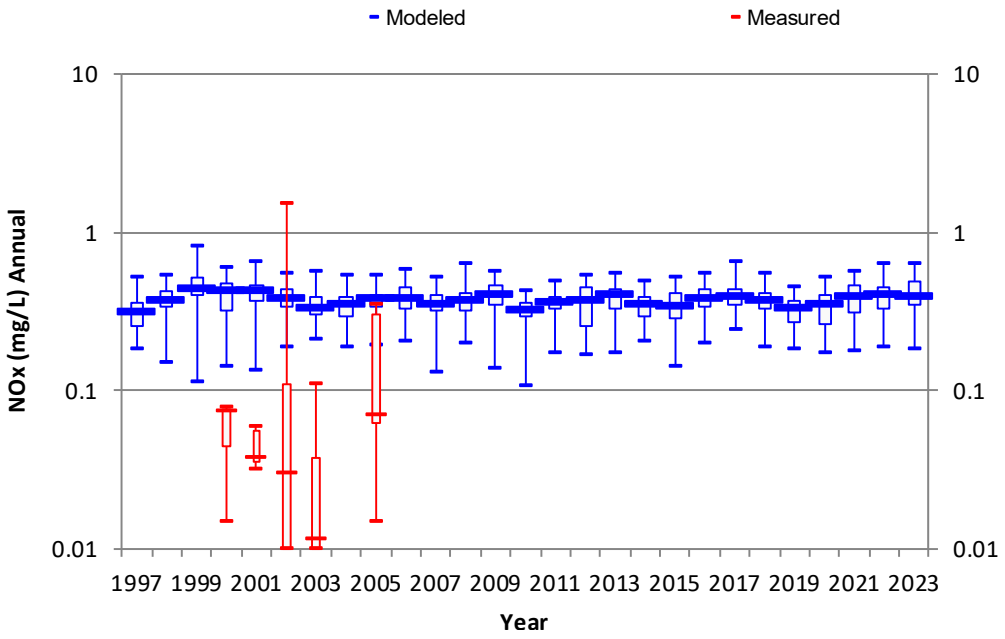


Figure A-196 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH192 Long Hammock Canal

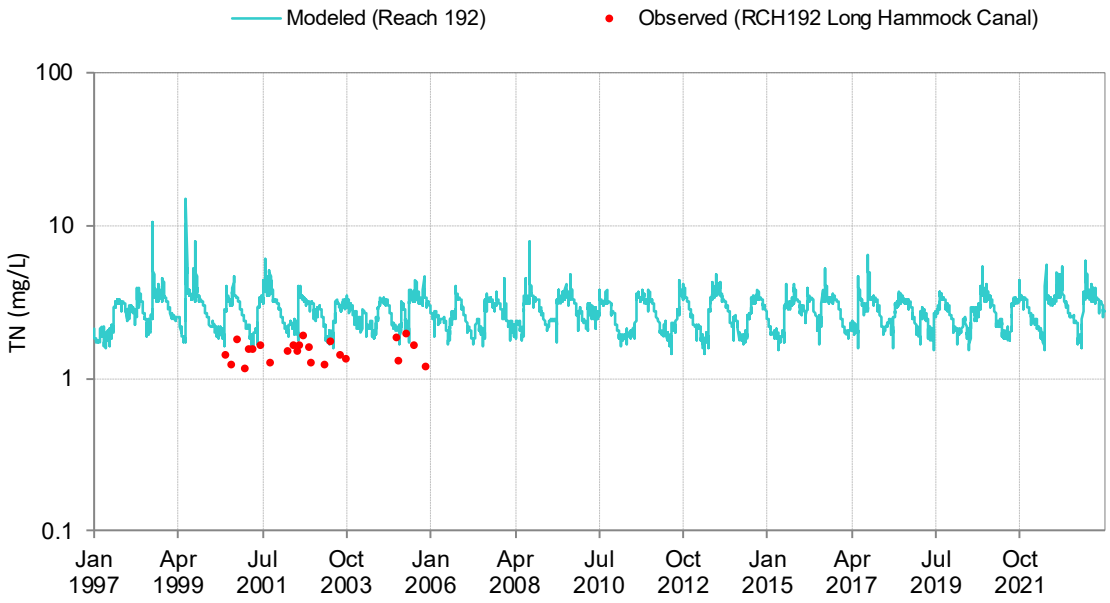


Figure A-197 Modeled Vs Observed TN (mg/L) at RCH192 Long Hammock Canal

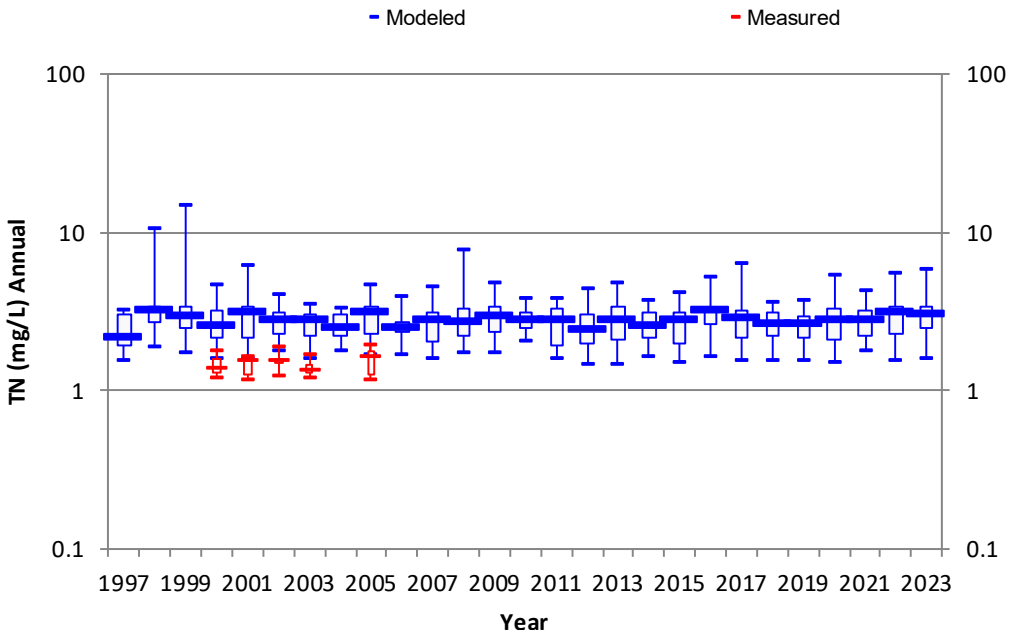


Figure A-198 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH192 Long Hammock Canal

Table A- 58 Monthly TN Concentration Comparisons at RCH192 Long Hammock Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.16	2.40	108.0	P
Feb	1.67	2.29	37.2	G
Mar	1.33	2.31	73.6	P
Apr	1.53	2.21	44.1	G
May	1.75	2.10	19.8	VG
Jun	1.57	2.66	69.2	P
Jul	1.50	3.13	109.3	P
Aug	1.64	3.32	103.0	P
Sep	1.22	3.48	186.3	P
Oct	1.34	3.34	148.4	P
Nov	1.47	3.13	113.3	P
Dec	N/A	2.77	N/A	N/A
Average*	1.35	2.76	105.0	P
Median**	1.50	2.72	81.7	P
R^2	N/A	N/A	0.09	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 59 Annual TN Concentration Comparisons at RCH192 Long Hammock Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	2.41	N/A	N/A
1998	N/A	3.11	N/A	N/A
1999	N/A	3.11	N/A	N/A
2000	1.46	2.68	84.0	P
2001	1.42	2.94	106.5	P
2002	1.56	2.72	74.6	P
2003	1.41	2.65	88.4	P
2004	N/A	2.60	N/A	N/A
2005	1.56	2.92	87.5	P
2006	N/A	2.60	N/A	N/A
2007	N/A	2.66	N/A	N/A
2008	N/A	2.81	N/A	N/A
2009	N/A	2.91	N/A	N/A
2010	N/A	2.80	N/A	N/A
2011	N/A	2.64	N/A	N/A
2012	N/A	2.56	N/A	N/A
2013	N/A	2.77	N/A	N/A
2014	N/A	2.61	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	2.62	N/A	N/A
2016	N/A	3.02	N/A	N/A
2017	N/A	2.78	N/A	N/A
2018	N/A	2.69	N/A	N/A
2019	N/A	2.62	N/A	N/A
2020	N/A	2.75	N/A	N/A
2021	N/A	2.72	N/A	N/A
2022	N/A	2.97	N/A	N/A
2023	N/A	2.95	N/A	N/A
Average*	1.48	2.76	86.6	P
Median**	1.46	2.72	87.0	P
R^2	N/A	N/A	0.06	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 60 Daily TN Concentration Comparisons at RCH192 Long Hammock Canal

Statistic	Results	Rating
Count (number)	24	N/A
Average Error (%)	92.2	P
Median Error (%)	82.6	P
RMSE (mg/L)	1.50	N/A
R^2	0.02	P

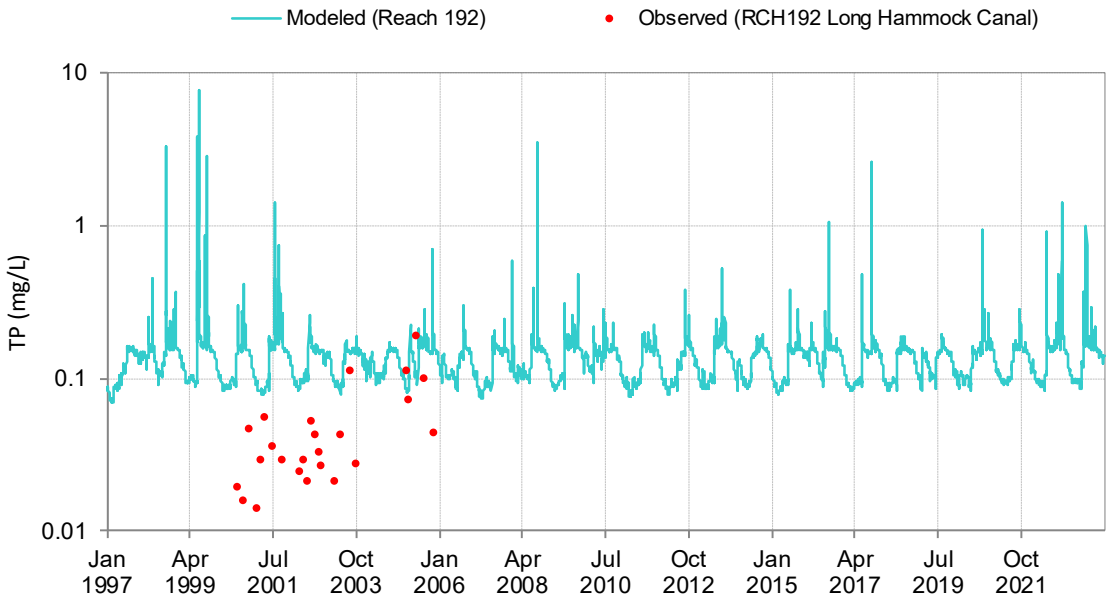


Figure A-199 Modeled Vs Observed TP (mg/L) at RCH192 Long Hammock Canal

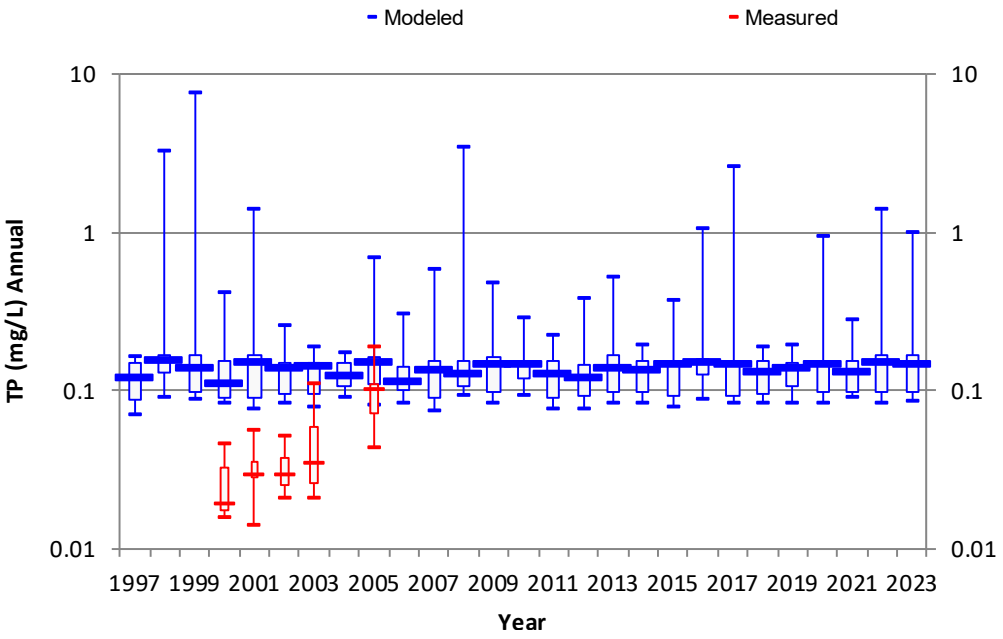


Figure A-200 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH192 Long Hammock Canal

Table A- 61 Monthly TP Concentration Comparisons at RCH192 Long Hammock Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.01	0.11	676.7	P
Feb	0.07	0.10	50.5	F
Mar	0.04	0.10	163.0	P
Apr	0.06	0.10	82.7	P
May	0.09	0.10	18.0	VG
Jun	0.03	0.16	473.0	P
Jul	0.04	0.17	368.7	P
Aug	0.08	0.18	111.5	P
Sep	0.02	0.19	1088.5	P
Oct	0.03	0.16	457.6	P
Nov	0.04	0.15	241.8	P
Dec	N/A	0.13	N/A	N/A
Average*	0.04	0.14	230.4	P
Median**	0.04	0.14	265.4	P
R^2	N/A	N/A	0.08	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 62 Annual TP Concentration Comparisons at RCH192 Long Hammock Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.12	N/A	N/A
1998	N/A	0.17	N/A	N/A
1999	N/A	0.20	N/A	N/A
2000	0.03	0.13	371.1	P
2001	0.03	0.15	359.7	P
2002	0.03	0.13	294.6	P
2003	0.05	0.13	156.6	P
2004	N/A	0.13	N/A	N/A
2005	0.10	0.14	40.4	G
2006	N/A	0.12	N/A	N/A
2007	N/A	0.13	N/A	N/A
2008	N/A	0.15	N/A	N/A
2009	N/A	0.14	N/A	N/A
2010	N/A	0.14	N/A	N/A
2011	N/A	0.13	N/A	N/A
2012	N/A	0.12	N/A	N/A
2013	N/A	0.14	N/A	N/A
2014	N/A	0.13	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	0.13	N/A	N/A
2016	N/A	0.15	N/A	N/A
2017	N/A	0.14	N/A	N/A
2018	N/A	0.13	N/A	N/A
2019	N/A	0.13	N/A	N/A
2020	N/A	0.14	N/A	N/A
2021	N/A	0.13	N/A	N/A
2022	N/A	0.15	N/A	N/A
2023	N/A	0.15	N/A	N/A
Average*	0.05	0.14	182.2	P
Median**	0.03	0.13	301.4	P
R^2	N/A	N/A	0.17	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 63 Daily TP Concentration Comparisons at RCH192 Long Hammock Canal

Statistic	Results	Rating
Count (number)	24	N/A
Average Error (%)	309.4	P
Median Error (%)	250.1	P
RMSE (mg/L)	0.10	N/A
R^2	0.01	P

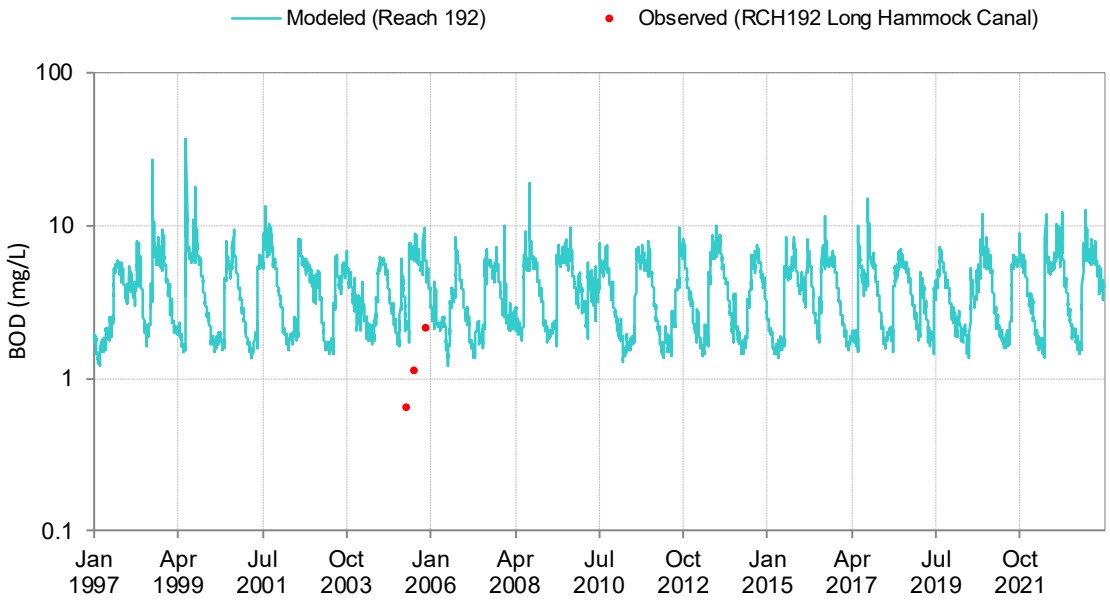


Figure A-201 Modeled Vs Observed BOD (mg/L) at RCH192 Long Hammock Canal

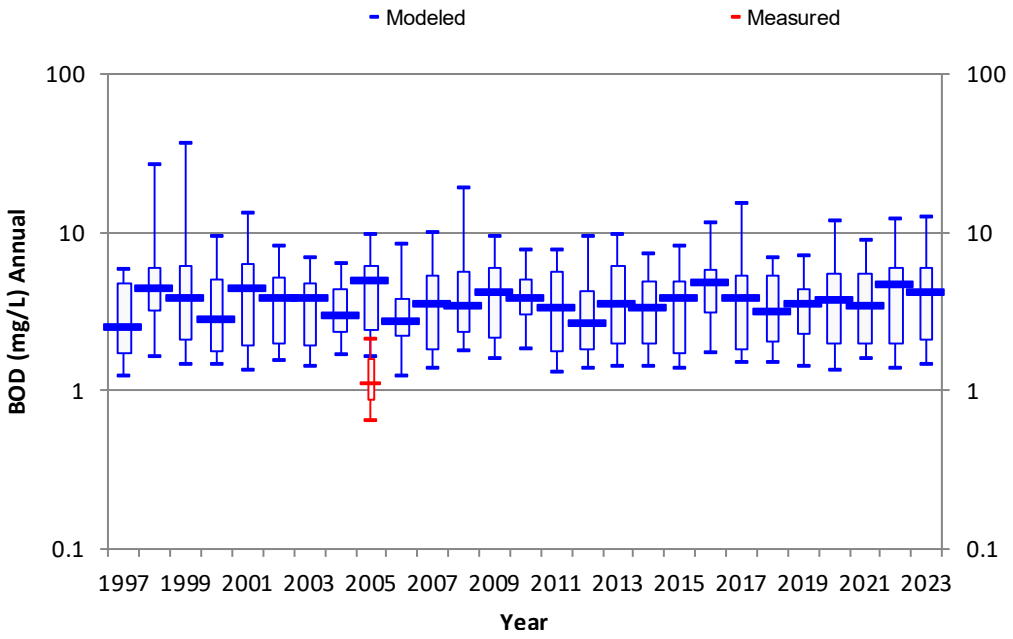


Figure A-202 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH192 Long Hammock Canal

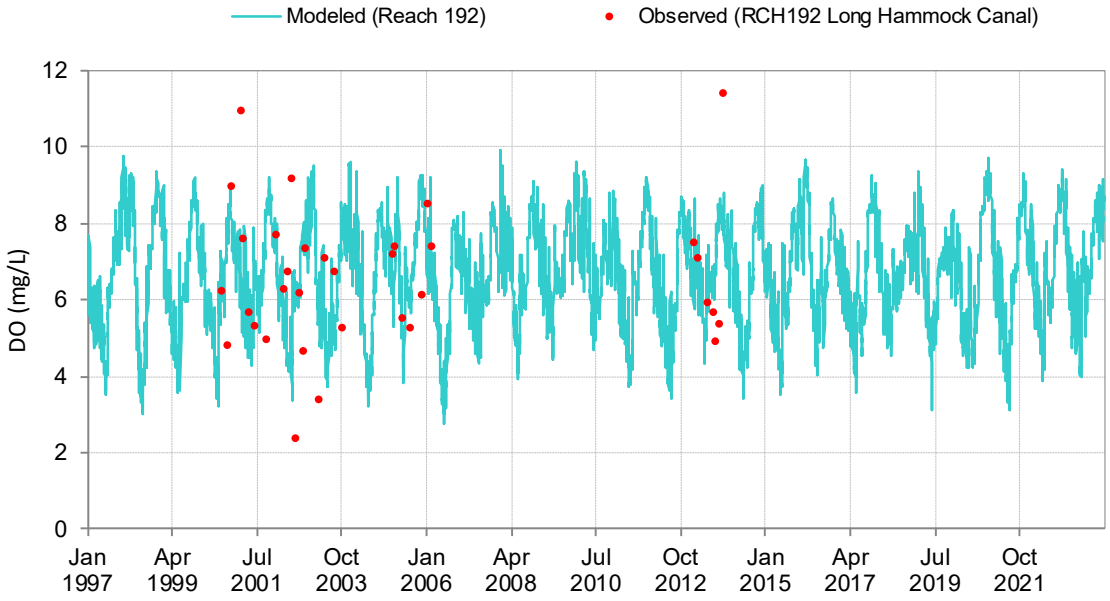


Figure A-203 Modeled Vs Observed DO (mg/L) at RCH192 Long Hammock Canal

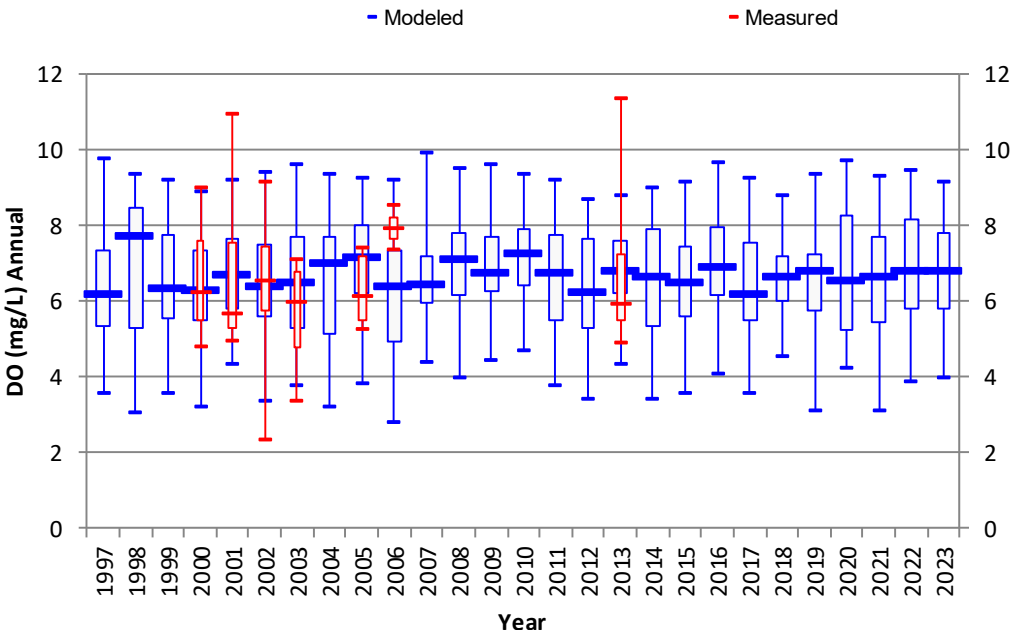


Figure A-204 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH192 Long Hammock Canal

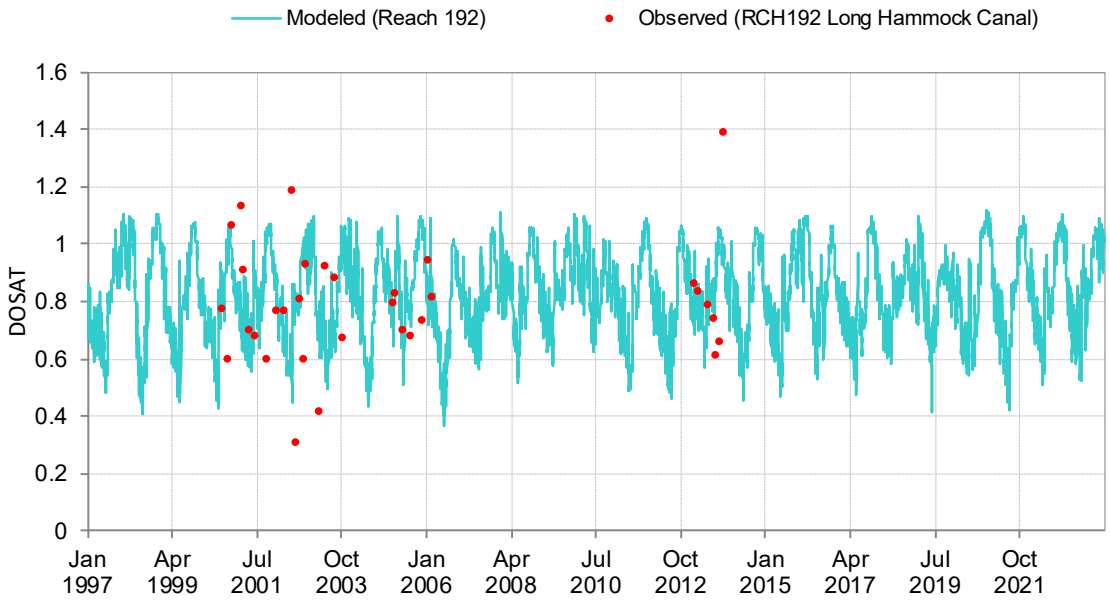


Figure A-205 Modeled Vs Observed DOSAT at RCH192 Long Hammock Canal

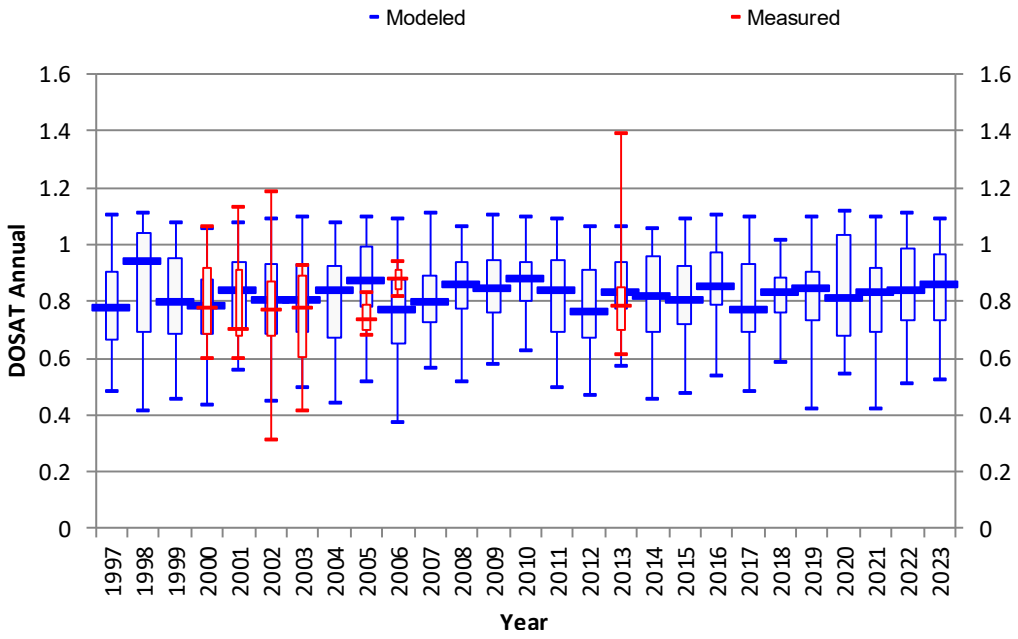


Figure A-206 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH192 Long Hammock Canal

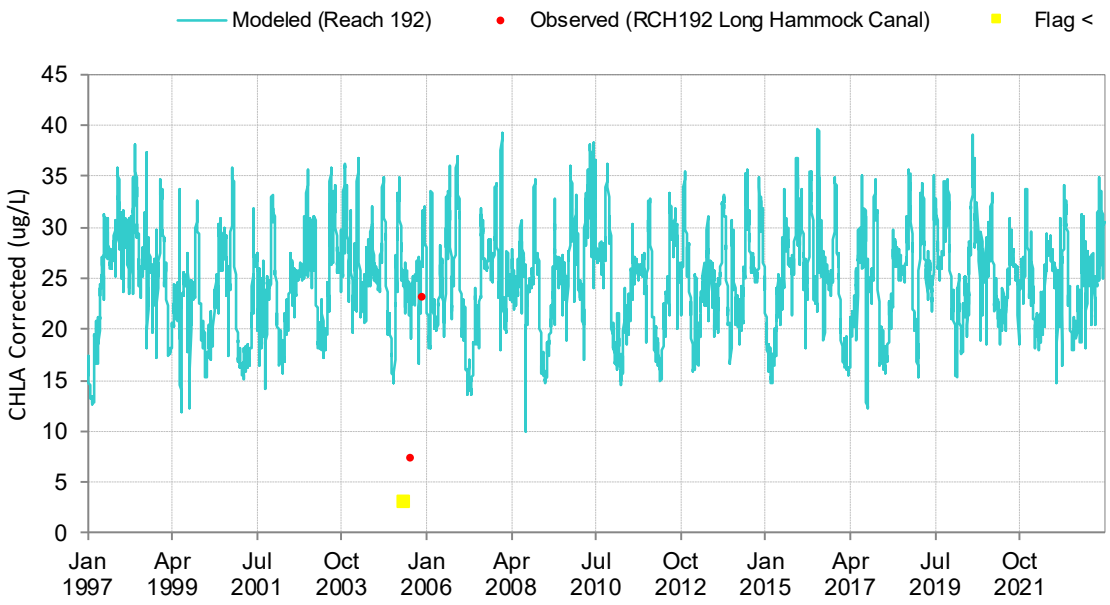


Figure A-207 Modeled Vs Observed CHLA Corrected (ug/L) at RCH192 Long Hammock Canal

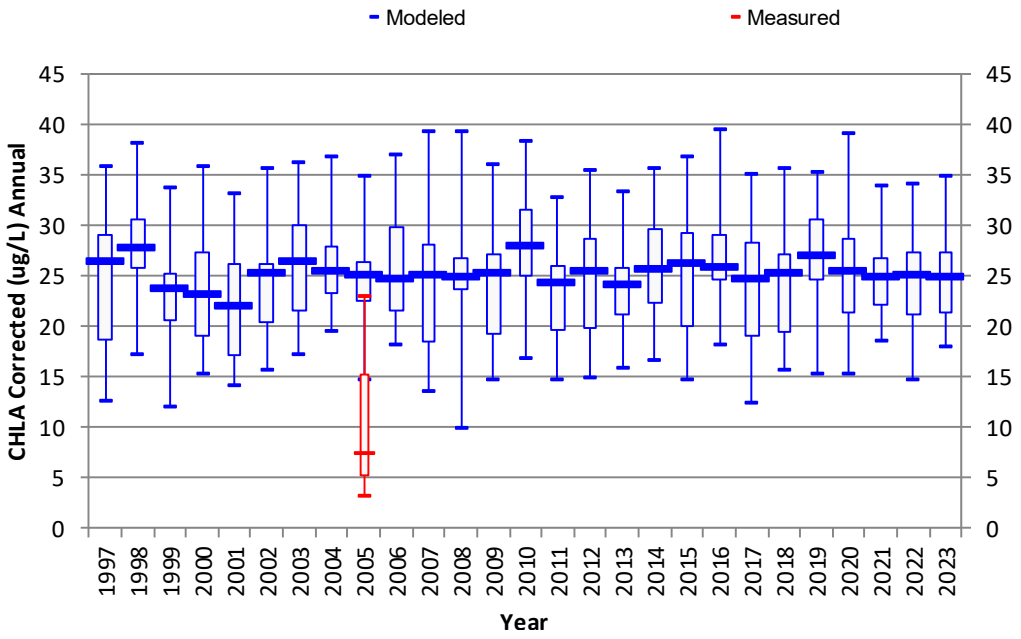


Figure A-208 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH192 Long Hammock Canal

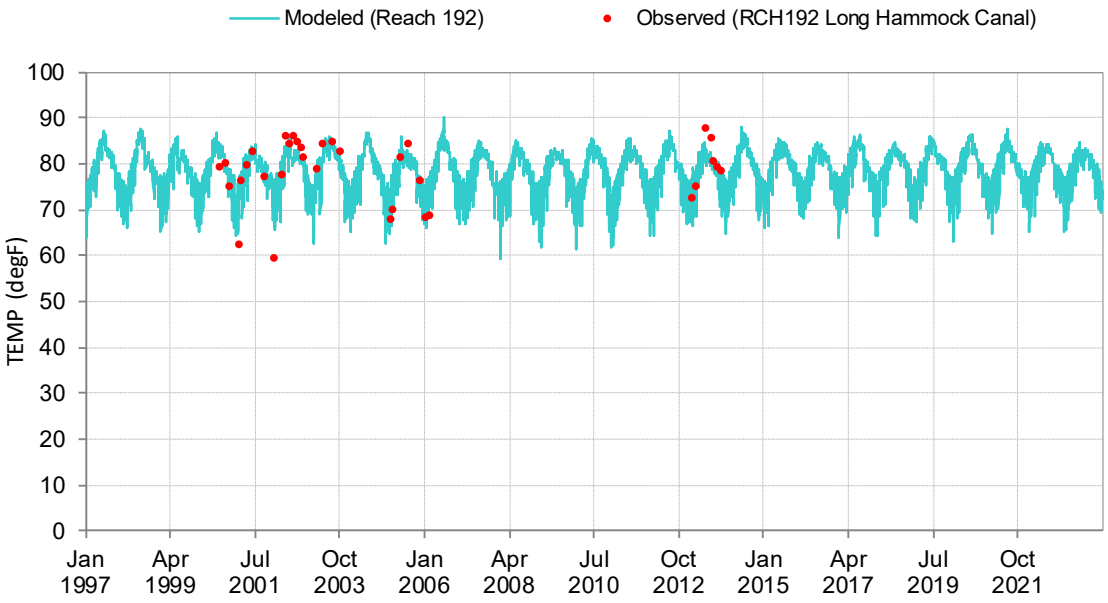


Figure A-209 Modeled Vs Observed TEMP (deg F) at RCH192 Long Hammock Canal

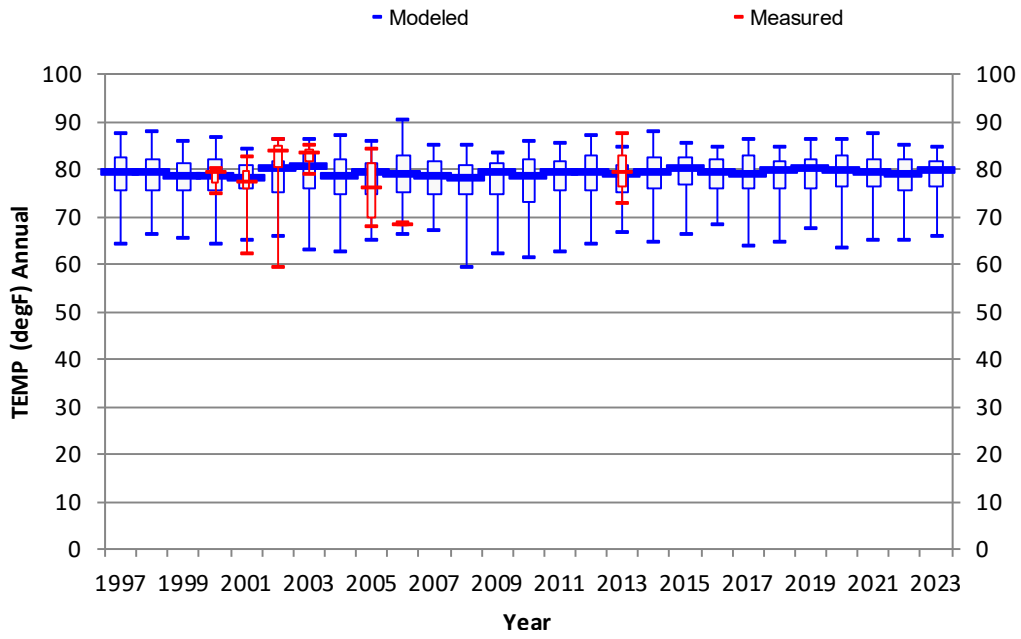


Figure A-210 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH192 Long Hammock Canal

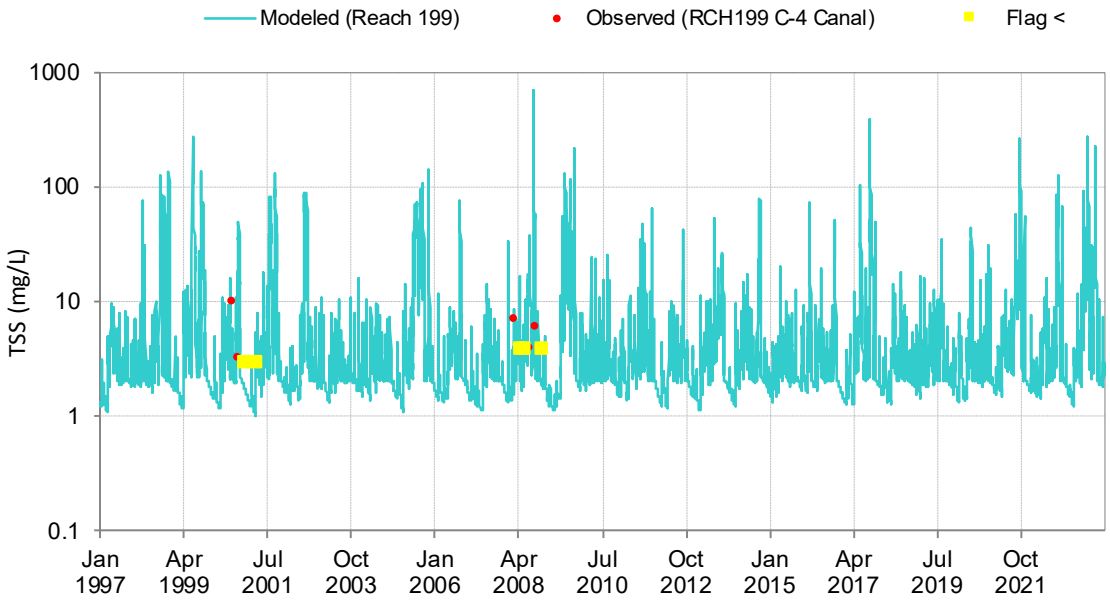


Figure A-211 Modeled Vs Observed TSS (mg/L) at RCH199 C-4 Canal

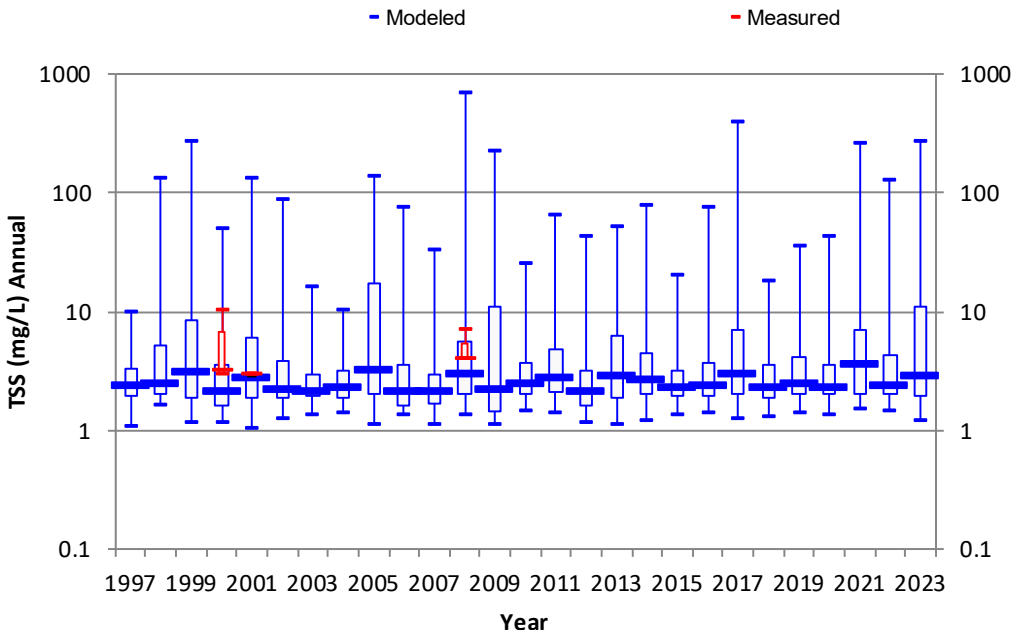


Figure A-212 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH199 C-4 Canal

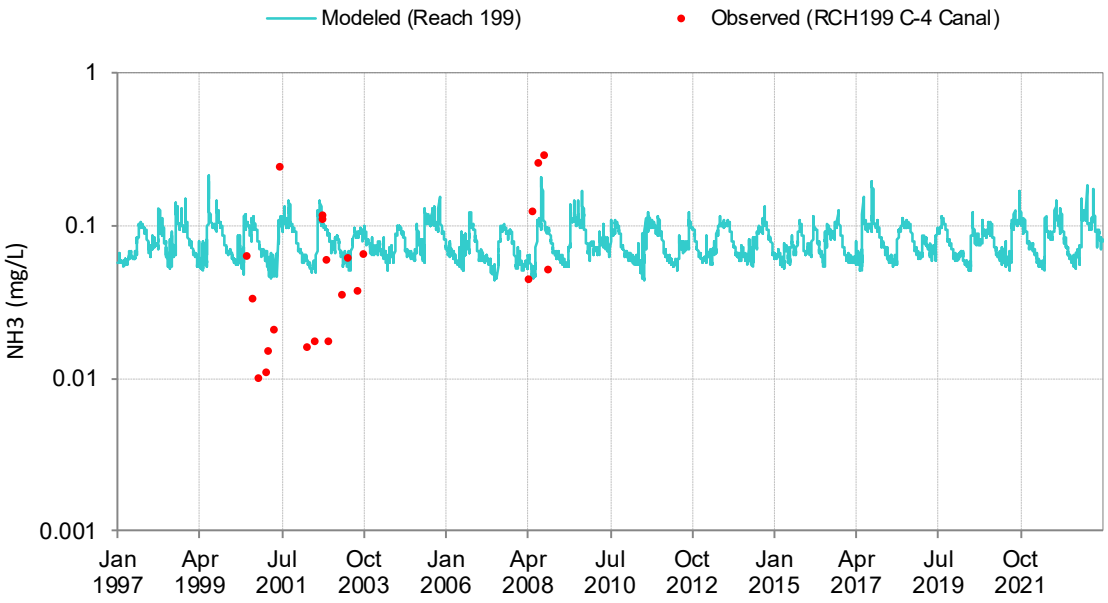


Figure A-213 Modeled Vs Observed NH3 (mg/L) at RCH199 C-4 Canal

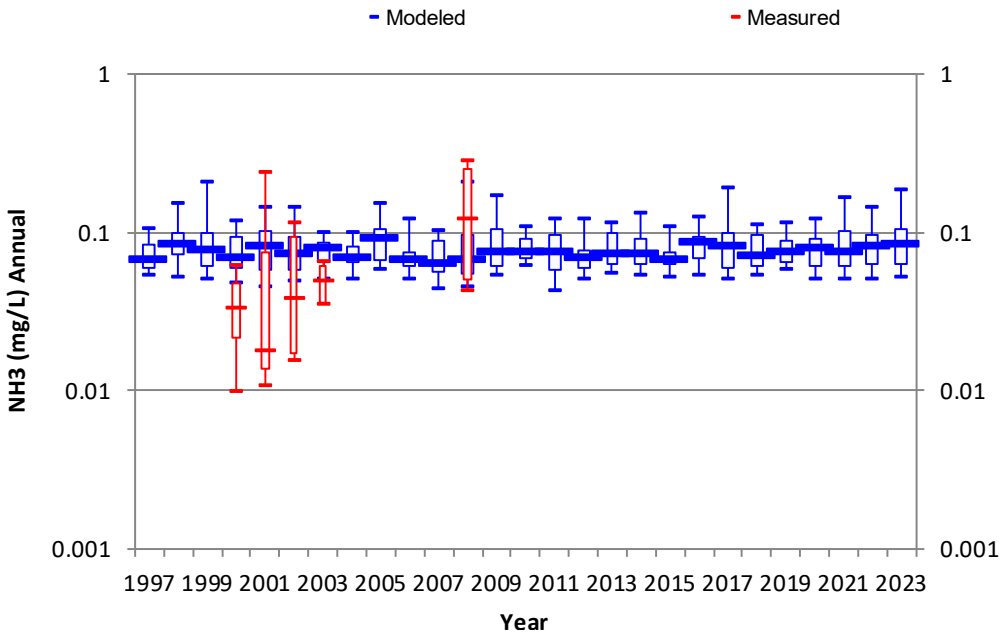


Figure A-214 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH199 C-4 Canal

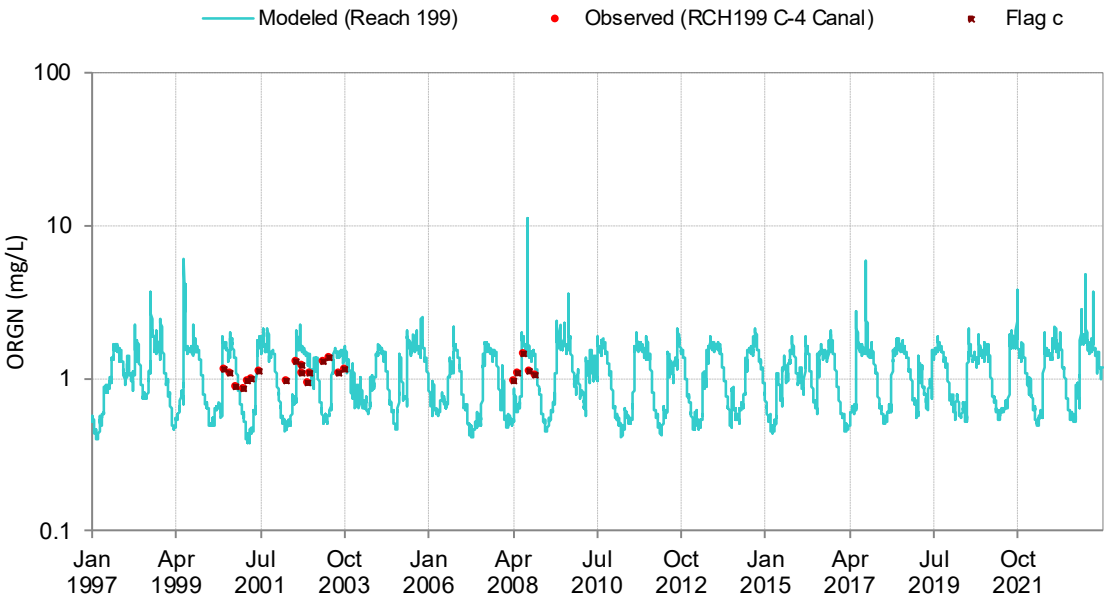


Figure A-215 Modeled Vs Observed ORGN (mg/L) at RCH199 C-4 Canal

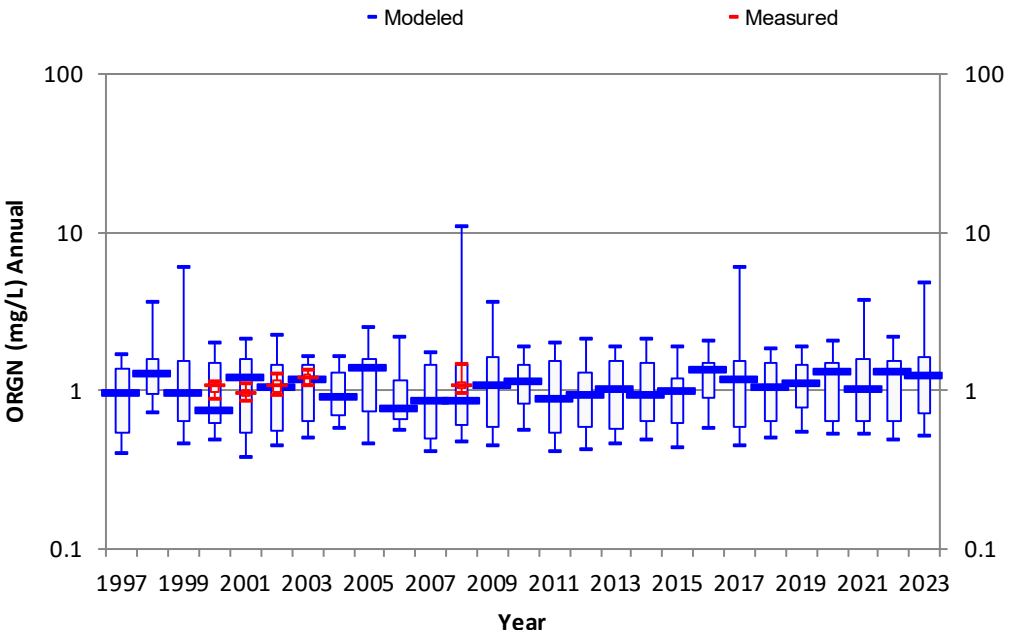


Figure A-216 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH199 C-4 Canal

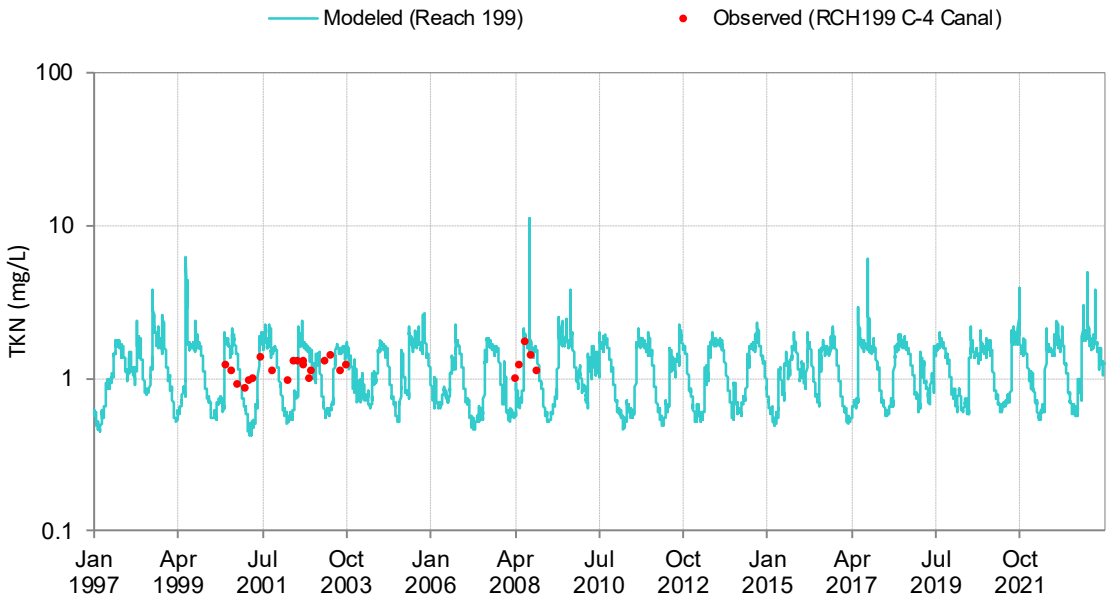


Figure A-217 Modeled Vs Observed TKN (mg/L) at RCH199 C-4 Canal

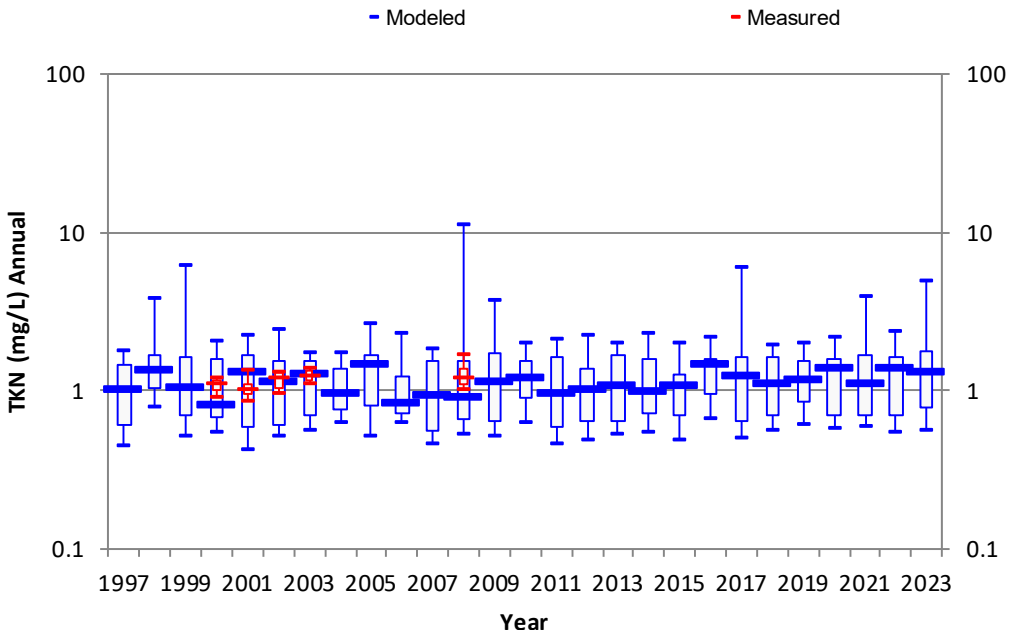


Figure A-218 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH199 C-4 Canal

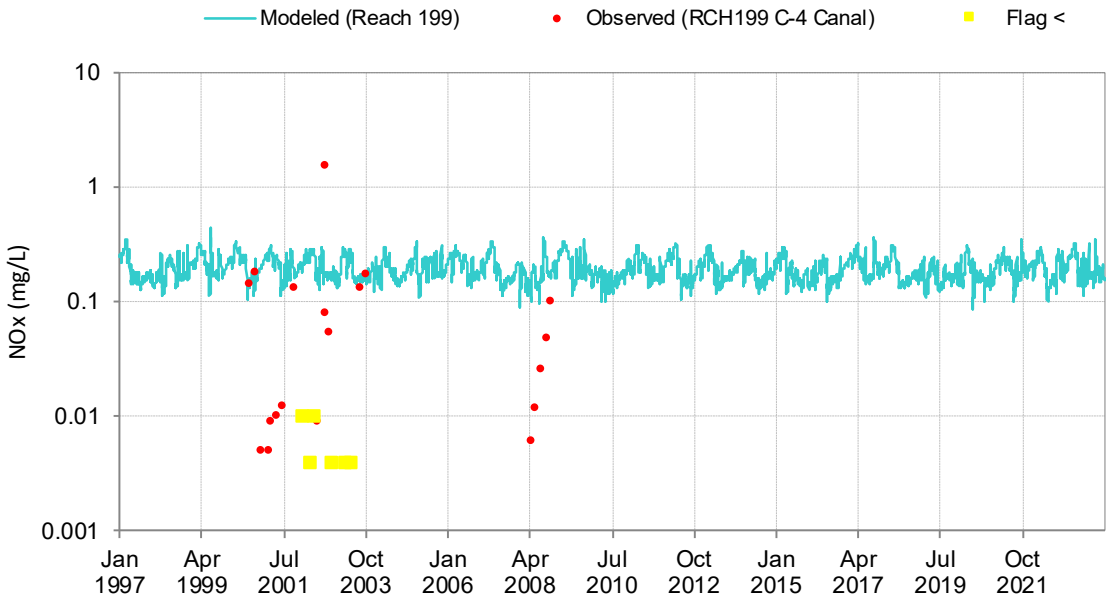


Figure A-219 Modeled Vs Observed NOx (mg/L) at RCH199 C-4 Canal

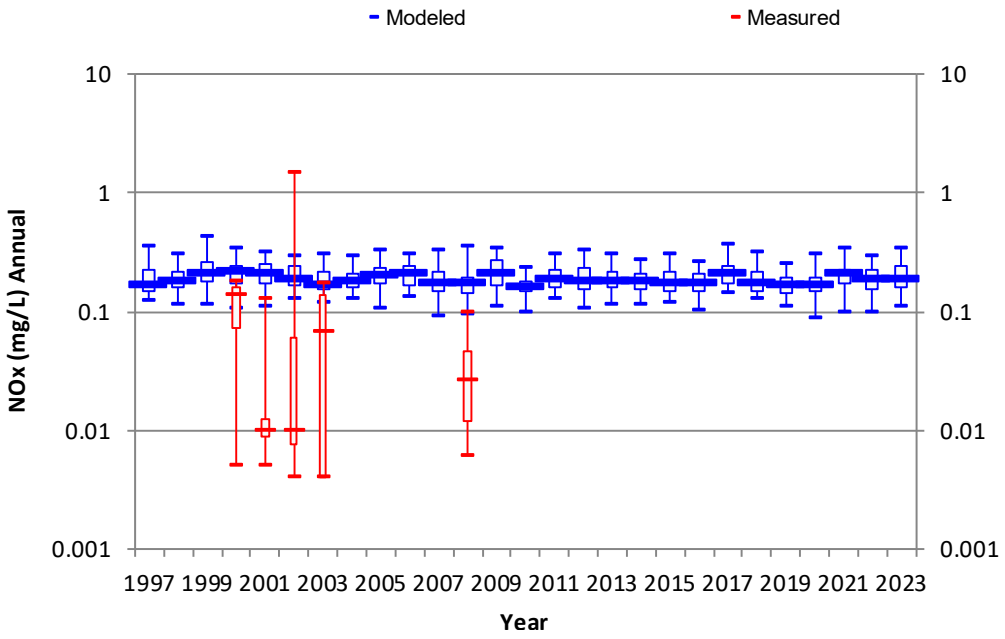


Figure A-220 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH199 C-4 Canal

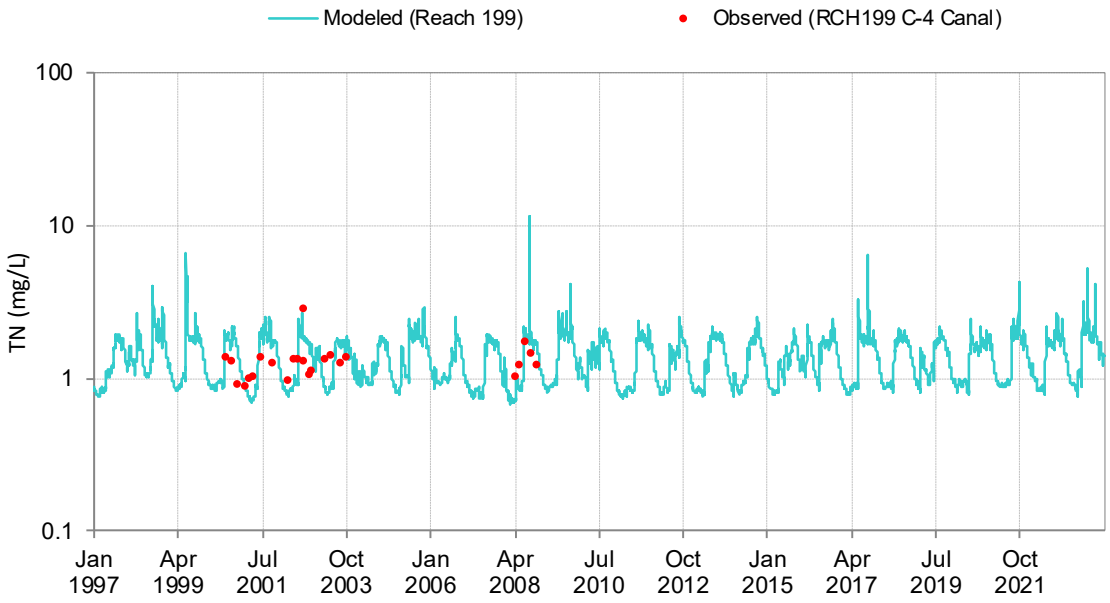


Figure A-221 Modeled Vs Observed TN (mg/L) at RCH199 C-4 Canal

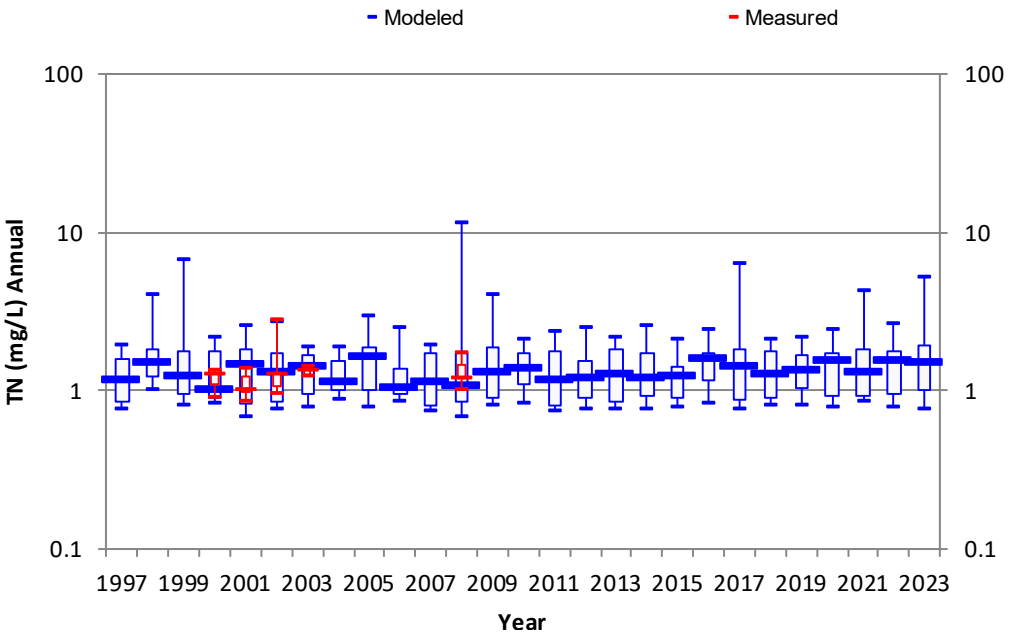


Figure A-222 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH199 C-4 Canal

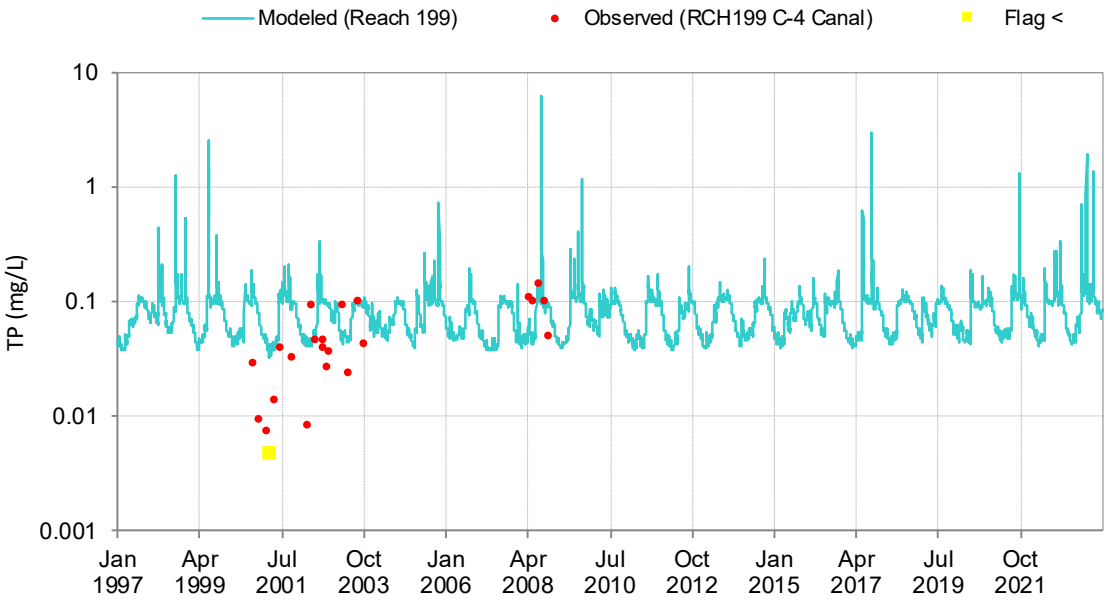


Figure A-223 Modeled Vs Observed TP (mg/L) at RCH199 C-4 Canal

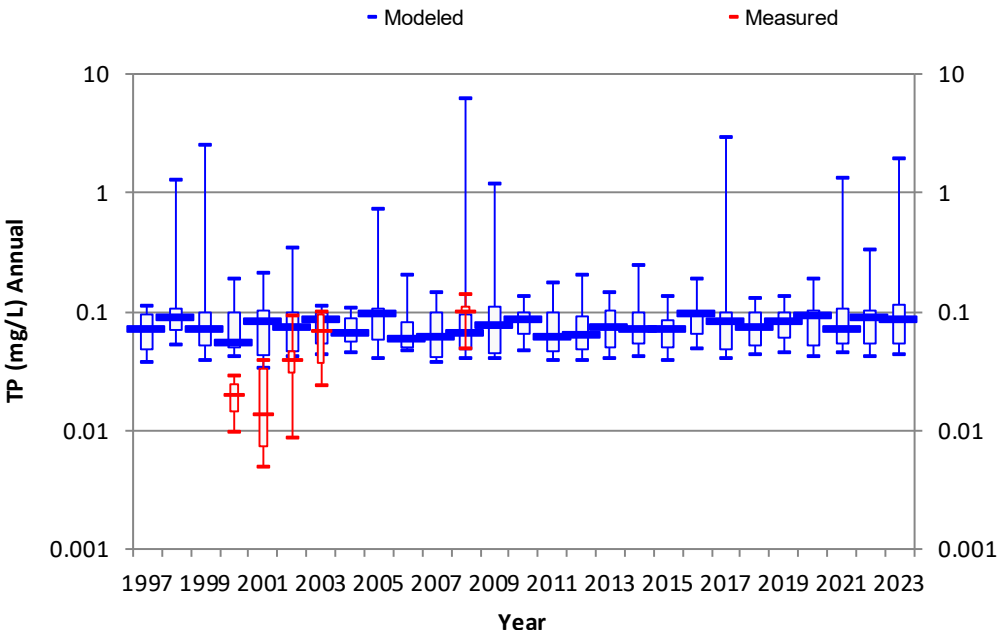


Figure A-224 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH199 C-4 Canal

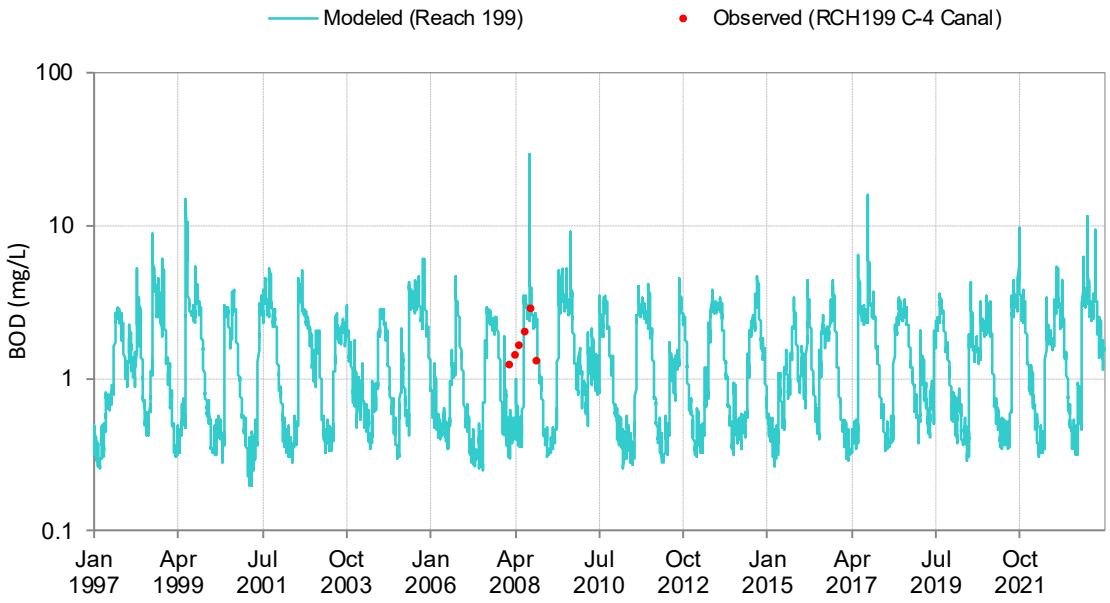


Figure A-225 Modeled Vs Observed BOD (mg/L) at RCH199 C-4 Canal

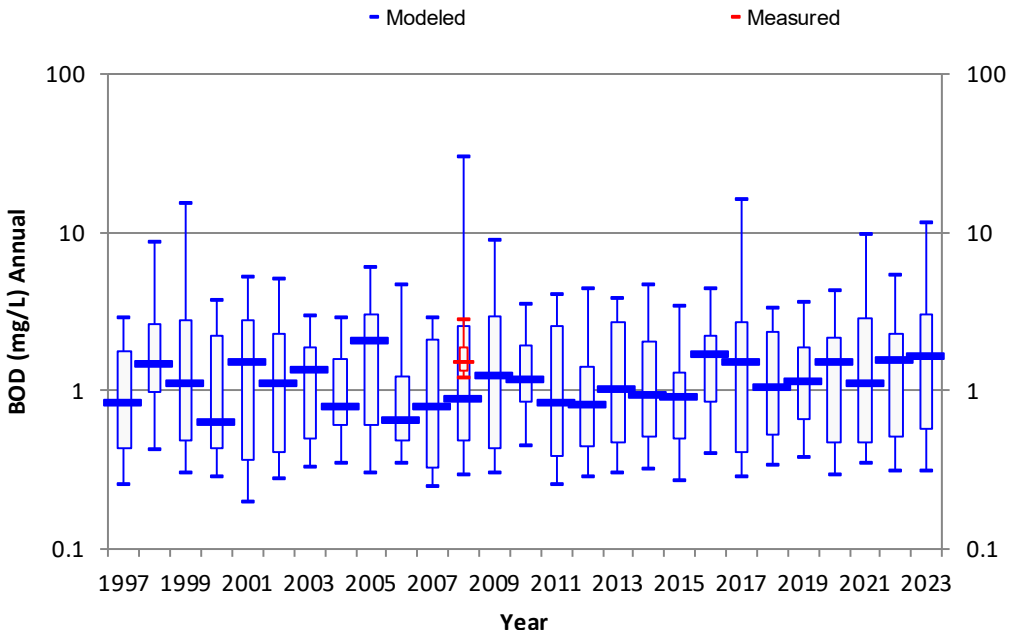


Figure A-226 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH199 C-4 Canal

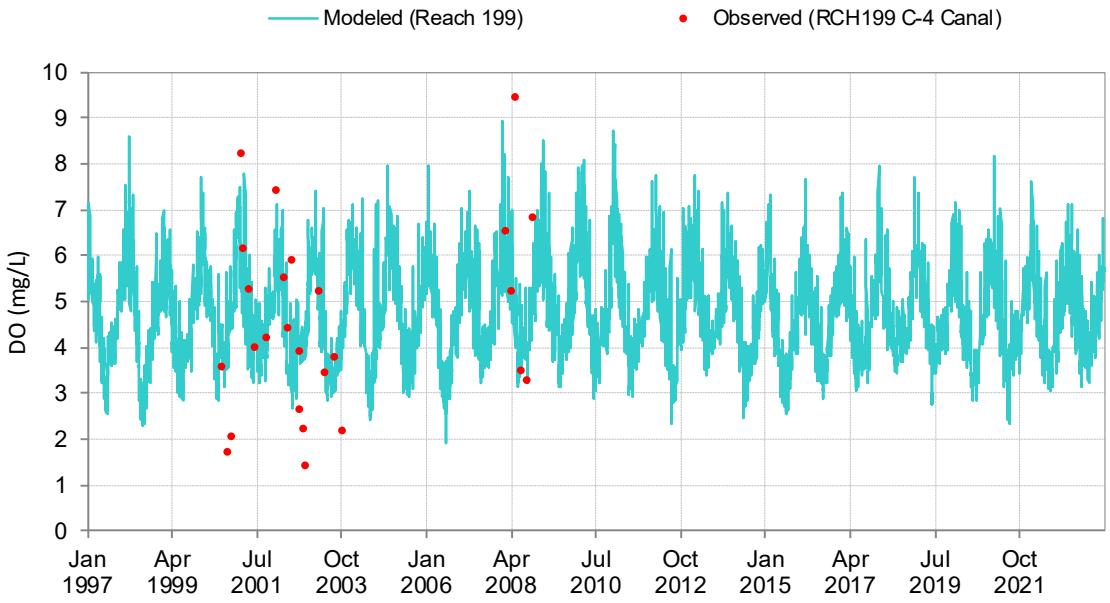


Figure A-227 Modeled Vs Observed DO (mg/L) at RCH199 C-4 Canal

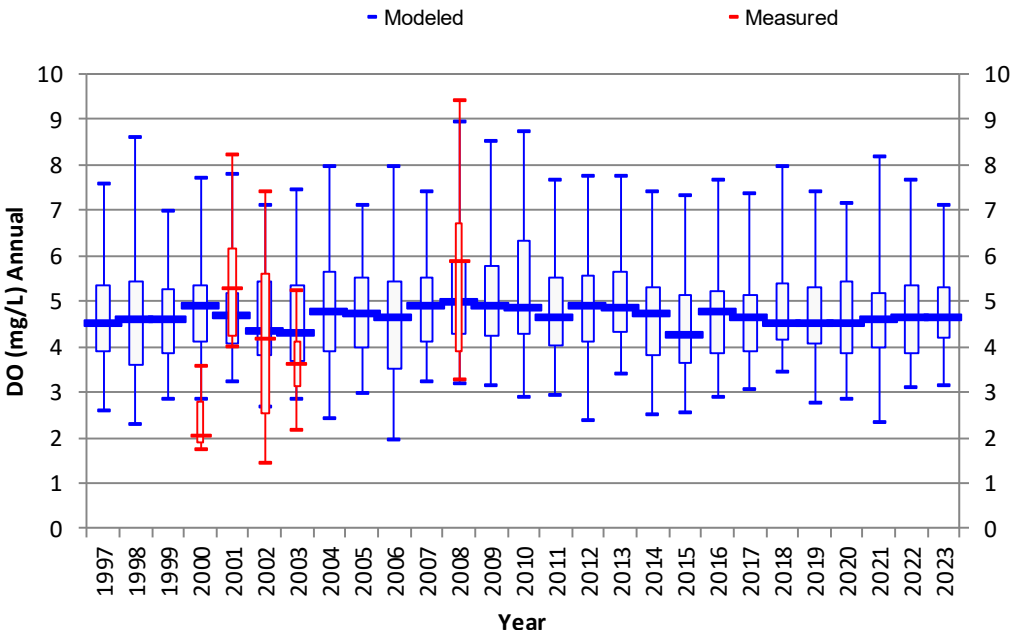


Figure A-228 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH199 C-4 Canal

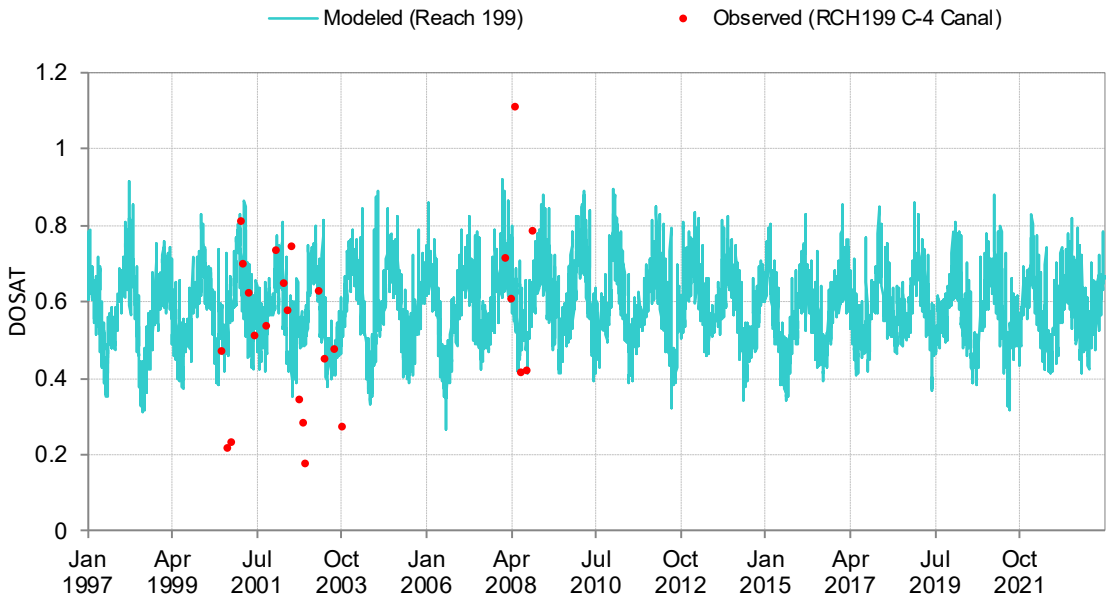


Figure A-229 Modeled Vs Observed DOSAT at RCH199 C-4 Canal

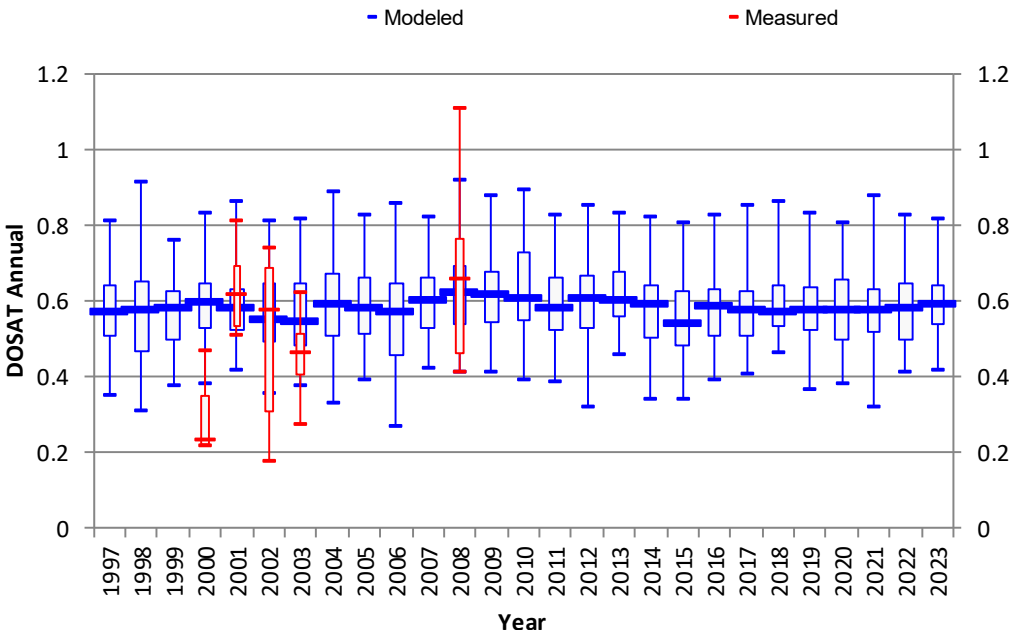


Figure A-230 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH199 C-4 Canal

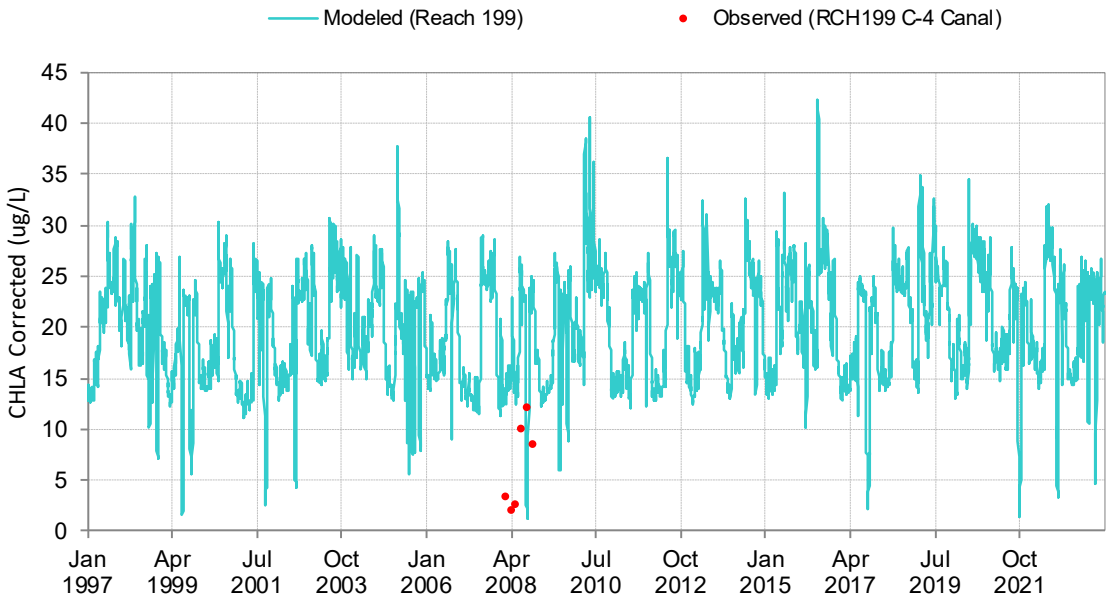


Figure A-231 Modeled Vs Observed CHLA Corrected (ug/L) at RCH199 C-4 Canal

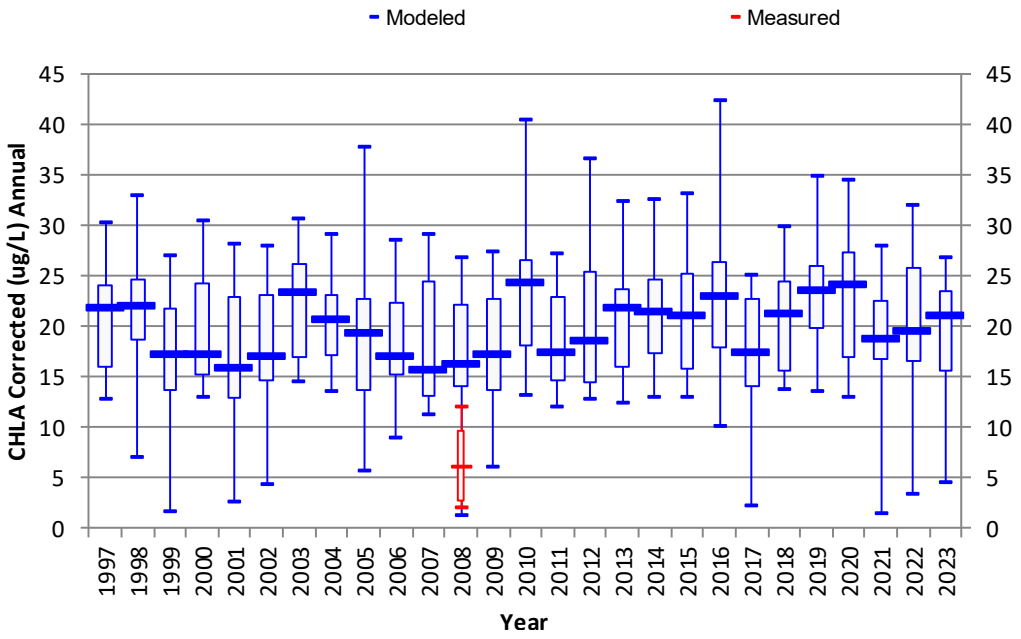


Figure A-232 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH199 C-4 Canal

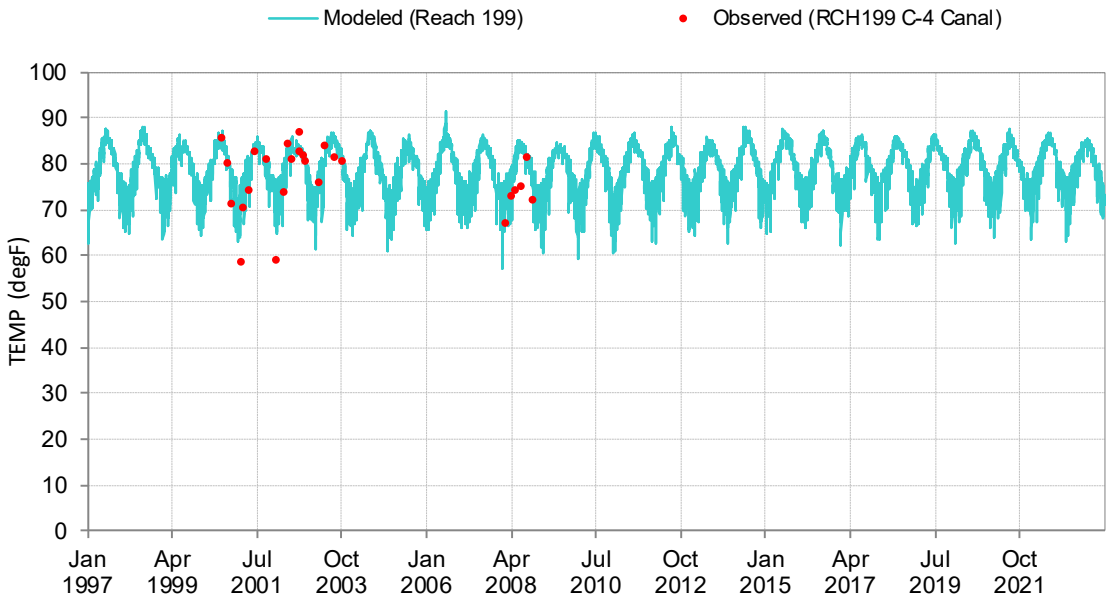


Figure A-233 Modeled Vs Observed TEMP (deg F) at RCH199 C-4 Canal

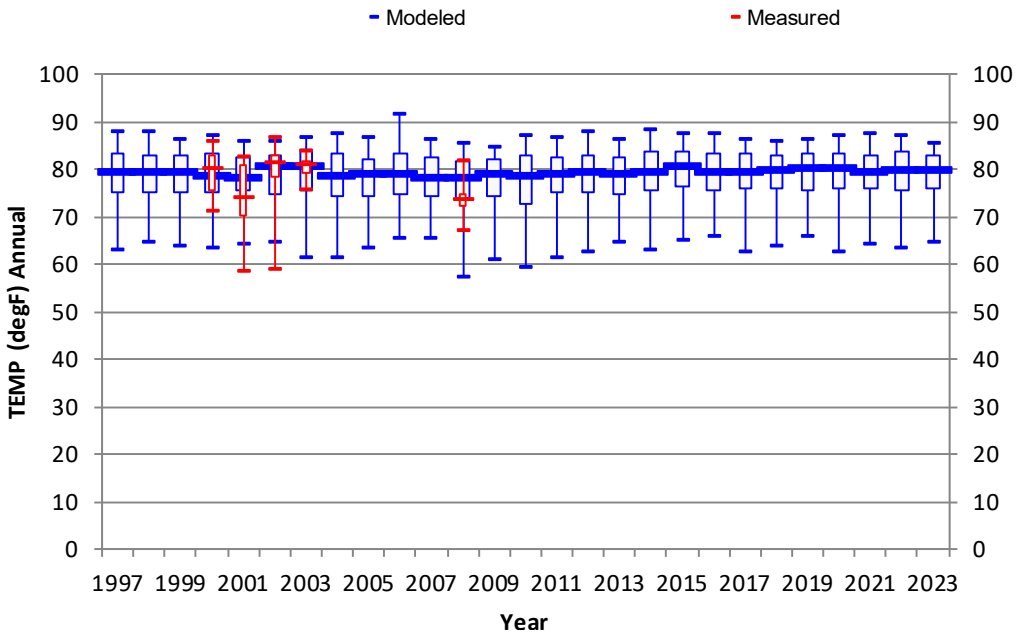


Figure A-234 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH199 C-4 Canal

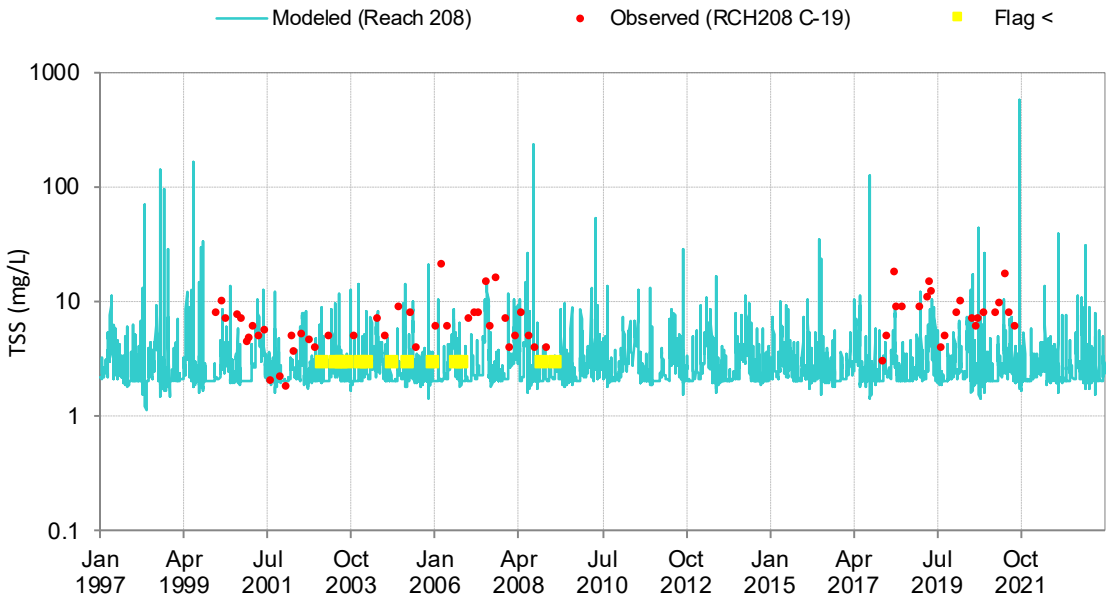


Figure A-235 Modeled Vs Observed TSS (mg/L) at RCH208 C-19

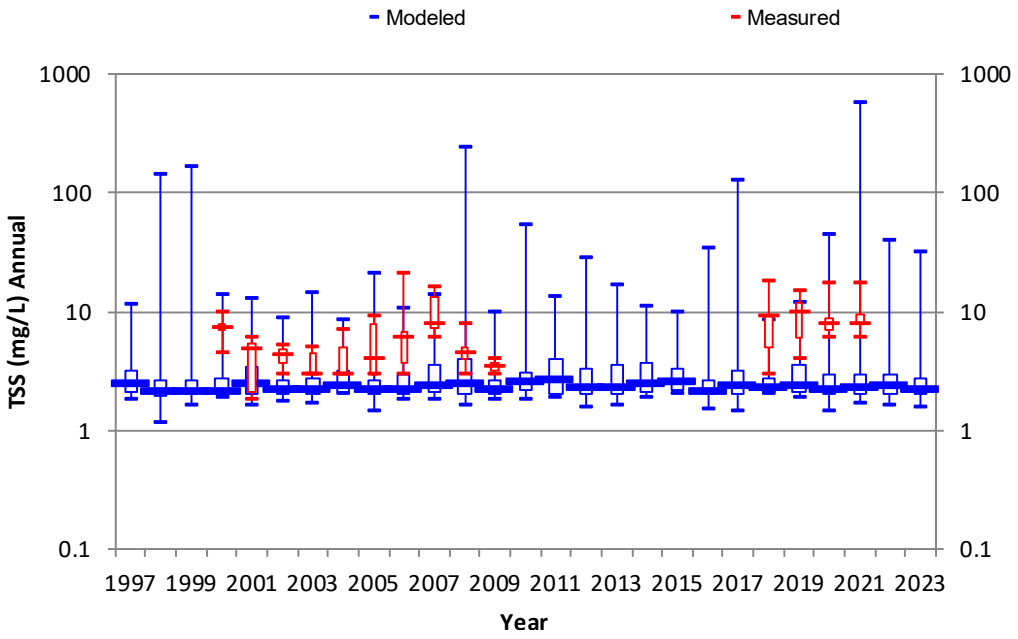


Figure A-236 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH208 C-19

Table A- 64 Monthly TSS Concentration Comparisons at RCH208 C-19

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	6.38	2.56	-60.0	P
Feb	5.90	2.94	-50.1	P
Mar	6.90	3.12	-54.8	P
Apr	7.58	3.93	-48.2	P
May	12.00	4.22	-64.8	P
Jun	6.29	4.19	-33.4	F
Jul	5.10	2.85	-44.2	P
Aug	4.51	3.46	-23.3	G
Sep	6.82	3.73	-45.3	P
Oct	5.24	2.32	-55.8	P
Nov	3.70	2.26	-39.0	P
Dec	2.30	2.53	9.9	VG
Average*	6.06	3.18	-47.6	P
Median**	6.09	3.03	-50.3	P
R^2	N/A	N/A	0.48	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 65 Annual TSS Concentration Comparisons at RCH208 C-19

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	2.92	N/A	N/A
1998	N/A	3.67	N/A	N/A
1999	N/A	3.75	N/A	N/A
2000	7.33	2.69	-63.3	P
2001	3.91	3.15	-19.6	G
2002	3.98	2.62	-34.3	F
2003	2.65	2.82	6.4	VG
2004	3.60	2.85	-20.9	G
2005	4.80	2.75	-42.6	P
2006	7.17	2.78	-61.2	P
2007	10.00	3.34	-66.6	P
2008	4.58	4.87	6.4	VG
2009	2.75	2.60	-5.4	VG
2010	N/A	3.36	N/A	N/A
2011	N/A	3.35	N/A	N/A
2012	N/A	2.98	N/A	N/A
2013	N/A	3.14	N/A	N/A
2014	N/A	3.19	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	3.04	N/A	N/A
2016	N/A	2.84	N/A	N/A
2017	N/A	3.39	N/A	N/A
2018	8.80	2.65	-69.9	P
2019	9.33	3.08	-67.0	P
2020	7.67	3.29	-57.1	P
2021	9.72	4.77	-50.9	P
2022	N/A	2.84	N/A	N/A
2023	N/A	2.92	N/A	N/A
Average*	6.16	3.17	-48.5	P
Median**	5.98	3.04	-49.2	P
R^2	N/A	N/A	0.07	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 66 Daily TSS Concentration Comparisons at RCH208 C-19

Statistic	Results	Rating
Count (number)	77	N/A
Average Error (%)	-33.8	F
Median Error (%)	-56.0	P
RMSE (mg/L)	5.29	N/A
R^2	0.04	P

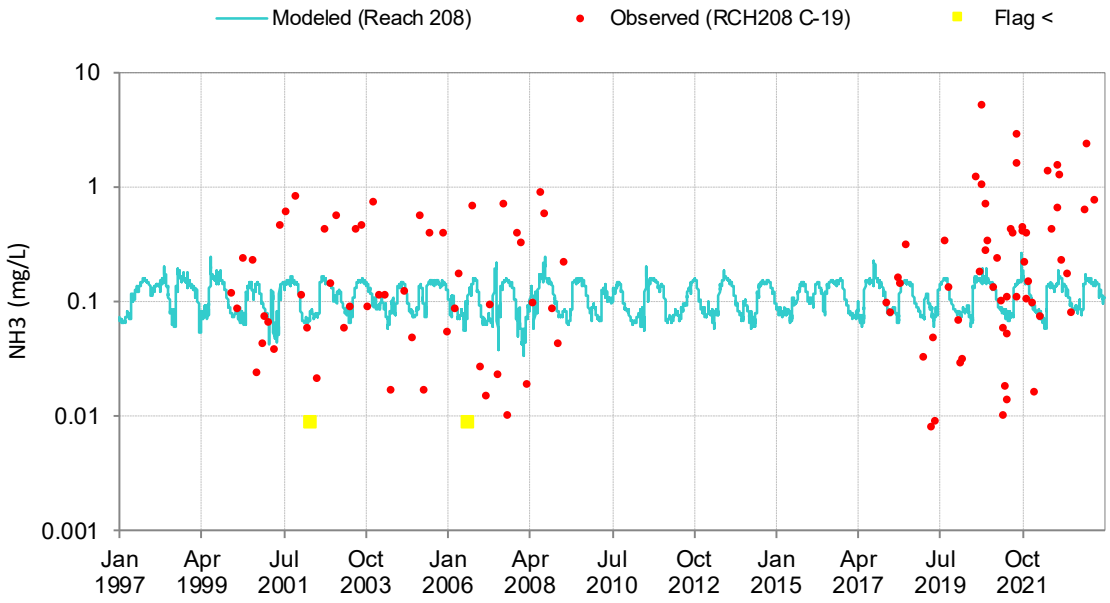


Figure A-237 Modeled Vs Observed NH3 (mg/L) at RCH208 C-19

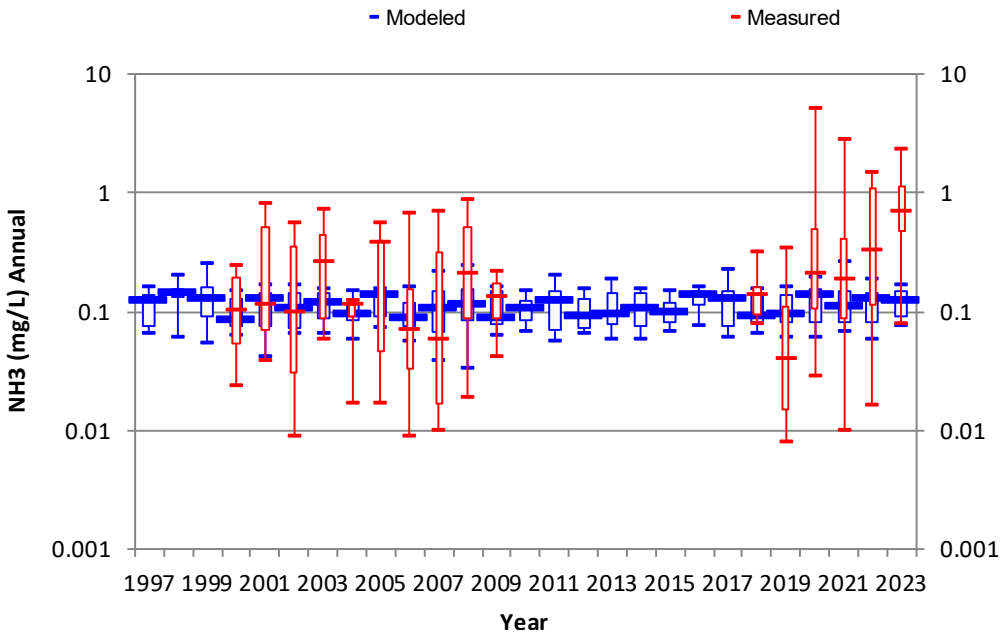


Figure A-238 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH208 C-19

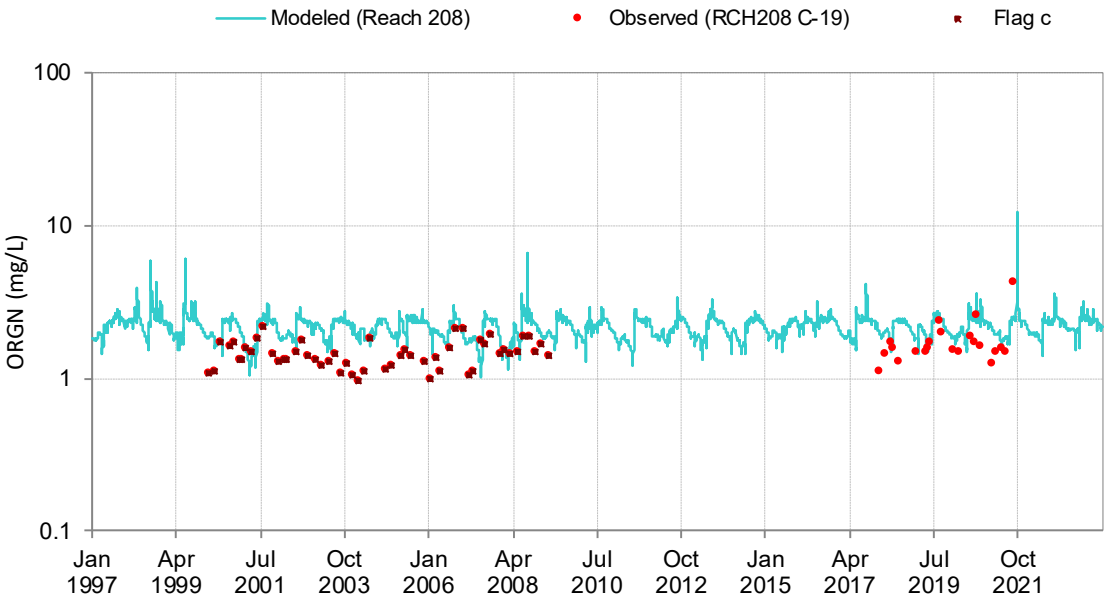


Figure A-239 Modeled Vs Observed ORGN (mg/L) at RCH208 C-19

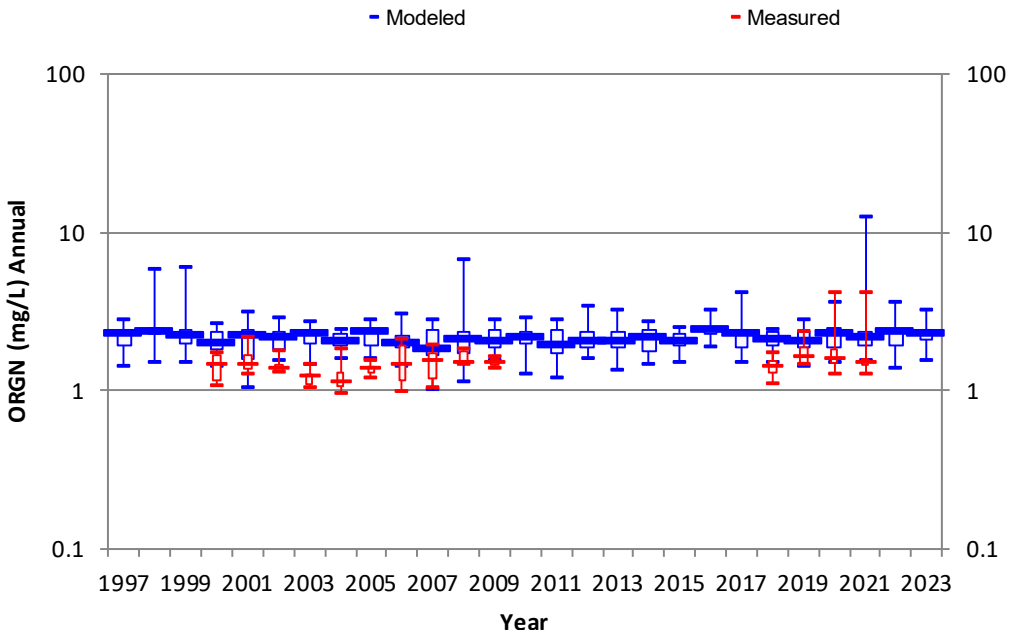


Figure A-240 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH208 C-19

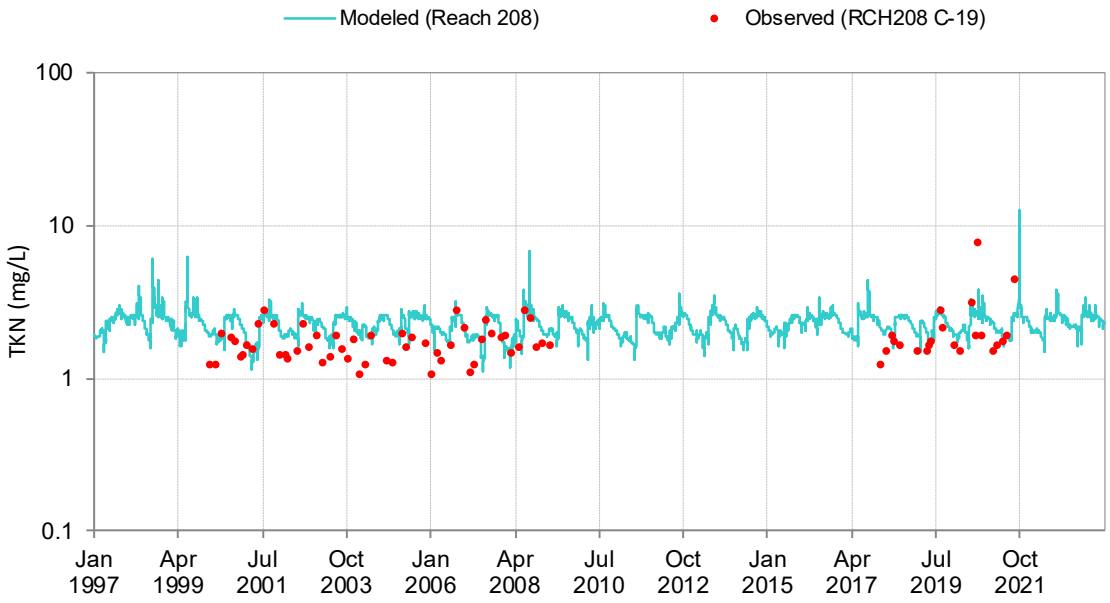


Figure A-241 Modeled Vs Observed TKN (mg/L) at RCH208 C-19

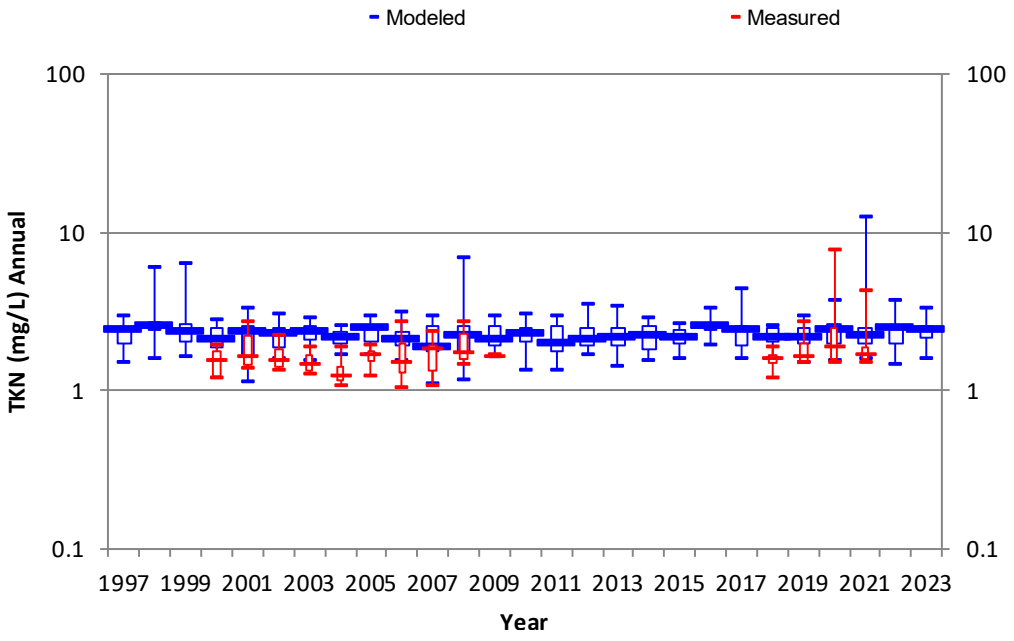


Figure A-242 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH208 C-19

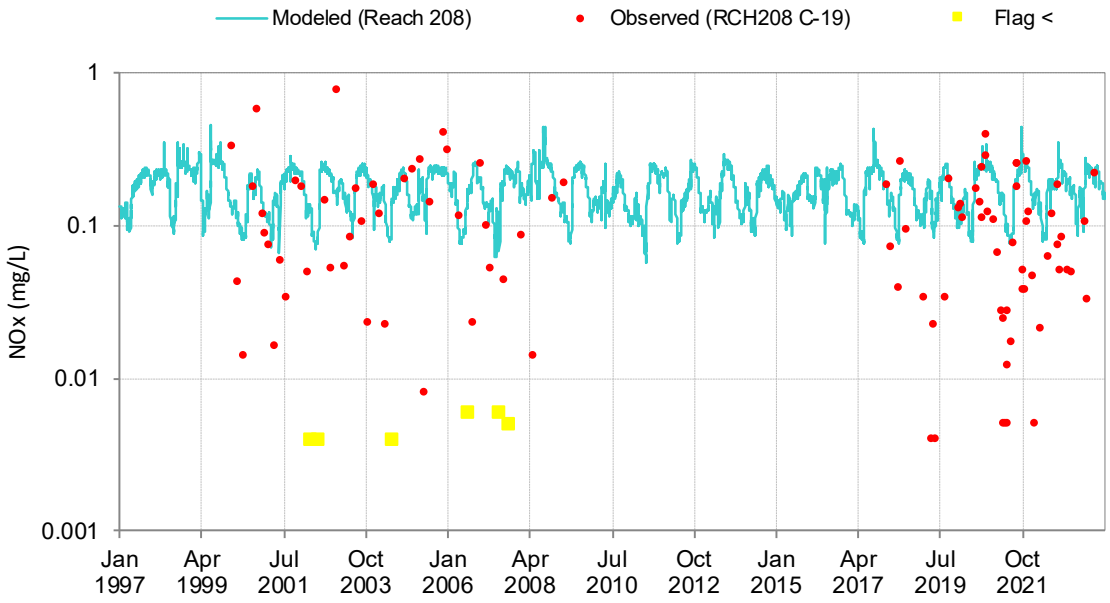


Figure A-243 Modeled Vs Observed NOx (mg/L) at RCH208 C-19

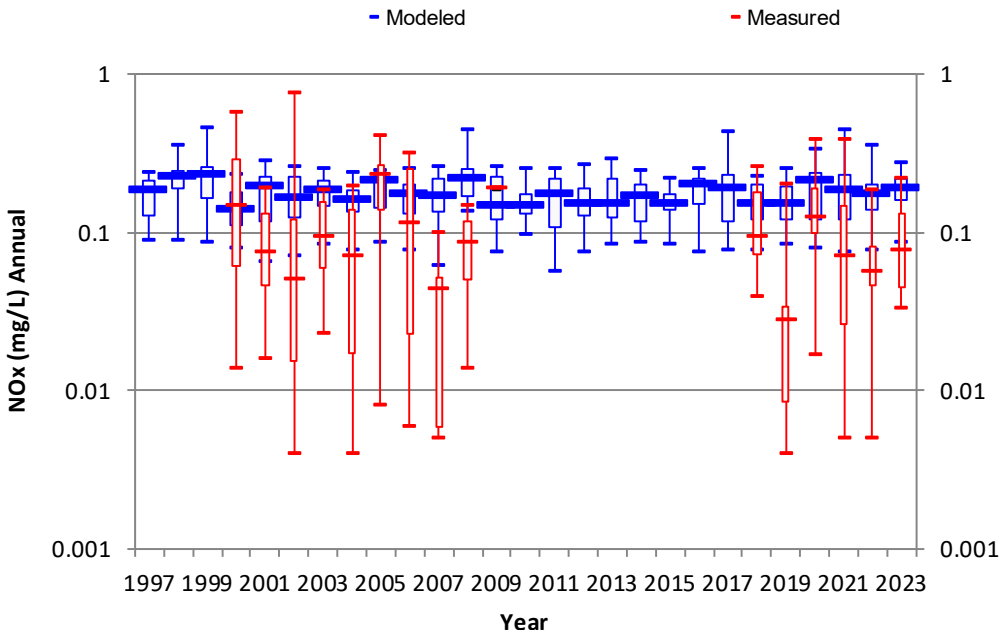


Figure A-244 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH208 C-19

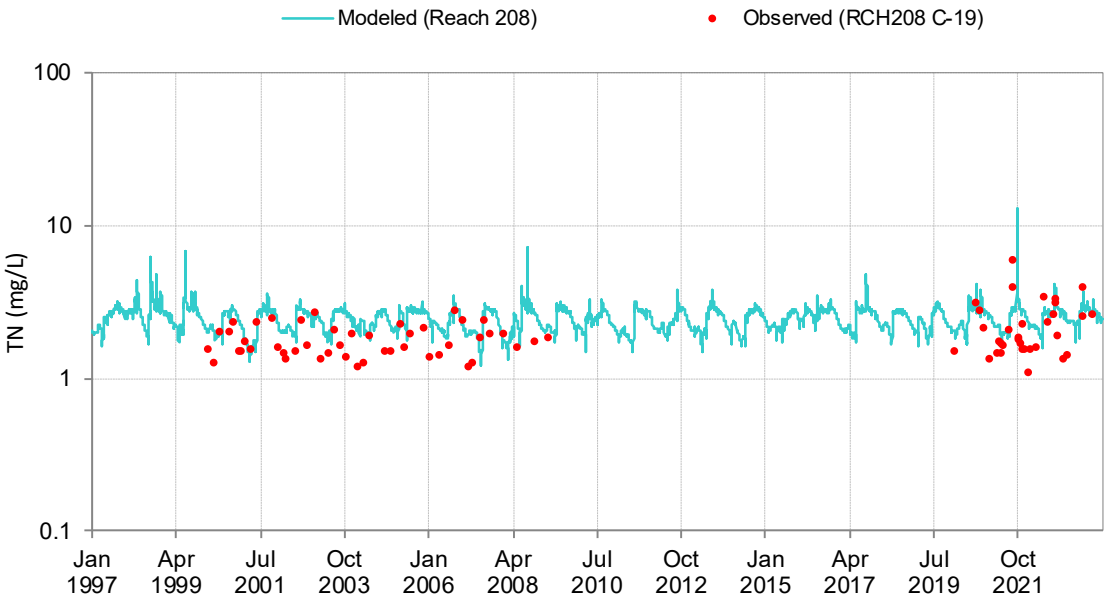


Figure A-245 Modeled Vs Observed TN (mg/L) at RCH208 C-19

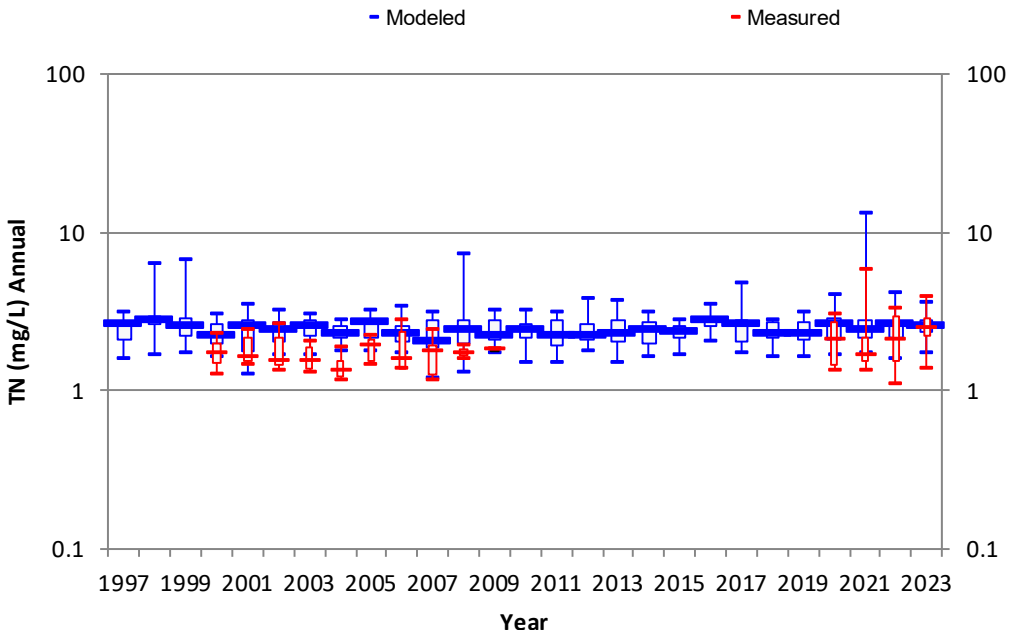


Figure A-246 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH208 C-19

Table A- 67 Monthly TN Concentration Comparisons at RCH208 C-19

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.43	2.18	52.9	F
Feb	1.43	2.15	49.8	F
Mar	1.61	2.22	37.8	G
Apr	1.48	2.11	42.2	G
May	1.56	2.04	30.9	G
Jun	2.21	2.41	9.1	VG
Jul	2.37	2.72	14.6	VG
Aug	3.36	2.86	-15.0	VG
Sep	2.32	2.89	24.6	VG
Oct	2.26	2.79	23.5	VG
Nov	1.91	2.58	35.4	G
Dec	1.69	2.36	40.1	G
Average*	1.97	2.44	24.1	VG
Median**	1.80	2.39	32.8	G
R^2	N/A	N/A	0.72	G

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 68 Annual TN Concentration Comparisons at RCH208 C-19

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	2.48	N/A	N/A
1998	N/A	2.77	N/A	N/A
1999	N/A	2.63	N/A	N/A
2000	1.75	2.32	32.0	G
2001	1.84	2.31	25.9	VG
2002	1.81	2.39	32.0	G
2003	1.62	2.48	52.7	F
2004	1.44	2.34	63.0	P
2005	1.86	2.56	37.6	G
2006	1.90	2.33	22.6	VG
2007	1.71	2.24	30.8	G
2008	1.75	2.46	40.2	G
2009	1.81	2.41	33.1	G
2010	N/A	2.41	N/A	N/A
2011	N/A	2.32	N/A	N/A
2012	N/A	2.36	N/A	N/A
2013	N/A	2.41	N/A	N/A
2014	N/A	2.38	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	2.36	N/A	N/A
2016	N/A	2.69	N/A	N/A
2017	N/A	2.50	N/A	N/A
2018	N/A	2.39	N/A	N/A
2019	N/A	2.37	N/A	N/A
2020	2.15	2.57	19.6	VG
2021	2.16	2.50	15.8	VG
2022	2.19	2.49	13.6	VG
2023	2.59	2.57	-0.4	VG
Average*	1.90	2.44	28.8	VG
Median**	1.82	2.41	31.9	G
R^2	N/A	N/A	0.40	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 69 Daily TN Concentration Comparisons at RCH208 C-19

Statistic	Results	Rating
Count (number)	80	N/A
Average Error (%)	36.3	G
Median Error (%)	37.1	G
RMSE (mg/L)	0.82	N/A
R^2	0.31	P

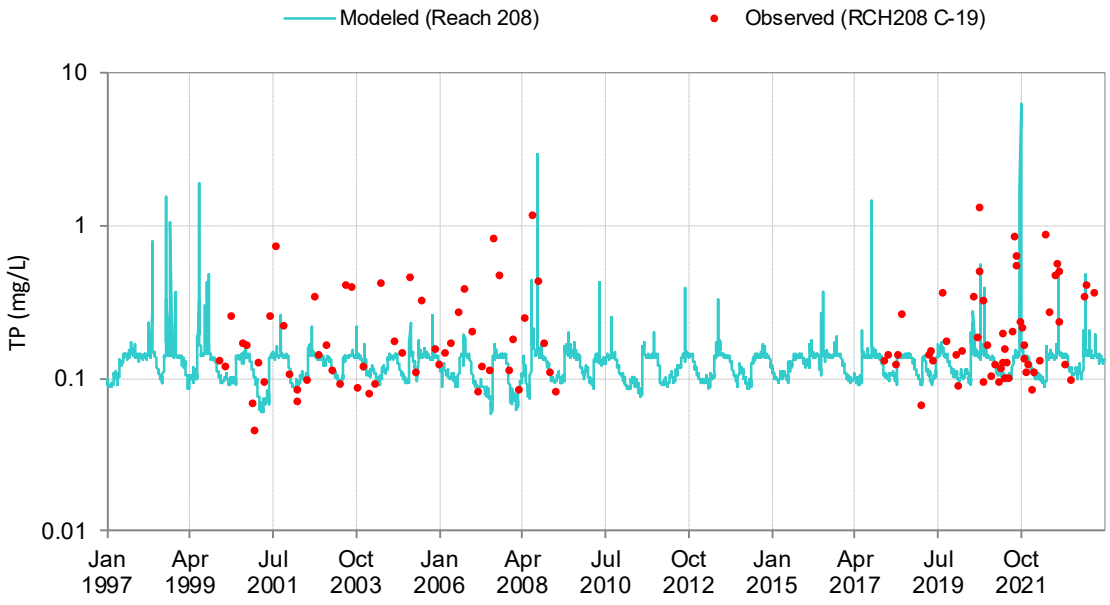


Figure A-247 Modeled Vs Observed TP (mg/L) at RCH208 C-19

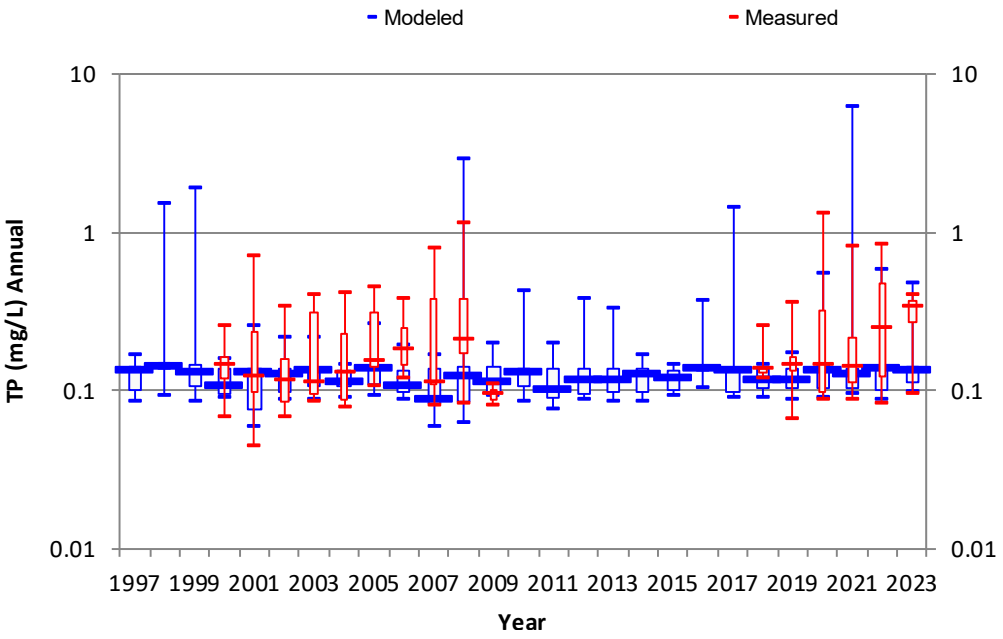


Figure A-248 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH208 C-19

Table A- 70 Monthly TP Concentration Comparisons at RCH208 C-19

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.11	0.11	-2.4	VG
Feb	0.11	0.10	-5.5	VG
Mar	0.14	0.11	-25.8	VG
Apr	0.13	0.11	-15.5	VG
May	0.14	0.10	-25.5	VG
Jun	0.32	0.13	-58.7	F
Jul	0.45	0.14	-68.9	P
Aug	0.57	0.16	-72.7	P
Sep	0.34	0.16	-53.2	F
Oct	0.26	0.14	-44.2	G
Nov	0.15	0.13	-13.4	VG
Dec	0.11	0.12	5.4	VG
Average*	0.24	0.13	-46.8	F
Median**	0.15	0.13	-15.2	VG
R^2	N/A	N/A	0.69	F

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 71 Annual TP Concentration Comparisons at RCH208 C-19

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.13	N/A	N/A
1998	N/A	0.15	N/A	N/A
1999	N/A	0.14	N/A	N/A
2000	0.15	0.12	-22.4	VG
2001	0.22	0.11	-48.7	F
2002	0.15	0.12	-19.2	VG
2003	0.20	0.13	-36.6	G
2004	0.19	0.12	-37.5	G
2005	0.23	0.13	-44.1	G
2006	0.21	0.12	-45.4	F
2007	0.28	0.11	-61.9	P
2008	0.37	0.14	-63.0	P
2009	0.10	0.12	27.2	VG
2010	N/A	0.13	N/A	N/A
2011	N/A	0.11	N/A	N/A
2012	N/A	0.12	N/A	N/A
2013	N/A	0.12	N/A	N/A
2014	N/A	0.12	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	0.12	N/A	N/A
2016	N/A	0.14	N/A	N/A
2017	N/A	0.13	N/A	N/A
2018	0.16	0.12	-24.3	VG
2019	0.17	0.12	-28.6	VG
2020	0.31	0.13	-55.8	F
2021	0.22	0.15	-34.1	G
2022	0.33	0.13	-61.1	P
2023	0.30	0.13	-55.3	F
Average*	0.22	0.13	-43.6	G
Median**	0.22	0.12	-43.4	G
R^2	N/A	N/A	0.19	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 72 Daily TP Concentration Comparisons at RCH208 C-19

Statistic	Results	Rating
Count (number)	109	N/A
Average Error (%)	-22.3	VG
Median Error (%)	-22.9	VG
RMSE (mg/L)	0.23	N/A
R^2	0.23	P

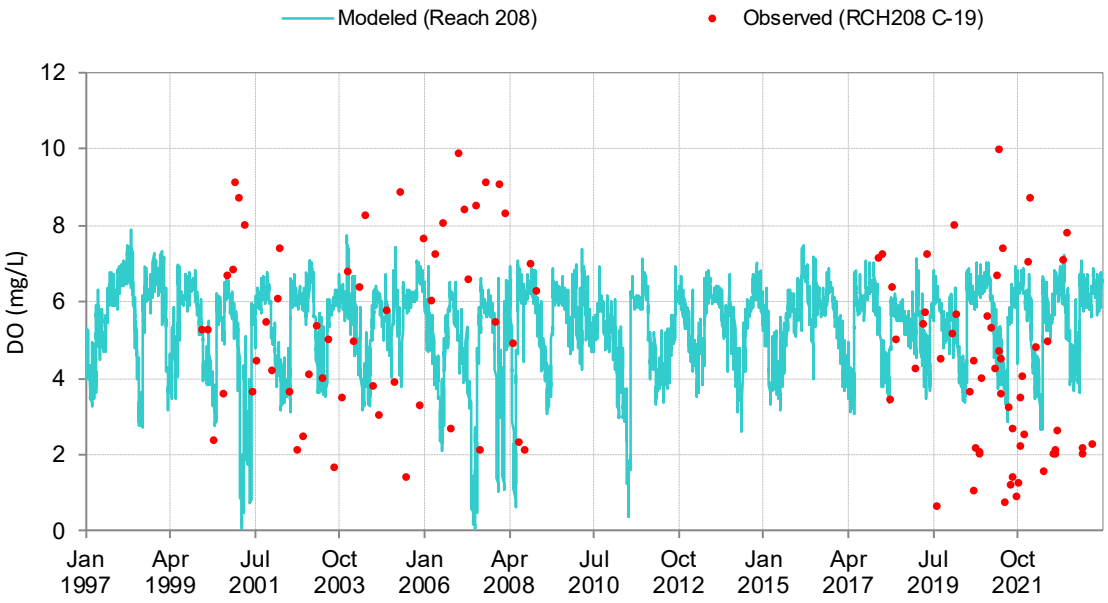


Figure A-249 Modeled Vs Observed DO (mg/L) at RCH208 C-19

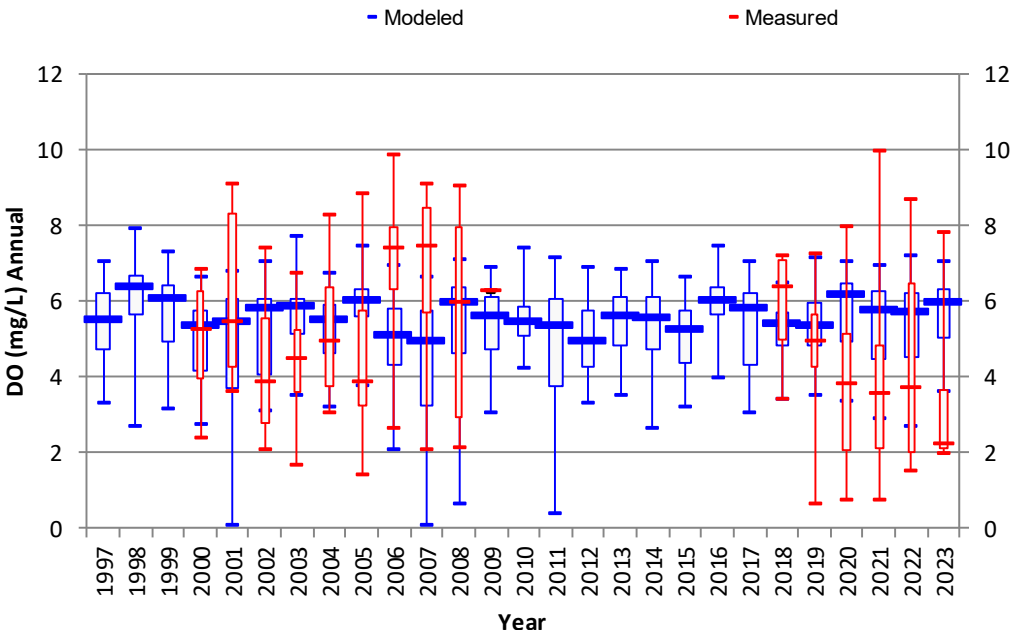


Figure A-250 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH208 C-19

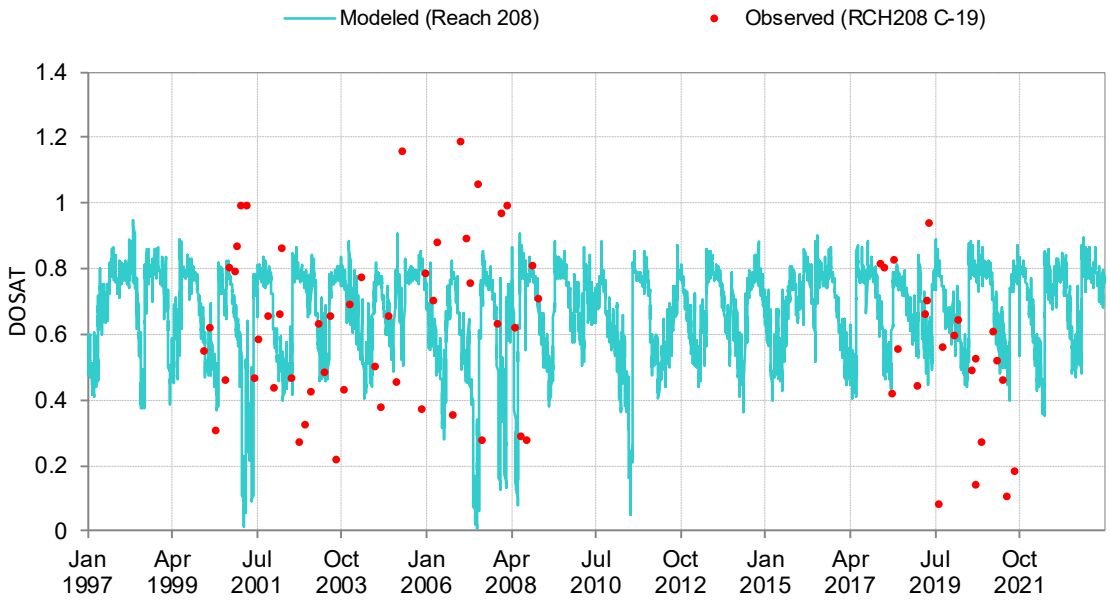


Figure A-251 Modeled Vs Observed DOSAT at RCH208 C-19

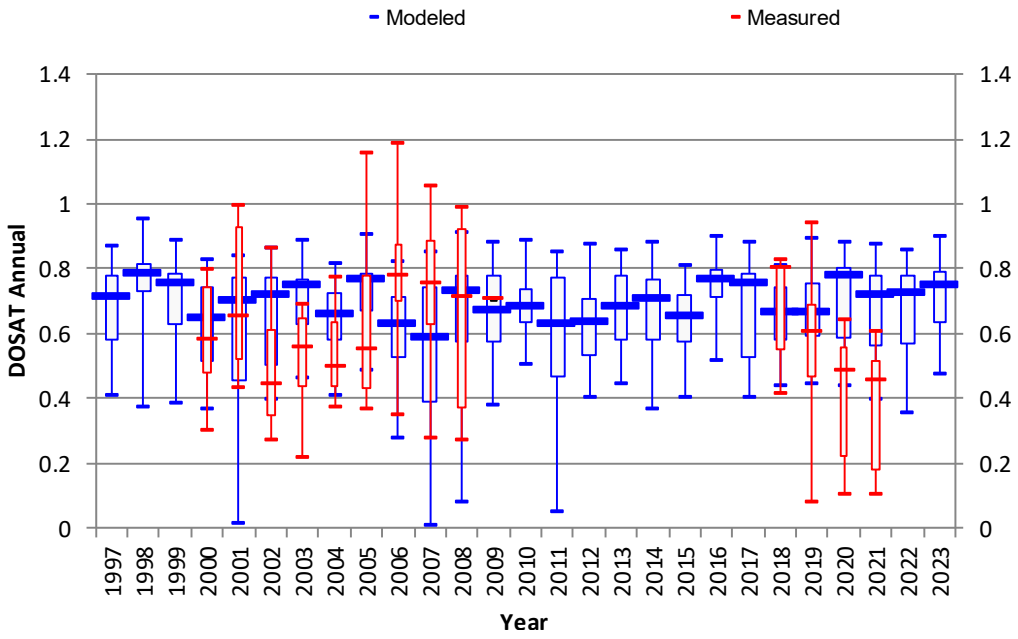


Figure A-252 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH208 C-19

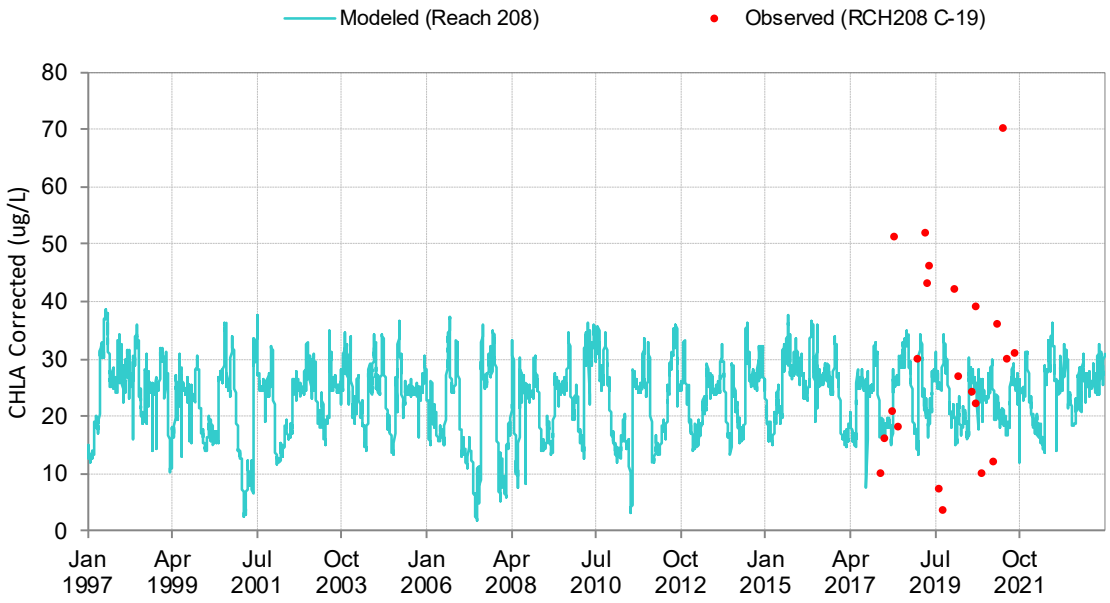


Figure A-253 Modeled Vs Observed CHLA Corrected (ug/L) at RCH208 C-19

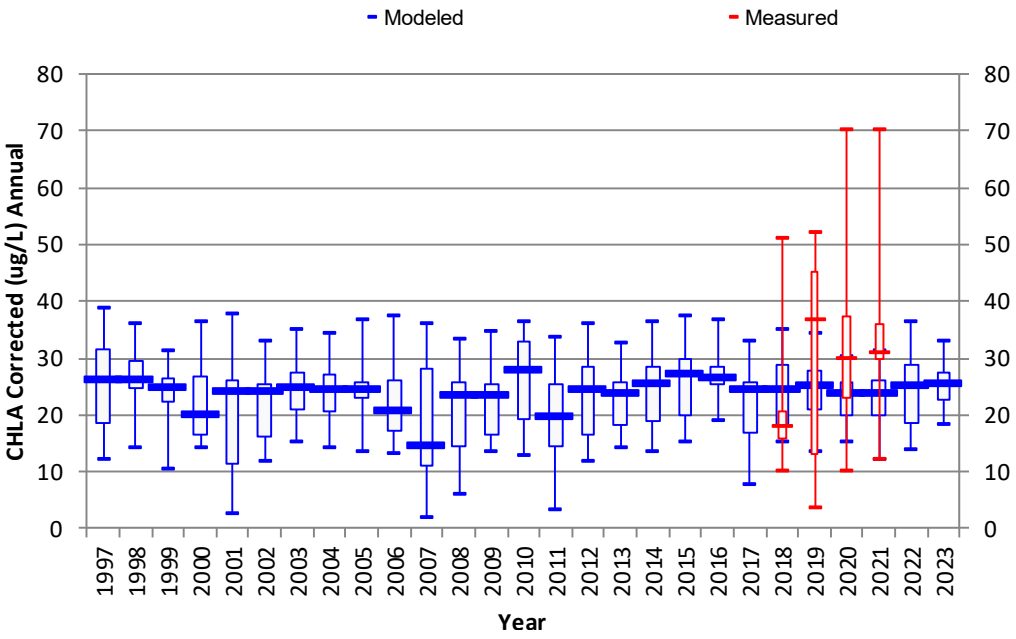


Figure A-254 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH208 C-19

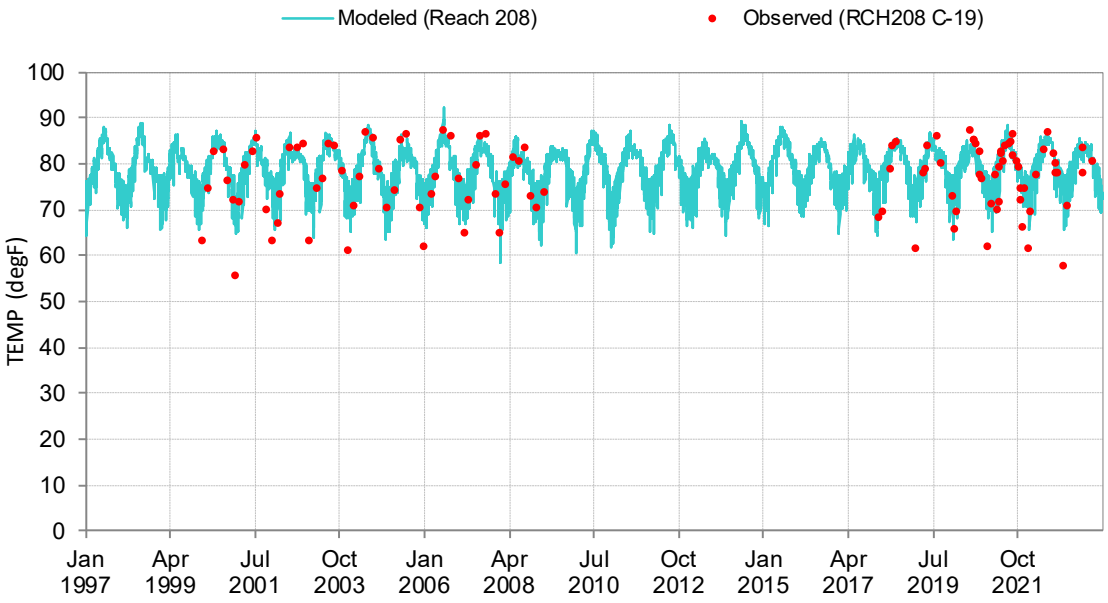


Figure A-255 Modeled Vs Observed TEMP (deg F) at RCH208 C-19

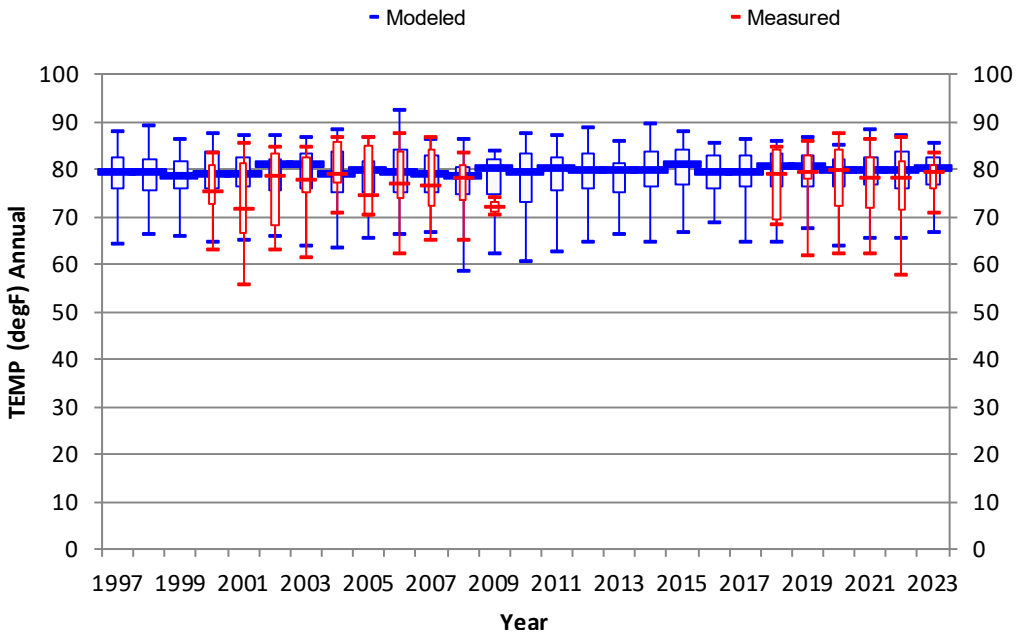


Figure A-256 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH208 C-19

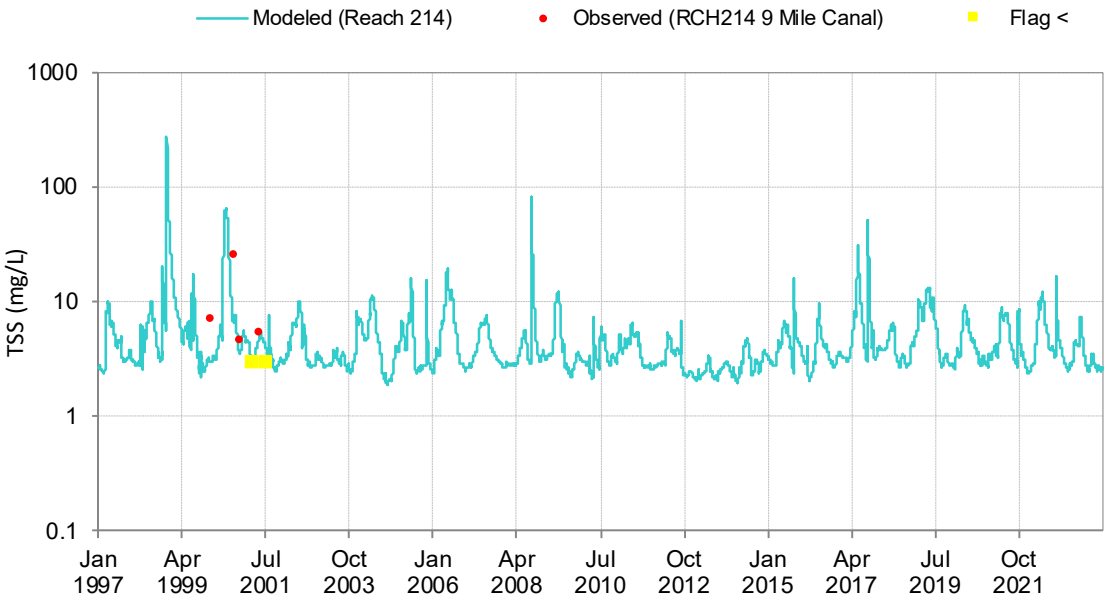


Figure A-257 Modeled Vs Observed TSS (mg/L) at RCH214 9 Mile Canal

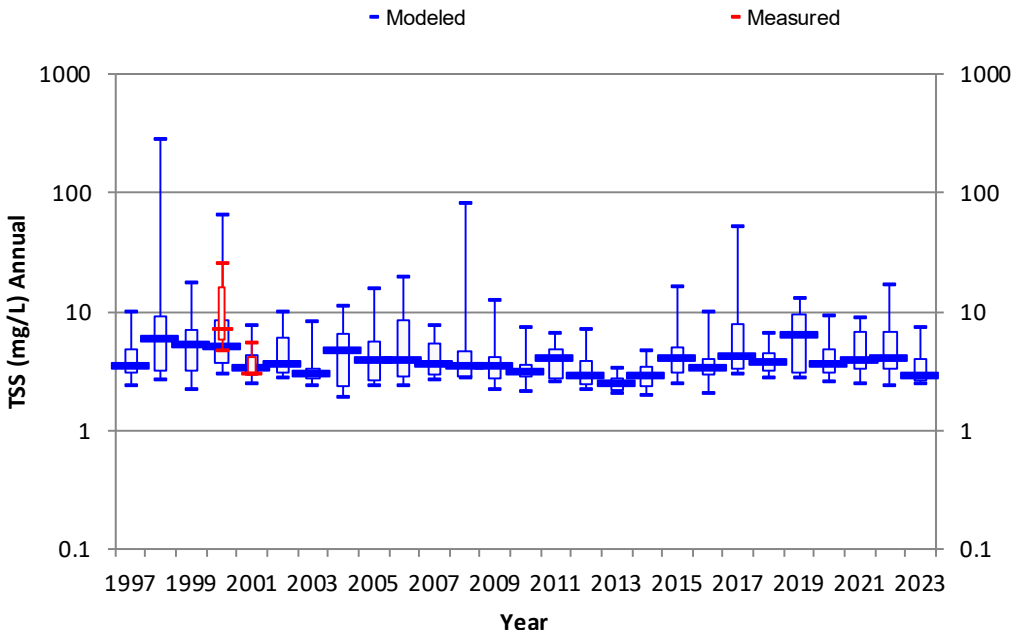


Figure A-258 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH214 9 Mile Canal

Table A- 73 Monthly TSS Concentration Comparisons at RCH214 9 Mile Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	7.00	3.73	-46.7	P
Feb	1.50	3.64	142.9	P
Mar	N/A	4.01	N/A	N/A
Apr	5.40	5.58	3.3	VG
May	N/A	7.87	N/A	N/A
Jun	1.50	8.22	448.0	P
Jul	N/A	5.20	N/A	N/A
Aug	25.00	4.38	-82.5	P
Sep	N/A	4.31	N/A	N/A
Oct	4.60	3.59	-21.9	G
Nov	N/A	6.35	N/A	N/A
Dec	N/A	4.12	N/A	N/A
Average*	3.75	5.08	35.5	P
Median**	5.00	4.34	-13.1	VG
R^2	N/A	N/A	0.05	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 74 Annual TSS Concentration Comparisons at RCH214 9 Mile Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.28	N/A	N/A
1998	N/A	13.94	N/A	N/A
1999	N/A	5.74	N/A	N/A
2000	12.20	12.33	1.1	VG
2001	2.80	3.65	30.3	F
2002	N/A	4.58	N/A	N/A
2003	N/A	3.18	N/A	N/A
2004	N/A	4.91	N/A	N/A
2005	N/A	4.60	N/A	N/A
2006	N/A	6.05	N/A	N/A
2007	N/A	4.18	N/A	N/A
2008	N/A	6.08	N/A	N/A
2009	N/A	4.40	N/A	N/A
2010	N/A	3.40	N/A	N/A
2011	N/A	3.89	N/A	N/A
2012	N/A	3.24	N/A	N/A
2013	N/A	2.50	N/A	N/A
2014	N/A	2.97	N/A	N/A
2015	N/A	4.30	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2016	N/A	3.66	N/A	N/A
2017	N/A	7.11	N/A	N/A
2018	N/A	3.95	N/A	N/A
2019	N/A	6.53	N/A	N/A
2020	N/A	4.30	N/A	N/A
2021	N/A	4.76	N/A	N/A
2022	N/A	5.37	N/A	N/A
2023	N/A	3.33	N/A	N/A
Average*	7.50	5.08	-32.2	F
Median**	7.50	4.30	-42.7	P
R^2	N/A	N/A	1.00	VG

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.
** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 75 Daily TSS Concentration Comparisons at RCH214 9 Mile Canal

Statistic	Results	Rating
Count (number)	6	N/A
Average Error (%)	-2.1	VG
Median Error (%)	-16.3	G
RMSE (mg/L)	7.69	N/A
R^2	0.72	G

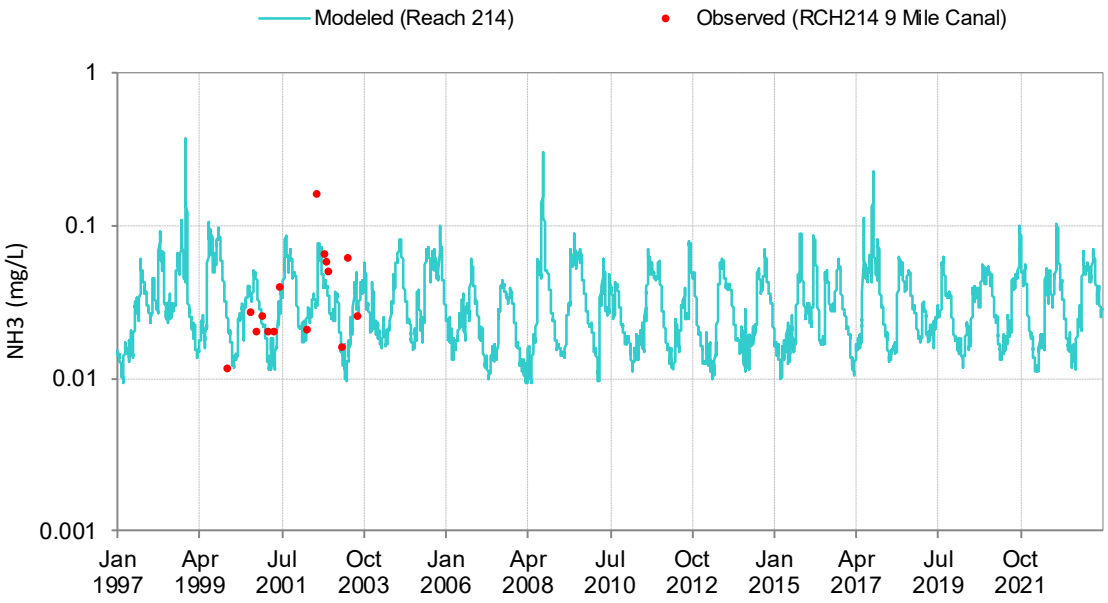


Figure A-259 Modeled Vs Observed NH3 (mg/L) at RCH214 9 Mile Canal

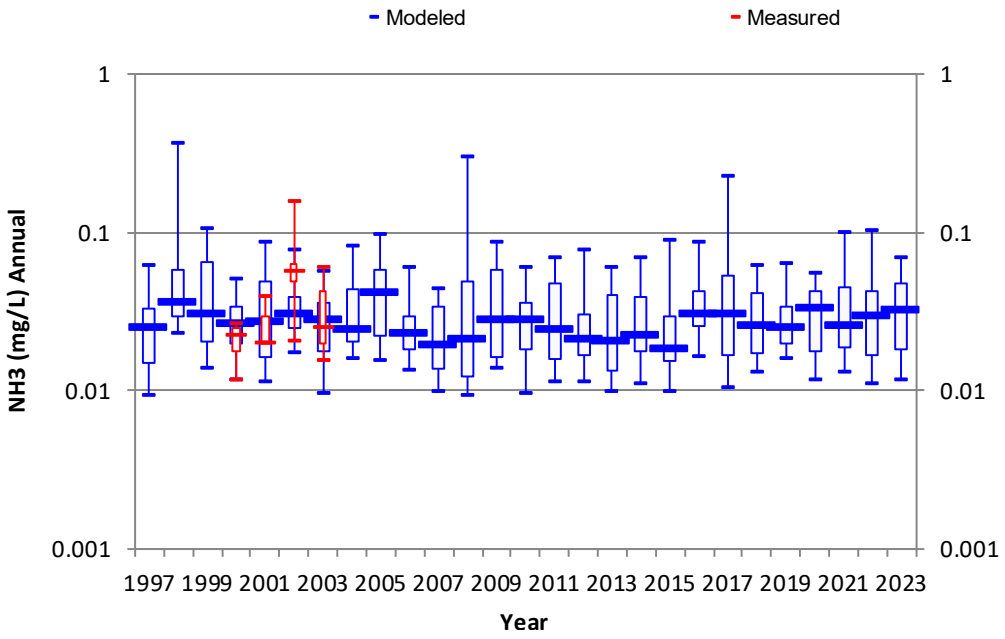


Figure A-260 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH214 9 Mile Canal

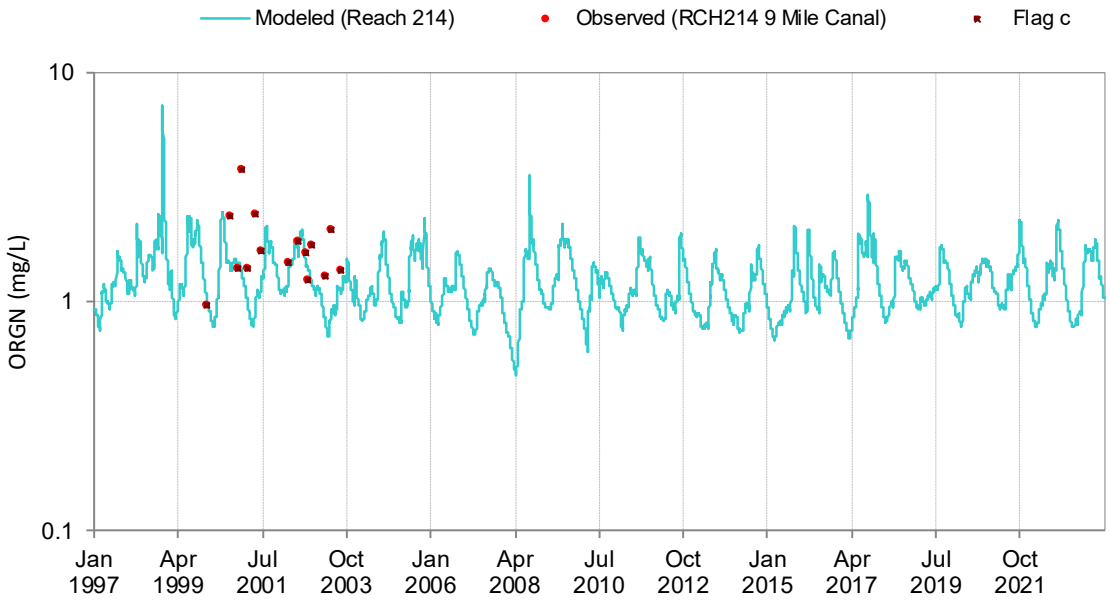


Figure A-261 Modeled Vs Observed ORGN (mg/L) at RCH214 9 Mile Canal

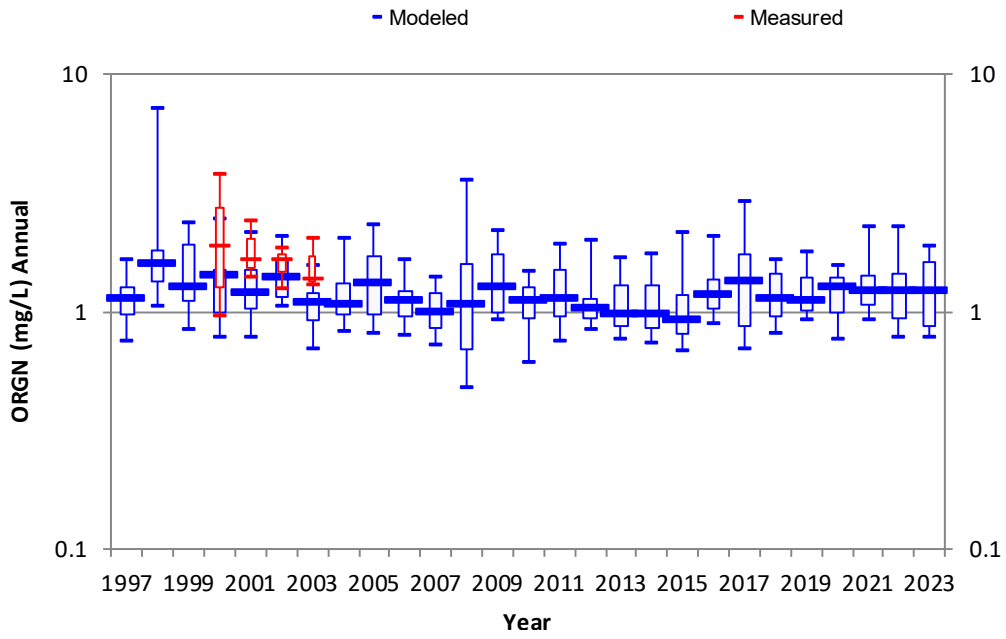


Figure A-262 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH214 9 Mile Canal

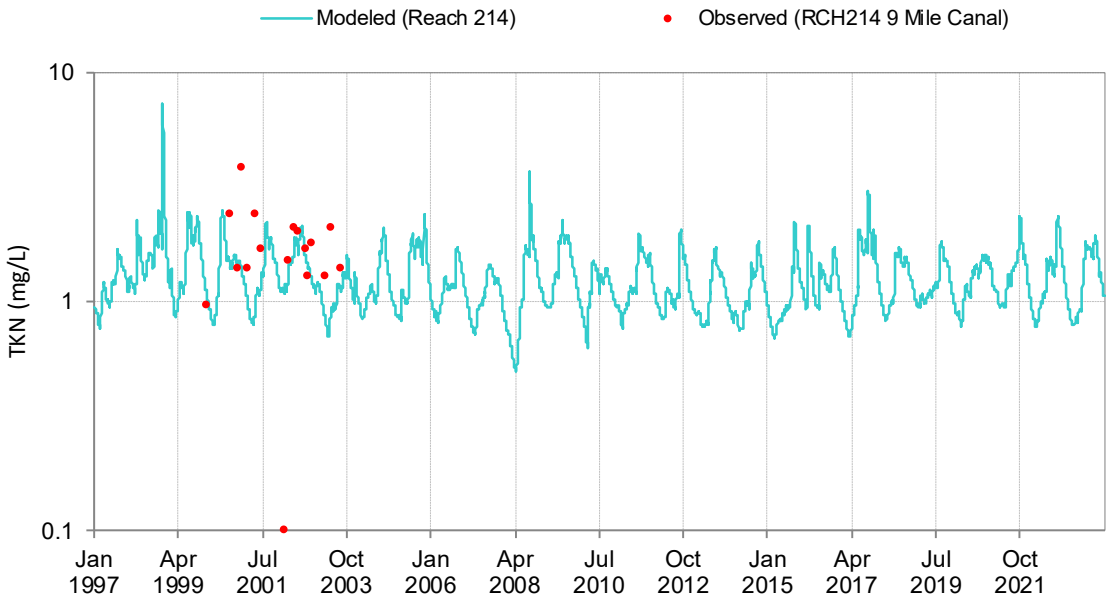


Figure A-263 Modeled Vs Observed TKN (mg/L) at RCH214 9 Mile Canal

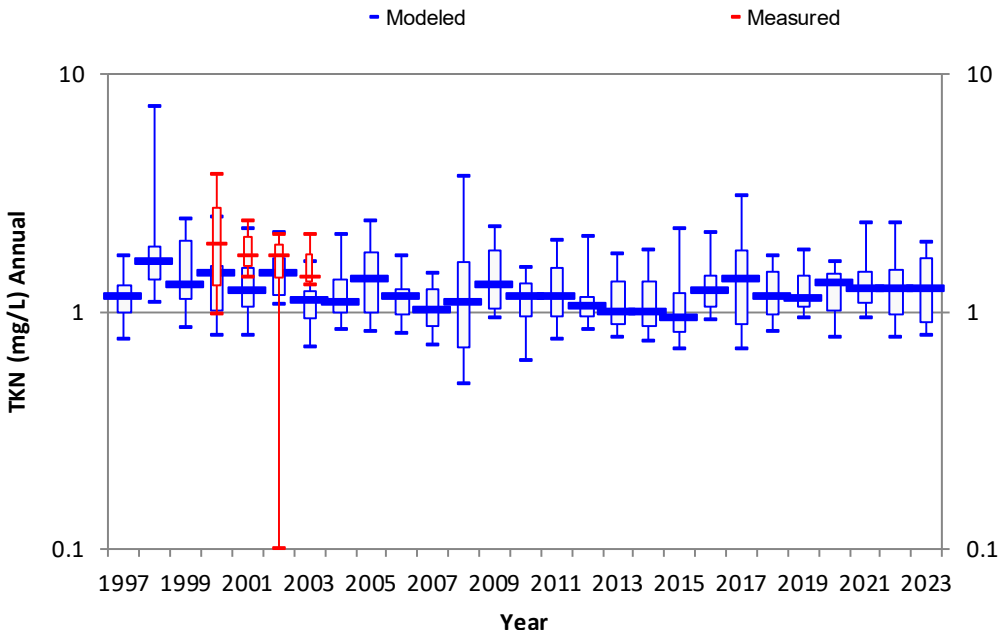


Figure A-264 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH214 9 Mile Canal

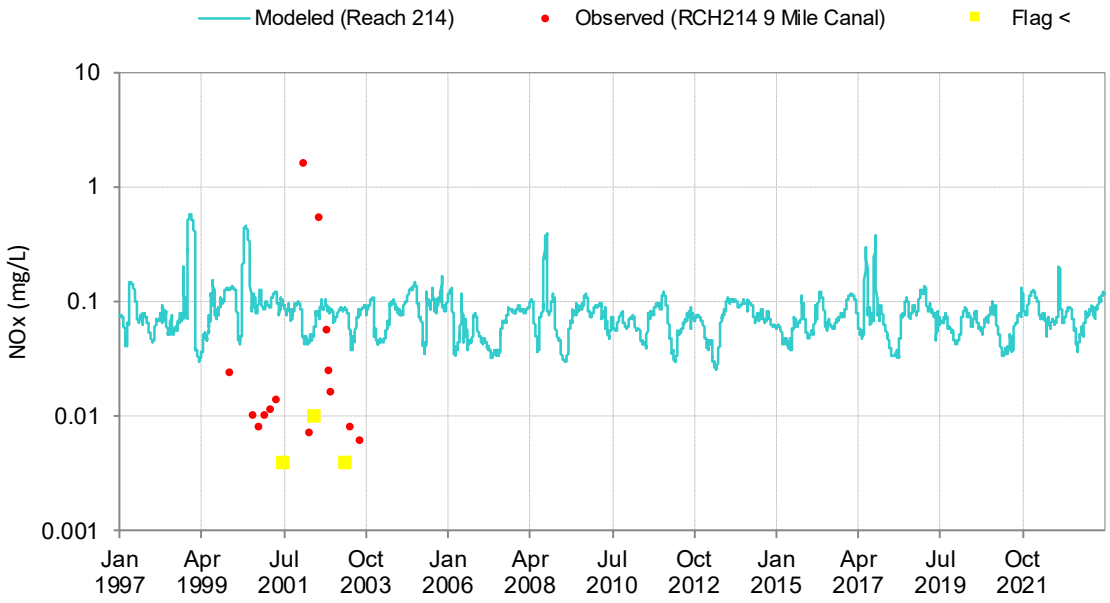


Figure A-265 Modeled Vs Observed NOx (mg/L) at RCH214 9 Mile Canal

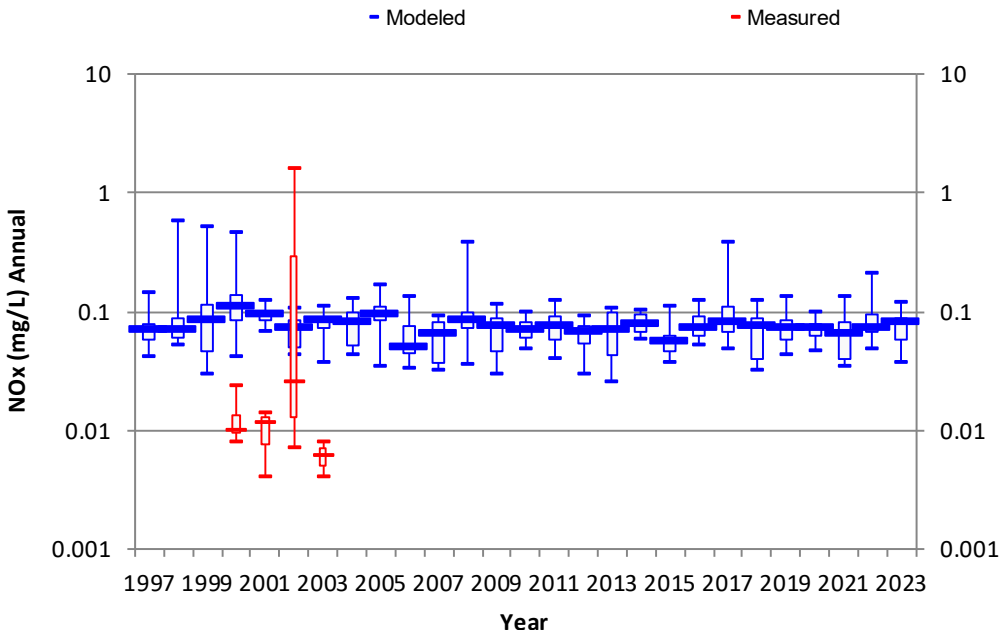


Figure A-266 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH214 9 Mile Canal

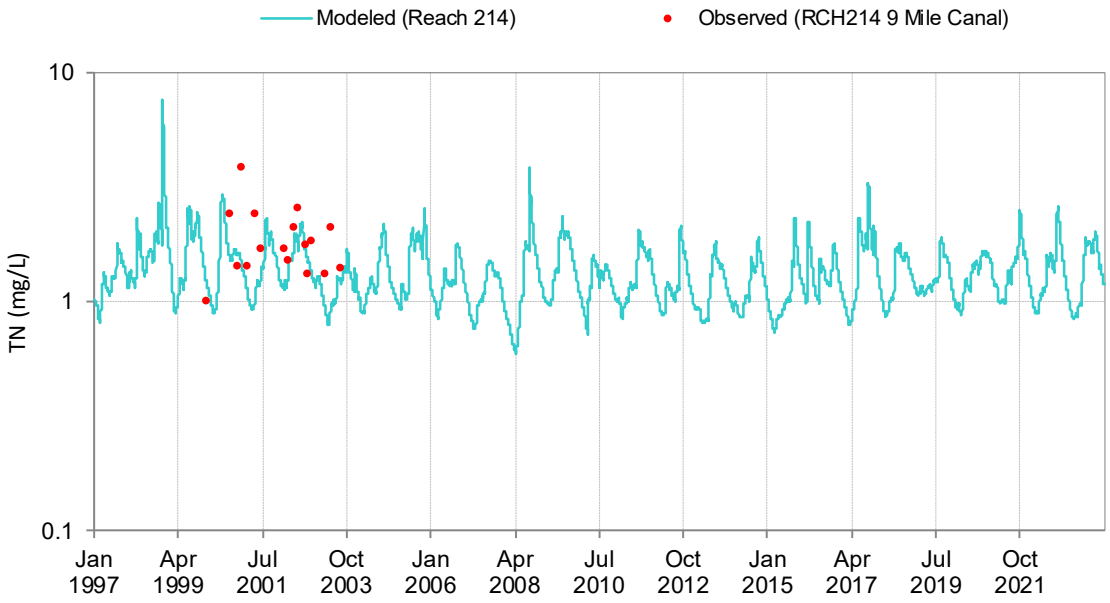


Figure A-267 Modeled Vs Observed TN (mg/L) at RCH214 9 Mile Canal

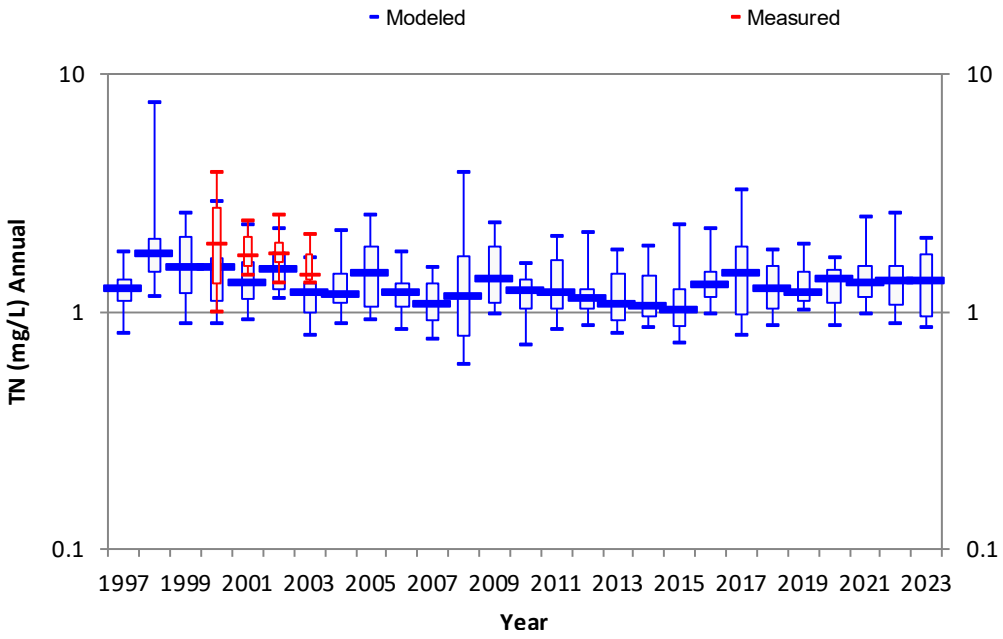


Figure A-268 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH214 9 Mile Canal

Table A- 76 Monthly TN Concentration Comparisons at RCH214 9 Mile Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.35	1.09	-19.3	VG
Feb	1.41	1.02	-27.5	VG
Mar	1.41	0.98	-30.3	G
Apr	2.41	1.05	-56.3	F
May	2.11	1.17	-44.3	G
Jun	2.12	1.41	-33.6	G
Jul	N/A	1.55	N/A	N/A
Aug	1.91	1.62	-15.3	VG
Sep	1.54	1.74	12.9	VG
Oct	1.61	1.70	5.6	VG
Nov	N/A	1.54	N/A	N/A
Dec	3.81	1.25	-67.1	P
Average*	1.64	1.34	-18.0	VG
Median**	1.76	1.33	-24.5	VG
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 77 Annual TN Concentration Comparisons at RCH214 9 Mile Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.24	N/A	N/A
1998	N/A	1.91	N/A	N/A
1999	N/A	1.62	N/A	N/A
2000	2.16	1.55	-28.2	VG
2001	1.84	1.39	-24.3	VG
2002	1.82	1.53	-15.9	VG
2003	1.61	1.17	-27.3	VG
2004	N/A	1.29	N/A	N/A
2005	N/A	1.49	N/A	N/A
2006	N/A	1.22	N/A	N/A
2007	N/A	1.12	N/A	N/A
2008	N/A	1.31	N/A	N/A
2009	N/A	1.47	N/A	N/A
2010	N/A	1.20	N/A	N/A
2011	N/A	1.33	N/A	N/A
2012	N/A	1.21	N/A	N/A
2013	N/A	1.17	N/A	N/A
2014	N/A	1.18	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	1.11	N/A	N/A
2016	N/A	1.35	N/A	N/A
2017	N/A	1.50	N/A	N/A
2018	N/A	1.28	N/A	N/A
2019	N/A	1.29	N/A	N/A
2020	N/A	1.30	N/A	N/A
2021	N/A	1.38	N/A	N/A
2022	N/A	1.36	N/A	N/A
2023	N/A	1.34	N/A	N/A
Average*	1.86	1.35	-27.5	VG
Median**	1.83	1.31	-28.6	VG
R^2	N/A	N/A	0.67	F

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 78 Daily TN Concentration Comparisons at RCH214 9 Mile Canal

Statistic	Results	Rating
Count (number)	17	N/A
Average Error (%)	-23.0	VG
Median Error (%)	-27.5	VG
RMSE (mg/L)	0.83	N/A
R^2	0.06	P

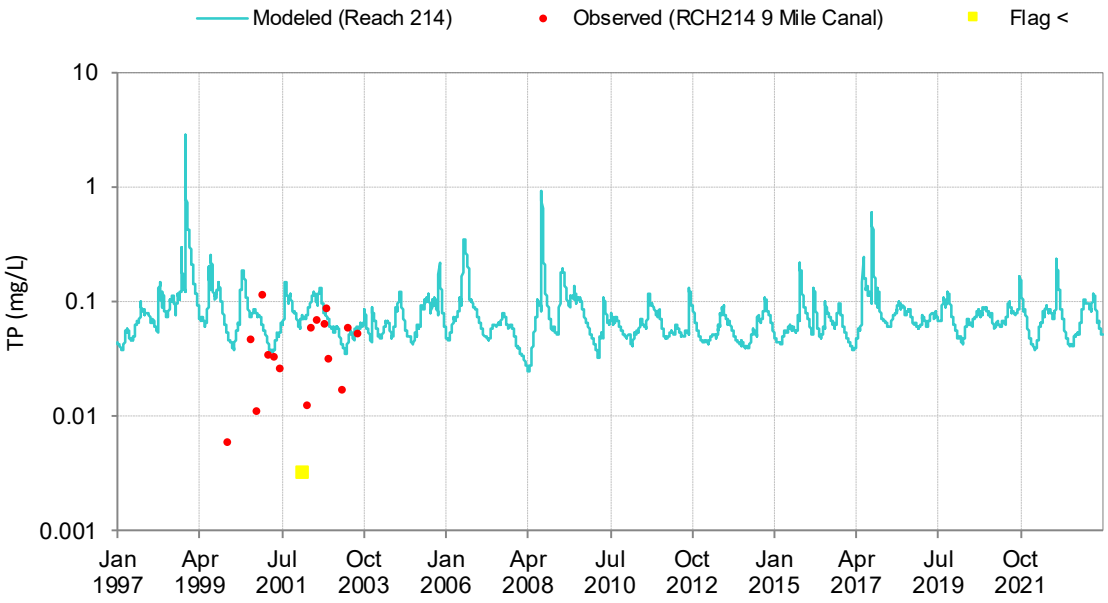


Figure A-269 Modeled Vs Observed TP (mg/L) at RCH214 9 Mile Canal

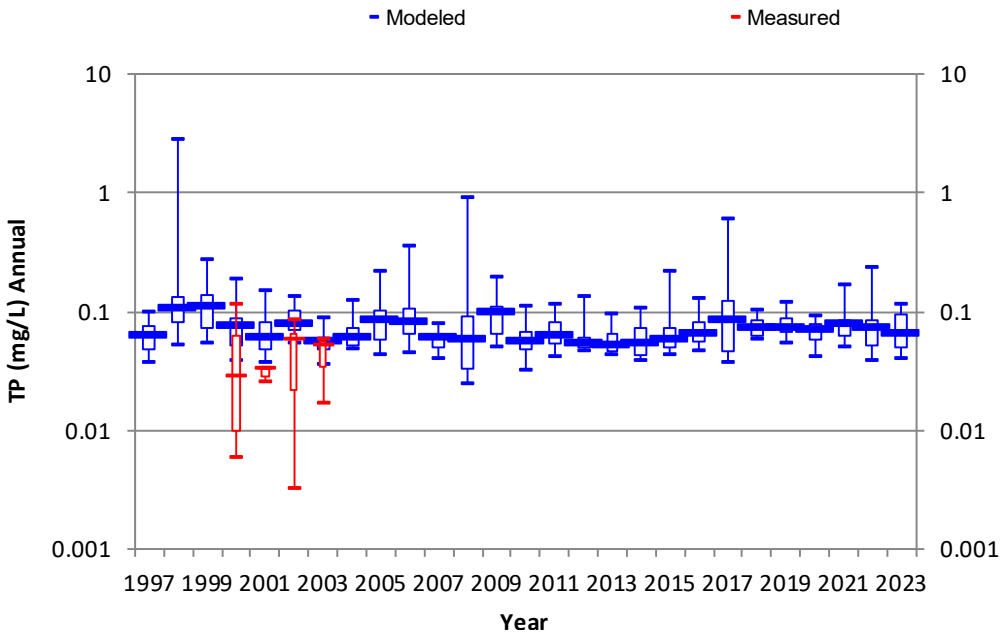


Figure A-270 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH214 9 Mile Canal

Table A- 79 Monthly TP Concentration Comparisons at RCH214 9 Mile Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.00	0.06	1451.0	P
Feb	0.03	0.06	71.9	P
Mar	0.01	0.06	306.5	P
Apr	0.03	0.06	90.0	P
May	0.06	0.07	20.9	VG
Jun	0.05	0.09	82.8	P
Jul	N/A	0.10	N/A	N/A
Aug	0.05	0.10	98.5	P
Sep	0.07	0.10	38.2	G
Oct	0.02	0.09	344.4	P
Nov	N/A	0.11	N/A	N/A
Dec	0.11	0.07	-37.9	G
Average*	0.04	0.08	114.4	P
Median**	0.04	0.08	95.9	P
R^2	N/A	N/A	0.10	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 80 Annual TP Concentration Comparisons at RCH214 9 Mile Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.06	N/A	N/A
1998	N/A	0.20	N/A	N/A
1999	N/A	0.11	N/A	N/A
2000	0.04	0.08	85.0	P
2001	0.03	0.07	124.4	P
2002	0.05	0.08	85.0	P
2003	0.04	0.06	30.5	G
2004	N/A	0.07	N/A	N/A
2005	N/A	0.08	N/A	N/A
2006	N/A	0.11	N/A	N/A
2007	N/A	0.06	N/A	N/A
2008	N/A	0.08	N/A	N/A
2009	N/A	0.10	N/A	N/A
2010	N/A	0.06	N/A	N/A
2011	N/A	0.07	N/A	N/A
2012	N/A	0.06	N/A	N/A
2013	N/A	0.06	N/A	N/A
2014	N/A	0.06	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	0.07	N/A	N/A
2016	N/A	0.07	N/A	N/A
2017	N/A	0.10	N/A	N/A
2018	N/A	0.07	N/A	N/A
2019	N/A	0.08	N/A	N/A
2020	N/A	0.07	N/A	N/A
2021	N/A	0.08	N/A	N/A
2022	N/A	0.08	N/A	N/A
2023	N/A	0.07	N/A	N/A
Average*	0.04	0.08	96.8	P
Median**	0.04	0.07	62.6	P
R^2	N/A	N/A	0.14	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 81 Daily TP Concentration Comparisons at RCH214 9 Mile Canal

Statistic	Results	Rating
Count (number)	17	N/A
Average Error (%)	269.6	P
Median Error (%)	62.9	P
RMSE (mg/L)	0.04	N/A
R^2	0.06	P

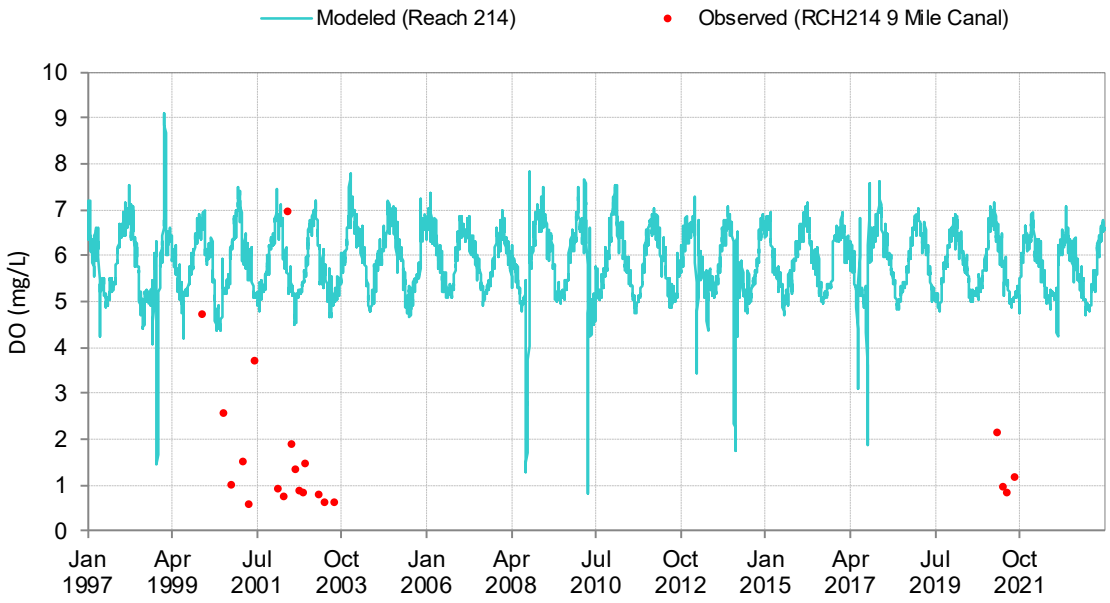


Figure A-271 Modeled Vs Observed DO (mg/L) at RCH214 9 Mile Canal

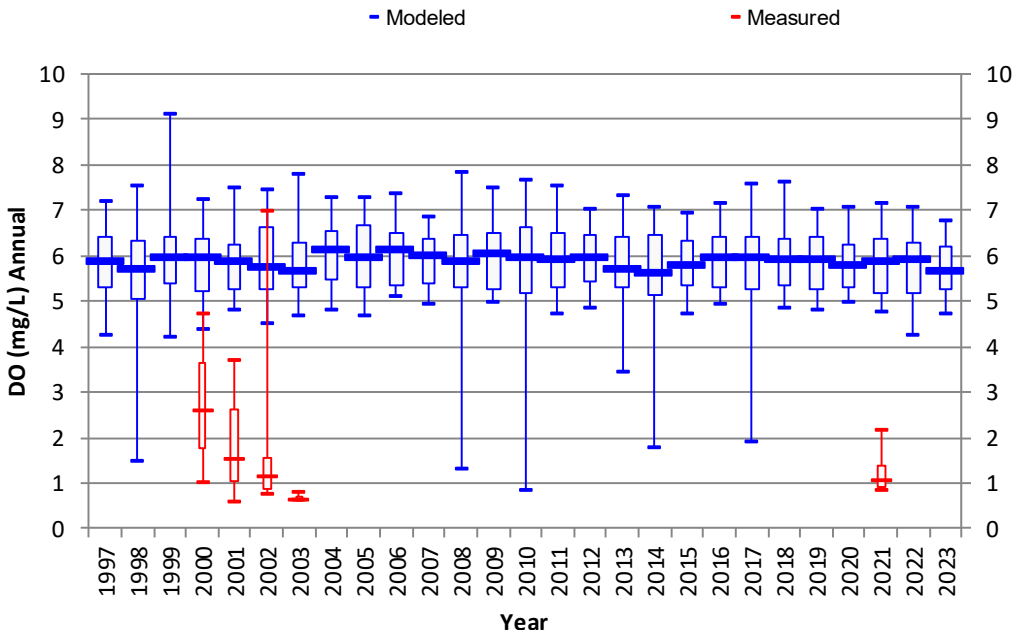


Figure A-272 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH214 9 Mile Canal

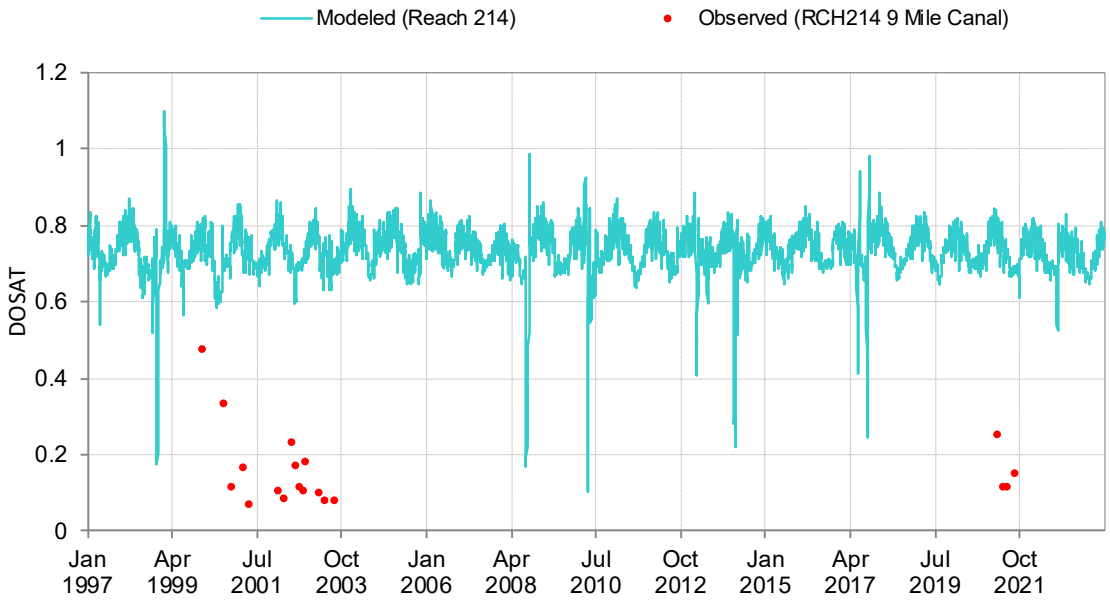


Figure A-273 Modeled Vs Observed DOSAT at RCH214 9 Mile Canal

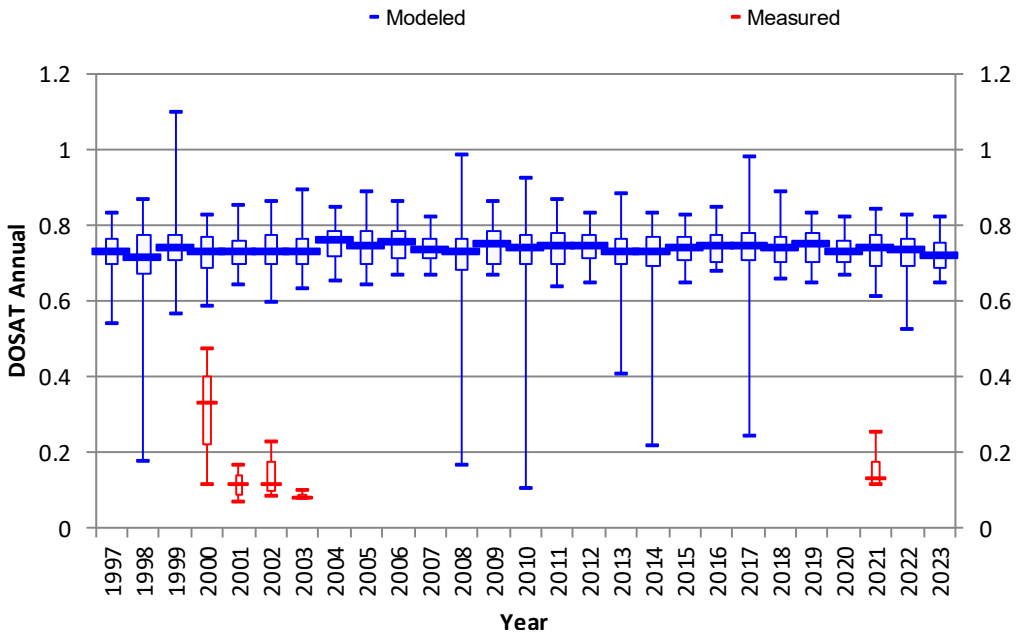


Figure A-274 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH214 9 Mile Canal

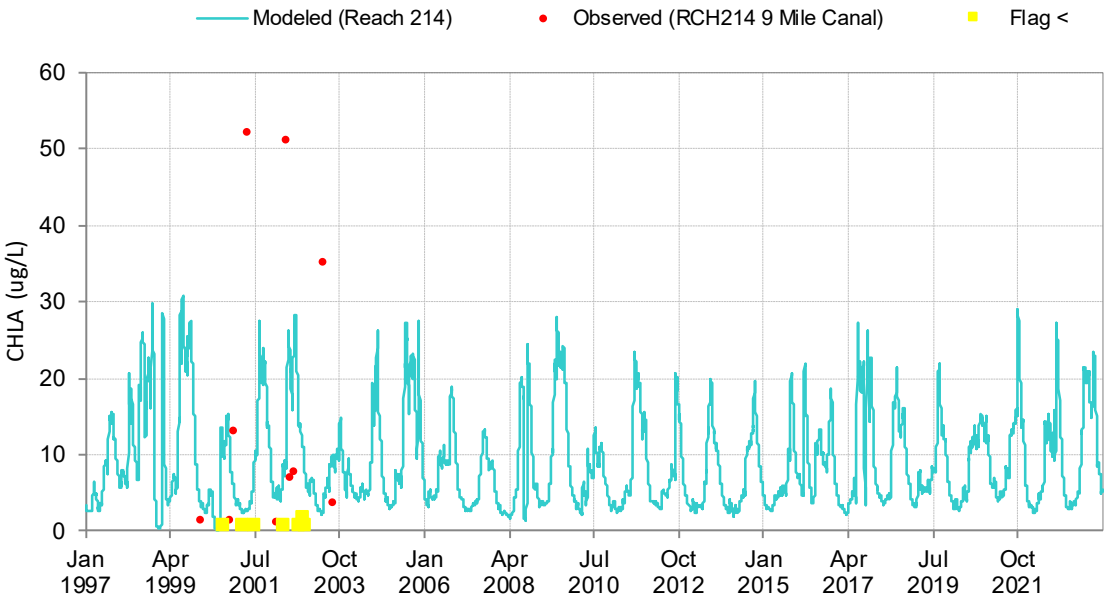


Figure A-275 Modeled Vs Observed CHLA (ug/L) at RCH214 9 Mile Canal

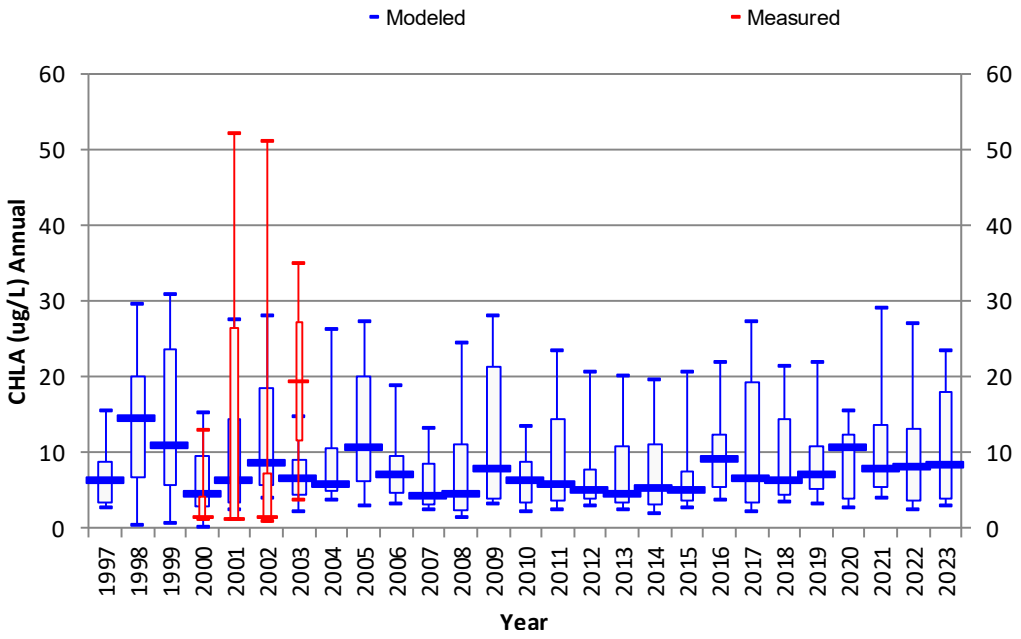


Figure A-276 Box and Whisker plot of Modeled Vs Observed CHLA (ug/L) at RCH214 9 Mile Canal

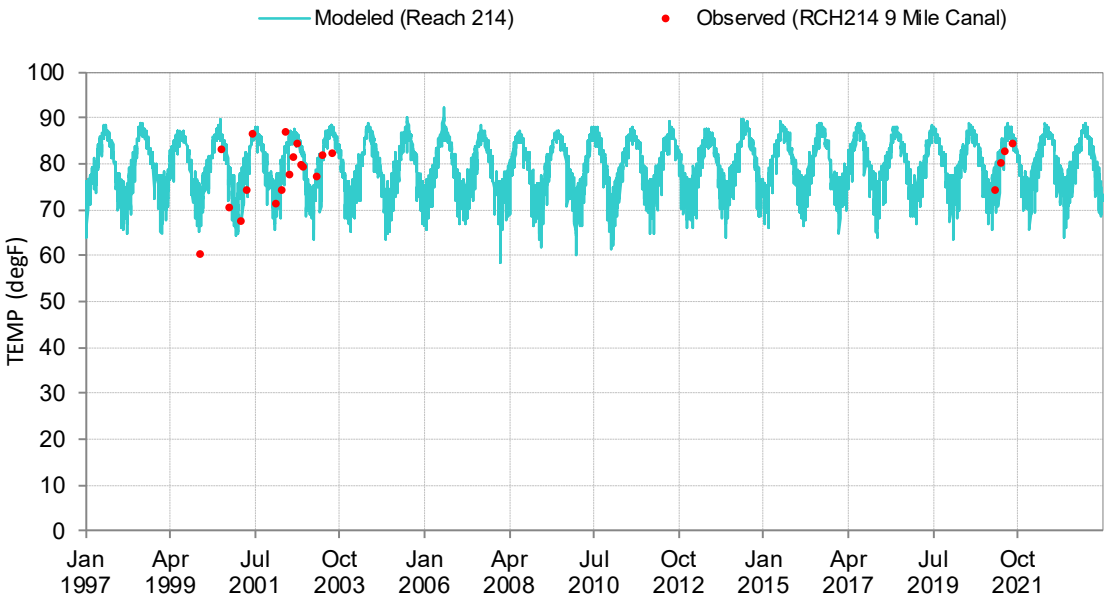


Figure A-277 Modeled Vs Observed TEMP (deg F) at RCH214 9 Mile Canal

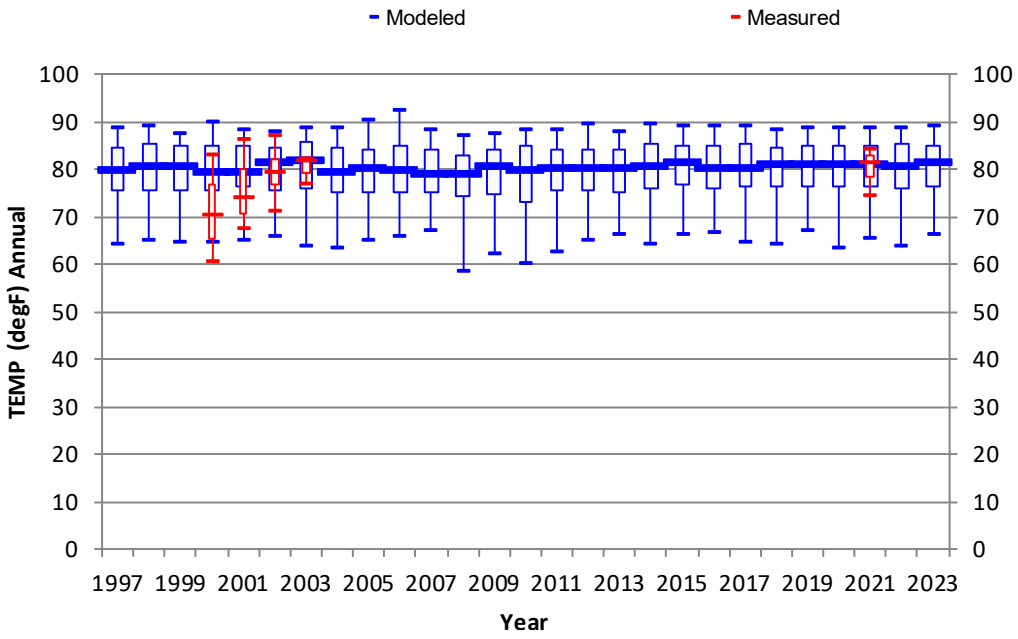


Figure A-278 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH214 9 Mile Canal

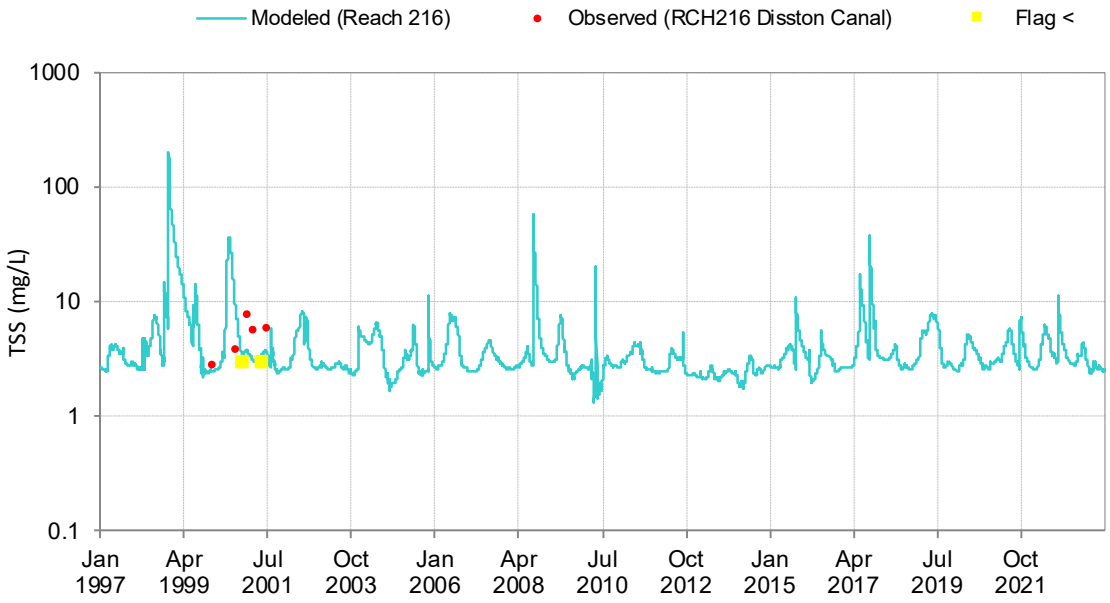


Figure A-279 Modeled Vs Observed TSS (mg/L) at RCH216 Disston Canal

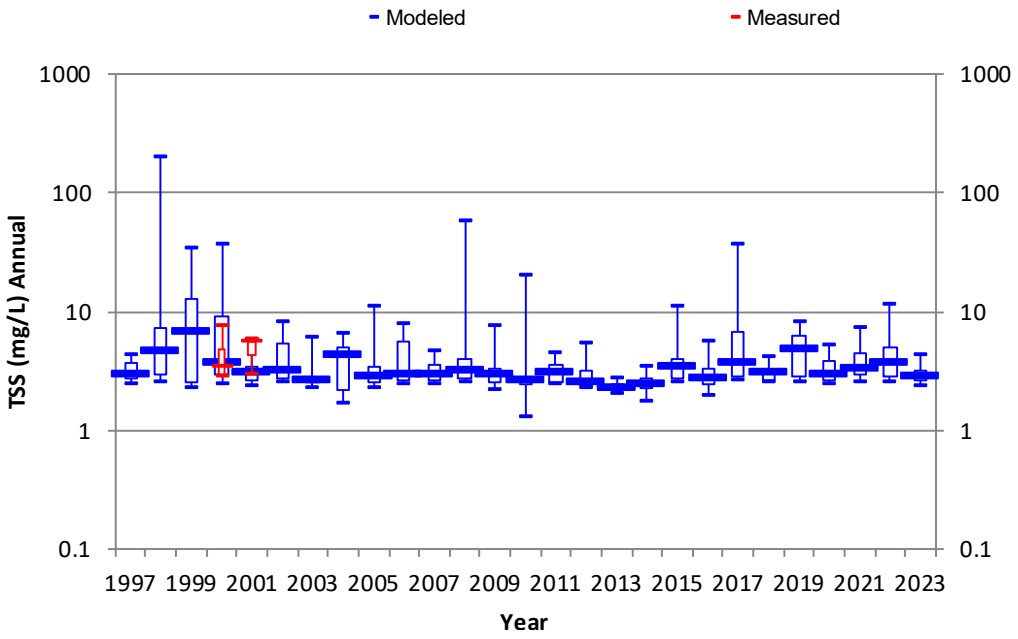


Figure A-280 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH216 Disston Canal

Table A- 82 Monthly TSS Concentration Comparisons at RCH216 Disston Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	2.80	3.73	33.2	F
Feb	5.60	3.49	-37.8	P
Mar	N/A	3.42	N/A	N/A
Apr	1.50	3.76	150.9	P
May	N/A	4.63	N/A	N/A
Jun	5.80	5.87	1.2	VG
Jul	N/A	4.88	N/A	N/A
Aug	3.80	4.18	10.0	VG
Sep	N/A	4.13	N/A	N/A
Oct	1.50	3.63	141.8	P
Nov	N/A	5.91	N/A	N/A
Dec	7.60	4.44	-41.5	P
Average*	2.38	4.34	82.0	P
Median**	3.80	4.15	9.3	VG
R^2	N/A	N/A	0.26	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 83 Annual TSS Concentration Comparisons at RCH216 Disston Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	3.20	N/A	N/A
1998	N/A	14.55	N/A	N/A
1999	N/A	9.09	N/A	N/A
2000	3.93	8.50	116.5	P
2001	4.30	3.09	-28.1	F
2002	N/A	4.11	N/A	N/A
2003	N/A	2.76	N/A	N/A
2004	N/A	3.89	N/A	N/A
2005	N/A	3.30	N/A	N/A
2006	N/A	4.06	N/A	N/A
2007	N/A	3.17	N/A	N/A
2008	N/A	5.93	N/A	N/A
2009	N/A	3.35	N/A	N/A
2010	N/A	2.79	N/A	N/A
2011	N/A	3.16	N/A	N/A
2012	N/A	2.81	N/A	N/A
2013	N/A	2.31	N/A	N/A
2014	N/A	2.47	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	3.71	N/A	N/A
2016	N/A	2.93	N/A	N/A
2017	N/A	5.82	N/A	N/A
2018	N/A	3.04	N/A	N/A
2019	N/A	4.71	N/A	N/A
2020	N/A	3.33	N/A	N/A
2021	N/A	3.87	N/A	N/A
2022	N/A	4.19	N/A	N/A
2023	N/A	2.96	N/A	N/A
Average*	4.11	4.34	5.5	VG
Median**	4.11	3.33	-19.0	G
R^2	N/A	N/A	1.00	VG

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 84 Daily TSS Concentration Comparisons at RCH216 Disston Canal

Statistic	Results	Rating
Count (number)	7	N/A
Average Error (%)	11.5	VG
Median Error (%)	-11.2	VG
RMSE (mg/L)	2.69	N/A
R^2	0.00	P

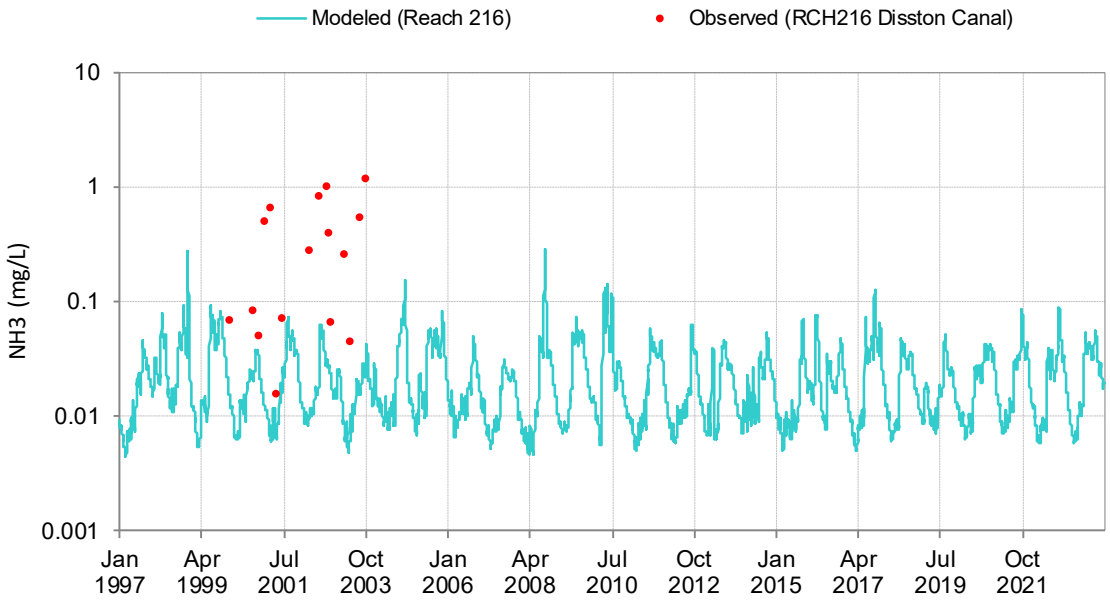


Figure A-281 Modeled Vs Observed NH3 (mg/L) at RCH216 Disston Canal

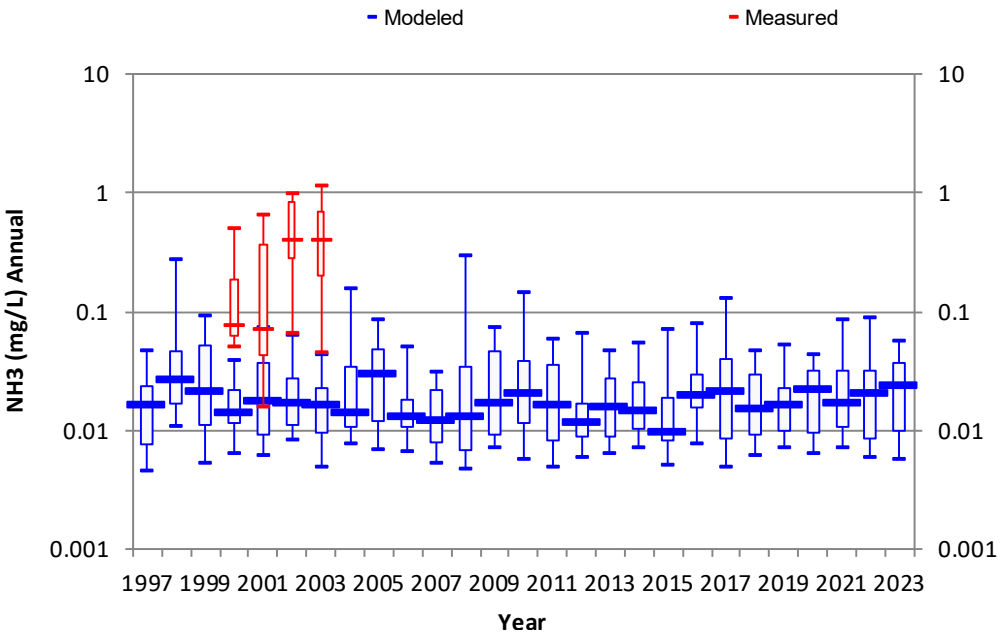


Figure A-282 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH216 Disston Canal

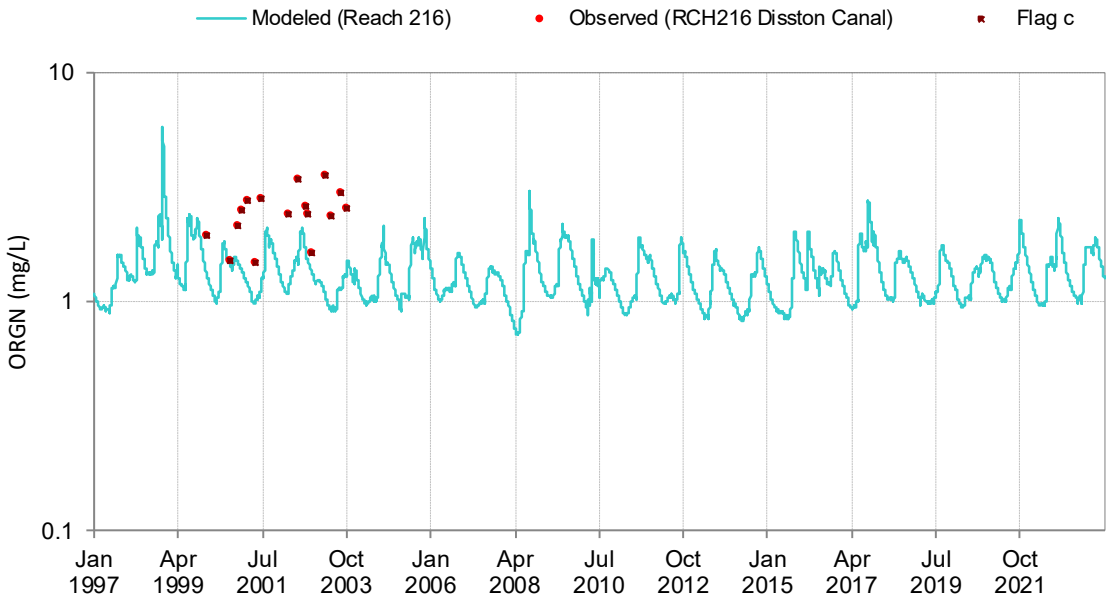


Figure A-283 Modeled Vs Observed ORGN (mg/L) at RCH216 Disston Canal

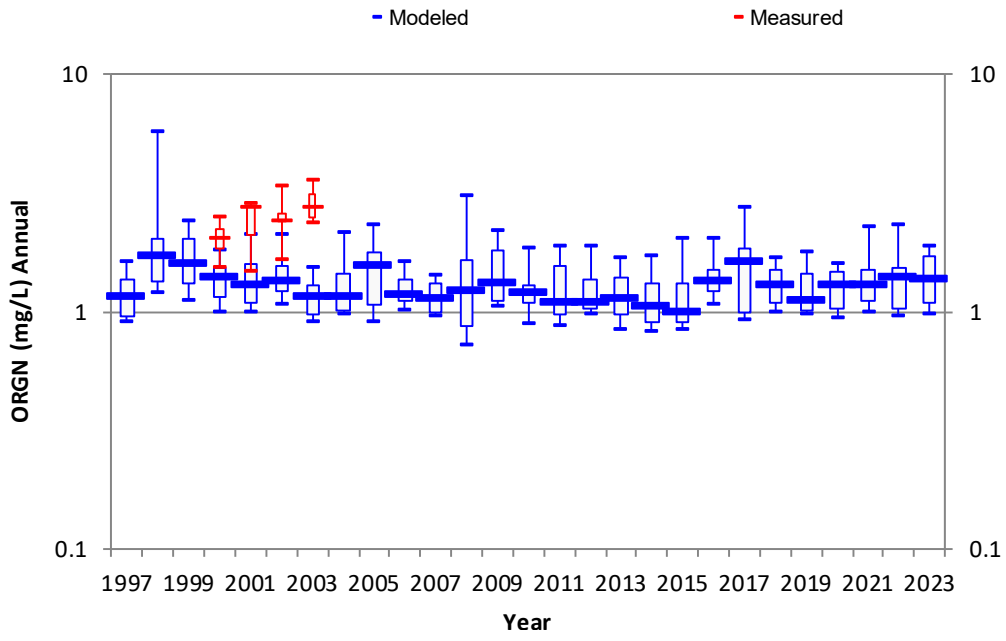


Figure A-284 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH216 Disston Canal

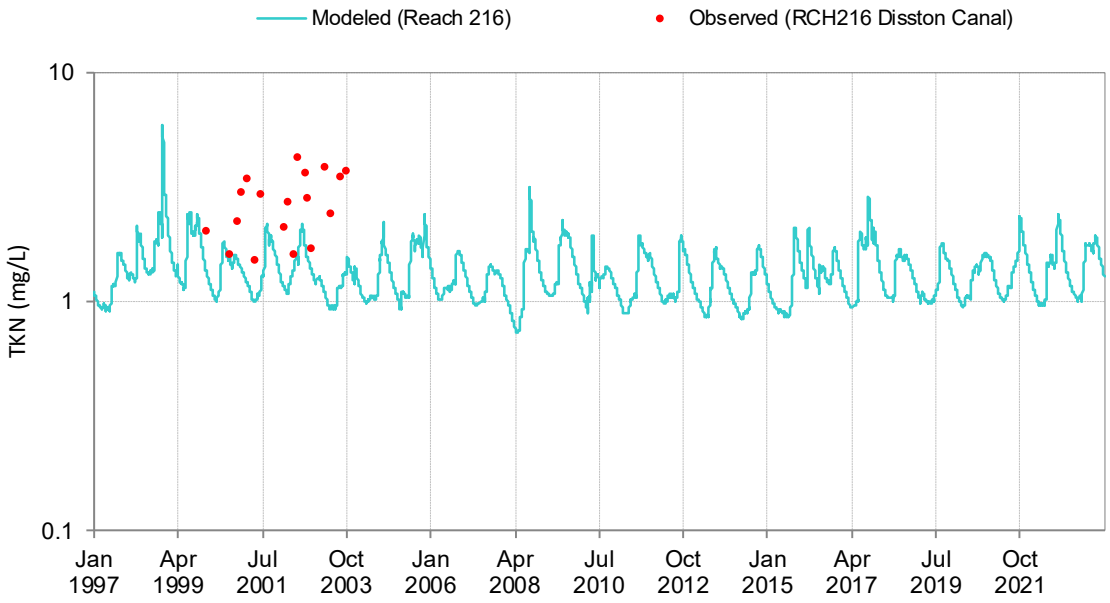


Figure A-285 Modeled Vs Observed TKN (mg/L) at RCH216 Disston Canal

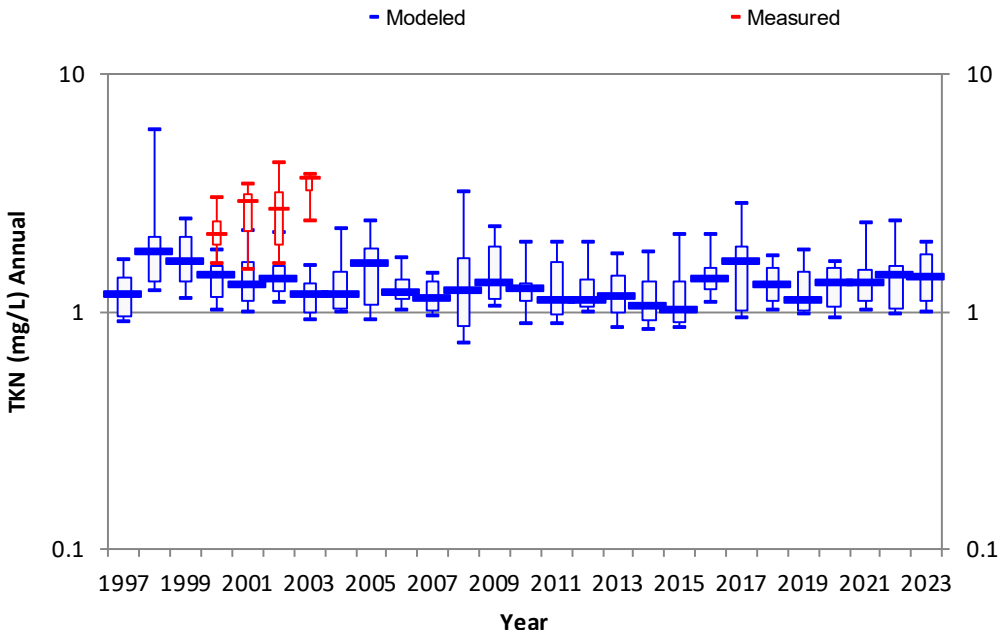


Figure A-286 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH216 Disston Canal

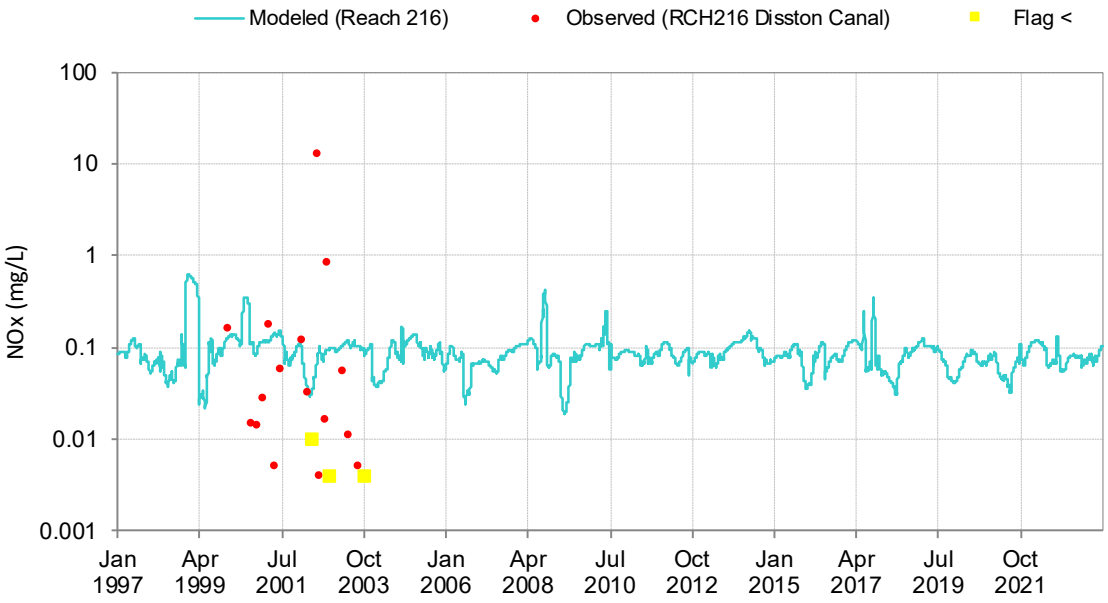


Figure A-287 Modeled Vs Observed NOx (mg/L) at RCH216 Disston Canal

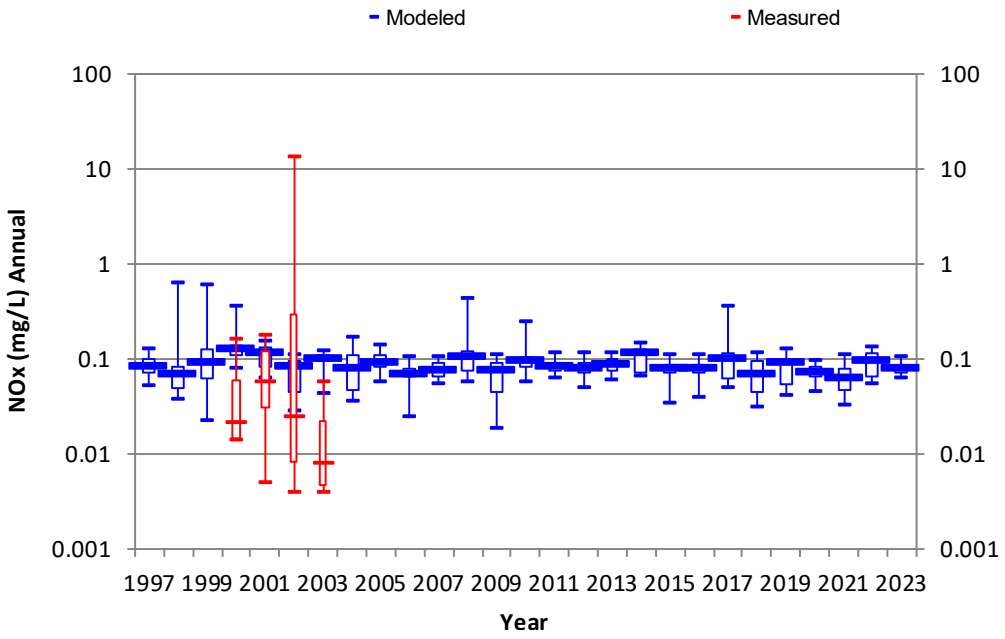


Figure A-288 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH216 Disston Canal

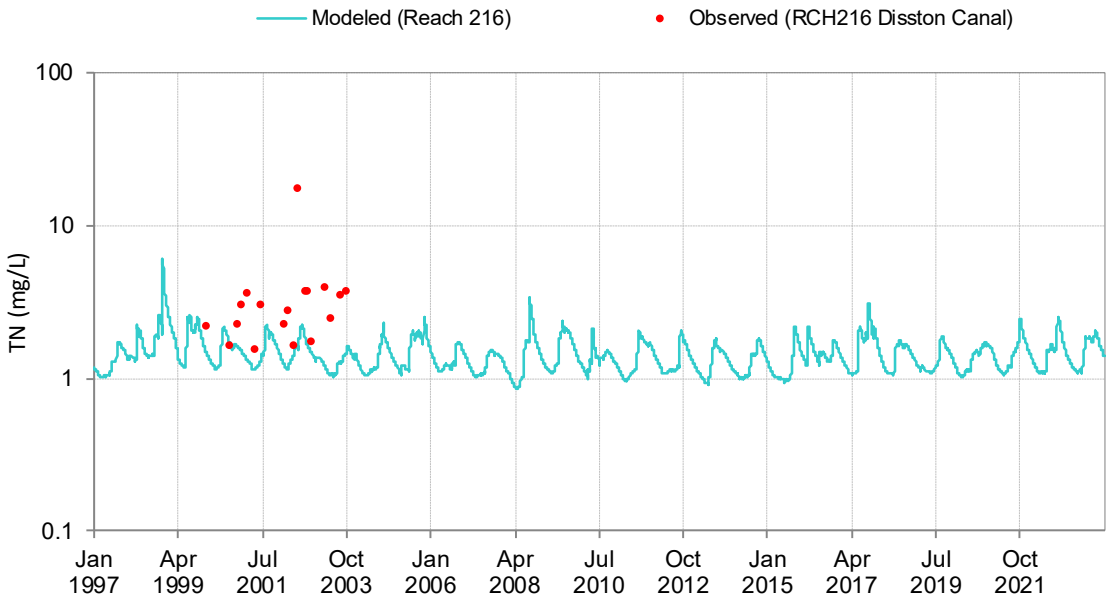


Figure A-289 Modeled Vs Observed TN (mg/L) at RCH216 Disston Canal

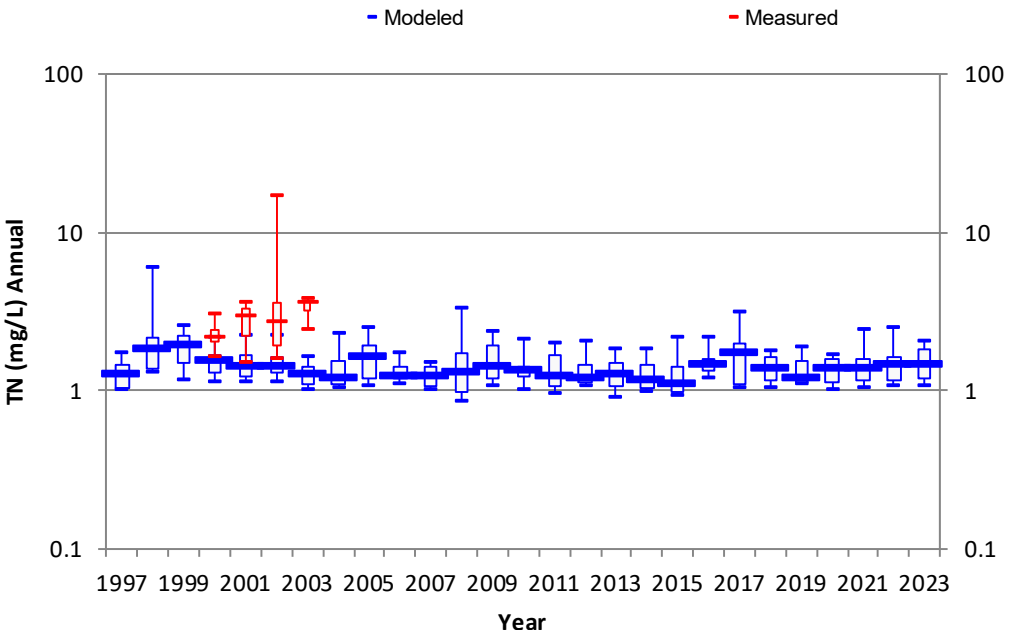


Figure A-290 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH216 Disston Canal

Table A- 85 Monthly TN Concentration Comparisons at RCH216 Disston Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	2.19	1.32	-40.0	G
Feb	3.58	1.24	-65.4	P
Mar	3.29	1.17	-64.6	P
Apr	1.51	1.13	-24.6	VG
May	2.01	1.16	-42.2	G
Jun	10.08	1.33	-86.8	P
Jul	N/A	1.54	N/A	N/A
Aug	2.56	1.65	-35.6	G
Sep	3.63	1.78	-51.0	F
Oct	2.54	1.80	-29.3	VG
Nov	N/A	1.69	N/A	N/A
Dec	3.03	1.47	-51.3	F
Average*	2.87	1.44	-49.8	F
Median**	2.79	1.40	-49.8	F
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 86 Annual TN Concentration Comparisons at RCH216 Disston Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.27	N/A	N/A
1998	N/A	2.00	N/A	N/A
1999	N/A	1.87	N/A	N/A
2000	2.25	1.53	-31.9	G
2001	2.68	1.50	-44.1	G
2002	4.67	1.51	-67.6	P
2003	3.37	1.28	-61.9	P
2004	N/A	1.35	N/A	N/A
2005	N/A	1.58	N/A	N/A
2006	N/A	1.32	N/A	N/A
2007	N/A	1.25	N/A	N/A
2008	N/A	1.45	N/A	N/A
2009	N/A	1.54	N/A	N/A
2010	N/A	1.34	N/A	N/A
2011	N/A	1.37	N/A	N/A
2012	N/A	1.32	N/A	N/A
2013	N/A	1.28	N/A	N/A
2014	N/A	1.27	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	1.24	N/A	N/A
2016	N/A	1.49	N/A	N/A
2017	N/A	1.63	N/A	N/A
2018	N/A	1.39	N/A	N/A
2019	N/A	1.33	N/A	N/A
2020	N/A	1.35	N/A	N/A
2021	N/A	1.45	N/A	N/A
2022	N/A	1.49	N/A	N/A
2023	N/A	1.50	N/A	N/A
Average*	3.24	1.44	-55.6	F
Median**	3.02	1.39	-54.0	F
R^2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 87 Daily TN Concentration Comparisons at RCH216 Disston Canal

Statistic	Results	Rating
Count (number)	18	N/A
Average Error (%)	-46.0	F
Median Error (%)	-53.9	F
RMSE (mg/L)	3.99	N/A
R^2	0.04	P

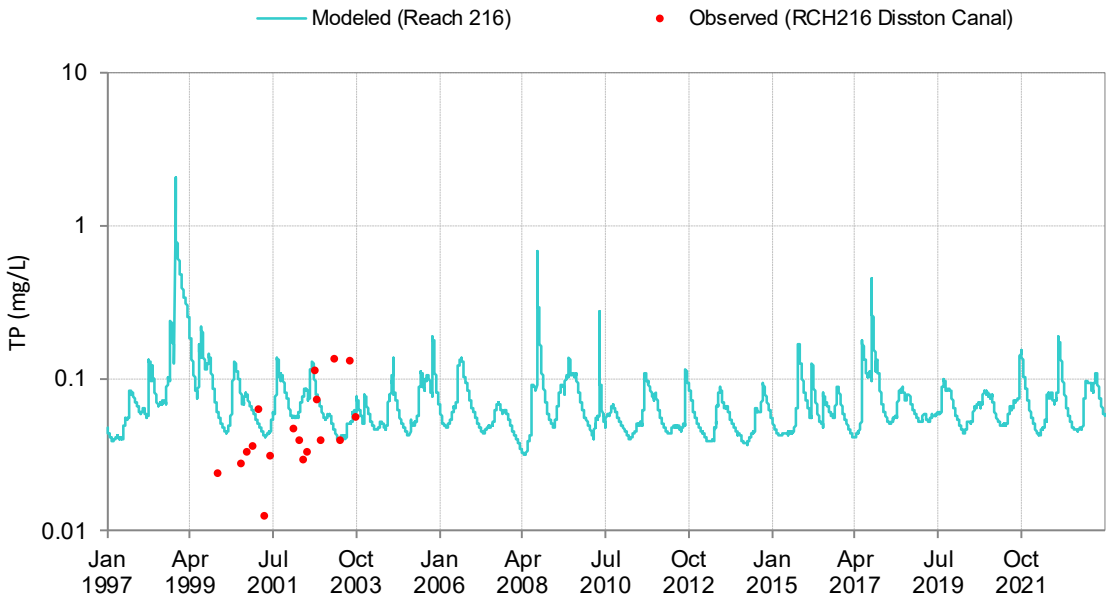


Figure A-291 Modeled Vs Observed TP (mg/L) at RCH216 Disston Canal

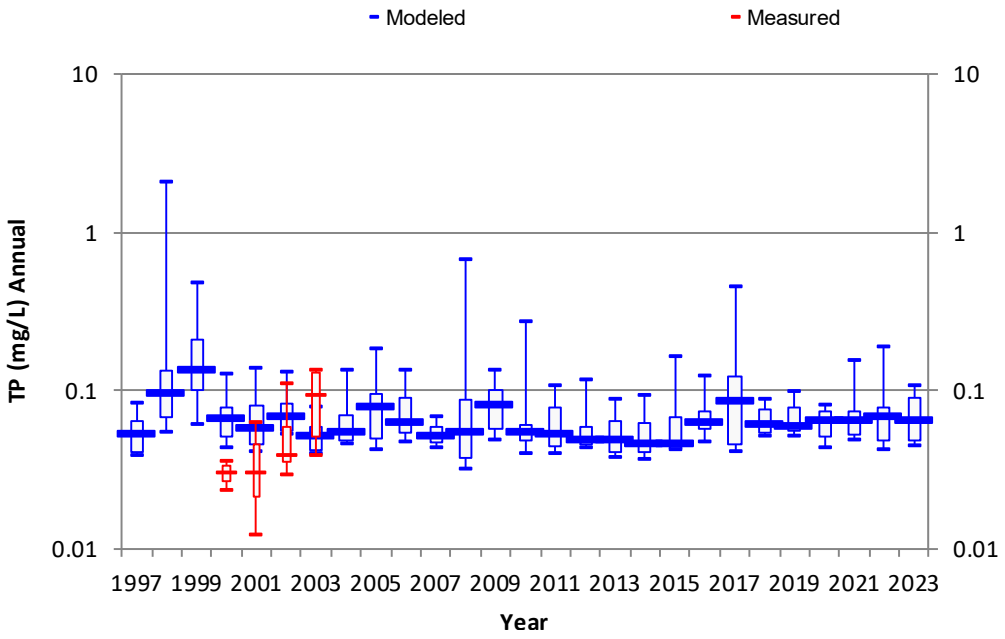


Figure A-292 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH216 Disston Canal

Table A- 88 Monthly TP Concentration Comparisons at RCH216 Disston Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.03	0.07	91.6	P
Feb	0.06	0.06	-1.0	VG
Mar	0.09	0.06	-33.8	G
Apr	0.01	0.06	346.9	P
May	0.03	0.06	65.1	P
Jun	0.03	0.07	110.0	P
Jul	N/A	0.08	N/A	N/A
Aug	0.08	0.09	12.7	VG
Sep	0.09	0.10	6.0	VG
Oct	0.04	0.09	122.7	P
Nov	N/A	0.11	N/A	N/A
Dec	0.04	0.08	123.1	P
Average*	0.04	0.08	78.4	P
Median**	0.04	0.07	86.5	P
R^2	N/A	N/A	0.17	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 89 Annual TP Concentration Comparisons at RCH216 Disston Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.05	N/A	N/A
1998	N/A	0.20	N/A	N/A
1999	N/A	0.17	N/A	N/A
2000	0.03	0.07	135.4	P
2001	0.03	0.07	92.4	P
2002	0.05	0.07	39.3	G
2003	0.09	0.05	-41.3	G
2004	N/A	0.06	N/A	N/A
2005	N/A	0.08	N/A	N/A
2006	N/A	0.07	N/A	N/A
2007	N/A	0.05	N/A	N/A
2008	N/A	0.08	N/A	N/A
2009	N/A	0.08	N/A	N/A
2010	N/A	0.06	N/A	N/A
2011	N/A	0.06	N/A	N/A
2012	N/A	0.06	N/A	N/A
2013	N/A	0.05	N/A	N/A
2014	N/A	0.05	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	0.06	N/A	N/A
2016	N/A	0.07	N/A	N/A
2017	N/A	0.10	N/A	N/A
2018	N/A	0.06	N/A	N/A
2019	N/A	0.07	N/A	N/A
2020	N/A	0.06	N/A	N/A
2021	N/A	0.07	N/A	N/A
2022	N/A	0.07	N/A	N/A
2023	N/A	0.07	N/A	N/A
Average*	0.05	0.08	46.5	F
Median**	0.04	0.07	53.4	F
R^2	N/A	N/A	0.68	F

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 90 Daily TP Concentration Comparisons at RCH216 Disston Canal

Statistic	Results	Rating
Count (number)	18	N/A
Average Error (%)	60.7	P
Median Error (%)	55.5	F
RMSE (mg/L)	0.04	N/A
R^2	0.01	P

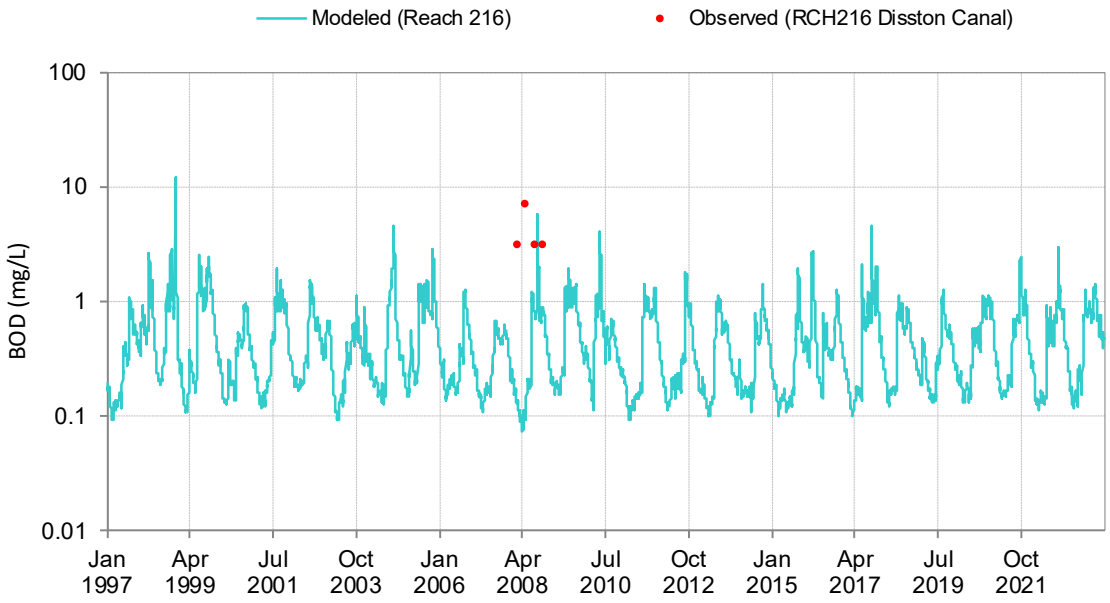


Figure A-293 Modeled Vs Observed BOD (mg/L) at RCH216 Disston Canal

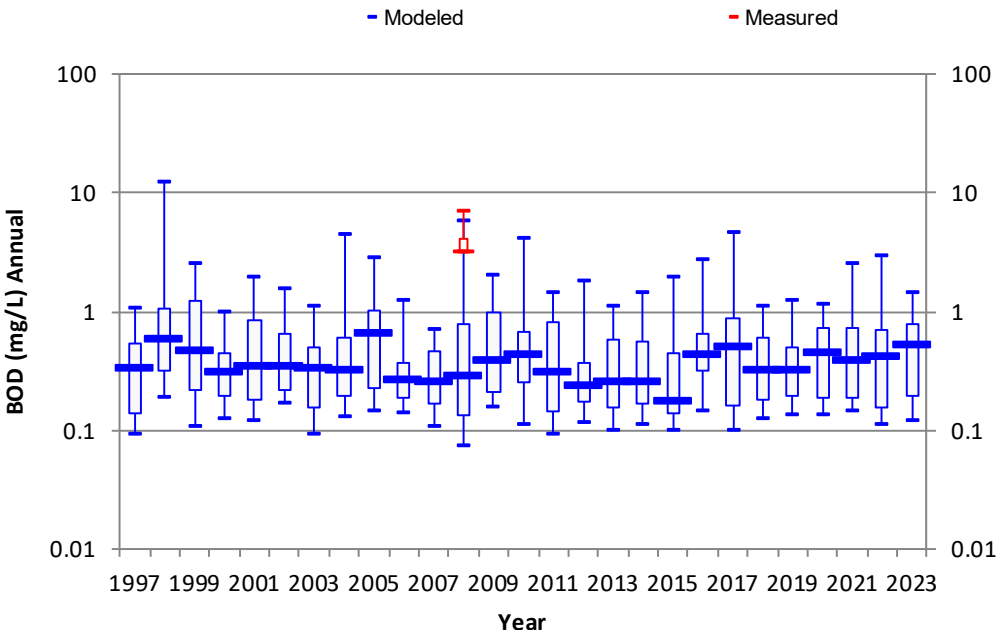


Figure A-294 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH216 Disston Canal

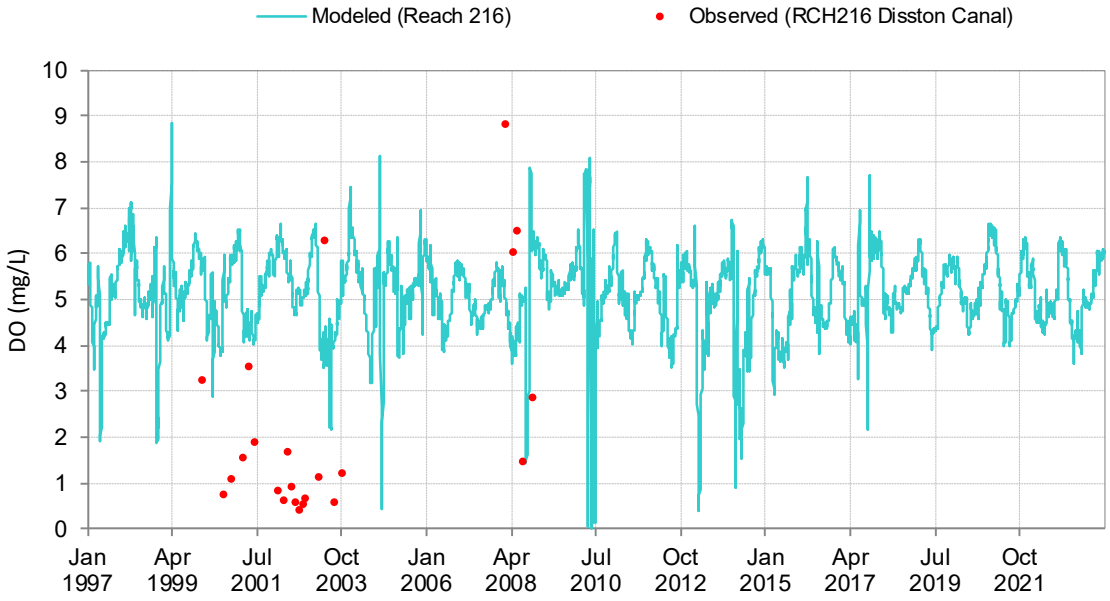


Figure A-295 Modeled Vs Observed DO (mg/L) at RCH216 Disston Canal

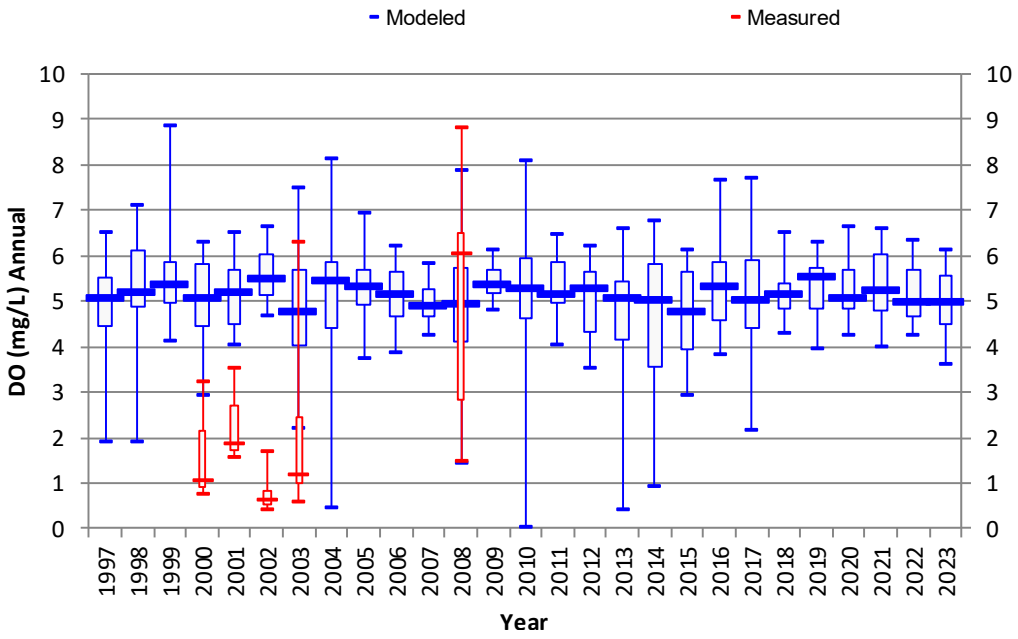


Figure A-296 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH216 Disston Canal

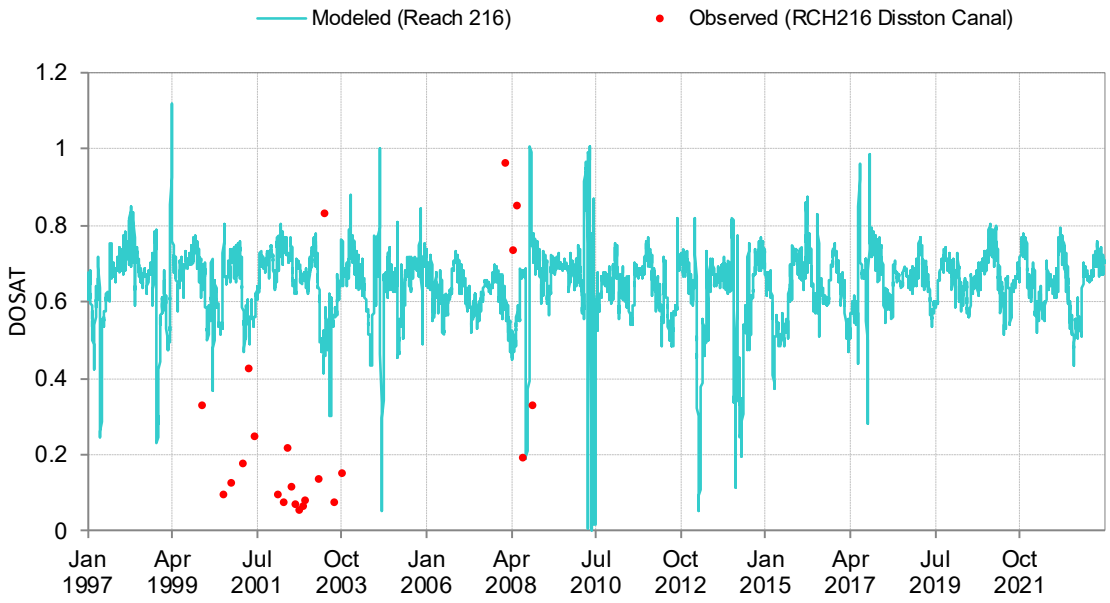


Figure A-297 Modeled Vs Observed DOSAT at RCH216 Disston Canal

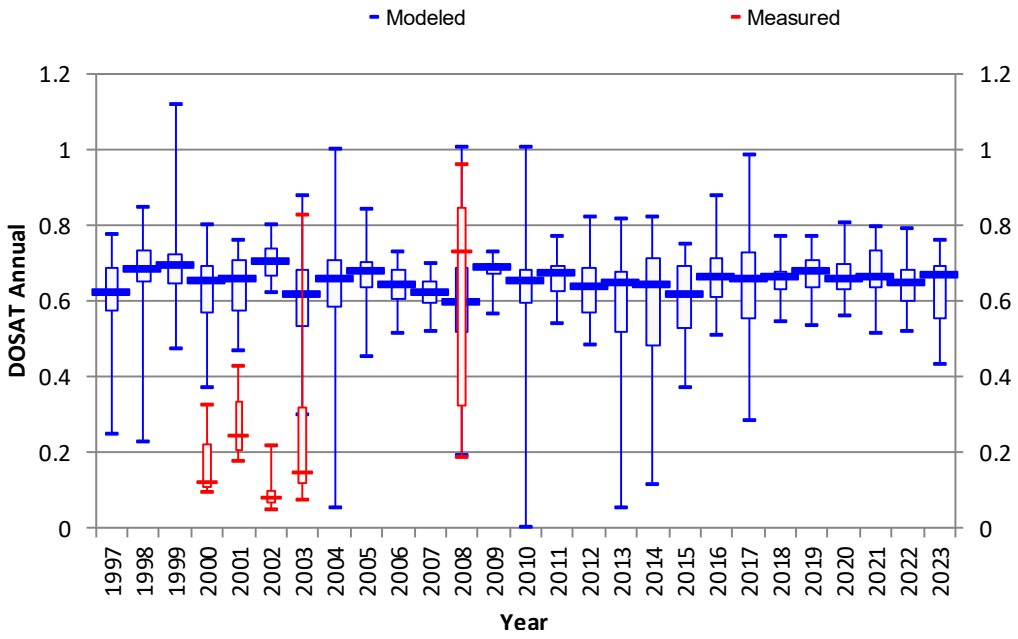


Figure A-298 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH216 Disston Canal

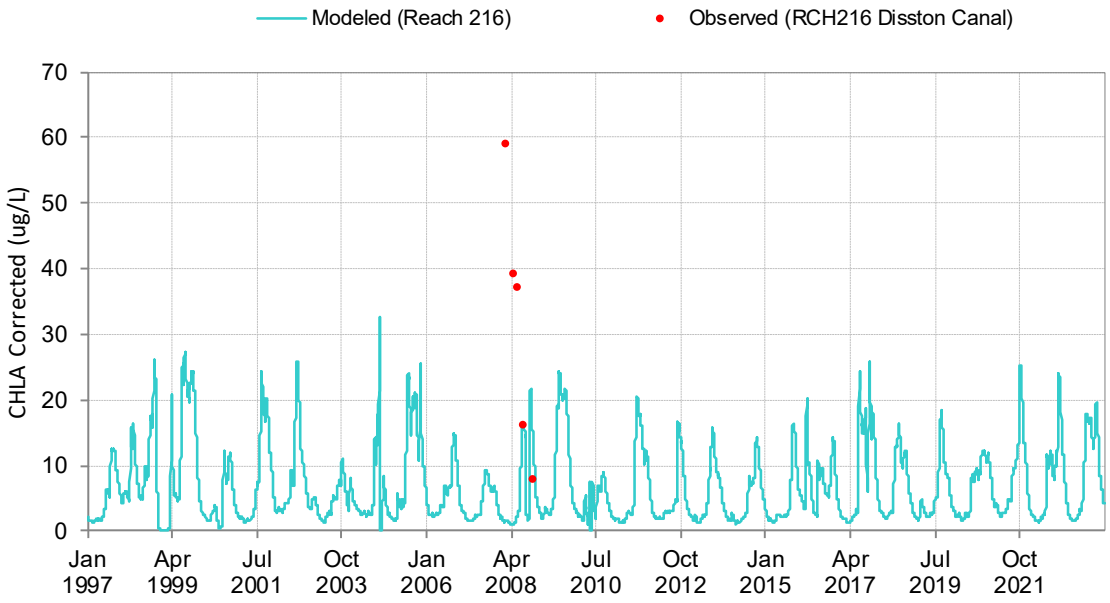


Figure A-299 Modeled Vs Observed CHLA Corrected (ug/L) at RCH216 Disston Canal

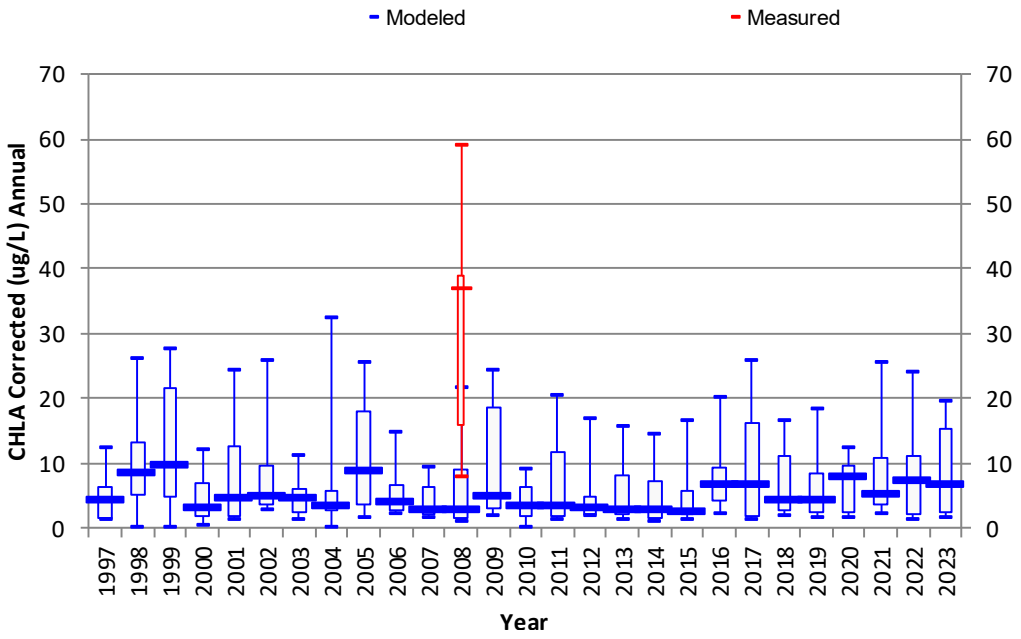


Figure A-300 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH216 Disston Canal

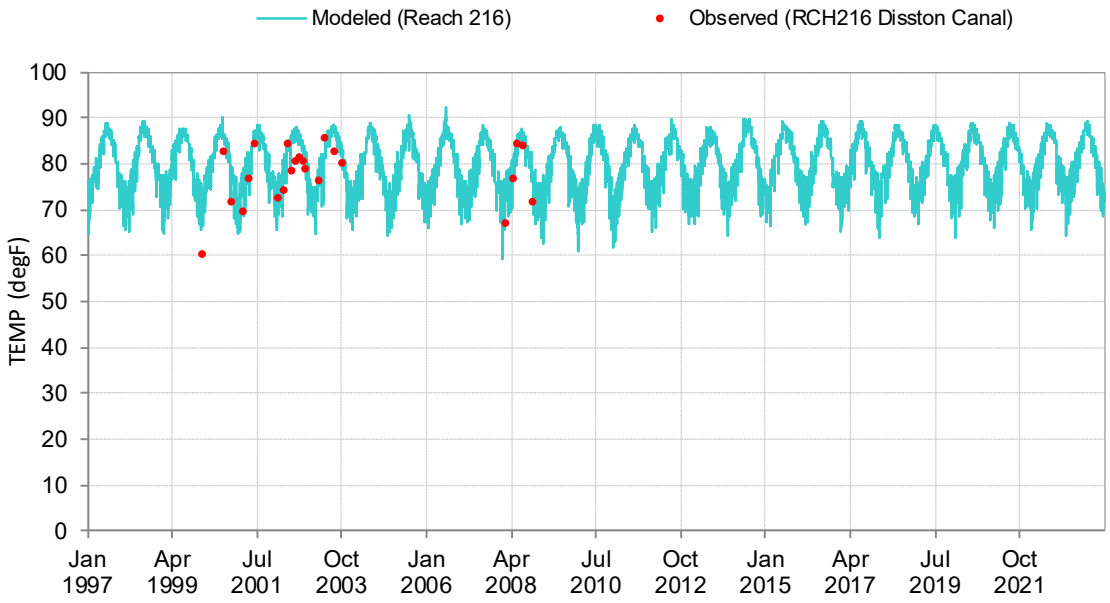


Figure A-301 Modeled Vs Observed TEMP (deg F) at RCH216 Disston Canal

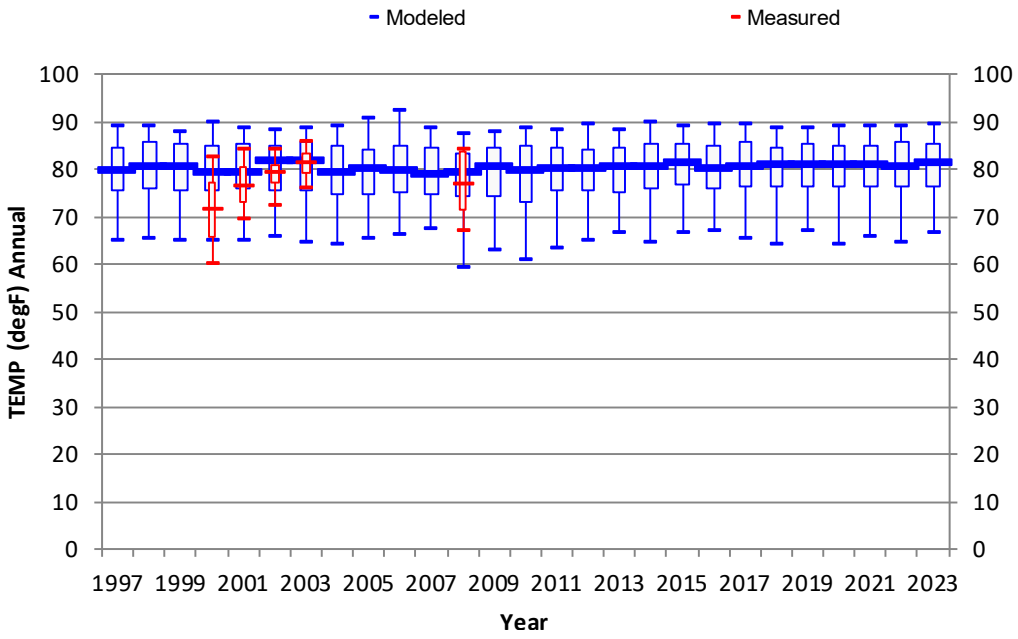


Figure A-302 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH216 Disston Canal

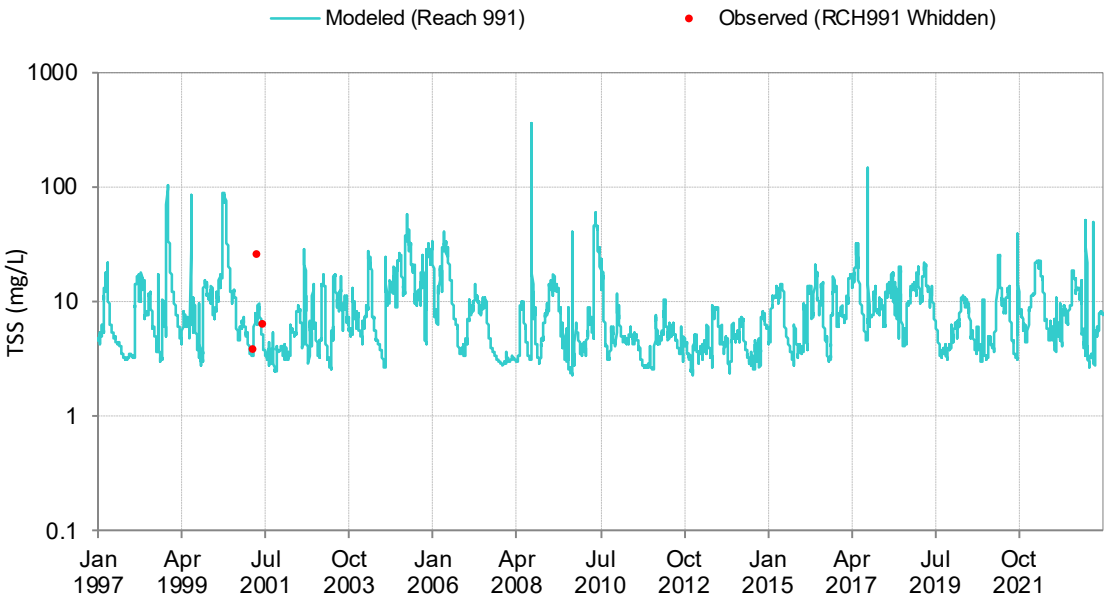


Figure A-303 Modeled Vs Observed TSS (mg/L) at RCH991 Whidden

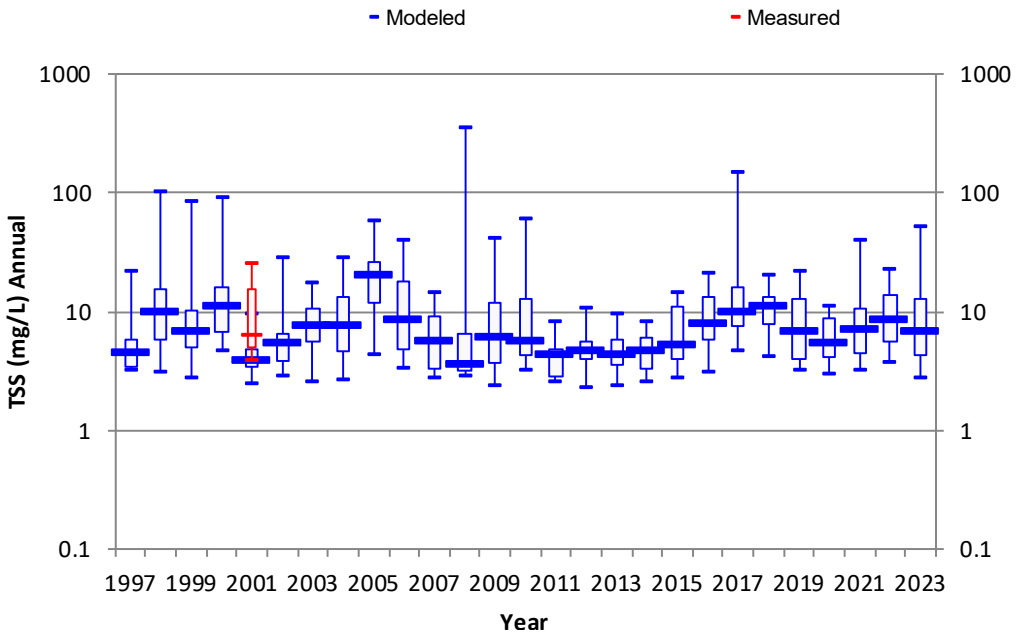


Figure A-304 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH991 Whidden

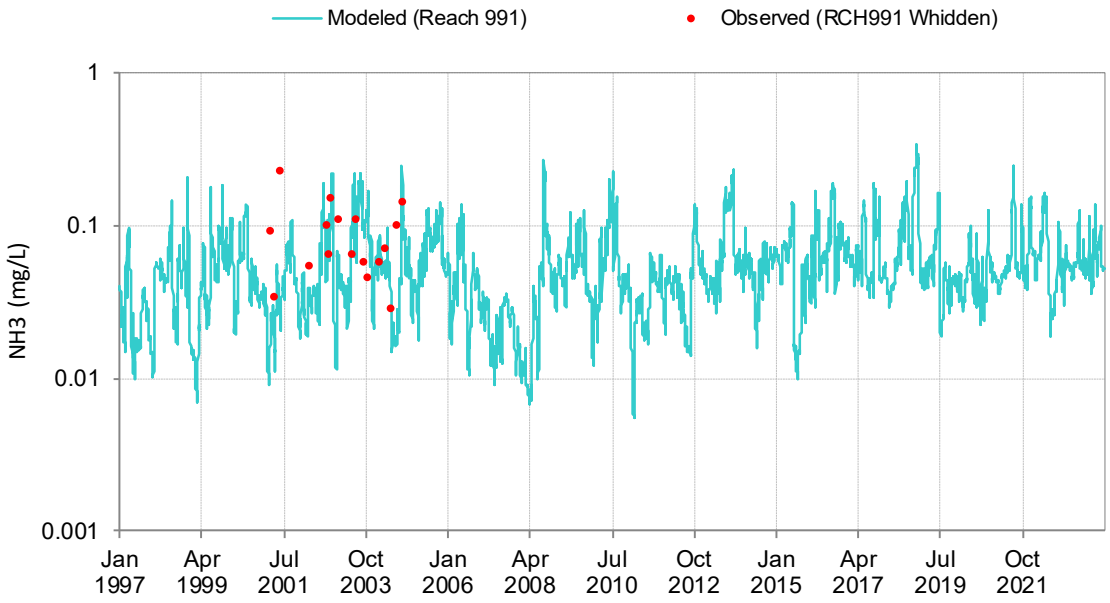


Figure A-305 Modeled Vs Observed NH3 (mg/L) at RCH991 Whidden

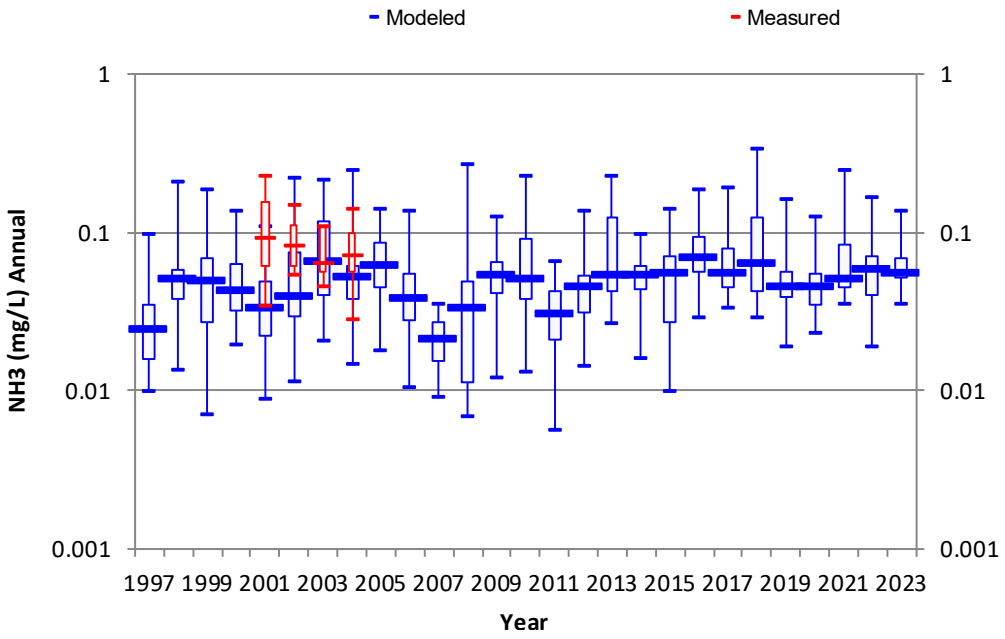


Figure A-306 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH991 Whidden

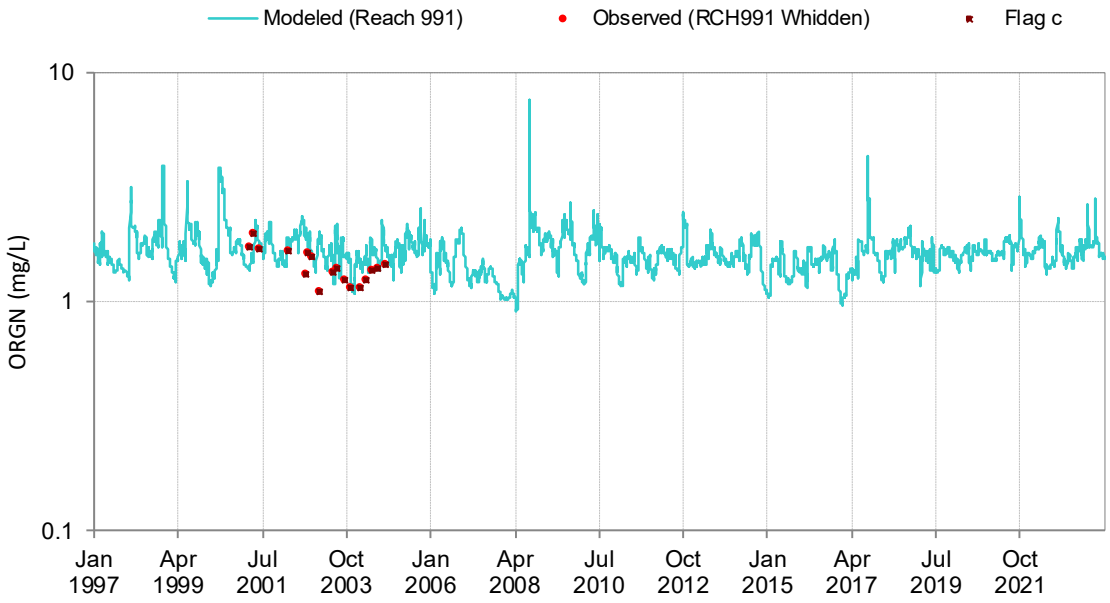


Figure A-307 Modeled Vs Observed ORGN (mg/L) at RCH991 Whidden

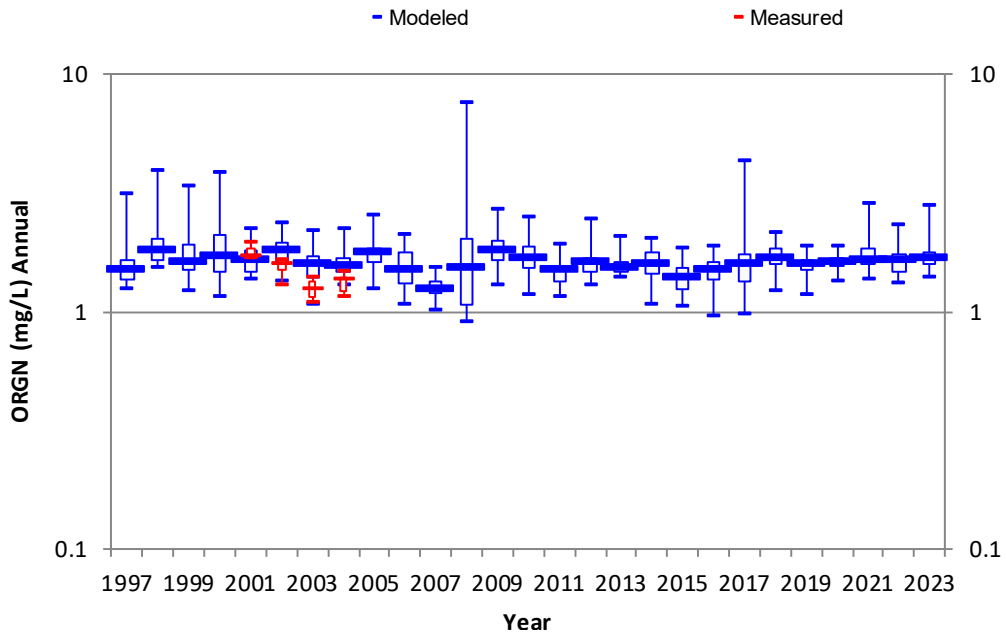


Figure A-308 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH991 Whidden

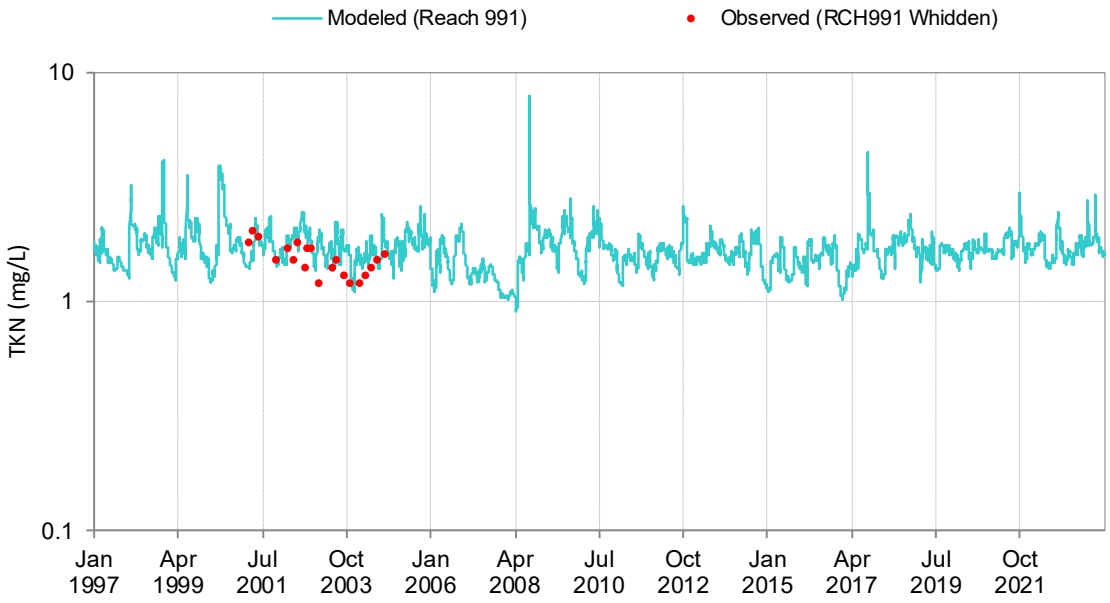


Figure A-309 Modeled Vs Observed TKN (mg/L) at RCH991 Whidden

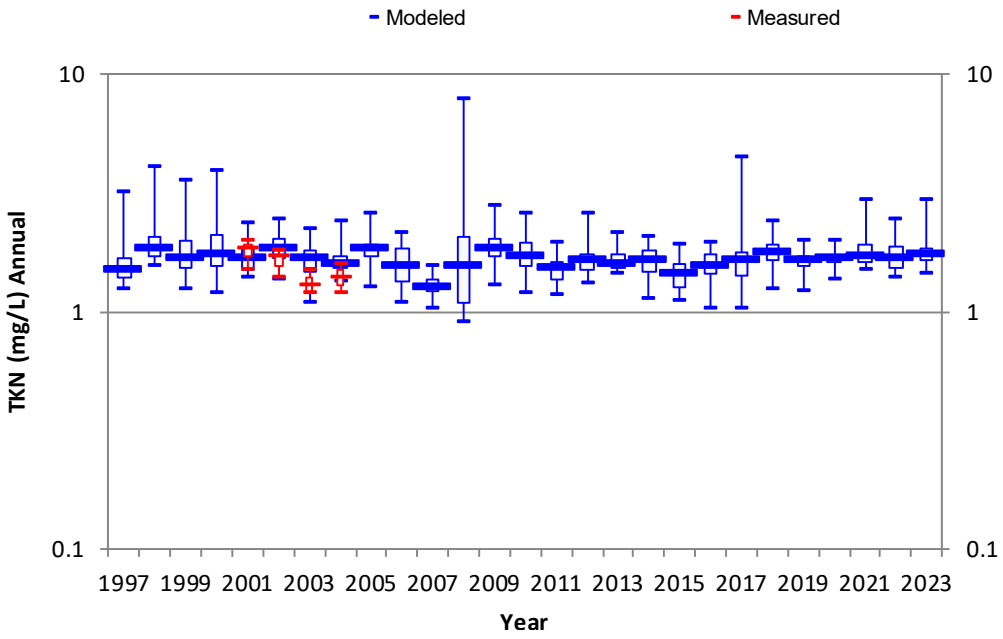


Figure A-310 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH991 Whidden

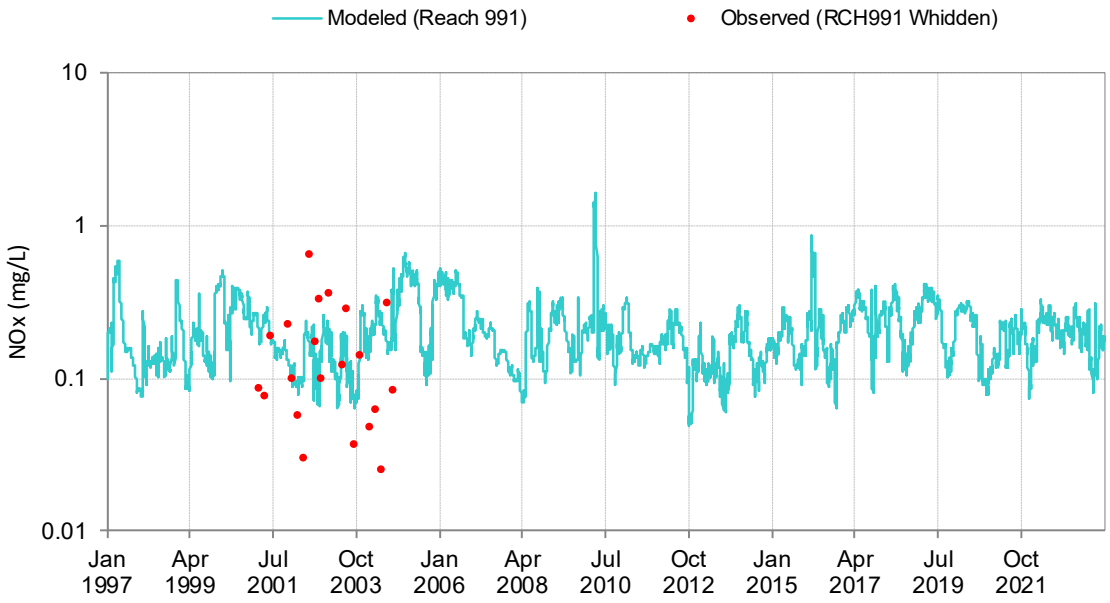


Figure A-311 Modeled Vs Observed NOx (mg/L) at RCH991 Whidden

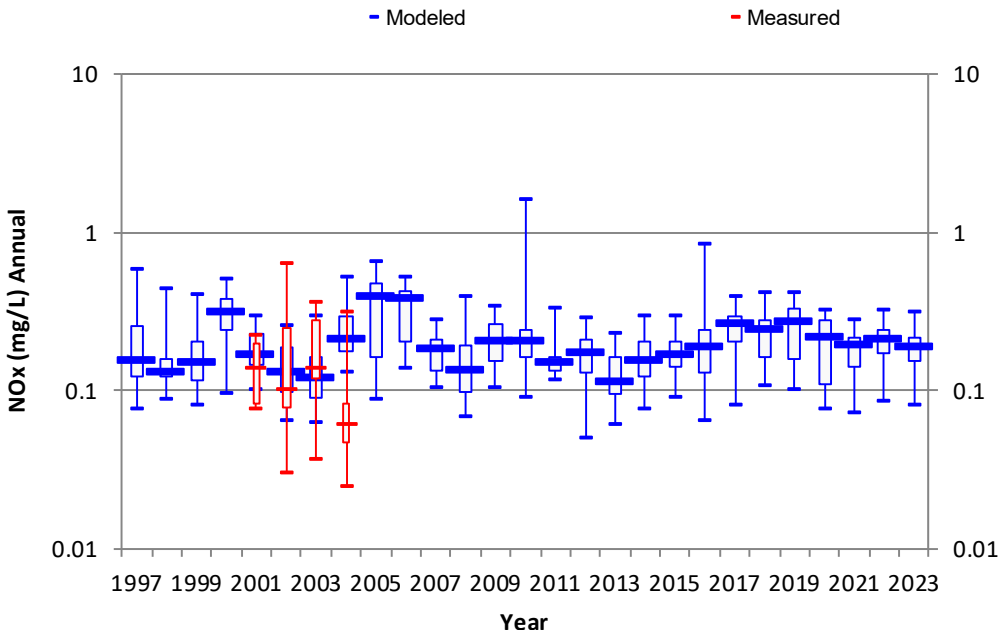


Figure A-312 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH991 Whidden

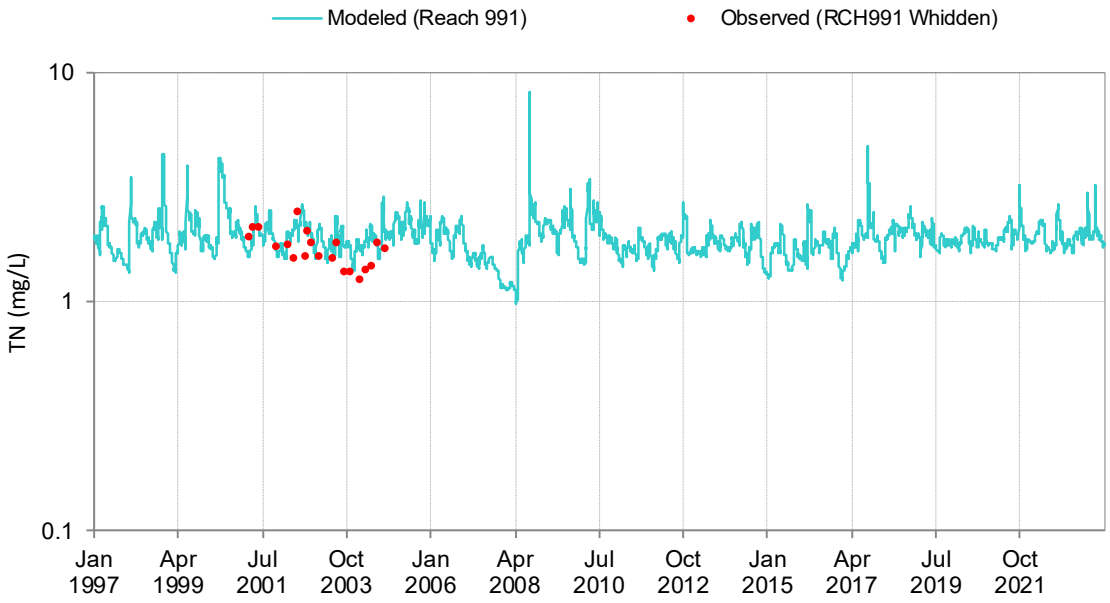


Figure A-313 Modeled Vs Observed TN (mg/L) at RCH991 Whidden

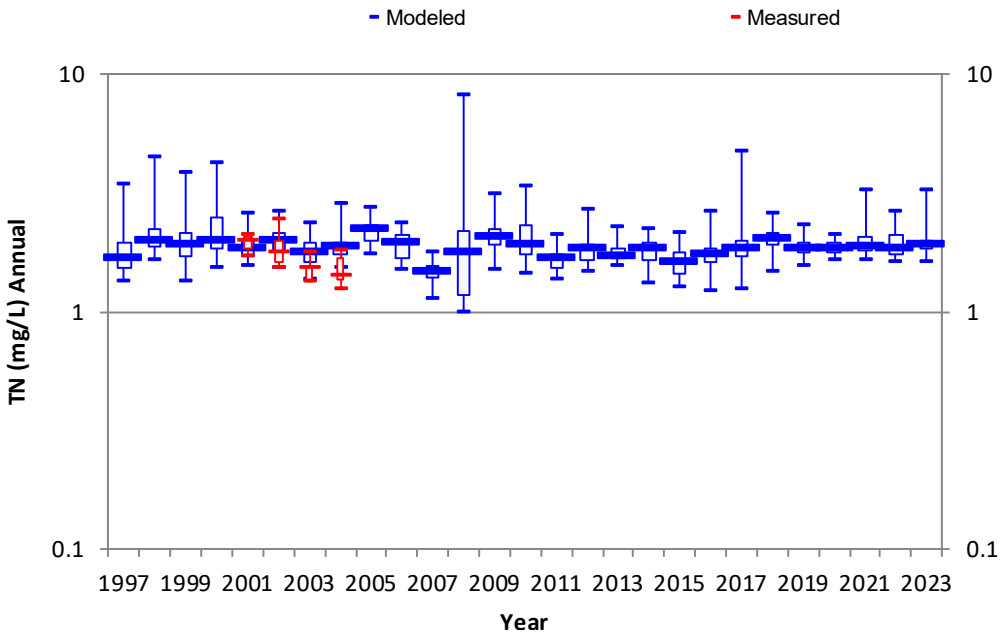


Figure A-314 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH991 Whidden

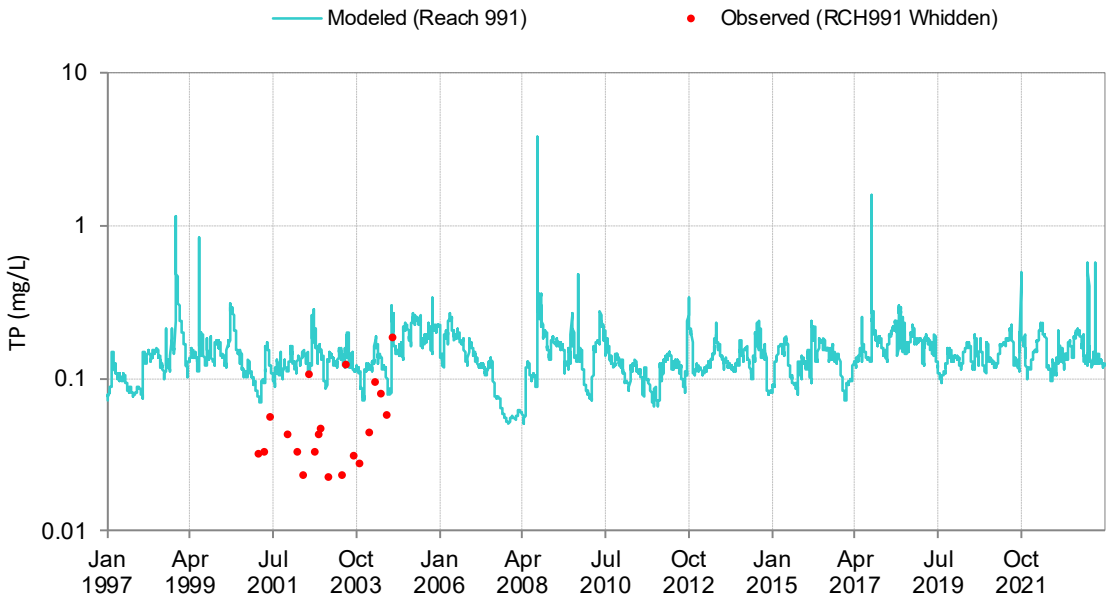


Figure A-315 Modeled Vs Observed TP (mg/L) at RCH991 Whidden

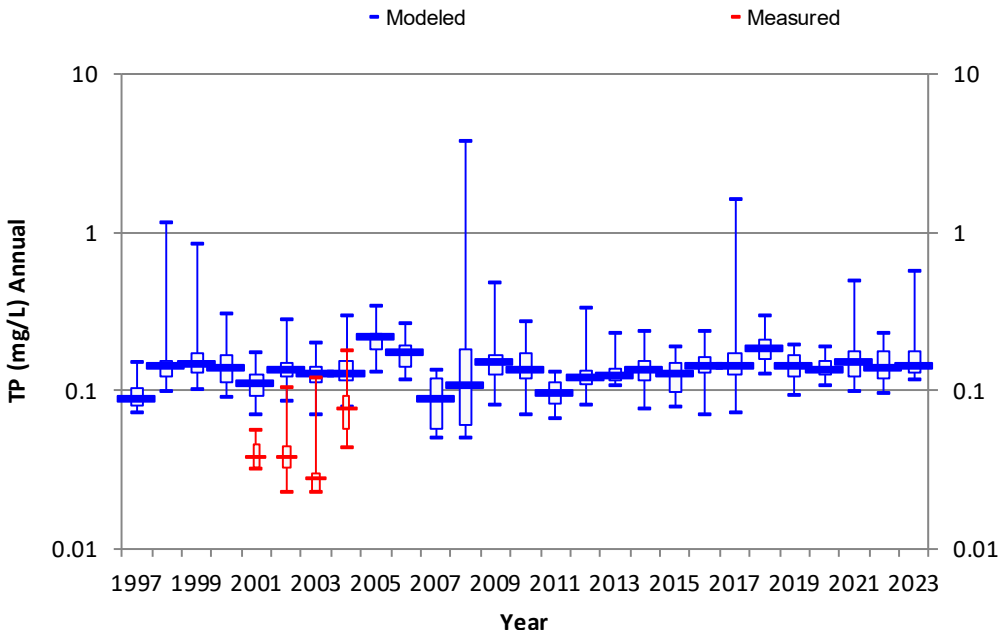


Figure A-316 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH991 Whidden

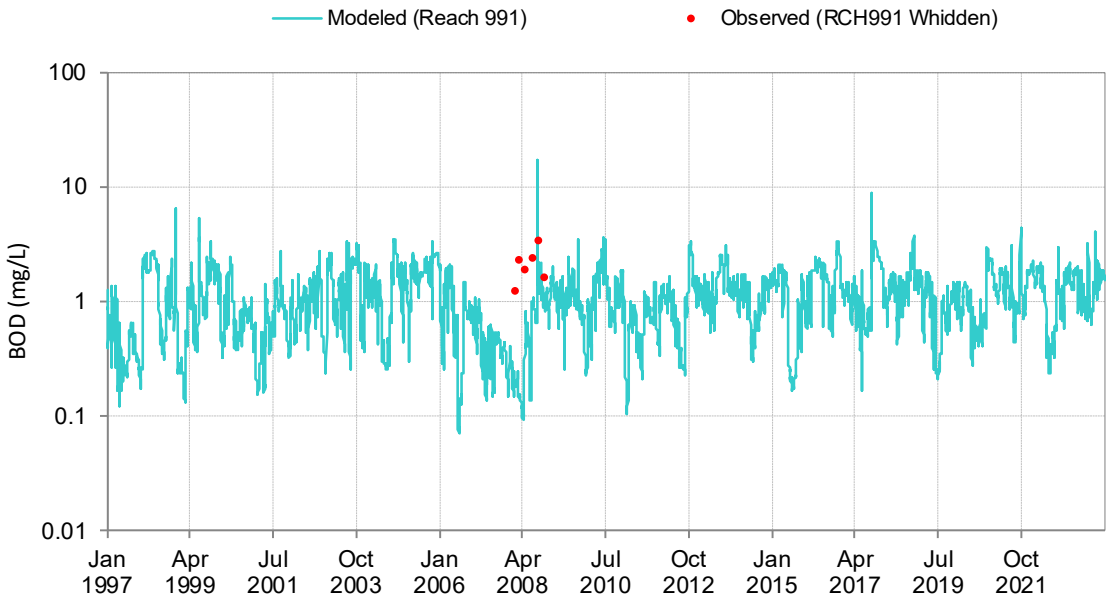


Figure A-317 Modeled Vs Observed BOD (mg/L) at RCH991 Whidden

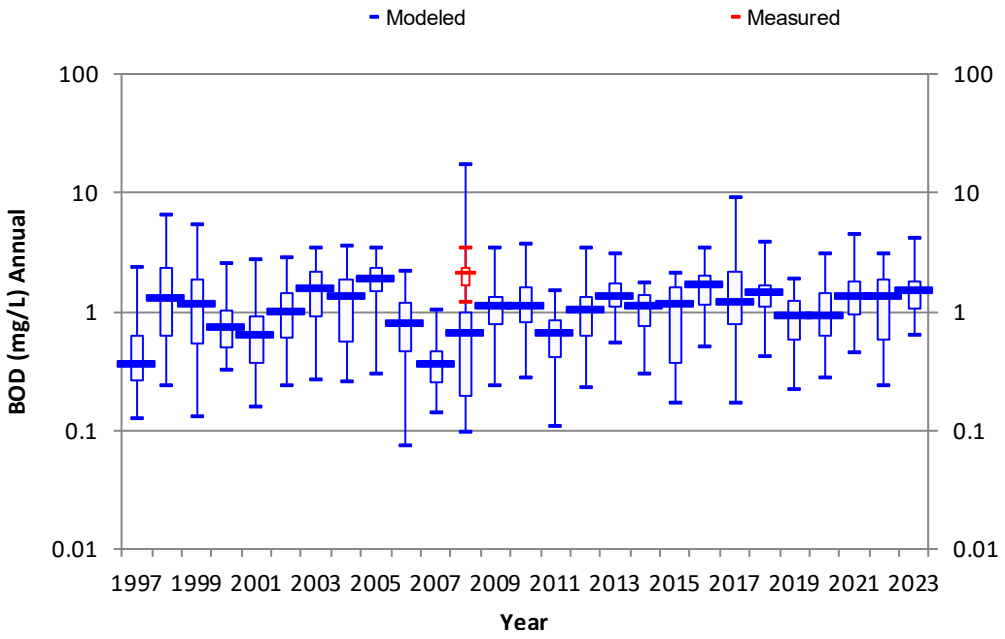


Figure A-318 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH991 Whidden

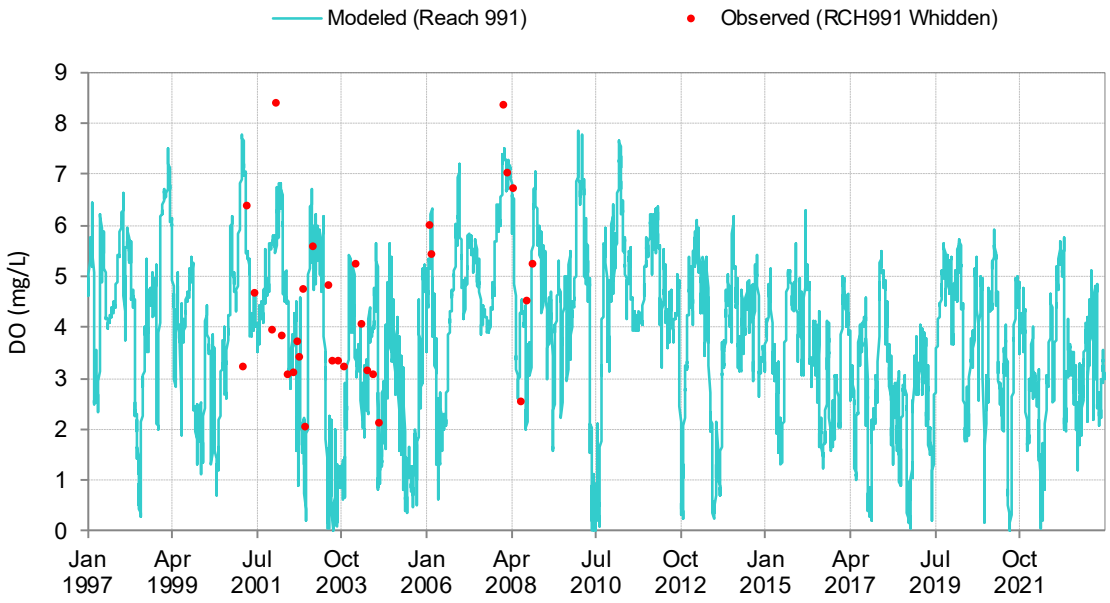


Figure A-319 Modeled Vs Observed DO (mg/L) at RCH991 Whidden

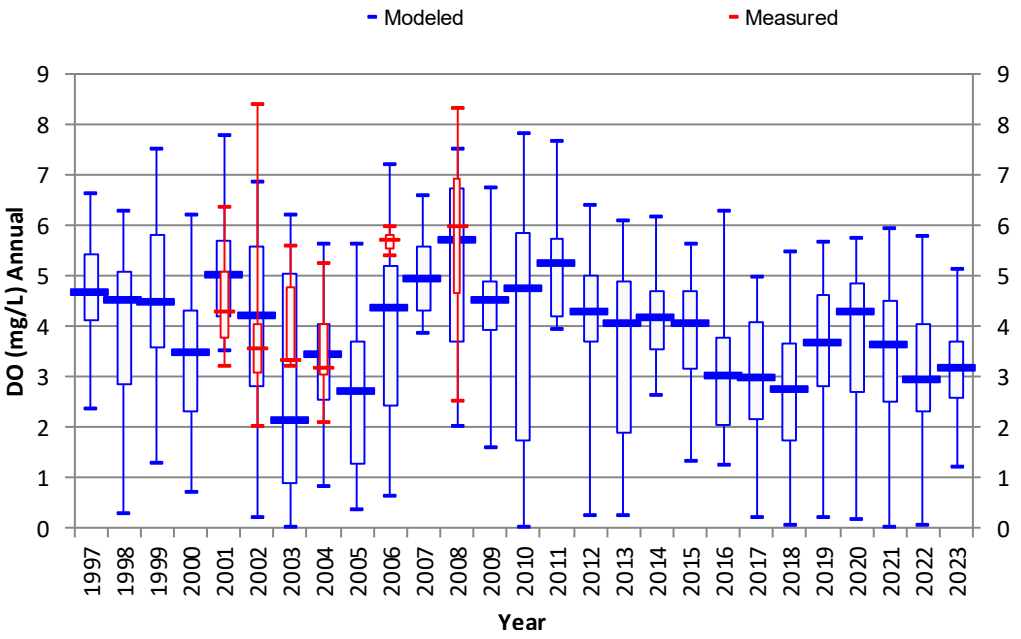


Figure A-320 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH991 Whidden

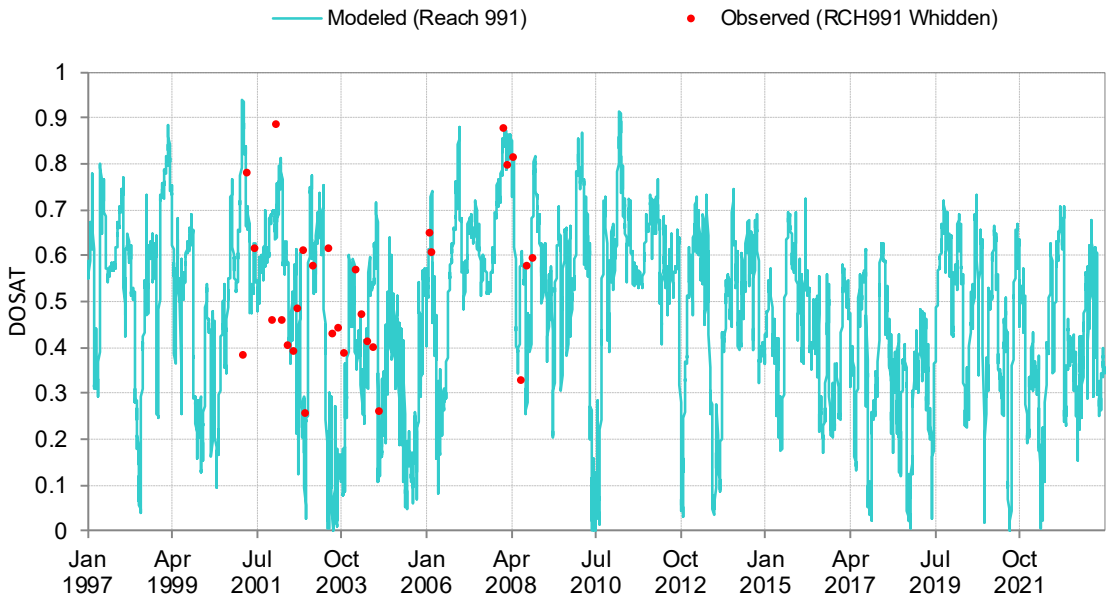


Figure A-321 Modeled Vs Observed DOSAT at RCH991 Whidden

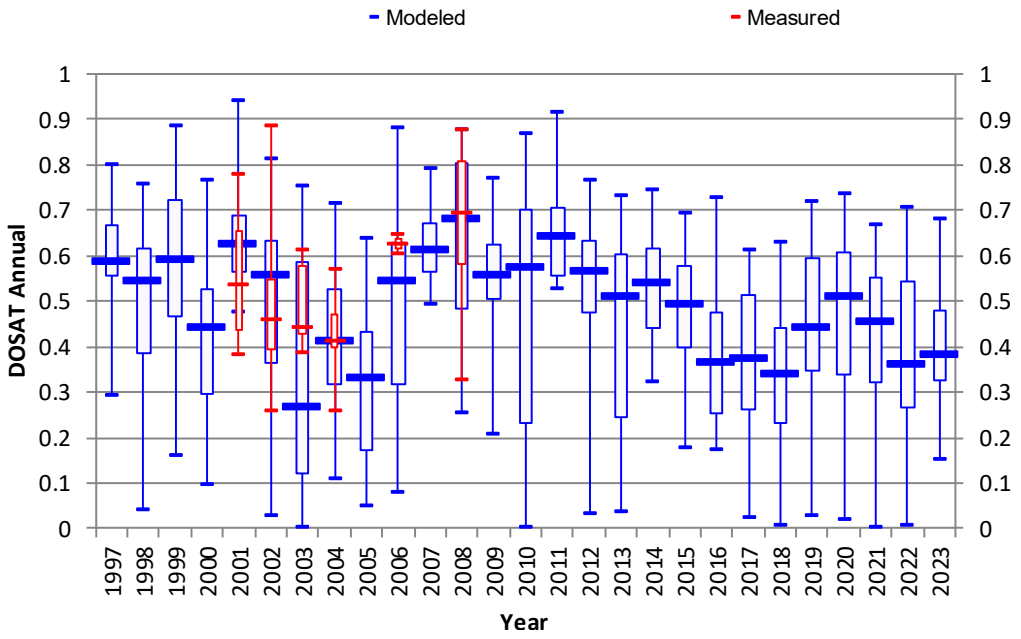


Figure A-322 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH991 Whidden

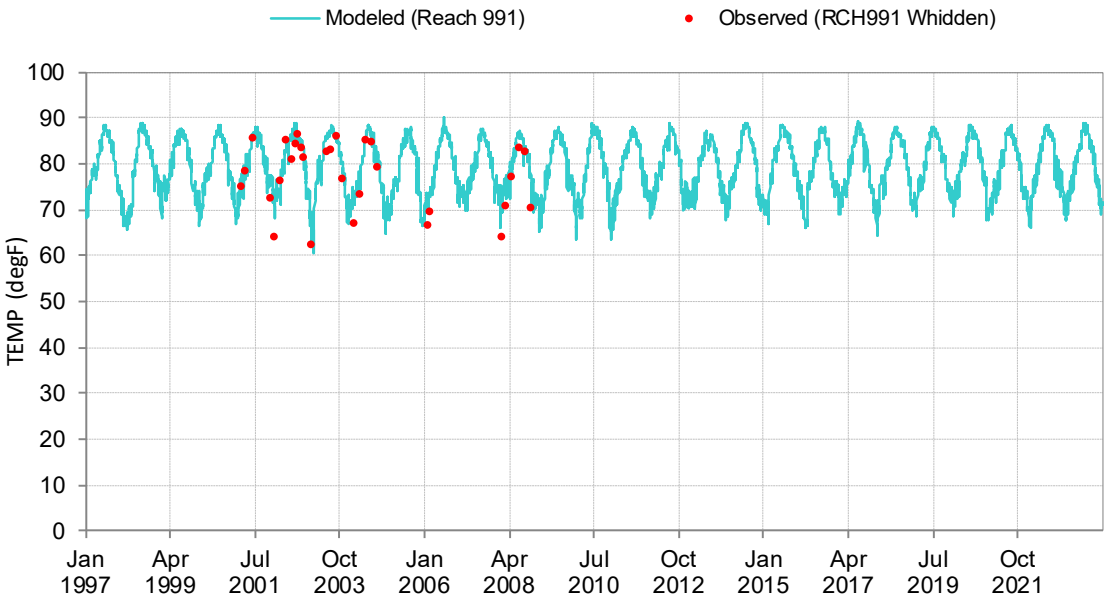


Figure A-323 Modeled Vs Observed TEMP (deg F) at RCH991 Whidden

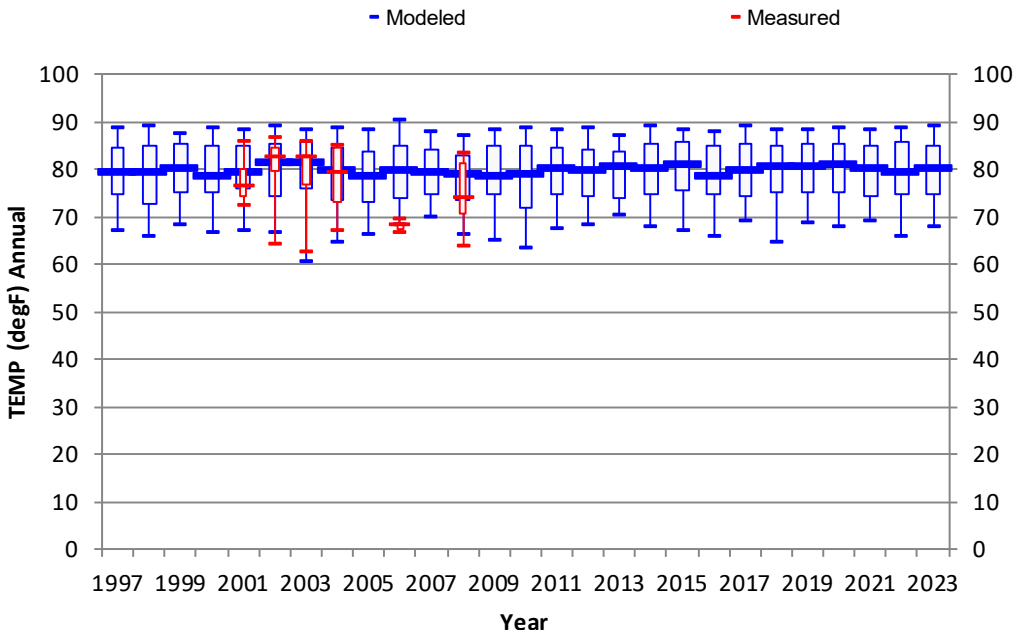


Figure A-324 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH991 Whidden

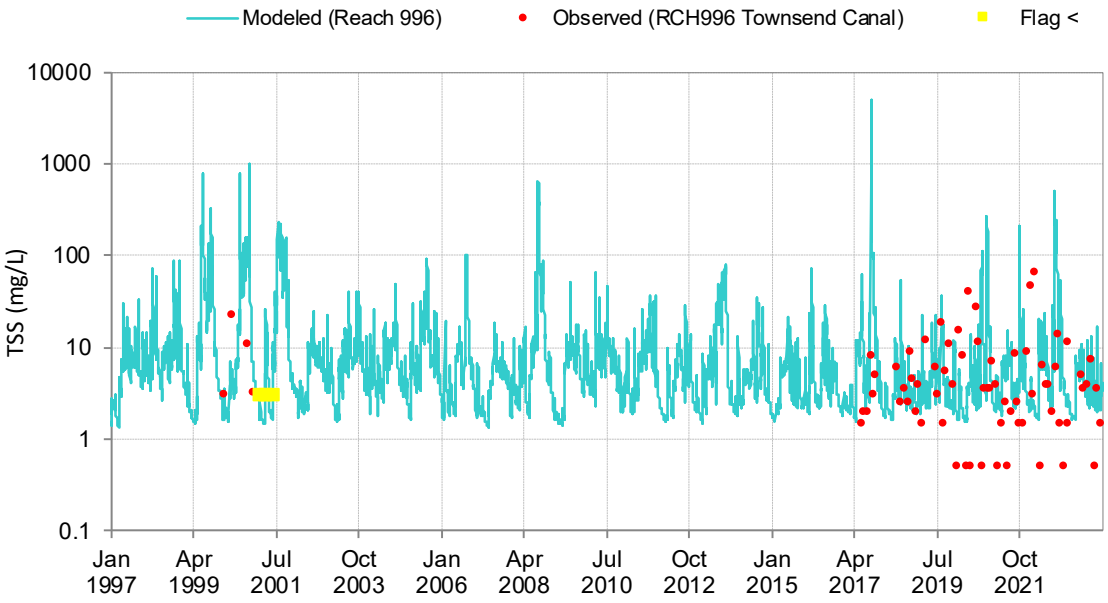


Figure A-325 Modeled Vs Observed TSS (mg/L) at RCH996 Townsend Canal

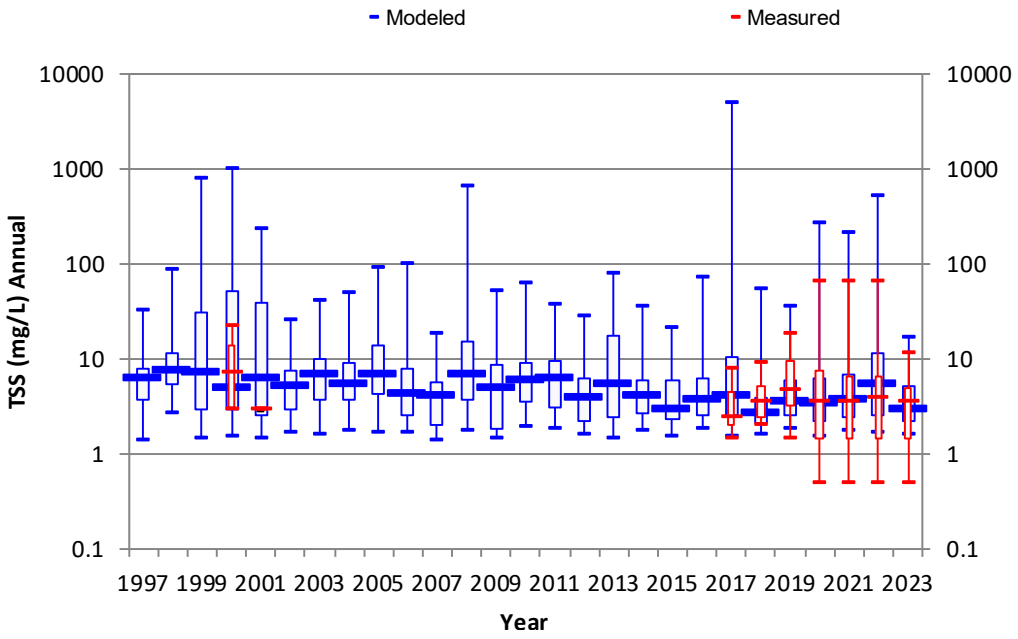


Figure A-326 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH996 Townsend Canal

Table A- 91 Monthly TSS Concentration Comparisons at RCH996 Townsend Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	9.21	3.46	-62.4	P
Feb	7.10	4.36	-38.6	P
Mar	17.60	4.27	-75.8	P
Apr	6.18	4.63	-25.0	F
May	12.63	6.27	-50.4	P
Jun	3.36	14.35	327.3	P
Jul	6.29	20.64	228.3	P
Aug	7.14	22.51	215.1	P
Sep	4.94	43.48	780.6	P
Oct	5.29	17.60	233.0	P
Nov	4.21	8.82	109.3	P
Dec	3.42	4.07	19.2	G
Average*	7.28	12.87	76.8	P
Median**	6.23	7.54	21.1	G
R^2	N/A	N/A	0.11	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 92 Annual TSS Concentration Comparisons at RCH996 Townsend Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	6.65	N/A	N/A
1998	N/A	12.07	N/A	N/A
1999	N/A	34.42	N/A	N/A
2000	9.85	37.78	283.5	P
2001	1.50	31.98	2031.7	P
2002	N/A	5.85	N/A	N/A
2003	N/A	8.34	N/A	N/A
2004	N/A	7.37	N/A	N/A
2005	N/A	11.38	N/A	N/A
2006	N/A	8.69	N/A	N/A
2007	N/A	4.68	N/A	N/A
2008	N/A	25.38	N/A	N/A
2009	N/A	6.22	N/A	N/A
2010	N/A	7.91	N/A	N/A
2011	N/A	7.65	N/A	N/A
2012	N/A	4.82	N/A	N/A
2013	N/A	13.84	N/A	N/A
2014	N/A	6.02	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	4.58	N/A	N/A
2016	N/A	6.81	N/A	N/A
2017	3.58	42.64	1089.8	P
2018	4.29	3.97	-7.3	VG
2019	6.70	5.59	-16.5	G
2020	9.54	12.16	27.4	F
2021	3.42	8.75	156.0	P
2022	12.92	18.22	41.1	P
2023	4.28	3.97	-7.2	VG
Average*	6.23	12.88	106.7	P
Median**	4.29	7.91	84.5	P
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 93 Daily TSS Concentration Comparisons at RCH996 Townsend Canal

Statistic	Results	Rating
Count (number)	75	N/A
Average Error (%)	578.0	P
Median Error (%)	41.9	P
RMSE (mg/L)	38.95	N/A
R^2	0.00	P

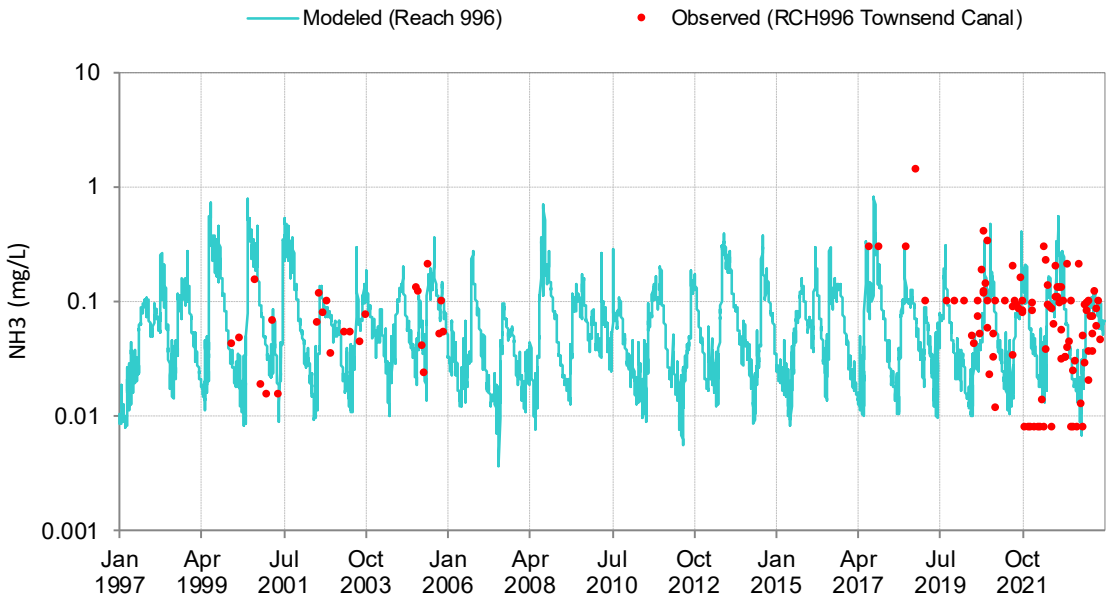


Figure A-327 Modeled Vs Observed NH3 (mg/L) at RCH996 Townsend Canal

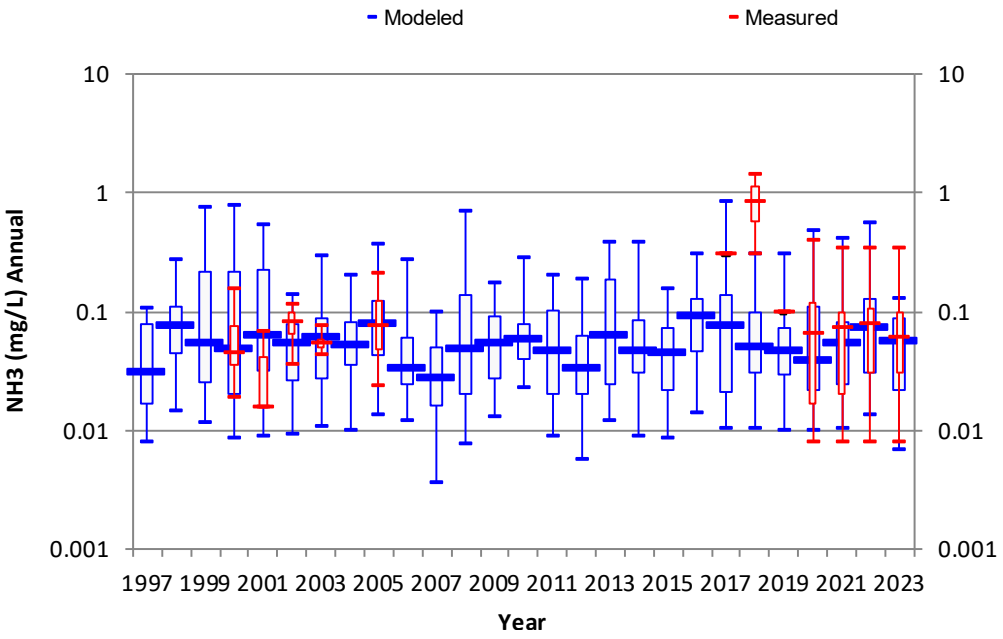


Figure A-328 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH996 Townsend Canal

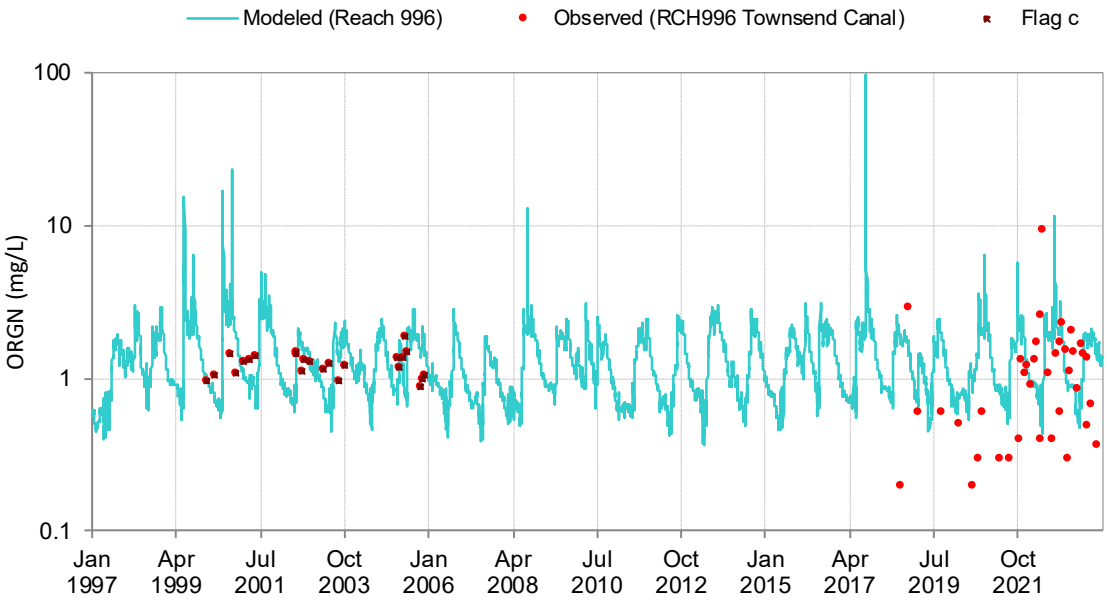


Figure A-329 Modeled Vs Observed ORGN (mg/L) at RCH996 Townsend Canal

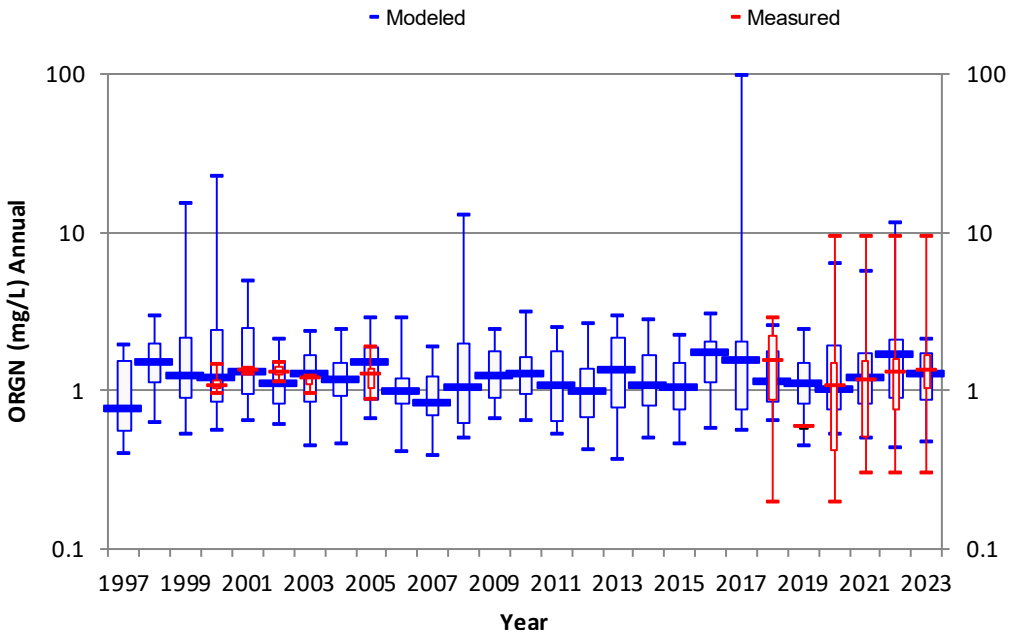


Figure A-330 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH996 Townsend Canal

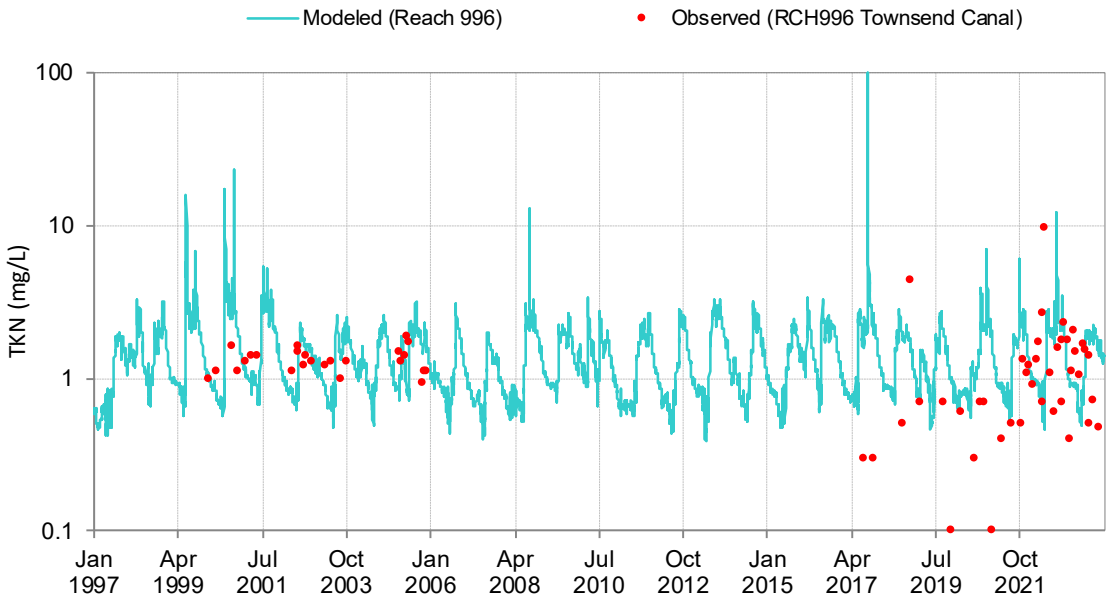


Figure A-331 Modeled Vs Observed TKN (mg/L) at RCH996 Townsend Canal

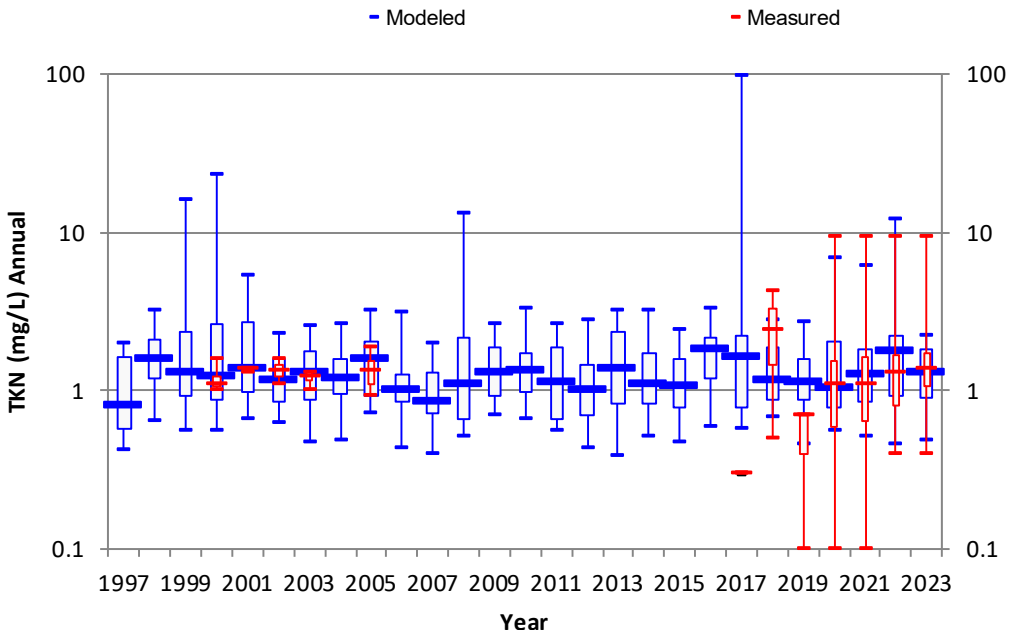


Figure A-332 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH996 Townsend Canal

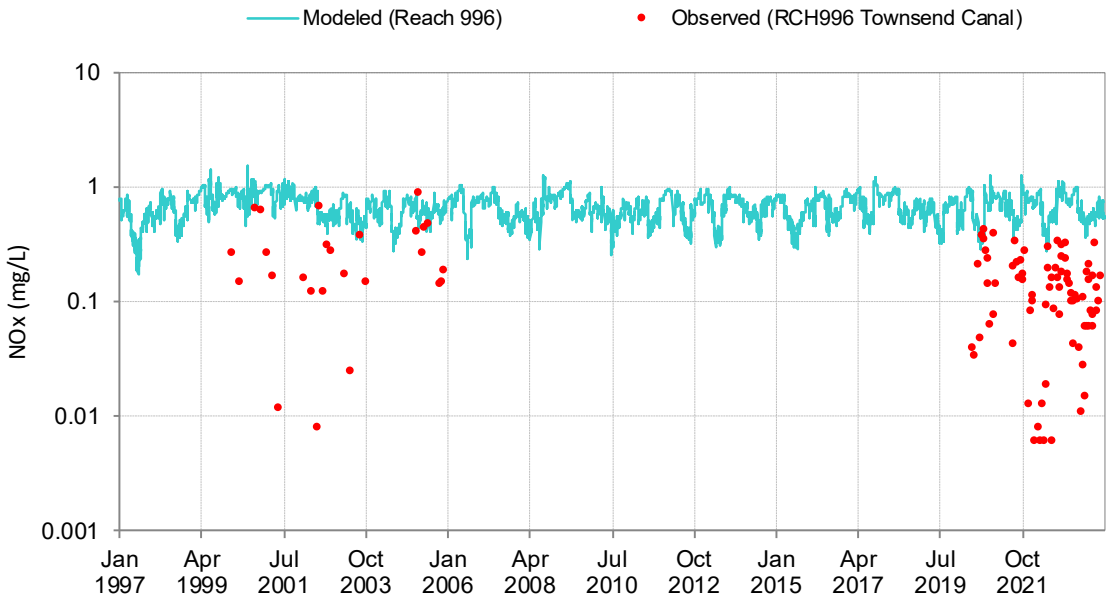


Figure A-333 Modeled Vs Observed NOx (mg/L) at RCH996 Townsend Canal

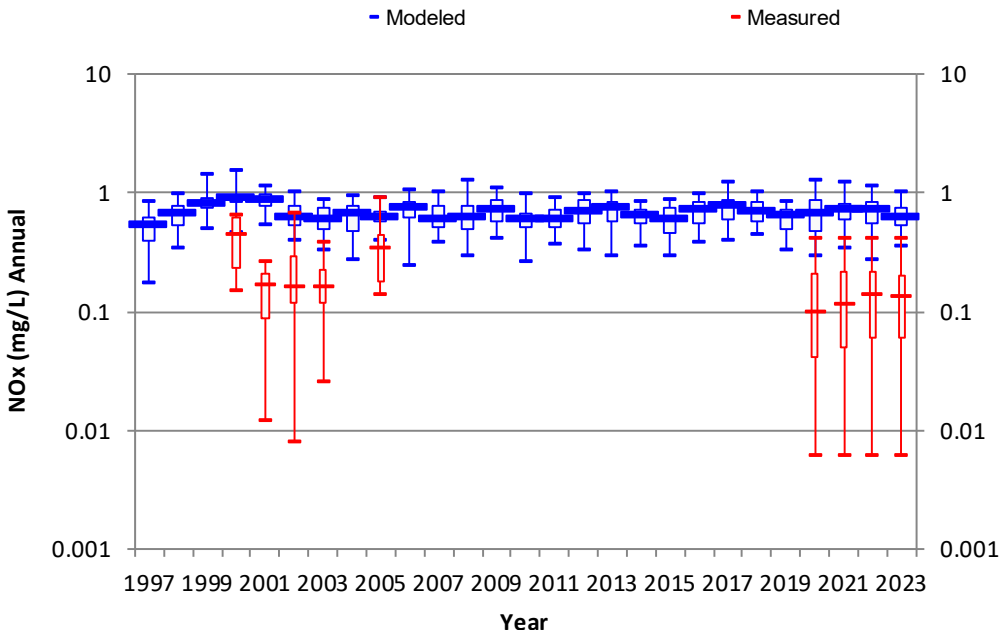


Figure A-334 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH996 Townsend Canal

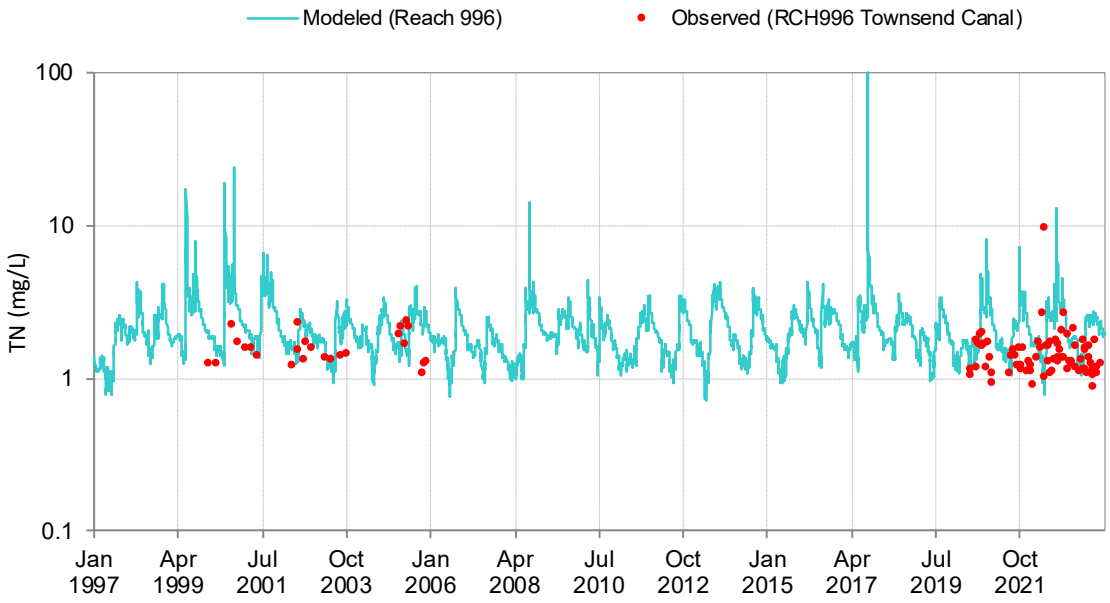


Figure A-335 Modeled Vs Observed TN (mg/L) at RCH996 Townsend Canal

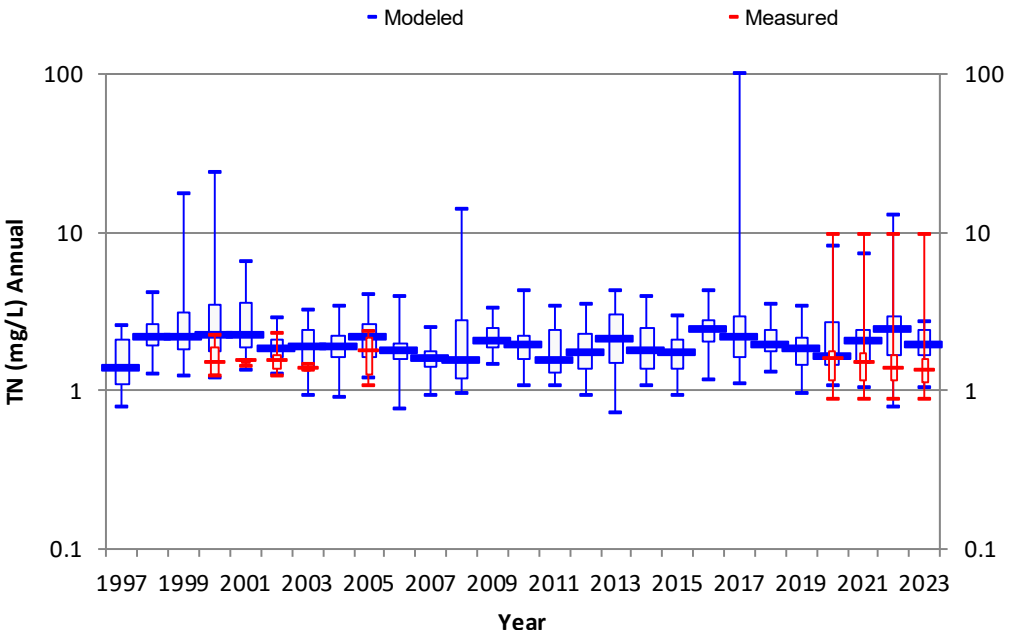


Figure A-336 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH996 Townsend Canal

Table A- 94 Monthly TN Concentration Comparisons at RCH996 Townsend Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.31	1.76	33.8	G
Feb	1.33	1.74	30.5	G
Mar	1.62	1.78	9.3	VG
Apr	1.50	1.65	9.7	VG
May	1.68	1.42	-15.5	VG
Jun	2.09	1.75	-16.4	VG
Jul	1.49	2.39	60.7	P
Aug	1.34	2.62	96.6	P
Sep	1.53	3.17	107.9	P
Oct	1.39	2.81	101.8	P
Nov	1.53	2.48	62.8	P
Dec	1.47	2.04	38.6	G
Average*	1.52	2.13	40.1	G
Median**	1.49	1.91	27.6	VG
R^2	N/A	N/A	0.09	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 95 Annual TN Concentration Comparisons at RCH996 Townsend Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.58	N/A	N/A
1998	N/A	2.34	N/A	N/A
1999	N/A	2.65	N/A	N/A
2000	1.62	2.81	73.2	P
2001	1.51	2.71	78.9	P
2002	1.60	1.88	17.6	VG
2003	1.38	1.96	41.8	G
2004	N/A	1.95	N/A	N/A
2005	1.74	2.18	25.6	VG
2006	N/A	1.88	N/A	N/A
2007	N/A	1.63	N/A	N/A
2008	N/A	2.15	N/A	N/A
2009	N/A	2.18	N/A	N/A
2010	N/A	2.04	N/A	N/A
2011	N/A	1.87	N/A	N/A
2012	N/A	1.89	N/A	N/A
2013	N/A	2.24	N/A	N/A
2014	N/A	1.98	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	1.80	N/A	N/A
2016	N/A	2.42	N/A	N/A
2017	N/A	2.87	N/A	N/A
2018	N/A	2.09	N/A	N/A
2019	N/A	1.88	N/A	N/A
2020	1.47	2.10	42.7	G
2021	1.29	2.14	65.7	P
2022	1.82	2.45	35.0	G
2023	1.34	1.97	46.3	F
Average*	1.53	2.13	39.4	G
Median**	1.51	2.09	38.0	G
R^2	N/A	N/A	0.16	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.
** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 96 Daily TN Concentration Comparisons at RCH996 Townsend Canal

Statistic	Results	Rating
Count (number)	101	N/A
Average Error (%)	64.6	P
Median Error (%)	51.9	F
RMSE (mg/L)	1.58	N/A
R^2	0.00	P

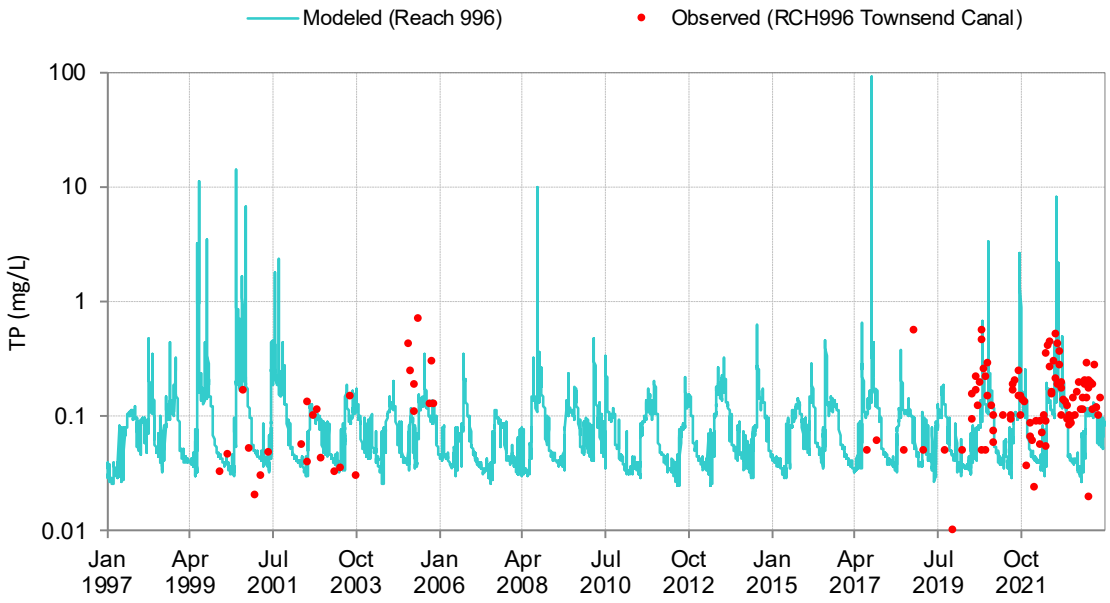


Figure A-337 Modeled Vs Observed TP (mg/L) at RCH996 Townsend Canal

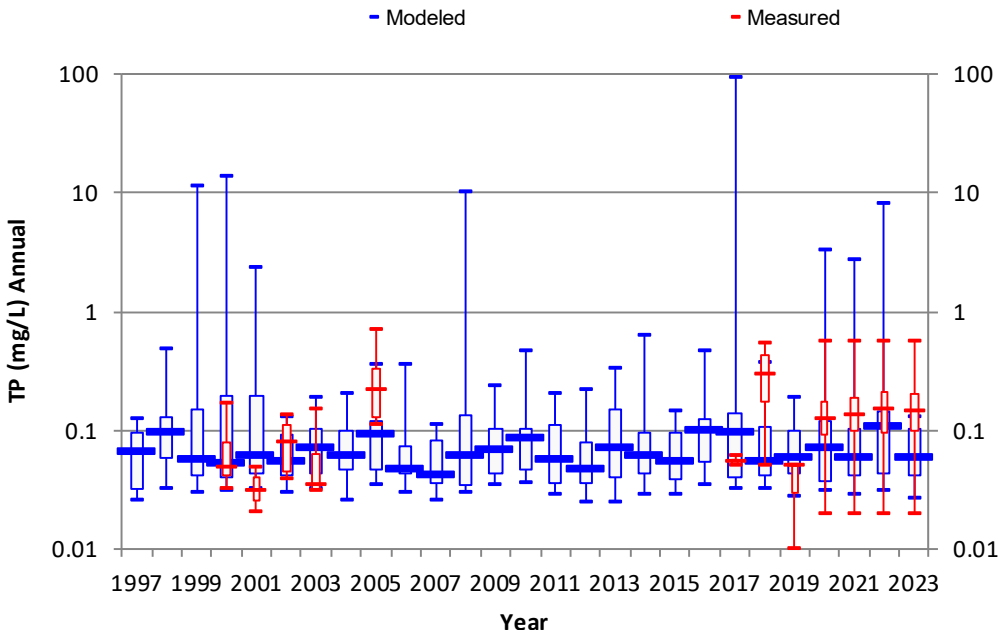


Figure A-338 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH996 Townsend Canal

Table A- 97 Monthly TP Concentration Comparisons at RCH996 Townsend Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.07	0.05	-33.1	G
Feb	0.13	0.05	-58.8	F
Mar	0.10	0.05	-45.8	F
Apr	0.09	0.05	-47.6	F
May	0.11	0.04	-60.4	P
Jun	0.20	0.12	-39.7	G
Jul	0.22	0.16	-24.9	VG
Aug	0.15	0.17	13.4	VG
Sep	0.24	0.40	67.6	P
Oct	0.19	0.14	-27.9	VG
Nov	0.17	0.10	-40.1	G
Dec	0.08	0.07	-21.4	VG
Average*	0.15	0.12	-19.8	VG
Median**	0.14	0.08	-39.3	G
R^2	N/A	N/A	0.61	F

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table A- 98 Annual TP Concentration Comparisons at RCH996 Townsend Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.07	N/A	N/A
1998	N/A	0.11	N/A	N/A
1999	N/A	0.20	N/A	N/A
2000	0.07	0.24	225.0	P
2001	0.03	0.14	326.0	P
2002	0.08	0.07	-17.0	VG
2003	0.06	0.08	26.2	VG
2004	N/A	0.07	N/A	N/A
2005	0.28	0.09	-68.0	P
2006	N/A	0.07	N/A	N/A
2007	N/A	0.06	N/A	N/A
2008	N/A	0.15	N/A	N/A
2009	N/A	0.08	N/A	N/A
2010	N/A	0.09	N/A	N/A
2011	N/A	0.07	N/A	N/A
2012	N/A	0.07	N/A	N/A
2013	N/A	0.10	N/A	N/A
2014	N/A	0.08	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	0.07	N/A	N/A
2016	N/A	0.10	N/A	N/A
2017	0.06	0.56	925.1	P
2018	0.30	0.08	-74.9	P
2019	0.04	0.07	99.3	P
2020	0.19	0.11	-40.9	G
2021	0.13	0.10	-24.4	VG
2022	0.19	0.16	-16.3	VG
2023	0.14	0.07	-50.6	F
Average*	0.13	0.12	-11.6	VG
Median**	0.11	0.08	-22.7	VG
R^2	N/A	N/A	0.10	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table A- 99 Daily TP Concentration Comparisons at RCH996 Townsend Canal

Statistic	Results	Rating
Count (number)	121	N/A
Average Error (%)	6.6	VG
Median Error (%)	-33.8	G
RMSE (mg/L)	0.31	N/A
R^2	0.13	P

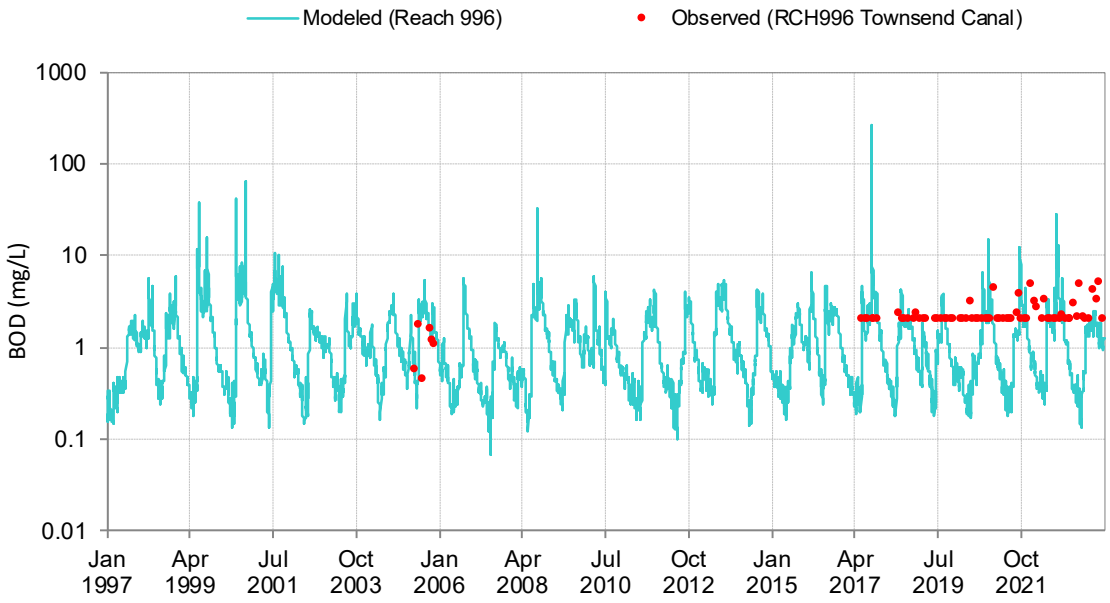


Figure A-339 Modeled Vs Observed BOD (mg/L) at RCH996 Townsend Canal

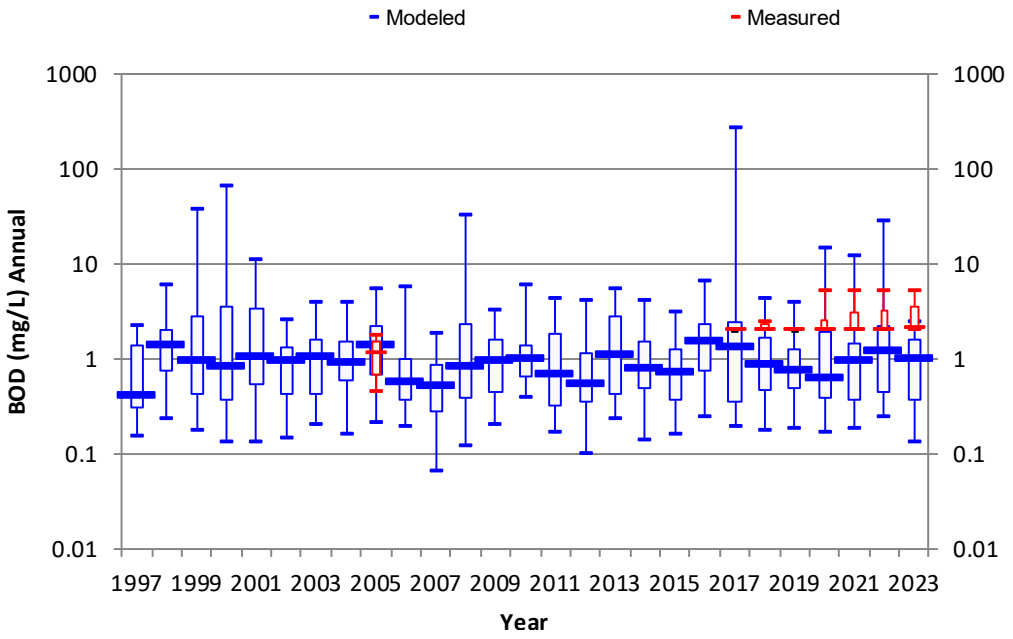


Figure A-340 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH996 Townsend Canal

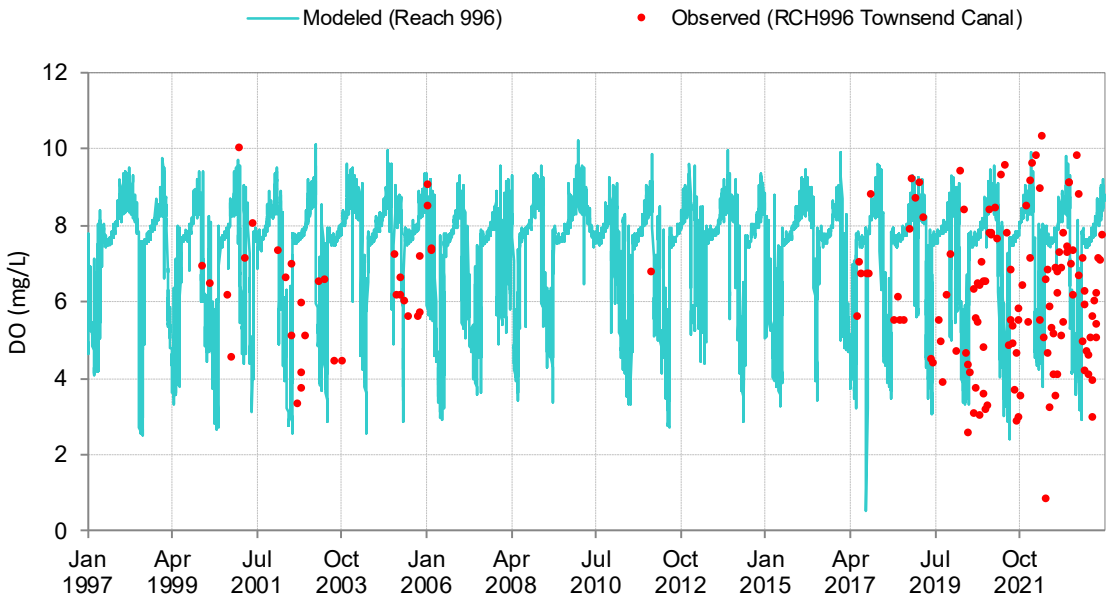


Figure A-341 Modeled Vs Observed DO (mg/L) at RCH996 Townsend Canal

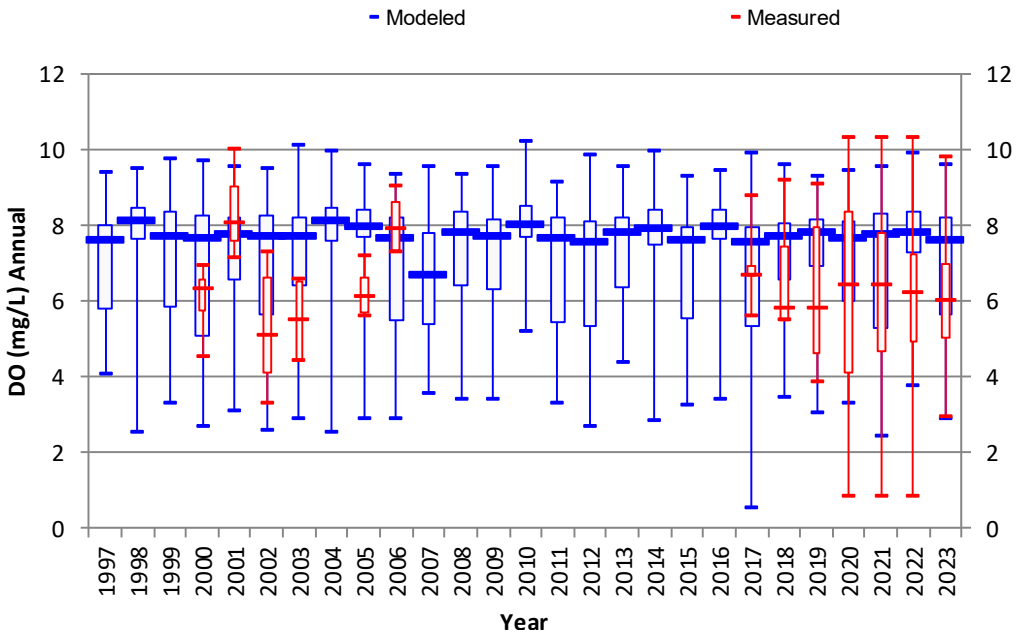


Figure A-342 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH996 Townsend Canal

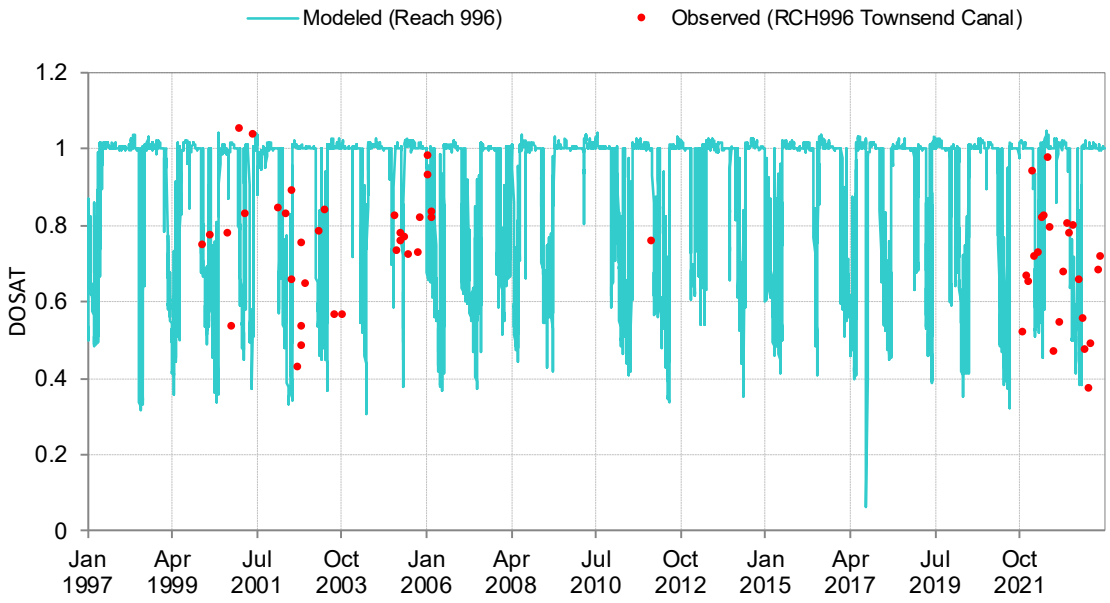


Figure A-343 Modeled Vs Observed DOSAT at RCH996 Townsend Canal

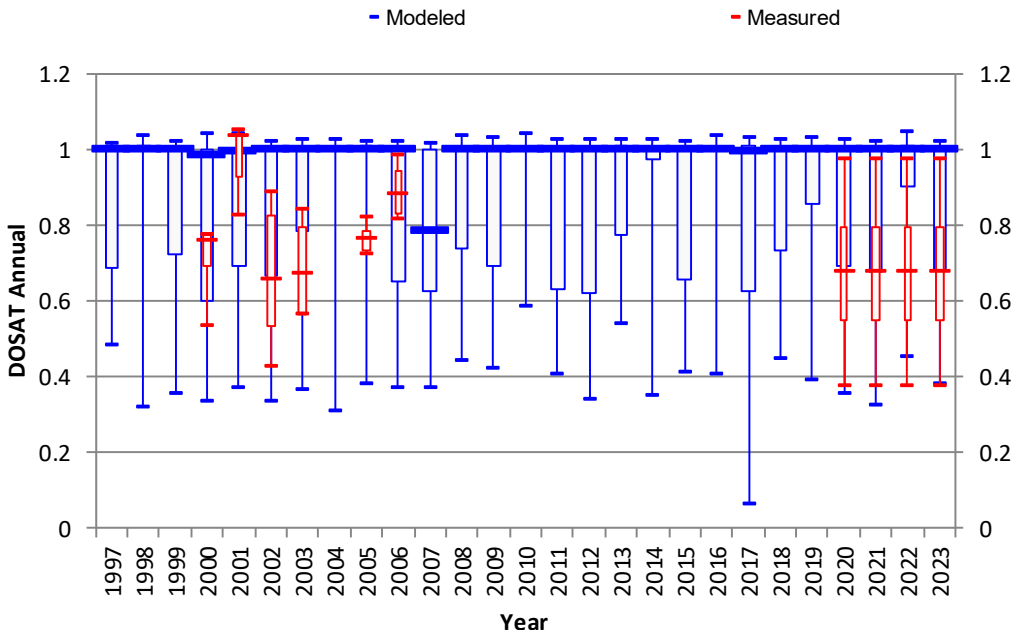


Figure A-344 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH996 Townsend Canal

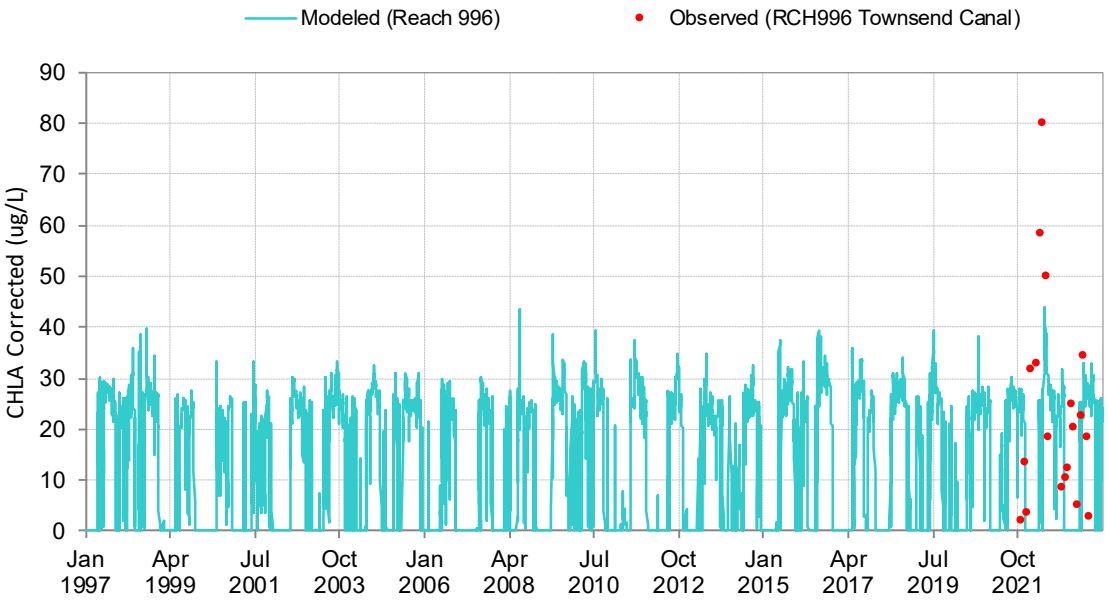


Figure A-345 Modeled Vs Observed CHLA Corrected (ug/L) at RCH996 Townsend Canal

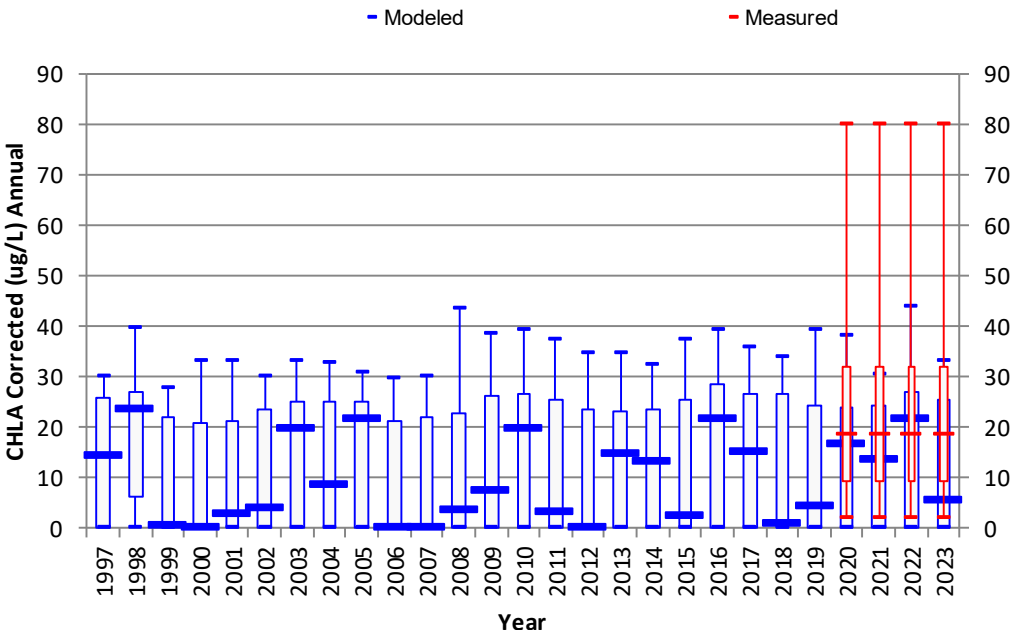


Figure A-346 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH996 Townsend Canal

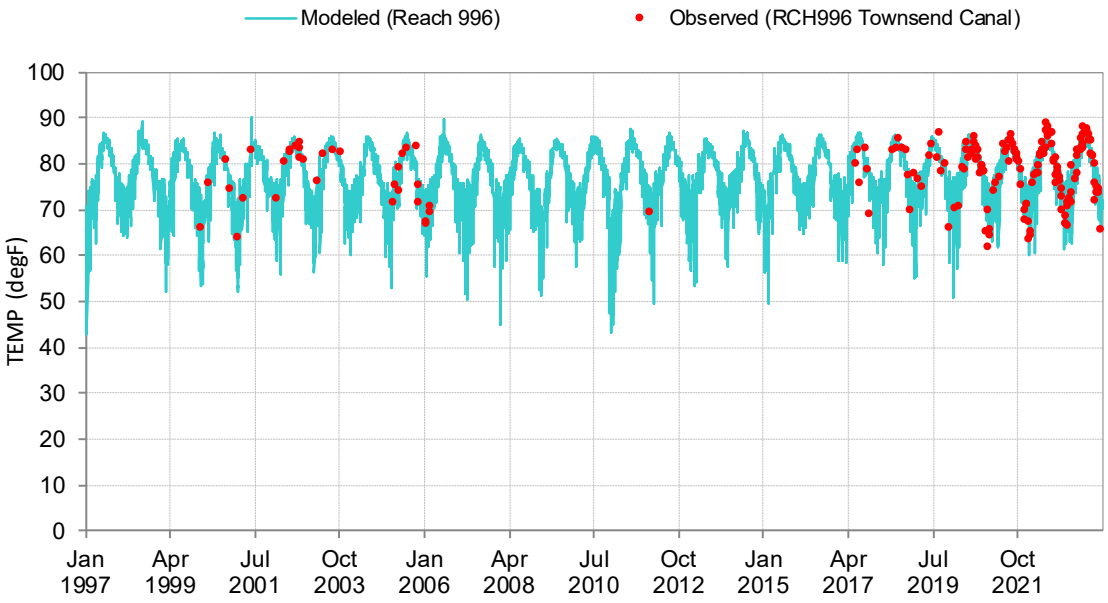


Figure A-347 Modeled Vs Observed TEMP (deg F) at RCH996 Townsend Canal

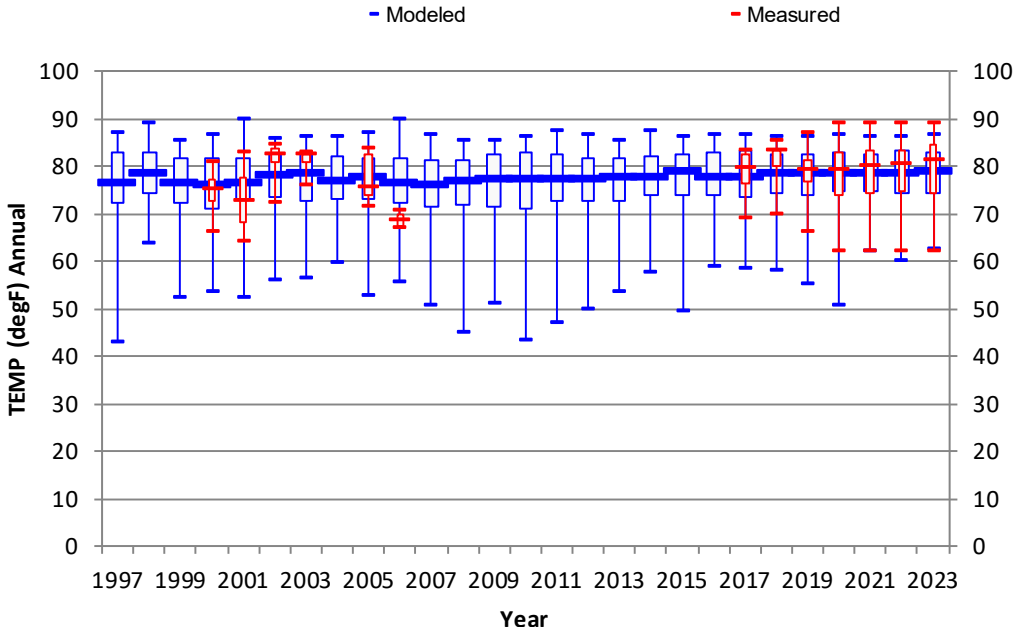


Figure A-348 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH996 Townsend Canal

APPENDIX B: 2025 HSPF WATER QUALITY VALIDATION RESULTS

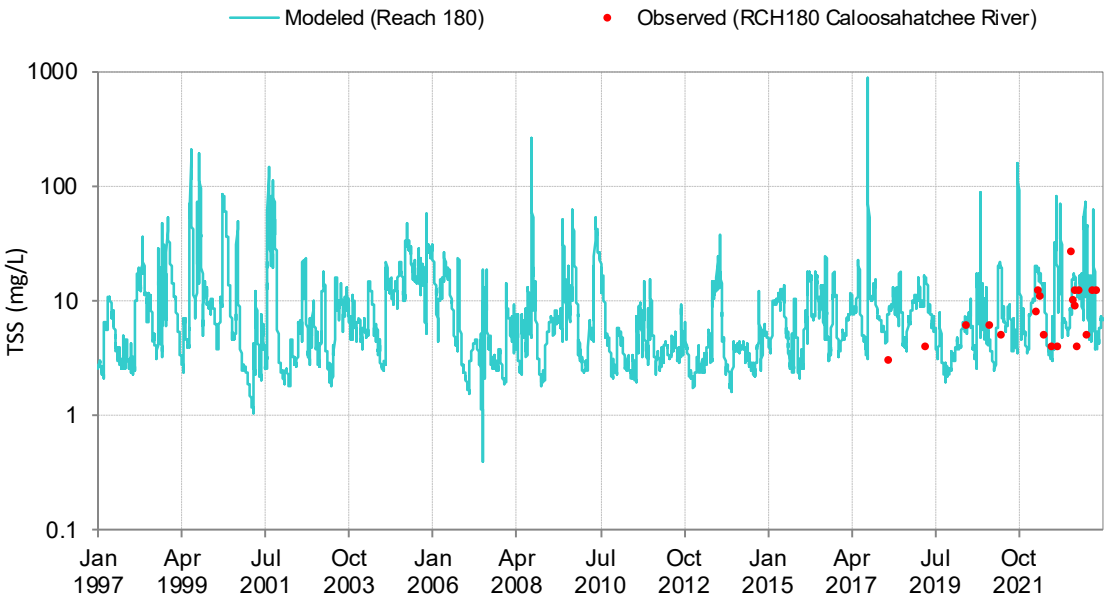


Figure B-1 Modeled Vs Observed TSS (mg/L) at RCH180 Caloosahatchee River

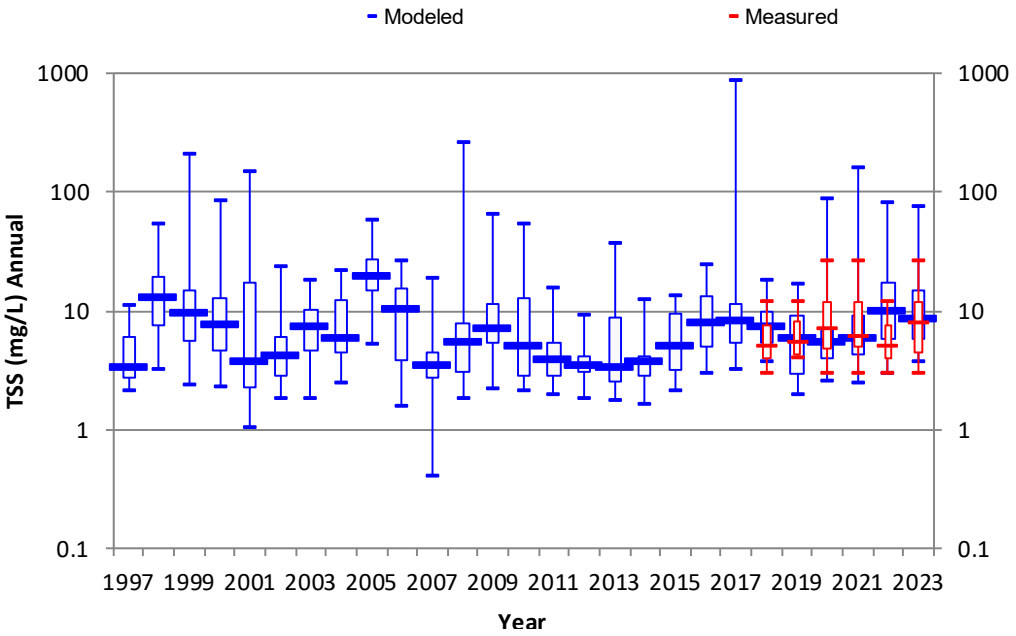


Figure B-2 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH180 Caloosahatchee River

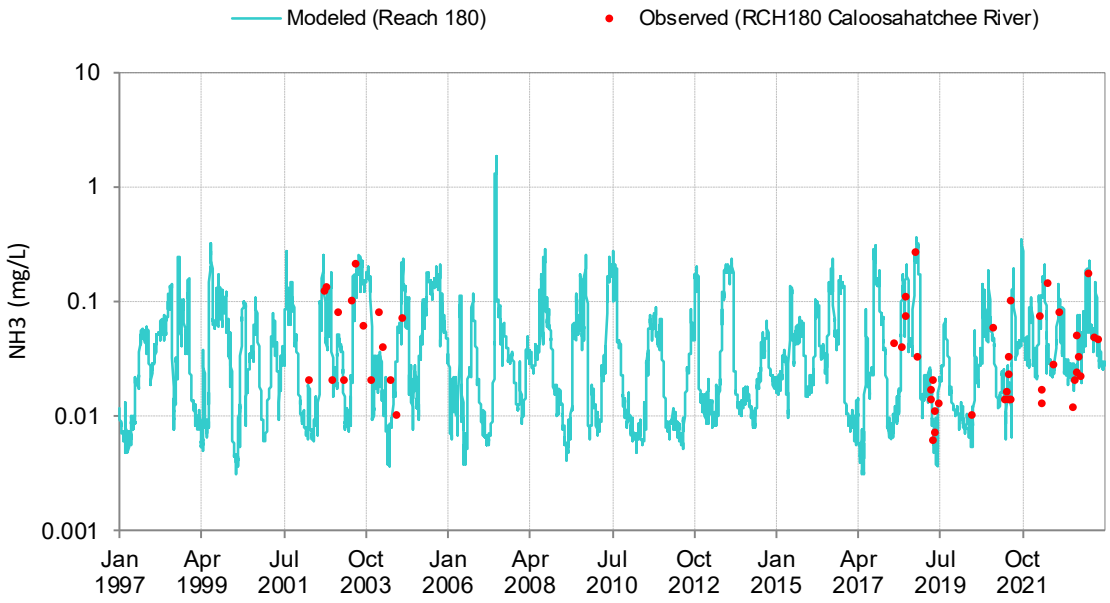


Figure B-3 Modeled Vs Observed NH3 (mg/L) at RCH180 Caloosahatchee River

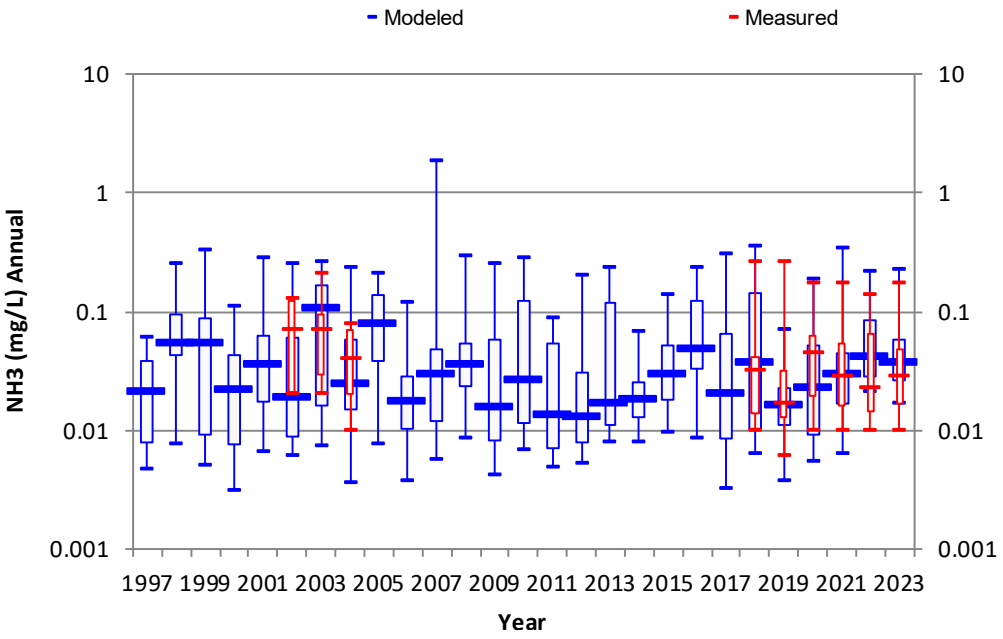


Figure B-4 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH180 Caloosahatchee River

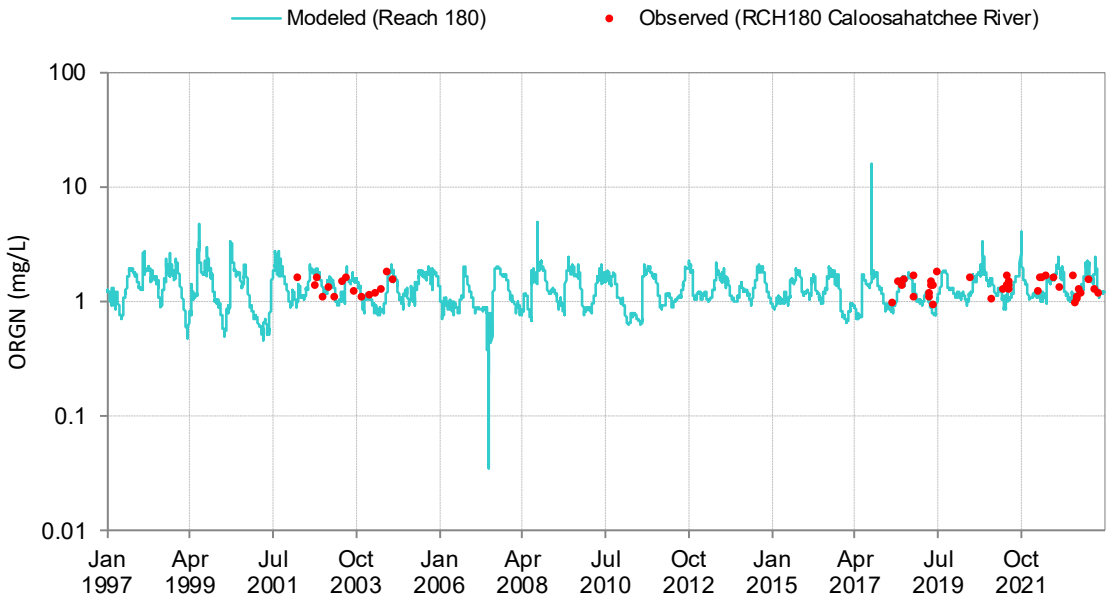


Figure B-5 Modeled Vs Observed ORGN (mg/L) at RCH180 Caloosahatchee River

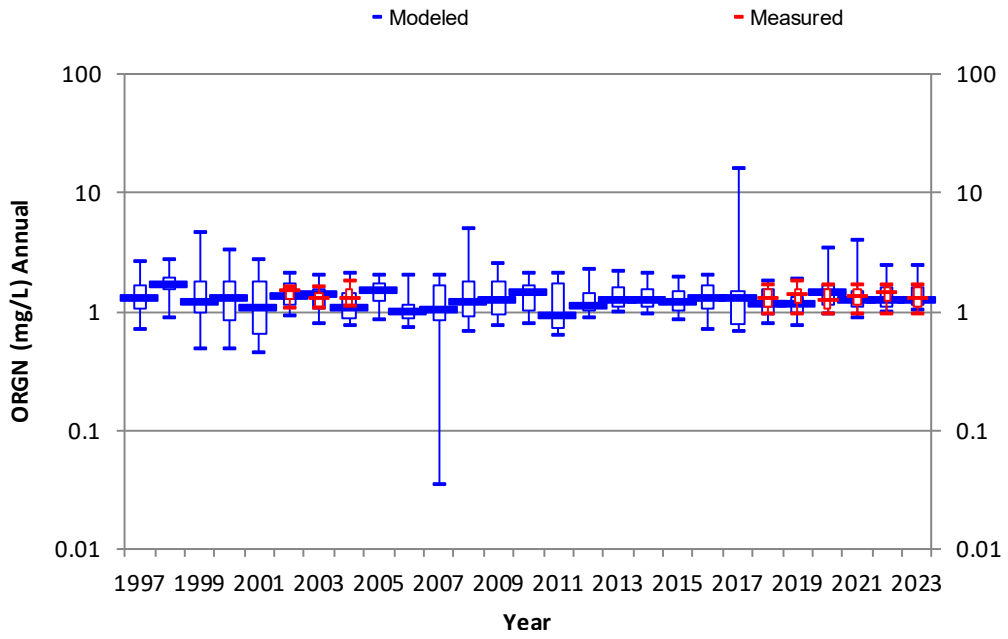


Figure B-6 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH180 Caloosahatchee River

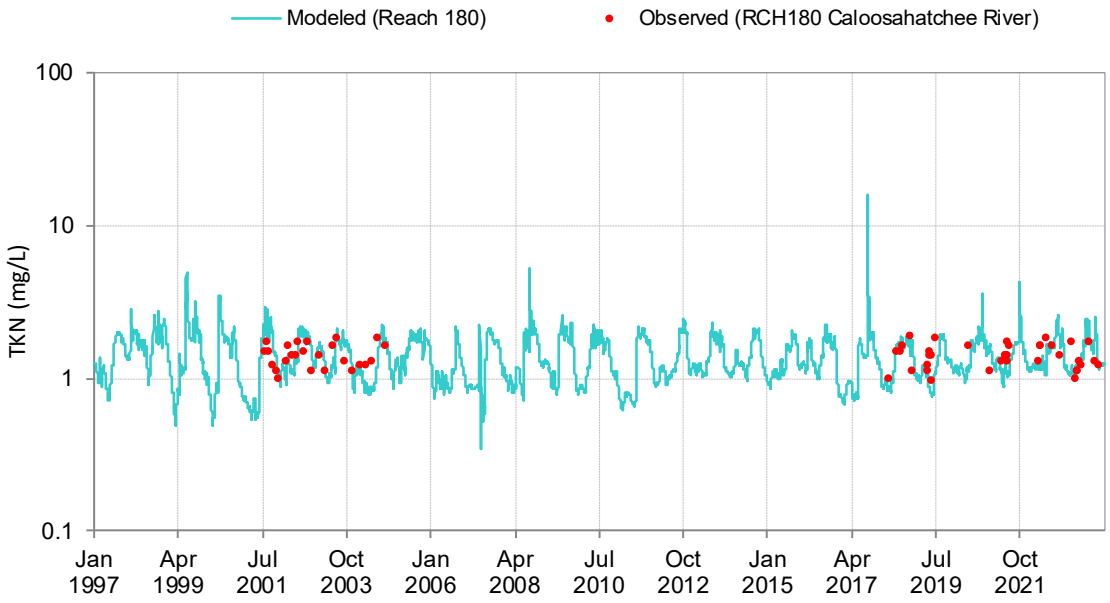


Figure B-7 Modeled Vs Observed TKN (mg/L) at RCH180 Caloosahatchee River

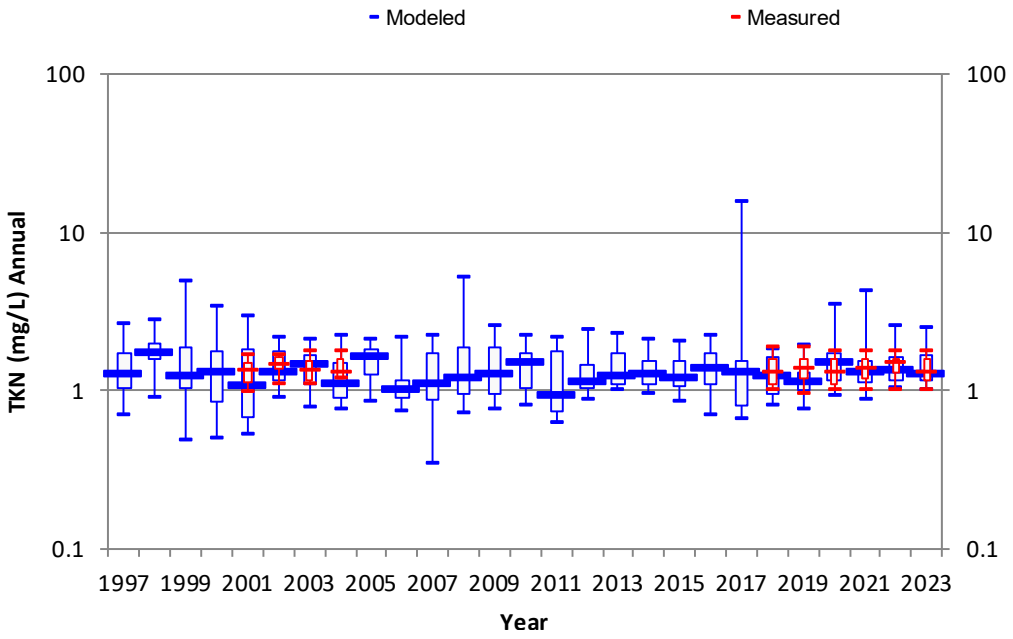


Figure B-8 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH180 Caloosahatchee River

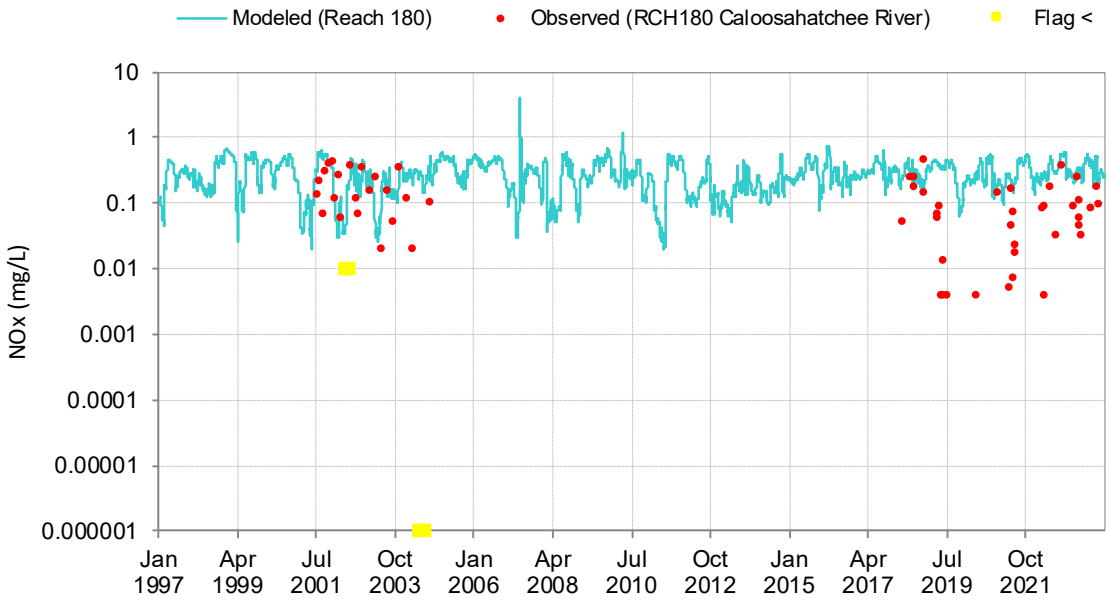


Figure B-9 Modeled Vs Observed NOx (mg/L) at RCH180 Caloosahatchee River

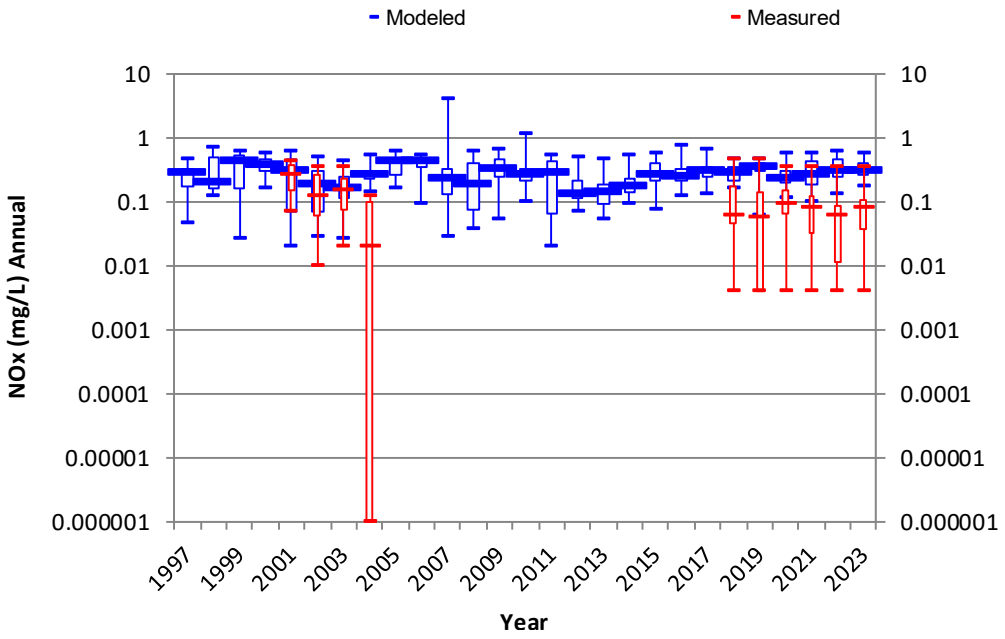


Figure B-10 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH180 Caloosahatchee River

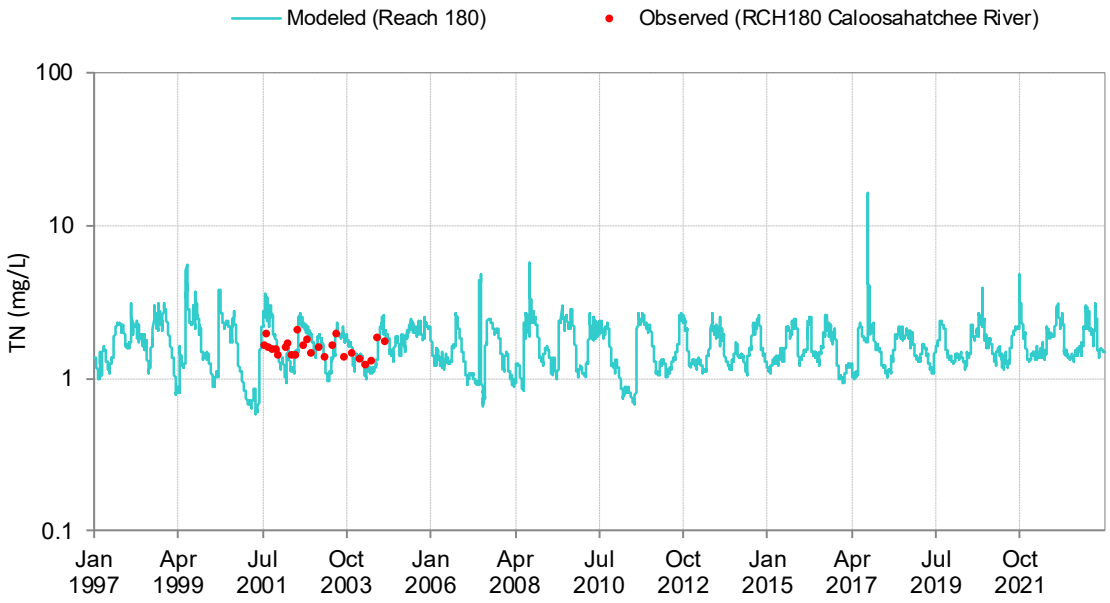


Figure B-11 Modeled Vs Observed TN (mg/L) at RCH180 Caloosahatchee River

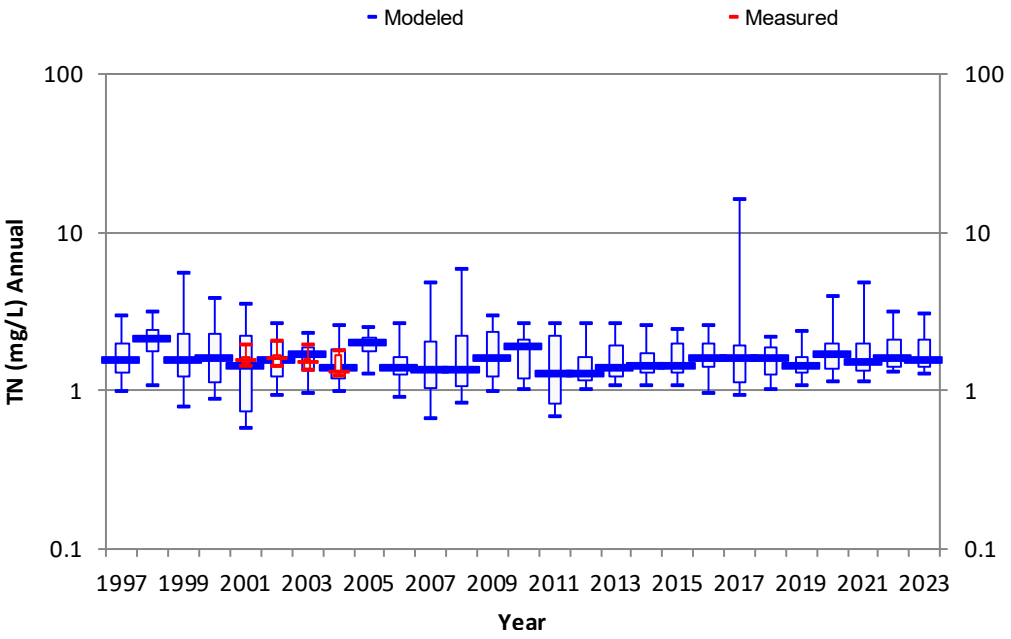


Figure B-12 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH180 Caloosahatchee River

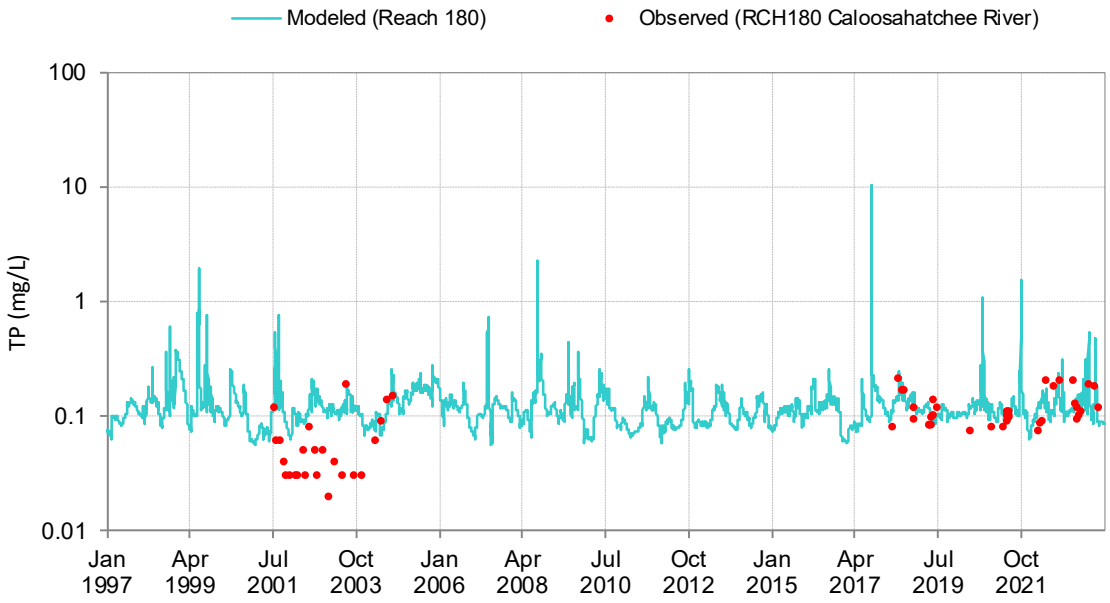


Figure B-13 Modeled Vs Observed TP (mg/L) at RCH180 Caloosahatchee River

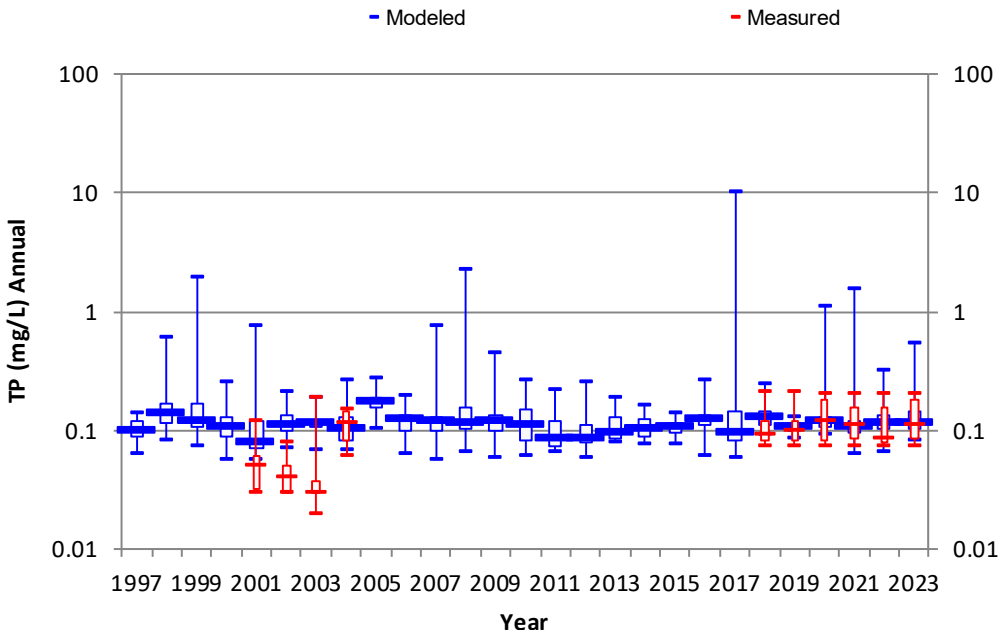


Figure B-14 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH180 Caloosahatchee River

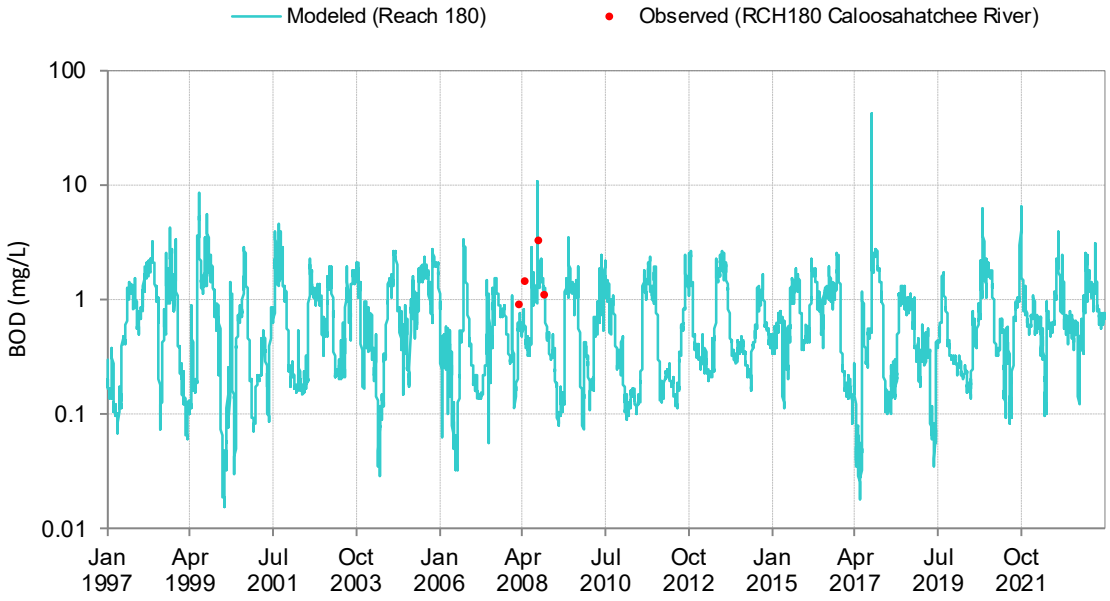


Figure B-15 Modeled Vs Observed BOD (mg/L) at RCH180 Caloosahatchee River

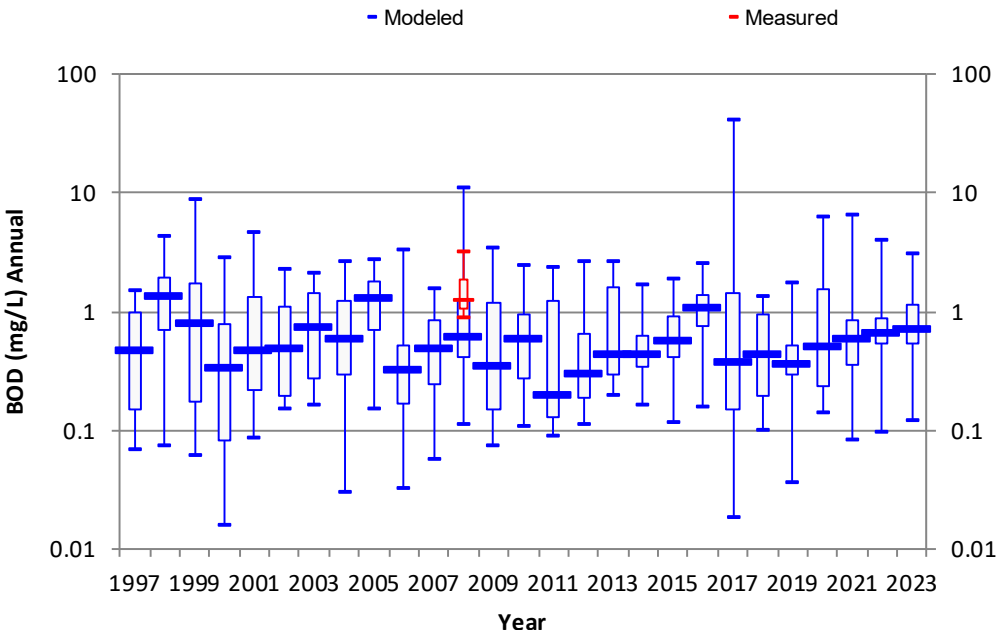


Figure B-16 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH180 Caloosahatchee River

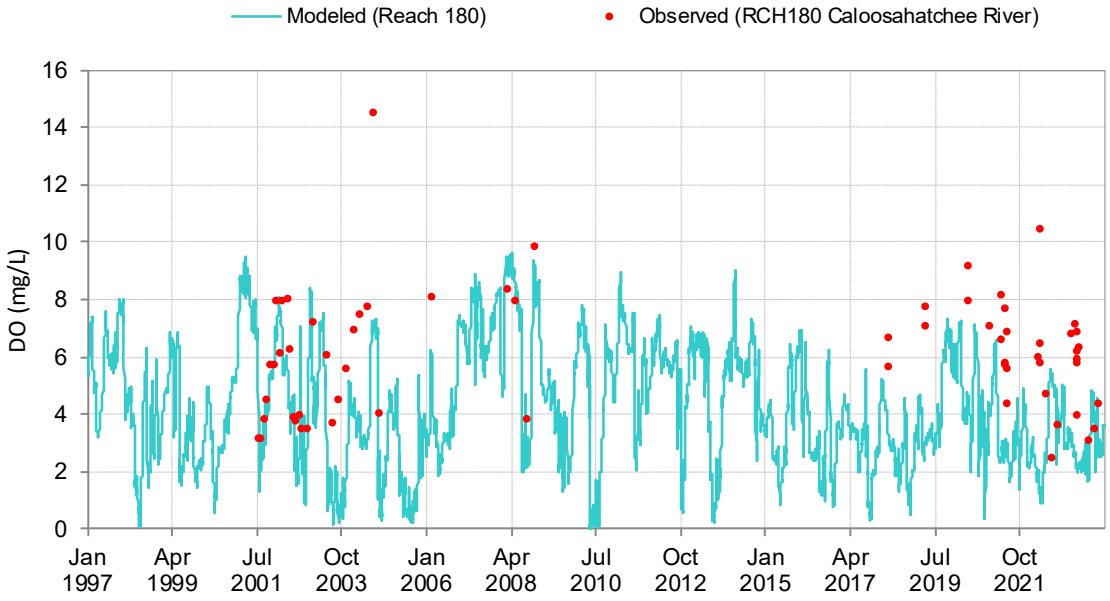


Figure B-17 Modeled Vs Observed DO (mg/L) at RCH180 Caloosahatchee River

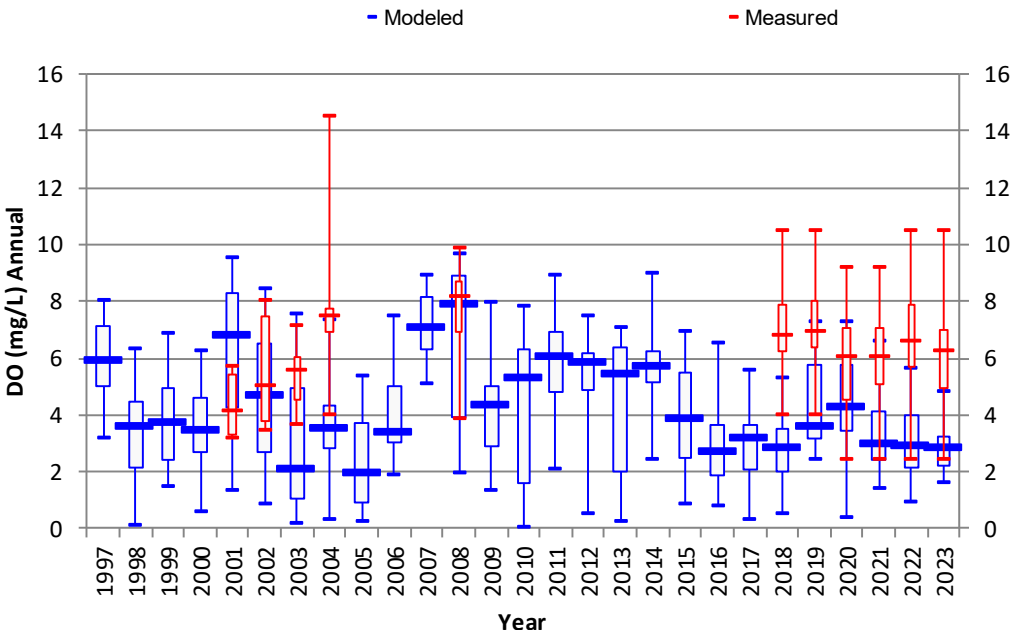


Figure B-18 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH180 Caloosahatchee River

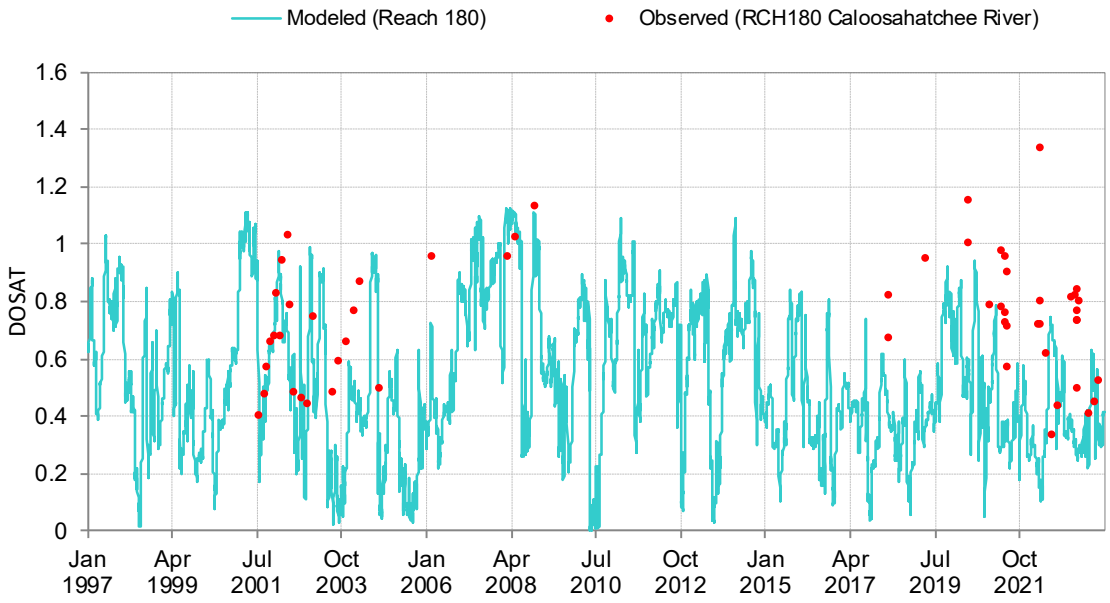


Figure B-19 Modeled Vs Observed DOSAT at RCH180 Caloosahatchee River

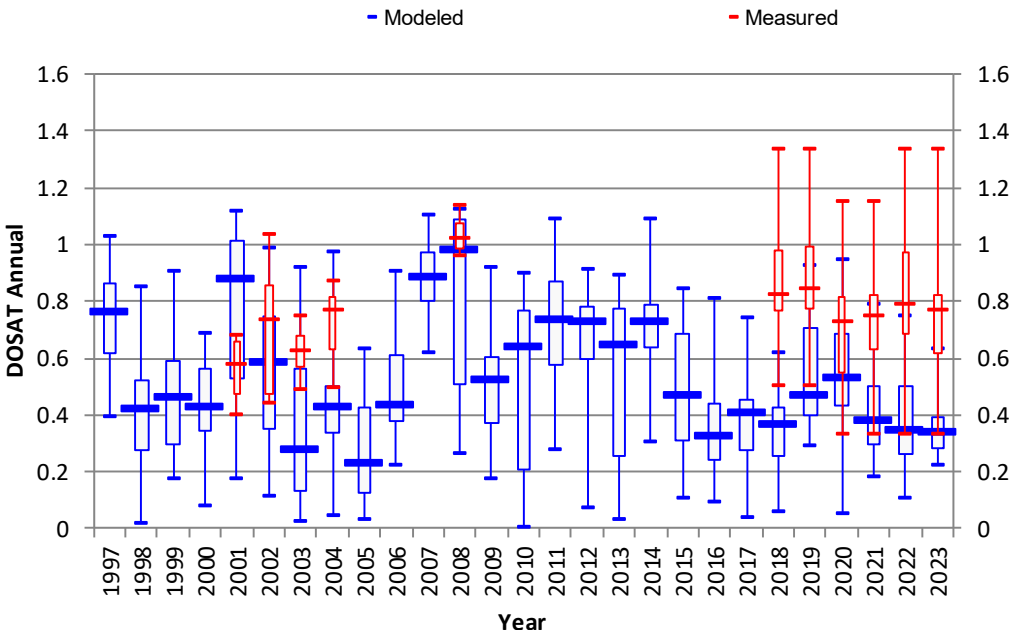


Figure B-20 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH180 Caloosahatchee River

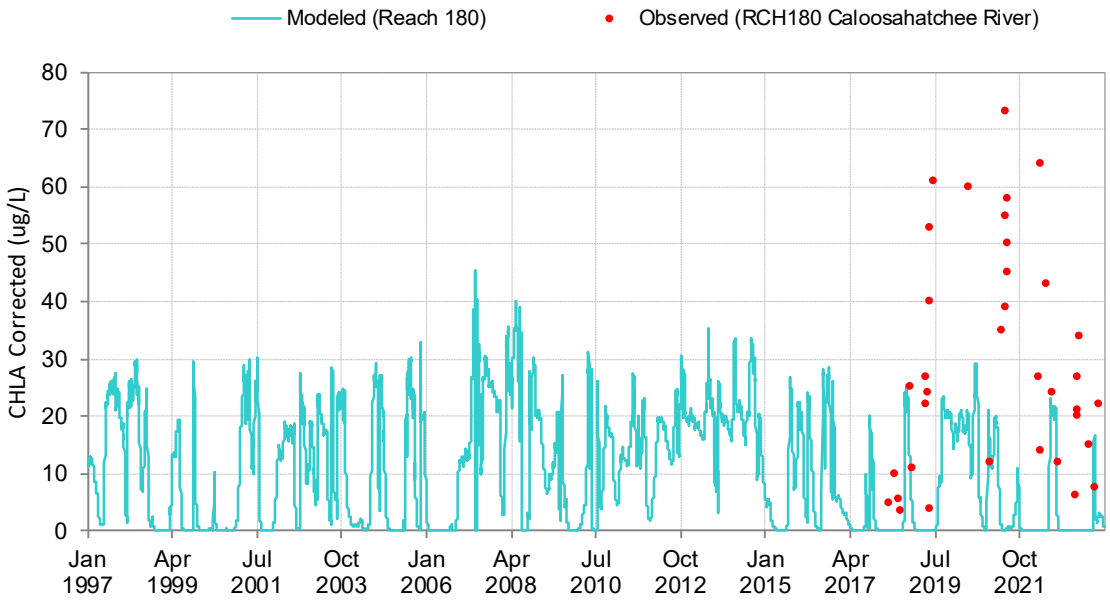


Figure B-21 Modeled Vs Observed CHLA Corrected (ug/L) at RCH180 Caloosahatchee River

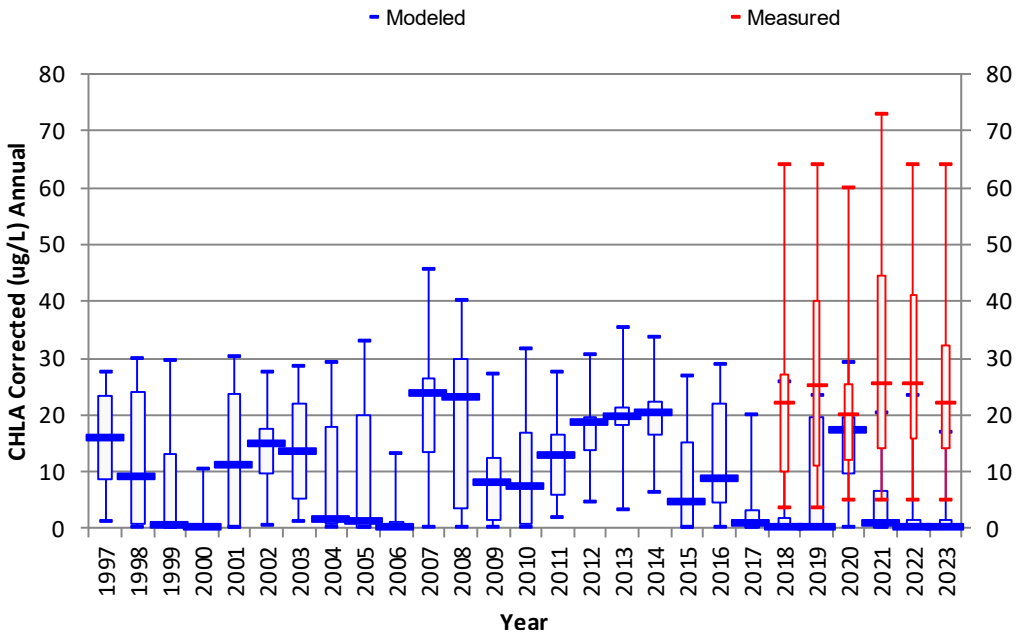


Figure B-22 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH180 Caloosahatchee River

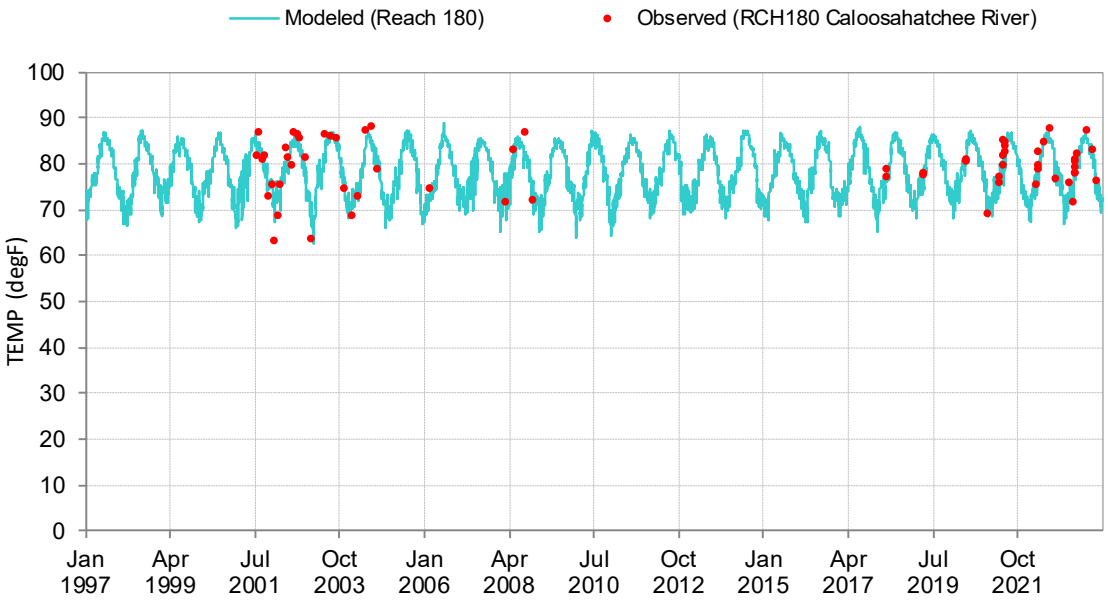


Figure B-23 Modeled Vs Observed TEMP (deg F) at RCH180 Caloosahatchee River

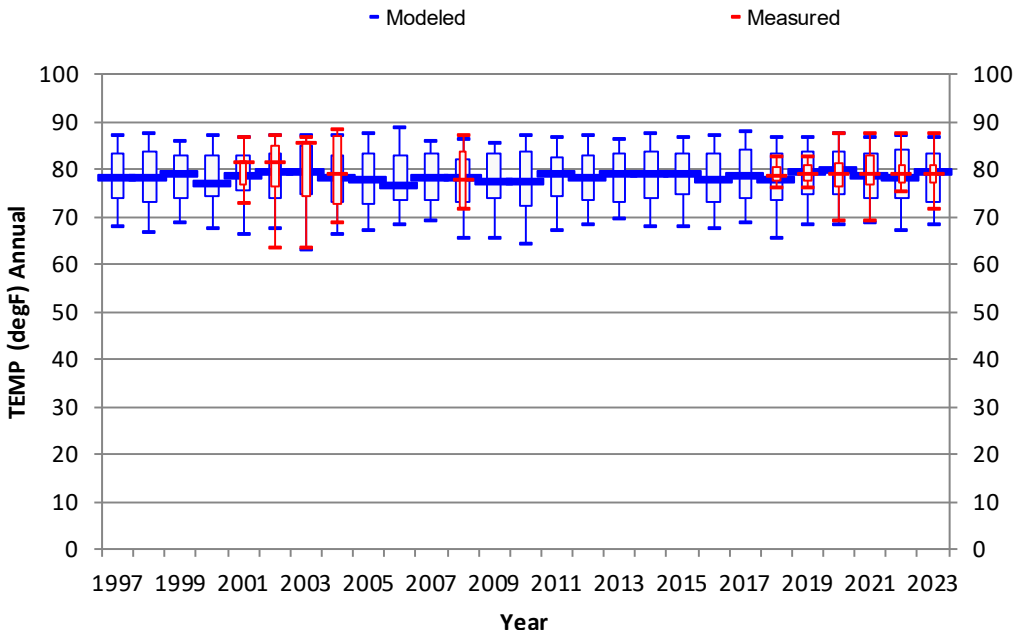


Figure B-24 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH180 Caloosahatchee River

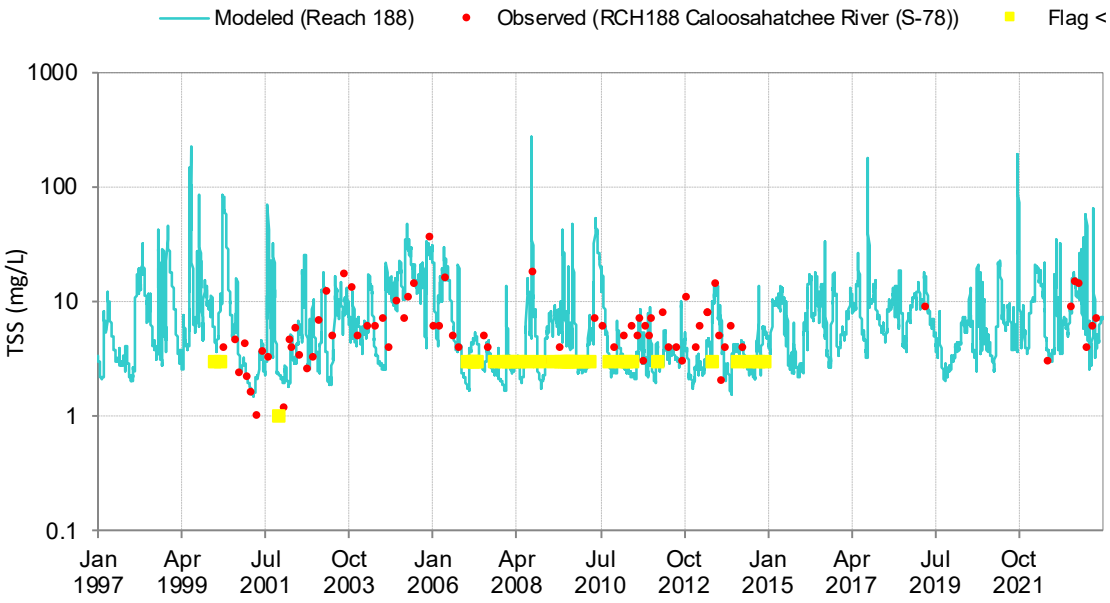


Figure B-25 Modeled Vs Observed TSS (mg/L) at RCH188 Caloosahatchee River (S-78)

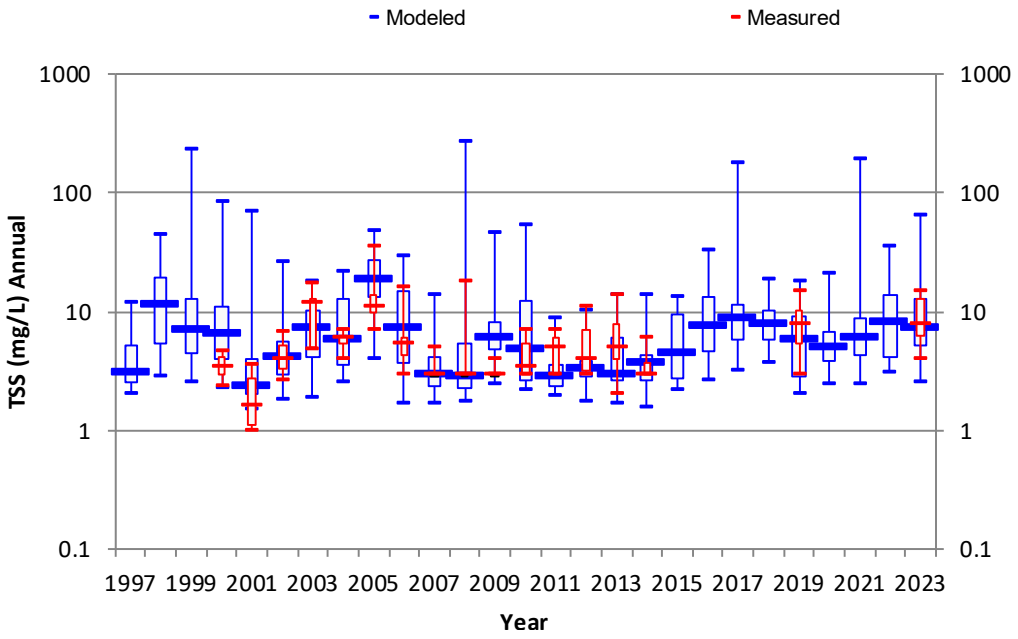


Figure B-26 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH188 Caloosahatchee River (S-78)

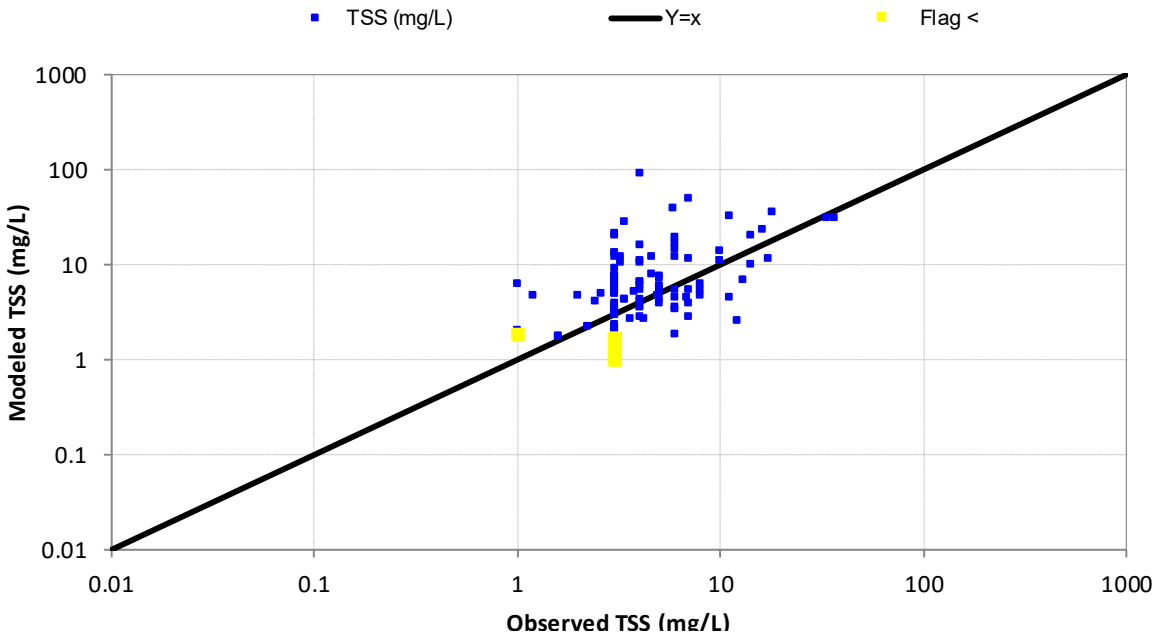


Figure B-27 Concentration at RCH188 Caloosahatchee River (S-78)

Table B- 1 Monthly TSS Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	3.48	6.28	80.7	P
Feb	4.53	6.16	36.1	P
Mar	3.75	7.66	104.3	P
Apr	6.17	9.03	46.3	P
May	6.46	11.76	82.0	P
Jun	4.36	10.57	142.5	P
Jul	4.38	8.72	98.8	P
Aug	6.39	8.13	27.3	F
Sep	4.51	9.52	111.0	P
Oct	4.09	7.49	83.3	P
Nov	7.00	6.84	-2.3	VG
Dec	3.74	6.20	65.9	P
Average*	4.90	8.20	67.1	P
Median**	4.45	7.90	77.6	P
R^2	N/A	N/A	0.12	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 2 Annual TSS Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.12	N/A	N/A
1998	N/A	13.42	N/A	N/A
1999	N/A	12.39	N/A	N/A
2000	3.03	14.18	367.6	P
2001	1.90	5.03	164.5	P
2002	4.34	5.39	24.2	G
2003	10.44	7.52	-27.9	F
2004	5.75	8.01	39.3	P
2005	15.60	19.73	26.5	F
2006	6.42	9.39	46.4	P
2007	2.33	3.47	48.7	P
2008	4.25	8.27	94.6	P
2009	2.15	7.90	266.7	P
2010	3.58	10.34	188.6	P
2011	4.41	3.35	-24.0	G
2012	5.25	3.51	-33.1	F
2013	5.83	4.61	-20.9	G
2014	2.67	3.80	42.6	P
2015	N/A	5.89	N/A	N/A
2016	N/A	8.87	N/A	N/A
2017	N/A	10.85	N/A	N/A
2018	N/A	8.22	N/A	N/A
2019	9.00	6.76	-24.9	G
2020	N/A	5.94	N/A	N/A
2021	N/A	10.27	N/A	N/A
2022	3.00	9.86	228.6	P
2023	9.17	10.36	13.1	VG
Average*	5.51	8.20	48.9	P
Median**	4.38	8.01	83.0	P
R^2	N/A	N/A	0.31	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 3 Daily TSS Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Statistic	Results	Rating
Count (number)	114	N/A
Average Error (%)	77.4	P
Median Error (%)	34.1	F
RMSE (mg/L)	8.18	N/A
R^2	0.13	P

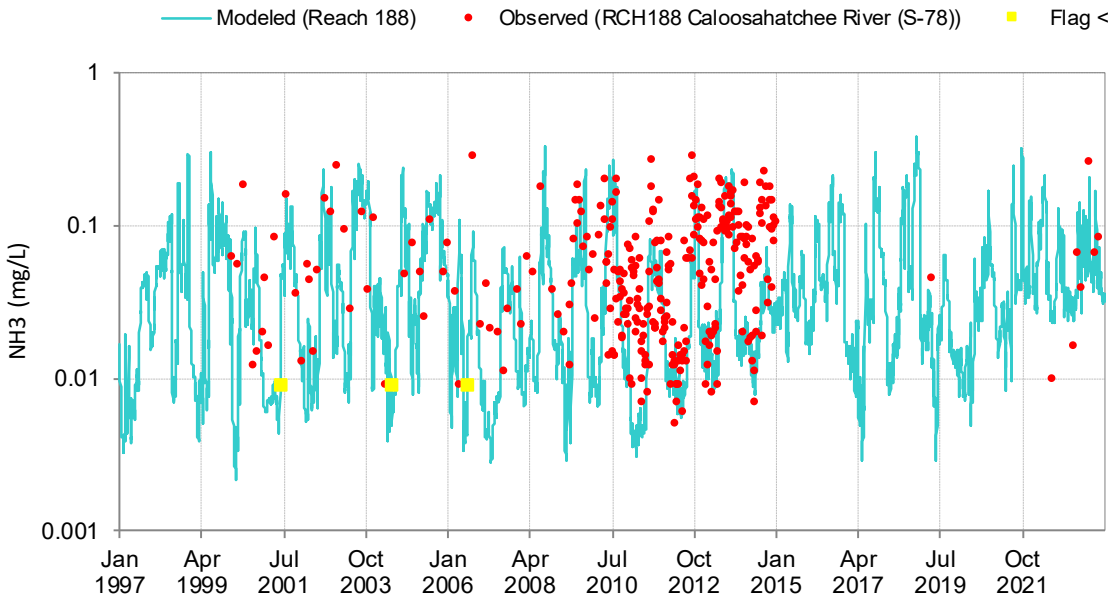


Figure B-28 Modeled Vs Observed NH3 (mg/L) at RCH188 Caloosahatchee River (S-78)

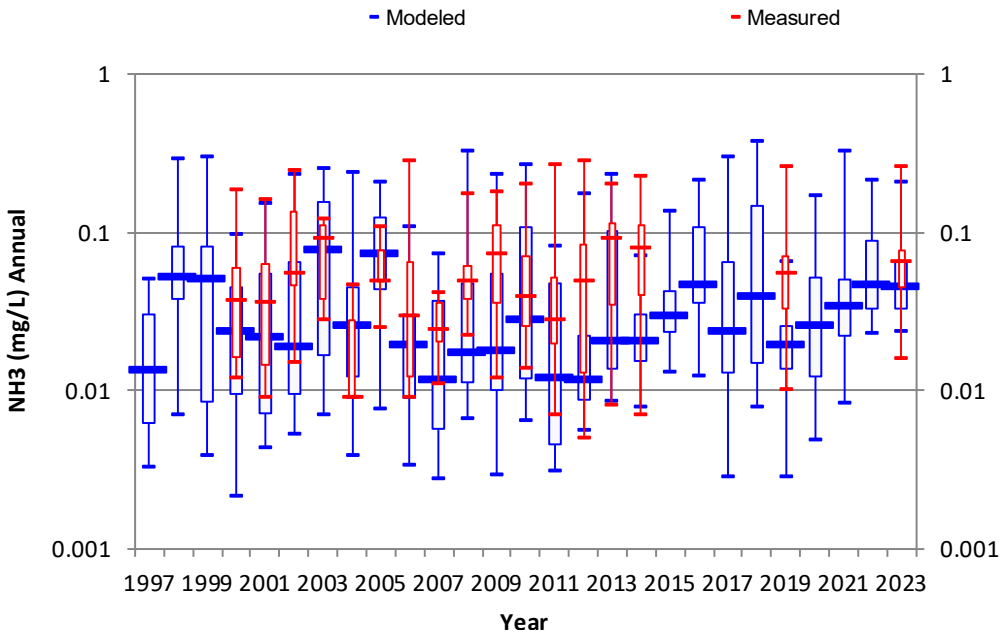


Figure B-29 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH188 Caloosahatchee River (S-78)

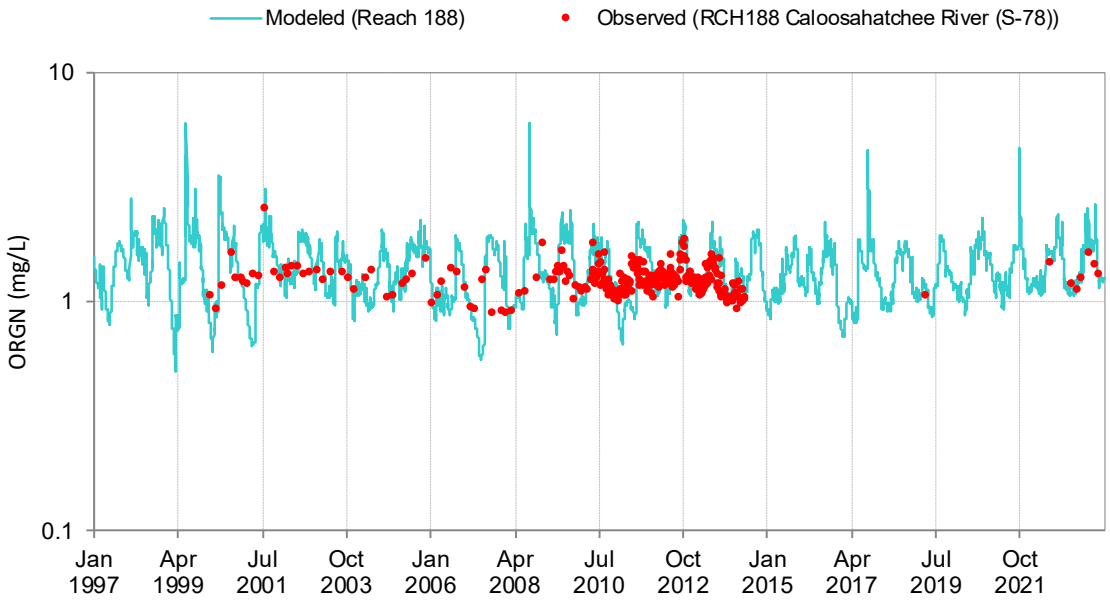


Figure B-30 Modeled Vs Observed ORGN (mg/L) at RCH188 Caloosahatchee River (S-78)

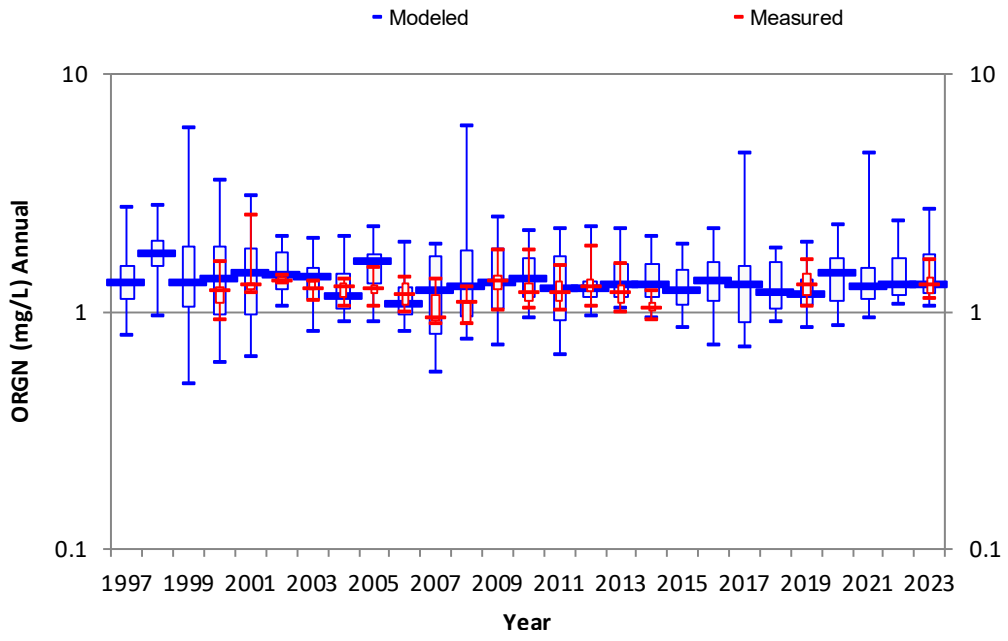


Figure B-31 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH188 Caloosahatchee River (S-78)

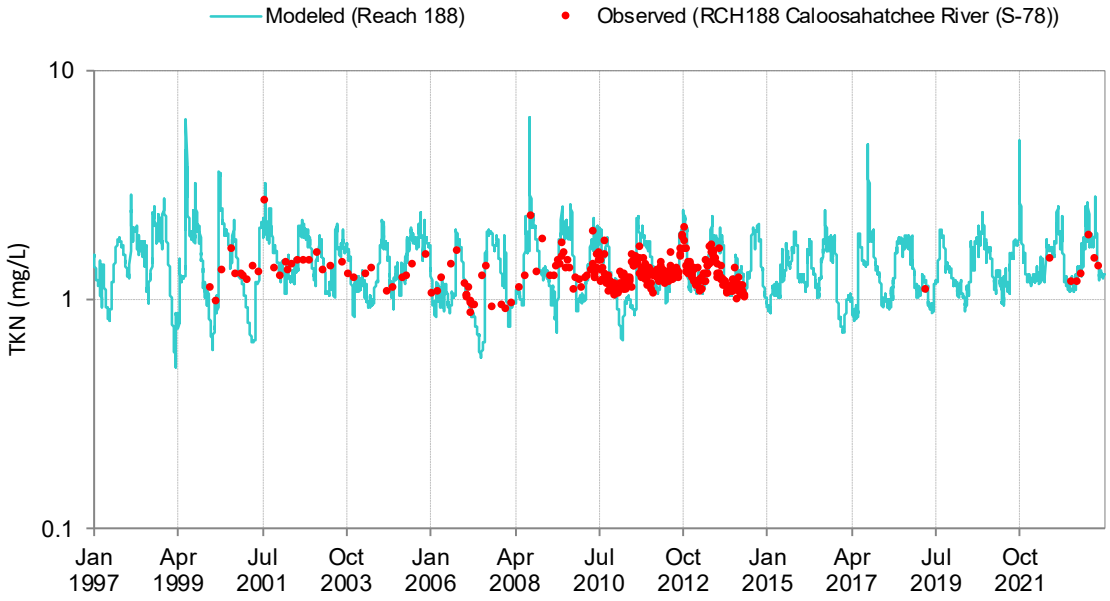


Figure B-32 Modeled Vs Observed TKN (mg/L) at RCH188 Caloosahatchee River (S-78)

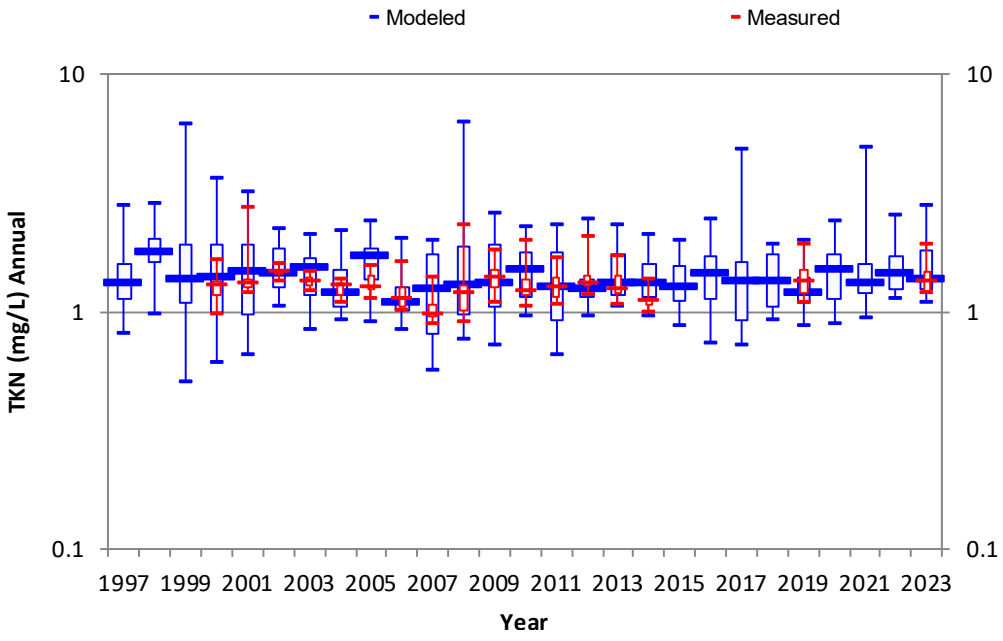


Figure B-33 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH188 Caloosahatchee River (S-78)

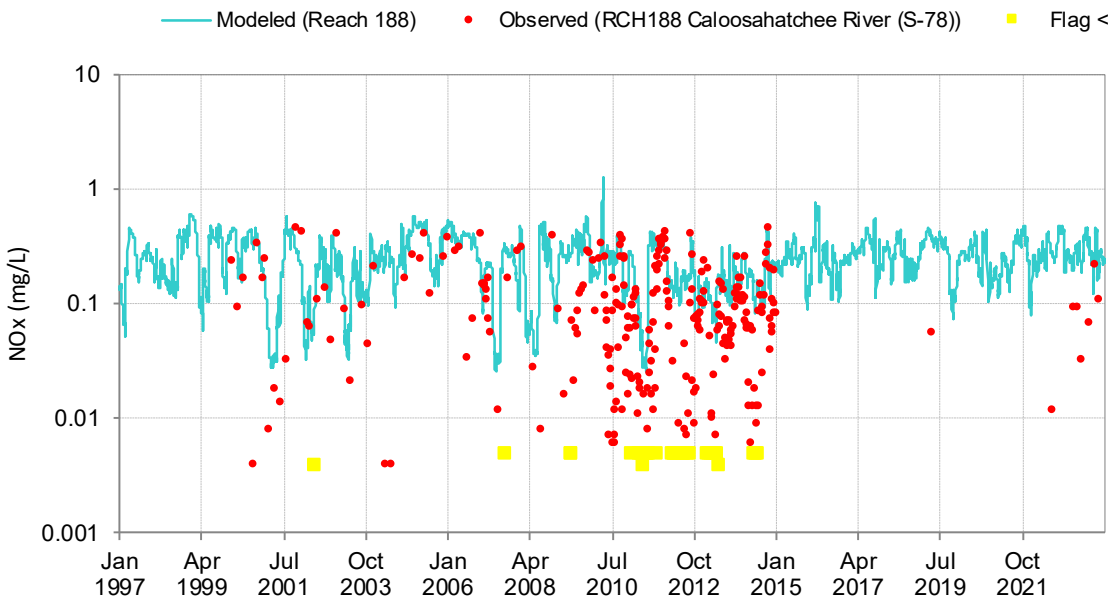


Figure B-34 Modeled Vs Observed NOx (mg/L) at RCH188 Caloosahatchee River (S-78)

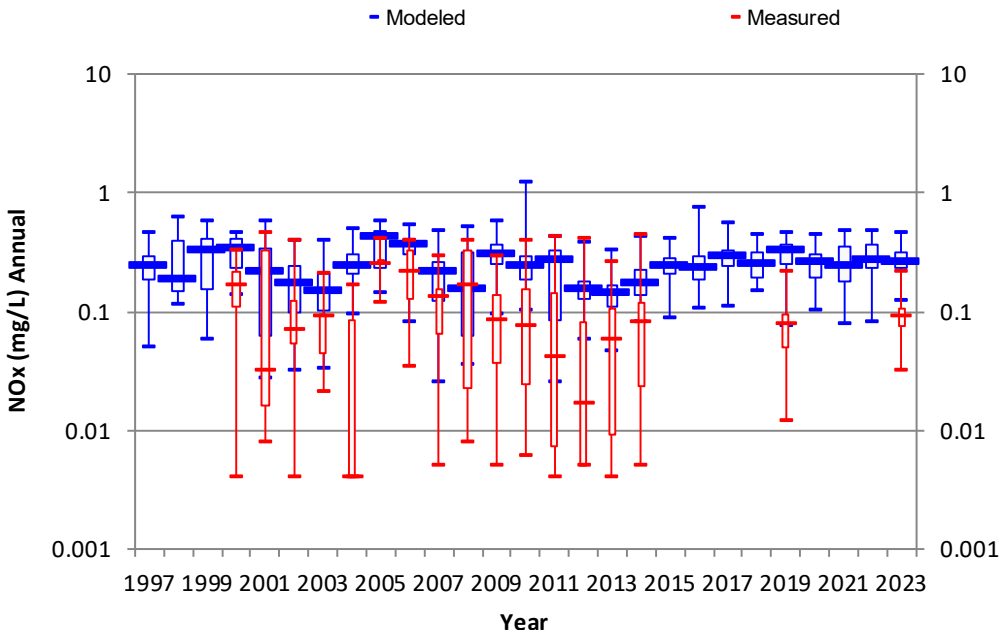


Figure B-35 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH188 Caloosahatchee River (S-78)

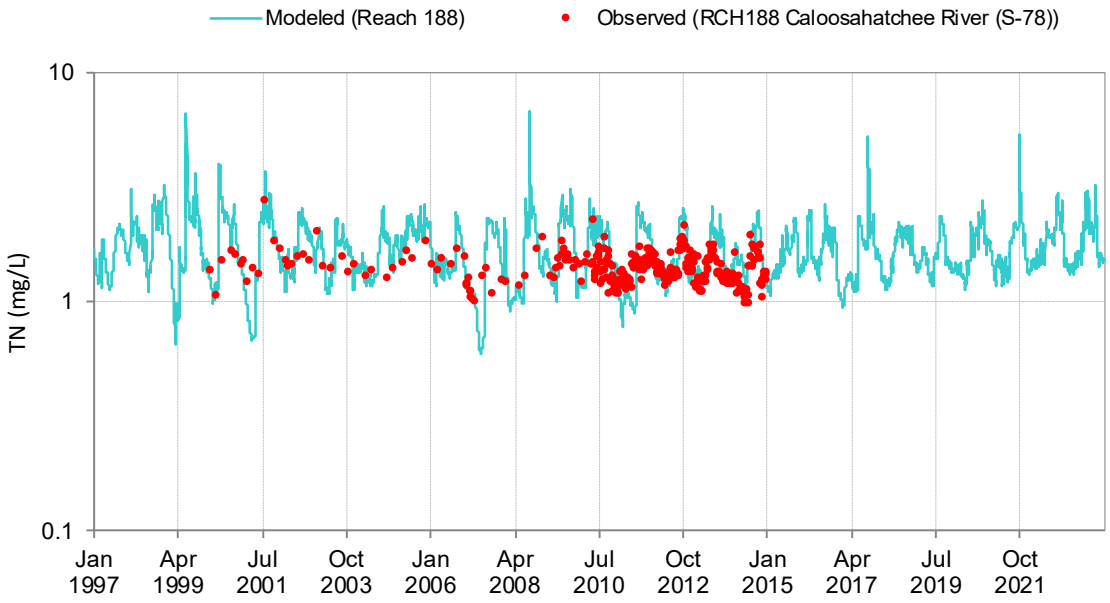


Figure B-36 Modeled Vs Observed TN (mg/L) at RCH188 Caloosahatchee River (S-78)

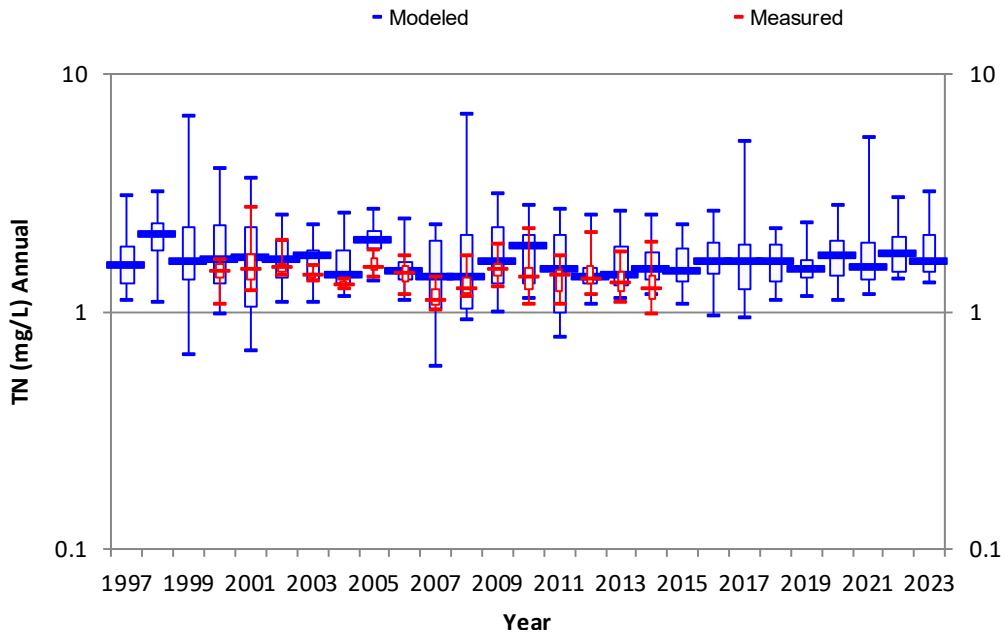


Figure B-37 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH188 Caloosahatchee River (S-78)

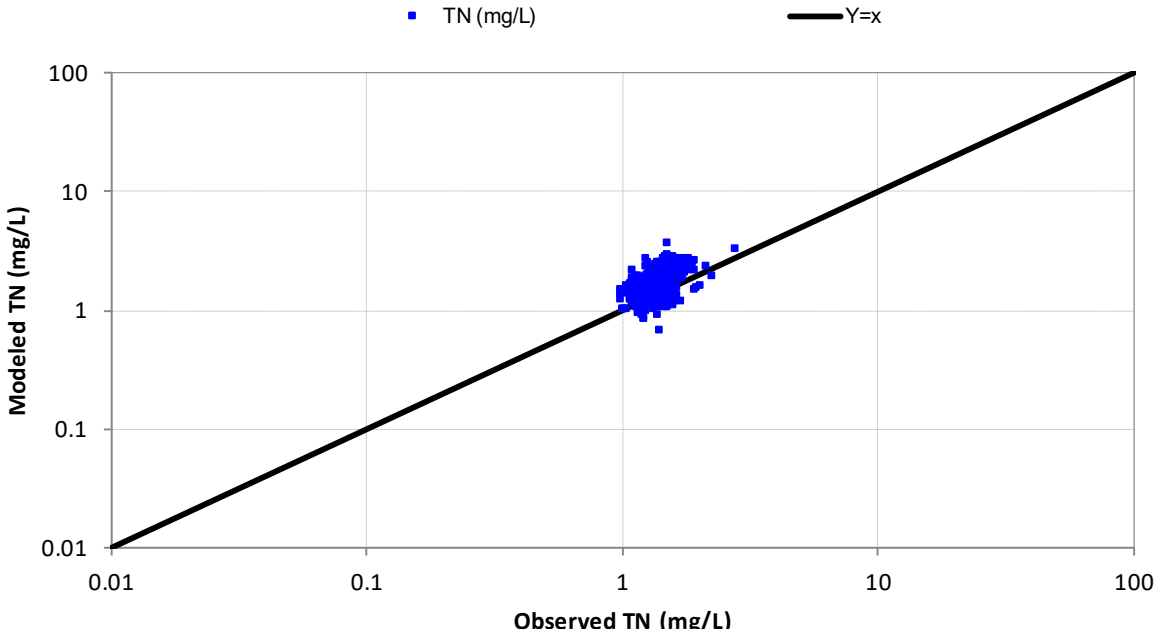


Figure B-38 Concentration at RCH188 Caloosahatchee River (S-78)

Table B- 4 Monthly TN Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.32	1.43	8.4	VG
Feb	1.31	1.38	5.3	VG
Mar	1.26	1.35	6.8	VG
Apr	1.23	1.35	9.5	VG
May	1.34	1.48	10.4	VG
Jun	1.40	1.72	23.2	VG
Jul	1.48	2.00	35.2	G
Aug	1.53	2.06	34.7	G
Sep	1.52	2.20	45.0	F
Oct	1.54	2.08	34.8	G
Nov	1.41	1.70	20.4	VG
Dec	1.38	1.50	9.0	VG
Average*	1.39	1.69	21.1	VG
Median**	1.39	1.60	15.4	VG
R^2	N/A	N/A	0.93	VG

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 5 Annual TN Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.61	N/A	N/A
1998	N/A	2.09	N/A	N/A
1999	N/A	1.82	N/A	N/A
2000	1.44	1.86	28.5	VG
2001	1.67	1.67	-0.4	VG
2002	1.58	1.71	8.3	VG
2003	1.43	1.62	12.9	VG
2004	1.30	1.54	18.3	VG
2005	1.58	2.00	26.5	VG
2006	1.43	1.55	8.3	VG
2007	1.16	1.46	26.3	VG
2008	1.34	1.66	24.4	VG
2009	1.52	1.79	17.4	VG
2010	1.41	1.76	24.7	VG
2011	1.39	1.55	11.4	VG
2012	1.45	1.55	6.7	VG
2013	1.36	1.57	15.9	VG
2014	1.30	1.60	23.4	VG
2015	N/A	1.57	N/A	N/A
2016	N/A	1.68	N/A	N/A
2017	N/A	1.64	N/A	N/A
2018	N/A	1.64	N/A	N/A
2019	N/A	1.58	N/A	N/A
2020	N/A	1.72	N/A	N/A
2021	N/A	1.72	N/A	N/A
2022	N/A	1.82	N/A	N/A
2023	N/A	1.81	N/A	N/A
Average*	1.42	1.69	18.6	VG
Median**	1.43	1.66	16.5	VG
R^2	N/A	N/A	0.37	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 6 Daily TN Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Statistic	Results	Rating
Count (number)	314	N/A
Average Error (%)	15.3	VG
Median Error (%)	12.5	VG
RMSE (mg/L)	0.43	N/A
R^2	0.33	P

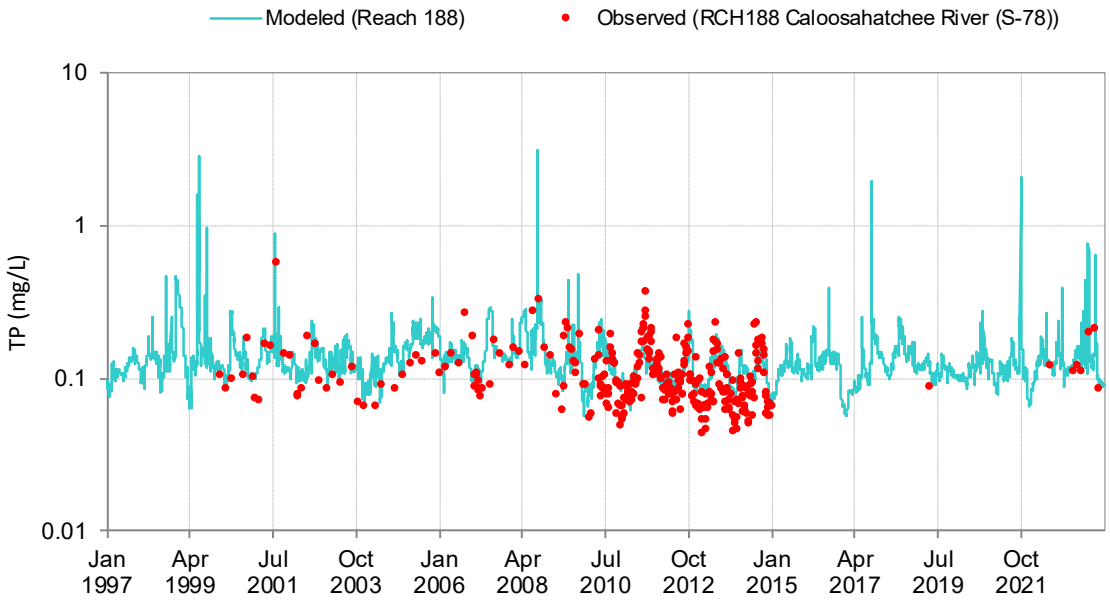


Figure B-39 Modeled Vs Observed TP (mg/L) at RCH188 Caloosahatchee River (S-78)

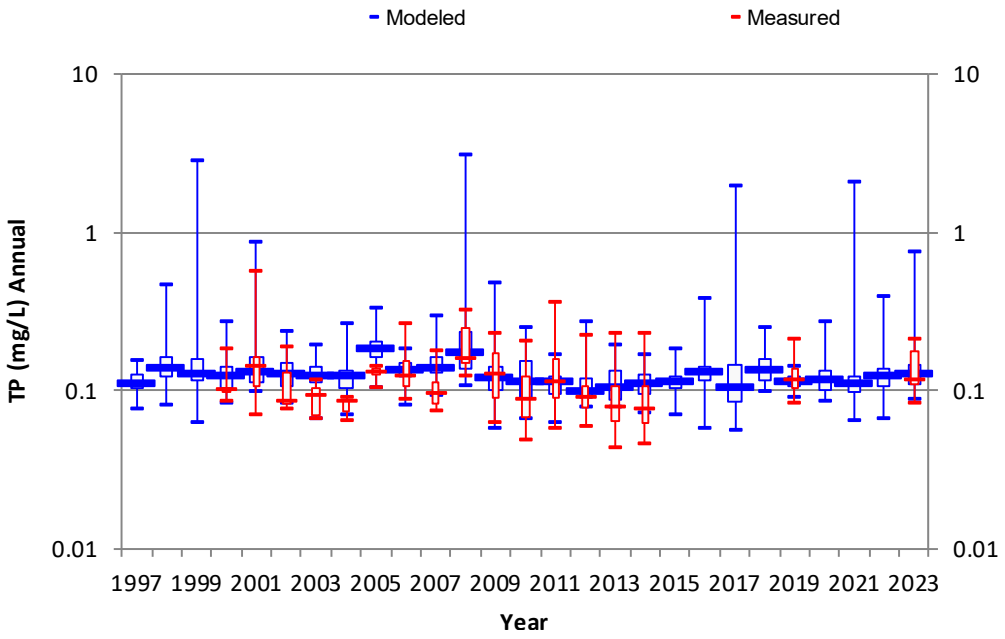


Figure B-40 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH188 Caloosahatchee River (S-78)

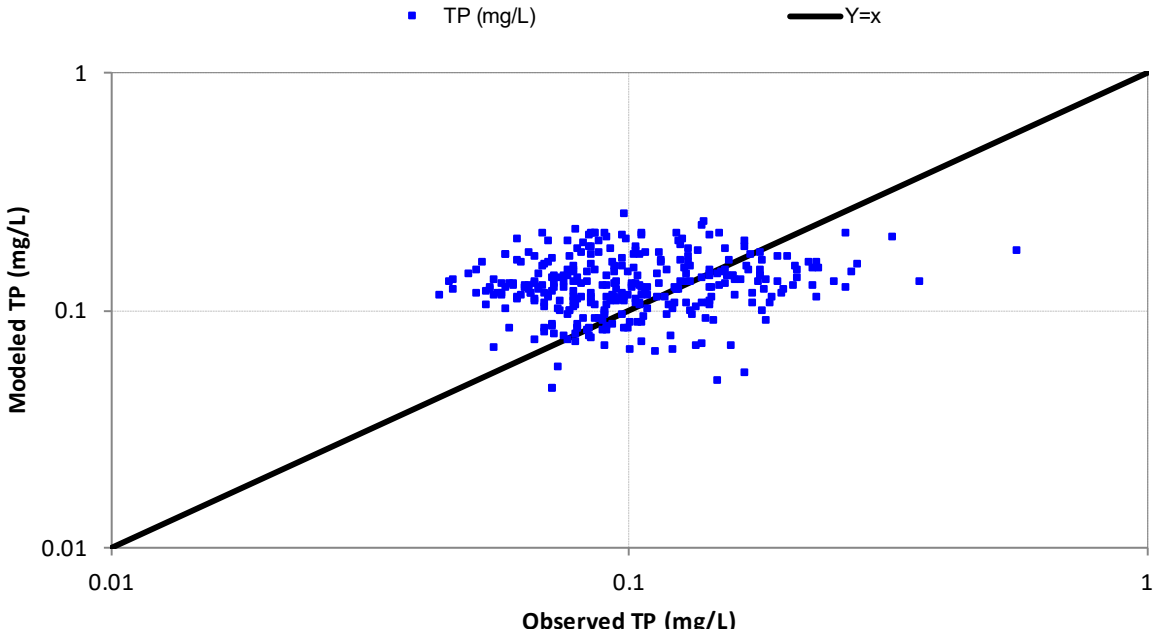


Figure B-41 Concentration at RCH188 Caloosahatchee River (S-78)

Table B- 7 Monthly TP Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.09	0.11	28.0	VG
Feb	0.08	0.11	39.2	G
Mar	0.09	0.12	38.3	G
Apr	0.09	0.13	52.1	F
May	0.09	0.14	49.6	F
Jun	0.12	0.15	27.2	VG
Jul	0.14	0.15	3.7	VG
Aug	0.16	0.16	-2.3	VG
Sep	0.16	0.17	6.3	VG
Oct	0.13	0.15	17.7	VG
Nov	0.09	0.13	37.2	G
Dec	0.08	0.12	37.7	G
Average*	0.11	0.14	23.8	VG
Median**	0.09	0.14	45.0	F
R^2	N/A	N/A	0.81	VG

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 8 Annual TP Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.11	N/A	N/A
1998	N/A	0.17	N/A	N/A
1999	N/A	0.17	N/A	N/A
2000	0.11	0.13	18.3	VG
2001	0.19	0.14	-22.8	VG
2002	0.11	0.13	19.3	VG
2003	0.09	0.13	41.2	G
2004	0.08	0.12	53.8	F
2005	0.13	0.19	43.9	G
2006	0.14	0.13	-5.8	VG
2007	0.11	0.16	48.9	F
2008	0.20	0.21	7.8	VG
2009	0.14	0.13	-5.2	VG
2010	0.10	0.12	27.7	VG
2011	0.13	0.11	-14.2	VG
2012	0.10	0.11	13.3	VG
2013	0.09	0.11	24.8	VG
2014	0.09	0.11	19.3	VG
2015	N/A	0.11	N/A	N/A
2016	N/A	0.13	N/A	N/A
2017	N/A	0.13	N/A	N/A
2018	N/A	0.14	N/A	N/A
2019	0.09	0.12	31.2	G
2020	N/A	0.12	N/A	N/A
2021	N/A	0.14	N/A	N/A
2022	0.12	0.13	5.4	VG
2023	0.14	0.14	3.8	VG
Average*	0.12	0.14	13.9	VG
Median**	0.11	0.13	15.5	VG
R^2	N/A	N/A	0.45	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 9 Daily TP Concentration Comparisons at RCH188 Caloosahatchee River (S-78)

Statistic	Results	Rating
Count (number)	331	N/A
Average Error (%)	22.5	VG
Median Error (%)	14.6	VG
RMSE (mg/L)	0.05	N/A
R^2	0.20	P

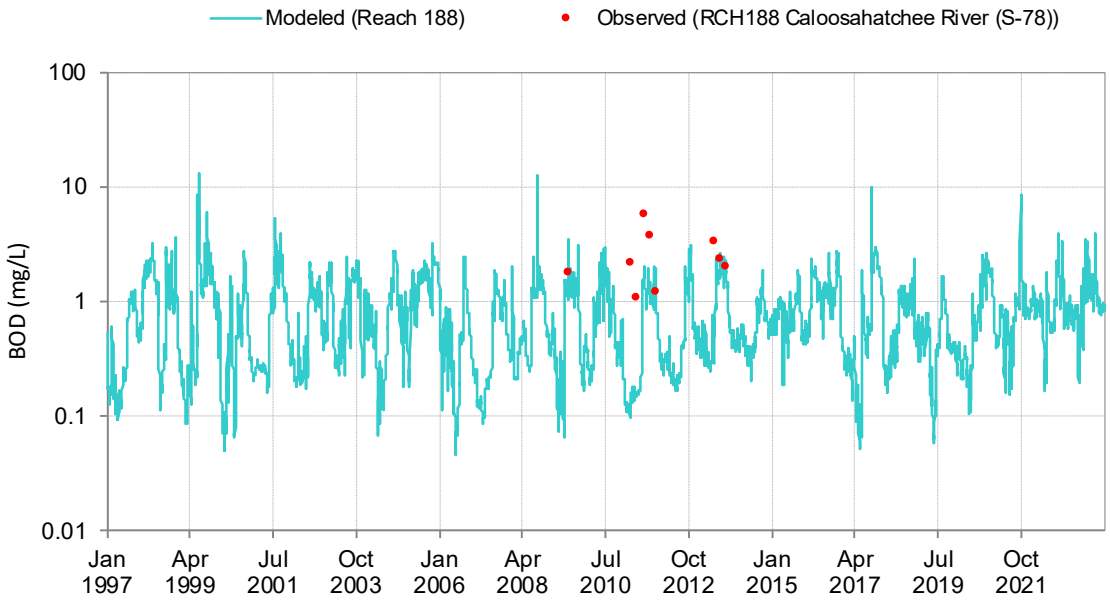


Figure B-42 Modeled Vs Observed BOD (mg/L) at RCH188 Caloosahatchee River (S-78)

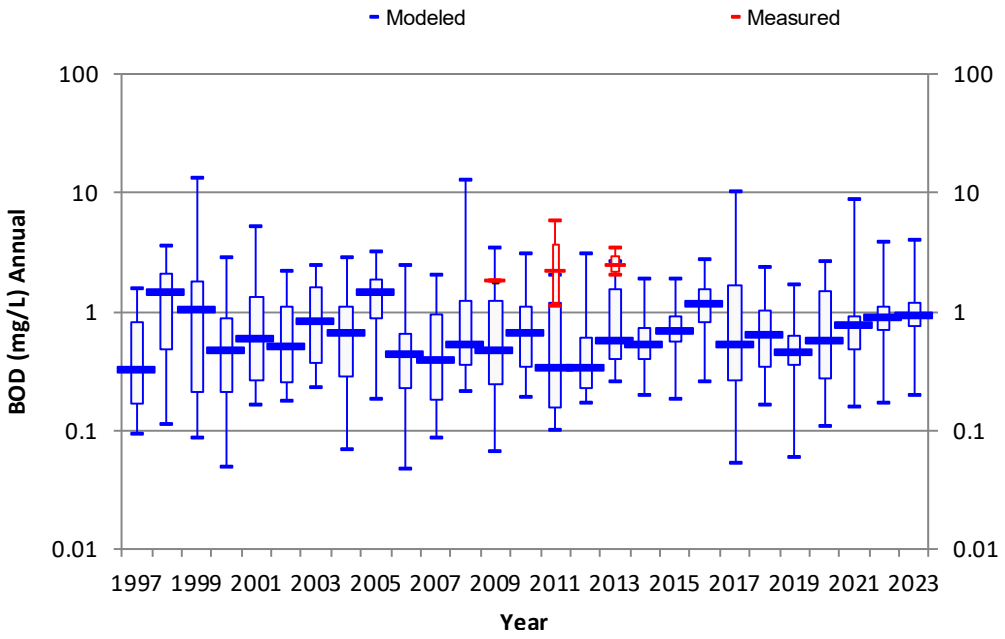


Figure B-43 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH188 Caloosahatchee River (S-78)

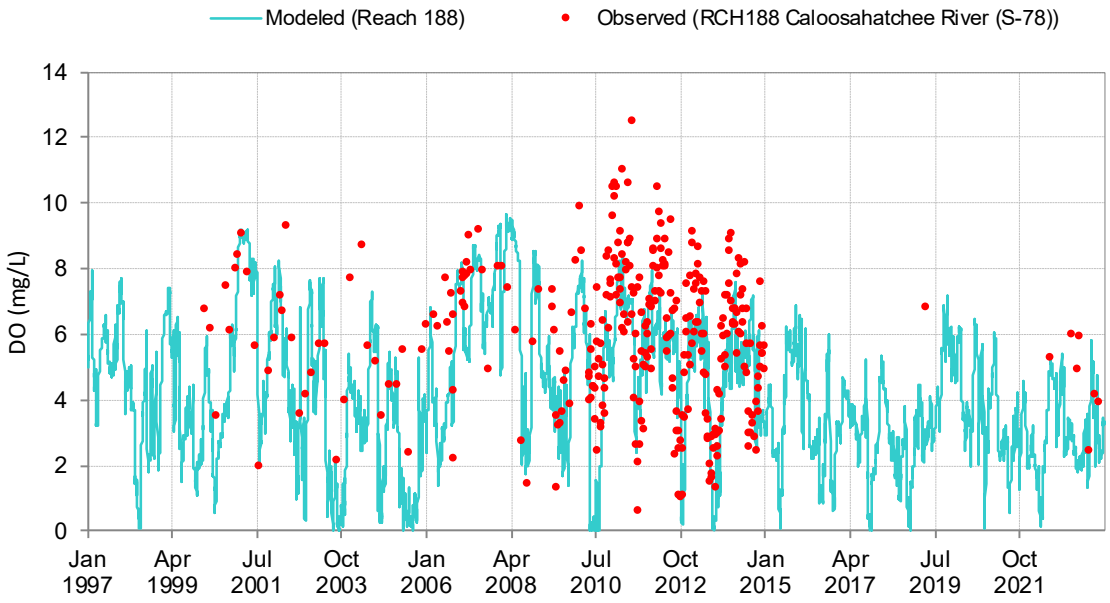


Figure B-44 Modeled Vs Observed DO (mg/L) at RCH188 Caloosahatchee River (S-78)

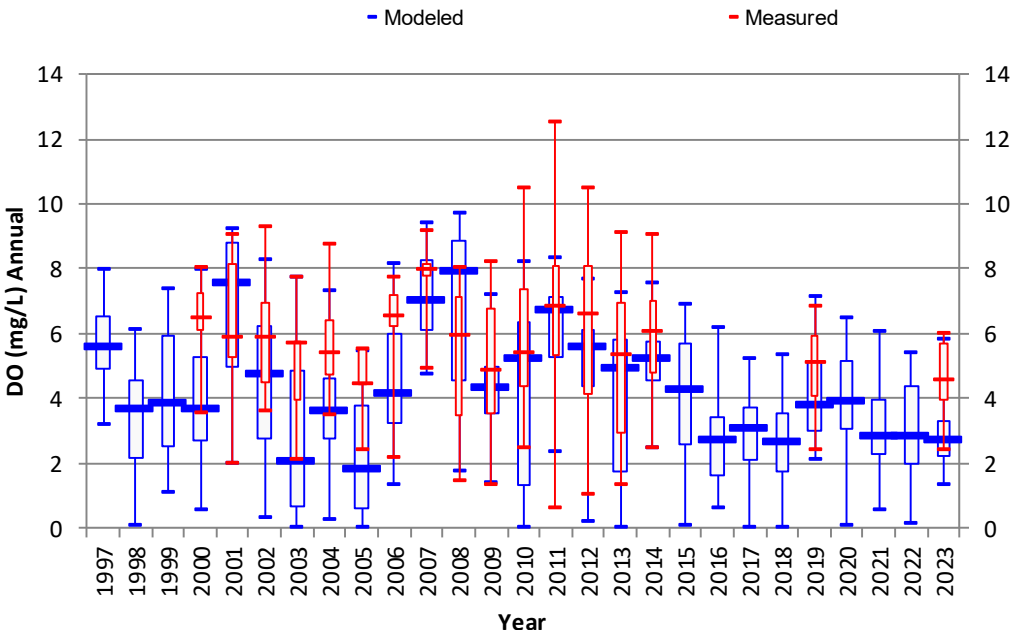


Figure B-45 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH188 Caloosahatchee River (S-78)

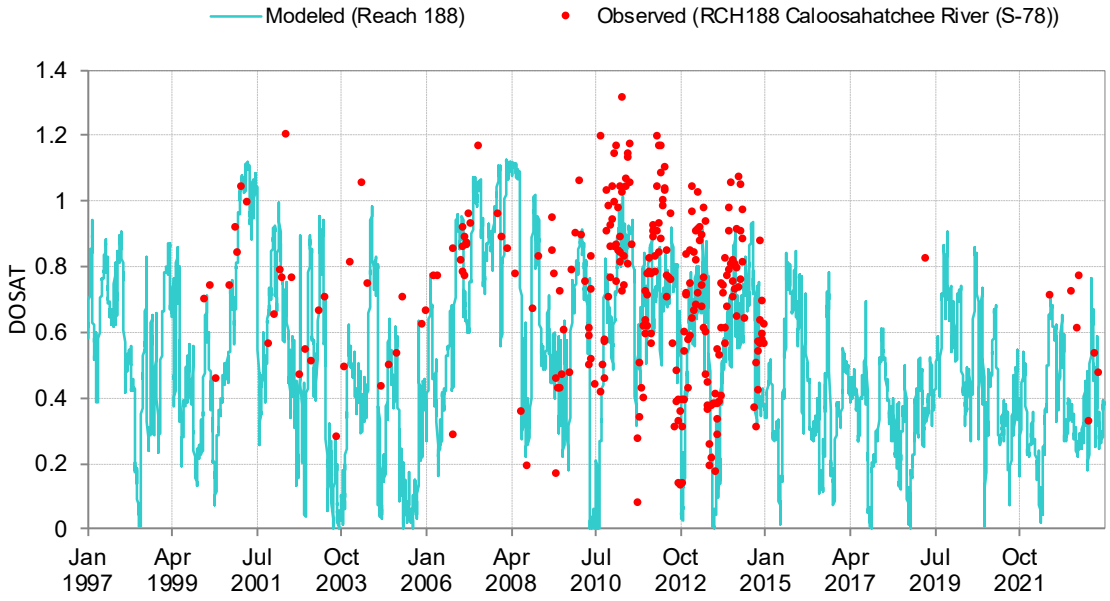


Figure B-46 Modeled Vs Observed DOSAT at RCH188 Caloosahatchee River (S-78)

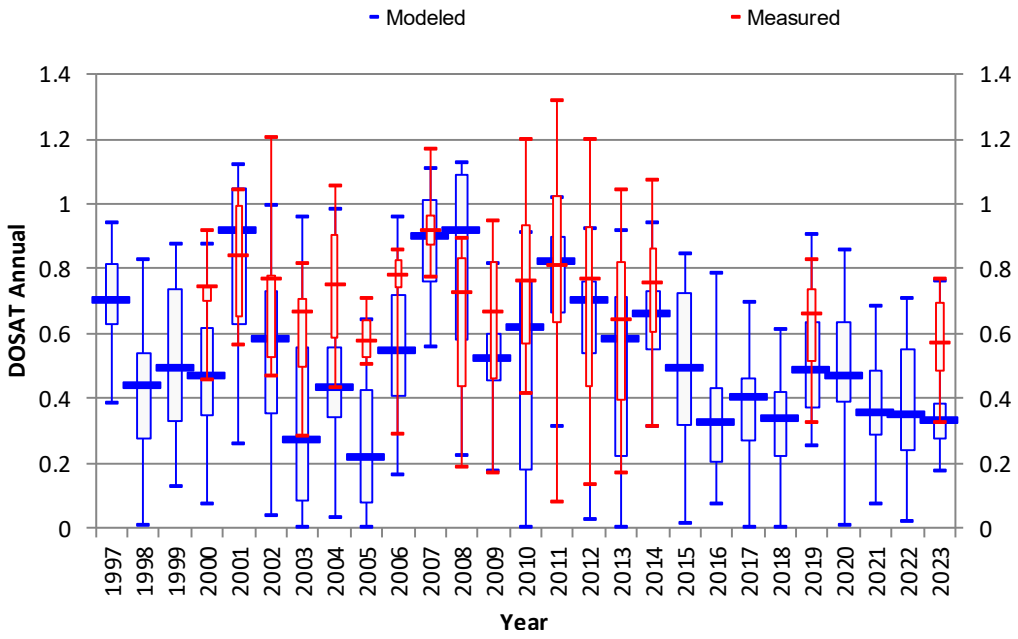


Figure B-47 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH188 Caloosahatchee River (S-78)

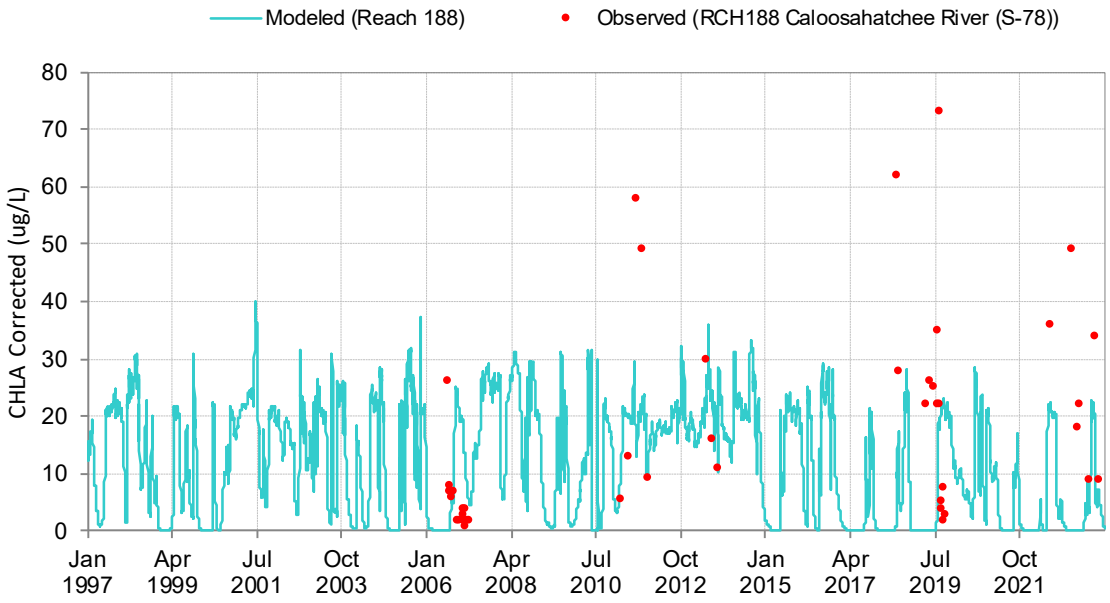


Figure B-48 Modeled Vs Observed CHLA Corrected (ug/L) at RCH188 Caloosahatchee River (S-78)

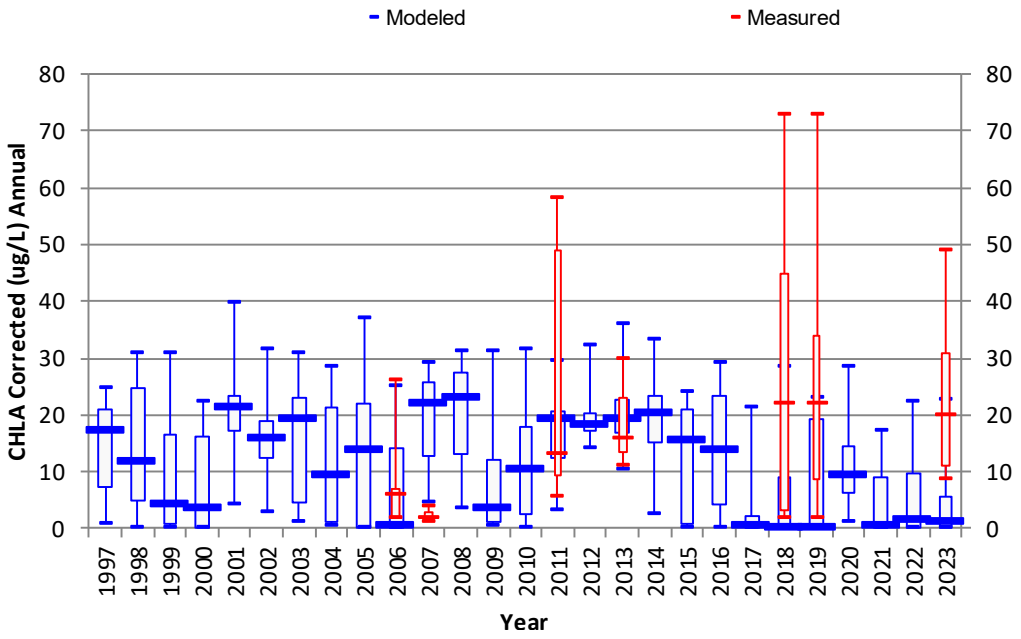


Figure B-49 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH188 Caloosahatchee River (S-78)

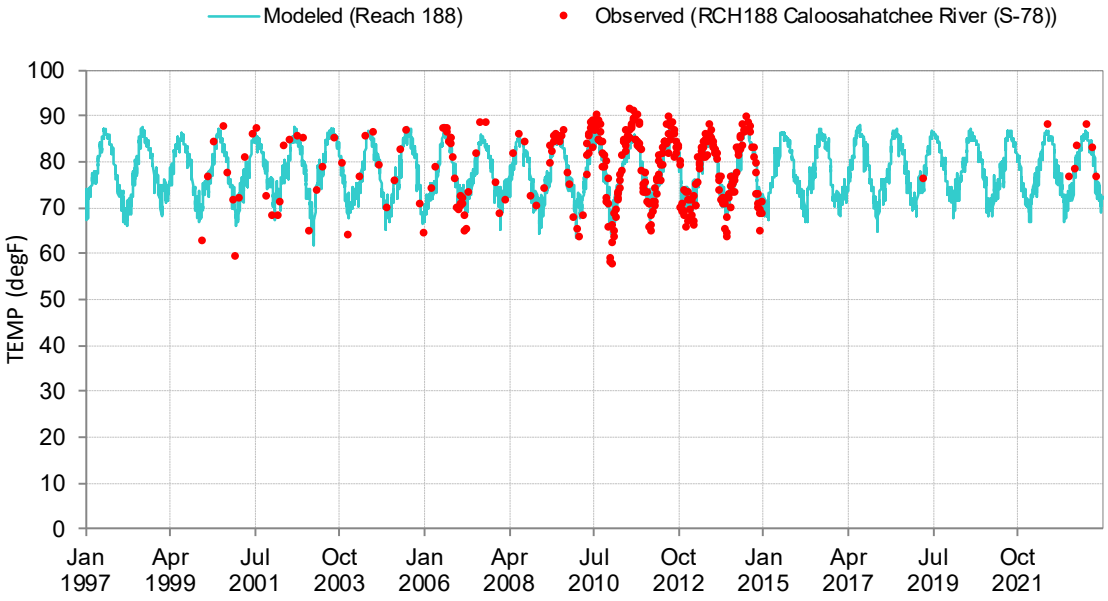


Figure B-50 Modeled Vs Observed TEMP (deg F) at RCH188 Caloosahatchee River (S-78)

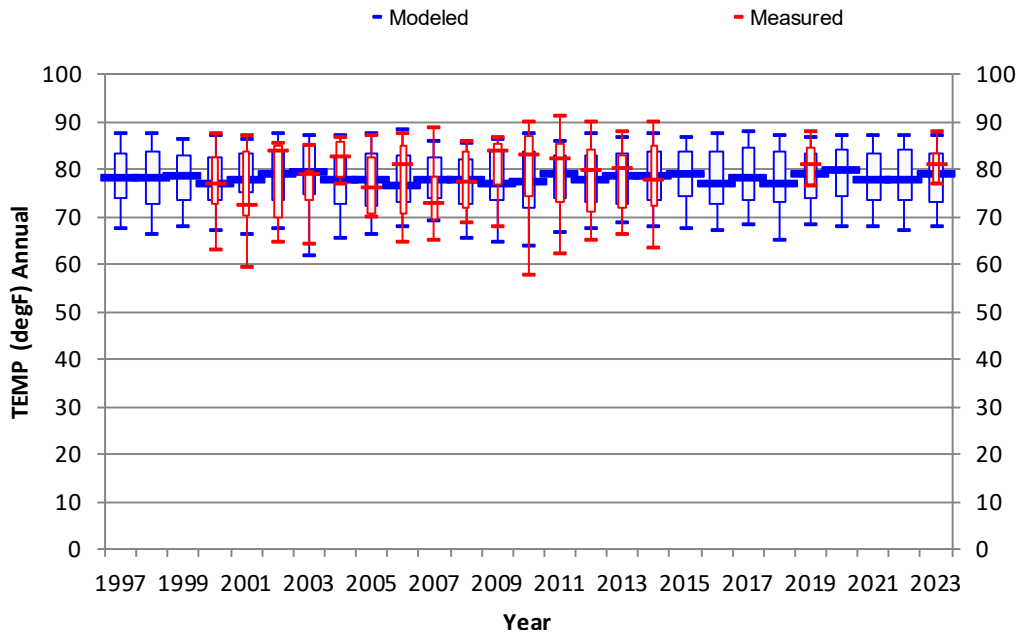


Figure B-51 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH188 Caloosahatchee River (S-78)

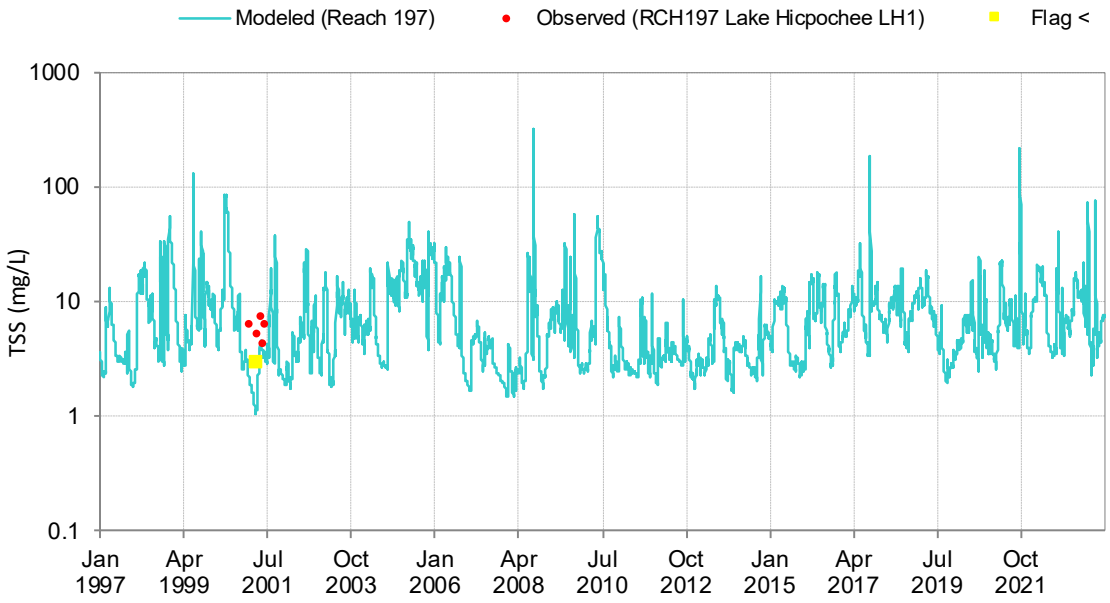


Figure B-52 Modeled Vs Observed TSS (mg/L) at RCH197 Lake Hicpochee LH1

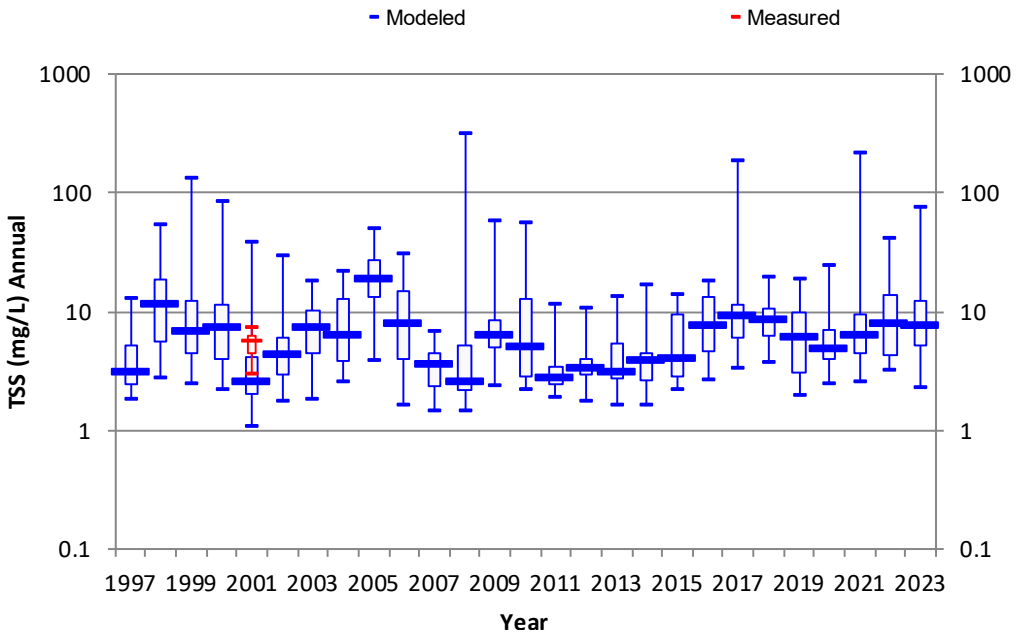


Figure B-53 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH197 Lake Hicpochee LH1

Table B- 10 Monthly TSS Concentration Comparisons at RCH197 Lake Hicpochee LH1

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	6.40	6.36	-0.6	VG
Feb	1.50	6.24	316.3	P
Mar	5.20	7.88	51.6	P
Apr	7.40	9.23	24.8	G
May	4.20	12.09	188.0	P
Jun	6.20	10.28	65.9	P
Jul	N/A	9.05	N/A	N/A
Aug	N/A	8.46	N/A	N/A
Sep	N/A	9.84	N/A	N/A
Oct	N/A	7.55	N/A	N/A
Nov	N/A	6.98	N/A	N/A
Dec	N/A	6.33	N/A	N/A
Average*	2.58	8.36	224.6	P
Median**	5.70	8.17	43.4	P
R^2	N/A	N/A	0.05	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 11 Annual TSS Concentration Comparisons at RCH197 Lake Hicpochee LH1

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.22	N/A	N/A
1998	N/A	13.99	N/A	N/A
1999	N/A	11.03	N/A	N/A
2000	N/A	14.61	N/A	N/A
2001	5.15	4.55	-11.7	VG
2002	N/A	5.73	N/A	N/A
2003	N/A	7.67	N/A	N/A
2004	N/A	8.24	N/A	N/A
2005	N/A	19.98	N/A	N/A
2006	N/A	9.70	N/A	N/A
2007	N/A	3.50	N/A	N/A
2008	N/A	9.31	N/A	N/A
2009	N/A	8.32	N/A	N/A
2010	N/A	10.61	N/A	N/A
2011	N/A	3.48	N/A	N/A
2012	N/A	3.62	N/A	N/A
2013	N/A	4.52	N/A	N/A
2014	N/A	3.97	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	5.85	N/A	N/A
2016	N/A	8.74	N/A	N/A
2017	N/A	11.31	N/A	N/A
2018	N/A	8.63	N/A	N/A
2019	N/A	7.13	N/A	N/A
2020	N/A	6.16	N/A	N/A
2021	N/A	10.84	N/A	N/A
2022	N/A	9.86	N/A	N/A
2023	N/A	10.36	N/A	N/A
Average*	5.15	8.37	62.5	P
Median**	5.15	8.32	61.6	P
R^2	N/A	N/A	N/A	N/A

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 12 Daily TSS Concentration Comparisons at RCH197 Lake Hicpochee LH1

Statistic	Results	Rating
Count (number)	6	N/A
Average Error (%)	-41.7	P
Median Error (%)	-43.3	P
RMSE (mg/L)	2.90	N/A
R^2	0.37	P

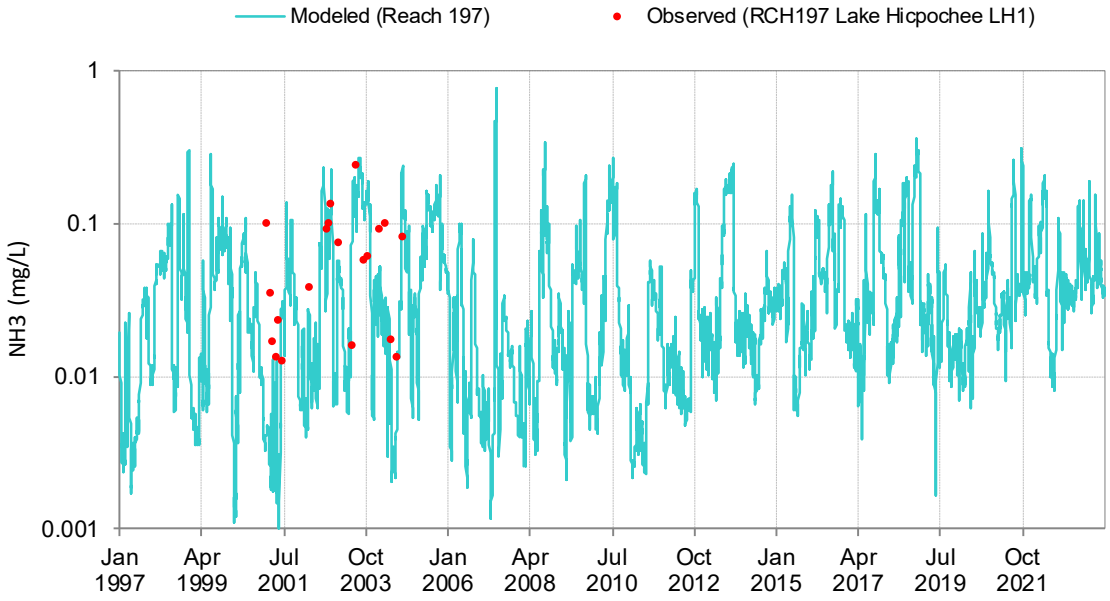


Figure B-54 Modeled Vs Observed NH3 (mg/L) at RCH197 Lake Hicpochee LH1

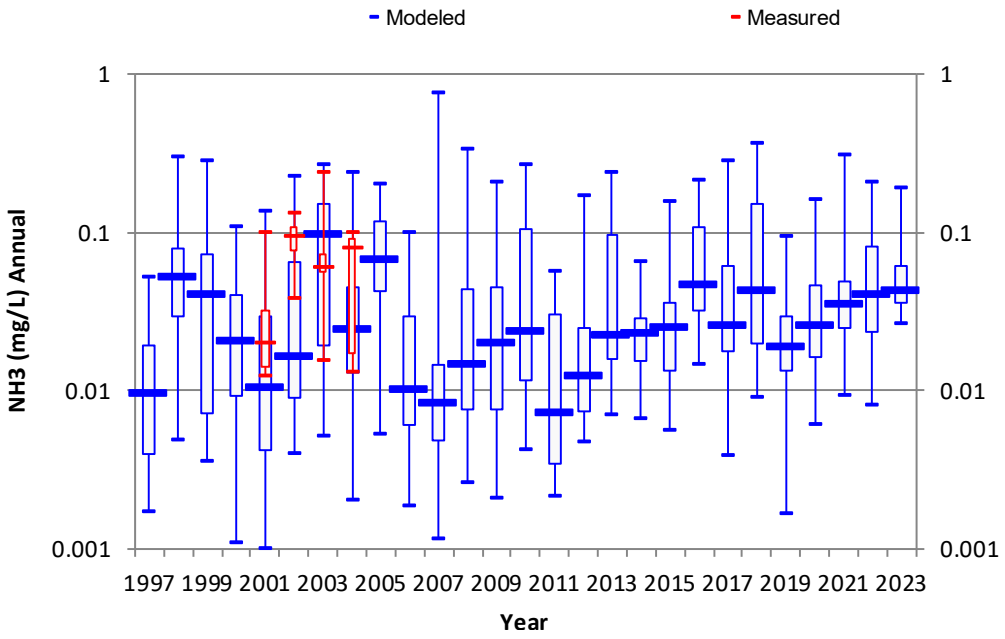


Figure B-55 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH197 Lake Hicpochee LH1

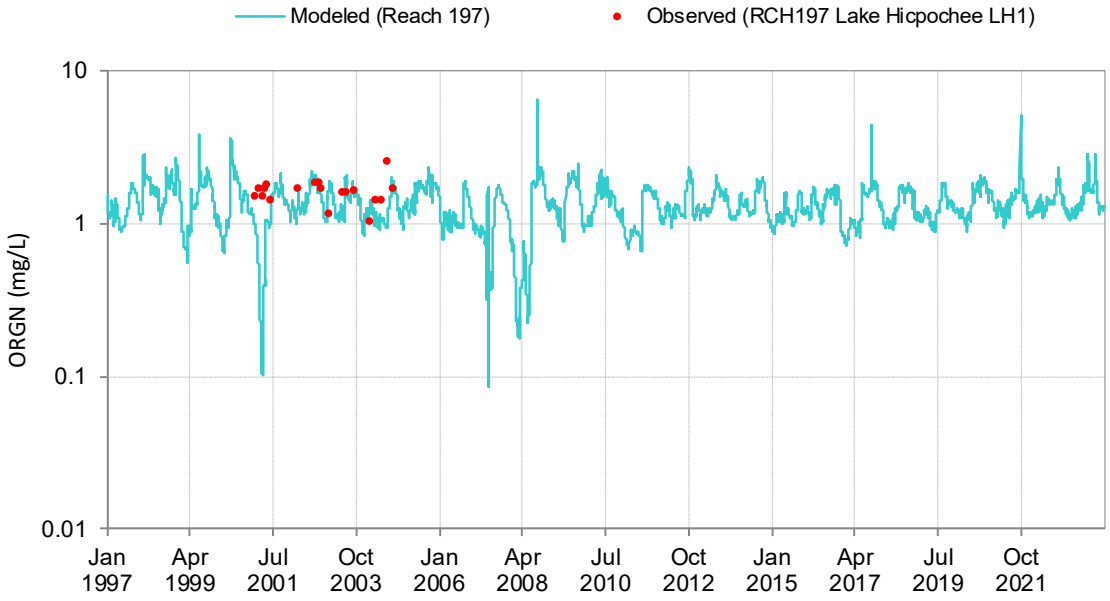


Figure B-56 Modeled Vs Observed ORGN (mg/L) at RCH197 Lake Hicpochee LH1

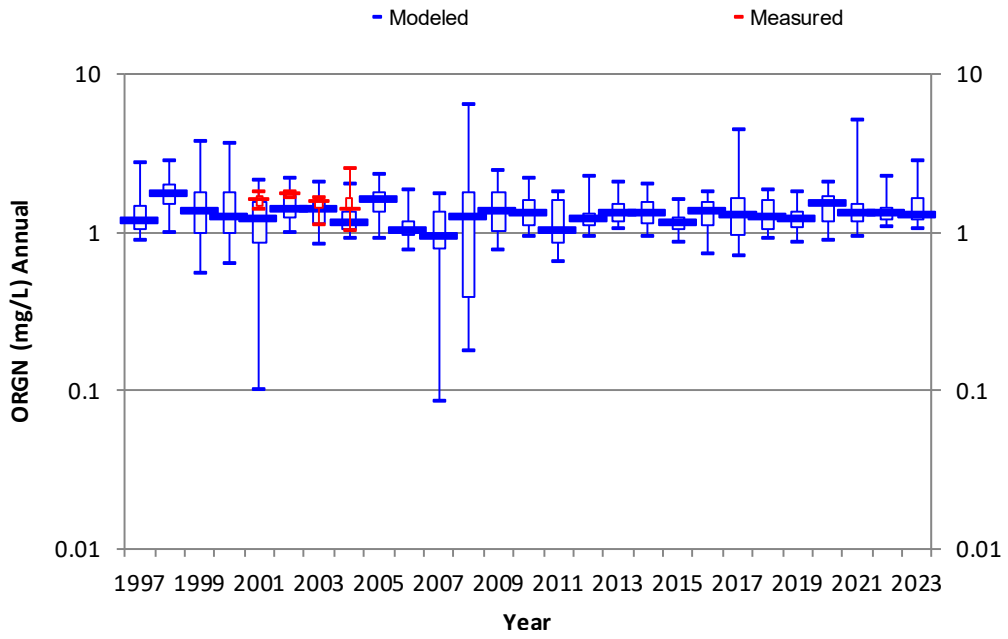


Figure B-57 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH197 Lake Hicpochee LH1

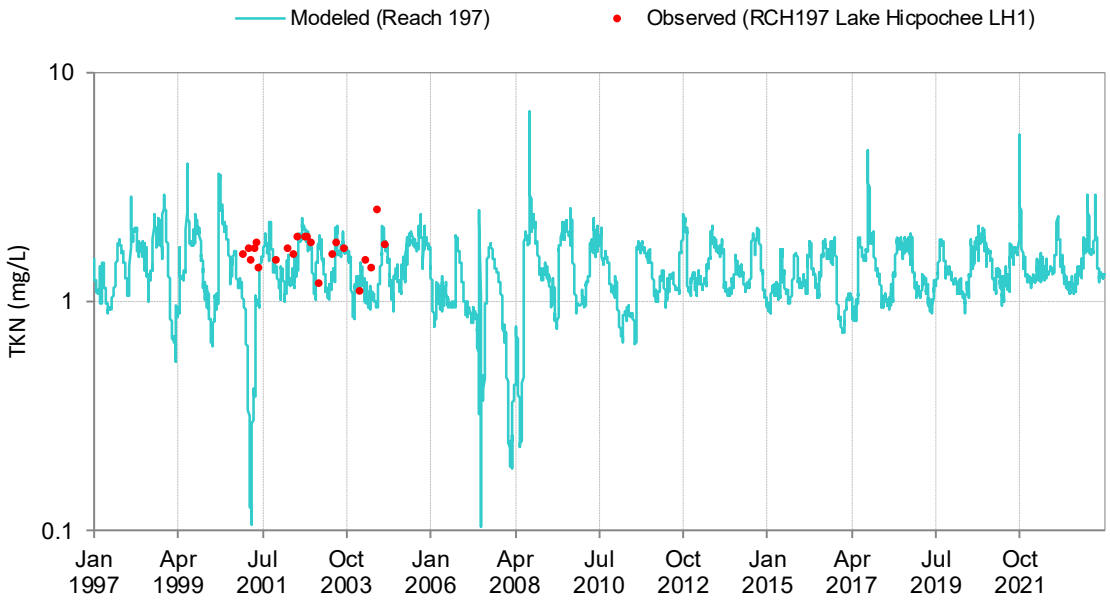


Figure B-58 Modeled Vs Observed TKN (mg/L) at RCH197 Lake Hicpochee LH1

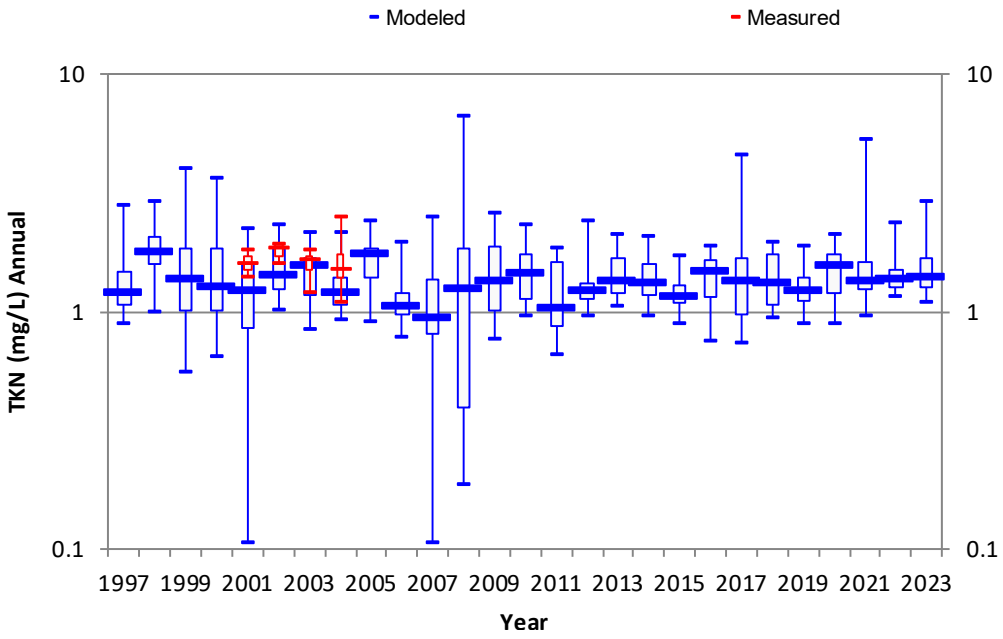


Figure B-59 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH197 Lake Hicpochee LH1

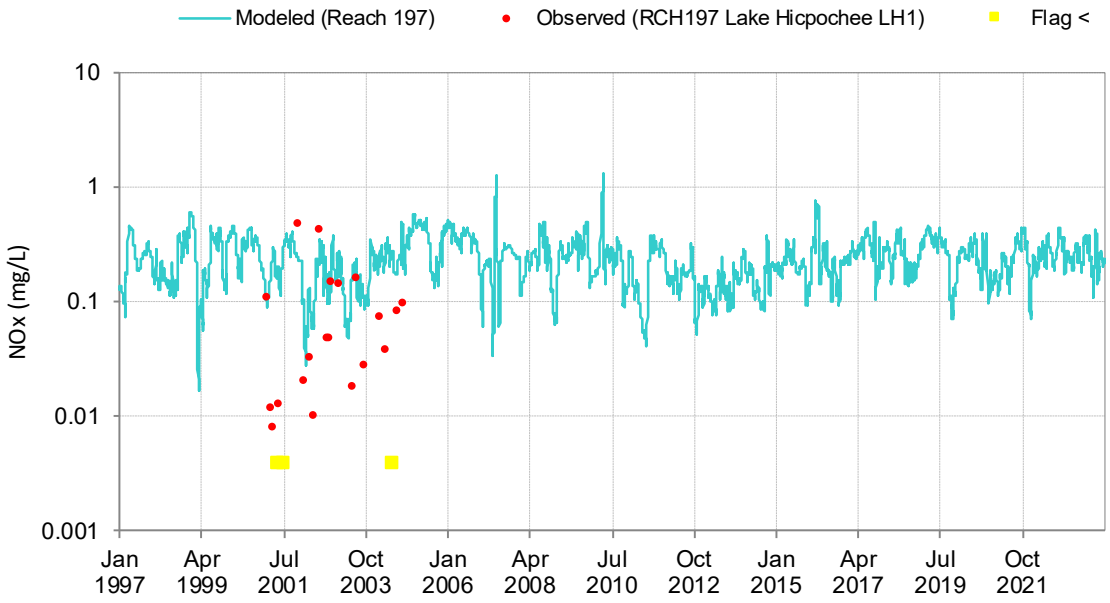


Figure B-60 Modeled Vs Observed NOx (mg/L) at RCH197 Lake Hicpochee LH1

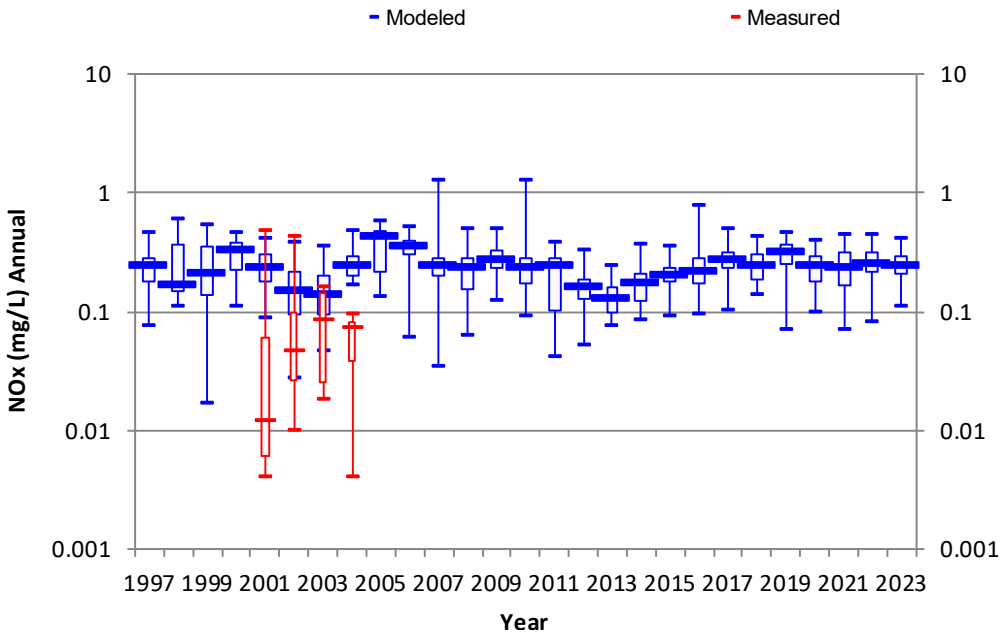


Figure B-61 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH197 Lake Hicpochee LH1

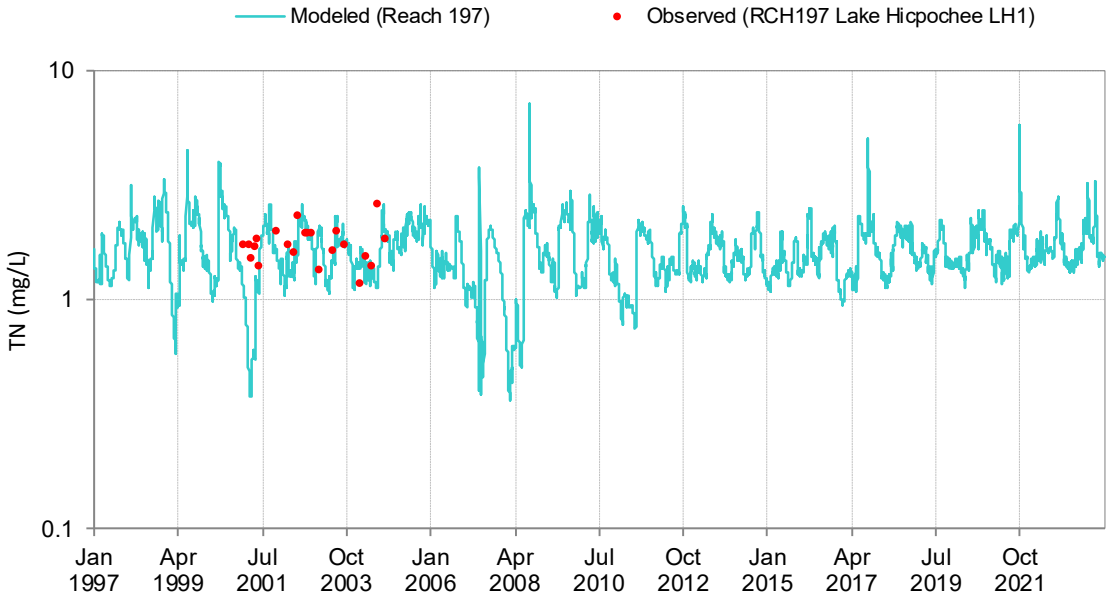


Figure B-62 Modeled Vs Observed TN (mg/L) at RCH197 Lake Hicpochee LH1

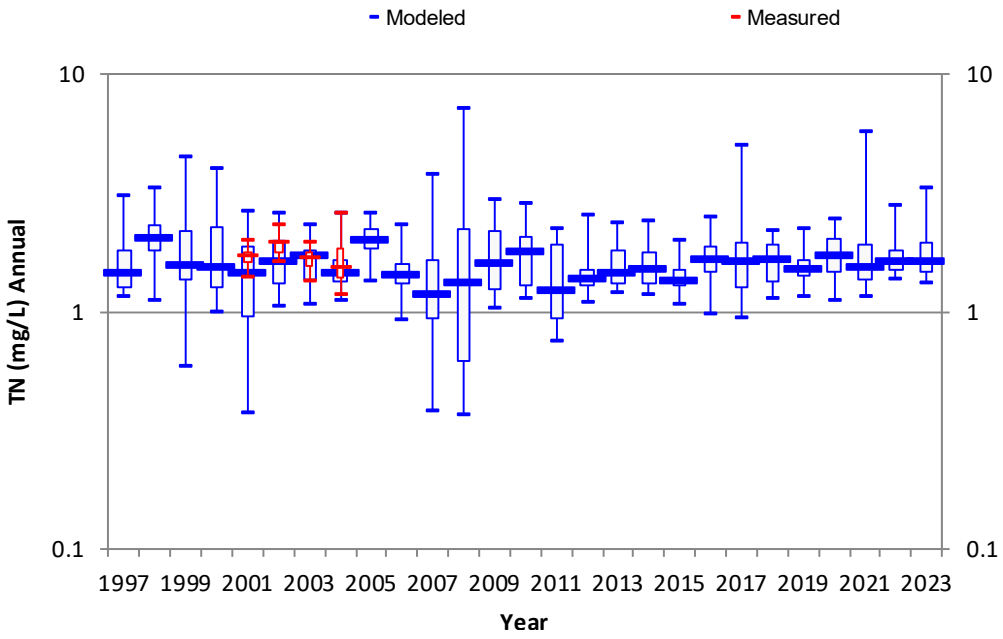


Figure B-63 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH197 Lake Hicpochee LH1

Table B- 13 Monthly TN Concentration Comparisons at RCH197 Lake Hicpochee LH1

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.53	1.38	-9.3	VG
Feb	1.44	1.36	-5.9	VG
Mar	1.62	1.34	-17.5	VG
Apr	1.62	1.39	-14.5	VG
May	1.68	1.48	-11.6	VG
Jun	1.71	1.66	-3.1	VG
Jul	1.96	1.87	-4.7	VG
Aug	2.58	1.93	-25.1	VG
Sep	1.87	2.07	10.4	VG
Oct	1.90	1.98	4.1	VG
Nov	1.98	1.61	-18.6	VG
Dec	N/A	1.44	N/A	N/A
Average*	1.66	1.63	-2.0	VG
Median**	1.71	1.55	-9.6	VG
R^2	N/A	N/A	0.51	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 14 Annual TN Concentration Comparisons at RCH197 Lake Hicpochee LH1

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.55	N/A	N/A
1998	N/A	2.07	N/A	N/A
1999	N/A	1.73	N/A	N/A
2000	N/A	1.80	N/A	N/A
2001	1.69	1.39	-17.7	VG
2002	1.92	1.68	-12.5	VG
2003	1.66	1.63	-2.1	VG
2004	1.71	1.53	-10.5	VG
2005	N/A	2.01	N/A	N/A
2006	N/A	1.47	N/A	N/A
2007	N/A	1.30	N/A	N/A
2008	N/A	1.44	N/A	N/A
2009	N/A	1.73	N/A	N/A
2010	N/A	1.72	N/A	N/A
2011	N/A	1.40	N/A	N/A
2012	N/A	1.49	N/A	N/A
2013	N/A	1.56	N/A	N/A
2014	N/A	1.58	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	1.41	N/A	N/A
2016	N/A	1.65	N/A	N/A
2017	N/A	1.67	N/A	N/A
2018	N/A	1.65	N/A	N/A
2019	N/A	1.57	N/A	N/A
2020	N/A	1.73	N/A	N/A
2021	N/A	1.72	N/A	N/A
2022	N/A	1.70	N/A	N/A
2023	N/A	1.75	N/A	N/A
Average*	1.74	1.63	-6.8	VG
Median**	1.70	1.65	-3.1	VG
R^2	N/A	N/A	0.33	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 15 Daily TN Concentration Comparisons at RCH197 Lake Hicpochee LH1

Statistic	Results	Rating
Count (number)	22	N/A
Average Error (%)	-10.5	VG
Median Error (%)	-6.8	VG
RMSE (mg/L)	0.55	N/A
R^2	0.06	P

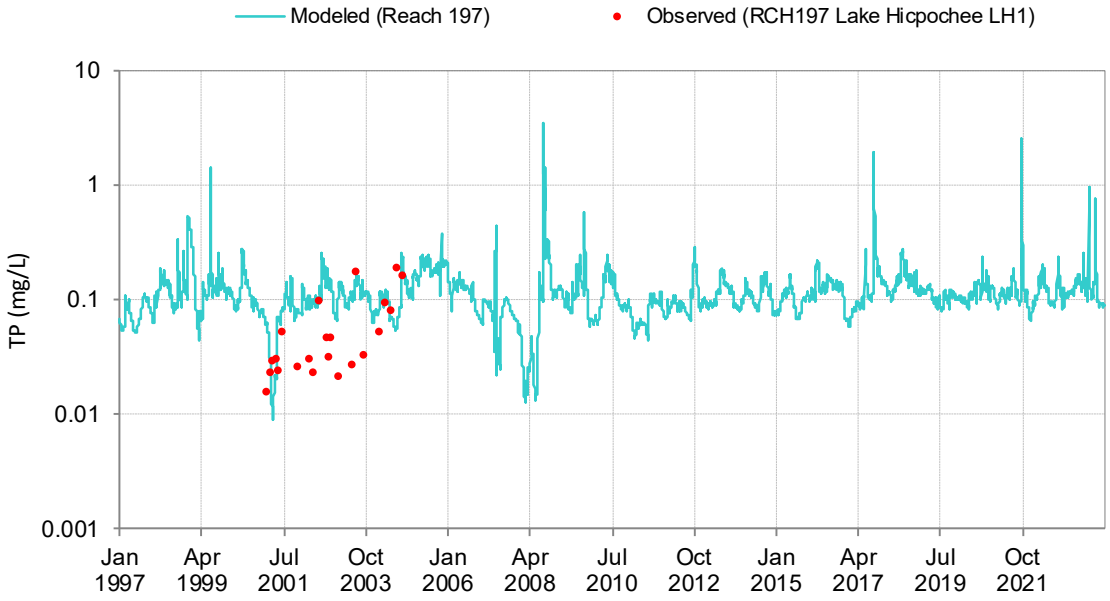


Figure B-64 Modeled Vs Observed TP (mg/L) at RCH197 Lake Hicpochee LH1

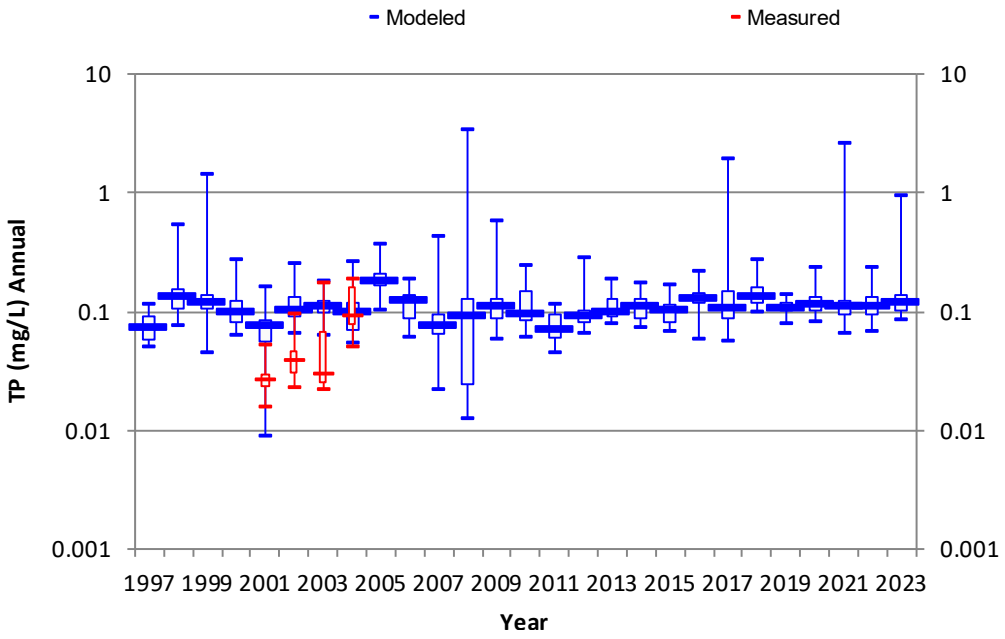


Figure B-65 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH197 Lake Hicpochee LH1

Table B- 16 Monthly TP Concentration Comparisons at RCH197 Lake Hicpochee LH1

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.02	0.10	433.1	P
Feb	0.04	0.10	164.9	P
Mar	0.03	0.10	235.8	P
Apr	0.06	0.11	79.2	P
May	0.02	0.11	364.9	P
Jun	0.08	0.12	63.5	P
Jul	0.17	0.12	-26.6	VG
Aug	0.19	0.13	-29.1	VG
Sep	0.04	0.15	308.4	P
Oct	0.10	0.13	30.3	G
Nov	0.03	0.12	342.0	P
Dec	N/A	0.11	N/A	N/A
Average*	0.06	0.12	82.2	P
Median**	0.04	0.11	210.1	P
R^2	N/A	N/A	0.25	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 17 Annual TP Concentration Comparisons at RCH197 Lake Hicpochee LH1

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.08	N/A	N/A
1998	N/A	0.17	N/A	N/A
1999	N/A	0.14	N/A	N/A
2000	N/A	0.11	N/A	N/A
2001	0.03	0.07	145.6	P
2002	0.05	0.11	154.8	P
2003	0.06	0.11	76.9	P
2004	0.11	0.10	-9.9	VG
2005	N/A	0.19	N/A	N/A
2006	N/A	0.11	N/A	N/A
2007	N/A	0.08	N/A	N/A
2008	N/A	0.13	N/A	N/A
2009	N/A	0.12	N/A	N/A
2010	N/A	0.11	N/A	N/A
2011	N/A	0.08	N/A	N/A
2012	N/A	0.10	N/A	N/A
2013	N/A	0.11	N/A	N/A
2014	N/A	0.11	N/A	N/A

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
2015	N/A	0.10	N/A	N/A
2016	N/A	0.13	N/A	N/A
2017	N/A	0.14	N/A	N/A
2018	N/A	0.15	N/A	N/A
2019	N/A	0.11	N/A	N/A
2020	N/A	0.12	N/A	N/A
2021	N/A	0.14	N/A	N/A
2022	N/A	0.12	N/A	N/A
2023	N/A	0.14	N/A	N/A
Average*	0.06	0.12	86.9	P
Median**	0.05	0.11	112.9	P
R^2	N/A	N/A	0.17	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data

Table B- 18 Daily TP Concentration Comparisons at RCH197 Lake Hicpochee LH1

Statistic	Results	Rating
Count (number)	22	N/A
Average Error (%)	156.3	P
Median Error (%)	156.1	P
RMSE (mg/L)	0.07	N/A
R^2	0.10	P

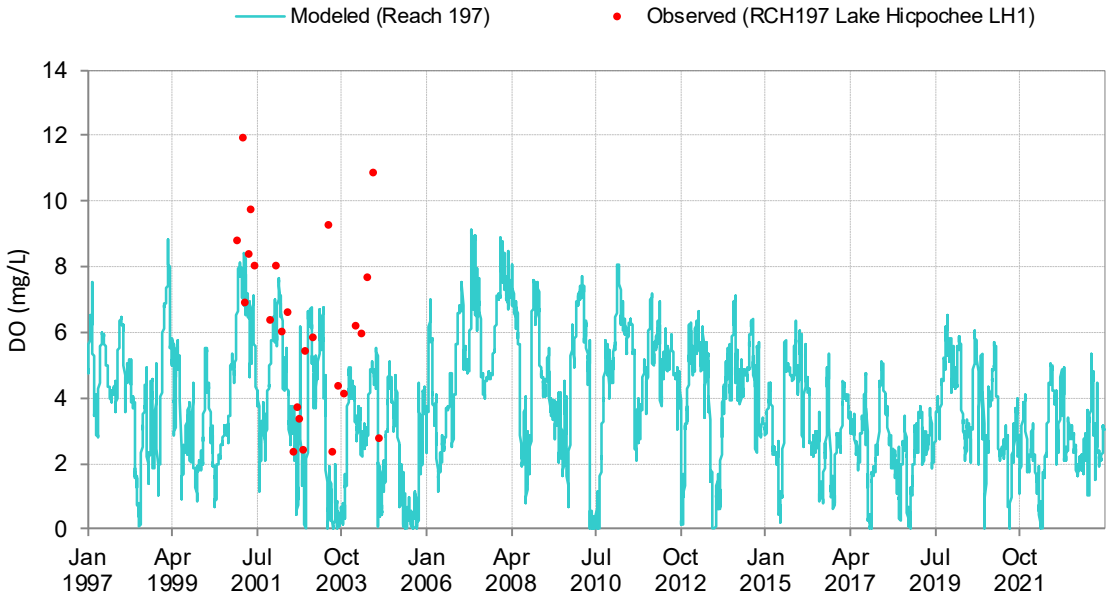


Figure B-66 Modeled Vs Observed DO (mg/L) at RCH197 Lake Hicpochee LH1

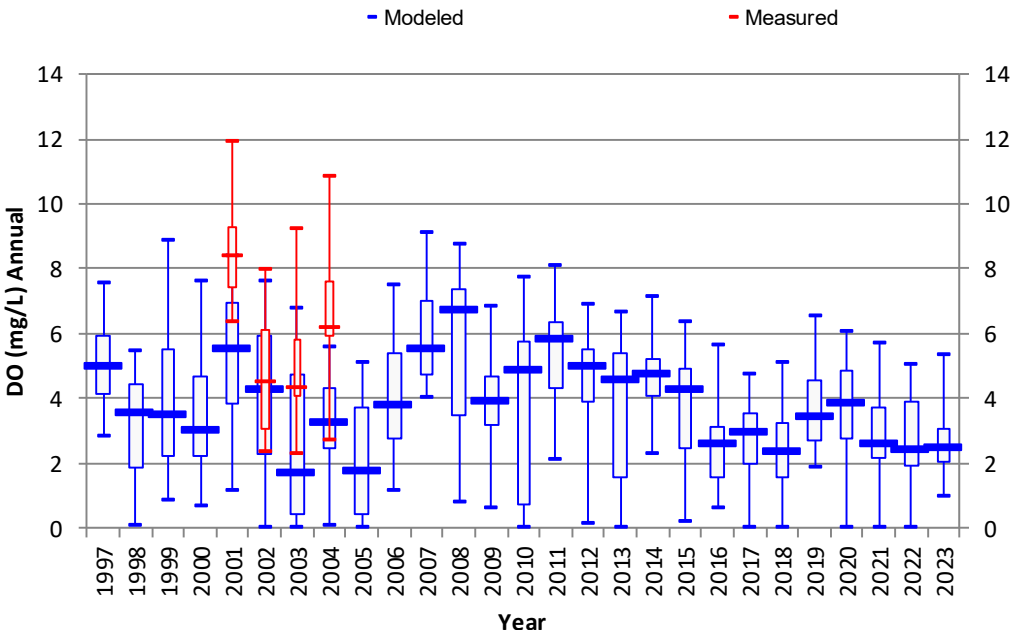


Figure B-67 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH197 Lake Hicpochee LH1

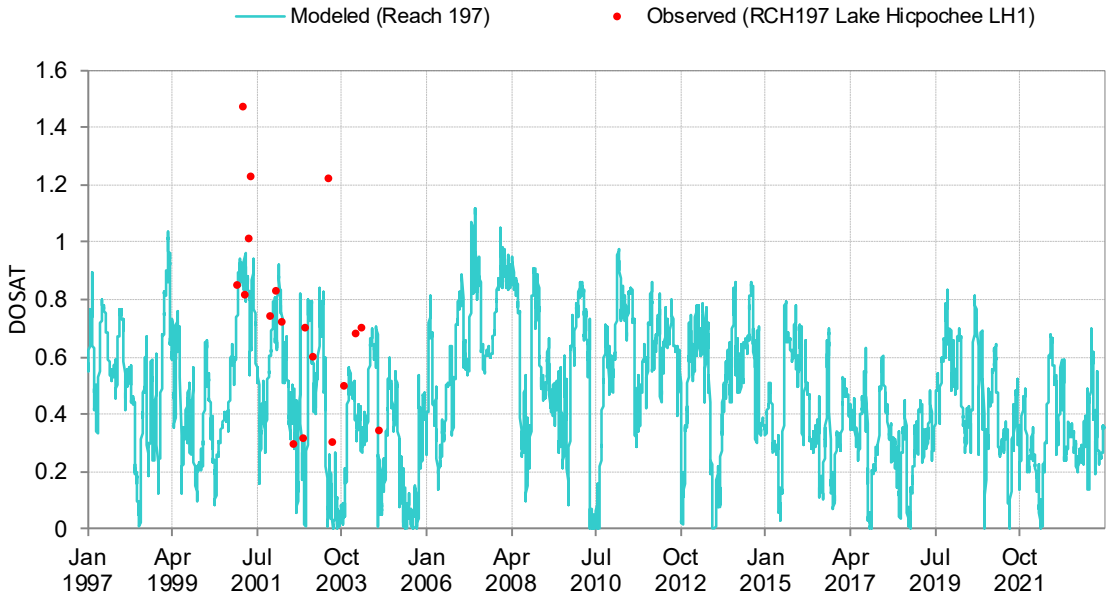


Figure B-68 Modeled Vs Observed DOSAT at RCH197 Lake Hicpochee LH1

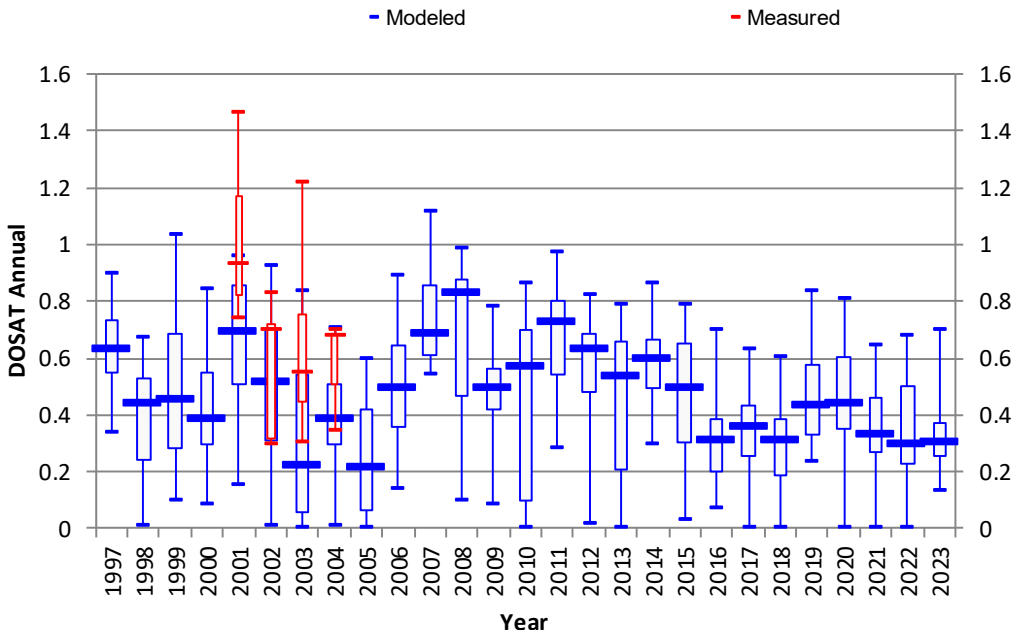


Figure B-69 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH197 Lake Hicpochee LH1

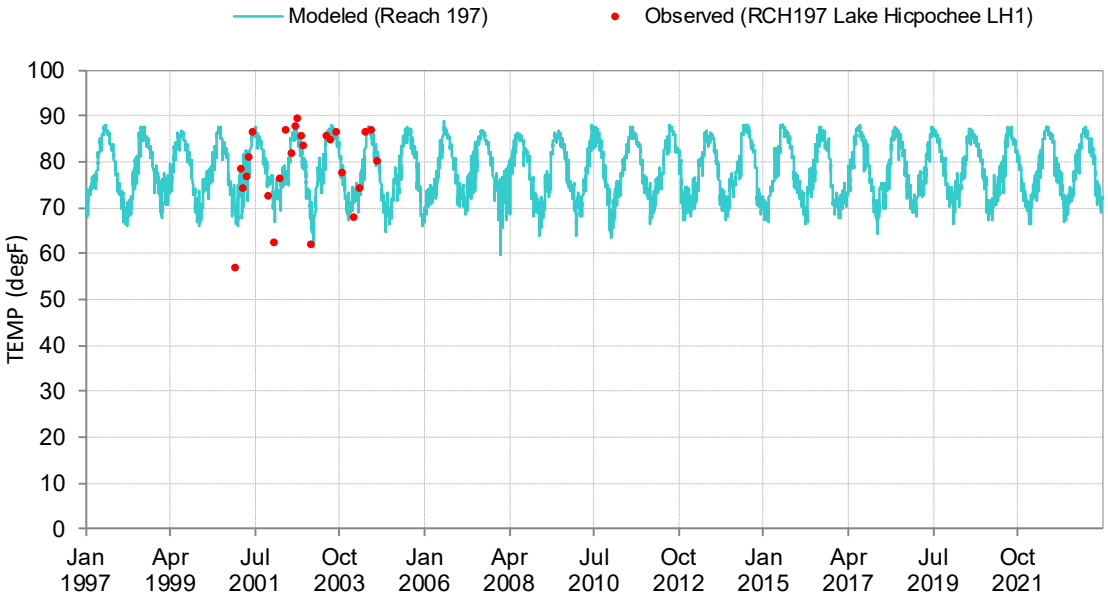


Figure B-70 Modeled Vs Observed TEMP (deg F) at RCH197 Lake Hicpochee LH1

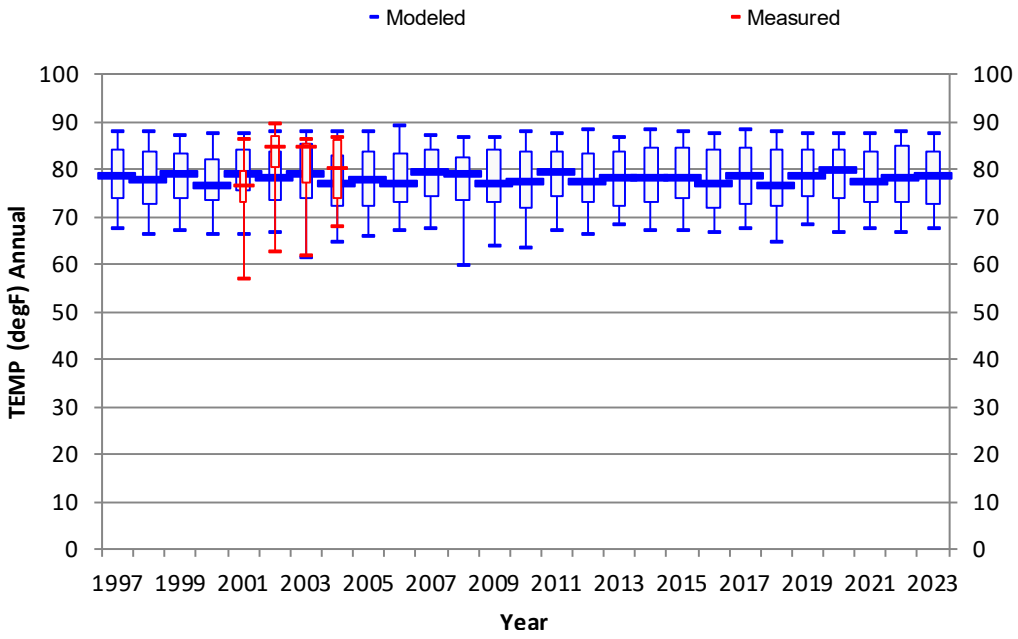


Figure B-71 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH197 Lake Hicpochee LH1

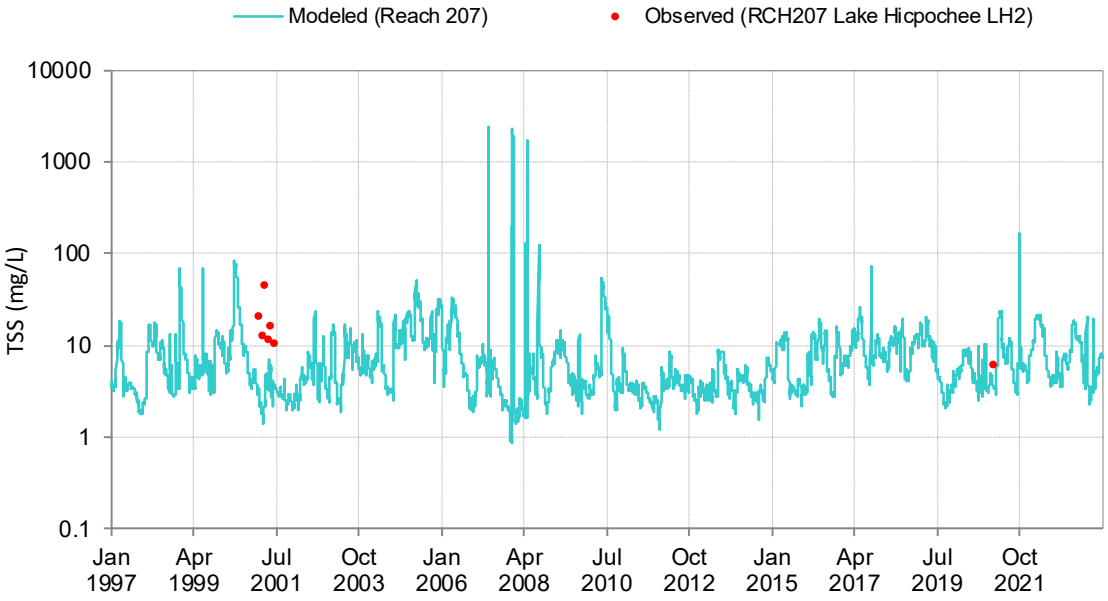


Figure B-72 Modeled Vs Observed TSS (mg/L) at RCH207 Lake Hicpochee LH2

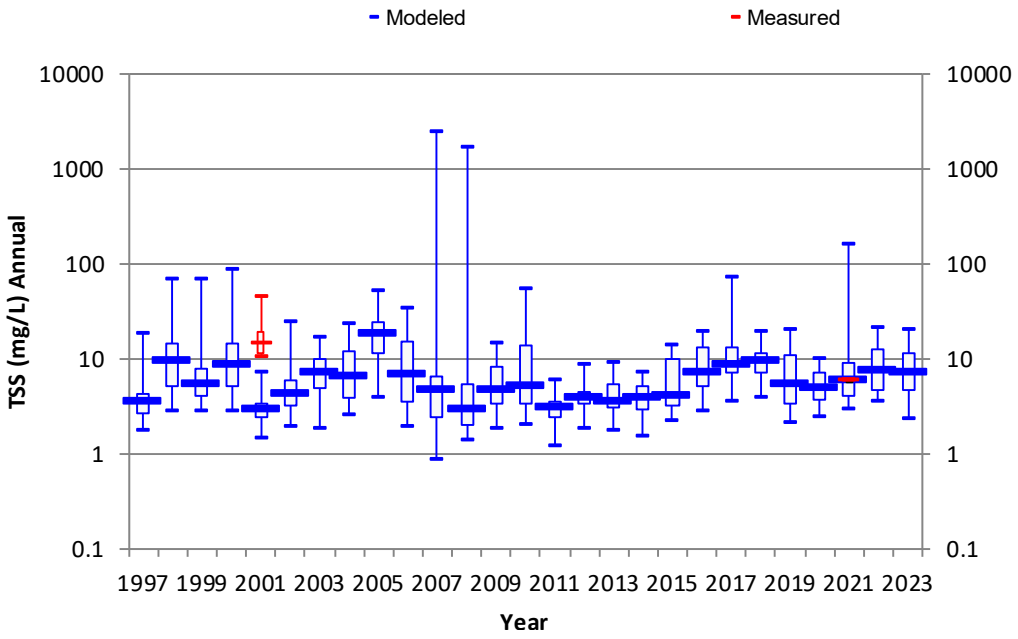


Figure B-73 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH207 Lake Hicpochee LH2

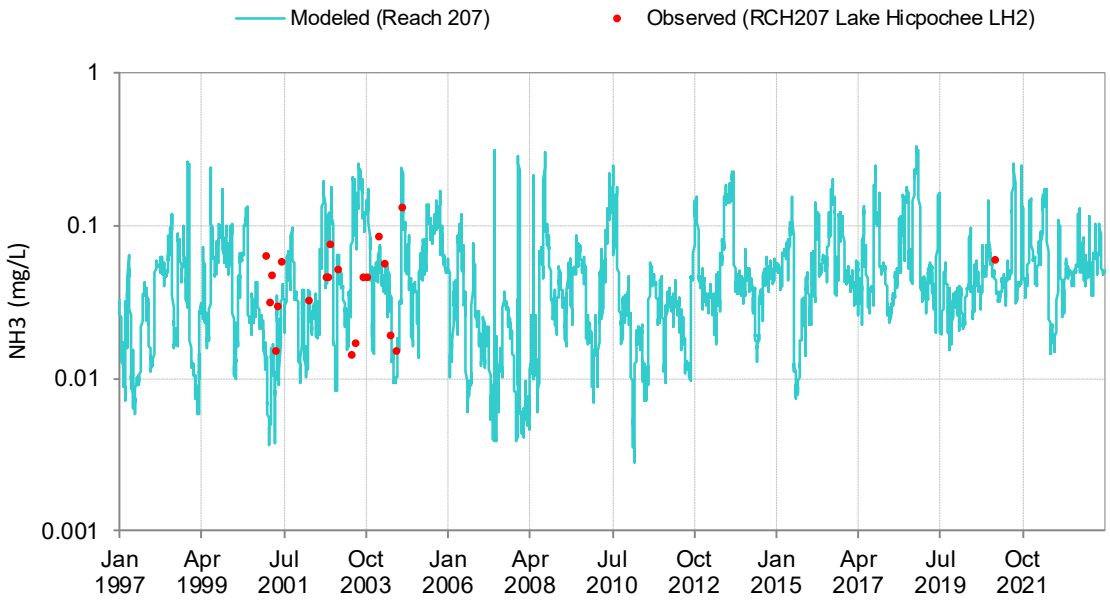


Figure B-74 Modeled Vs Observed NH3 (mg/L) at RCH207 Lake Hicpochee LH2

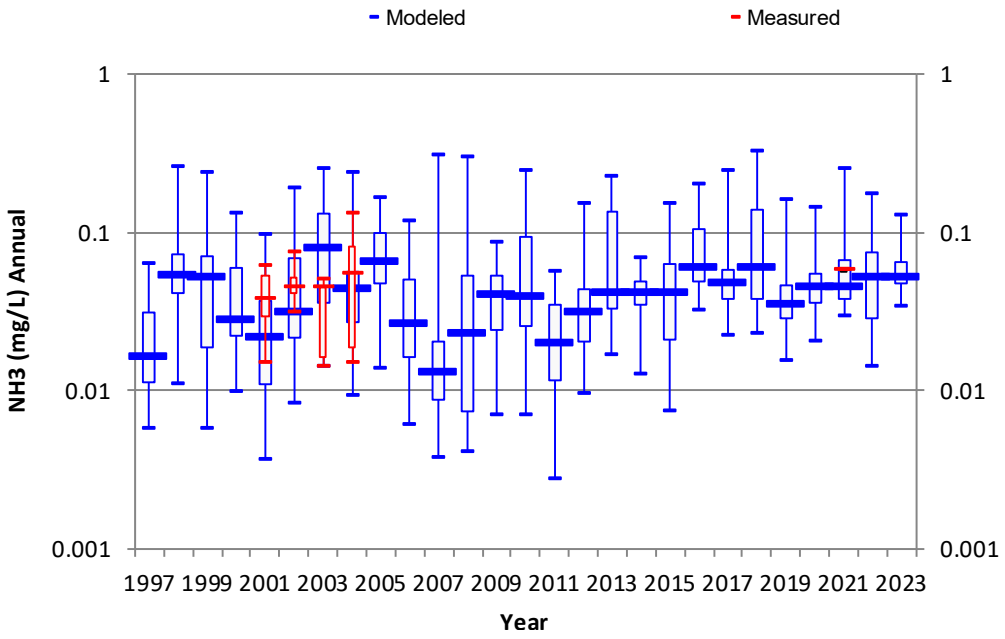


Figure B-75 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH207 Lake Hicpochee LH2

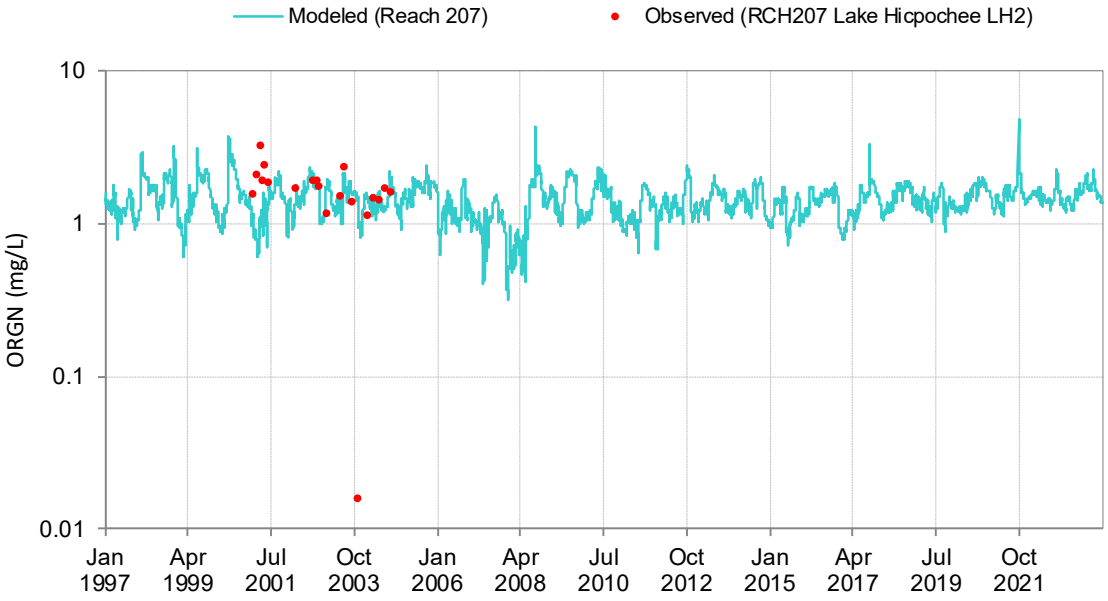


Figure B-76 Modeled Vs Observed ORGN (mg/L) at RCH207 Lake Hicpochee LH2

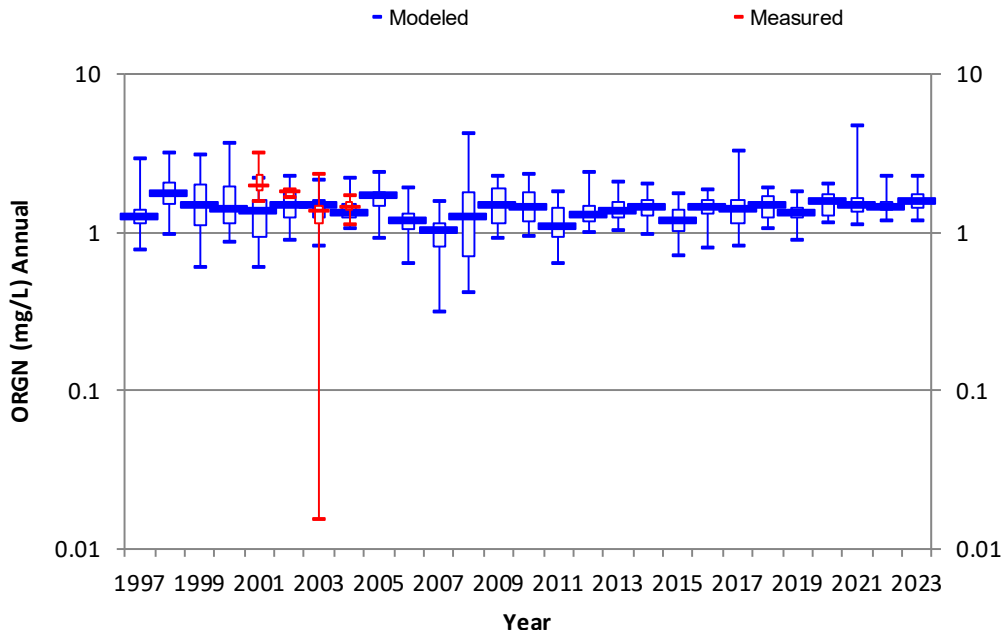


Figure B-77 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH207 Lake Hicpochee LH2

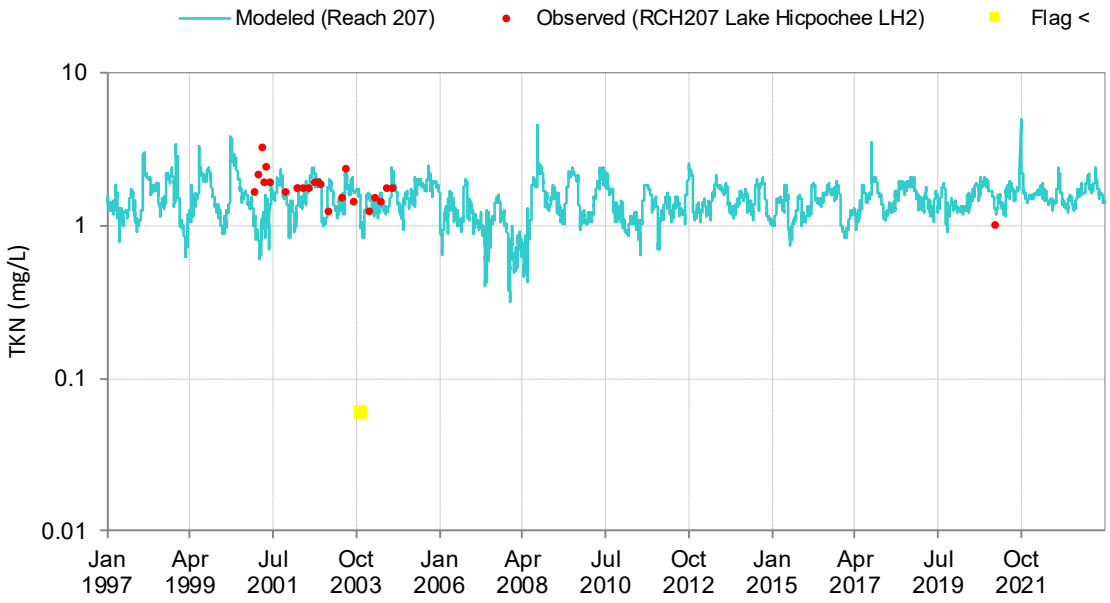


Figure B-78 Modeled Vs Observed TKN (mg/L) at RCH207 Lake Hicpochee LH2

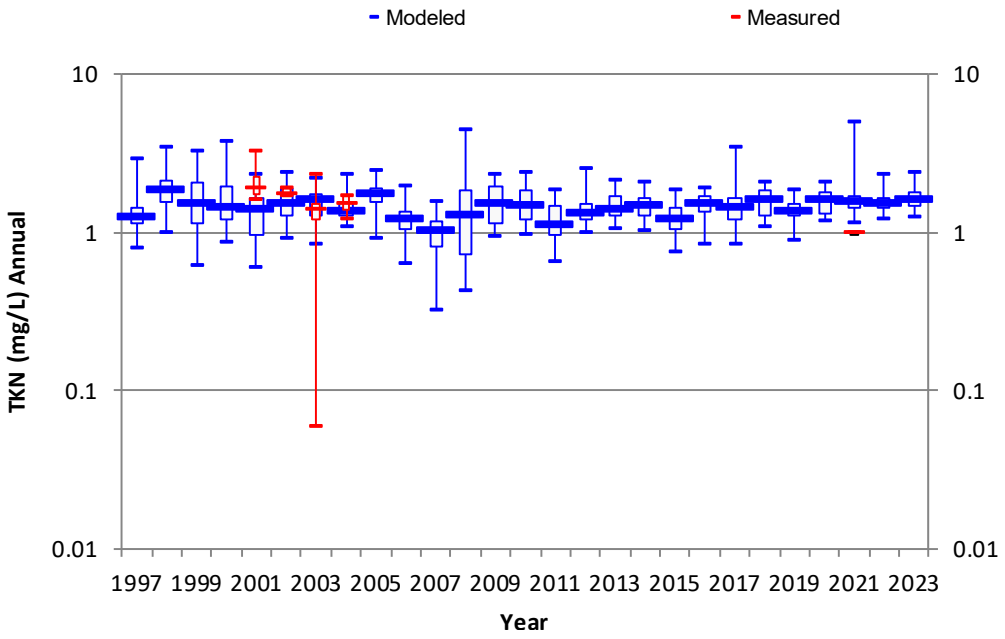


Figure B-79 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH207 Lake Hicpochee LH2

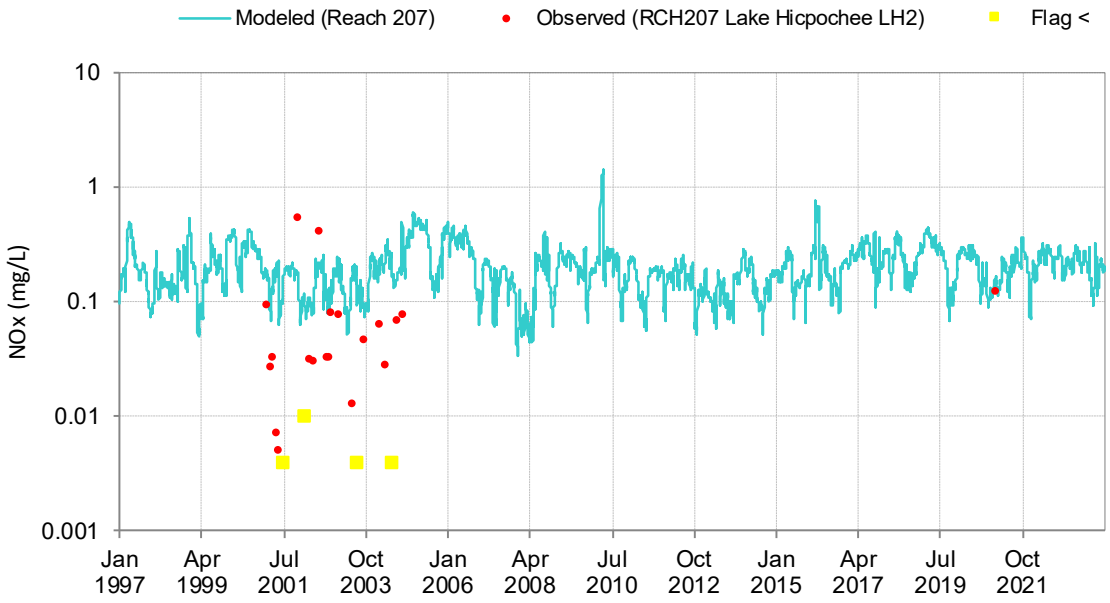


Figure B-80 Modeled Vs Observed NOx (mg/L) at RCH207 Lake Hicpochee LH2

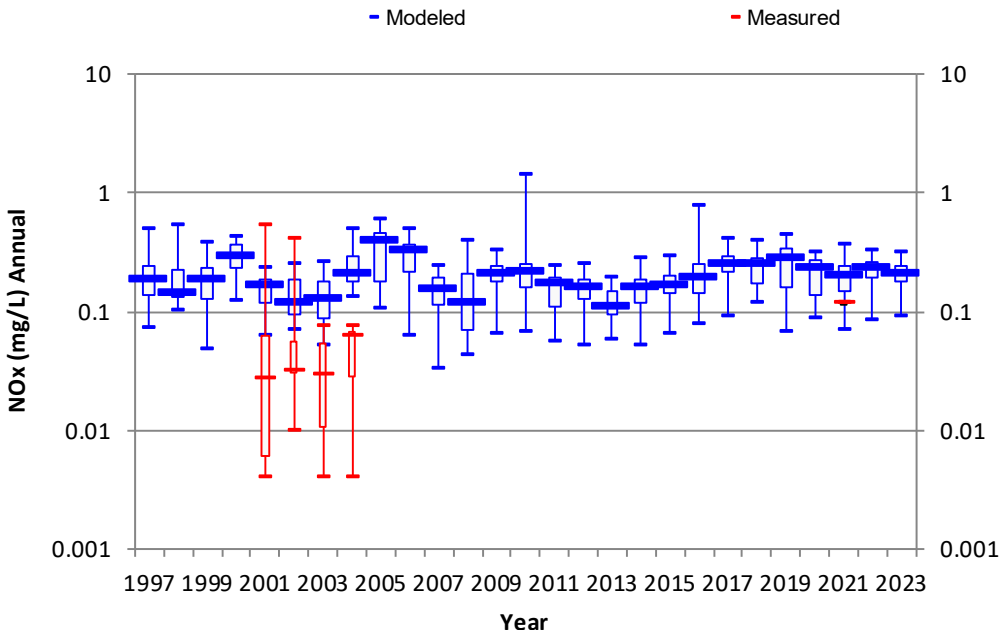


Figure B-81 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH207 Lake Hicpochee LH2

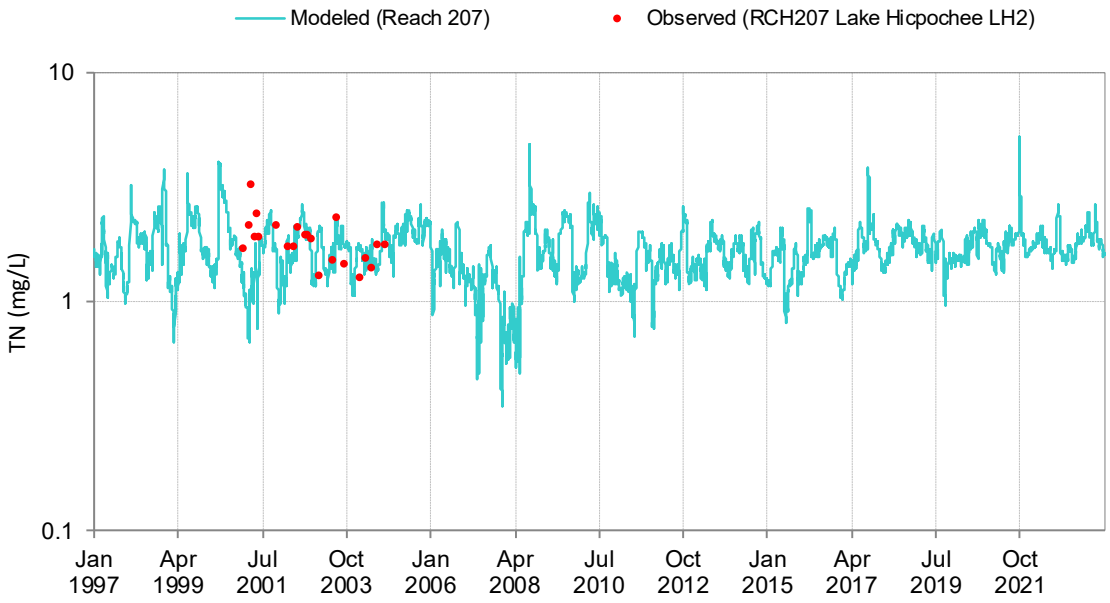


Figure B-82 Modeled Vs Observed TN (mg/L) at RCH207 Lake Hicpochee LH2

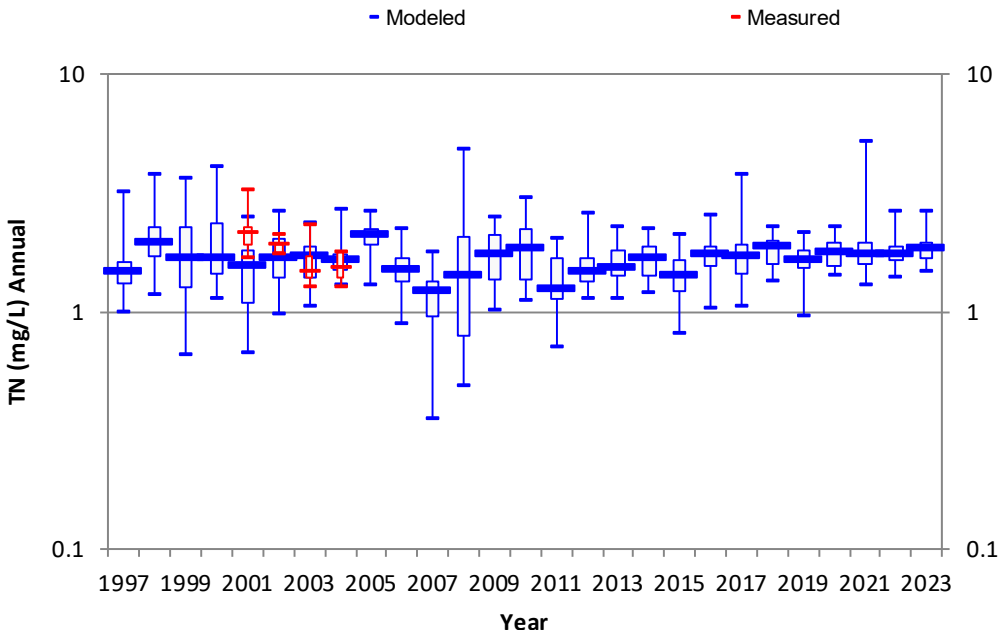


Figure B-83 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH207 Lake Hicpochee LH2

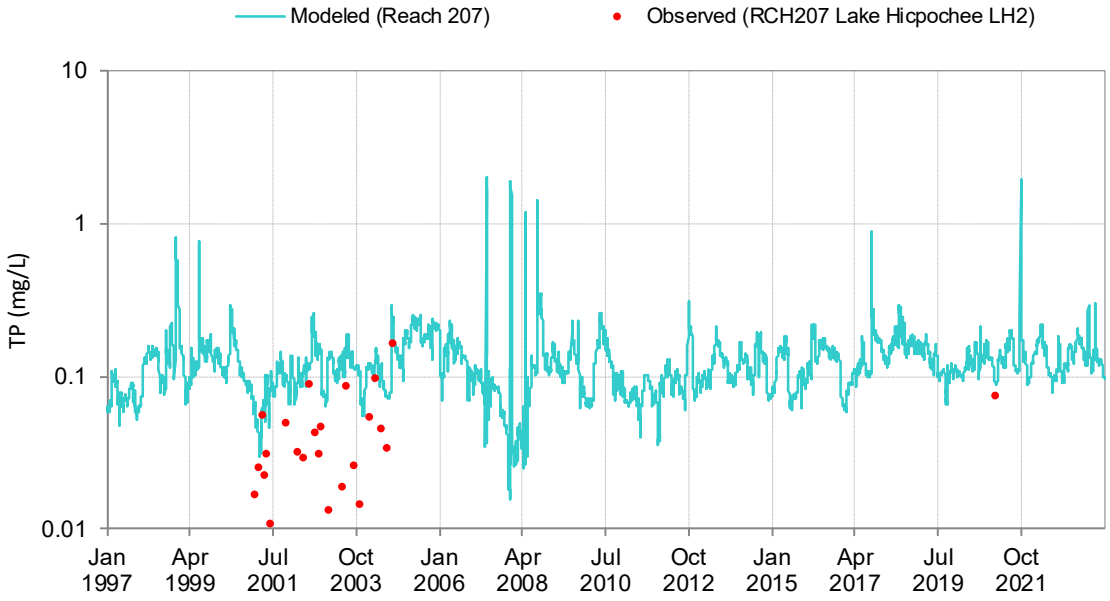


Figure B-84 Modeled Vs Observed TP (mg/L) at RCH207 Lake Hicpochee LH2

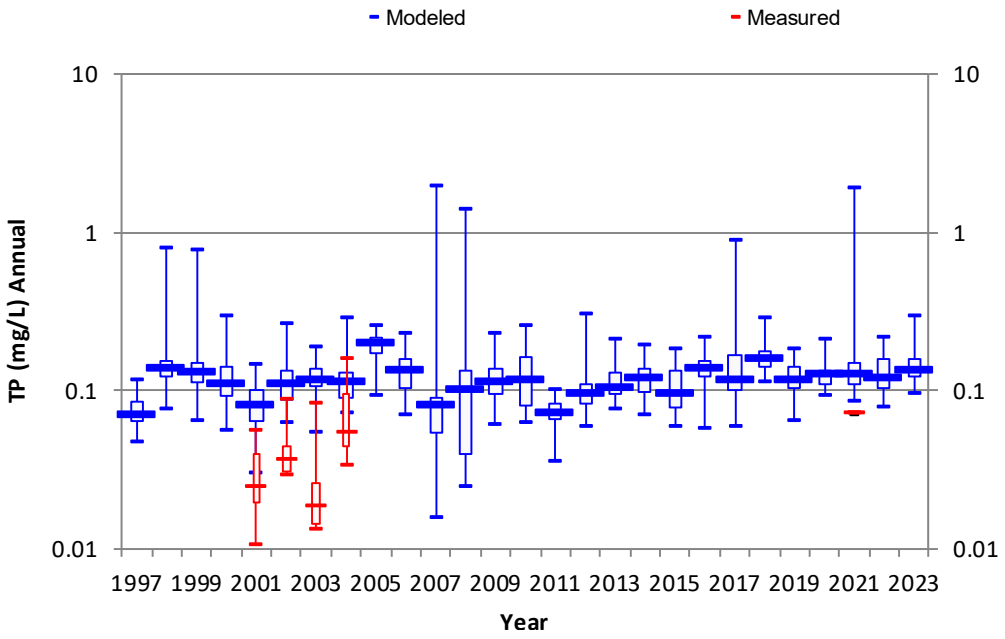


Figure B-85 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH207 Lake Hicpochee LH2

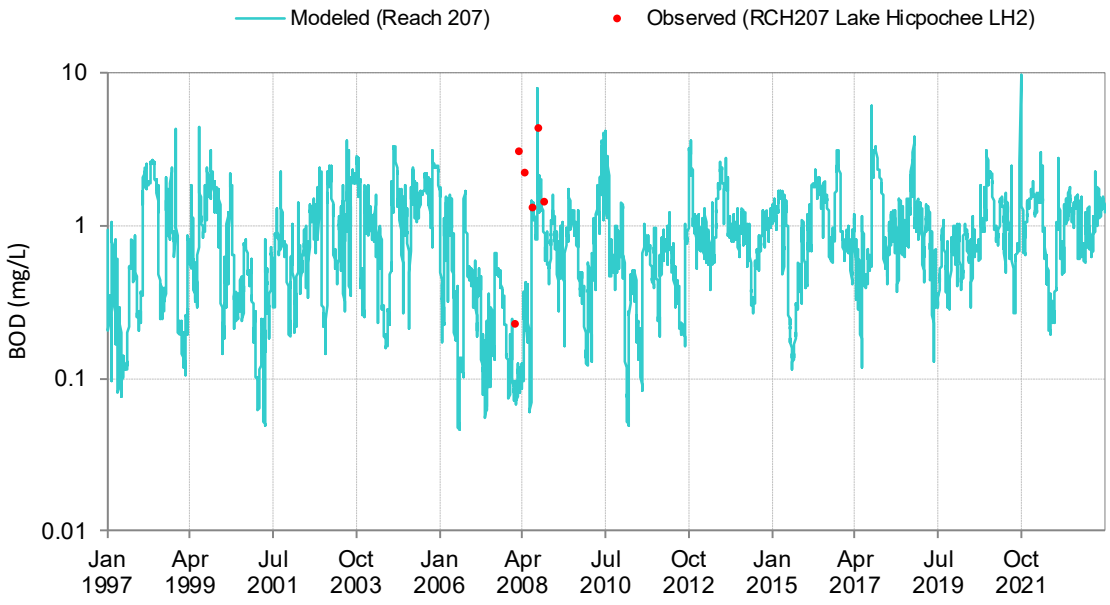


Figure B-86 Modeled Vs Observed BOD (mg/L) at RCH207 Lake Hicpochee LH2

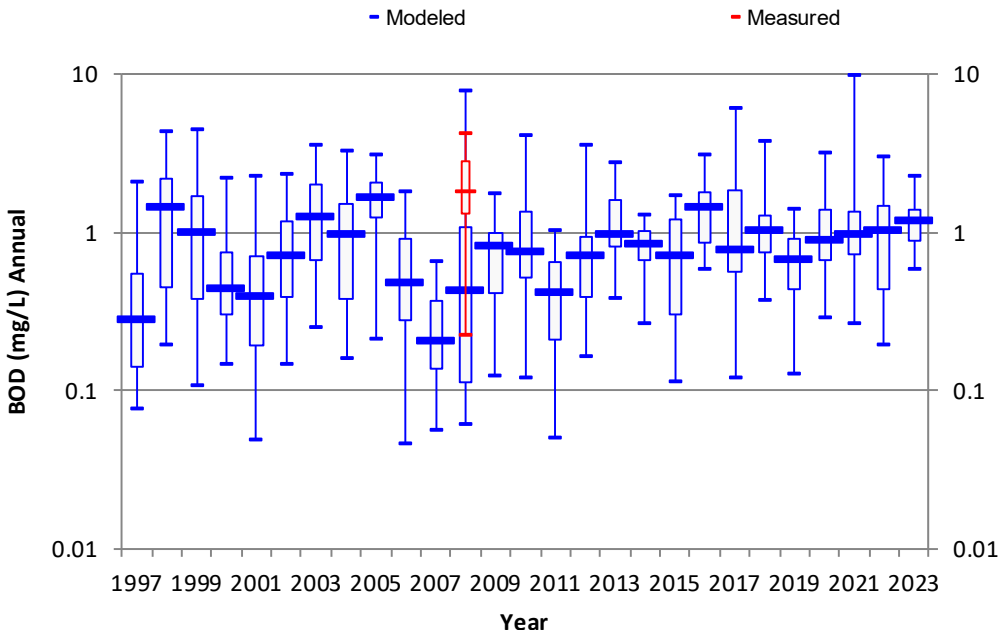


Figure B-87 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH207 Lake Hicpochee LH2

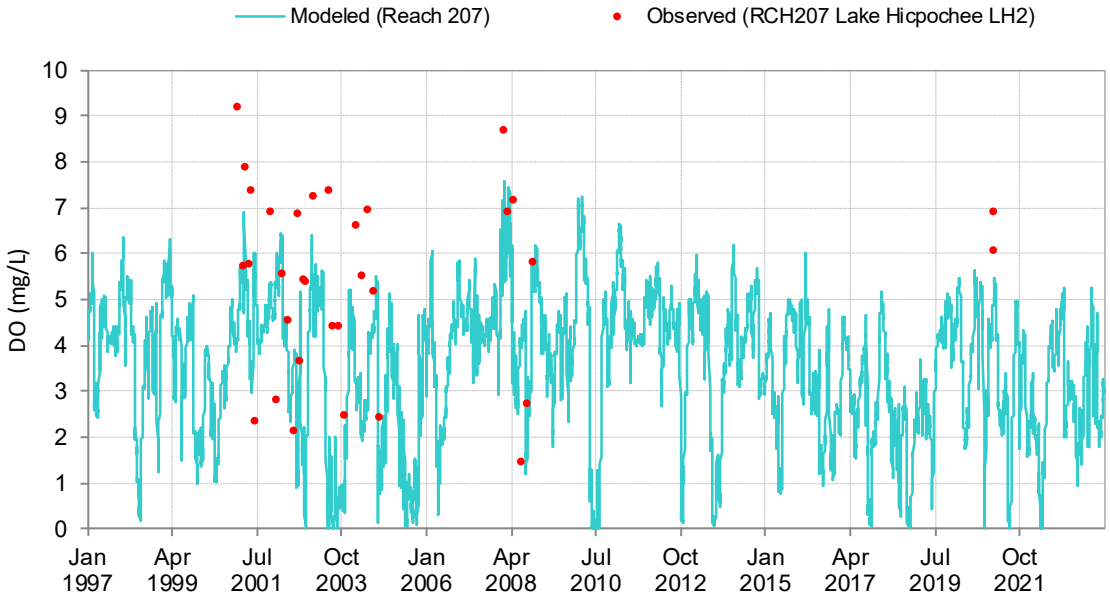


Figure B-88 Modeled Vs Observed DO (mg/L) at RCH207 Lake Hicpochee LH2

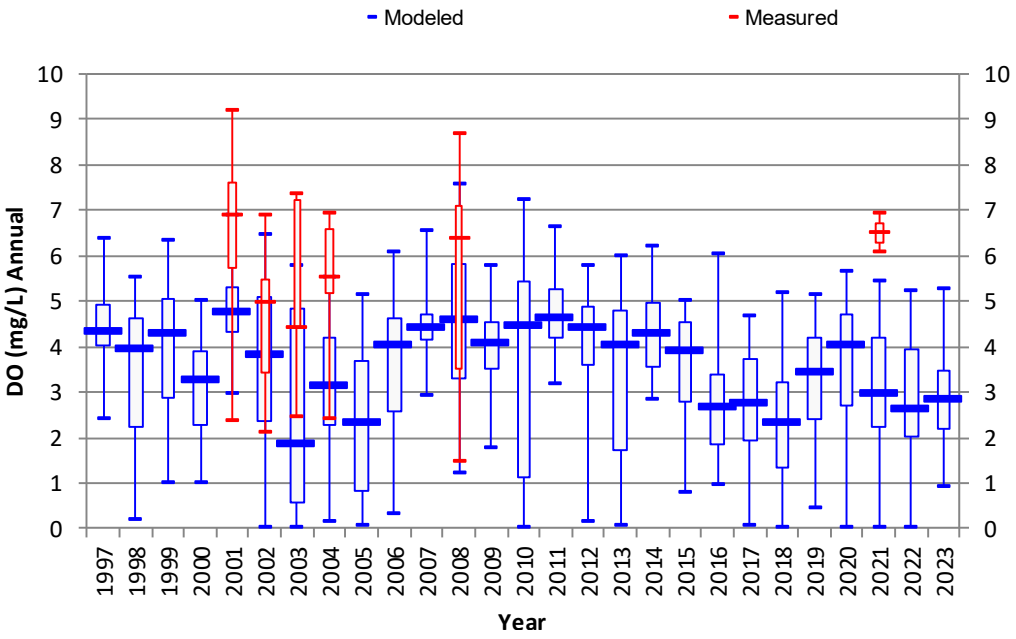


Figure B-89 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH207 Lake Hicpochee LH2

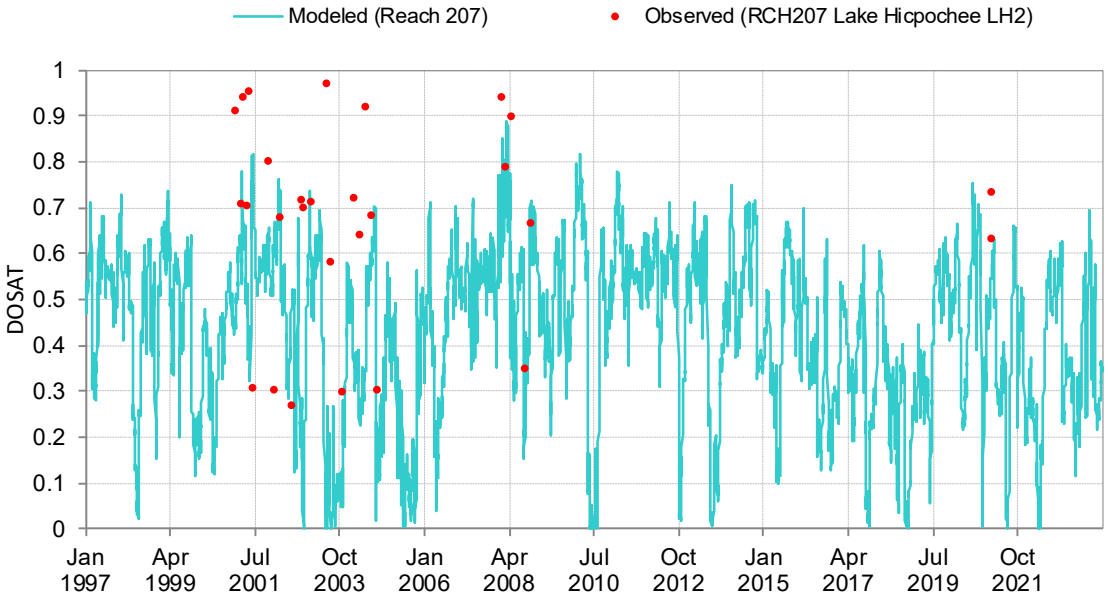


Figure B-90 Modeled Vs Observed DOSAT at RCH207 Lake Hicpochee LH2

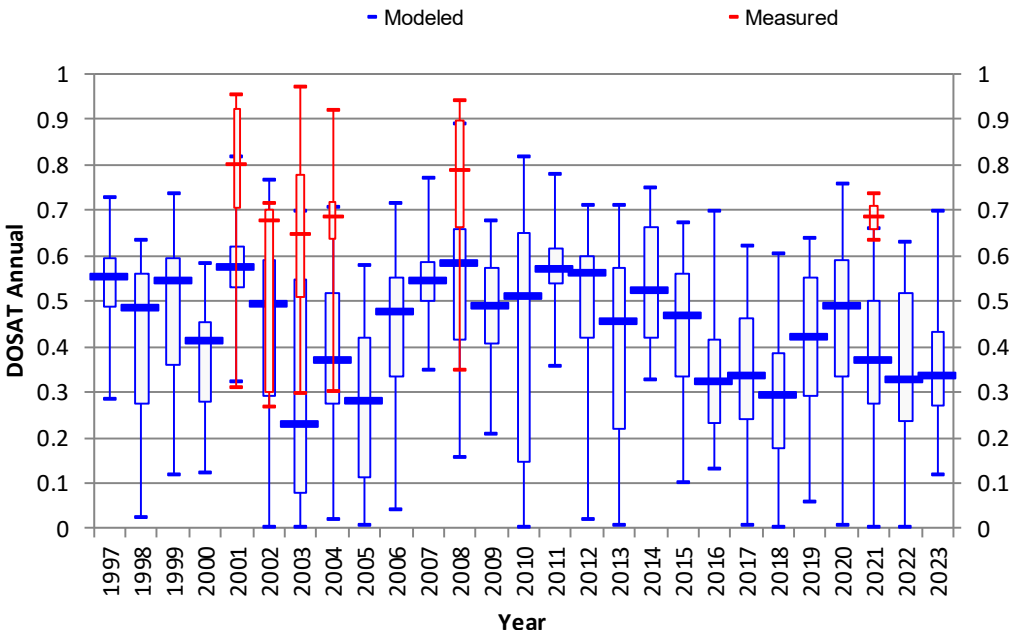


Figure B-91 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH207 Lake Hicpochee LH2

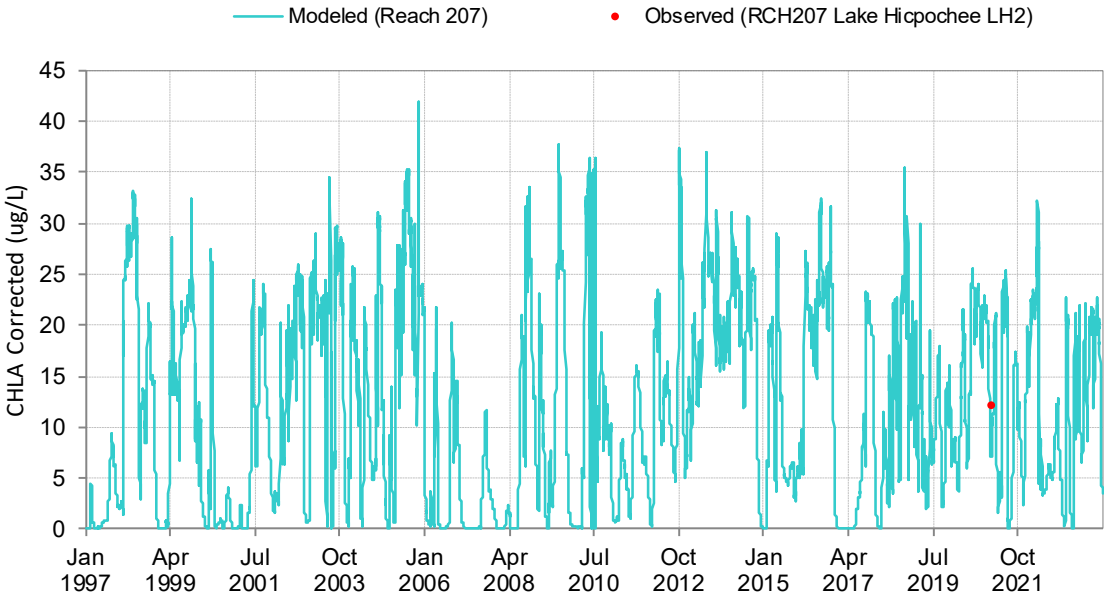


Figure B-92 Modeled Vs Observed CHLA Corrected (ug/L) at RCH207 Lake Hicpochee LH2

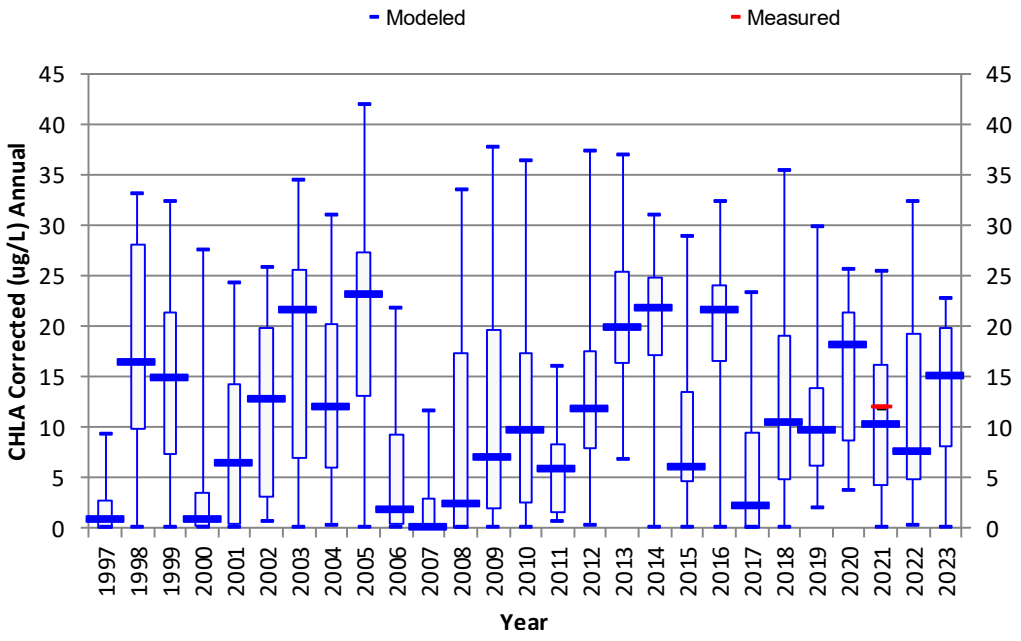


Figure B-93 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH207 Lake Hicpochee LH2

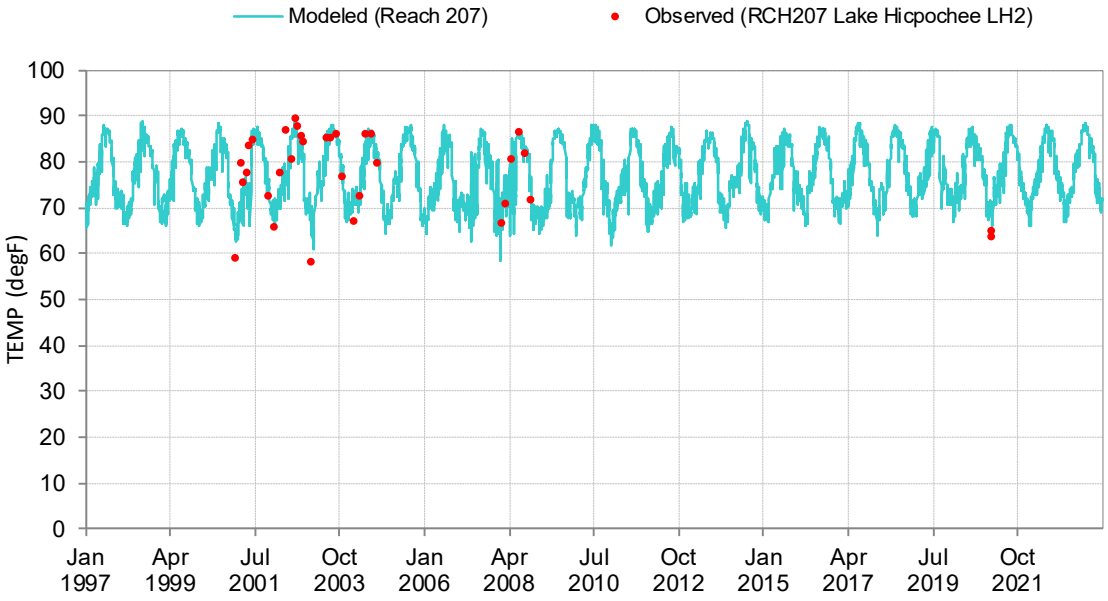


Figure B-94 Modeled Vs Observed TEMP (deg F) at RCH207 Lake Hicpochee LH2

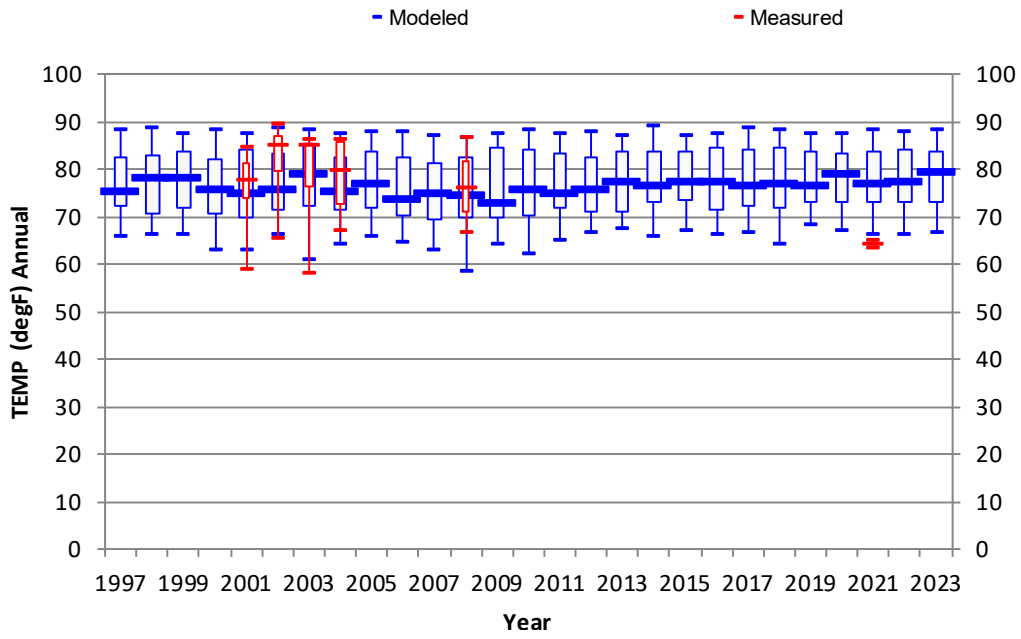


Figure B-95 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH207 Lake Hicpochee LH2

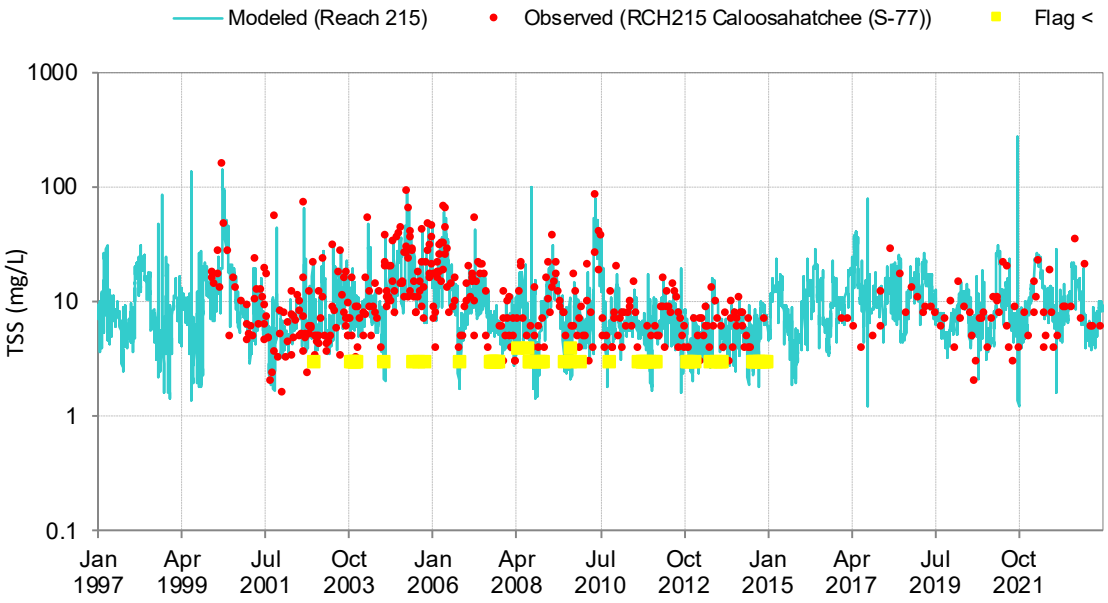


Figure B-96 Modeled Vs Observed TSS (mg/L) at RCH215 Caloosahatchee (S-77)

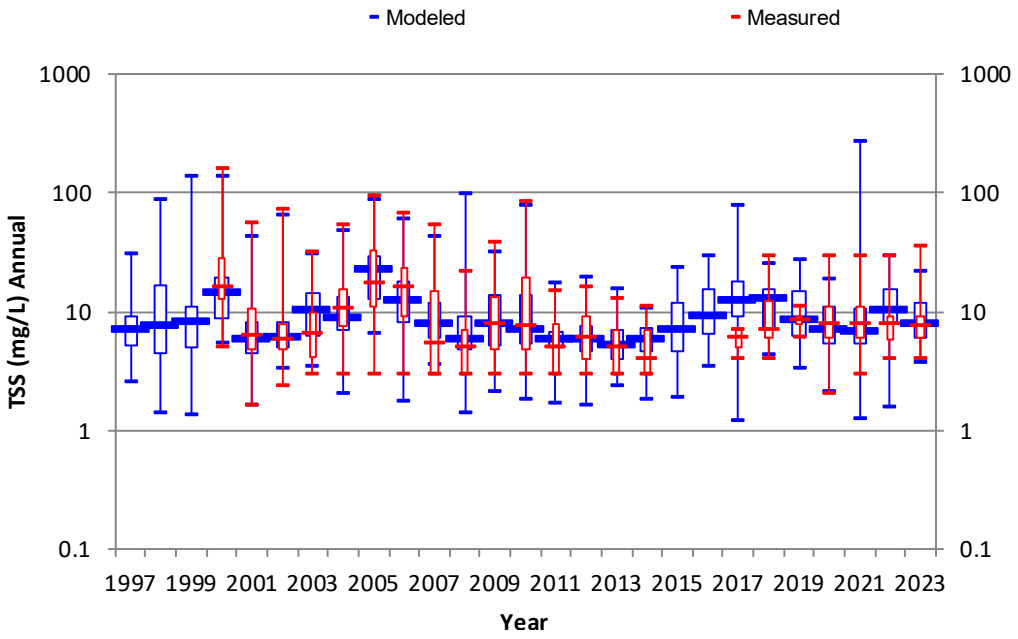


Figure B-97 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH215 Caloosahatchee (S-77)

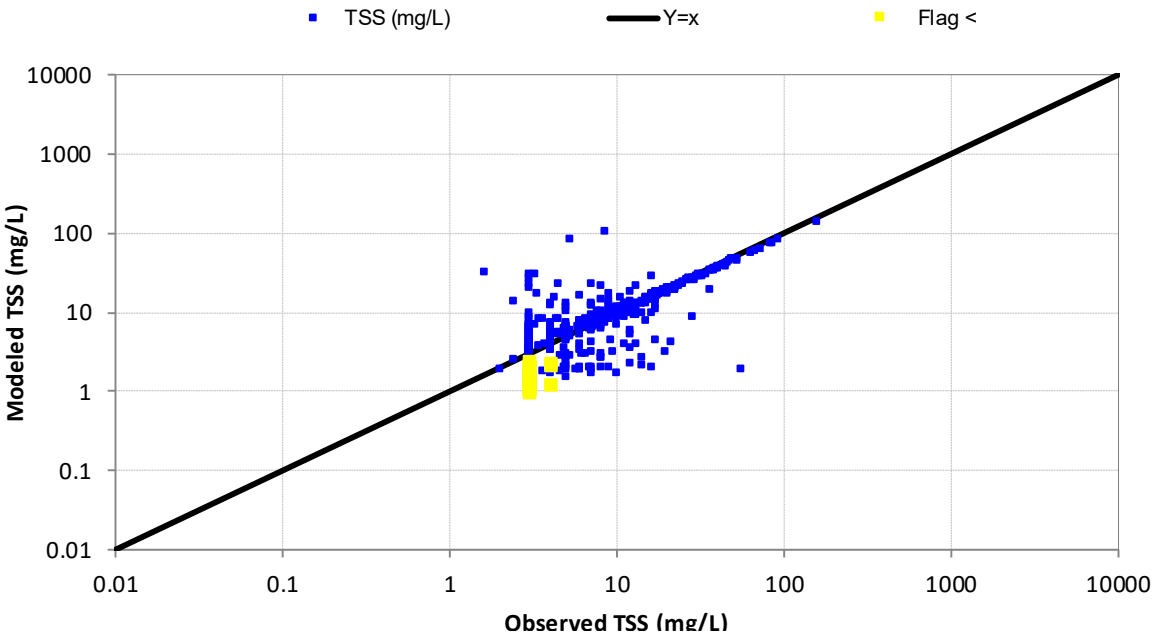


Figure B-98 Concentration at RCH215 Caloosahatchee (S-77)

Table B- 19 Monthly TSS Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	10.02	9.51	-5.1	VG
Feb	11.79	9.86	-16.4	G
Mar	11.56	13.38	15.8	G
Apr	17.52	13.99	-20.1	G
May	24.93	18.10	-27.4	F
Jun	11.48	11.64	1.4	VG
Jul	9.87	9.24	-6.3	VG
Aug	6.09	7.42	21.7	G
Sep	8.10	7.87	-2.8	VG
Oct	7.14	7.22	1.2	VG
Nov	8.95	8.32	-7.0	VG
Dec	9.32	9.09	-2.4	VG
Average*	11.40	10.47	-8.1	VG
Median**	9.95	9.38	-5.7	VG
R^2	N/A	N/A	0.90	VG

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 20 Annual TSS Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	8.30	N/A	N/A
1998	N/A	10.90	N/A	N/A
1999	N/A	9.23	N/A	N/A
2000	29.54	21.20	-28.2	F
2001	9.58	6.91	-27.9	F
2002	8.63	7.30	-15.4	G
2003	8.60	10.71	24.6	G
2004	13.41	11.30	-15.8	G
2005	23.65	22.56	-4.6	VG
2006	18.90	14.78	-21.8	G
2007	9.40	9.19	-2.2	VG
2008	5.97	7.61	27.5	F
2009	10.14	9.19	-9.4	VG
2010	14.52	13.29	-8.5	VG
2011	5.17	6.00	16.1	G
2012	6.98	6.24	-10.6	VG
2013	5.18	5.97	15.2	G
2014	4.78	5.97	24.9	G
2015	N/A	8.13	N/A	N/A
2016	N/A	10.63	N/A	N/A
2017	5.80	14.33	147.1	P
2018	14.17	12.25	-13.5	VG
2019	8.50	10.86	27.8	F
2020	6.58	7.98	21.2	G
2021	9.46	10.05	6.3	VG
2022	9.54	12.37	29.7	F
2023	12.38	9.56	-22.7	G
Average*	10.95	10.47	-4.3	VG
Median**	9.43	9.56	1.4	VG
R^2	N/A	N/A	0.76	G

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 21 Daily TSS Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Statistic	Results	Rating
Count (number)	508	N/A
Average Error (%)	26.8	F
Median Error (%)	0.0	VG
RMSE (mg/L)	5.22	N/A
R^2	0.85	VG

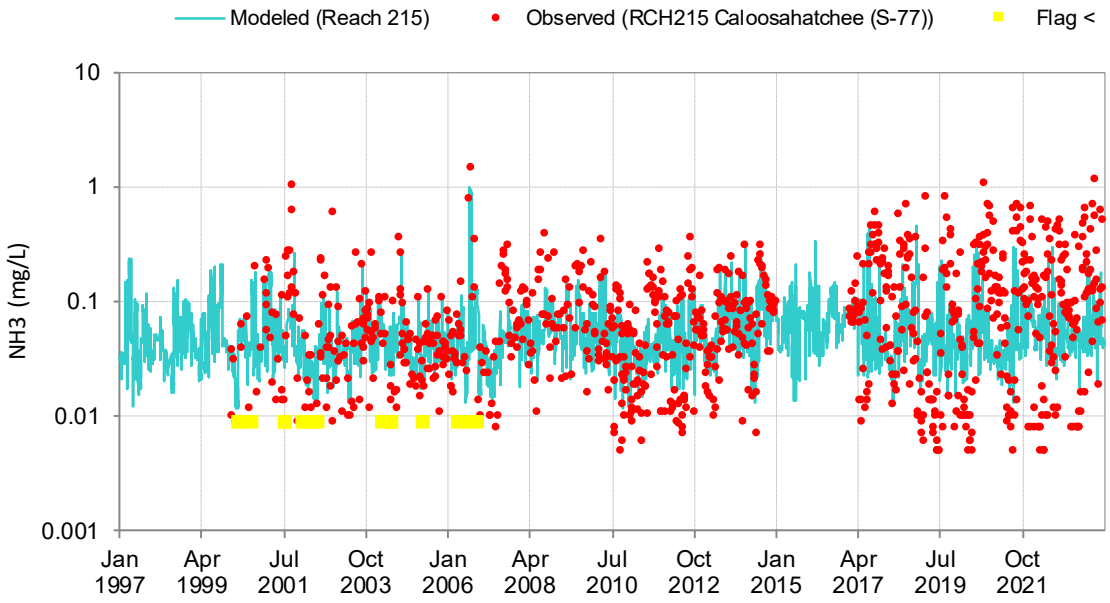


Figure B-99 Modeled Vs Observed NH3 (mg/L) at RCH215 Caloosahatchee (S-77)

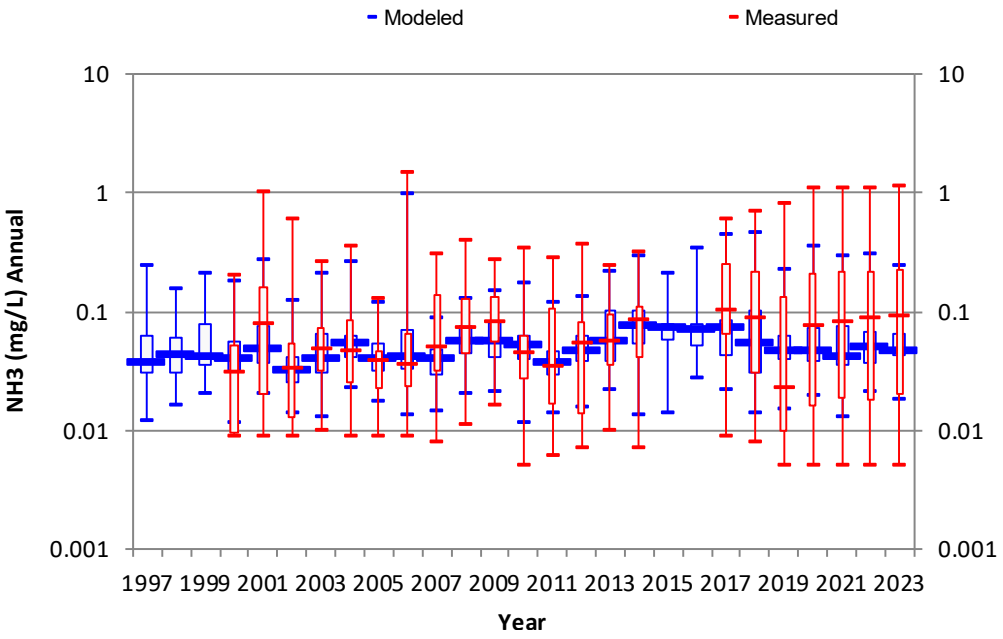


Figure B-100 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH215 Caloosahatchee (S-77)

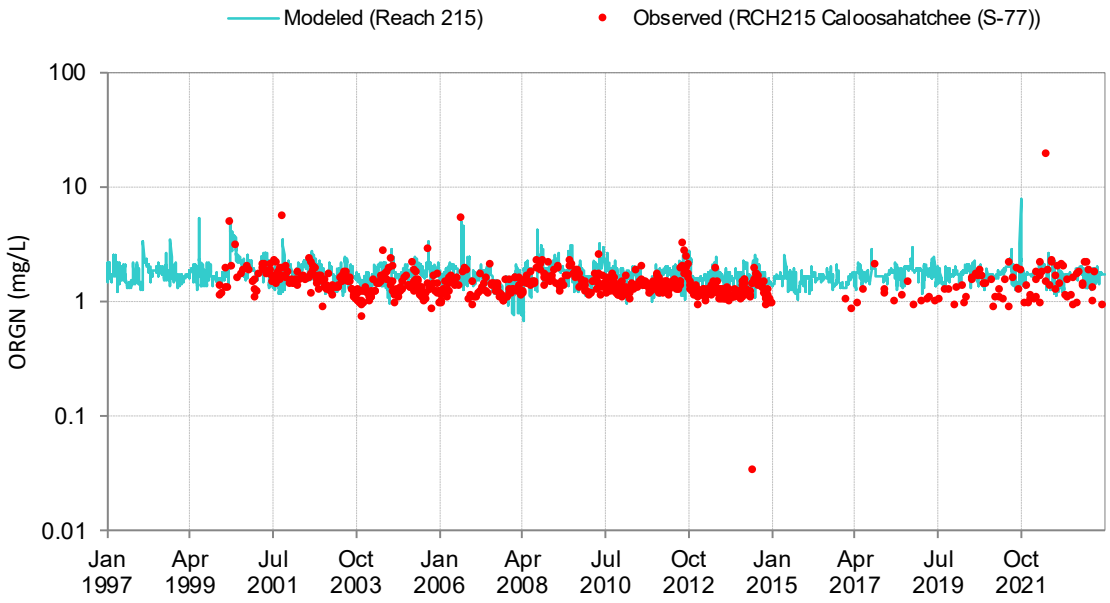


Figure B-101 Modeled Vs Observed ORGN (mg/L) at RCH215 Caloosahatchee (S-77)

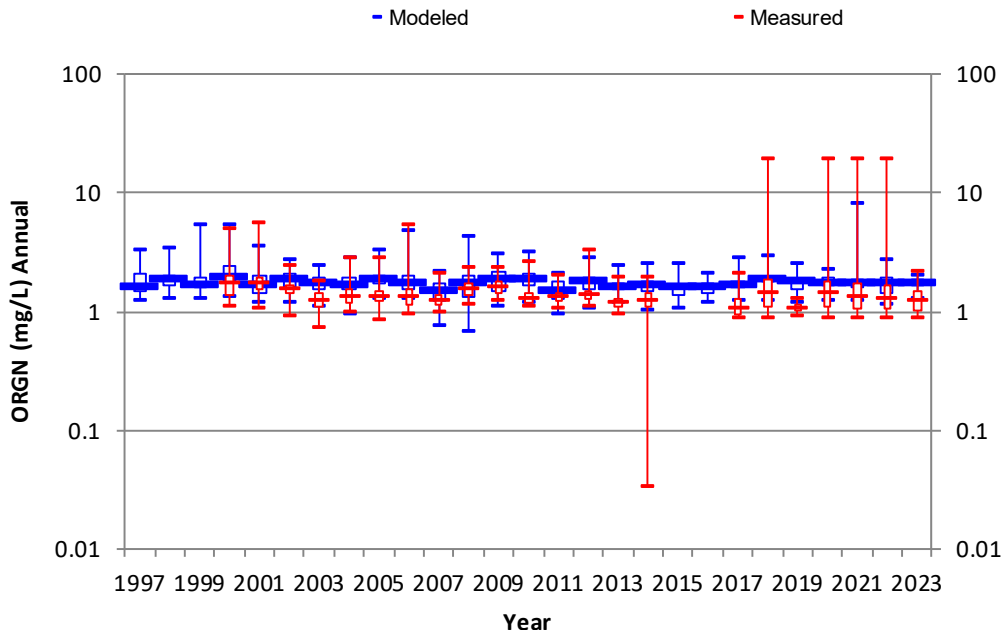


Figure B-102 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH215 Caloosahatchee (S-77)

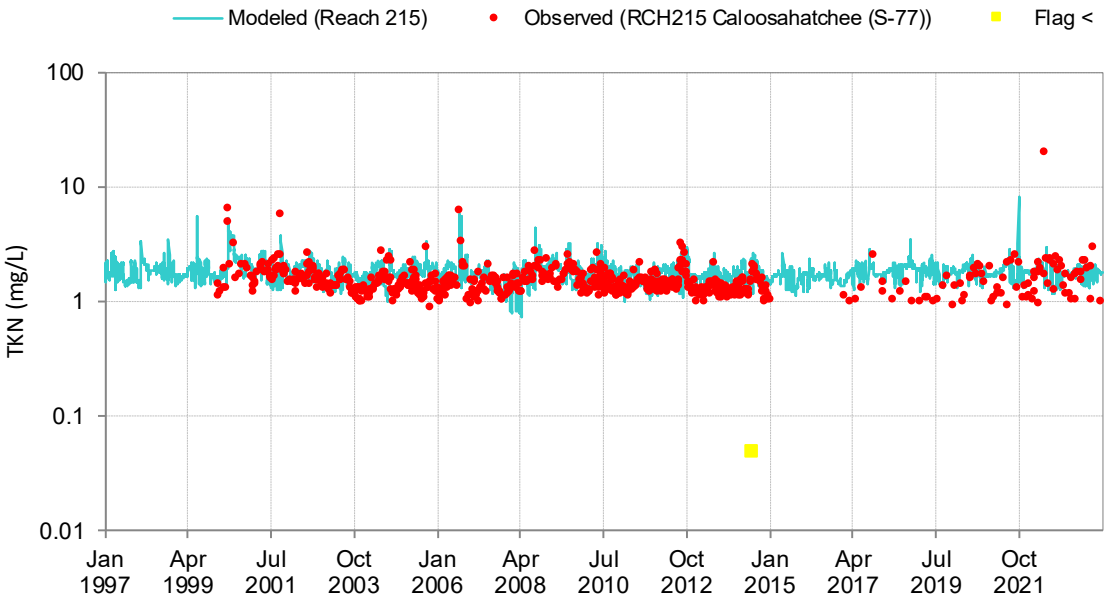


Figure B-103 Modeled Vs Observed TKN (mg/L) at RCH215 Caloosahatchee (S-77)

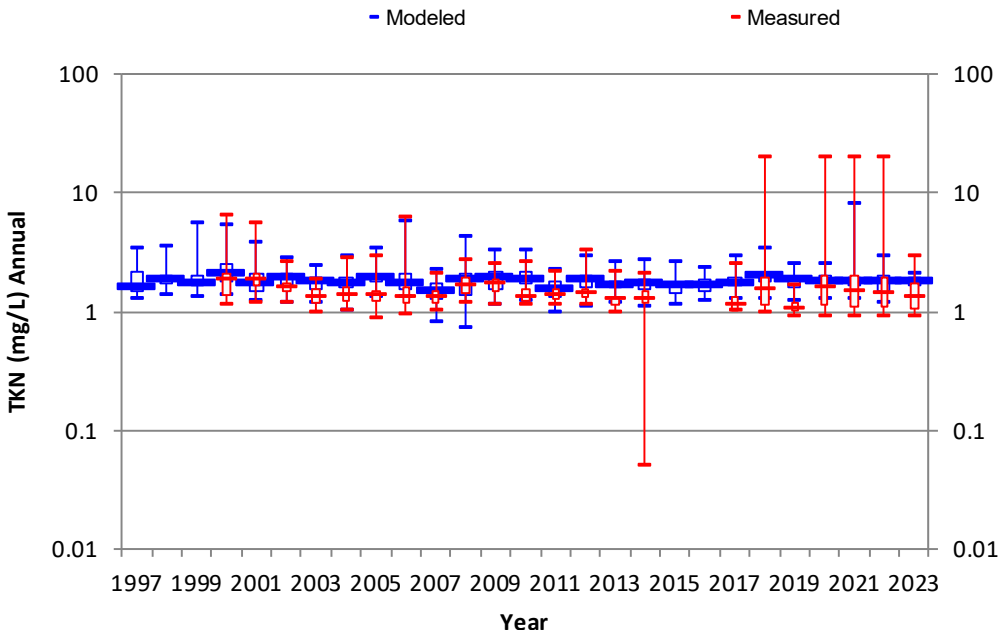


Figure B-104 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH215 Caloosahatchee (S-77)

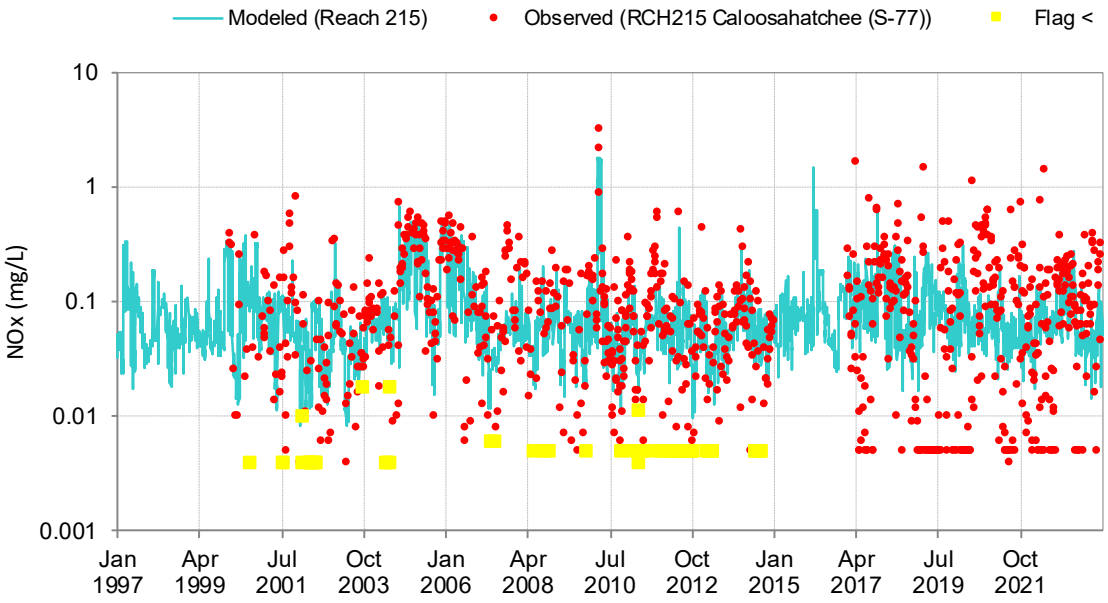


Figure B-105 Modeled Vs Observed NOx (mg/L) at RCH215 Caloosahatchee (S-77)

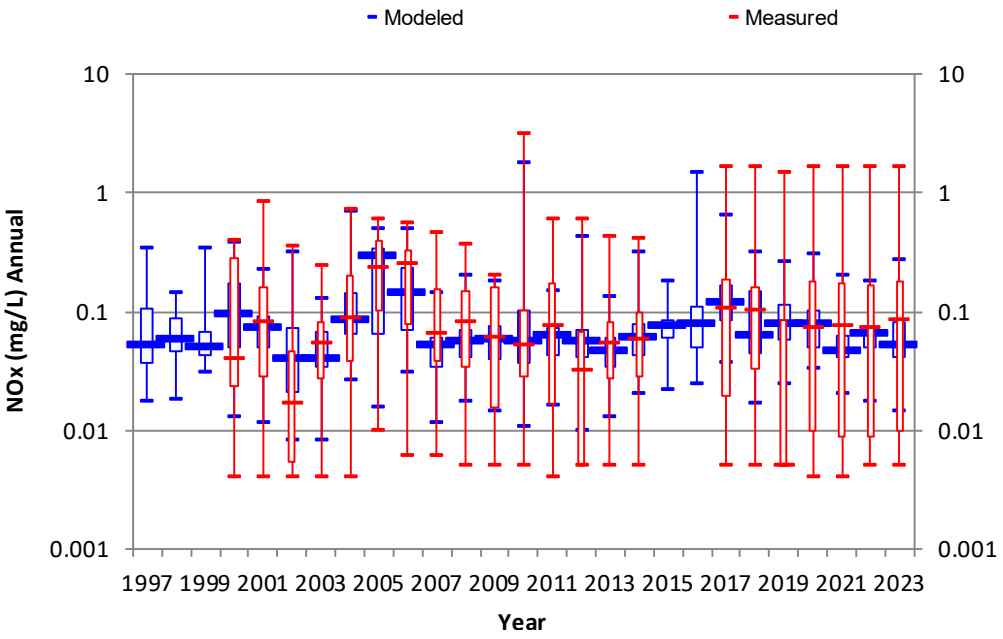


Figure B-106 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH215 Caloosahatchee (S-77)

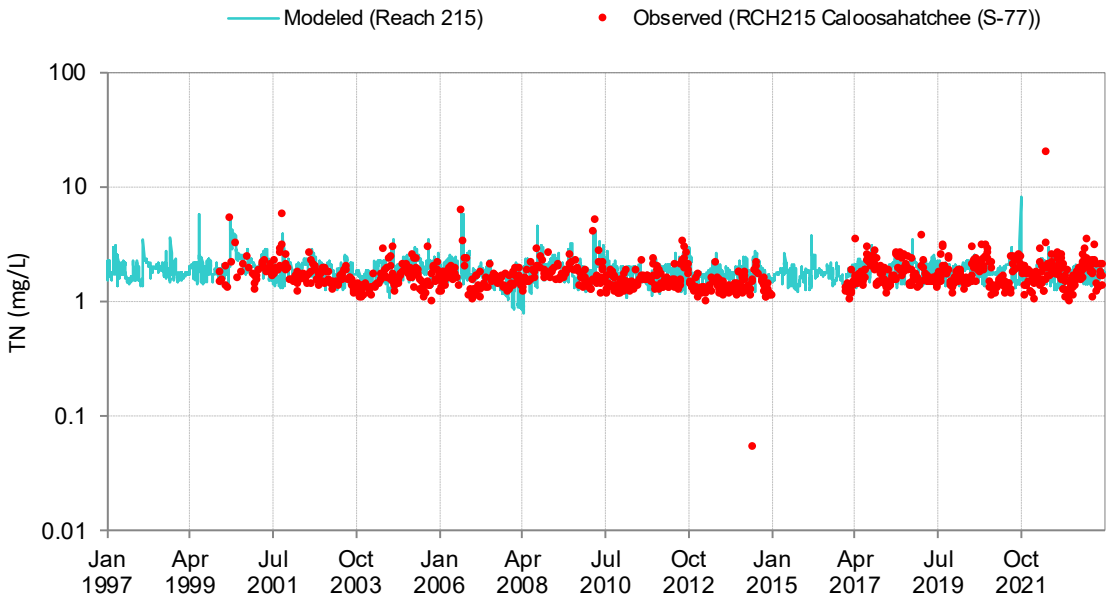


Figure B-107 Modeled Vs Observed TN (mg/L) at RCH215 Caloosahatchee (S-77)

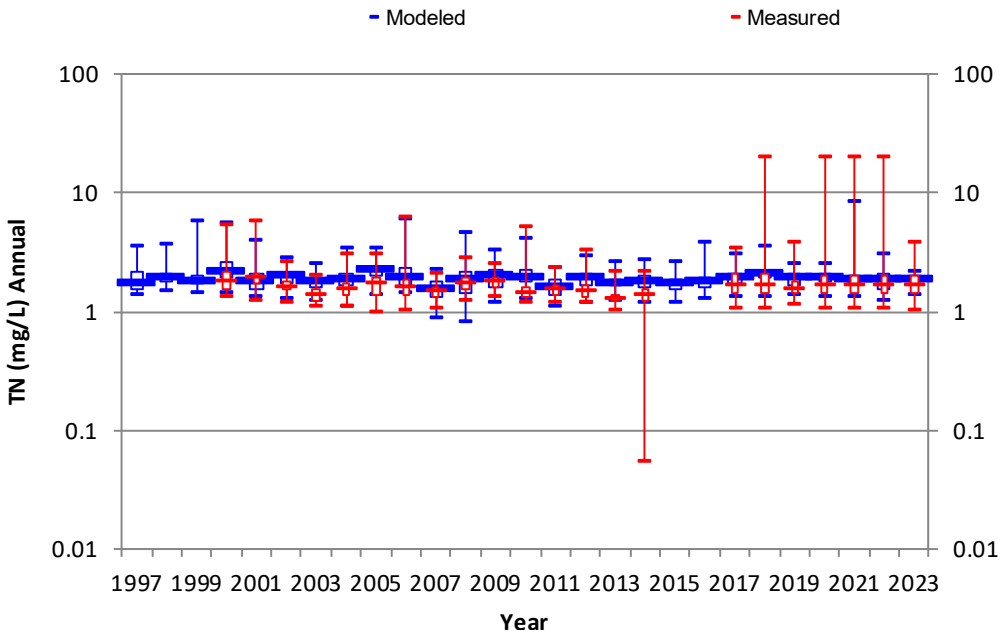


Figure B-108 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH215 Caloosahatchee (S-77)

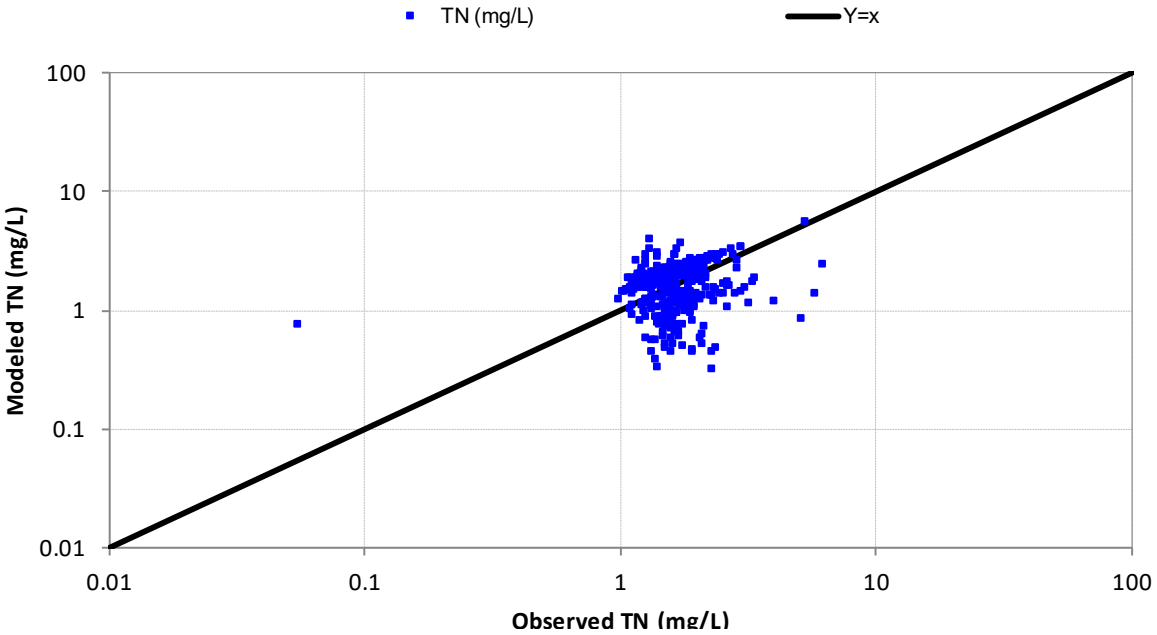


Figure B-109 Concentration at RCH215 Caloosahatchee (S-77)

Table B- 22 Monthly TN Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.47	1.83	24.6	VG
Feb	1.51	1.88	24.5	VG
Mar	1.58	1.94	22.7	VG
Apr	1.61	2.00	24.1	VG
May	1.67	2.14	27.8	VG
Jun	1.95	1.99	2.1	VG
Jul	1.82	1.86	2.3	VG
Aug	1.97	1.85	-6.3	VG
Sep	1.91	1.80	-5.9	VG
Oct	1.83	1.94	6.5	VG
Nov	1.60	1.79	11.9	VG
Dec	1.52	1.82	19.9	VG
Average*	1.70	1.90	11.7	VG
Median**	1.64	1.87	13.7	VG
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 23 Annual TN Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.92	N/A	N/A
1998	N/A	1.93	N/A	N/A
1999	N/A	1.89	N/A	N/A
2000	2.11	2.43	15.2	VG
2001	2.07	1.88	-9.1	VG
2002	1.68	1.96	16.8	VG
2003	1.41	1.81	27.7	VG
2004	1.64	1.87	14.3	VG
2005	1.70	2.15	26.2	VG
2006	1.78	2.10	17.8	VG
2007	1.48	1.56	5.7	VG
2008	1.80	1.83	2.1	VG
2009	1.79	1.97	9.9	VG
2010	1.59	2.08	30.7	G
2011	1.54	1.62	5.1	VG
2012	1.62	1.90	17.5	VG
2013	1.34	1.77	32.6	G
2014	1.40	1.82	30.5	G
2015	N/A	1.70	N/A	N/A
2016	N/A	1.78	N/A	N/A
2017	1.80	1.92	6.8	VG
2018	1.76	2.04	15.6	VG
2019	1.74	1.91	10.2	VG
2020	1.89	1.92	1.3	VG
2021	1.67	1.90	13.4	VG
2022	2.08	1.85	-11.0	VG
2023	1.80	1.86	3.2	VG
Average*	1.71	1.90	11.0	VG
Median**	1.72	1.90	10.3	VG
R^2	N/A	N/A	0.27	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 24 Daily TN Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Statistic	Results	Rating
Count (number)	989	N/A
Average Error (%)	20.0	VG
Median Error (%)	24.6	VG
RMSE (mg/L)	0.81	N/A
R^2	0.03	P

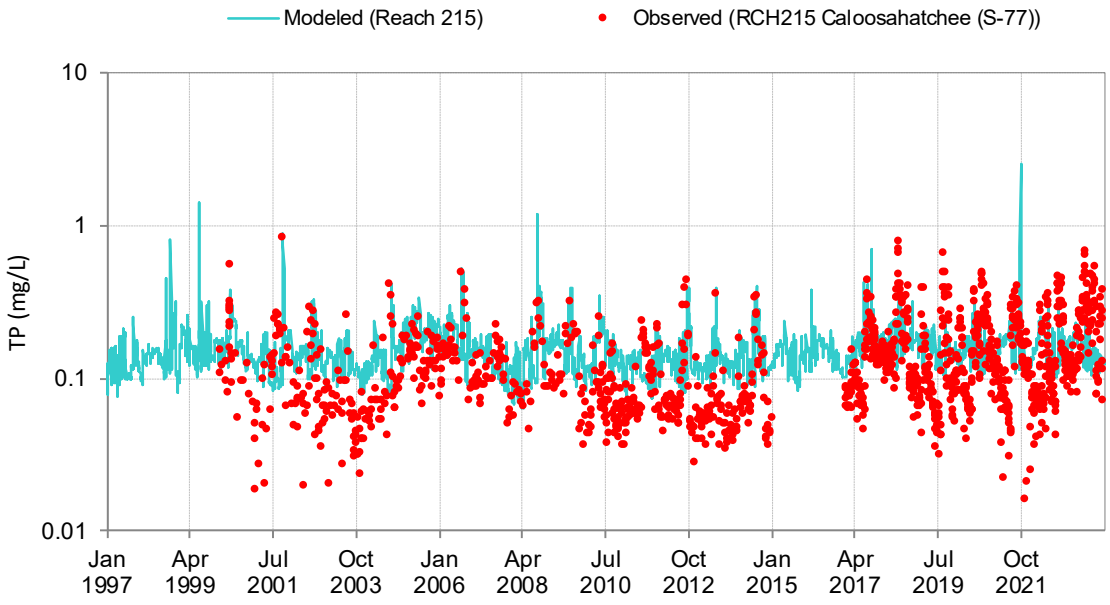


Figure B-110 Modeled Vs Observed TP (mg/L) at RCH215 Caloosahatchee (S-77)

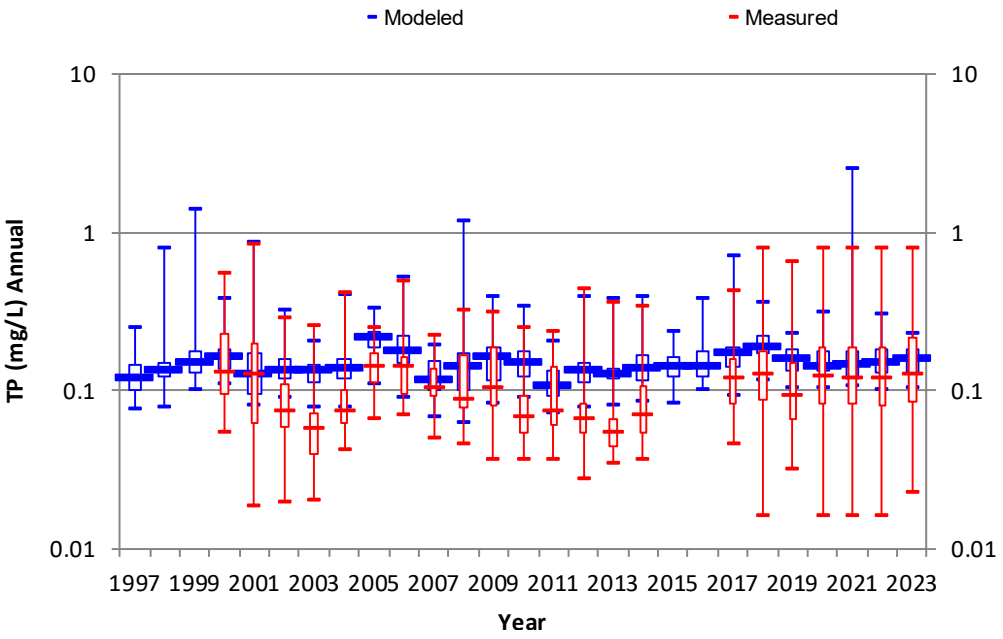


Figure B-111 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH215 Caloosahatchee (S-77)

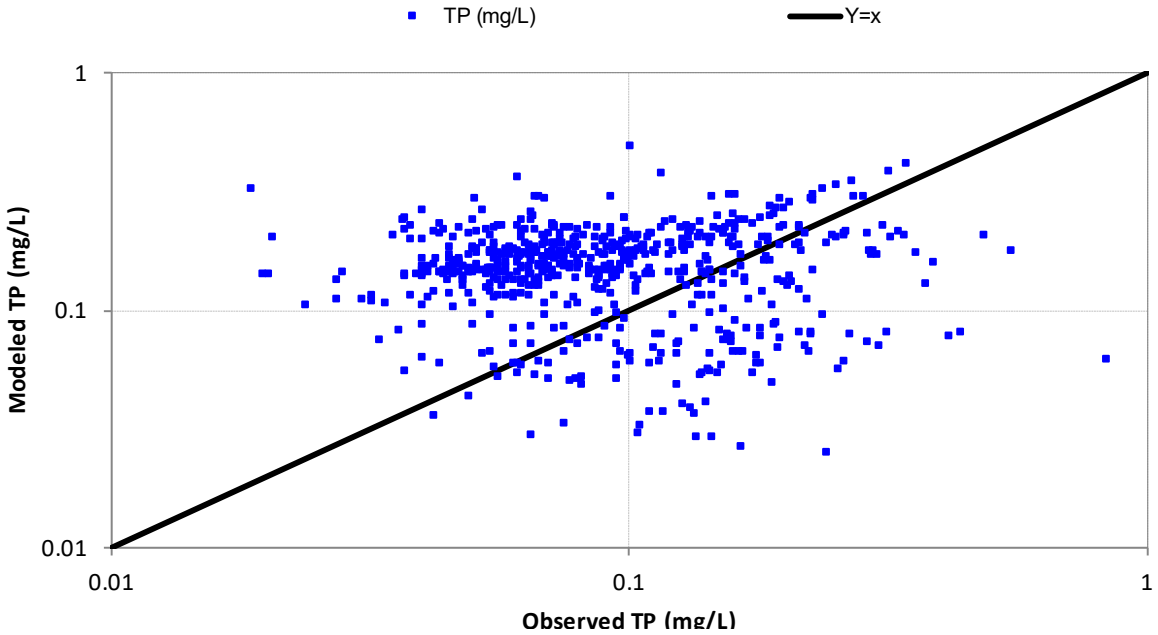


Figure B-112 Concentration at RCH215 Caloosahatchee (S-77)

Table B- 25 Monthly TP Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.09	0.14	56.2	F
Feb	0.11	0.15	32.4	G
Mar	0.10	0.15	60.2	P
Apr	0.12	0.17	46.9	F
May	0.11	0.17	50.2	F
Jun	0.16	0.16	2.9	VG
Jul	0.18	0.15	-13.1	VG
Aug	0.19	0.15	-16.8	VG
Sep	0.21	0.15	-26.4	VG
Oct	0.17	0.16	-2.8	VG
Nov	0.13	0.14	8.6	VG
Dec	0.10	0.14	35.0	G
Average*	0.14	0.15	11.8	VG
Median**	0.12	0.15	27.1	VG
R^2	N/A	N/A	0.04	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 26 Annual TP Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.13	N/A	N/A
1998	N/A	0.14	N/A	N/A
1999	N/A	0.16	N/A	N/A
2000	0.17	0.17	0.4	VG
2001	0.15	0.14	-5.1	VG
2002	0.10	0.15	45.0	F
2003	0.06	0.13	104.5	P
2004	0.11	0.14	34.6	G
2005	0.14	0.21	45.8	F
2006	0.16	0.19	23.1	VG
2007	0.12	0.13	10.6	VG
2008	0.13	0.16	25.2	VG
2009	0.13	0.16	25.8	VG
2010	0.08	0.16	94.6	P
2011	0.10	0.11	13.3	VG
2012	0.09	0.14	51.2	F
2013	0.07	0.13	103.9	P
2014	0.10	0.15	51.1	F
2015	N/A	0.14	N/A	N/A
2016	N/A	0.15	N/A	N/A
2017	0.13	0.18	35.7	G
2018	0.19	0.20	6.9	VG
2019	0.14	0.16	15.4	VG
2020	0.18	0.15	-13.3	VG
2021	0.14	0.16	16.3	VG
2022	0.15	0.16	7.9	VG
2023	0.22	0.16	-29.3	VG
Average*	0.13	0.15	19.4	VG
Median**	0.13	0.15	18.3	VG
R^2	N/A	N/A	0.32	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 27 Daily TP Concentration Comparisons at RCH215 Caloosahatchee (S-77)

Statistic	Results	Rating
Count (number)	1379	N/A
Average Error (%)	61.1	P
Median Error (%)	49.1	F
RMSE (mg/L)	0.11	N/A
R^2	0.04	P

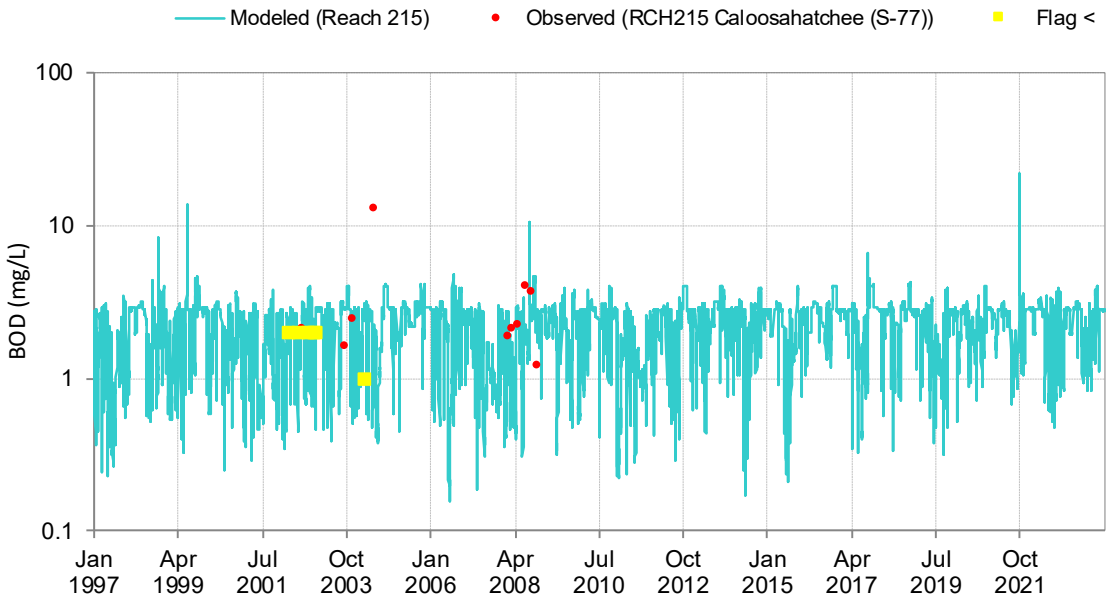


Figure B-113 Modeled Vs Observed BOD (mg/L) at RCH215 Caloosahatchee (S-77)

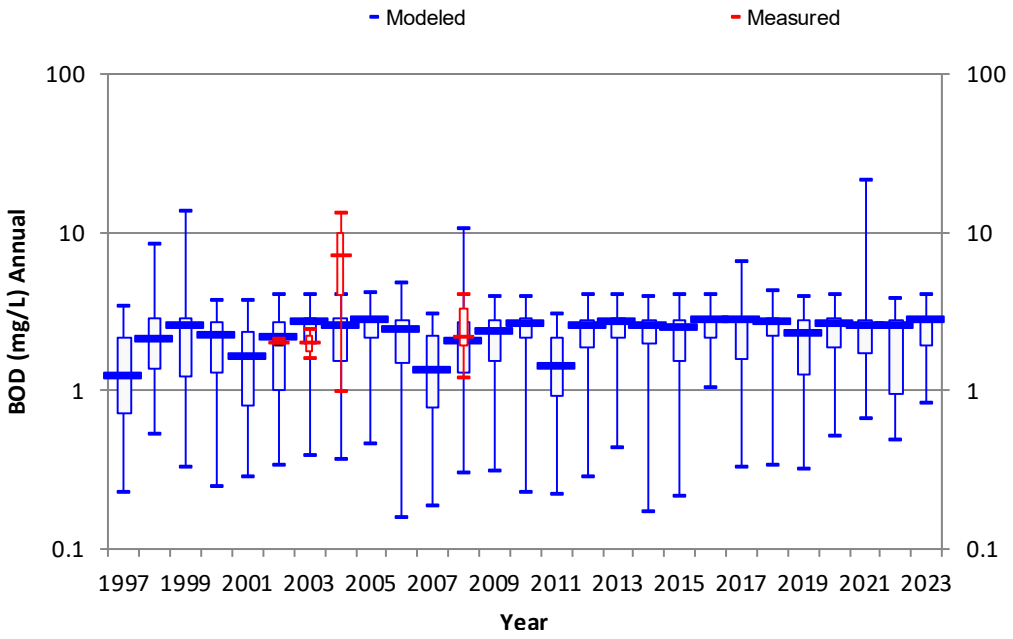


Figure B-114 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH215 Caloosahatchee (S-77)

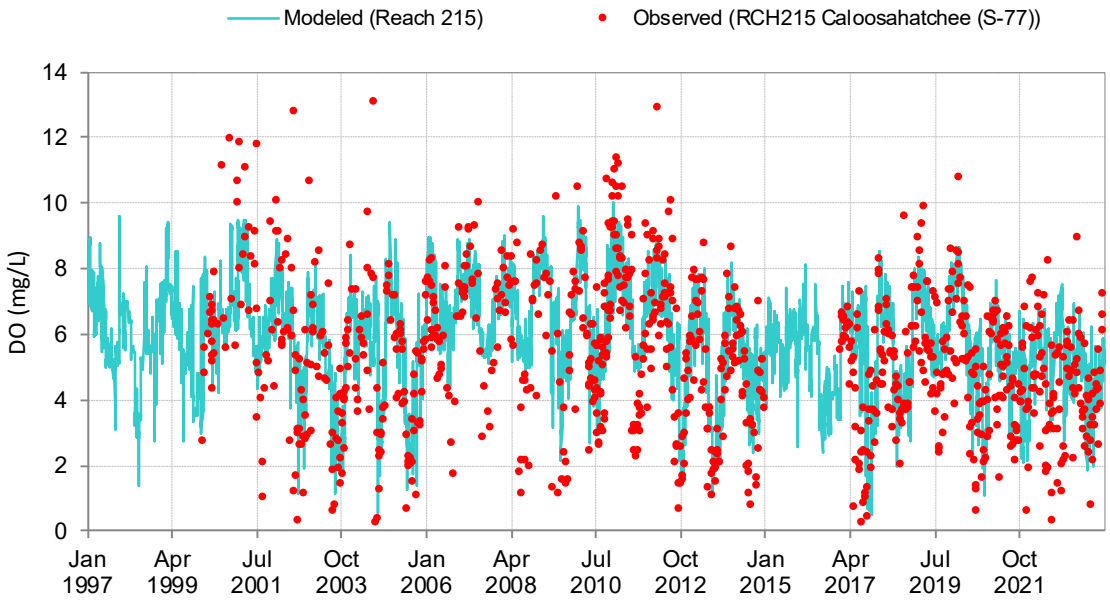


Figure B-115 Modeled Vs Observed DO (mg/L) at RCH215 Caloosahatchee (S-77)

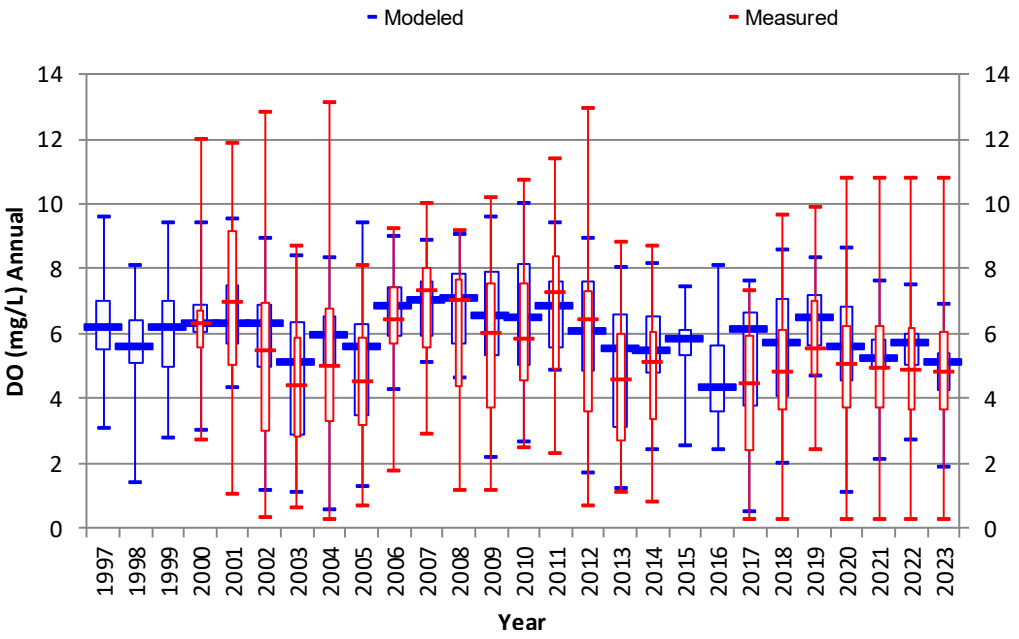


Figure B-116 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH215 Caloosahatchee (S-77)

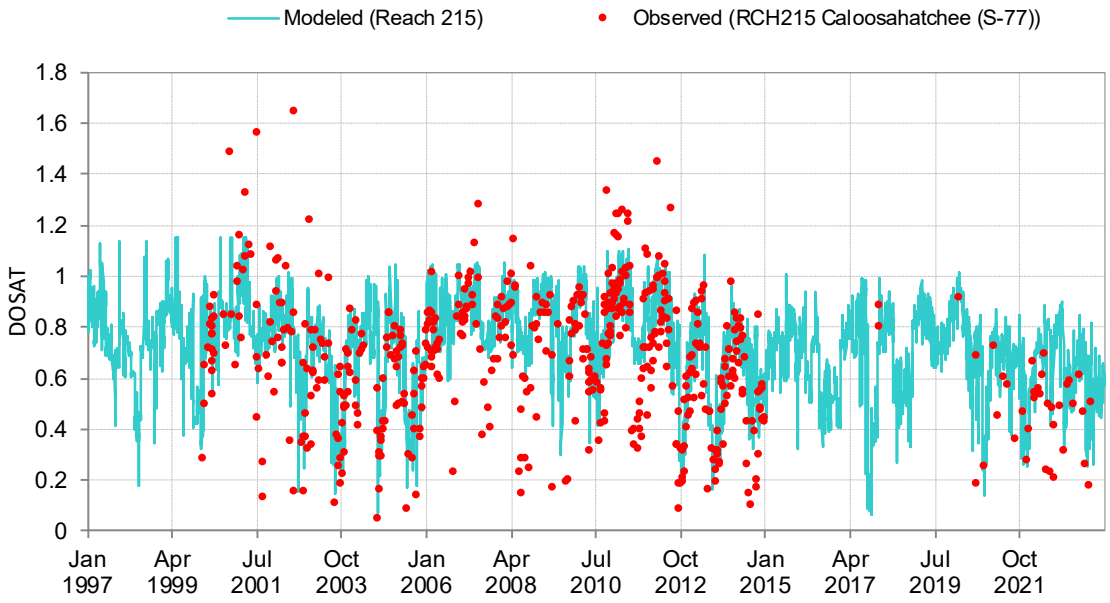


Figure B-117 Modeled Vs Observed DOSAT at RCH215 Caloosahatchee (S-77)

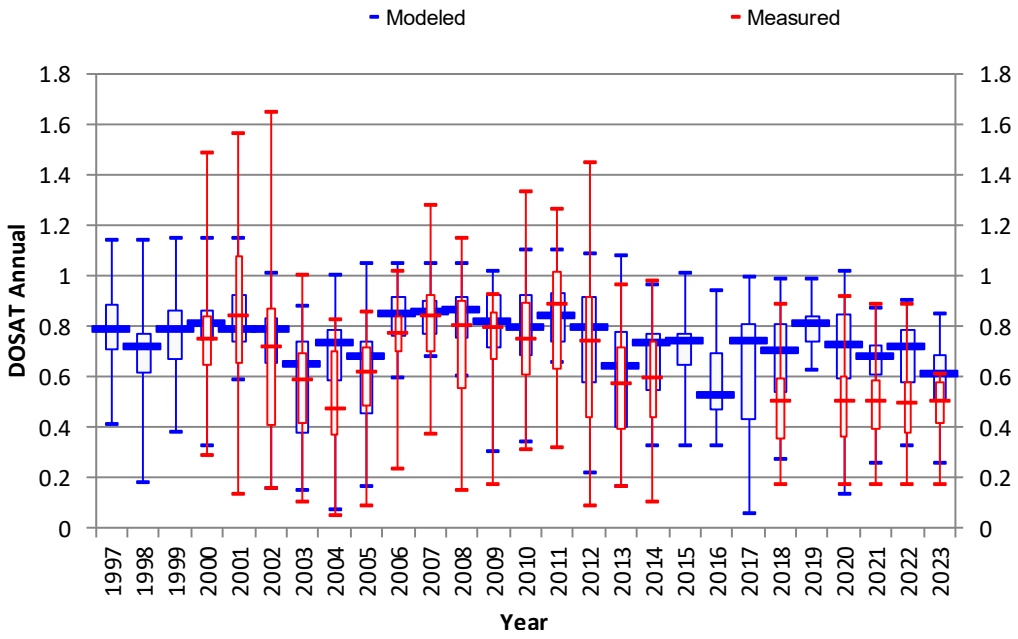


Figure B-118 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH215 Caloosahatchee (S-77)

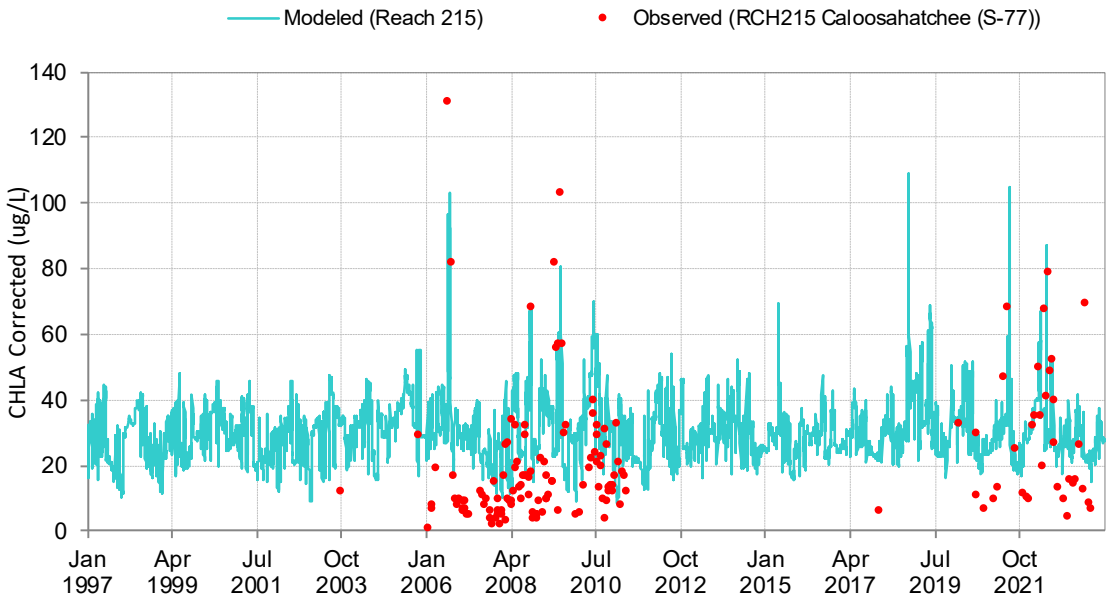


Figure B-119 Modeled Vs Observed CHLA Corrected (ug/L) at RCH215 Caloosahatchee (S-77)

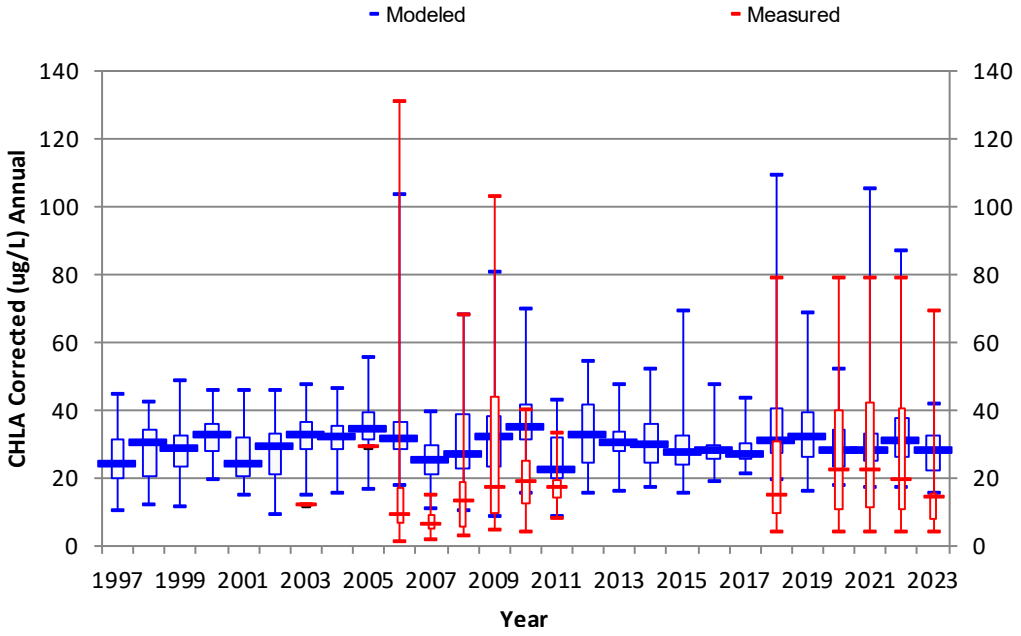


Figure B-120 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH215 Caloosahatchee (S-77)

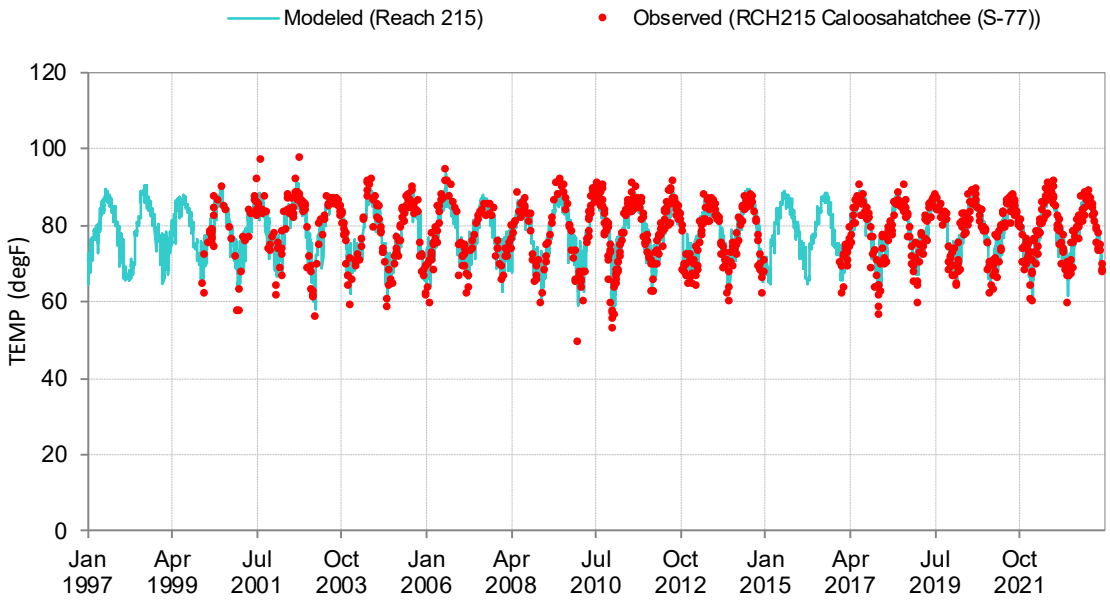


Figure B-121 Modeled Vs Observed TEMP (deg F) at RCH215 Caloosahatchee (S-77)

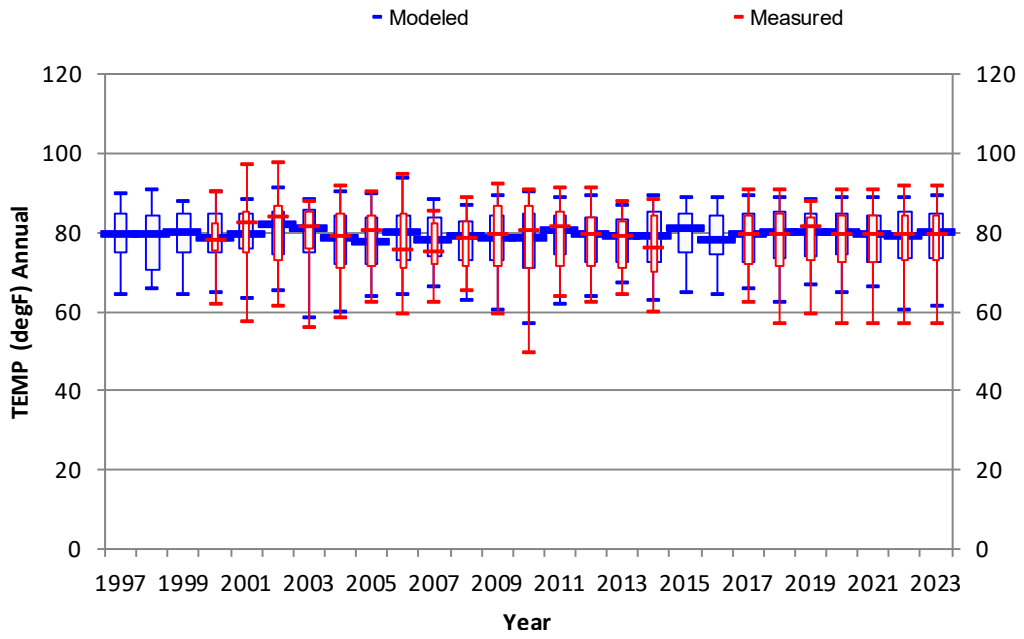


Figure B-122 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH215 Caloosahatchee (S-77)

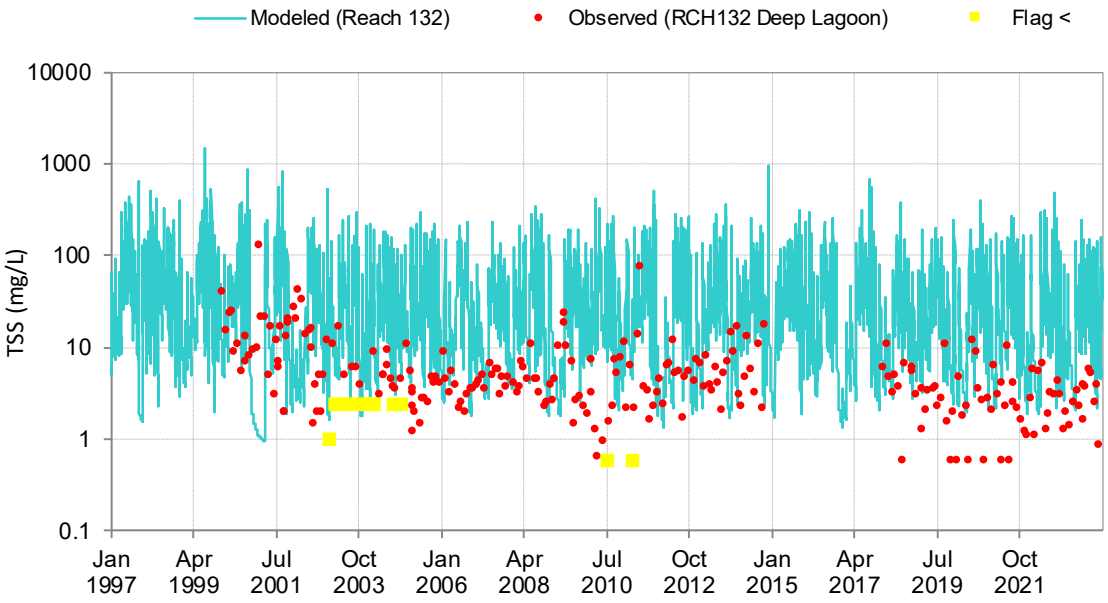


Figure B-123 Modeled Vs Observed TSS (mg/L) at RCH132 Deep Lagoon

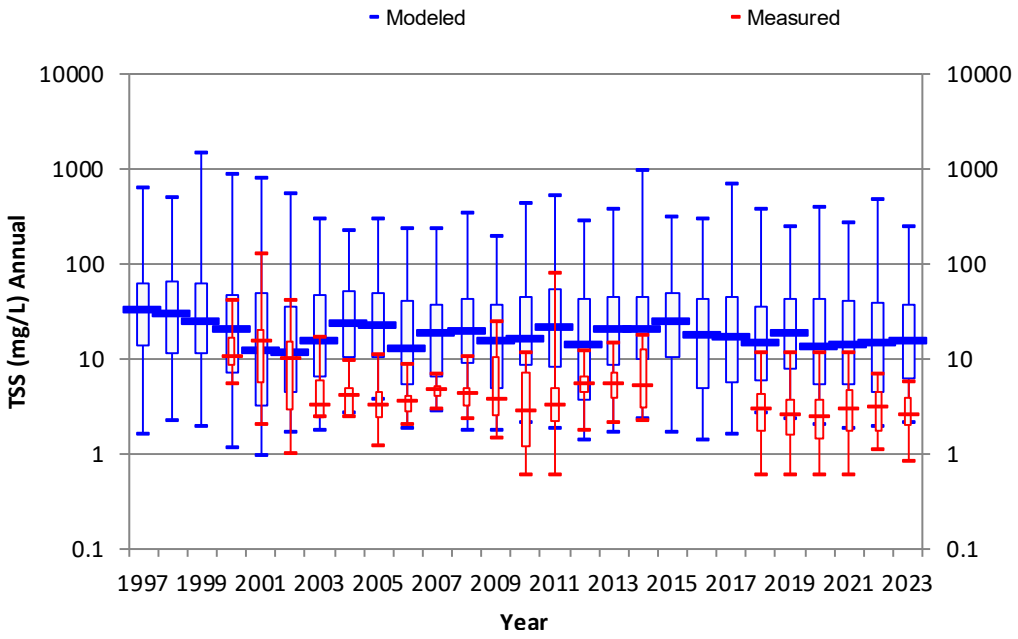


Figure B-124 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH132 Deep Lagoon

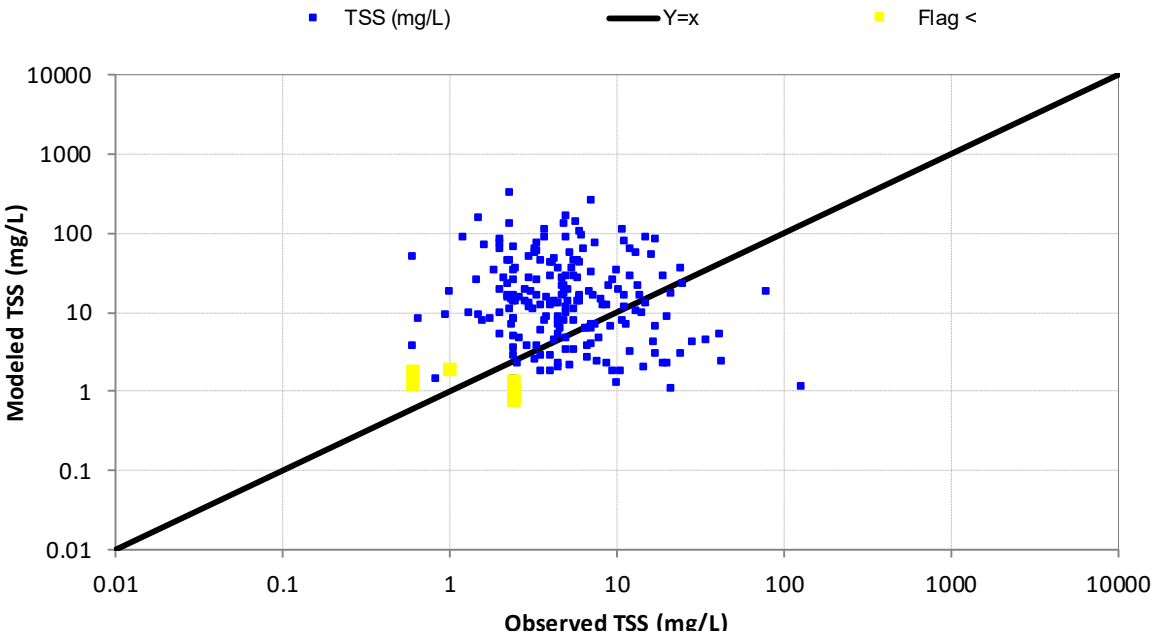


Figure B-125 Concentration at RCH132 Deep Lagoon

Table B- 28 Monthly TSS Concentration Comparisons at RCH132 Deep Lagoon

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	13.56	18.42	35.8	P
Feb	7.79	21.44	175.3	P
Mar	6.80	21.80	220.5	P
Apr	6.56	29.10	343.4	P
May	6.94	39.15	464.2	P
Jun	8.91	67.36	656.0	P
Jul	4.33	58.64	1253.0	P
Aug	5.05	58.58	1059.0	P
Sep	4.02	61.83	1437.1	P
Oct	5.61	24.73	341.2	P
Nov	5.46	21.19	288.2	P
Dec	5.26	20.86	296.7	P
Average*	6.69	36.93	451.9	P
Median**	6.08	26.92	342.4	P
R^2	N/A	N/A	0.10	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 29 Annual TSS Concentration Comparisons at RCH132 Deep Lagoon

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	52.40	N/A	N/A
1998	N/A	53.16	N/A	N/A
1999	N/A	56.81	N/A	N/A
2000	14.83	42.49	186.4	P
2001	20.00	40.59	102.9	P
2002	12.20	29.90	145.1	P
2003	4.64	34.41	641.3	P
2004	4.19	38.34	815.2	P
2005	3.75	40.52	981.6	P
2006	3.90	29.18	648.2	P
2007	4.70	26.92	473.0	P
2008	4.70	38.07	710.0	P
2009	7.41	27.89	276.4	P
2010	4.15	38.00	816.5	P
2011	10.10	42.22	318.1	P
2012	5.65	34.79	516.2	P
2013	6.18	36.63	492.8	P
2014	8.04	37.04	360.7	P
2015	N/A	38.05	N/A	N/A
2016	N/A	35.21	N/A	N/A
2017	N/A	37.00	N/A	N/A
2018	5.06	27.38	440.8	P
2019	3.15	31.50	900.7	P
2020	3.54	32.51	819.0	P
2021	3.09	30.19	877.6	P
2022	3.34	36.82	1003.3	P
2023	3.03	29.78	882.7	P
Average*	6.46	36.96	472.2	P
Median**	4.70	36.82	683.8	P
R^2	N/A	N/A	0.17	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 30 Daily TSS Concentration Comparisons at RCH132 Deep Lagoon

Statistic	Results	Rating
Count (number)	262	N/A
Average Error (%)	1077.1	P
Median Error (%)	366.0	P
RMSE (mg/L)	57.06	N/A
R^2	0.01	P

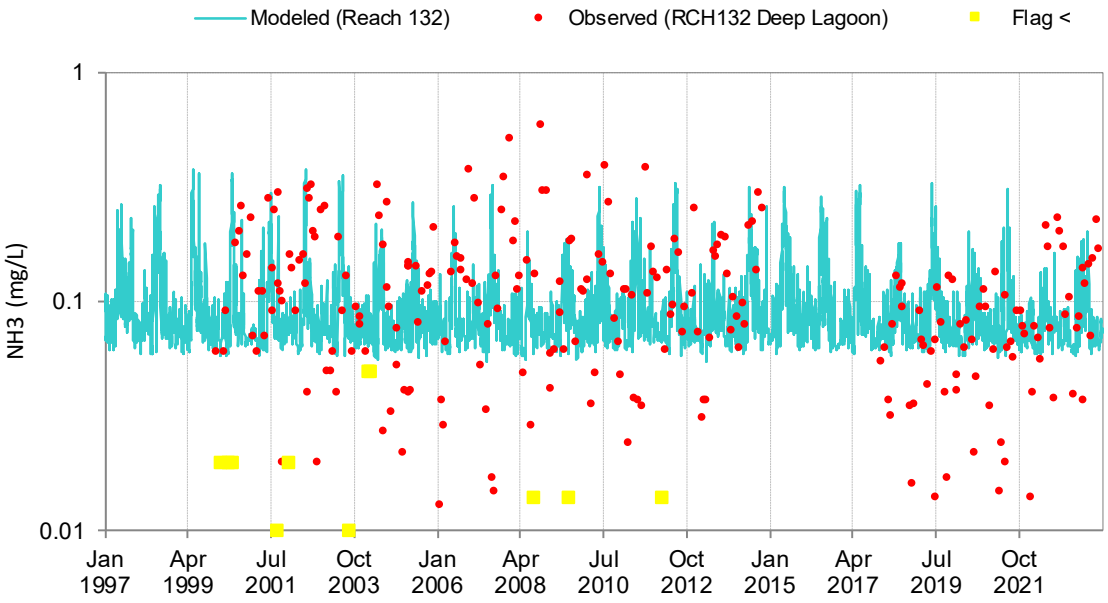


Figure B-126 Modeled Vs Observed NH3 (mg/L) at RCH132 Deep Lagoon

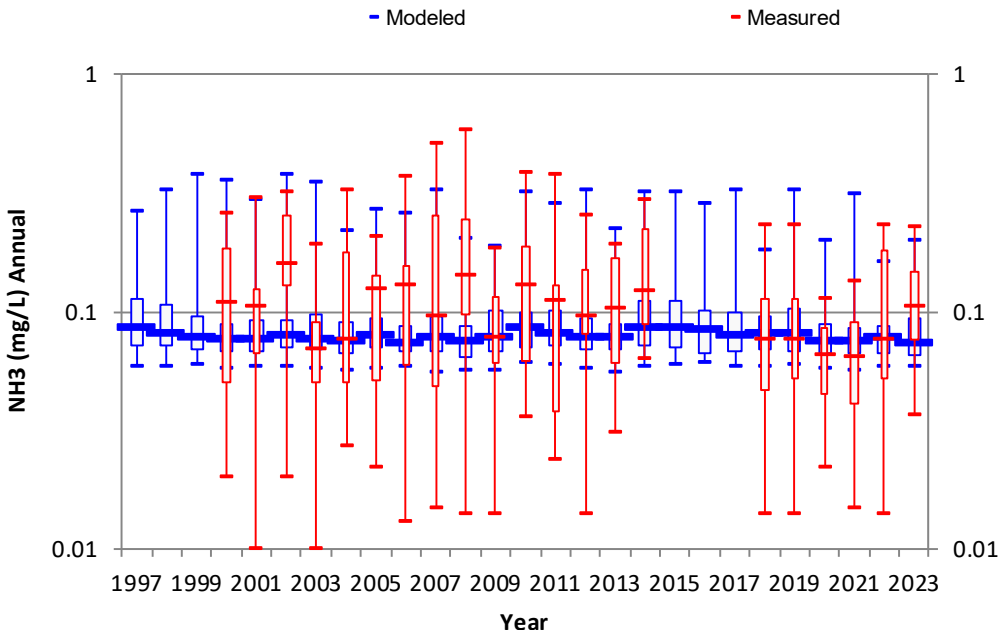


Figure B-127 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH132 Deep Lagoon

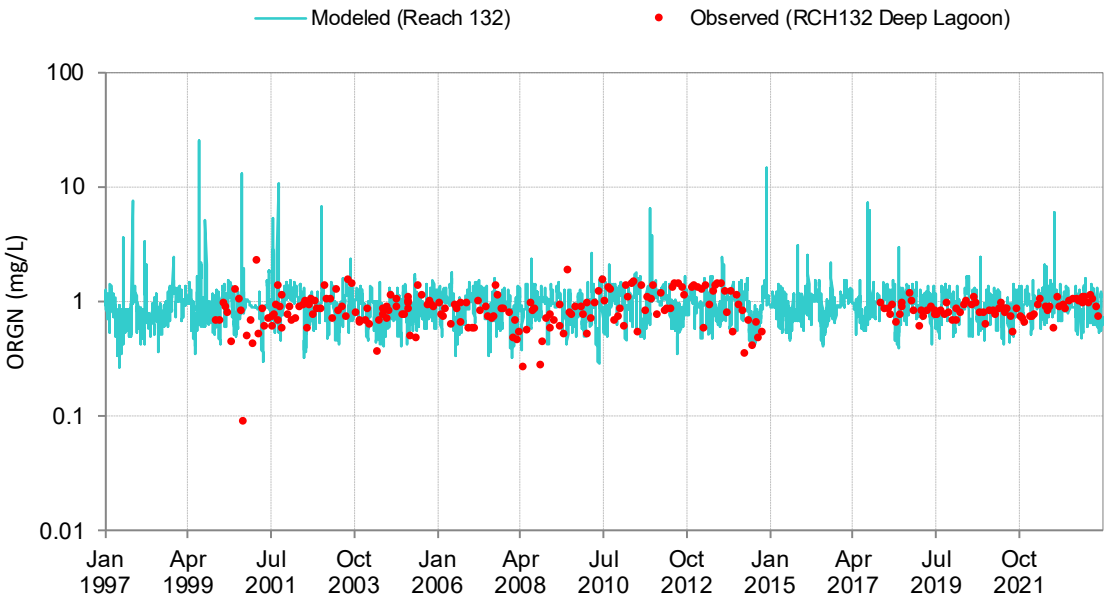


Figure B-128 Modeled Vs Observed ORGN (mg/L) at RCH132 Deep Lagoon

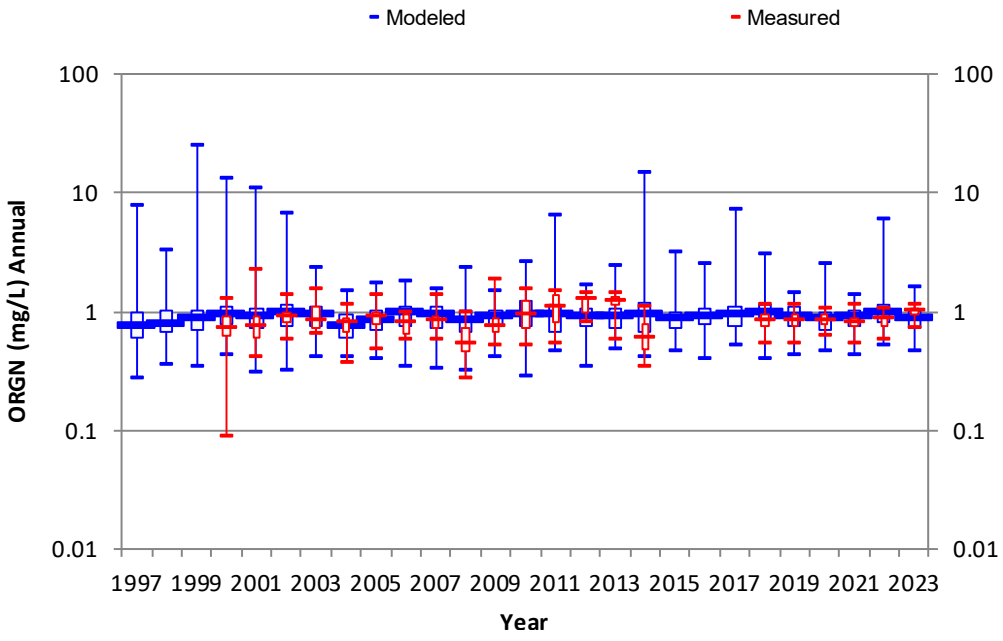


Figure B-129 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH132 Deep Lagoon

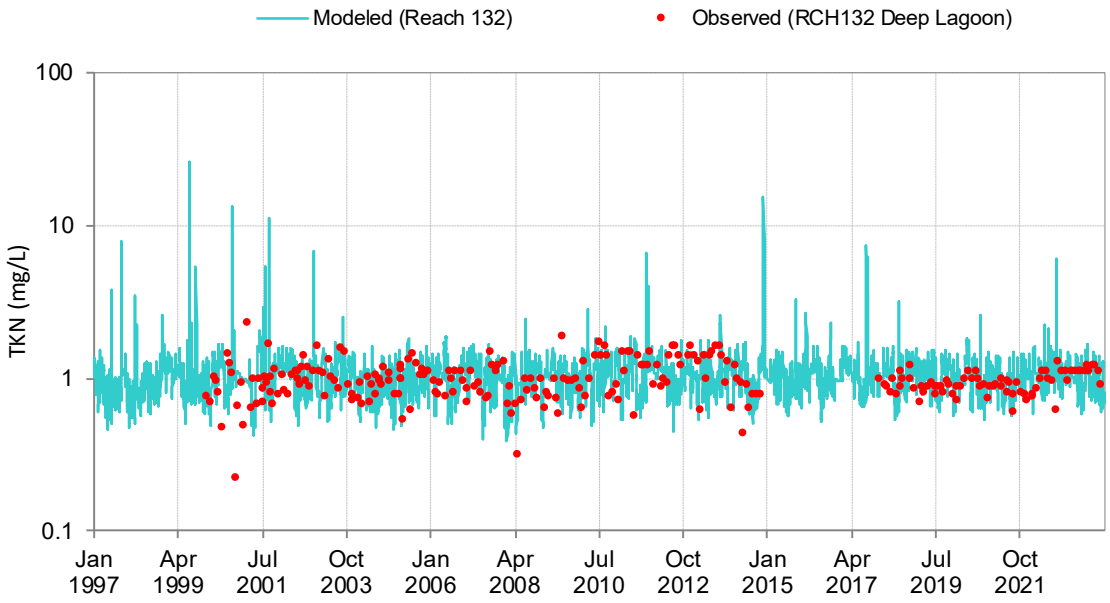


Figure B-130 Modeled Vs Observed TKN (mg/L) at RCH132 Deep Lagoon

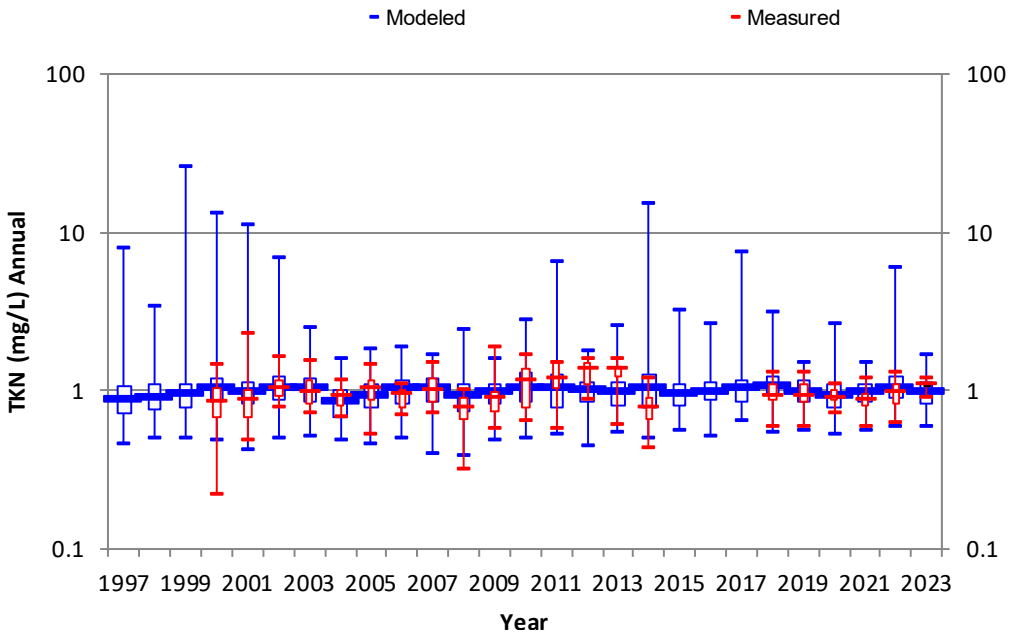


Figure B-131 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH132 Deep Lagoon

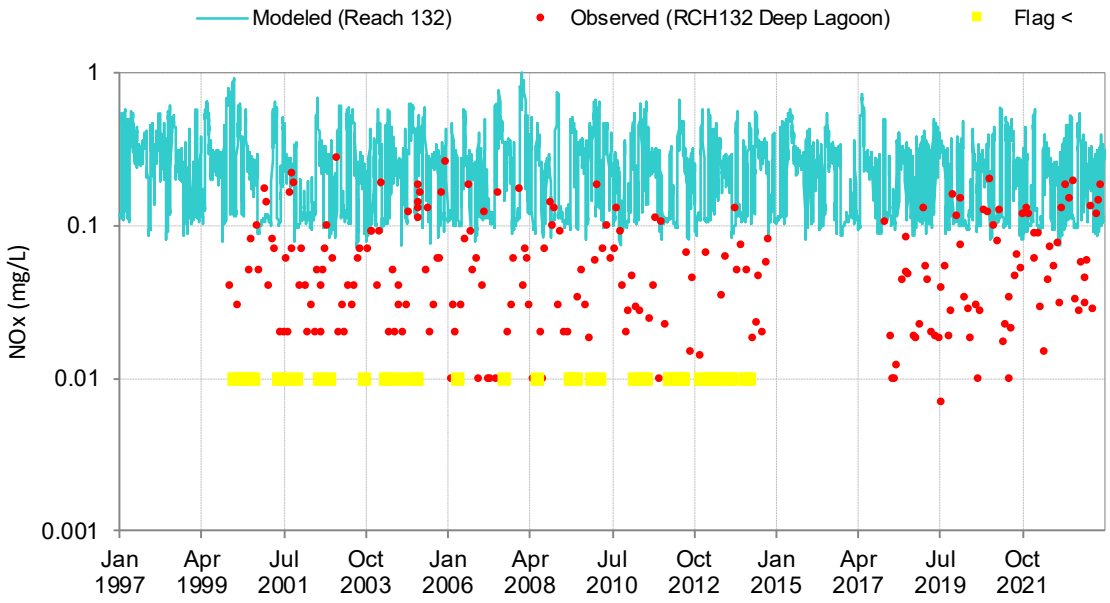


Figure B-132 Modeled Vs Observed NOx (mg/L) at RCH132 Deep Lagoon

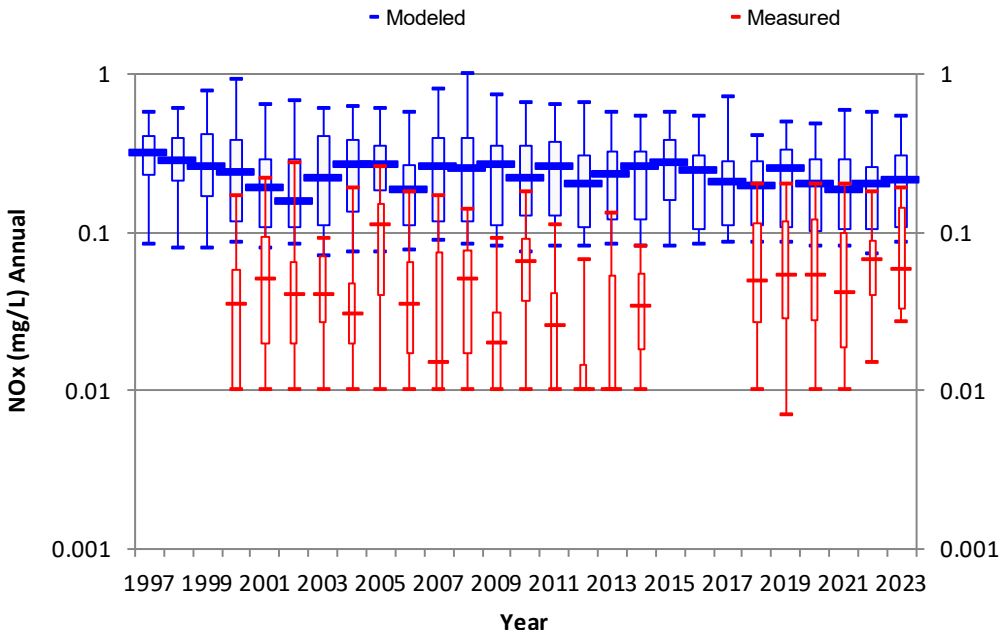


Figure B-133 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH132 Deep Lagoon

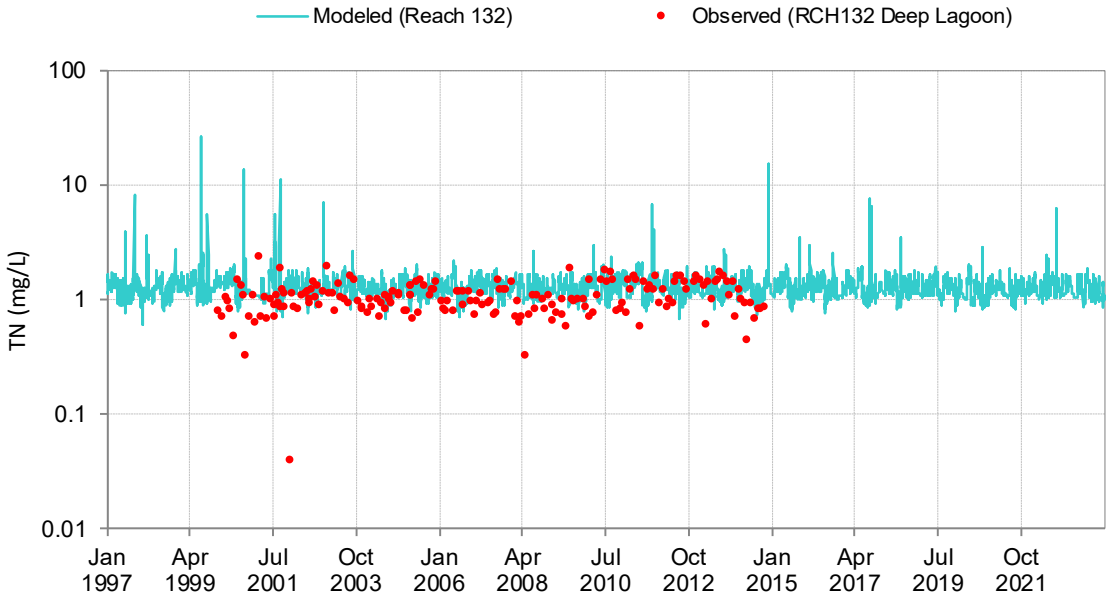


Figure B-134 Modeled Vs Observed TN (mg/L) at RCH132 Deep Lagoon

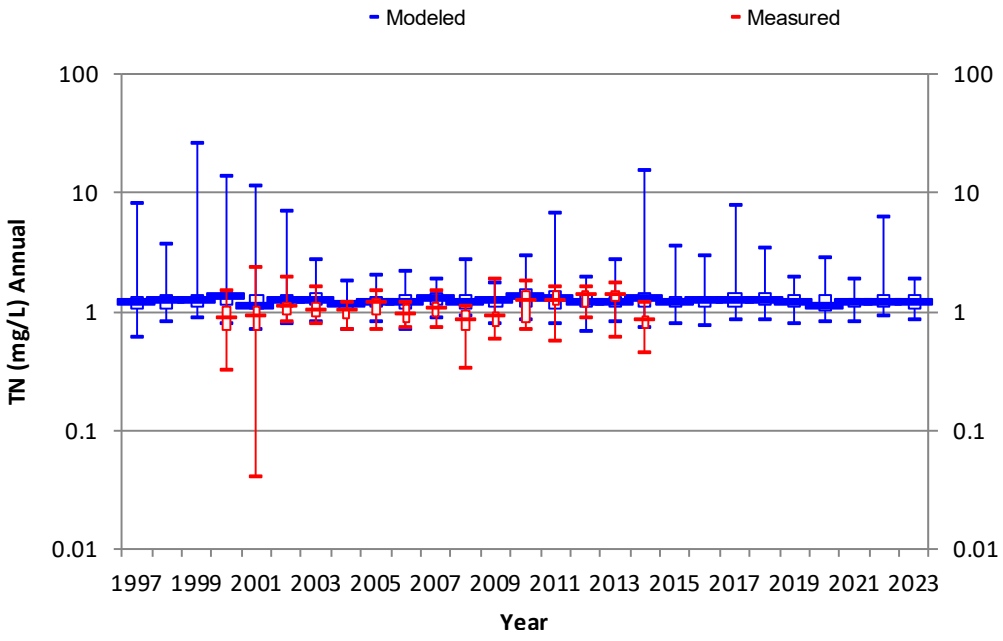


Figure B-135 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH132 Deep Lagoon

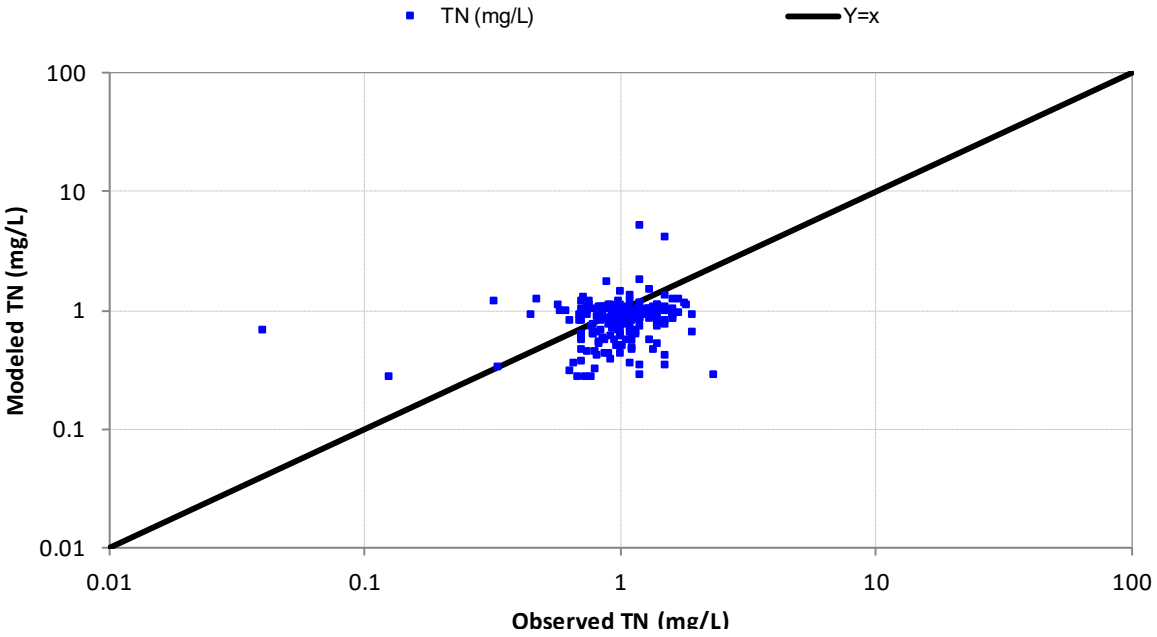


Figure B-136 Concentration at RCH132 Deep Lagoon

Table B- 31 Monthly TN Concentration Comparisons at RCH132 Deep Lagoon

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.89	1.28	43.7	G
Feb	1.13	1.28	12.8	VG
Mar	0.93	1.28	38.4	G
Apr	1.05	1.25	18.9	VG
May	0.96	1.39	44.1	G
Jun	0.99	1.33	34.5	G
Jul	1.17	1.24	5.4	VG
Aug	1.22	1.17	-4.8	VG
Sep	1.20	1.29	7.1	VG
Oct	1.02	1.23	20.2	VG
Nov	1.08	1.30	20.8	VG
Dec	1.09	1.26	15.4	VG
Average*	1.06	1.27	20.0	VG
Median**	1.06	1.28	20.4	VG
R^2	N/A	N/A	0.29	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 32 Annual TN Concentration Comparisons at RCH132 Deep Lagoon

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.24	N/A	N/A
1998	N/A	1.26	N/A	N/A
1999	N/A	1.39	N/A	N/A
2000	0.90	1.37	51.7	F
2001	1.00	1.30	30.2	G
2002	1.14	1.28	12.9	VG
2003	1.09	1.30	18.9	VG
2004	0.97	1.15	18.9	VG
2005	1.13	1.24	9.9	VG
2006	0.97	1.25	29.1	VG
2007	1.07	1.30	20.8	VG
2008	0.84	1.23	47.5	F
2009	0.95	1.23	30.5	G
2010	1.21	1.33	10.4	VG
2011	1.23	1.36	11.0	VG
2012	1.29	1.24	-3.8	VG
2013	1.33	1.26	-5.2	VG
2014	0.84	1.36	61.8	P
2015	N/A	1.26	N/A	N/A
2016	N/A	1.26	N/A	N/A
2017	N/A	1.32	N/A	N/A
2018	N/A	1.28	N/A	N/A
2019	N/A	1.26	N/A	N/A
2020	N/A	1.20	N/A	N/A
2021	N/A	1.20	N/A	N/A
2022	N/A	1.29	N/A	N/A
2023	N/A	1.22	N/A	N/A
Average*	1.06	1.27	19.8	VG
Median**	1.07	1.26	17.3	VG
R^2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 33 Daily TN Concentration Comparisons at RCH132 Deep Lagoon

Statistic	Results	Rating
Count (number)	189	N/A
Average Error (%)	49.3	F
Median Error (%)	20.8	VG
RMSE (mg/L)	0.52	N/A
R^2	0.01	P

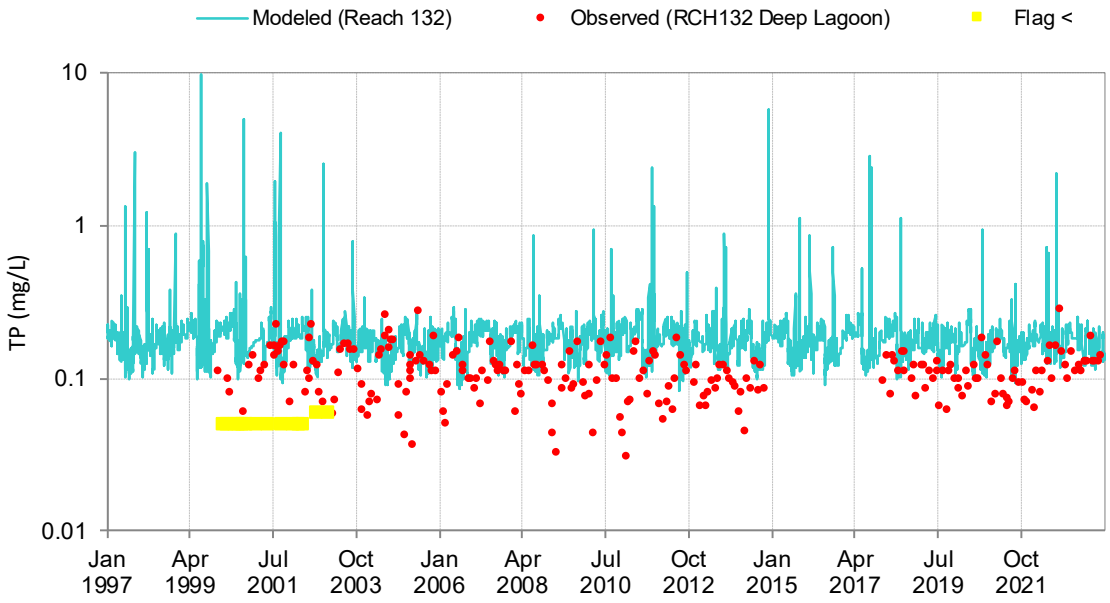


Figure B-137 Modeled Vs Observed TP (mg/L) at RCH132 Deep Lagoon

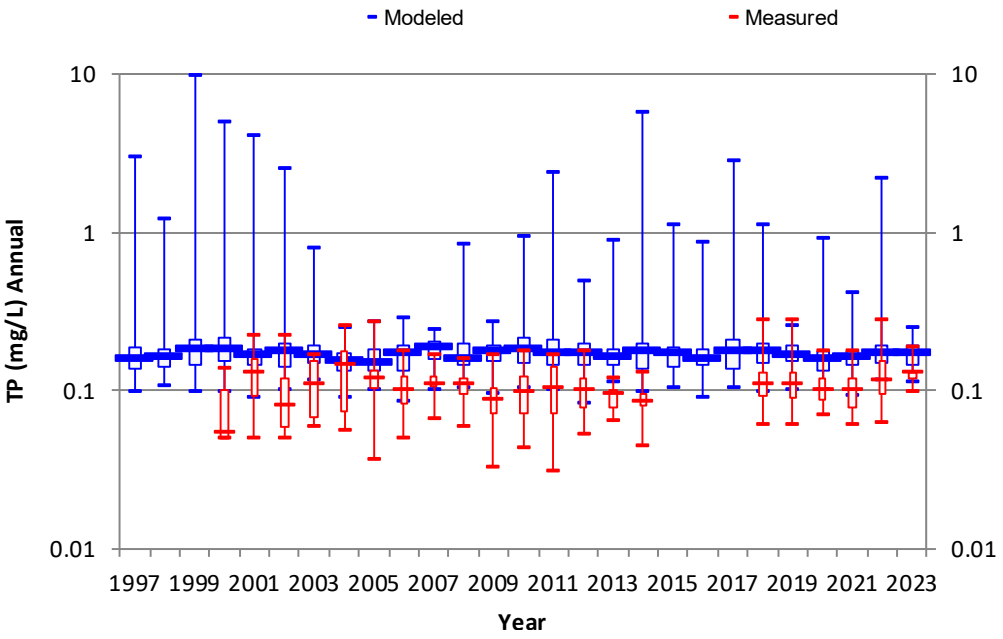


Figure B-138 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH132 Deep Lagoon

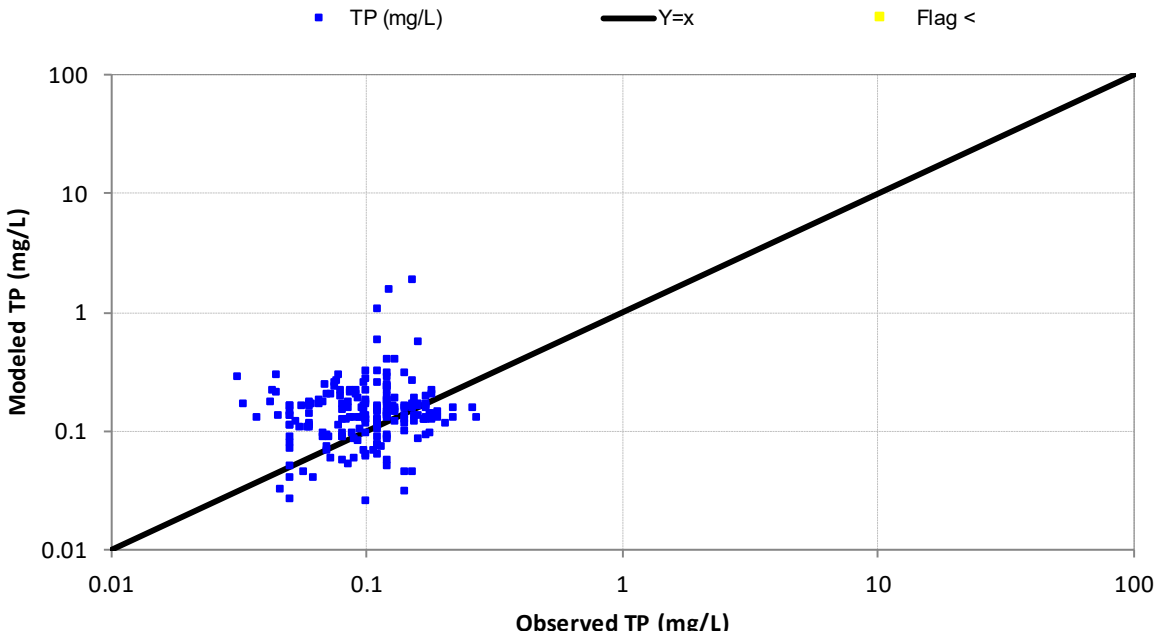


Figure B-139 Concentration at RCH132 Deep Lagoon

Table B- 34 Monthly TP Concentration Comparisons at RCH132 Deep Lagoon

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.07	0.19	159.9	P
Feb	0.09	0.19	112.0	P
Mar	0.08	0.19	132.4	P
Apr	0.09	0.18	105.4	P
May	0.11	0.20	78.0	P
Jun	0.12	0.18	43.3	G
Jul	0.14	0.18	26.7	VG
Aug	0.12	0.16	28.9	VG
Sep	0.12	0.19	63.1	P
Oct	0.13	0.16	27.4	VG
Nov	0.11	0.18	70.3	P
Dec	0.09	0.18	94.2	P
Average*	0.11	0.18	70.8	P
Median**	0.11	0.18	67.3	P
R^2	N/A	N/A	0.17	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 35 Annual TP Concentration Comparisons at RCH132 Deep Lagoon

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.18	N/A	N/A
1998	N/A	0.18	N/A	N/A
1999	N/A	0.23	N/A	N/A
2000	0.06	0.21	228.6	P
2001	0.12	0.20	65.2	P
2002	0.09	0.18	102.2	P
2003	0.11	0.18	54.8	F
2004	0.13	0.15	13.2	VG
2005	0.12	0.16	30.8	G
2006	0.11	0.17	59.6	F
2007	0.12	0.18	53.5	F
2008	0.11	0.17	58.1	F
2009	0.09	0.17	88.2	P
2010	0.10	0.19	83.0	P
2011	0.11	0.20	90.7	P
2012	0.10	0.17	69.8	P
2013	0.09	0.18	89.8	P
2014	0.09	0.21	136.2	P
2015	N/A	0.18	N/A	N/A
2016	N/A	0.17	N/A	N/A
2017	N/A	0.20	N/A	N/A
2018	0.12	0.18	54.0	F
2019	0.10	0.17	66.4	P
2020	0.11	0.17	56.9	F
2021	0.09	0.17	84.5	P
2022	0.13	0.19	45.3	F
2023	0.13	0.17	30.9	G
Average*	0.11	0.18	70.4	P
Median**	0.11	0.18	67.4	P
R^2	N/A	N/A	0.20	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 36 Daily TP Concentration Comparisons at RCH132 Deep Lagoon

Statistic	Results	Rating
Count (number)	264	N/A
Average Error (%)	95.3	P
Median Error (%)	67.0	P
RMSE (mg/L)	0.12	N/A
R^2	0.00	P

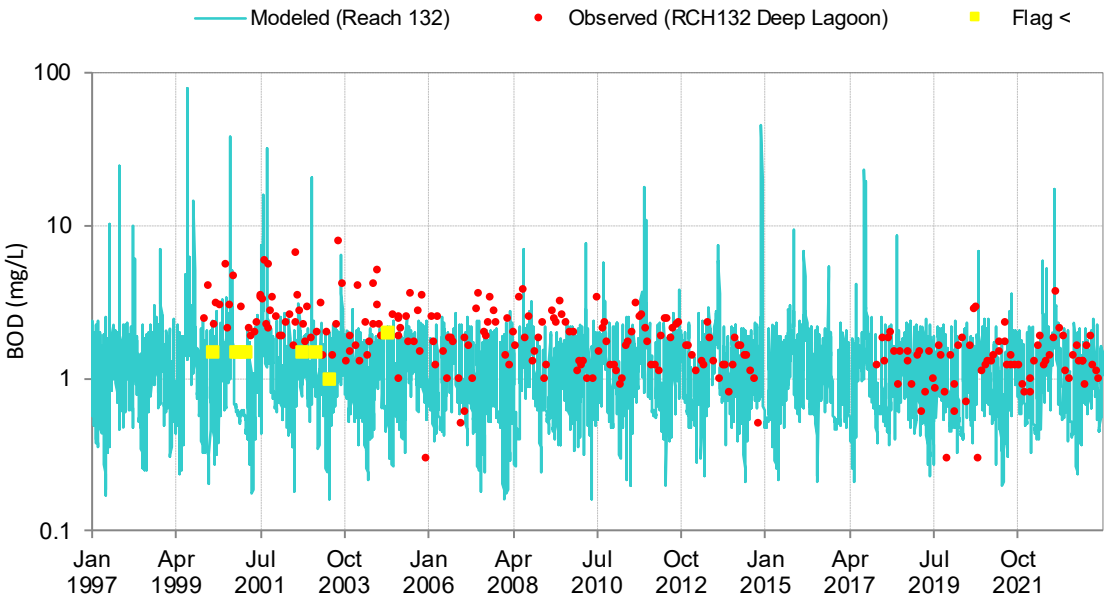


Figure B-140 Modeled Vs Observed BOD (mg/L) at RCH132 Deep Lagoon

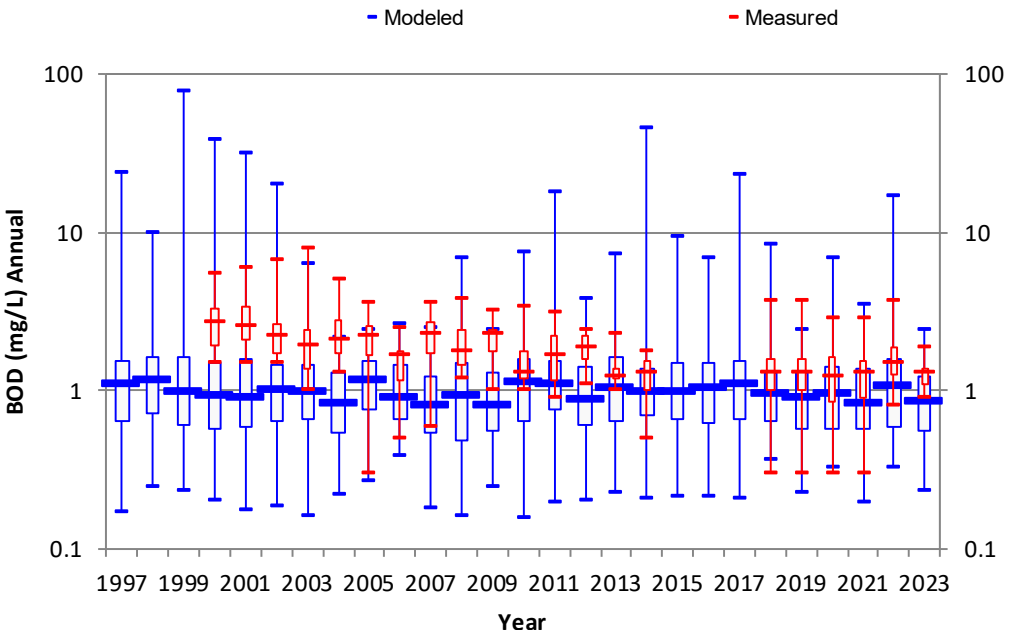


Figure B-141 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH132 Deep Lagoon

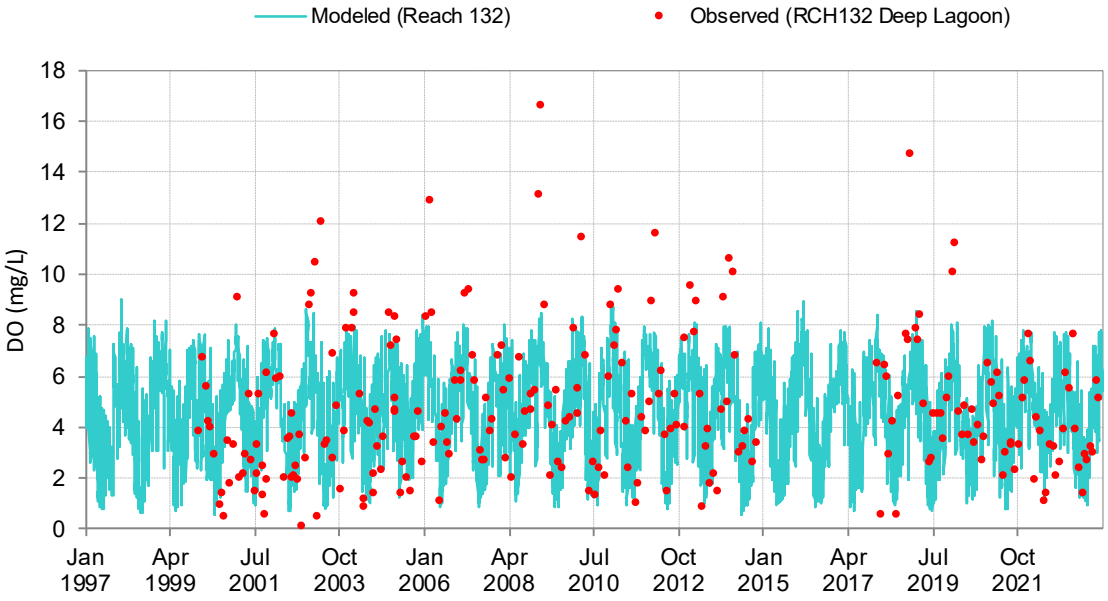


Figure B-142 Modeled Vs Observed DO (mg/L) at RCH132 Deep Lagoon

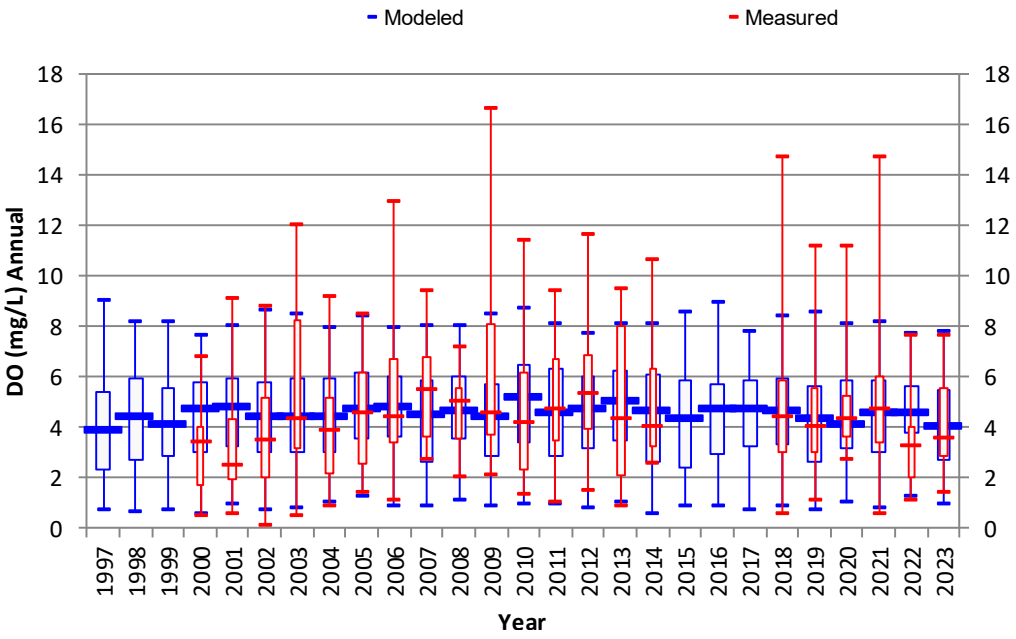


Figure B-143 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH132 Deep Lagoon

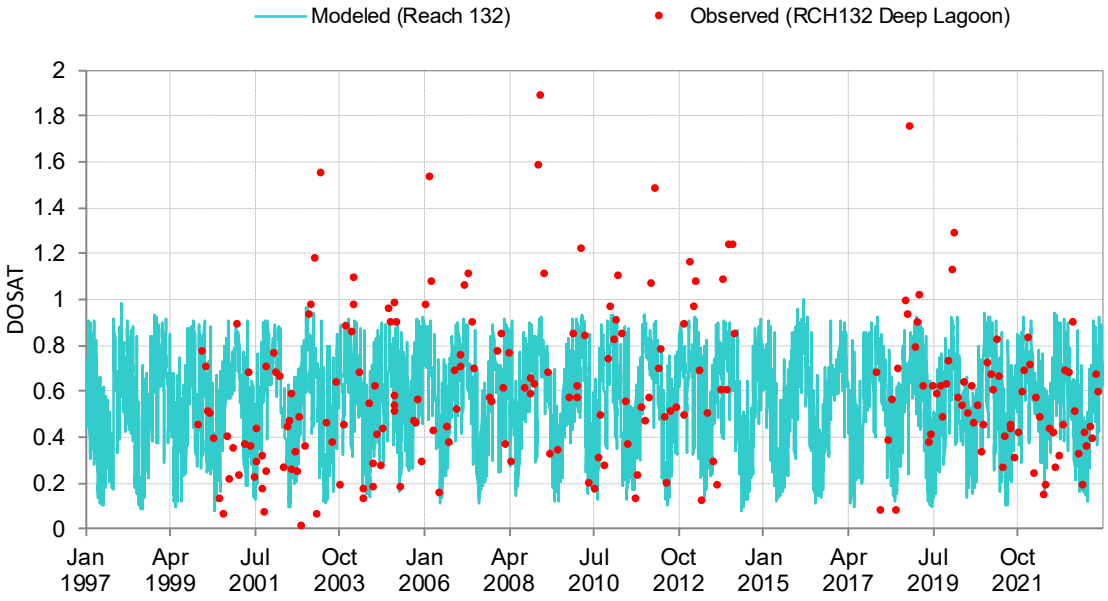


Figure B-144 Modeled Vs Observed DOSAT at RCH132 Deep Lagoon

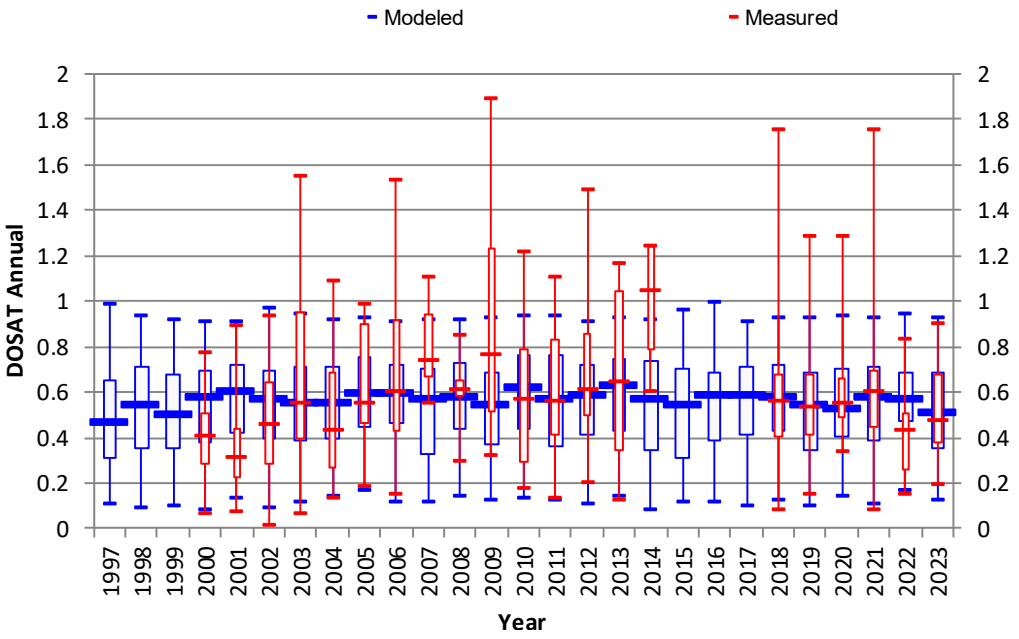


Figure B-145 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH132 Deep Lagoon

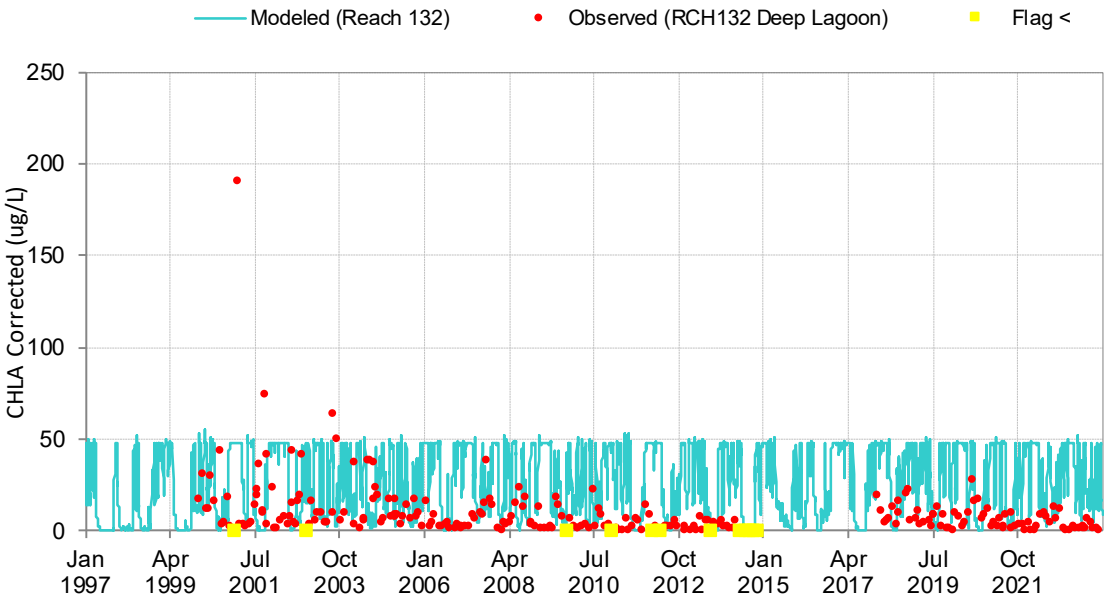


Figure B-146 Modeled Vs Observed CHLA Corrected (ug/L) at RCH132 Deep Lagoon

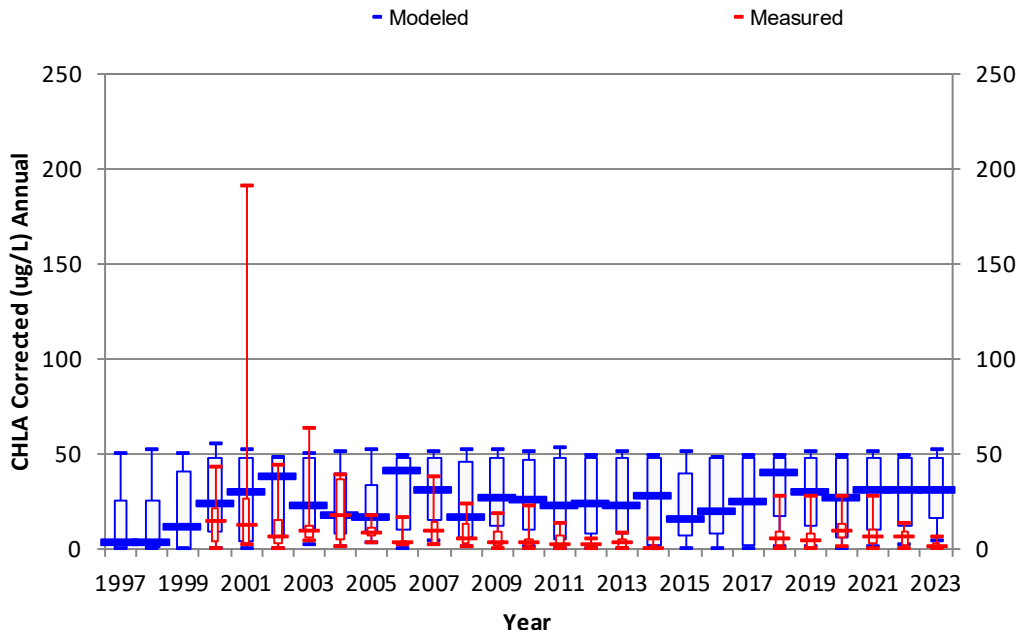


Figure B-147 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH132 Deep Lagoon

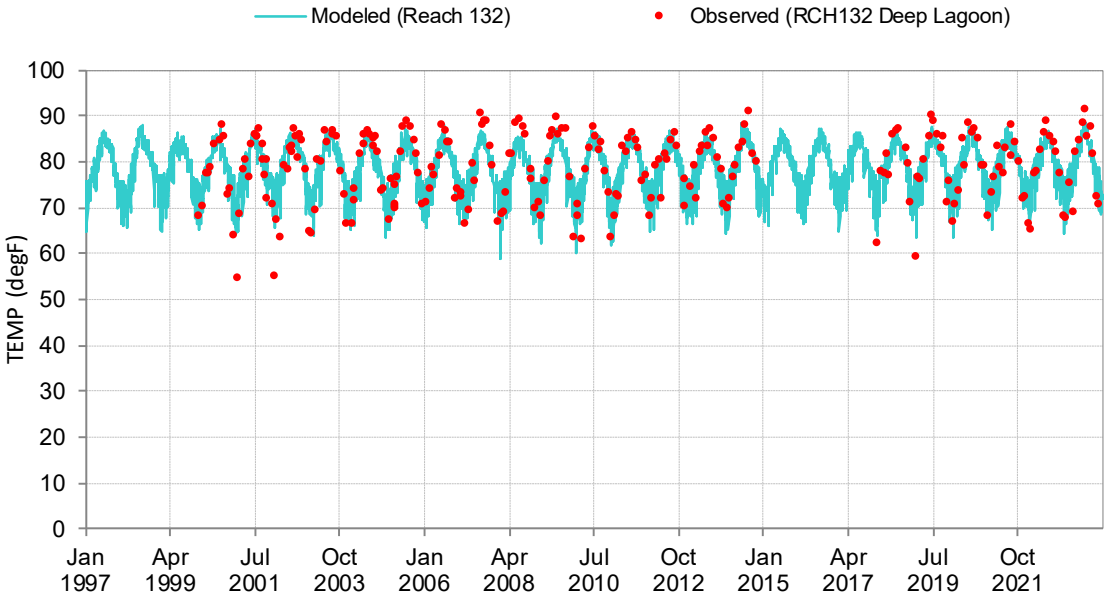


Figure B-148 Modeled Vs Observed TEMP (deg F) at RCH132 Deep Lagoon

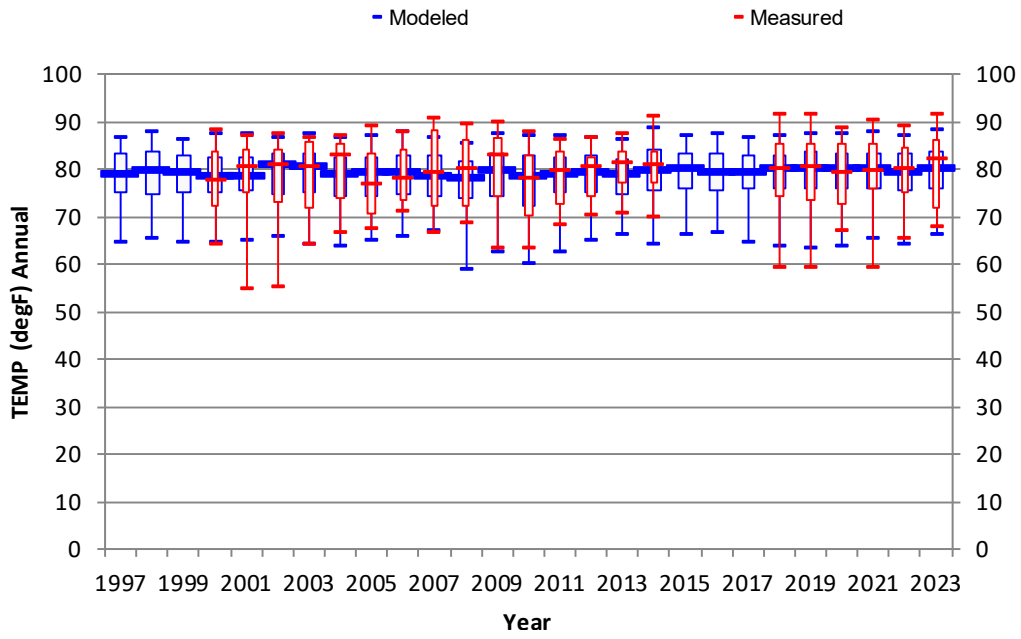


Figure B-149 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH132 Deep Lagoon

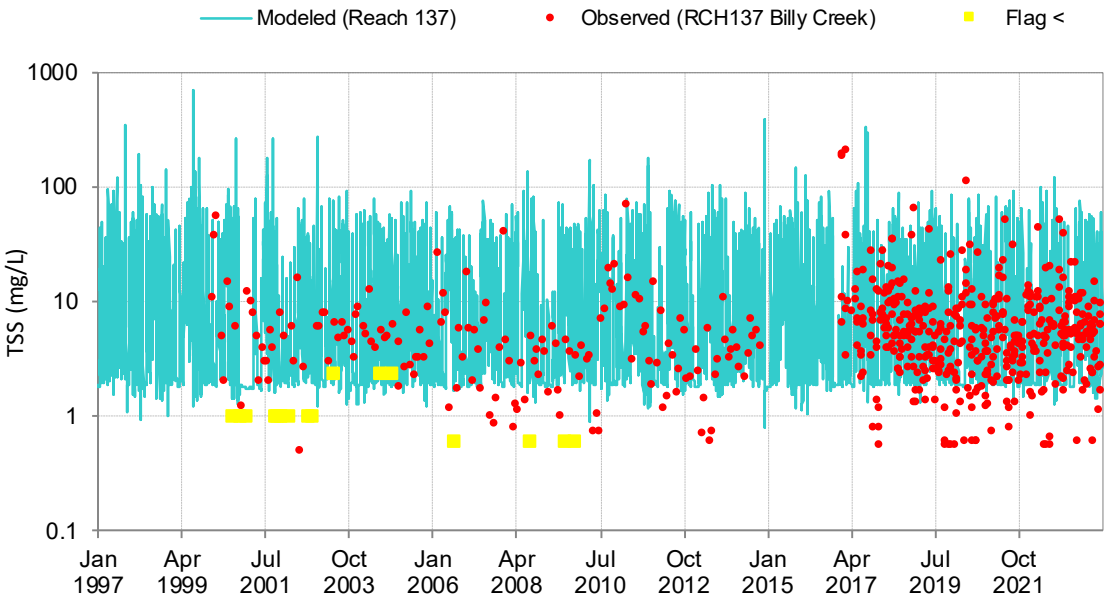


Figure B-150 Modeled Vs Observed TSS (mg/L) at RCH137 Billy Creek

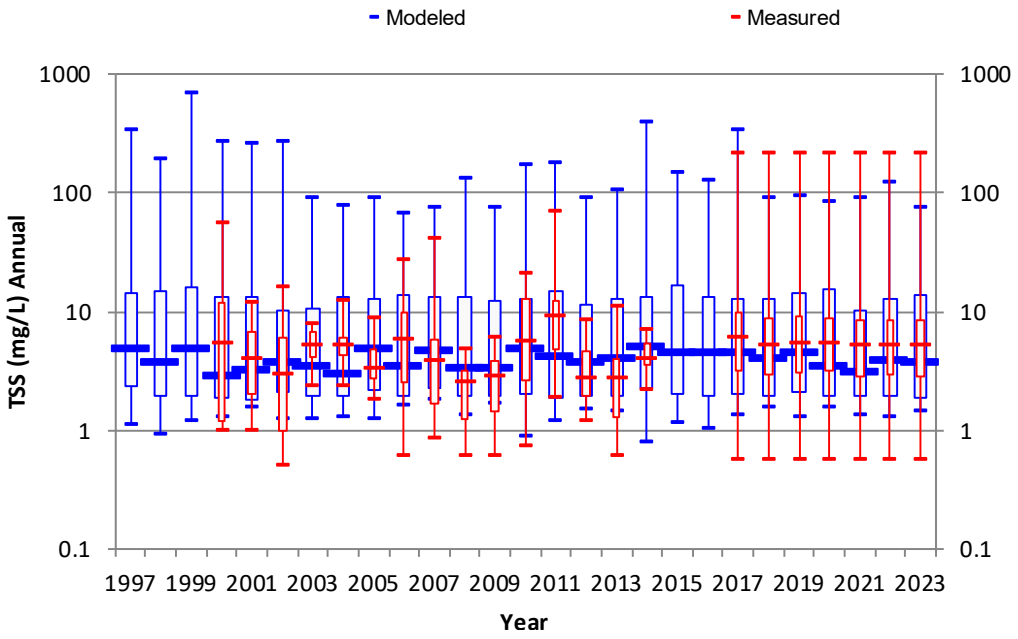


Figure B-151 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH137 Billy Creek

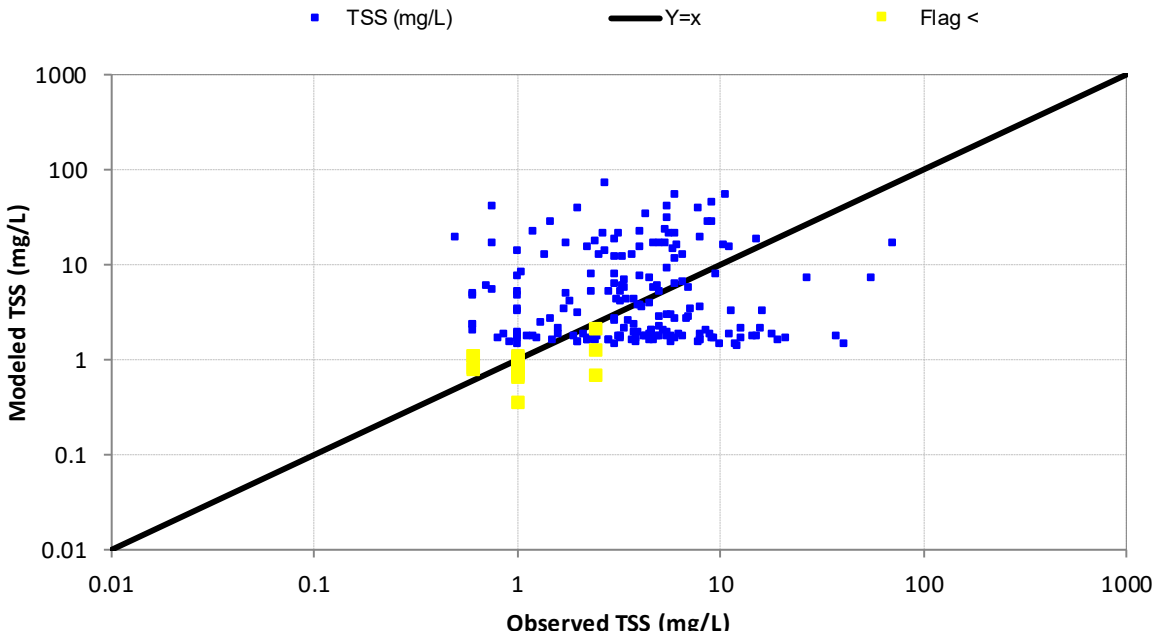


Figure B-152 Concentration at RCH137 Billy Creek

Table B- 37 Monthly TSS Concentration Comparisons at RCH137 Billy Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	12.34	6.37	-48.4	P
Feb	12.05	6.22	-48.3	P
Mar	7.84	6.92	-11.7	VG
Apr	8.66	9.13	5.4	VG
May	12.07	12.96	7.4	VG
Jun	5.50	21.48	290.8	P
Jul	4.68	16.75	257.6	P
Aug	5.27	16.00	203.5	P
Sep	6.19	16.34	164.0	P
Oct	4.86	6.99	43.8	P
Nov	7.73	6.88	-11.0	VG
Dec	7.25	6.45	-11.0	VG
Average*	7.87	11.04	40.3	P
Median**	7.49	8.06	7.6	VG
R^2	N/A	N/A	0.24	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 38 Annual TSS Concentration Comparisons at RCH137 Billy Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	12.89	N/A	N/A
1998	N/A	12.35	N/A	N/A
1999	N/A	15.19	N/A	N/A
2000	11.90	11.60	-2.5	VG
2001	4.53	11.95	163.5	P
2002	4.25	9.27	118.3	P
2003	5.30	10.16	91.6	P
2004	5.43	10.26	89.0	P
2005	4.20	10.34	146.2	P
2006	8.10	9.82	21.2	G
2007	6.80	10.01	47.1	P
2008	2.44	10.67	338.3	P
2009	2.73	9.68	254.4	P
2010	7.98	11.45	43.4	P
2011	13.37	11.76	-12.0	VG
2012	3.56	10.43	192.8	P
2013	3.31	10.89	228.6	P
2014	4.34	11.71	170.1	P
2015	N/A	11.52	N/A	N/A
2016	N/A	11.06	N/A	N/A
2017	24.50	11.96	-51.2	P
2018	9.36	9.84	5.1	VG
2019	5.85	11.12	90.3	P
2020	7.43	10.73	44.4	P
2021	6.69	9.52	42.2	P
2022	8.16	11.35	39.2	P
2023	6.26	10.86	73.6	P
Average*	7.11	11.05	55.4	P
Median**	6.05	10.89	79.9	P
R^2	N/A	N/A	0.20	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 39 Daily TSS Concentration Comparisons at RCH137 Billy Creek

Statistic	Results	Rating
Count (number)	631	N/A
Average Error (%)	220.6	P
Median Error (%)	-10.3	VG
RMSE (mg/L)	20.39	N/A
R^2	0.00	P

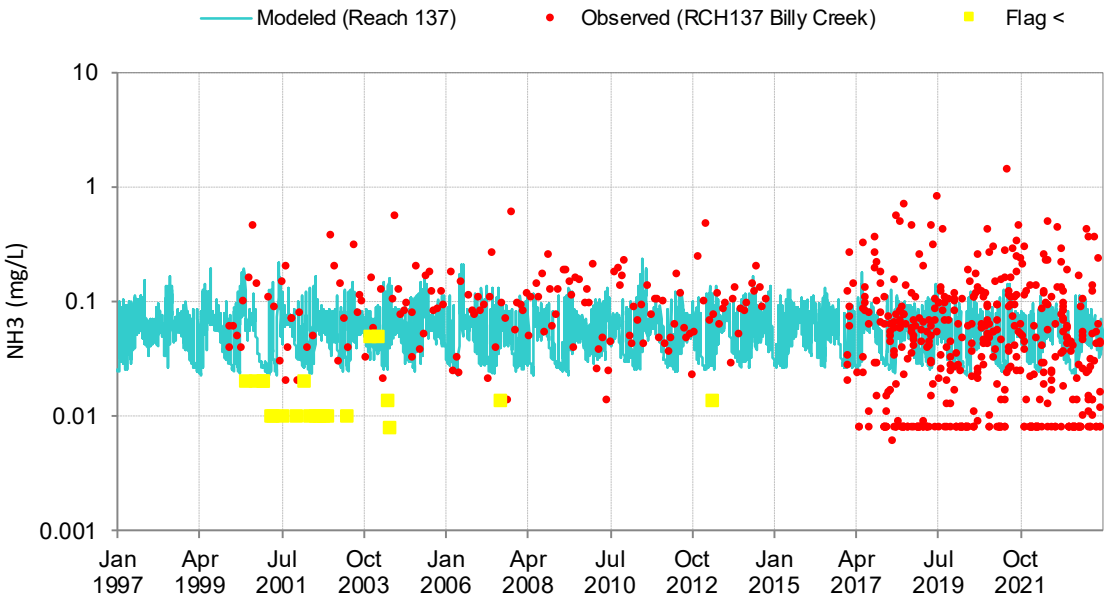


Figure B-153 Modeled Vs Observed NH3 (mg/L) at RCH137 Billy Creek

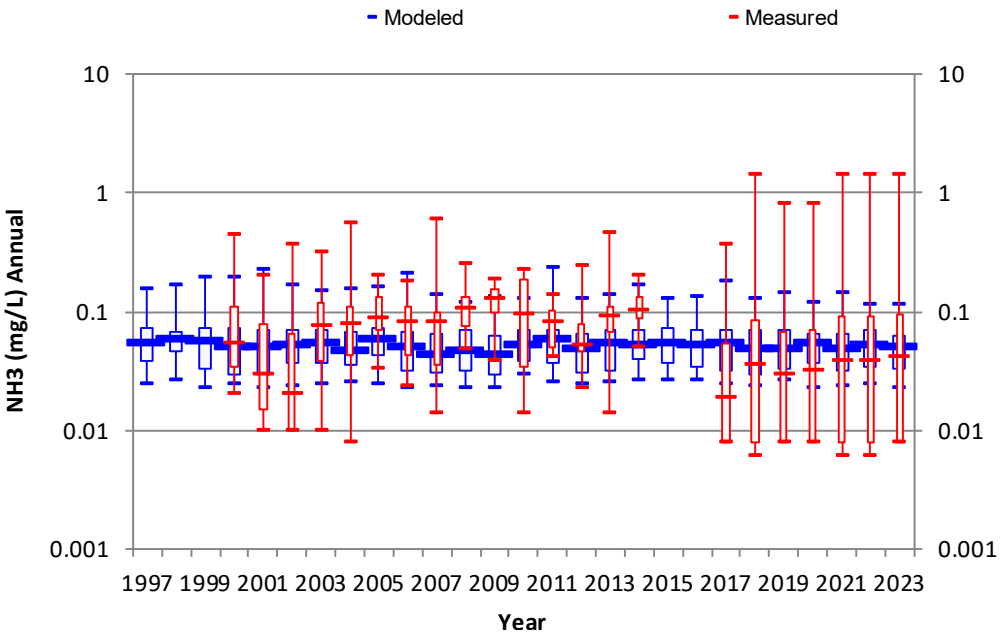


Figure B-154 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH137 Billy Creek

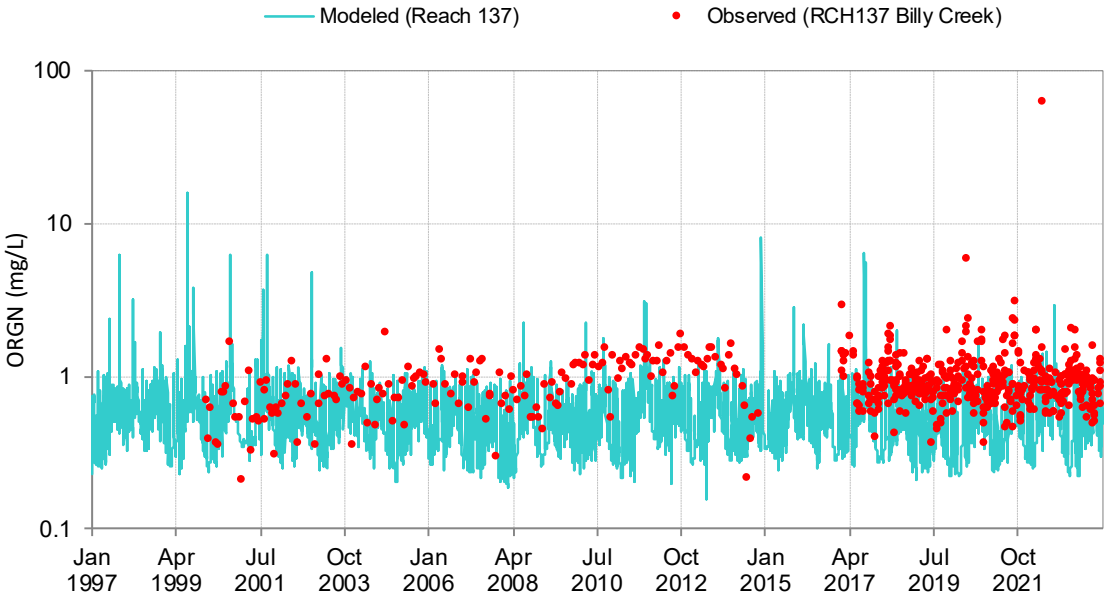


Figure B-155 Modeled Vs Observed ORGN (mg/L) at RCH137 Billy Creek

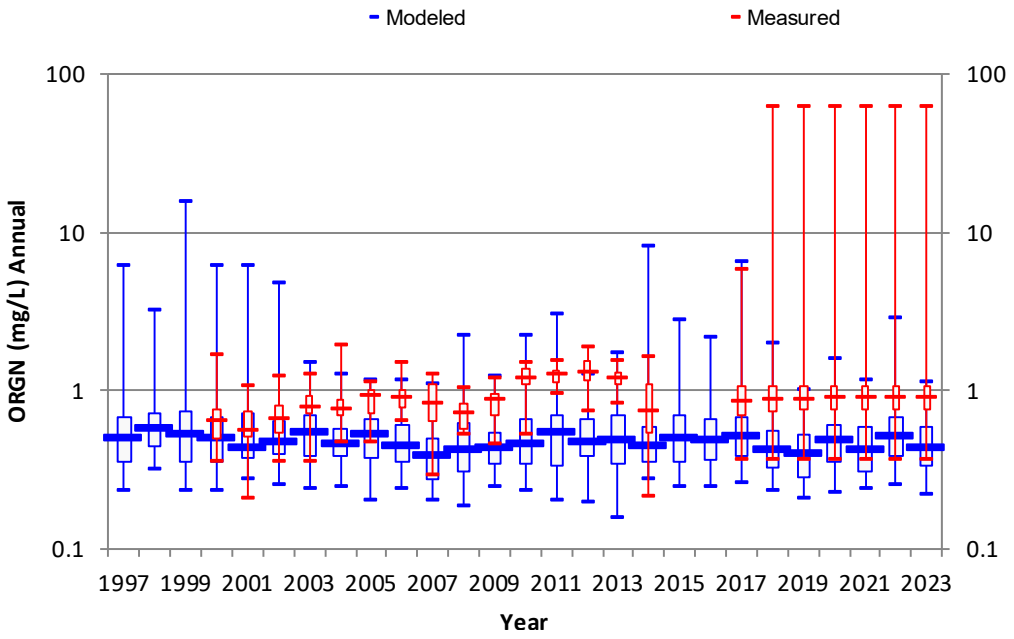


Figure B-156 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH137 Billy Creek

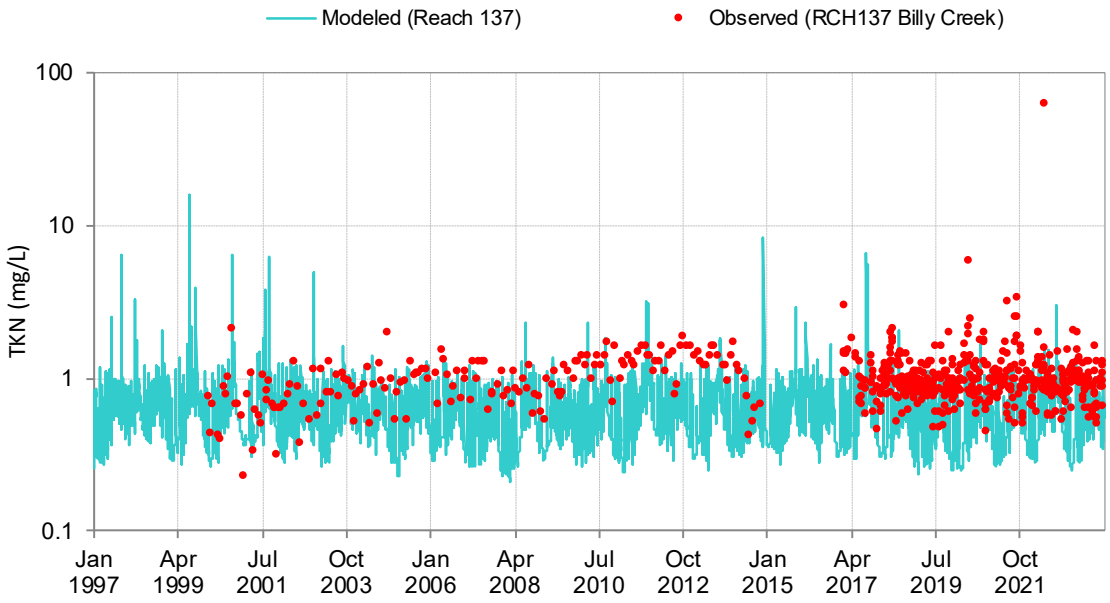


Figure B-157 Modeled Vs Observed TKN (mg/L) at RCH137 Billy Creek

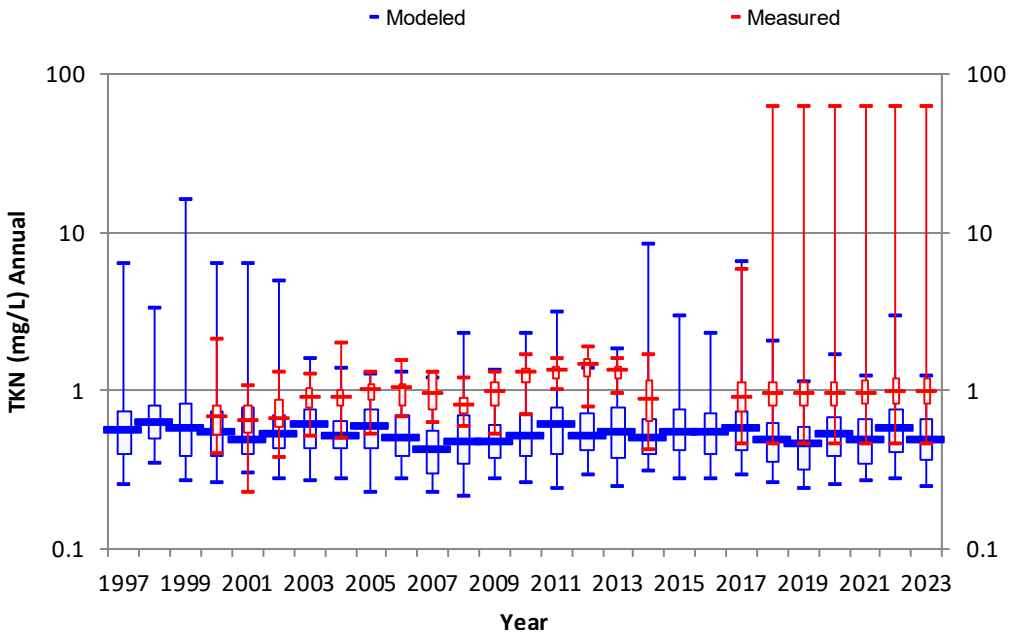


Figure B-158 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH137 Billy Creek

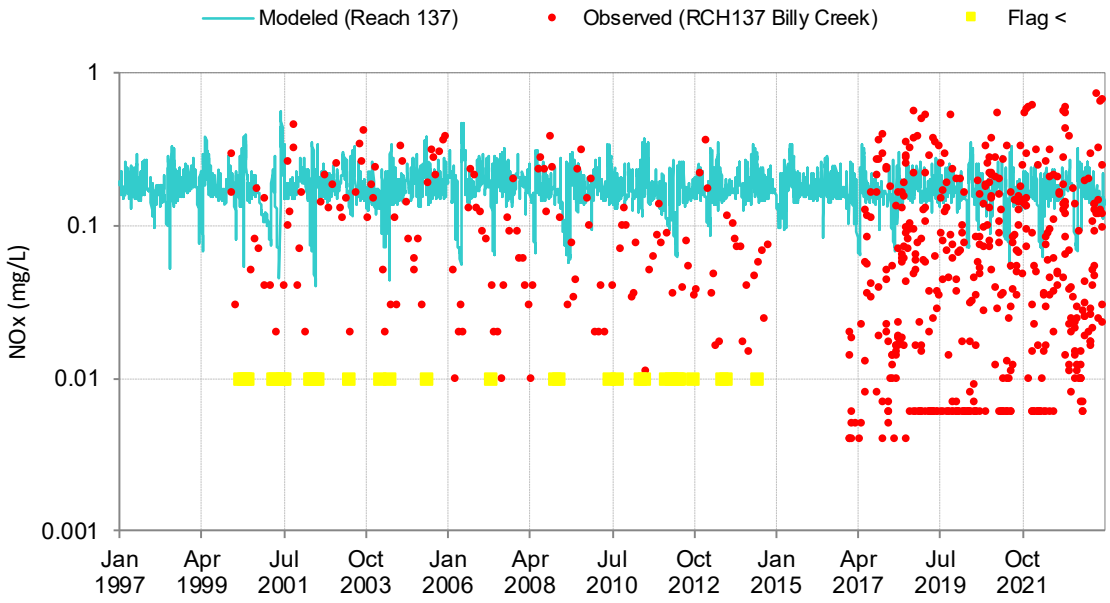


Figure B-159 Modeled Vs Observed NOx (mg/L) at RCH137 Billy Creek

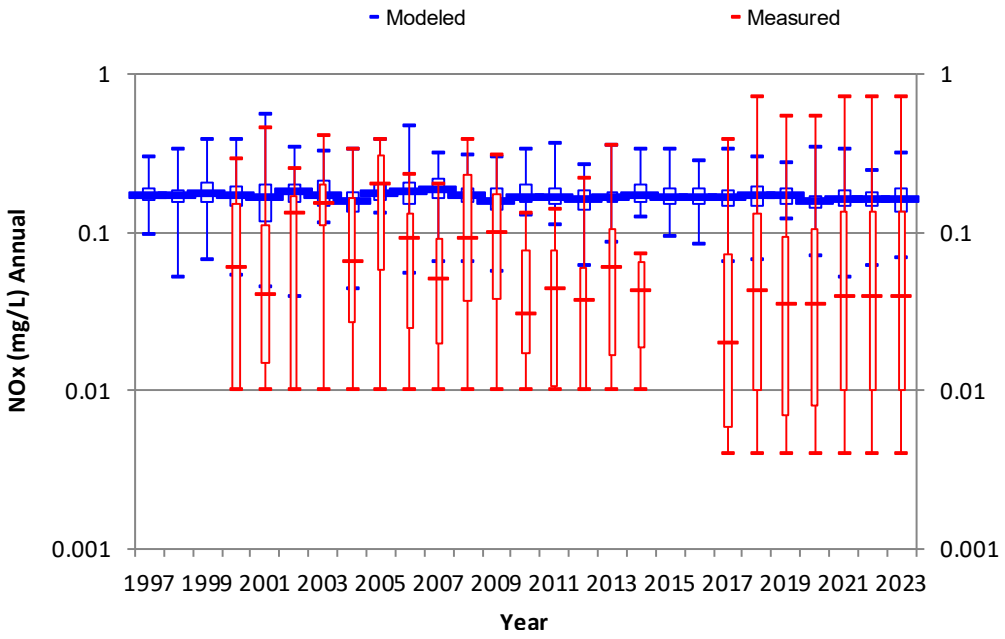


Figure B-160 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH137 Billy Creek

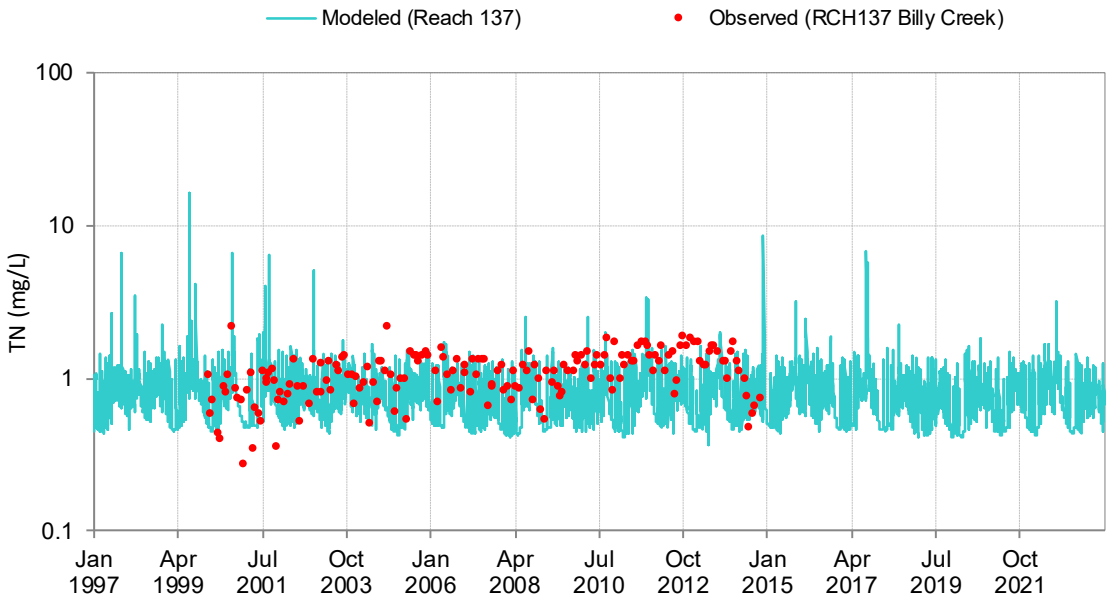


Figure B-161 Modeled Vs Observed TN (mg/L) at RCH137 Billy Creek

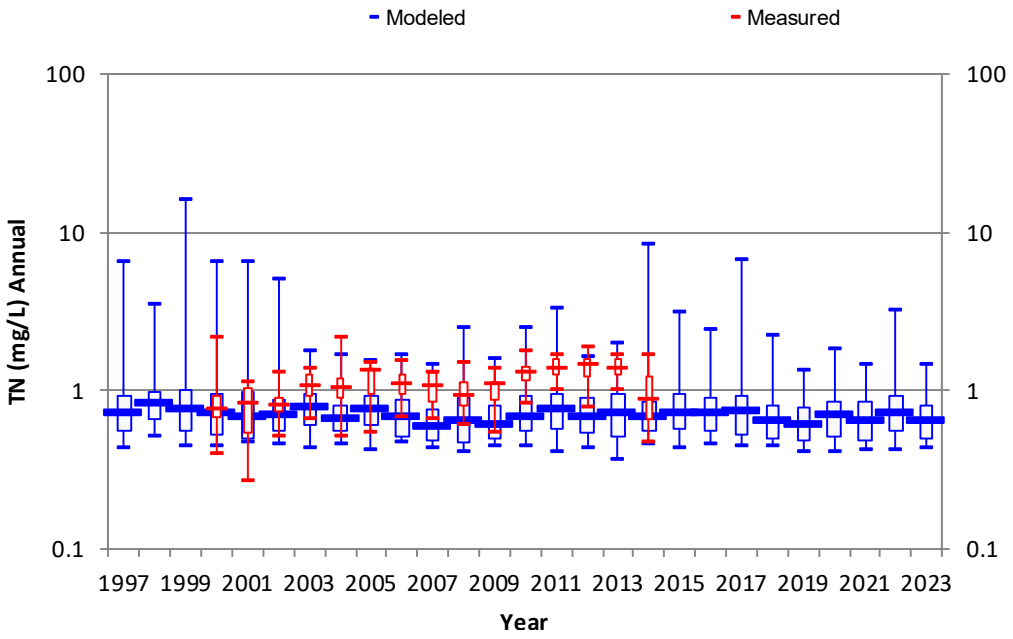


Figure B-162 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH137 Billy Creek

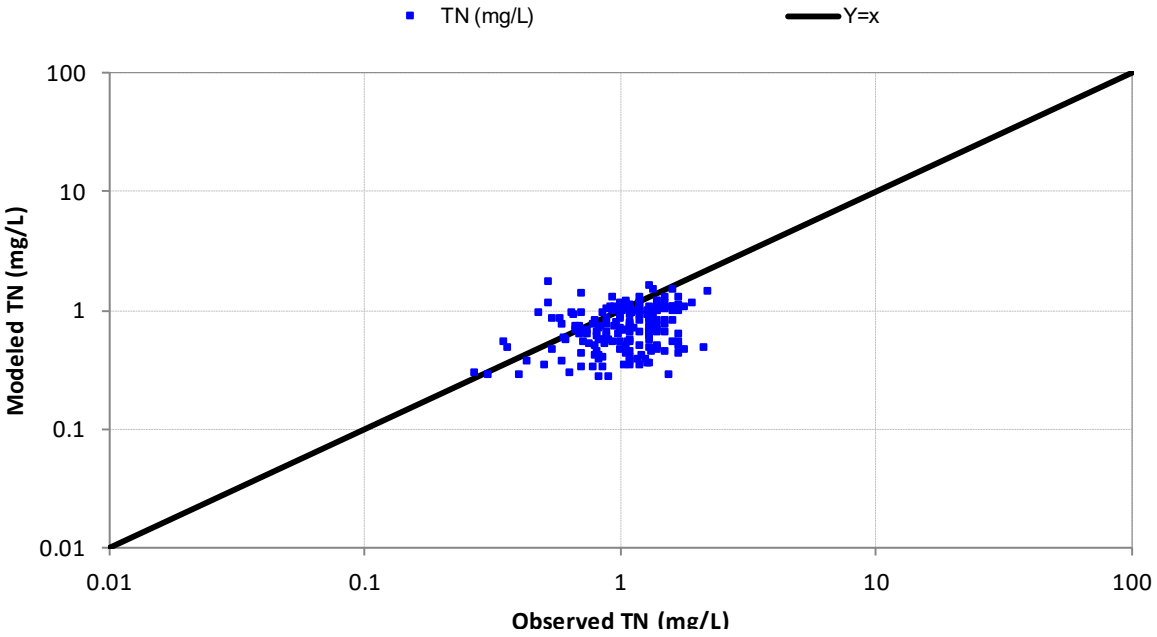


Figure B-163 Concentration at RCH137 Billy Creek

Table B- 40 Monthly TN Concentration Comparisons at RCH137 Billy Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.98	0.63	-35.8	G
Feb	1.11	0.62	-44.0	G
Mar	1.08	0.64	-40.7	G
Apr	1.05	0.63	-40.6	G
May	0.98	0.73	-25.5	VG
Jun	1.12	0.85	-23.6	VG
Jul	0.95	0.87	-8.2	VG
Aug	1.18	0.89	-24.6	VG
Sep	1.32	1.00	-24.3	VG
Oct	1.12	0.82	-26.8	VG
Nov	1.22	0.73	-40.3	G
Dec	1.06	0.68	-35.8	G
Average*	1.10	0.76	-31.0	G
Median**	1.09	0.73	-33.1	G
R2	N/A	N/A	0.26	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.
** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 41 Annual TN Concentration Comparisons at RCH137 Billy Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.79	N/A	N/A
1998	N/A	0.86	N/A	N/A
1999	N/A	0.87	N/A	N/A
2000	0.87	0.80	-7.8	VG
2001	0.77	0.82	6.8	VG
2002	0.87	0.77	-11.6	VG
2003	1.08	0.80	-25.9	VG
2004	1.08	0.71	-34.1	G
2005	1.16	0.78	-32.3	G
2006	1.10	0.75	-32.2	G
2007	1.06	0.66	-37.6	G
2008	0.98	0.71	-27.2	VG
2009	1.02	0.67	-34.0	G
2010	1.30	0.77	-41.1	G
2011	1.39	0.82	-41.3	G
2012	1.41	0.75	-47.2	F
2013	1.41	0.78	-44.6	G
2014	0.98	0.76	-22.2	VG
2015	N/A	0.78	N/A	N/A
2016	N/A	0.77	N/A	N/A
2017	N/A	0.81	N/A	N/A
2018	N/A	0.70	N/A	N/A
2019	N/A	0.66	N/A	N/A
2020	N/A	0.72	N/A	N/A
2021	N/A	0.69	N/A	N/A
2022	N/A	0.79	N/A	N/A
2023	N/A	0.68	N/A	N/A
Average*	1.10	0.76	-31.0	G
Median**	1.08	0.77	-29.0	VG
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 42 Daily TN Concentration Comparisons at RCH137 Billy Creek

Statistic	Results	Rating
Count (number)	179	N/A
Average Error (%)	-21.4	VG
Median Error (%)	-32.4	G
RMSE (mg/L)	0.53	N/A
R2	0.02	P

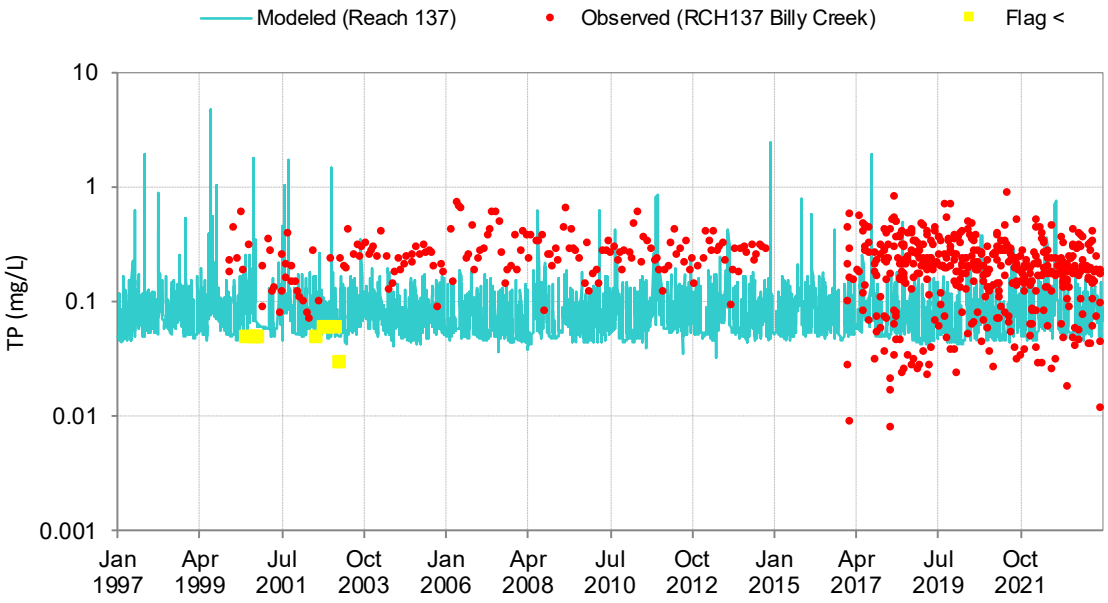


Figure B-164 Modeled Vs Observed TP (mg/L) at RCH137 Billy Creek

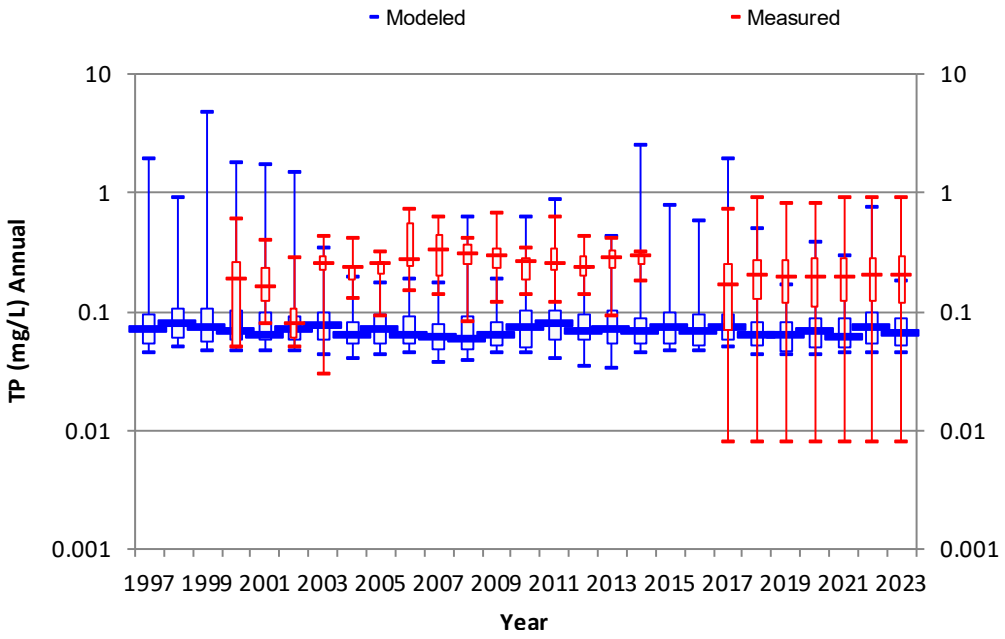


Figure B-165 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH137 Billy Creek

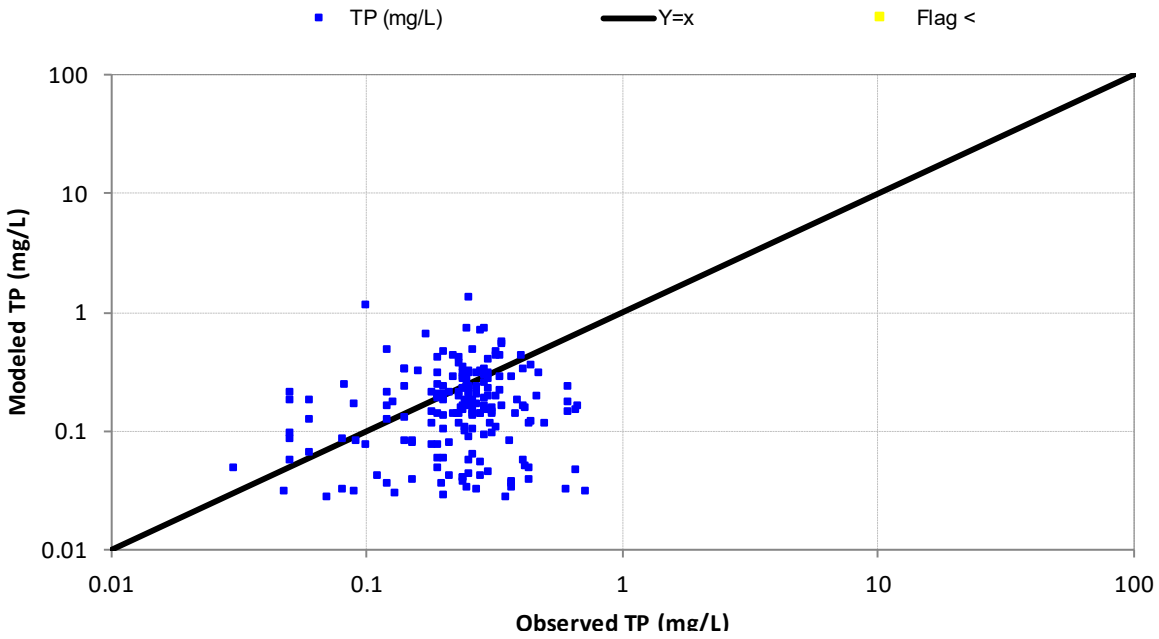


Figure B-166 Concentration at RCH137 Billy Creek

Table B- 43 Monthly TP Concentration Comparisons at RCH137 Billy Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.19	0.07	-64.4	P
Feb	0.24	0.07	-71.7	P
Mar	0.23	0.07	-69.7	P
Apr	0.27	0.07	-74.8	P
May	0.28	0.08	-71.9	P
Jun	0.25	0.09	-64.2	P
Jul	0.22	0.10	-56.8	F
Aug	0.21	0.09	-55.9	F
Sep	0.23	0.11	-50.5	F
Oct	0.19	0.08	-59.0	F
Nov	0.20	0.07	-62.8	P
Dec	0.18	0.07	-60.4	P
Average*	0.23	0.08	-64.1	P
Median**	0.23	0.08	-65.8	P
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 44 Annual TP Concentration Comparisons at RCH137 Billy Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.09	N/A	N/A
1998	N/A	0.09	N/A	N/A
1999	N/A	0.10	N/A	N/A
2000	0.20	0.09	-54.5	F
2001	0.19	0.09	-52.4	F
2002	0.10	0.08	-17.8	VG
2003	0.25	0.08	-67.2	P
2004	0.23	0.07	-69.1	P
2005	0.23	0.08	-67.0	P
2006	0.39	0.08	-80.6	P
2007	0.35	0.07	-80.4	P
2008	0.29	0.07	-74.6	P
2009	0.31	0.07	-77.3	P
2010	0.24	0.08	-65.8	P
2011	0.30	0.09	-69.6	P
2012	0.25	0.08	-68.1	P
2013	0.28	0.08	-70.0	P
2014	0.27	0.08	-69.4	P
2015	N/A	0.08	N/A	N/A
2016	N/A	0.08	N/A	N/A
2017	0.23	0.09	-59.4	F
2018	0.23	0.07	-68.2	P
2019	0.24	0.07	-71.8	P
2020	0.20	0.08	-63.0	P
2021	0.21	0.07	-66.1	P
2022	0.19	0.09	-55.2	F
2023	0.19	0.07	-60.8	P
Average*	0.24	0.08	-66.8	P
Median**	0.24	0.08	-65.6	P
R2	N/A	N/A	0.07	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 45 Daily TP Concentration Comparisons at RCH137 Billy Creek

Statistic	Results	Rating
Count (number)	632	N/A
Average Error (%)	-37.1	G
Median Error (%)	-65.8	P
RMSE (mg/L)	0.20	N/A
R2	0.00	P

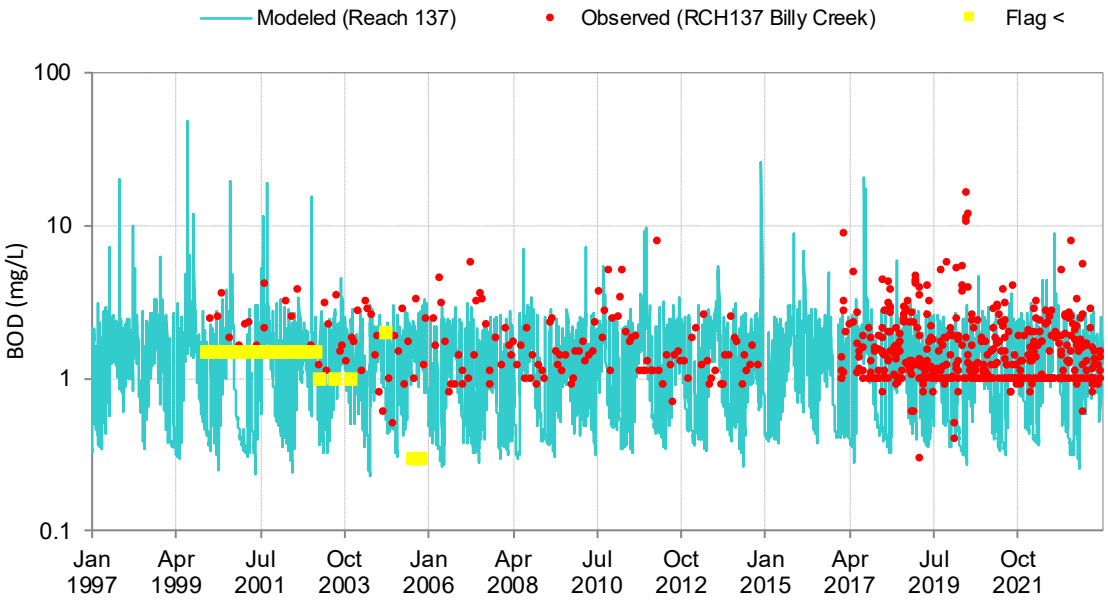


Figure B-167 Modeled Vs Observed BOD (mg/L) at RCH137 Billy Creek

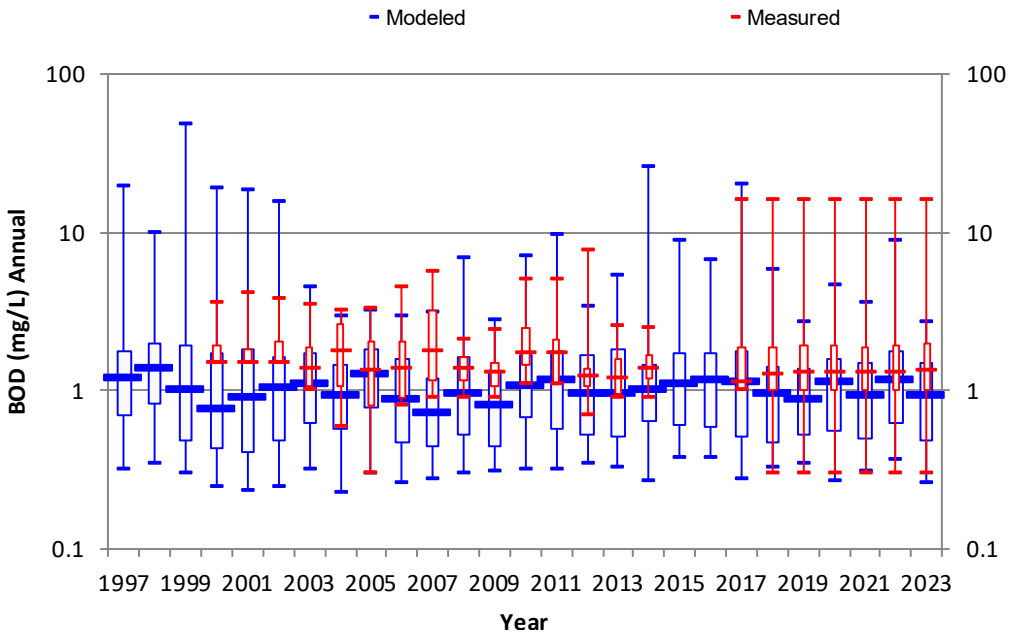


Figure B-168 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH137 Billy Creek

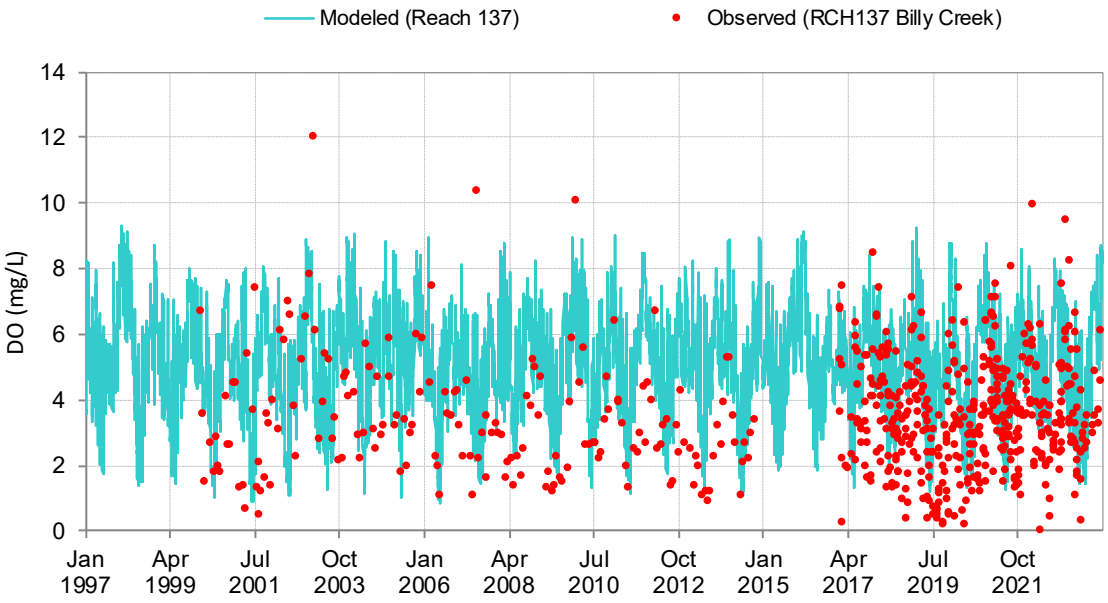


Figure B-169 Modeled Vs Observed DO (mg/L) at RCH137 Billy Creek

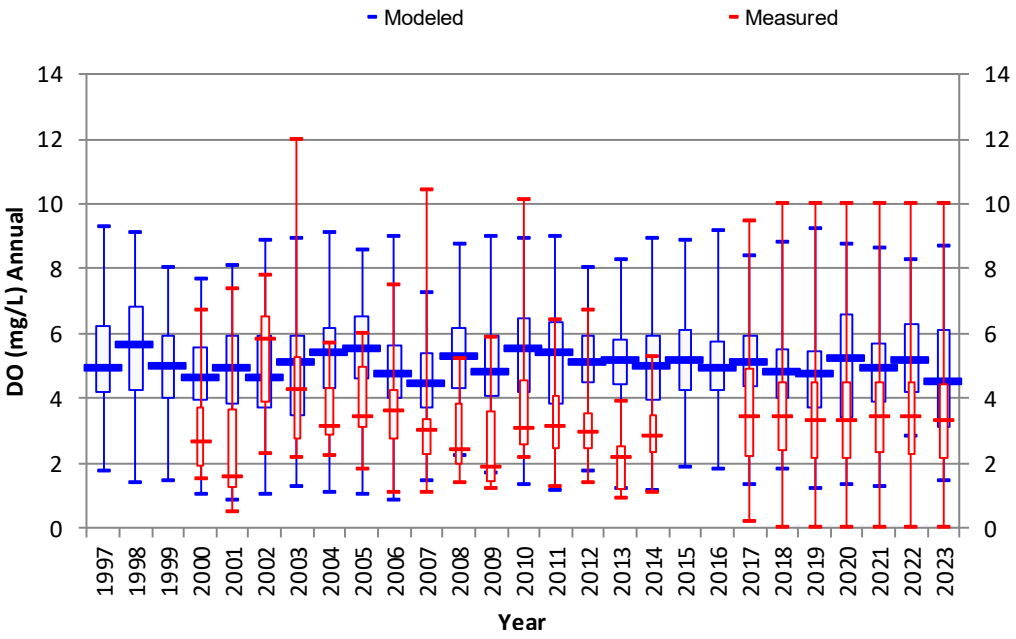


Figure B-170 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH137 Billy Creek

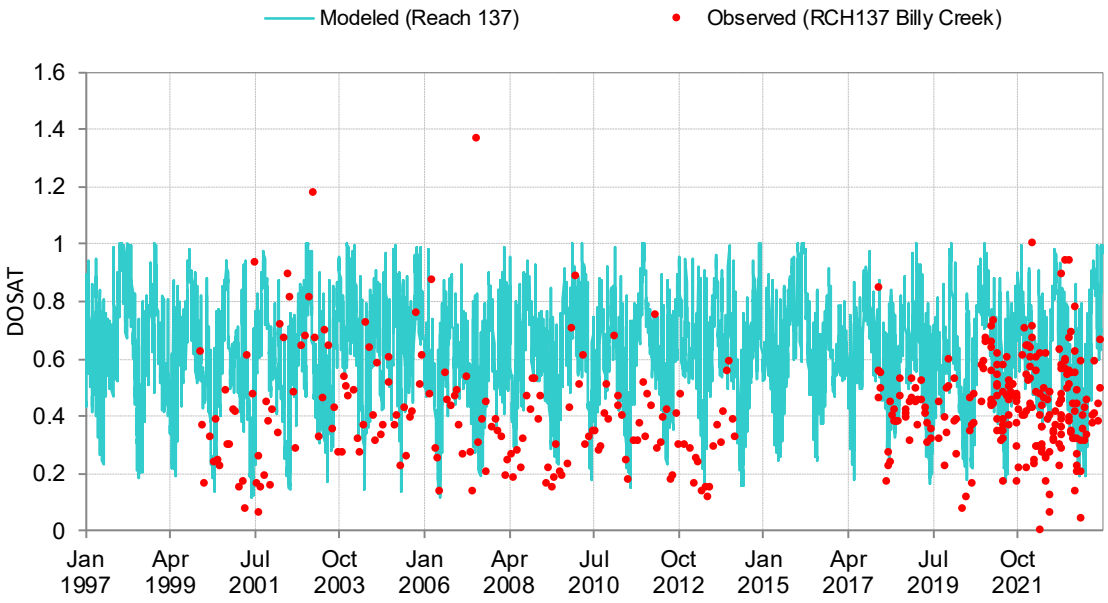


Figure B-171 Modeled Vs Observed DOSAT at RCH137 Billy Creek

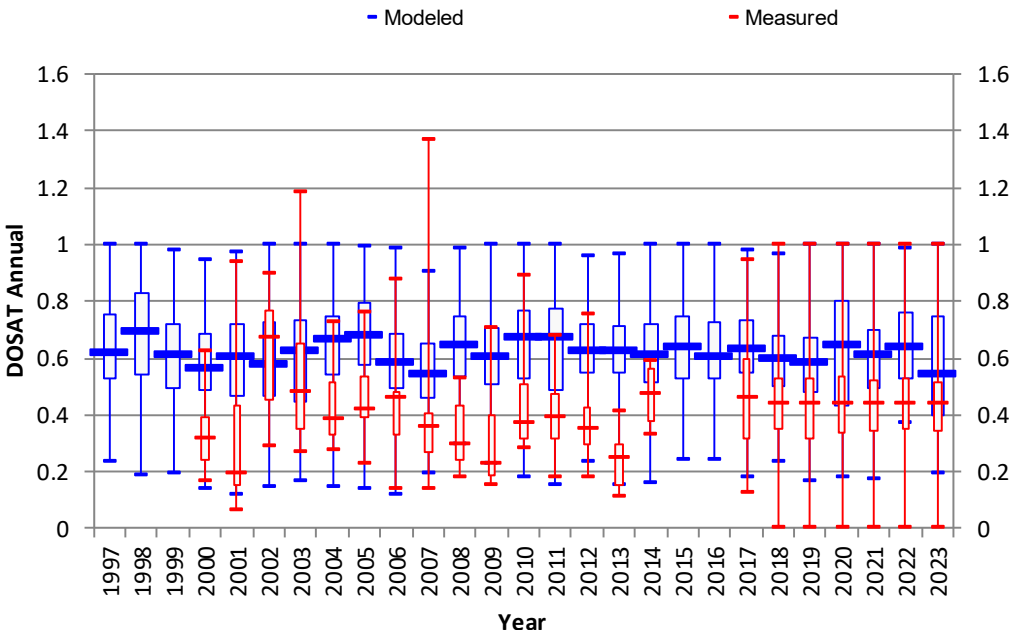


Figure B-172 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH137 Billy Creek

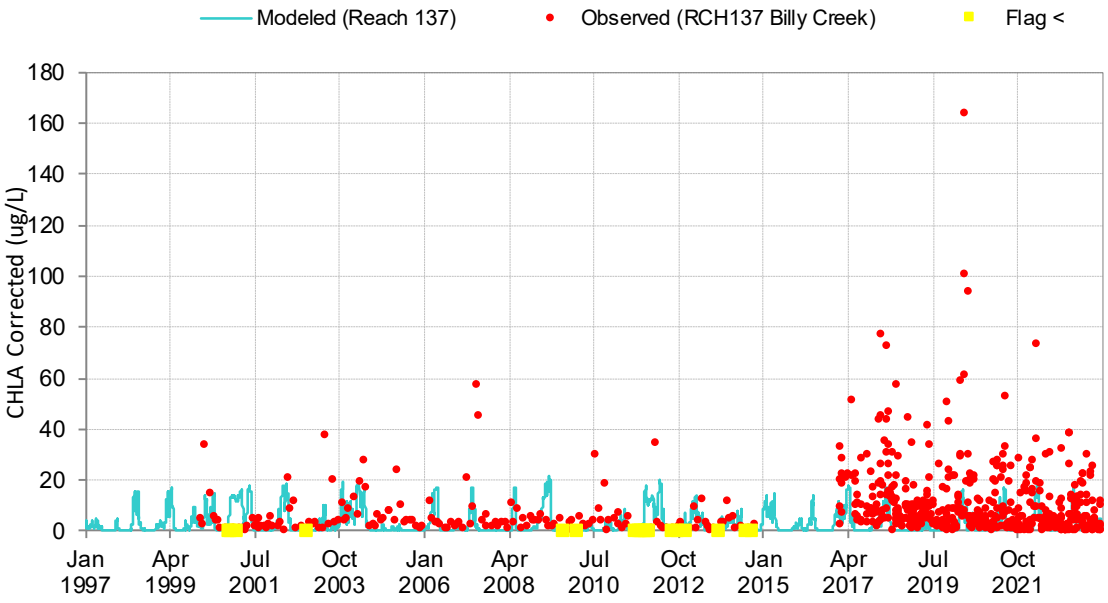


Figure B-173 Modeled Vs Observed CHLA Corrected (ug/L) at RCH137 Billy Creek

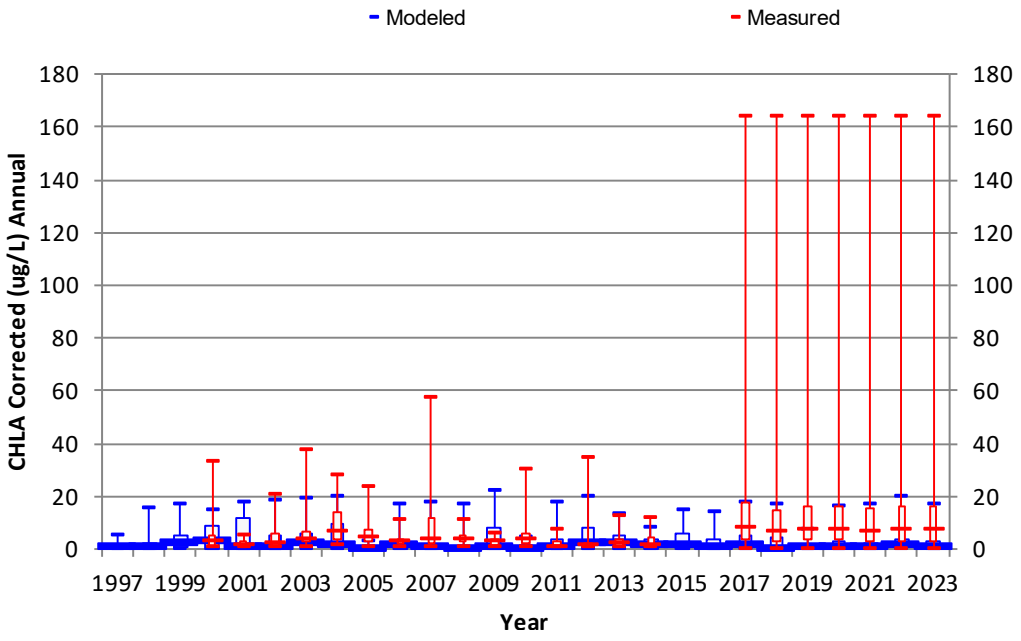


Figure B-174 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH137 Billy Creek

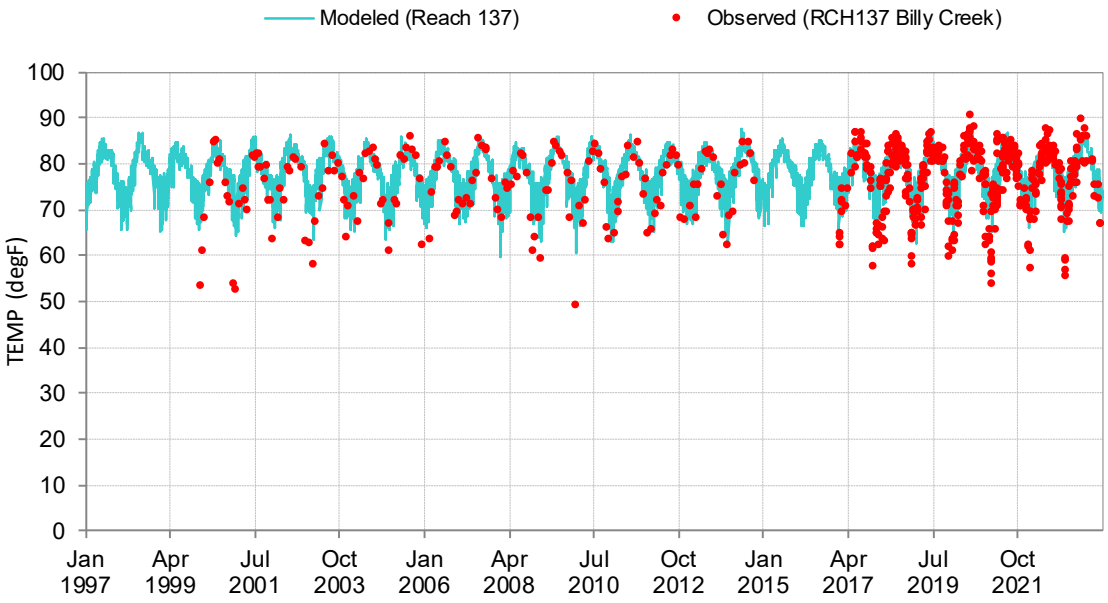


Figure B-175 Modeled Vs Observed TEMP (deg F) at RCH137 Billy Creek

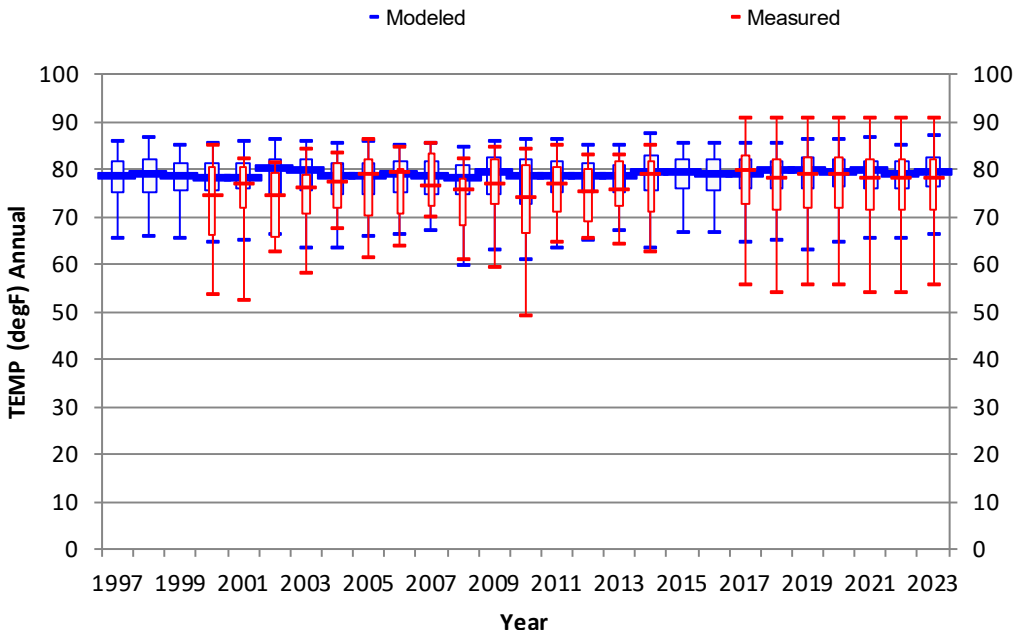


Figure B-176 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH137 Billy Creek

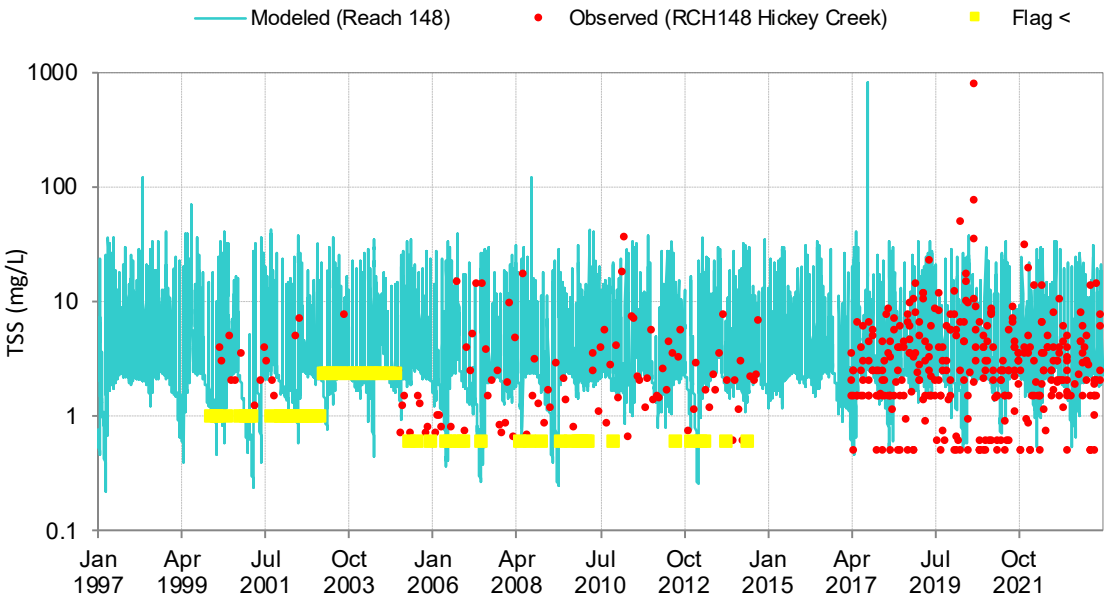


Figure B-177 Modeled Vs Observed TSS (mg/L) at RCH148 Hickey Creek

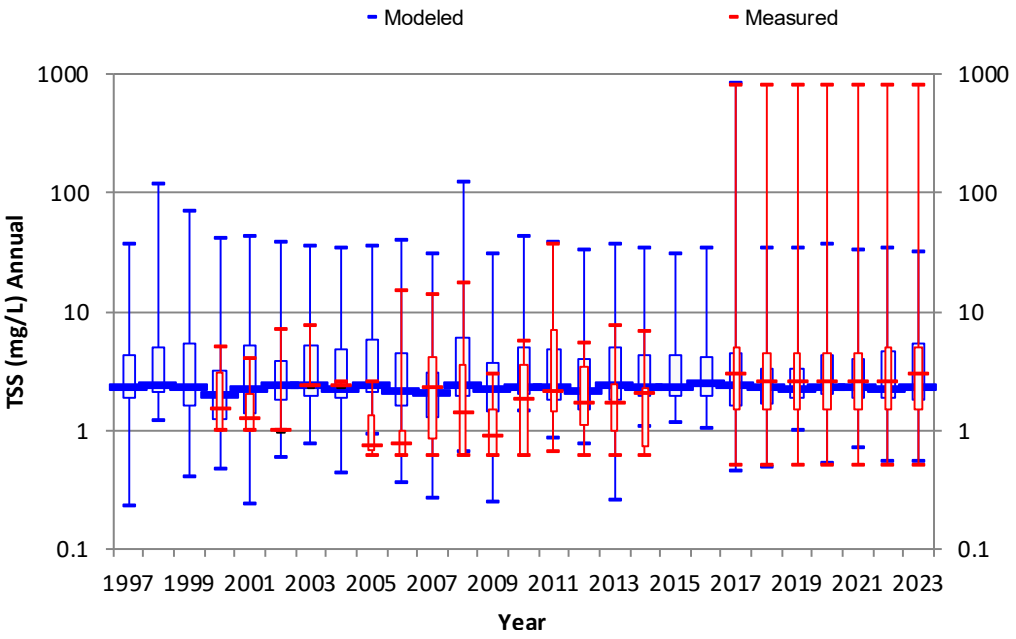


Figure B-178 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH148 Hickey Creek

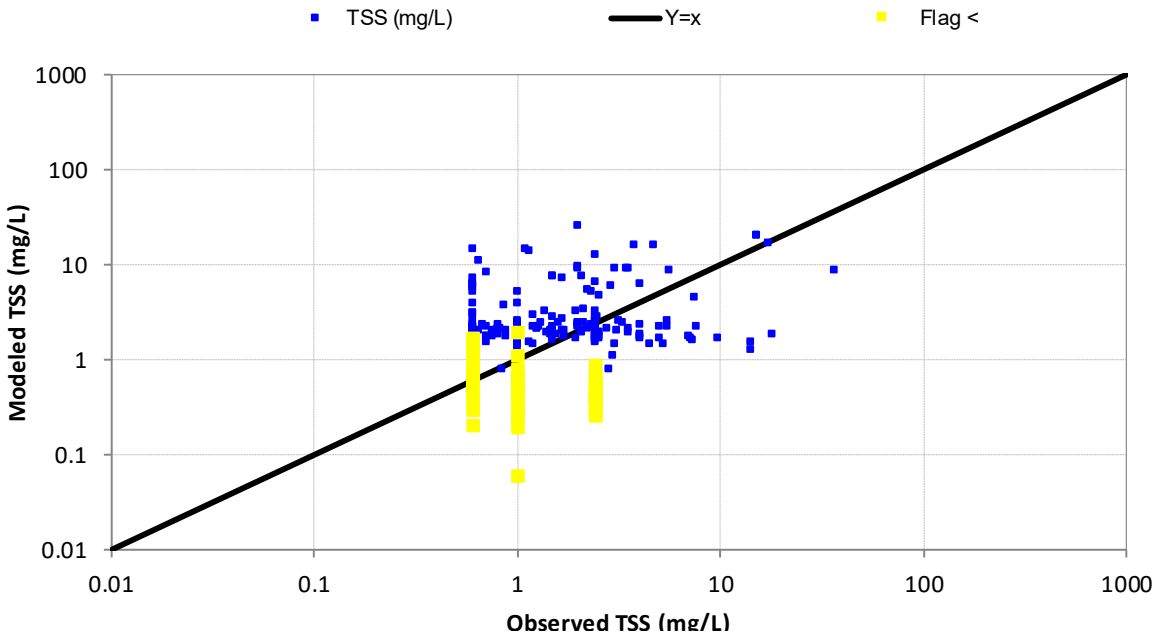


Figure B-179 Concentration at RCH148 Hickey Creek

Table B- 46 Monthly TSS Concentration Comparisons at RCH148 Hickey Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	3.69	2.94	-20.1	G
Feb	2.75	2.96	7.6	VG
Mar	5.47	3.50	-35.9	P
Apr	2.51	4.43	76.4	P
May	4.28	6.90	61.2	P
Jun	3.03	8.49	180.7	P
Jul	23.48	4.81	-79.5	P
Aug	3.74	5.37	43.7	P
Sep	2.63	7.19	173.7	P
Oct	2.54	3.49	37.2	P
Nov	2.78	3.13	12.6	VG
Dec	3.39	2.96	-12.5	VG
Average*	5.02	4.68	-6.8	VG
Median**	3.21	3.97	23.8	G
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 47 Annual TSS Concentration Comparisons at RCH148 Hickey Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.72	N/A	N/A
1998	N/A	5.47	N/A	N/A
1999	N/A	5.33	N/A	N/A
2000	1.88	4.08	117.7	P
2001	1.48	4.63	213.2	P
2002	1.50	4.13	175.3	P
2003	1.73	4.50	160.9	P
2004	1.31	4.55	247.9	P
2005	0.99	4.82	388.5	P
2006	2.10	4.62	119.4	P
2007	4.02	3.80	-5.3	VG
2008	3.48	5.82	67.3	P
2009	1.10	4.13	275.0	P
2010	2.13	4.62	117.6	P
2011	7.11	4.89	-31.2	F
2012	2.30	4.23	83.5	P
2013	2.08	4.70	125.9	P
2014	2.10	4.61	119.8	P
2015	N/A	4.48	N/A	N/A
2016	N/A	4.44	N/A	N/A
2017	2.77	7.50	171.2	P
2018	3.22	3.77	17.3	G
2019	4.38	4.35	-0.8	VG
2020	22.45	4.42	-80.3	P
2021	3.46	4.34	25.3	F
2022	3.69	4.72	28.2	F
2023	3.23	4.77	47.4	P
Average*	3.57	4.68	31.3	F
Median**	2.21	4.61	107.9	P
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 48 Daily TSS Concentration Comparisons at RCH148 Hickey Creek

Statistic	Results	Rating
Count (number)	504	N/A
Average Error (%)	196.4	P
Median Error (%)	29.7	F
RMSE (mg/L)	35.64	N/A
R2	0.00	P

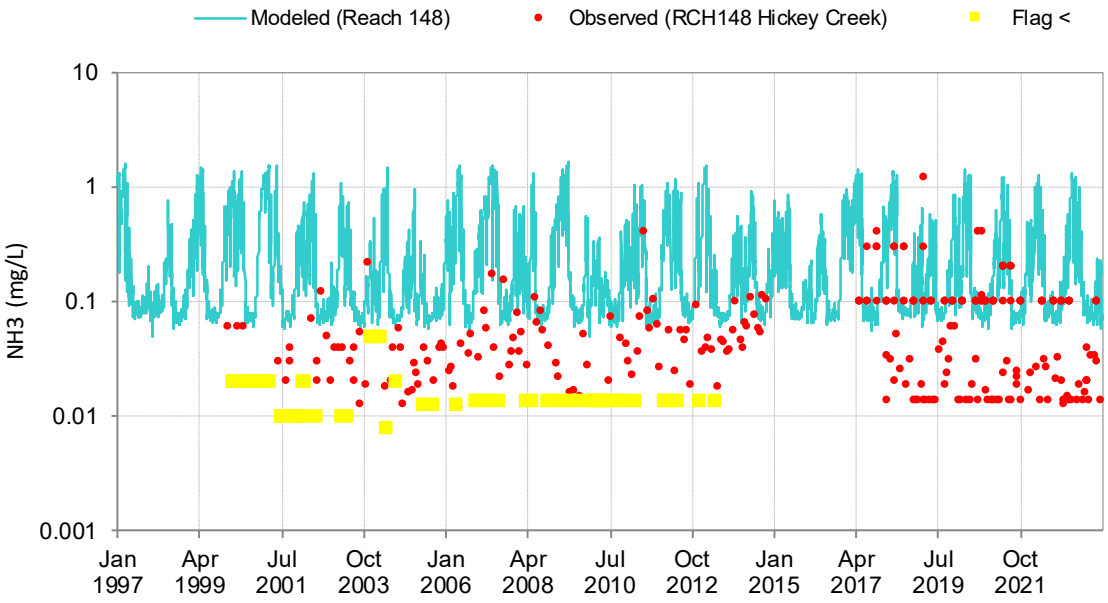


Figure B-180 Modeled Vs Observed NH3 (mg/L) at RCH148 Hickey Creek

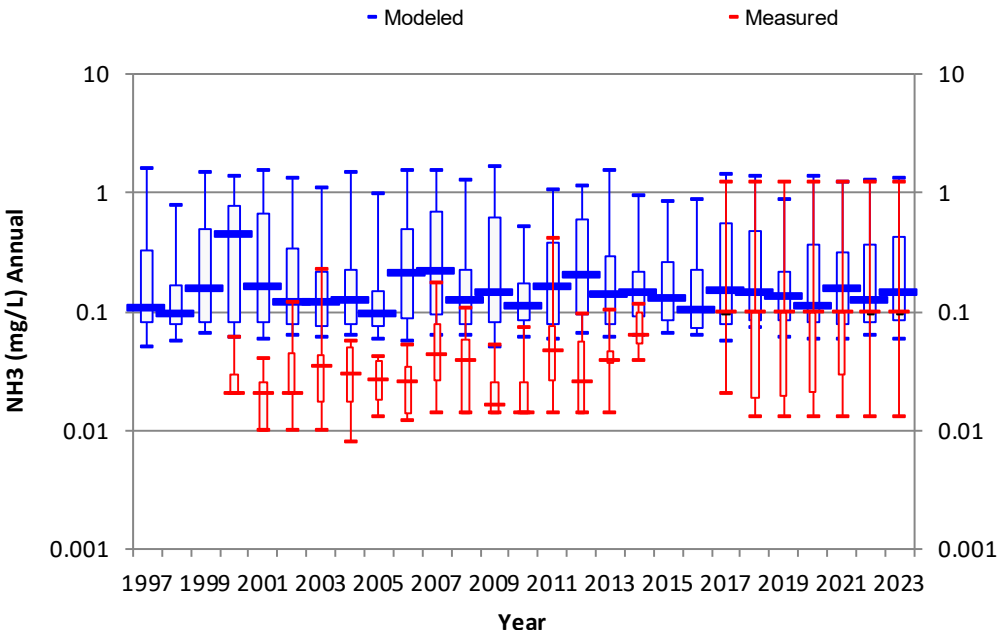


Figure B-181 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH148 Hickey Creek

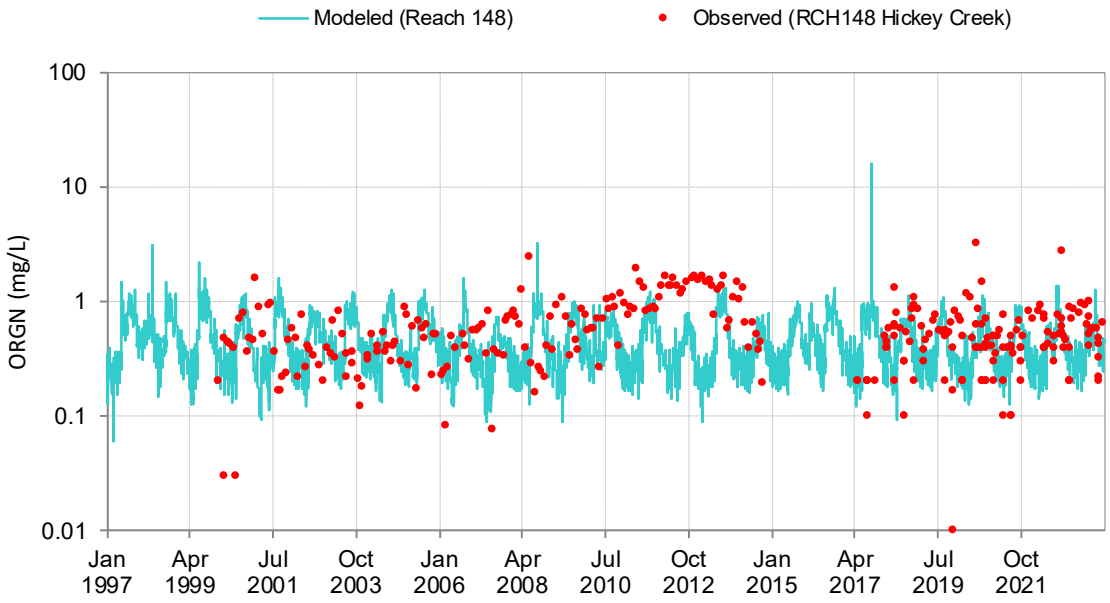


Figure B-182 Modeled Vs Observed ORGN (mg/L) at RCH148 Hickey Creek

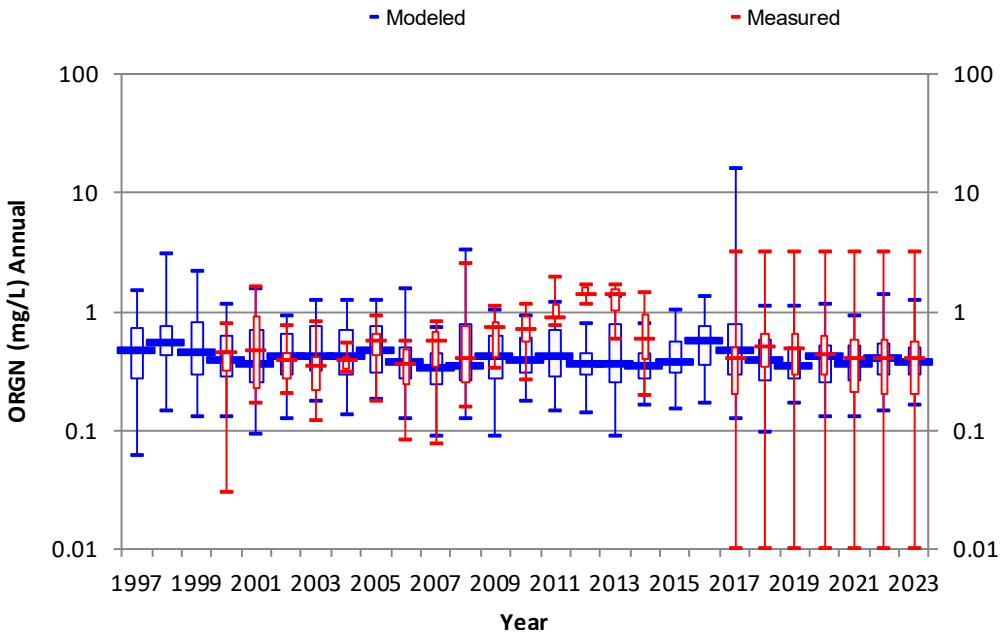


Figure B-183 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH148 Hickey Creek

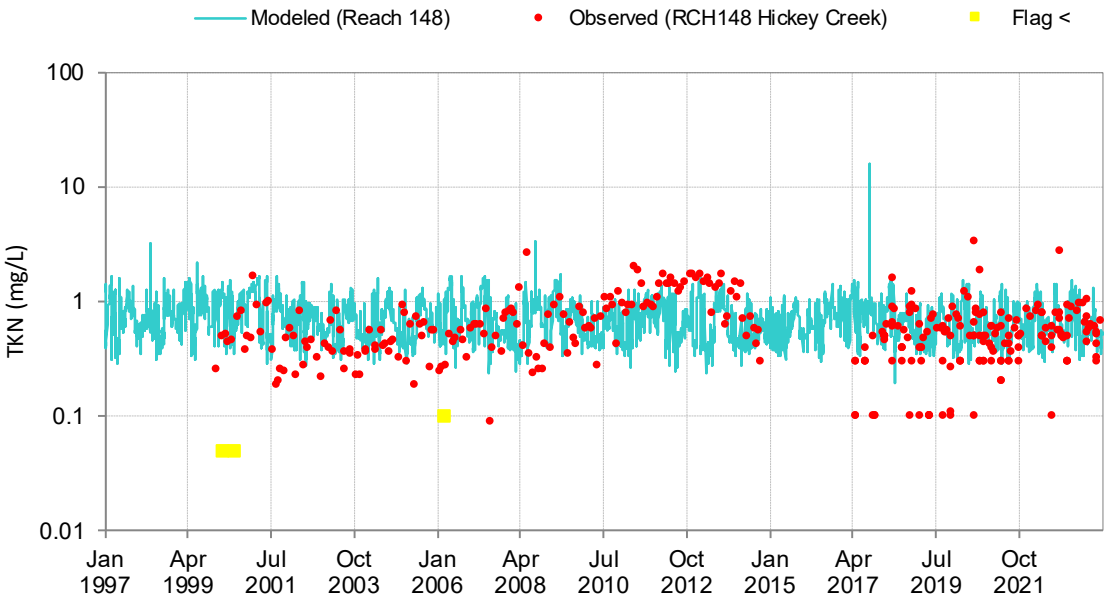


Figure B-184 Modeled Vs Observed TKN (mg/L) at RCH148 Hickey Creek

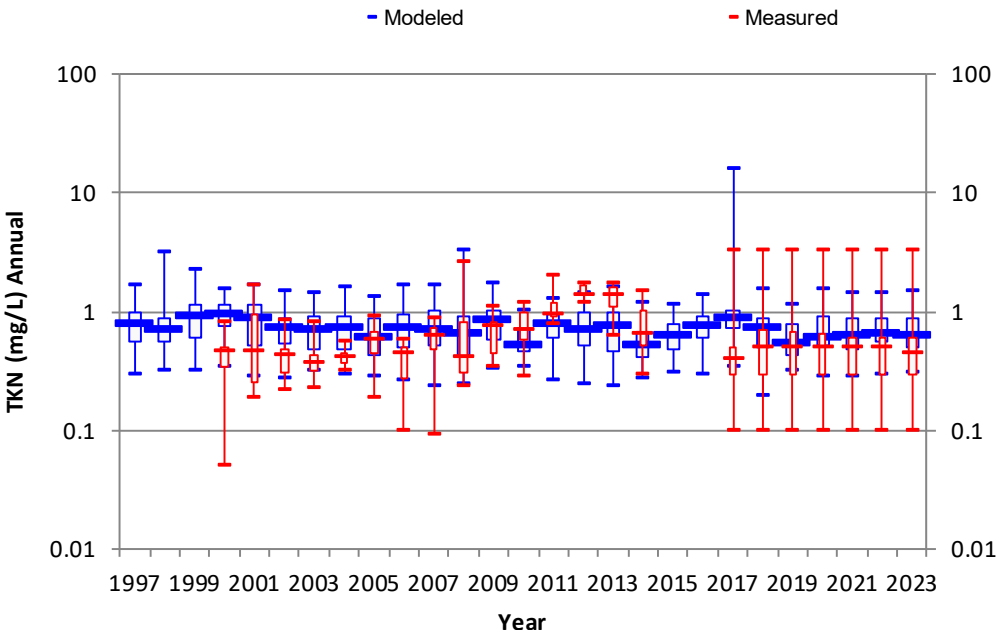


Figure B-185 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH148 Hickey Creek

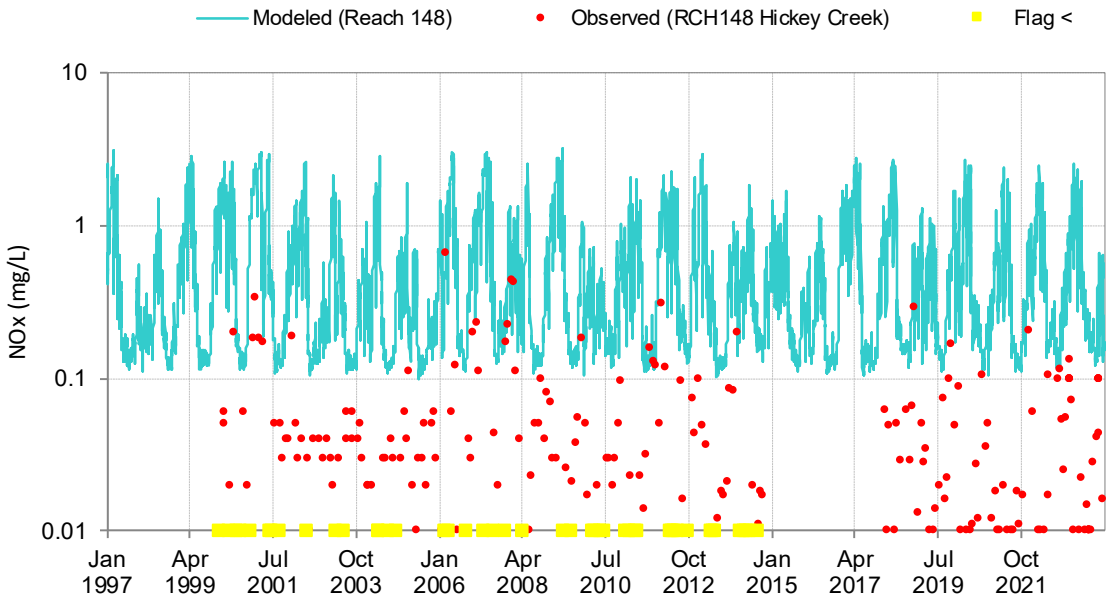


Figure B-186 Modeled Vs Observed NOx (mg/L) at RCH148 Hickey Creek

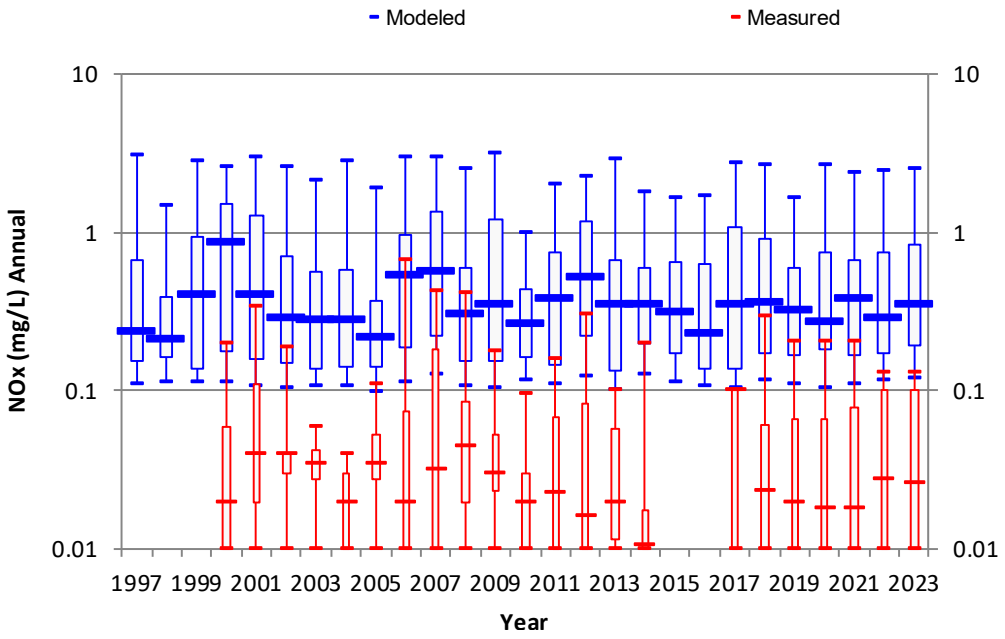


Figure B-187 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH148 Hickey Creek

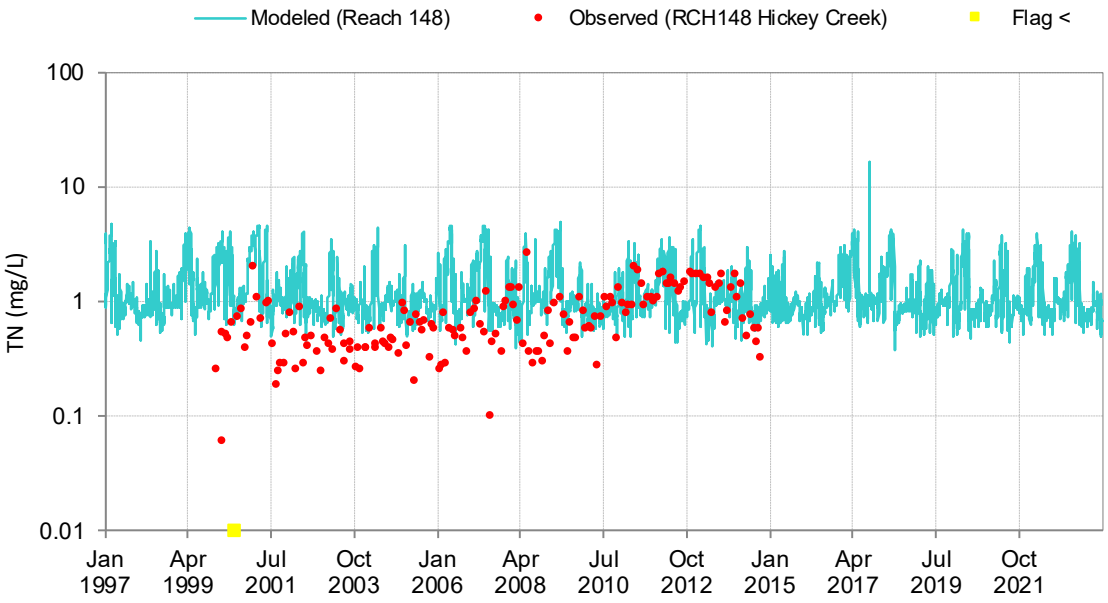


Figure B-188 Modeled Vs Observed TN (mg/L) at RCH148 Hickey Creek

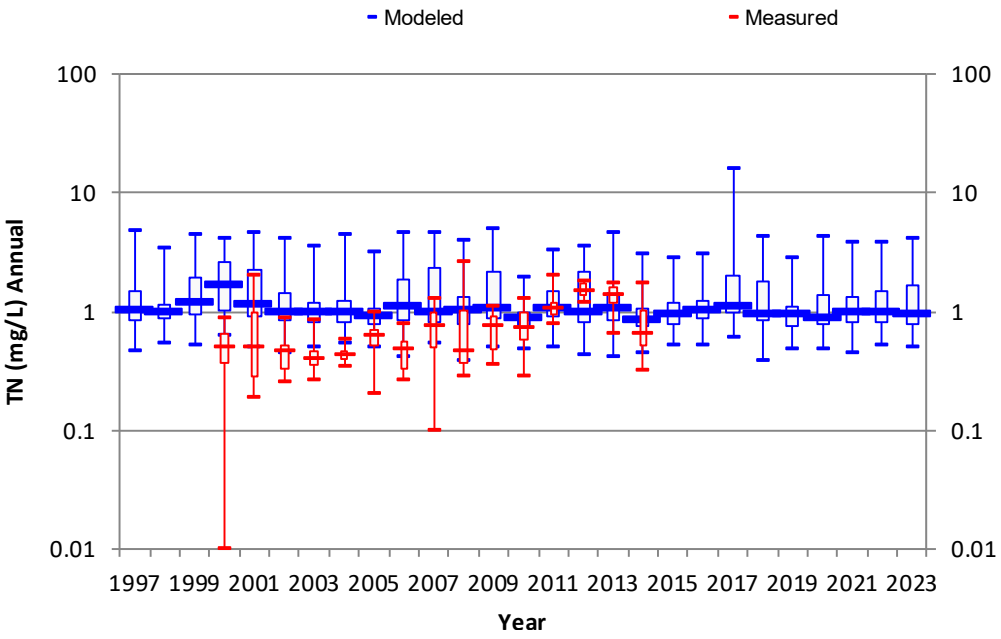


Figure B-189 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH148 Hickey Creek

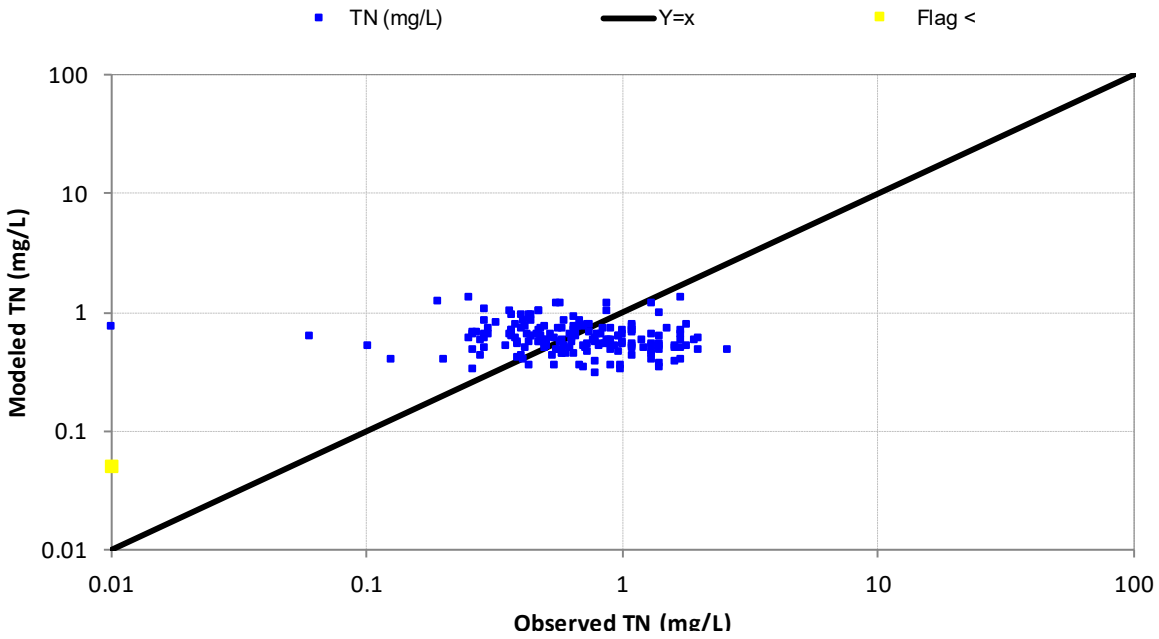


Figure B-190 Concentration at RCH148 Hickey Creek

Table B- 49 Monthly TN Concentration Comparisons at RCH148 Hickey Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.98	1.51	54.1	F
Feb	0.83	1.60	94.0	P
Mar	0.79	1.84	132.5	P
Apr	0.83	1.87	125.4	P
May	0.80	1.93	142.2	P
Jun	0.90	0.98	9.4	VG
Jul	0.63	0.89	40.9	G
Aug	0.65	0.99	51.0	F
Sep	0.73	1.07	46.1	F
Oct	0.52	0.99	91.0	P
Nov	0.69	1.13	62.5	P
Dec	0.83	1.21	45.1	F
Average*	0.77	1.33	74.3	P
Median**	0.79	1.17	46.8	F
R2	N/A	N/A	0.25	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 50 Annual TN Concentration Comparisons at RCH148 Hickey Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.40	N/A	N/A
1998	N/A	1.06	N/A	N/A
1999	N/A	1.62	N/A	N/A
2000	0.47	1.89	300.7	P
2001	0.70	1.73	145.9	P
2002	0.47	1.23	159.7	P
2003	0.45	1.17	159.6	P
2004	0.44	1.25	181.0	P
2005	0.60	0.99	64.9	P
2006	0.50	1.53	208.2	P
2007	0.74	1.67	126.4	P
2008	0.78	1.20	53.4	F
2009	0.73	1.71	135.3	P
2010	0.78	0.91	17.0	VG
2011	1.18	1.30	10.5	VG
2012	1.53	1.48	-3.2	VG
2013	1.33	1.34	0.7	VG
2014	0.81	1.00	23.7	VG
2015	N/A	1.09	N/A	N/A
2016	N/A	1.19	N/A	N/A
2017	N/A	1.66	N/A	N/A
2018	N/A	1.39	N/A	N/A
2019	N/A	1.05	N/A	N/A
2020	N/A	1.33	N/A	N/A
2021	N/A	1.20	N/A	N/A
2022	N/A	1.27	N/A	N/A
2023	N/A	1.34	N/A	N/A
Average*	0.77	1.33	73.8	P
Median**	0.73	1.30	78.8	P
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 51 Daily TN Concentration Comparisons at RCH148 Hickey Creek

Statistic	Results	Rating
Count (number)	173	N/A
Average Error (%)	209.0	P
Median Error (%)	82.6	P
RMSE (mg/L)	1.05	N/A
R2	0.08	P

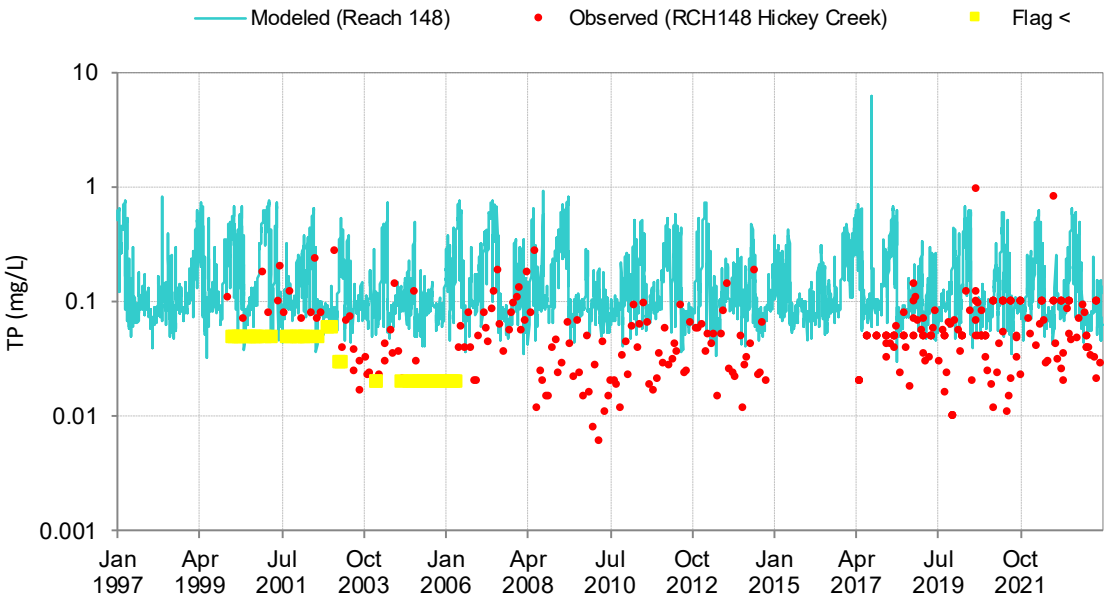


Figure B-191 Modeled Vs Observed TP (mg/L) at RCH148 Hickey Creek

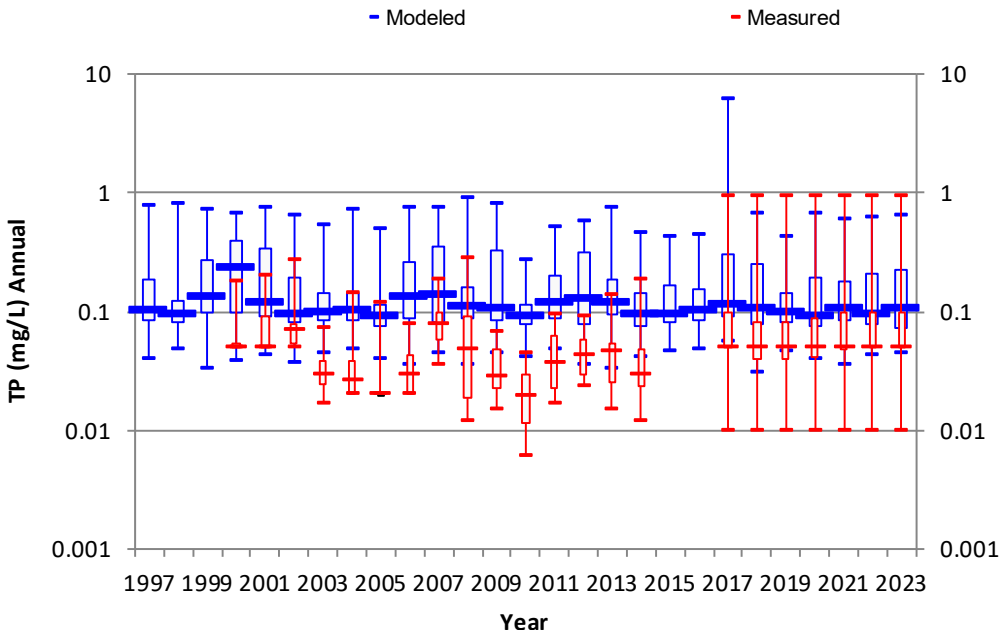


Figure B-192 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH148 Hickey Creek

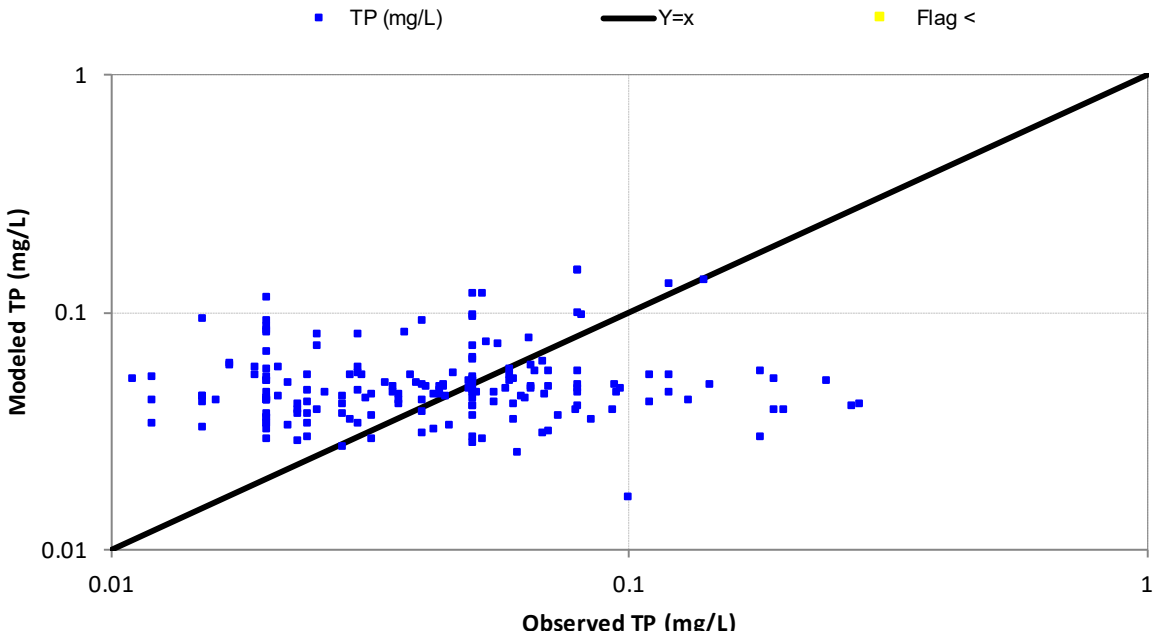


Figure B-193 Concentration at RCH148 Hickey Creek

Table B- 52 Monthly TP Concentration Comparisons at RCH148 Hickey Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.06	0.21	266.8	P
Feb	0.05	0.23	373.1	P
Mar	0.04	0.27	605.1	P
Apr	0.06	0.28	331.8	P
May	0.06	0.28	372.5	P
Jun	0.08	0.11	41.0	G
Jul	0.09	0.09	0.0	VG
Aug	0.07	0.10	29.7	VG
Sep	0.05	0.11	140.0	P
Oct	0.04	0.09	115.7	P
Nov	0.06	0.13	123.1	P
Dec	0.05	0.15	212.0	P
Average*	0.06	0.17	192.0	P
Median**	0.06	0.14	145.1	P
R2	N/A	N/A	0.12	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 53 Annual TP Concentration Comparisons at RCH148 Hickey Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.18	N/A	N/A
1998	N/A	0.11	N/A	N/A
1999	N/A	0.21	N/A	N/A
2000	0.05	0.26	438.6	P
2001	0.07	0.24	255.4	P
2002	0.09	0.15	79.5	P
2003	0.03	0.14	317.8	P
2004	0.04	0.15	330.3	P
2005	0.02	0.11	421.5	P
2006	0.03	0.20	527.3	P
2007	0.08	0.24	179.0	P
2008	0.08	0.15	97.0	P
2009	0.04	0.23	545.5	P
2010	0.02	0.10	368.6	P
2011	0.05	0.16	246.6	P
2012	0.05	0.20	319.8	P
2013	0.05	0.17	243.6	P
2014	0.05	0.12	150.6	P
2015	N/A	0.13	N/A	N/A
2016	N/A	0.14	N/A	N/A
2017	0.04	0.23	484.0	P
2018	0.06	0.18	227.5	P
2019	0.04	0.13	192.6	P
2020	0.09	0.17	93.2	P
2021	0.07	0.15	107.5	P
2022	0.10	0.16	58.9	F
2023	0.07	0.18	161.1	P
Average*	0.05	0.17	212.2	P
Median**	0.05	0.16	233.5	P
R2	N/A	N/A	0.03	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 54 Daily TP Concentration Comparisons at RCH148 Hickey Creek

Statistic	Results	Rating
Count (number)	345	N/A
Average Error (%)	338.4	P
Median Error (%)	179.8	P
RMSE (mg/L)	0.19	N/A
R2	0.00	P

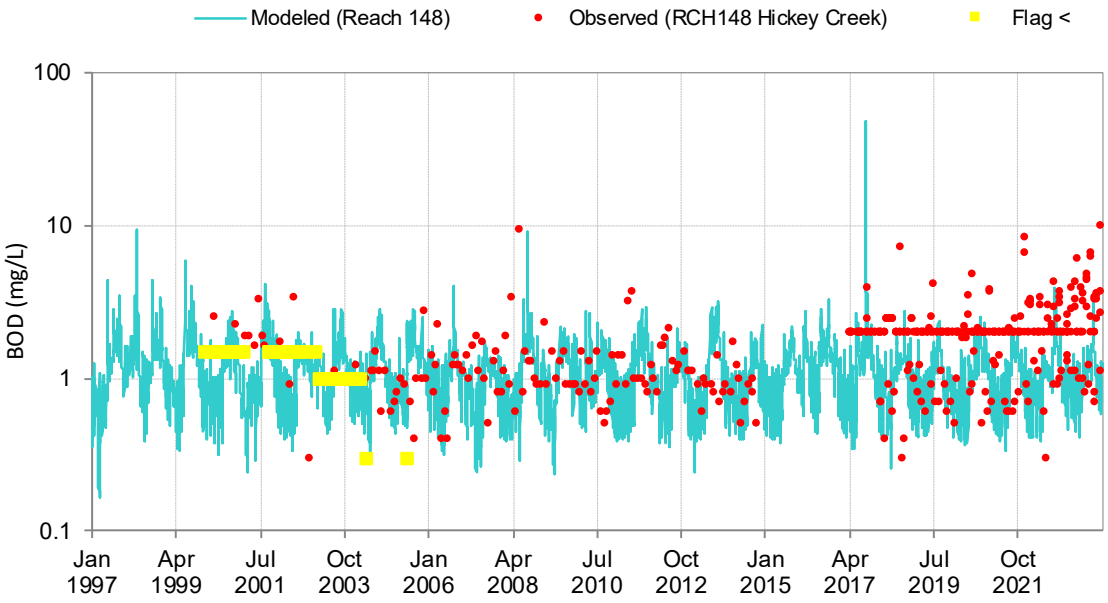


Figure B-194 Modeled Vs Observed BOD (mg/L) at RCH148 Hickey Creek

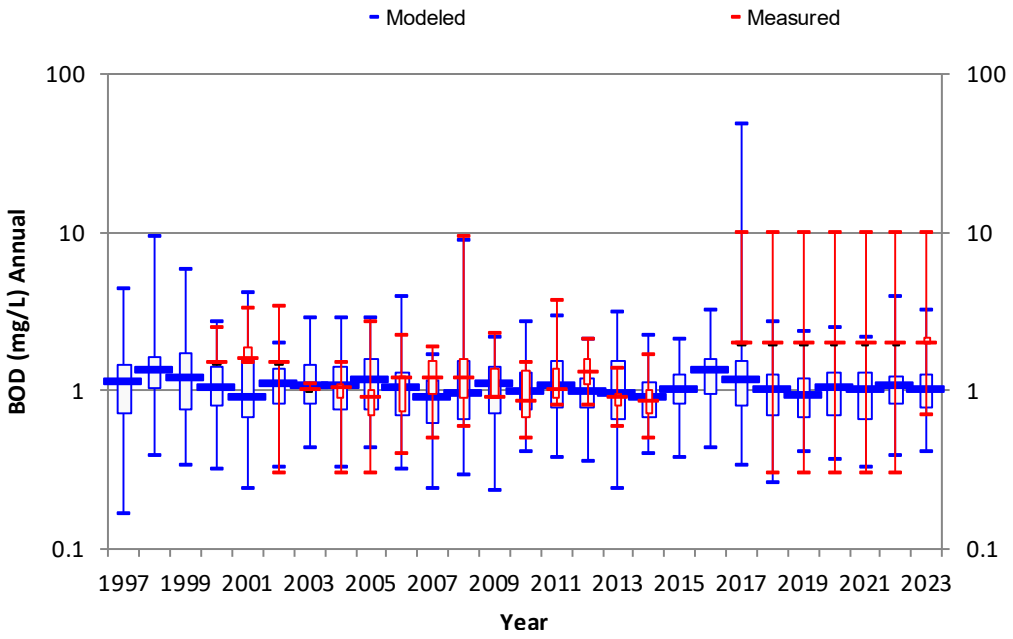


Figure B-195 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH148 Hickey Creek

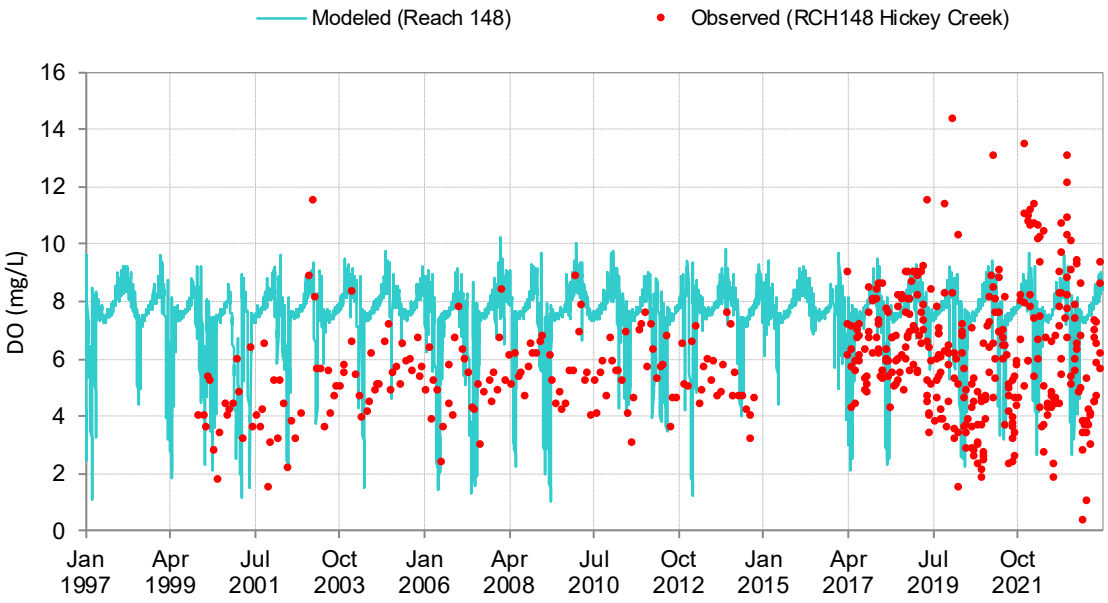


Figure B-196 Modeled Vs Observed DO (mg/L) at RCH148 Hickey Creek

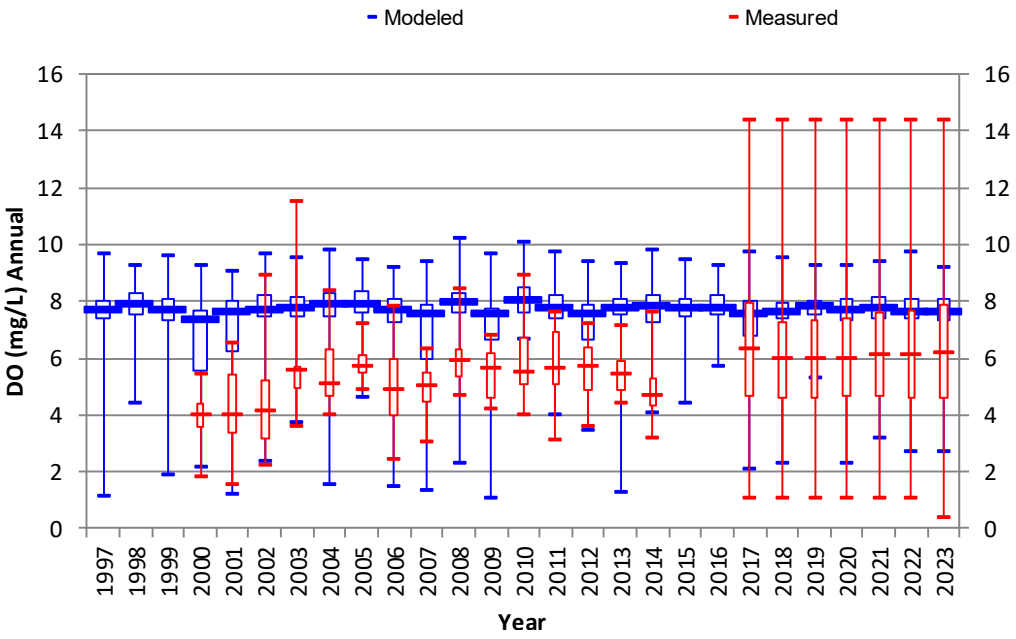


Figure B-197 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH148 Hickey Creek

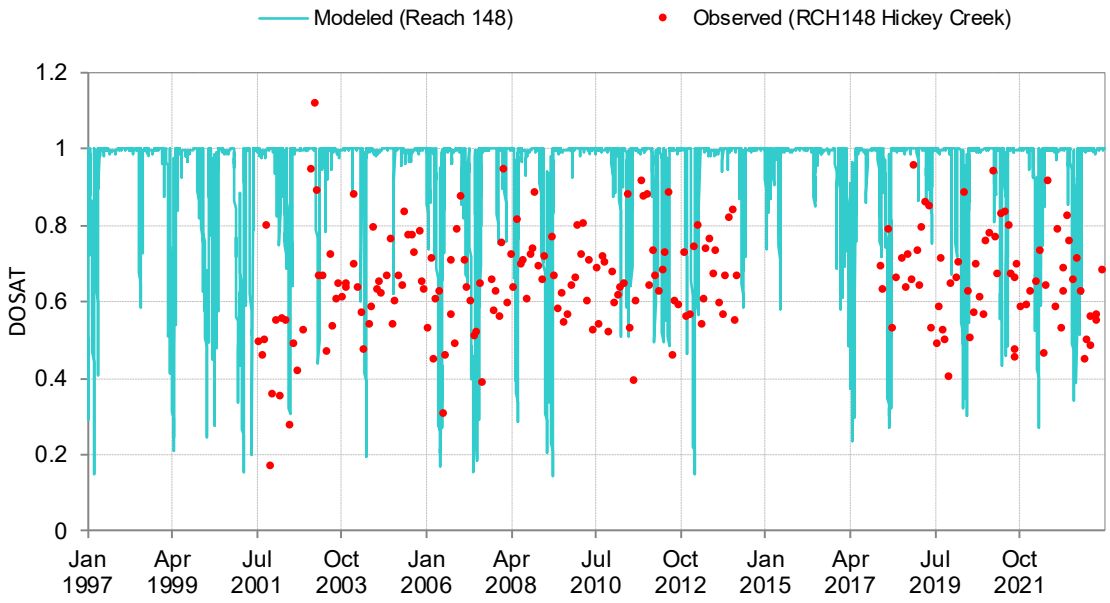


Figure B-198 Modeled Vs Observed DOSAT at RCH148 Hickey Creek

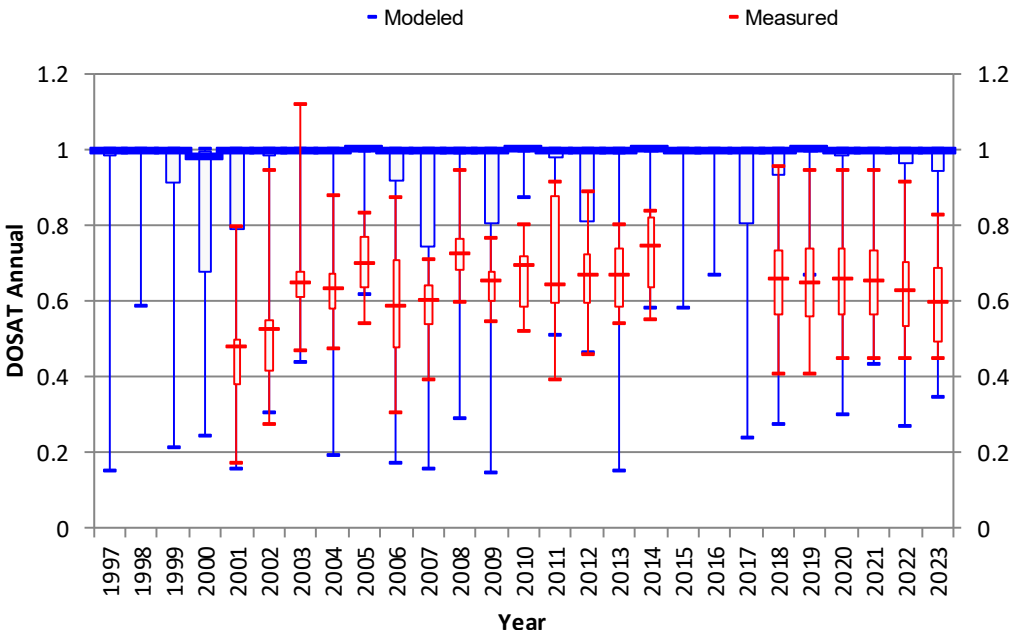


Figure B-199 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH148 Hickey Creek

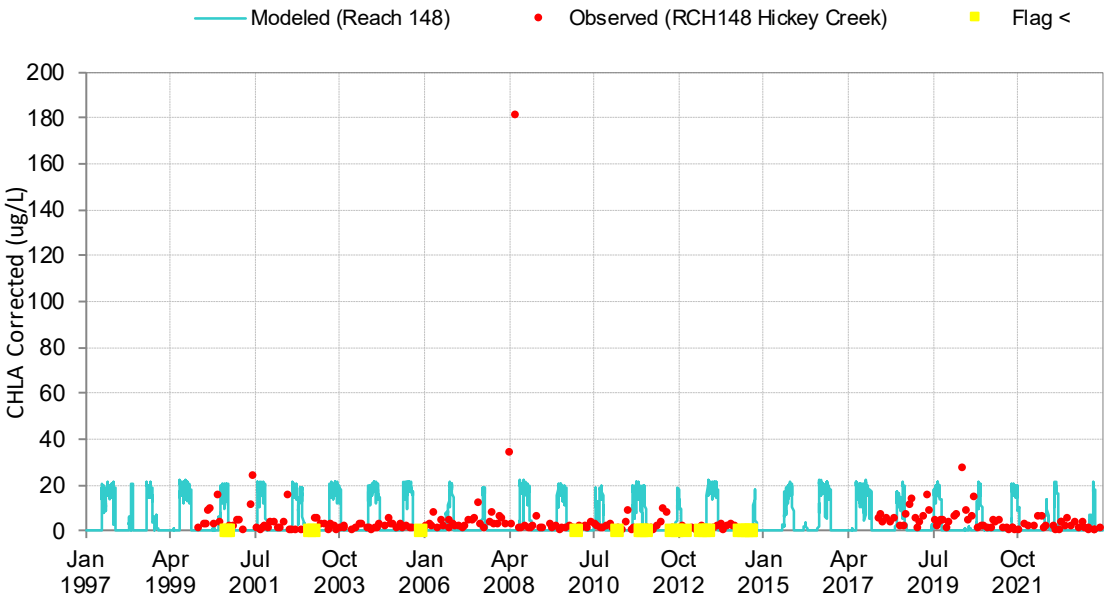


Figure B-200 Modeled Vs Observed CHLA Corrected (ug/L) at RCH148 Hickey Creek

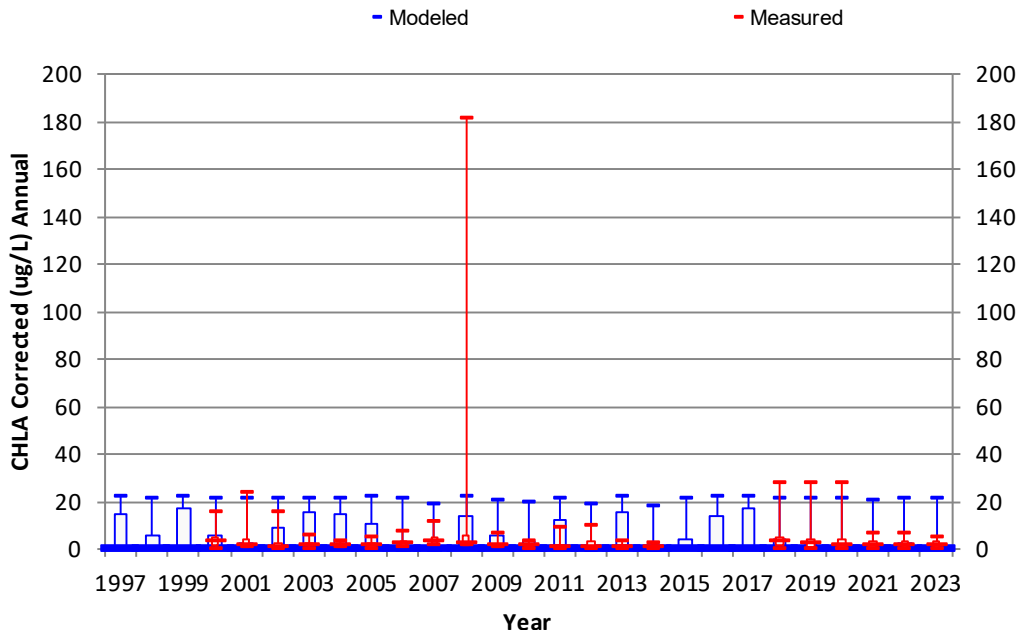


Figure B-201 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH148 Hickey Creek

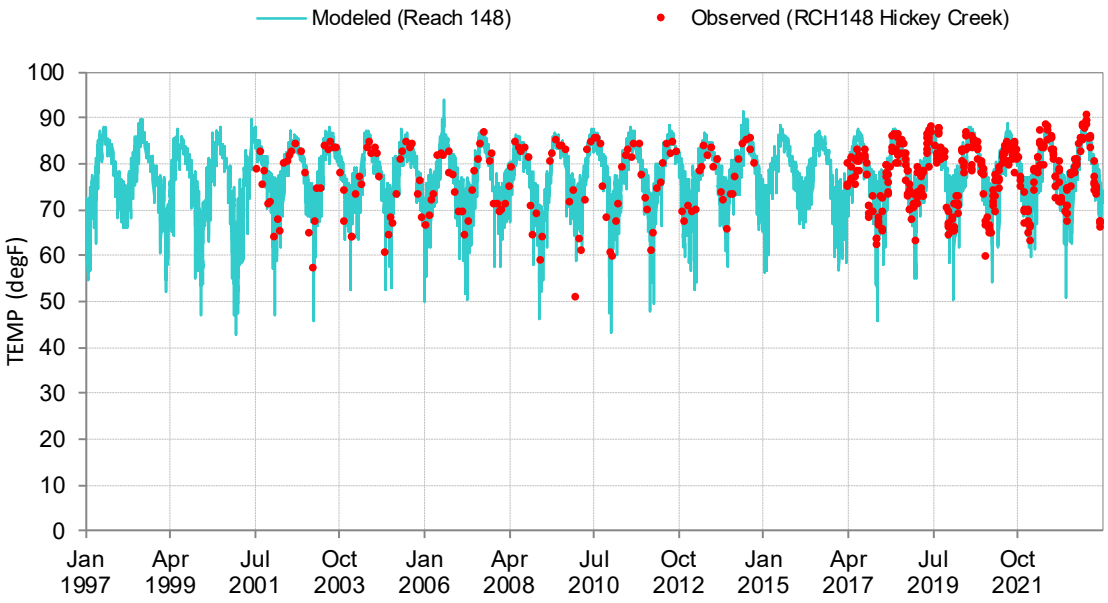


Figure B-202 Modeled Vs Observed TEMP (deg F) at RCH148 Hickey Creek

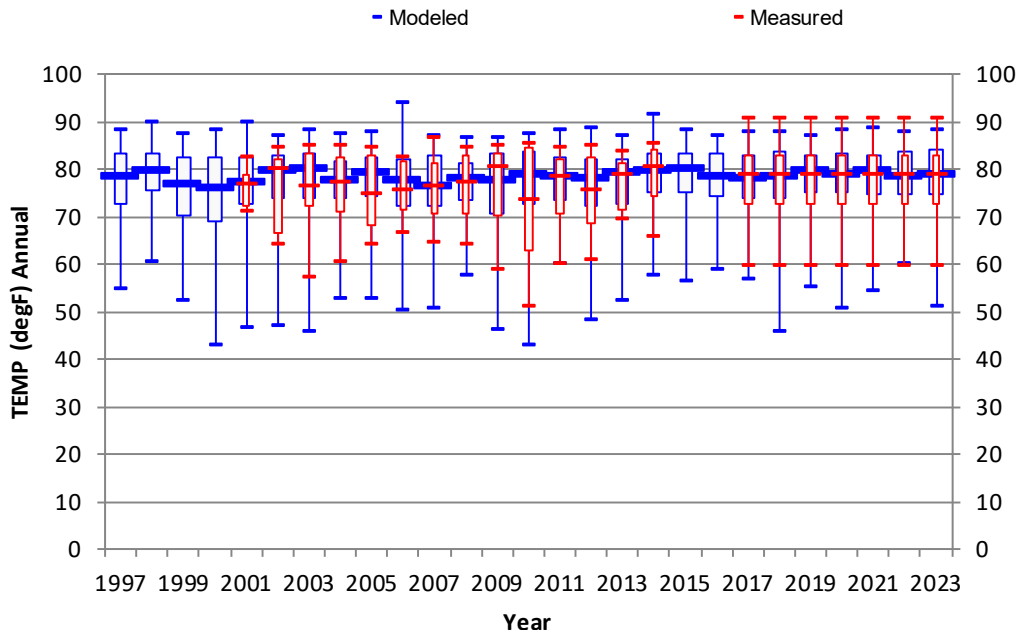


Figure B-203 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH148 Hickey Creek

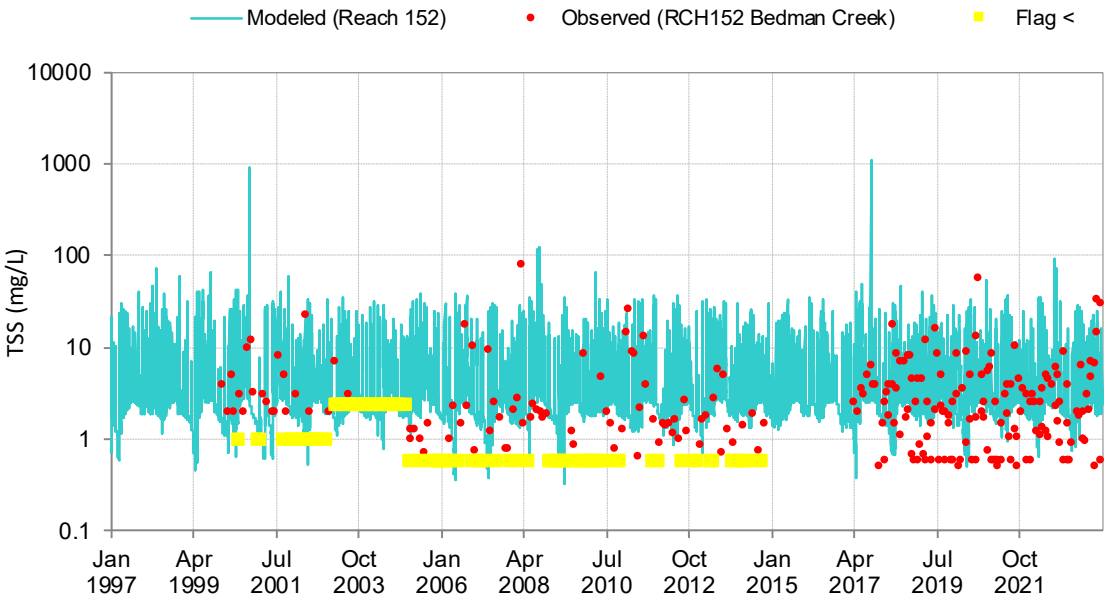


Figure B-204 Modeled Vs Observed TSS (mg/L) at RCH152 Bedman Creek

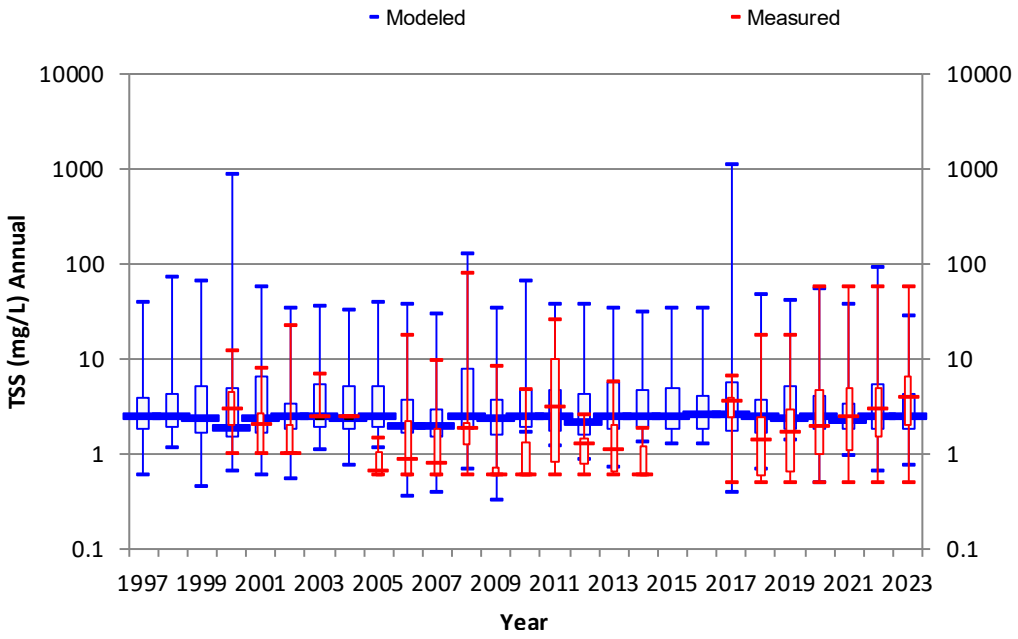


Figure B-205 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH152 Bedman Creek

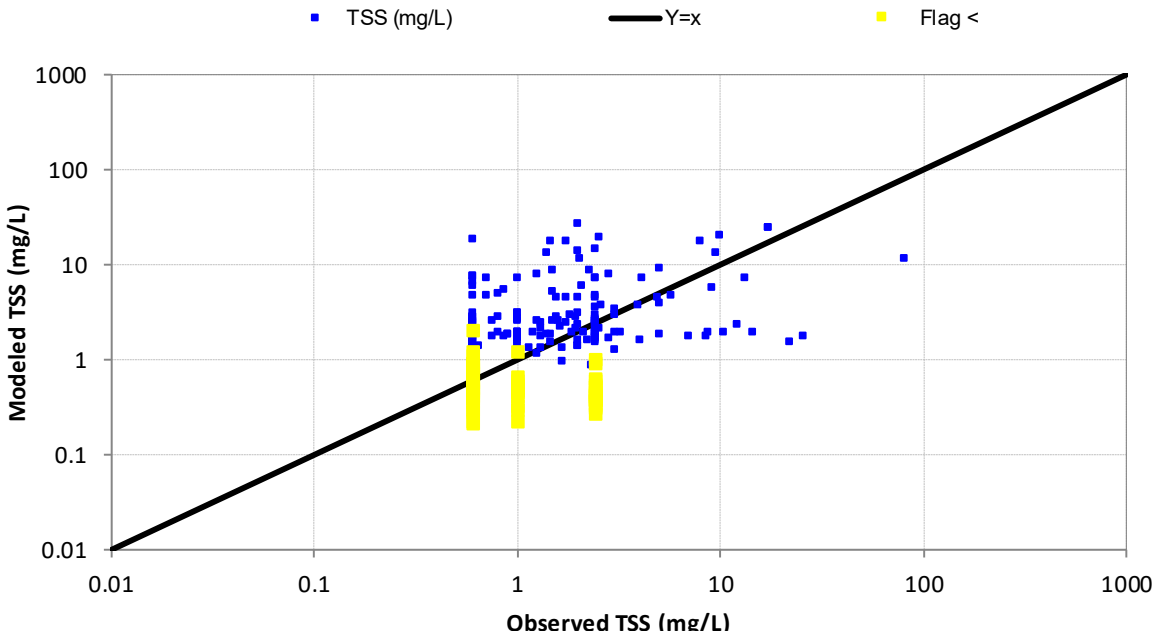


Figure B-206 Concentration at RCH152 Bedman Creek

Table B- 55 Monthly TSS Concentration Comparisons at RCH152 Bedman Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	2.59	2.93	13.2	VG
Feb	2.44	3.01	23.4	G
Mar	5.28	3.22	-38.9	P
Apr	3.90	4.25	8.9	VG
May	1.66	6.28	278.1	P
Jun	2.74	9.01	228.2	P
Jul	3.25	5.67	74.7	P
Aug	5.17	6.12	18.4	G
Sep	2.90	8.61	196.5	P
Oct	2.44	5.11	109.2	P
Nov	3.88	3.34	-13.9	VG
Dec	2.56	2.90	13.2	VG
Average*	3.23	5.04	55.7	P
Median**	2.82	4.68	65.7	P
R2	N/A	N/A	0.02	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 56 Annual TSS Concentration Comparisons at RCH152 Bedman Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	4.57	N/A	N/A
1998	N/A	5.12	N/A	N/A
1999	N/A	5.61	N/A	N/A
2000	4.02	8.09	101.1	P
2001	2.41	5.49	128.1	P
2002	2.95	3.97	34.4	F
2003	1.83	4.86	164.9	P
2004	1.20	4.75	296.1	P
2005	0.72	4.91	585.0	P
2006	3.08	4.49	46.0	P
2007	1.68	3.77	124.0	P
2008	8.12	6.73	-17.1	G
2009	1.17	3.93	235.1	P
2010	1.04	4.69	350.0	P
2011	6.73	4.87	-27.7	F
2012	1.17	4.35	272.2	P
2013	1.80	4.94	174.3	P
2014	0.76	4.66	517.8	P
2015	N/A	4.59	N/A	N/A
2016	N/A	4.60	N/A	N/A
2017	3.44	8.73	153.6	P
2018	4.01	4.22	5.2	VG
2019	3.12	5.01	60.5	P
2020	5.94	4.44	-25.3	F
2021	2.47	4.25	72.1	P
2022	2.81	5.83	107.1	P
2023	5.88	4.57	-22.3	G
Average*	3.02	5.04	67.1	P
Median**	2.64	4.69	77.4	P
R2	N/A	N/A	0.09	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 57 Daily TSS Concentration Comparisons at RCH152 Bedman Creek

Statistic	Results	Rating
Count (number)	317	N/A
Average Error (%)	249.9	P
Median Error (%)	100.6	P
RMSE (mg/L)	8.45	N/A
R2	0.01	P

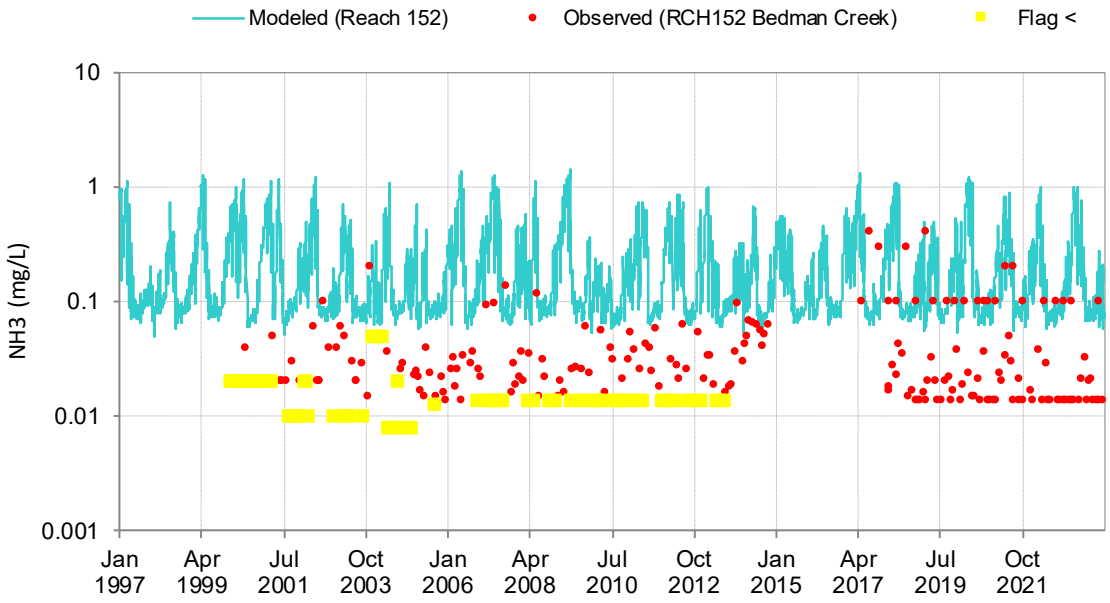


Figure B-207 Modeled Vs Observed NH3 (mg/L) at RCH152 Bedman Creek

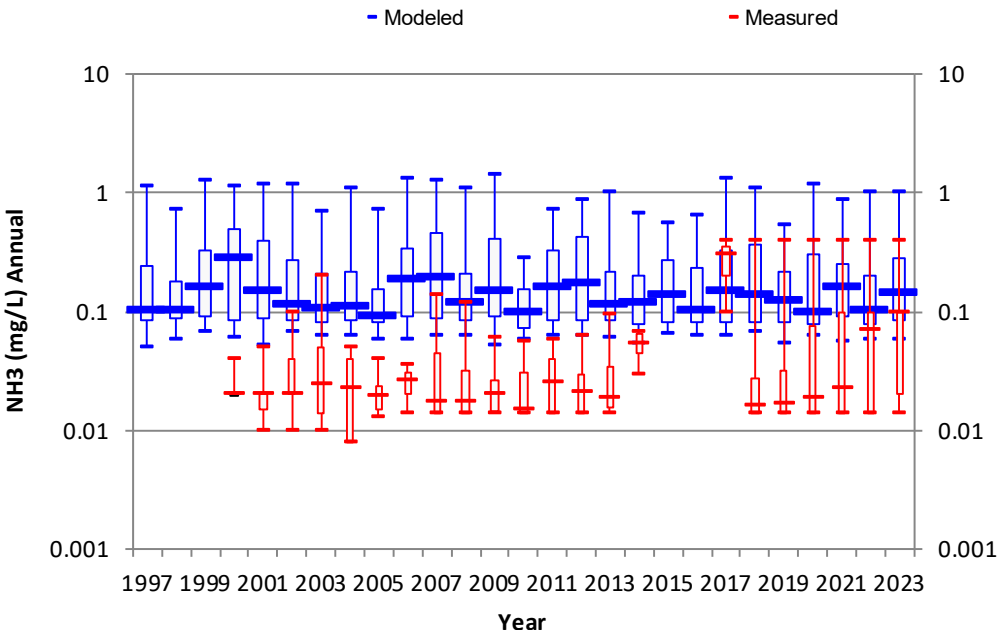


Figure B-208 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH152 Bedman Creek

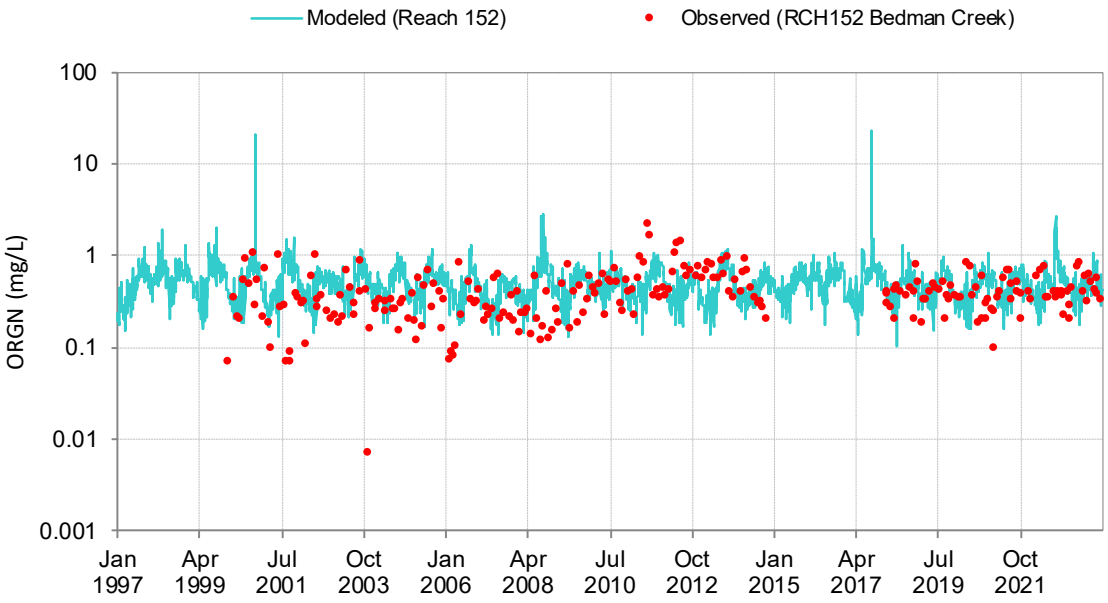


Figure B-209 Modeled Vs Observed ORGN (mg/L) at RCH152 Bedman Creek

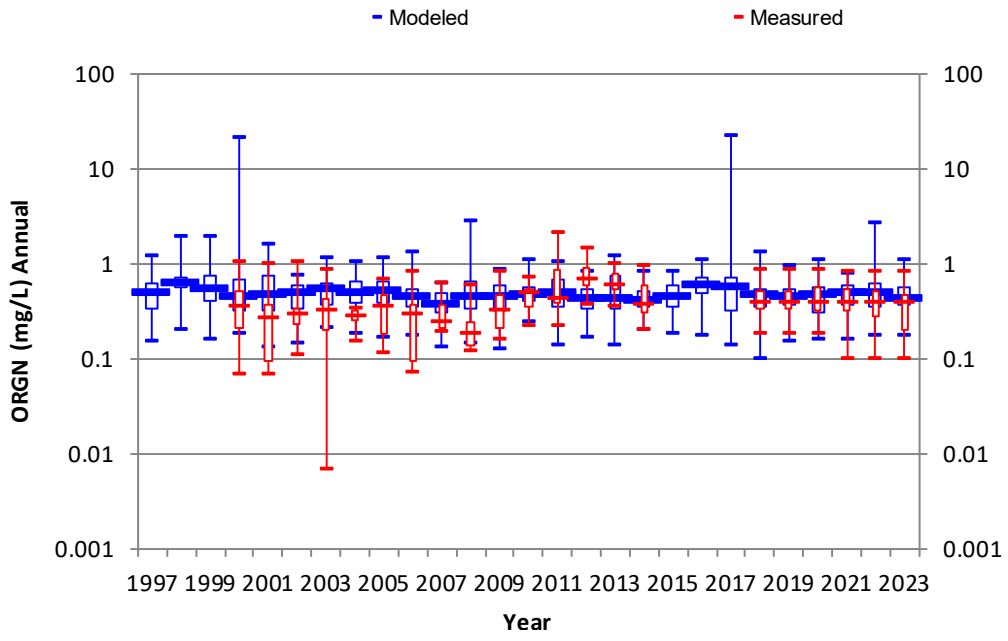


Figure B-210 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH152 Bedman Creek

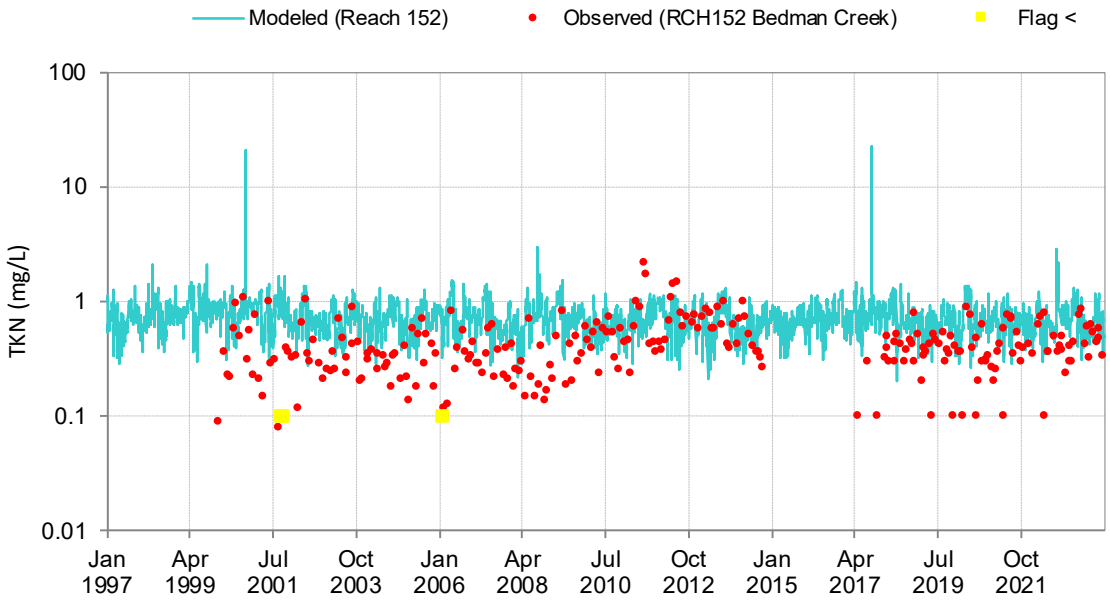


Figure B-211 Modeled Vs Observed TKN (mg/L) at RCH152 Bedman Creek

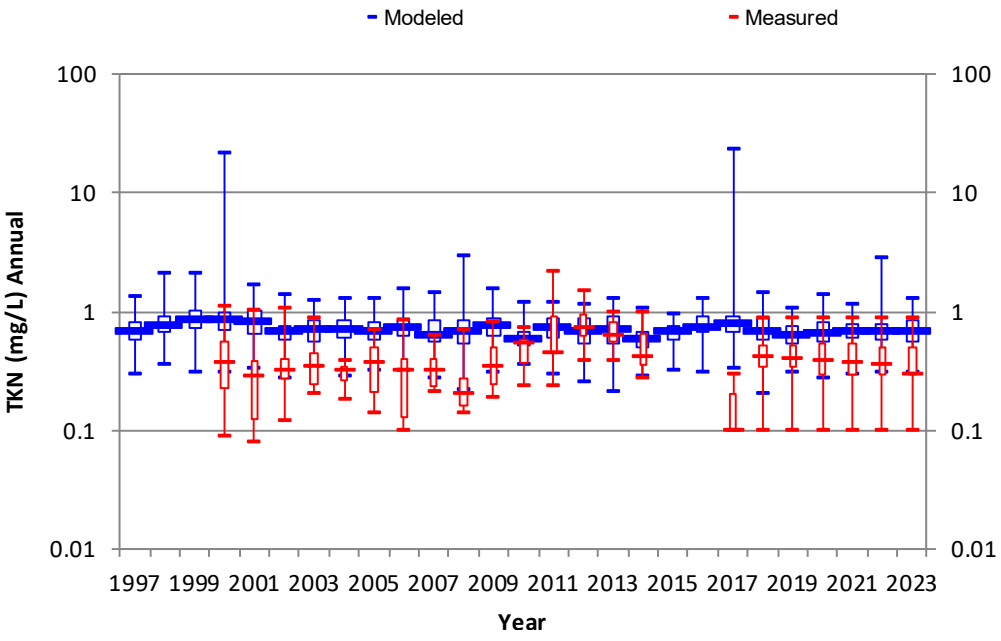


Figure B-212 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH152 Bedman Creek

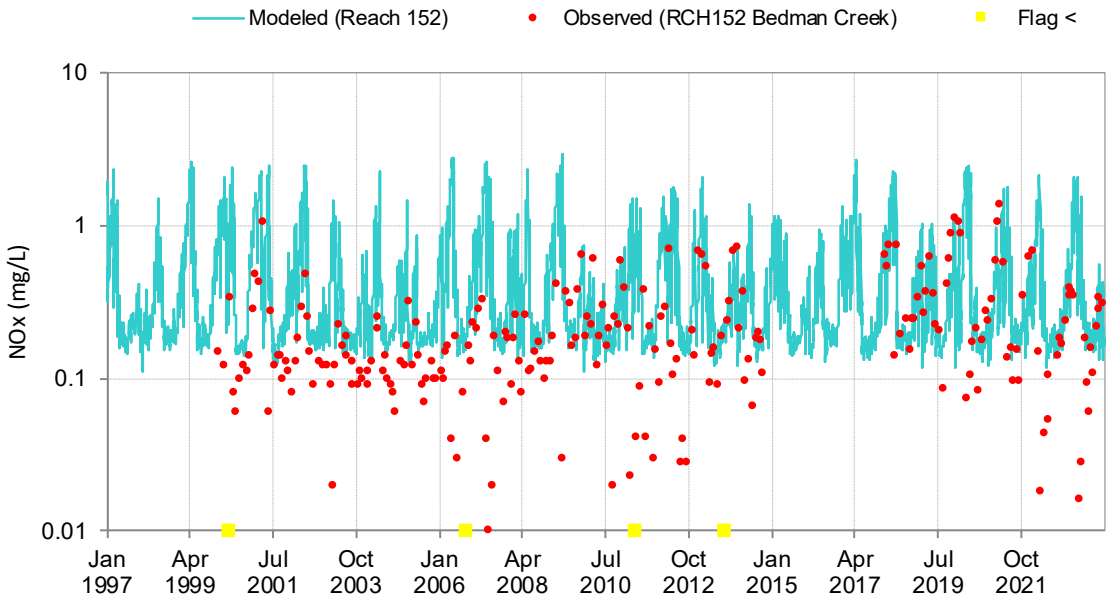


Figure B-213 Modeled Vs Observed NOx (mg/L) at RCH152 Bedman Creek

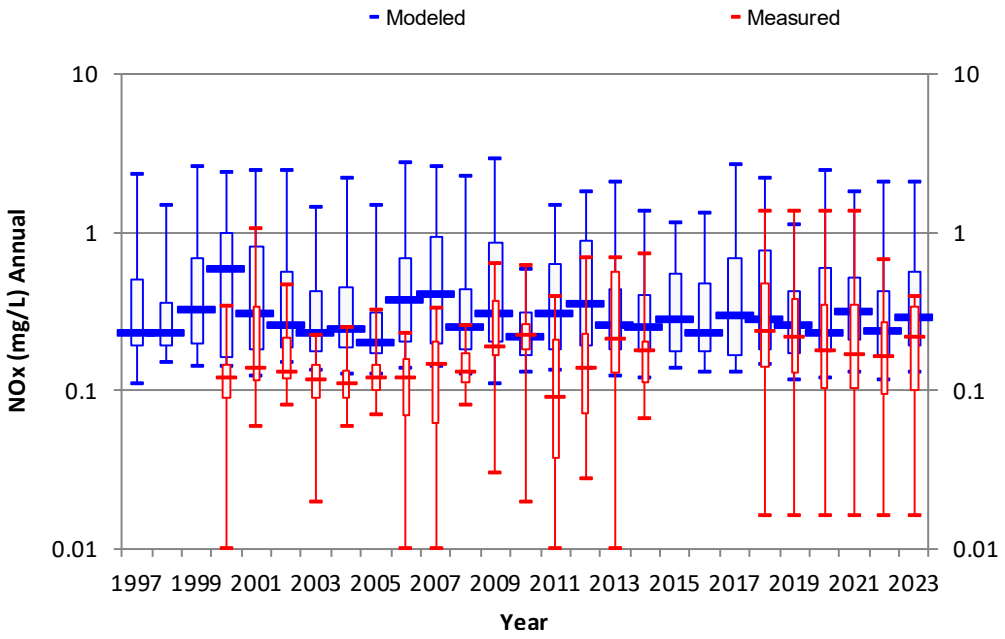


Figure B-214 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH152 Bedman Creek

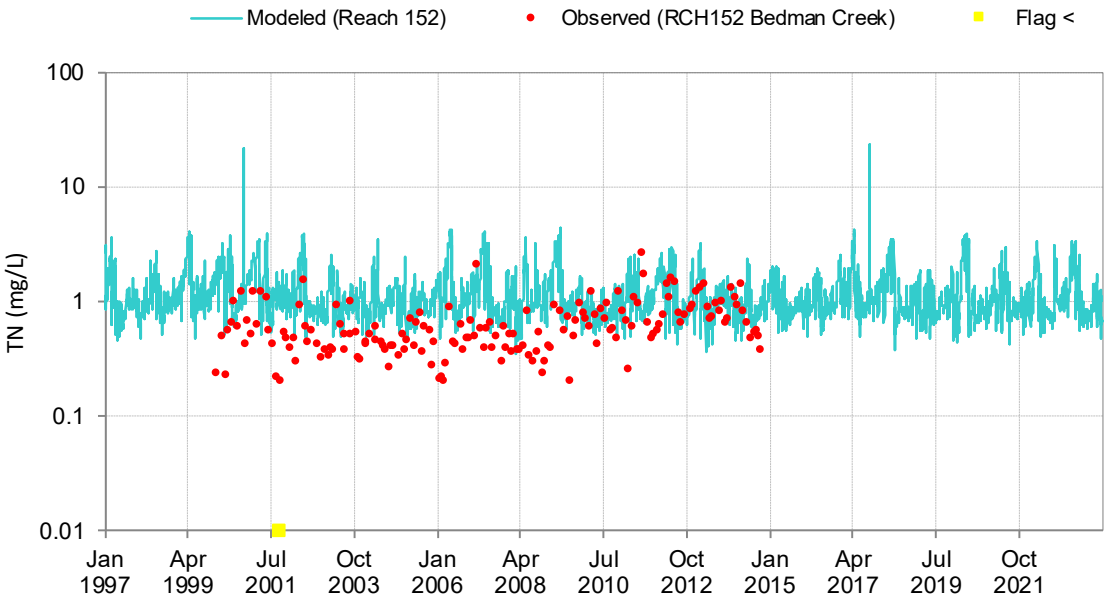


Figure B-215 Modeled Vs Observed TN (mg/L) at RCH152 Bedman Creek

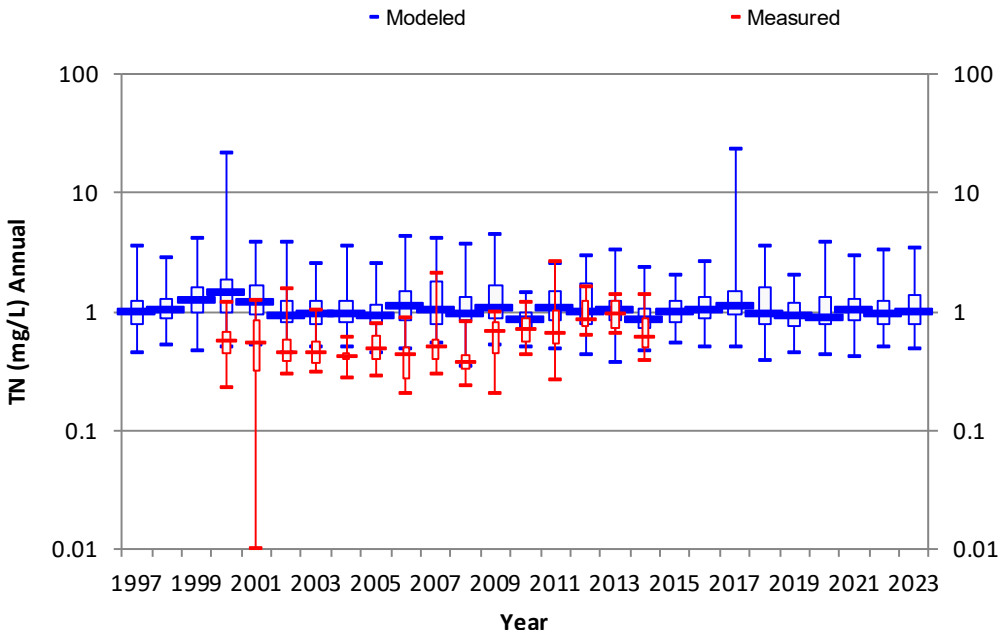


Figure B-216 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH152 Bedman Creek

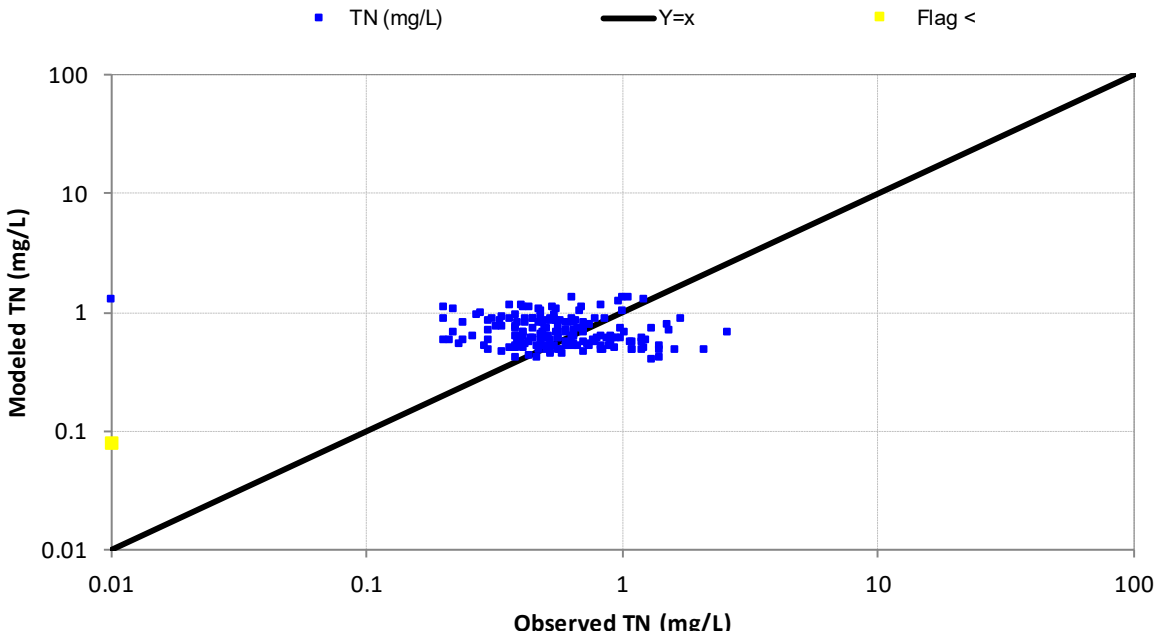


Figure B-217 Concentration at RCH152 Bedman Creek

Table B- 58 Monthly TN Concentration Comparisons at RCH152 Bedman Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.62	1.26	105.0	P
Feb	0.69	1.30	89.6	P
Mar	0.74	1.58	113.2	P
Apr	0.66	1.69	157.5	P
May	0.80	1.70	112.5	P
Jun	0.70	0.97	38.7	G
Jul	0.73	0.85	15.9	VG
Aug	0.63	0.93	47.5	F
Sep	0.54	1.02	87.6	P
Oct	0.49	1.02	106.7	P
Nov	0.51	1.14	122.0	P
Dec	0.62	1.09	75.5	P
Average*	0.64	1.21	88.2	P
Median**	0.64	1.12	74.0	P
R2	N/A	N/A	0.20	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 59 Annual TN Concentration Comparisons at RCH152 Bedman Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.17	N/A	N/A
1998	N/A	1.14	N/A	N/A
1999	N/A	1.51	N/A	N/A
2000	0.60	1.61	166.7	P
2001	0.60	1.44	141.6	P
2002	0.58	1.18	103.4	P
2003	0.52	1.06	104.5	P
2004	0.43	1.11	161.1	P
2005	0.51	0.99	92.1	P
2006	0.44	1.37	211.7	P
2007	0.62	1.41	127.2	P
2008	0.41	1.15	179.3	P
2009	0.64	1.49	134.9	P
2010	0.75	0.87	15.7	VG
2011	0.91	1.21	32.1	G
2012	1.00	1.27	27.2	VG
2013	0.98	1.12	15.3	VG
2014	0.74	0.93	26.0	VG
2015	N/A	1.06	N/A	N/A
2016	N/A	1.14	N/A	N/A
2017	N/A	1.42	N/A	N/A
2018	N/A	1.30	N/A	N/A
2019	N/A	0.98	N/A	N/A
2020	N/A	1.28	N/A	N/A
2021	N/A	1.13	N/A	N/A
2022	N/A	1.11	N/A	N/A
2023	N/A	1.23	N/A	N/A
Average*	0.65	1.21	86.8	P
Median**	0.60	1.17	93.8	P
R2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 60 Daily TN Concentration Comparisons at RCH152 Bedman Creek

Statistic	Results	Rating
Count (number)	173	N/A
Average Error (%)	208.7	P
Median Error (%)	85.8	P
RMSE (mg/L)	0.89	N/A
R2	0.03	P

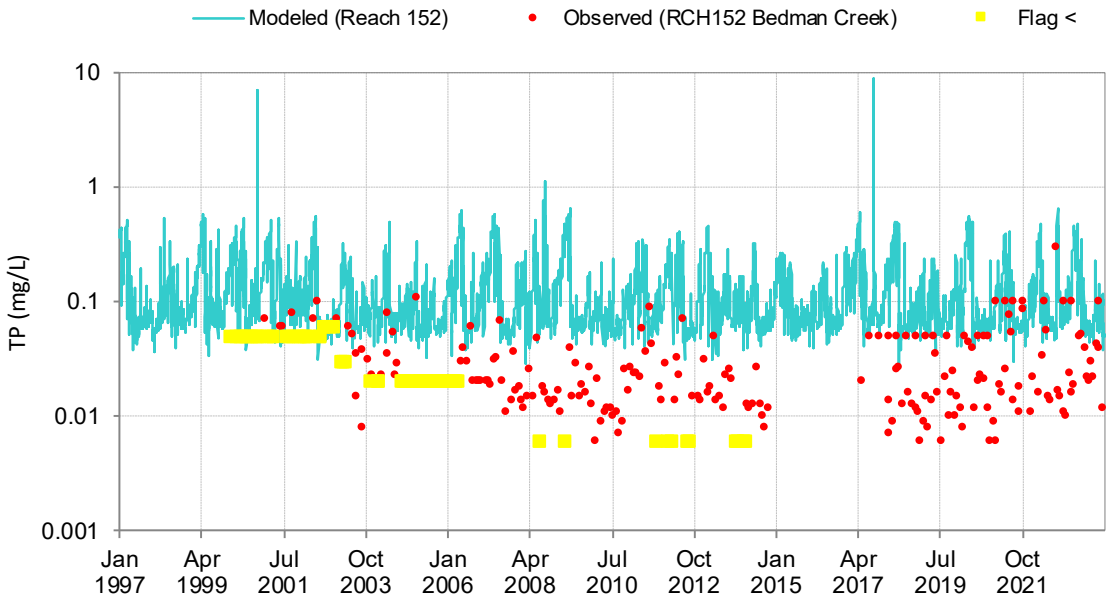


Figure B-218 Modeled Vs Observed TP (mg/L) at RCH152 Bedman Creek

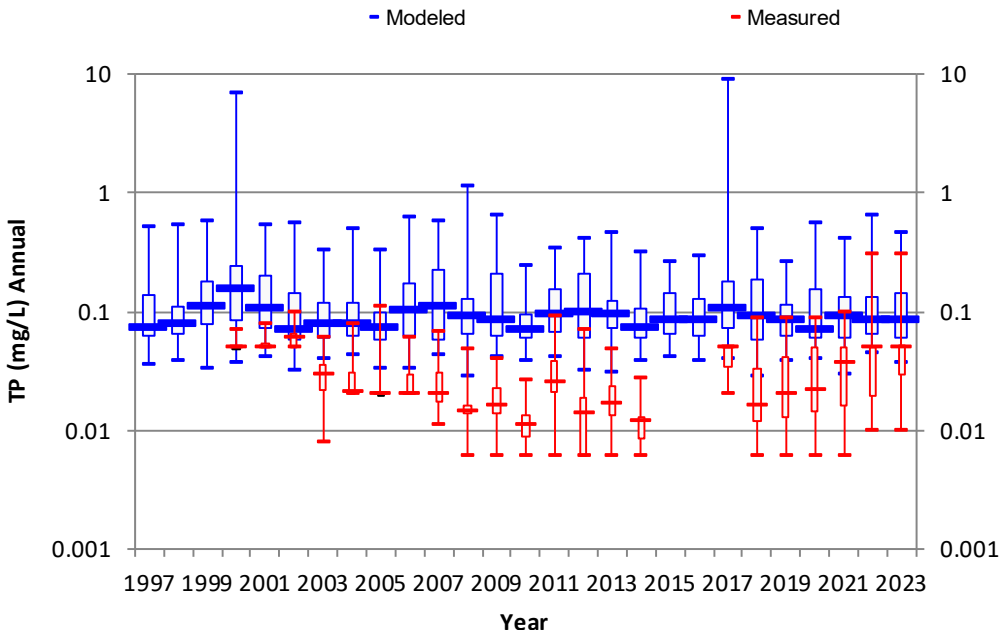


Figure B-219 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH152 Bedman Creek

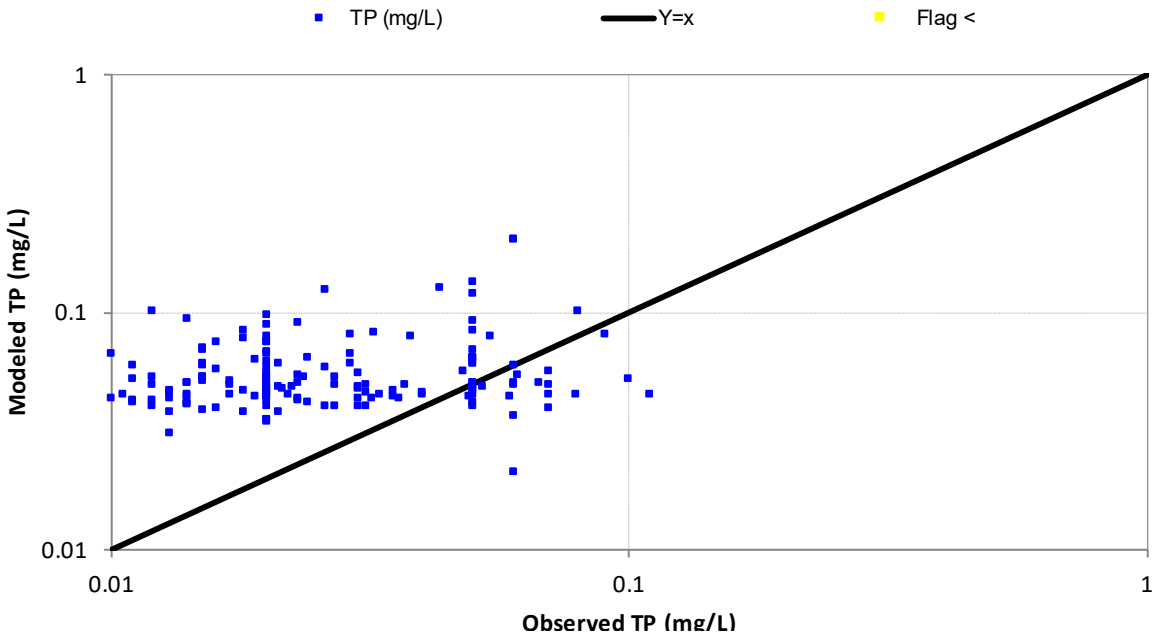


Figure B-220 Concentration at RCH152 Bedman Creek

Table B- 61 Monthly TP Concentration Comparisons at RCH152 Bedman Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.02	0.14	629.4	P
Feb	0.03	0.16	510.2	P
Mar	0.02	0.20	1039.3	P
Apr	0.03	0.21	523.2	P
May	0.04	0.21	401.2	P
Jun	0.03	0.09	195.6	P
Jul	0.03	0.07	161.5	P
Aug	0.04	0.08	107.1	P
Sep	0.02	0.09	335.6	P
Oct	0.03	0.08	198.4	P
Nov	0.03	0.10	250.7	P
Dec	0.02	0.11	442.8	P
Average*	0.03	0.13	366.8	P
Median**	0.03	0.10	275.5	P
R2	N/A	N/A	0.04	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 62 Annual TP Concentration Comparisons at RCH152 Bedman Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.12	N/A	N/A
1998	N/A	0.10	N/A	N/A
1999	N/A	0.17	N/A	N/A
2000	0.03	0.20	595.7	P
2001	0.04	0.16	345.6	P
2002	0.04	0.12	197.7	P
2003	0.03	0.10	283.5	P
2004	0.03	0.11	323.0	P
2005	0.02	0.09	378.9	P
2006	0.02	0.15	548.8	P
2007	0.03	0.17	558.1	P
2008	0.02	0.12	607.6	P
2009	0.02	0.17	809.8	P
2010	0.01	0.08	527.5	P
2011	0.03	0.12	279.1	P
2012	0.02	0.14	689.4	P
2013	0.02	0.12	503.8	P
2014	0.01	0.09	702.2	P
2015	N/A	0.11	N/A	N/A
2016	N/A	0.10	N/A	N/A
2017	0.04	0.17	336.6	P
2018	0.02	0.15	514.8	P
2019	0.02	0.10	345.1	P
2020	0.03	0.14	428.1	P
2021	0.05	0.11	131.0	P
2022	0.05	0.12	116.8	P
2023	0.04	0.13	230.8	P
Average*	0.03	0.13	362.1	P
Median**	0.03	0.12	384.1	P
R2	N/A	N/A	0.05	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 63 Daily TP Concentration Comparisons at RCH152 Bedman Creek

Statistic	Results	Rating
Count (number)	265	N/A
Average Error (%)	529.4	P
Median Error (%)	335.5	P
RMSE (mg/L)	0.14	N/A
R2	0.01	P

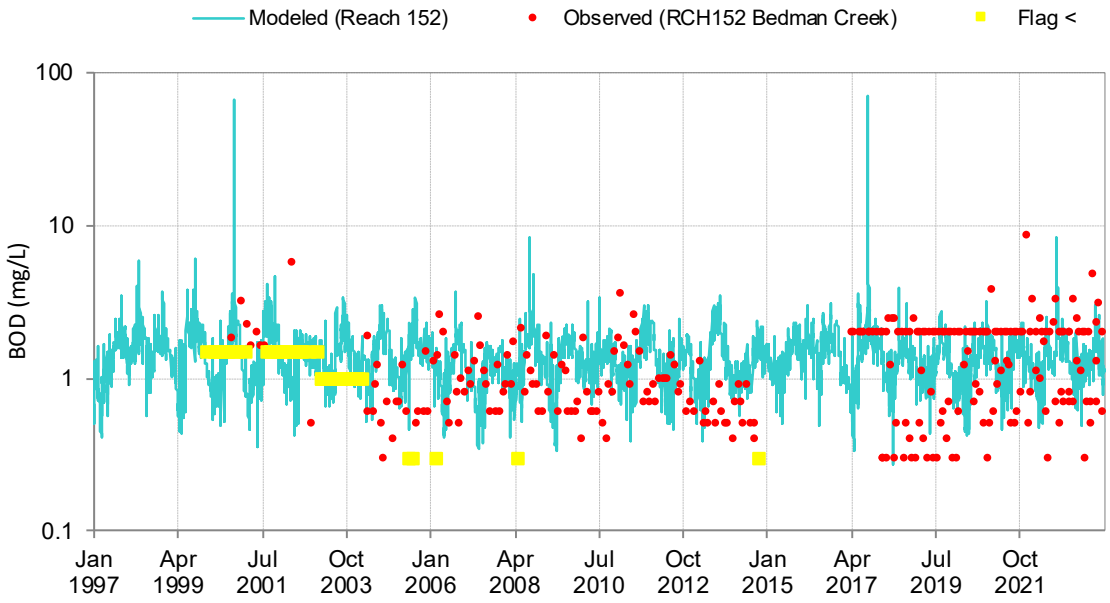


Figure B-221 Modeled Vs Observed BOD (mg/L) at RCH152 Bedman Creek

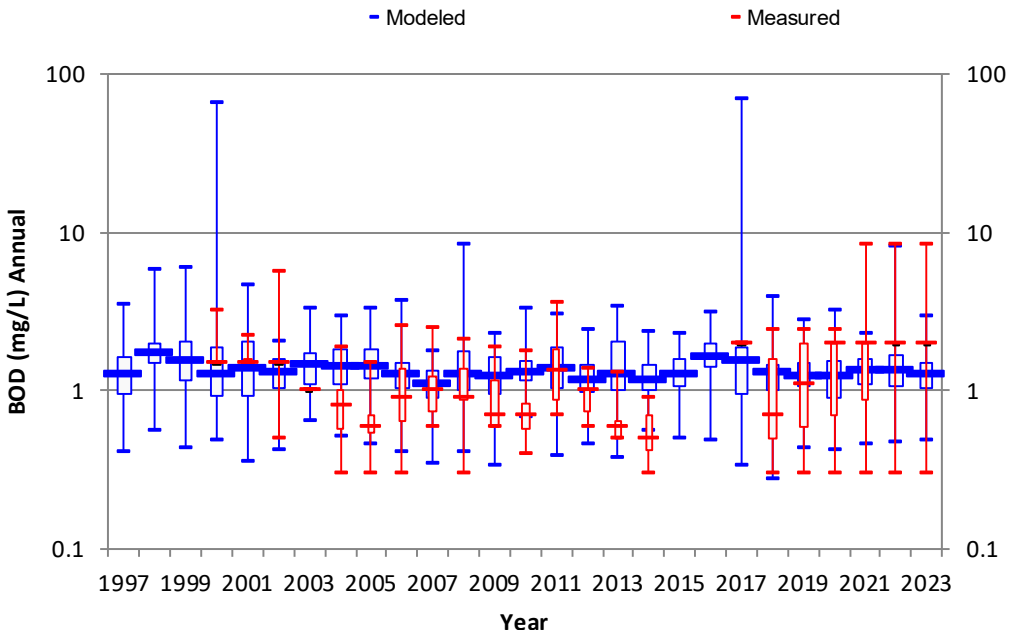


Figure B-222 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH152 Bedman Creek

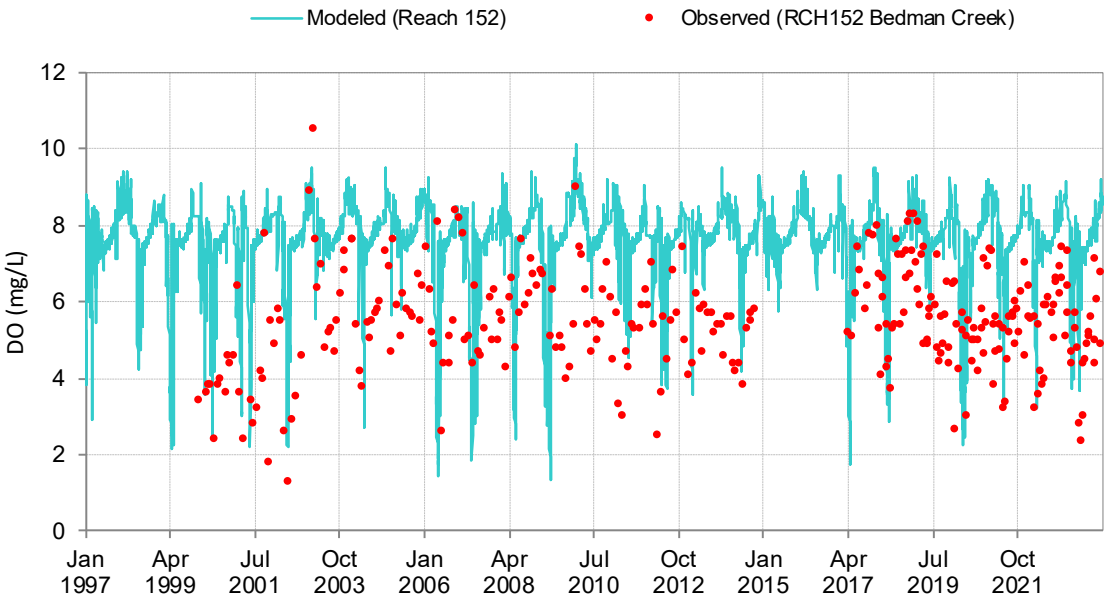


Figure B-223 Modeled Vs Observed DO (mg/L) at RCH152 Bedman Creek

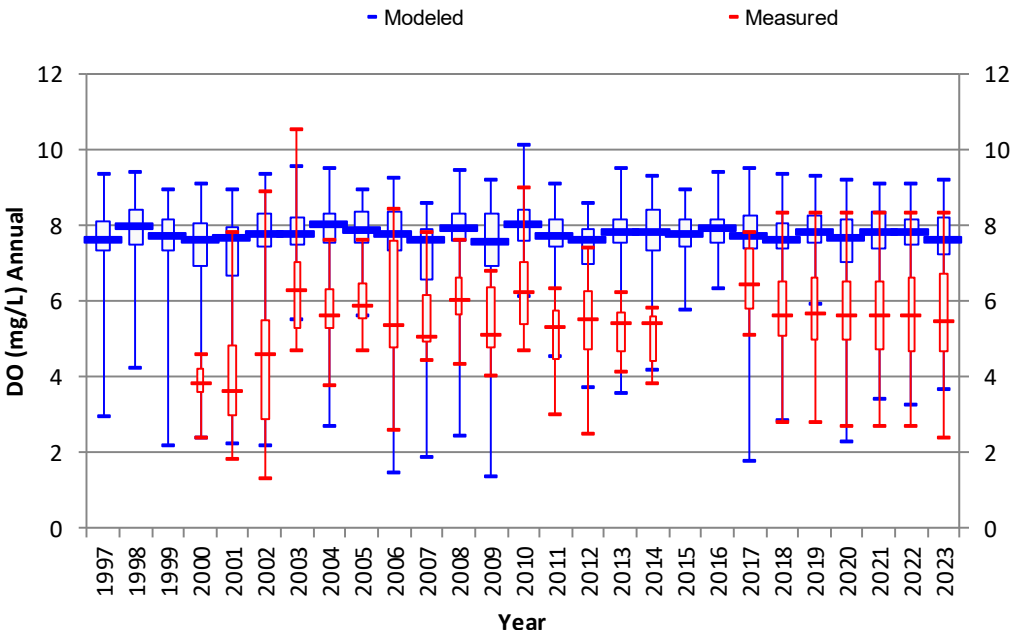


Figure B-224 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH152 Bedman Creek

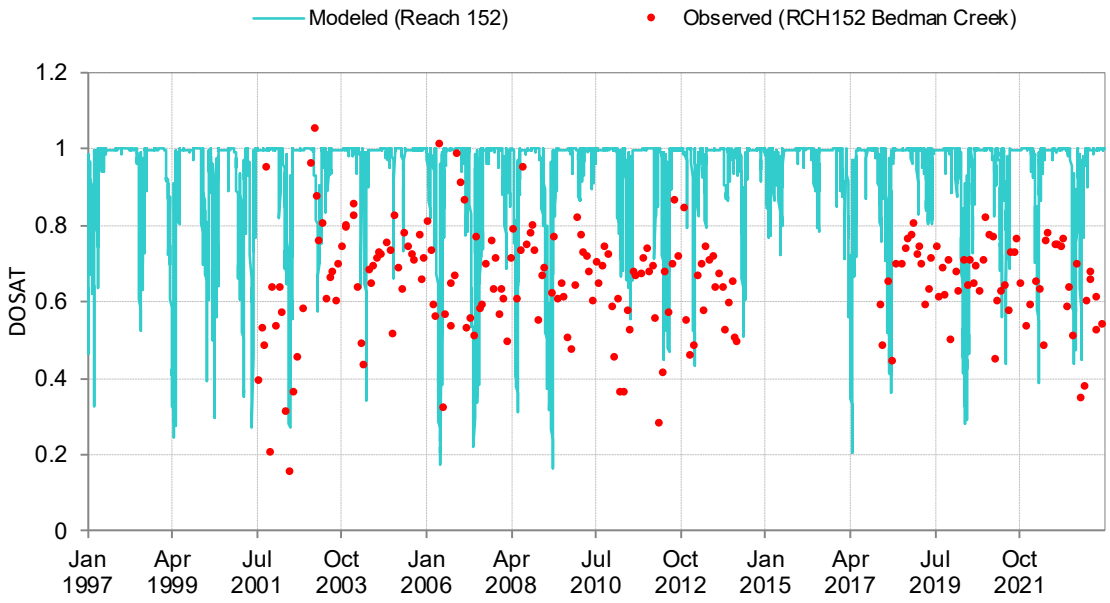


Figure B-225 Modeled Vs Observed DOSAT at RCH152 Bedman Creek

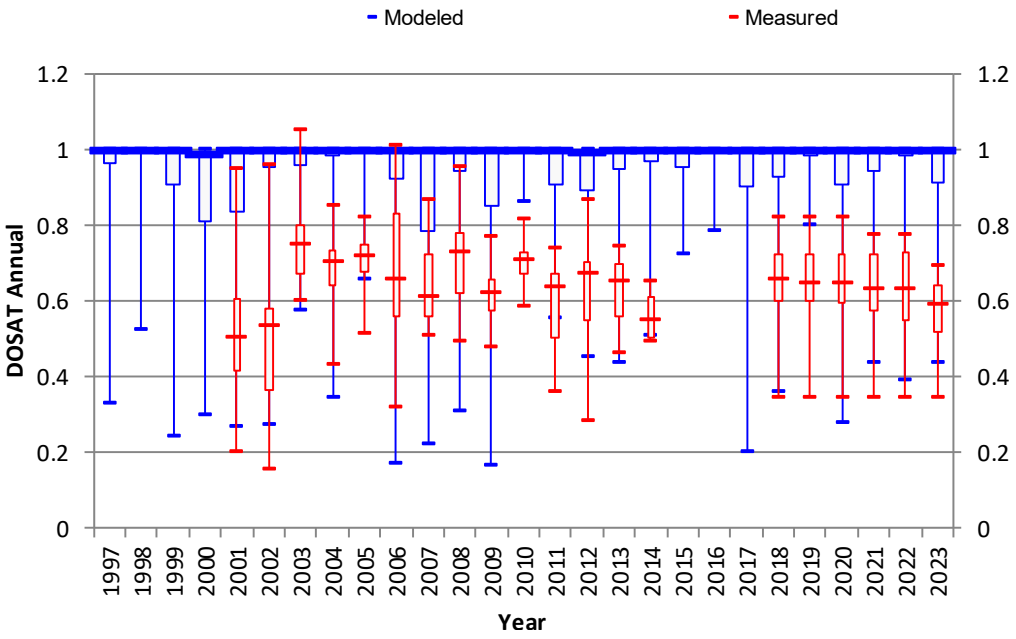


Figure B-226 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH152 Bedman Creek

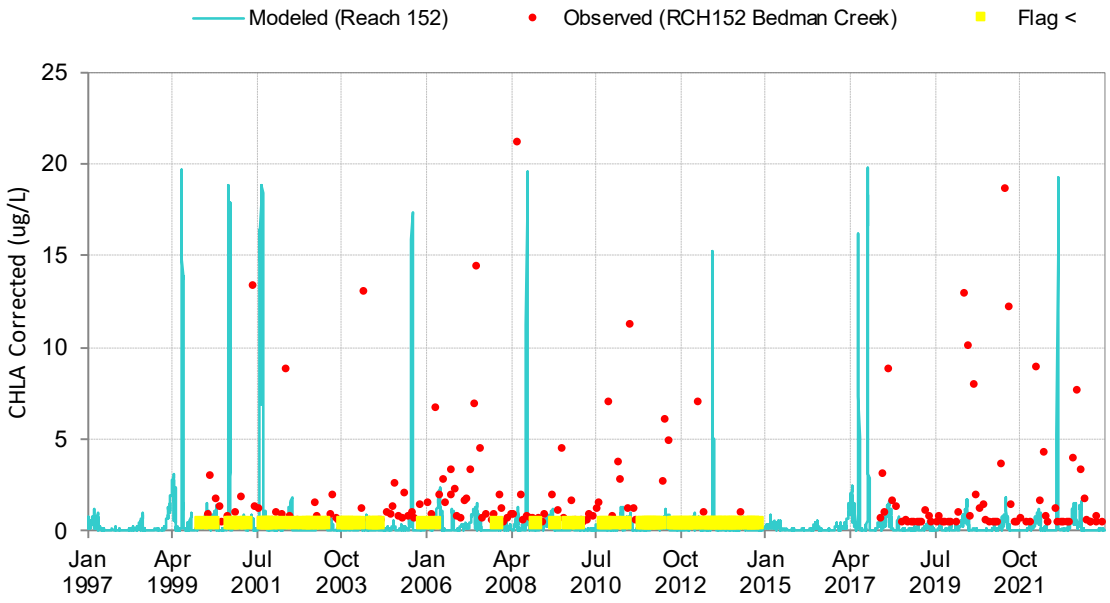


Figure B-227 Modeled Vs Observed CHLA Corrected (ug/L) at RCH152 Bedman Creek

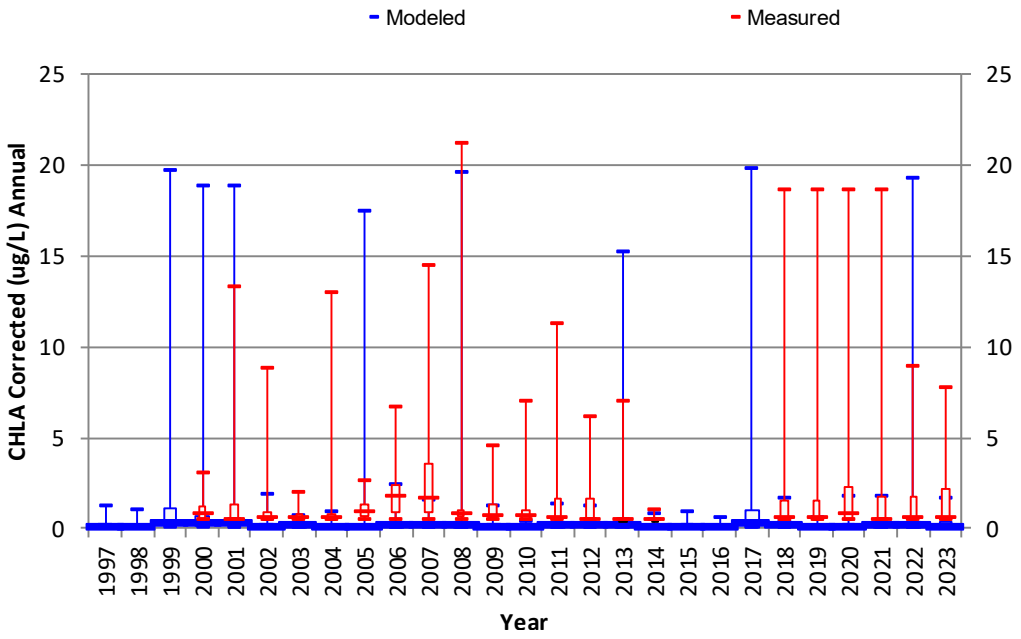


Figure B-228 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH152 Bedman Creek

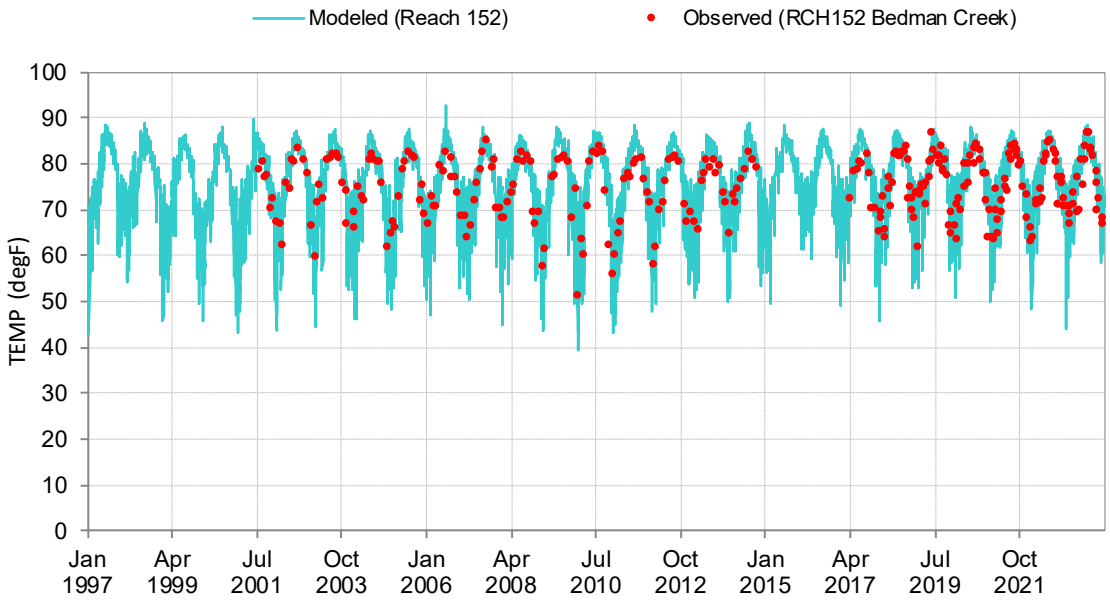


Figure B-229 Modeled Vs Observed TEMP (deg F) at RCH152 Bedman Creek

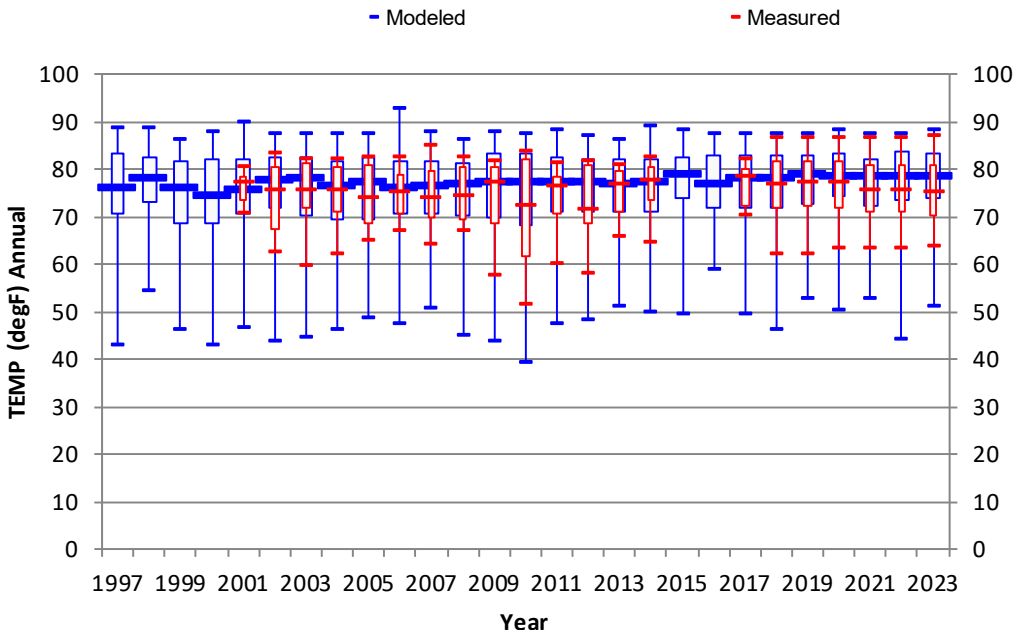


Figure B-230 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH152 Bedman Creek

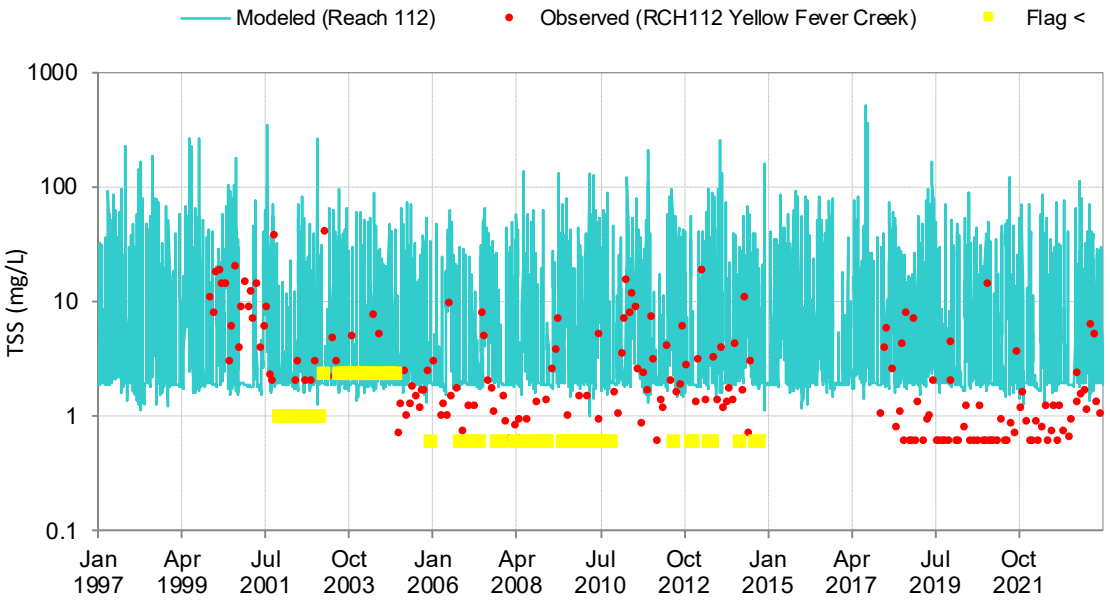


Figure B-231 Modeled Vs Observed TSS (mg/L) at RCH112 Yellow Fever Creek

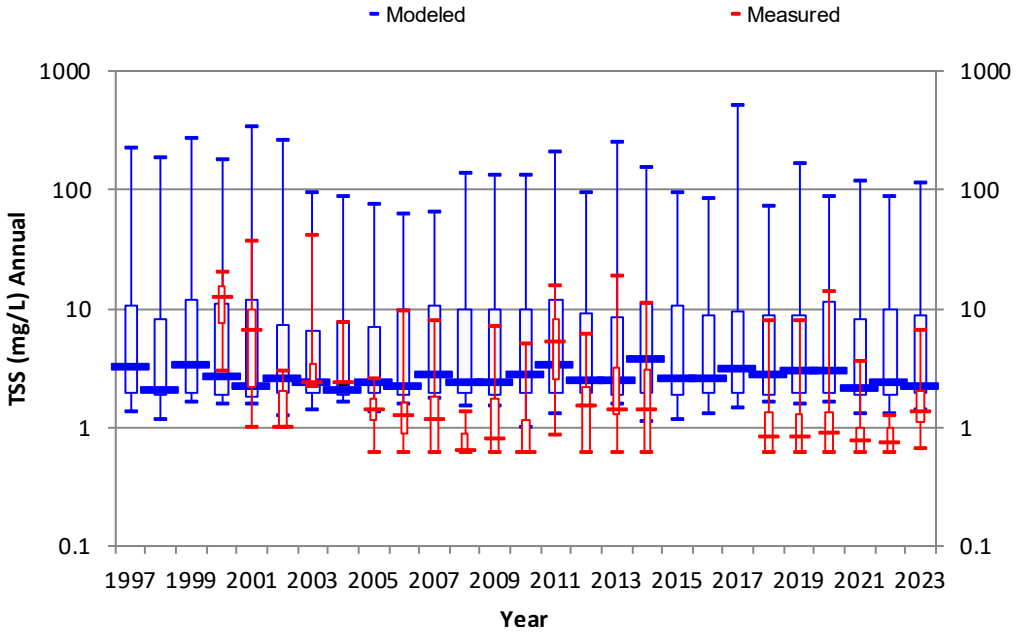


Figure B-232 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH112 Yellow Fever Creek

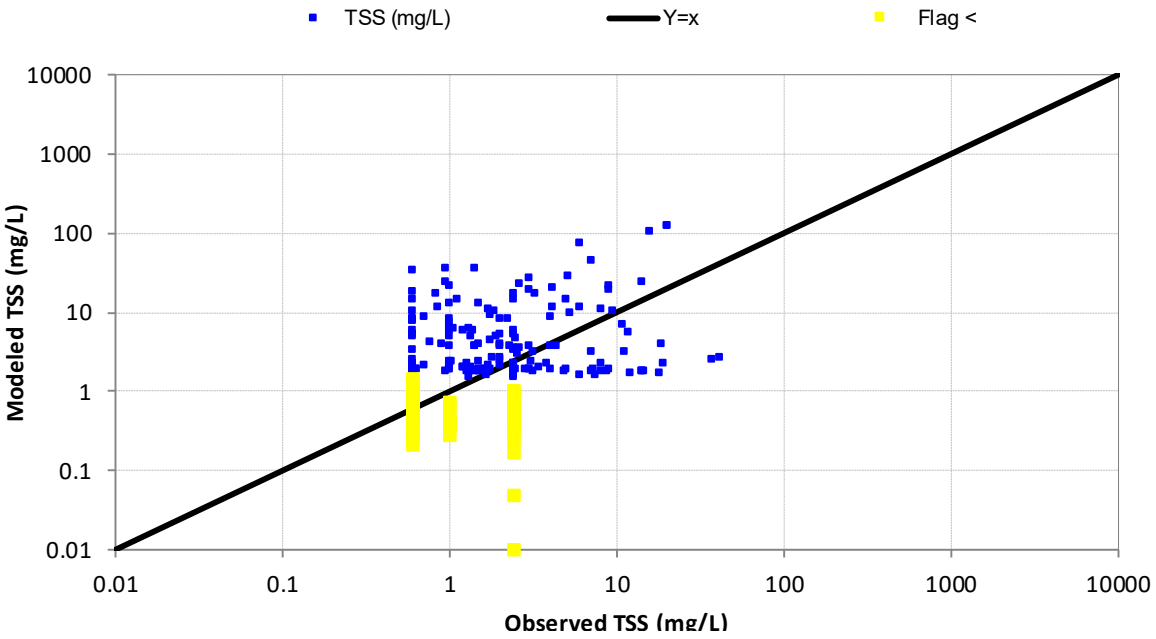


Figure B-233 Concentration at RCH112 Yellow Fever Creek

Table B- 64 Monthly TSS Concentration Comparisons at RCH112 Yellow Fever Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.94	4.85	149.6	P
Feb	4.79	4.97	3.8	VG
Mar	4.04	5.80	43.5	P
Apr	3.86	8.24	113.6	P
May	3.77	12.63	234.9	P
Jun	2.61	19.30	639.7	P
Jul	2.25	12.34	447.4	P
Aug	1.40	12.09	765.9	P
Sep	3.04	11.49	278.5	P
Oct	3.46	4.89	41.3	P
Nov	1.69	4.71	178.6	P
Dec	2.60	5.07	95.4	P
Average*	2.95	8.87	200.1	P
Median**	2.82	7.02	148.7	P
R2	N/A	N/A	0.04	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 65 Annual TSS Concentration Comparisons at RCH112 Yellow Fever Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	10.11	N/A	N/A
1998	N/A	10.00	N/A	N/A
1999	N/A	11.55	N/A	N/A
2000	11.71	10.22	-12.7	VG
2001	8.59	10.04	16.9	G
2002	1.29	7.55	484.9	P
2003	5.39	7.43	37.9	P
2004	2.06	7.41	260.2	P
2005	1.46	6.59	351.7	P
2006	1.97	7.26	268.9	P
2007	1.89	7.62	302.8	P
2008	0.62	8.45	1265.9	P
2009	1.59	8.55	438.4	P
2010	1.03	9.69	845.1	P
2011	6.04	9.83	62.9	P
2012	1.88	8.56	356.5	P
2013	3.15	9.02	185.9	P
2014	2.55	9.06	255.3	P
2015	N/A	9.25	N/A	N/A
2016	N/A	8.81	N/A	N/A
2017	N/A	11.48	N/A	N/A
2018	2.85	7.41	159.6	P
2019	1.28	9.65	654.4	P
2020	1.84	8.98	387.5	P
2021	1.07	7.91	641.6	P
2022	0.83	8.92	975.7	P
2023	2.15	8.23	283.7	P
Average*	2.92	8.87	204.4	P
Median**	1.89	8.92	371.5	P
R2	N/A	N/A	0.24	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 66 Daily TSS Concentration Comparisons at RCH112 Yellow Fever Creek

Statistic	Results	Rating
Count (number)	247	N/A
Average Error (%)	481.6	P
Median Error (%)	202.0	P
RMSE (mg/L)	14.83	N/A
R2	0.04	P

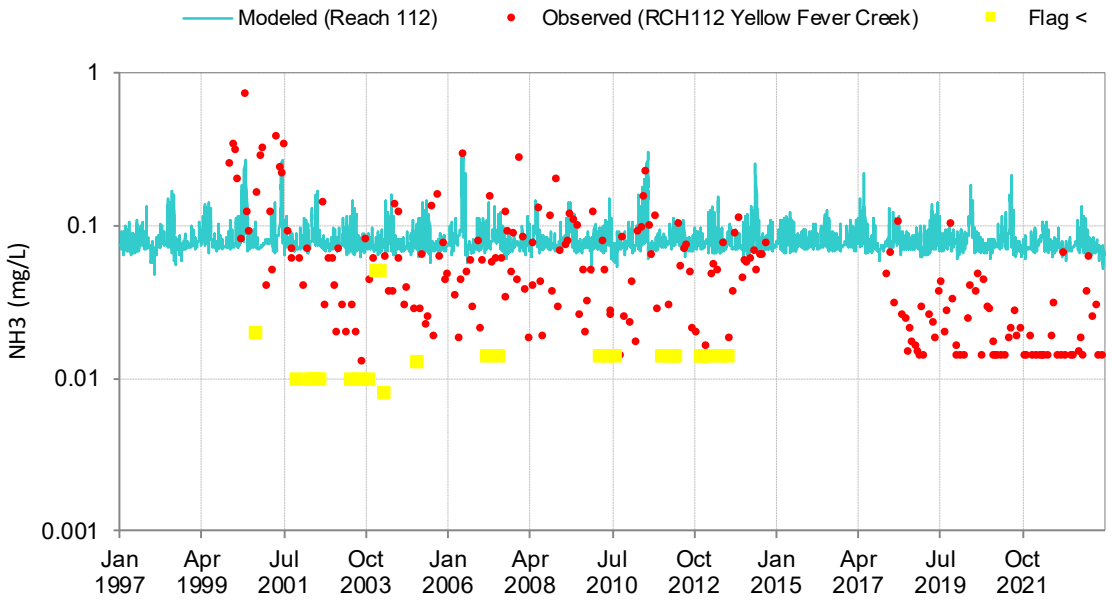


Figure B-234 Modeled Vs Observed NH3 (mg/L) at RCH112 Yellow Fever Creek

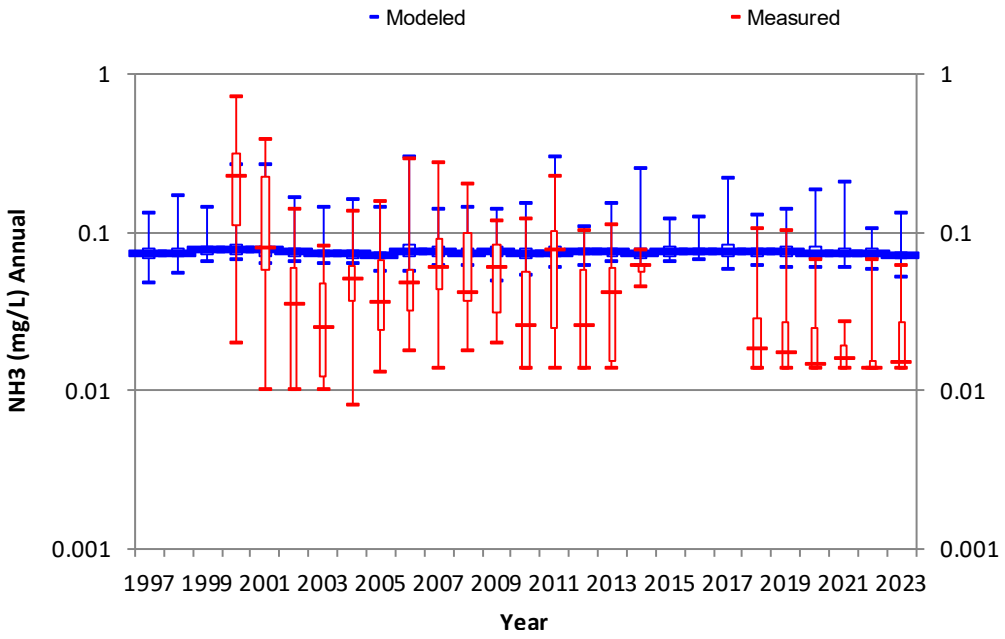


Figure B-235 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH112 Yellow Fever Creek

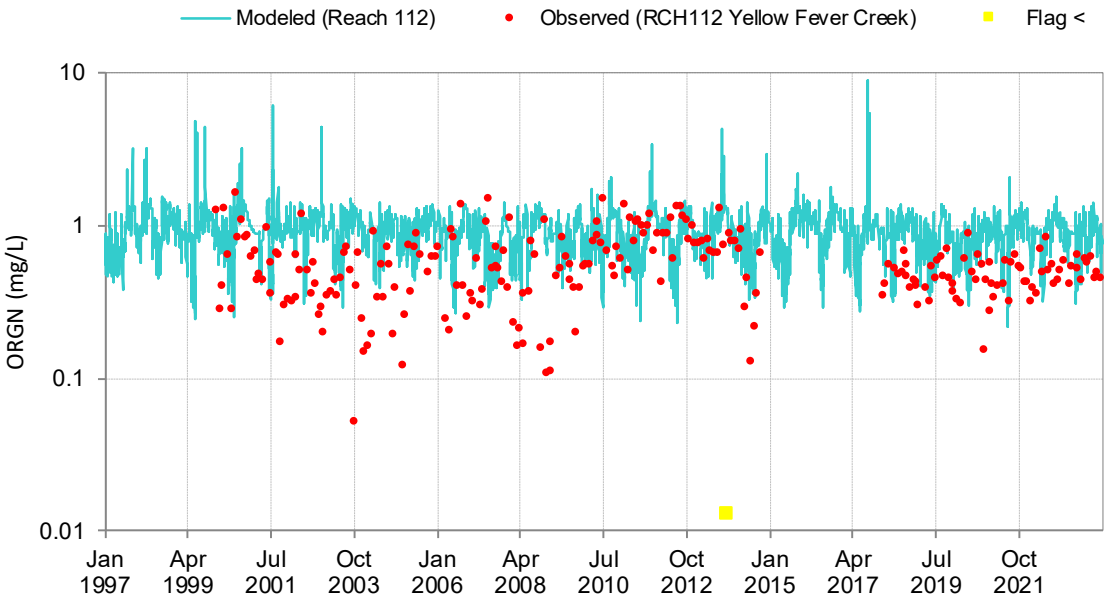


Figure B-236 Modeled Vs Observed ORGN (mg/L) at RCH112 Yellow Fever Creek

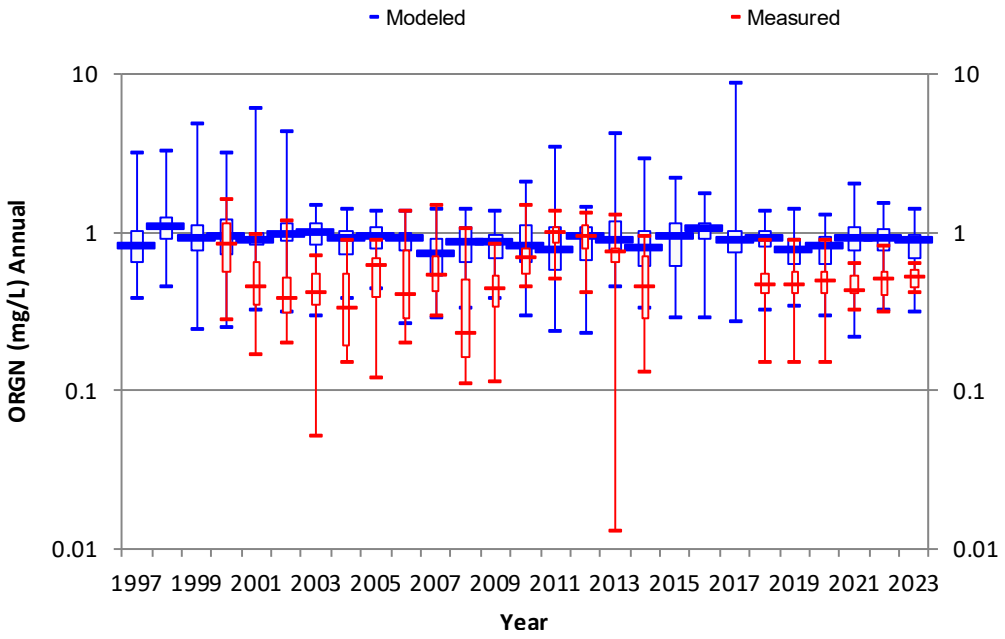


Figure B-237 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH112 Yellow Fever Creek

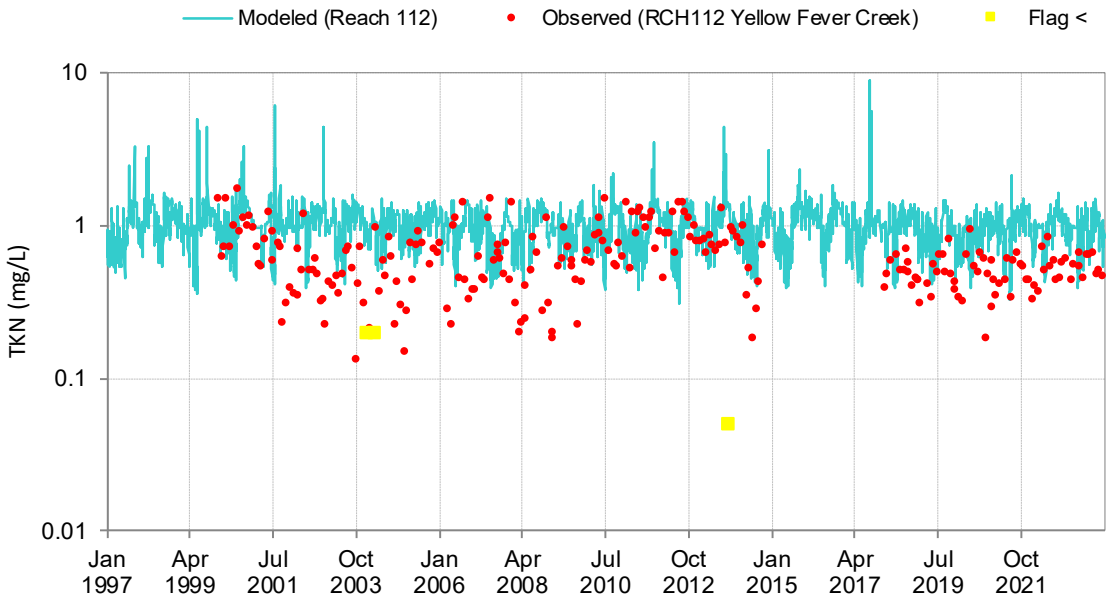


Figure B-238 Modeled Vs Observed TKN (mg/L) at RCH112 Yellow Fever Creek

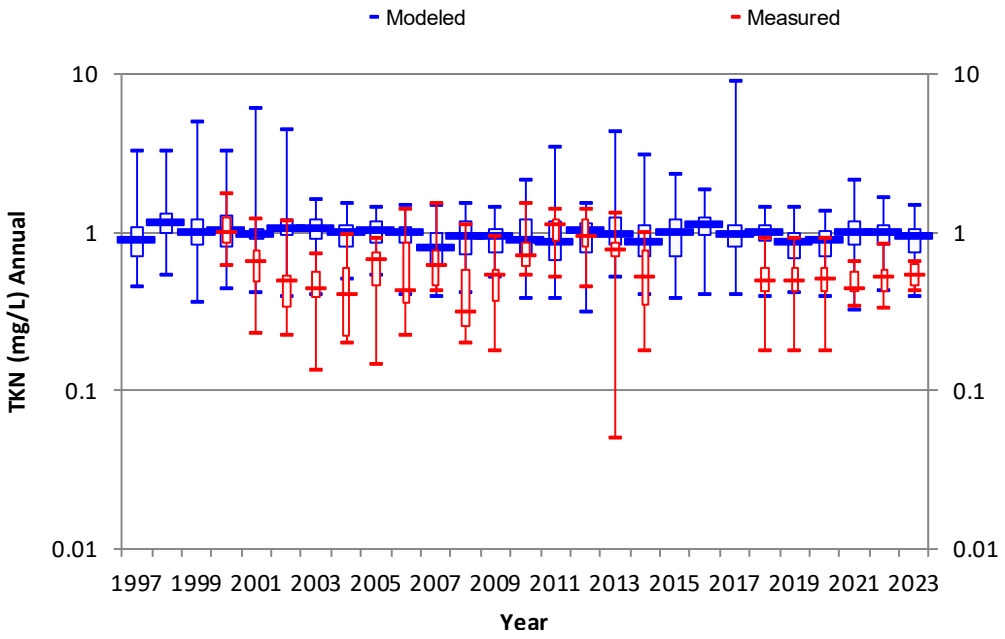


Figure B-239 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH112 Yellow Fever Creek

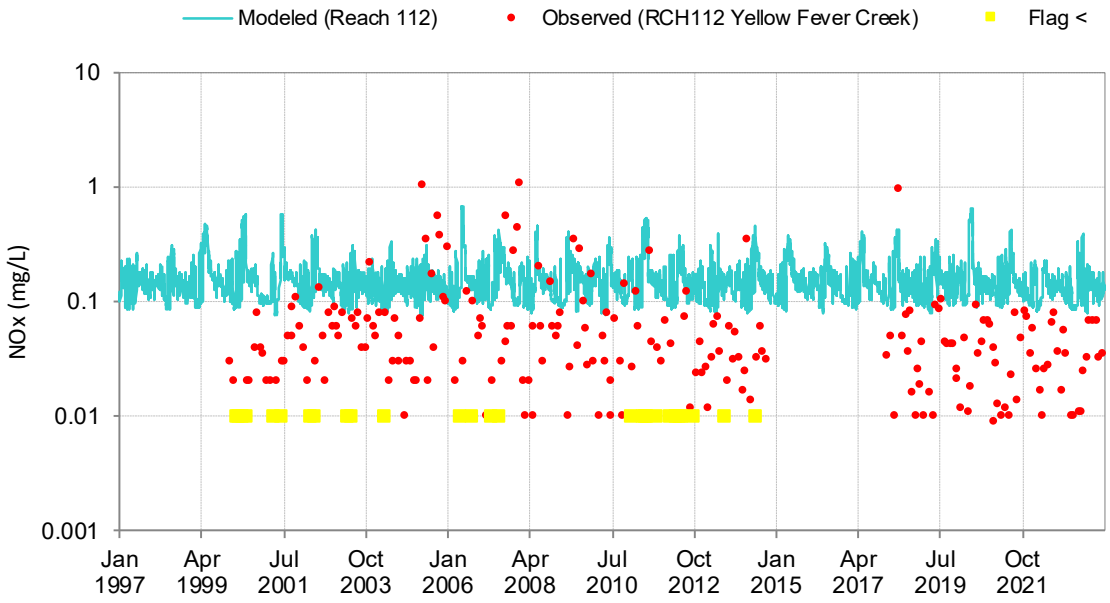


Figure B-240 Modeled Vs Observed NOx (mg/L) at RCH112 Yellow Fever Creek

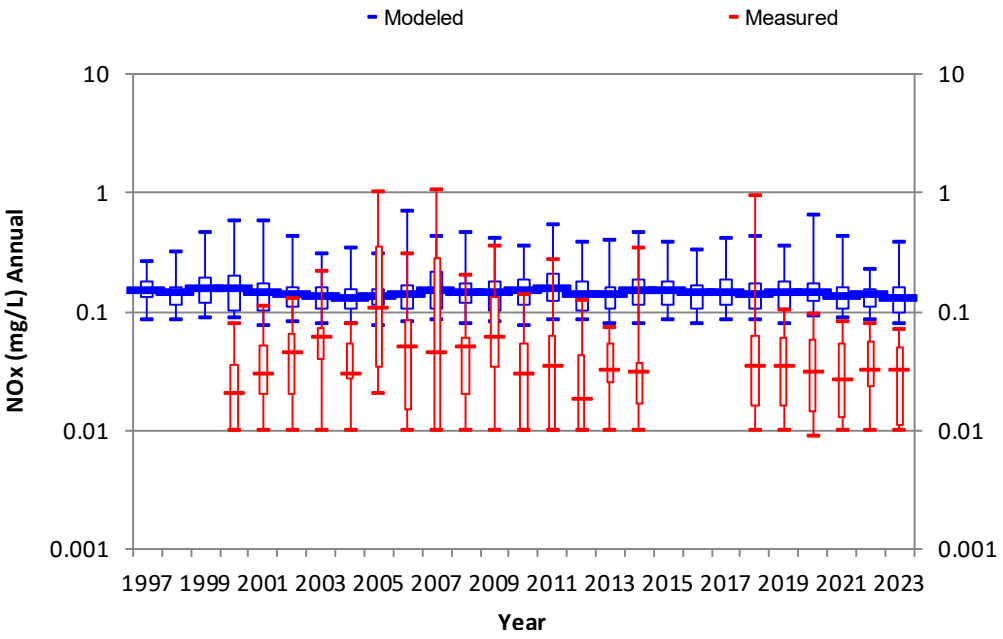


Figure B-241 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH112 Yellow Fever Creek

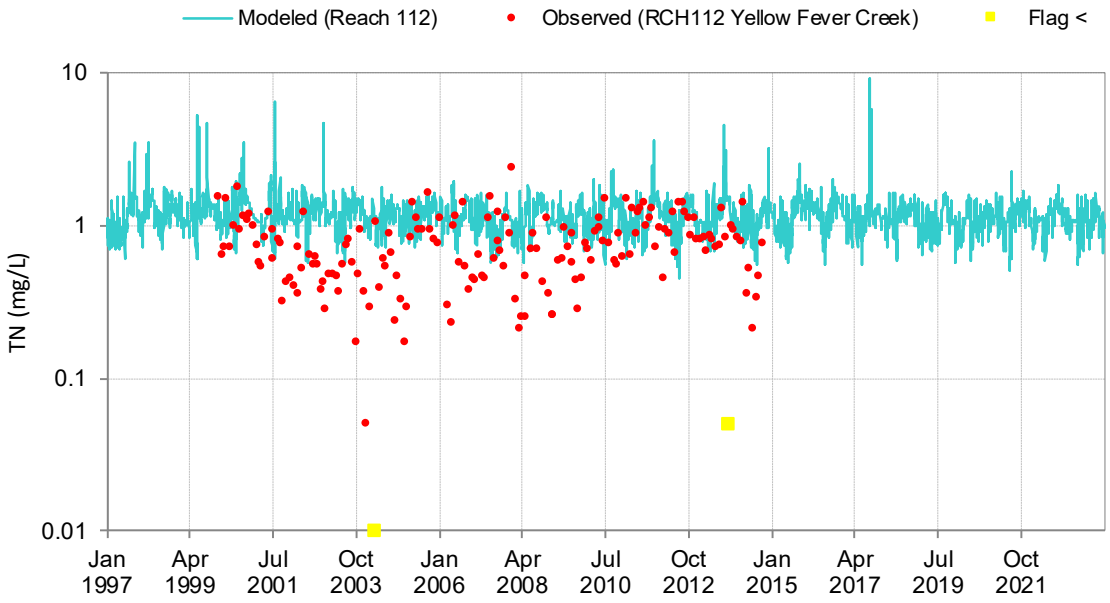


Figure B-242 Modeled Vs Observed TN (mg/L) at RCH112 Yellow Fever Creek

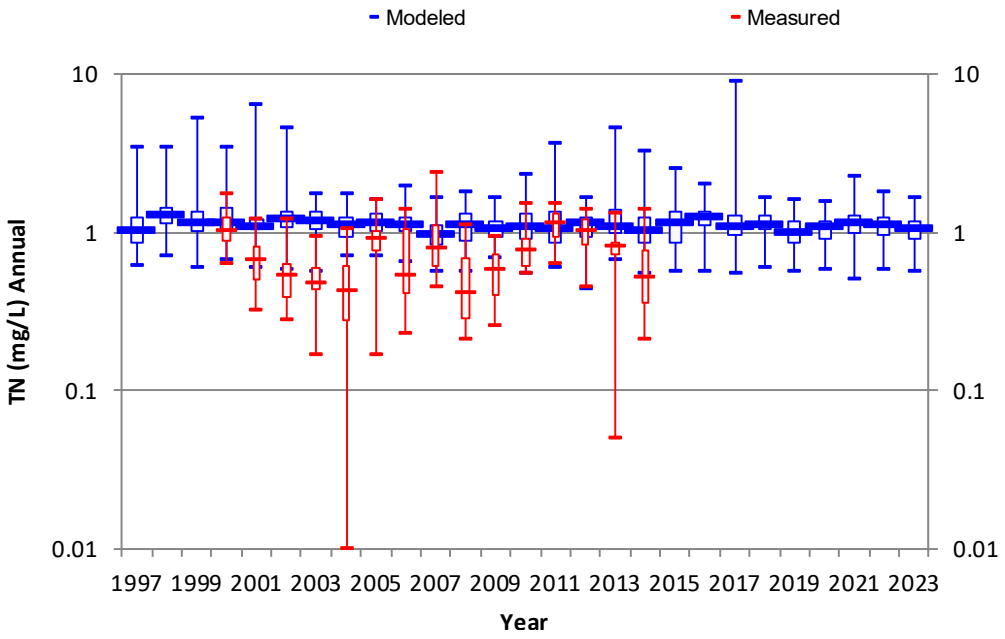


Figure B-243 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH112 Yellow Fever Creek

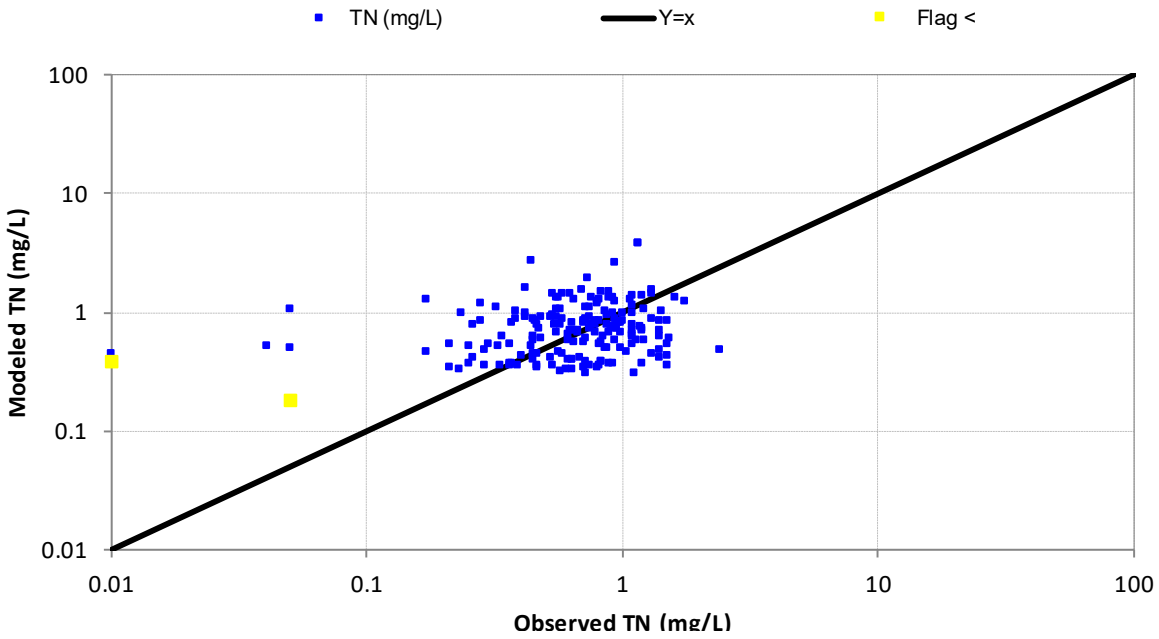


Figure B-244 Concentration at RCH112 Yellow Fever Creek

Table B- 67 Monthly TN Concentration Comparisons at RCH112 Yellow Fever Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.66	1.04	55.7	F
Feb	0.55	1.00	83.1	P
Mar	0.64	1.06	65.3	P
Apr	0.83	1.02	23.4	VG
May	0.87	1.03	18.8	VG
Jun	0.81	1.02	26.0	VG
Jul	0.94	1.10	16.7	VG
Aug	0.86	1.23	42.8	G
Sep	0.77	1.36	77.7	P
Oct	0.59	1.35	127.2	P
Nov	0.77	1.25	61.7	P
Dec	0.75	1.10	47.2	F
Average*	0.75	1.13	50.0	F
Median**	0.77	1.08	40.6	G
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 68 Annual TN Concentration Comparisons at RCH112 Yellow Fever Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.08	N/A	N/A
1998	N/A	1.29	N/A	N/A
1999	N/A	1.20	N/A	N/A
2000	1.10	1.23	12.3	VG
2001	0.68	1.16	69.5	P
2002	0.56	1.22	119.6	P
2003	0.53	1.17	119.3	P
2004	0.46	1.10	139.9	P
2005	0.88	1.16	30.7	G
2006	0.69	1.15	68.1	P
2007	0.95	0.98	3.8	VG
2008	0.51	1.09	112.5	P
2009	0.56	1.07	91.6	P
2010	0.83	1.11	34.7	G
2011	1.11	1.11	0.5	VG
2012	1.00	1.12	12.0	VG
2013	0.79	1.18	49.7	F
2014	0.63	1.07	70.2	P
2015	N/A	1.14	N/A	N/A
2016	N/A	1.22	N/A	N/A
2017	N/A	1.17	N/A	N/A
2018	N/A	1.12	N/A	N/A
2019	N/A	1.04	N/A	N/A
2020	N/A	1.05	N/A	N/A
2021	N/A	1.14	N/A	N/A
2022	N/A	1.10	N/A	N/A
2023	N/A	1.05	N/A	N/A
Average*	0.75	1.13	50.5	F
Median**	0.69	1.12	64.0	P
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 69 Daily TN Concentration Comparisons at RCH112 Yellow Fever Creek

Statistic	Results	Rating
Count (number)	175	N/A
Average Error (%)	180.4	P
Median Error (%)	50.6	F
RMSE (mg/L)	0.61	N/A
R2	0.00	P

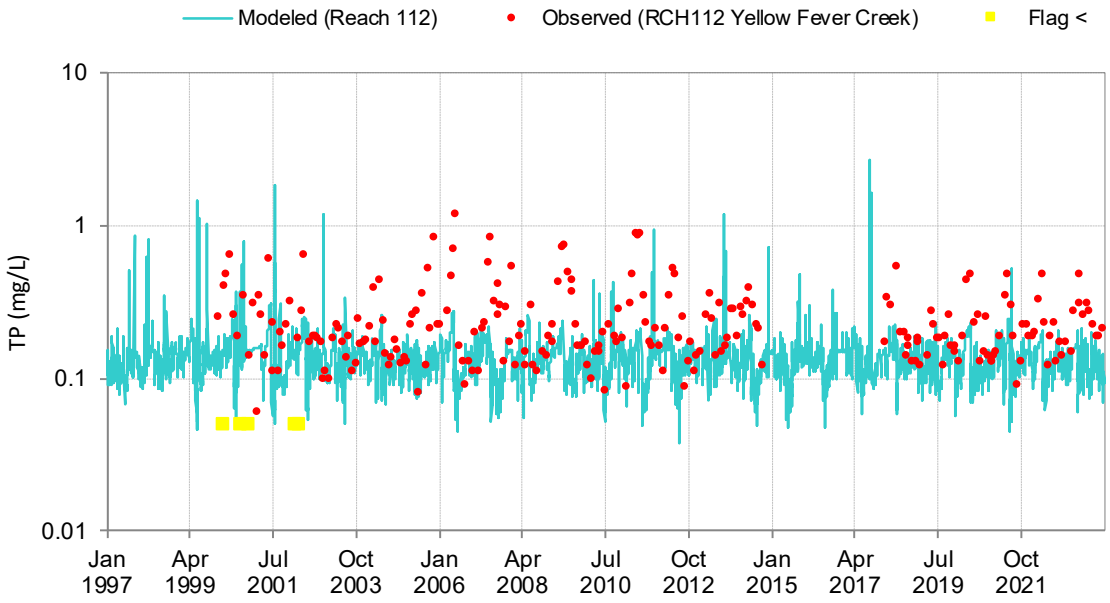


Figure B-245 Modeled Vs Observed TP (mg/L) at RCH112 Yellow Fever Creek

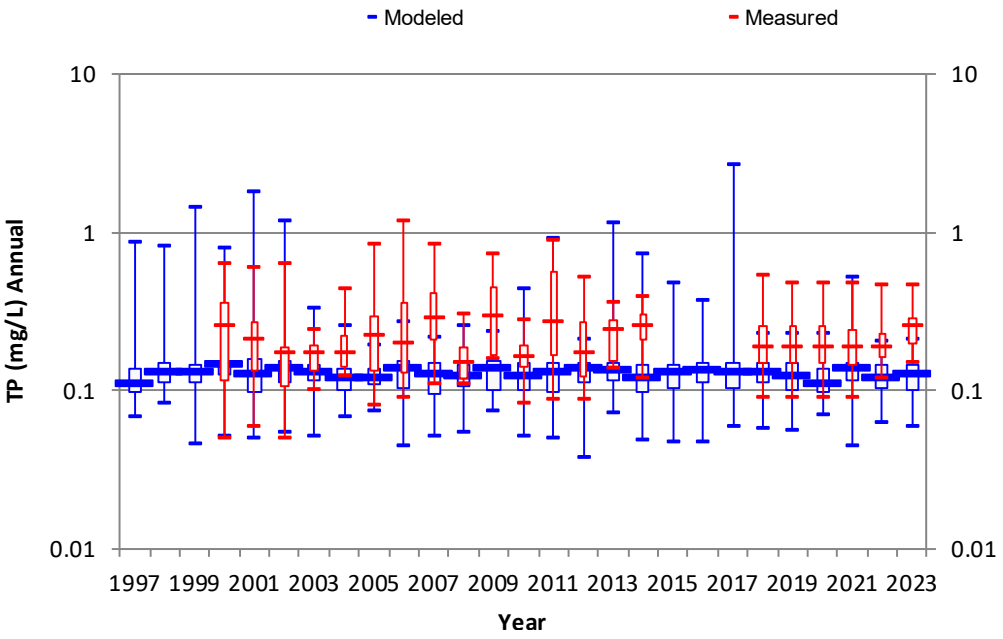


Figure B-246 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH112 Yellow Fever Creek

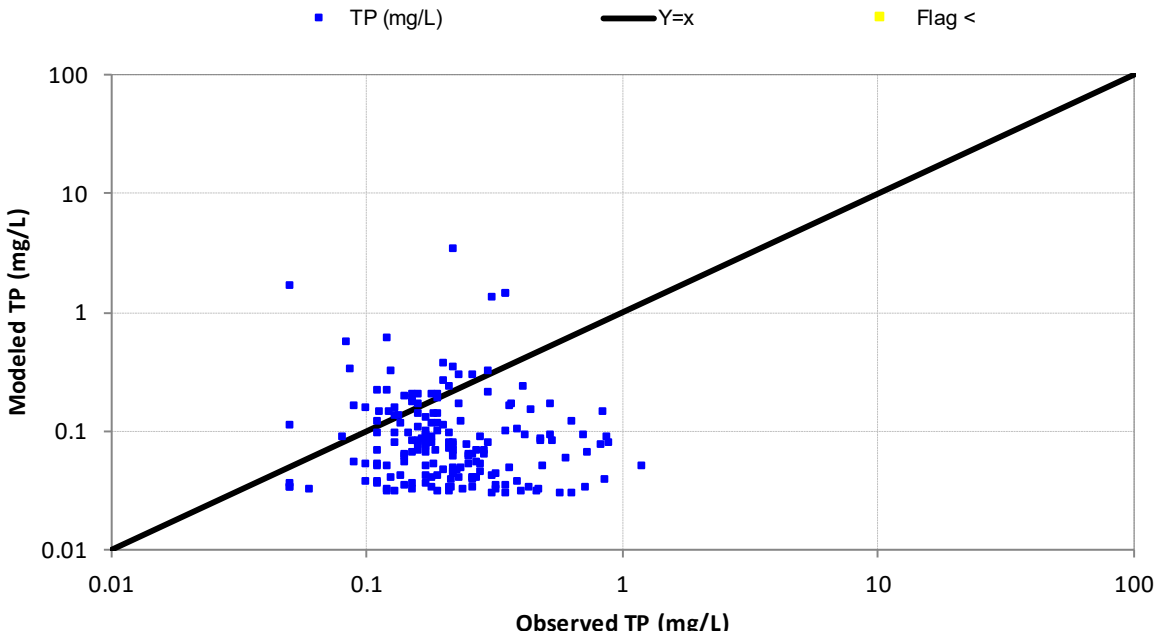


Figure B-247 Concentration at RCH112 Yellow Fever Creek

Table B- 70 Monthly TP Concentration Comparisons at RCH112 Yellow Fever Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.14	0.13	-3.6	VG
Feb	0.19	0.13	-30.9	G
Mar	0.29	0.14	-49.6	F
Apr	0.38	0.14	-61.5	P
May	0.49	0.15	-69.4	P
Jun	0.33	0.12	-64.0	P
Jul	0.24	0.11	-53.7	F
Aug	0.18	0.12	-30.0	G
Sep	0.19	0.14	-29.3	VG
Oct	0.17	0.13	-22.2	VG
Nov	0.22	0.14	-38.2	G
Dec	0.22	0.13	-42.9	G
Average*	0.25	0.13	-47.6	F
Median**	0.22	0.13	-40.3	G
R2	N/A	N/A	0.22	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 71 Annual TP Concentration Comparisons at RCH112 Yellow Fever Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.12	N/A	N/A
1998	N/A	0.14	N/A	N/A
1999	N/A	0.14	N/A	N/A
2000	0.26	0.15	-41.3	G
2001	0.23	0.14	-37.6	G
2002	0.19	0.14	-24.0	VG
2003	0.17	0.13	-23.2	VG
2004	0.21	0.12	-40.6	G
2005	0.30	0.12	-58.0	F
2006	0.33	0.14	-58.9	F
2007	0.34	0.12	-62.8	P
2008	0.16	0.13	-21.8	VG
2009	0.36	0.13	-62.8	P
2010	0.17	0.13	-22.8	VG
2011	0.40	0.13	-66.8	P
2012	0.23	0.13	-41.4	G
2013	0.23	0.14	-38.6	G
2014	0.26	0.13	-51.1	F
2015	N/A	0.13	N/A	N/A
2016	N/A	0.13	N/A	N/A
2017	N/A	0.15	N/A	N/A
2018	N/A	0.13	N/A	N/A
2019	N/A	0.13	N/A	N/A
2020	N/A	0.12	N/A	N/A
2021	N/A	0.14	N/A	N/A
2022	N/A	0.12	N/A	N/A
2023	N/A	0.12	N/A	N/A
Average*	0.25	0.13	-47.9	F
Median**	0.23	0.13	-42.7	G
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 72 Daily TP Concentration Comparisons at RCH112 Yellow Fever Creek

Statistic	Results	Rating
Count (number)	174	N/A
Average Error (%)	-22.4	VG
Median Error (%)	-35.7	G
RMSE (mg/L)	0.22	N/A
R2	0.03	P

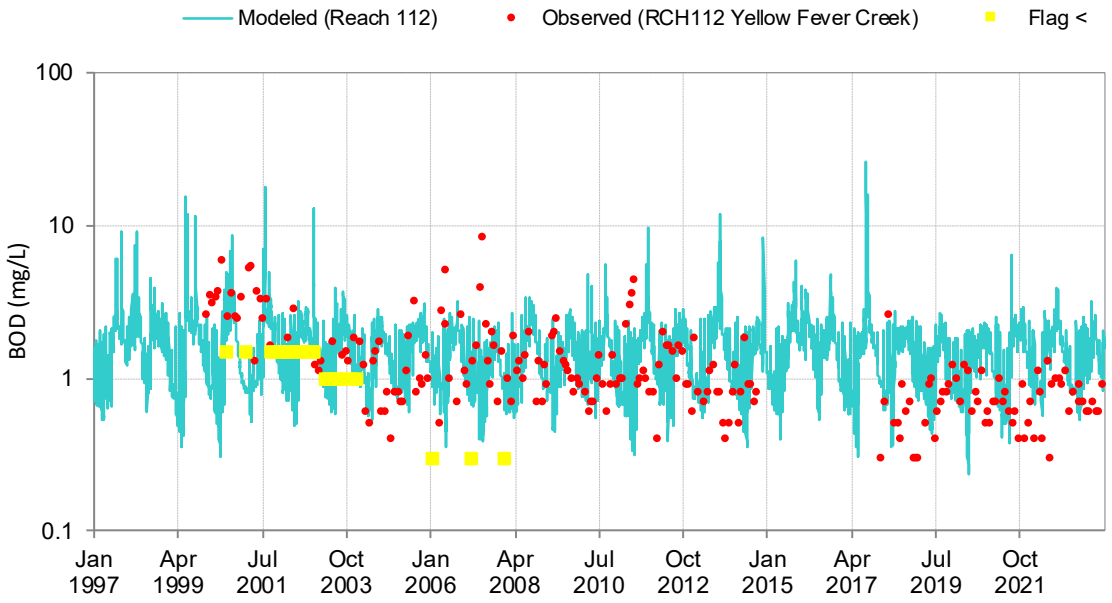


Figure B-248 Modeled Vs Observed BOD (mg/L) at RCH112 Yellow Fever Creek

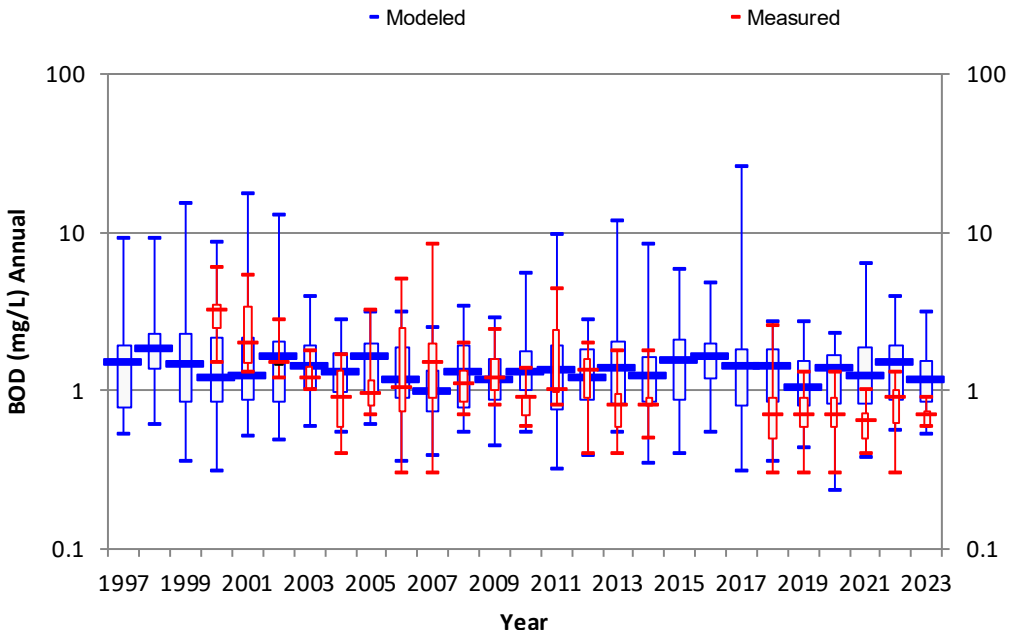


Figure B-249 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH112 Yellow Fever Creek

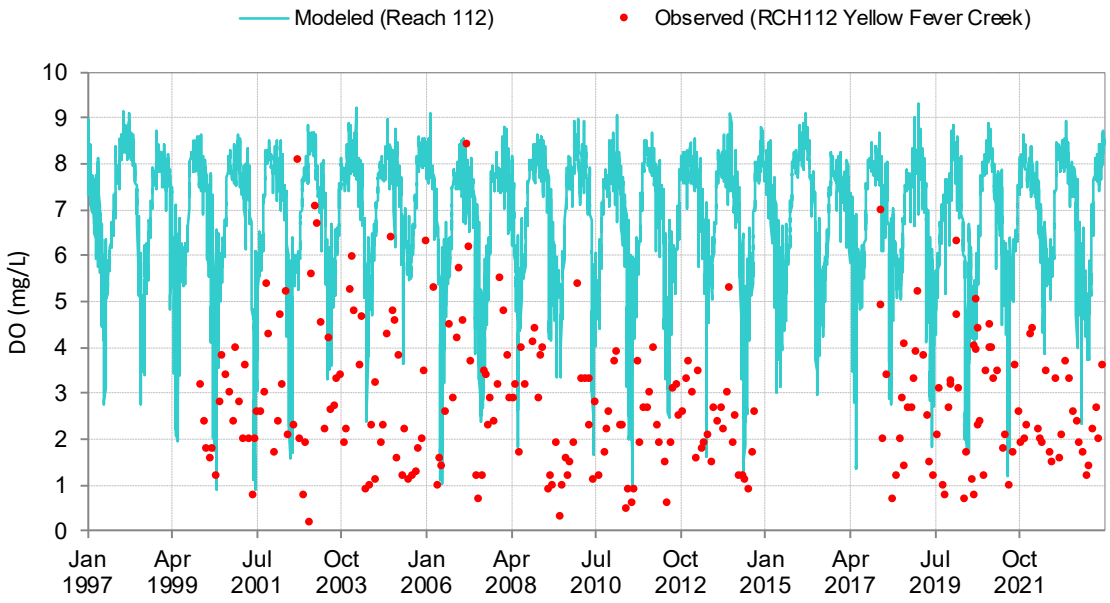


Figure B-250 Modeled Vs Observed DO (mg/L) at RCH112 Yellow Fever Creek

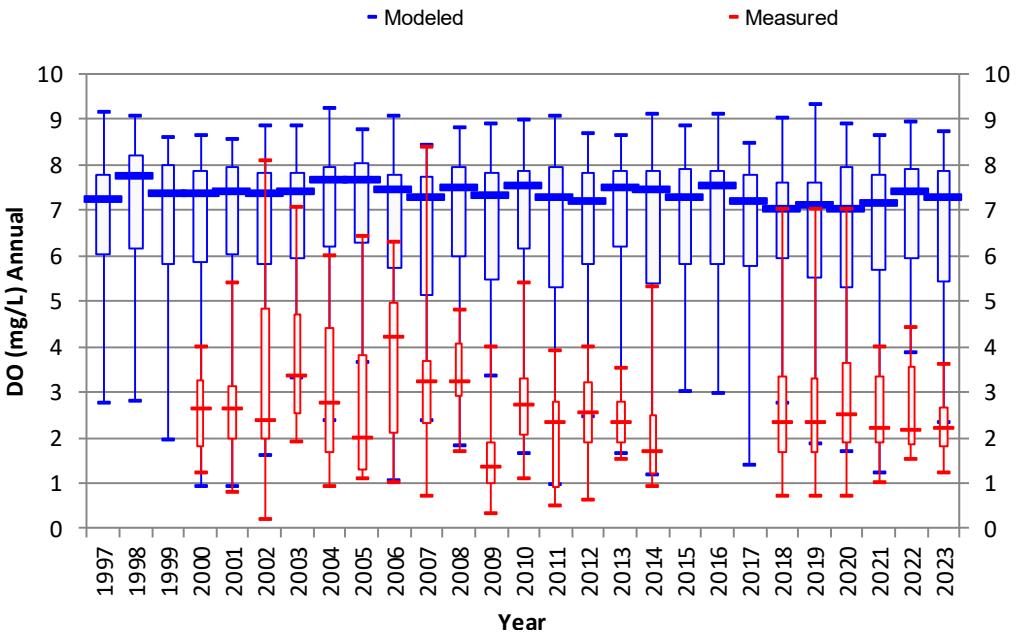


Figure B-251 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH112 Yellow Fever Creek

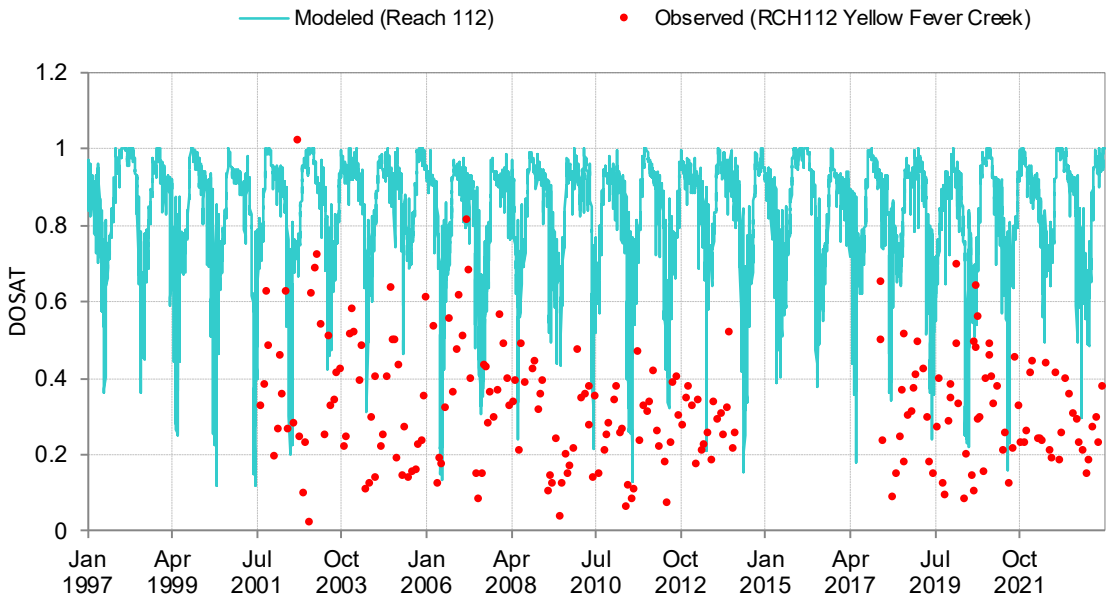


Figure B-252 Modeled Vs Observed DOSAT at RCH112 Yellow Fever Creek

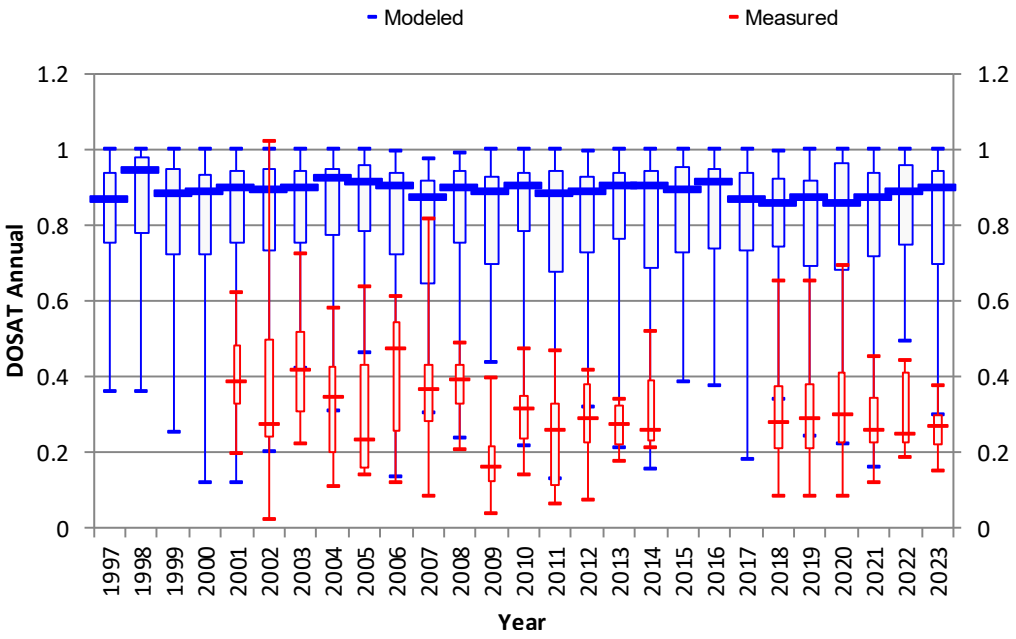


Figure B-253 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH112 Yellow Fever Creek

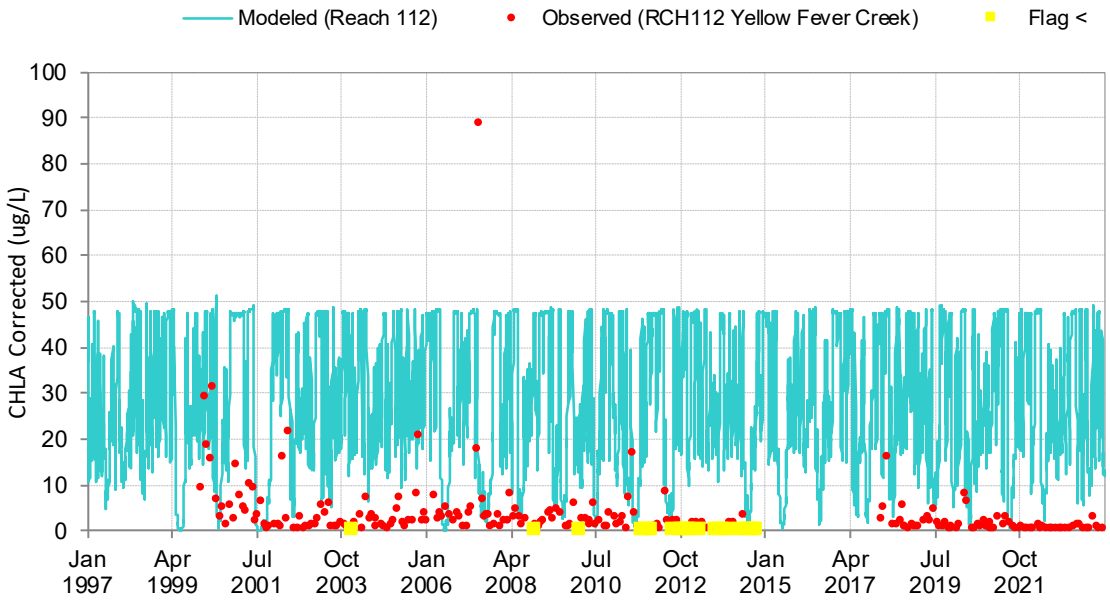


Figure B-254 Modeled Vs Observed CHLA Corrected (ug/L) at RCH112 Yellow Fever Creek

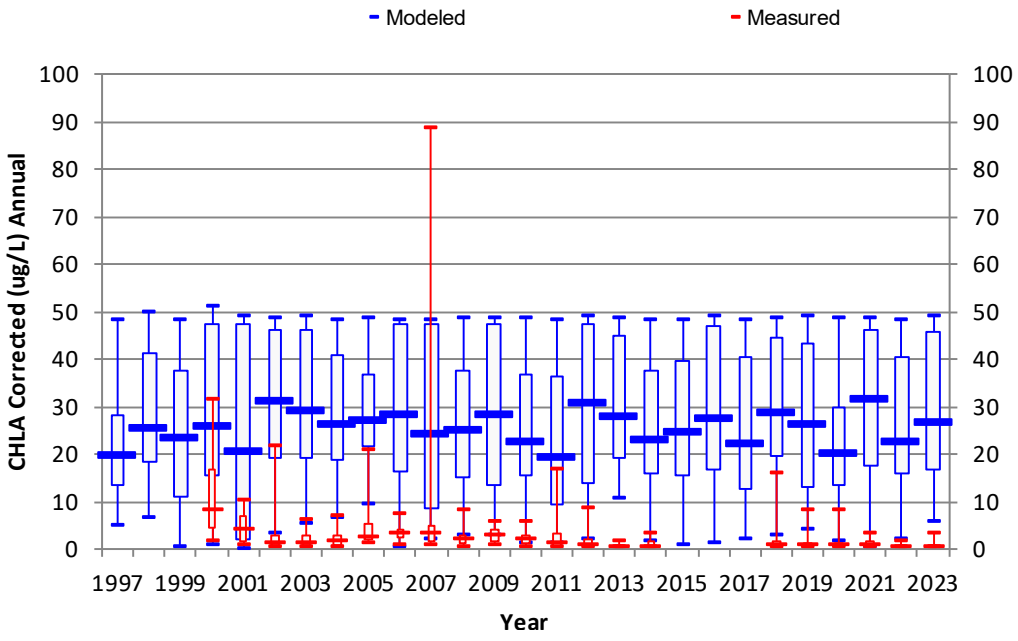


Figure B-255 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH112 Yellow Fever Creek

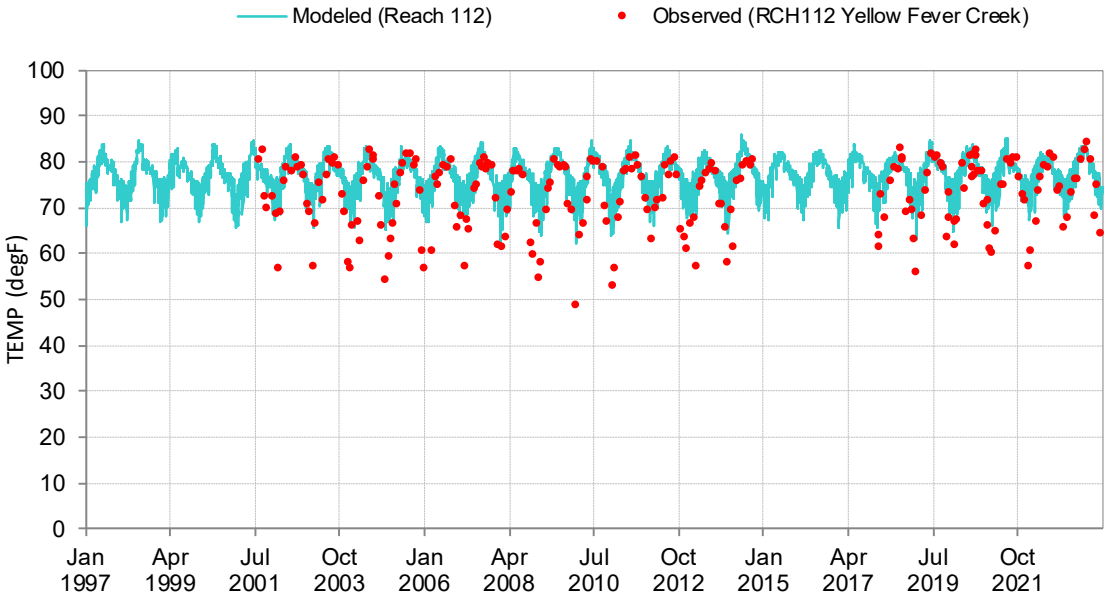


Figure B-256 Modeled Vs Observed TEMP (deg F) at RCH112 Yellow Fever Creek

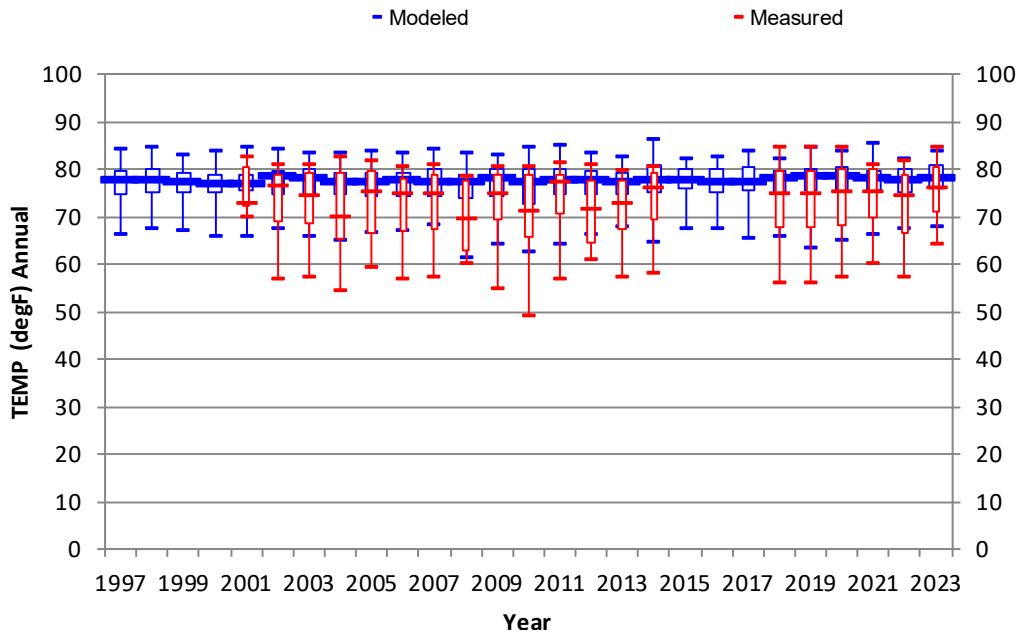


Figure B-257 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH112 Yellow Fever Creek

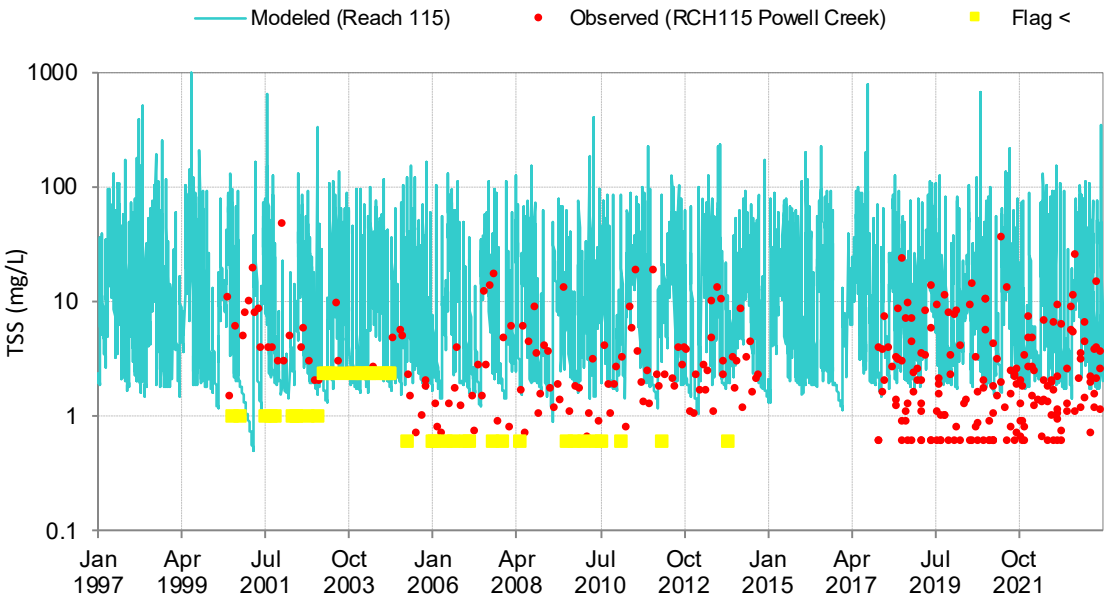


Figure B-258 Modeled Vs Observed TSS (mg/L) at RCH115 Powell Creek

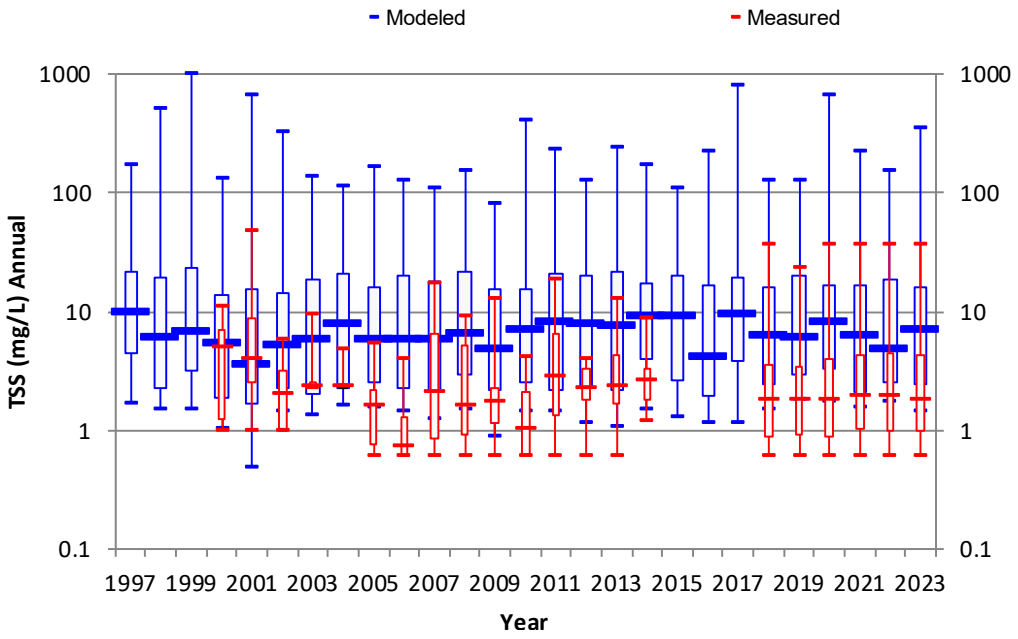


Figure B-259 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH115 Powell Creek

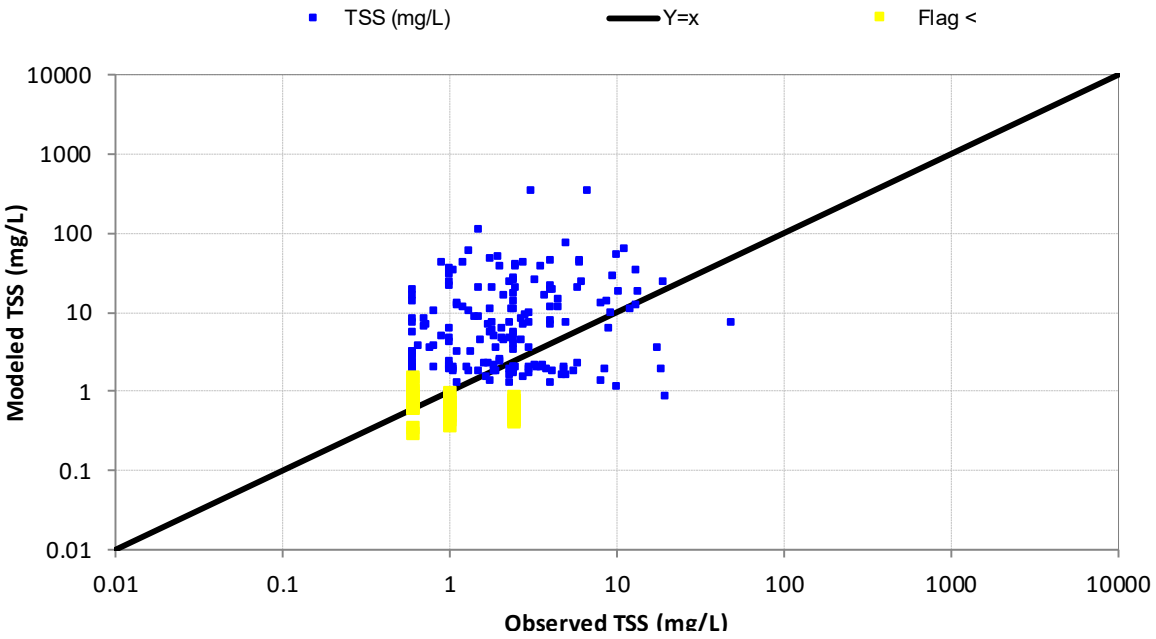


Figure B-260 Concentration at RCH115 Powell Creek

Table B- 73 Monthly TSS Concentration Comparisons at RCH115 Powell Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	2.38	7.50	214.8	P
Feb	3.60	9.67	169.1	P
Mar	2.70	11.41	322.4	P
Apr	5.39	14.94	177.0	P
May	3.14	21.11	572.9	P
Jun	3.87	29.95	673.8	P
Jul	3.90	23.93	513.9	P
Aug	2.49	20.03	703.2	P
Sep	3.14	23.58	651.0	P
Oct	2.52	7.09	181.4	P
Nov	3.27	7.84	139.8	P
Dec	4.22	8.38	98.5	P
Average*	3.39	15.45	356.5	P
Median**	3.21	13.18	311.1	P
R2	N/A	N/A	0.04	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 74 Annual TSS Concentration Comparisons at RCH115 Powell Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	17.60	N/A	N/A
1998	N/A	19.99	N/A	N/A
1999	N/A	22.70	N/A	N/A
2000	4.64	12.23	163.4	P
2001	9.21	15.19	65.0	P
2002	2.27	13.05	474.7	P
2003	2.35	15.19	546.5	P
2004	1.63	14.87	815.1	P
2005	2.04	14.07	589.8	P
2006	1.05	14.99	1327.4	P
2007	4.86	13.15	170.5	P
2008	3.19	15.86	396.4	P
2009	2.68	11.35	323.1	P
2010	1.51	15.20	904.6	P
2011	5.62	16.01	185.1	P
2012	2.38	14.52	510.7	P
2013	4.06	17.06	320.5	P
2014	3.16	14.09	346.7	P
2015	N/A	15.91	N/A	N/A
2016	N/A	14.84	N/A	N/A
2017	N/A	19.66	N/A	N/A
2018	3.74	12.40	231.6	P
2019	3.06	15.14	394.9	P
2020	3.43	17.98	424.7	P
2021	2.97	13.59	358.2	P
2022	2.55	15.46	506.4	P
2023	4.43	15.27	244.4	P
Average*	3.37	15.46	358.4	P
Median**	3.06	15.19	396.6	P
R2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 75 Daily TSS Concentration Comparisons at RCH115 Powell Creek

Statistic	Results	Rating
Count (number)	349	N/A
Average Error (%)	842.2	P
Median Error (%)	229.1	P
RMSE (mg/L)	32.59	N/A
R2	0.01	P

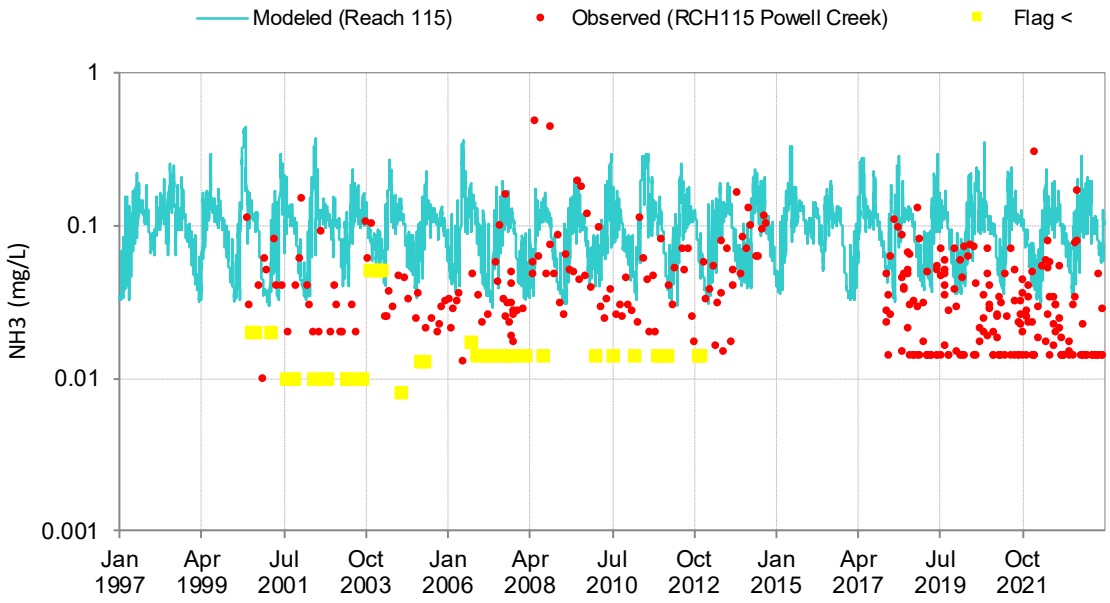


Figure B-261 Modeled Vs Observed NH3 (mg/L) at RCH115 Powell Creek

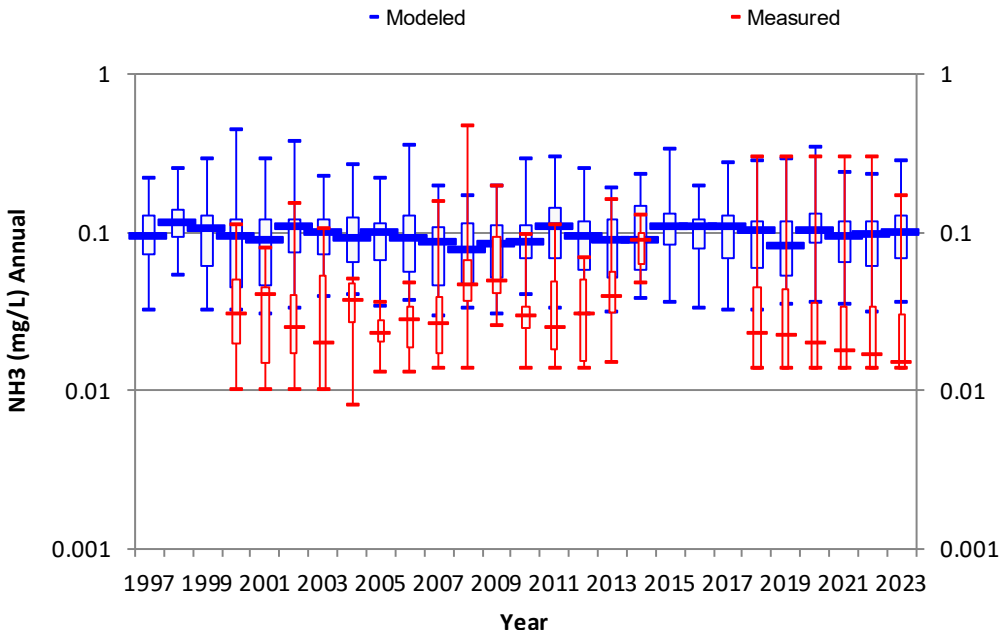


Figure B-262 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH115 Powell Creek

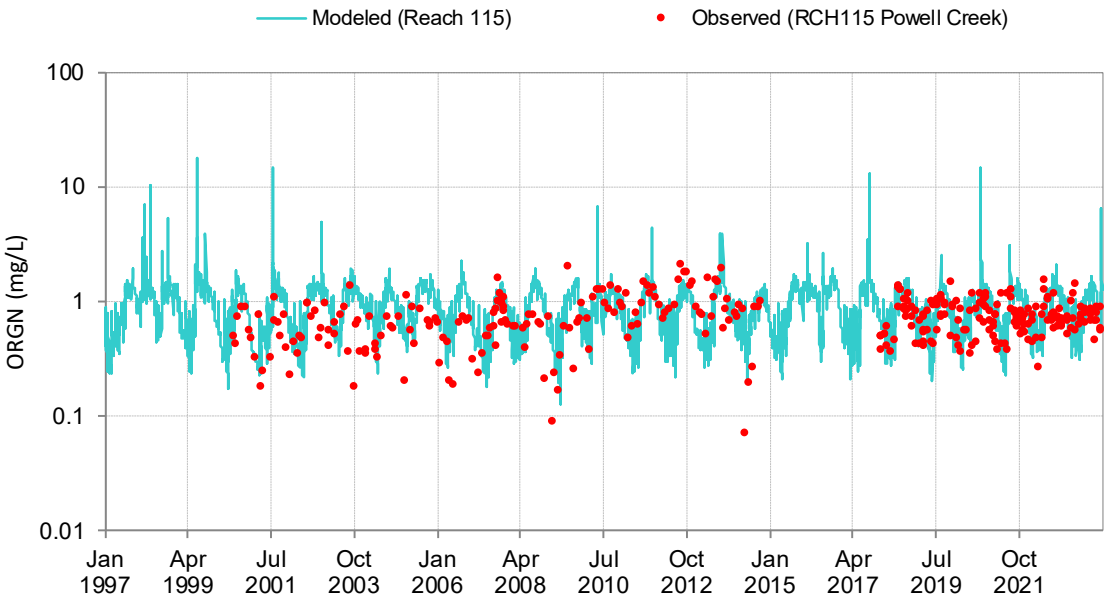


Figure B-263 Modeled Vs Observed ORGN (mg/L) at RCH115 Powell Creek

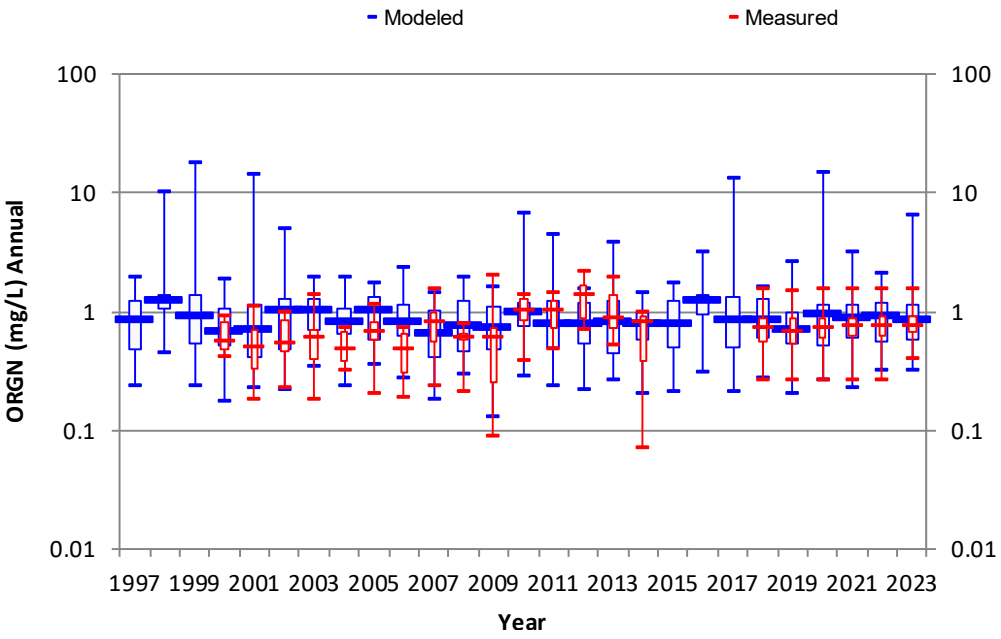


Figure B-264 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH115 Powell Creek

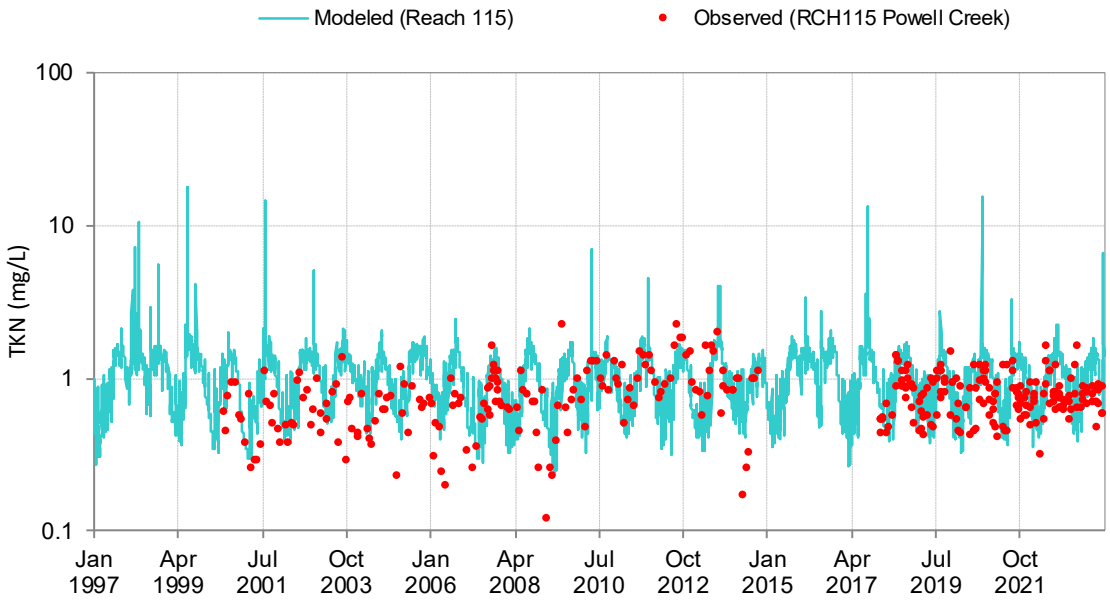


Figure B-265 Modeled Vs Observed TKN (mg/L) at RCH115 Powell Creek

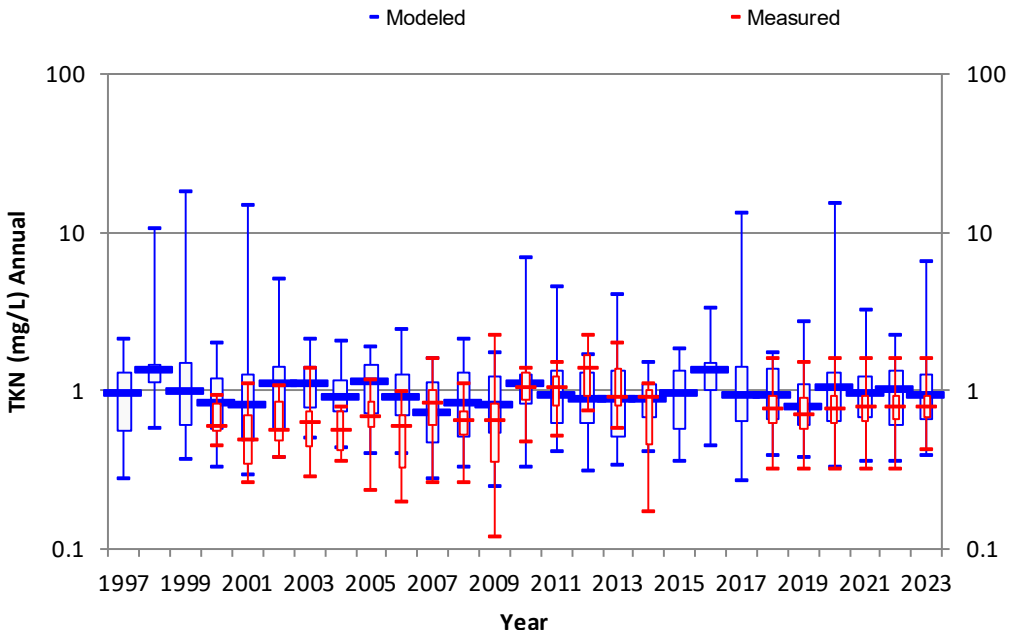


Figure B-266 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH115 Powell Creek

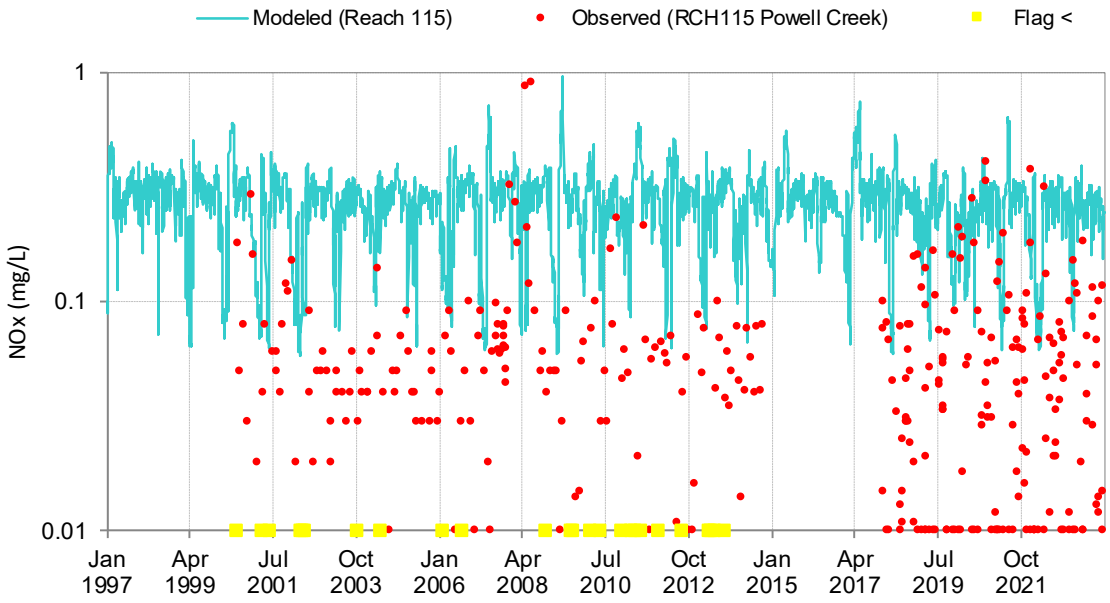


Figure B-267 Modeled Vs Observed NOx (mg/L) at RCH115 Powell Creek

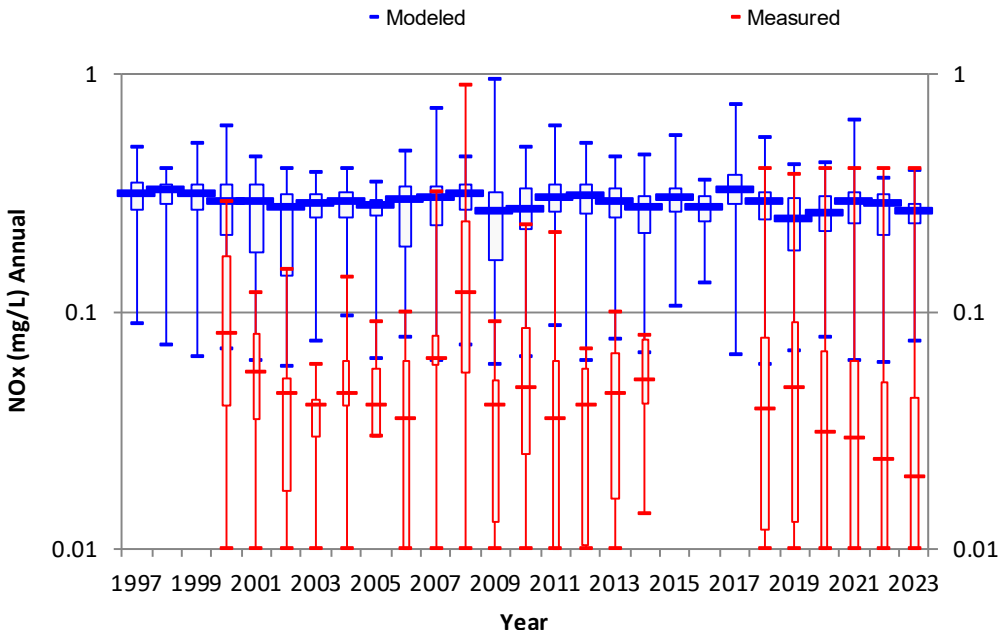


Figure B-268 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH115 Powell Creek

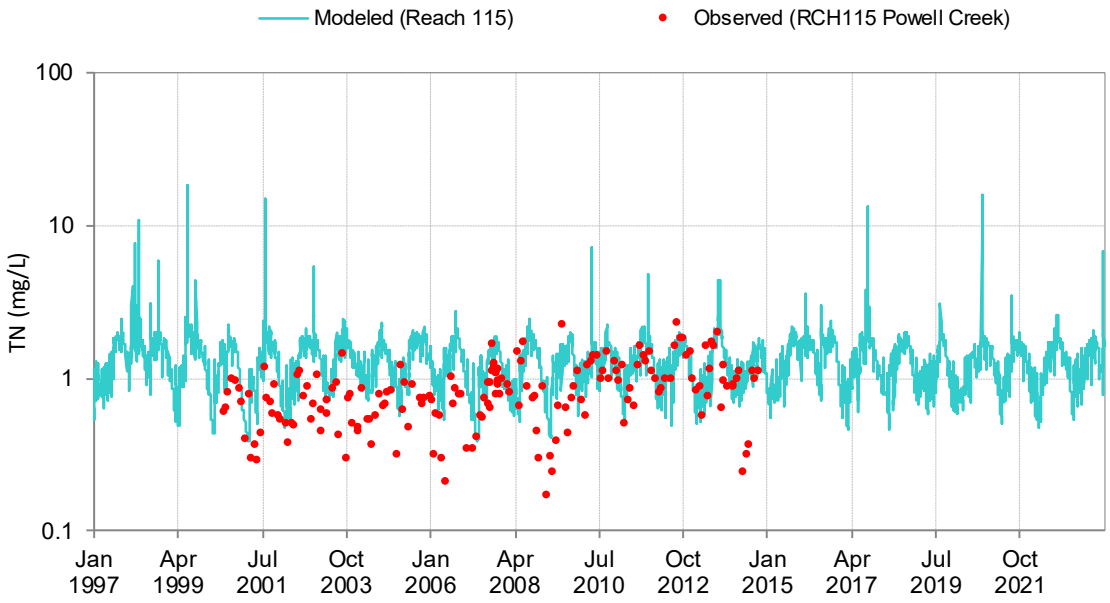


Figure B-269 Modeled Vs Observed TN (mg/L) at RCH115 Powell Creek

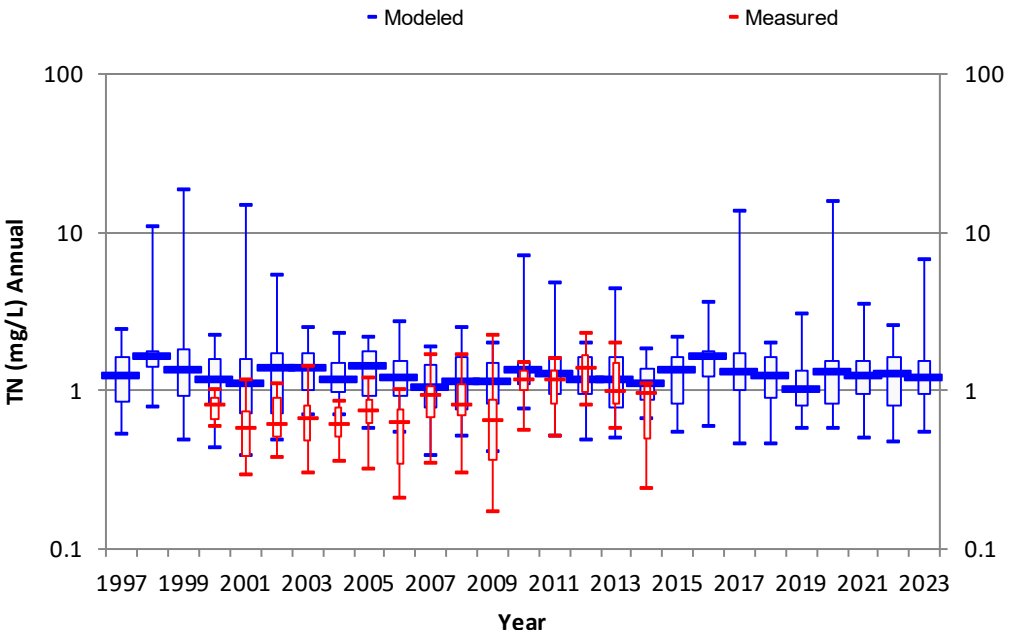


Figure B-270 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH115 Powell Creek

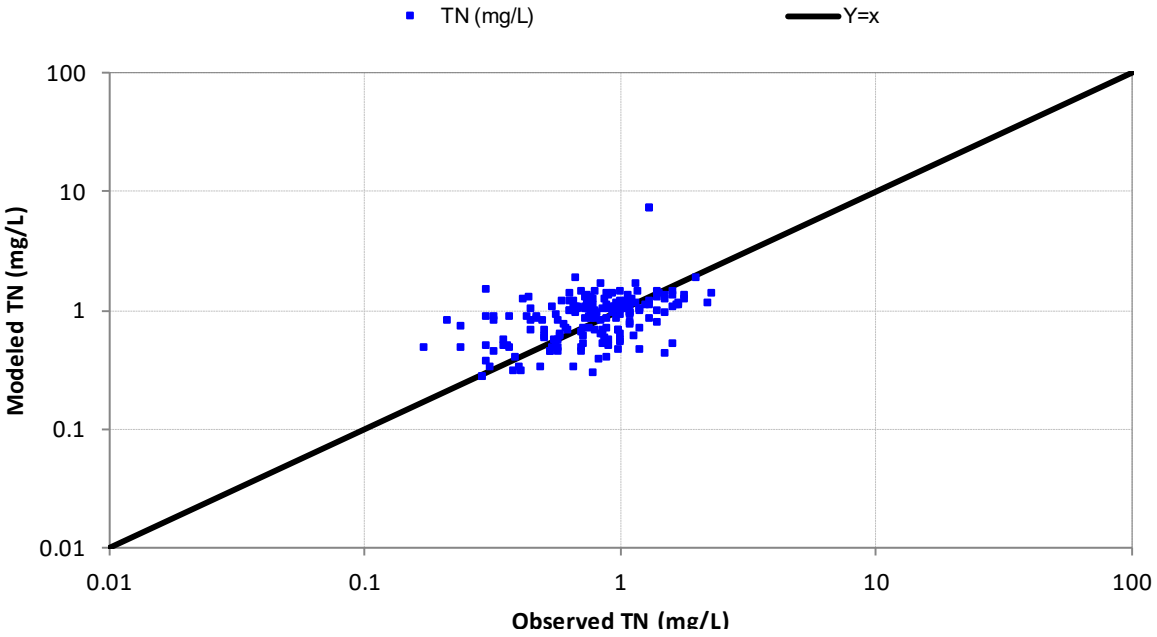


Figure B-271 Concentration at RCH115 Powell Creek

Table B- 76 Monthly TN Concentration Comparisons at RCH115 Powell Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.75	0.99	33.1	G
Feb	0.61	0.89	45.9	F
Mar	0.70	0.88	26.9	VG
Apr	0.73	0.93	27.3	VG
May	0.70	1.03	47.3	F
Jun	0.73	1.24	70.3	P
Jul	1.08	1.59	47.6	F
Aug	1.06	1.71	60.8	P
Sep	1.07	1.89	77.5	P
Oct	0.91	1.68	84.9	P
Nov	0.93	1.41	51.3	F
Dec	0.84	1.16	38.9	G
Average*	0.84	1.29	52.6	F
Median**	0.79	1.20	51.5	F
R2	N/A	N/A	0.85	VG

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 77 Annual TN Concentration Comparisons at RCH115 Powell Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.26	N/A	N/A
1998	N/A	1.70	N/A	N/A
1999	N/A	1.45	N/A	N/A
2000	0.79	1.19	49.7	F
2001	0.60	1.21	100.0	P
2002	0.71	1.27	79.9	P
2003	0.69	1.38	99.6	P
2004	0.63	1.25	100.0	P
2005	0.74	1.36	84.2	P
2006	0.59	1.26	112.1	P
2007	0.89	1.09	22.4	VG
2008	0.91	1.21	33.6	G
2009	0.72	1.14	58.8	F
2010	1.13	1.35	19.5	VG
2011	1.08	1.31	21.2	VG
2012	1.37	1.25	-8.7	VG
2013	1.12	1.27	12.7	VG
2014	0.80	1.14	43.0	G
2015	N/A	1.29	N/A	N/A
2016	N/A	1.52	N/A	N/A
2017	N/A	1.42	N/A	N/A
2018	N/A	1.27	N/A	N/A
2019	N/A	1.11	N/A	N/A
2020	N/A	1.31	N/A	N/A
2021	N/A	1.25	N/A	N/A
2022	N/A	1.25	N/A	N/A
2023	N/A	1.25	N/A	N/A
Average*	0.85	1.29	51.2	F
Median**	0.79	1.26	59.0	F
R2	N/A	N/A	0.02	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 78 Daily TN Concentration Comparisons at RCH115 Powell Creek

Statistic	Results	Rating
Count (number)	180	N/A
Average Error (%)	76.2	P
Median Error (%)	54.2	F
RMSE (mg/L)	0.76	N/A
R2	0.12	P

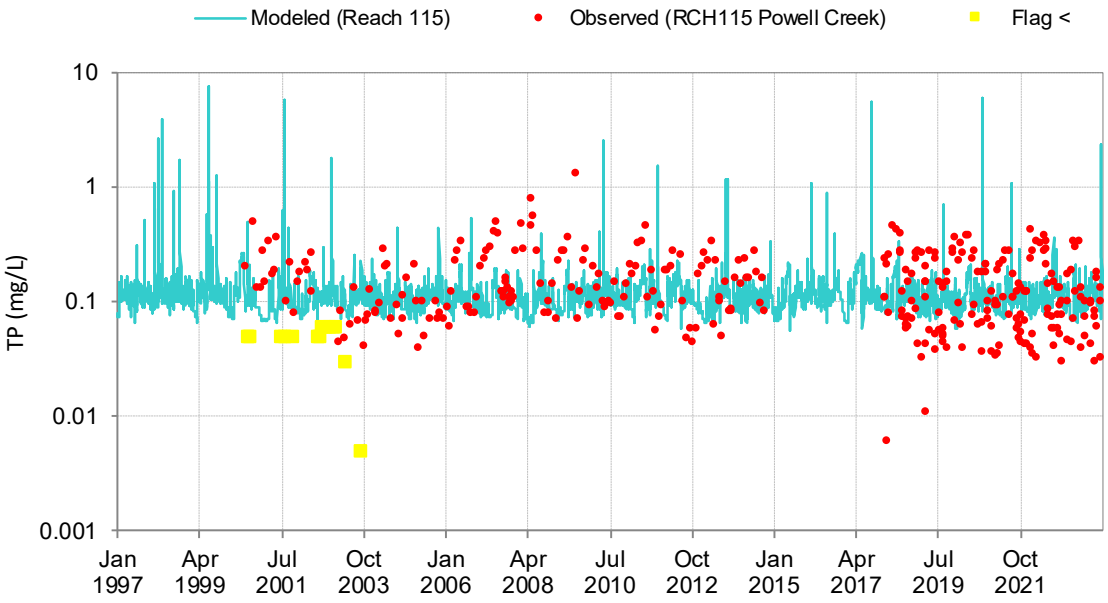


Figure B-272 Modeled Vs Observed TP (mg/L) at RCH115 Powell Creek

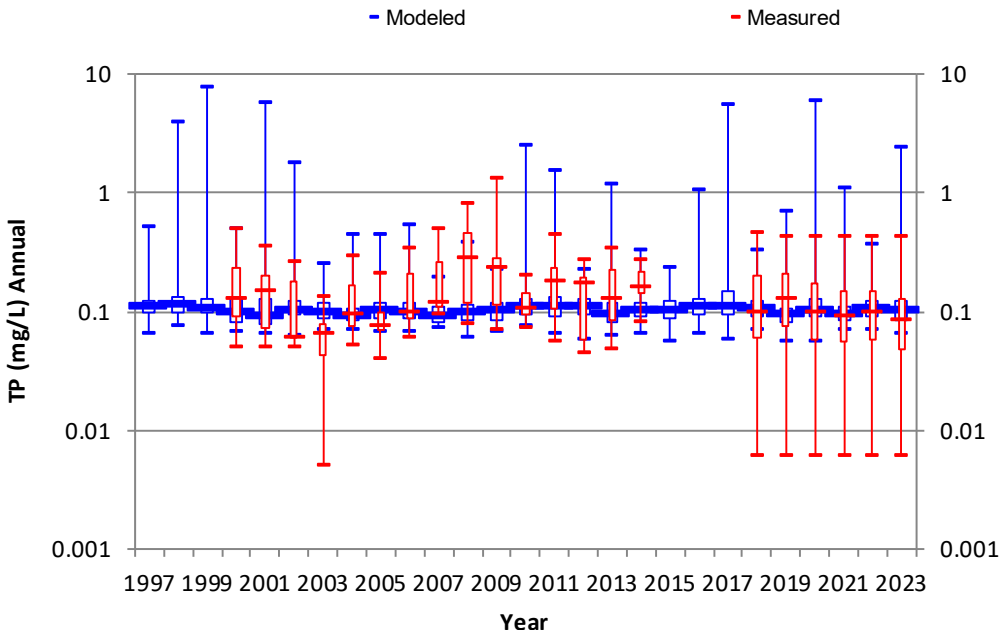


Figure B-273 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH115 Powell Creek

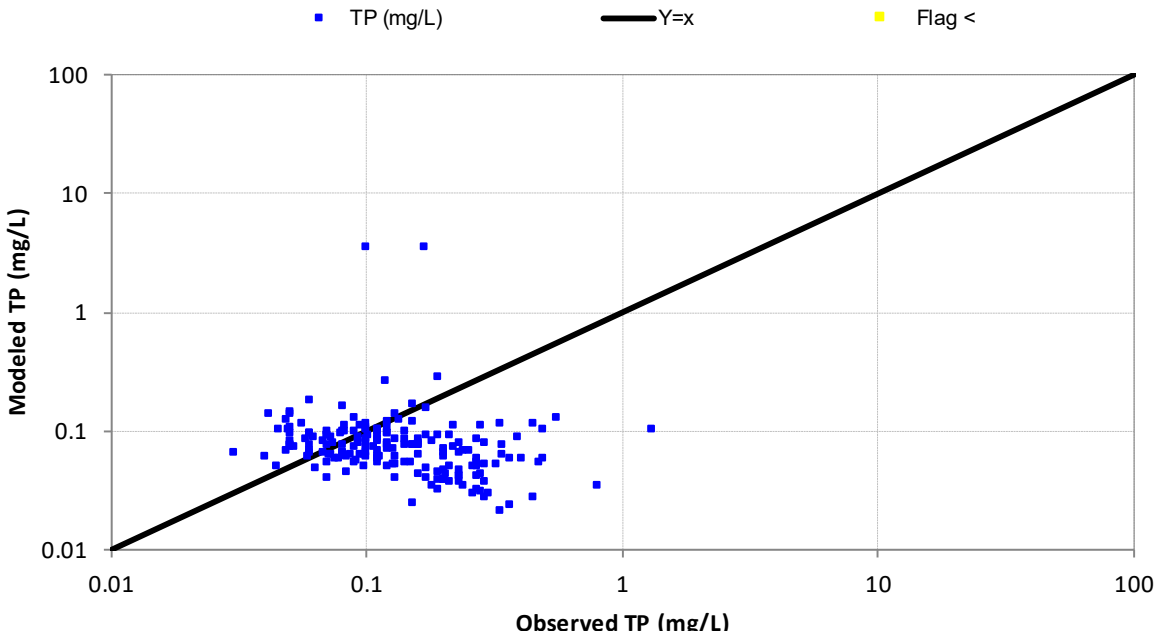


Figure B-274 Concentration at RCH115 Powell Creek

Table B- 79 Monthly TP Concentration Comparisons at RCH115 Powell Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.16	0.10	-37.4	G
Feb	0.15	0.10	-35.5	G
Mar	0.17	0.11	-35.6	G
Apr	0.25	0.12	-53.0	F
May	0.27	0.13	-51.6	F
Jun	0.21	0.12	-43.5	G
Jul	0.14	0.14	-2.6	VG
Aug	0.09	0.12	31.3	G
Sep	0.11	0.16	46.8	F
Oct	0.10	0.11	9.6	VG
Nov	0.12	0.10	-13.3	VG
Dec	0.13	0.10	-20.5	VG
Average*	0.16	0.12	-26.1	VG
Median**	0.15	0.11	-23.1	VG
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 80 Annual TP Concentration Comparisons at RCH115 Powell Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.11	N/A	N/A
1998	N/A	0.16	N/A	N/A
1999	N/A	0.15	N/A	N/A
2000	0.18	0.12	-35.8	G
2001	0.15	0.13	-17.7	VG
2002	0.10	0.12	18.9	VG
2003	0.06	0.11	67.6	P
2004	0.13	0.10	-22.3	VG
2005	0.09	0.11	18.7	VG
2006	0.15	0.11	-24.8	VG
2007	0.19	0.10	-46.8	F
2008	0.31	0.10	-66.7	P
2009	0.29	0.11	-62.6	P
2010	0.12	0.13	5.2	VG
2011	0.19	0.12	-37.4	G
2012	0.14	0.11	-20.5	VG
2013	0.15	0.11	-26.8	VG
2014	0.17	0.11	-38.4	G
2015	N/A	0.11	N/A	N/A
2016	N/A	0.12	N/A	N/A
2017	N/A	0.15	N/A	N/A
2018	0.17	0.11	-32.2	G
2019	0.13	0.10	-23.3	VG
2020	0.16	0.14	-11.5	VG
2021	0.11	0.11	-3.2	VG
2022	0.15	0.11	-27.4	VG
2023	0.12	0.12	-1.0	VG
Average*	0.15	0.12	-24.7	VG
Median**	0.15	0.11	-25.3	VG
R2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 81 Daily TP Concentration Comparisons at RCH115 Powell Creek

Statistic	Results	Rating
Count (number)	RCH121	N/A
Average Error (%)	38.2	G
Median Error (%)	-9.8	VG
RMSE (mg/L)	0.18	N/A
R2	0.00	P

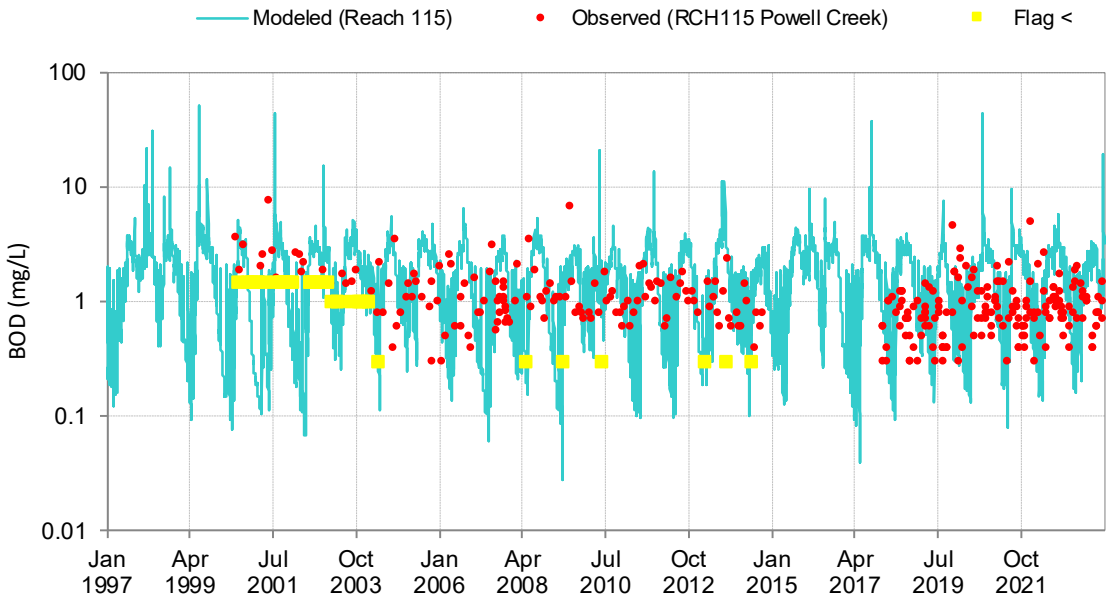


Figure B-275 Modeled Vs Observed BOD (mg/L) at RCH115 Powell Creek

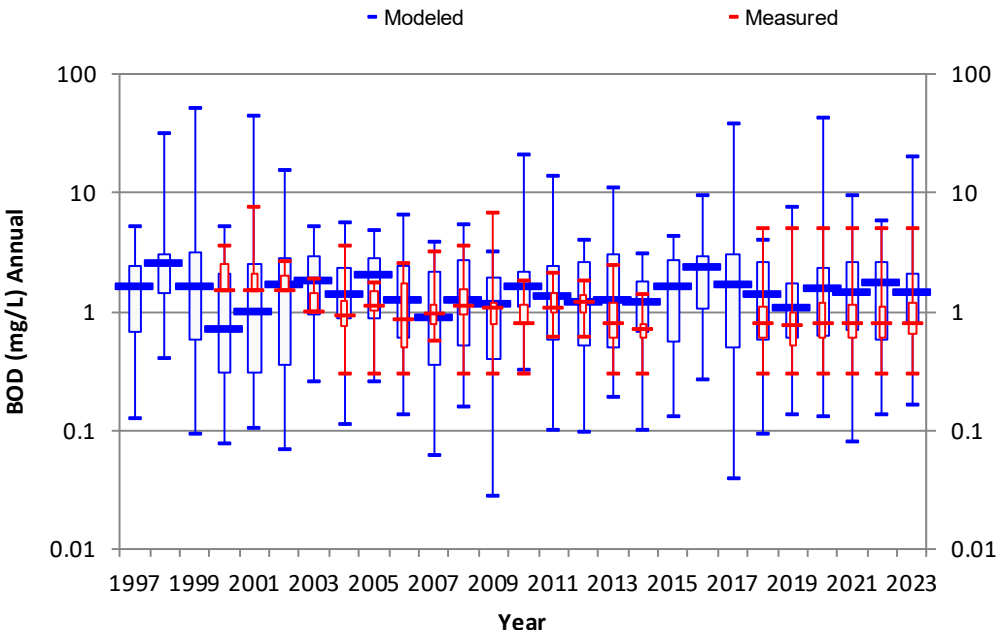


Figure B-276 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH115 Powell Creek

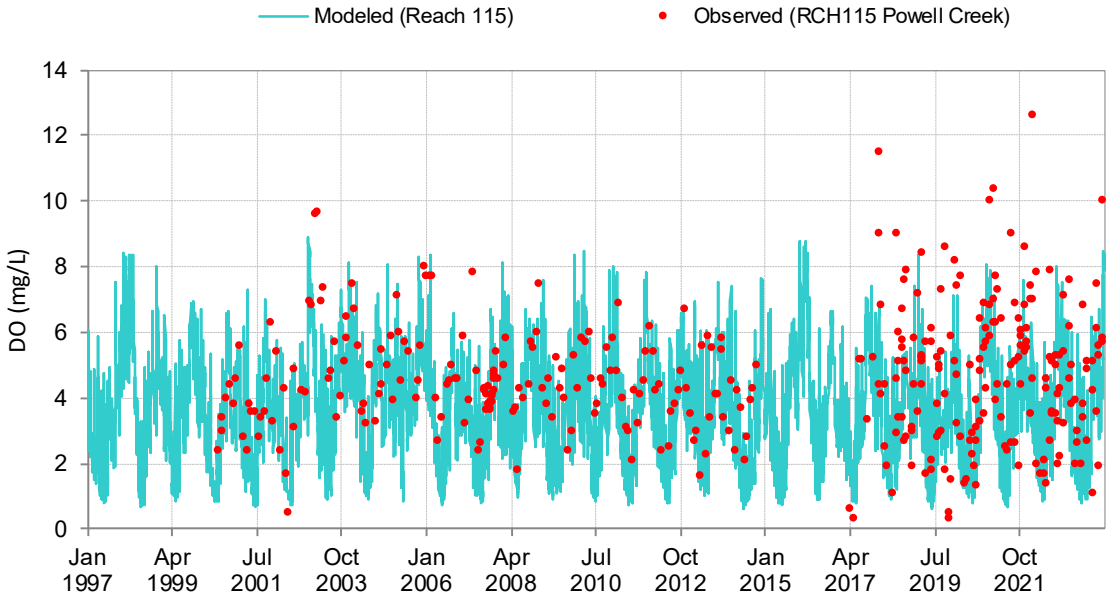


Figure B-277 Modeled Vs Observed DO (mg/L) at RCH115 Powell Creek

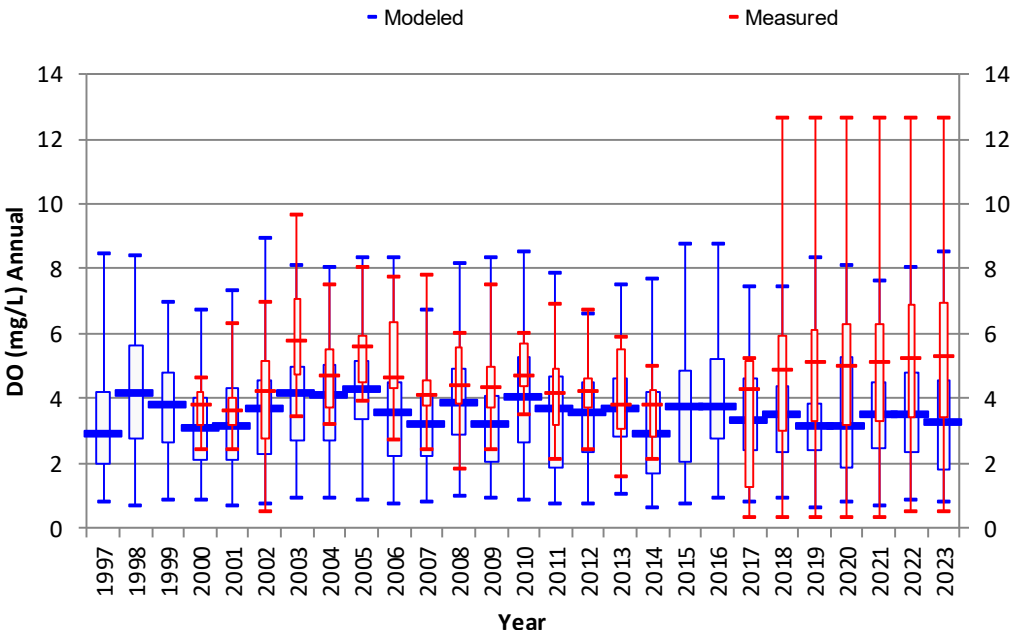


Figure B-278 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH115 Powell Creek

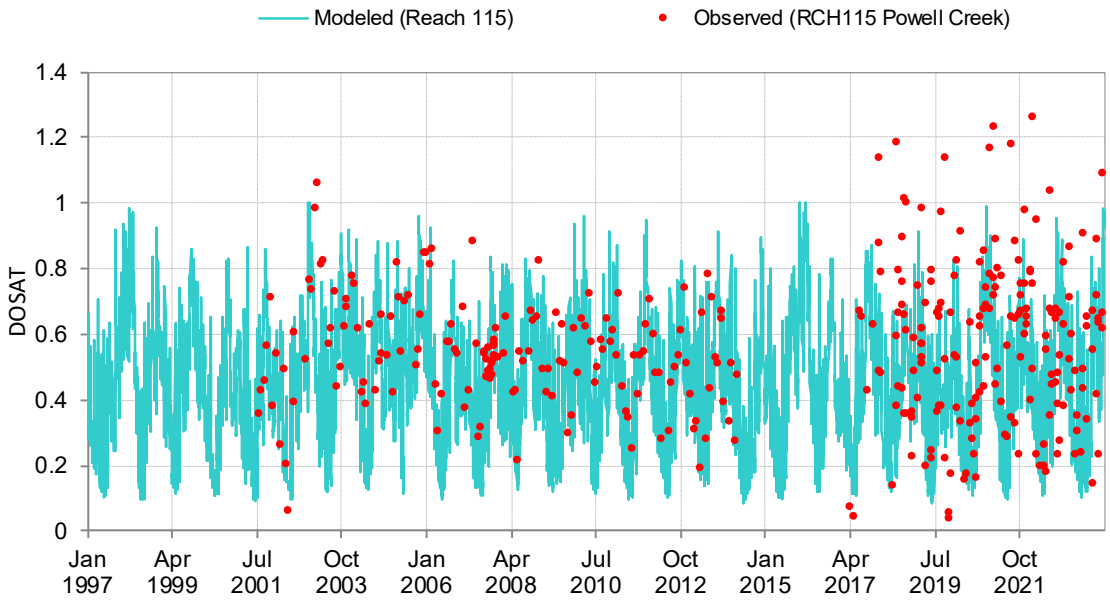


Figure B-279 Modeled Vs Observed DOSAT at RCH115 Powell Creek

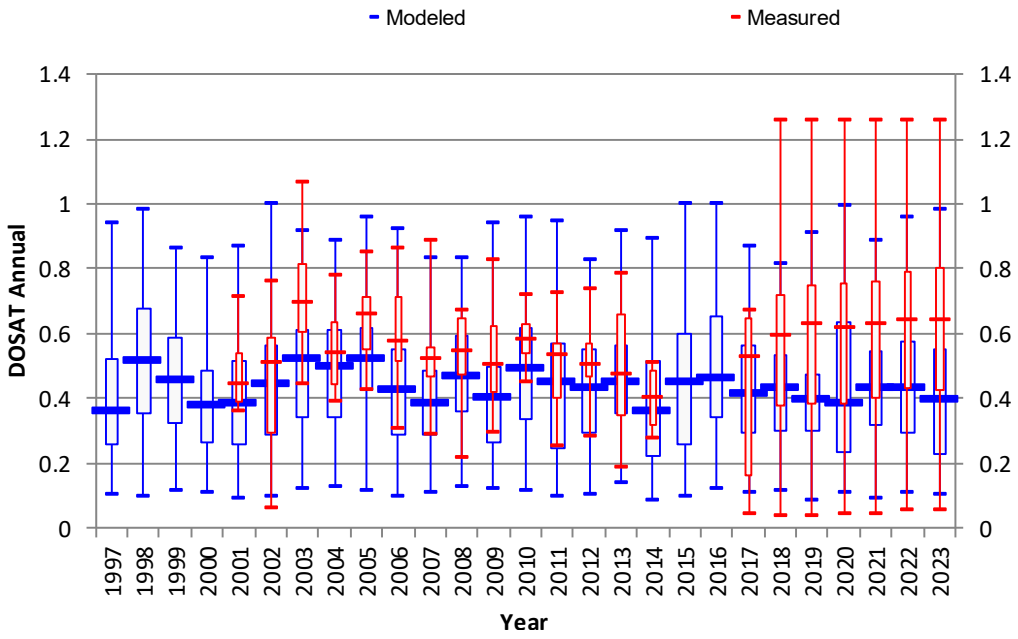


Figure B-280 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH115 Powell Creek

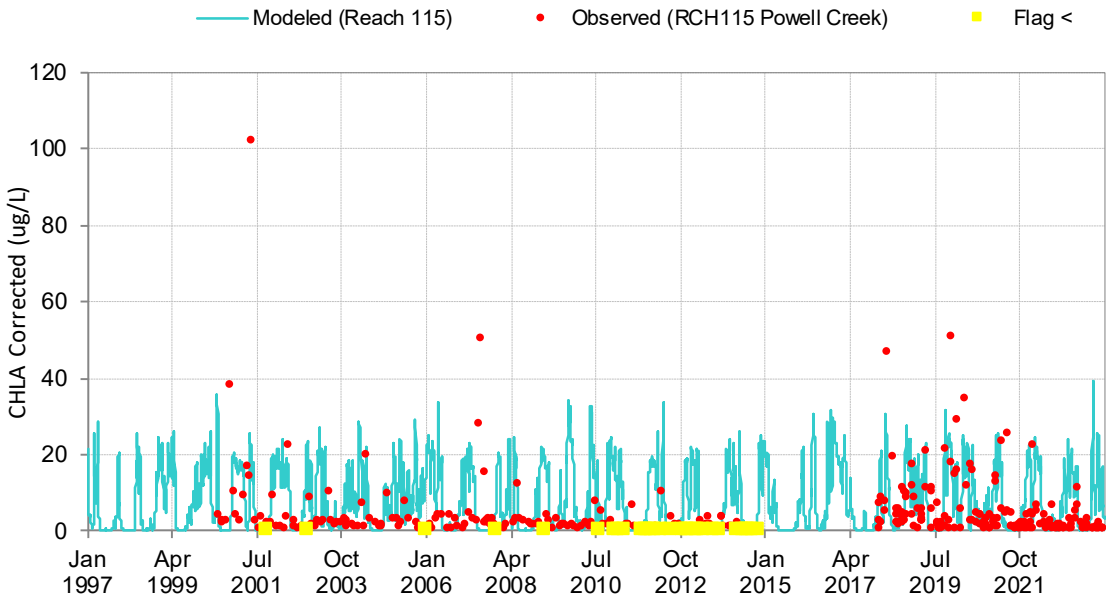


Figure B-281 Modeled Vs Observed CHLA Corrected (ug/L) at RCH115 Powell Creek

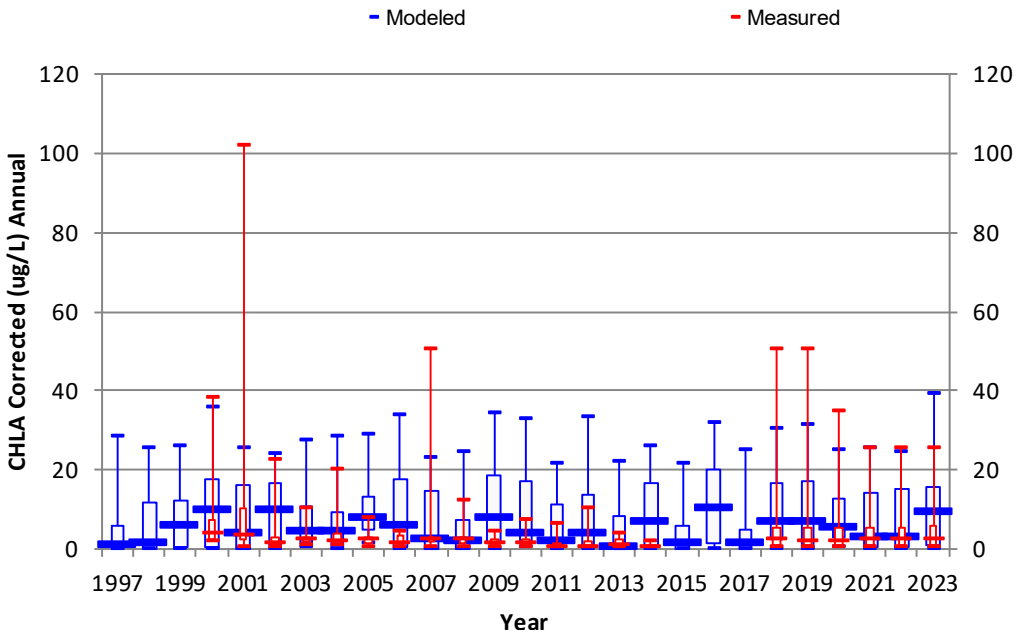


Figure B-282 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH115 Powell Creek

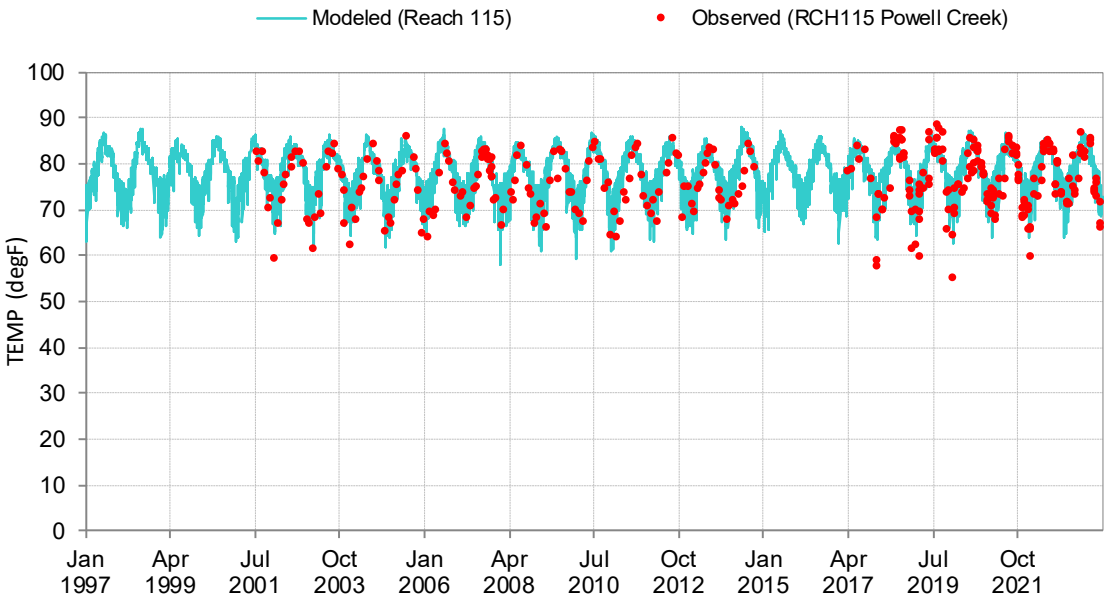


Figure B-283 Modeled Vs Observed TEMP (deg F) at RCH115 Powell Creek

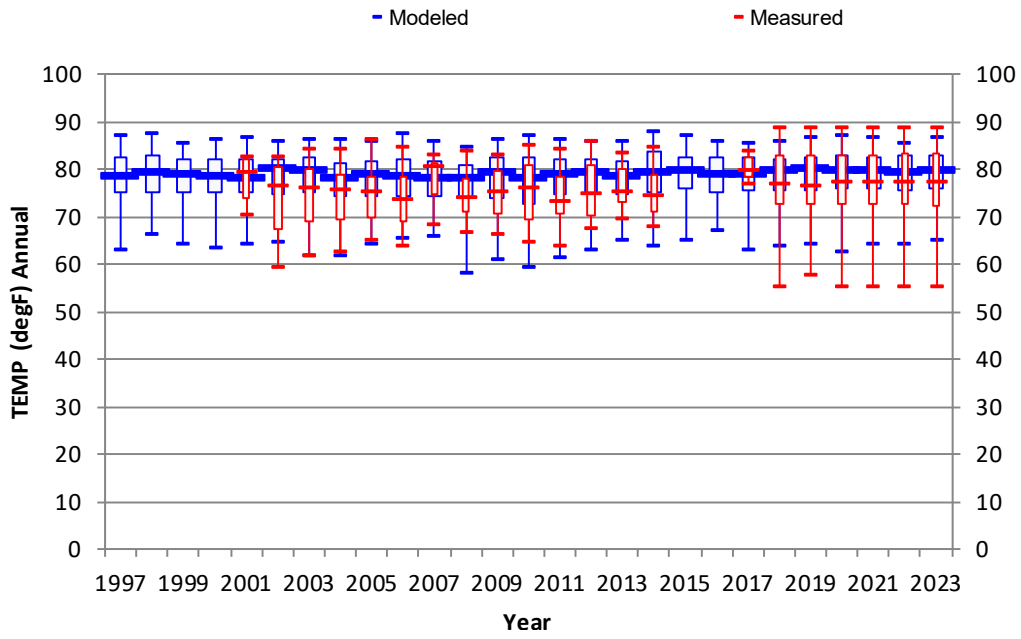


Figure B-284 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH115 Powell Creek

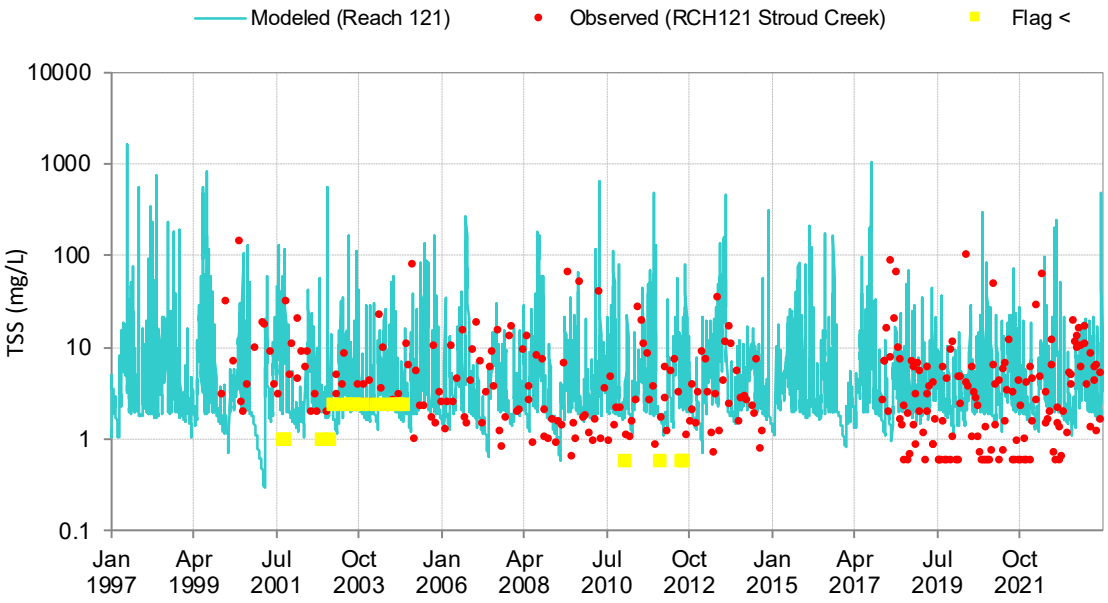


Figure B-285 Modeled Vs Observed TSS (mg/L) at RCH121 Stroud Creek

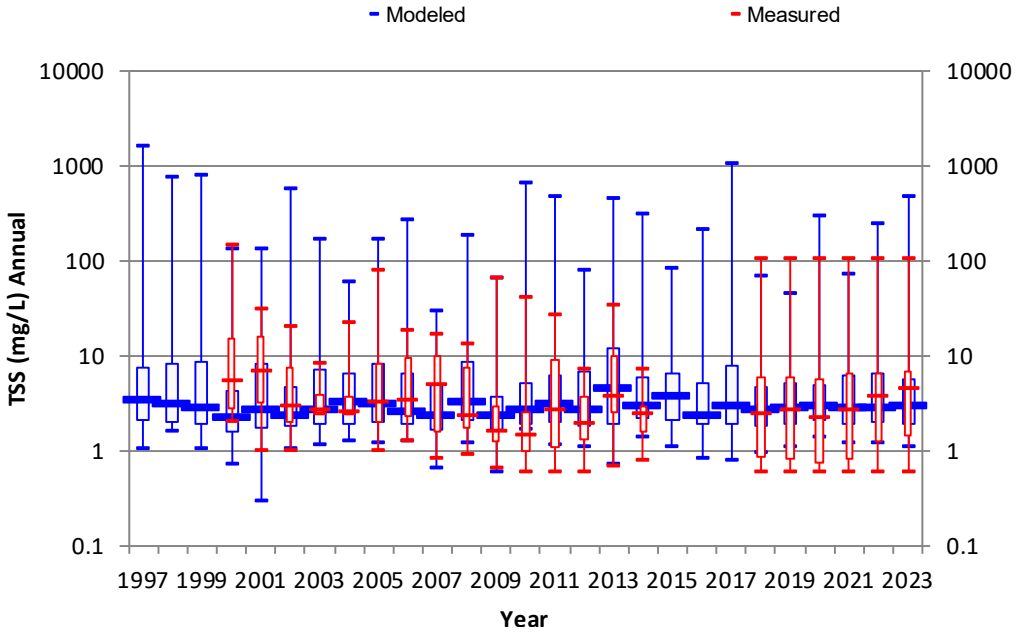


Figure B-286 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH121 Stroud Creek

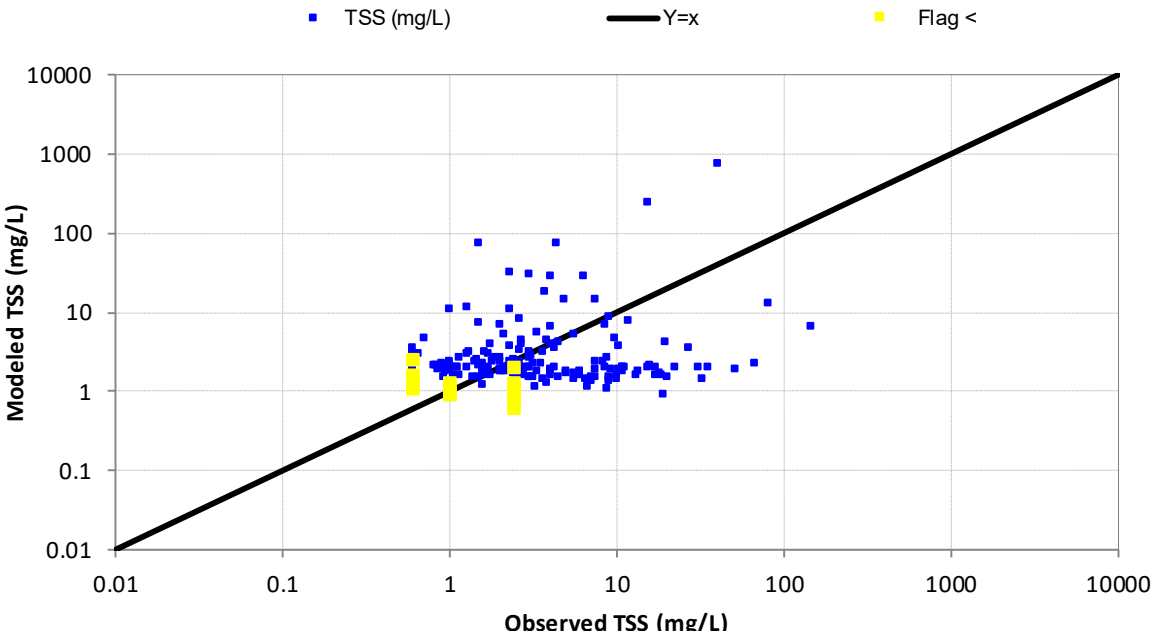


Figure B-287 Concentration at RCH121 Stroud Creek

Table B- 82 Monthly TSS Concentration Comparisons at RCH121 Stroud Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	6.05	4.05	-33.1	F
Feb	5.46	4.83	-11.5	VG
Mar	11.63	5.08	-56.4	P
Apr	12.02	5.54	-53.9	P
May	11.95	6.16	-48.4	P
Jun	12.04	15.59	29.4	F
Jul	5.15	10.26	99.0	P
Aug	3.02	15.21	403.0	P
Sep	2.20	24.28	1004.1	P
Oct	6.61	6.46	-2.2	VG
Nov	3.42	5.68	66.2	P
Dec	4.16	3.79	-8.9	VG
Average*	6.98	8.91	27.7	F
Median**	5.75	5.92	2.9	VG
R2	N/A	N/A	0.08	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 83 Annual TSS Concentration Comparisons at RCH121 Stroud Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	16.39	N/A	N/A
1998	N/A	15.05	N/A	N/A
1999	N/A	19.47	N/A	N/A
2000	25.69	5.68	-77.9	P
2001	10.10	9.45	-6.5	VG
2002	5.32	6.76	27.2	F
2003	3.08	7.81	153.2	P
2004	4.50	6.60	46.8	P
2005	11.40	10.14	-11.1	VG
2006	6.18	9.93	60.7	P
2007	6.67	3.99	-40.2	P
2008	4.50	10.54	134.1	P
2009	11.32	4.18	-63.0	P
2010	5.03	9.40	86.8	P
2011	6.64	9.75	46.8	P
2012	2.76	5.44	96.8	P
2013	7.81	15.70	100.9	P
2014	2.89	5.69	96.8	P
2015	N/A	7.47	N/A	N/A
2016	N/A	8.88	N/A	N/A
2017	N/A	15.63	N/A	N/A
2018	11.25	4.55	-59.5	P
2019	2.87	4.66	62.5	P
2020	6.70	6.46	-3.6	VG
2021	4.84	5.27	8.8	VG
2022	6.73	9.26	37.7	P
2023	7.60	6.19	-18.6	G
Average*	7.33	8.90	21.5	G
Median**	6.64	7.81	17.6	G
R2	N/A	N/A	0.00	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 84 Daily TSS Concentration Comparisons at RCH121 Stroud Creek

Statistic	Results	Rating
Count (number)	312	N/A
Average Error (%)	212.7	P
Median Error (%)	26.6	F
RMSE (mg/L)	37.94	N/A
R2	0.02	P

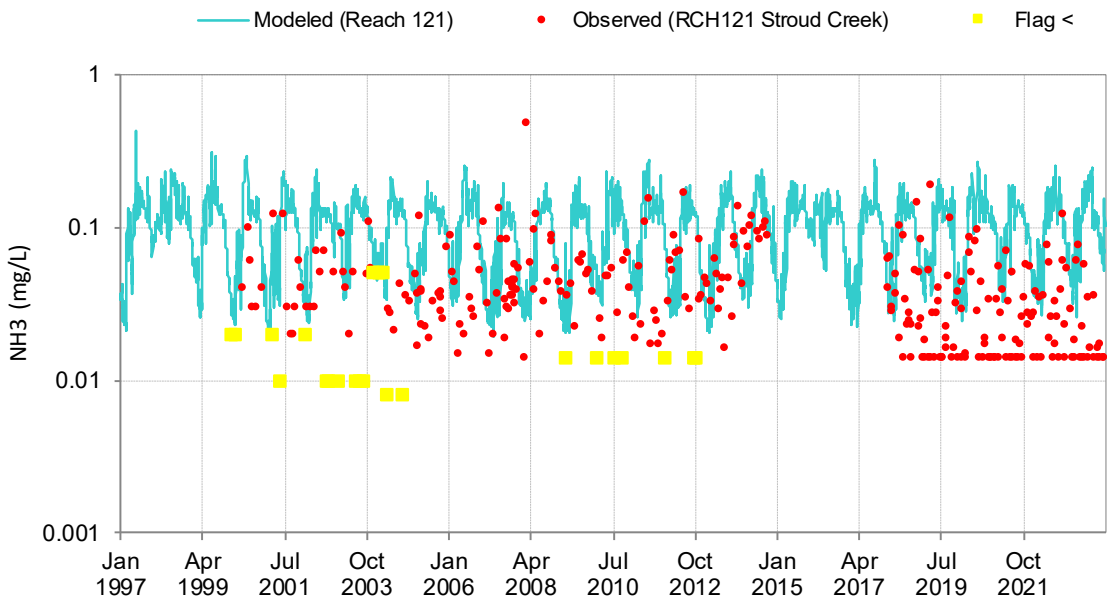


Figure B-288 Modeled Vs Observed NH3 (mg/L) at RCH121 Stroud Creek

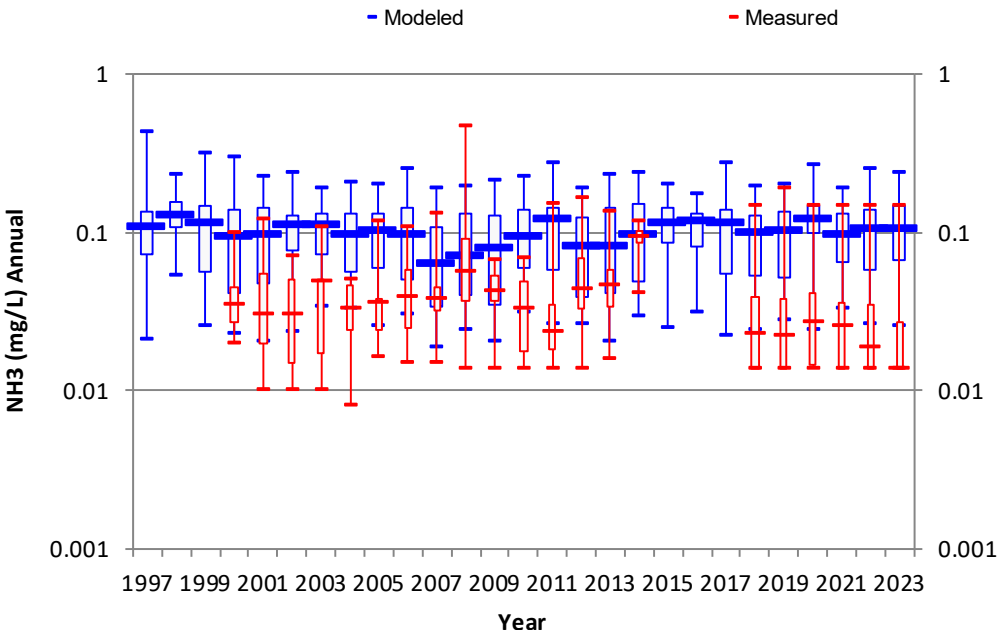


Figure B-289 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH121 Stroud Creek

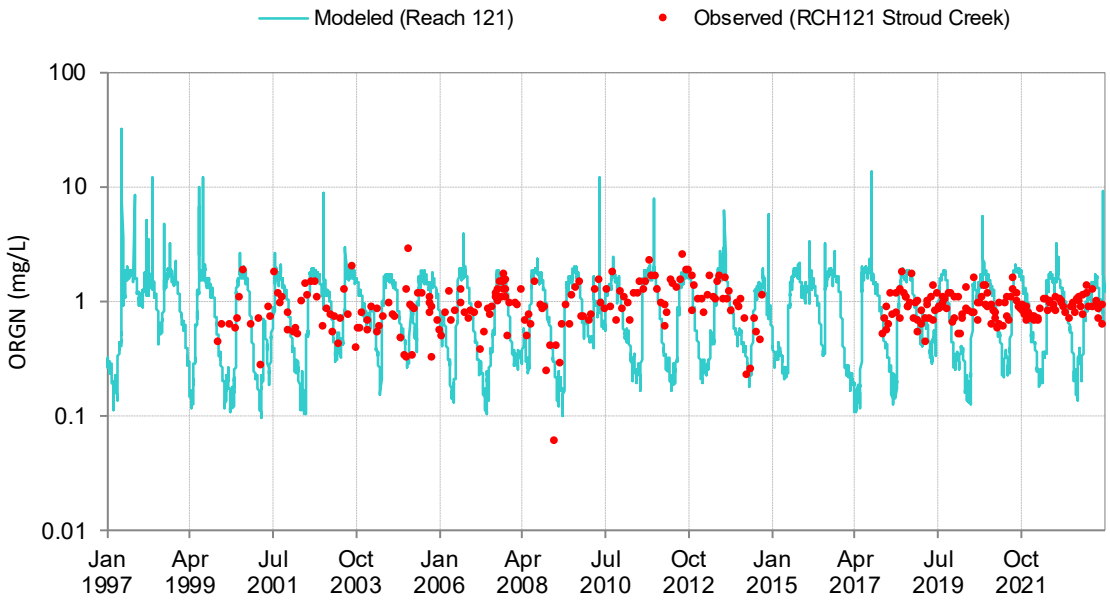


Figure B-290 Modeled Vs Observed ORGN (mg/L) at RCH121 Stroud Creek

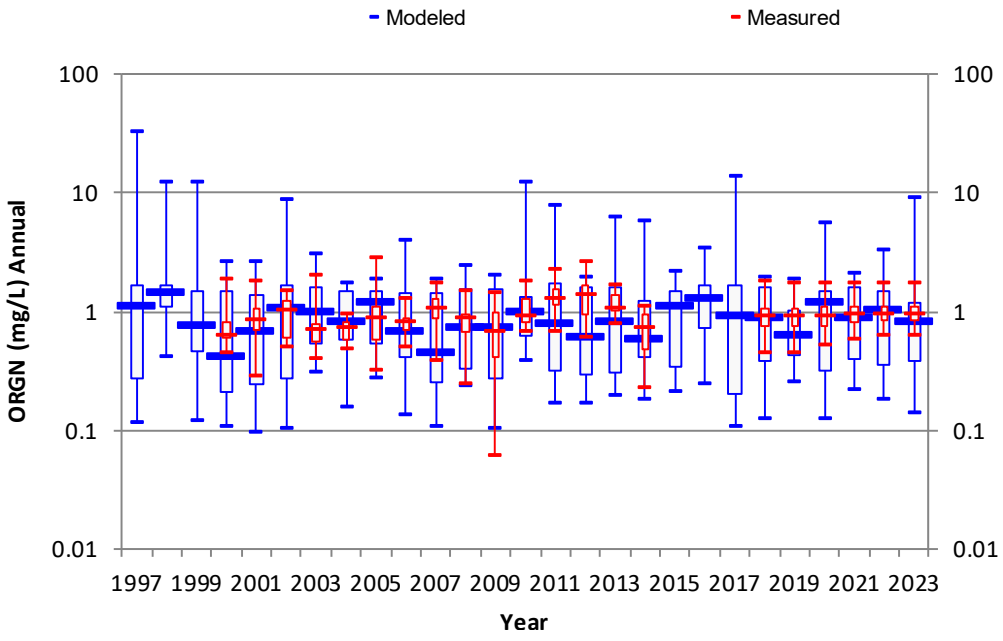


Figure B-291 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH121 Stroud Creek

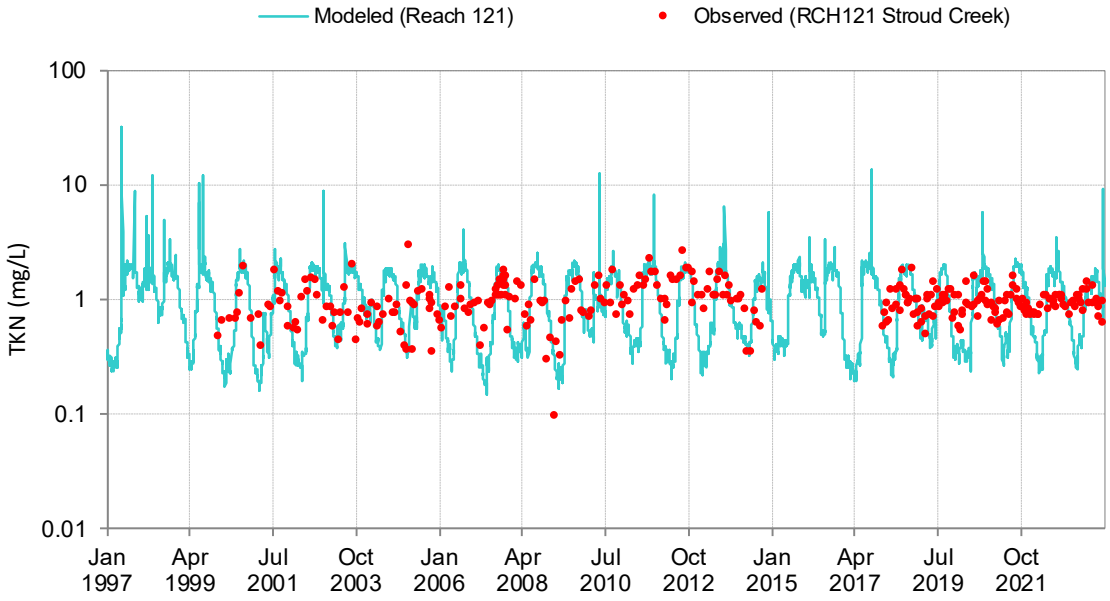


Figure B-292 Modeled Vs Observed TKN (mg/L) at RCH121 Stroud Creek

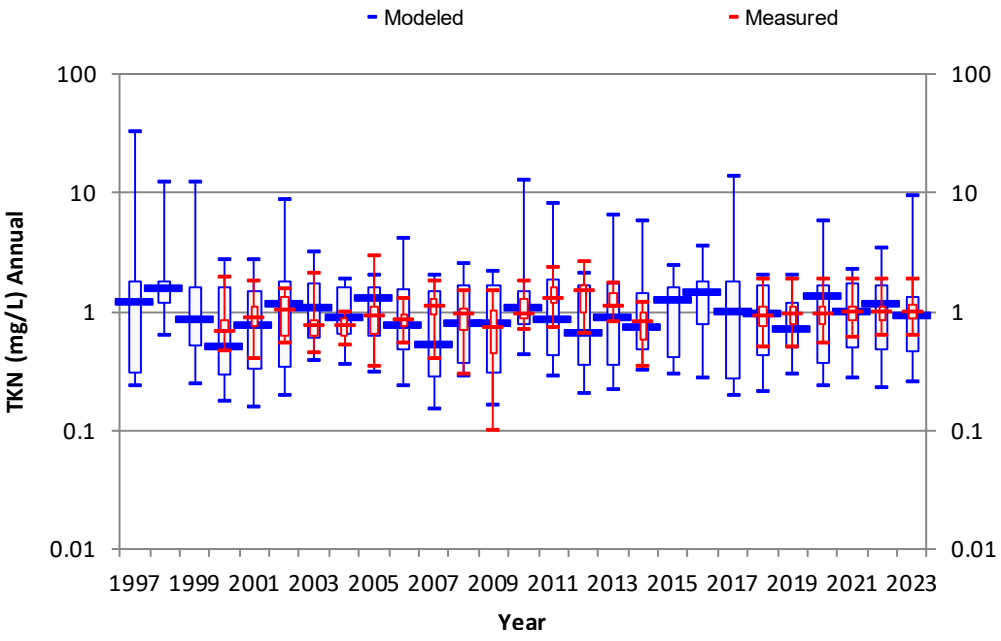


Figure B-293 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH121 Stroud Creek

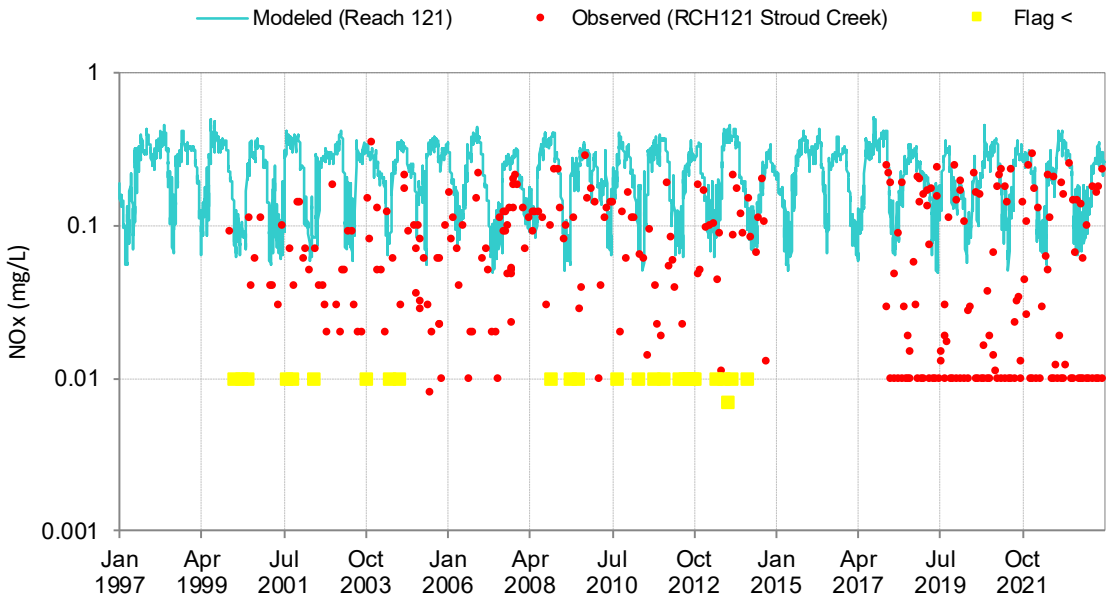


Figure B-294 Modeled Vs Observed NOx (mg/L) at RCH121 Stroud Creek

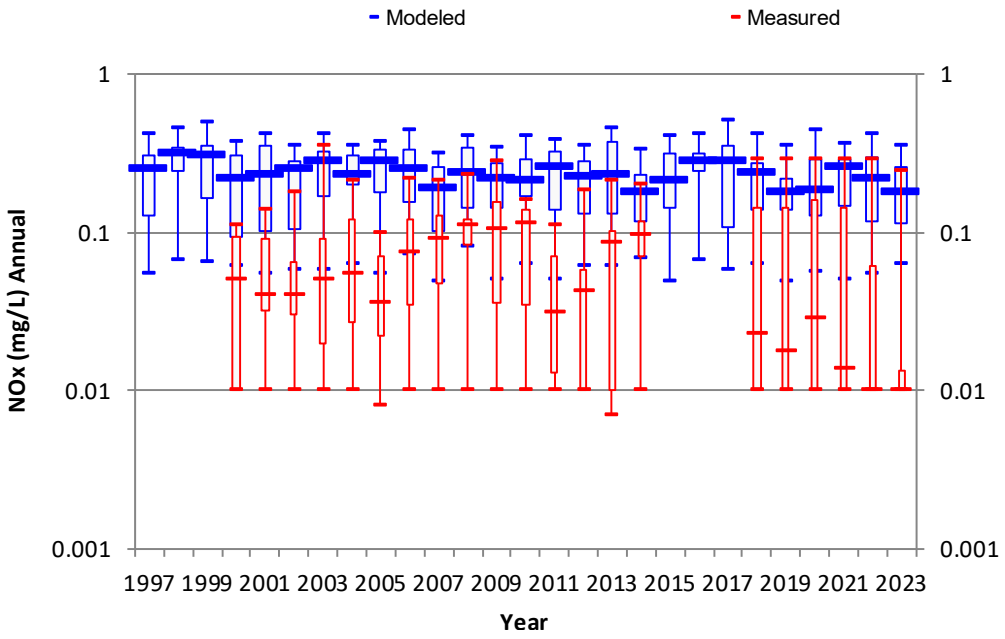


Figure B-295 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH121 Stroud Creek

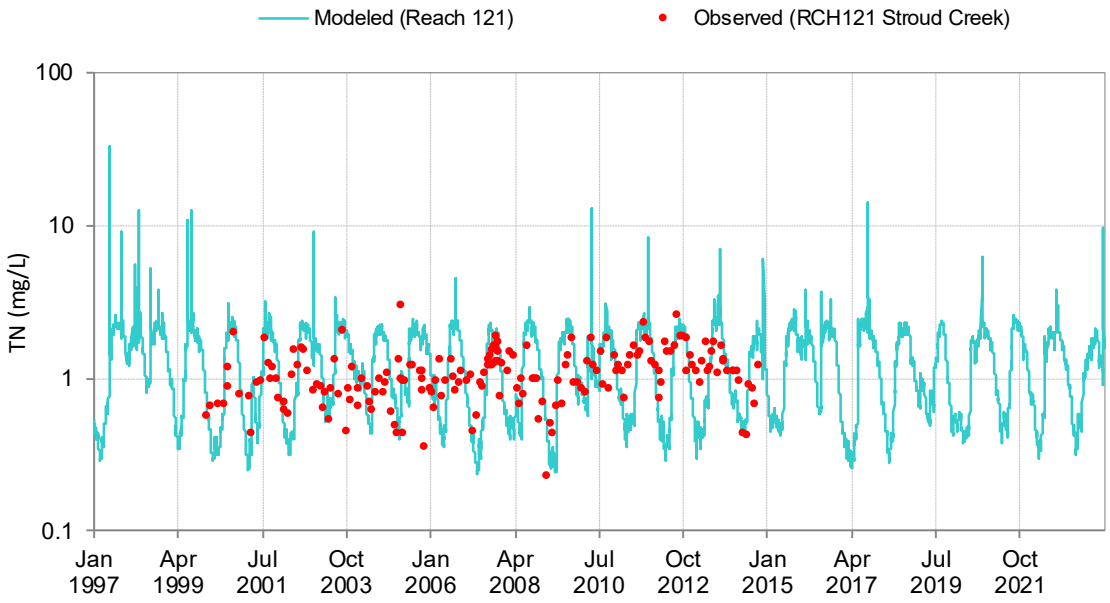


Figure B-296 Modeled Vs Observed TN (mg/L) at RCH121 Stroud Creek

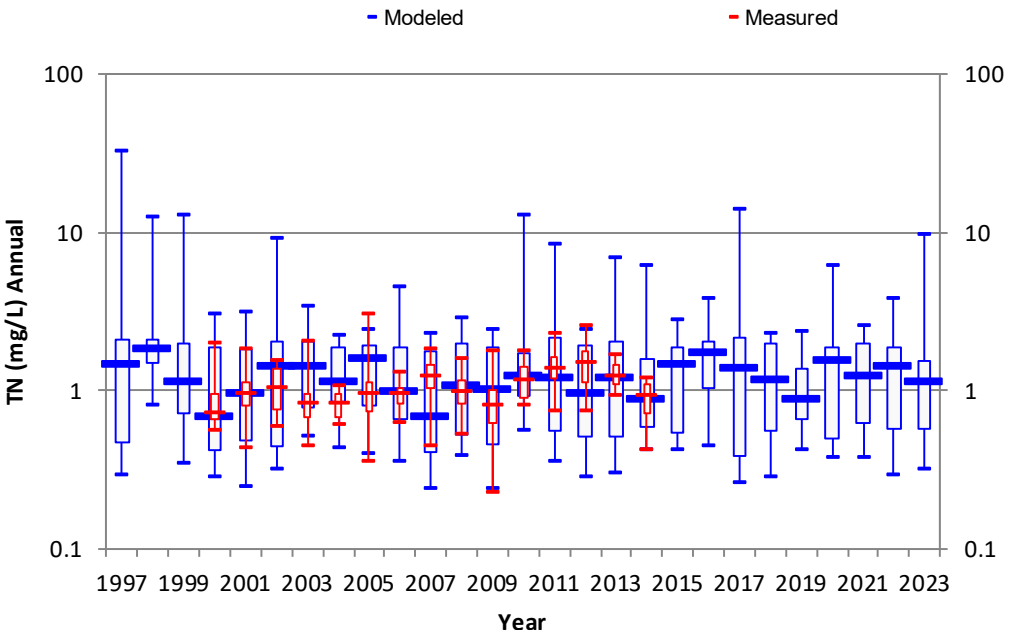


Figure B-297 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH121 Stroud Creek

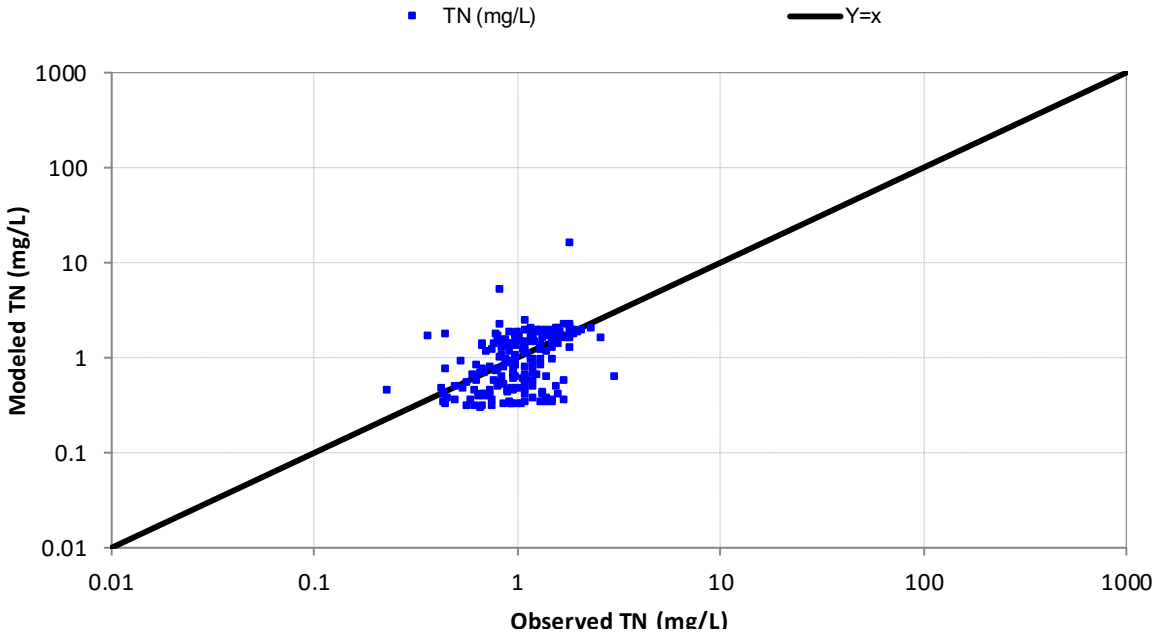


Figure B-298 Concentration at RCH121 Stroud Creek

Table B- 85 Monthly TN Concentration Comparisons at RCH121 Stroud Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.90	0.85	-5.8	VG
Feb	0.82	0.73	-11.3	VG
Mar	1.02	0.64	-37.1	G
Apr	1.03	0.61	-40.9	G
May	0.99	0.60	-39.8	G
Jun	1.05	1.24	17.4	VG
Jul	1.20	1.92	59.8	F
Aug	1.40	2.15	53.5	F
Sep	1.28	2.23	74.7	P
Oct	1.31	1.95	49.4	F
Nov	1.06	1.53	44.8	G
Dec	0.99	1.15	16.6	VG
Average*	1.09	1.30	19.6	VG
Median**	1.04	1.19	14.8	VG
R2	N/A	N/A	0.77	G

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 86 Annual TN Concentration Comparisons at RCH121 Stroud Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	1.47	N/A	N/A
1998	N/A	1.85	N/A	N/A
1999	N/A	1.46	N/A	N/A
2000	0.92	1.09	18.2	VG
2001	1.00	1.16	15.8	VG
2002	1.05	1.29	22.5	VG
2003	0.92	1.44	56.2	F
2004	0.83	1.29	55.7	F
2005	1.01	1.41	38.8	G
2006	0.97	1.23	27.9	VG
2007	1.22	1.02	-16.2	VG
2008	1.03	1.25	21.0	VG
2009	0.87	1.19	36.9	G
2010	1.22	1.41	15.7	VG
2011	1.44	1.35	-5.9	VG
2012	1.50	1.18	-21.4	VG
2013	1.29	1.31	1.4	VG
2014	0.87	1.11	26.6	VG
2015	N/A	1.30	N/A	N/A
2016	N/A	1.59	N/A	N/A
2017	N/A	1.35	N/A	N/A
2018	N/A	1.24	N/A	N/A
2019	N/A	1.09	N/A	N/A
2020	N/A	1.31	N/A	N/A
2021	N/A	1.31	N/A	N/A
2022	N/A	1.30	N/A	N/A
2023	N/A	1.15	N/A	N/A
Average*	1.08	1.30	20.9	VG
Median**	1.01	1.30	27.9	VG
R2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 87 Daily TN Concentration Comparisons at RCH121 Stroud Creek

Statistic	Results	Rating
Count (number)	189	N/A
Average Error (%)	27.1	VG
Median Error (%)	18.6	VG
RMSE (mg/L)	1.04	N/A
R2	0.13	P

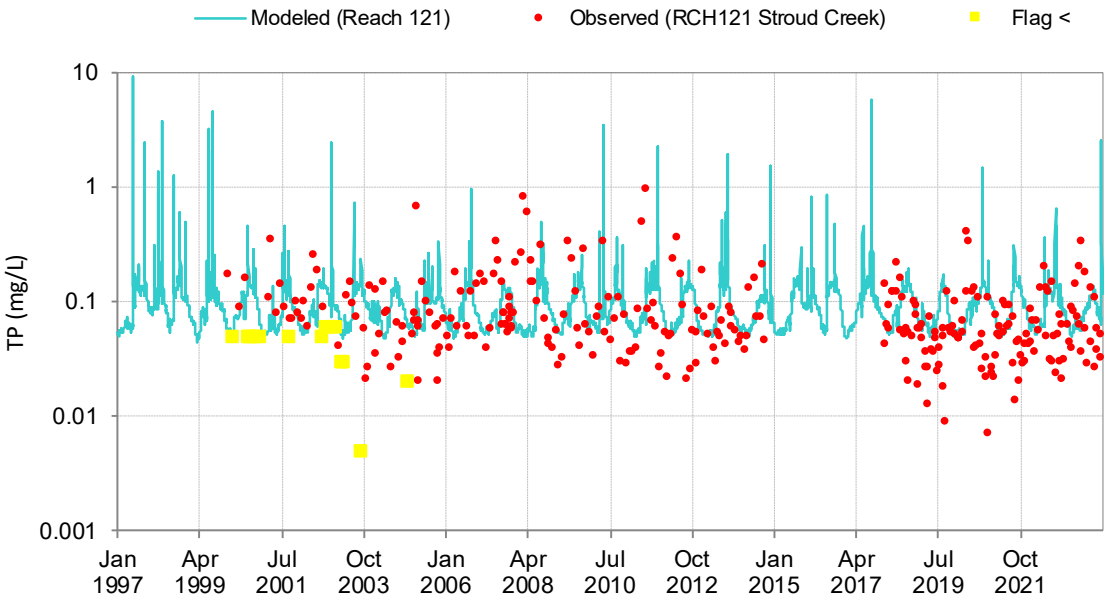


Figure B-299 Modeled Vs Observed TP (mg/L) at RCH121 Stroud Creek

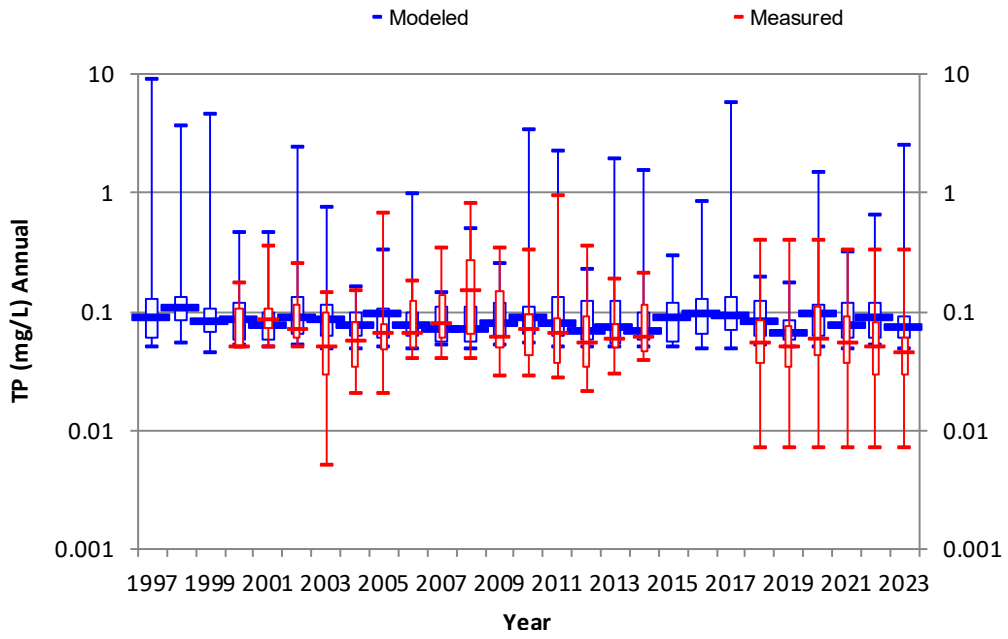


Figure B-300 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH121 Stroud Creek

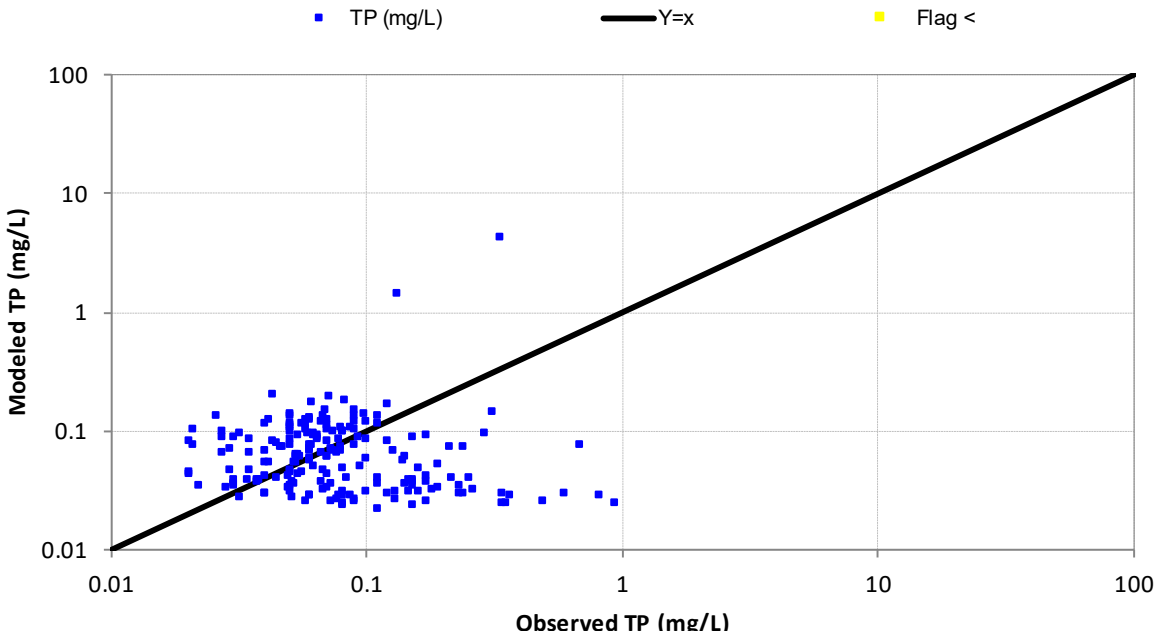


Figure B-301 Concentration at RCH121 Stroud Creek

Table B- 88 Monthly TP Concentration Comparisons at RCH121 Stroud Creek

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.08	0.07	-16.3	VG
Feb	0.08	0.07	-18.1	VG
Mar	0.11	0.07	-36.3	G
Apr	0.13	0.07	-43.0	G
May	0.17	0.07	-58.3	F
Jun	0.15	0.12	-20.6	VG
Jul	0.07	0.13	77.1	P
Aug	0.06	0.15	126.2	P
Sep	0.06	0.16	169.1	P
Oct	0.06	0.11	80.7	P
Nov	0.06	0.10	70.4	P
Dec	0.06	0.08	24.8	VG
Average*	0.09	0.10	8.6	VG
Median**	0.08	0.09	13.0	VG
R2	N/A	N/A	0.15	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 89 Annual TP Concentration Comparisons at RCH121 Stroud Creek

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.14	N/A	N/A
1998	N/A	0.14	N/A	N/A
1999	N/A	0.13	N/A	N/A
2000	0.07	0.09	35.8	G
2001	0.11	0.09	-22.6	VG
2002	0.09	0.10	12.4	VG
2003	0.06	0.09	52.4	F
2004	0.06	0.08	33.0	G
2005	0.10	0.09	-11.3	VG
2006	0.09	0.09	-1.6	VG
2007	0.11	0.08	-23.6	VG
2008	0.23	0.09	-62.2	P
2009	0.12	0.09	-21.9	VG
2010	0.09	0.11	28.1	VG
2011	0.17	0.10	-37.2	G
2012	0.09	0.09	-6.3	VG
2013	0.07	0.10	48.0	F
2014	0.09	0.09	-1.7	VG
2015	N/A	0.09	N/A	N/A
2016	N/A	0.11	N/A	N/A
2017	N/A	0.12	N/A	N/A
2018	0.08	0.09	12.1	VG
2019	0.05	0.08	64.0	P
2020	0.09	0.10	15.9	VG
2021	0.05	0.09	79.3	P
2022	0.07	0.10	36.1	G
2023	0.09	0.09	1.6	VG
Average*	0.09	0.10	5.2	VG
Median**	0.09	0.09	5.4	VG
R2	N/A	N/A	0.01	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 90 Daily TP Concentration Comparisons at RCH121 Stroud Creek

Statistic	Results	Rating
Count (number)	327	N/A
Average Error (%)	90.5	P
Median Error (%)	34.6	G
RMSE (mg/L)	0.20	N/A
R2	0.01	P

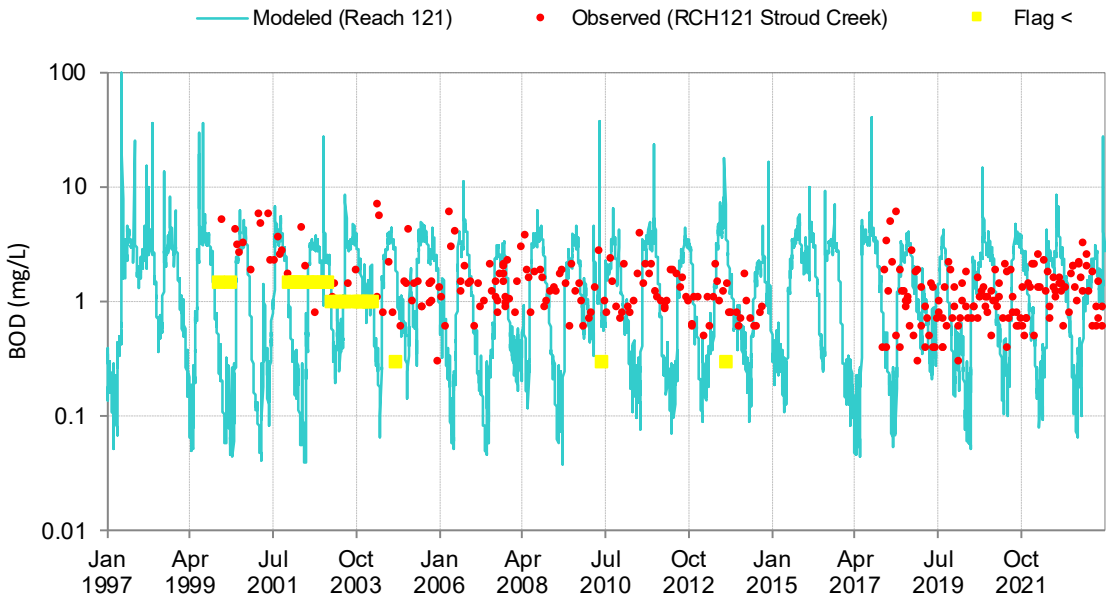


Figure B-302 Modeled Vs Observed BOD (mg/L) at RCH121 Stroud Creek

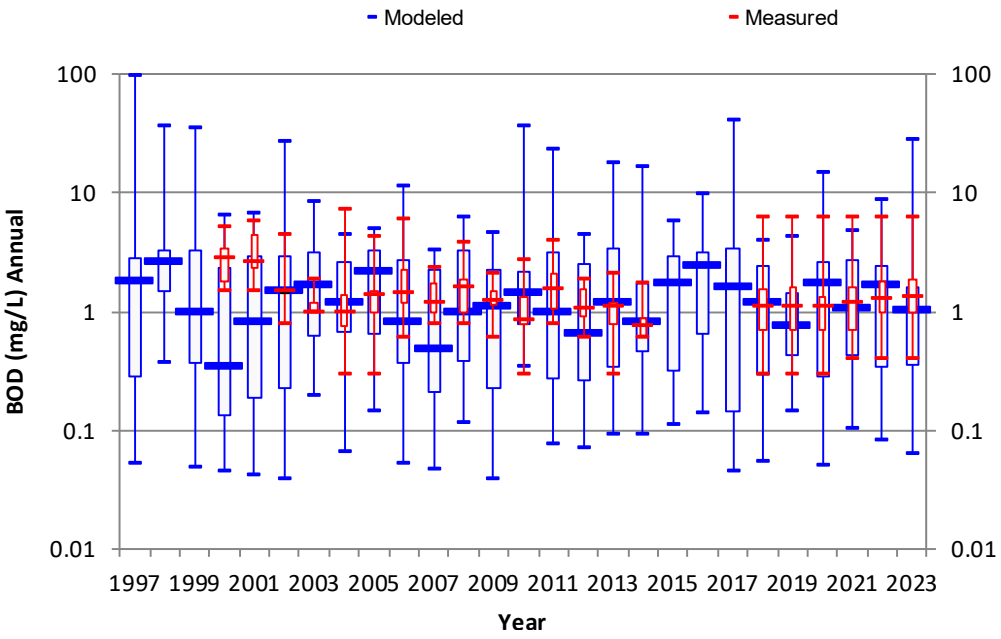


Figure B-303 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH121 Stroud Creek

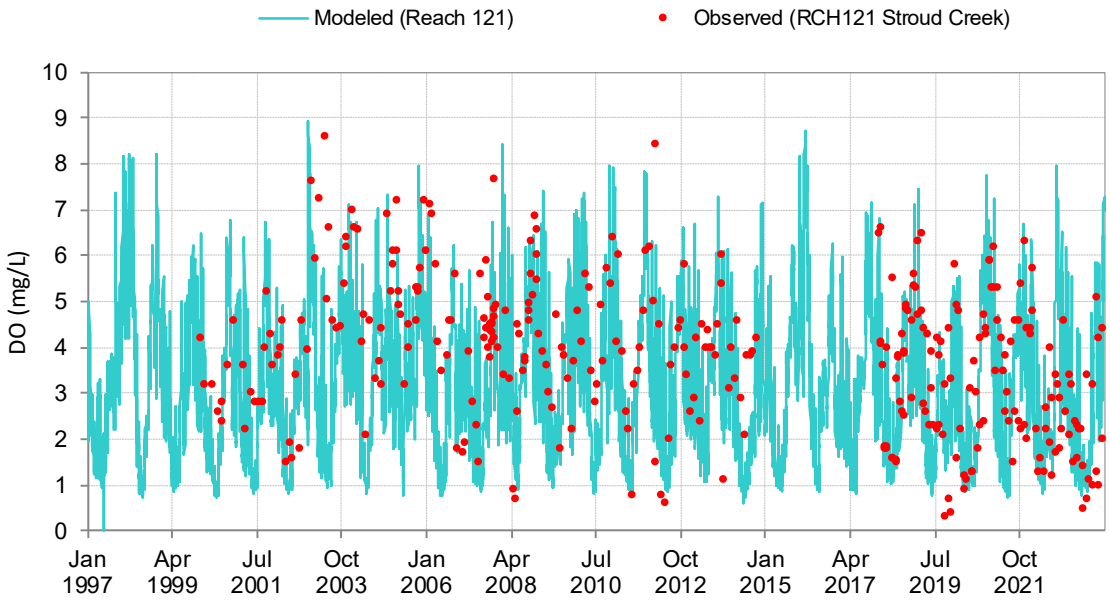


Figure B-304 Modeled Vs Observed DO (mg/L) at RCH121 Stroud Creek

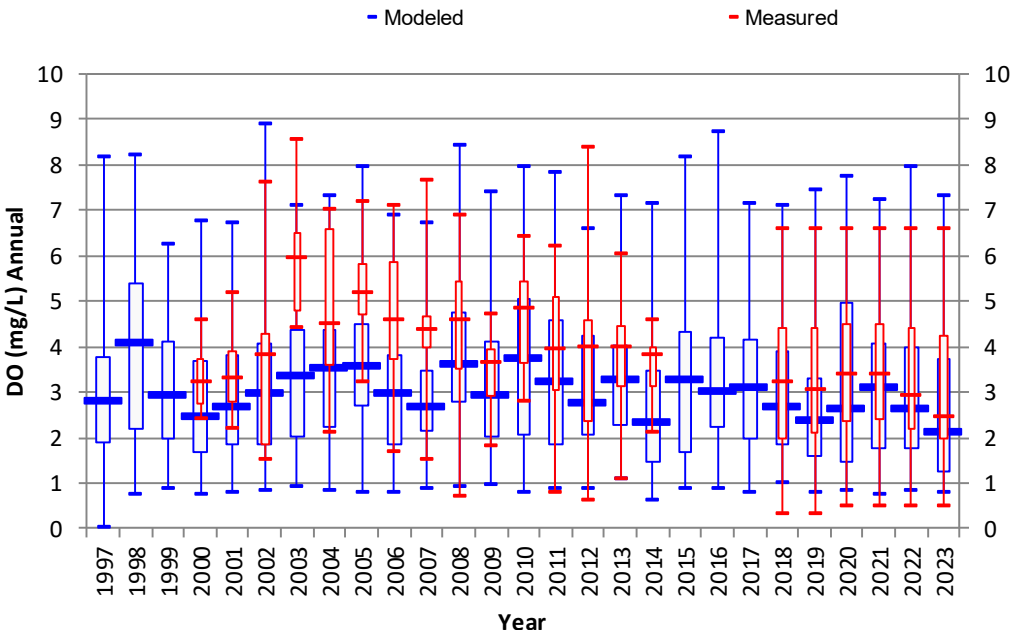


Figure B-305 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH121 Stroud Creek

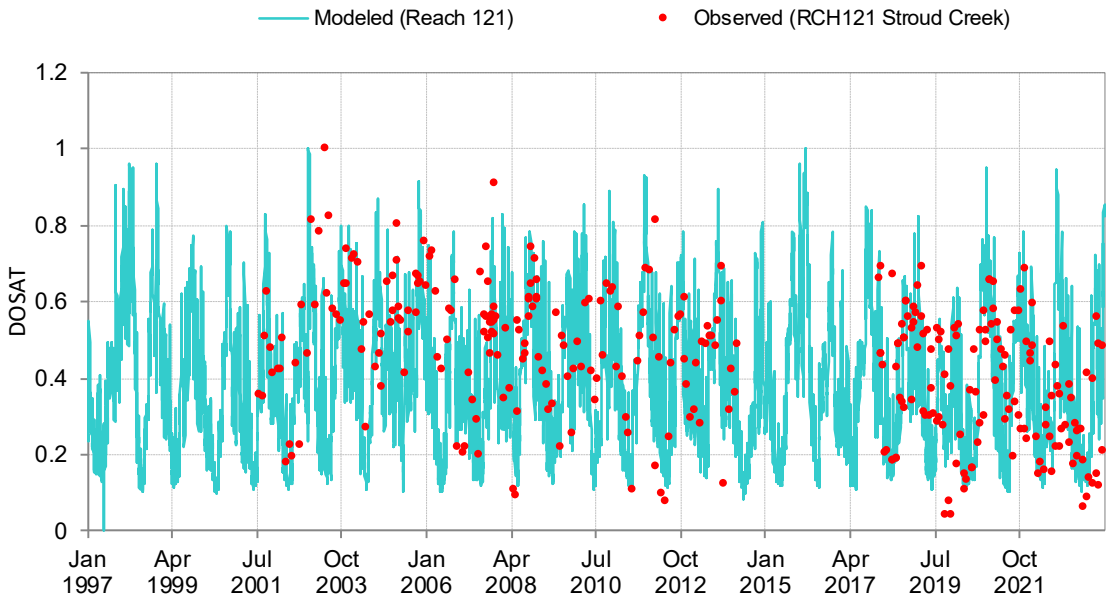


Figure B-306 Modeled Vs Observed DOSAT at RCH121 Stroud Creek

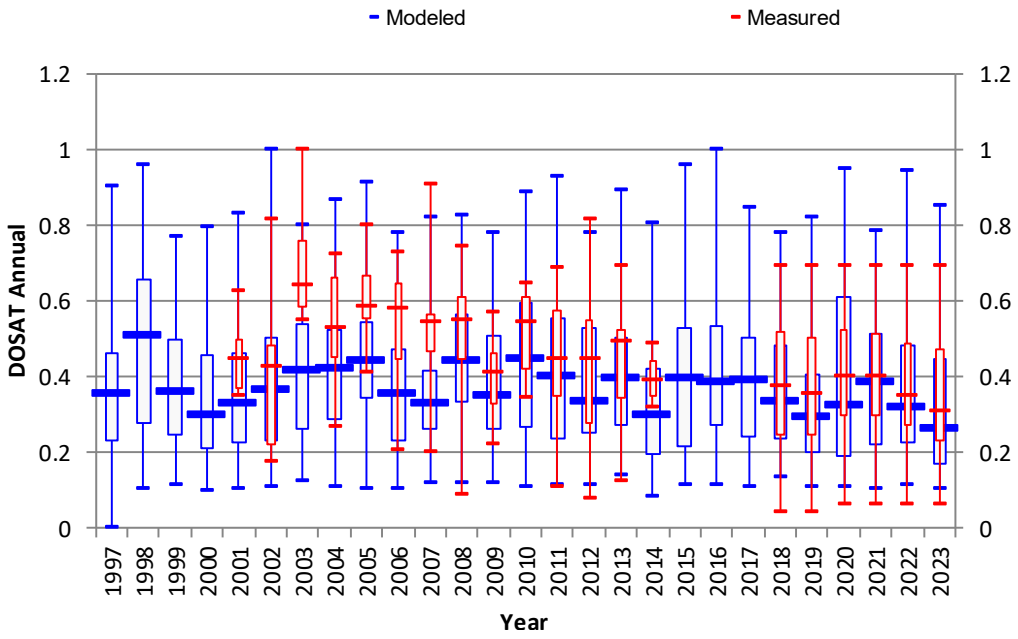


Figure B-307 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH121 Stroud Creek

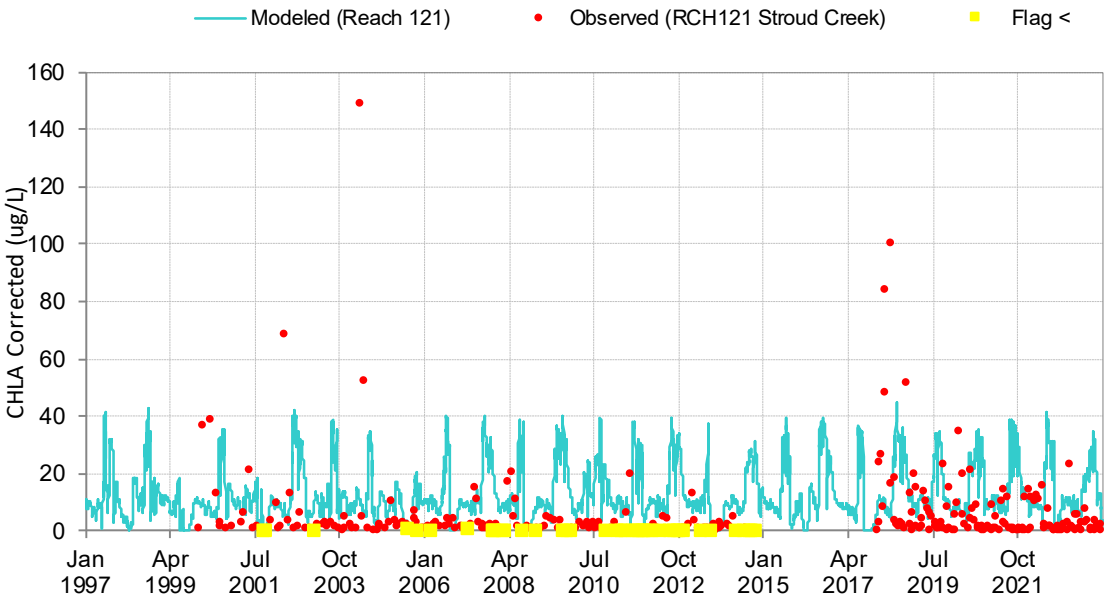


Figure B-308 Modeled Vs Observed CHLA Corrected (ug/L) at RCH121 Stroud Creek

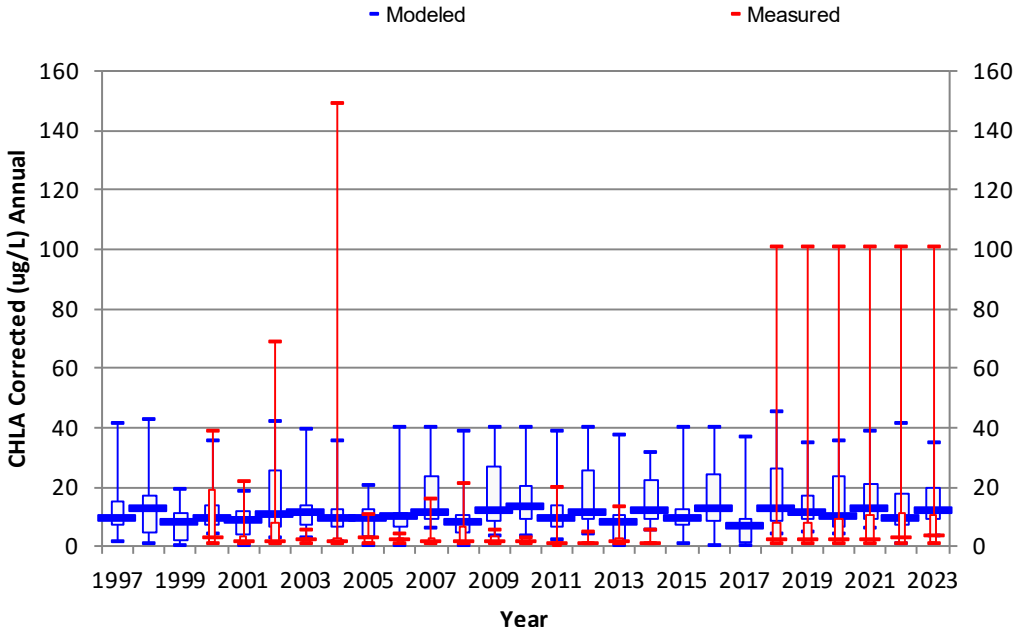


Figure B-309 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH121 Stroud Creek

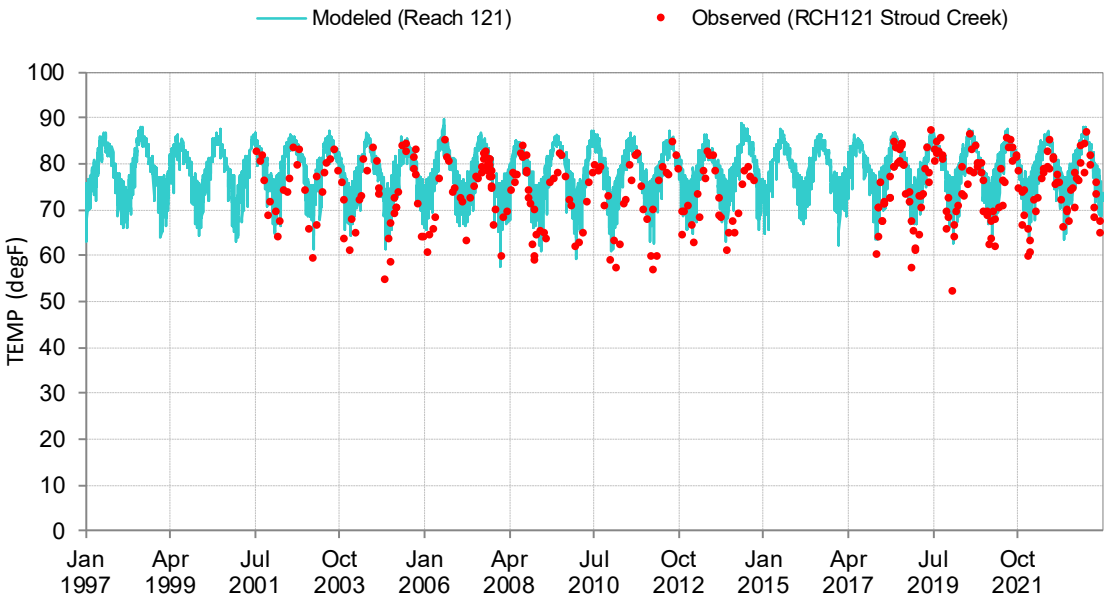


Figure B-310 Modeled Vs Observed TEMP (deg F) at RCH121 Stroud Creek

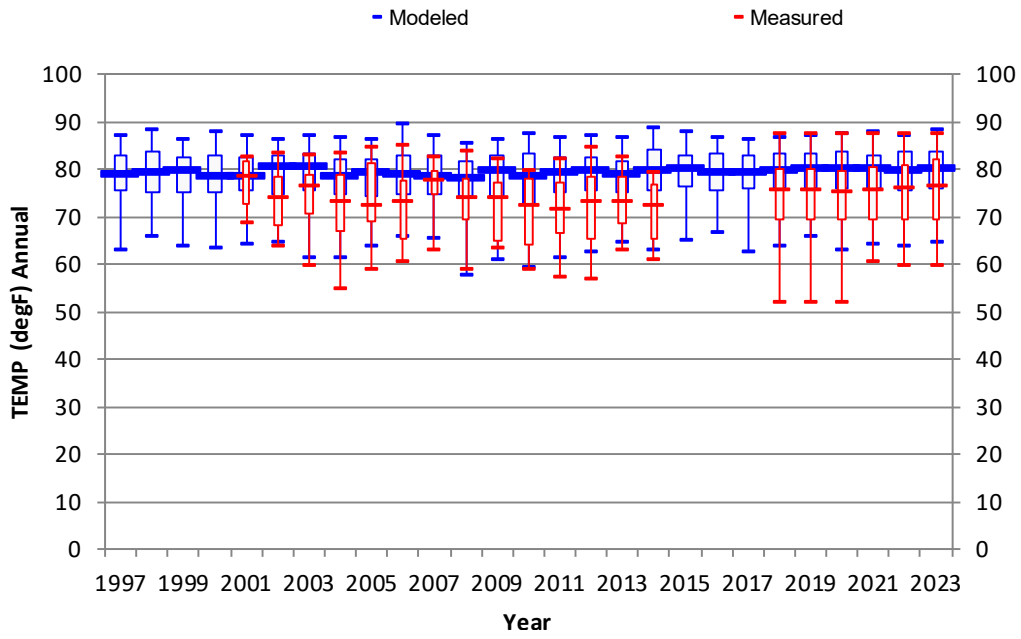


Figure B-311 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH121 Stroud Creek

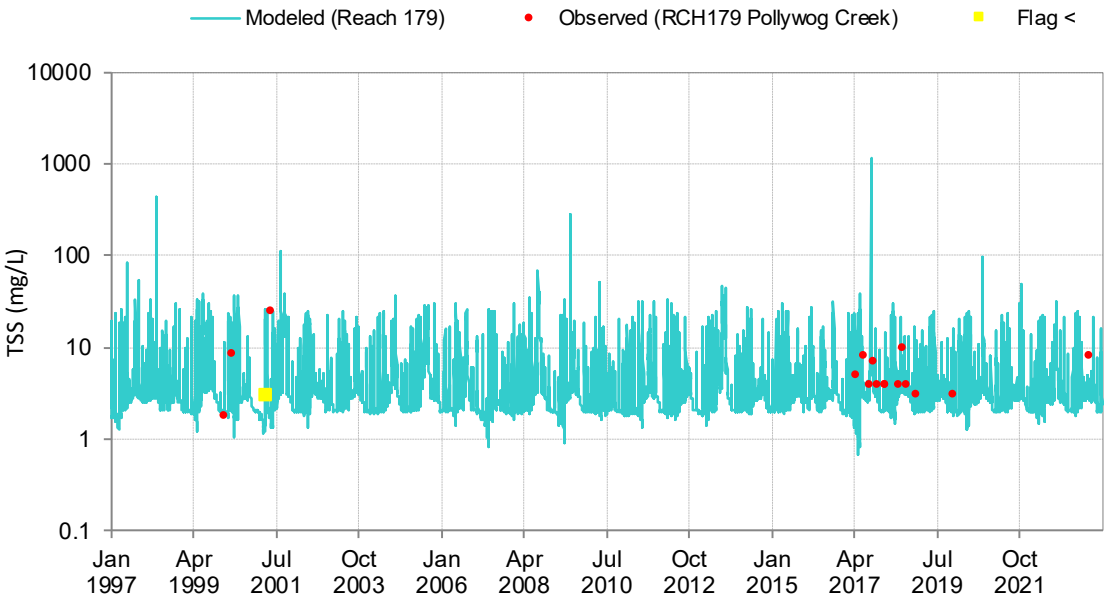


Figure B-312 Modeled Vs Observed TSS (mg/L) at RCH179 Pollywog Creek

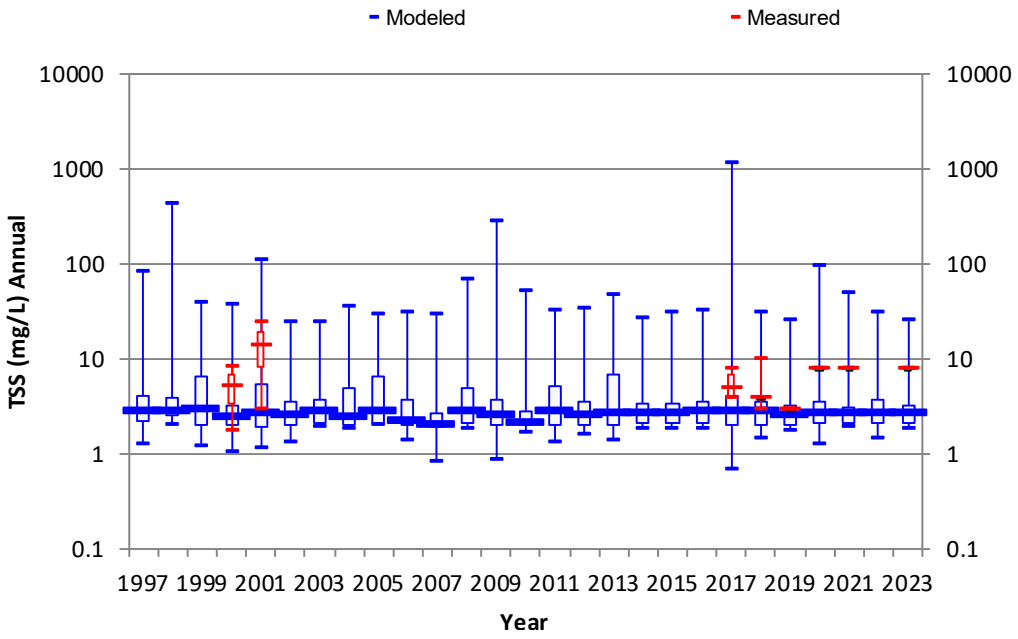


Figure B-313 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH179 Pollywog Creek

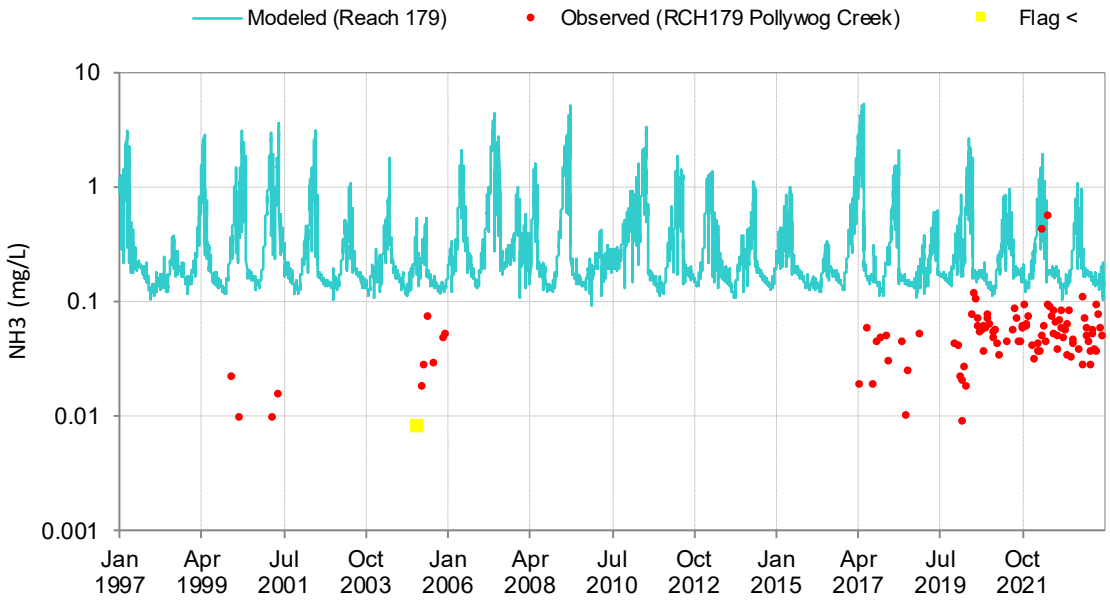


Figure B-314 Modeled Vs Observed NH3 (mg/L) at RCH179 Pollywog Creek

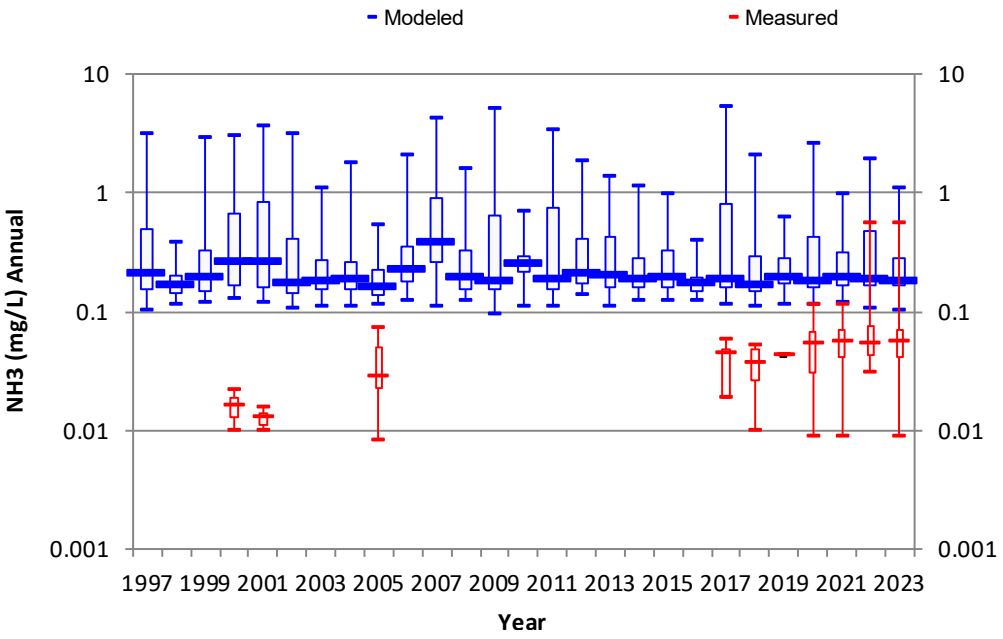


Figure B-315 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH179 Pollywog Creek

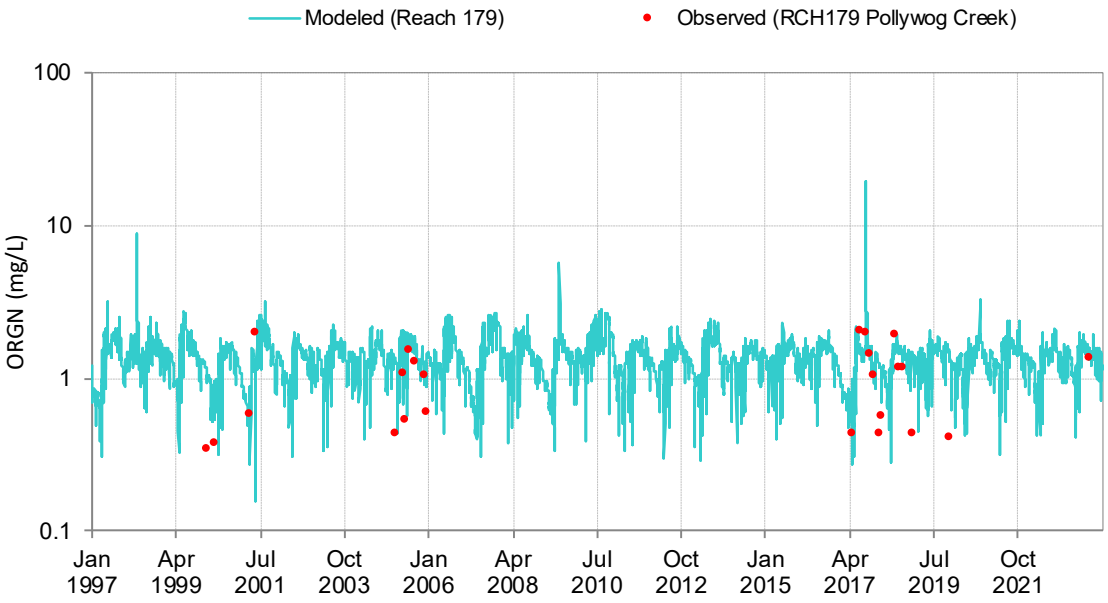


Figure B-316 Modeled Vs Observed ORGN (mg/L) at RCH179 Pollywog Creek

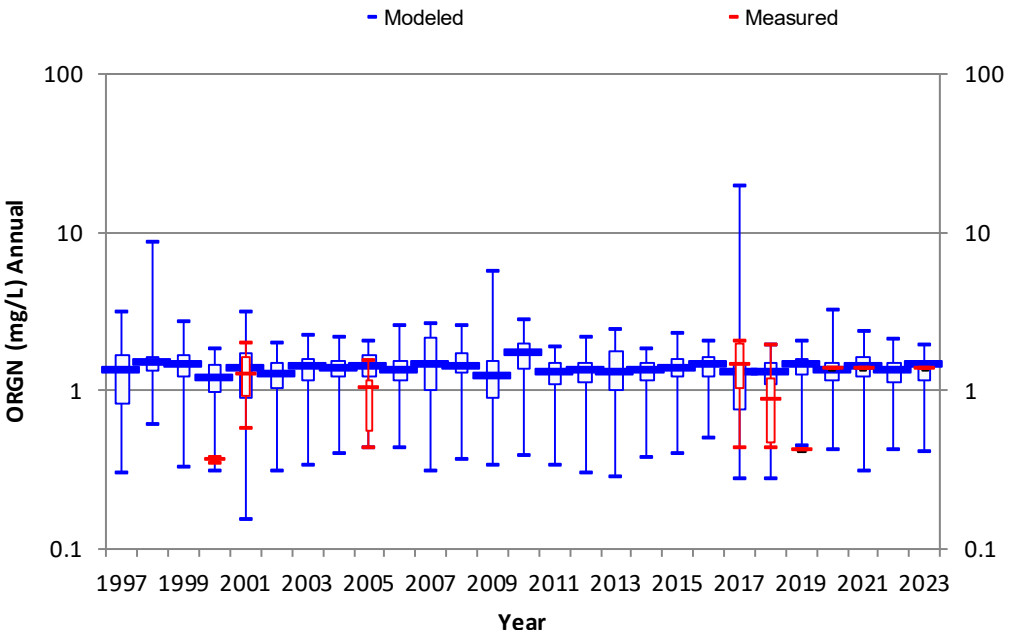


Figure B-317 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH179 Pollywog Creek

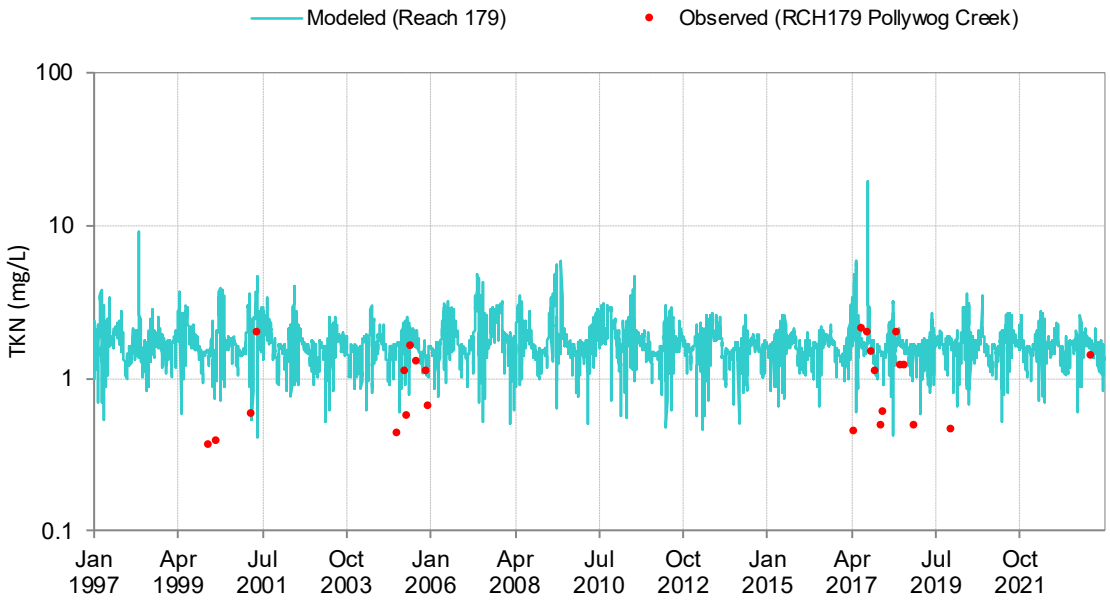


Figure B-318 Modeled Vs Observed TKN (mg/L) at RCH179 Pollywog Creek

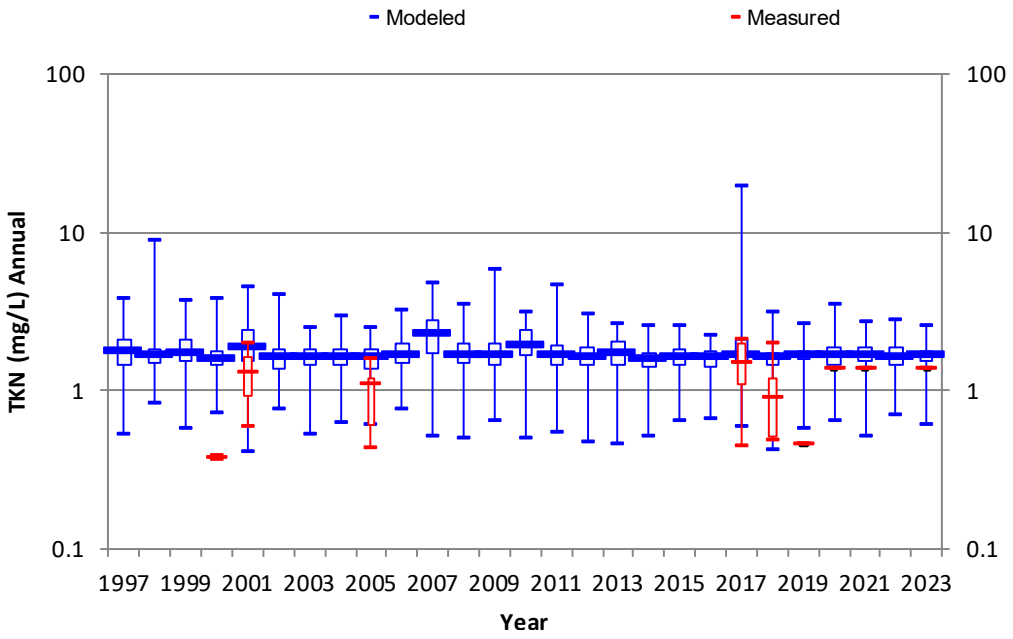


Figure B-319 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH179 Pollywog Creek

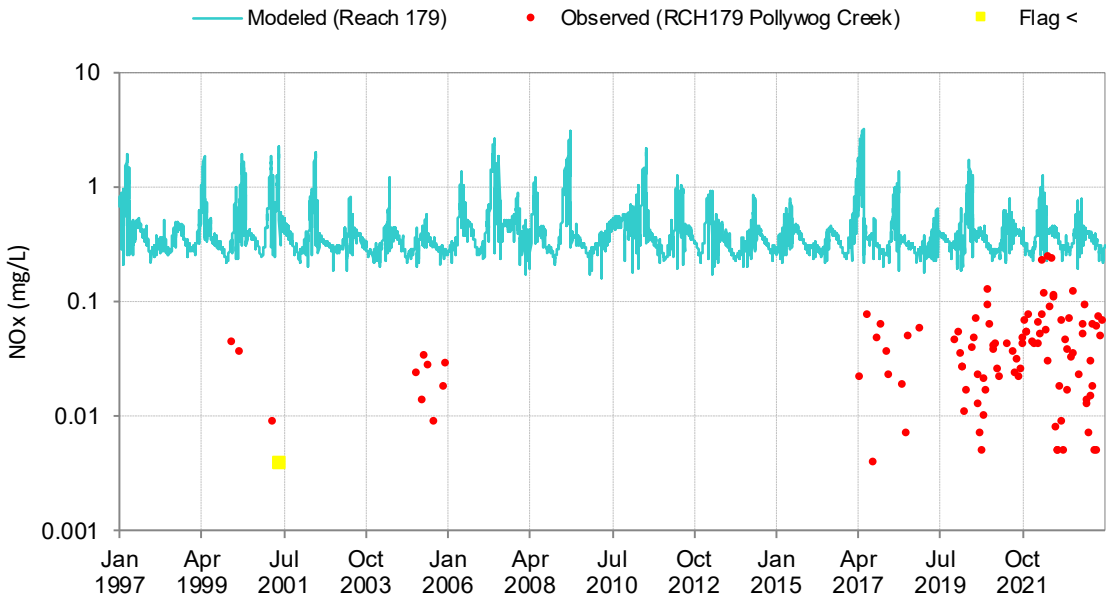


Figure B-320 Modeled Vs Observed NOx (mg/L) at RCH179 Pollywog Creek

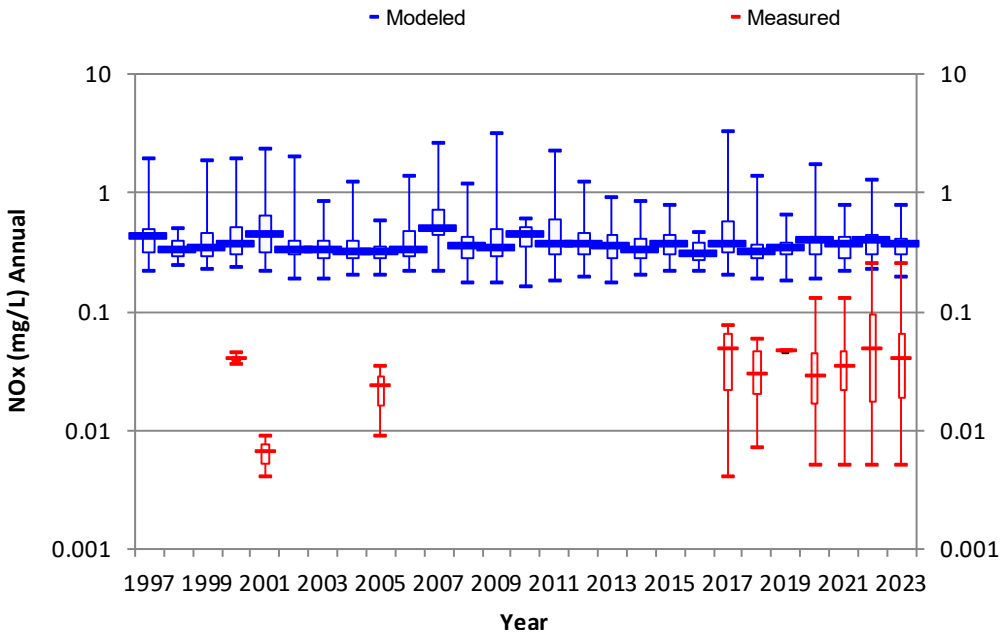


Figure B-321 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH179 Pollywog Creek

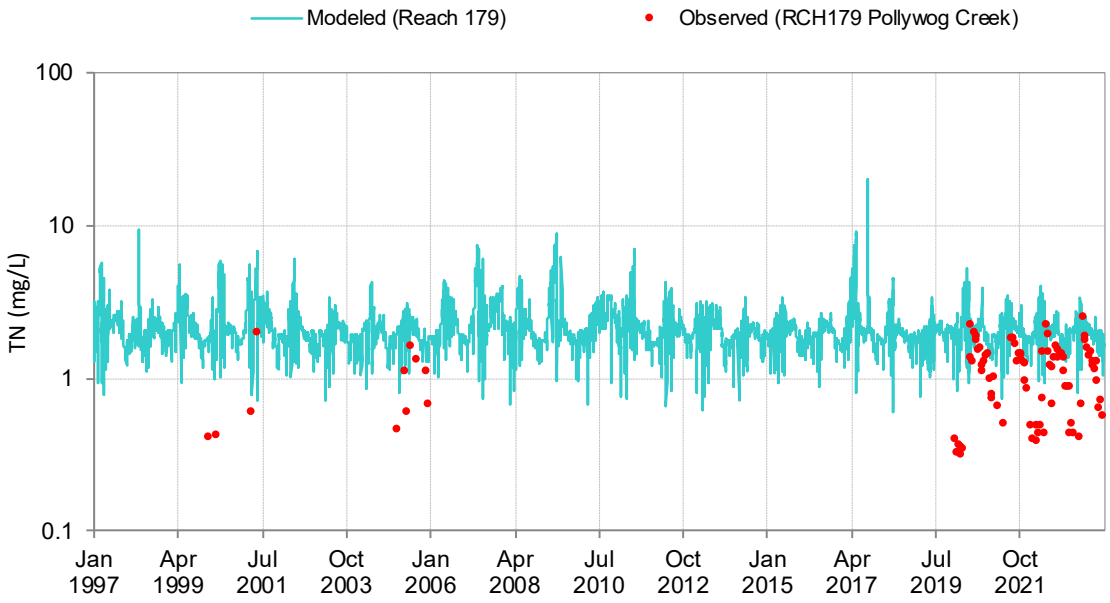


Figure B-322 Modeled Vs Observed TN (mg/L) at RCH179 Pollywog Creek

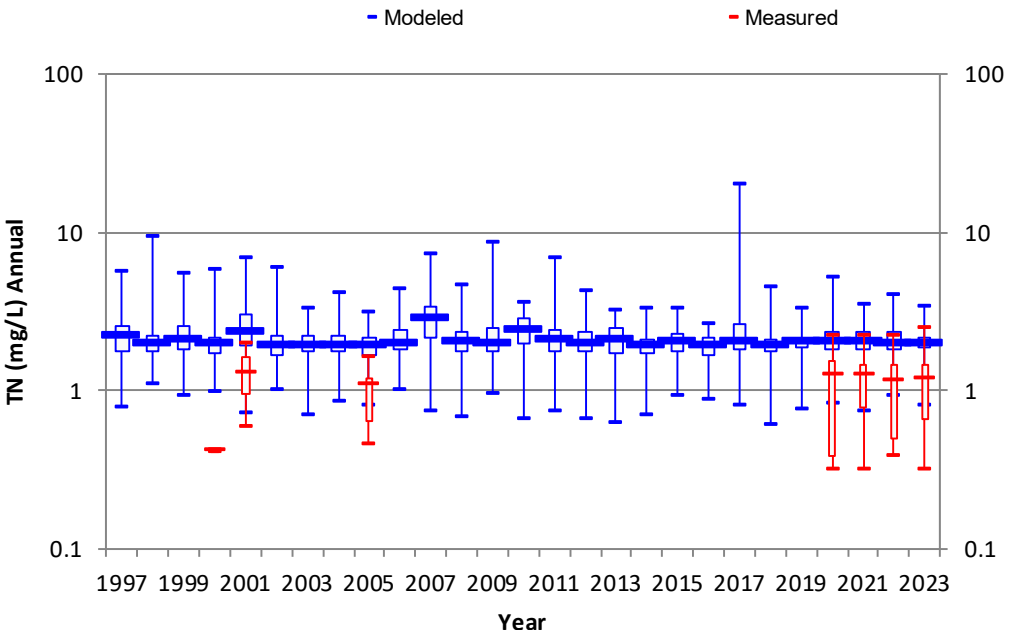


Figure B-323 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH179 Pollywog Creek

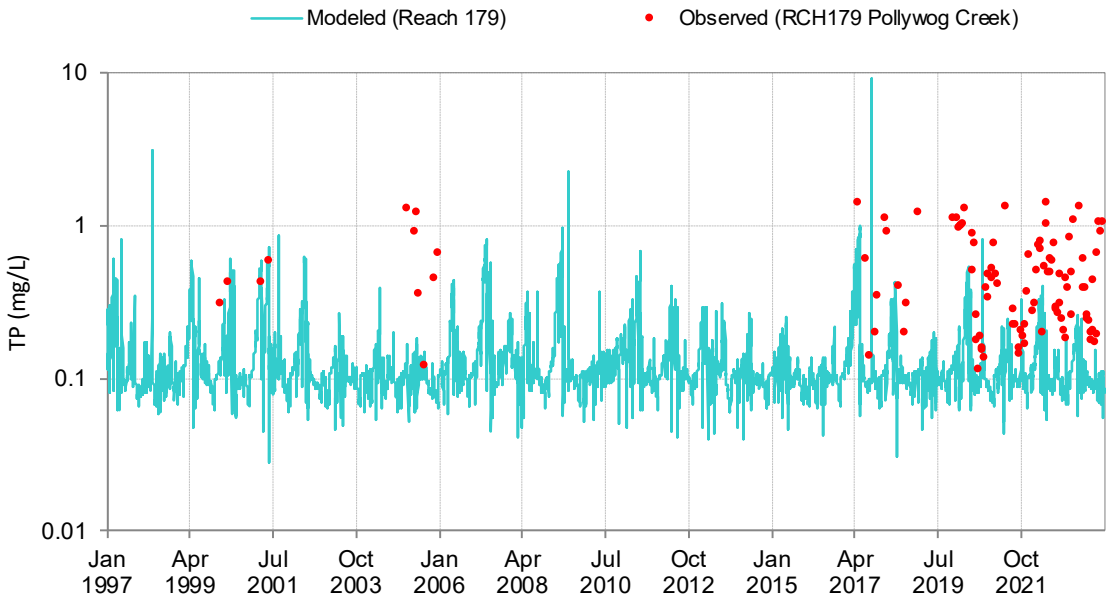


Figure B-324 Modeled Vs Observed TP (mg/L) at RCH179 Pollywog Creek

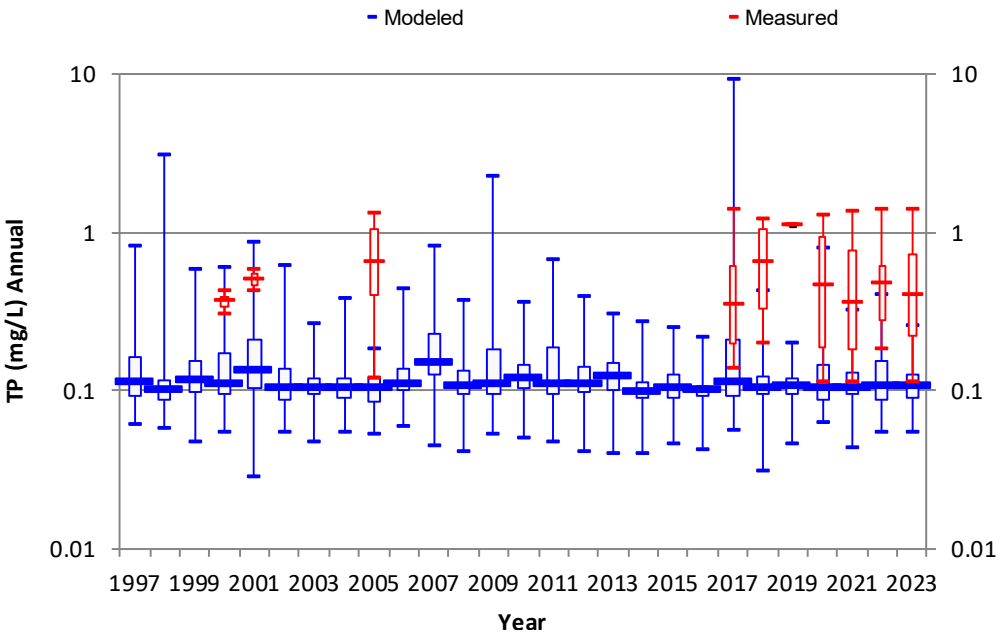


Figure B-325 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH179 Pollywog Creek

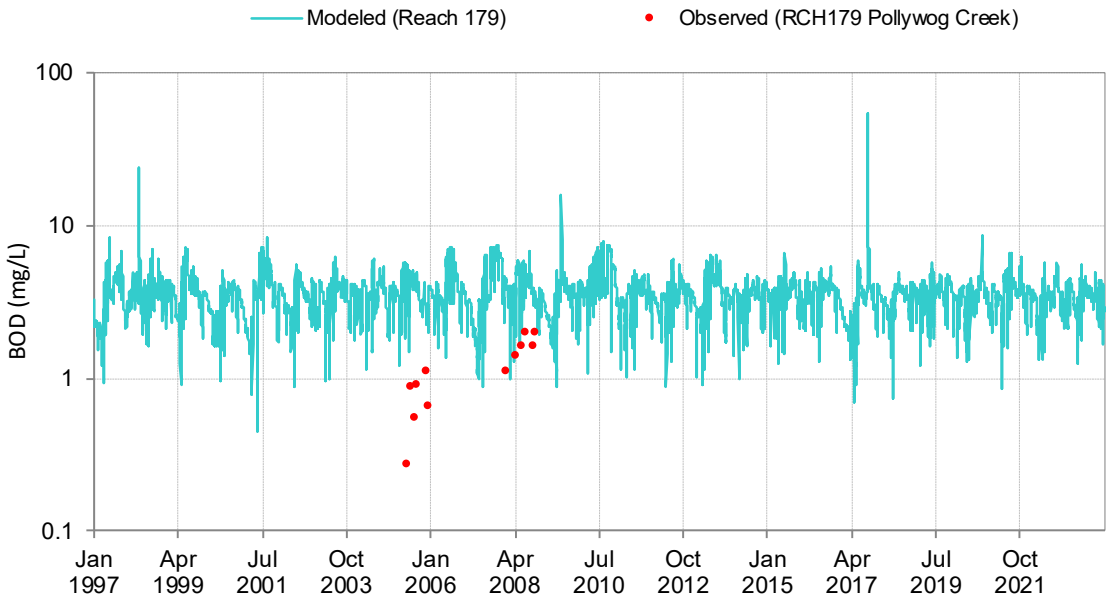


Figure B-326 Modeled Vs Observed BOD (mg/L) at RCH179 Pollywog Creek

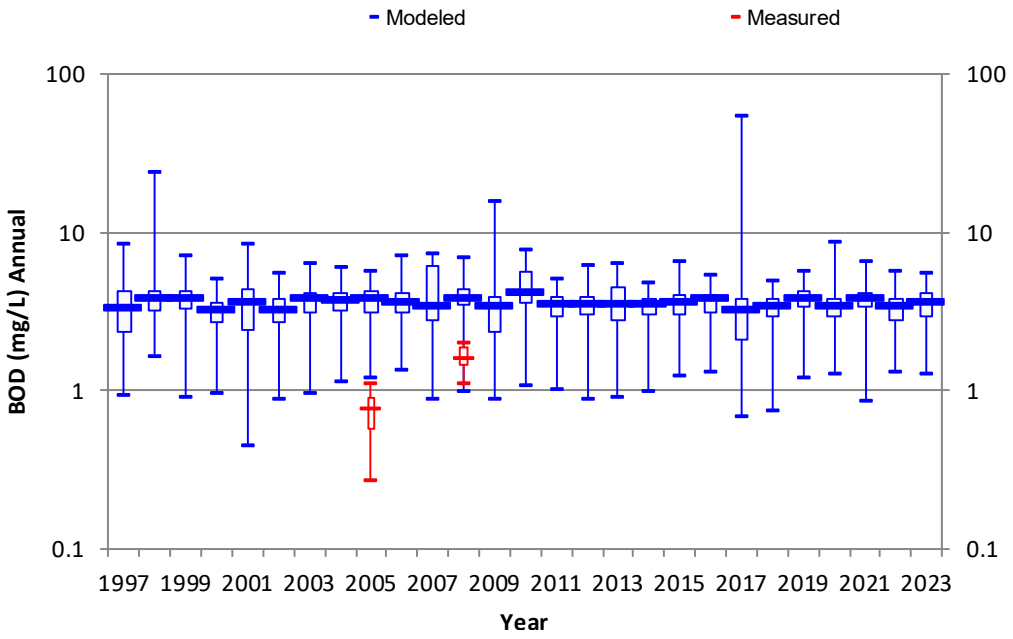


Figure B-327 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH179 Pollywog Creek

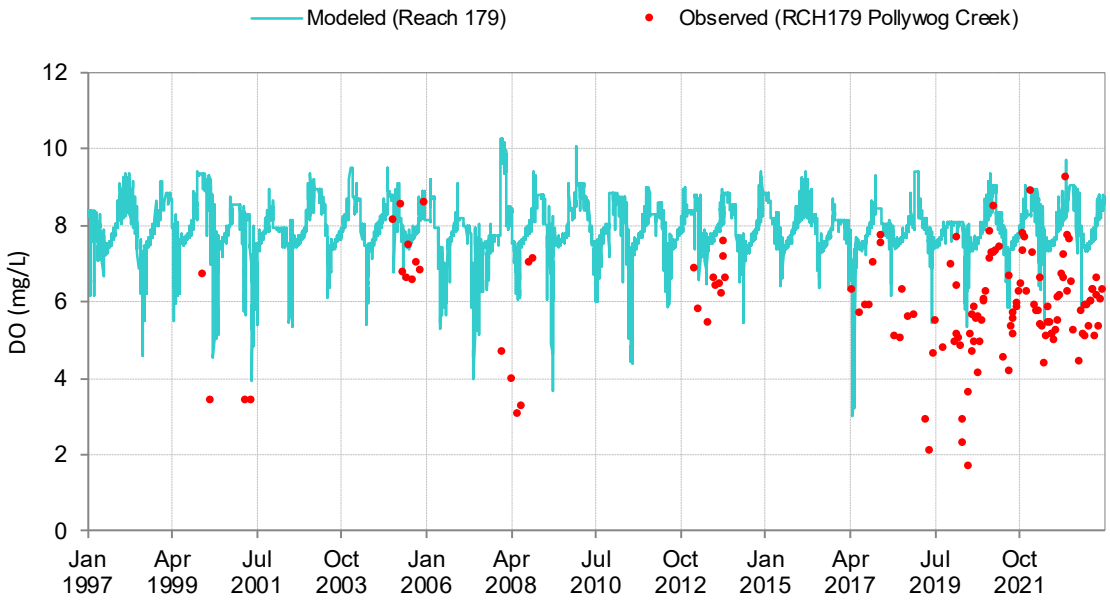


Figure B-328 Modeled Vs Observed DO (mg/L) at RCH179 Pollywog Creek

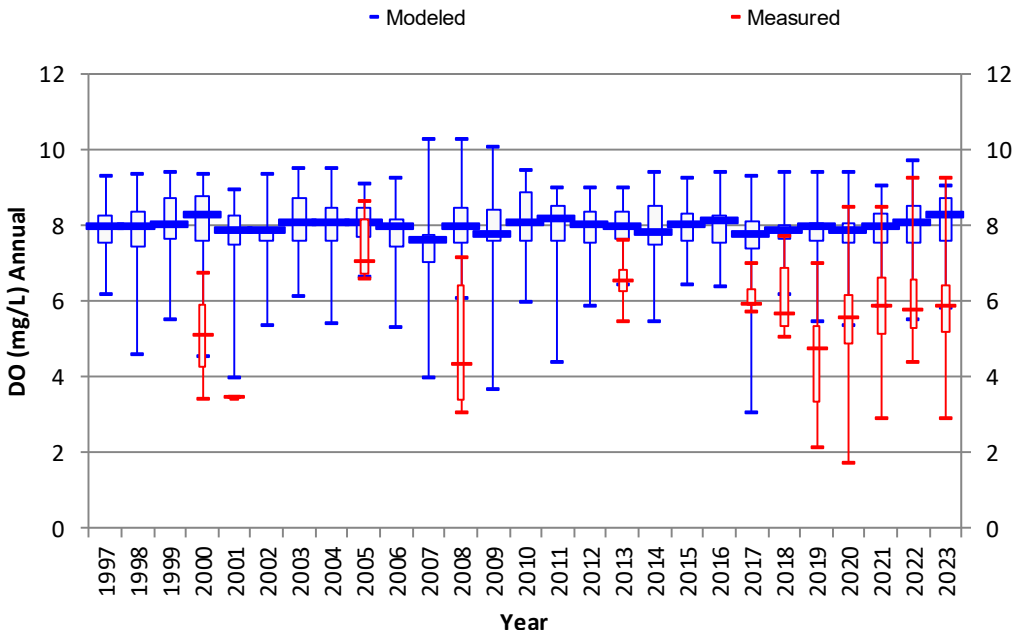


Figure B-329 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH179 Pollywog Creek

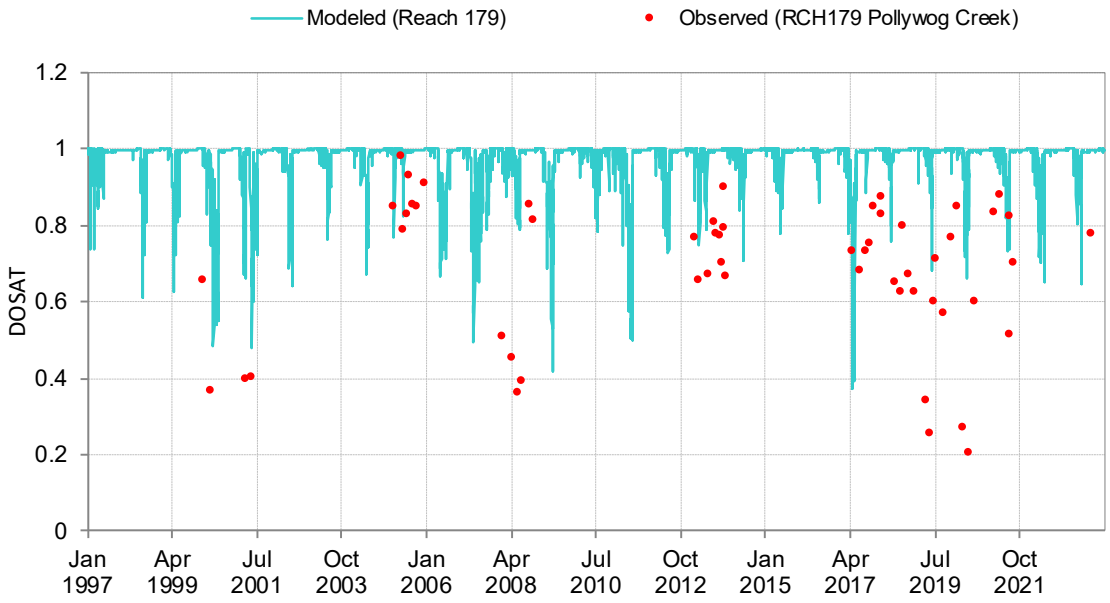


Figure B-330 Modeled Vs Observed DOSAT at RCH179 Pollywog Creek

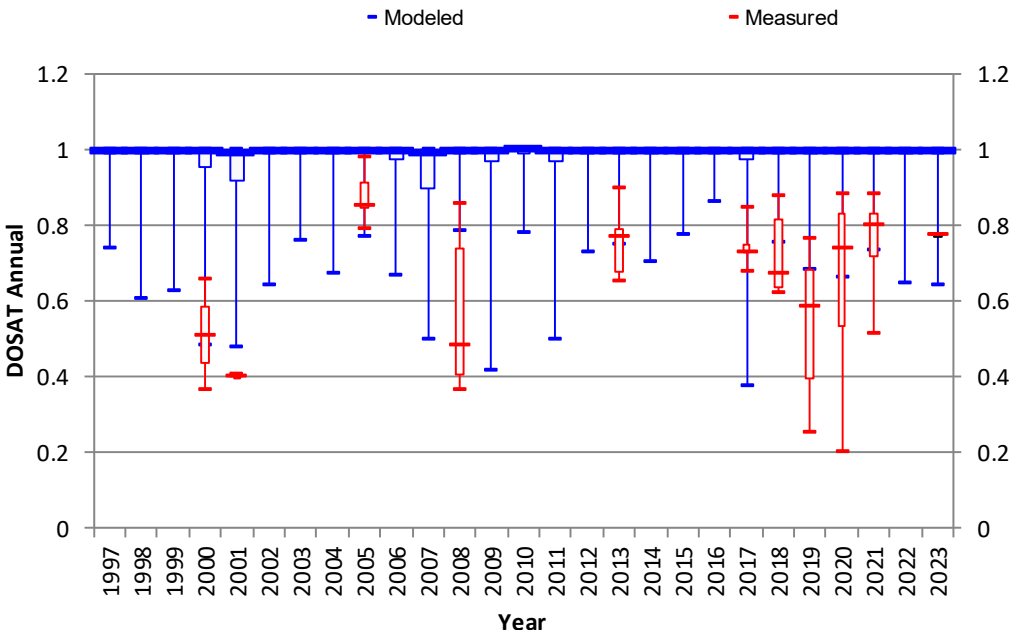


Figure B-331 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH179 Pollywog Creek

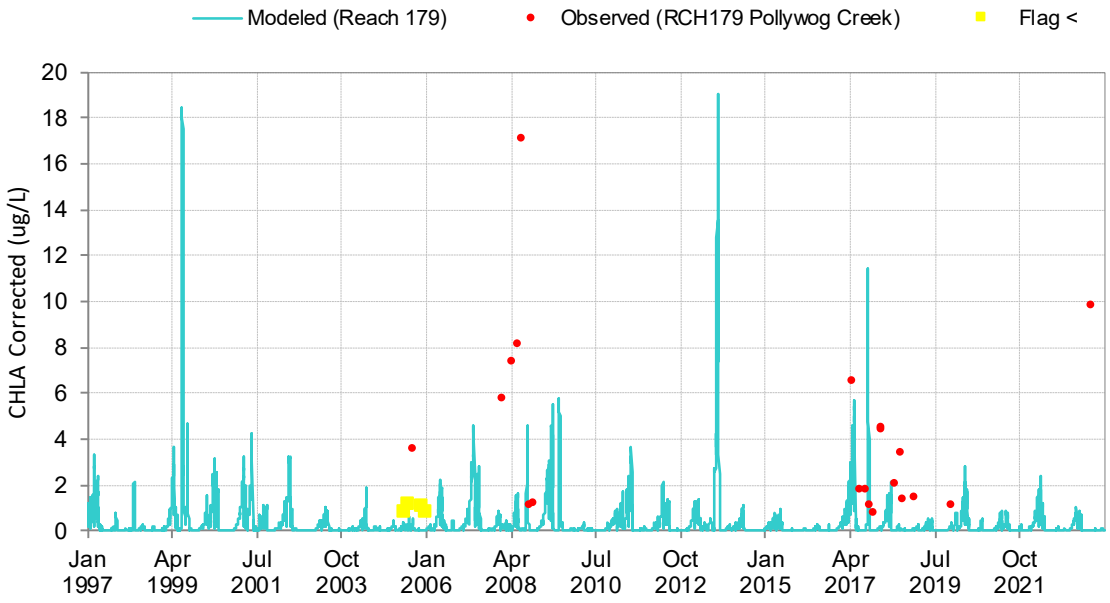


Figure B-332 Modeled Vs Observed CHLA Corrected (ug/L) at RCH179 Pollywog Creek

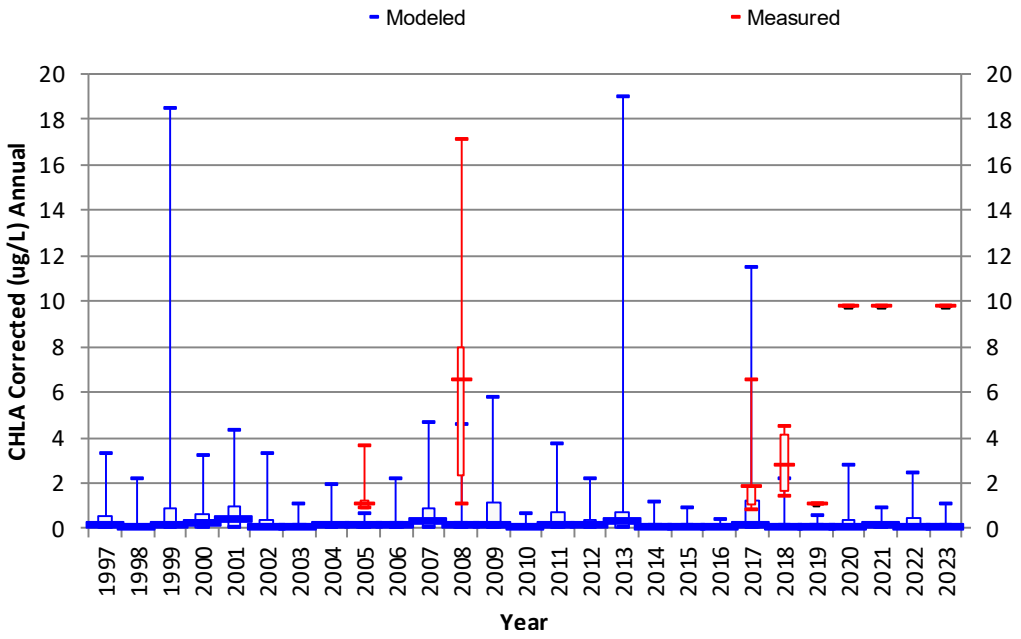


Figure B-333 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH179 Pollywog Creek

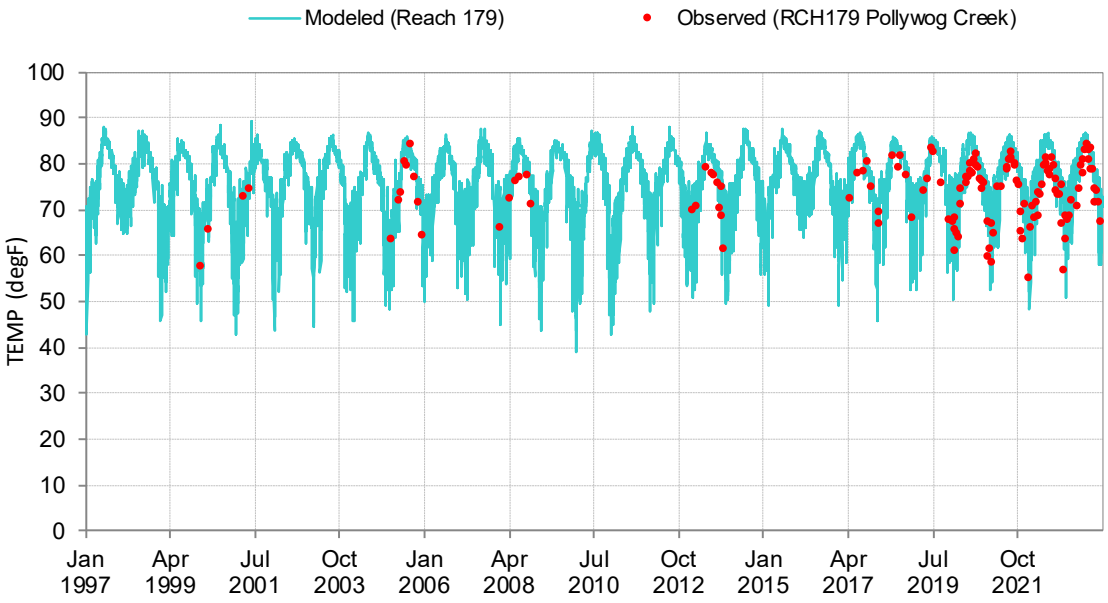


Figure B-334 Modeled Vs Observed TEMP (deg F) at RCH179 Pollywog Creek

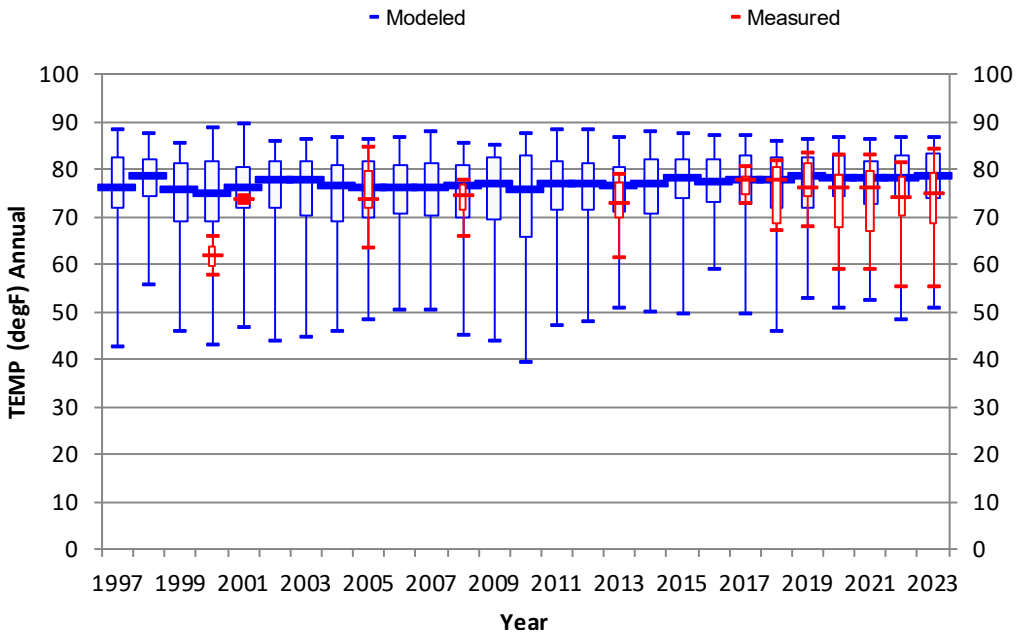


Figure B-335 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH179 Pollywog Creek

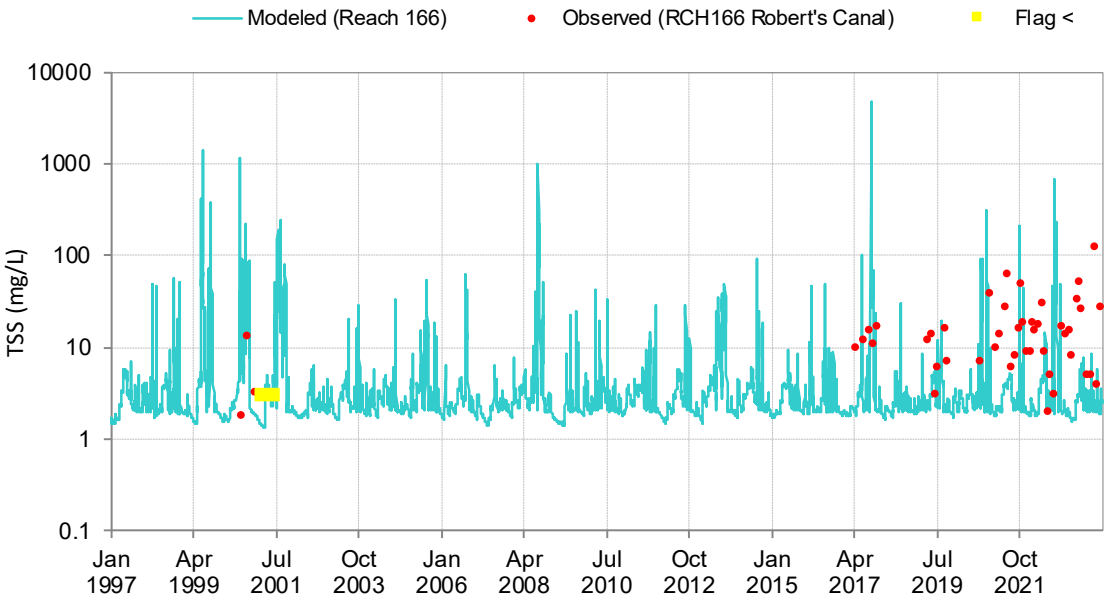


Figure B-336 Modeled Vs Observed TSS (mg/L) at RCH166 Robert's Canal

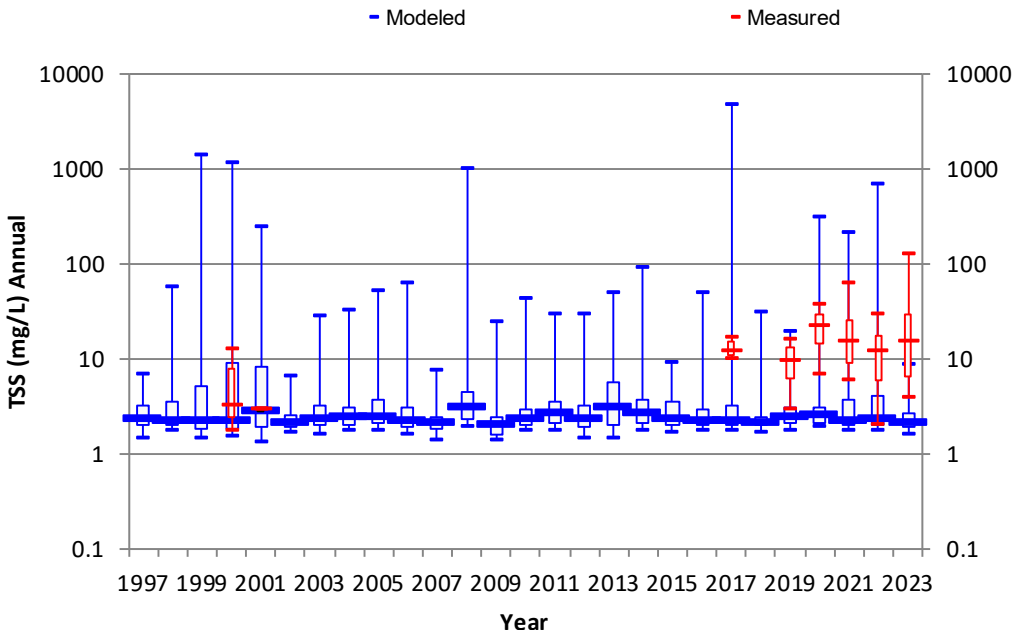


Figure B-337 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH166 Robert's Canal

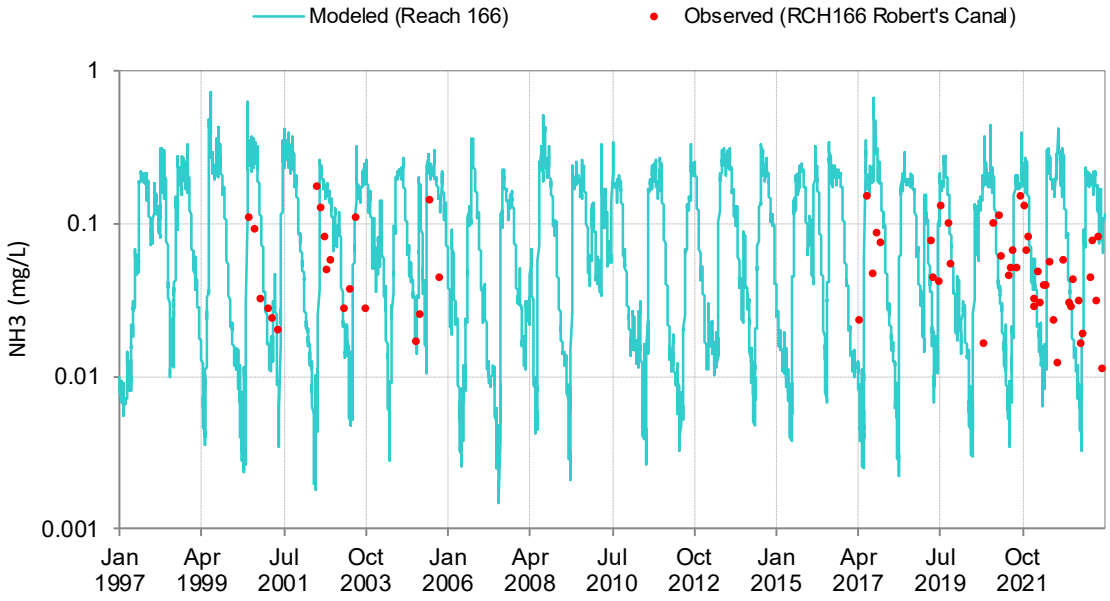


Figure B-338 Modeled Vs Observed NH3 (mg/L) at RCH166 Robert's Canal

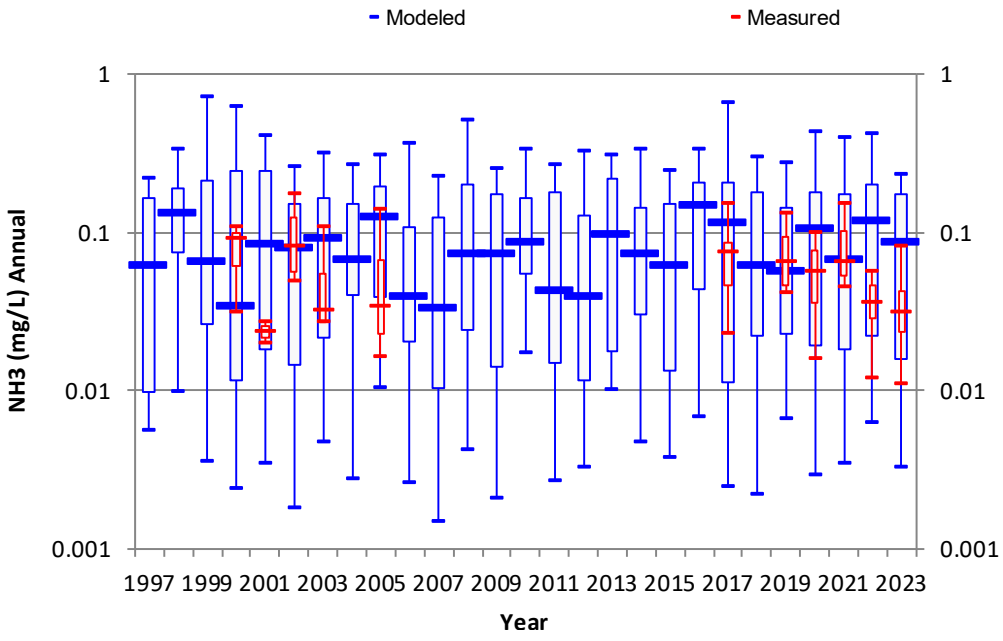


Figure B-339 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH166 Robert's Canal

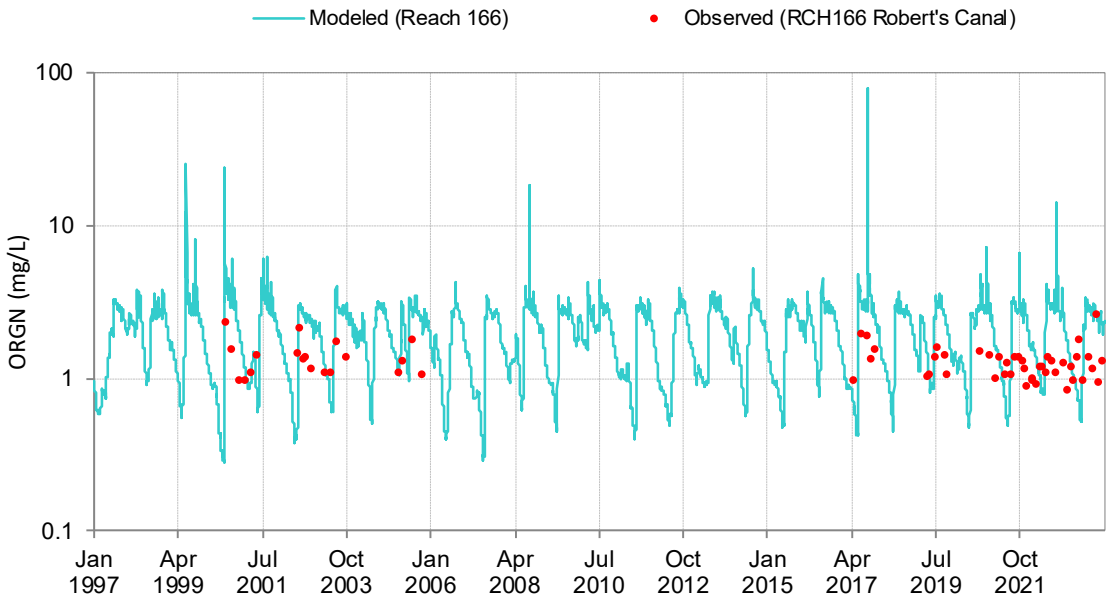


Figure B-340 Modeled Vs Observed ORGN (mg/L) at RCH166 Robert's Canal

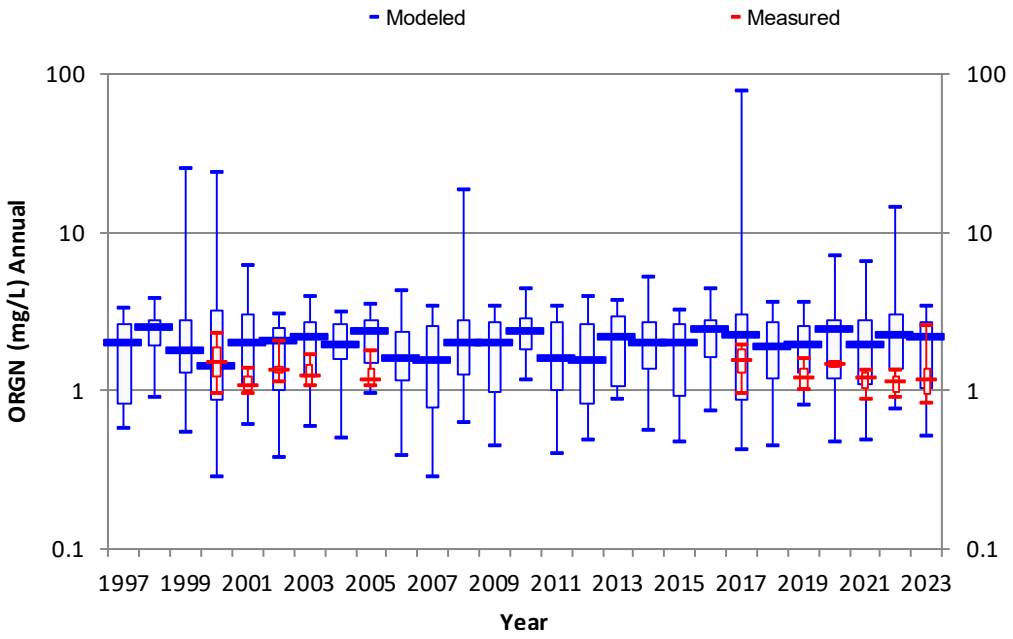


Figure B-341 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH166 Robert's Canal

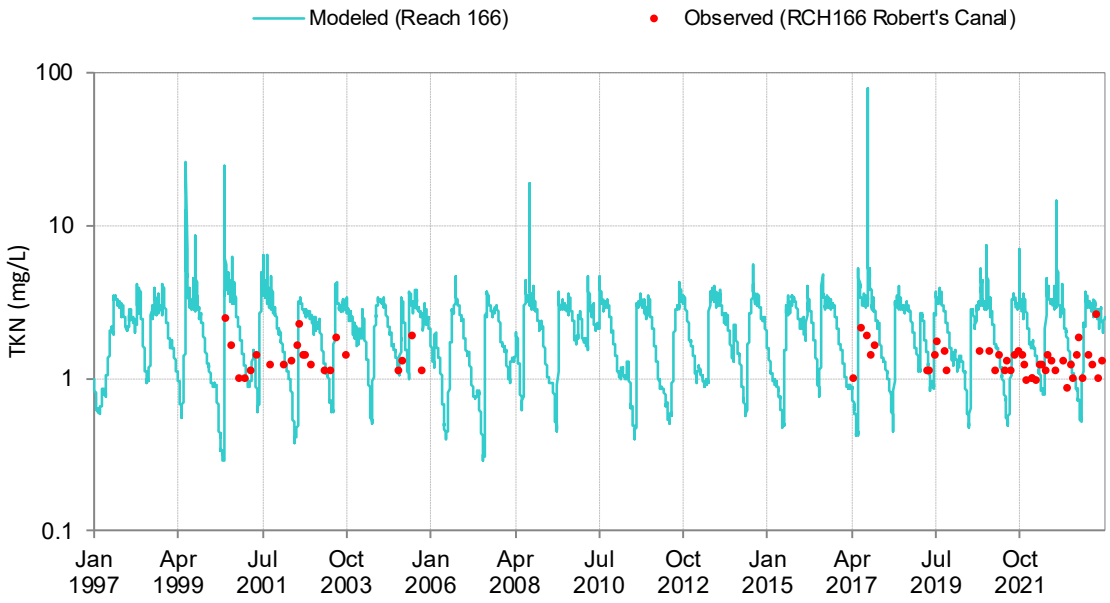


Figure B-342 Modeled Vs Observed TKN (mg/L) at RCH166 Robert's Canal

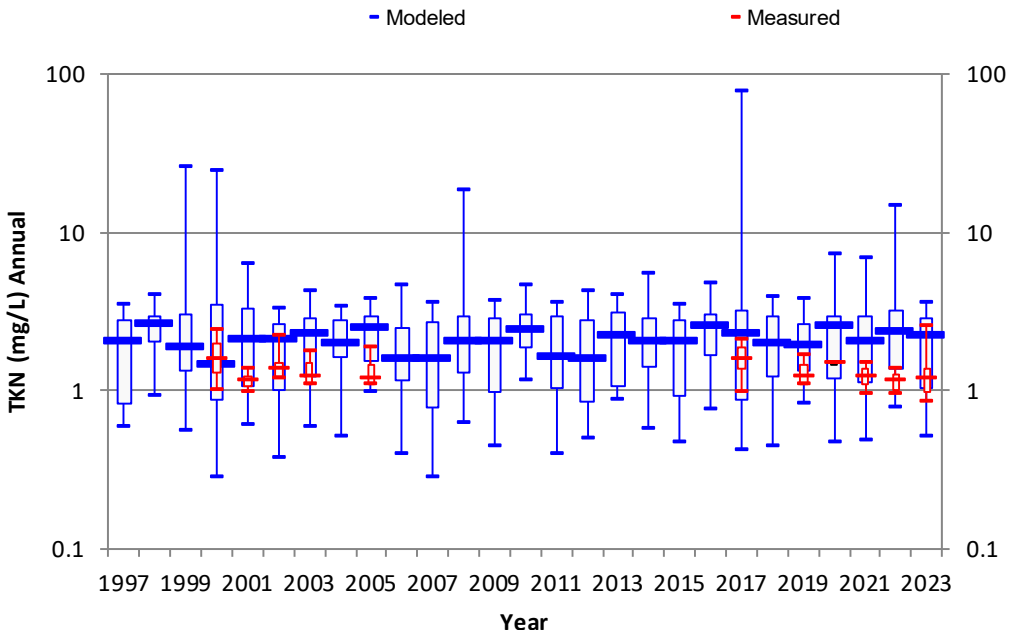


Figure B-343 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH166 Robert's Canal

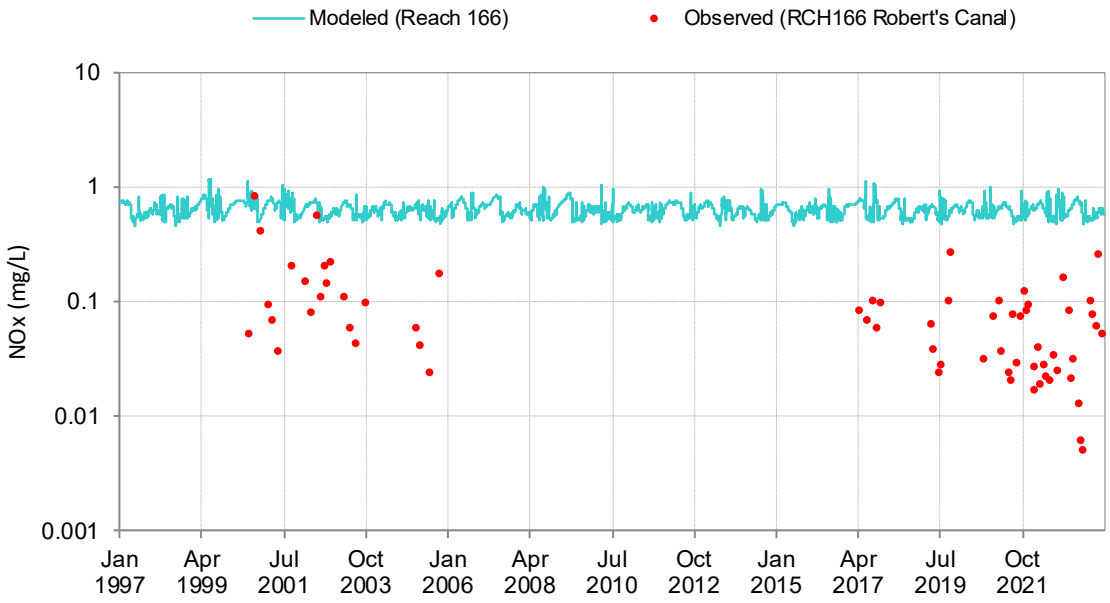


Figure B-344 Modeled Vs Observed NOx (mg/L) at RCH166 Robert's Canal

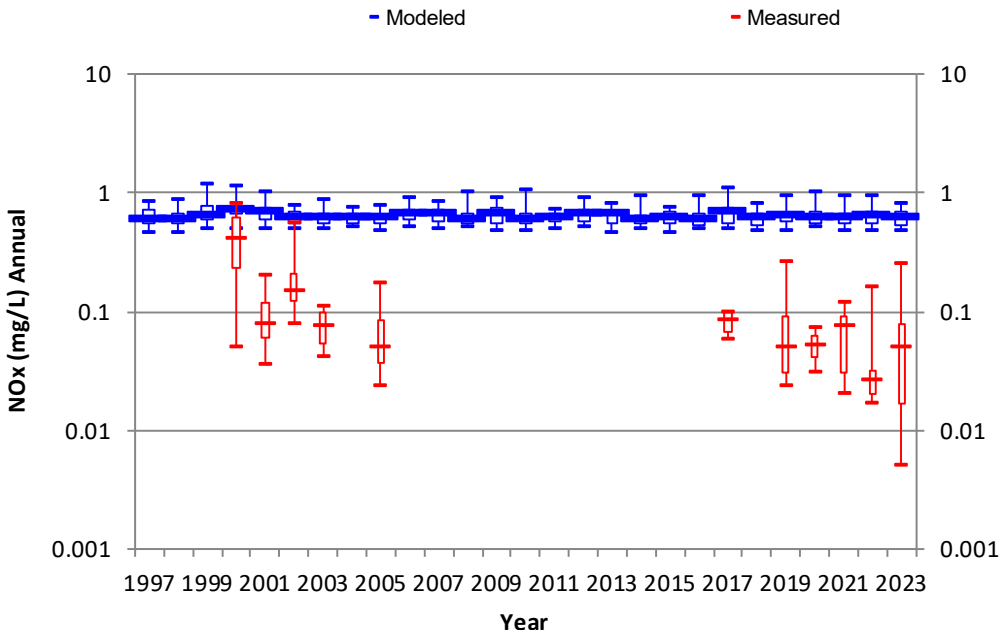


Figure B-345 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH166 Robert's Canal

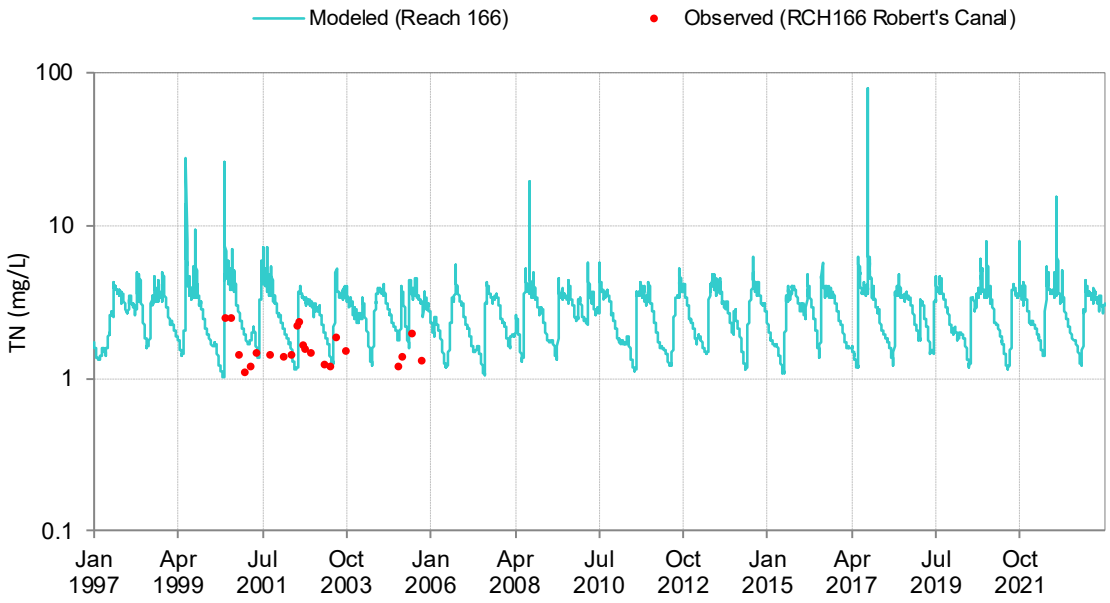


Figure B-346 Modeled Vs Observed TN (mg/L) at RCH166 Robert's Canal

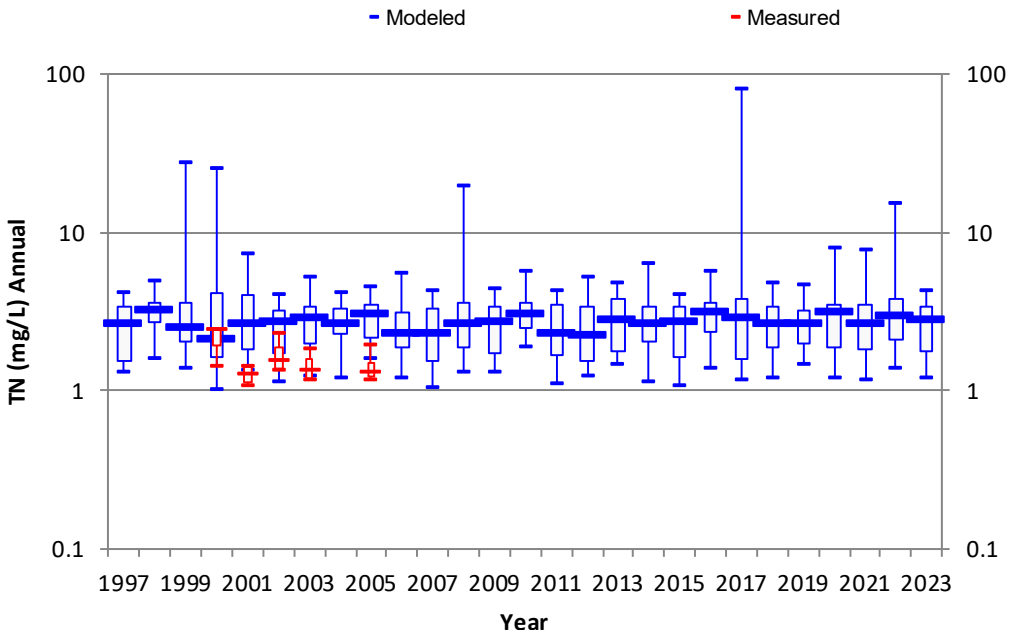


Figure B-347 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH166 Robert's Canal

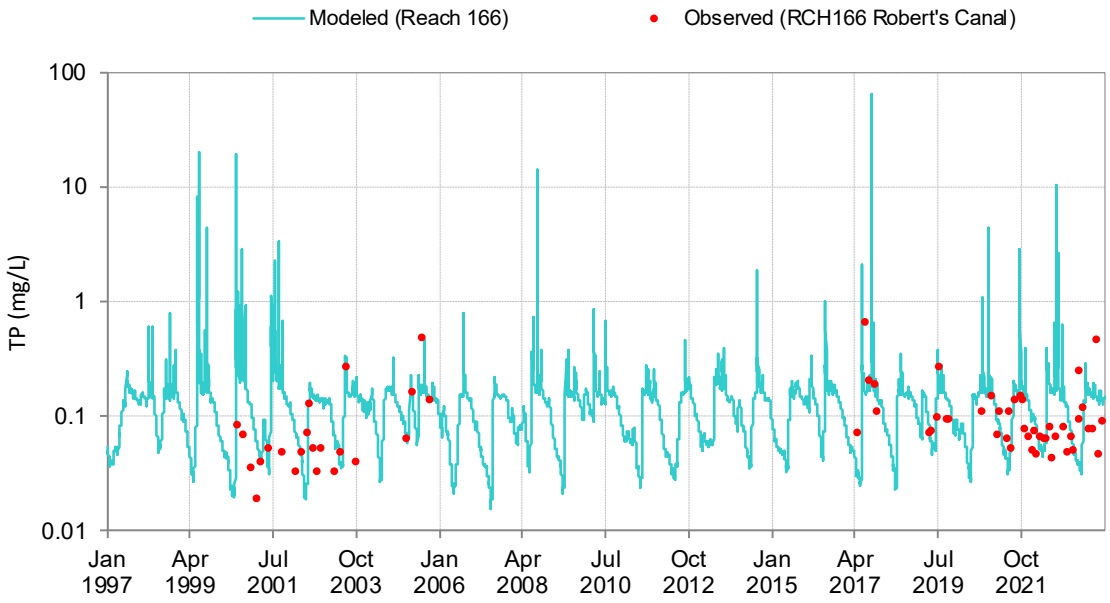


Figure B-348 Modeled Vs Observed TP (mg/L) at RCH166 Robert's Canal

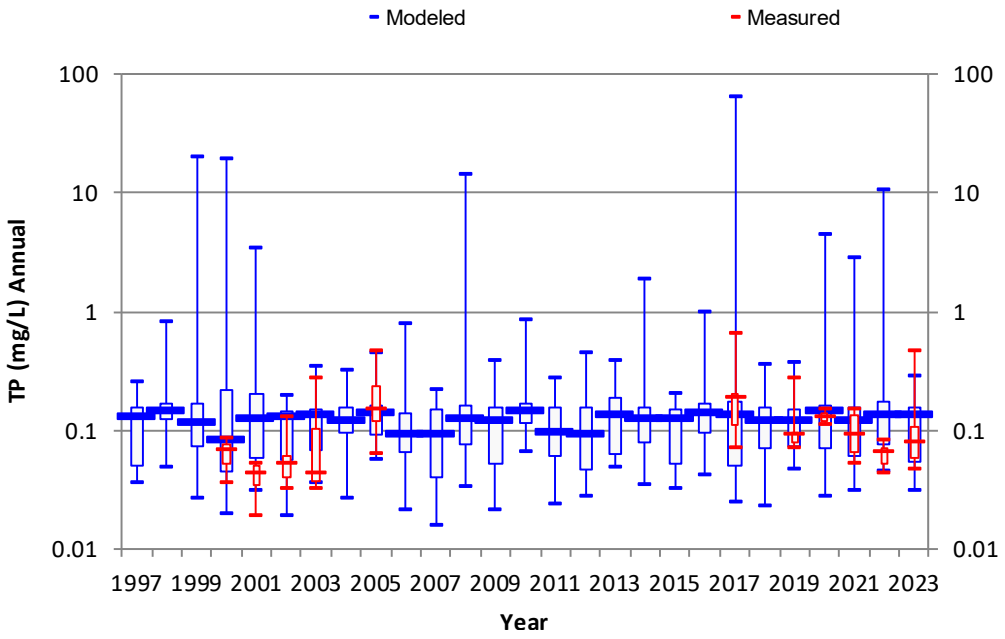


Figure B-349 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH166 Robert's Canal

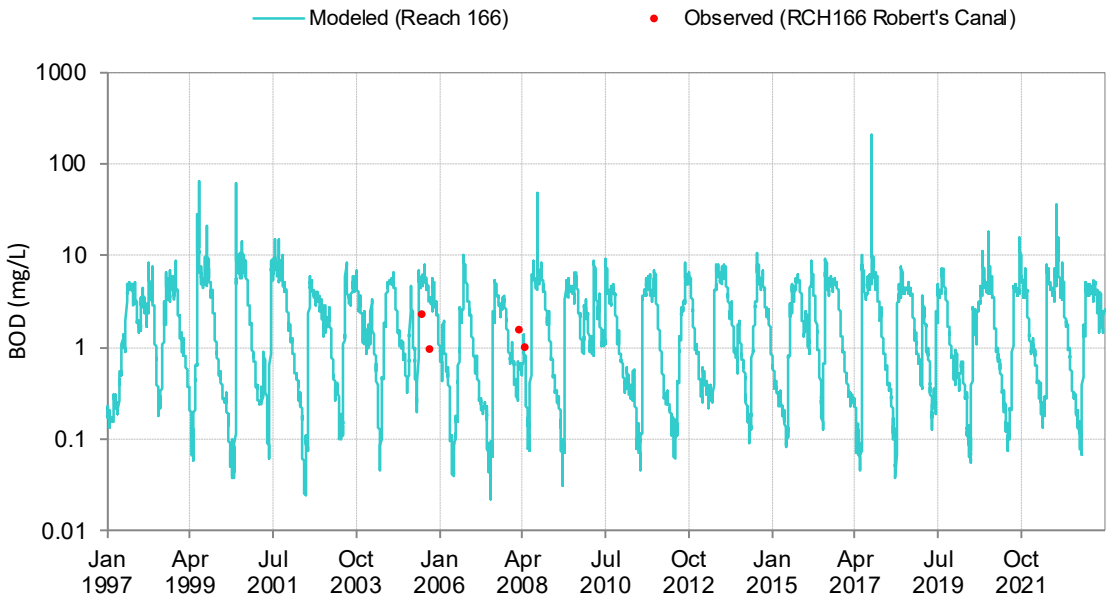


Figure B-350 Modeled Vs Observed BOD (mg/L) at RCH166 Robert's Canal

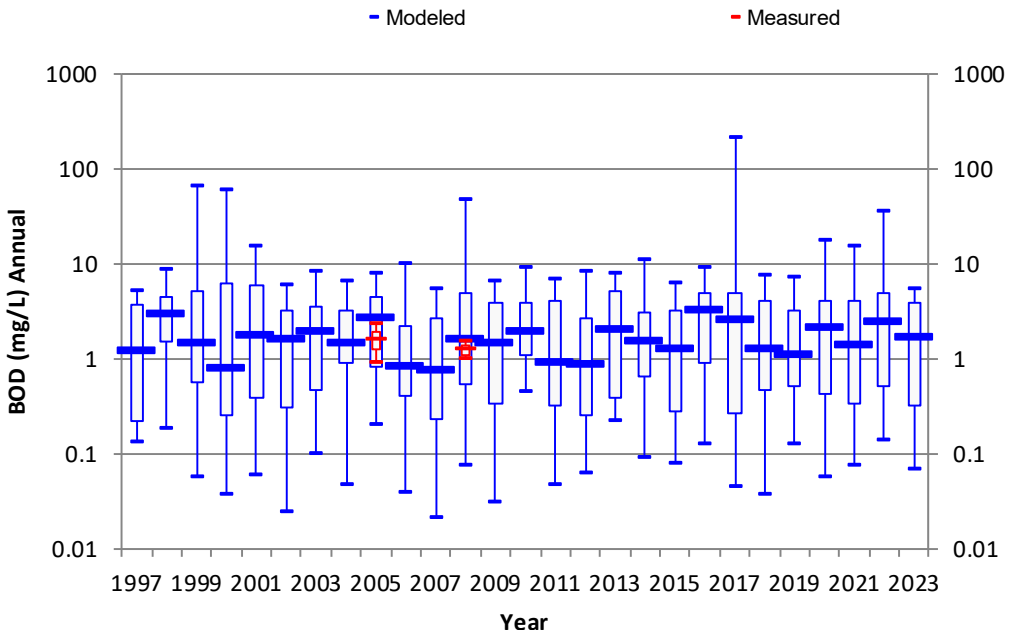


Figure B-351 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH166 Robert's Canal

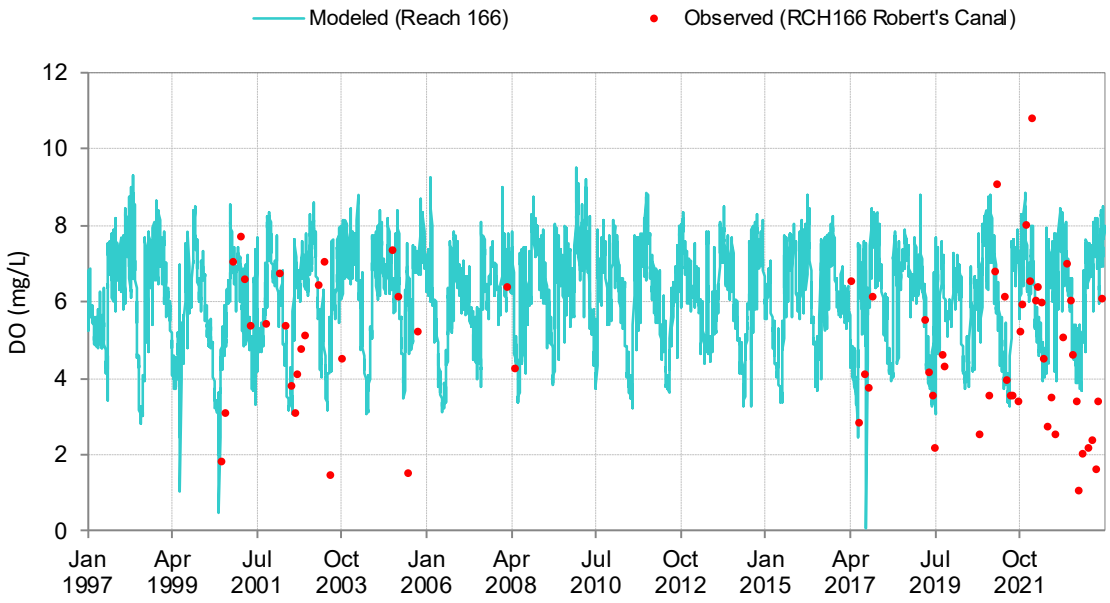


Figure B-352 Modeled Vs Observed DO (mg/L) at RCH166 Robert's Canal

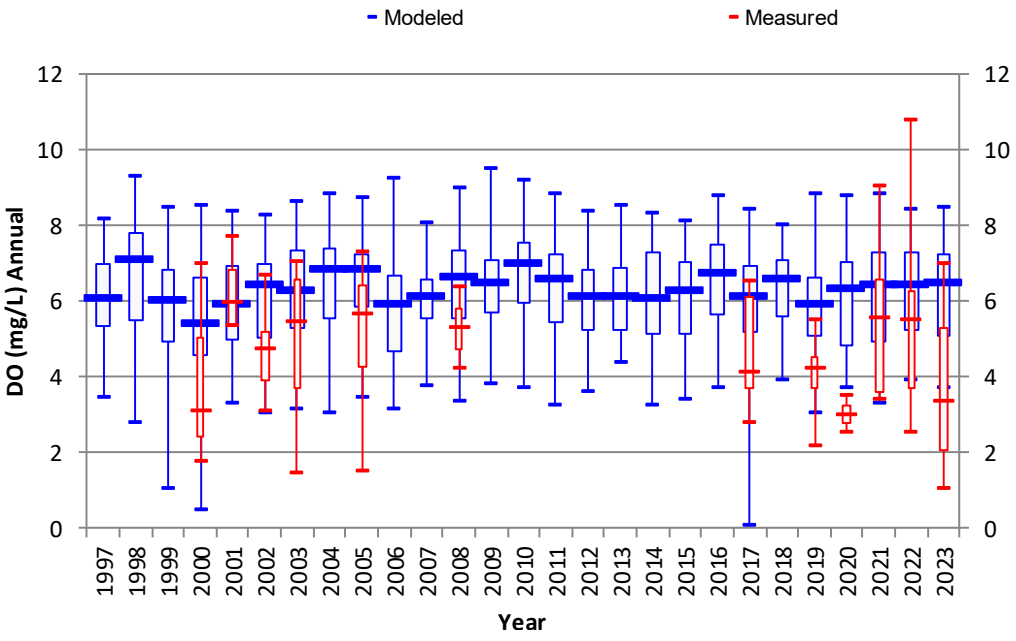


Figure B-353 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH166 Robert's Canal

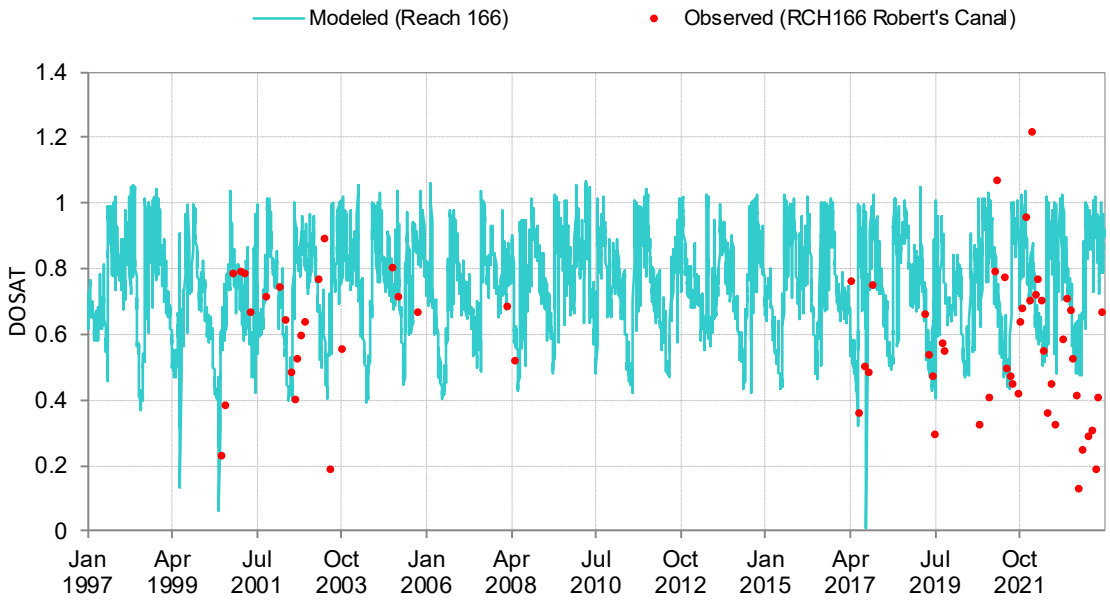


Figure B-354 Modeled Vs Observed DOSAT at RCH166 Robert's Canal

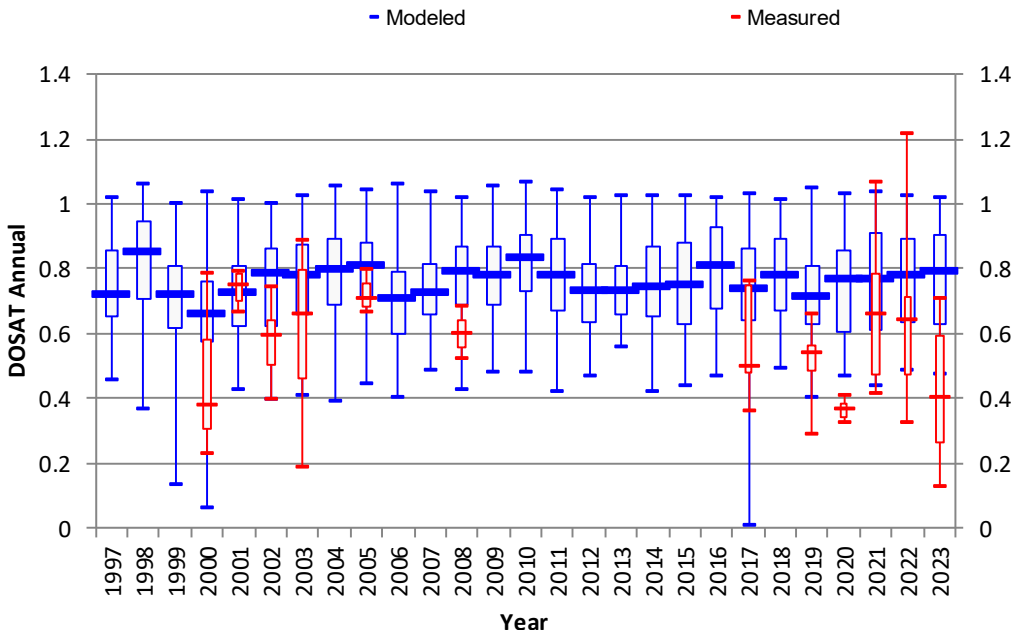


Figure B-355 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH166 Robert's Canal

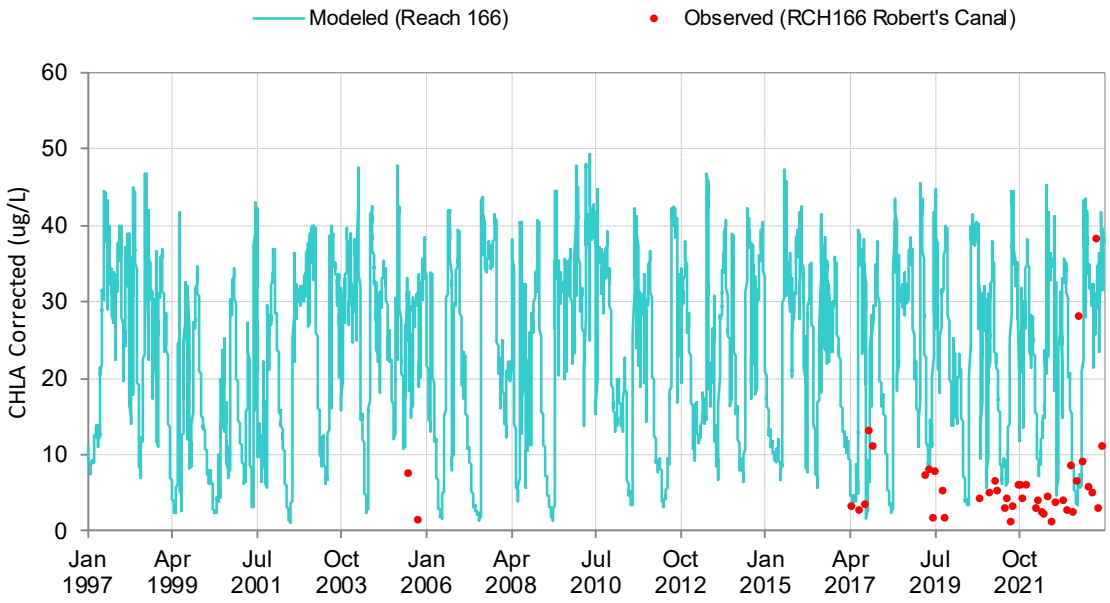


Figure B-356 Modeled Vs Observed CHLA Corrected (ug/L) at RCH166 Robert's Canal

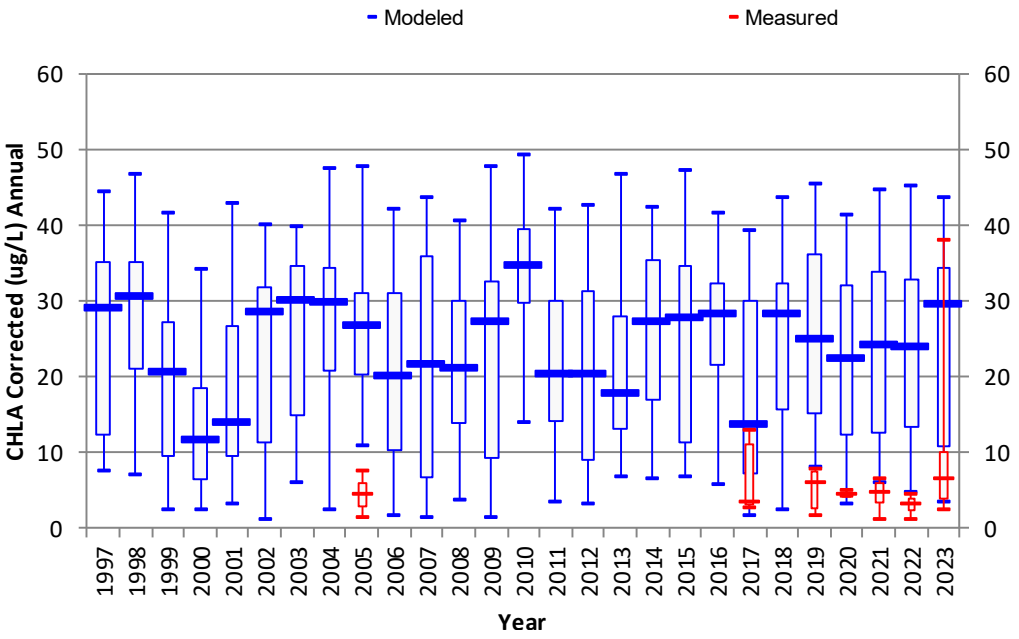


Figure B-357 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH166 Robert's Canal

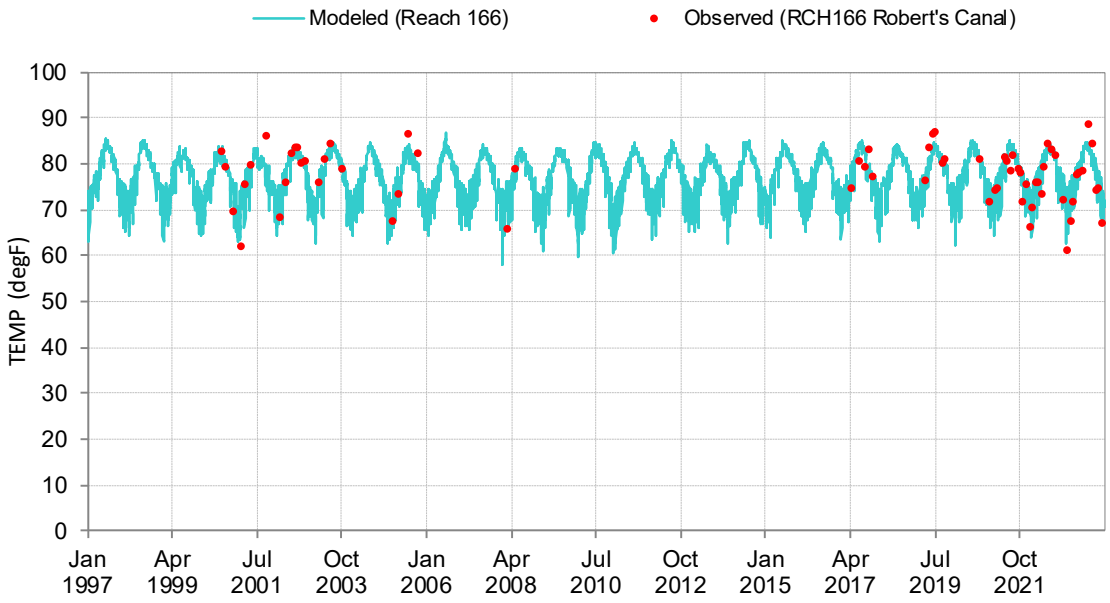


Figure B-358 Modeled Vs Observed TEMP (deg F) at RCH166 Robert's Canal

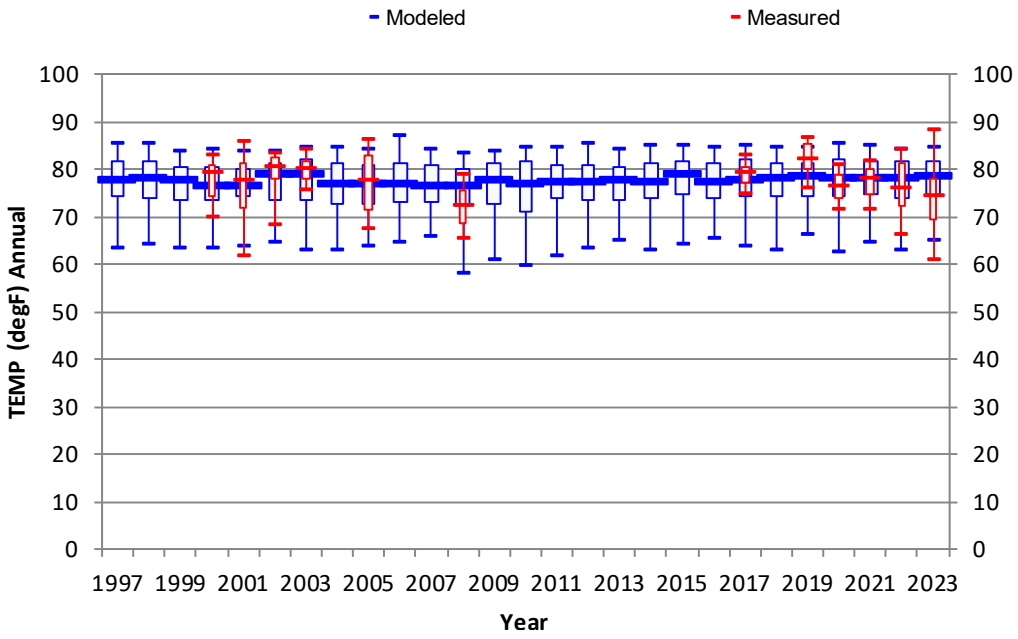


Figure B-359 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH166 Robert's Canal

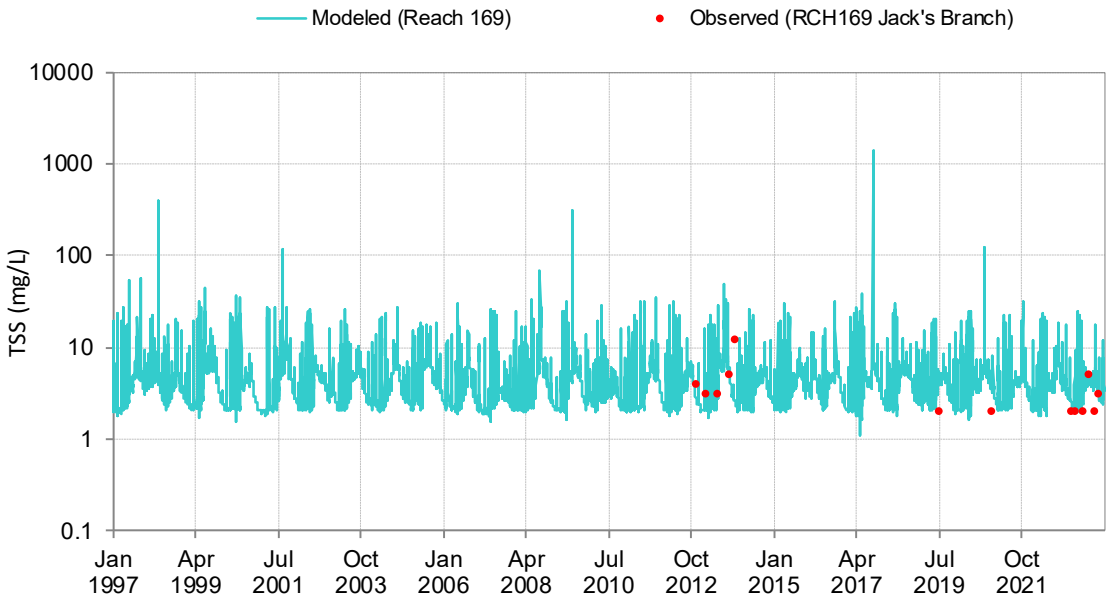


Figure B-360 Modeled Vs Observed TSS (mg/L) at RCH169 Jack's Branch

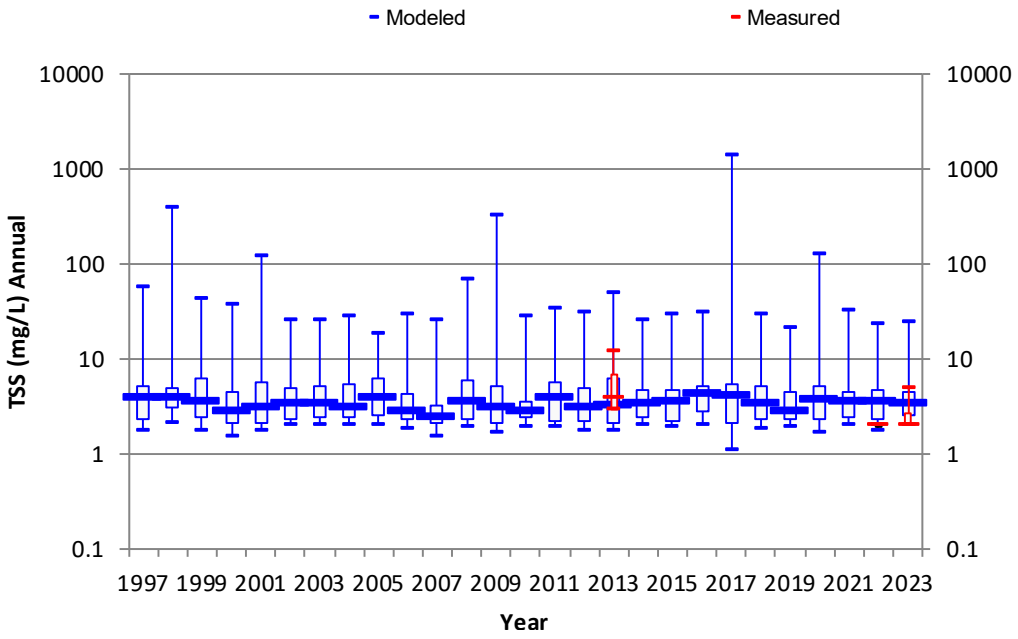


Figure B-361 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH169 Jack's Branch

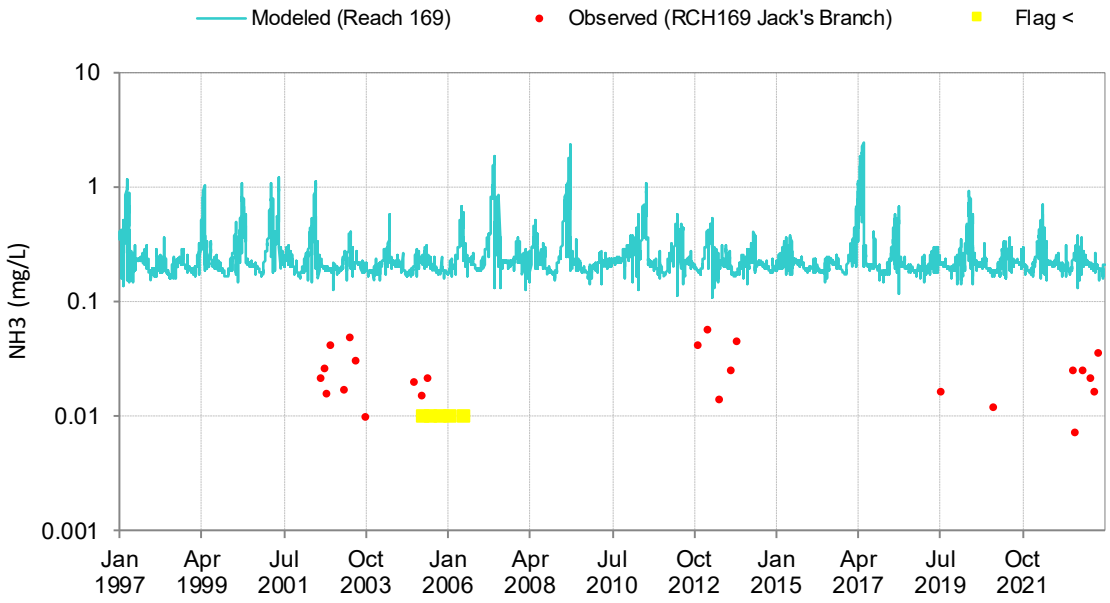


Figure B-362 Modeled Vs Observed NH3 (mg/L) at RCH169 Jack's Branch

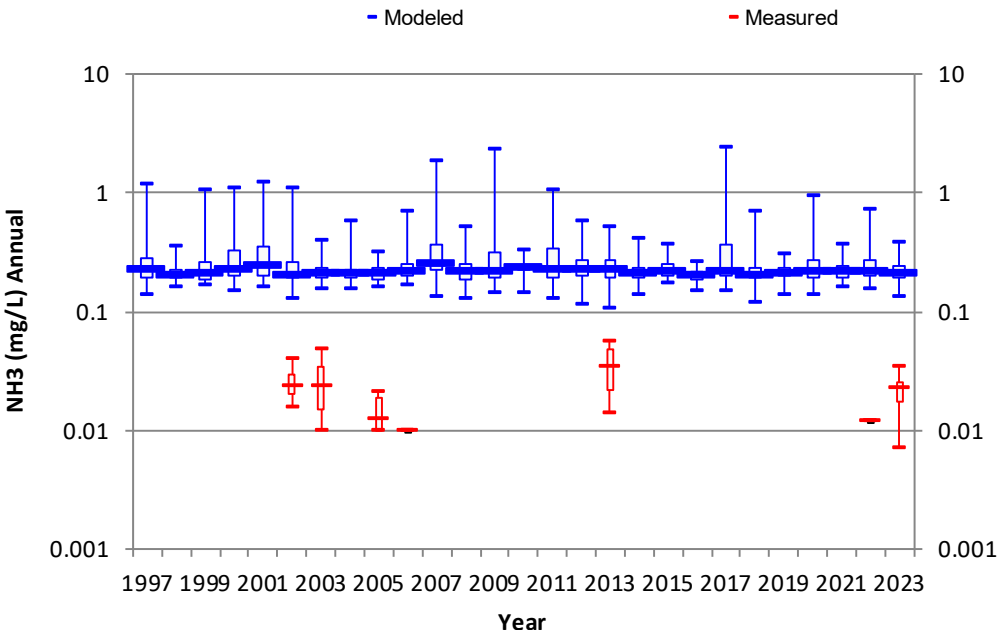


Figure B-363 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH169 Jack's Branch

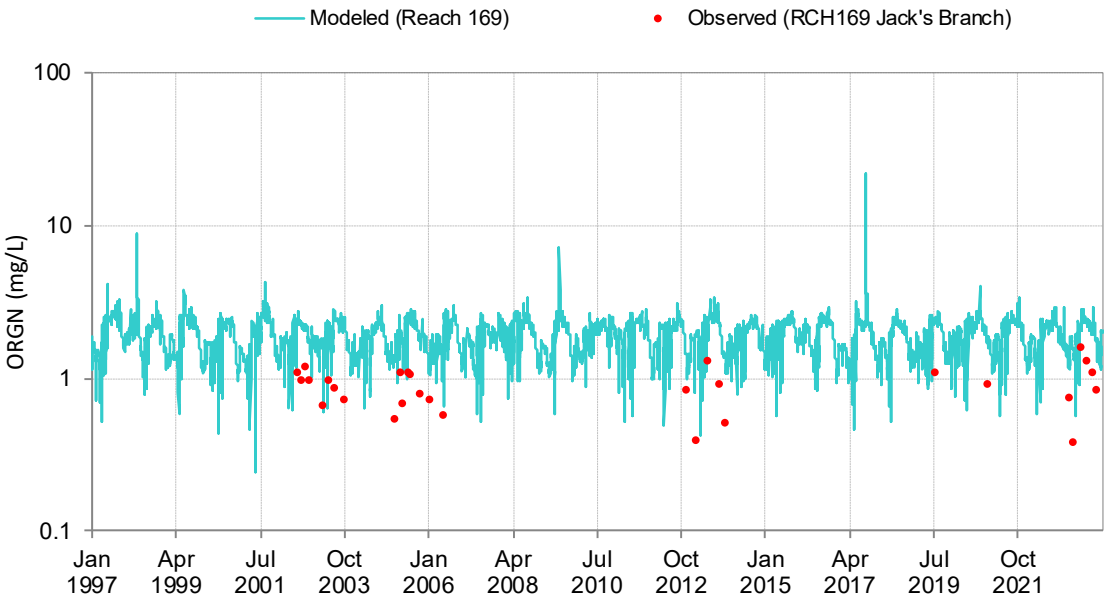


Figure B-364 Modeled Vs Observed ORGN (mg/L) at RCH169 Jack's Branch

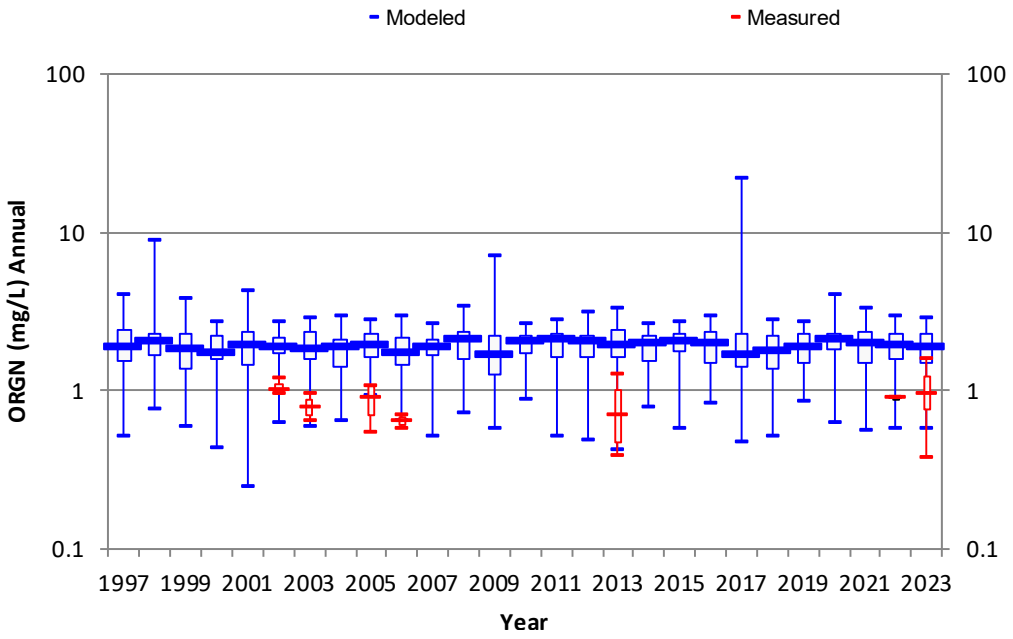


Figure B-365 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH169 Jack's Branch

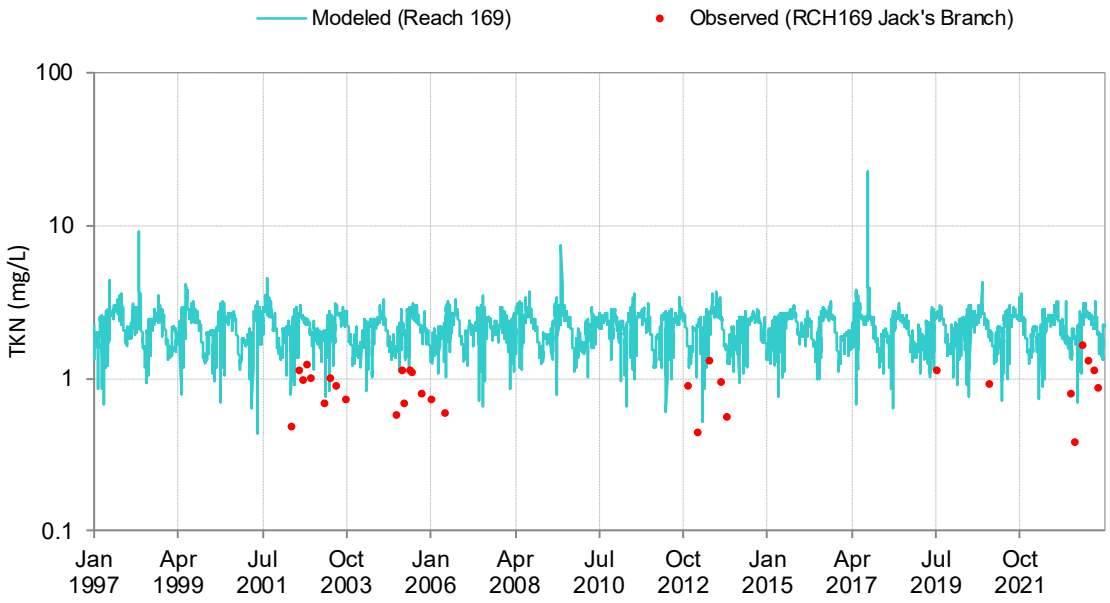


Figure B-366 Modeled Vs Observed TKN (mg/L) at RCH169 Jack's Branch

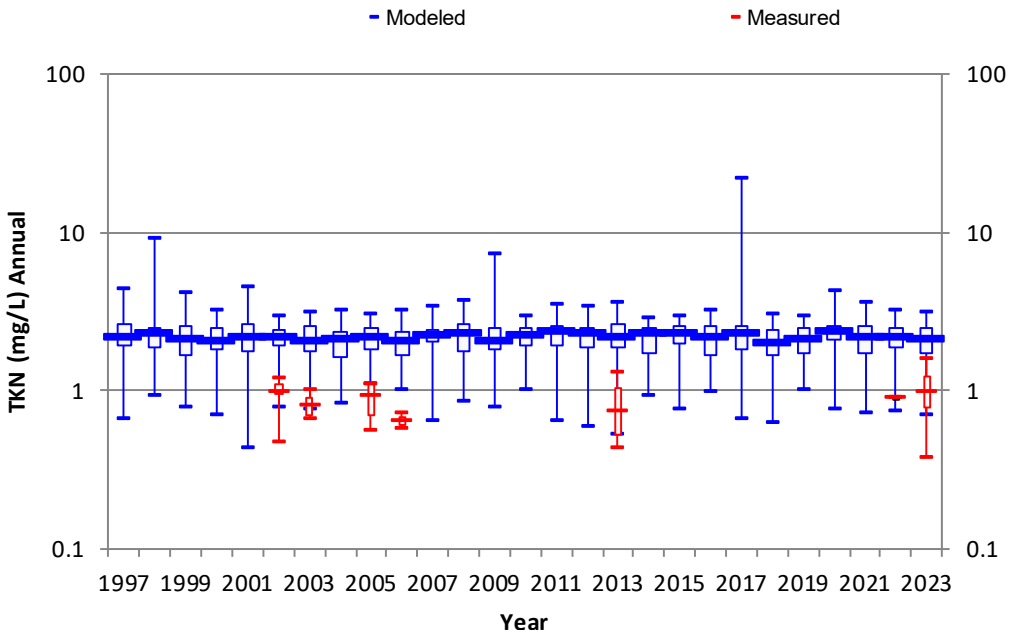


Figure B-367 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH169 Jack's Branch

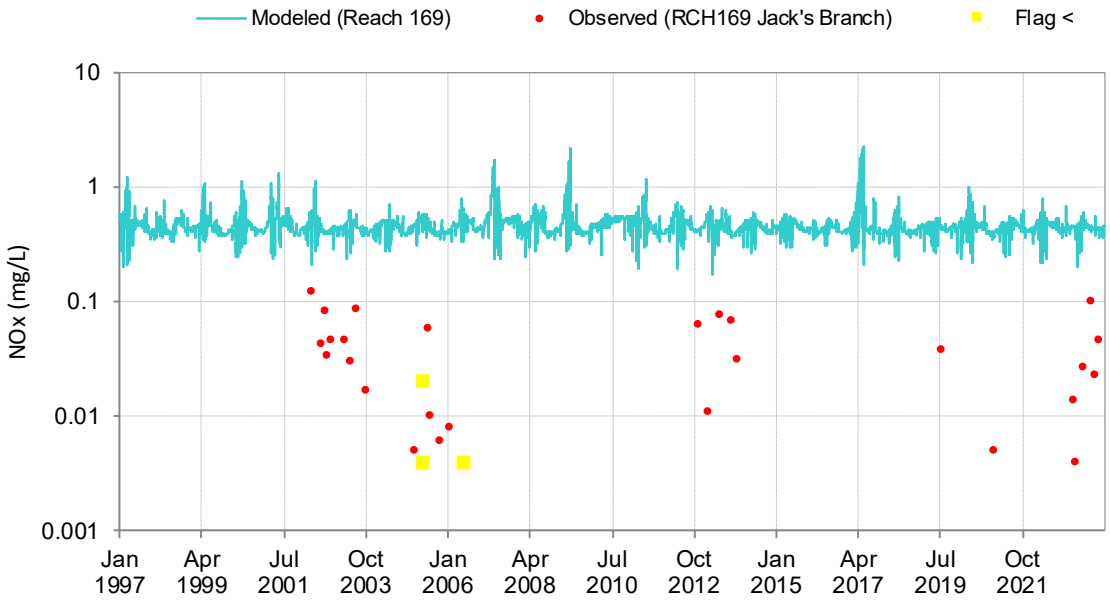


Figure B-368 Modeled Vs Observed NOx (mg/L) at RCH169 Jack's Branch

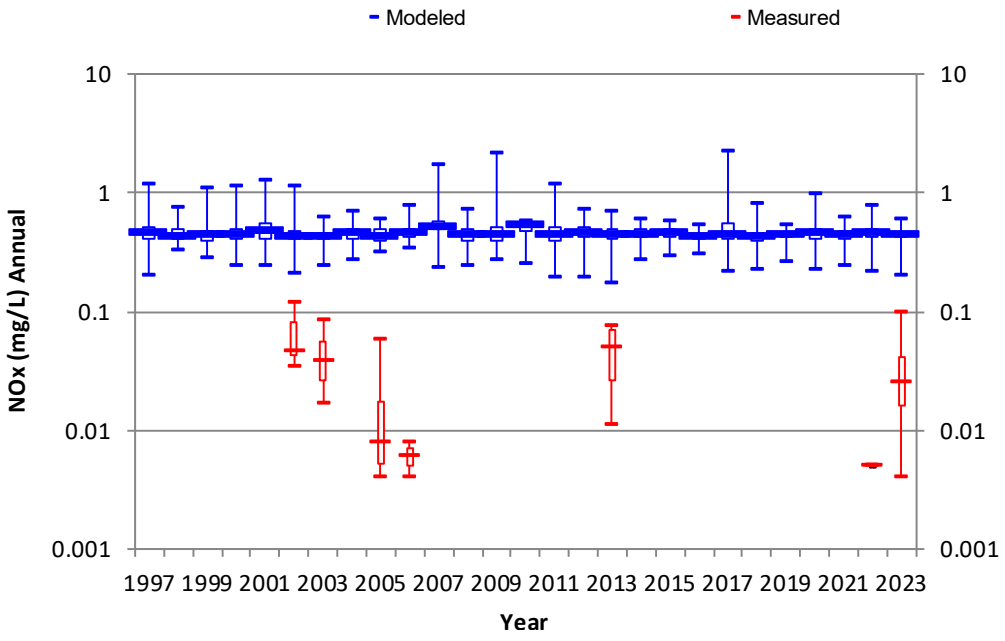


Figure B-369 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH169 Jack's Branch

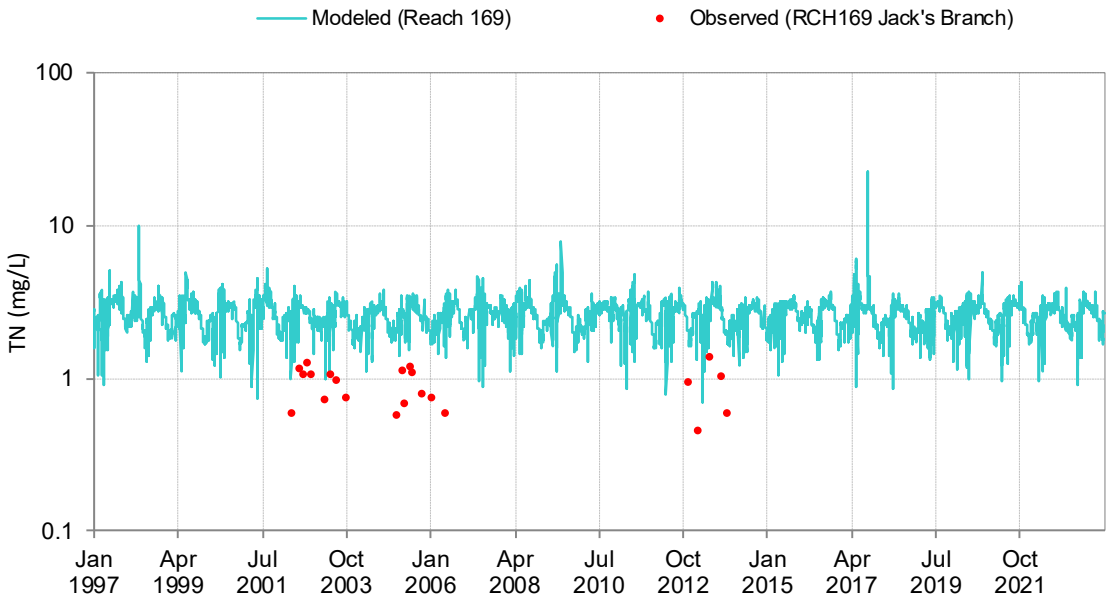


Figure B-370 Modeled Vs Observed TN (mg/L) at RCH169 Jack's Branch

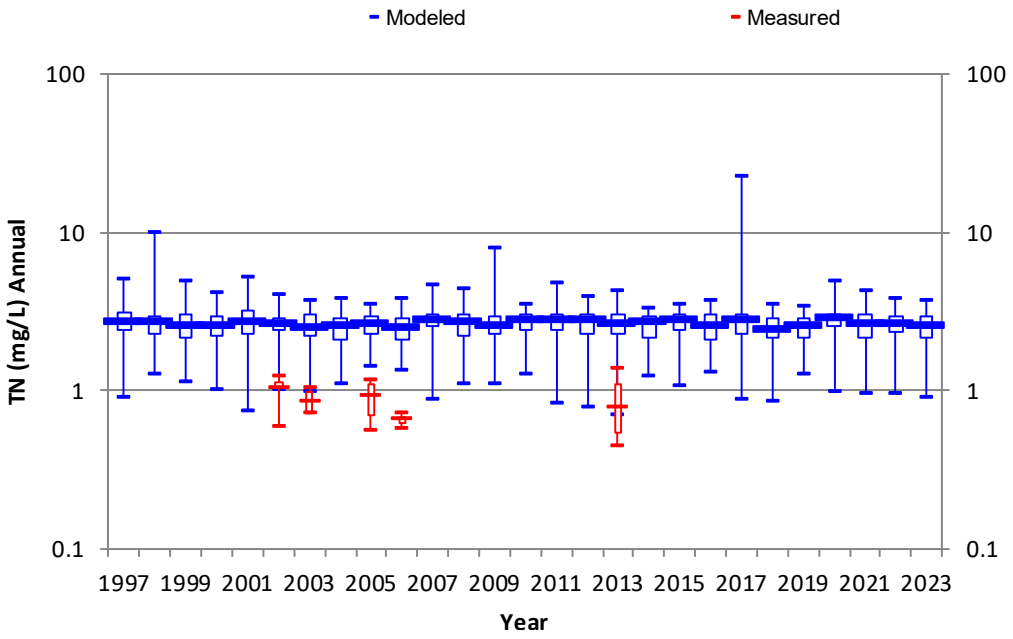


Figure B-371 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH169 Jack's Branch

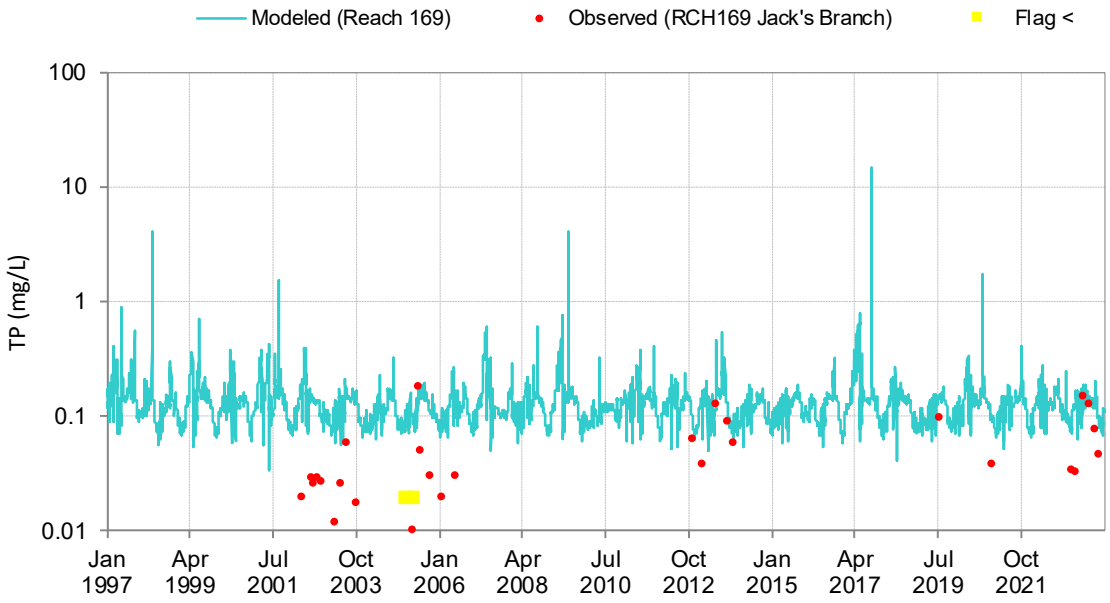


Figure B-372 Modeled Vs Observed TP (mg/L) at RCH169 Jack's Branch

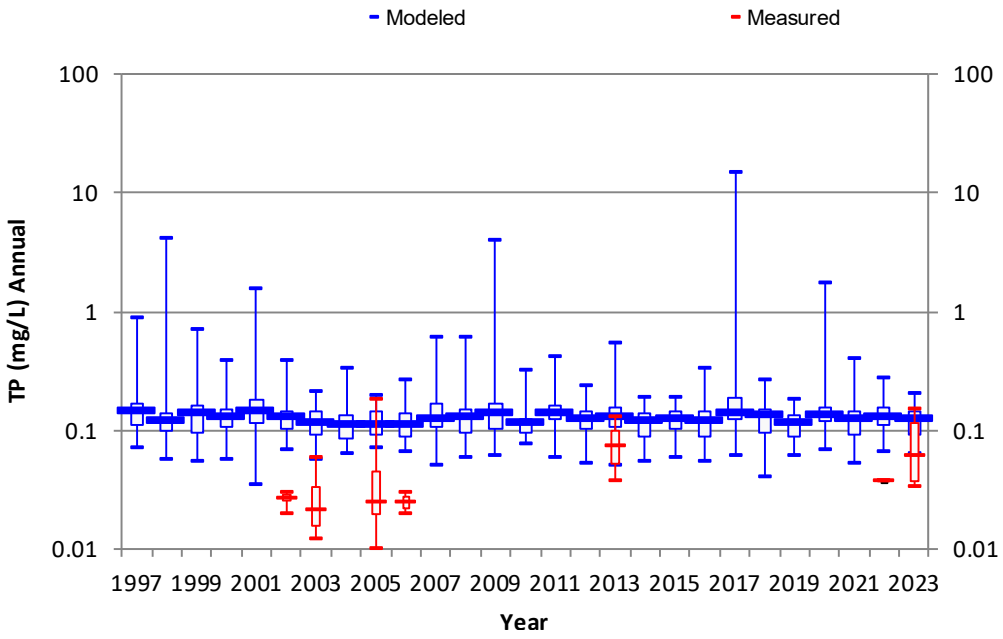


Figure B-373 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH169 Jack's Branch

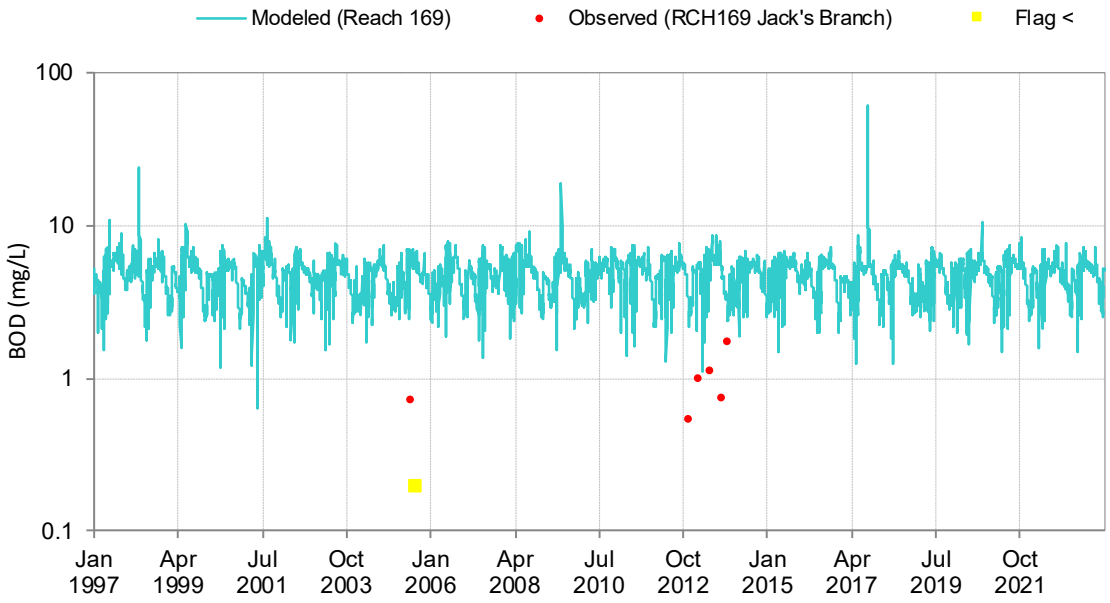


Figure B-374 Modeled Vs Observed BOD (mg/L) at RCH169 Jack's Branch

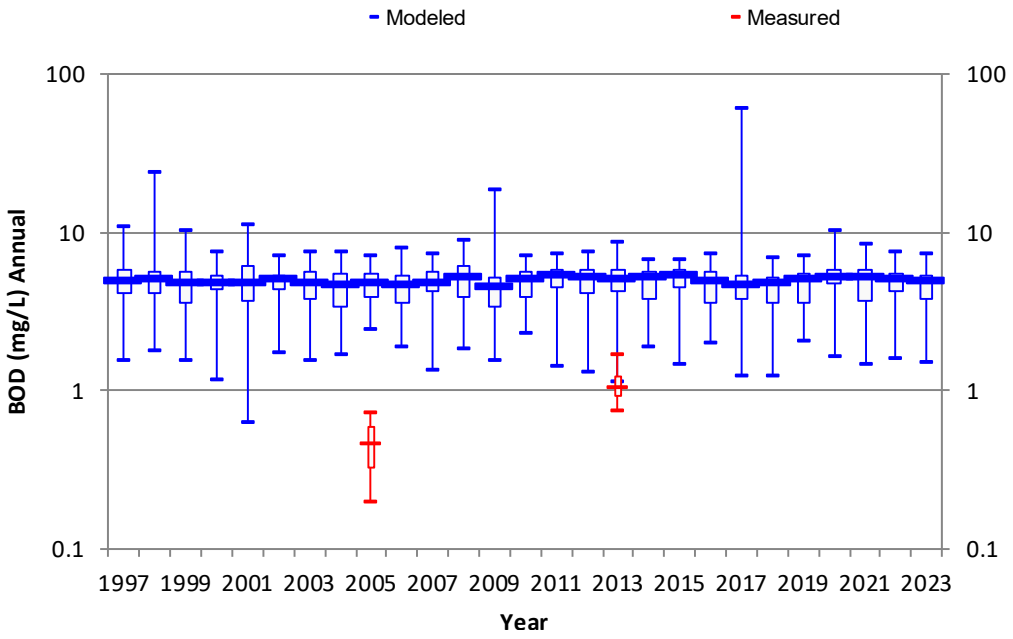


Figure B-375 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH169 Jack's Branch

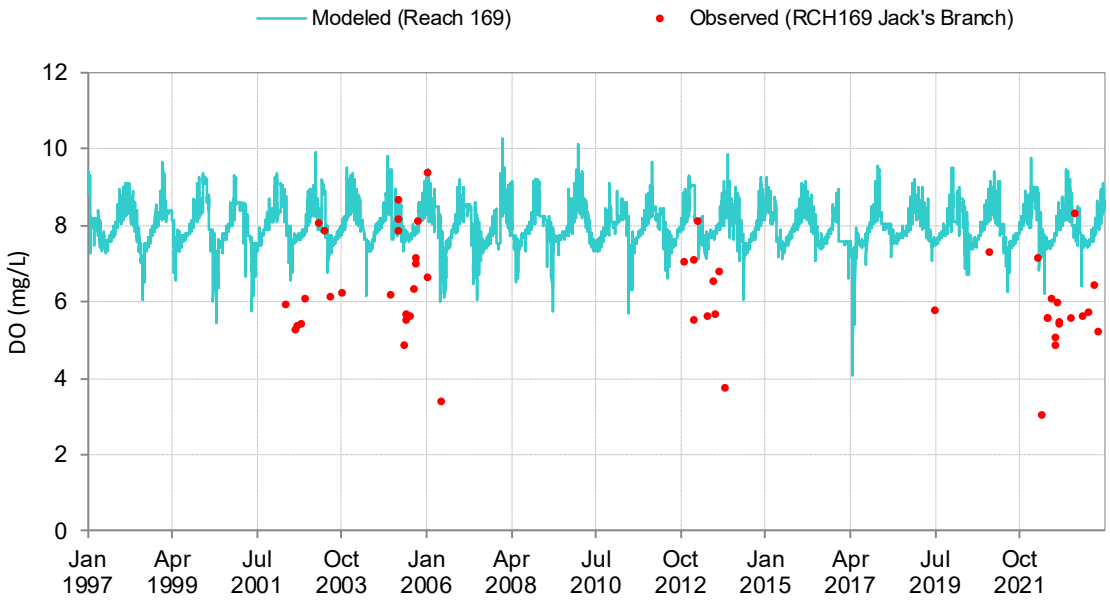


Figure B-376 Modeled Vs Observed DO (mg/L) at RCH169 Jack's Branch

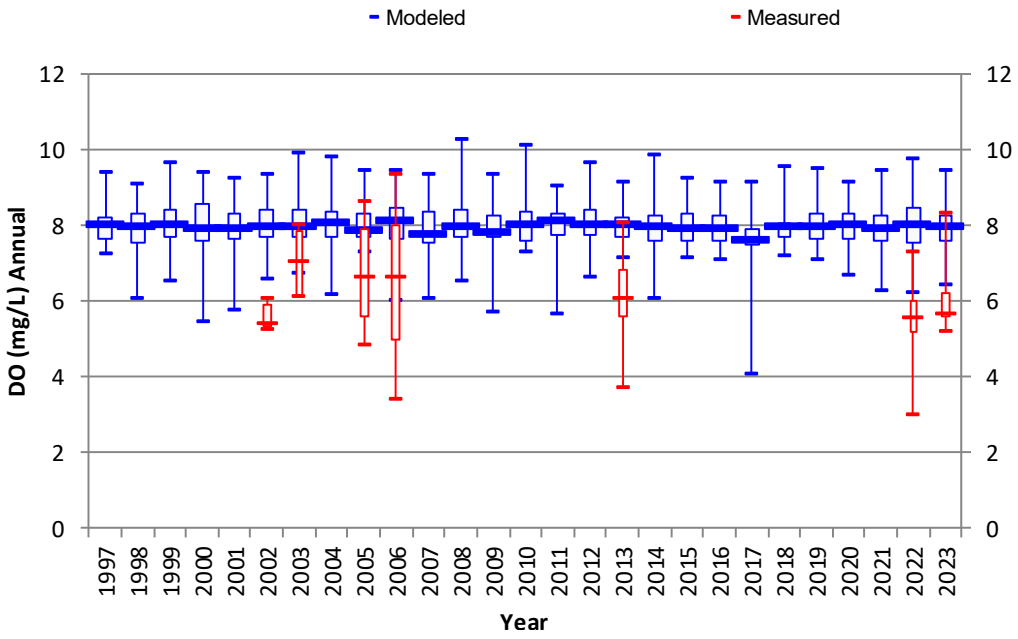


Figure B-377 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH169 Jack's Branch

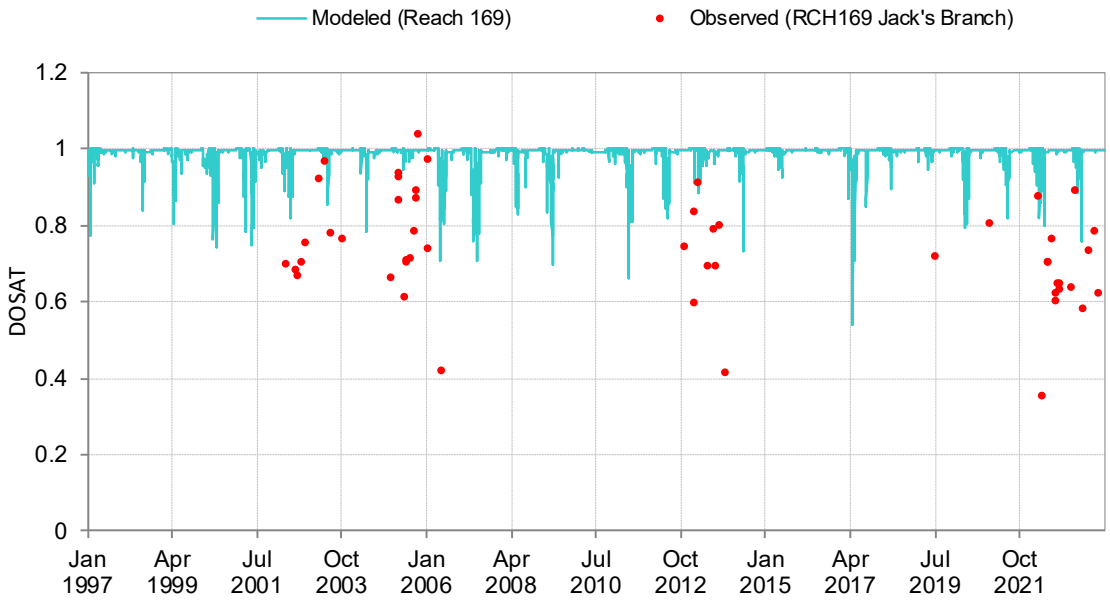


Figure B-378 Modeled Vs Observed DOSAT at RCH169 Jack's Branch

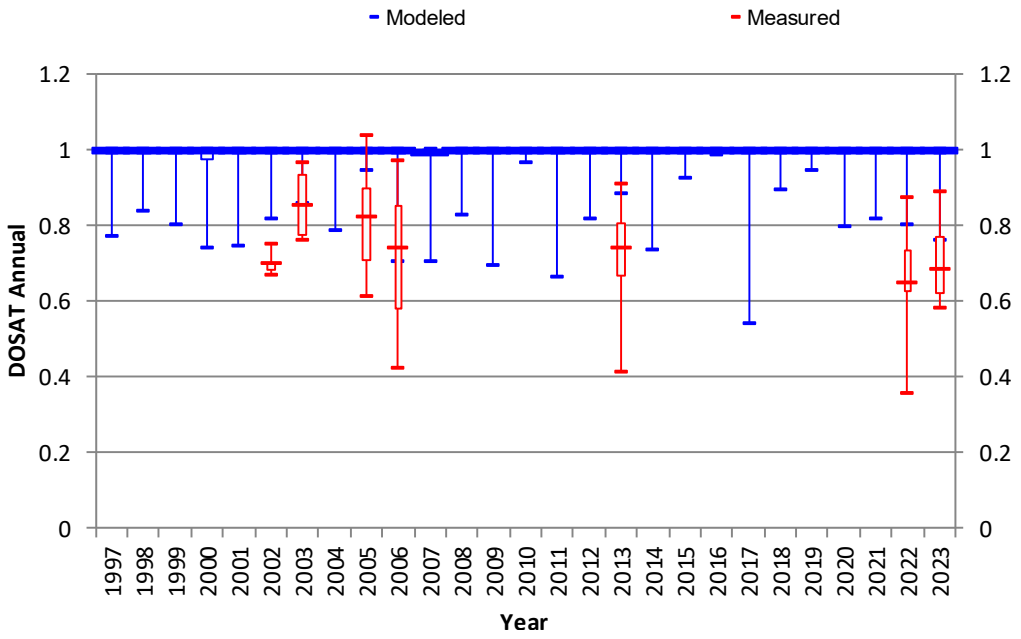


Figure B-379 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH169 Jack's Branch

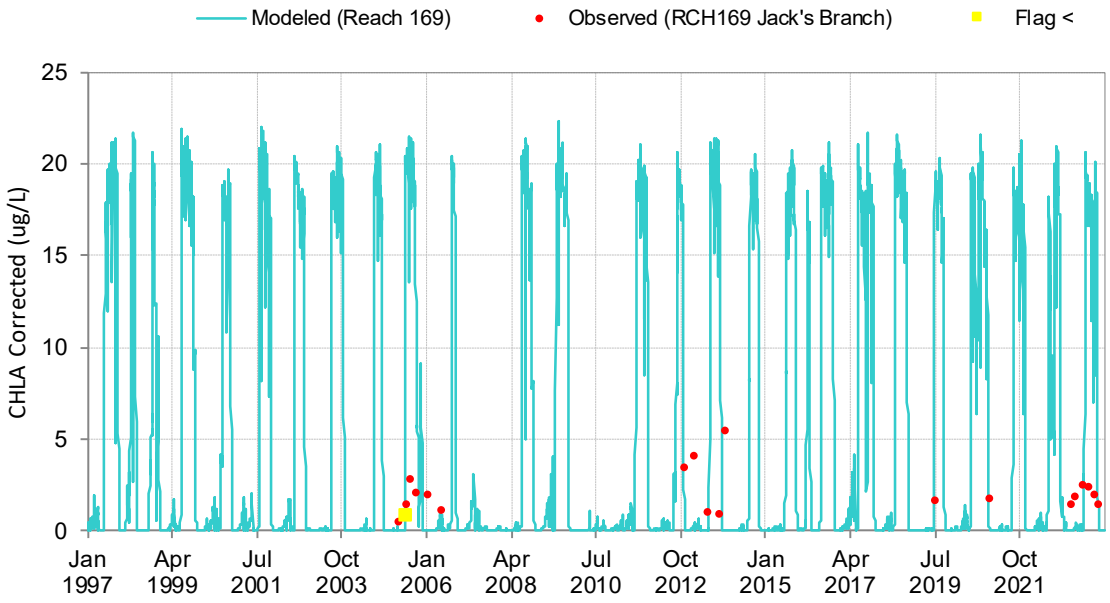


Figure B-380 Modeled Vs Observed CHLA Corrected (ug/L) at RCH169 Jack's Branch

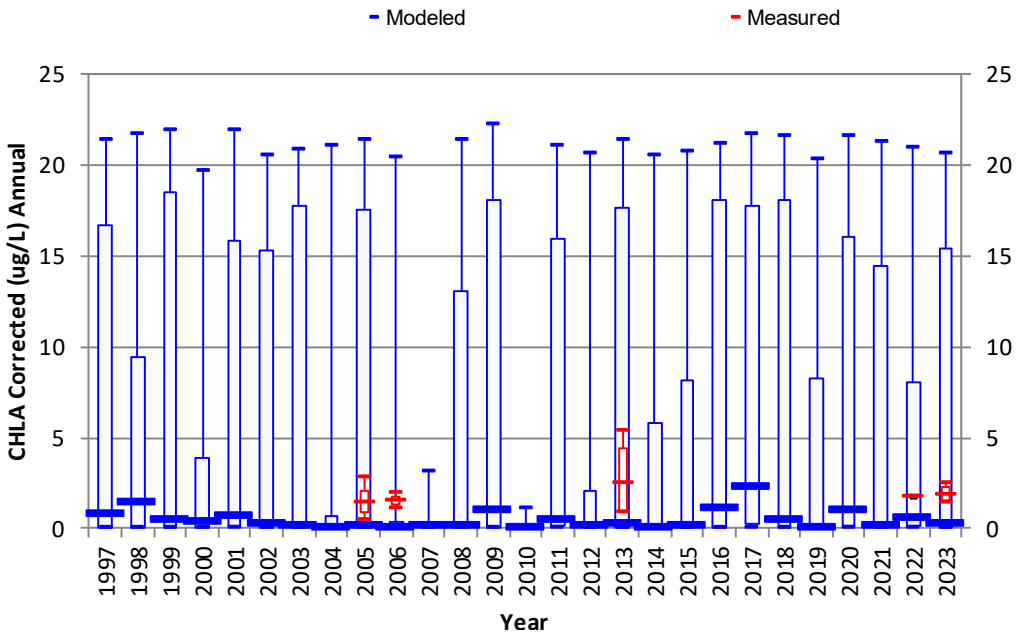


Figure B-381 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH169 Jack's Branch

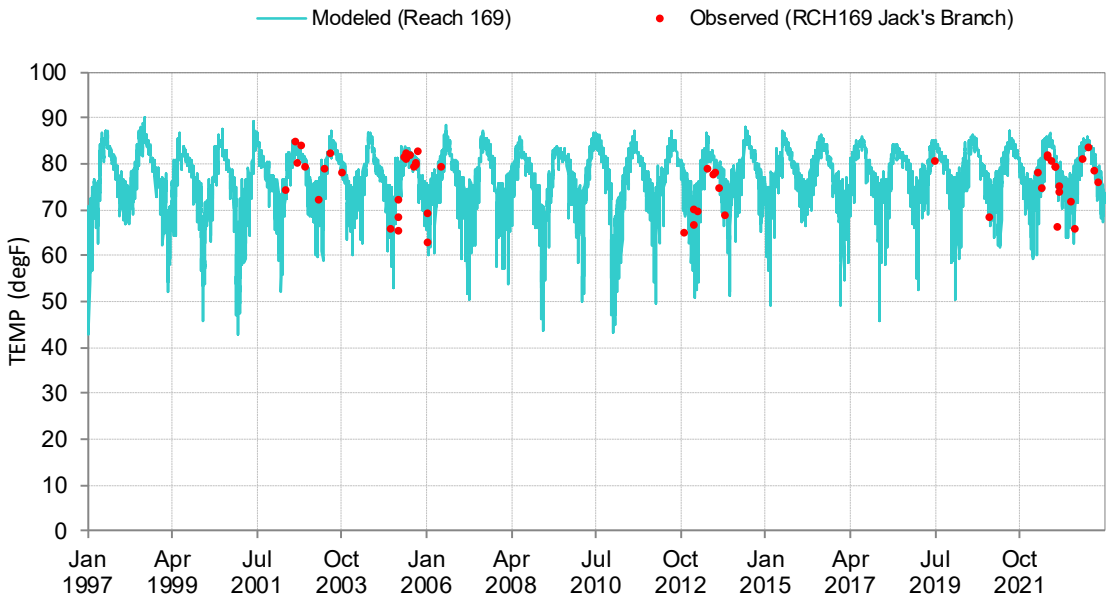


Figure B-382 Modeled Vs Observed TEMP (deg F) at RCH169 Jack's Branch

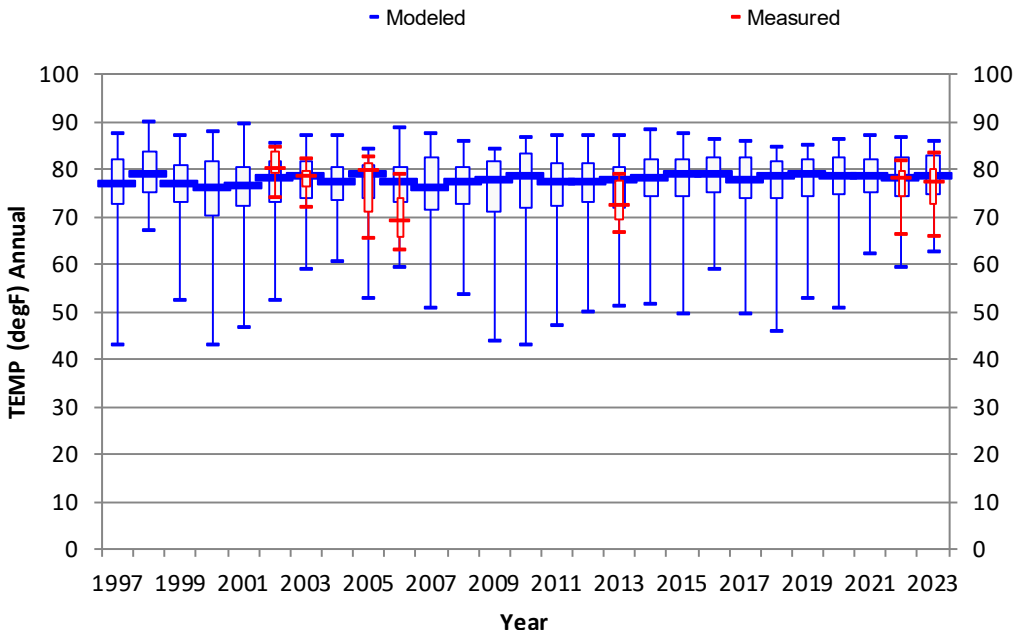


Figure B-383 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH169 Jack's Branch

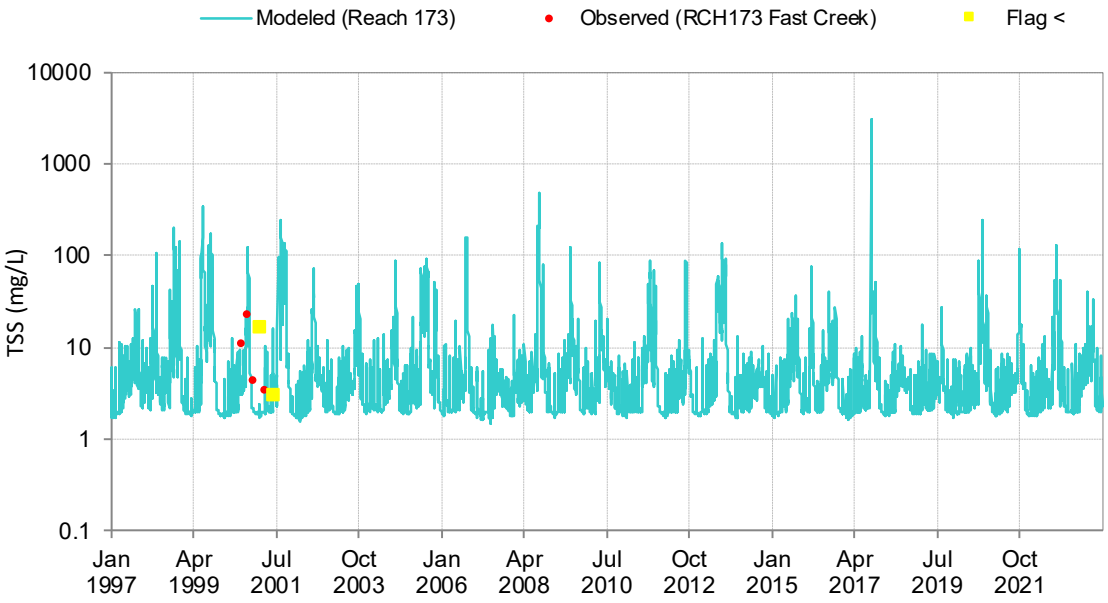


Figure B-384 Modeled Vs Observed TSS (mg/L) at RCH173 Fast Creek

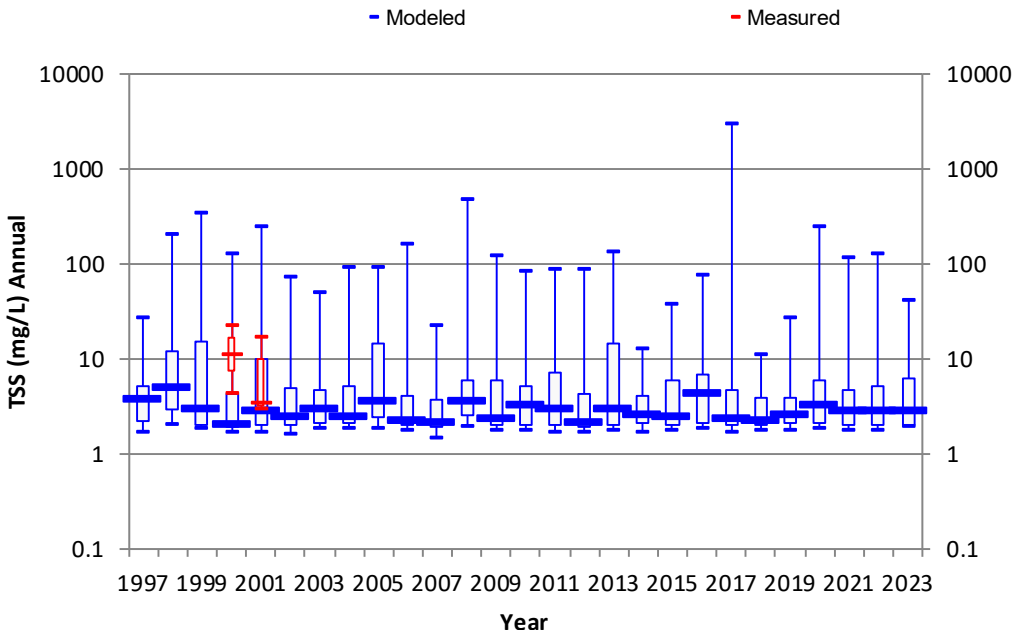


Figure B-385 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH173 Fast Creek

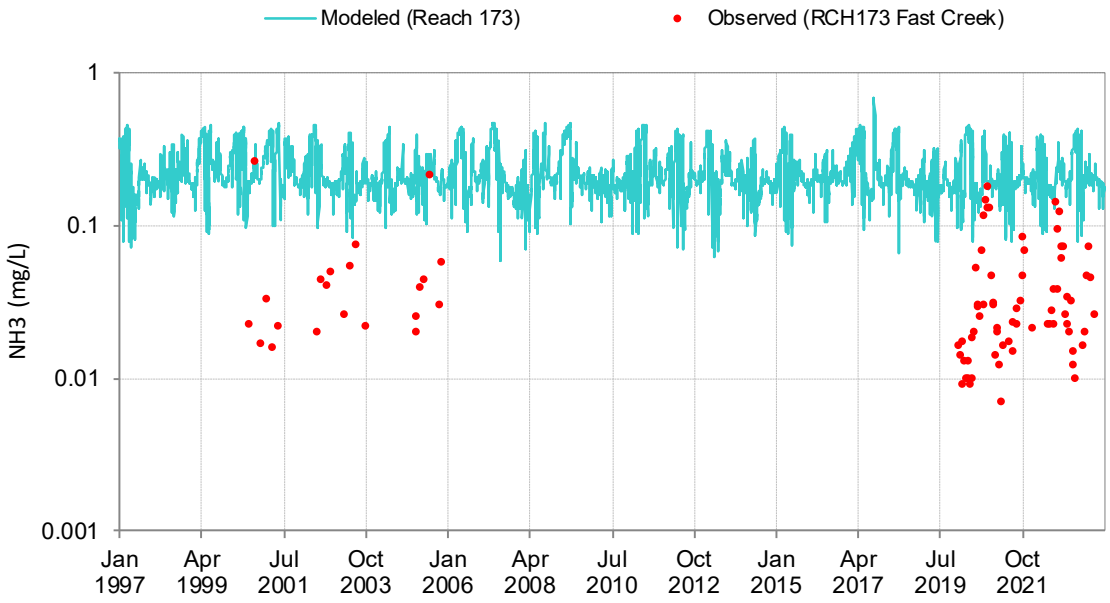


Figure B-386 Modeled Vs Observed NH3 (mg/L) at RCH173 Fast Creek

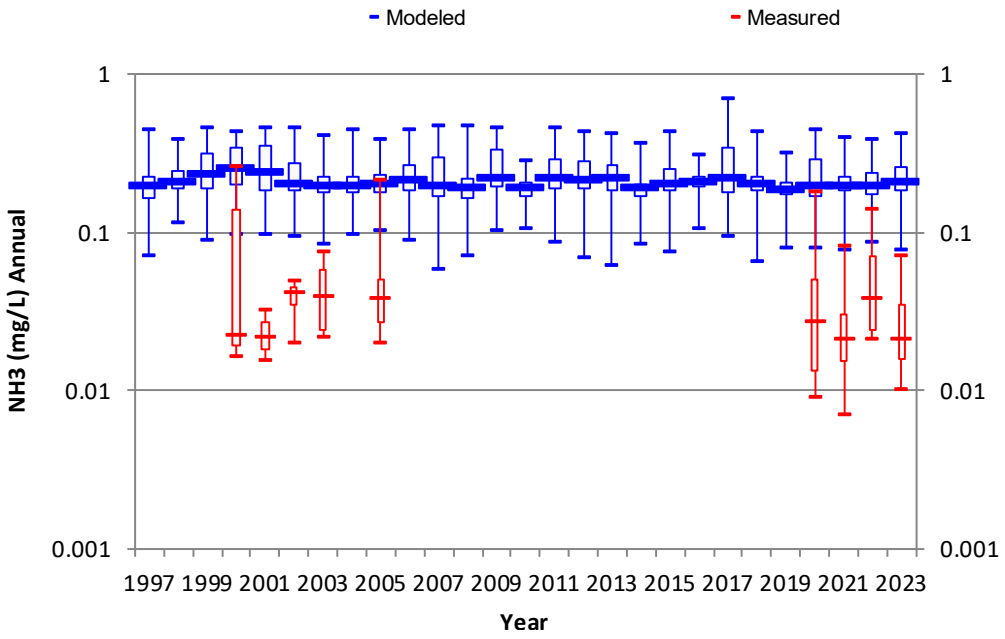


Figure B-387 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH173 Fast Creek

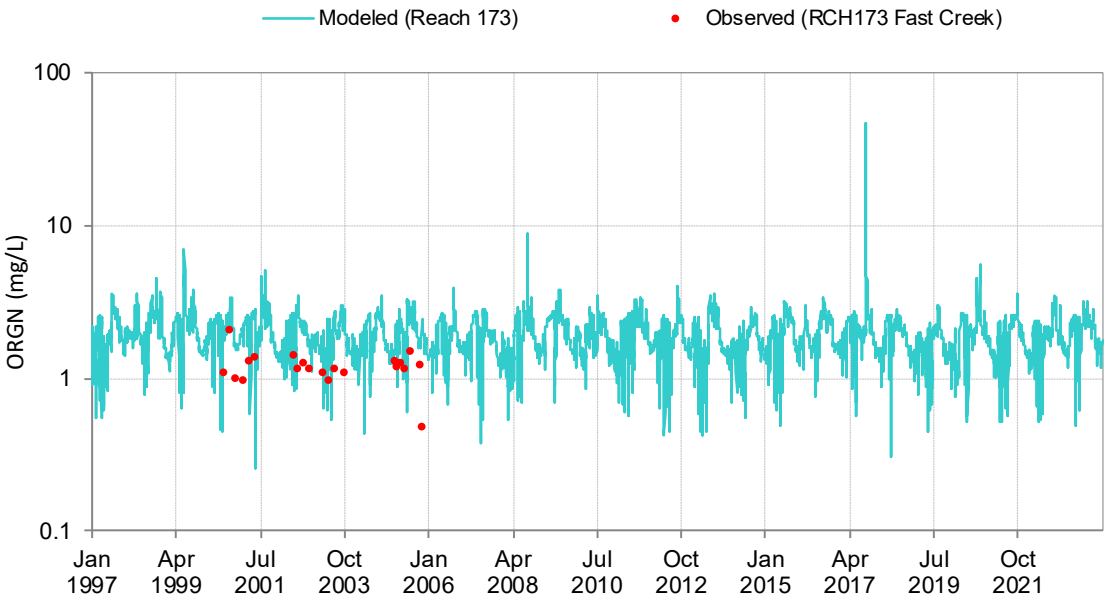


Figure B-388 Modeled Vs Observed ORGN (mg/L) at RCH173 Fast Creek

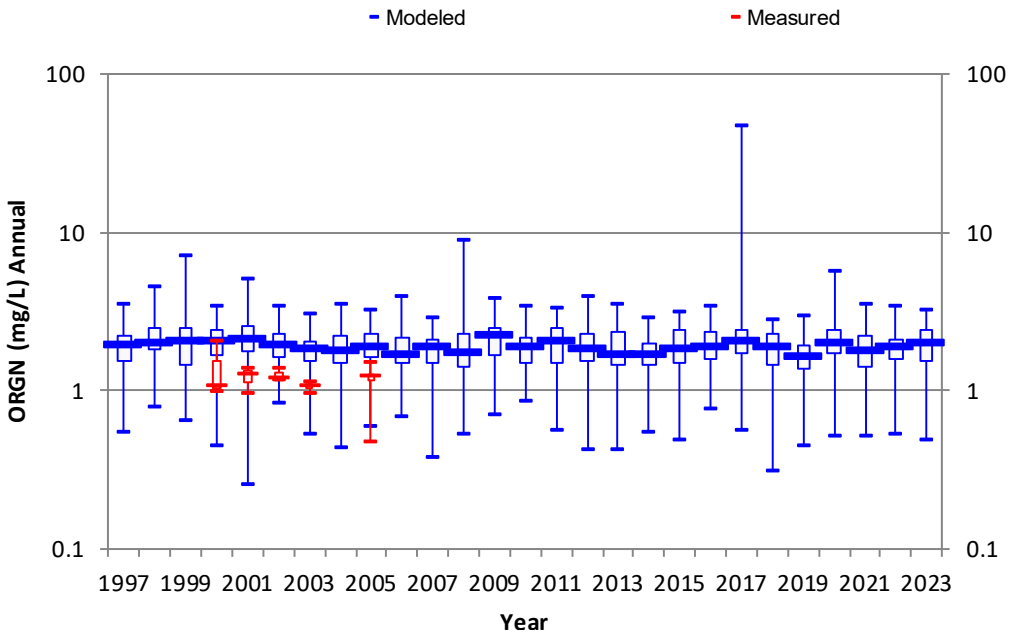


Figure B-389 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH173 Fast Creek

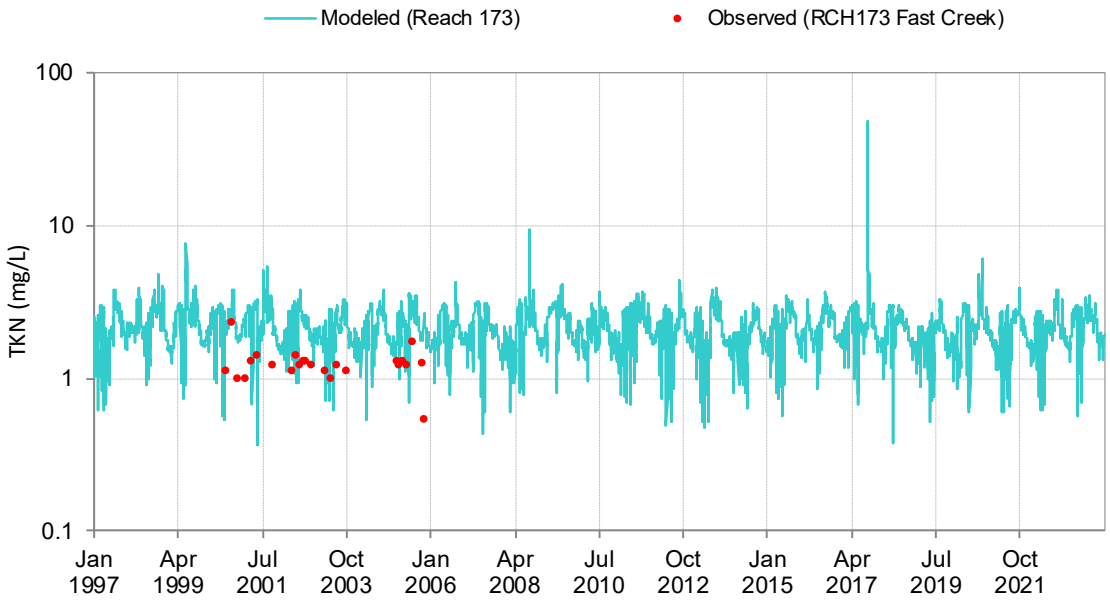


Figure B-390 Modeled Vs Observed TKN (mg/L) at RCH173 Fast Creek

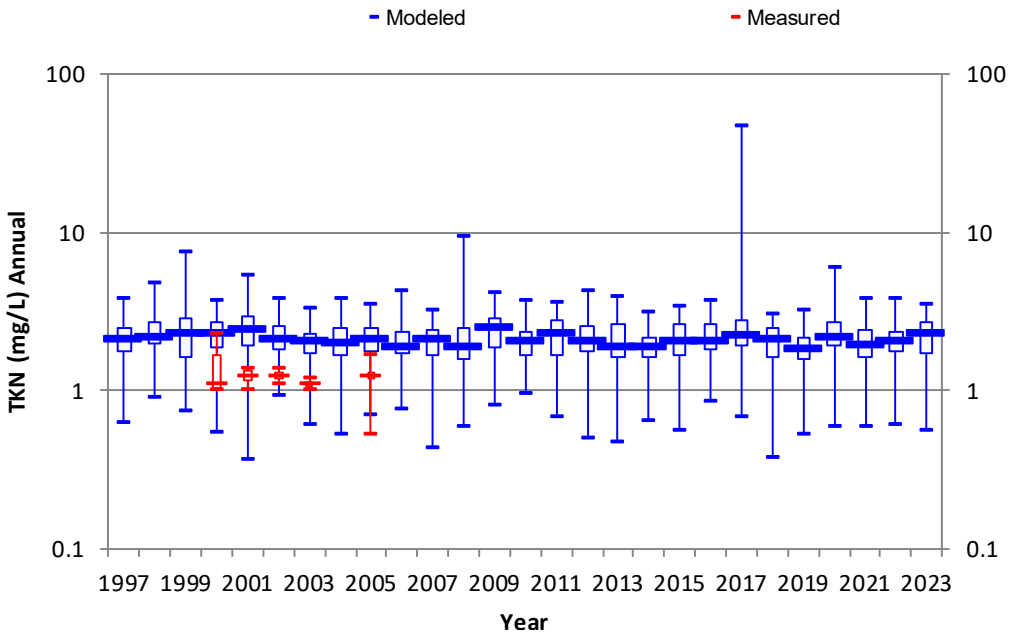


Figure B-391 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH173 Fast Creek

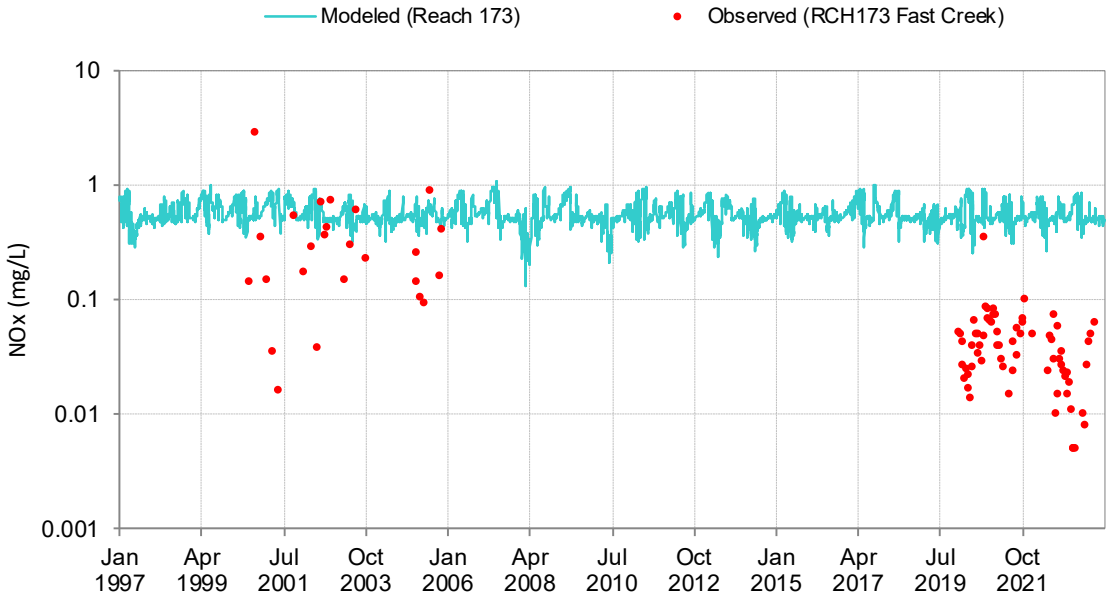


Figure B-392 Modeled Vs Observed NOx (mg/L) at RCH173 Fast Creek

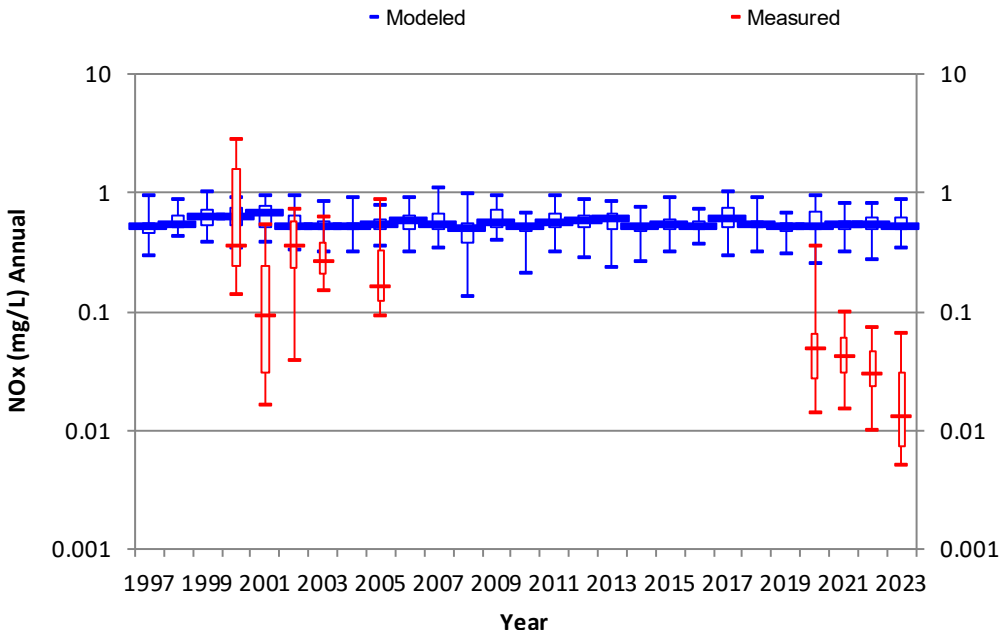


Figure B-393 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH173 Fast Creek

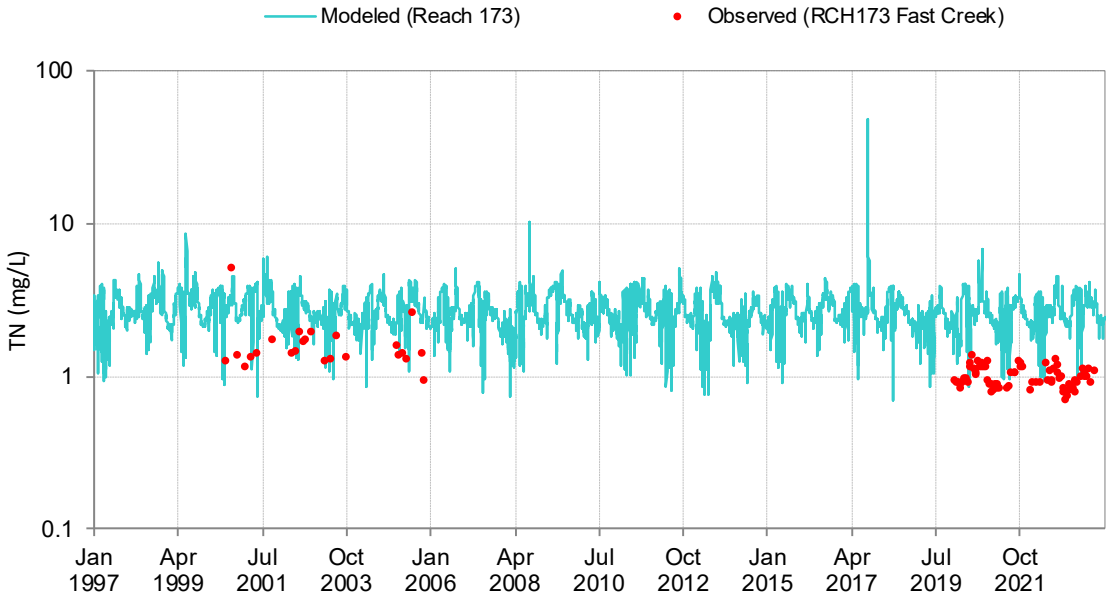


Figure B-394 Modeled Vs Observed TN (mg/L) at RCH173 Fast Creek

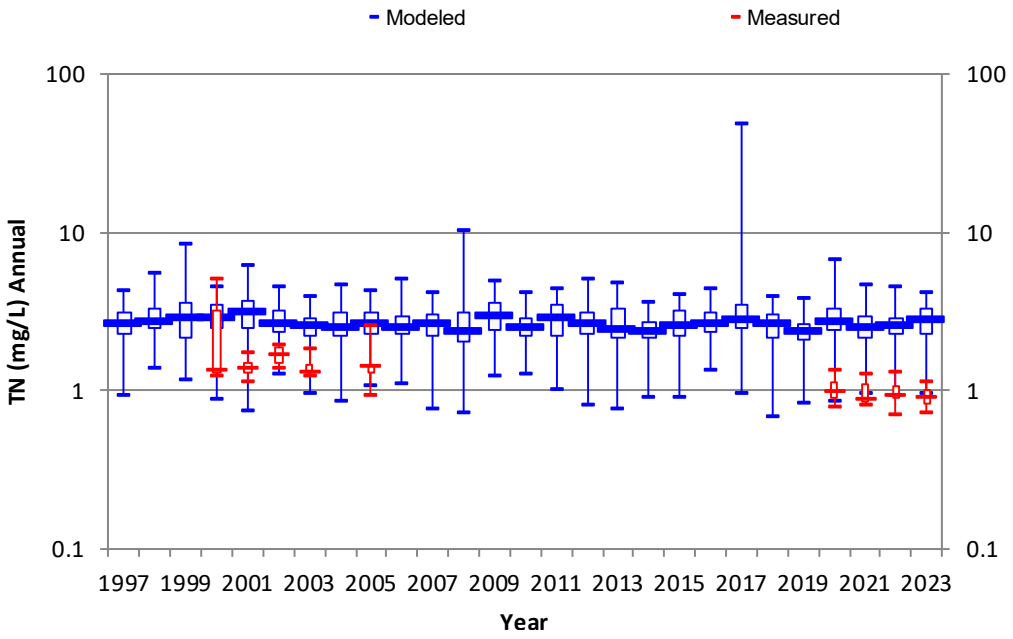


Figure B-395 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH173 Fast Creek

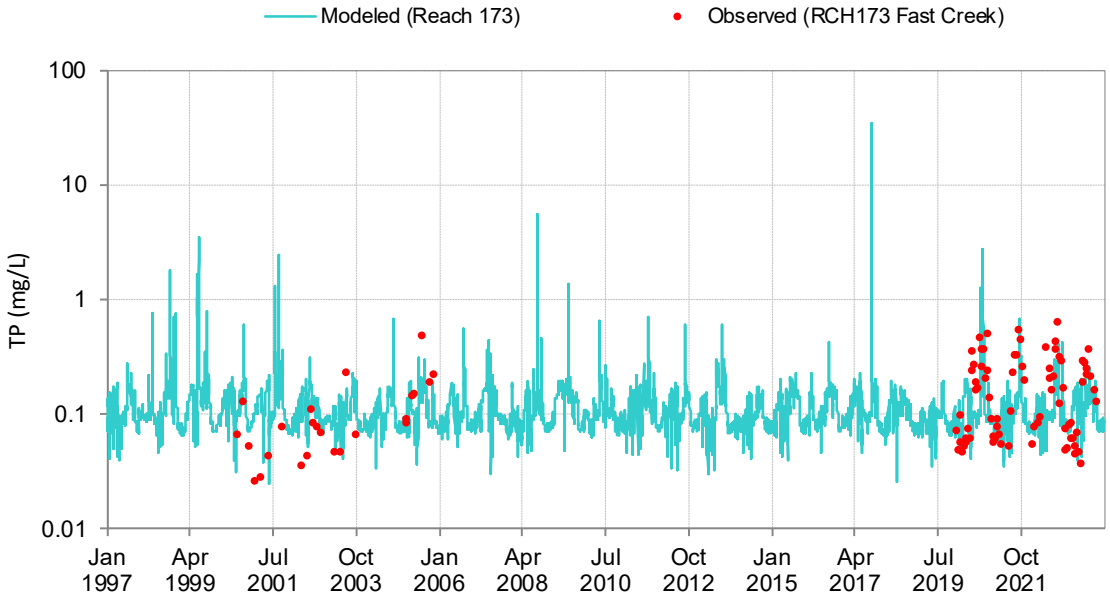


Figure B-396 Modeled Vs Observed TP (mg/L) at RCH173 Fast Creek

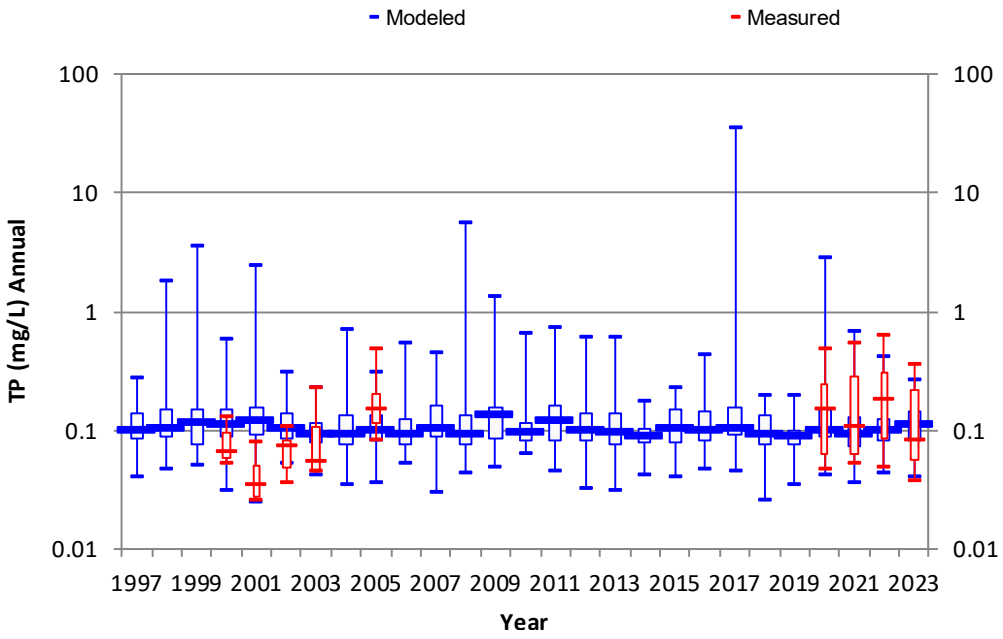


Figure B-397 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH173 Fast Creek

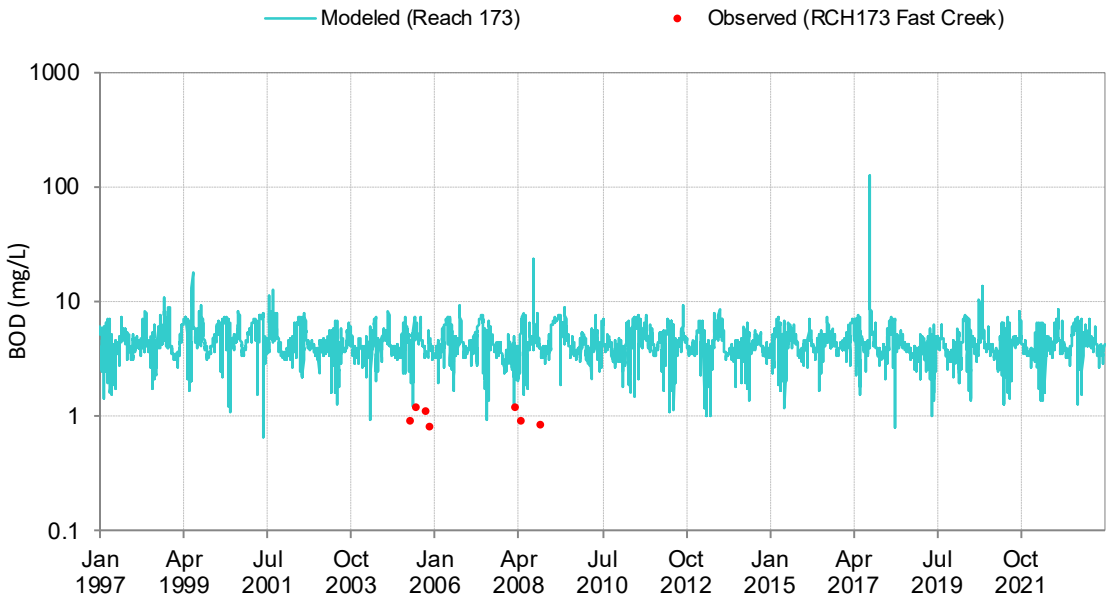


Figure B-398 Modeled Vs Observed BOD (mg/L) at RCH173 Fast Creek

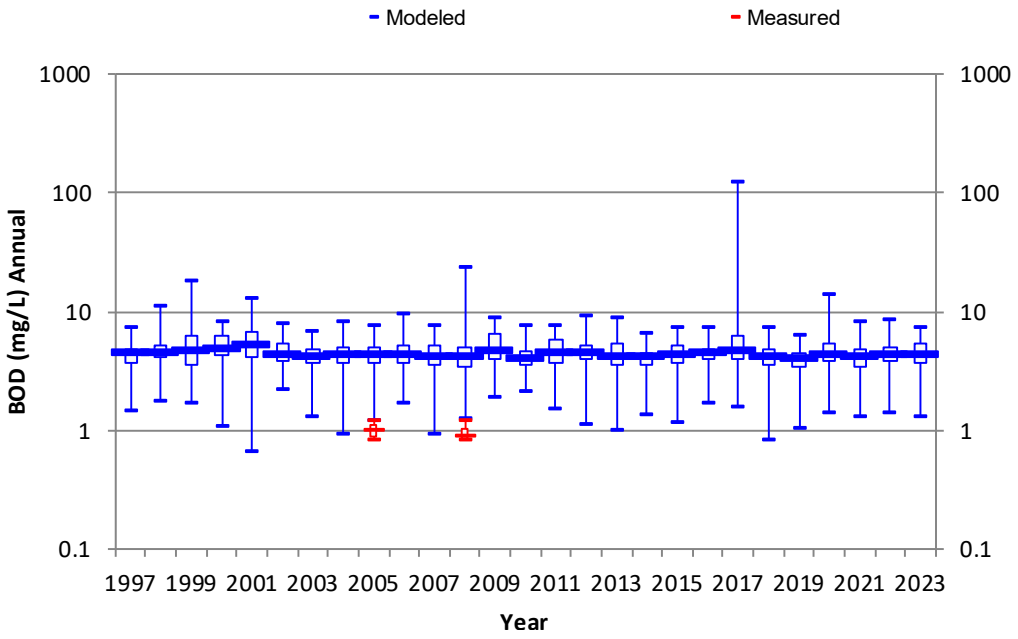


Figure B-399 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH173 Fast Creek

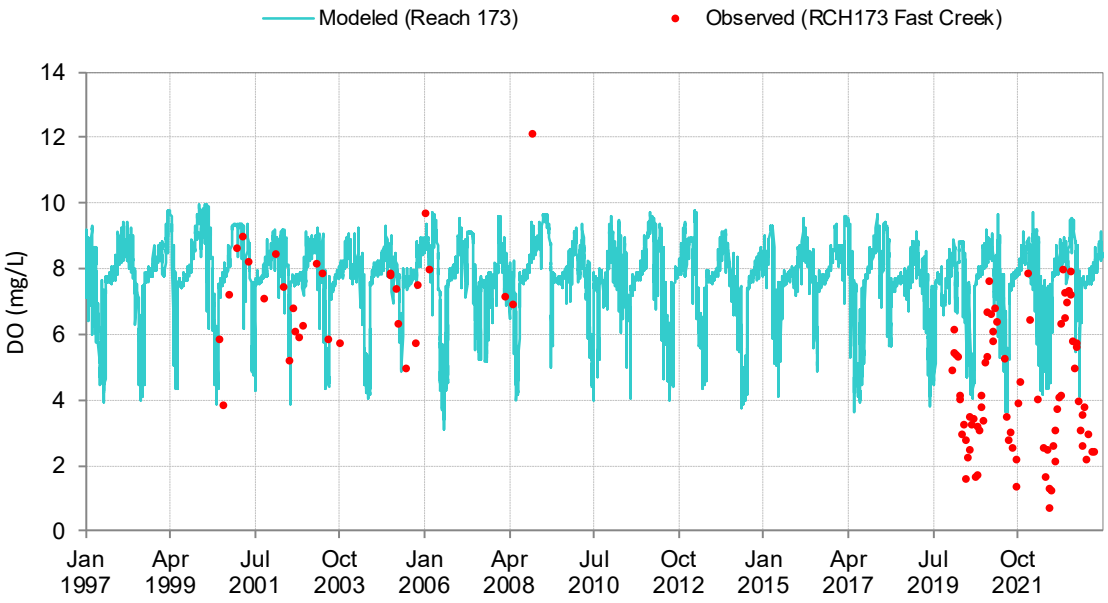


Figure B-400 Modeled Vs Observed DO (mg/L) at RCH173 Fast Creek

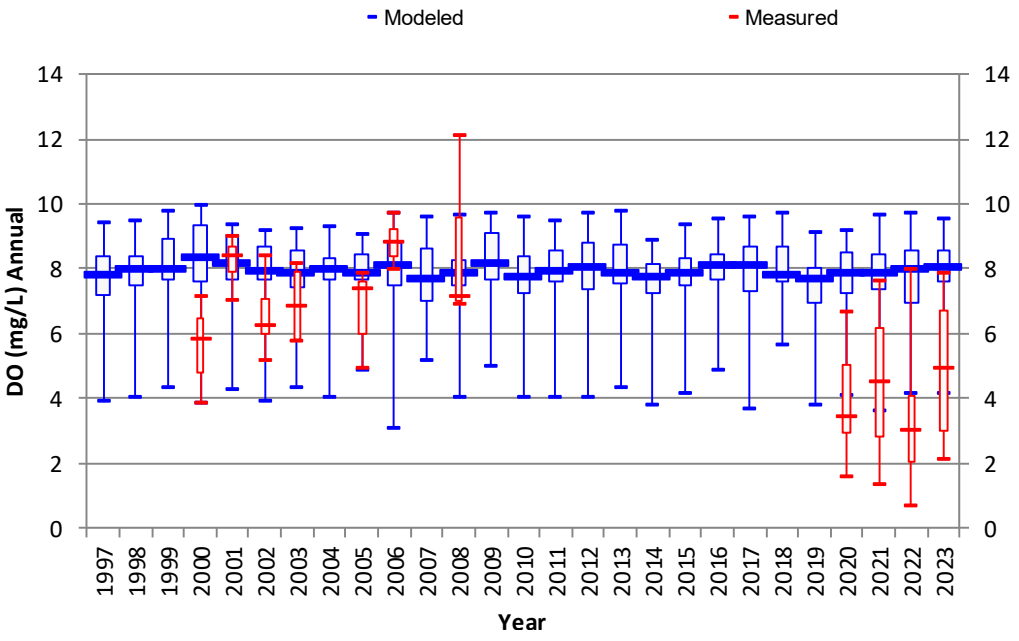


Figure B-401 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH173 Fast Creek

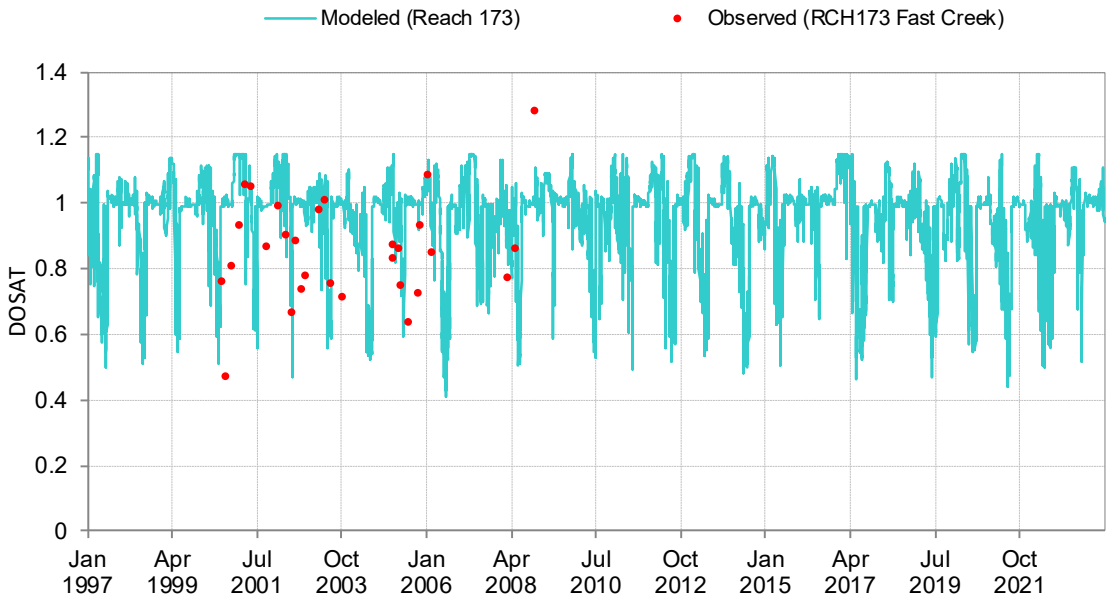


Figure B-402 Modeled Vs Observed DOSAT at RCH173 Fast Creek

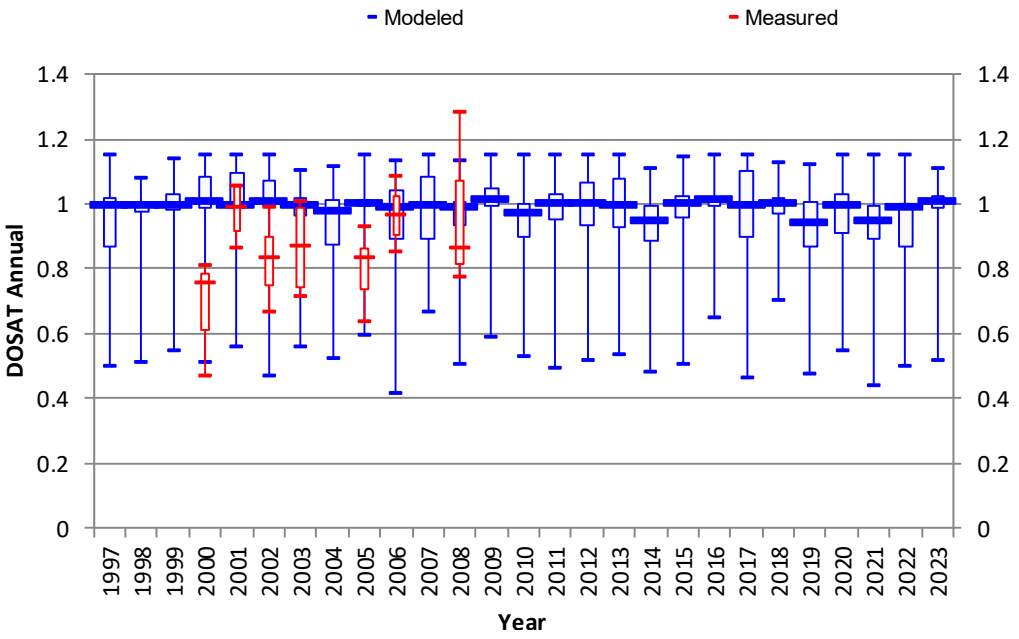


Figure B-403 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH173 Fast Creek

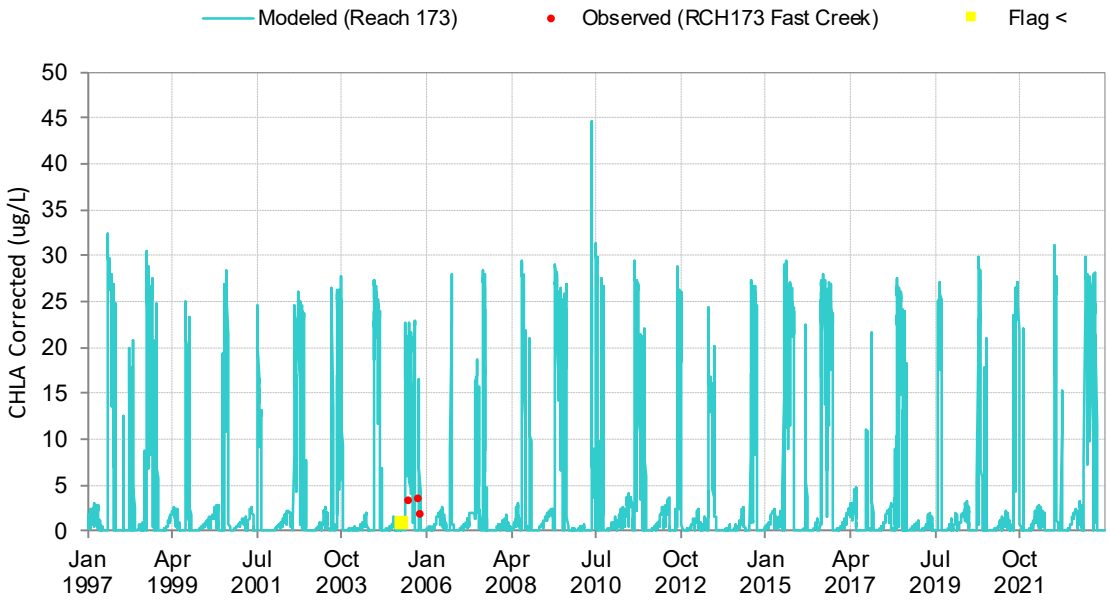


Figure B-404 Modeled Vs Observed CHLA Corrected (ug/L) at RCH173 Fast Creek

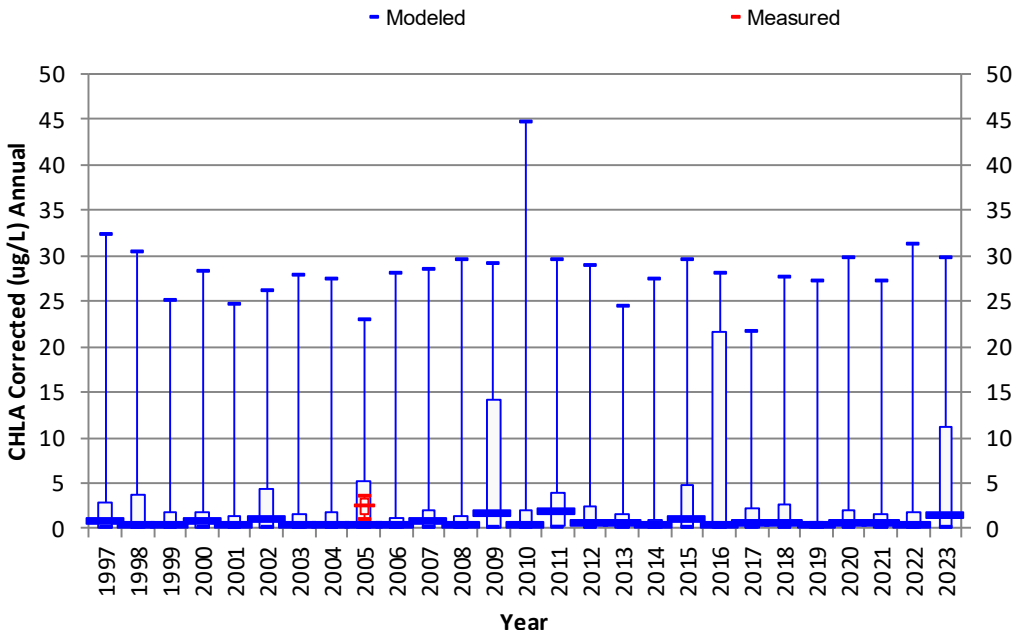


Figure B-405 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH173 Fast Creek

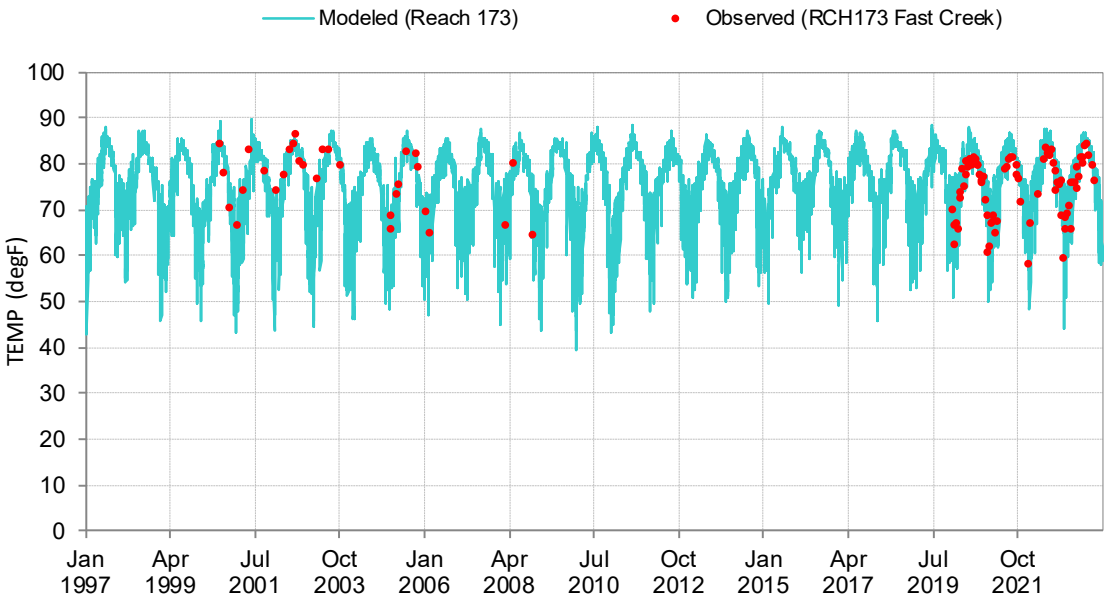


Figure B-406 Modeled Vs Observed TEMP (deg F) at RCH173 Fast Creek

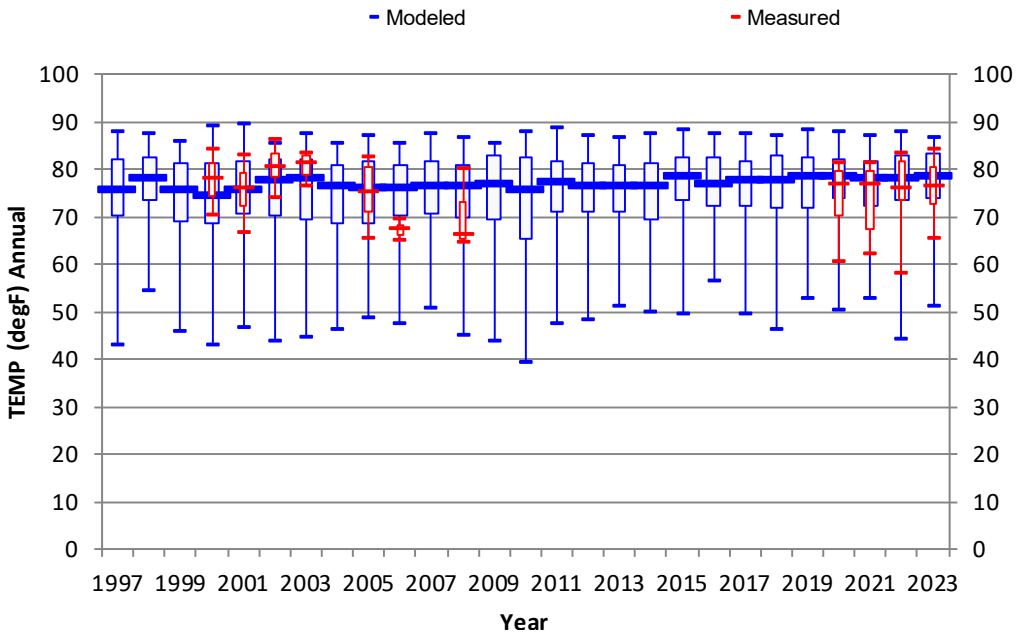


Figure B-407 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH173 Fast Creek

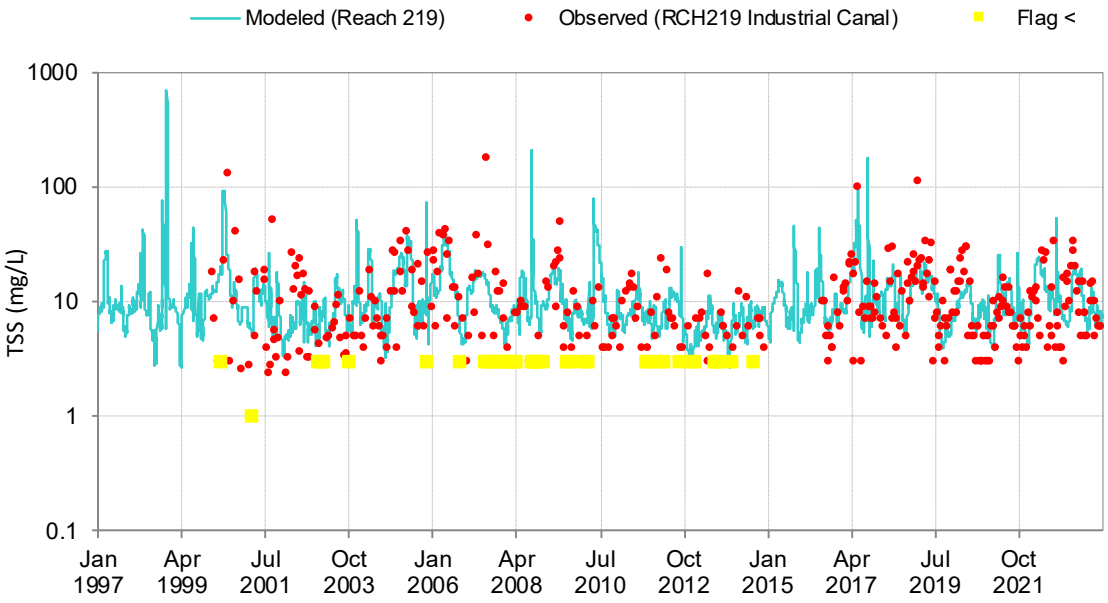


Figure B-408 Modeled Vs Observed TSS (mg/L) at RCH219 Industrial Canal

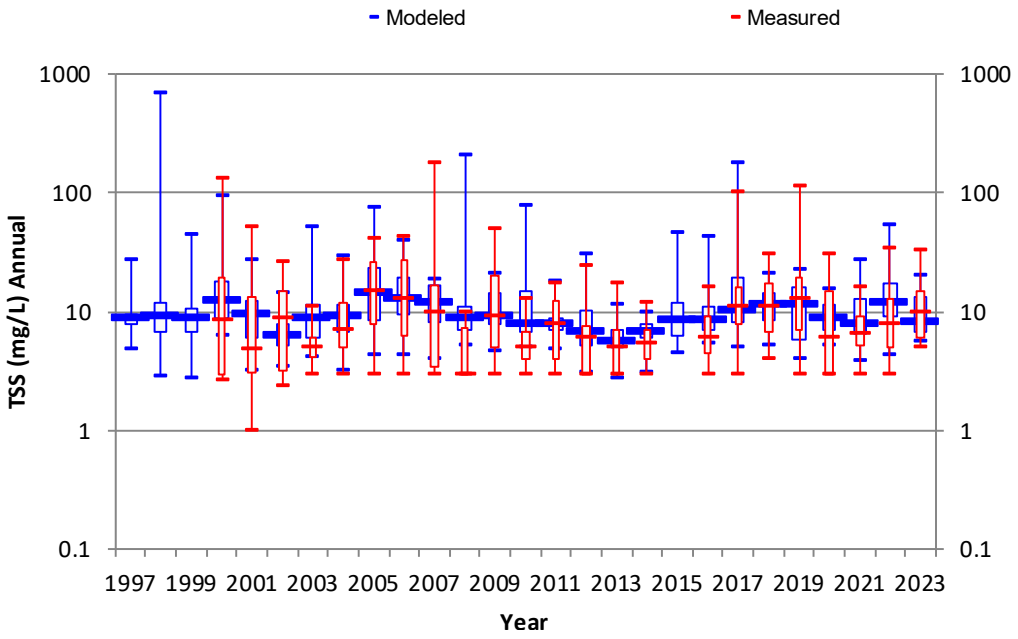


Figure B-409 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH219 Industrial Canal

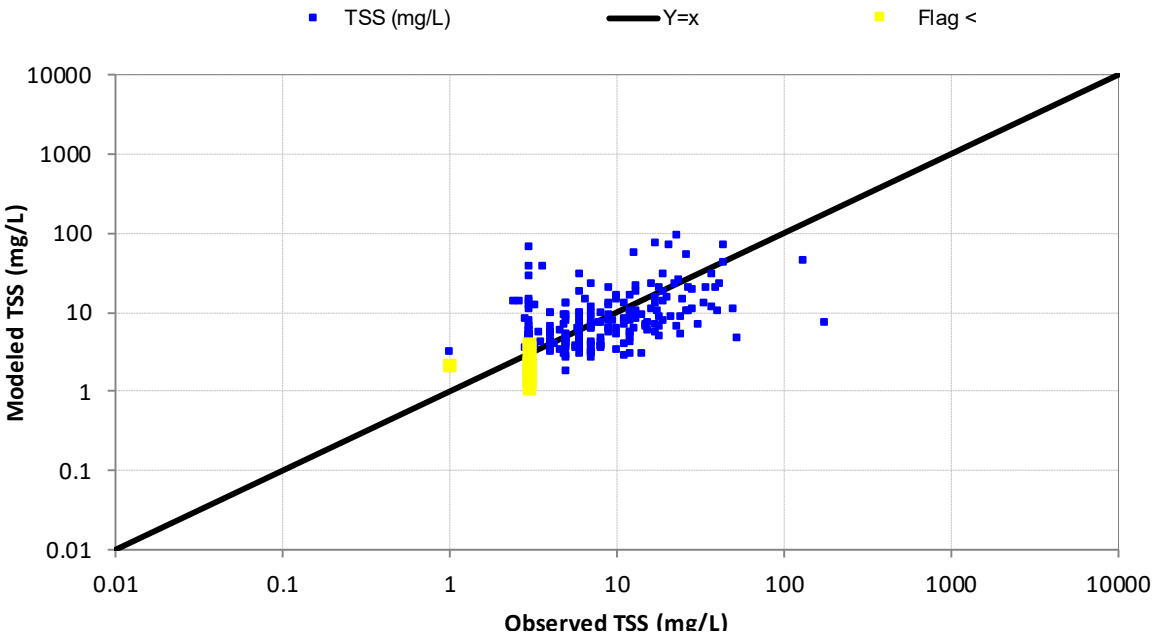


Figure B-410 Concentration at RCH219 Industrial Canal

Table B- 91 Monthly TSS Concentration Comparisons at RCH219 Industrial Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	13.46	8.88	-34.0	F
Feb	10.34	9.48	-8.4	VG
Mar	13.31	13.00	-2.4	VG
Apr	16.77	14.24	-15.1	G
May	15.43	18.88	22.4	G
Jun	21.73	14.55	-33.0	F
Jul	8.33	10.08	21.0	G
Aug	5.80	9.71	67.4	P
Sep	9.05	9.74	7.7	VG
Oct	7.21	8.86	22.9	G
Nov	6.74	12.33	83.1	P
Dec	8.40	9.04	7.6	VG
Average*	11.38	11.57	1.6	VG
Median**	9.70	9.91	2.2	VG
R2	N/A	N/A	0.43	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 92 Annual TSS Concentration Comparisons at RCH219 Industrial Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	9.97	N/A	N/A
1998	N/A	21.00	N/A	N/A
1999	N/A	9.43	N/A	N/A
2000	21.44	19.81	-7.6	VG
2001	10.11	9.72	-3.9	VG
2002	10.01	6.79	-32.1	F
2003	5.27	10.14	92.3	P
2004	9.00	10.82	20.2	G
2005	16.62	16.87	1.5	VG
2006	17.69	15.40	-13.0	VG
2007	20.25	11.65	-42.5	P
2008	3.94	12.46	215.8	P
2009	13.59	10.74	-20.9	G
2010	5.50	14.50	163.7	P
2011	8.20	8.13	-0.9	VG
2012	7.00	7.76	10.9	VG
2013	5.31	6.04	13.7	VG
2014	5.83	6.97	19.6	G
2015	N/A	9.94	N/A	N/A
2016	7.00	10.47	49.6	P
2017	15.96	17.83	11.7	VG
2018	13.15	11.43	-13.1	VG
2019	17.19	11.62	-32.4	F
2020	10.56	9.06	-14.2	VG
2021	7.46	10.04	34.5	F
2022	11.17	13.68	22.5	G
2023	12.16	10.11	-16.9	G
Average*	11.06	11.57	4.6	VG
Median**	10.11	10.47	3.6	VG
R2	N/A	N/A	0.40	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 93 Daily TSS Concentration Comparisons at RCH219 Industrial Canal

Statistic	Results	Rating
Count (number)	421	N/A
Average Error (%)	66.1	P
Median Error (%)	14.8	VG
RMSE (mg/L)	15.03	N/A
R2	0.06	P

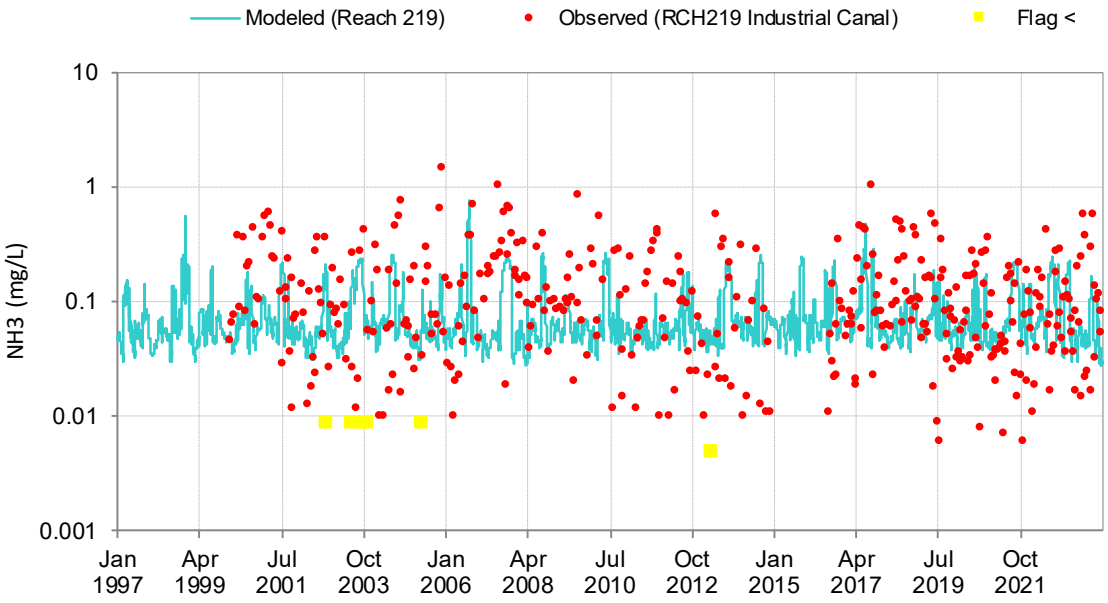


Figure B-411 Modeled Vs Observed NH3 (mg/L) at RCH219 Industrial Canal

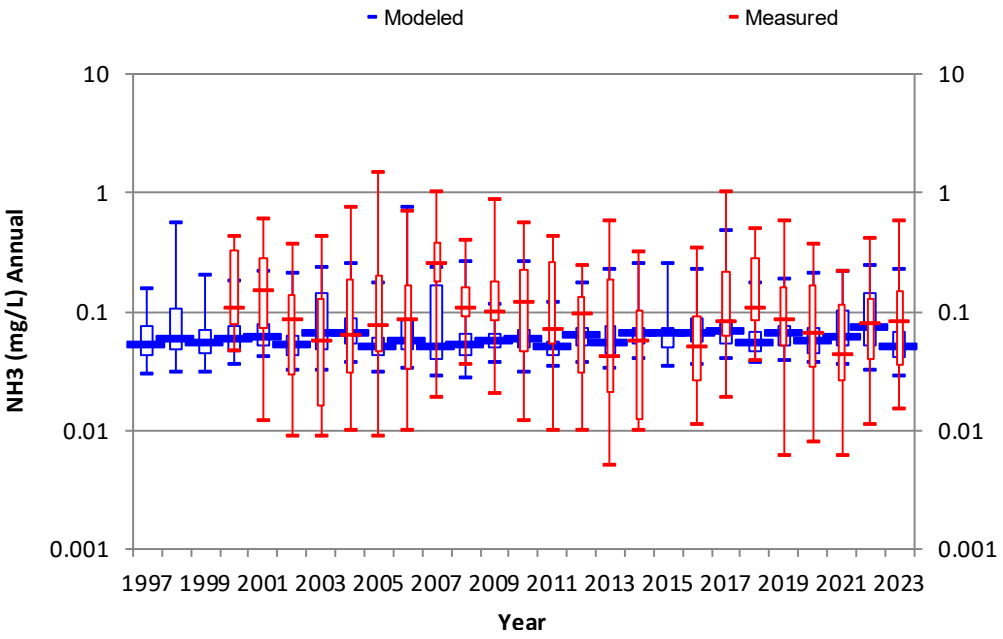


Figure B-412 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH219 Industrial Canal

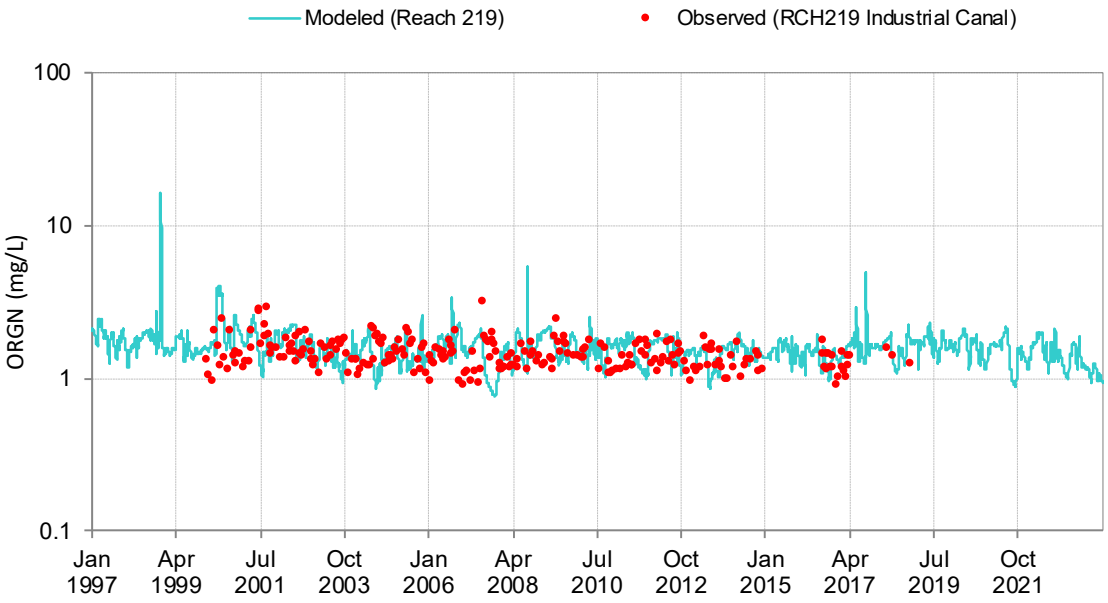


Figure B-413 Modeled Vs Observed ORGN (mg/L) at RCH219 Industrial Canal

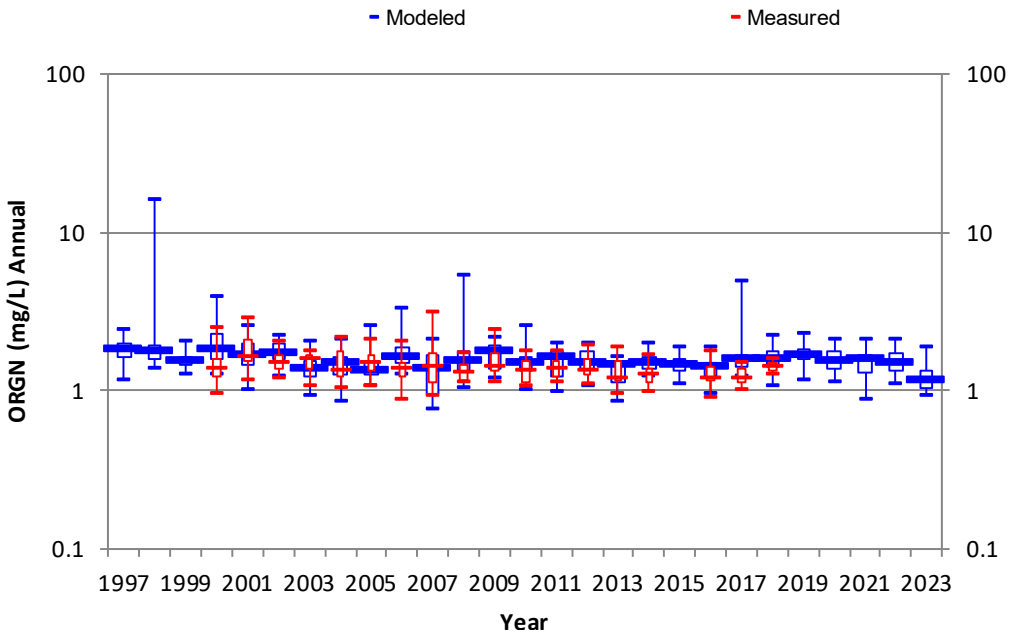


Figure B-414 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH219 Industrial Canal

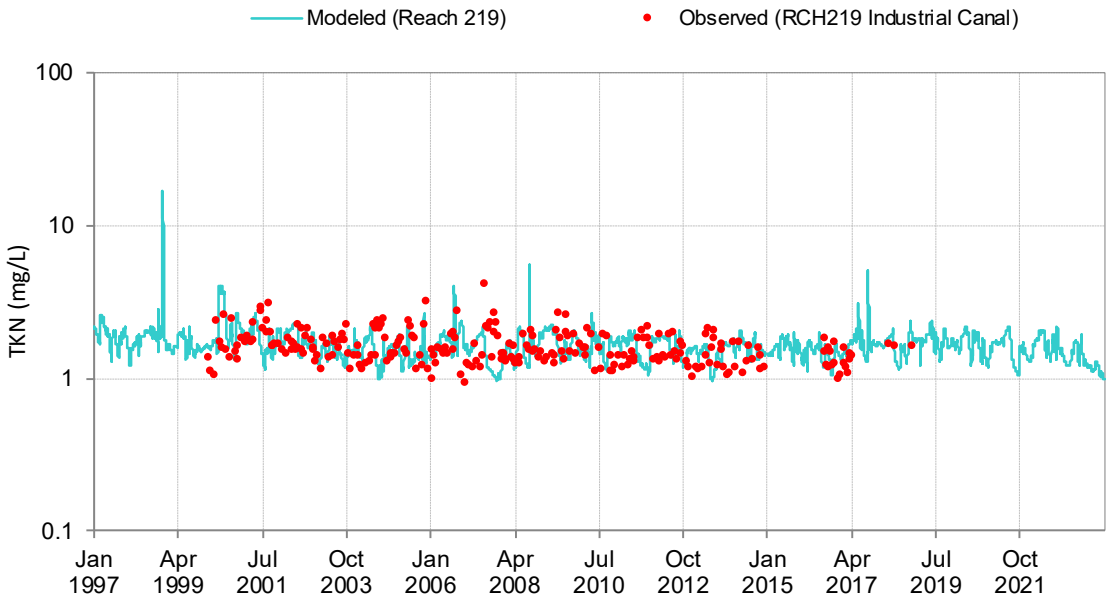


Figure B-415 Modeled Vs Observed TKN (mg/L) at RCH219 Industrial Canal

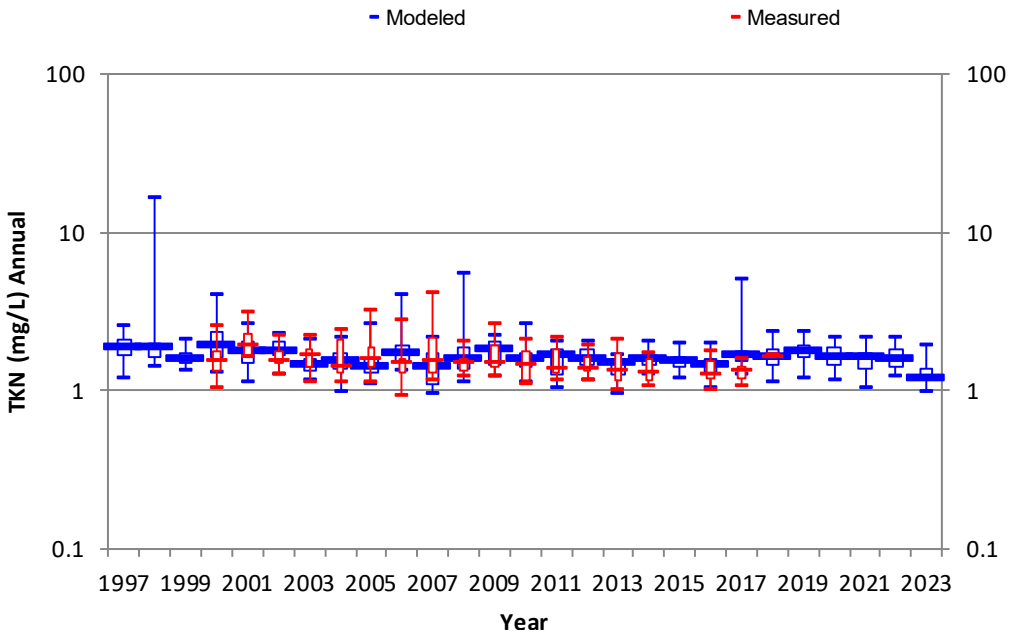


Figure B-416 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH219 Industrial Canal

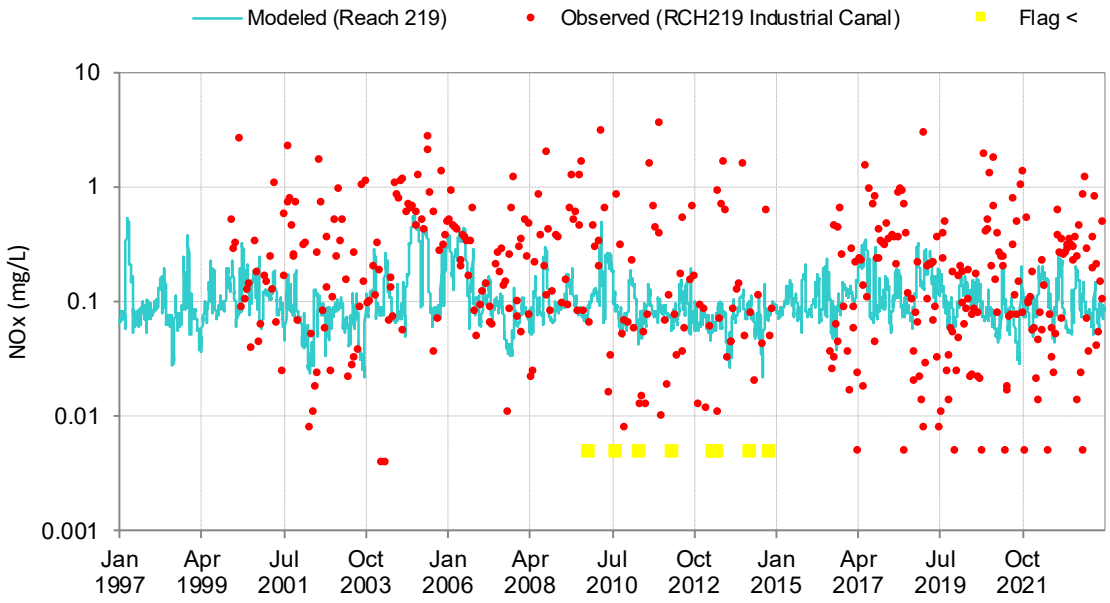


Figure B-417 Modeled Vs Observed NOx (mg/L) at RCH219 Industrial Canal

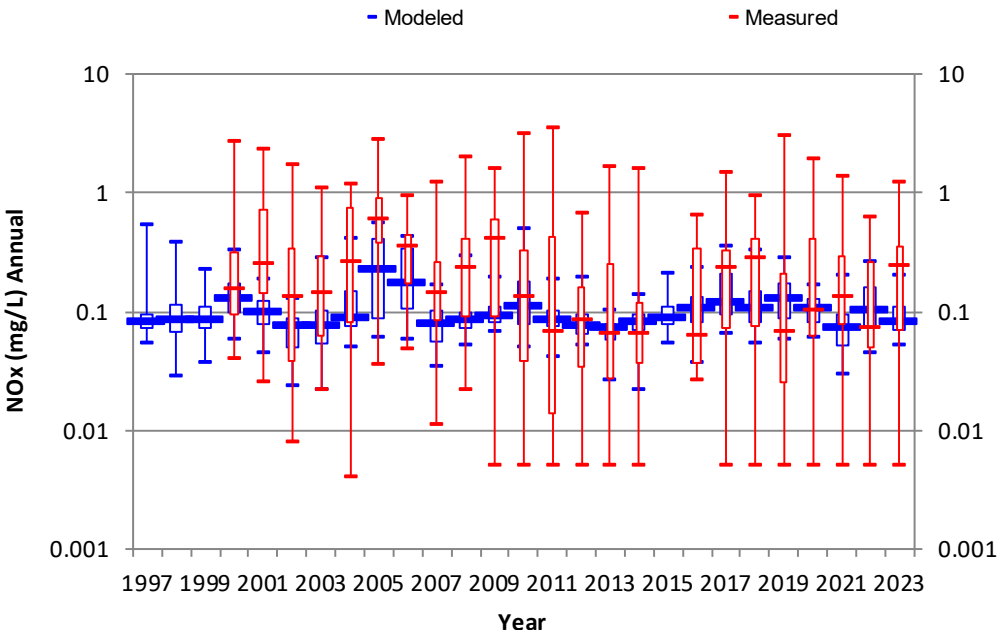


Figure B-418 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH219 Industrial Canal

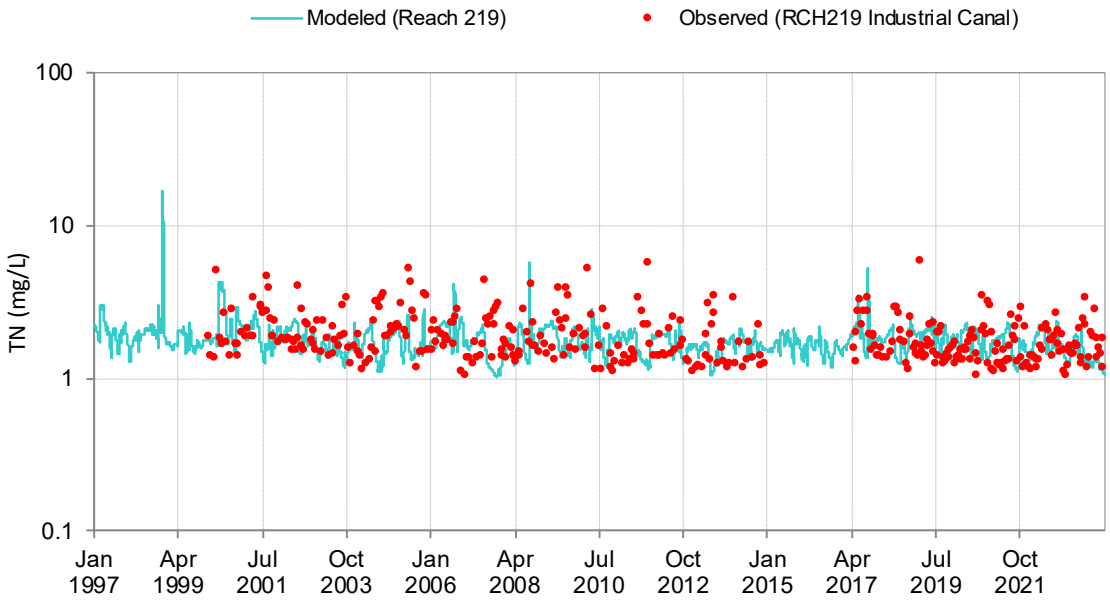


Figure B-419 Modeled Vs Observed TN (mg/L) at RCH219 Industrial Canal

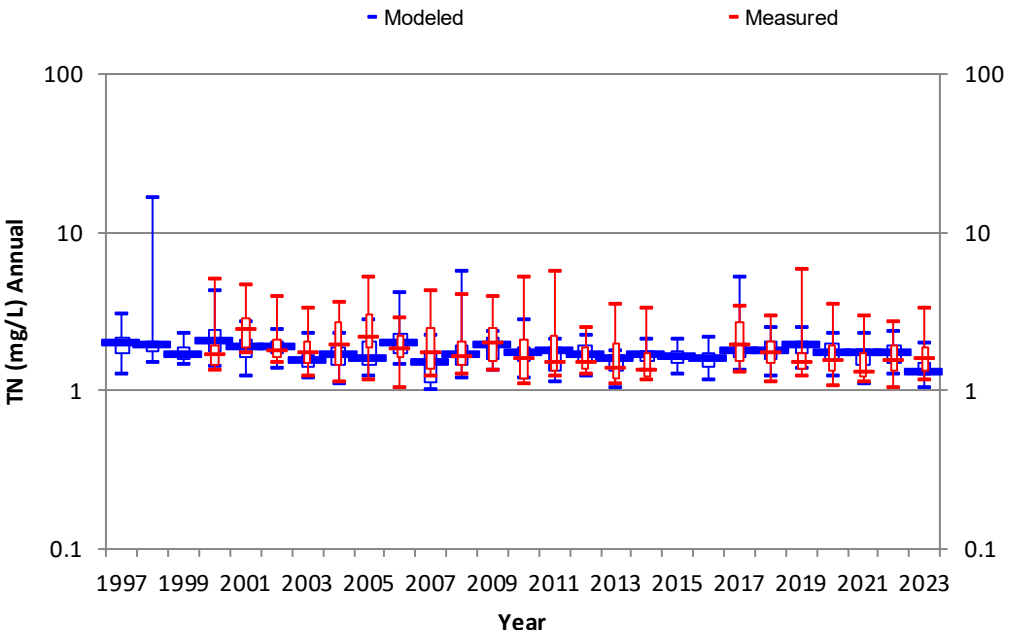


Figure B-420 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH219 Industrial Canal

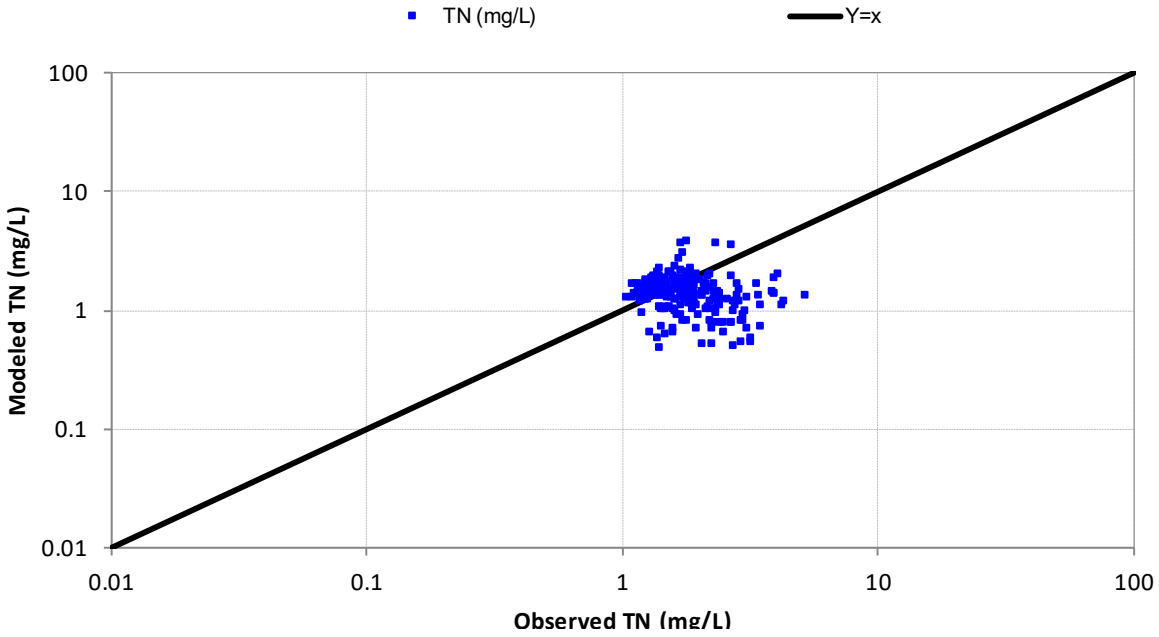


Figure B-421 Concentration at RCH219 Industrial Canal

Table B- 94 Monthly TN Concentration Comparisons at RCH219 Industrial Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	1.66	1.72	3.7	VG
Feb	1.70	1.74	2.3	VG
Mar	1.69	1.84	8.9	VG
Apr	1.75	1.93	10.6	VG
May	1.66	2.10	26.8	VG
Jun	2.34	1.82	-22.3	VG
Jul	2.09	1.64	-21.5	VG
Aug	2.17	1.65	-24.1	VG
Sep	2.30	1.58	-31.3	G
Oct	1.93	1.71	-11.5	VG
Nov	1.83	1.81	-0.9	VG
Dec	1.62	1.68	3.8	VG
Average*	1.90	1.77	-6.7	VG
Median**	1.79	1.73	-3.2	VG
R2	N/A	N/A	0.21	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 95 Annual TN Concentration Comparisons at RCH219 Industrial Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	2.00	N/A	N/A
1998	N/A	2.16	N/A	N/A
1999	N/A	1.74	N/A	N/A
2000	2.03	2.33	14.9	VG
2001	2.57	1.91	-25.8	VG
2002	1.98	1.90	-3.8	VG
2003	1.90	1.56	-17.9	VG
2004	2.12	1.66	-21.3	VG
2005	2.52	1.74	-31.0	G
2006	1.87	2.05	9.4	VG
2007	2.07	1.51	-27.2	VG
2008	1.88	1.76	-6.6	VG
2009	2.21	1.87	-15.6	VG
2010	1.93	1.72	-10.9	VG
2011	2.03	1.66	-18.0	VG
2012	1.68	1.71	1.7	VG
2013	1.73	1.50	-13.3	VG
2014	1.59	1.68	5.3	VG
2015	N/A	1.66	N/A	N/A
2016	N/A	1.57	N/A	N/A
2017	2.10	1.88	-10.5	VG
2018	1.85	1.77	-4.1	VG
2019	1.76	1.90	7.9	VG
2020	1.77	1.75	-1.1	VG
2021	1.57	1.68	7.1	VG
2022	1.63	1.74	7.1	VG
2023	1.73	1.39	-19.6	VG
Average*	1.93	1.77	-8.4	VG
Median**	1.89	1.74	-8.0	VG
R2	N/A	N/A	0.07	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 96 Daily TN Concentration Comparisons at RCH219 Industrial Canal

Statistic	Results	Rating
Count (number)	400	N/A
Average Error (%)	2.9	VG
Median Error (%)	6.3	VG
RMSE (mg/L)	0.92	N/A
R2	0.02	P

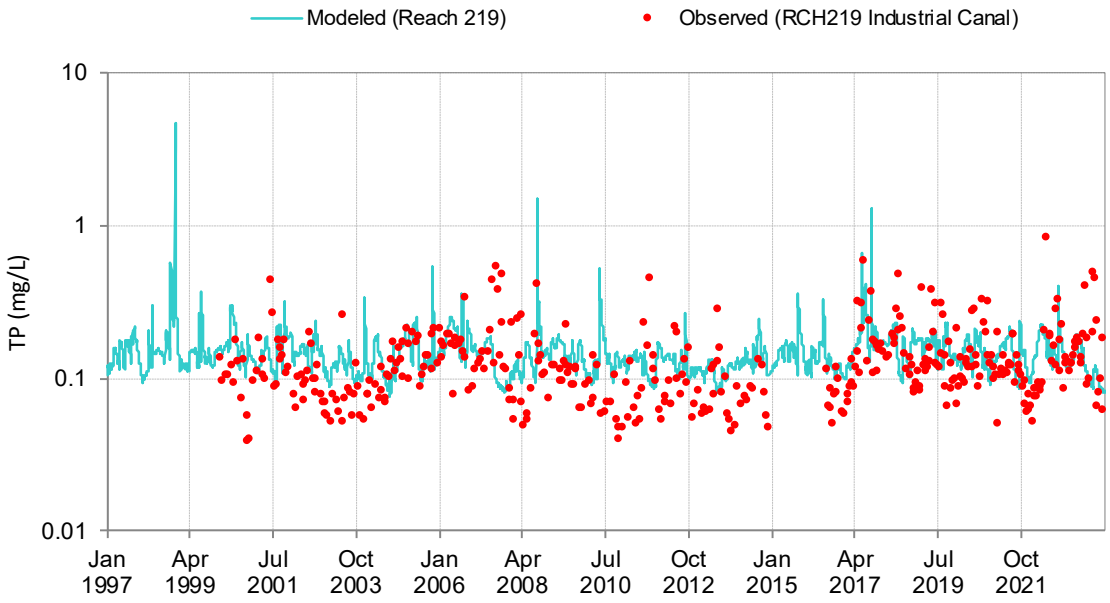


Figure B-422 Modeled Vs Observed TP (mg/L) at RCH219 Industrial Canal

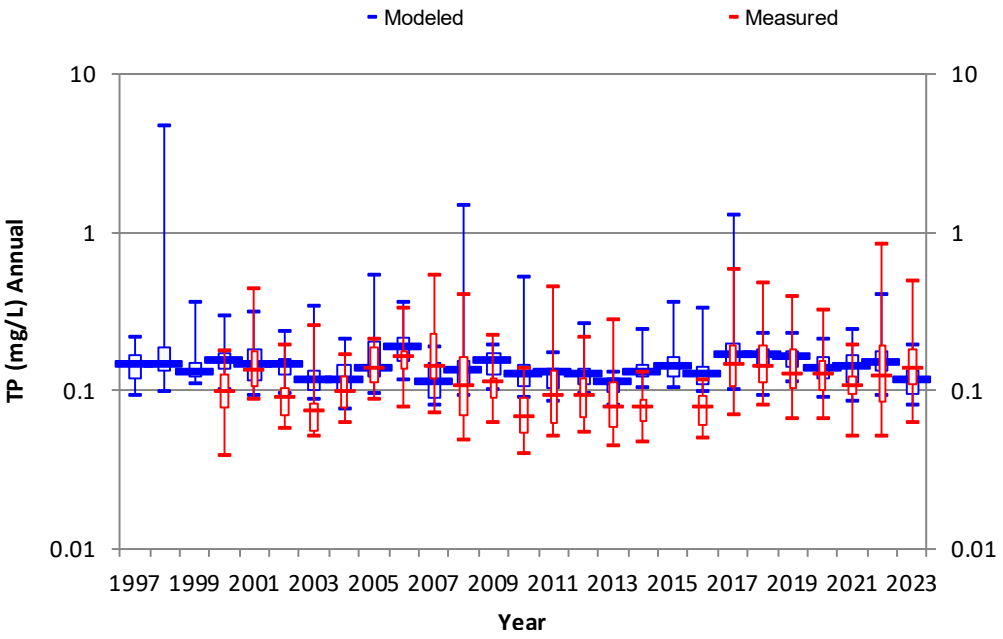


Figure B-423 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH219 Industrial Canal

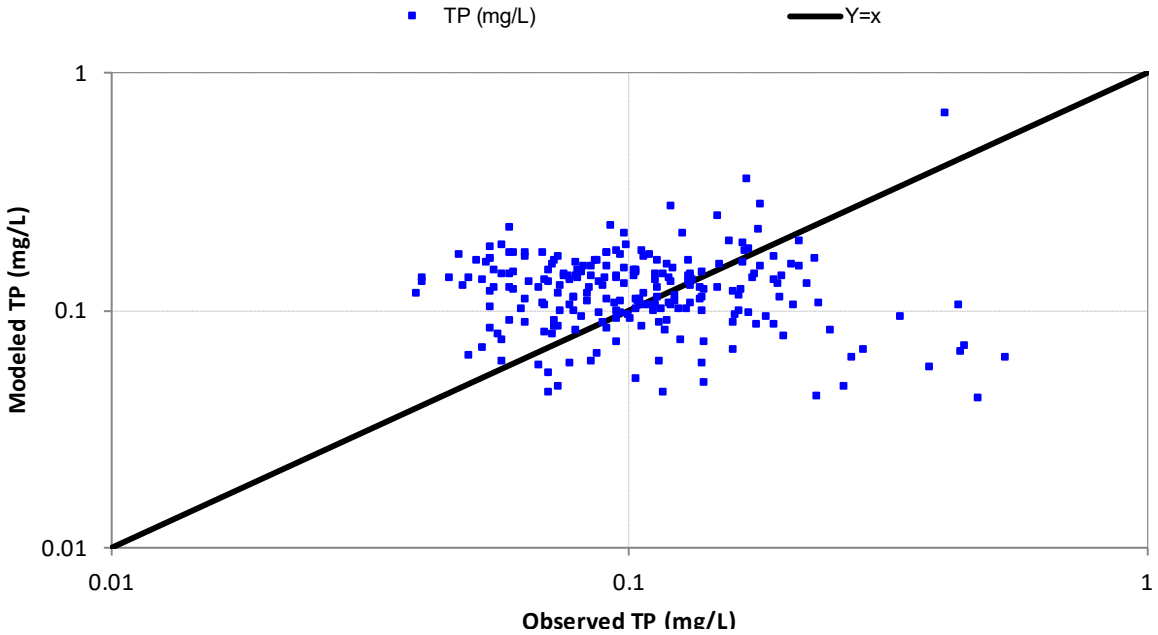


Figure B-424 Concentration at RCH219 Industrial Canal

Table B- 97 Monthly TP Concentration Comparisons at RCH219 Industrial Canal

Month	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
Jan	0.11	0.13	22.1	VG
Feb	0.11	0.13	18.2	VG
Mar	0.12	0.15	27.4	VG
Apr	0.11	0.16	42.7	G
May	0.13	0.18	30.8	G
Jun	0.20	0.15	-23.7	VG
Jul	0.17	0.14	-15.0	VG
Aug	0.14	0.15	8.2	VG
Sep	0.18	0.15	-14.9	VG
Oct	0.13	0.15	16.8	VG
Nov	0.10	0.17	63.0	P
Dec	0.10	0.13	27.1	VG
Average*	0.13	0.15	12.2	VG
Median**	0.12	0.15	21.6	VG
R2	N/A	N/A	0.01	P

* Determined by comparing the average of the monthly average measured values to the average of the monthly average simulated values.

** Determined by comparing the median of the monthly average measured values to the median of the monthly average simulated values.

Table B- 98 Annual TP Concentration Comparisons at RCH219 Industrial Canal

Year	Average Measured (mg/L)	Average Simulated (mg/L)	% Error	Rating
1997	N/A	0.15	N/A	N/A
1998	N/A	0.24	N/A	N/A
1999	N/A	0.14	N/A	N/A
2000	0.10	0.17	67.3	P
2001	0.16	0.15	-3.0	VG
2002	0.10	0.14	51.9	F
2003	0.08	0.13	48.0	F
2004	0.10	0.12	21.2	VG
2005	0.15	0.16	8.8	VG
2006	0.16	0.19	18.5	VG
2007	0.21	0.12	-41.1	G
2008	0.13	0.16	17.9	VG
2009	0.11	0.15	34.1	G
2010	0.07	0.15	96.1	P
2011	0.12	0.12	1.1	VG
2012	0.10	0.13	21.4	VG
2013	0.10	0.11	13.6	VG
2014	0.08	0.14	71.7	P
2015	N/A	0.15	N/A	N/A
2016	0.08	0.13	70.3	P
2017	0.18	0.20	13.1	VG
2018	0.17	0.16	-3.6	VG
2019	0.16	0.16	0.1	VG
2020	0.15	0.14	-6.0	VG
2021	0.11	0.14	27.3	VG
2022	0.17	0.16	-4.3	VG
2023	0.18	0.12	-31.4	G
Average*	0.13	0.15	15.6	VG
Median**	0.12	0.15	17.3	VG
R2	N/A	N/A	0.14	P

* Determined by comparing the average of the annual average measured values to the average of the annual average simulated values, only for those years with measured data.

** Determined by comparing the median of the annual average measured values to the median of the annual average simulated values, only for those years with measured data.

Table B- 99 Daily TP Concentration Comparisons at RCH219 Industrial Canal

Statistic	Results	Rating
Count (number)	423	N/A
Average Error (%)	35.8	G
Median Error (%)	29.0	VG
RMSE (mg/L)	0.10	N/A
R2	0.03	P

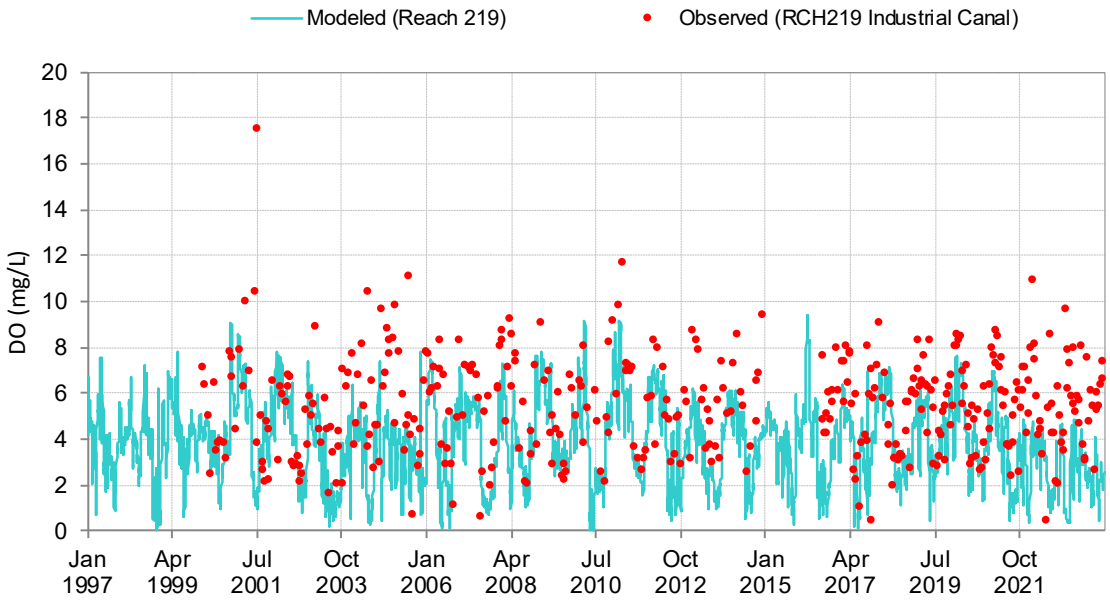


Figure B-425 Modeled Vs Observed DO (mg/L) at RCH219 Industrial Canal

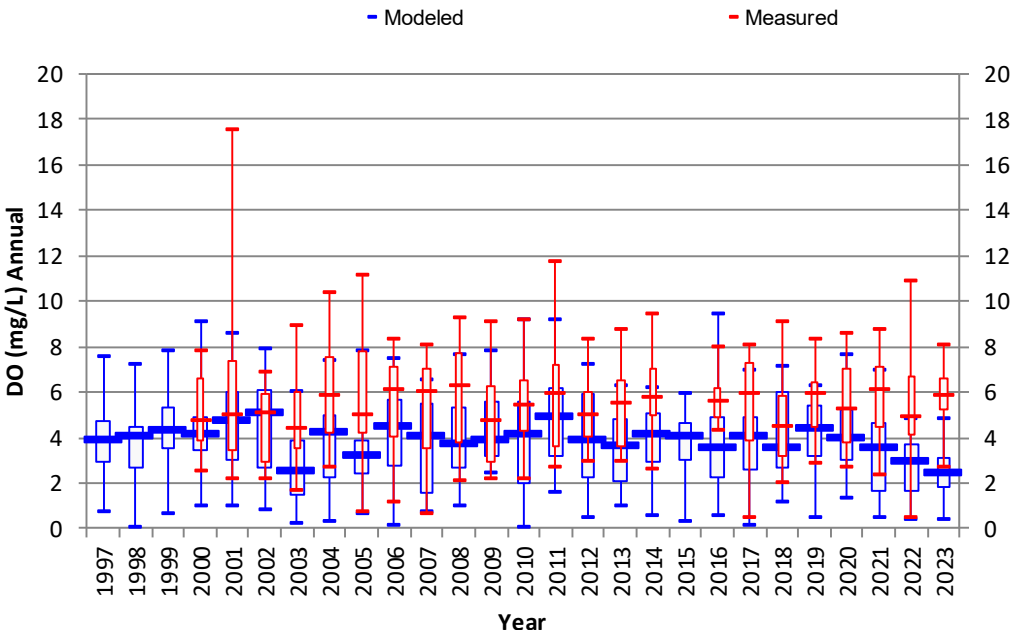


Figure B-426 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH219 Industrial Canal

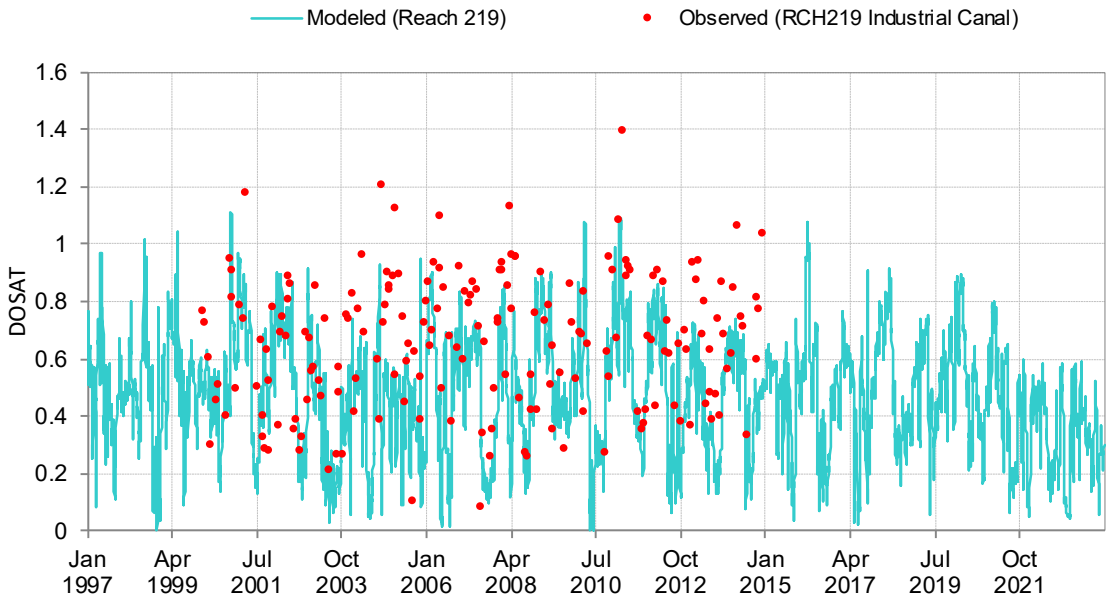


Figure B-427 Modeled Vs Observed DOSAT at RCH219 Industrial Canal

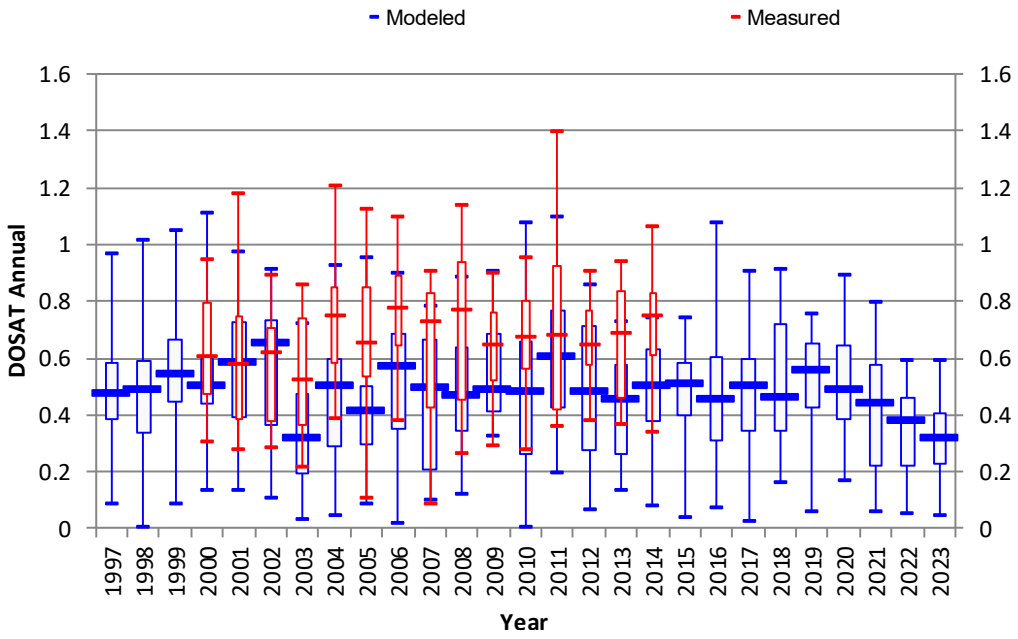


Figure B-428 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH219 Industrial Canal

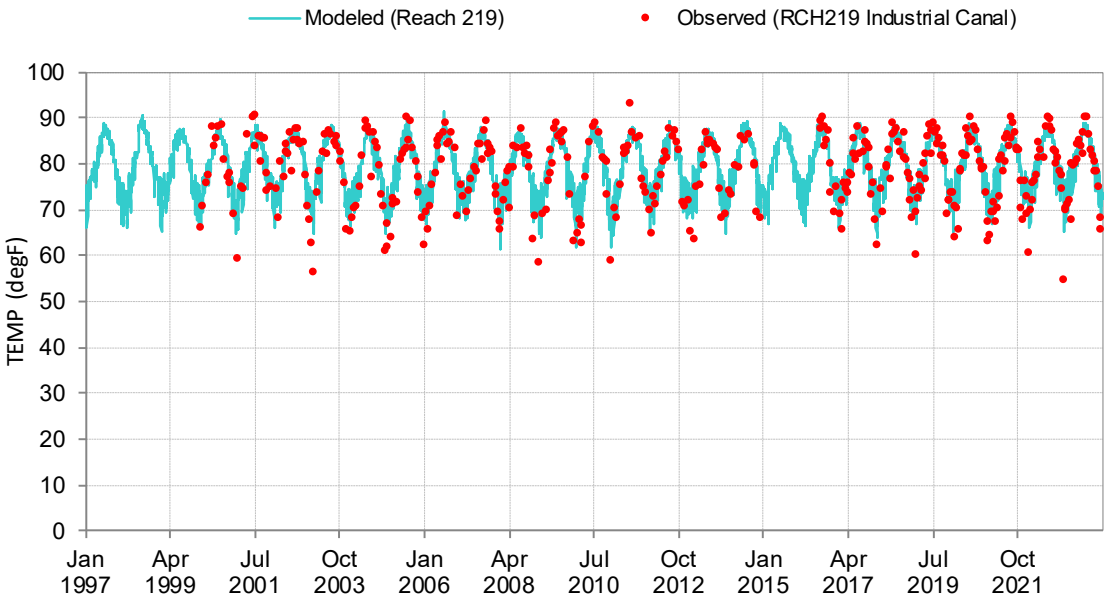


Figure B-429 Modeled Vs Observed TEMP (deg F) at RCH219 Industrial Canal

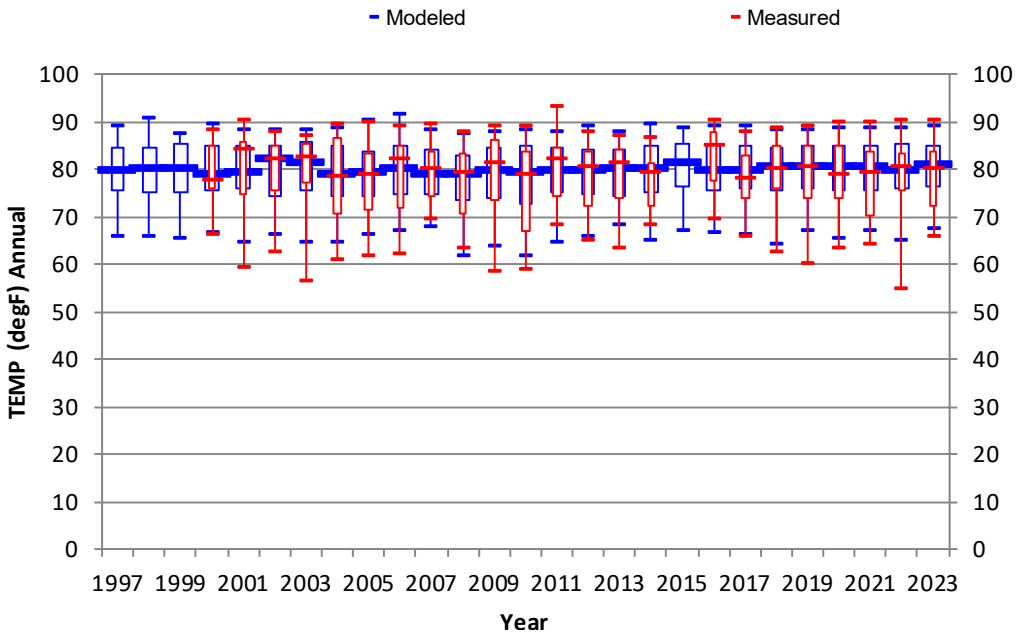


Figure B-430 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH219 Industrial Canal

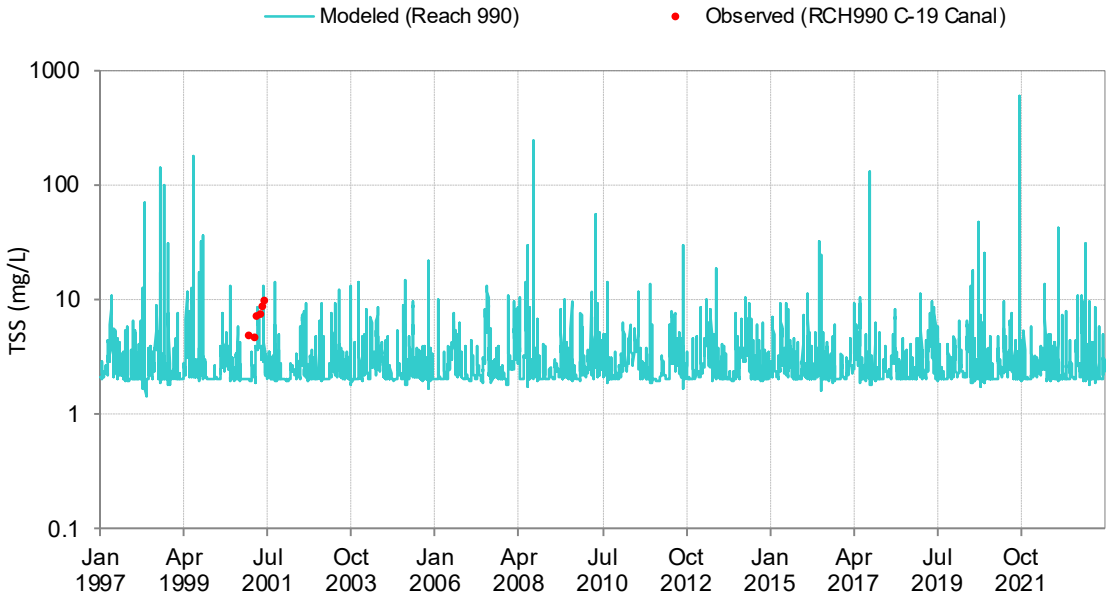


Figure B-431 Modeled Vs Observed TSS (mg/L) at RCH990 C-19 Canal

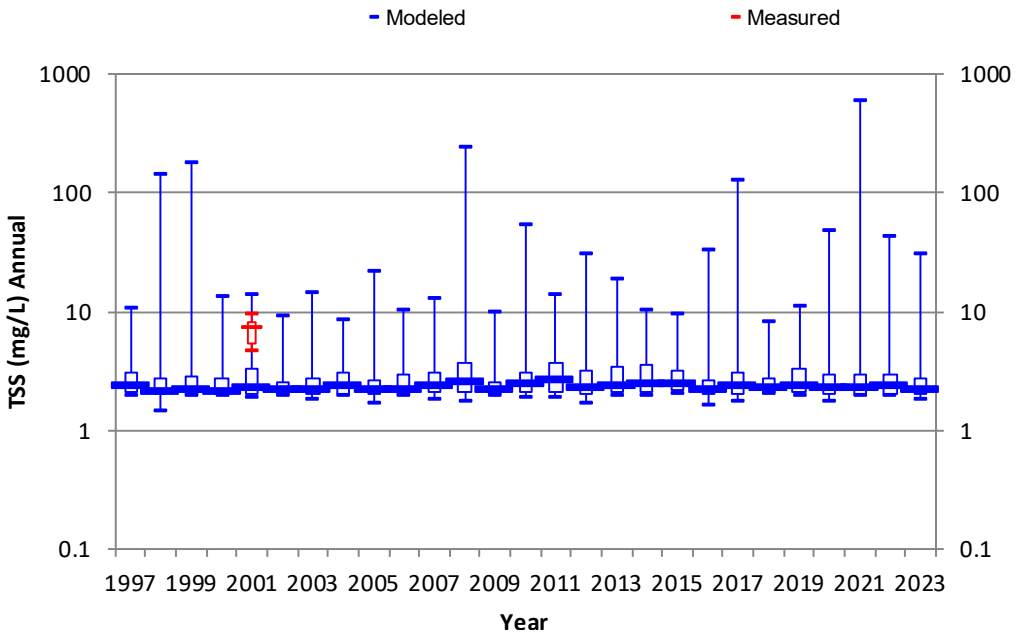


Figure B-432 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH990 C-19 Canal

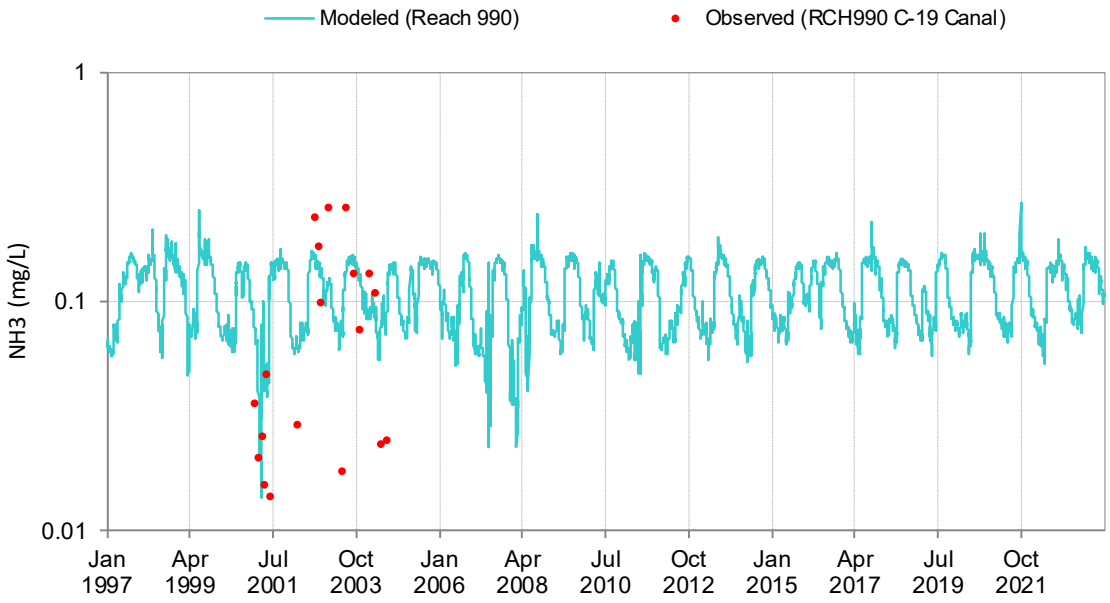


Figure B-433 Modeled Vs Observed NH3 (mg/L) at RCH990 C-19 Canal

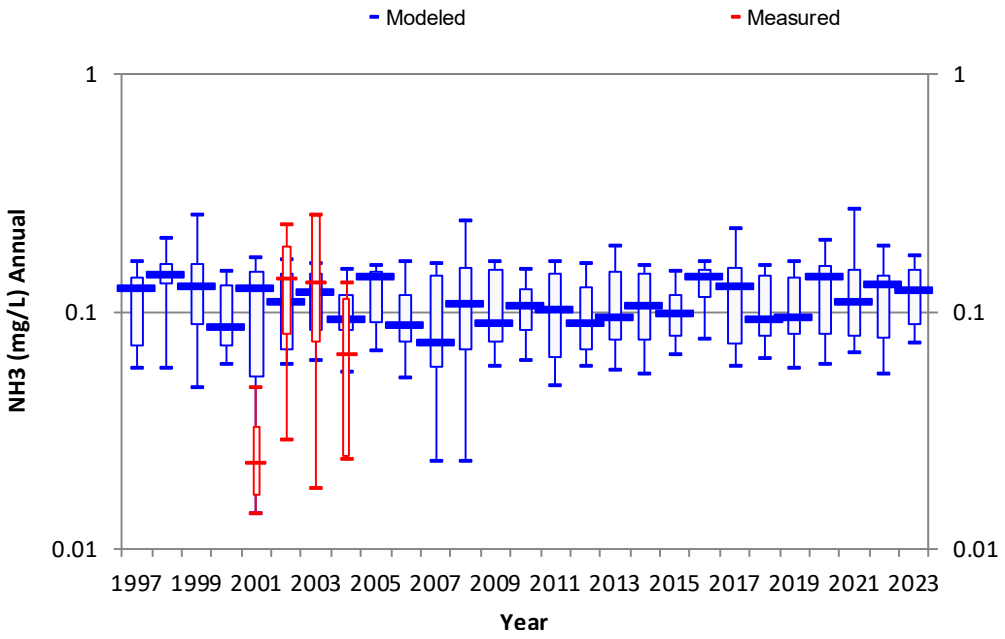


Figure B-434 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH990 C-19 Canal

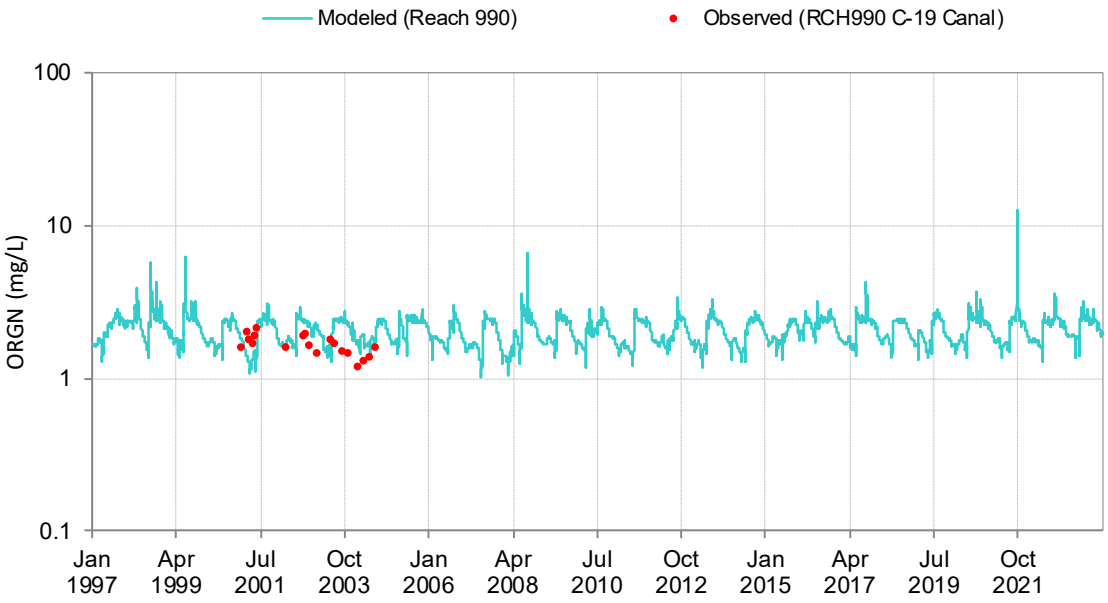


Figure B-435 Modeled Vs Observed ORGN (mg/L) at RCH990 C-19 Canal

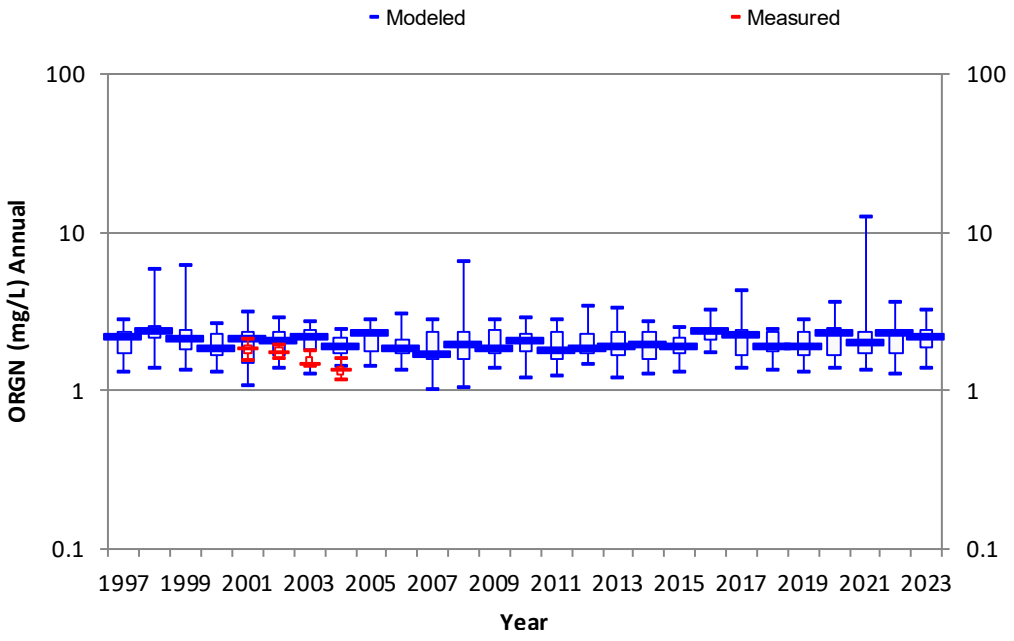


Figure B-436 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH990 C-19 Canal

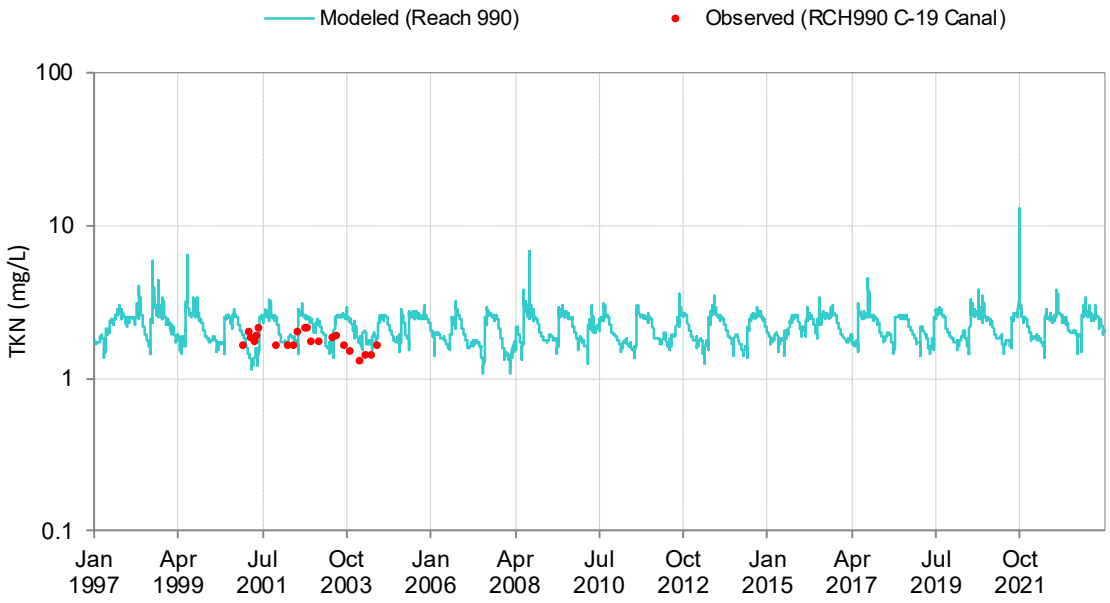


Figure B-437 Modeled Vs Observed TKN (mg/L) at RCH990 C-19 Canal

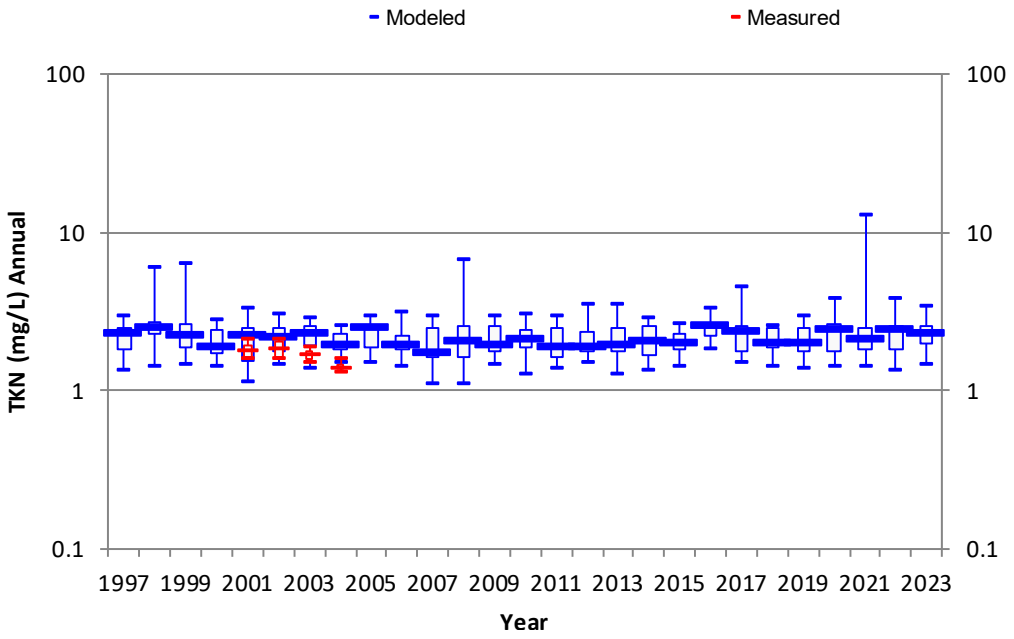


Figure B-438 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH990 C-19 Canal

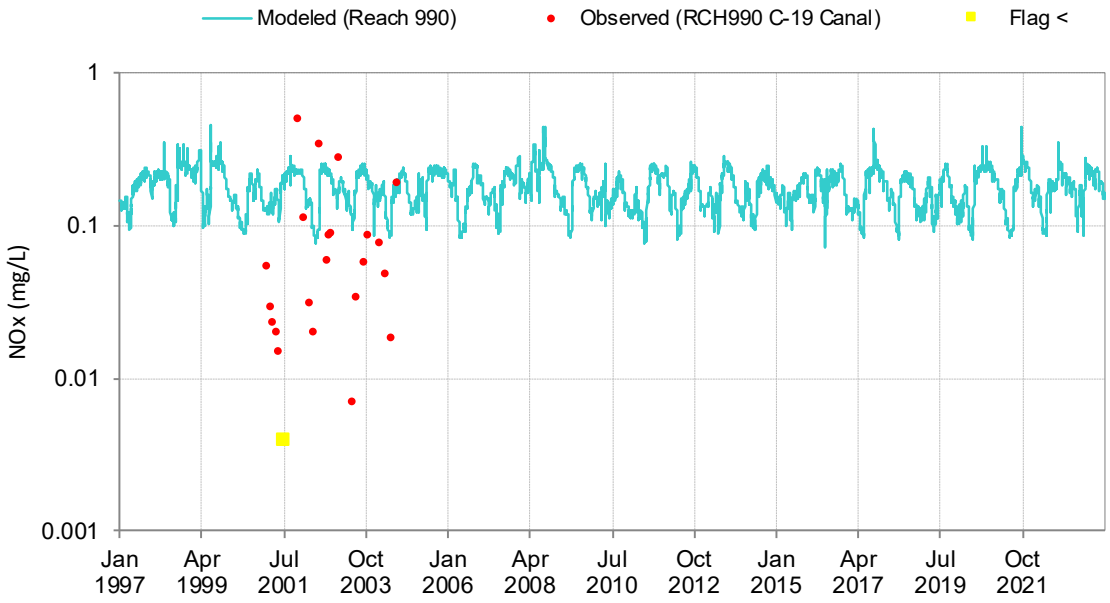


Figure B-439 Modeled Vs Observed NOx (mg/L) at RCH990 C-19 Canal

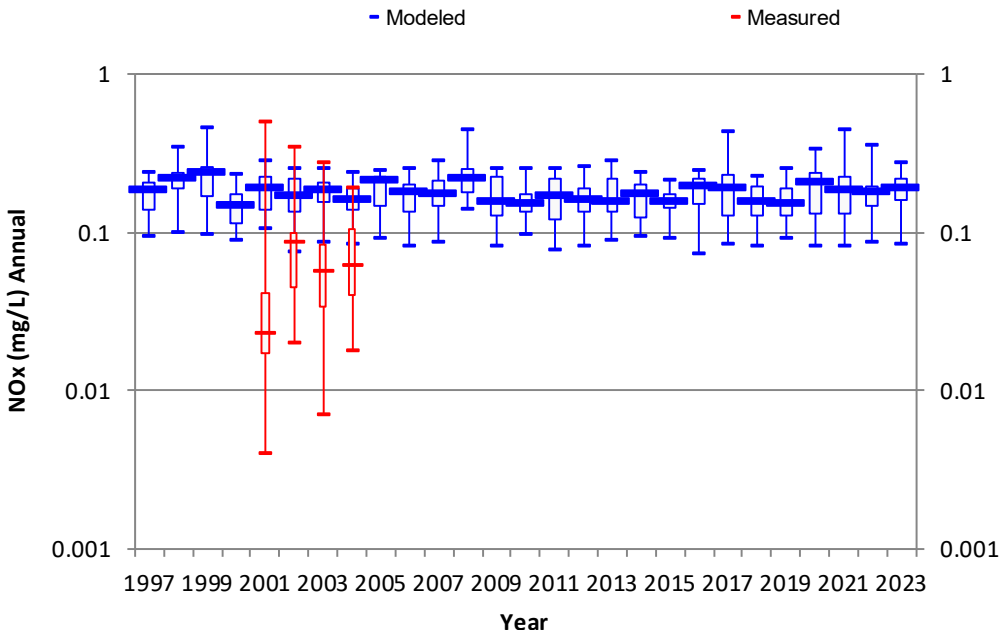


Figure B-440 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH990 C-19 Canal

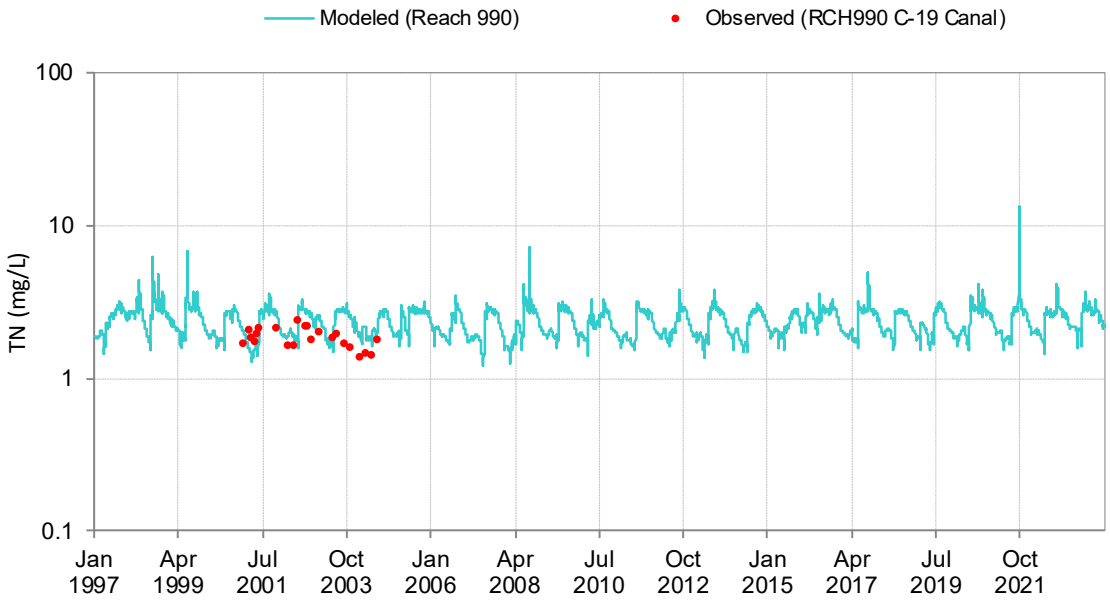


Figure B-441 Modeled Vs Observed TN (mg/L) at RCH990 C-19 Canal

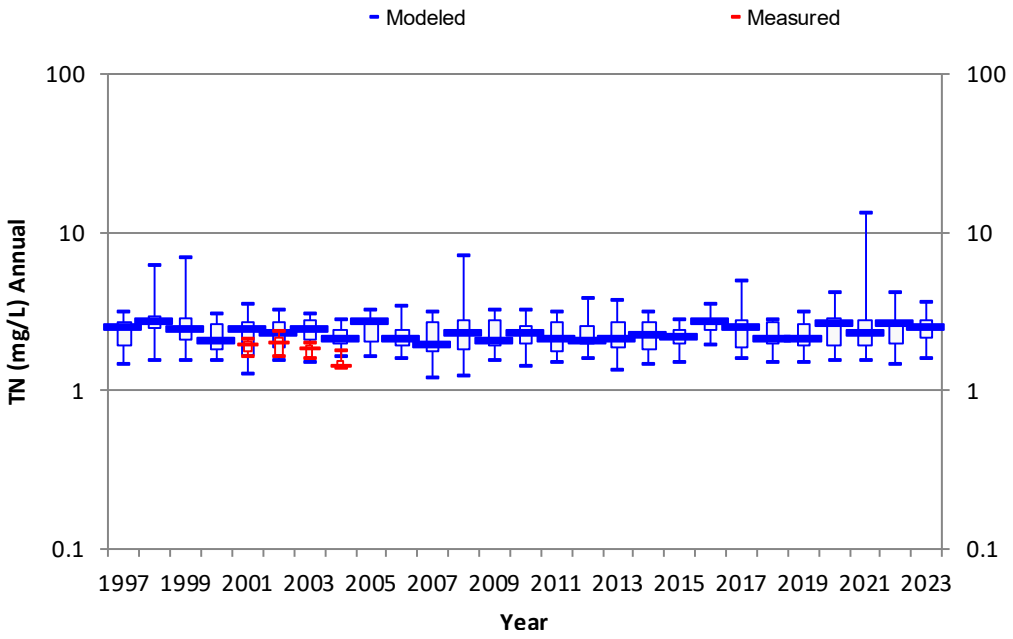


Figure B-442 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH990 C-19 Canal

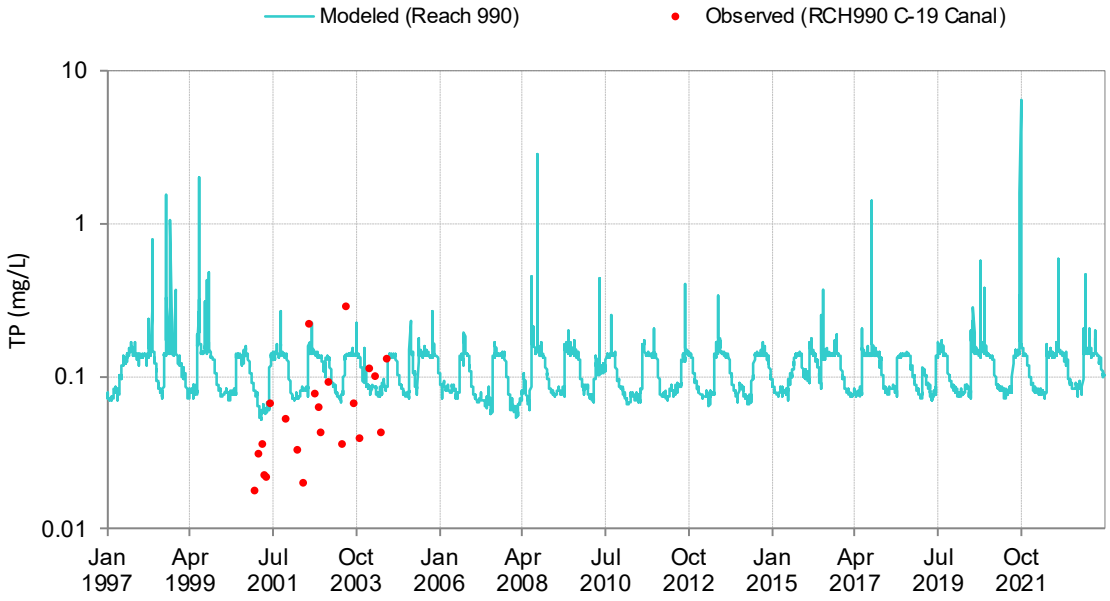


Figure B-443 Modeled Vs Observed TP (mg/L) at RCH990 C-19 Canal

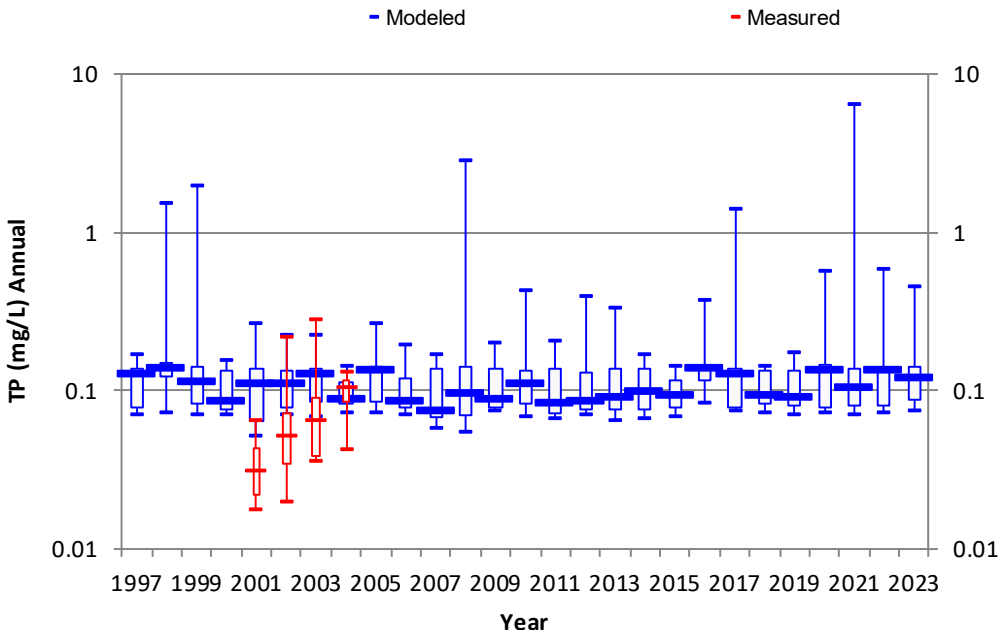


Figure B-444 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH990 C-19 Canal

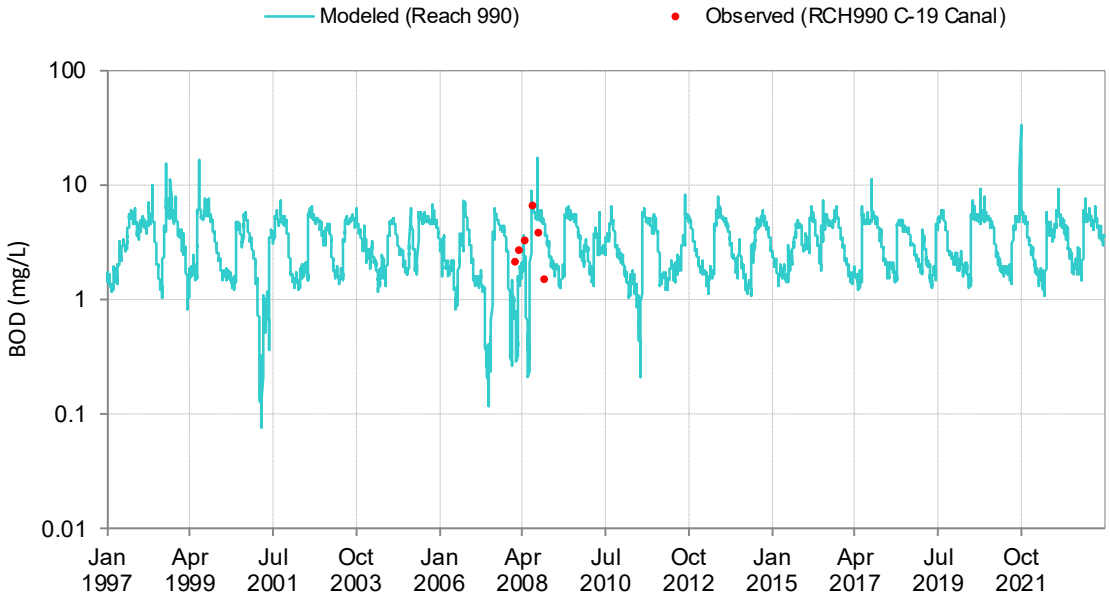


Figure B-445 Modeled Vs Observed BOD (mg/L) at RCH990 C-19 Canal

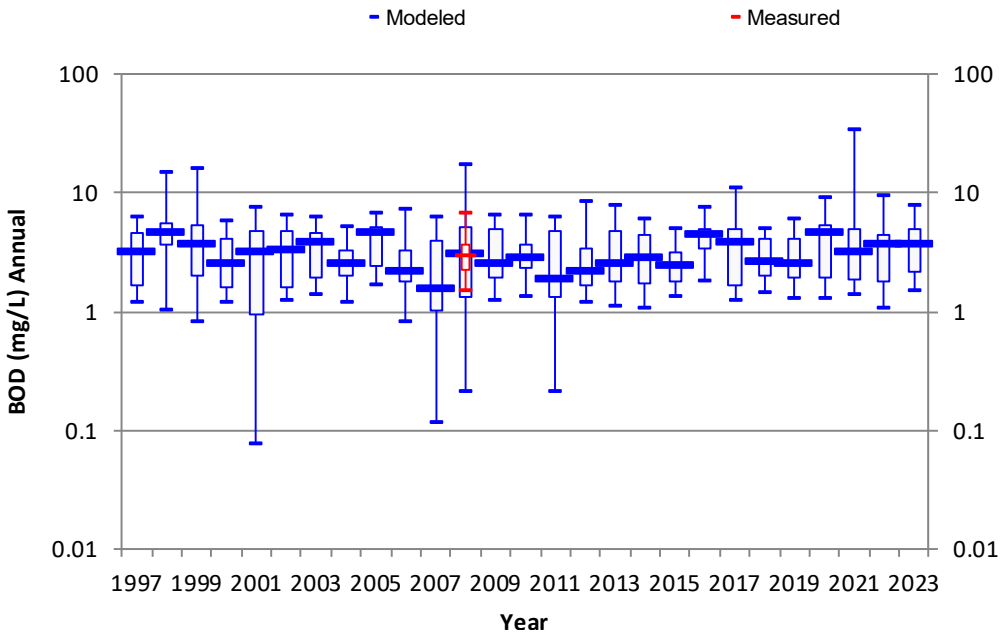


Figure B-446 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH990 C-19 Canal

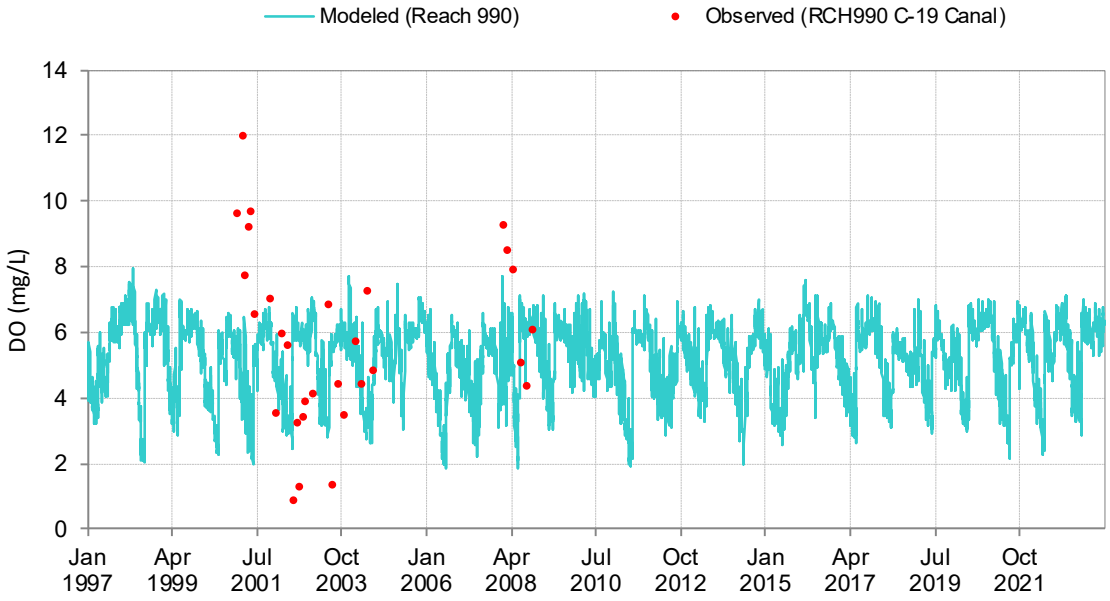


Figure B-447 Modeled Vs Observed DO (mg/L) at RCH990 C-19 Canal

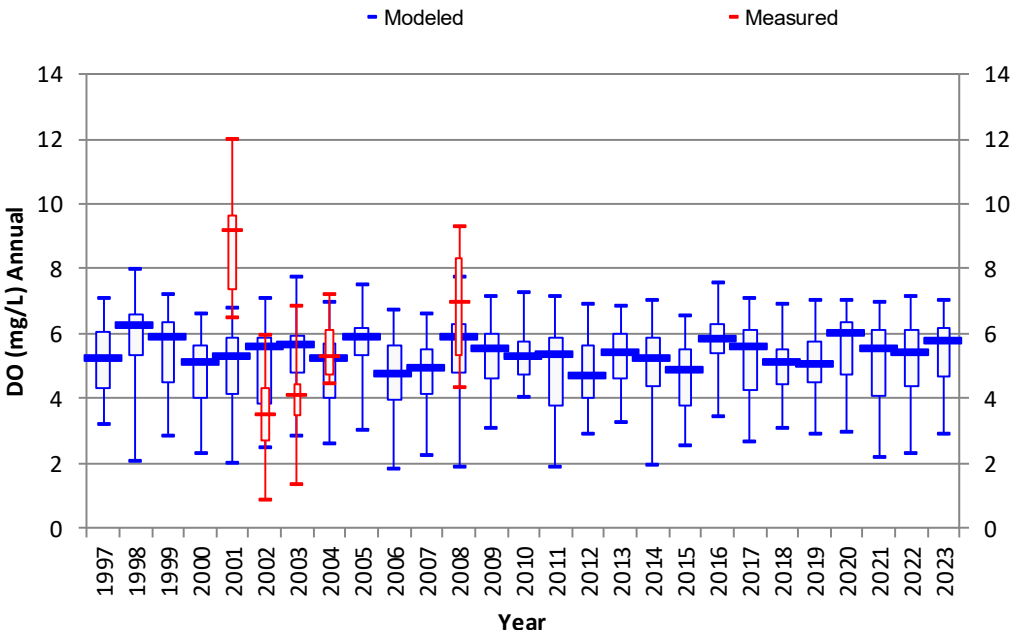


Figure B-448 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH990 C-19 Canal

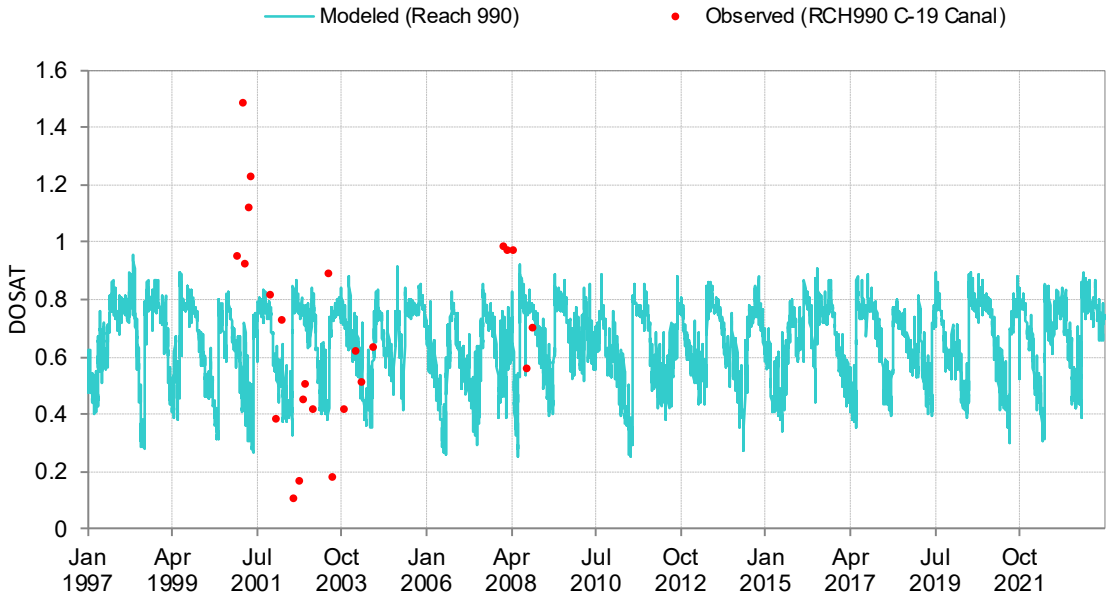


Figure B-449 Modeled Vs Observed DOSAT at RCH990 C-19 Canal

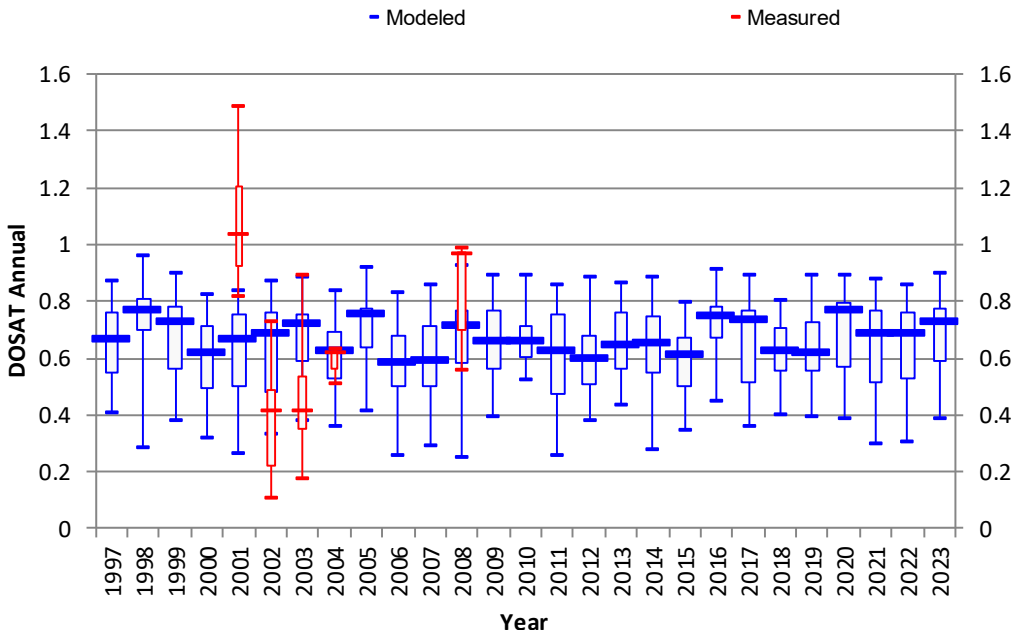


Figure B-450 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH990 C-19 Canal

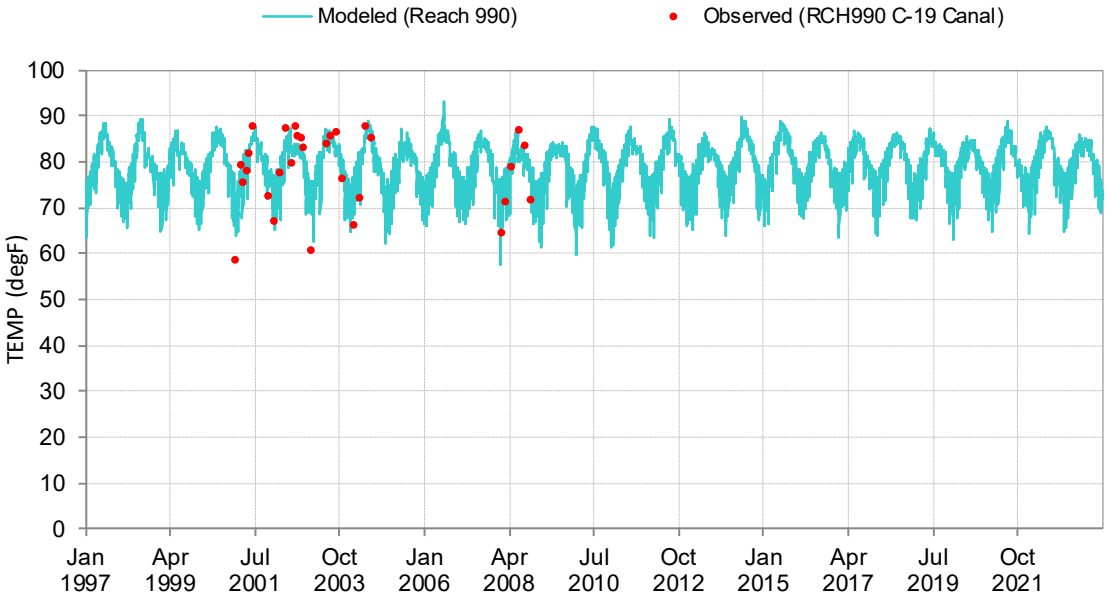


Figure B-451 Modeled Vs Observed TEMP (deg F) at RCH990 C-19 Canal

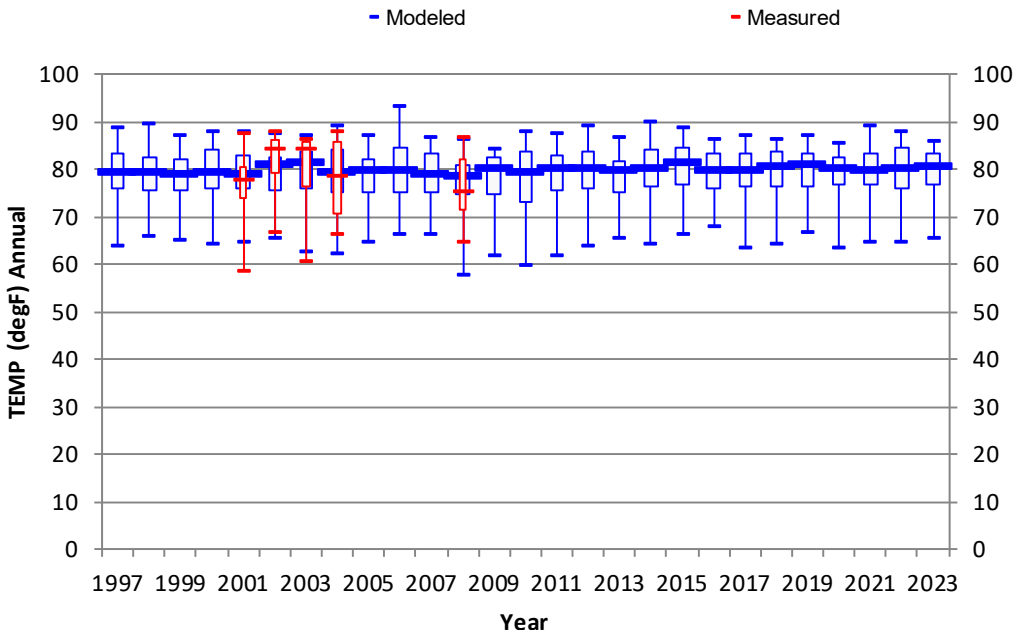


Figure B-452 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH990 C-19 Canal

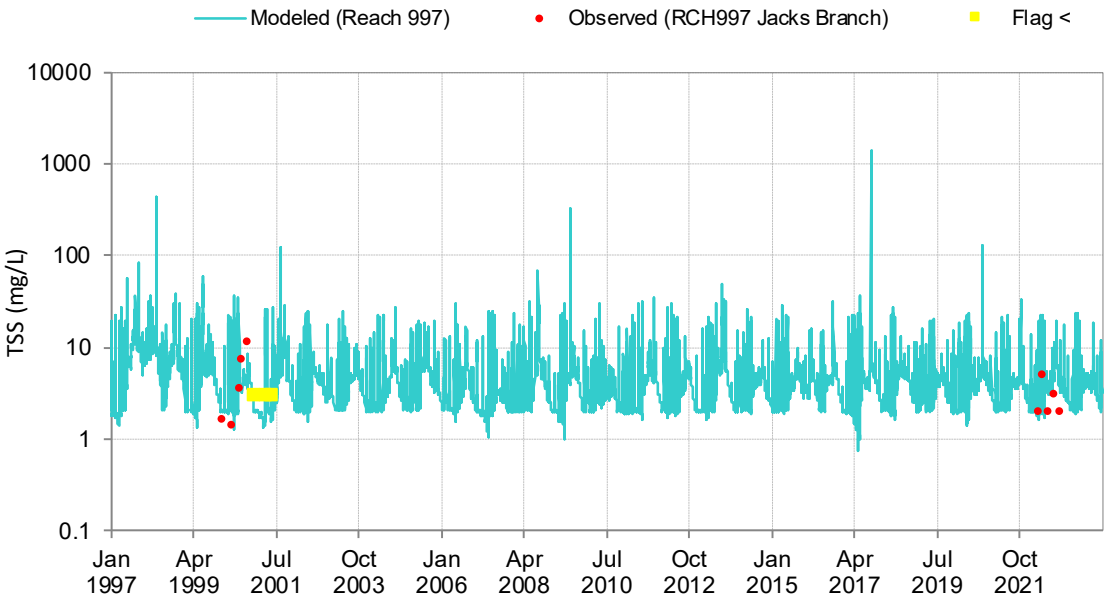


Figure B-453 Modeled Vs Observed TSS (mg/L) at RCH997 Jacks Branch

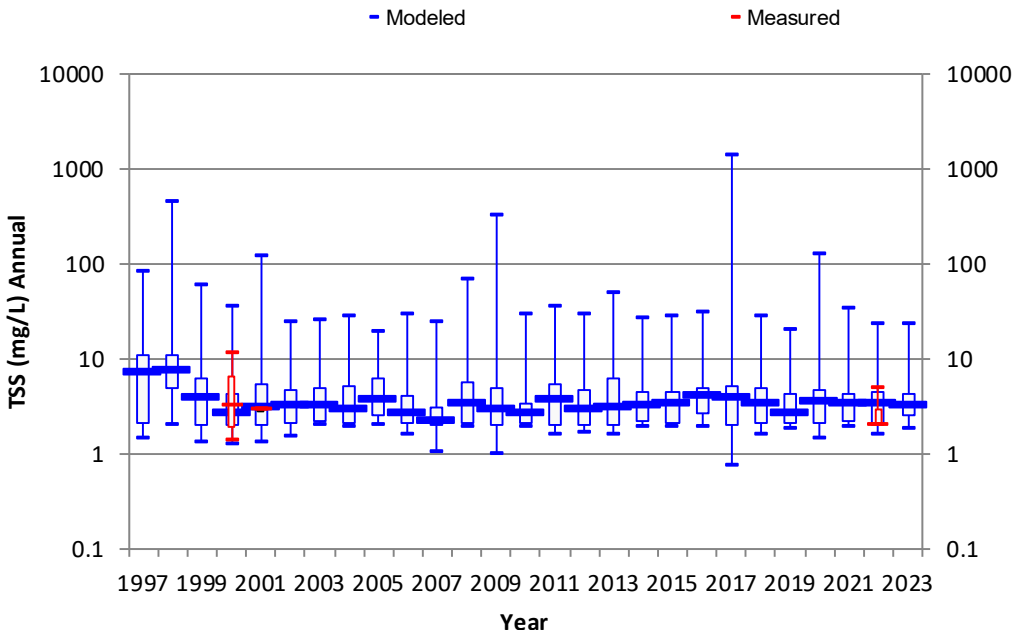


Figure B-454 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH997 Jacks Branch

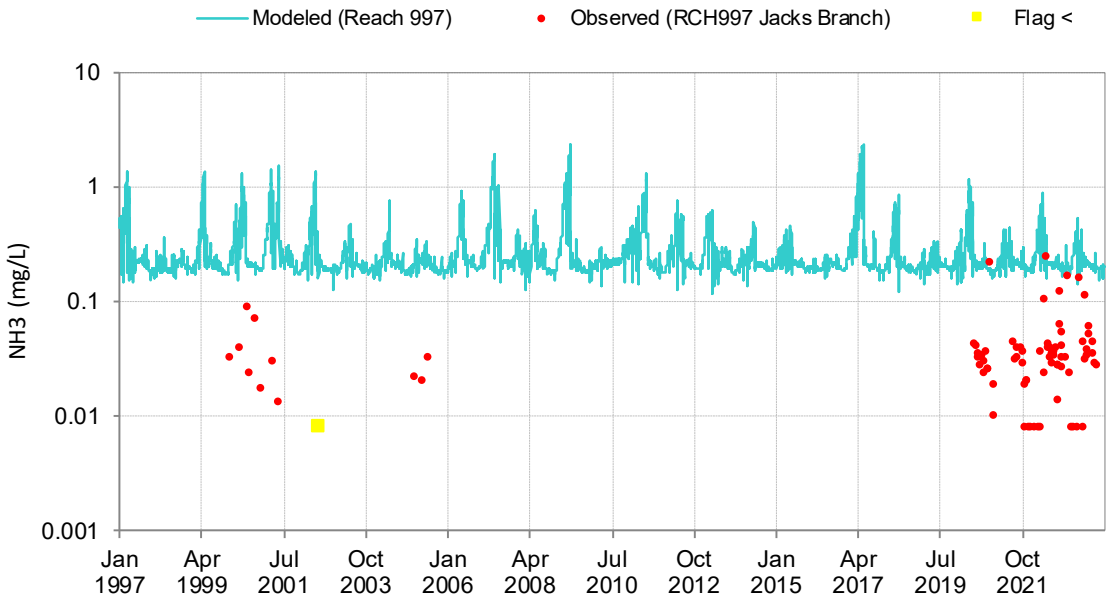


Figure B-455 Modeled Vs Observed NH3 (mg/L) at RCH997 Jacks Branch

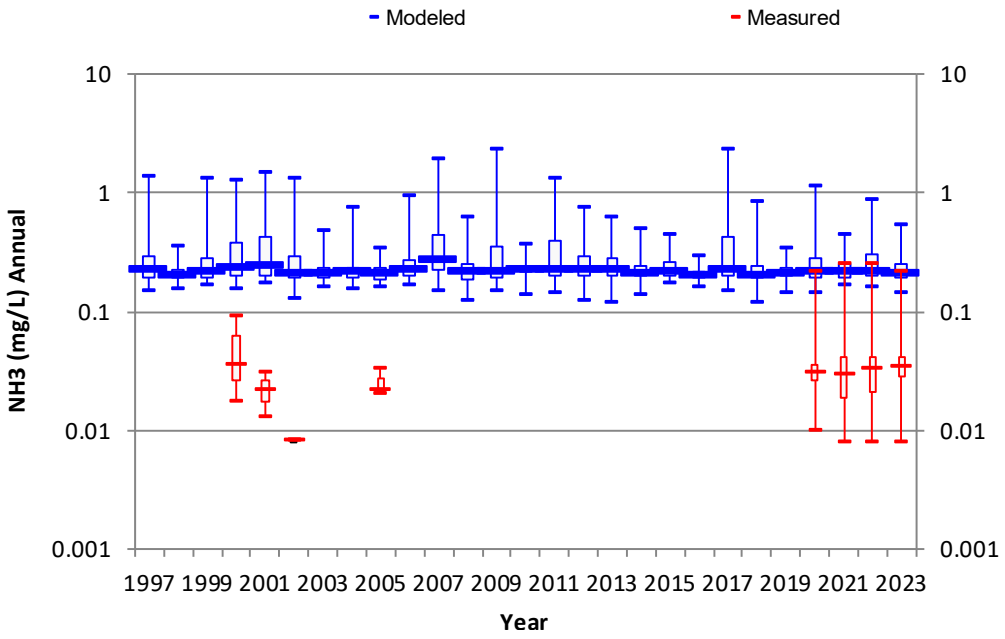


Figure B-456 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH997 Jacks Branch

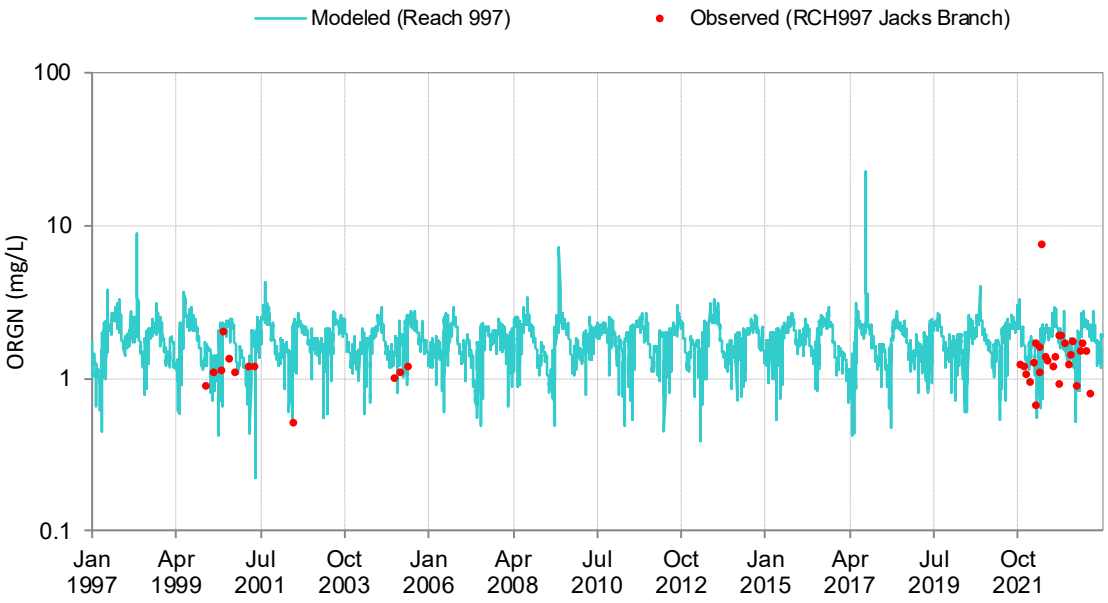


Figure B-457 Modeled Vs Observed ORGN (mg/L) at RCH997 Jacks Branch

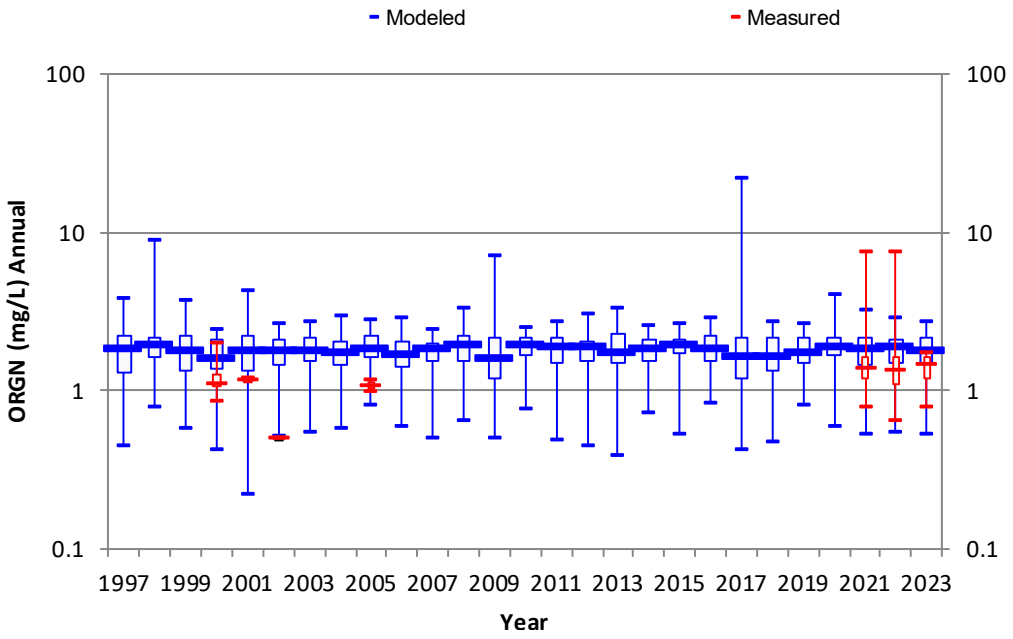


Figure B-458 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH997 Jacks Branch

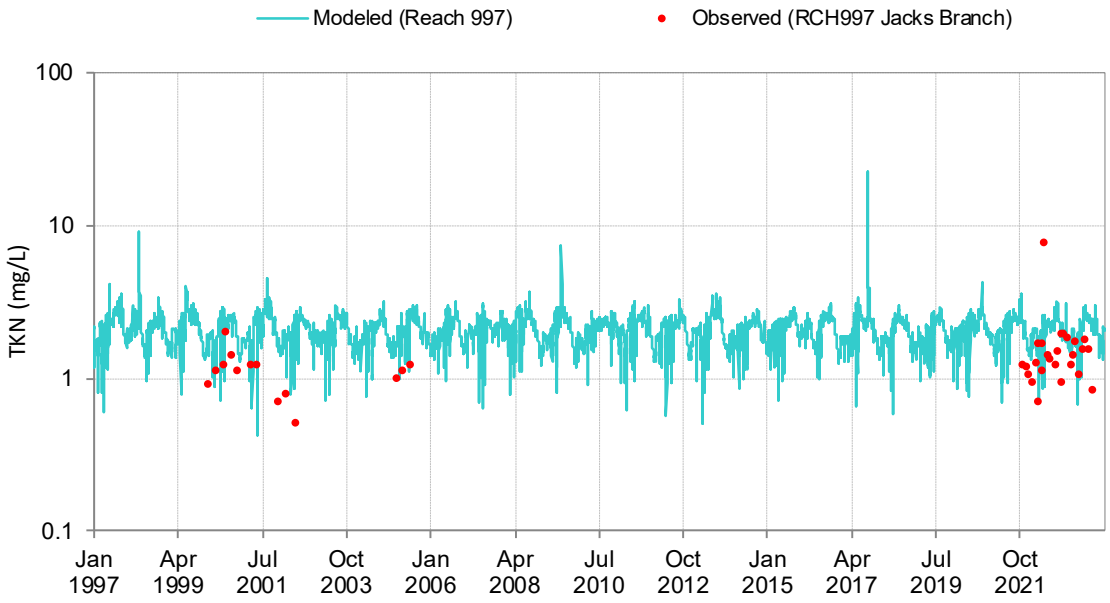


Figure B-459 Modeled Vs Observed TKN (mg/L) at RCH997 Jacks Branch

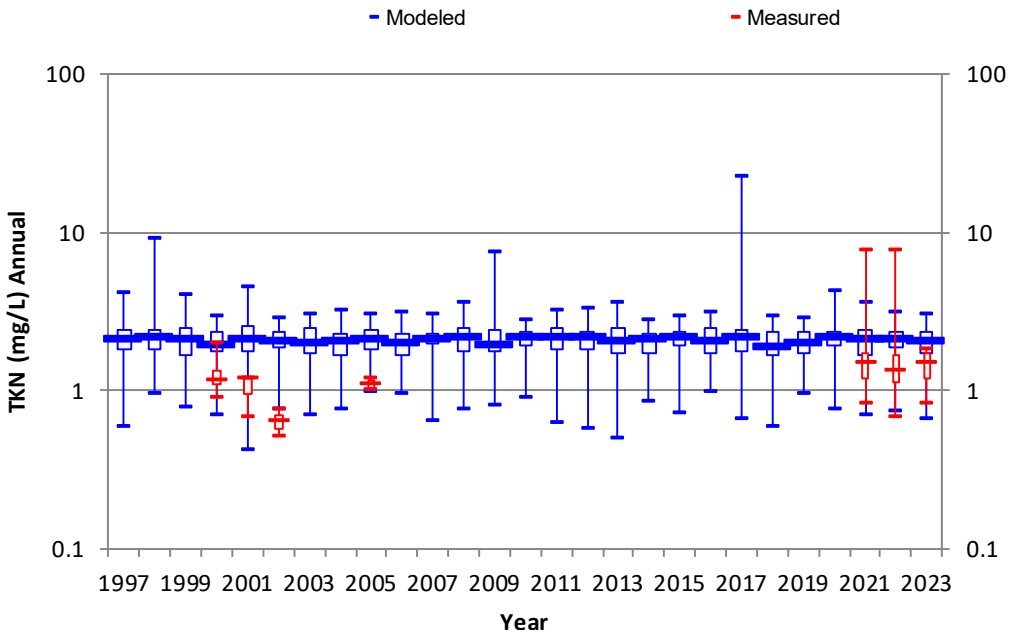


Figure B-460 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH997 Jacks Branch

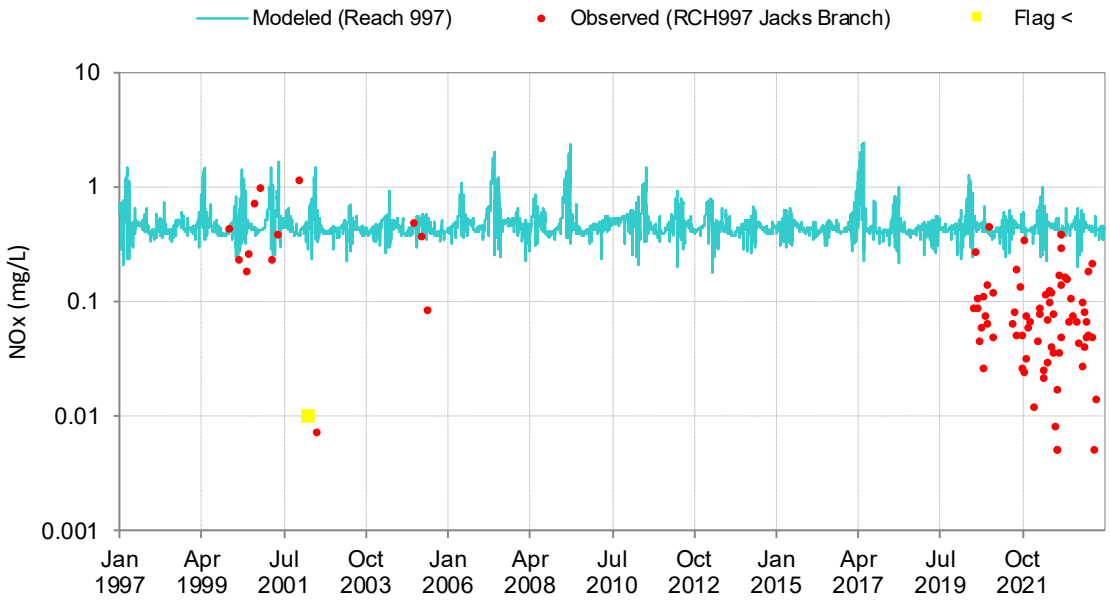


Figure B-461 Modeled Vs Observed NOx (mg/L) at RCH997 Jacks Branch

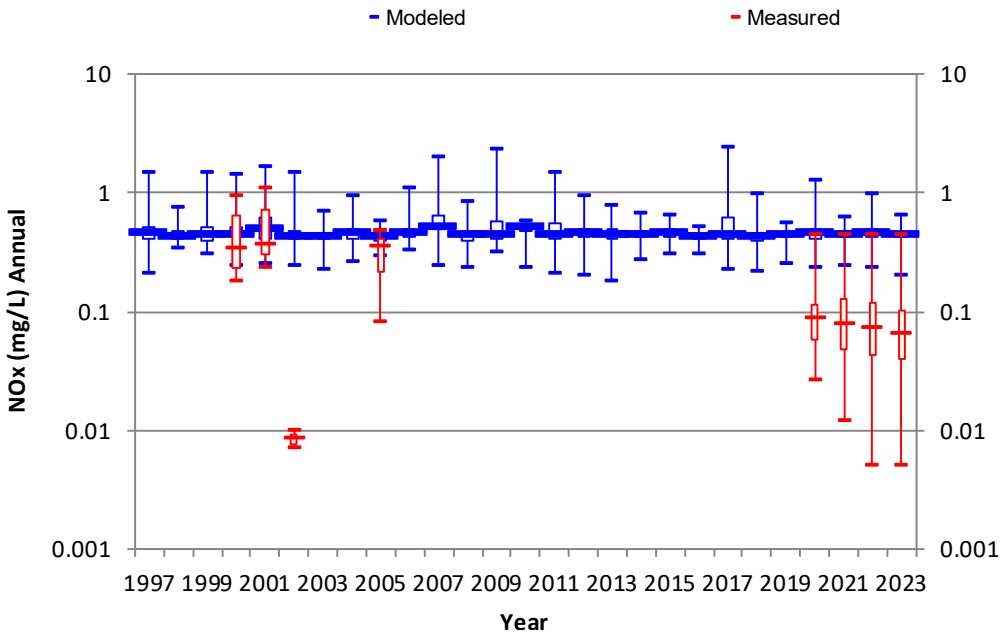


Figure B-462 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH997 Jacks Branch

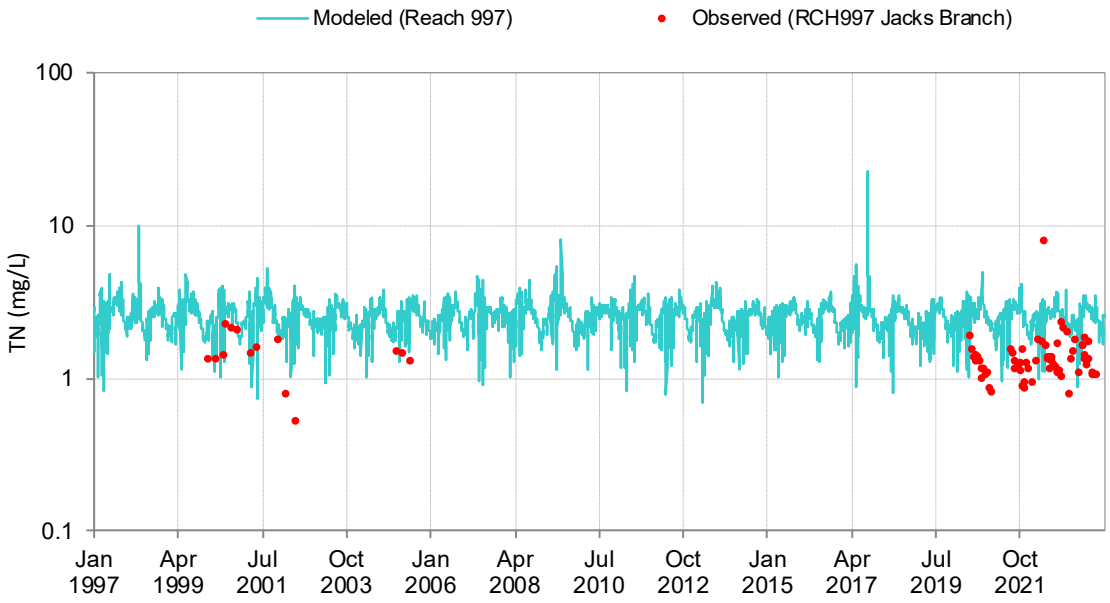


Figure B-463 Modeled Vs Observed TN (mg/L) at RCH997 Jacks Branch

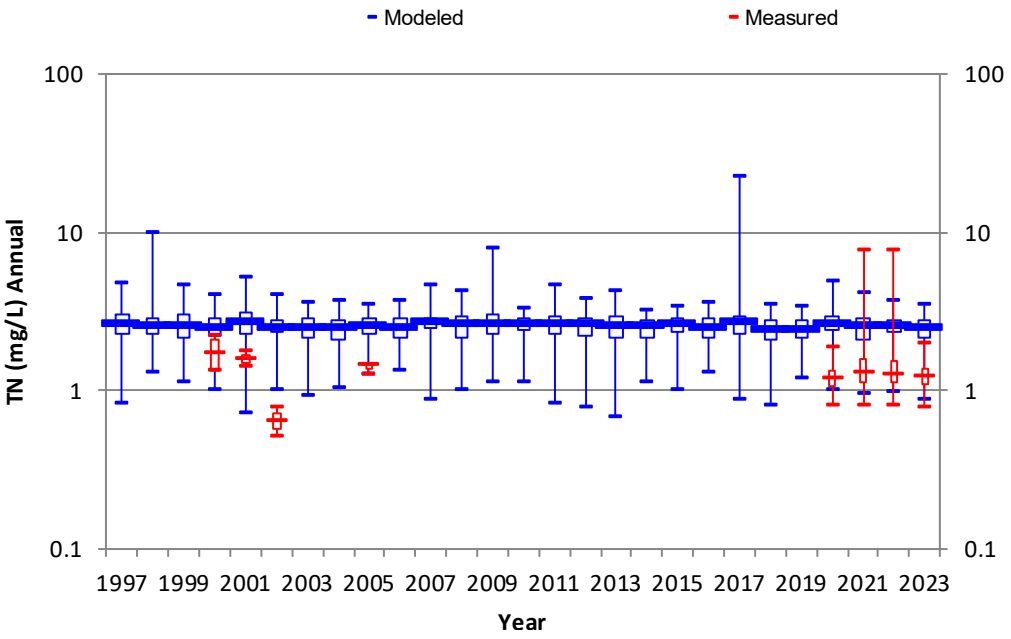


Figure B-464 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH997 Jacks Branch

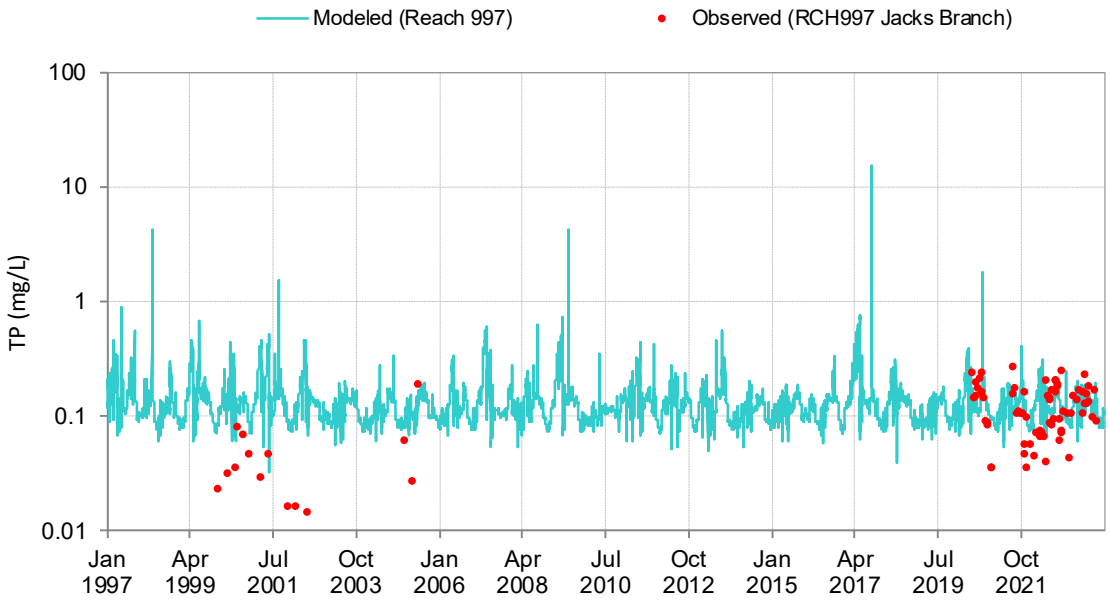


Figure B-465 Modeled Vs Observed TP (mg/L) at RCH997 Jacks Branch

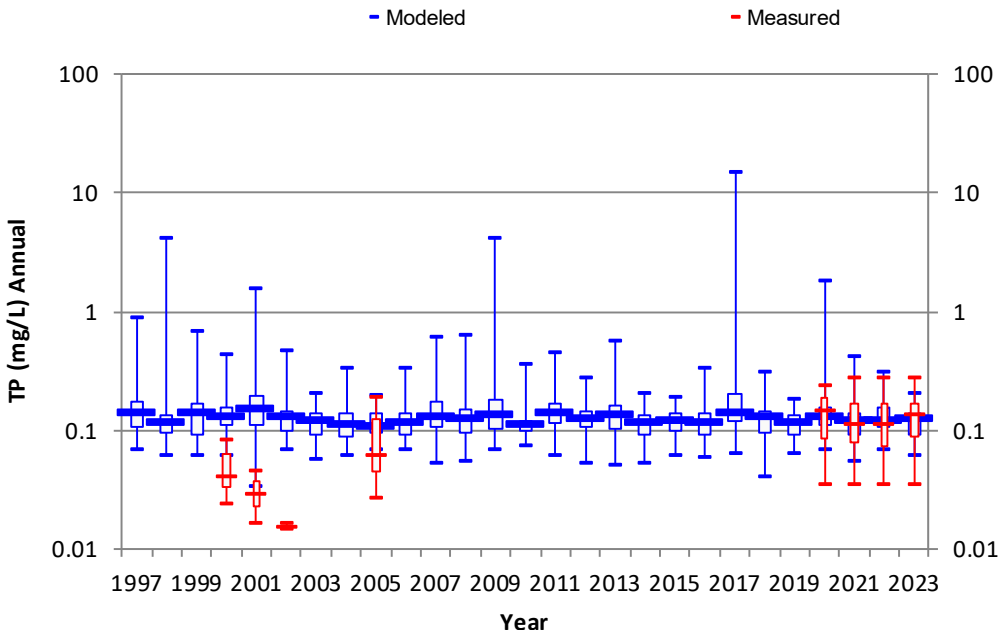


Figure B-466 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH997 Jacks Branch

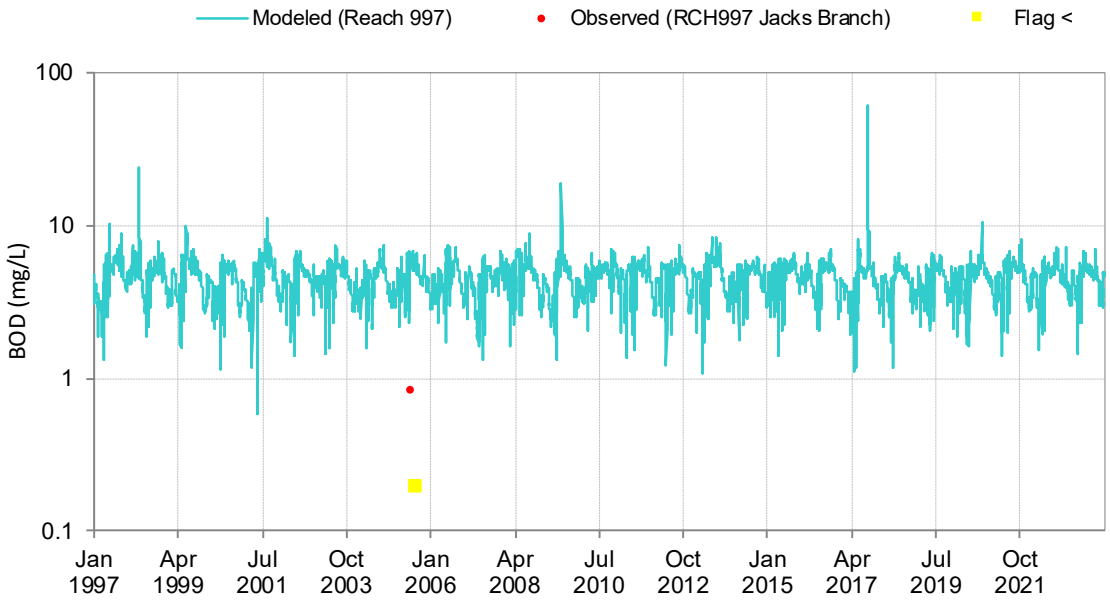


Figure B-467 Modeled Vs Observed BOD (mg/L) at RCH997 Jacks Branch

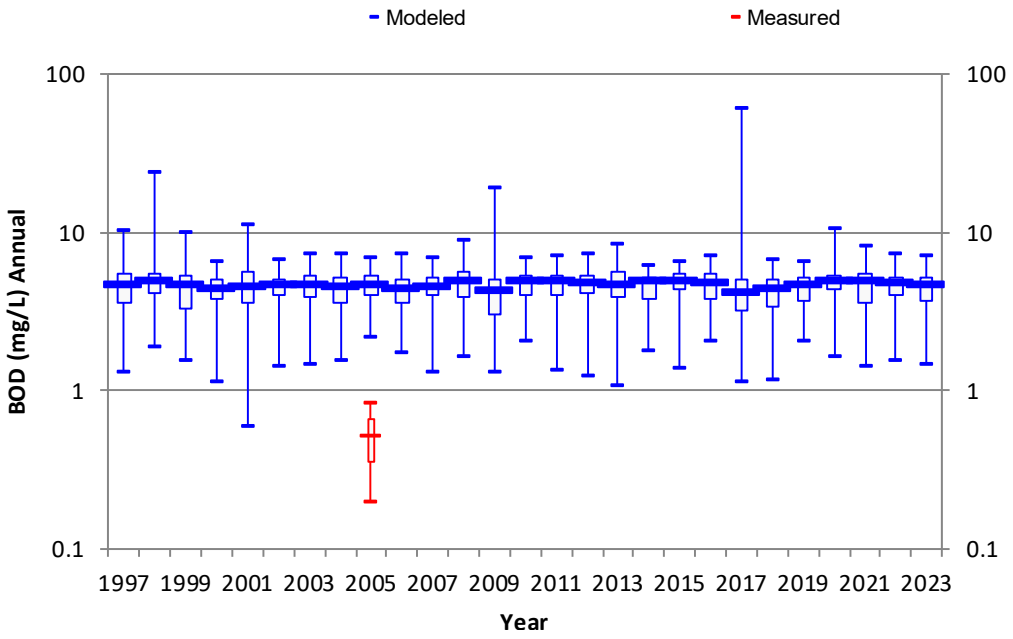


Figure B-468 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH997 Jacks Branch

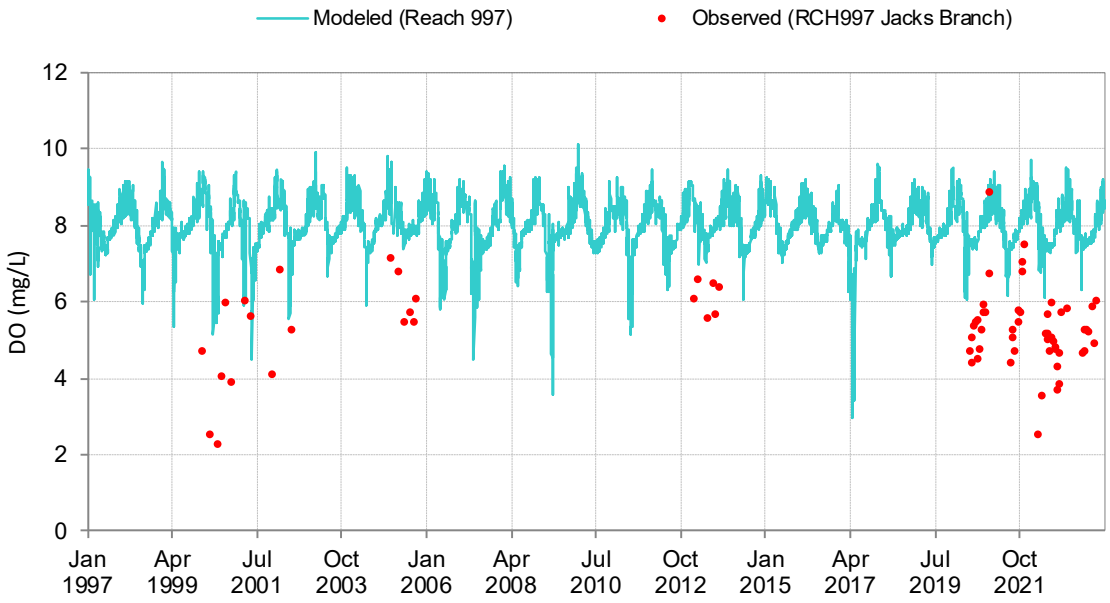


Figure B-469 Modeled Vs Observed DO (mg/L) at RCH997 Jacks Branch

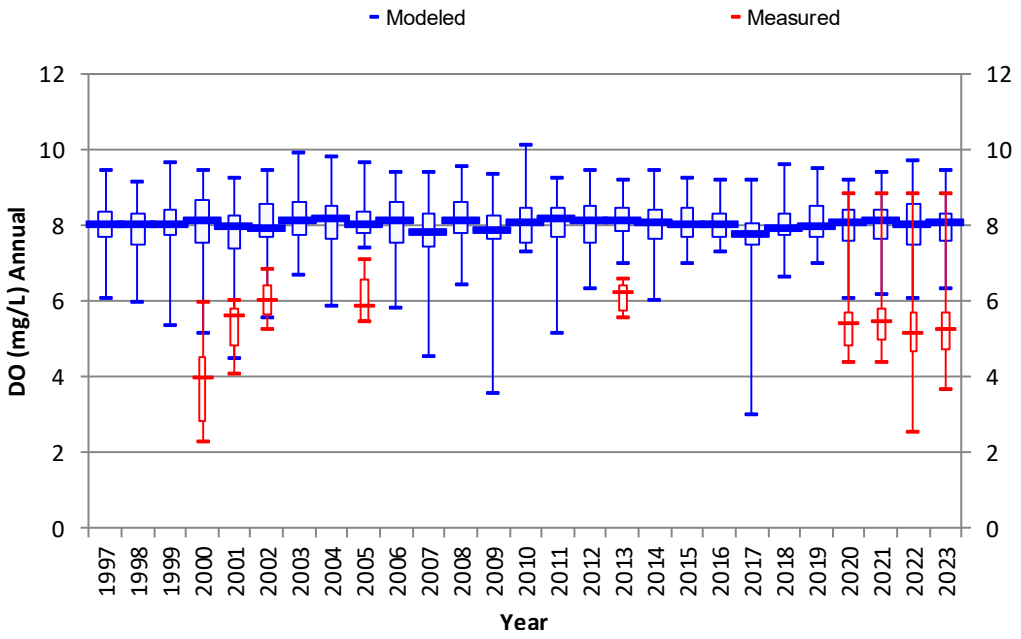


Figure B-470 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH997 Jacks Branch

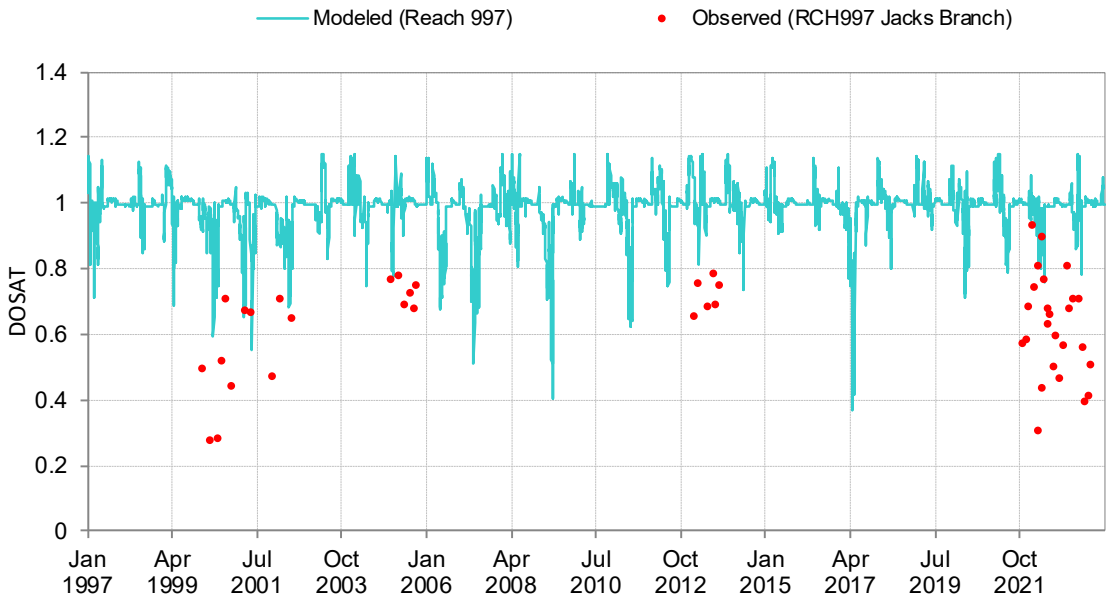


Figure B-471 Modeled Vs Observed DOSAT at RCH997 Jacks Branch

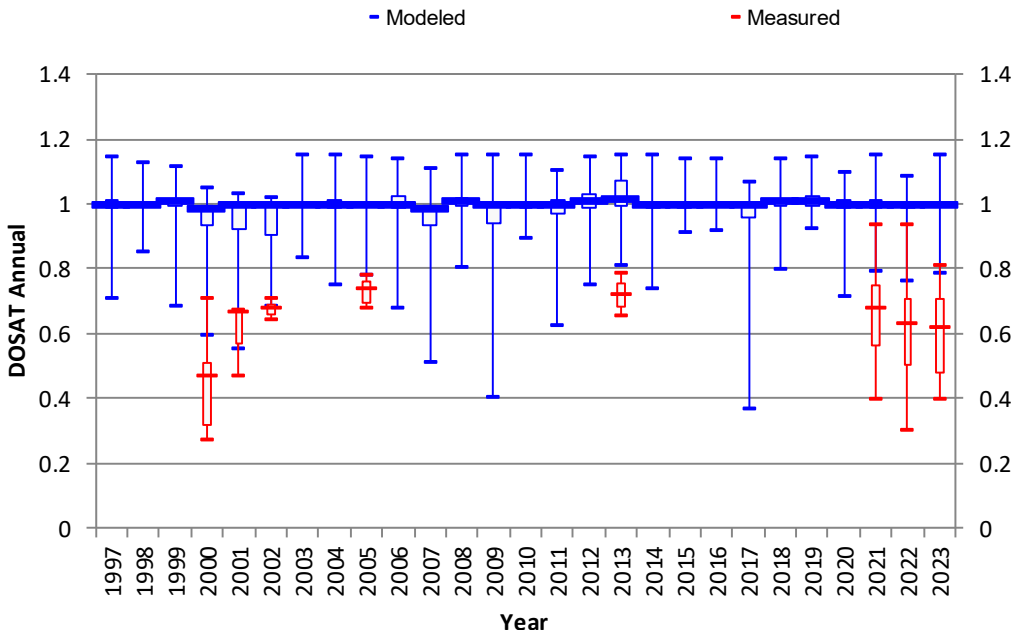


Figure B-472 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH997 Jacks Branch

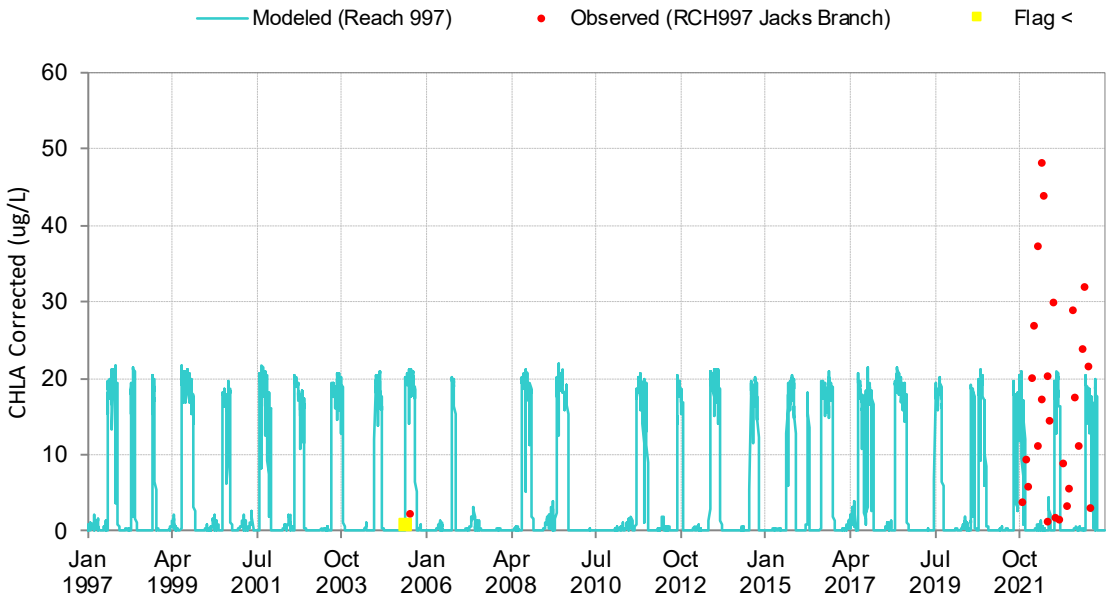


Figure B-473 Modeled Vs Observed CHLA Corrected (ug/L) at RCH997 Jacks Branch

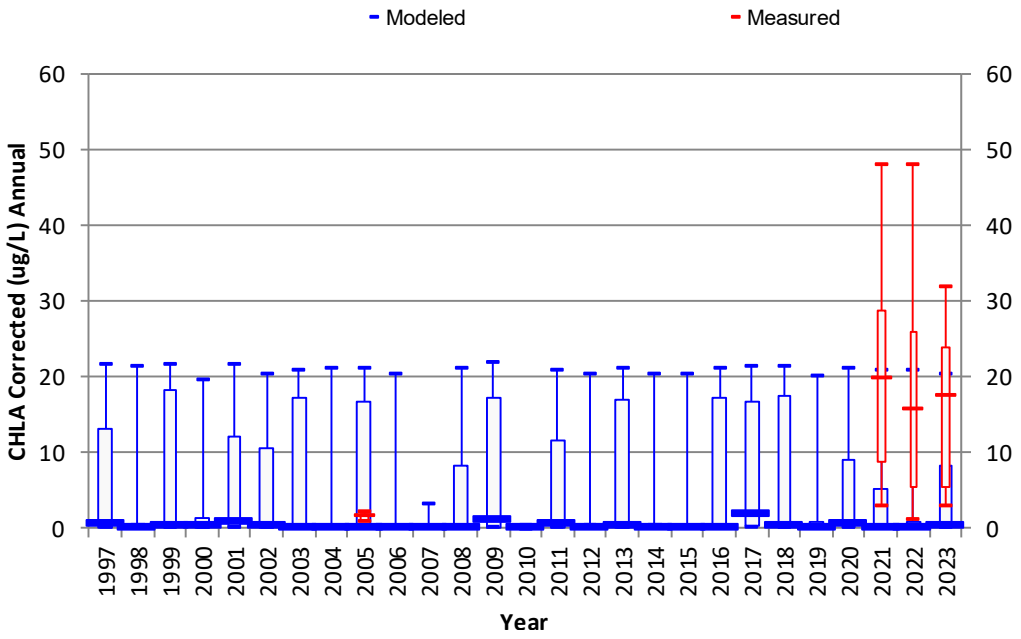


Figure B-474 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH997 Jacks Branch

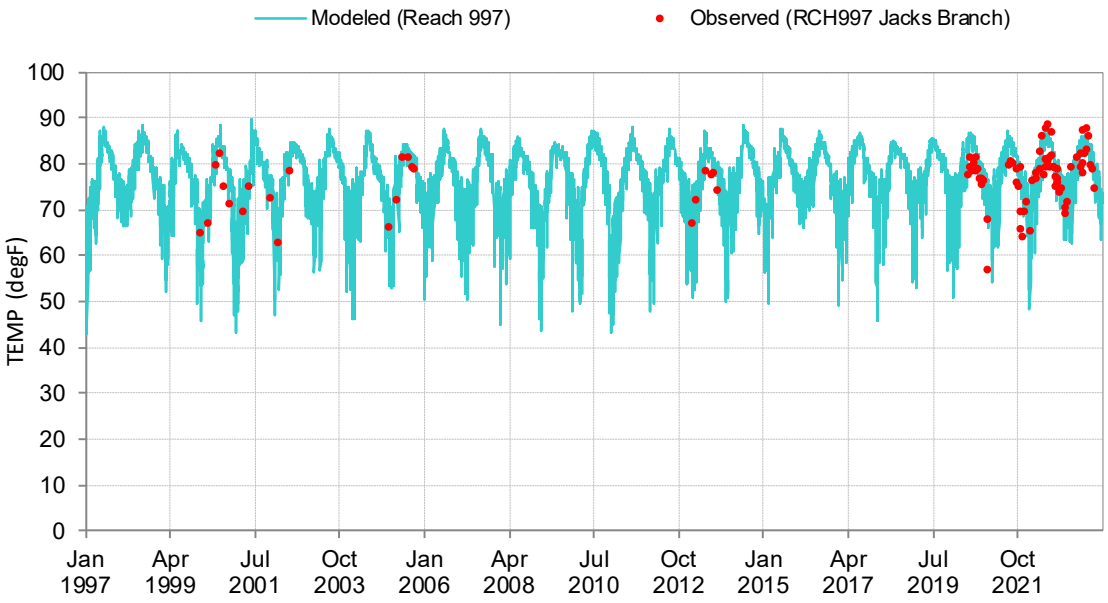


Figure B-475 Modeled Vs Observed TEMP (deg F) at RCH997 Jacks Branch

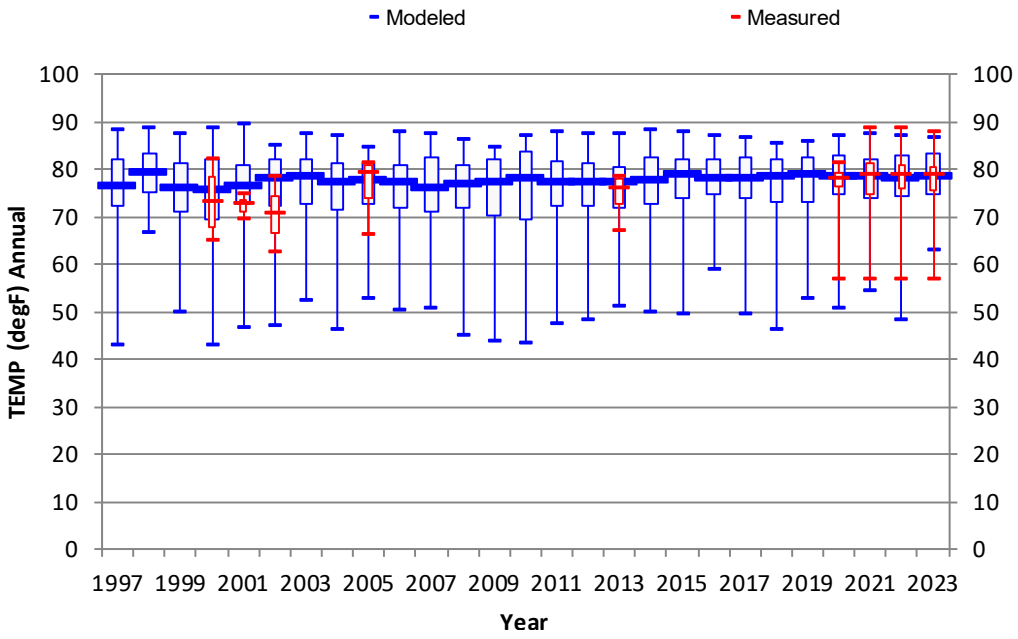


Figure B-476 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH997 Jacks Branch

APPENDIX C: 2025 HSPF WATER QUALITY NEW/VERIFICATION RESULTS

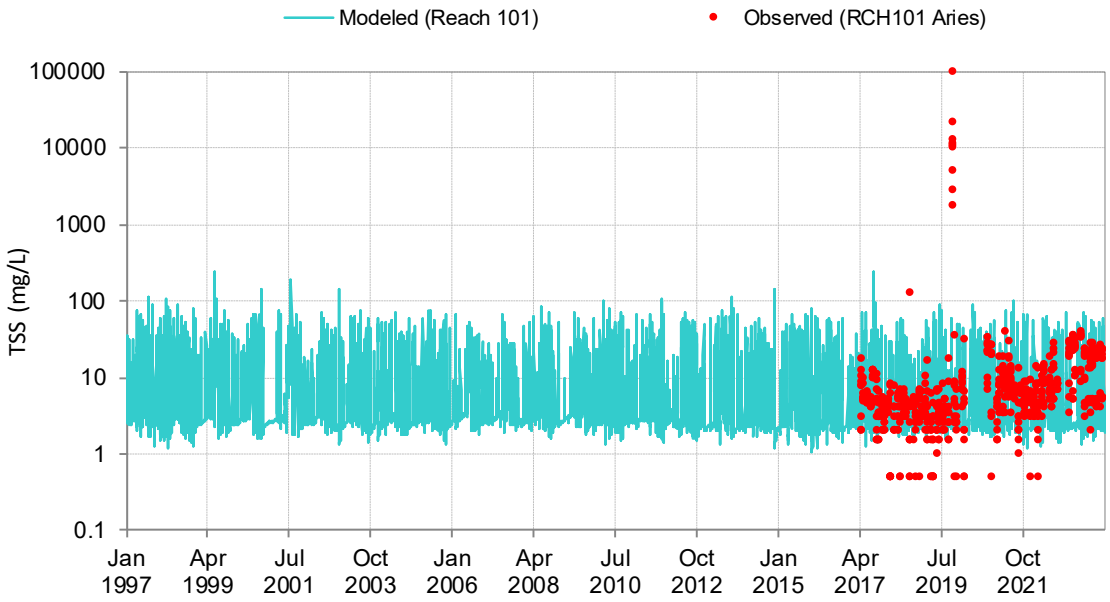


Figure C-1 Modeled Vs Observed TSS (mg/L) at RCH101 Aries

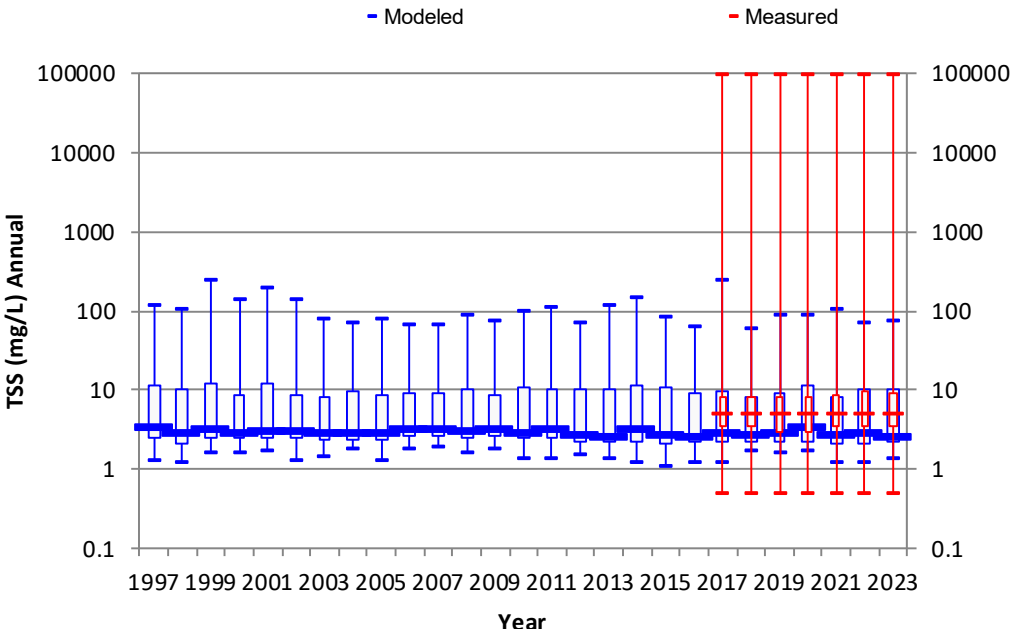


Figure C-2 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH101 Aries

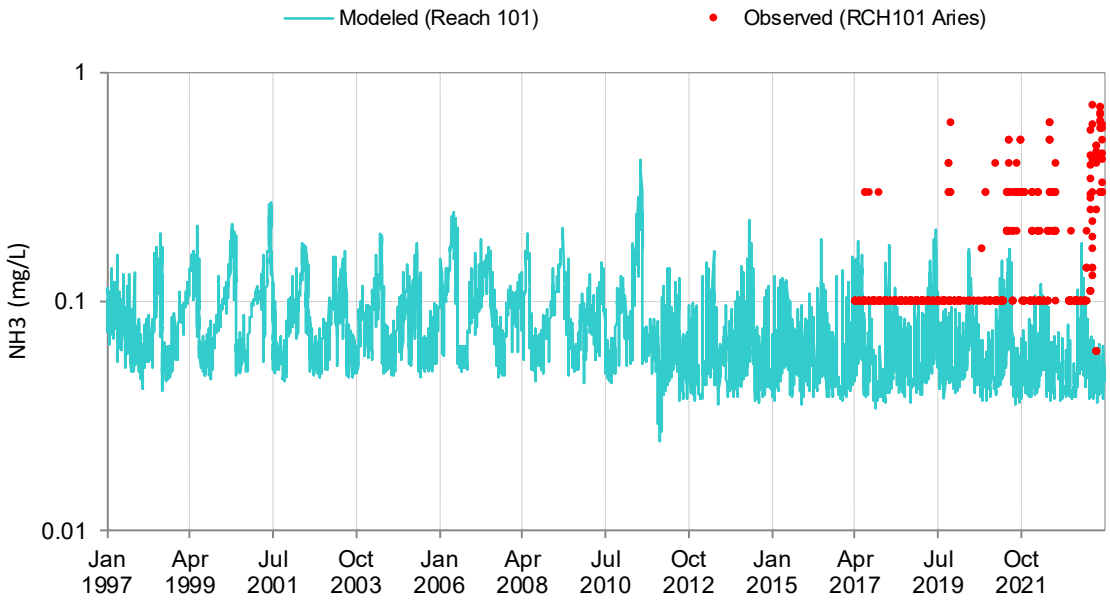


Figure C-3 Modeled Vs Observed NH3 (mg/L) at RCH101 Aries

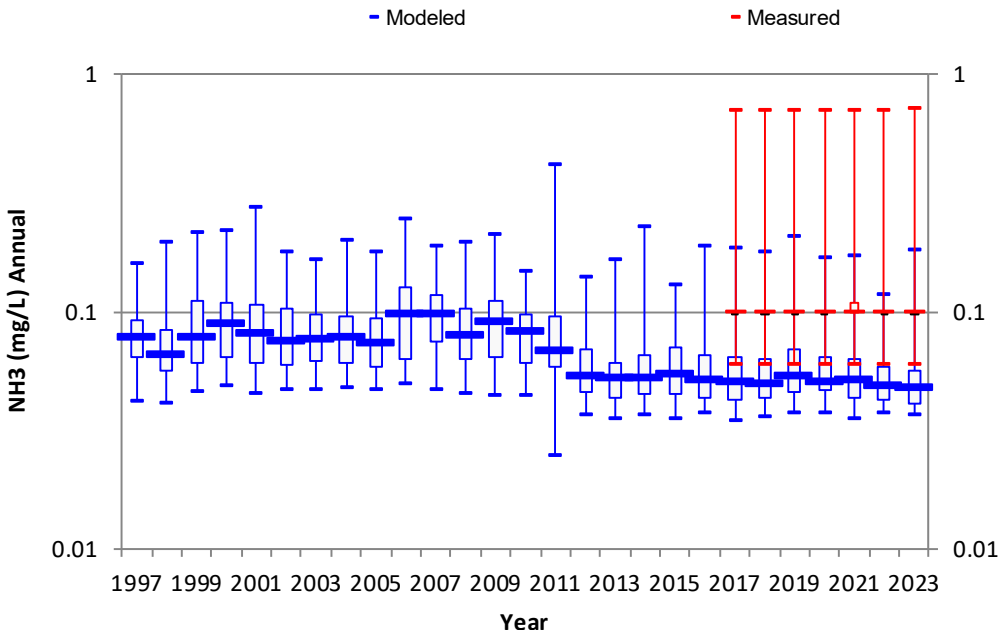


Figure C-4 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH101 Aries

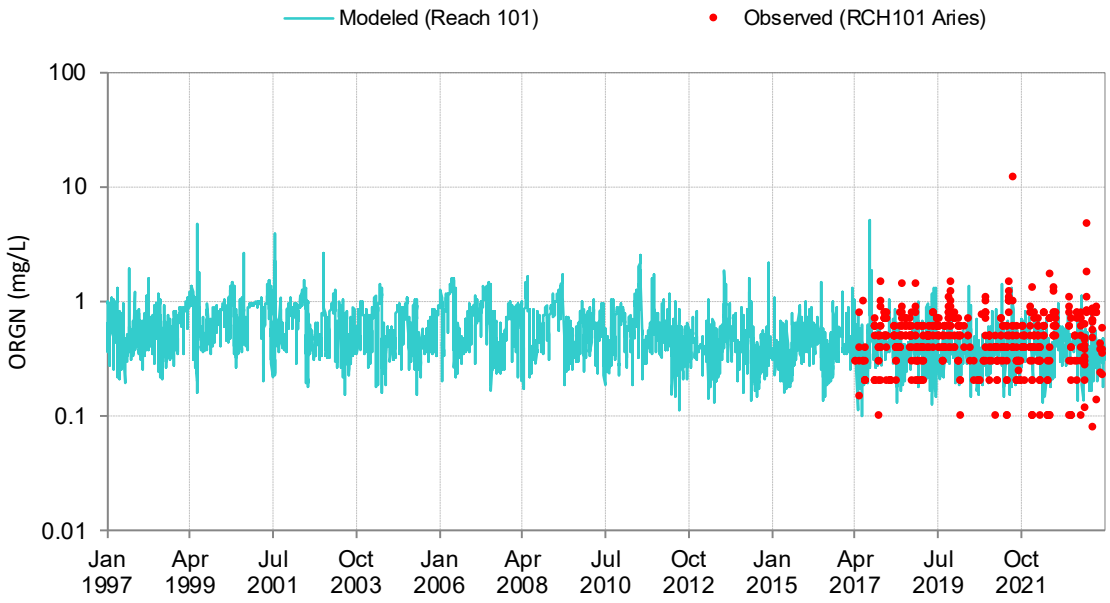


Figure C-5 Modeled Vs Observed ORGN (mg/L) at RCH101 Aries

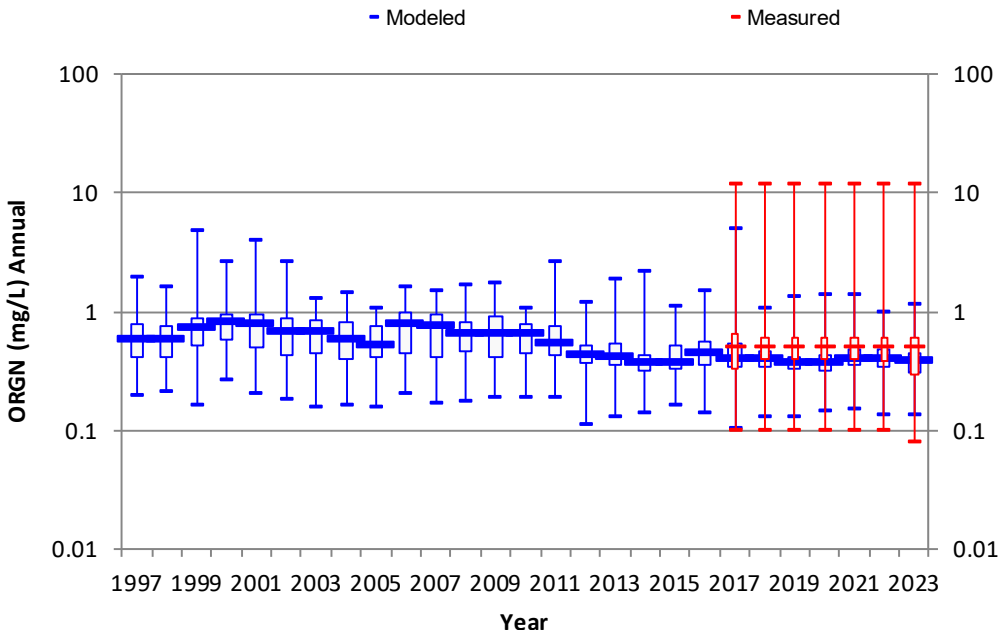


Figure C-6 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH101 Aries

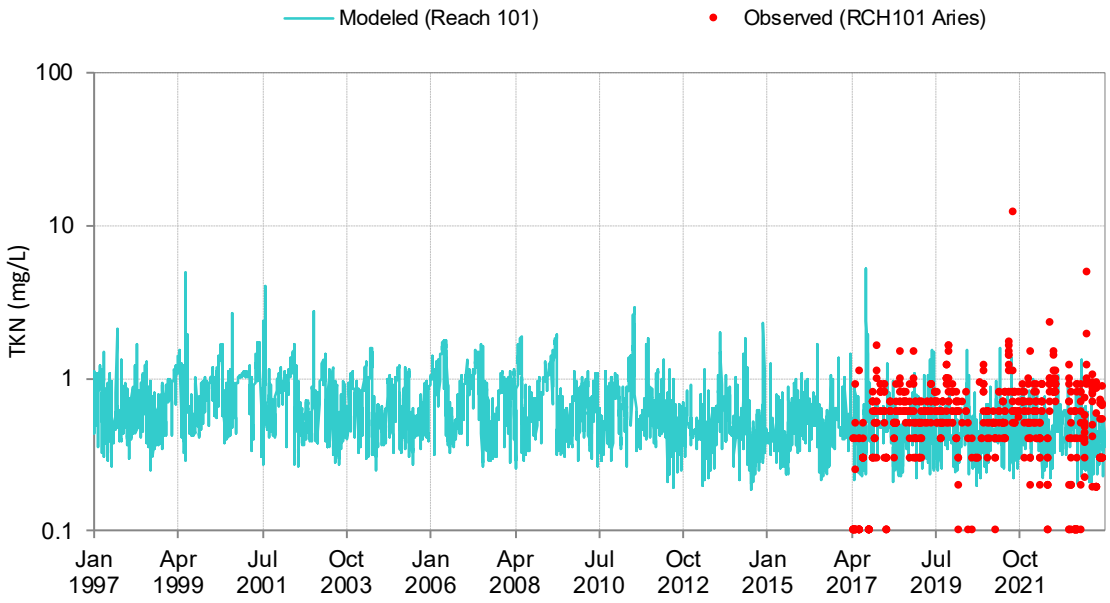


Figure C-7 Modeled Vs Observed TKN (mg/L) at RCH101 Aries

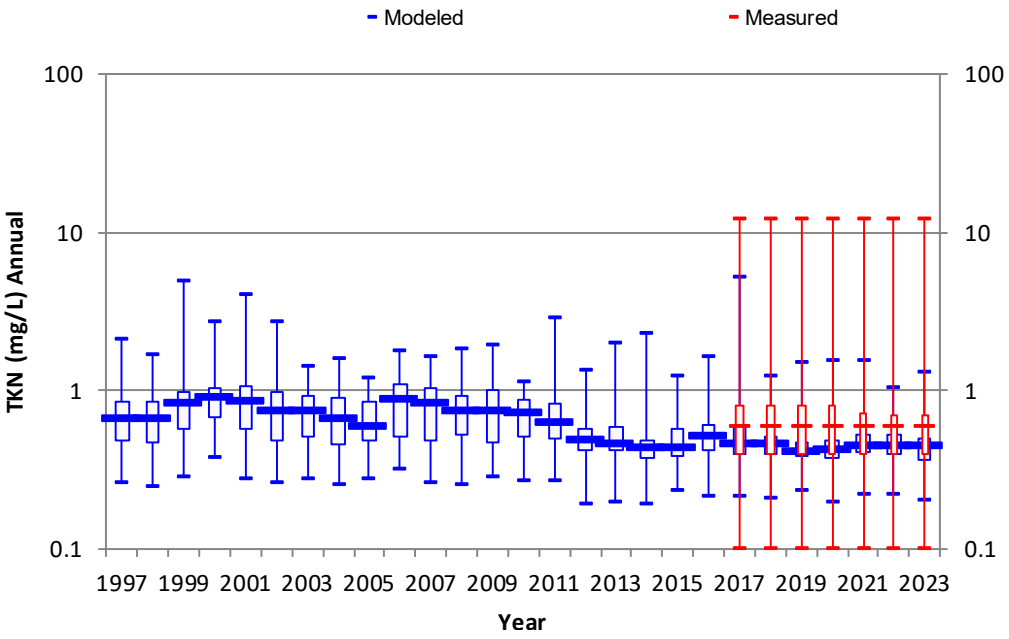


Figure C-8 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH101 Aries

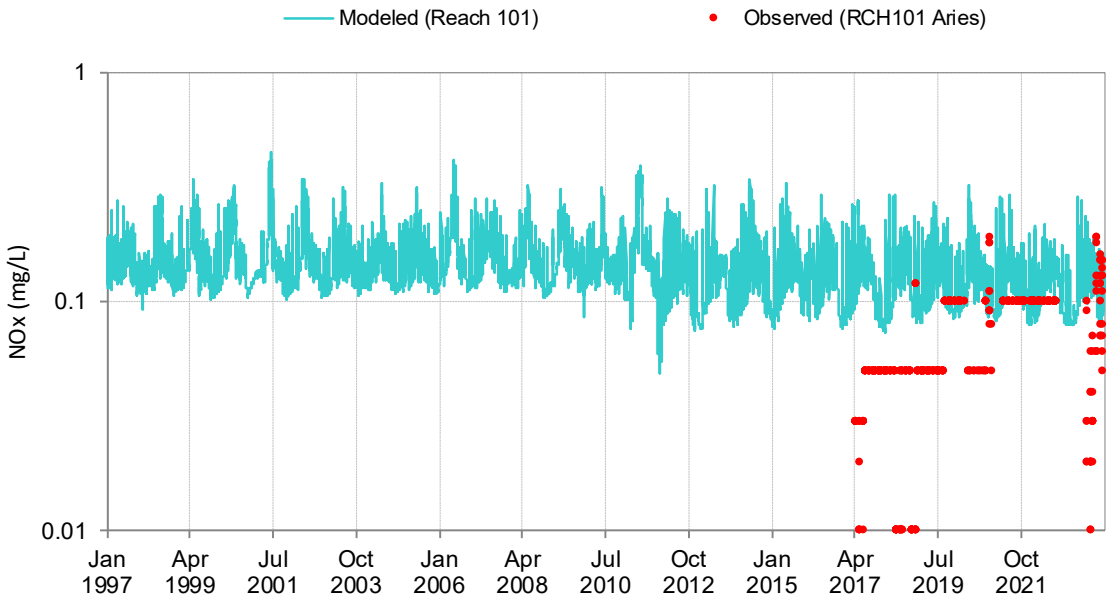


Figure C-9 Modeled Vs Observed NOx (mg/L) at RCH101 Aries

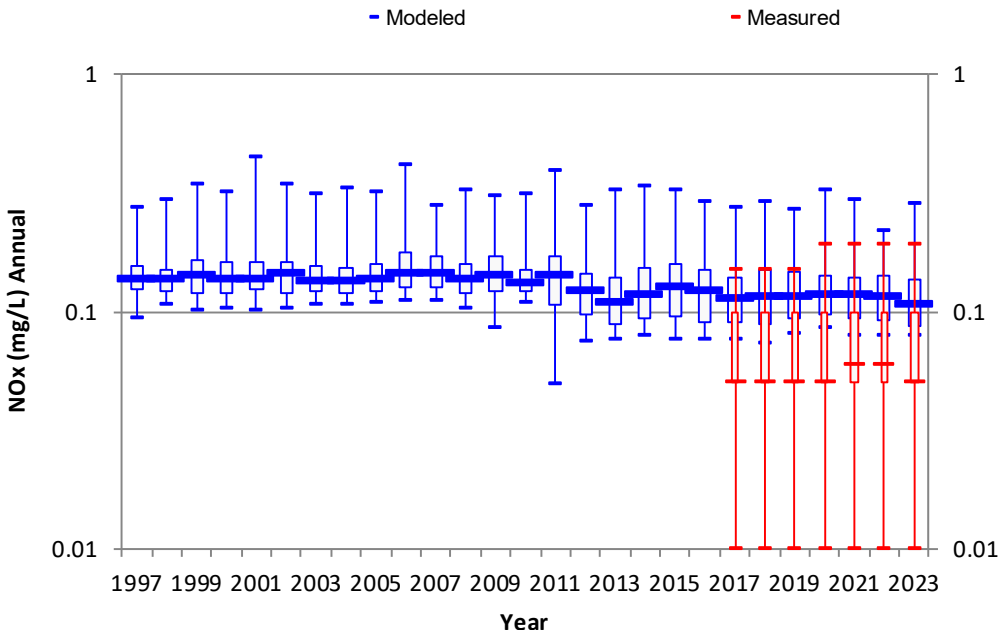


Figure C-10 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH101 Aries

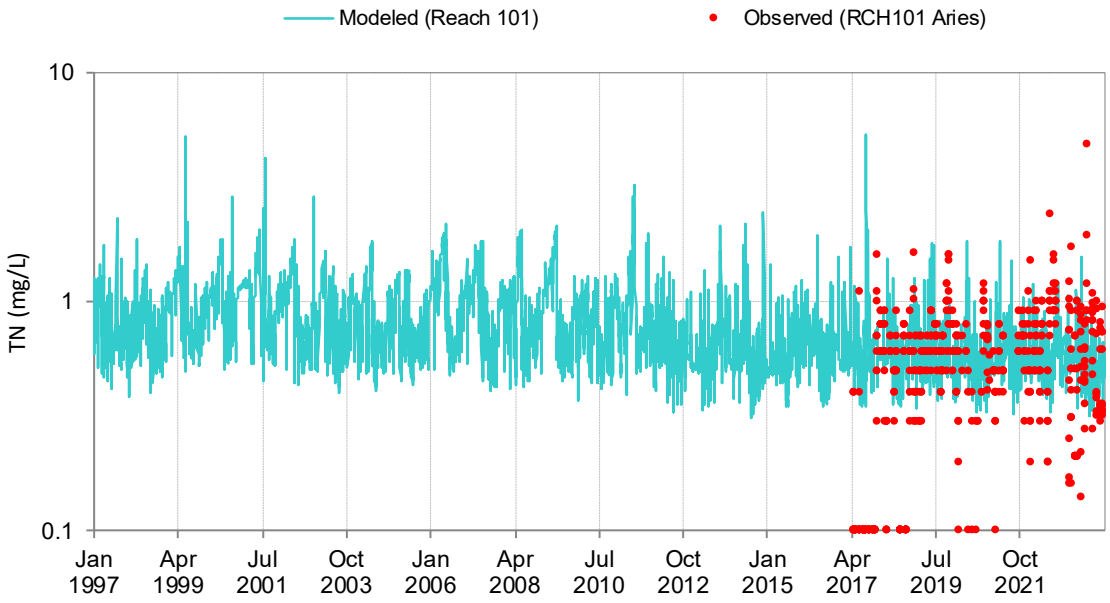


Figure C-11 Modeled Vs Observed TN (mg/L) at RCH101 Aries

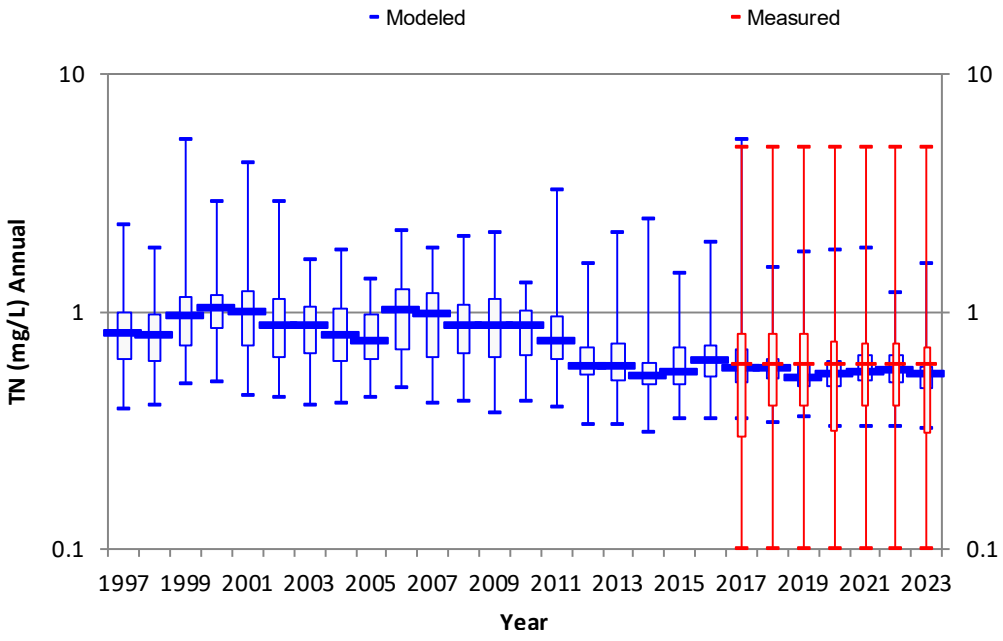


Figure C-12 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH101 Aries

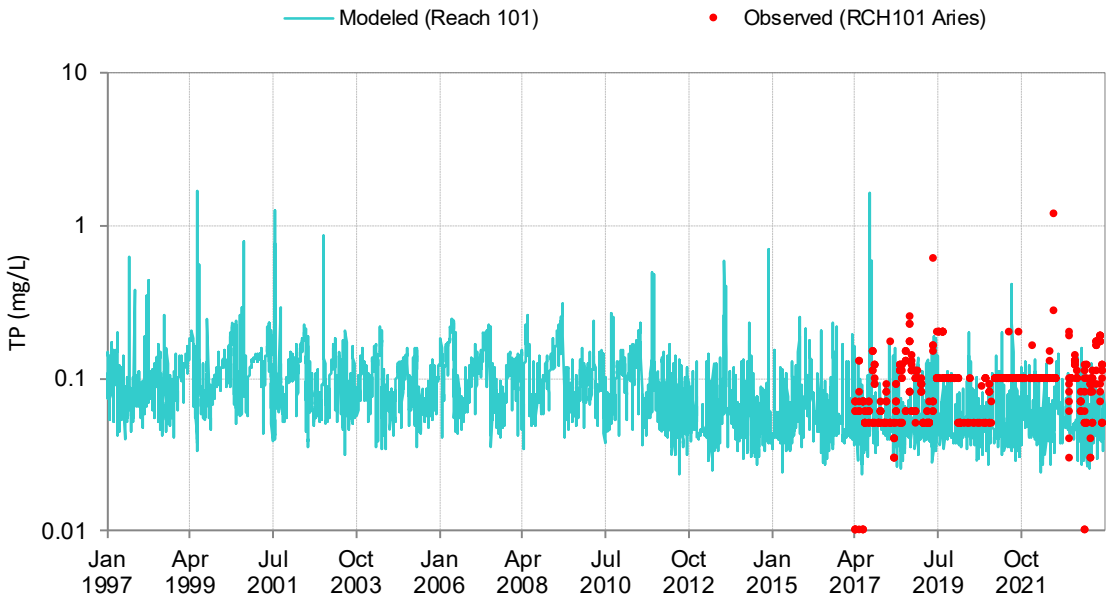


Figure C-13 Modeled Vs Observed TP (mg/L) at RCH101 Aries

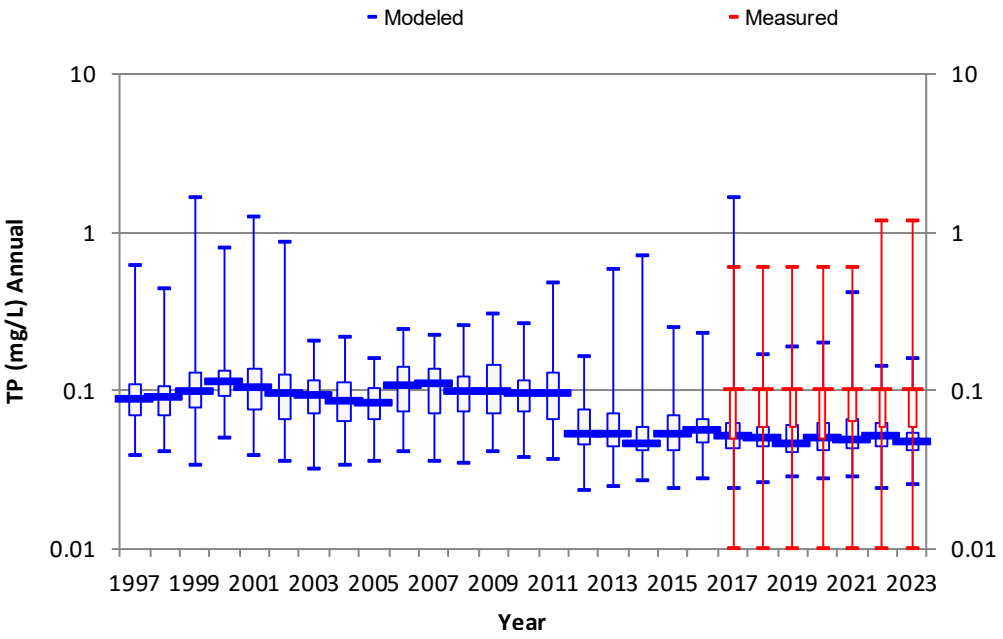


Figure C-14 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH101 Aries

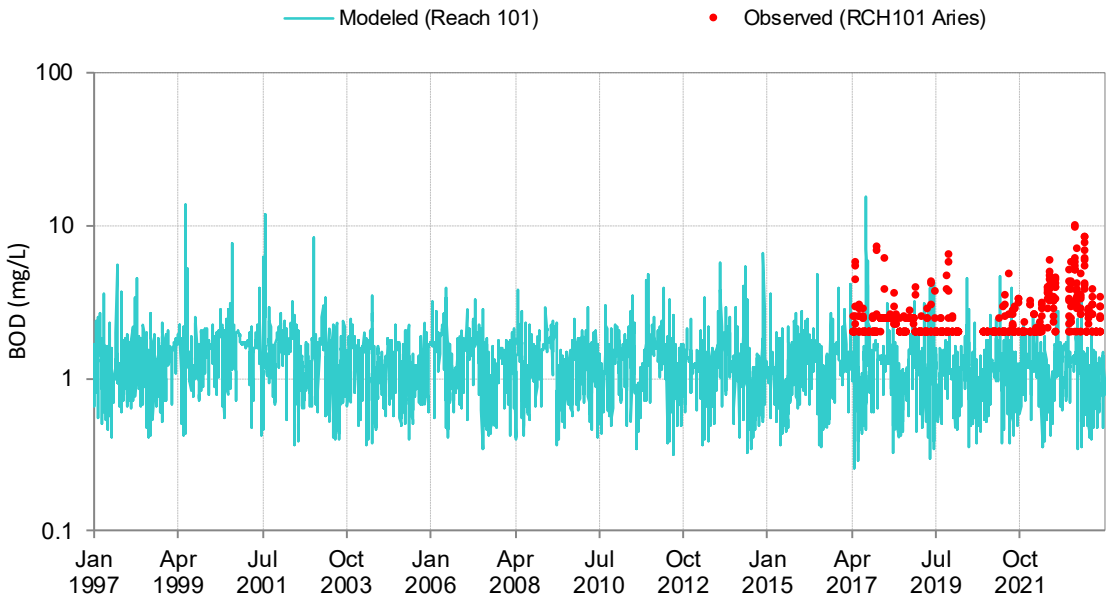


Figure C-15 Modeled Vs Observed BOD (mg/L) at RCH101 Aries

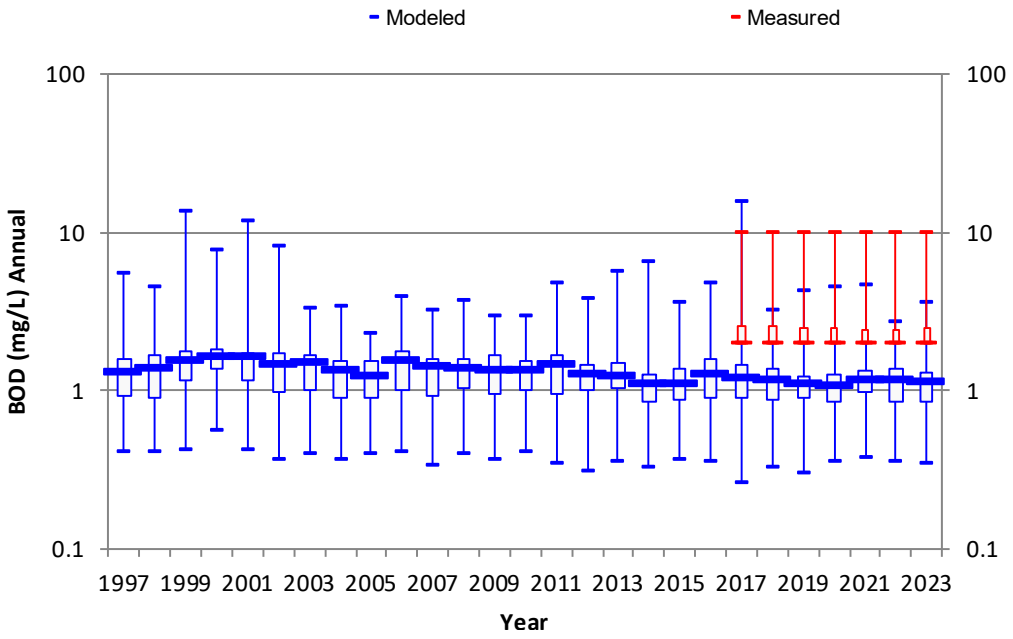


Figure C-16 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH101 Aries

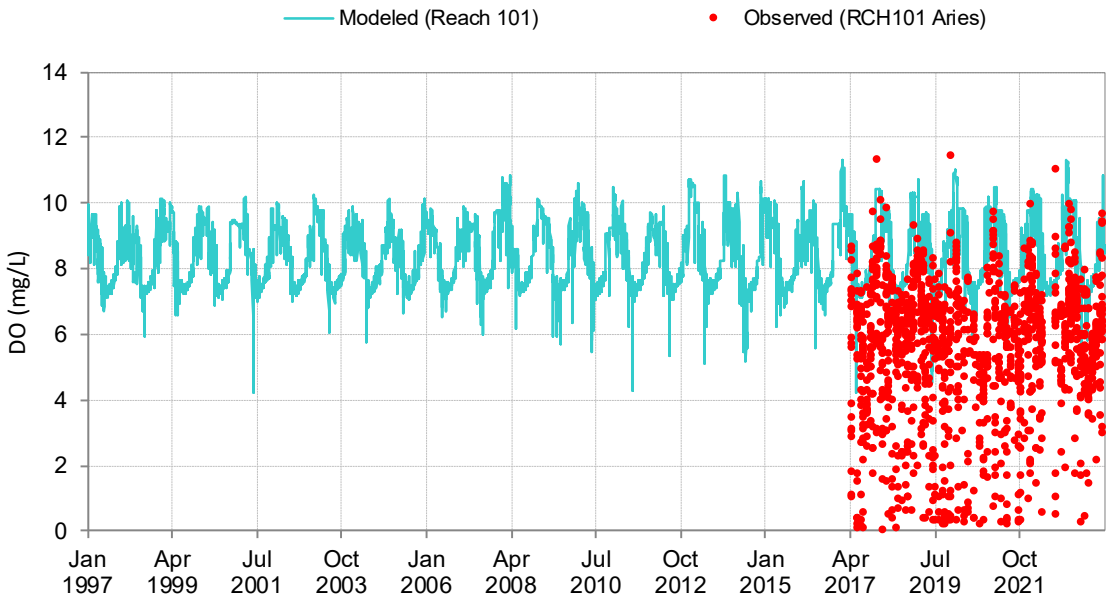


Figure C-17 Modeled Vs Observed DO (mg/L) at RCH101 Aries

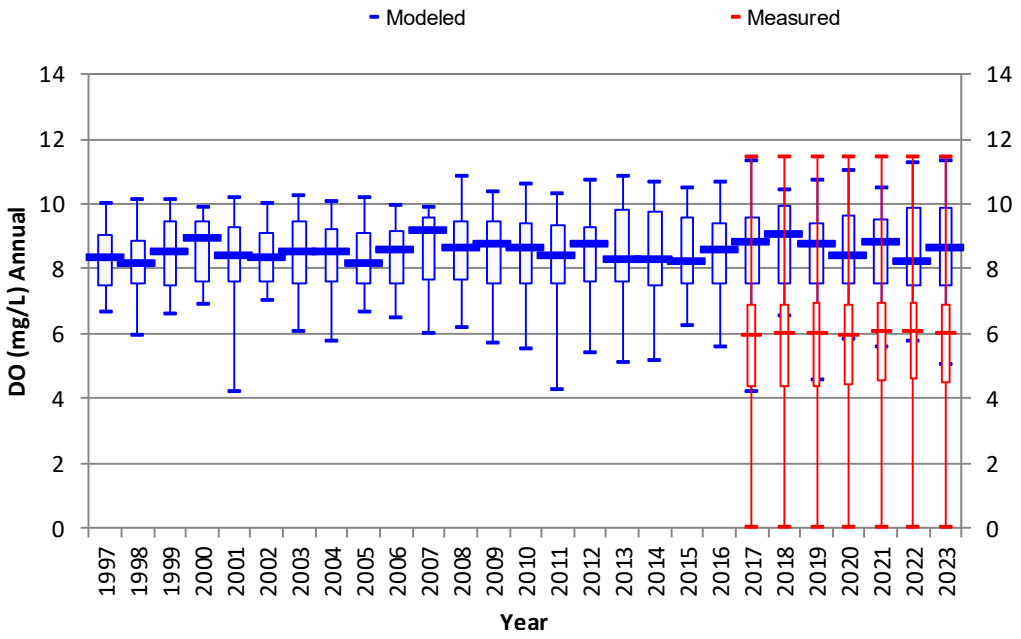


Figure C-18 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH101 Aries

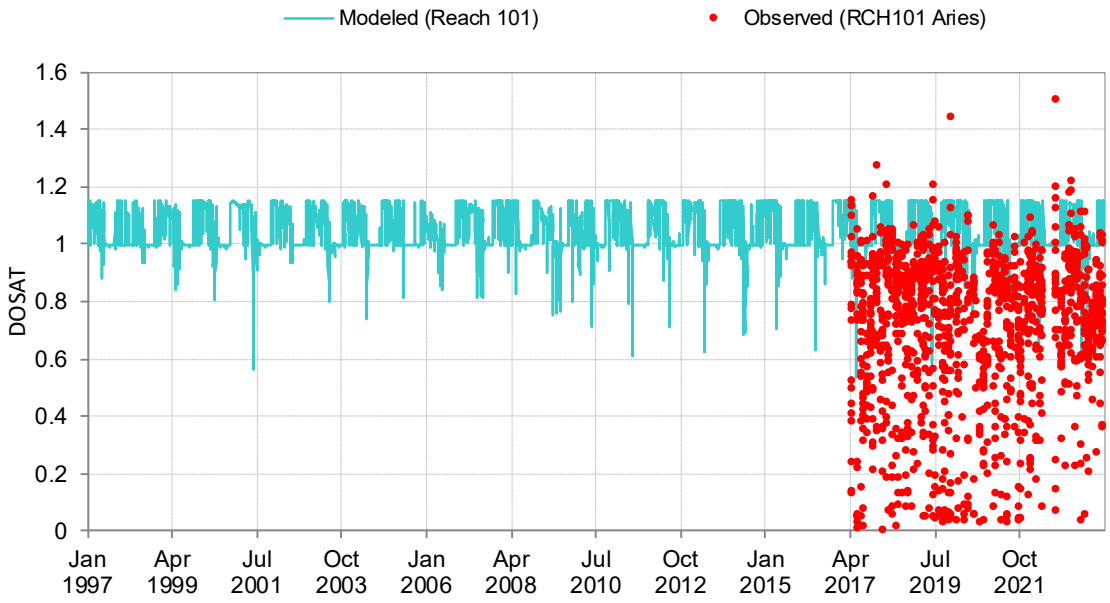


Figure C-19 Modeled Vs Observed DOSAT at RCH101 Aries

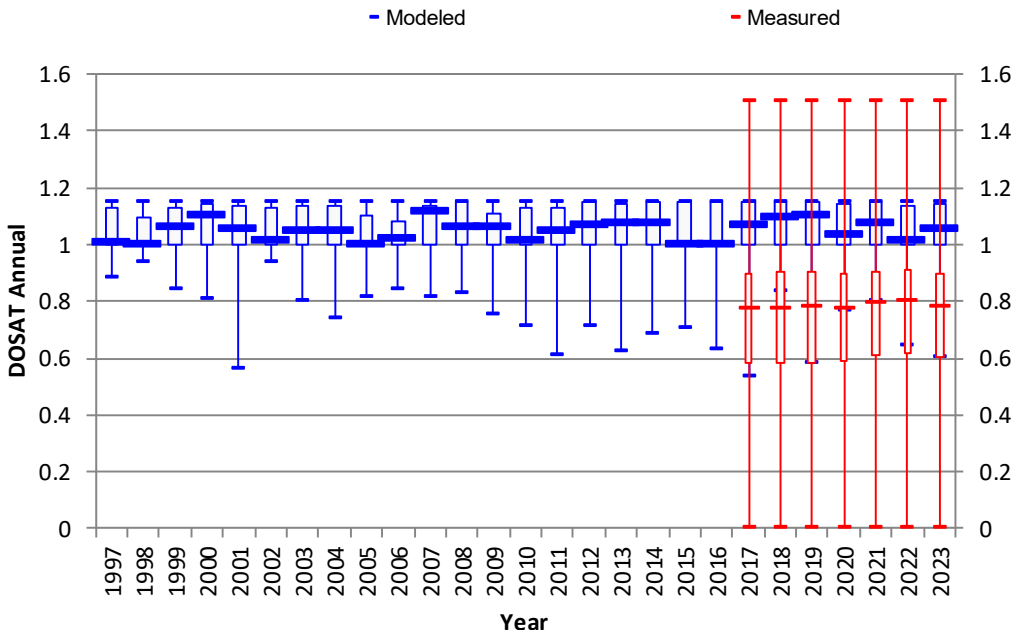


Figure C-20 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH101 Aries

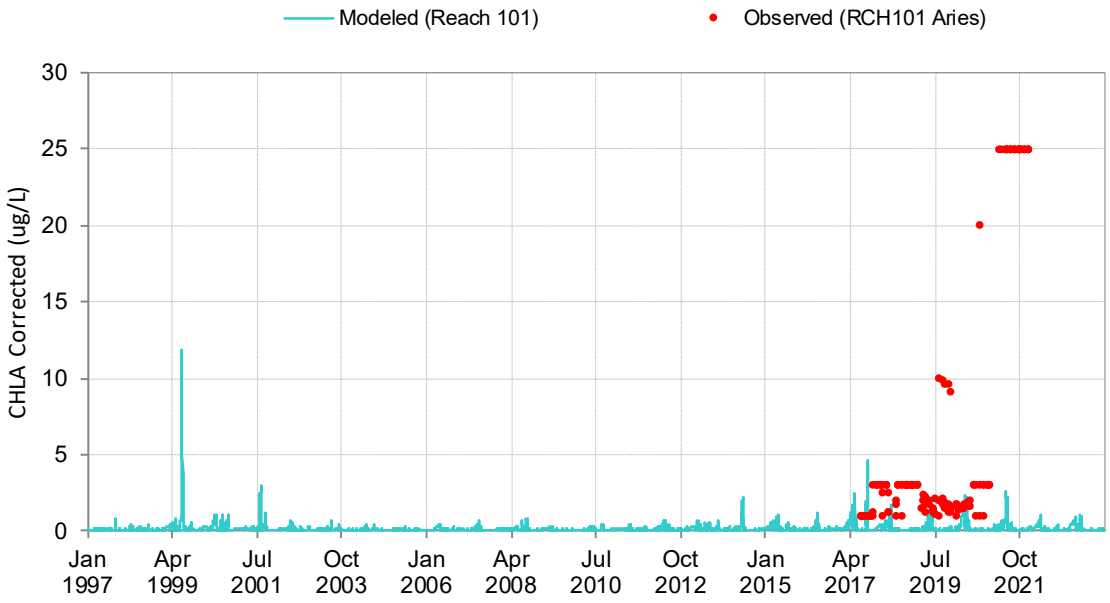


Figure C-21 Modeled Vs Observed CHLA Corrected (ug/L) at RCH101 Aries

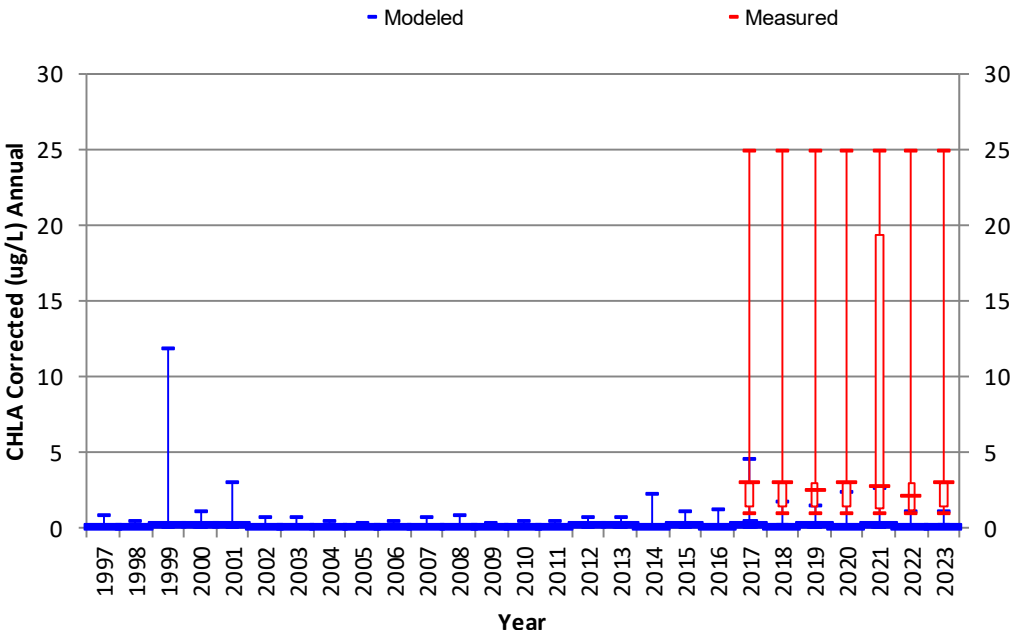


Figure C-22 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH101 Aries

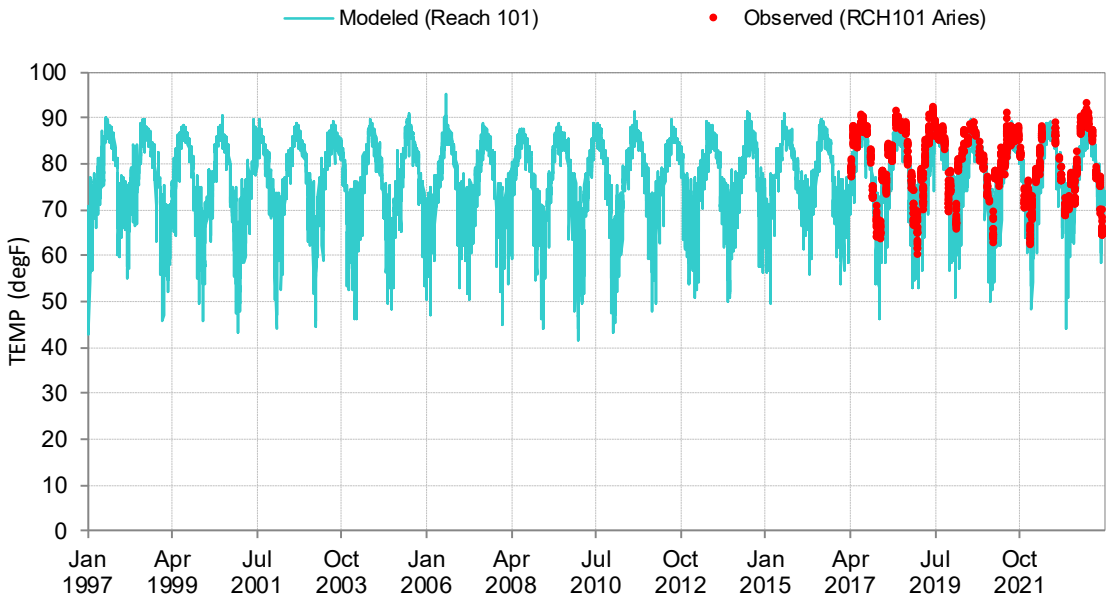


Figure C-23 Modeled Vs Observed TEMP (deg F) at RCH101 Aries

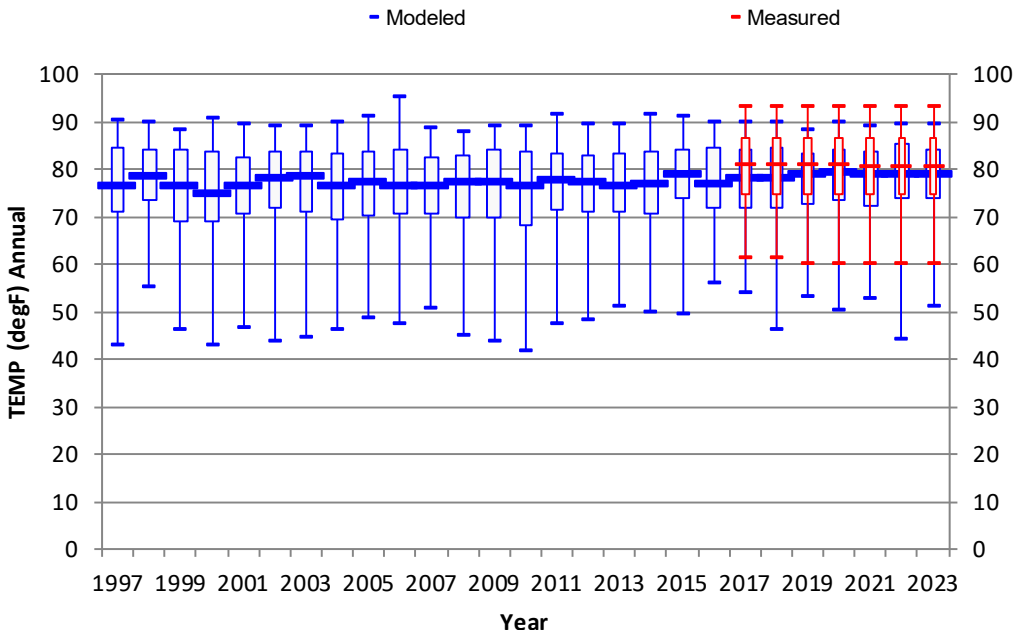


Figure C-24 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH101 Aries

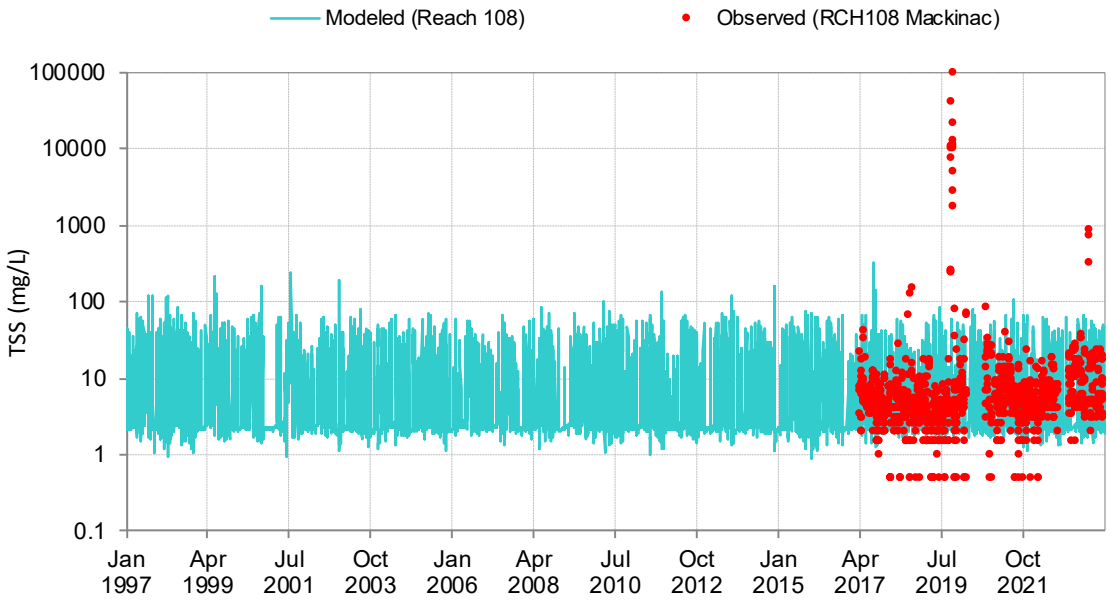


Figure C-25 Modeled Vs Observed TSS (mg/L) at RCH108 Mackinac

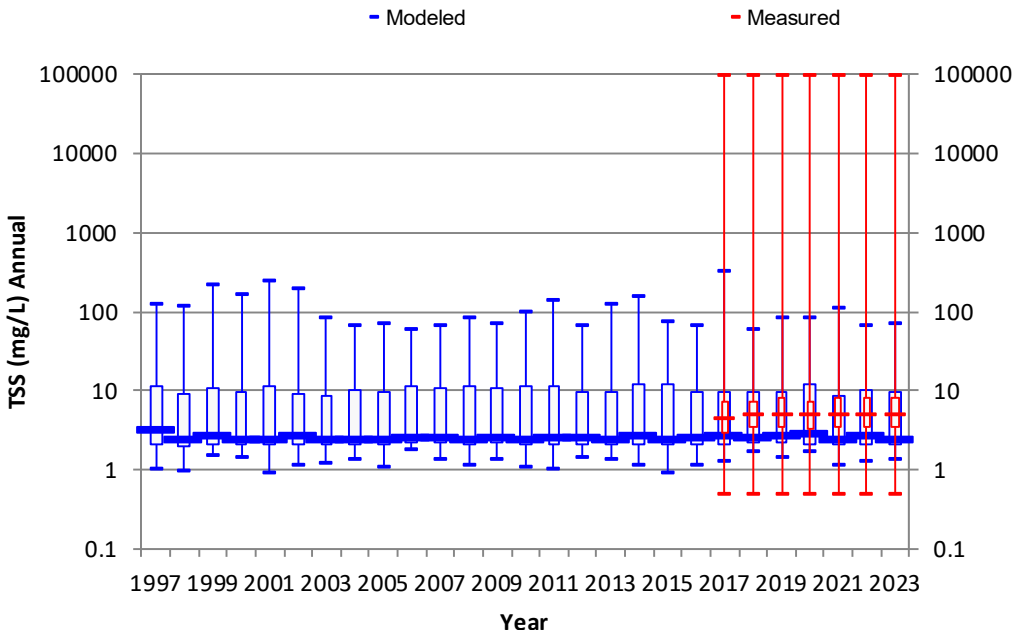


Figure C-26 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH108 Mackinac

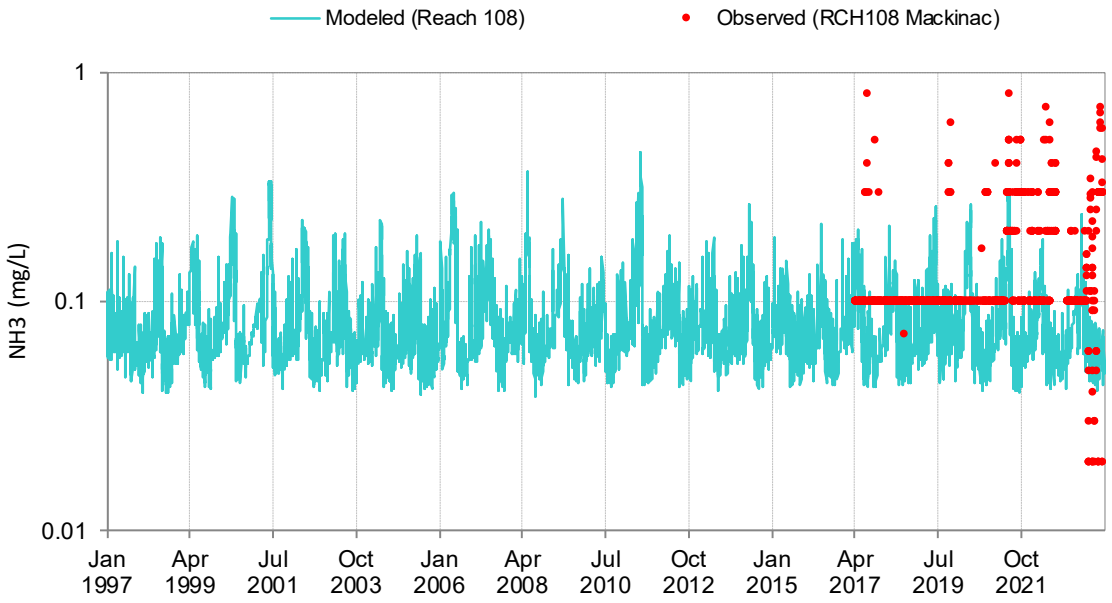


Figure C-27 Modeled Vs Observed NH3 (mg/L) at RCH108 Mackinac

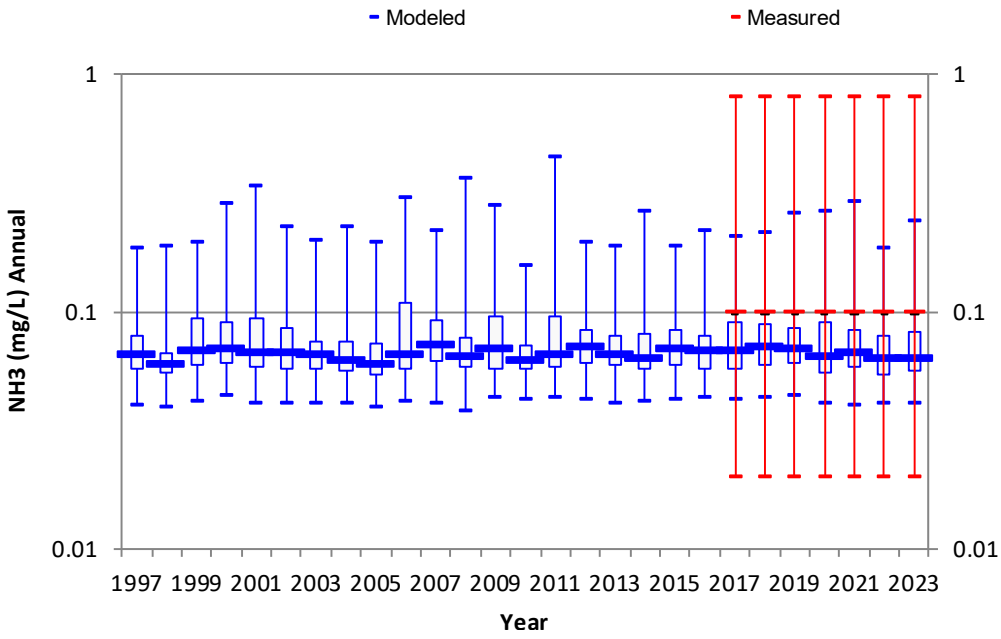


Figure C-28 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH108 Mackinac

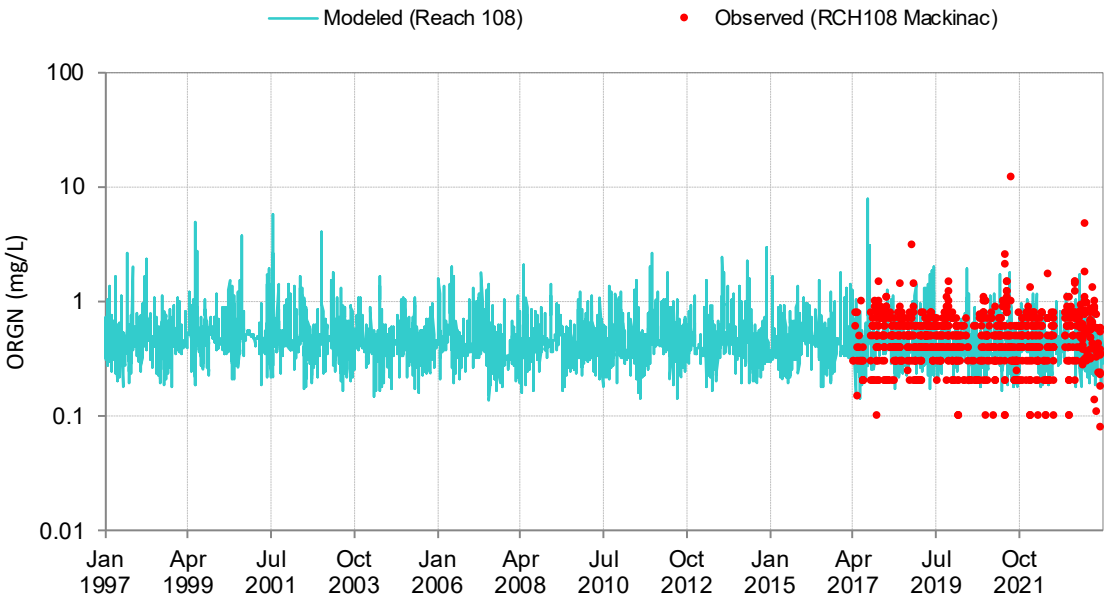


Figure C-29 Modeled Vs Observed ORGN (mg/L) at RCH108 Mackinac

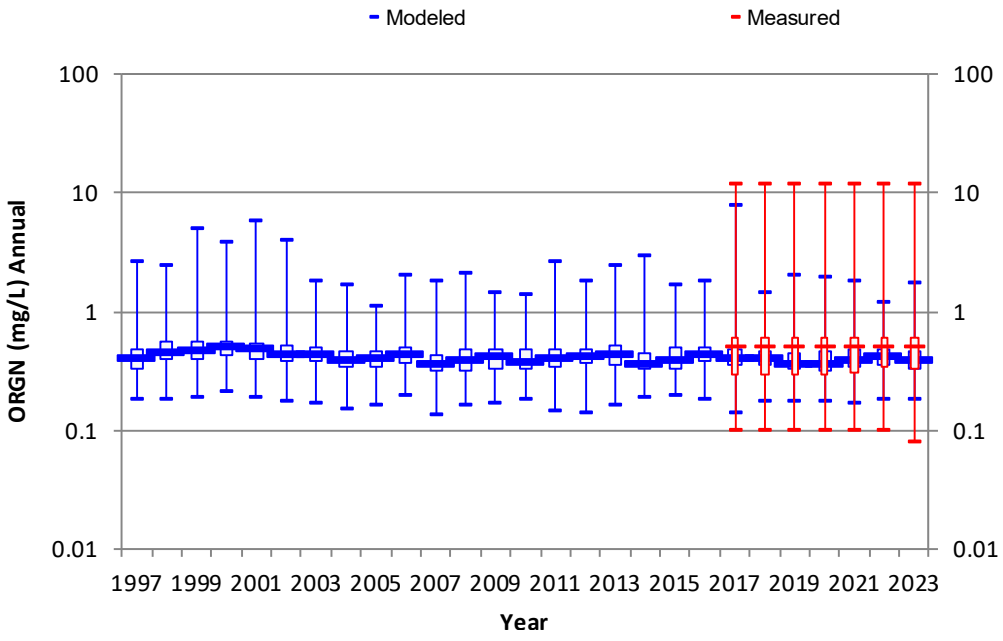


Figure C-30 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH108 Mackinac

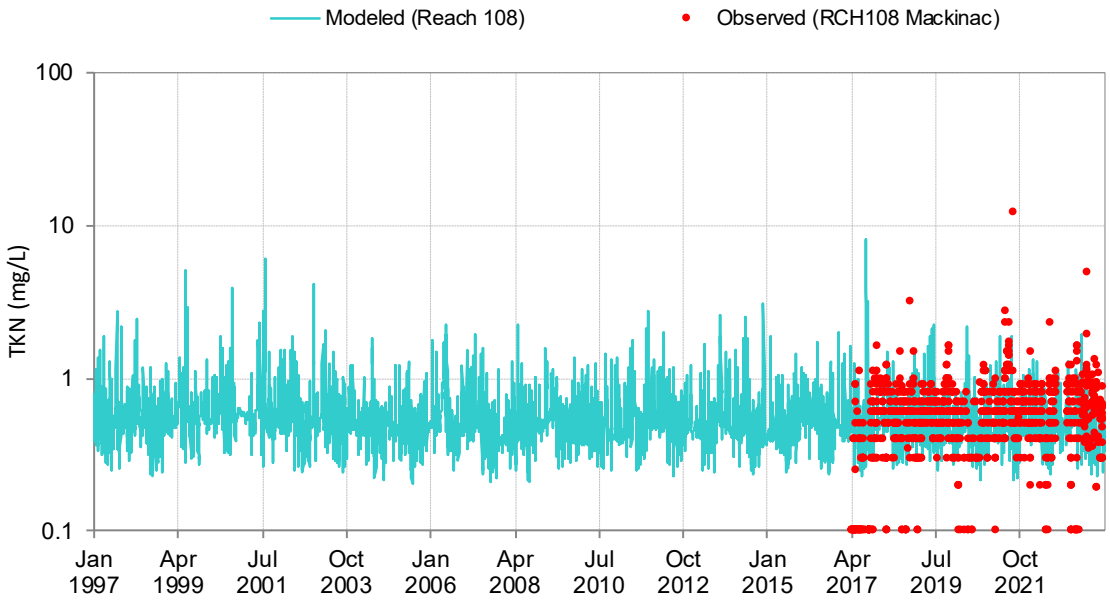


Figure C-31 Modeled Vs Observed TKN (mg/L) at RCH108 Mackinac

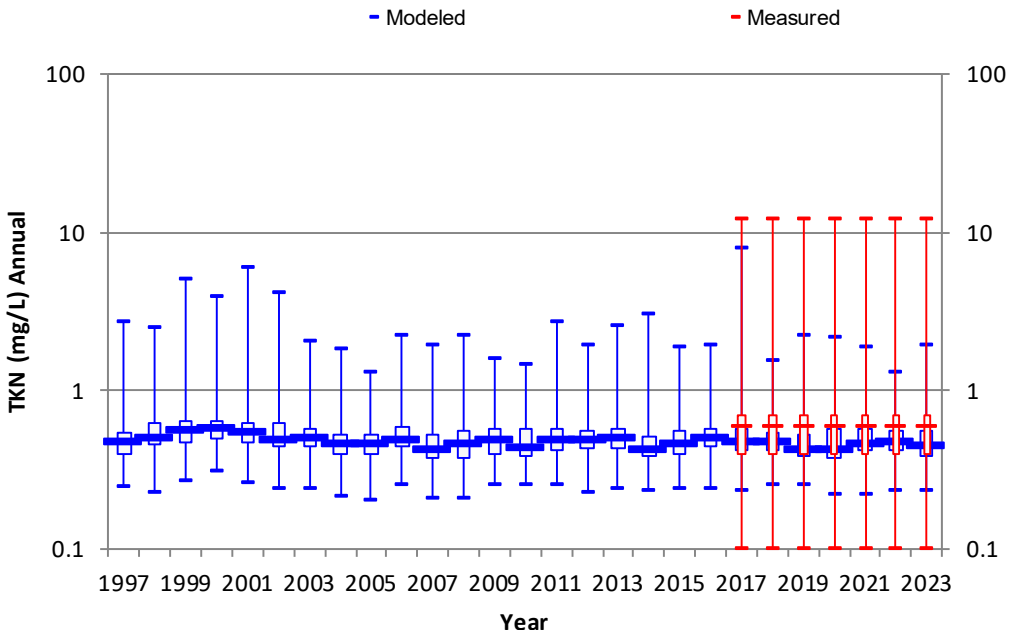


Figure C-32 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH108 Mackinac

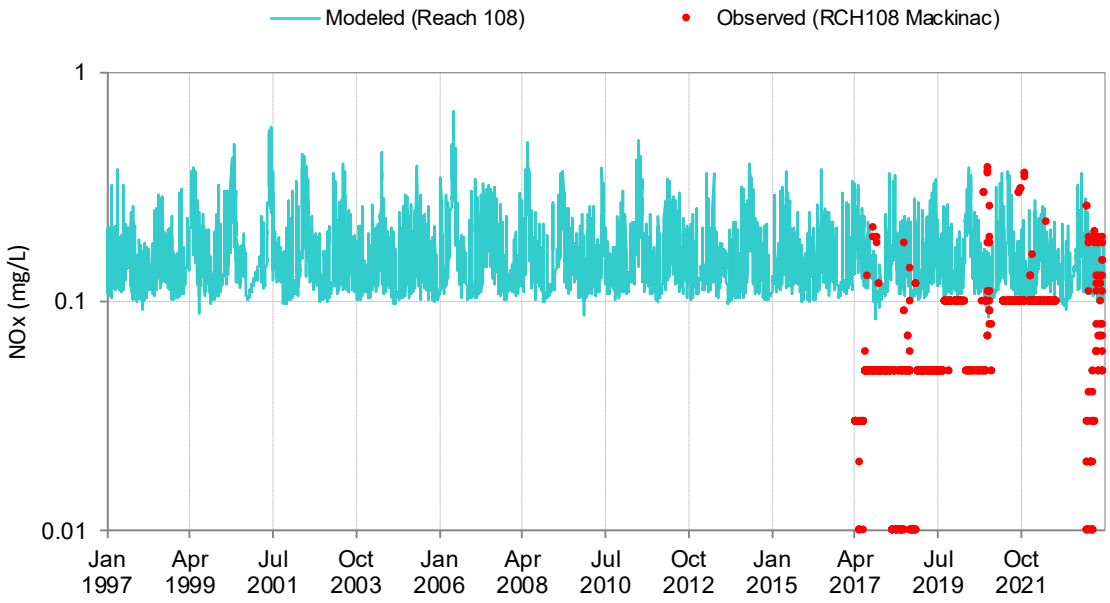


Figure C-33 Modeled Vs Observed NOx (mg/L) at RCH108 Mackinac

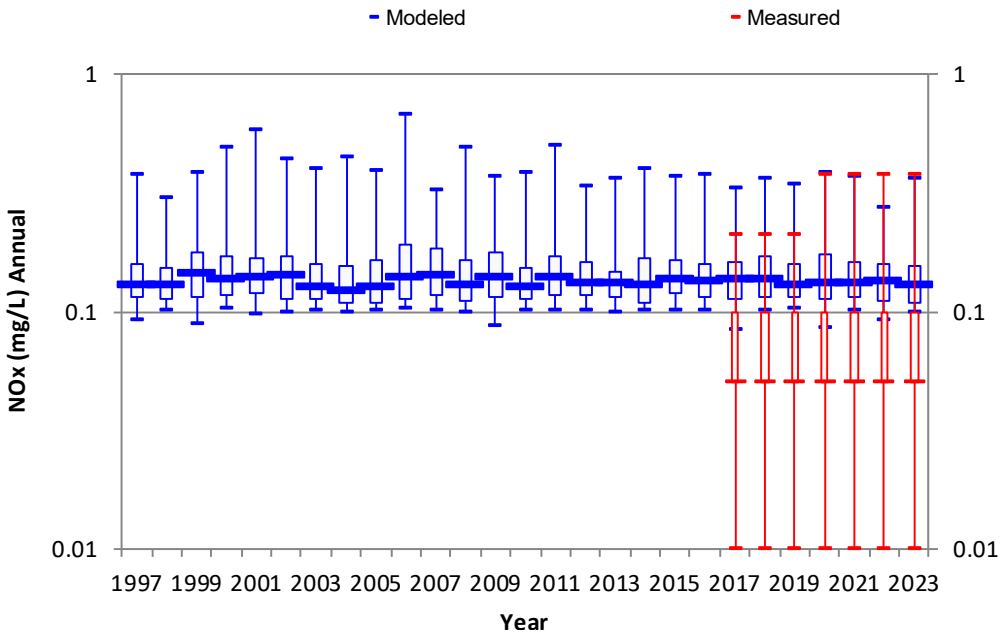


Figure C-34 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH108 Mackinac

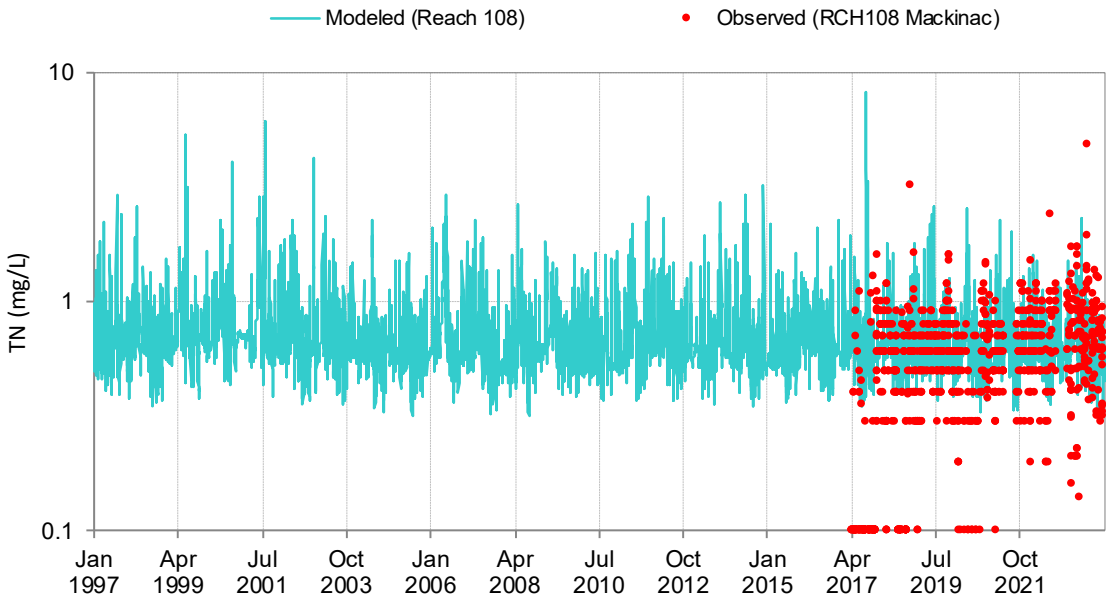


Figure C-35 Modeled Vs Observed TN (mg/L) at RCH108 Mackinac

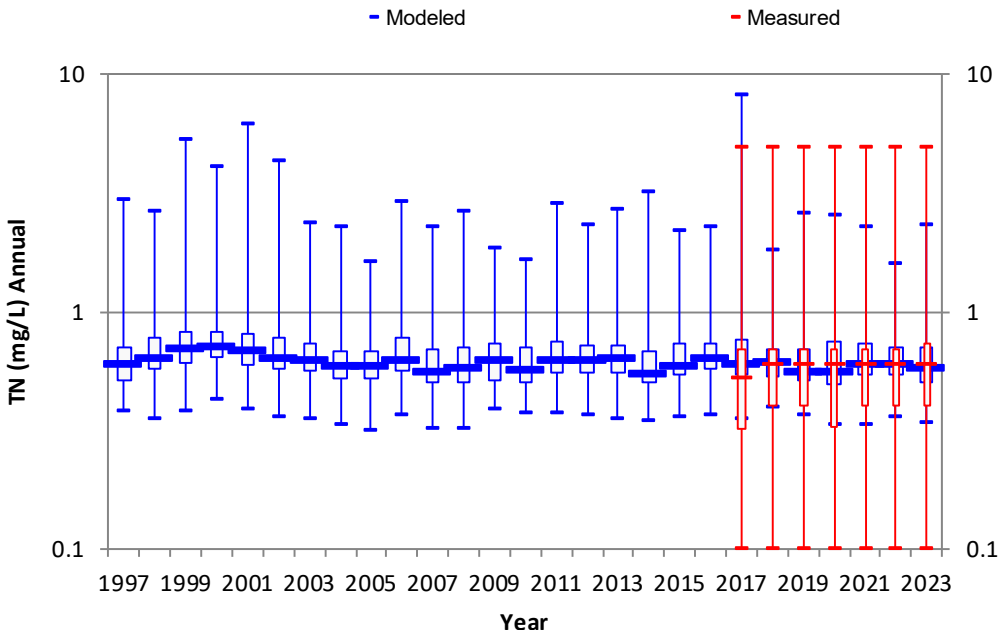


Figure C-36 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH108 Mackinac

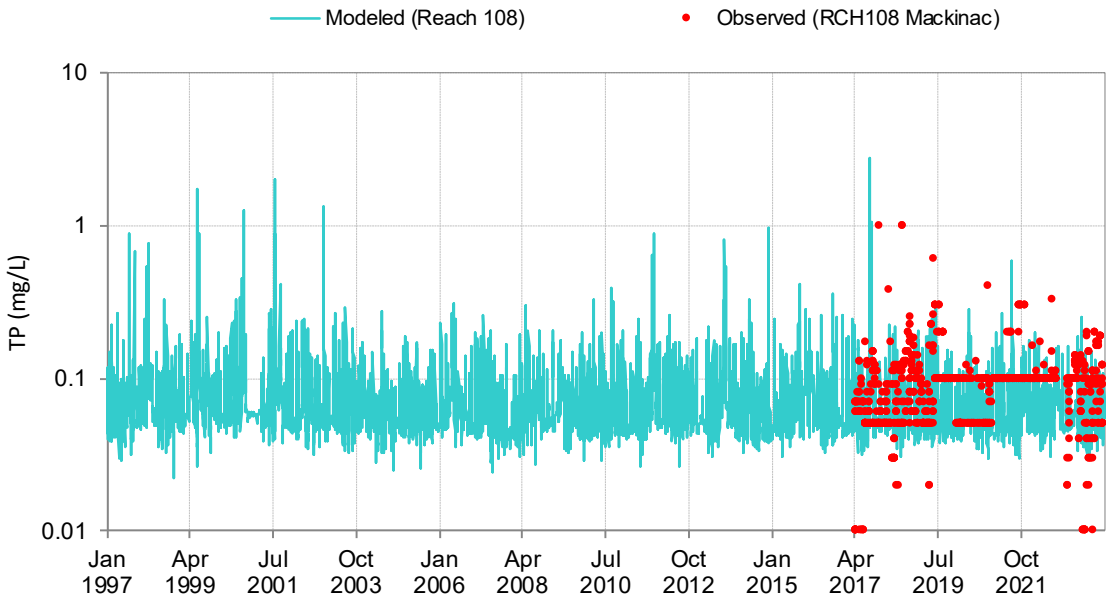


Figure C-37 Modeled Vs Observed TP (mg/L) at RCH108 Mackinac

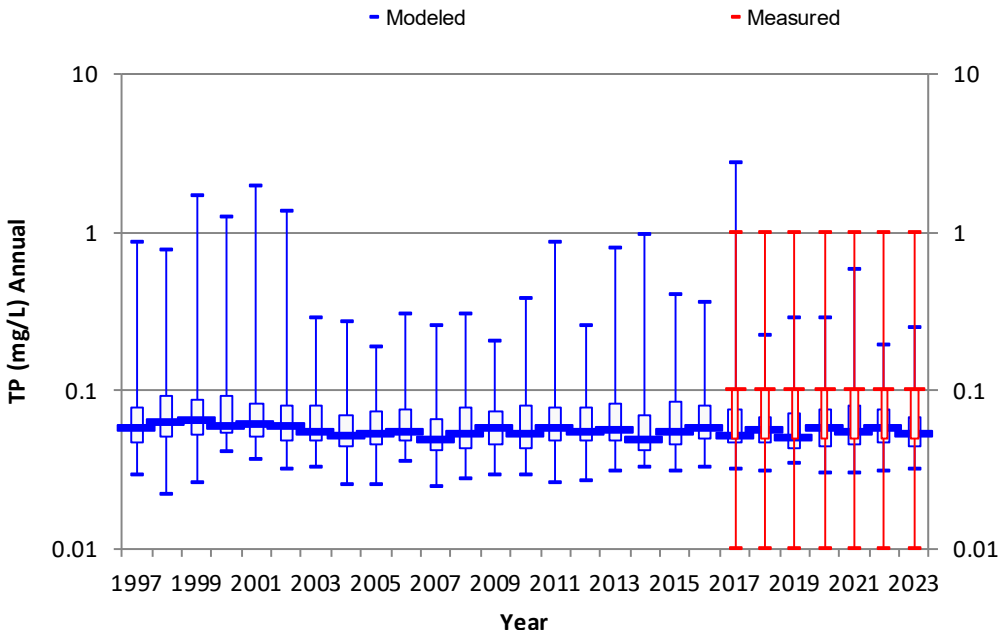


Figure C-38 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH108 Mackinac

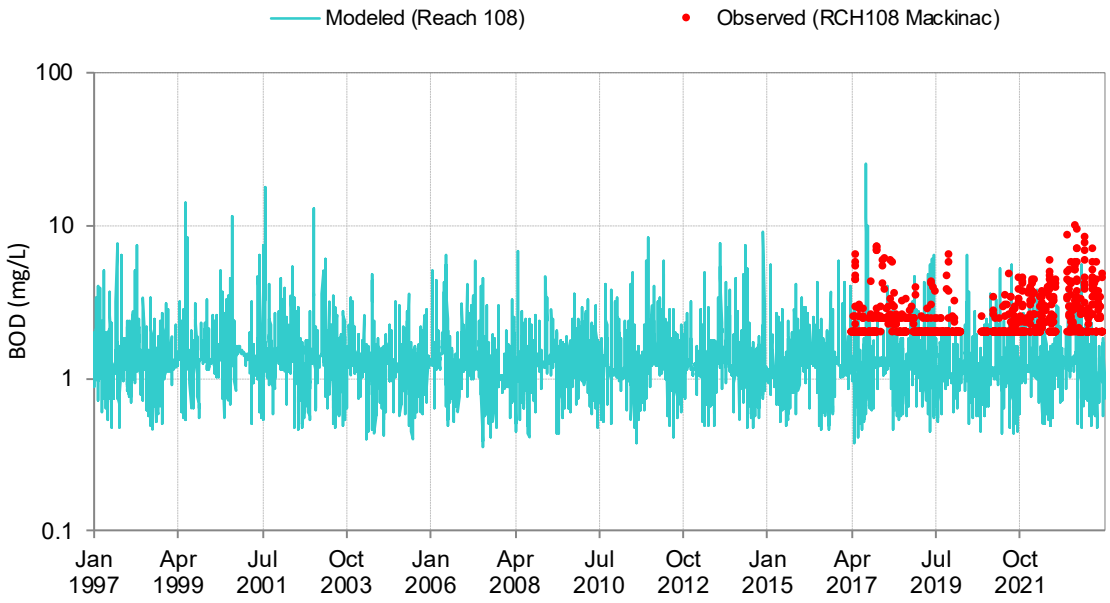


Figure C-39 Modeled Vs Observed BOD (mg/L) at RCH108 Mackinac

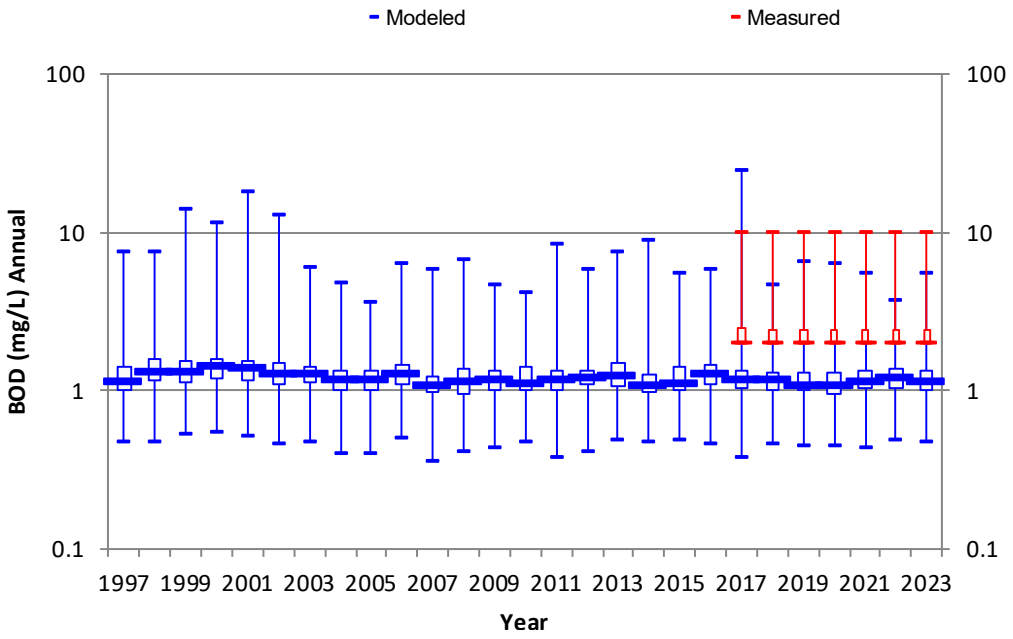


Figure C-40 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH108 Mackinac

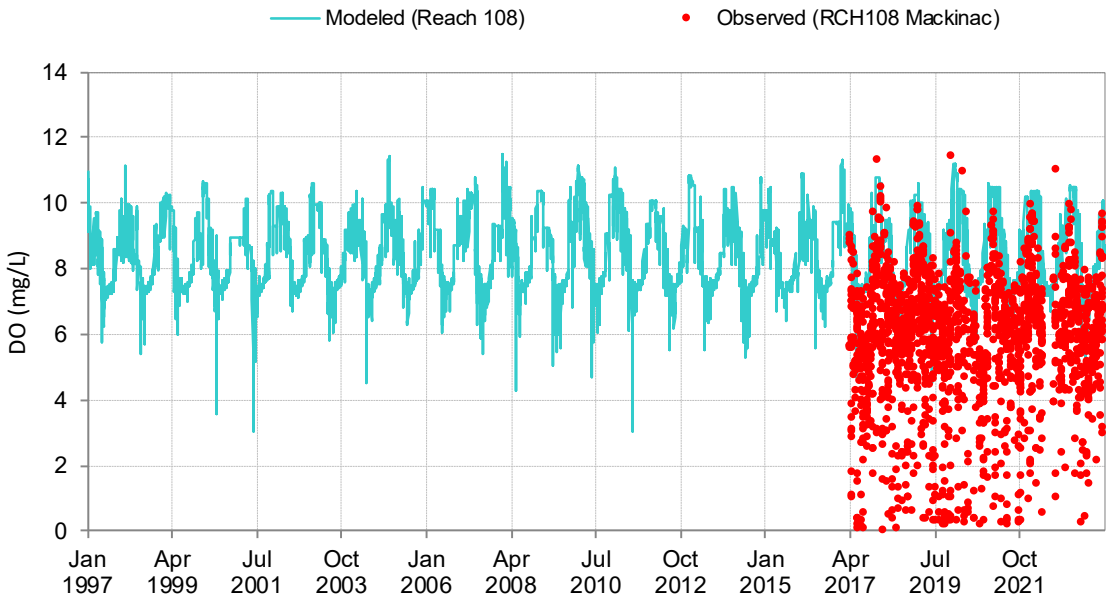


Figure C-41 Modeled Vs Observed DO (mg/L) at RCH108 Mackinac

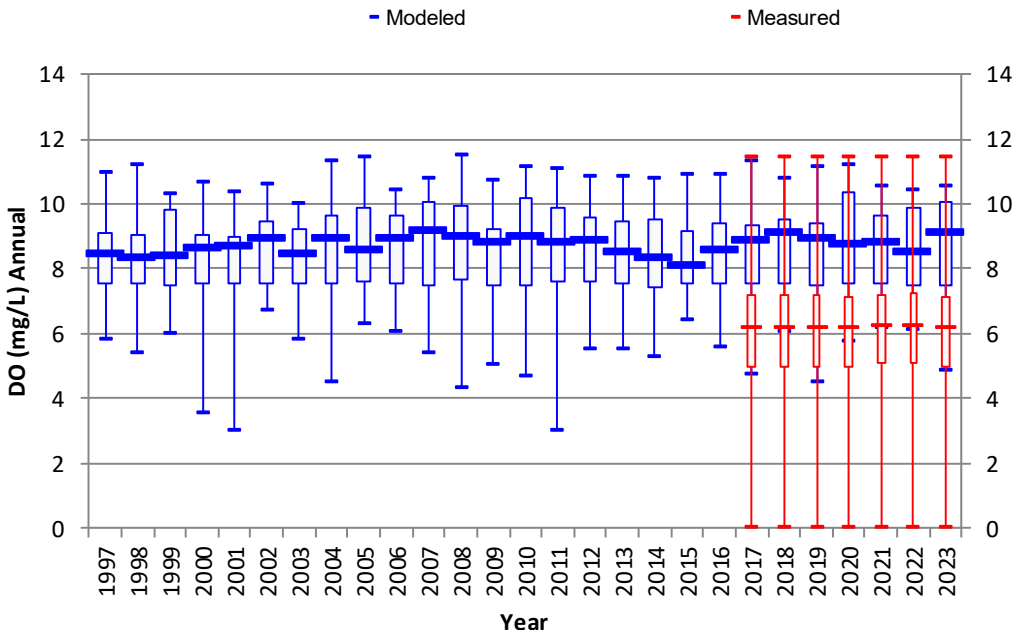


Figure C-42 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH108 Mackinac

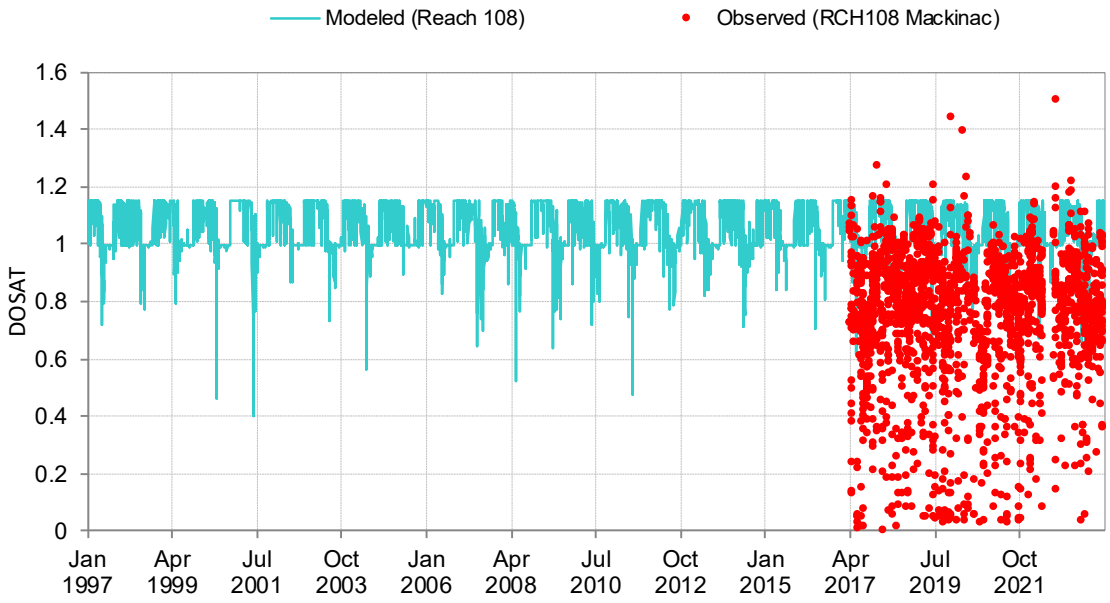


Figure C-43 Modeled Vs Observed DOSAT at RCH108 Mackinac

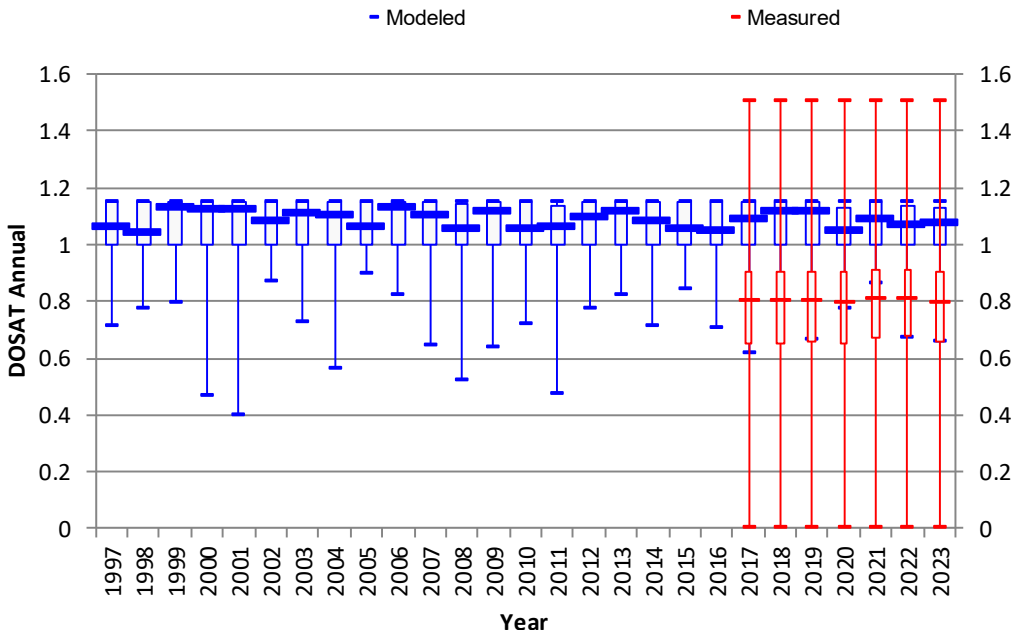


Figure C-44 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH108 Mackinac

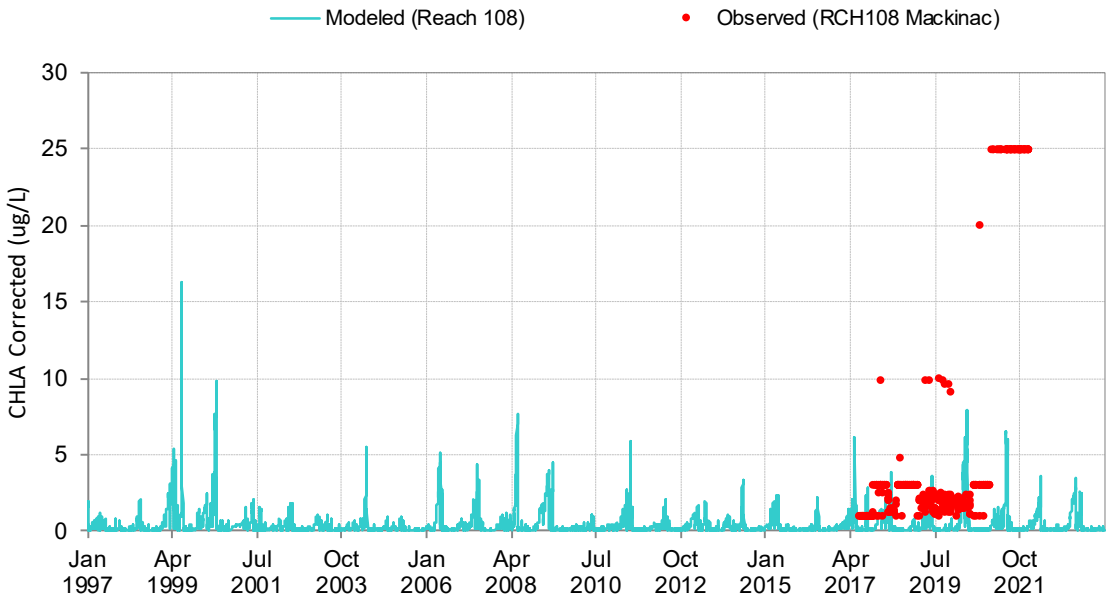


Figure C-45 Modeled Vs Observed CHLA Corrected (ug/L) at RCH108 Mackinac

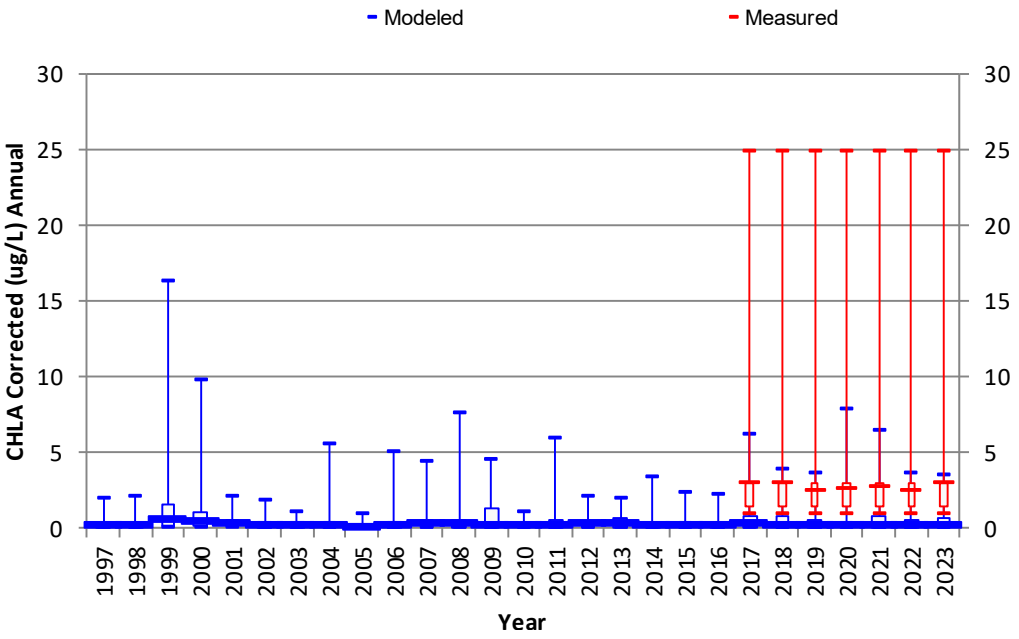


Figure C-46 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH108 Mackinac

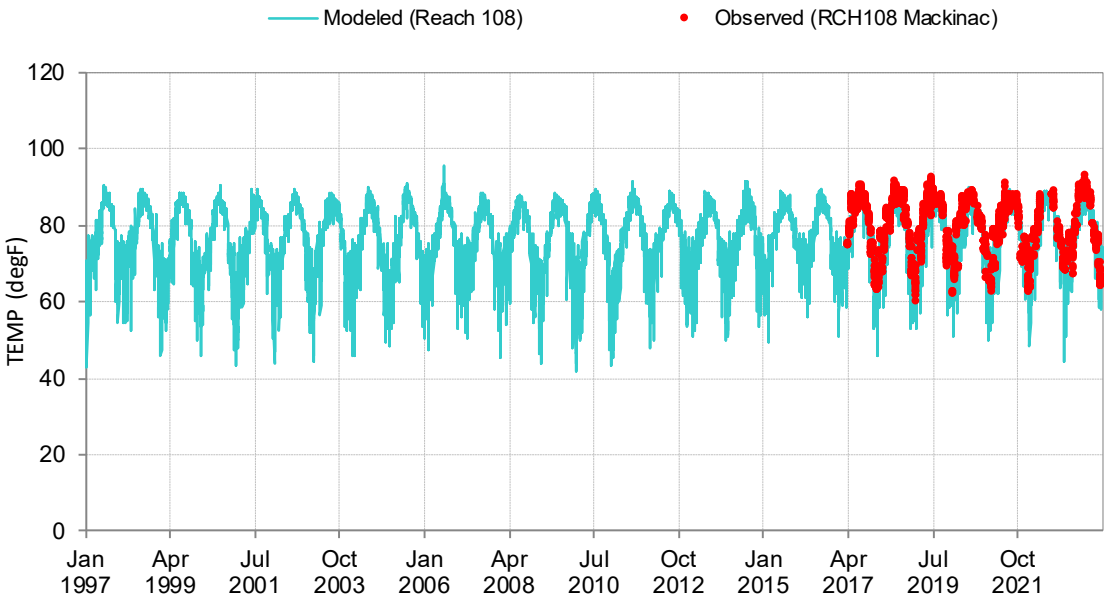


Figure C-47 Modeled Vs Observed TEMP (deg F) at RCH108 Mackinac

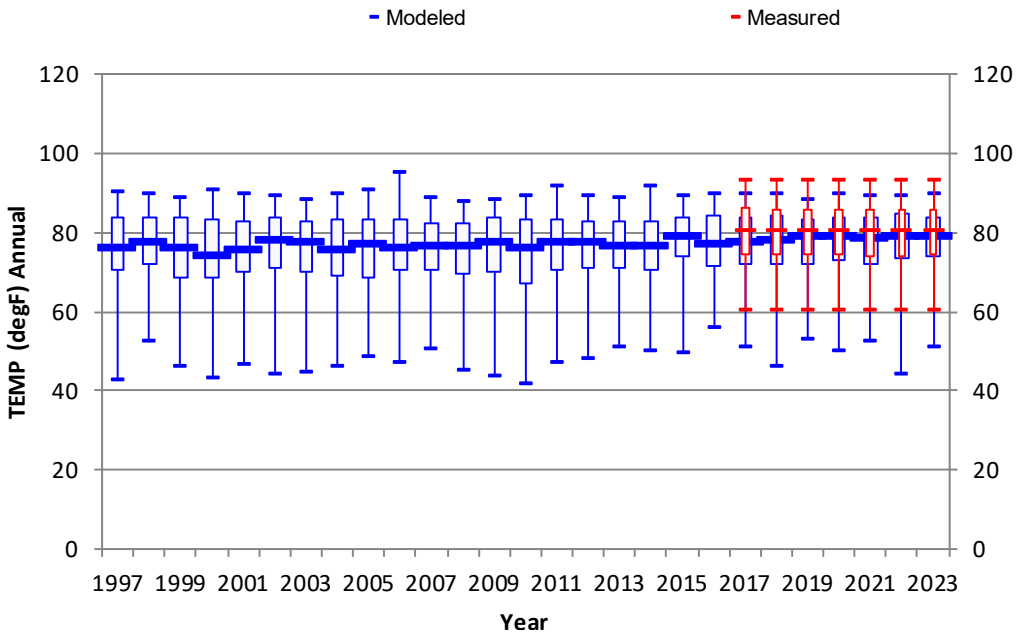


Figure C-48 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH108 Mackinac

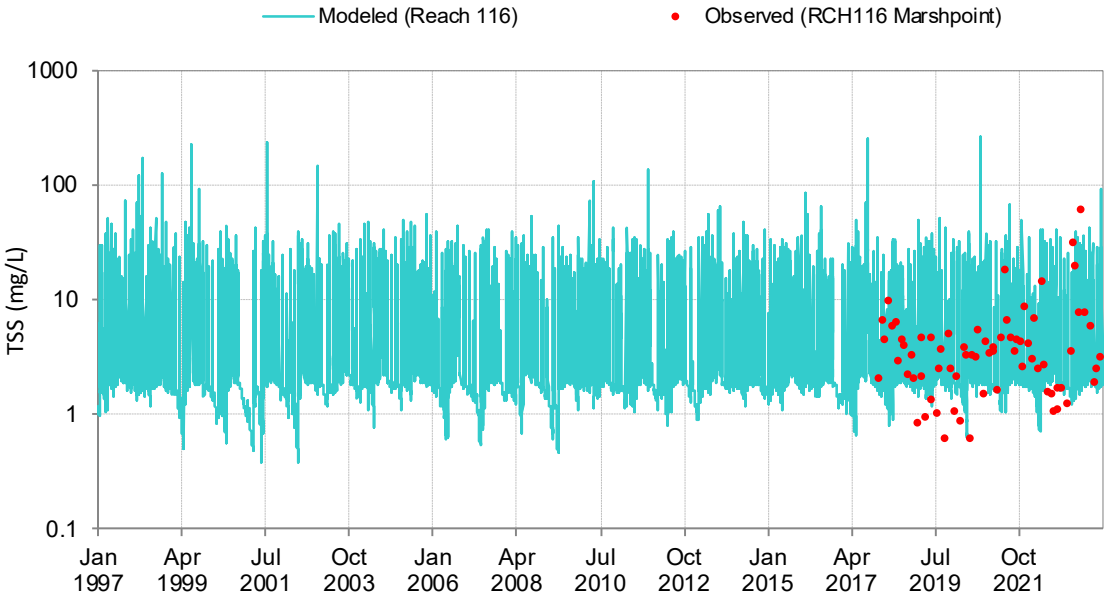


Figure C-49 Modeled Vs Observed TSS (mg/L) at RCH116 Marshpoint

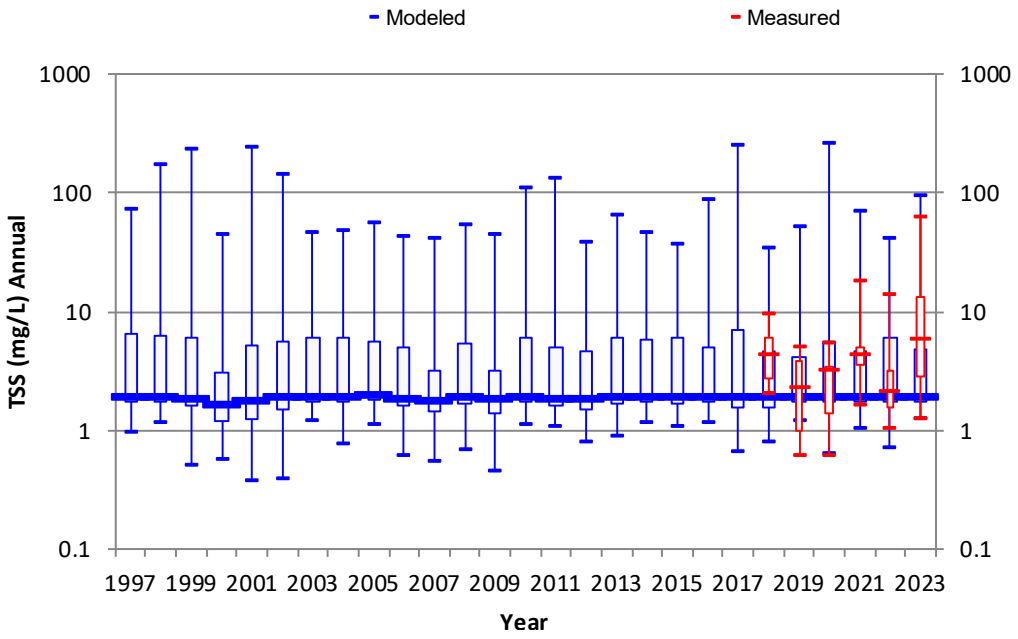


Figure C-50 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH116 Marshpoint

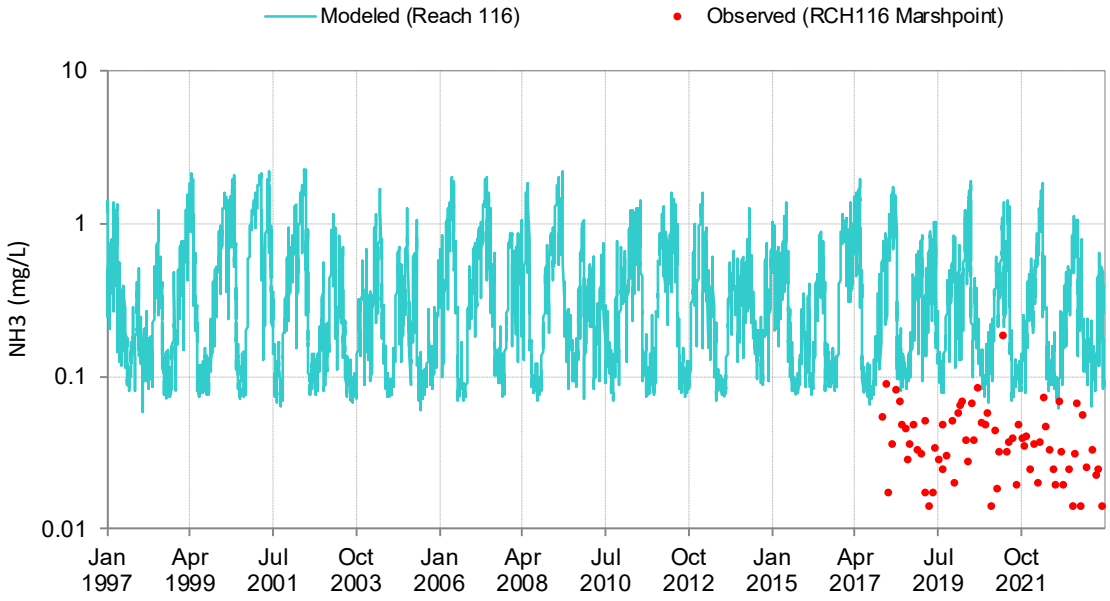


Figure C-51 Modeled Vs Observed NH3 (mg/L) at RCH116 Marshpoint

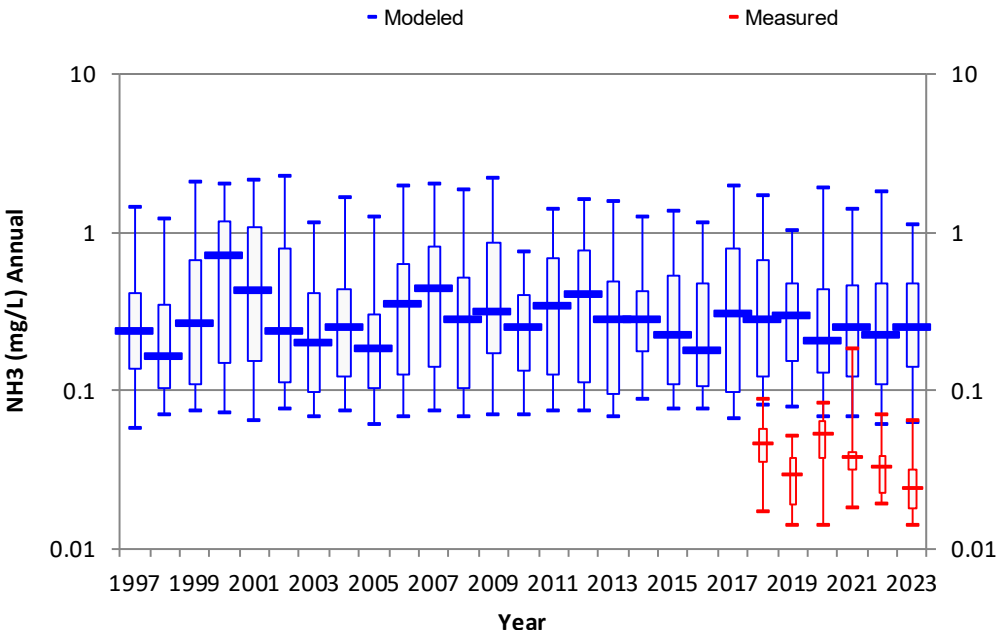


Figure C-52 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH116 Marshpoint

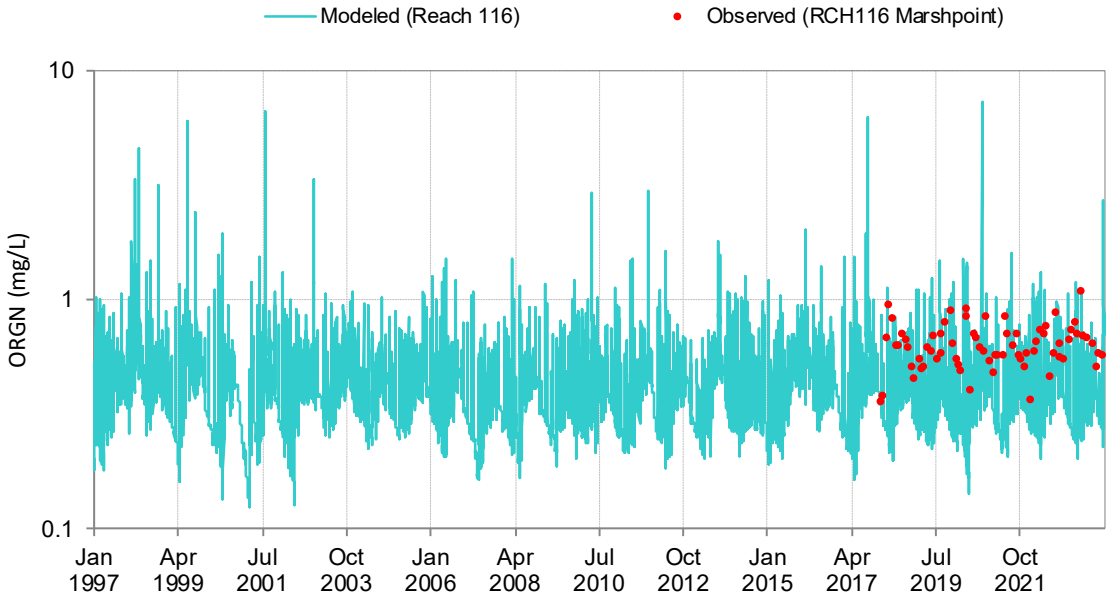


Figure C-53 Modeled Vs Observed ORGN (mg/L) at RCH116 Marshpoint

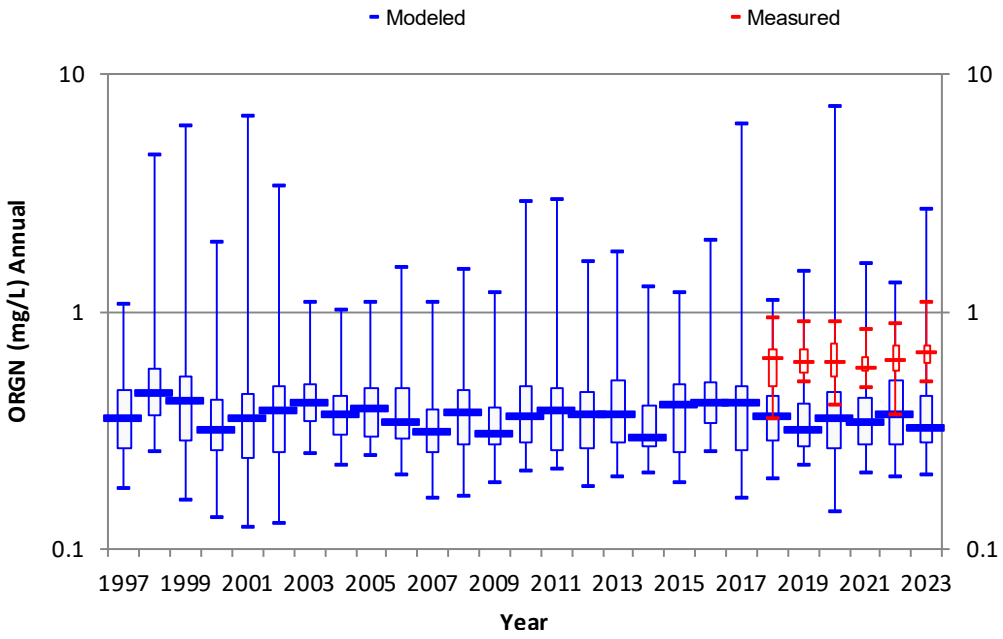


Figure C-54 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH116 Marshpoint

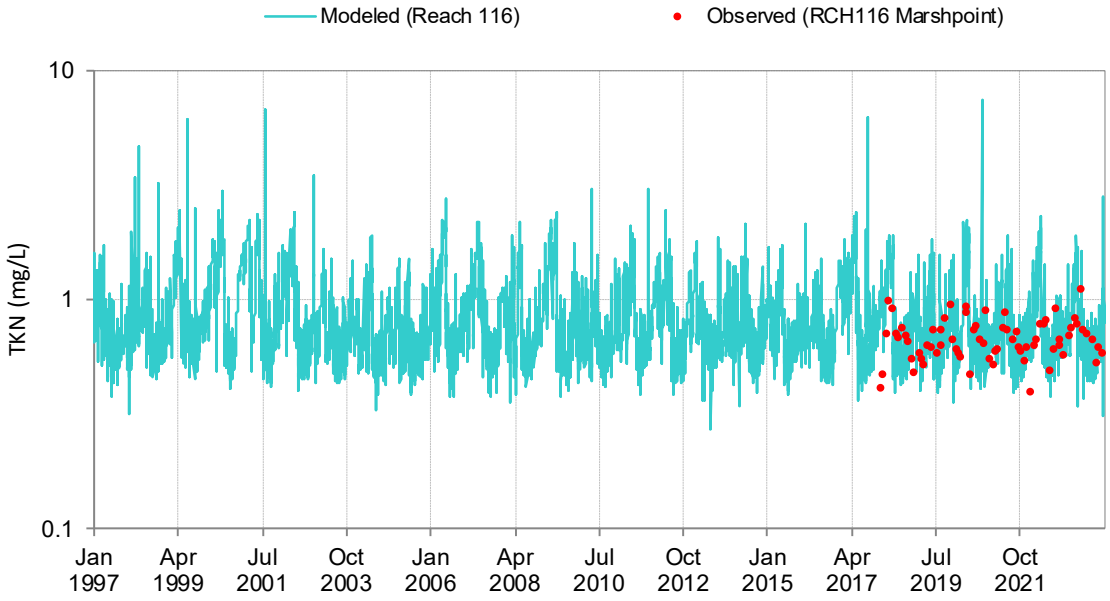


Figure C-55 Modeled Vs Observed TKN (mg/L) at RCH116 Marshpoint

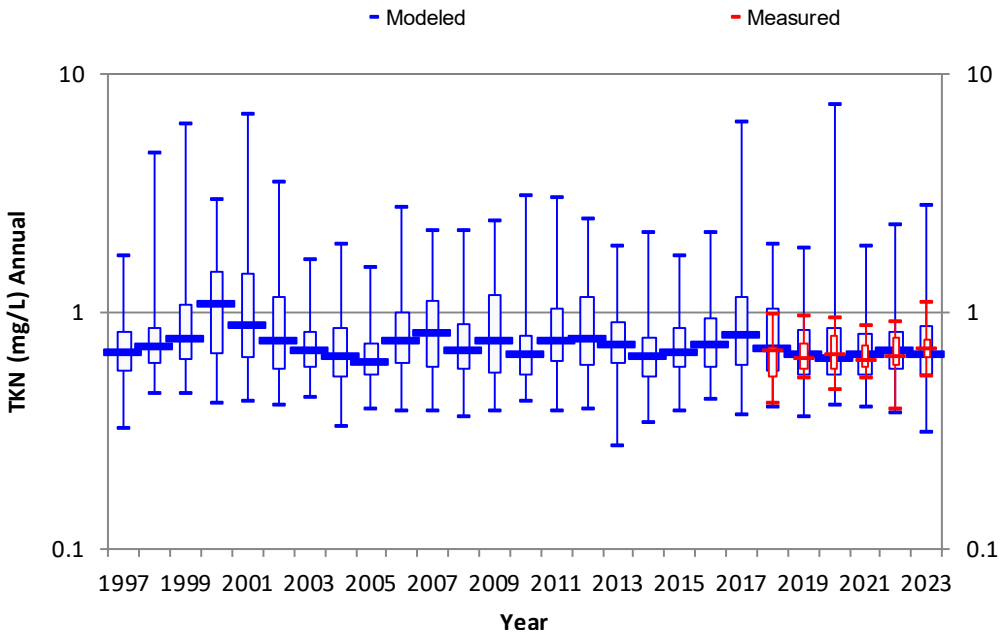


Figure C-56 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH116 Marshpoint

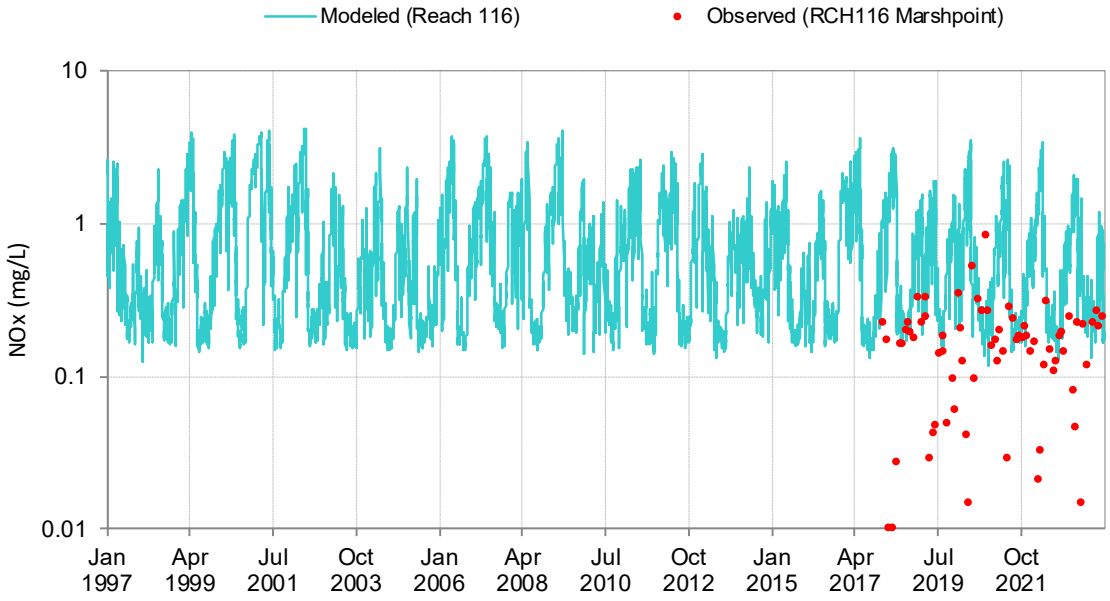


Figure C-57 Modeled Vs Observed NOx (mg/L) at RCH116 Marshpoint

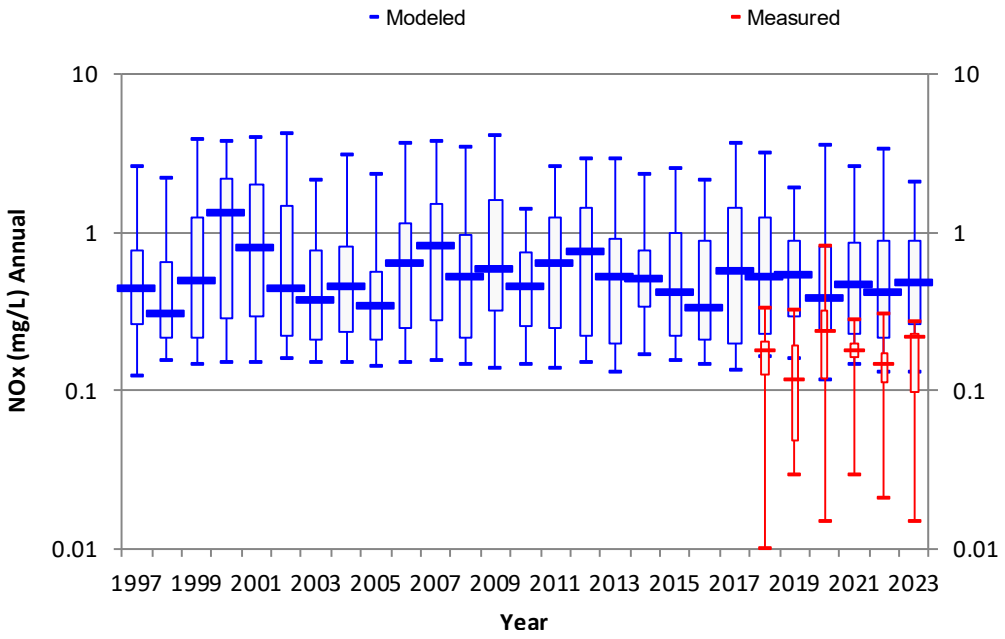


Figure C-58 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH116 Marshpoint

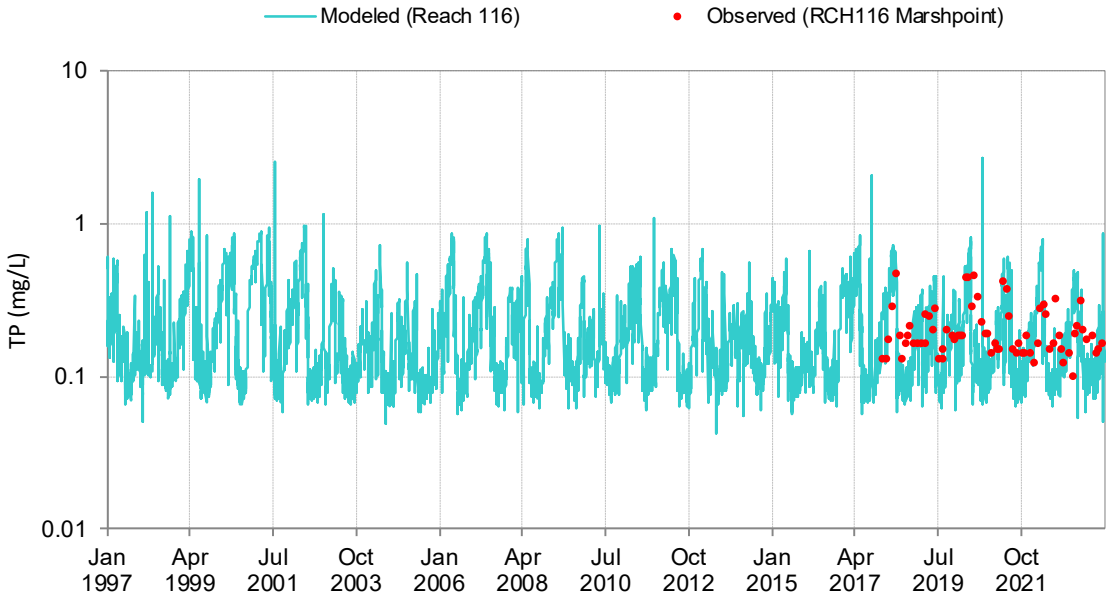


Figure C-59 Modeled Vs Observed TP (mg/L) at RCH116 Marshpoint

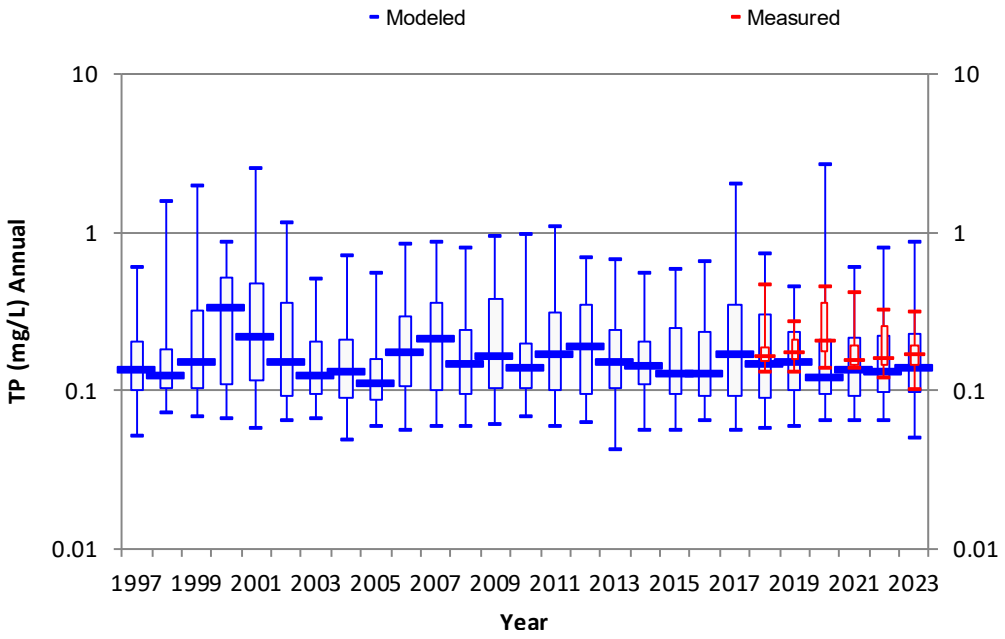


Figure C-60 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH116 Marshpoint

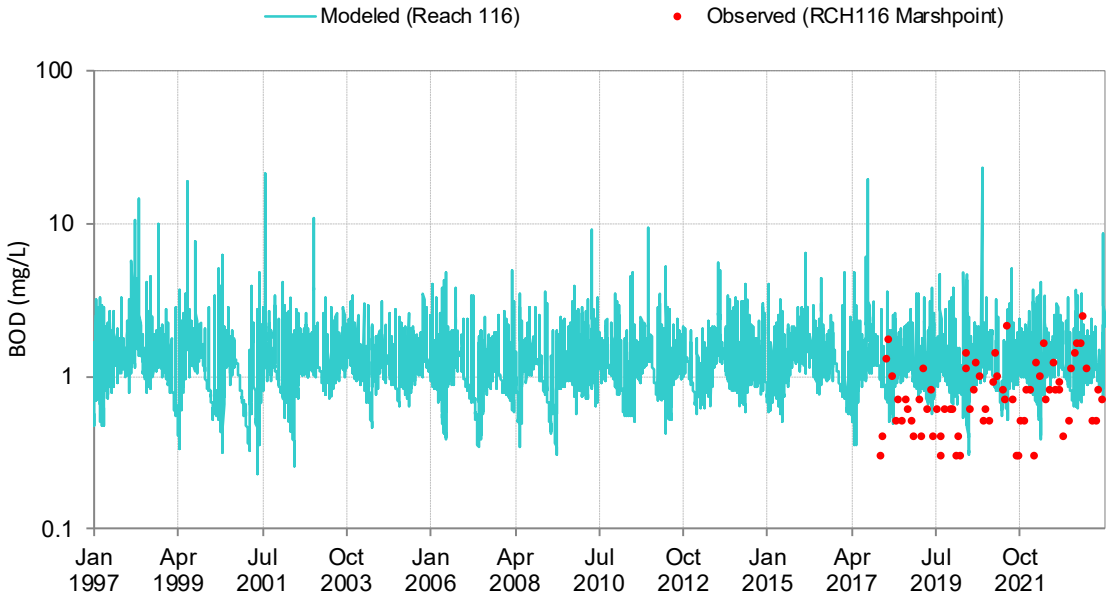


Figure C-61 Modeled Vs Observed BOD (mg/L) at RCH116 Marshpoint

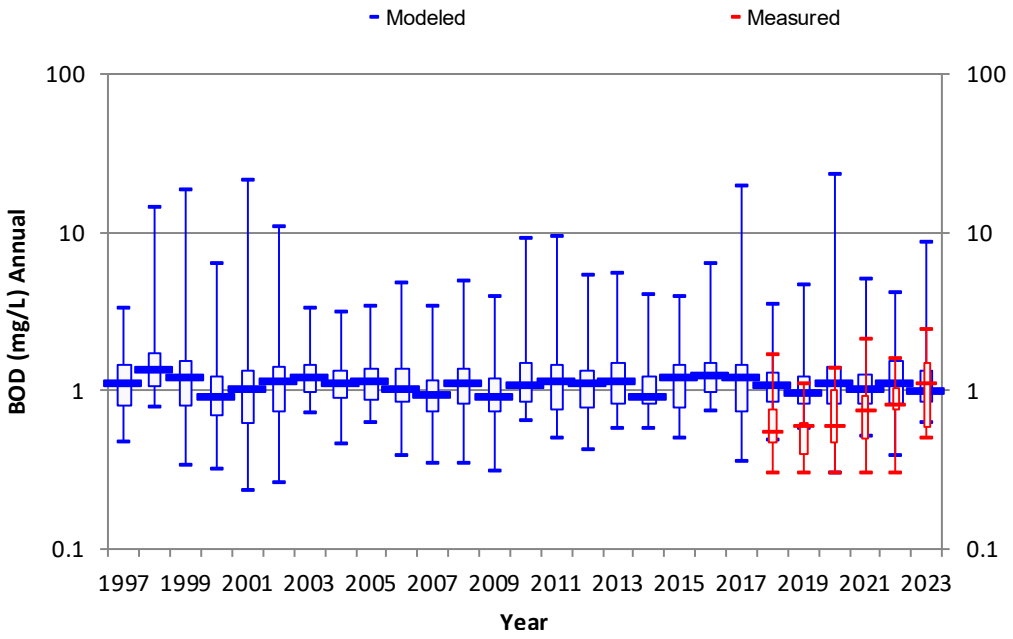


Figure C-62 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH116 Marshpoint

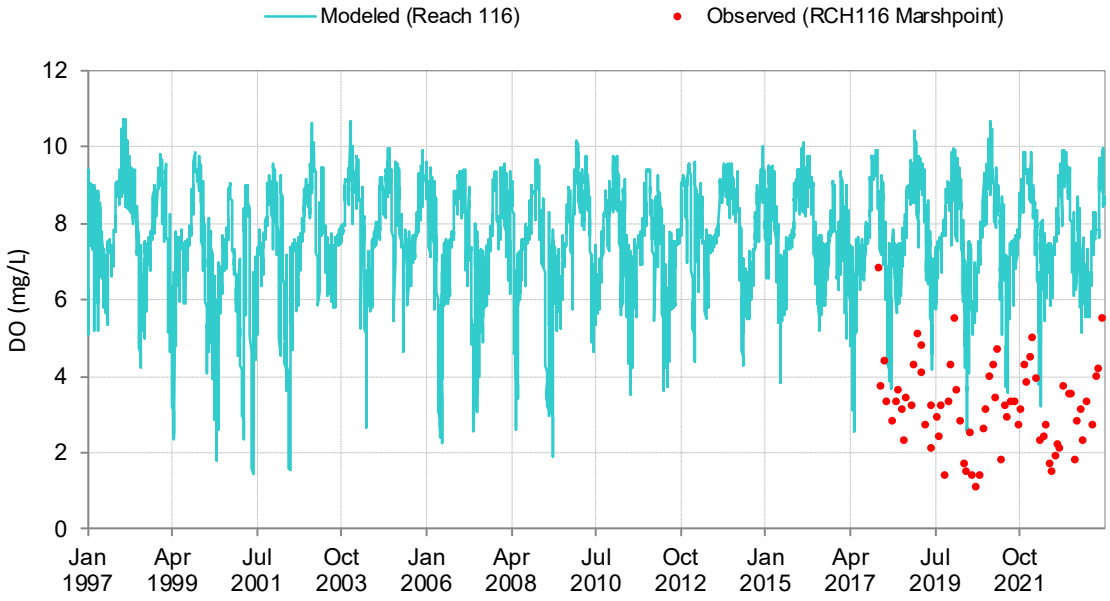


Figure C-63 Modeled Vs Observed DO (mg/L) at RCH116 Marshpoint

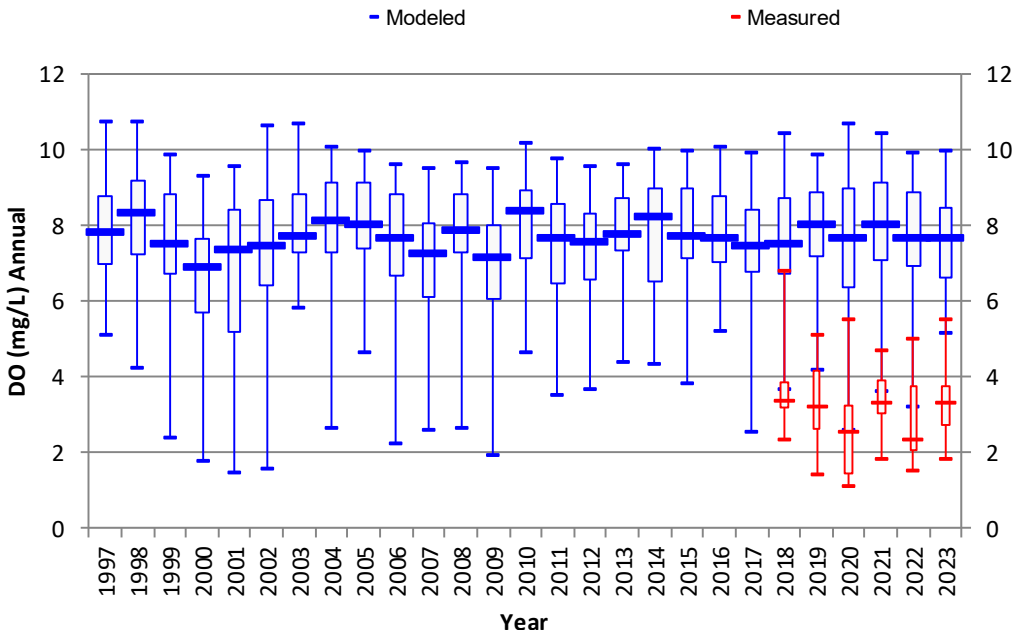


Figure C-64 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH116 Marshpoint

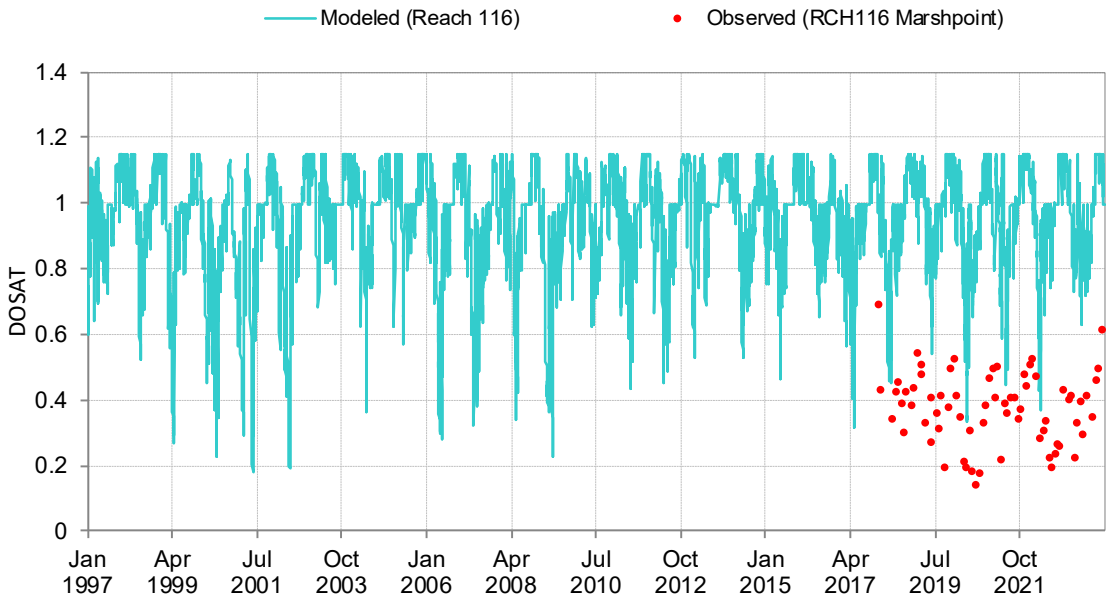


Figure C-65 Modeled Vs Observed DOSAT at RCH116 Marshpoint

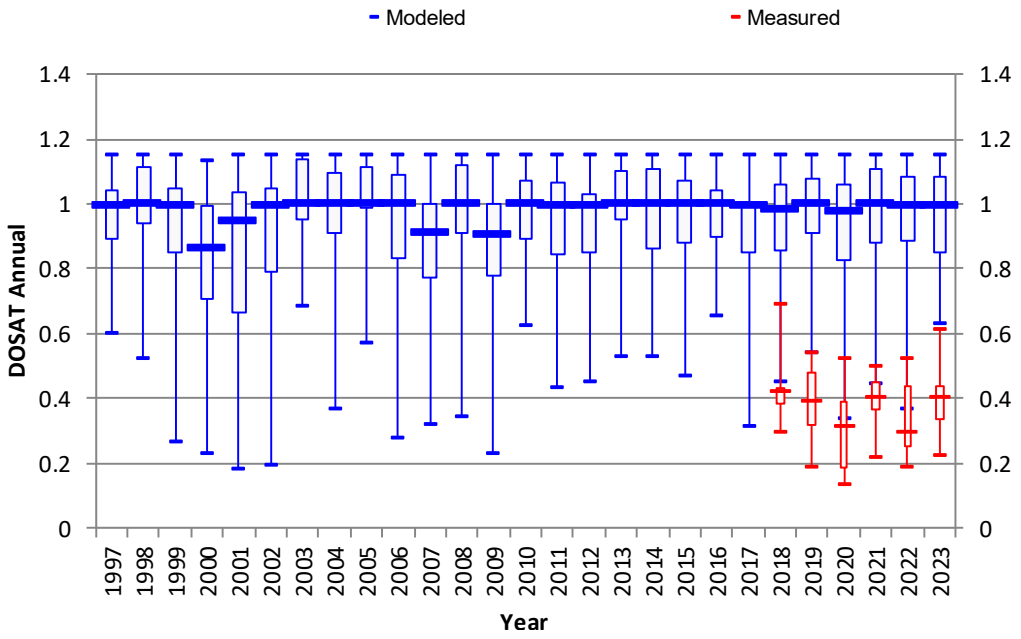


Figure C-66 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH116 Marshpoint

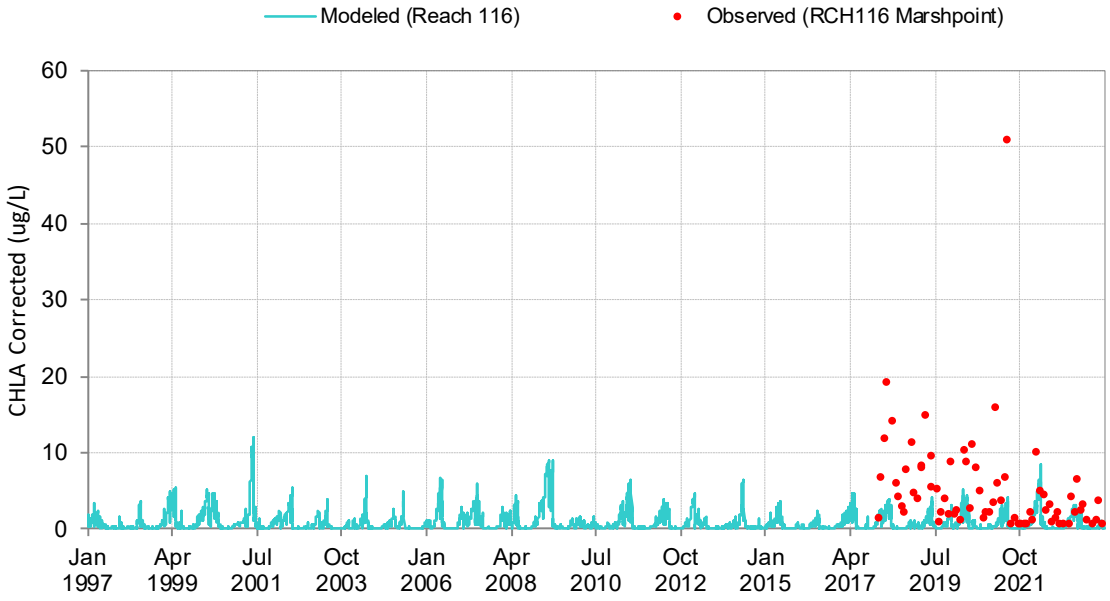


Figure C-67 Modeled Vs Observed CHLA Corrected (ug/L) at RCH116 Marshpoint

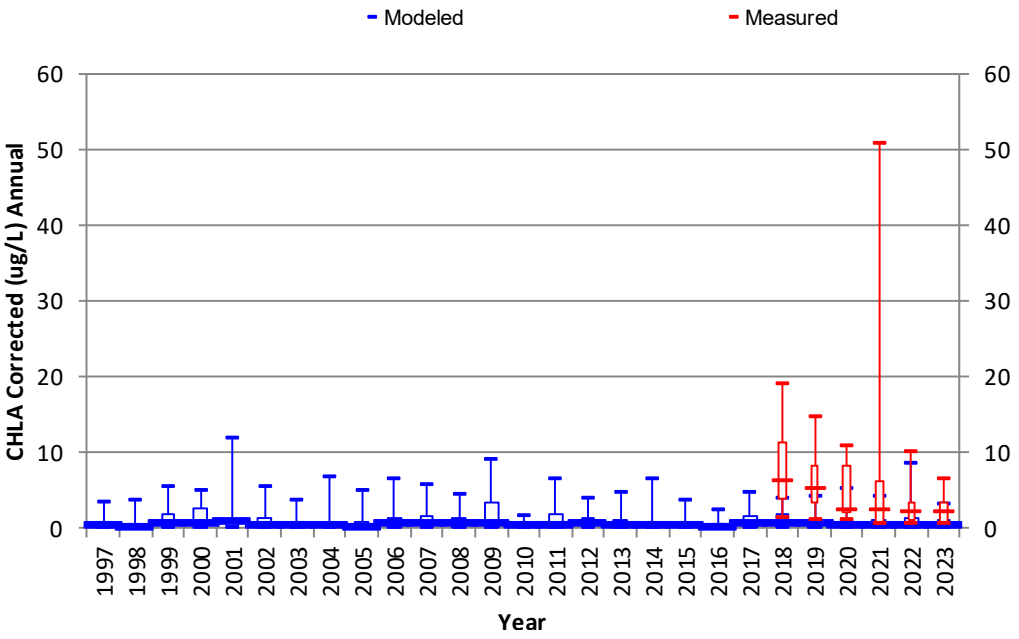


Figure C-68 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH116 Marshpoint

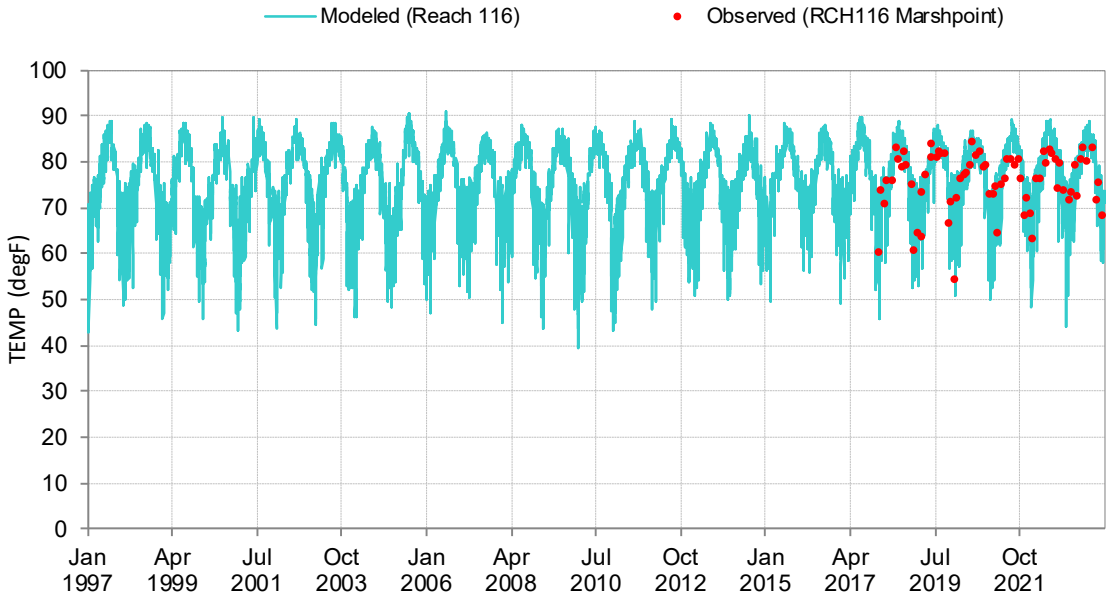


Figure C-69 Modeled Vs Observed TEMP (deg F) at RCH116 Marshpoint

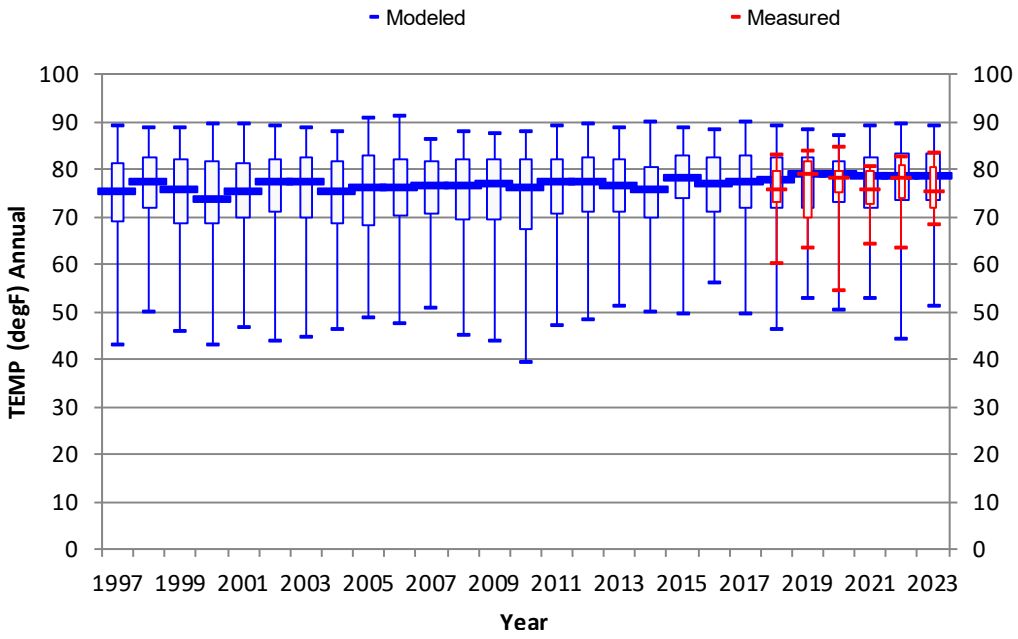


Figure C-70 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH116 Marshpoint

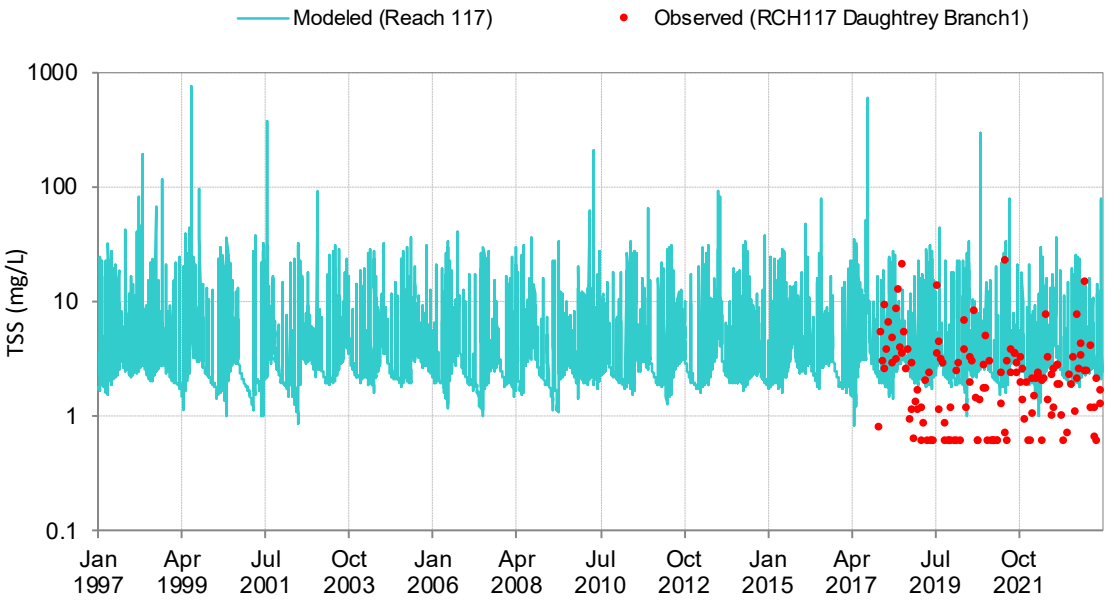


Figure C-71 Modeled Vs Observed TSS (mg/L) at RCH117 Daughtrey Branch1

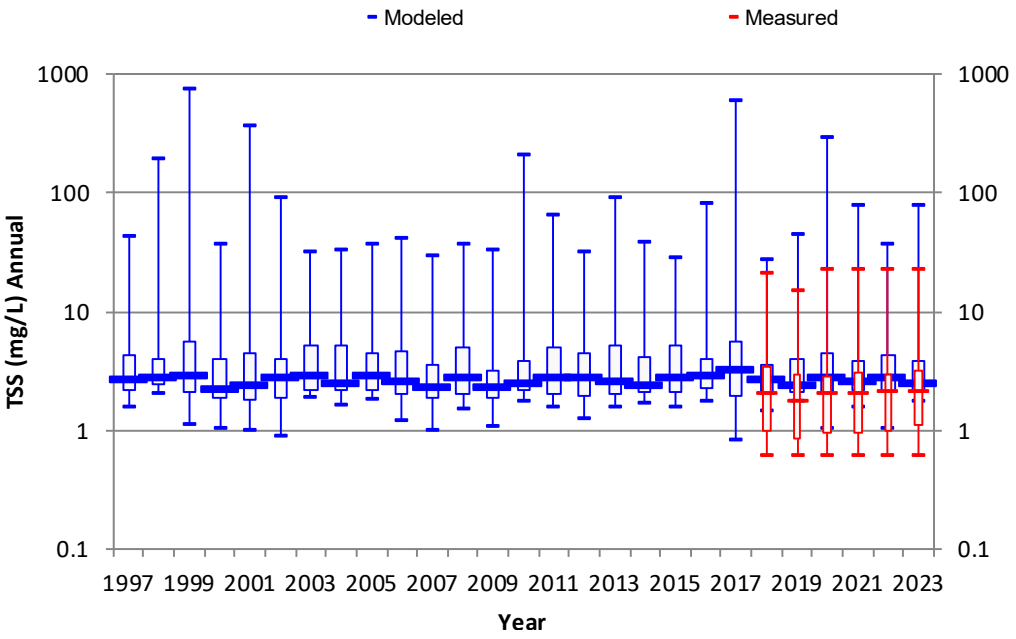


Figure C-72 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH117 Daughtrey Branch1

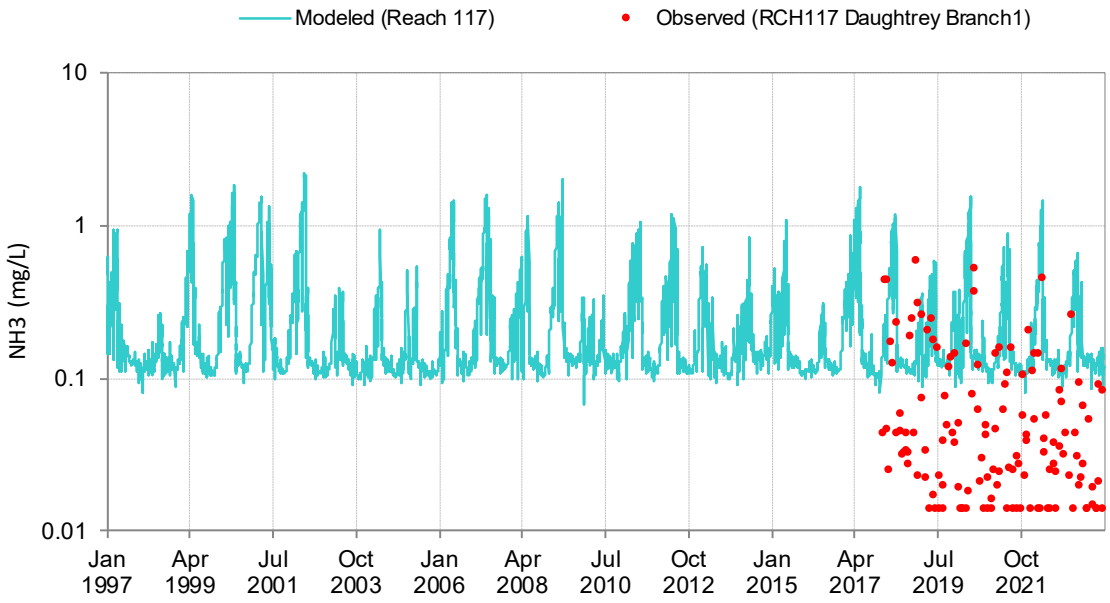


Figure C-73 Modeled Vs Observed NH3 (mg/L) at RCH117 Daughtrey Branch1

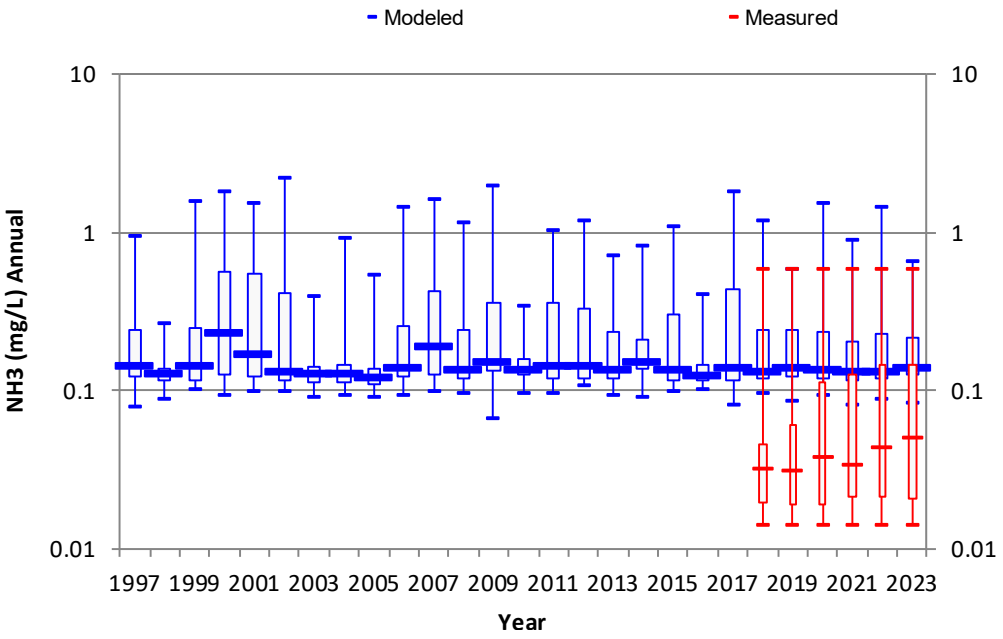


Figure C-74 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH117 Daughtrey Branch1

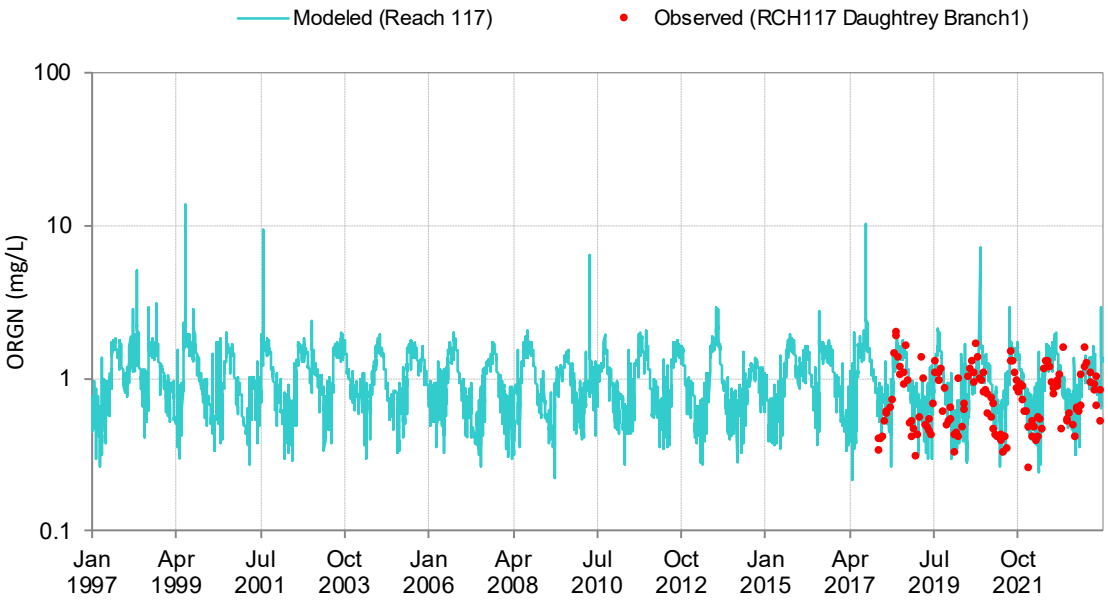


Figure C-75 Modeled Vs Observed ORGN (mg/L) at RCH117 Daughtrey Branch1

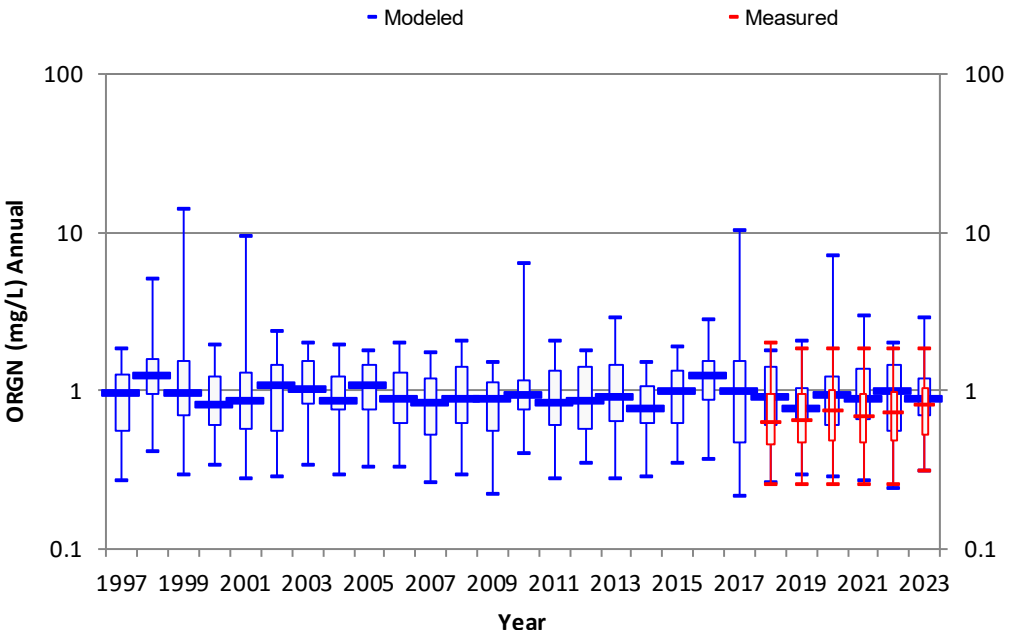


Figure C-76 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH117 Daughtrey Branch1

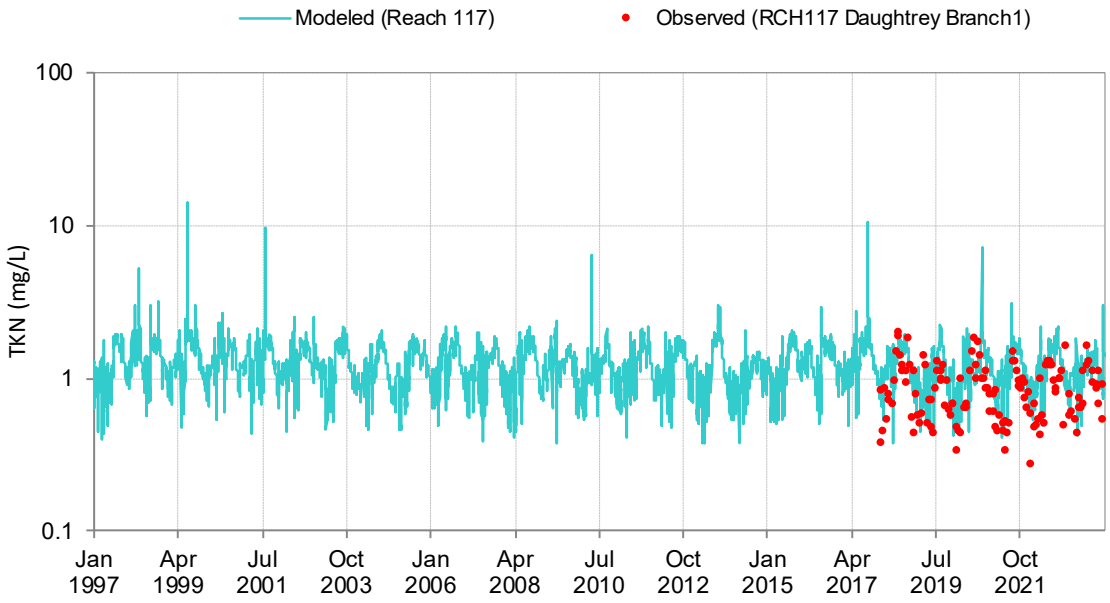


Figure C-77 Modeled Vs Observed TKN (mg/L) at RCH117 Daughtrey Branch1

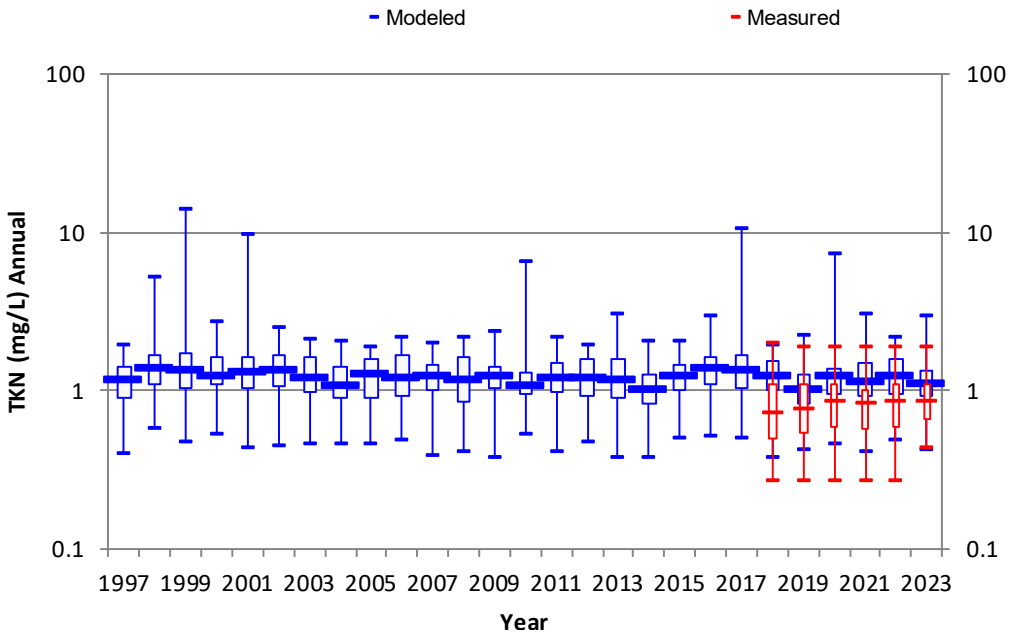


Figure C-78 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH117 Daughtrey Branch1

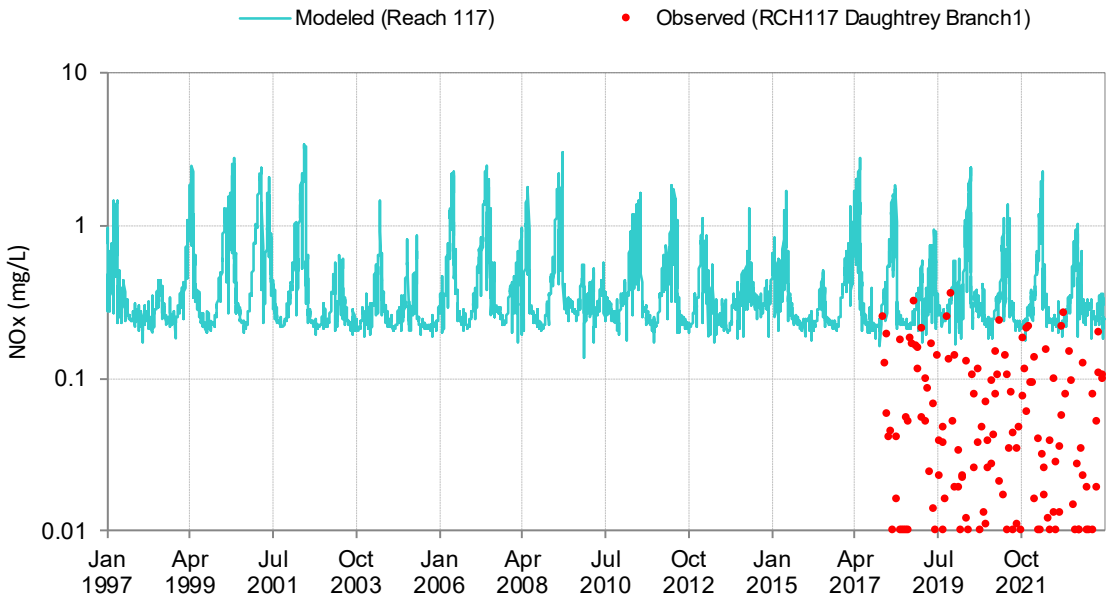


Figure C-79 Modeled Vs Observed NOx (mg/L) at RCH117 Daughtrey Branch1

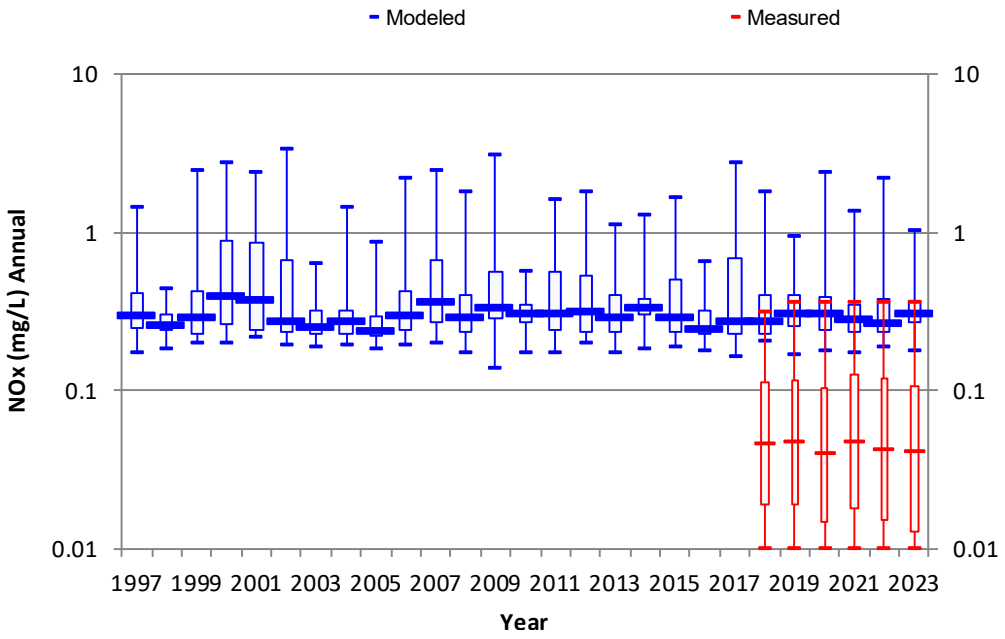


Figure C-80 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH117 Daughtrey Branch1

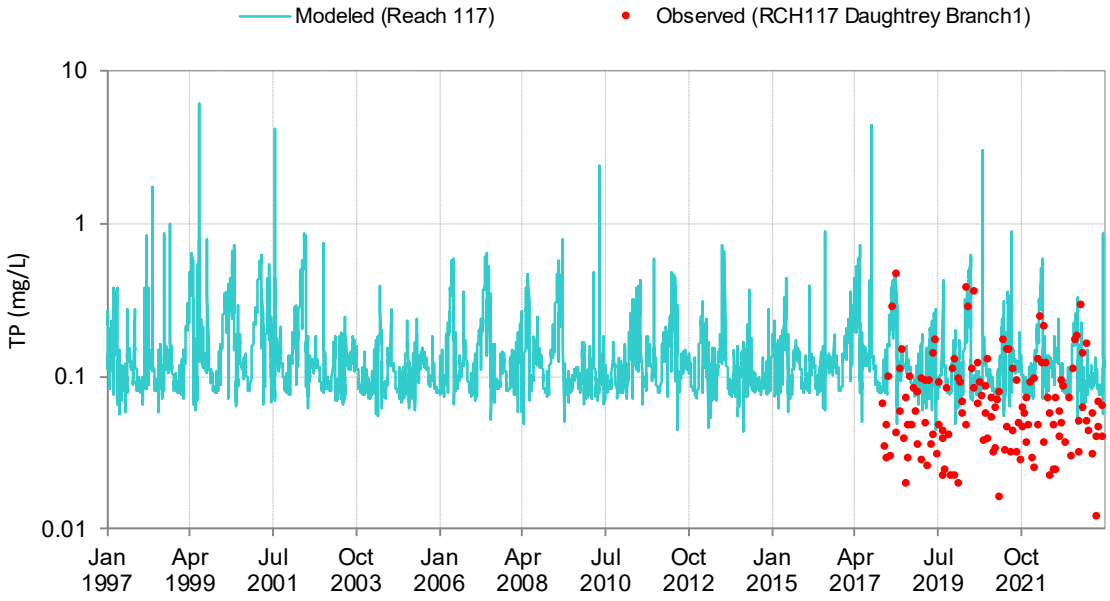


Figure C-81 Modeled Vs Observed TP (mg/L) at RCH117 Daughtrey Branch1

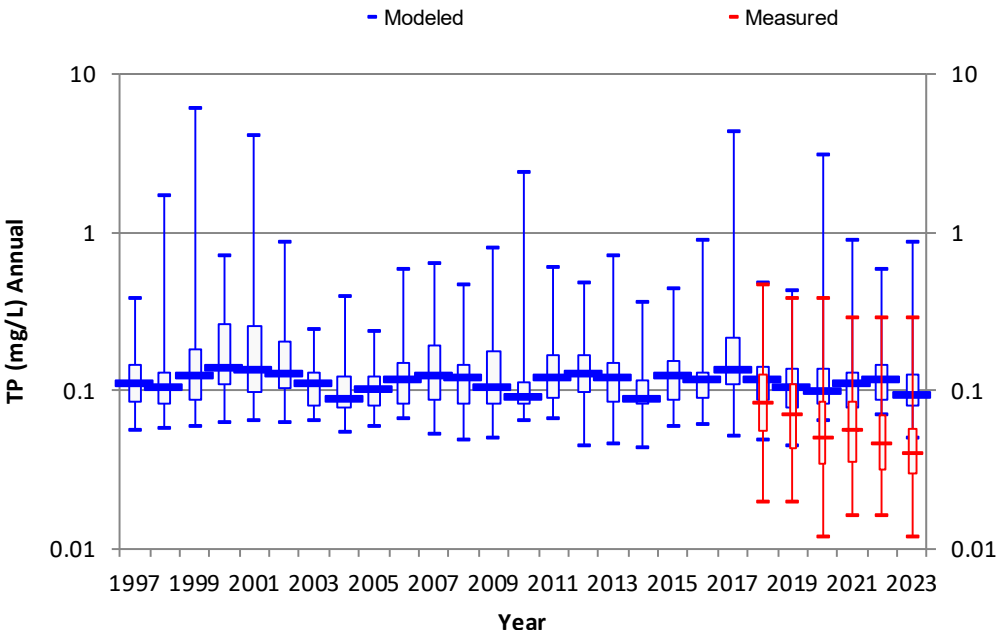


Figure C-82 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH117 Daughtrey Branch1

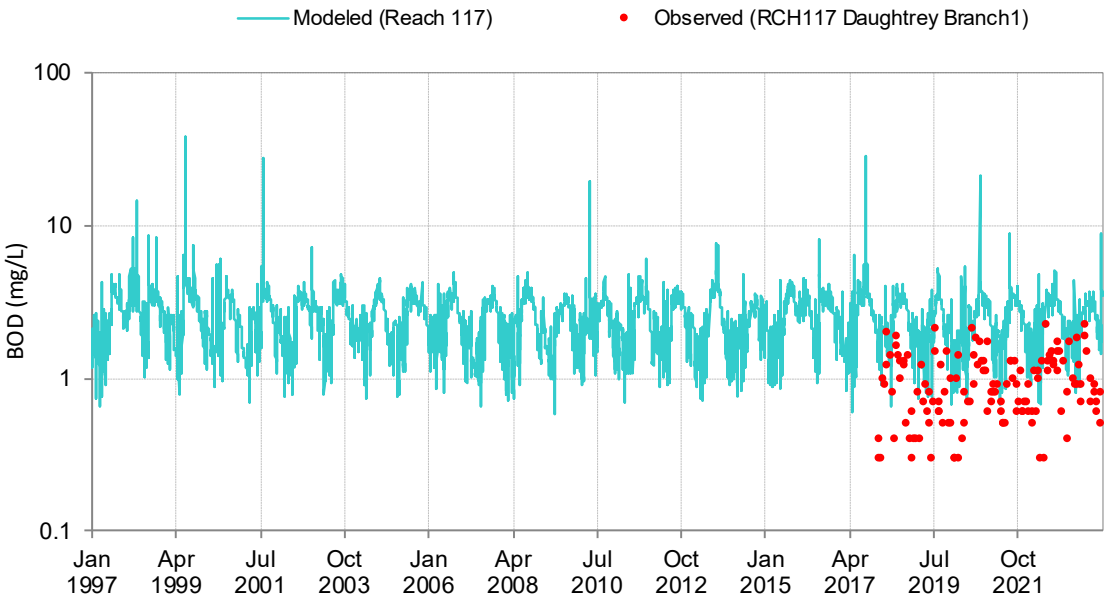


Figure C-83 Modeled Vs Observed BOD (mg/L) at RCH117 Daughtrey Branch1

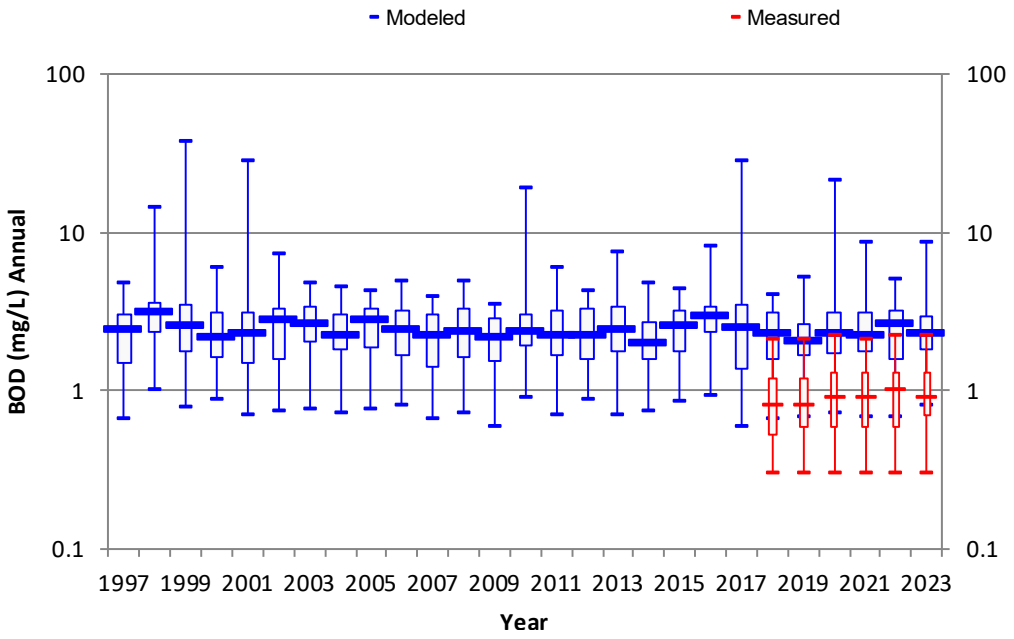


Figure C-84 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH117 Daughtrey Branch1

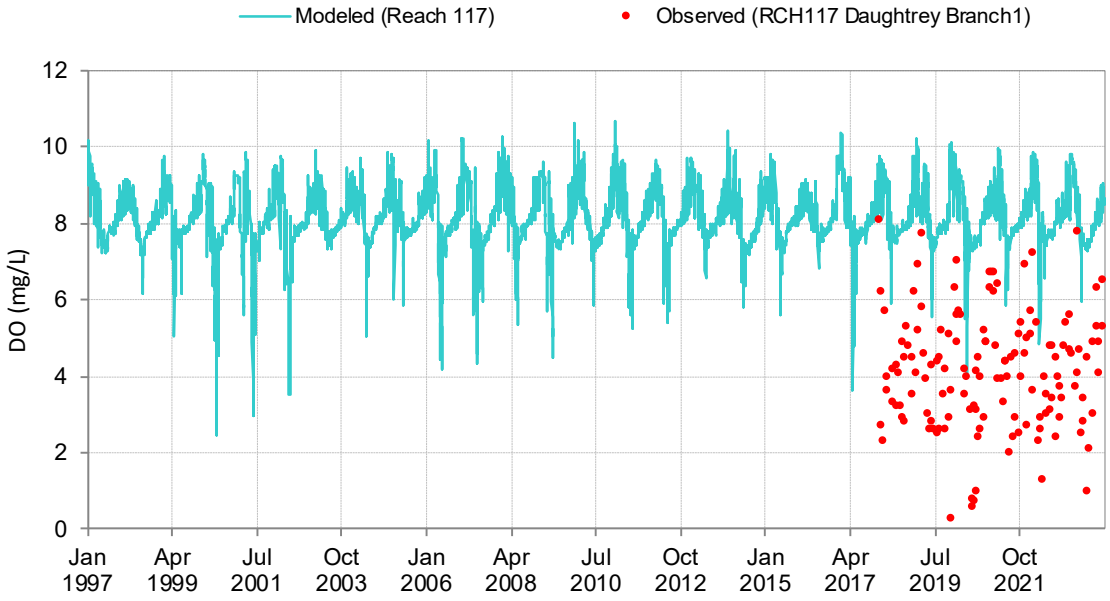


Figure C-85 Modeled Vs Observed DO (mg/L) at RCH117 Daughtrey Branch1

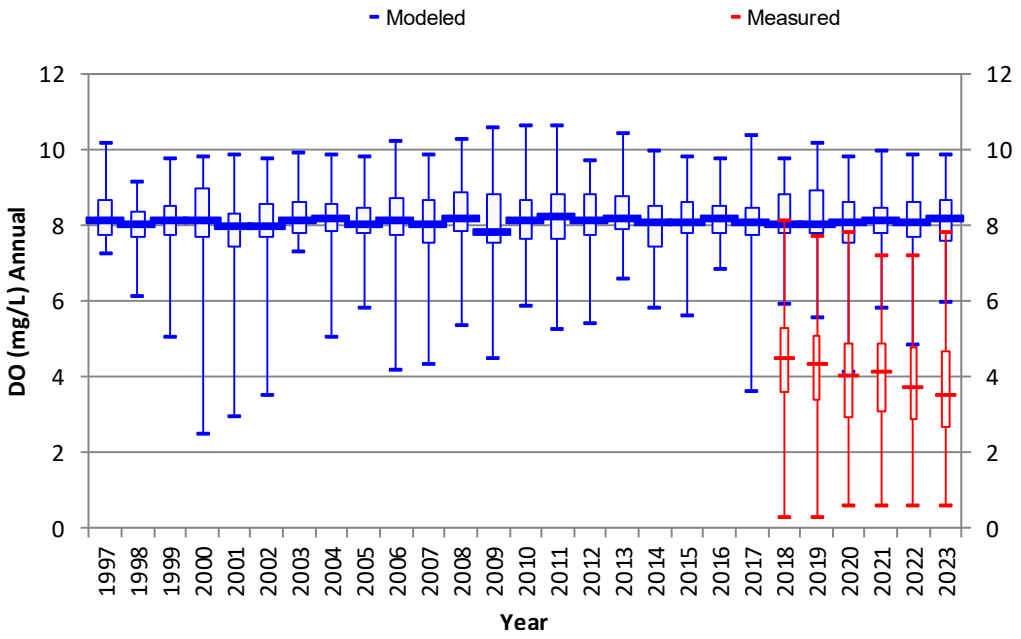


Figure C-86 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH117 Daughtrey Branch1

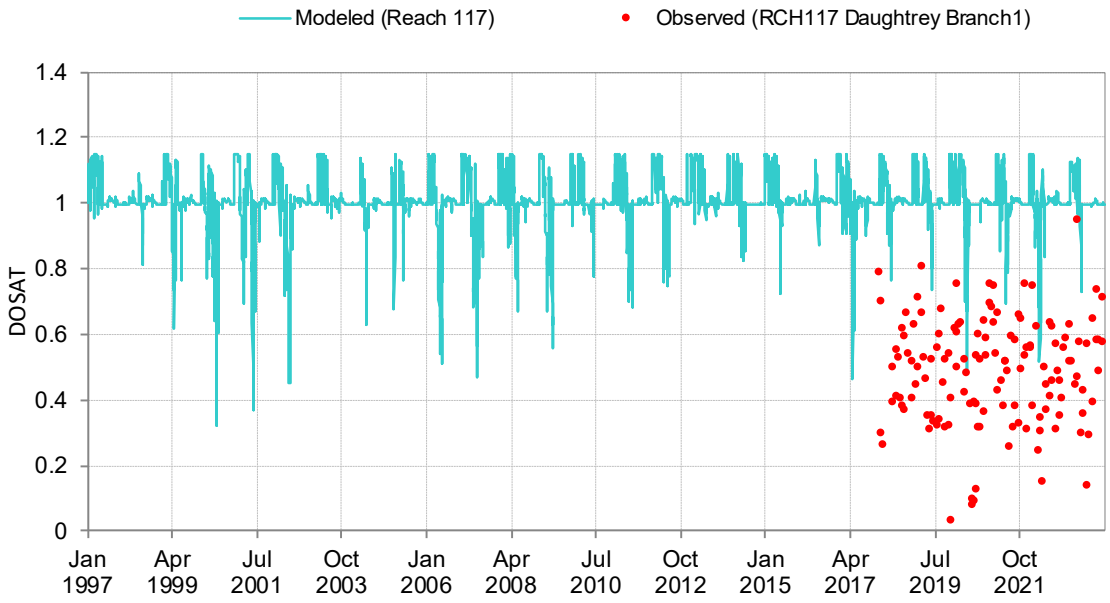


Figure C-87 Modeled Vs Observed DOSAT at RCH117 Daughtrey Branch1

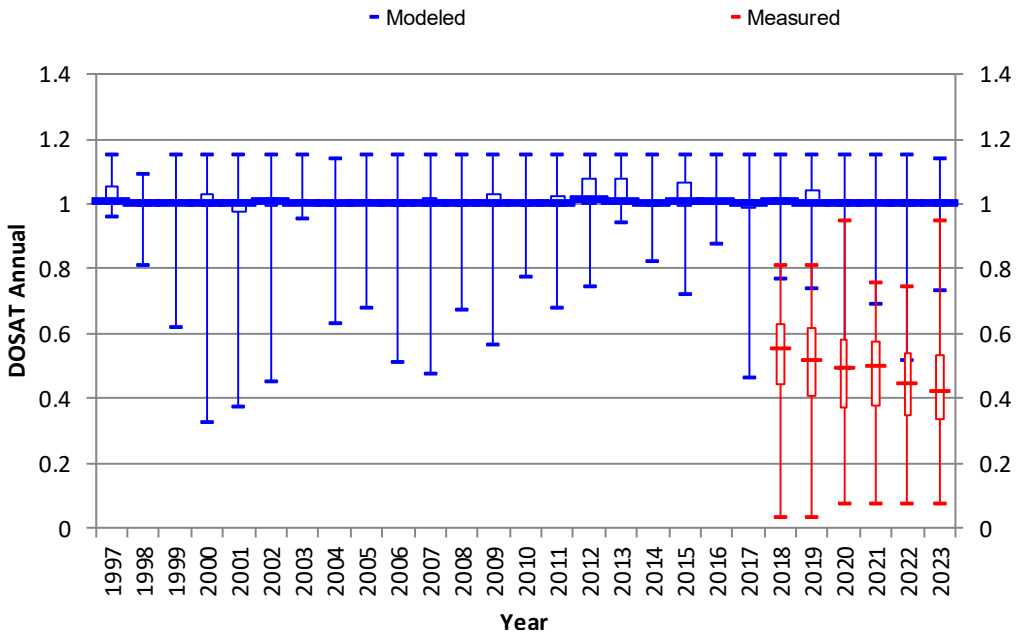


Figure C-88 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH117 Daughtrey Branch1

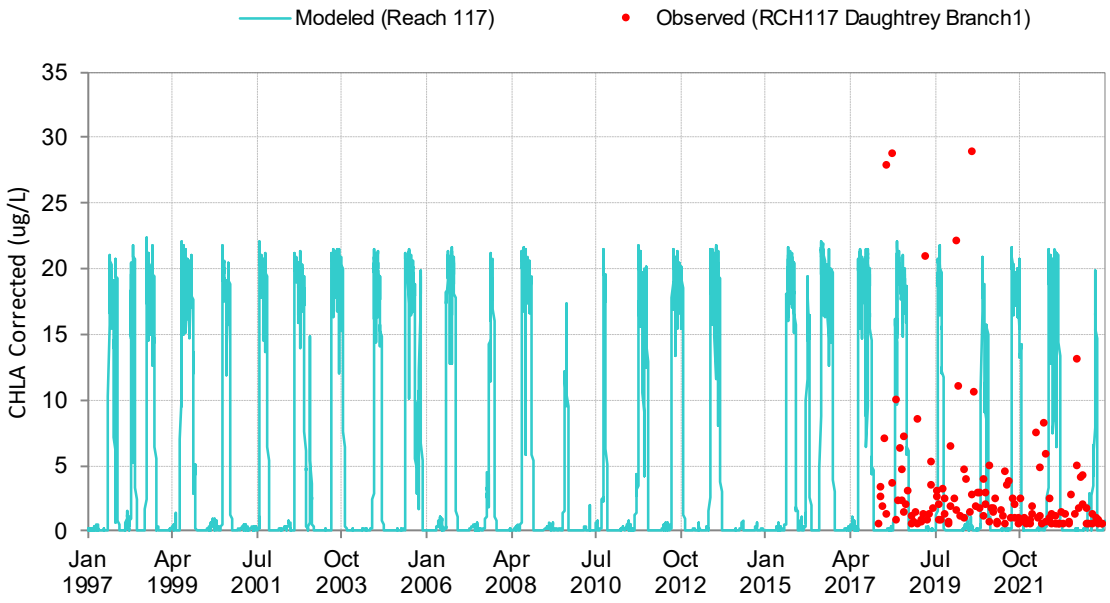


Figure C-89 Modeled Vs Observed CHLA Corrected (ug/L) at RCH117 Daughtrey Branch1

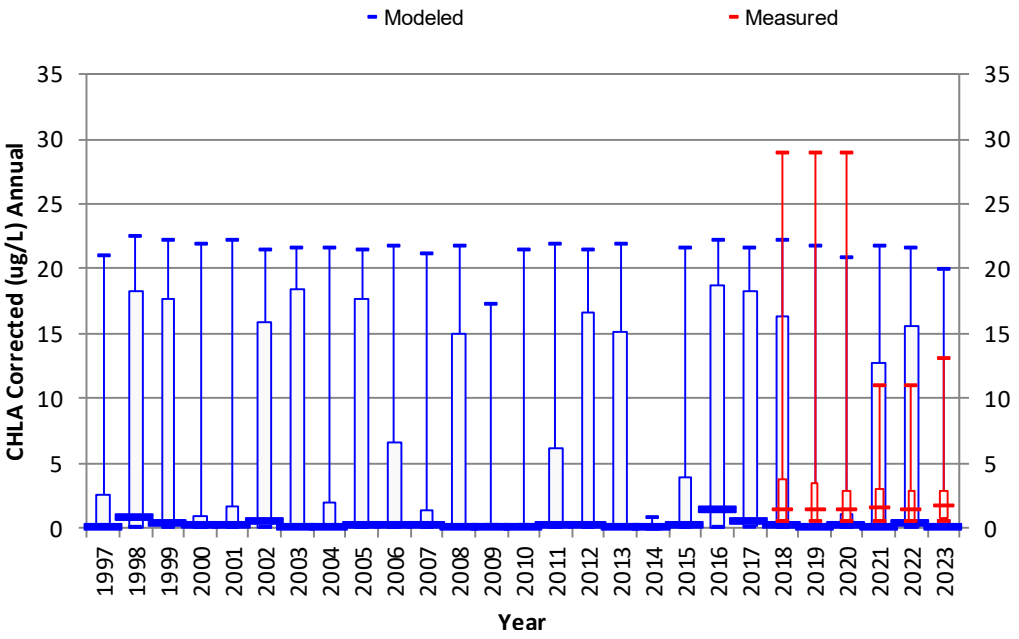


Figure C-90 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH117 Daughtrey Branch1

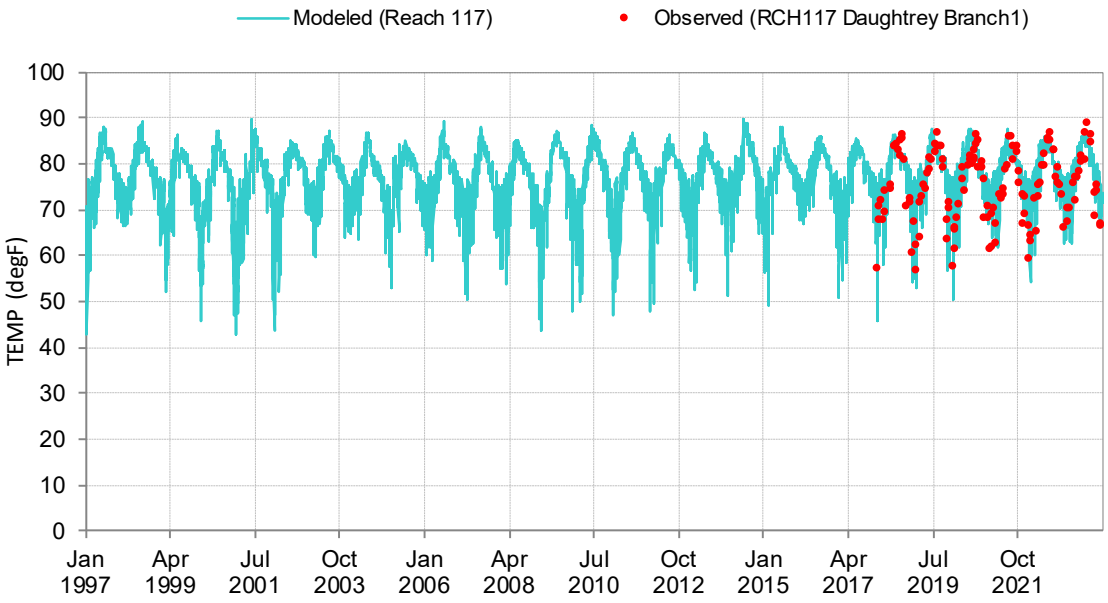


Figure C-91 Modeled Vs Observed TEMP (deg F) at RCH117 Daughtrey Branch1

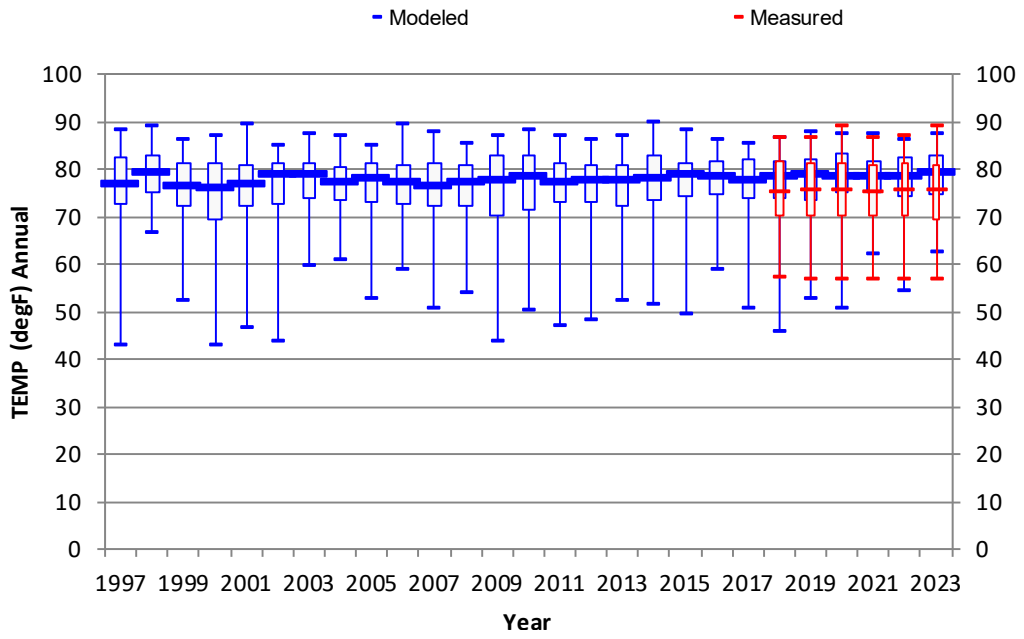


Figure C-92 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH117 Daughtrey Branch1

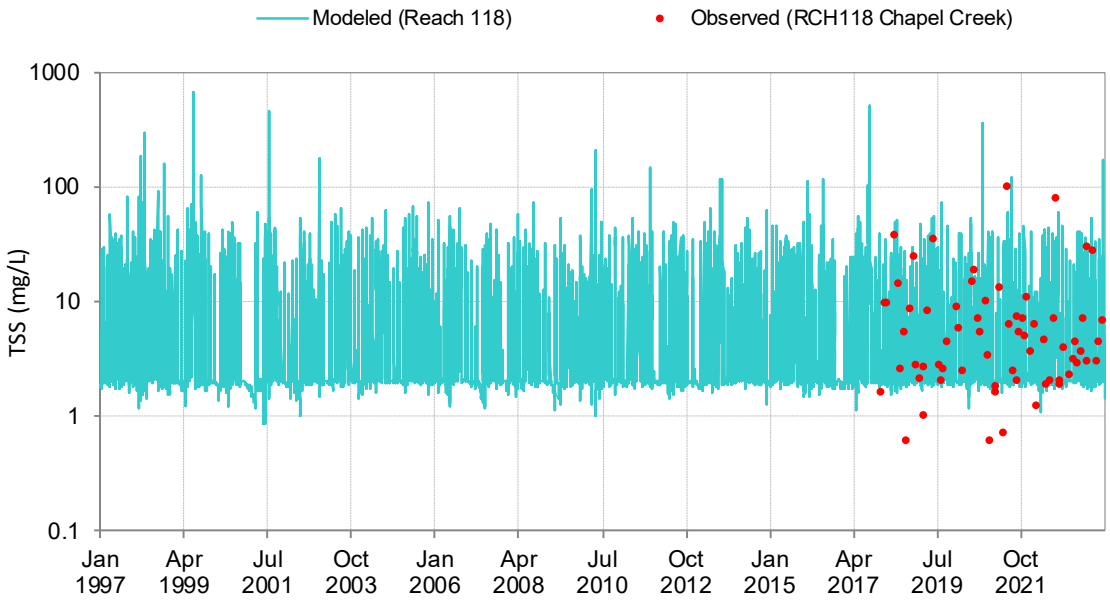


Figure C-93 Modeled Vs Observed TSS (mg/L) at RCH118 Chapel Creek

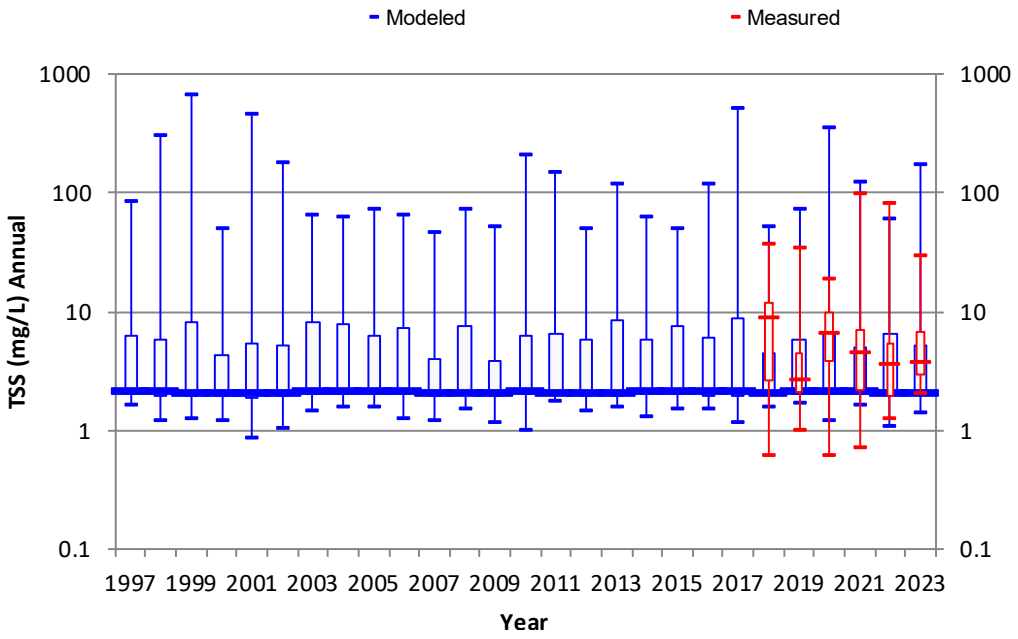


Figure C-94 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH118 Chapel Creek

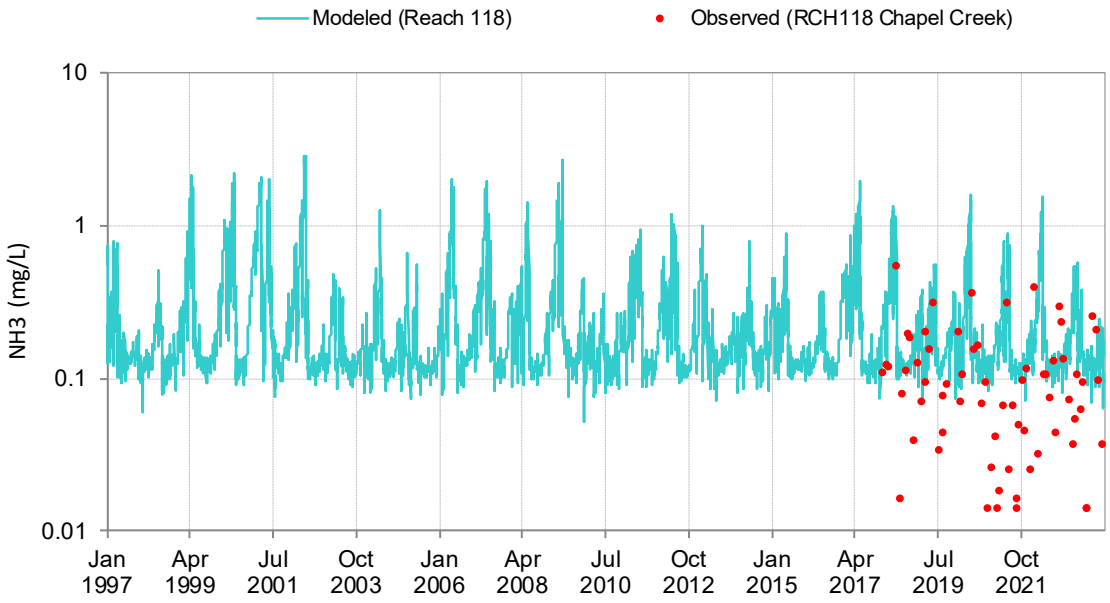


Figure C-95 Modeled Vs Observed NH3 (mg/L) at RCH118 Chapel Creek

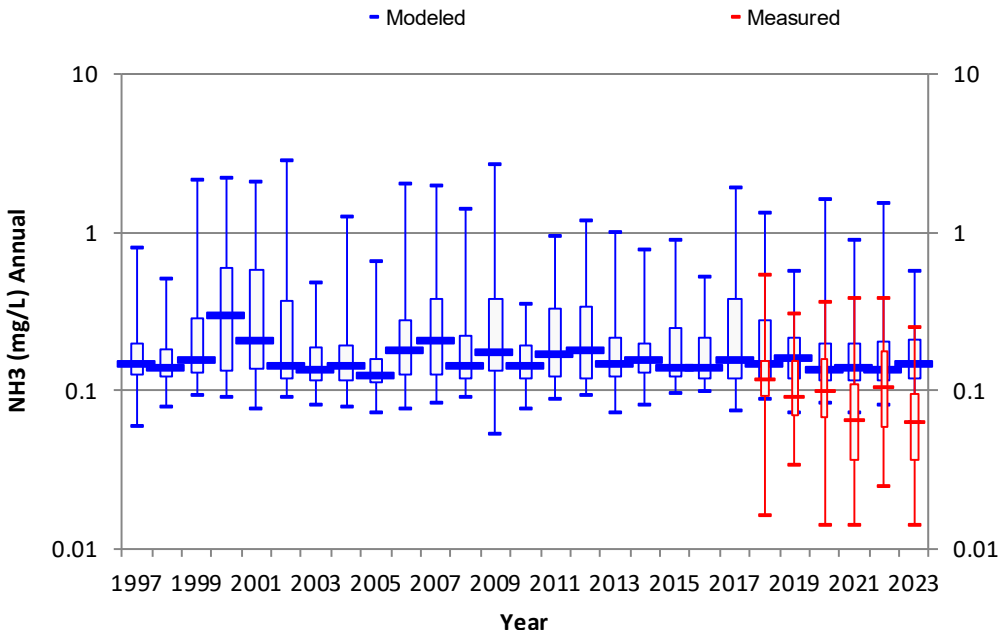


Figure C-96 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH118 Chapel Creek

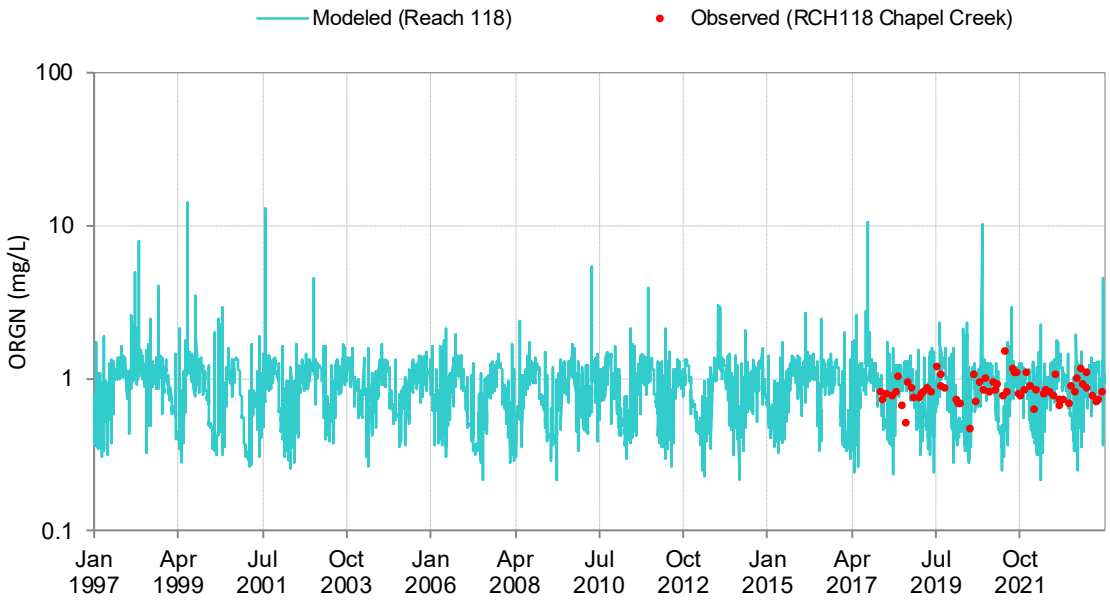


Figure C-97 Modeled Vs Observed ORGN (mg/L) at RCH118 Chapel Creek

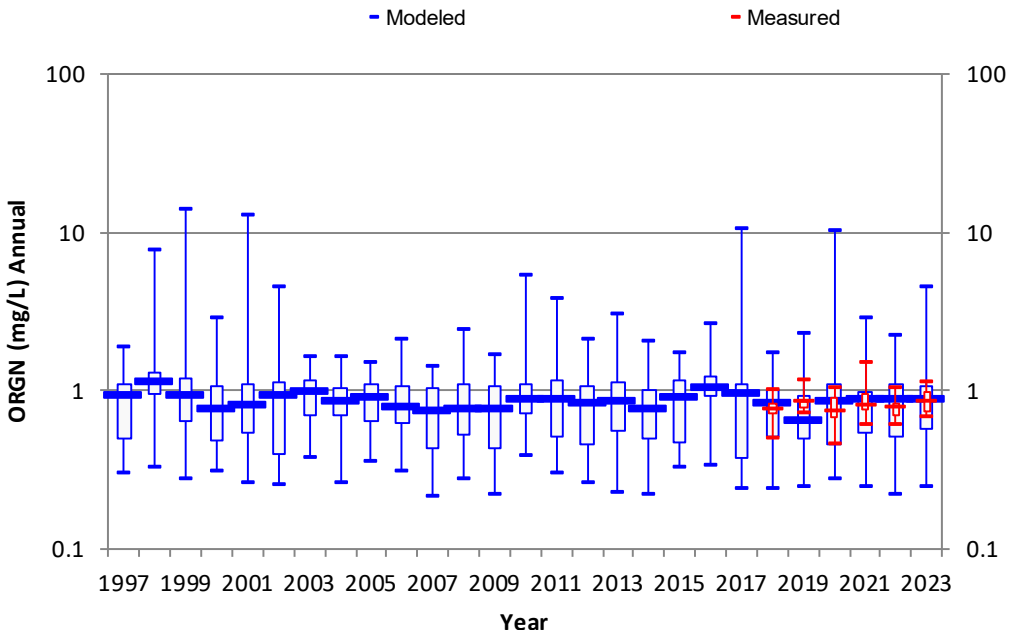


Figure C-98 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH118 Chapel Creek

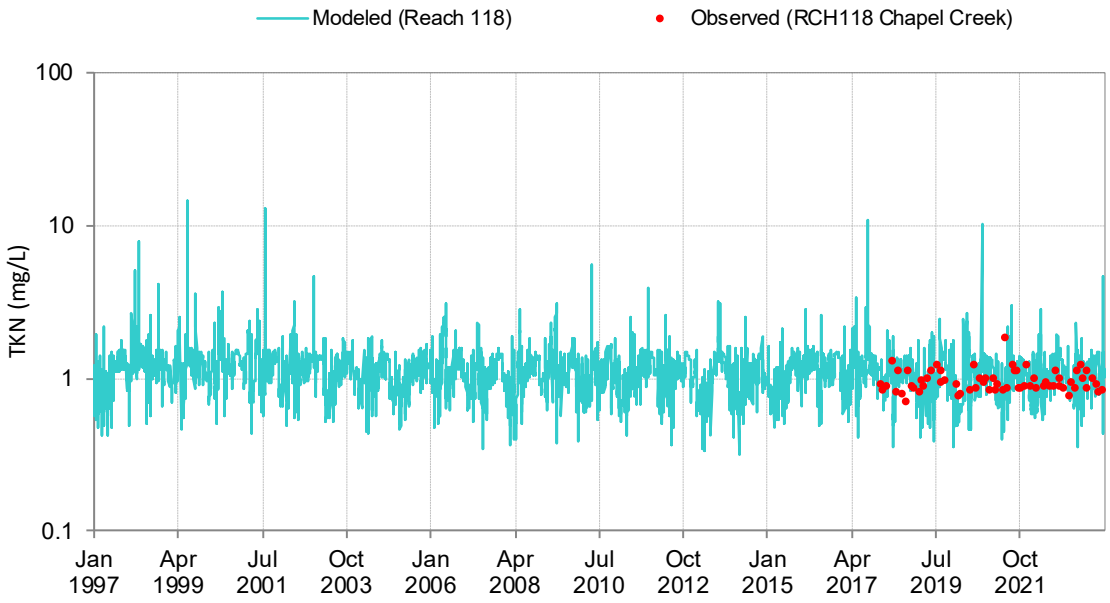


Figure C-99 Modeled Vs Observed TKN (mg/L) at RCH118 Chapel Creek

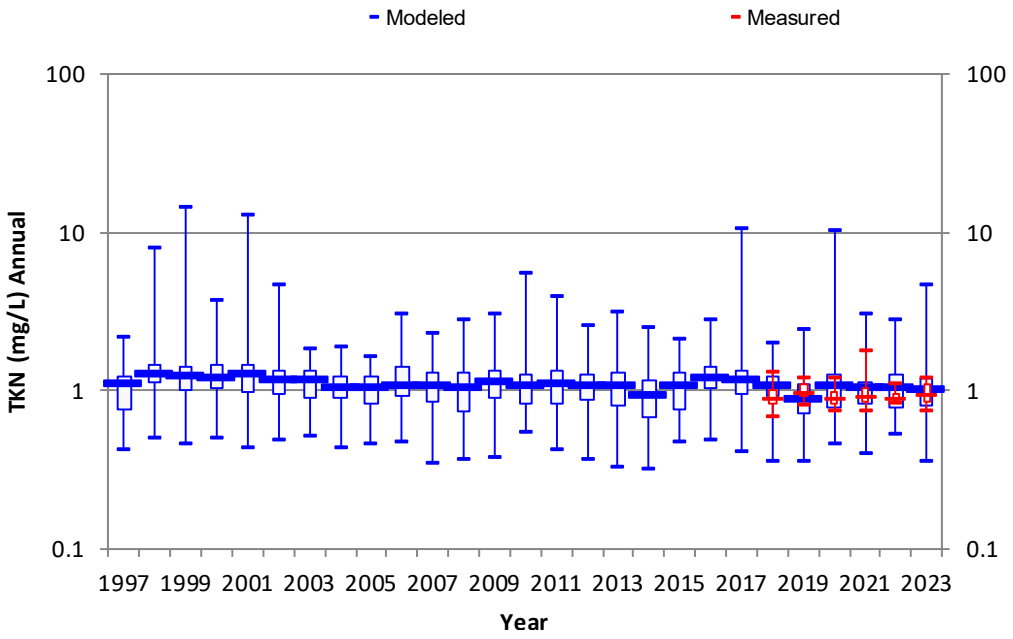


Figure C-100 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH118 Chapel Creek

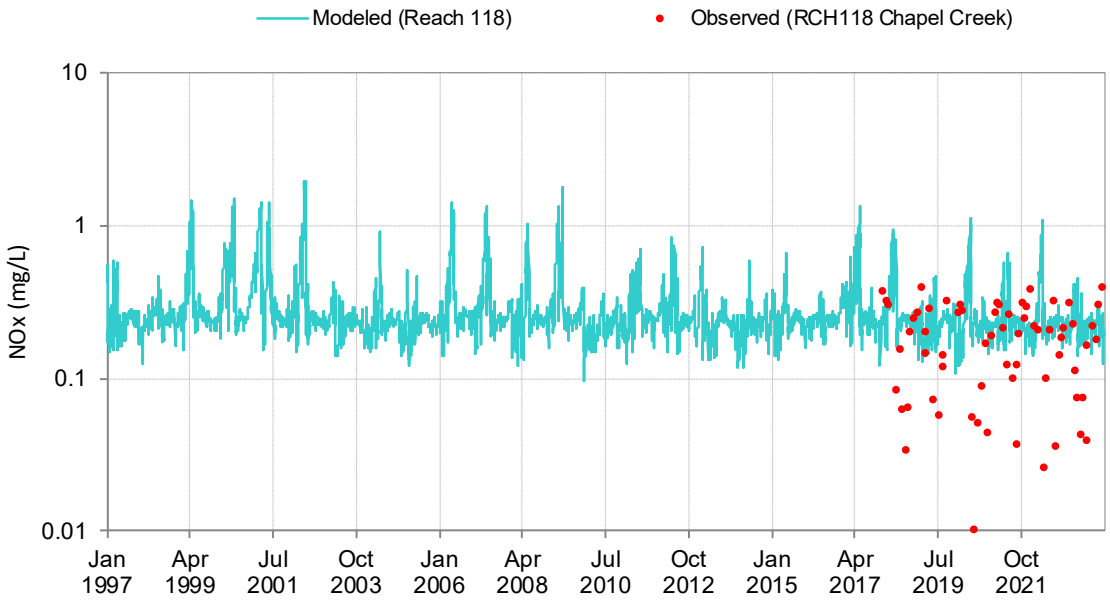


Figure C-101 Modeled Vs Observed NOx (mg/L) at RCH118 Chapel Creek

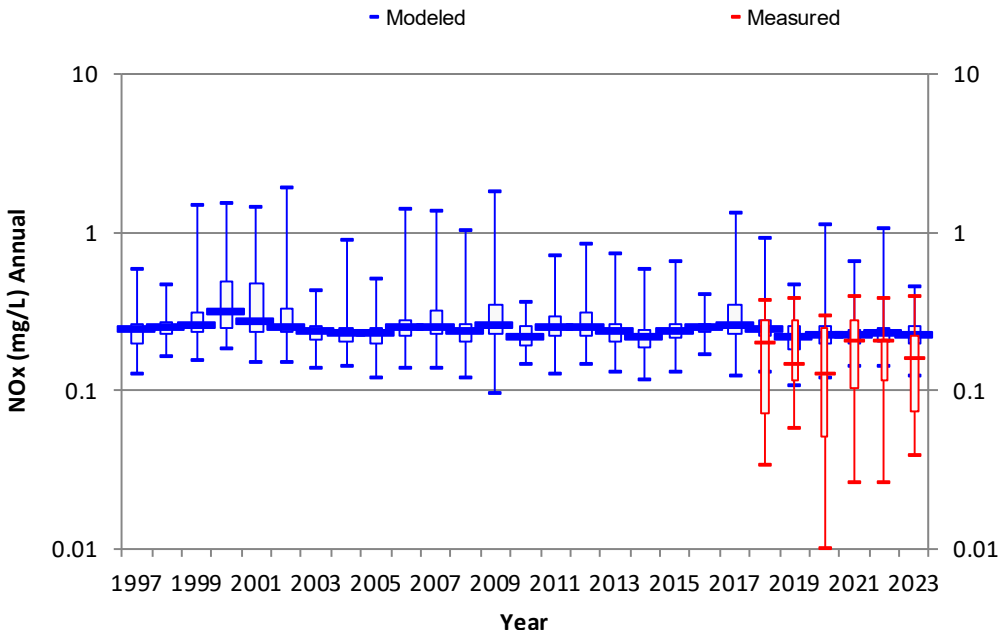


Figure C-102 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH118 Chapel Creek

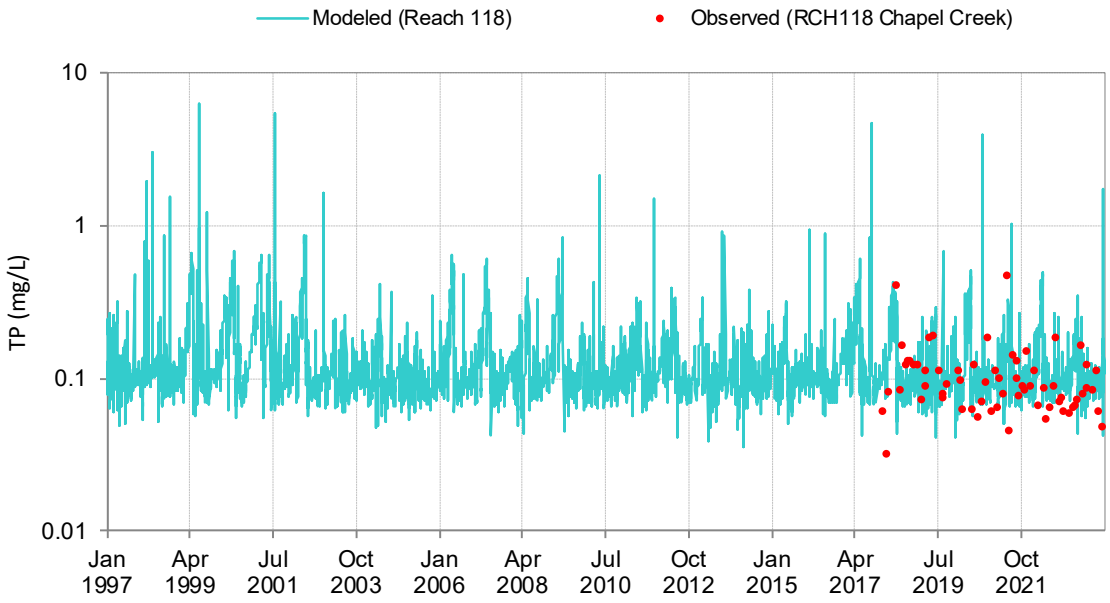


Figure C-103 Modeled Vs Observed TP (mg/L) at RCH118 Chapel Creek

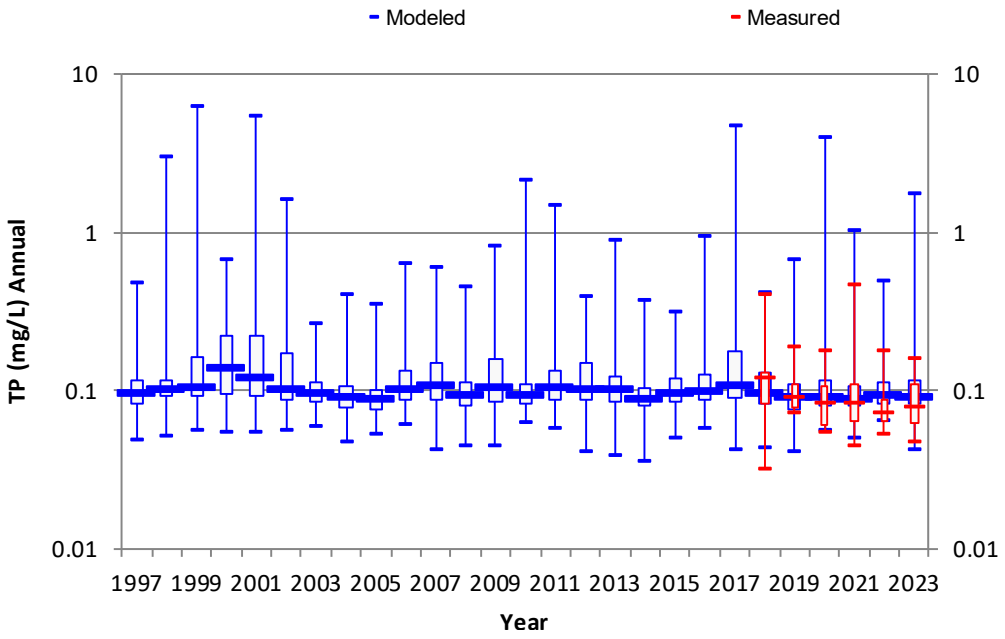


Figure C-104 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH118 Chapel Creek

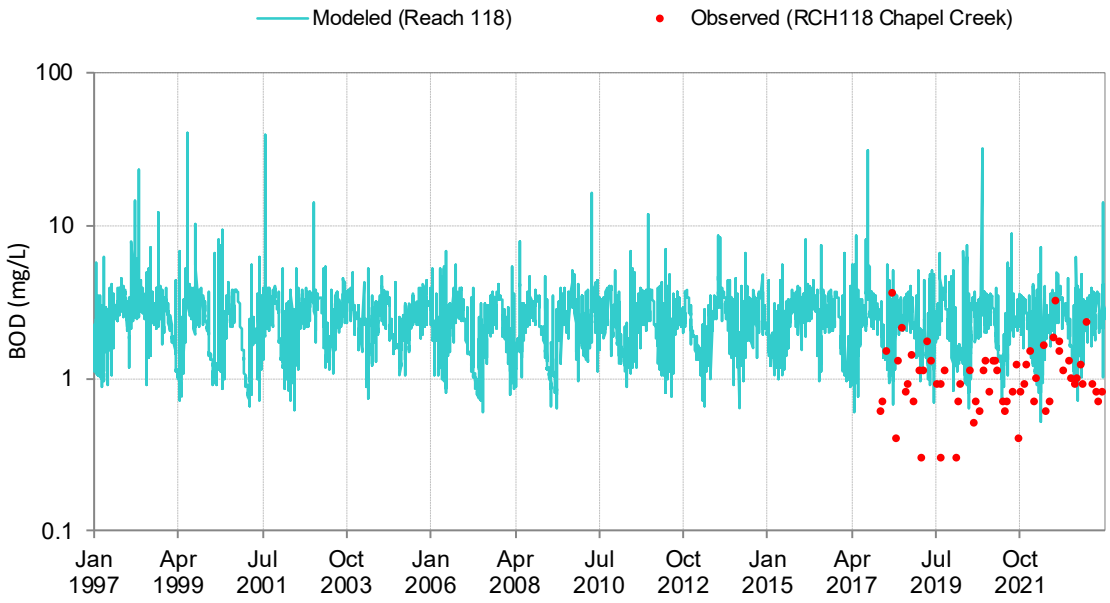


Figure C-105 Modeled Vs Observed BOD (mg/L) at RCH118 Chapel Creek

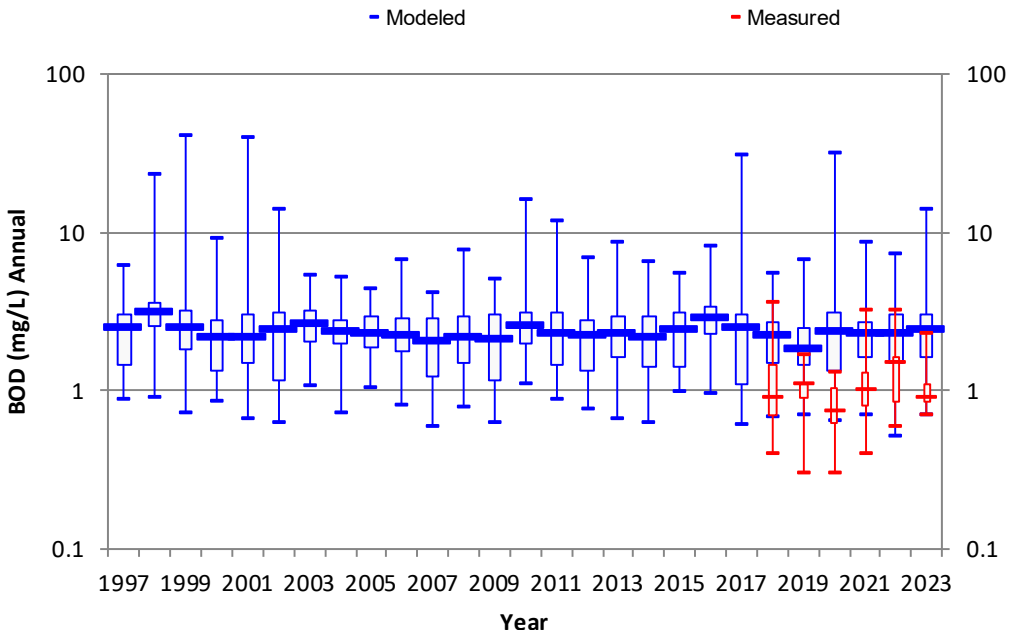


Figure C-106 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH118 Chapel Creek

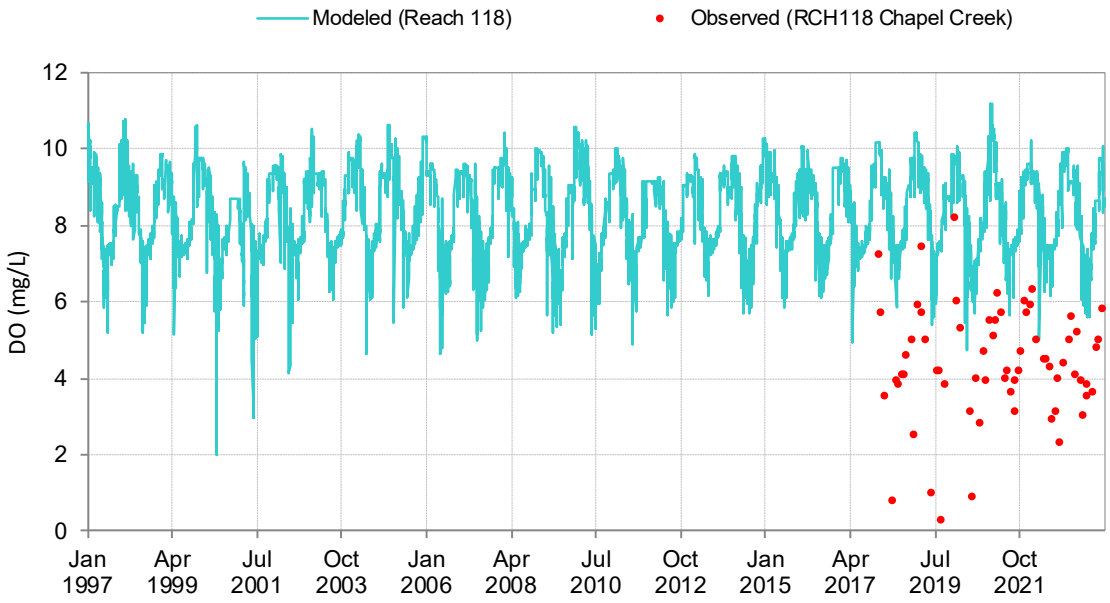


Figure C-107 Modeled Vs Observed DO (mg/L) at RCH118 Chapel Creek

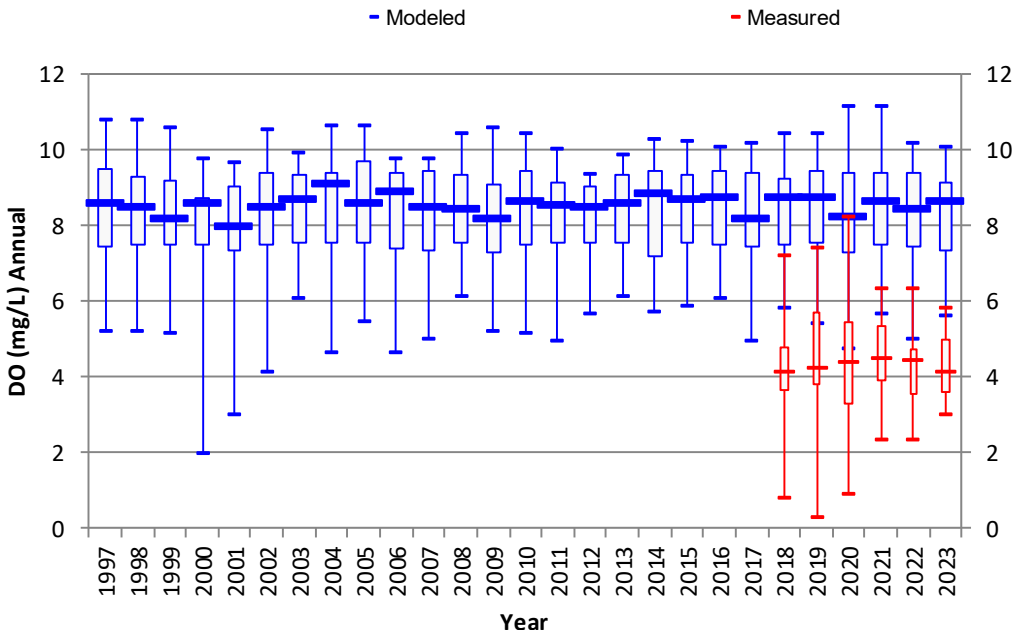


Figure C-108 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH118 Chapel Creek

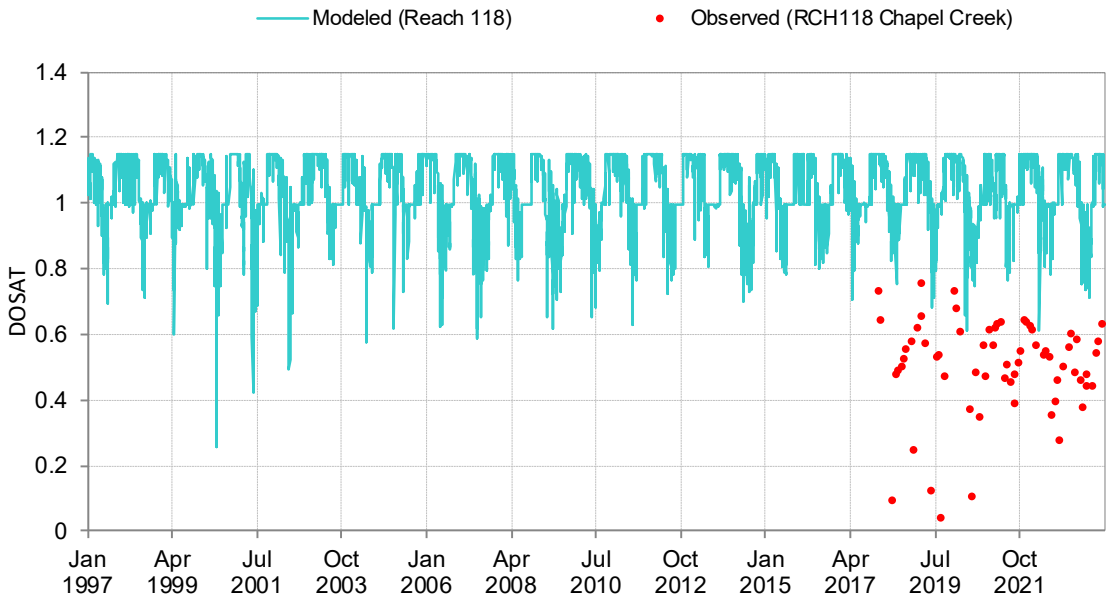


Figure C-109 Modeled Vs Observed DOSAT at RCH118 Chapel Creek

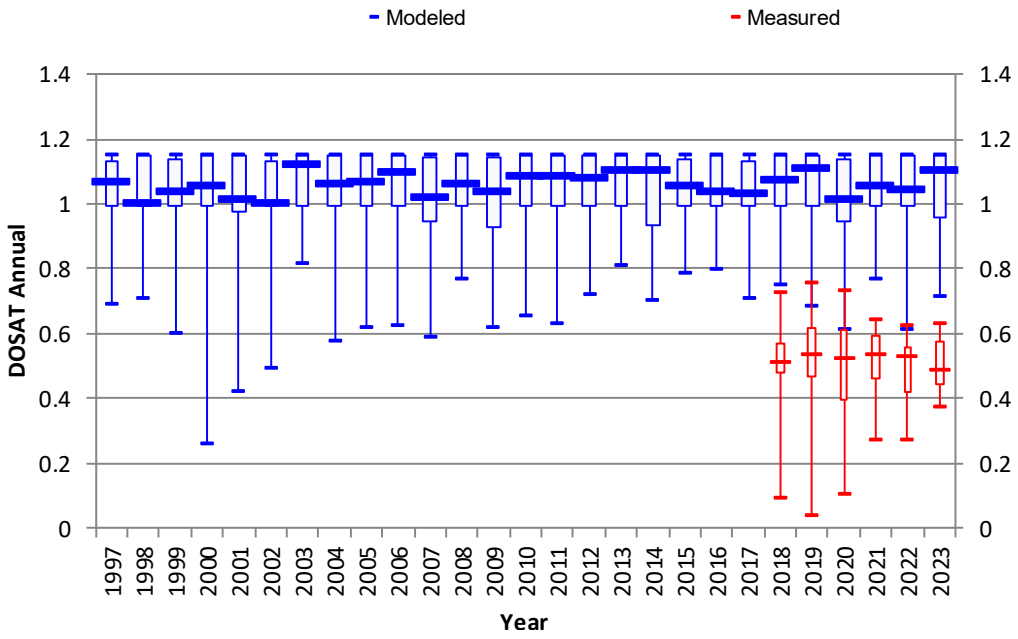


Figure C-110 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH118 Chapel Creek

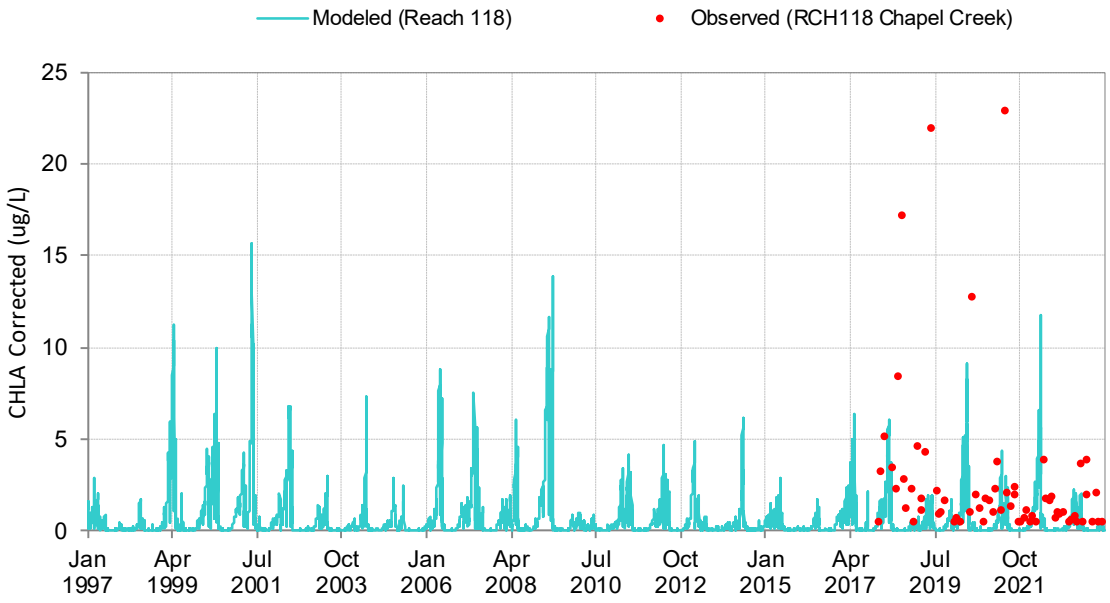


Figure C-111 Modeled Vs Observed CHLA Corrected (ug/L) at RCH118 Chapel Creek

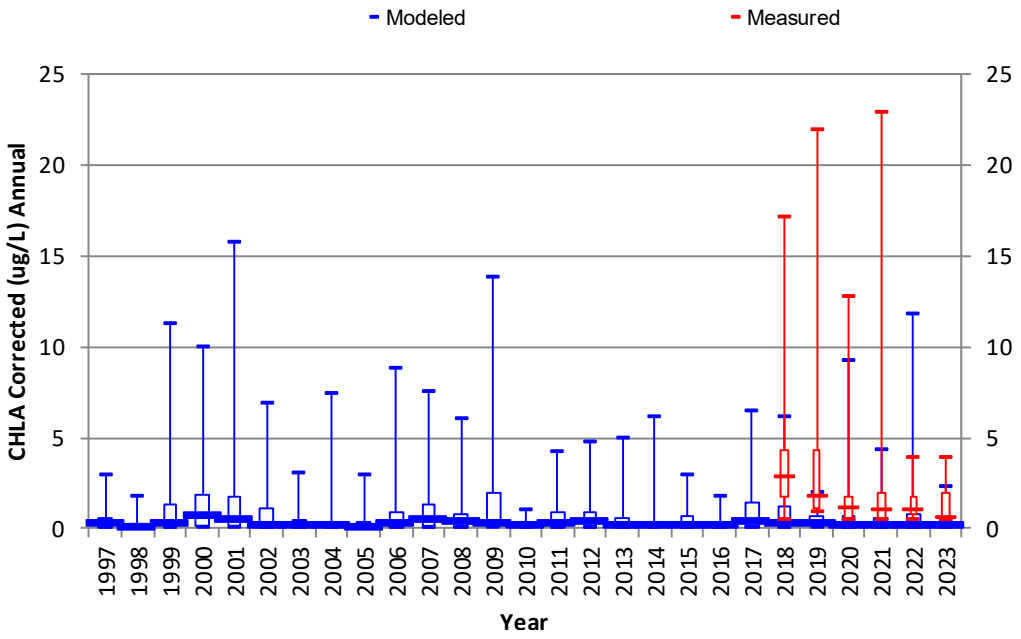


Figure C-112 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH118 Chapel Creek

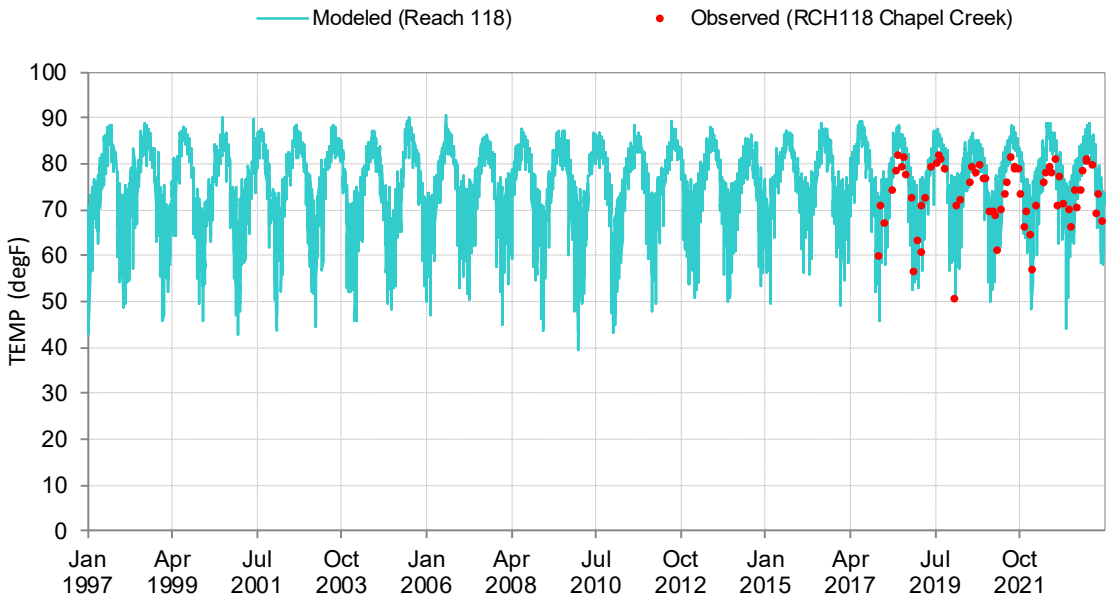


Figure C-113 Modeled Vs Observed TEMP (deg F) at RCH118 Chapel Creek

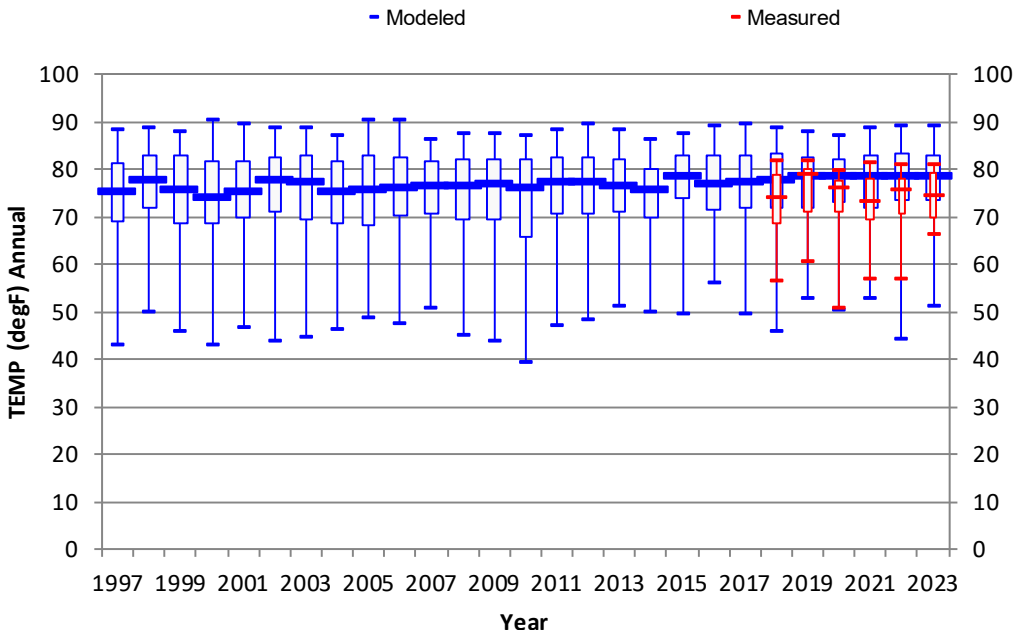


Figure C-114 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH118 Chapel Creek

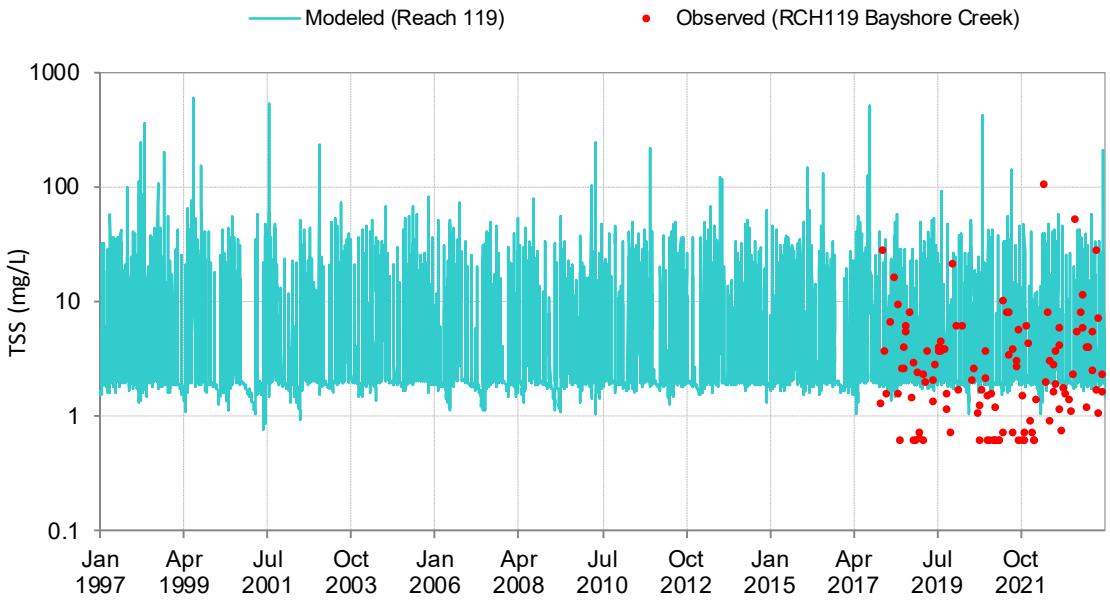


Figure C-115 Modeled Vs Observed TSS (mg/L) at RCH119 Bayshore Creek

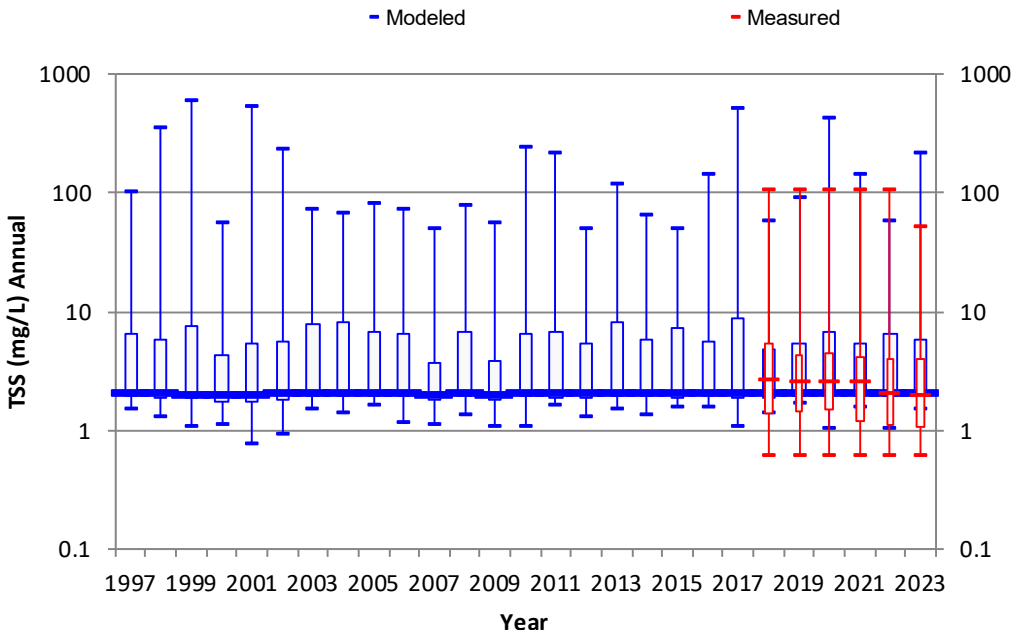


Figure C-116 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH119 Bayshore Creek

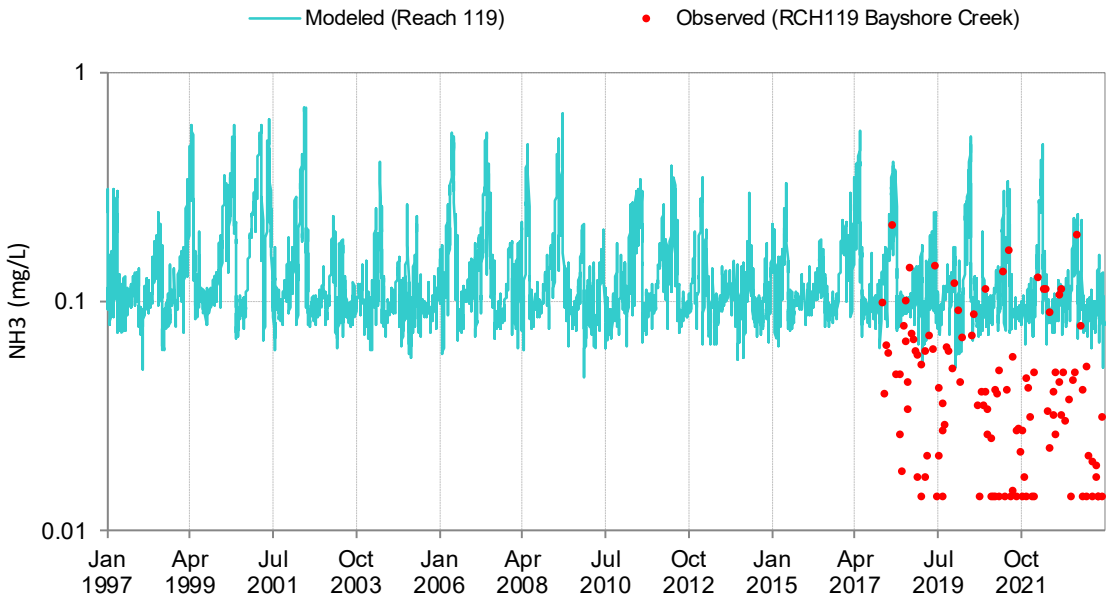


Figure C-117 Modeled Vs Observed NH3 (mg/L) at RCH119 Bayshore Creek

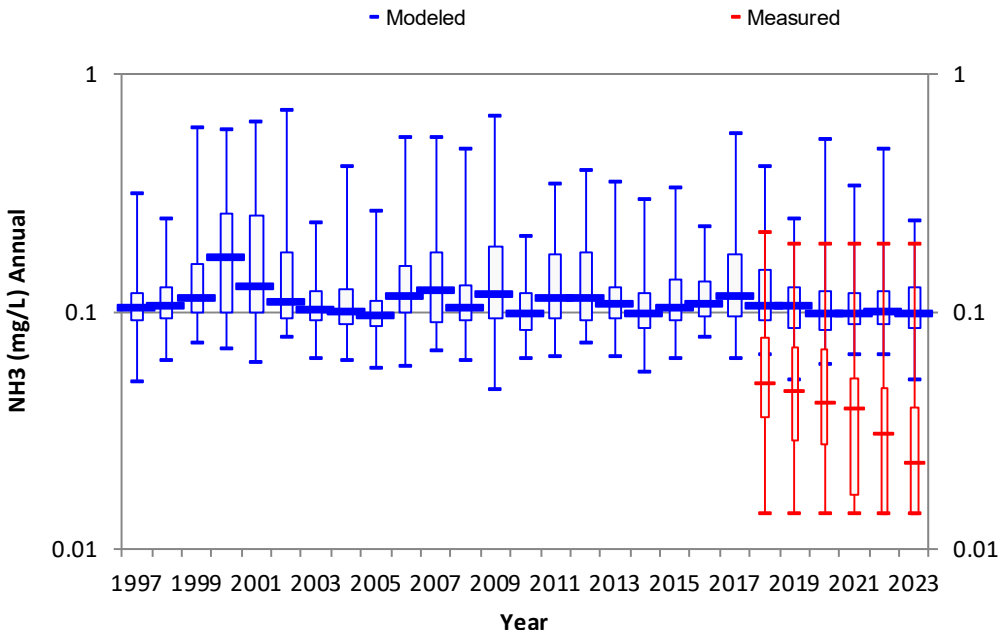


Figure C-118 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH119 Bayshore Creek

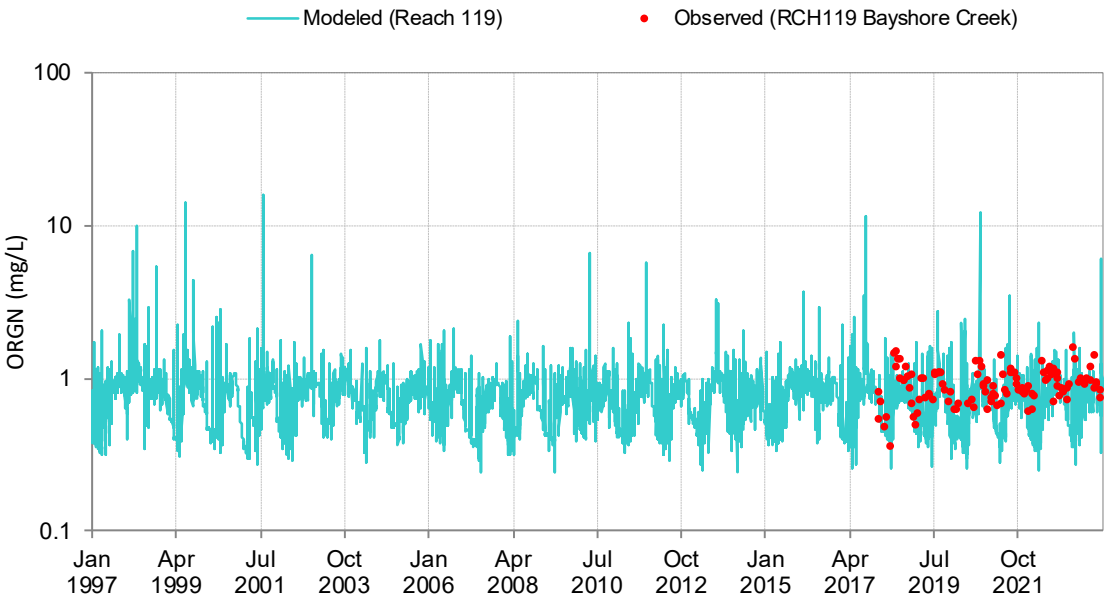


Figure C-119 Modeled Vs Observed ORGN (mg/L) at RCH119 Bayshore Creek

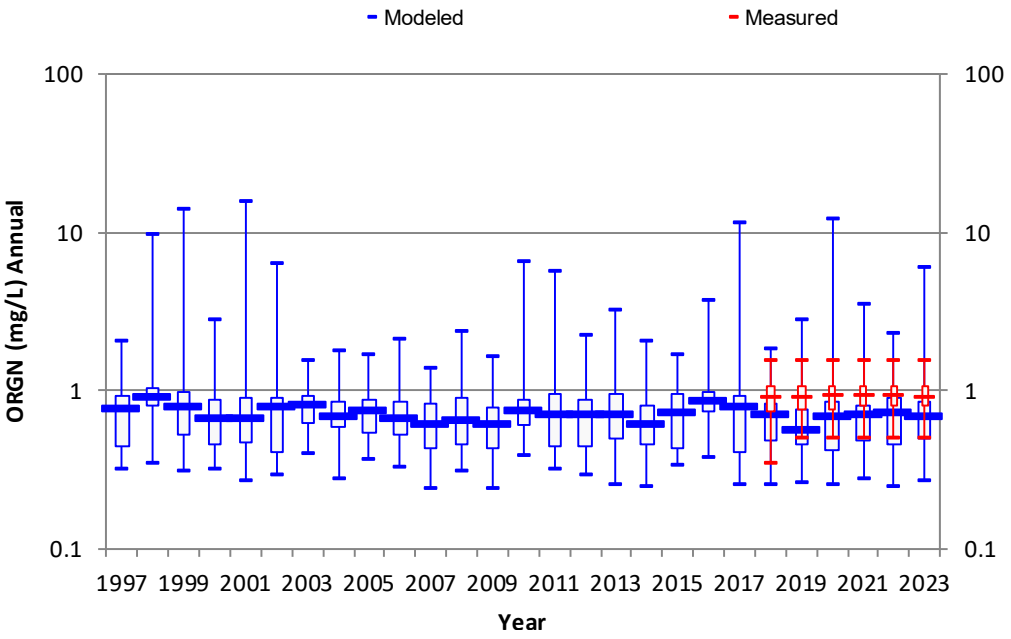


Figure C-120 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH119 Bayshore Creek

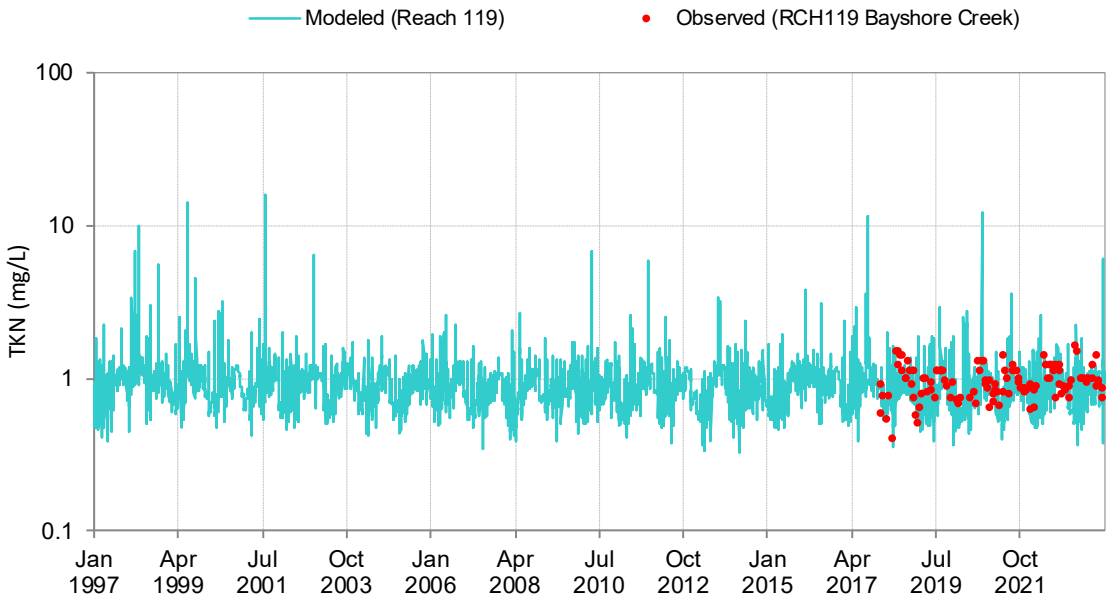


Figure C-121 Modeled Vs Observed TKN (mg/L) at RCH119 Bayshore Creek

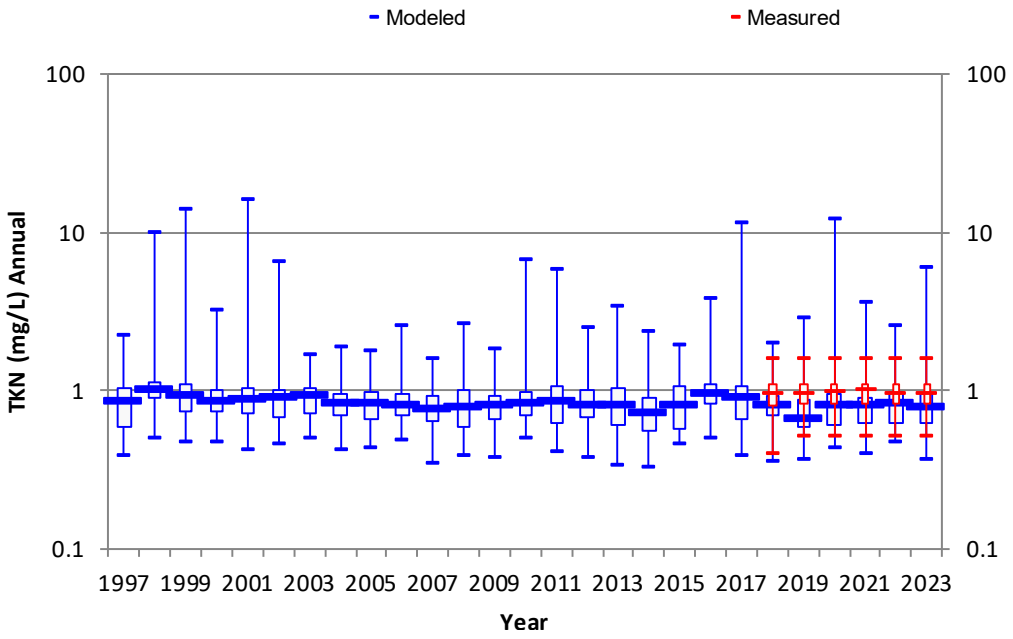


Figure C-122 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH119 Bayshore Creek

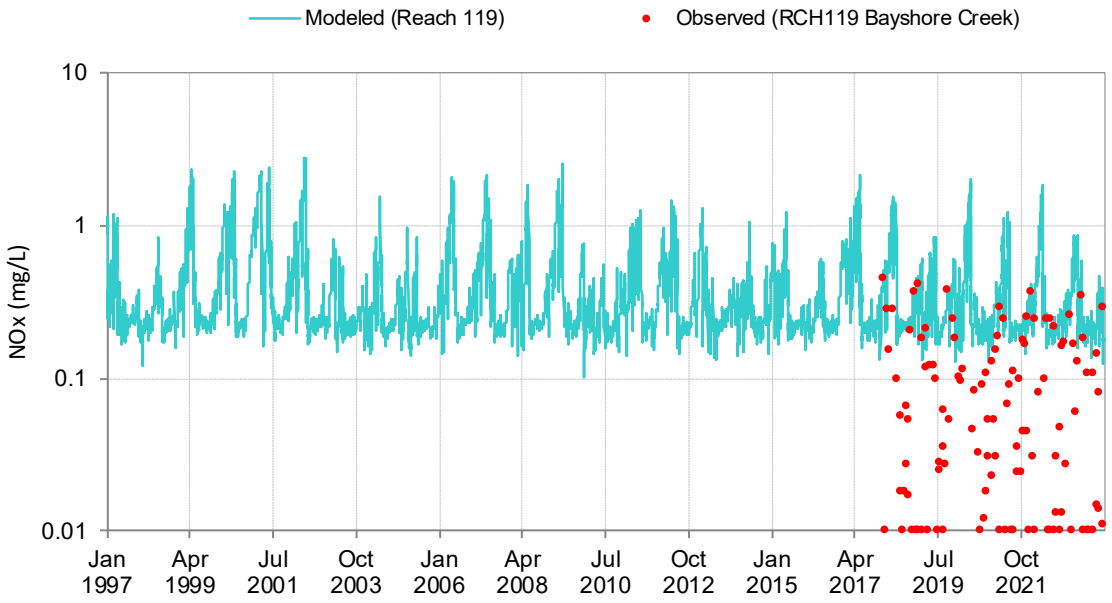


Figure C-123 Modeled Vs Observed NOx (mg/L) at RCH119 Bayshore Creek

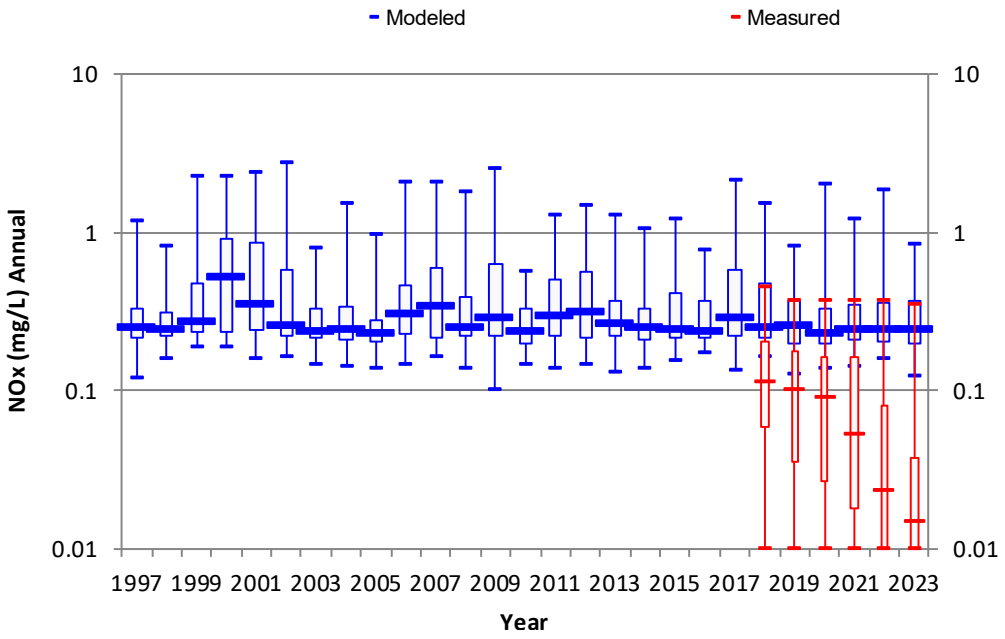


Figure C-124 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH119 Bayshore Creek

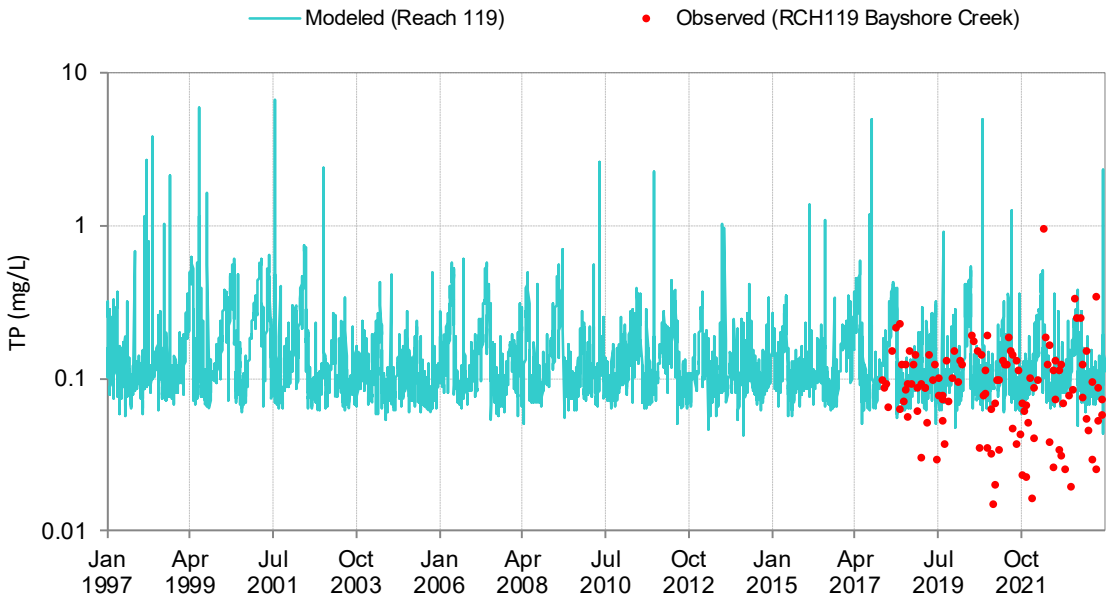


Figure C-125 Modeled Vs Observed TP (mg/L) at RCH119 Bayshore Creek

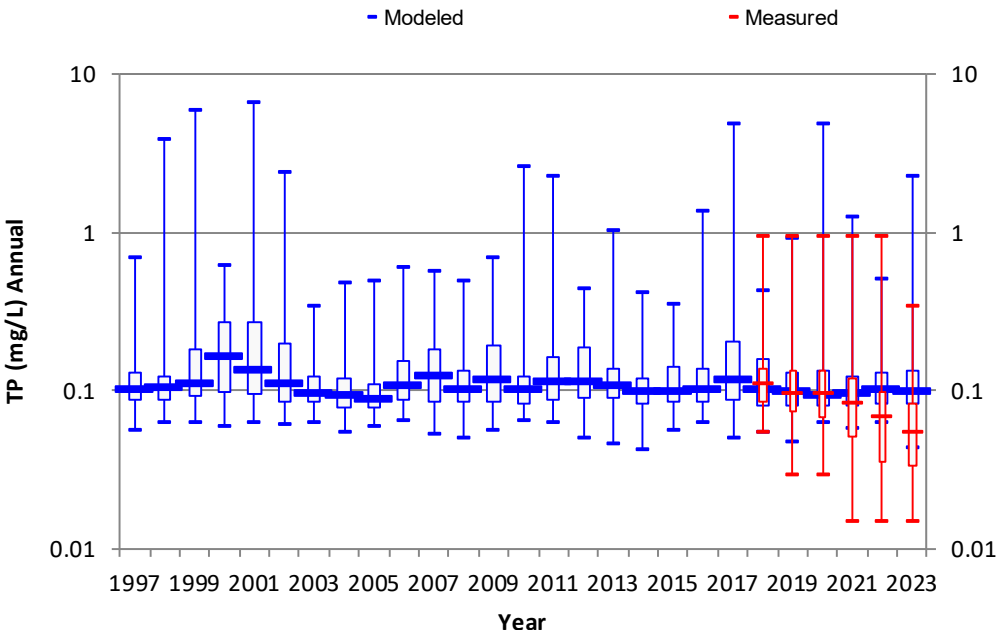


Figure C-126 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH119 Bayshore Creek

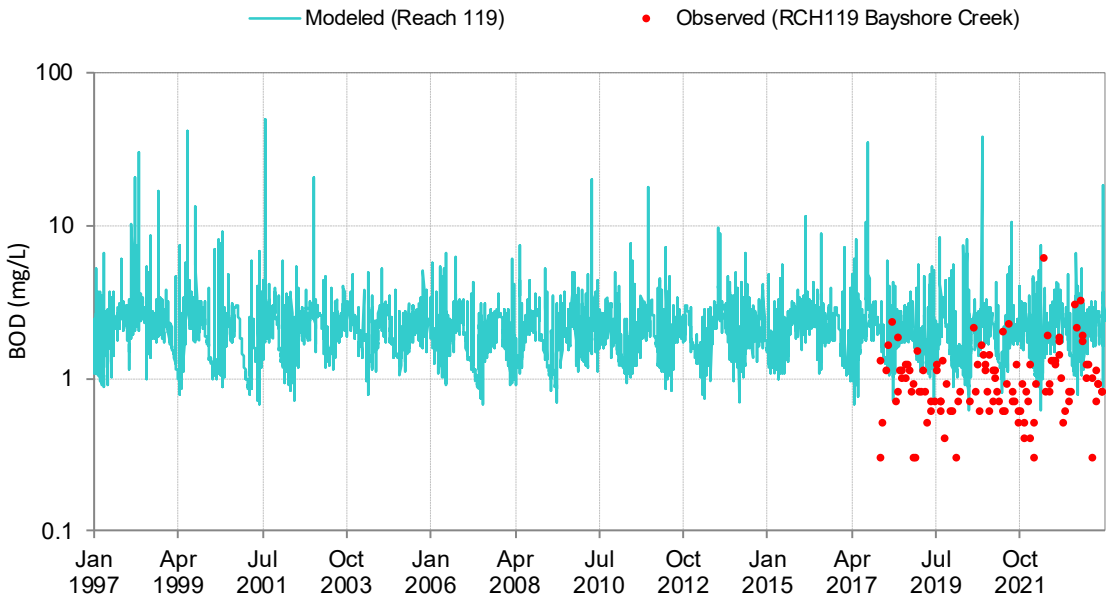


Figure C-127 Modeled Vs Observed BOD (mg/L) at RCH119 Bayshore Creek

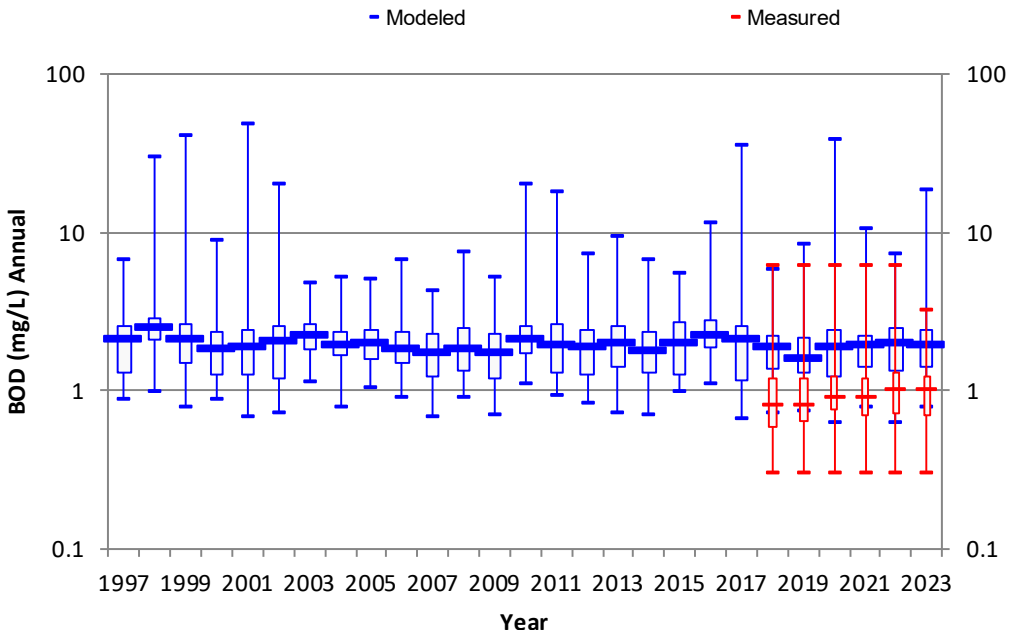


Figure C-128 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH119 Bayshore Creek

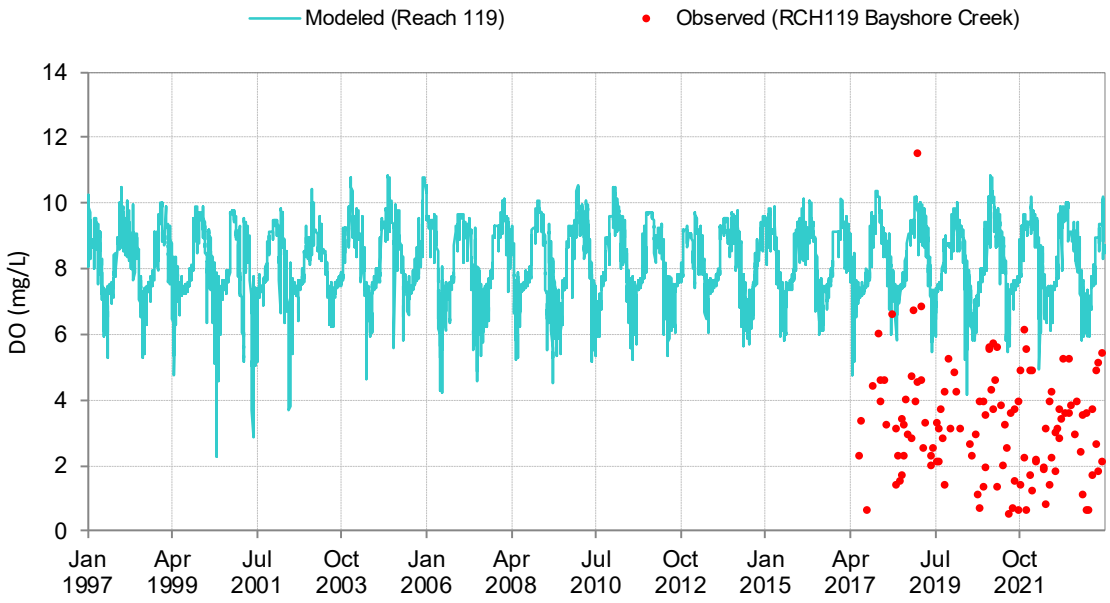


Figure C-129 Modeled Vs Observed DO (mg/L) at RCH119 Bayshore Creek

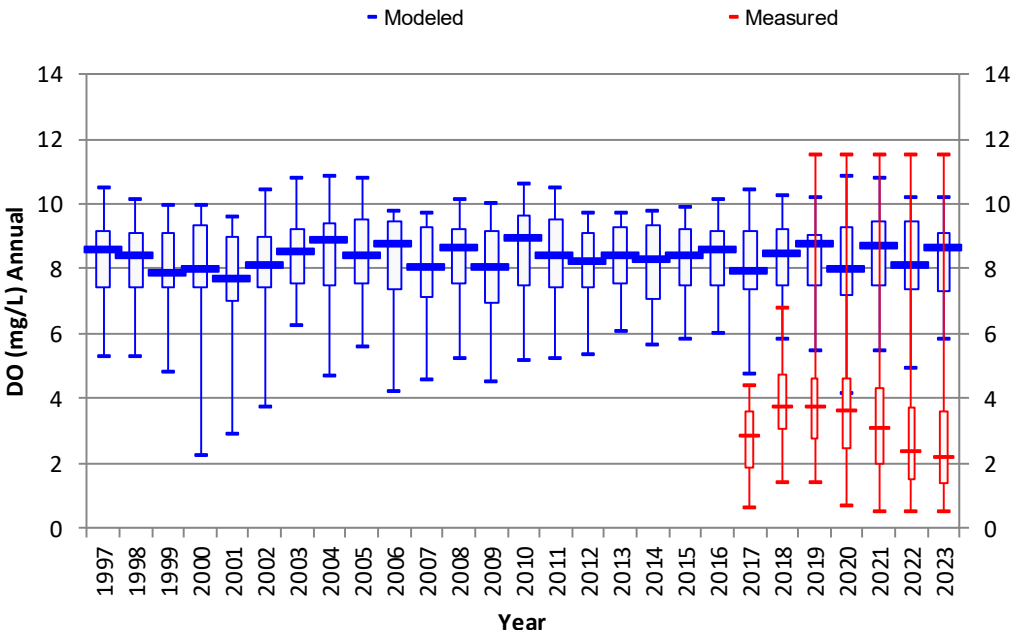


Figure C-130 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH119 Bayshore Creek

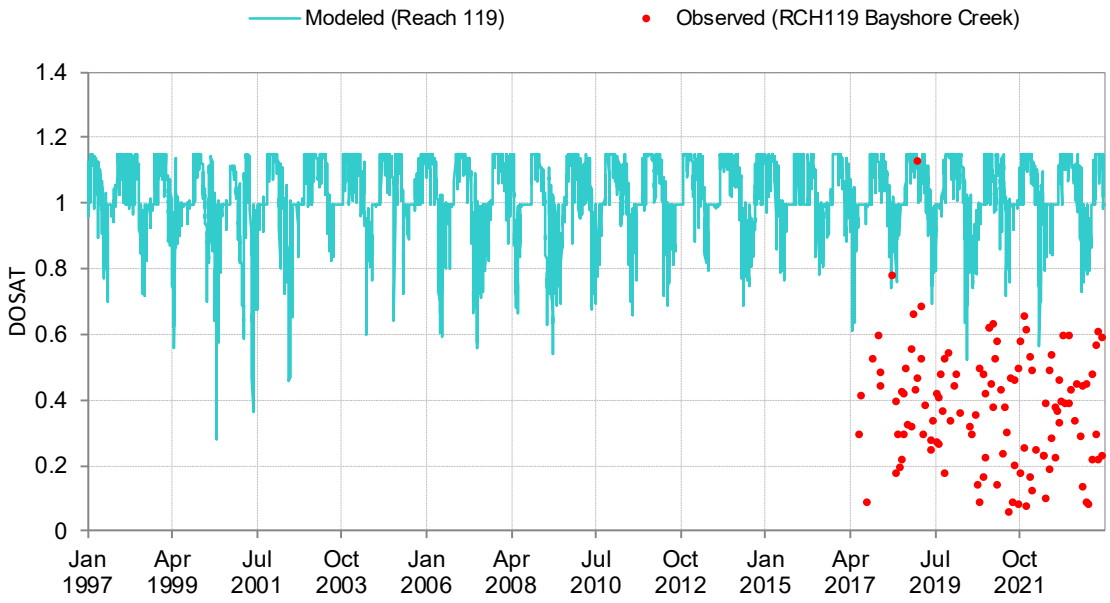


Figure C-131 Modeled Vs Observed DOSAT at RCH119 Bayshore Creek

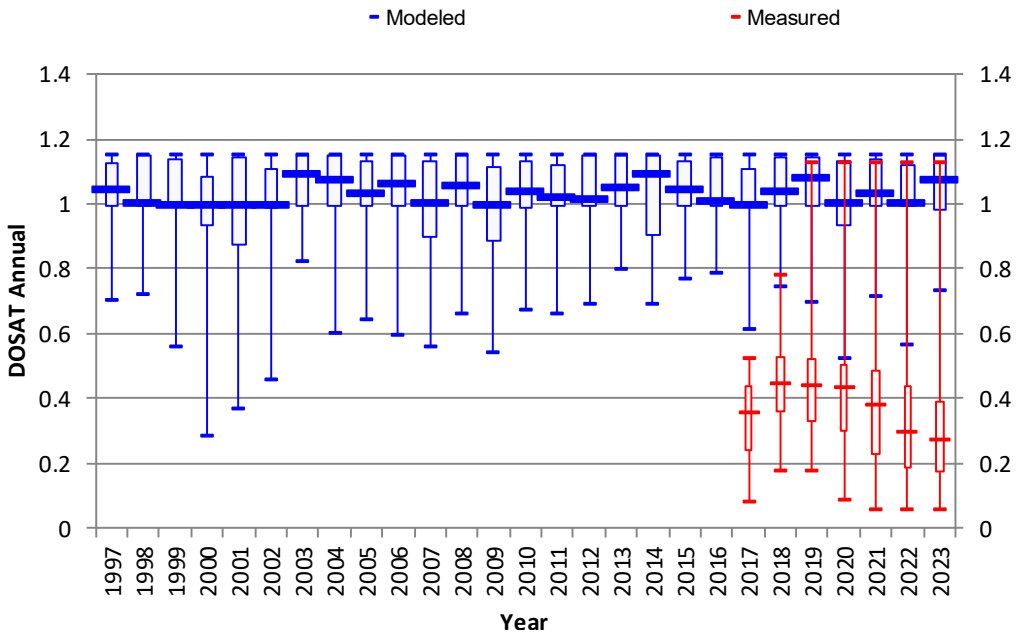


Figure C-132 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH119 Bayshore Creek

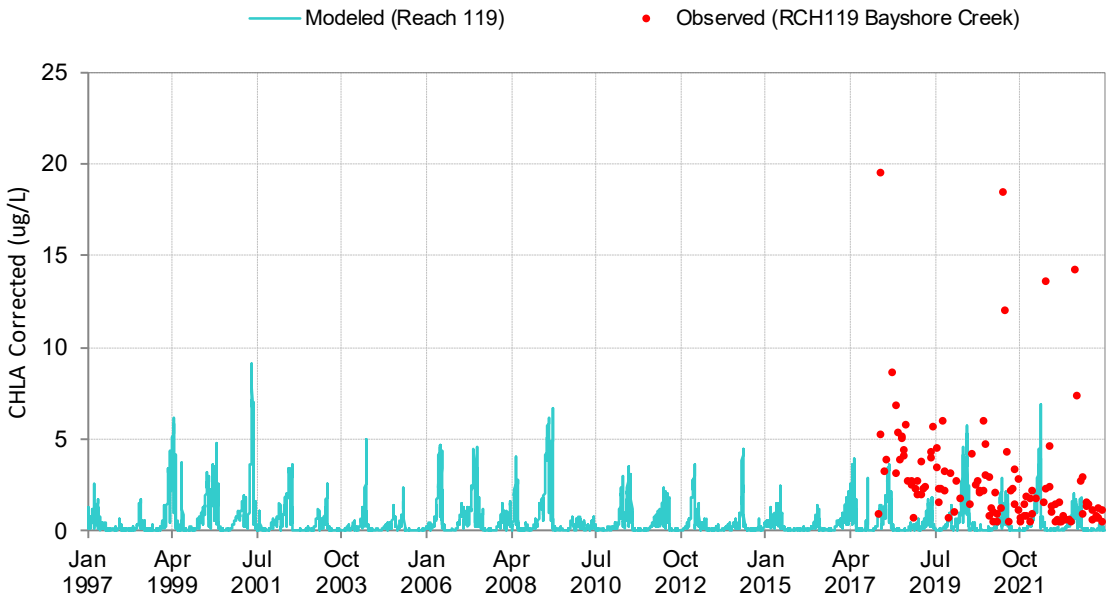


Figure C-133 Modeled Vs Observed CHLA Corrected (ug/L) at RCH119 Bayshore Creek

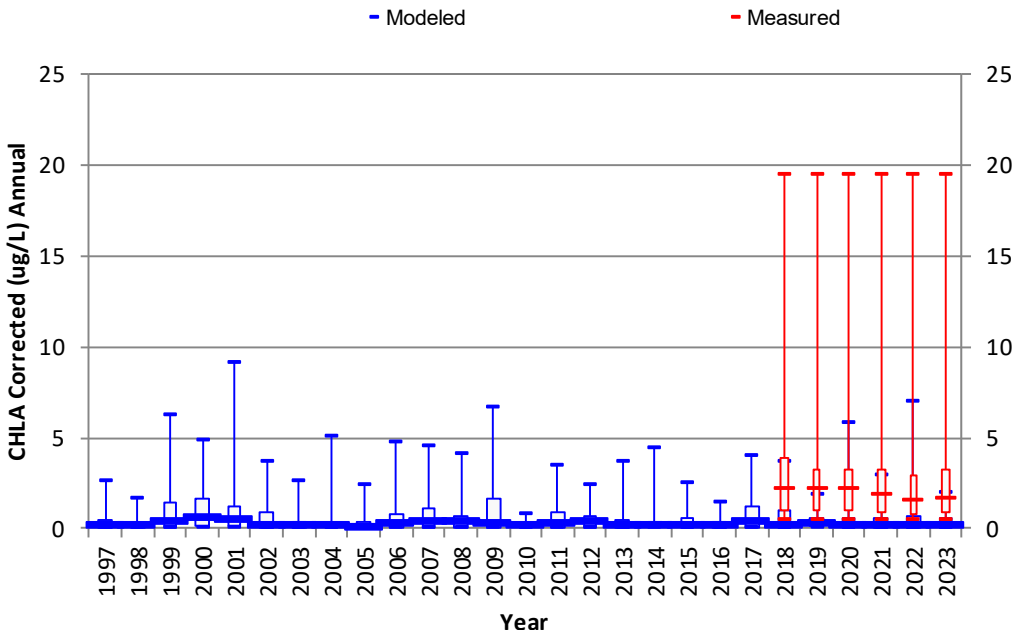


Figure C-134 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH119 Bayshore Creek

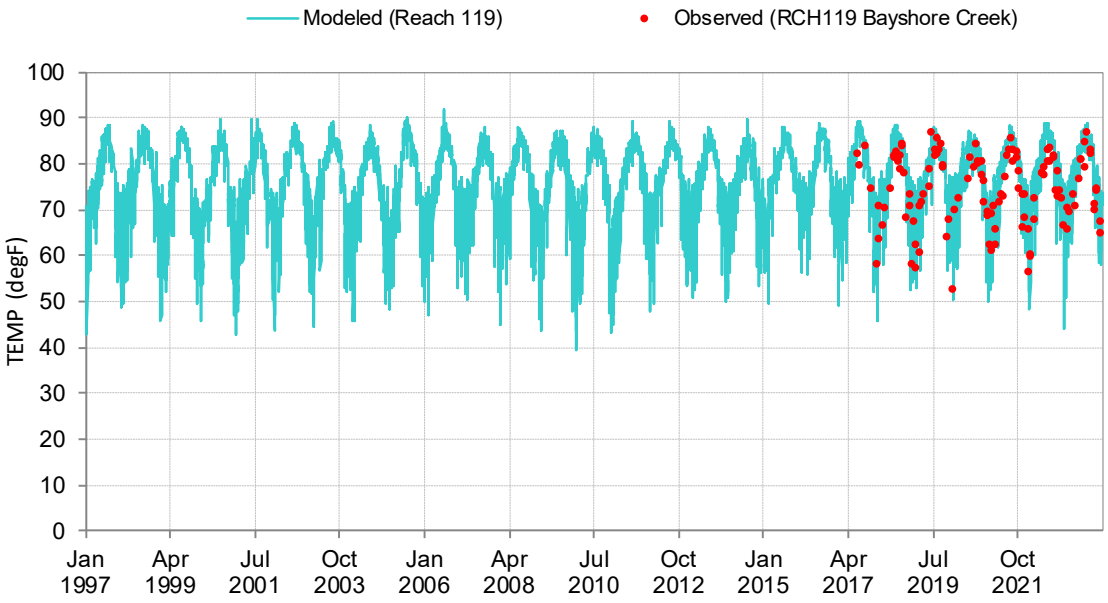


Figure C-135 Modeled Vs Observed TEMP (deg F) at RCH119 Bayshore Creek

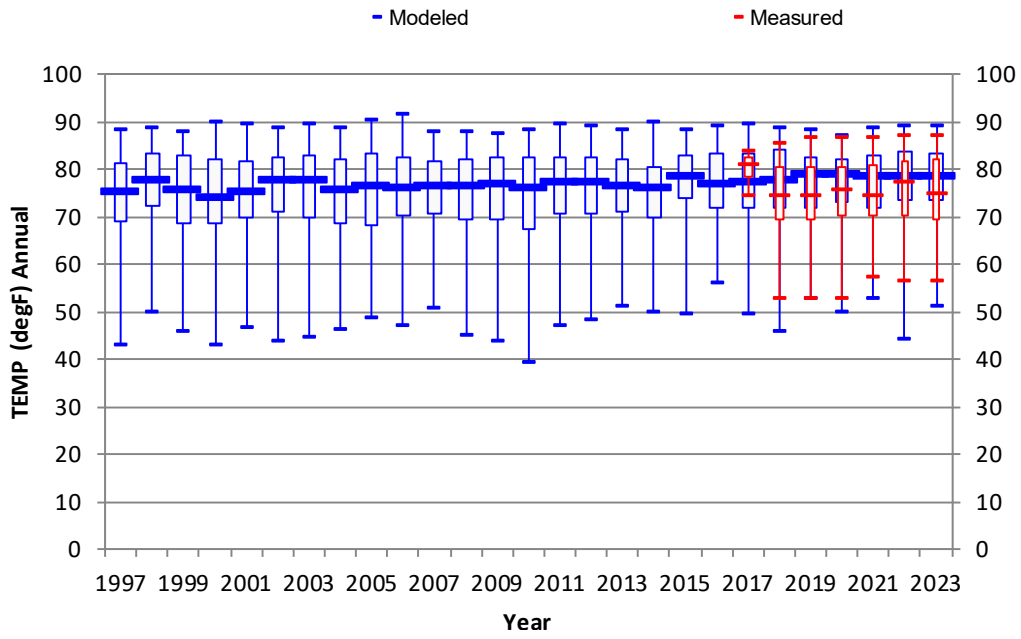


Figure C-136 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH119 Bayshore Creek

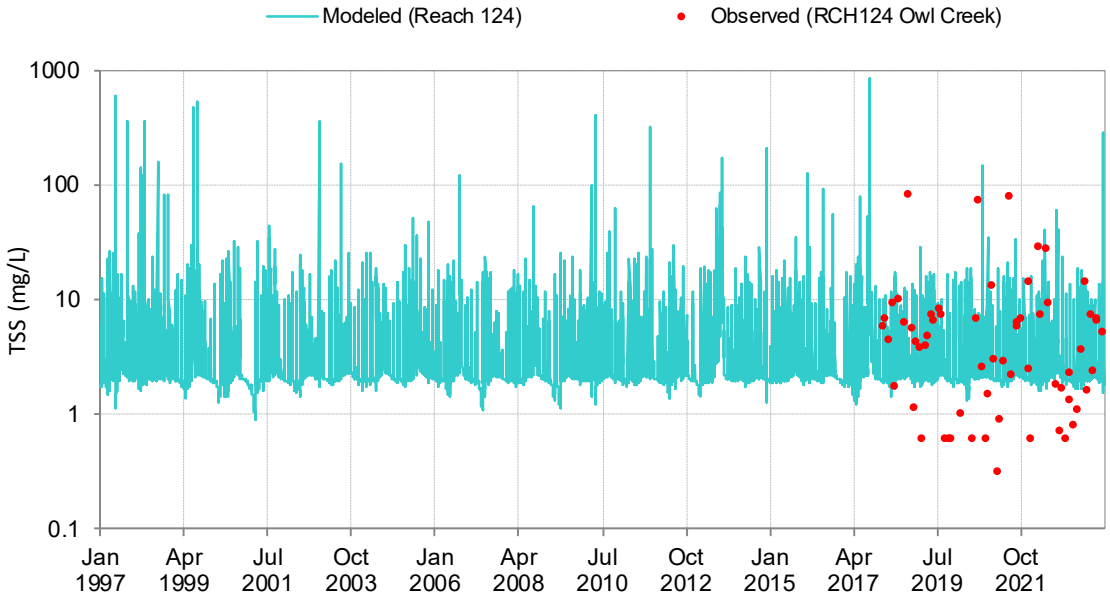


Figure C-137 Modeled Vs Observed TSS (mg/L) at RCH124 Owl Creek

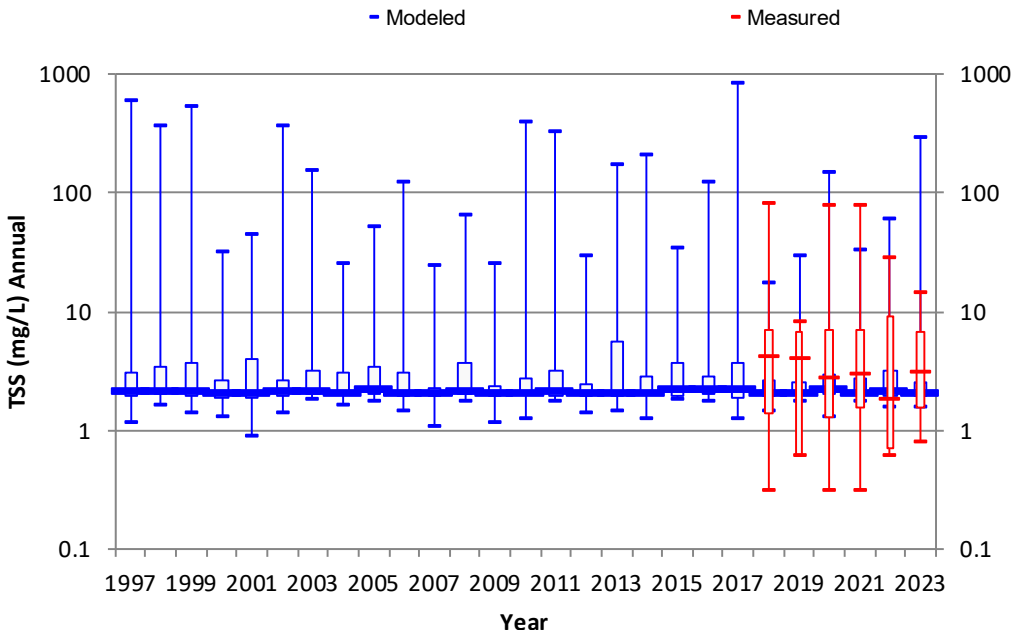


Figure C-138 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH124 Owl Creek

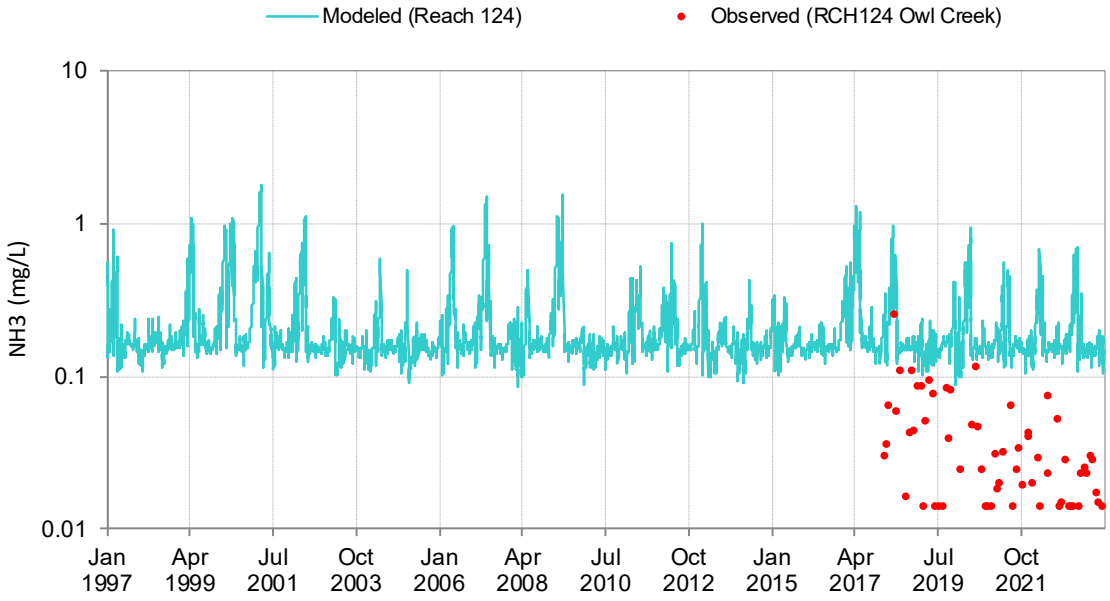


Figure C-139 Modeled Vs Observed NH3 (mg/L) at RCH124 Owl Creek

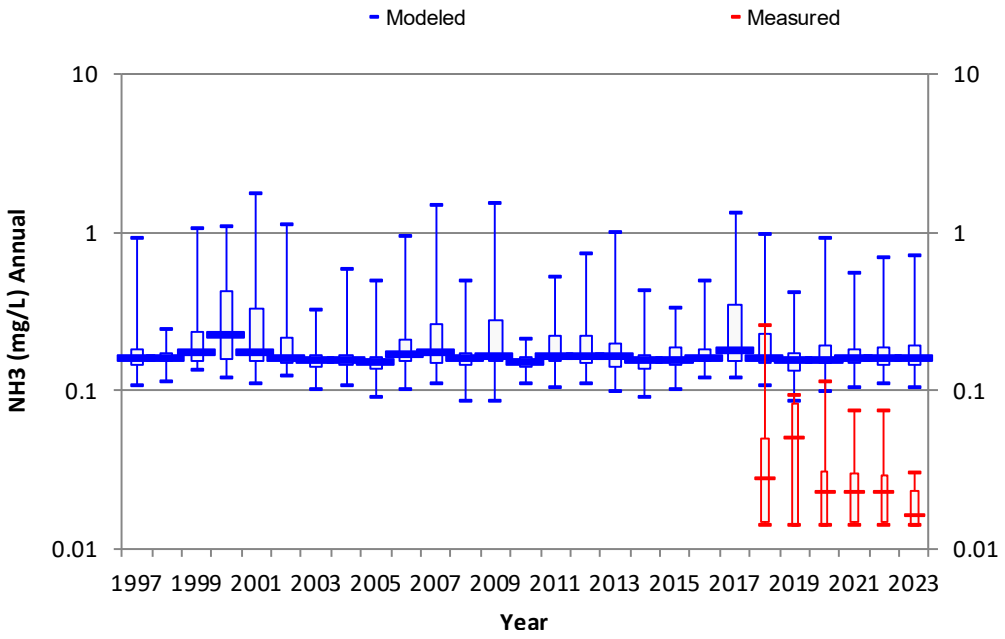


Figure C-140 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH124 Owl Creek

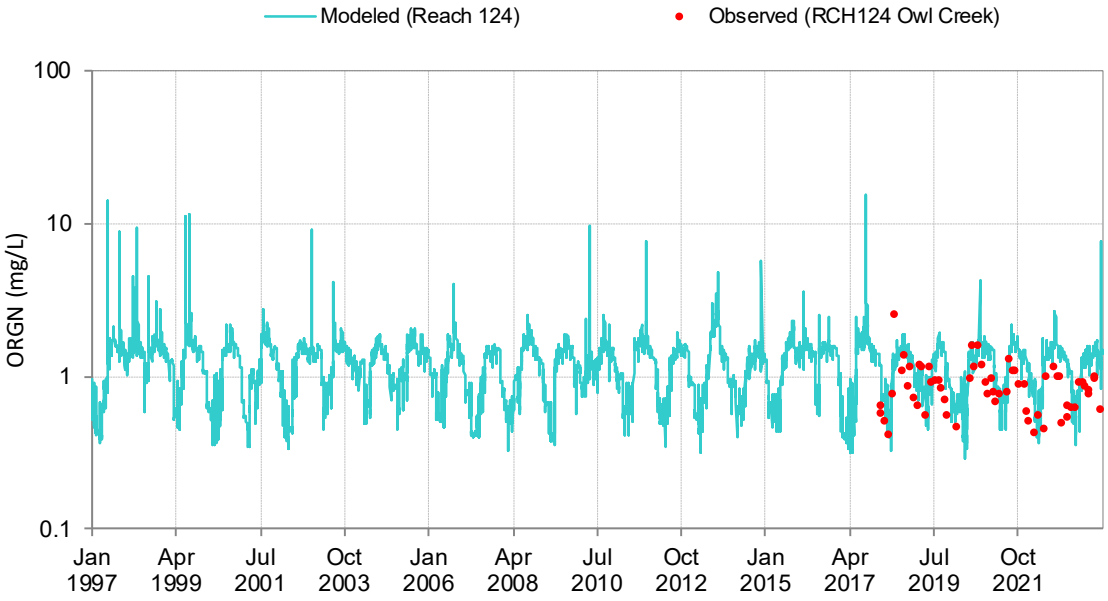


Figure C-141 Modeled Vs Observed ORGN (mg/L) at RCH124 Owl Creek

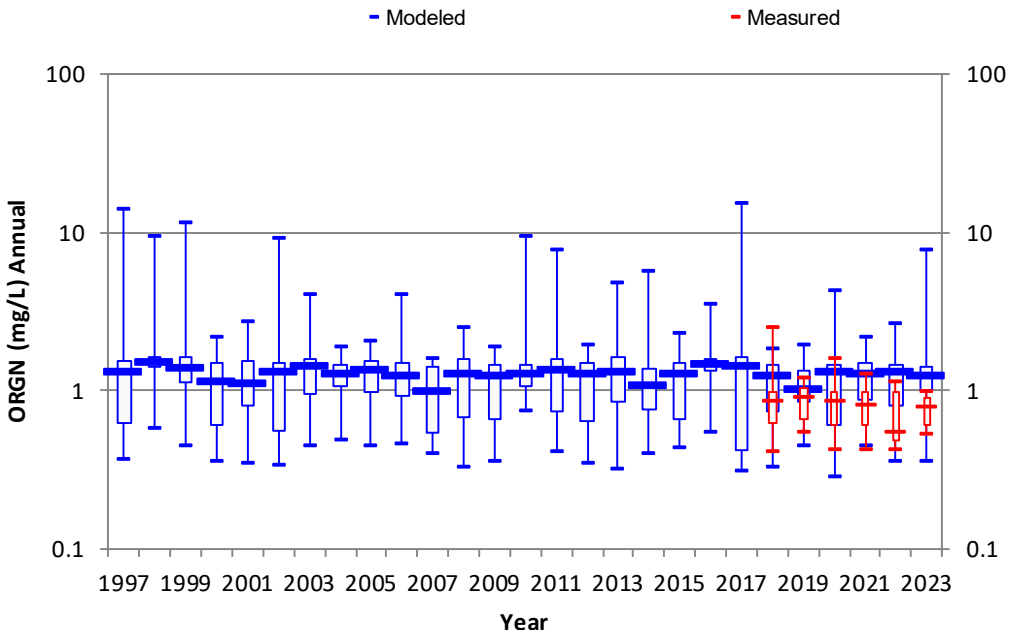


Figure C-142 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH124 Owl Creek

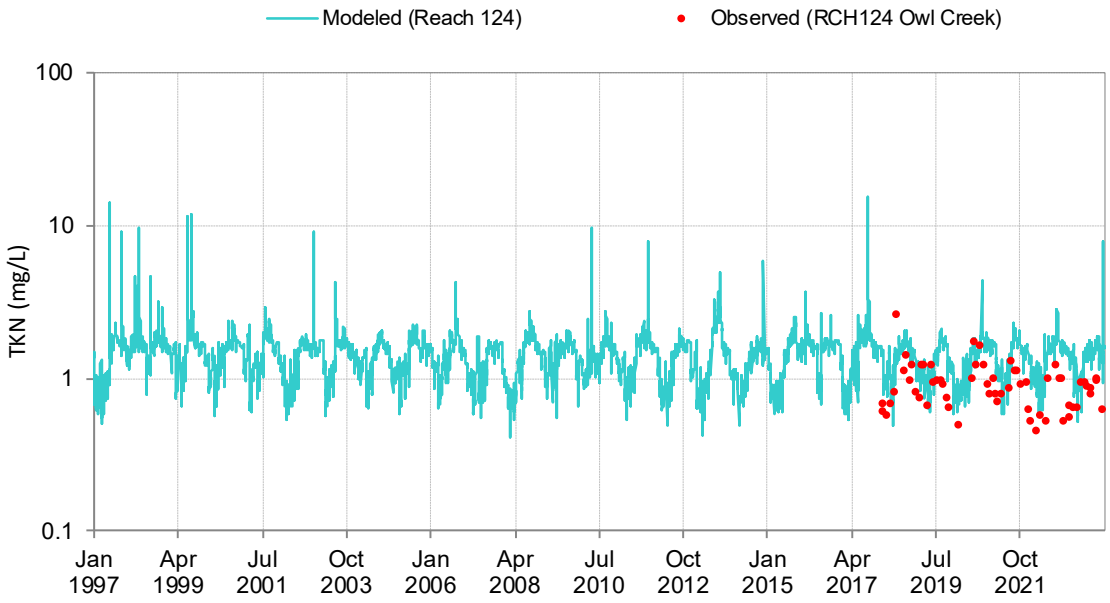


Figure C-143 Modeled Vs Observed TKN (mg/L) at RCH124 Owl Creek

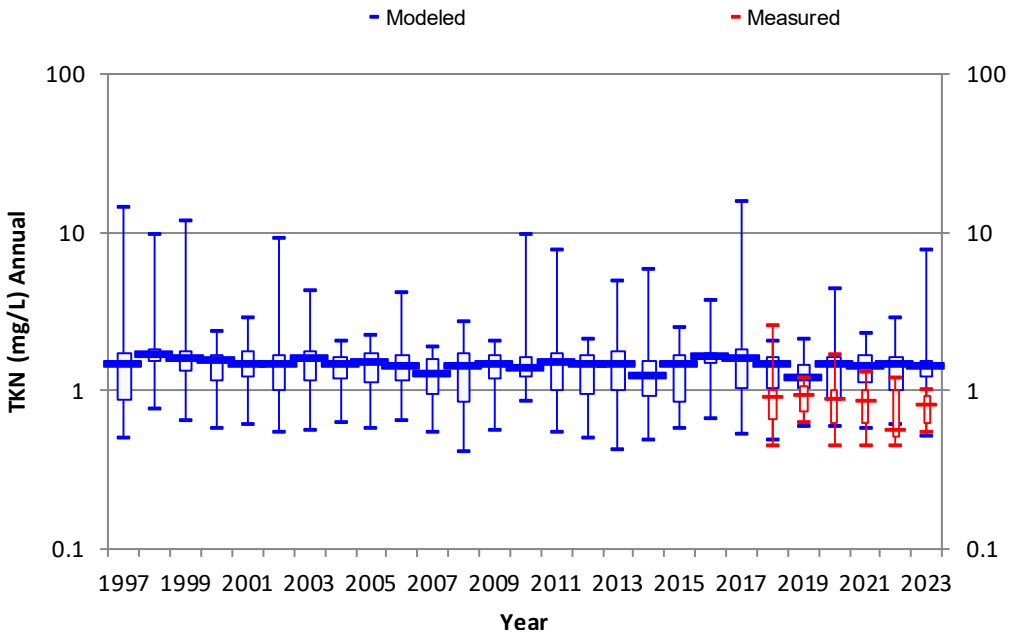


Figure C-144 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH124 Owl Creek

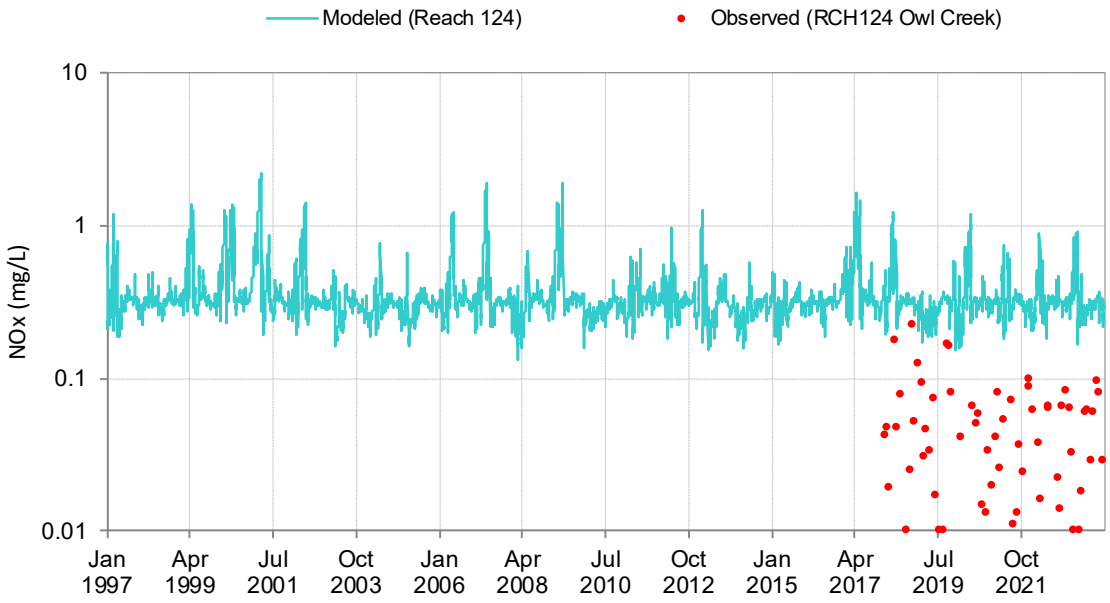


Figure C-145 Modeled Vs Observed NOx (mg/L) at RCH124 Owl Creek

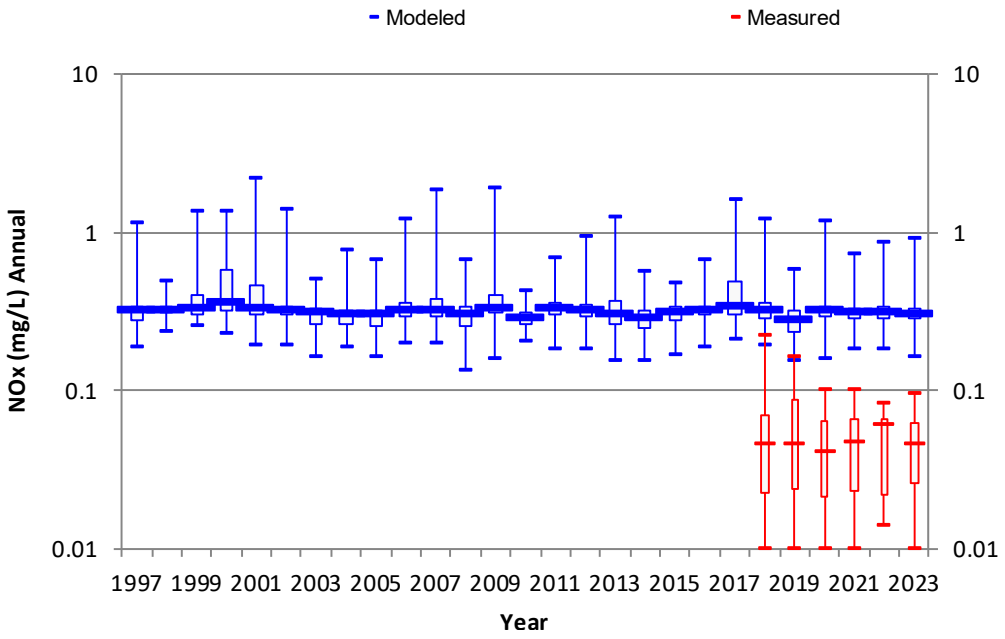


Figure C-146 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH124 Owl Creek

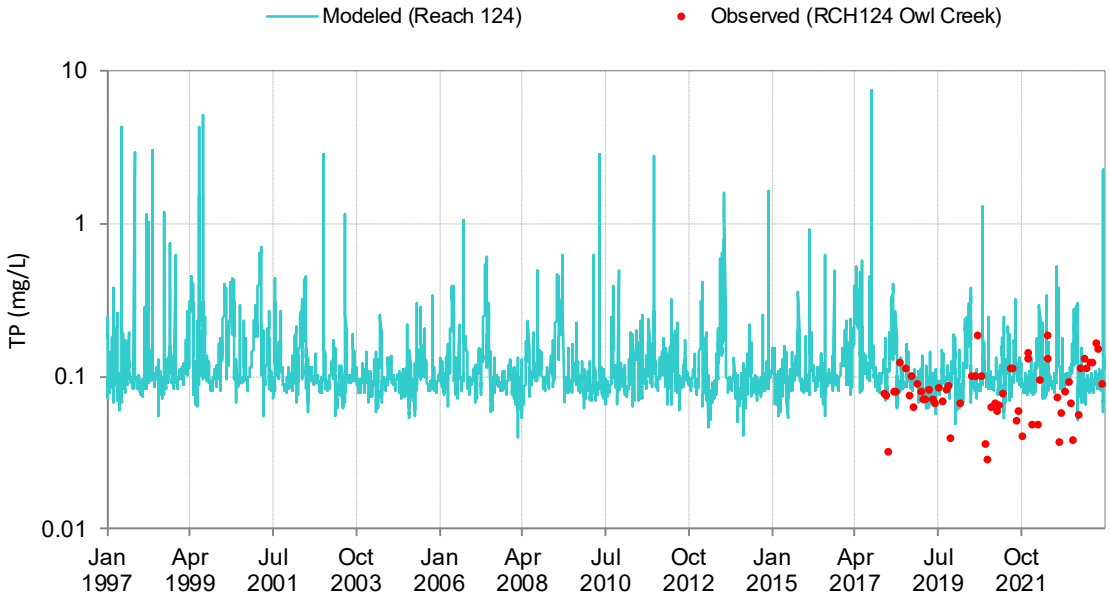


Figure C-147 Modeled Vs Observed TP (mg/L) at RCH124 Owl Creek

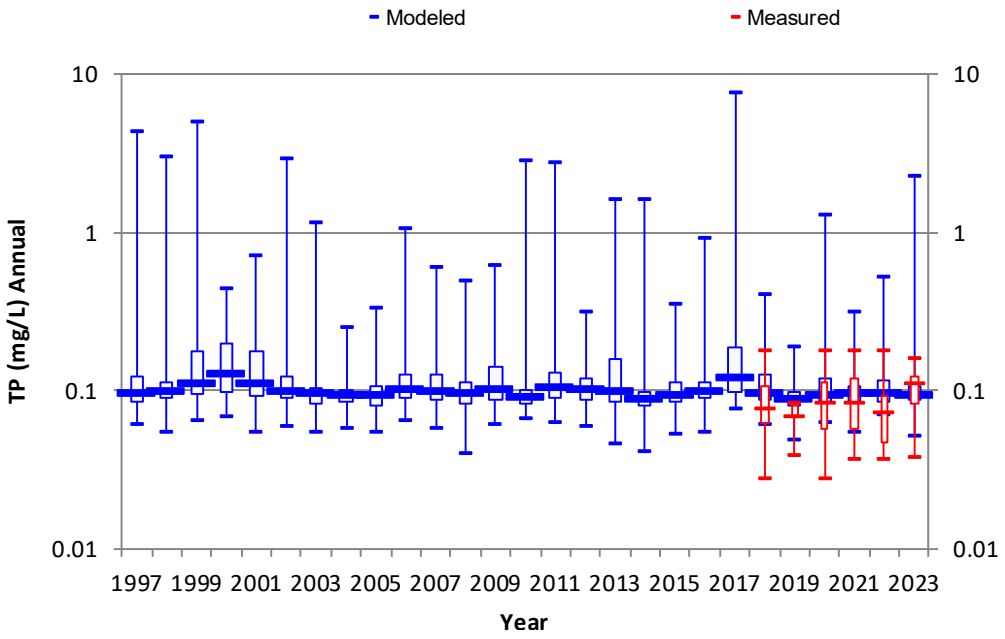


Figure C-148 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH124 Owl Creek

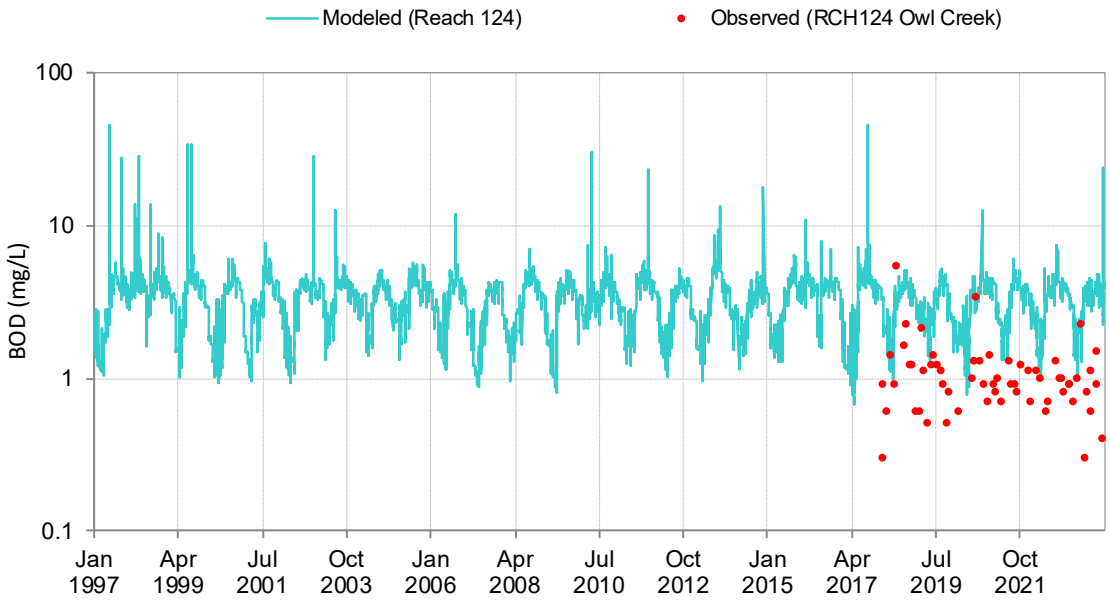


Figure C-149 Modeled Vs Observed BOD (mg/L) at RCH124 Owl Creek

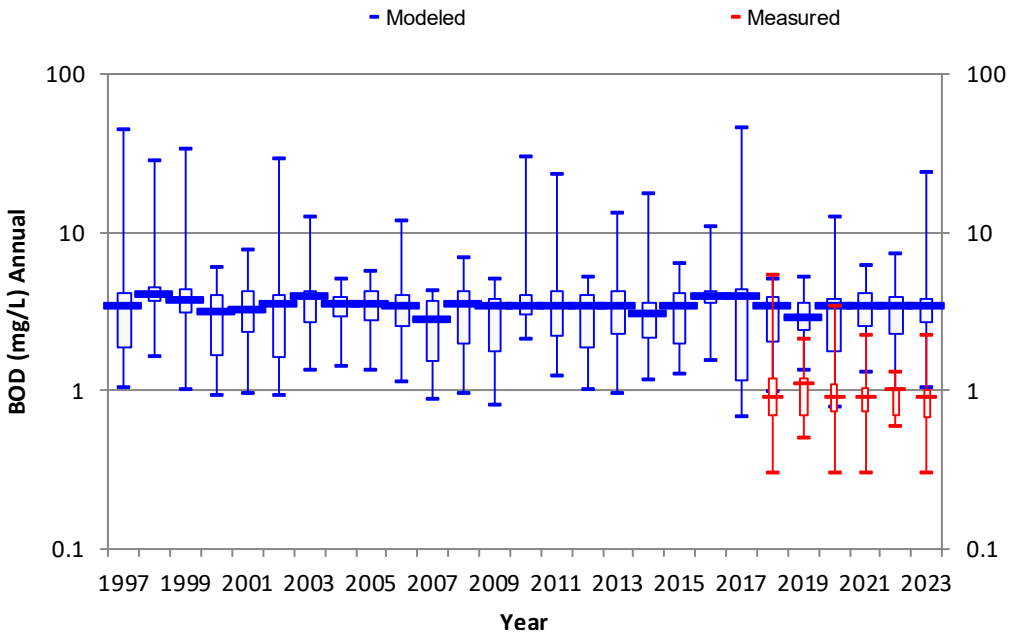


Figure C-150 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH124 Owl Creek

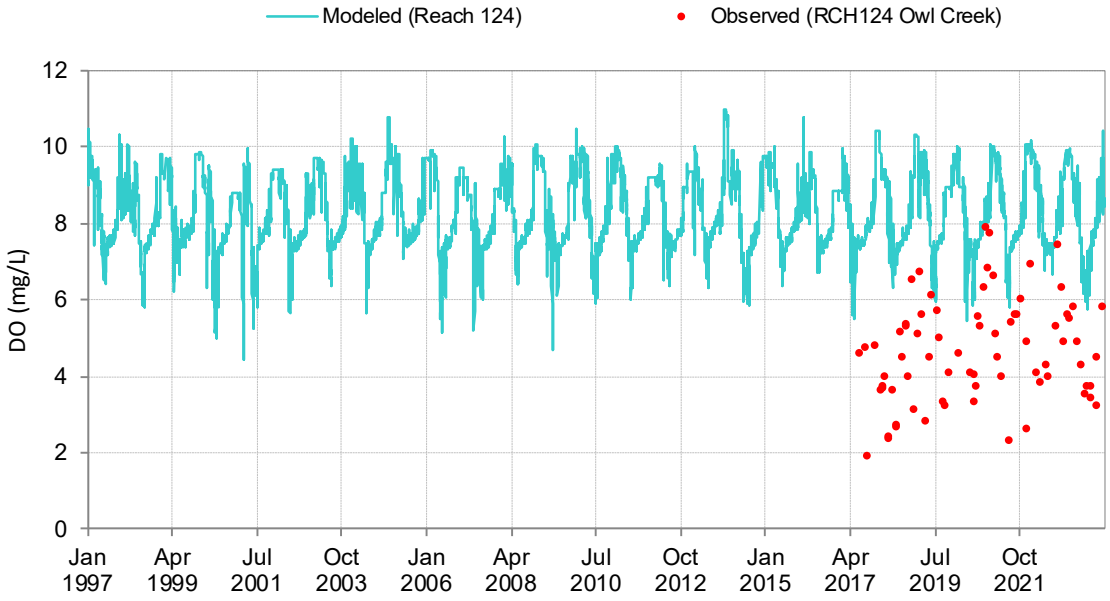


Figure C-151 Modeled Vs Observed DO (mg/L) at RCH124 Owl Creek

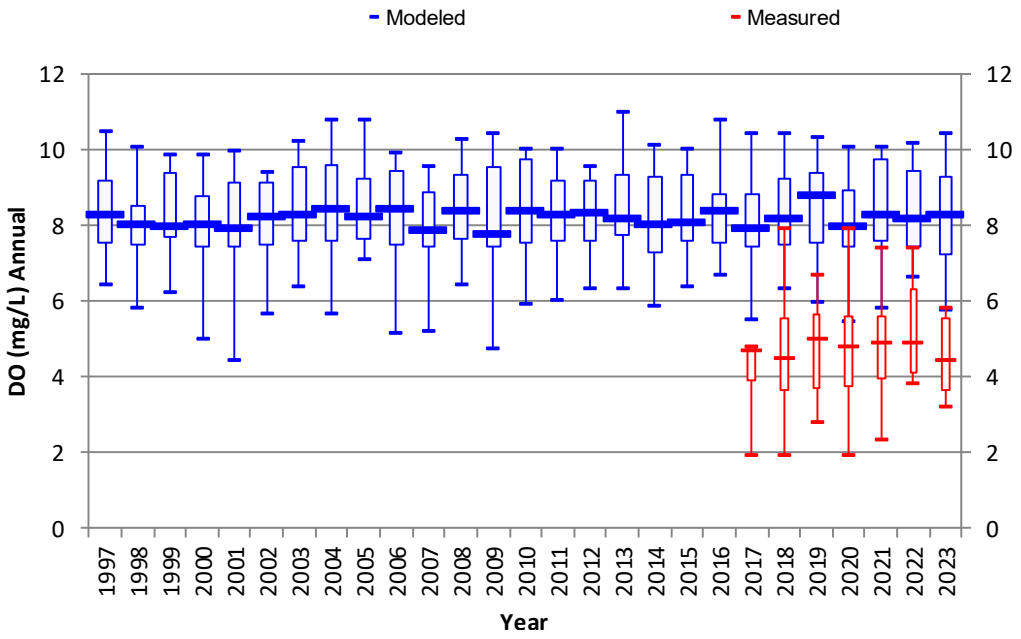


Figure C-152 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH124 Owl Creek

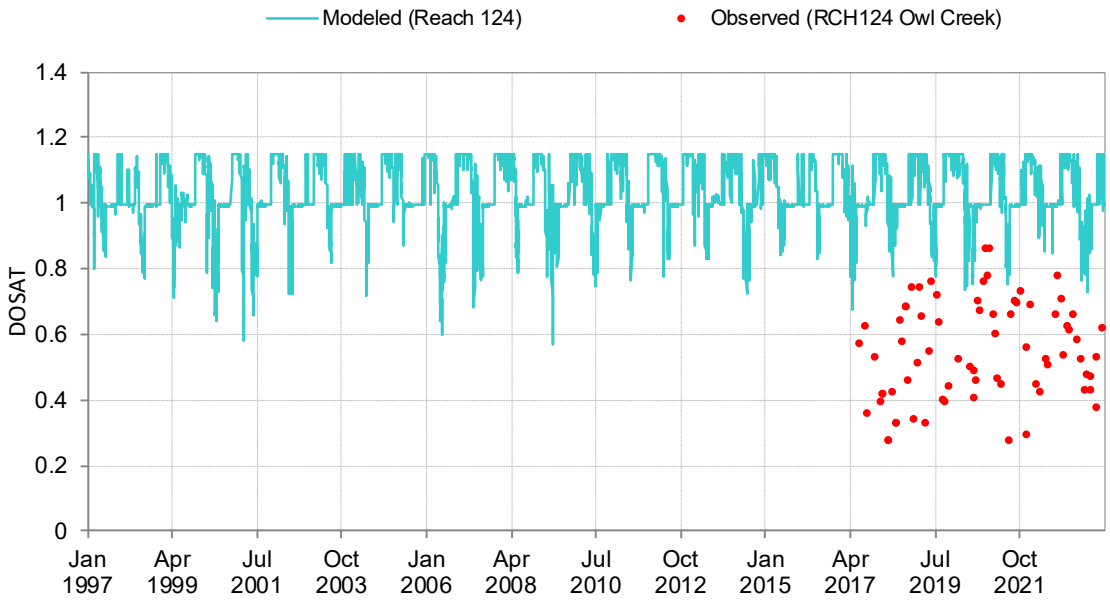


Figure C-153 Modeled Vs Observed DOSAT at RCH124 Owl Creek

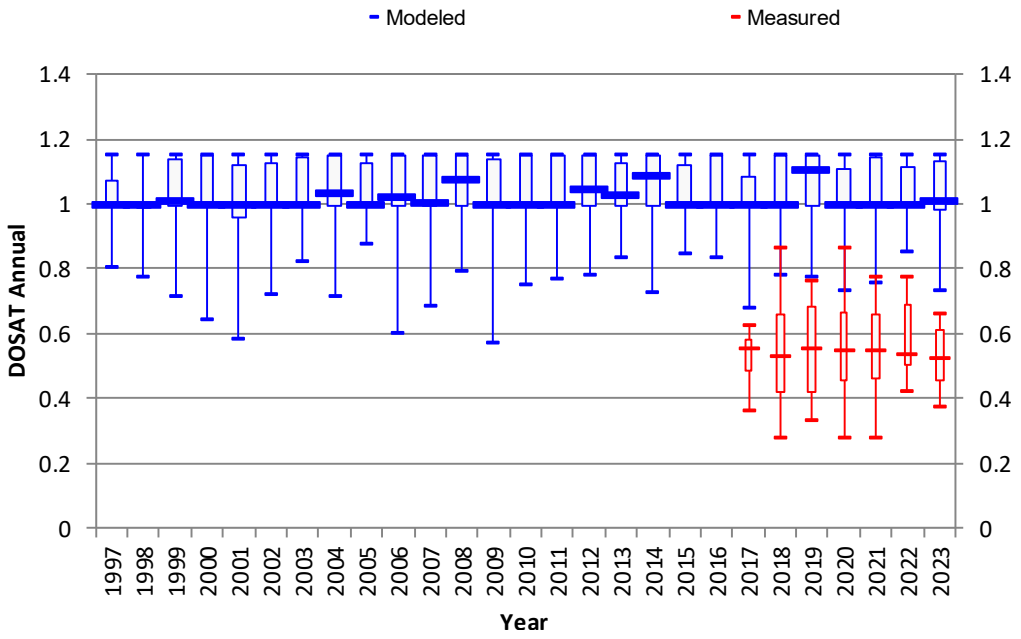


Figure C-154 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH124 Owl Creek

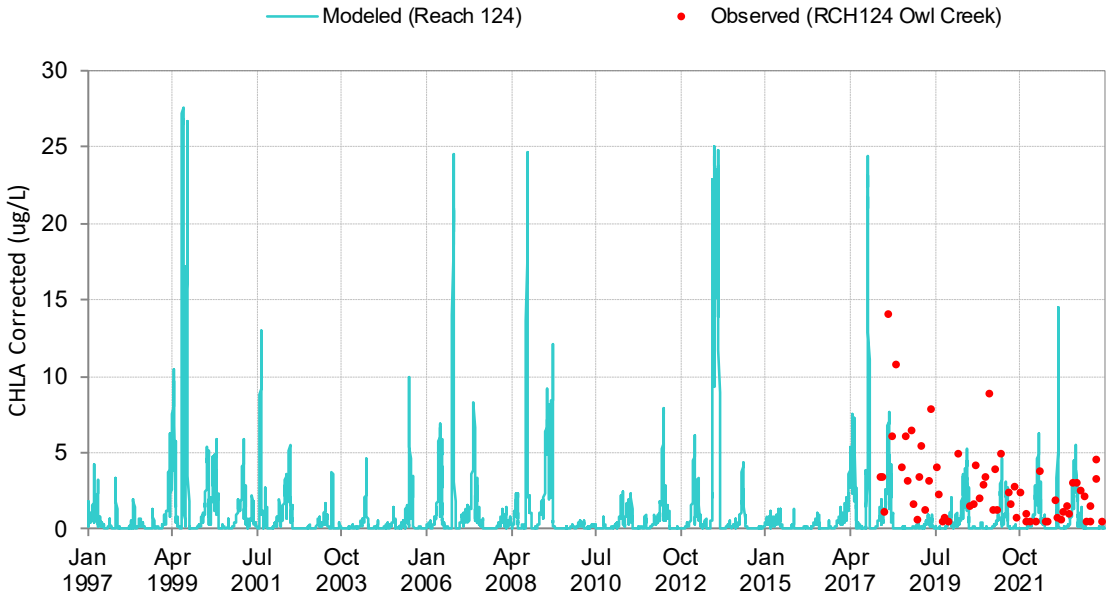


Figure C-155 Modeled Vs Observed CHLA Corrected (ug/L) at RCH124 Owl Creek

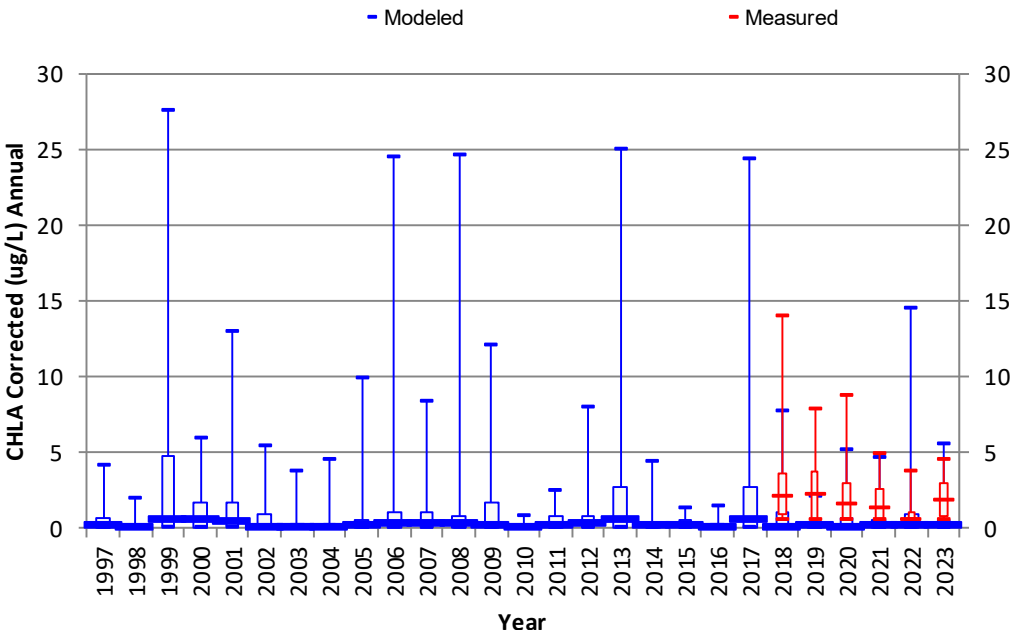


Figure C-156 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH124 Owl Creek

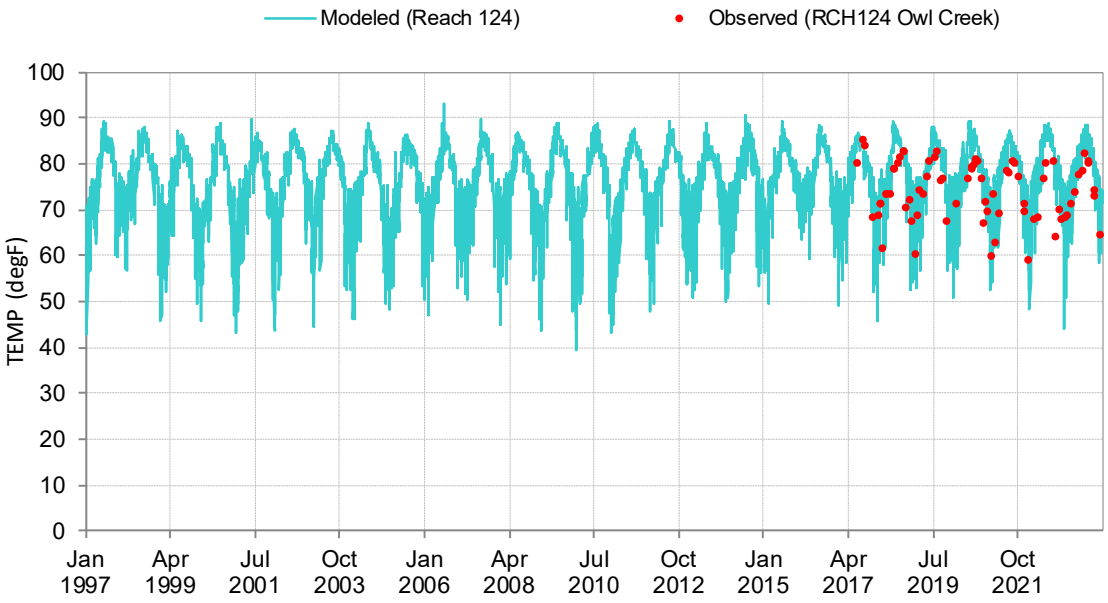


Figure C-157 Modeled Vs Observed TEMP (deg F) at RCH124 Owl Creek

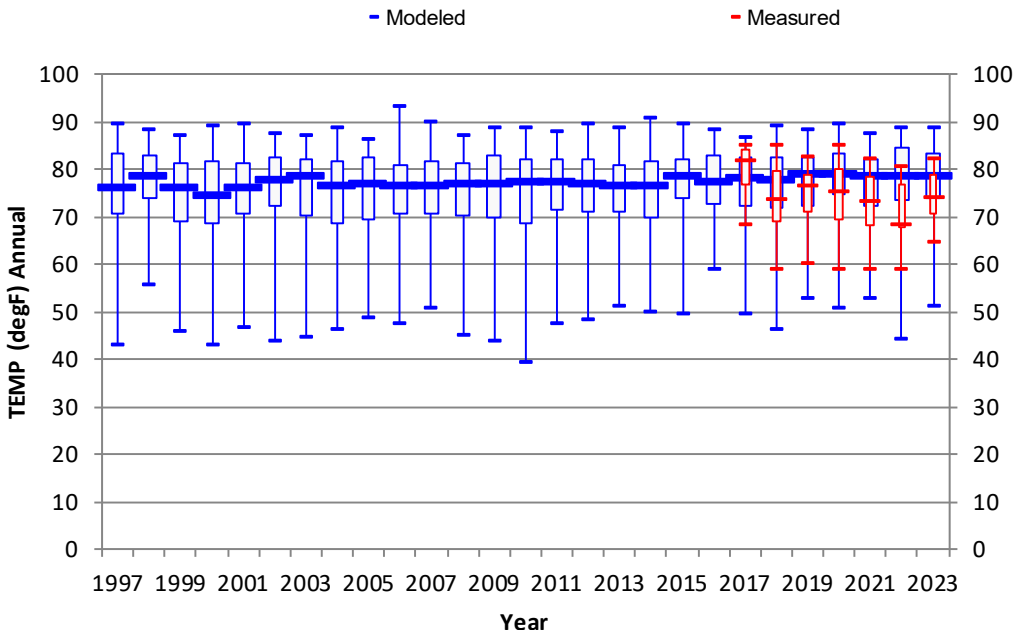


Figure C-158 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH124 Owl Creek

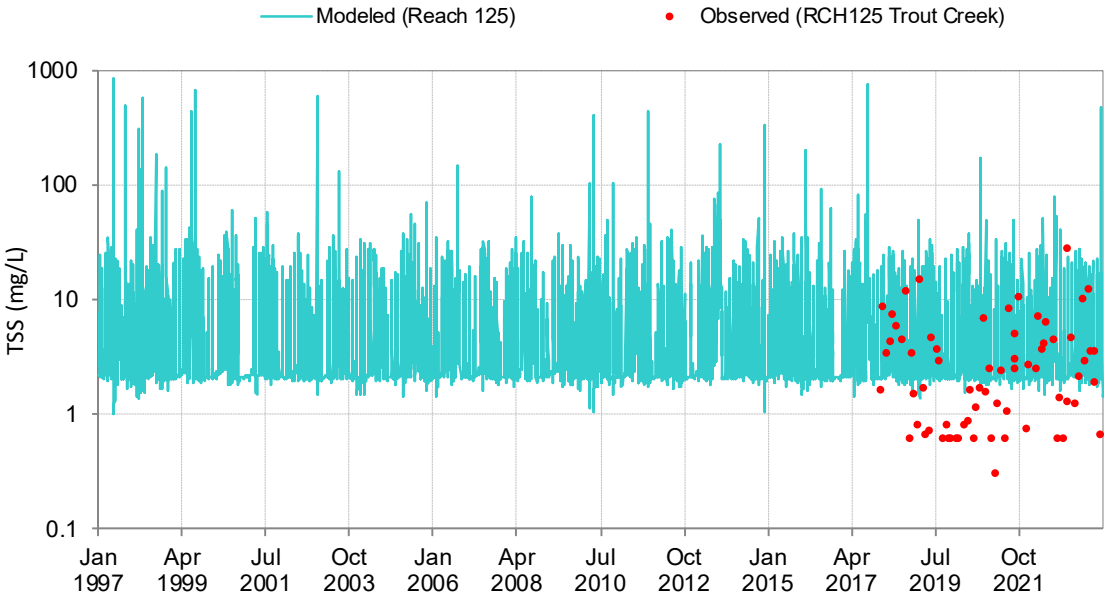


Figure C-159 Modeled Vs Observed TSS (mg/L) at RCH125 Trout Creek

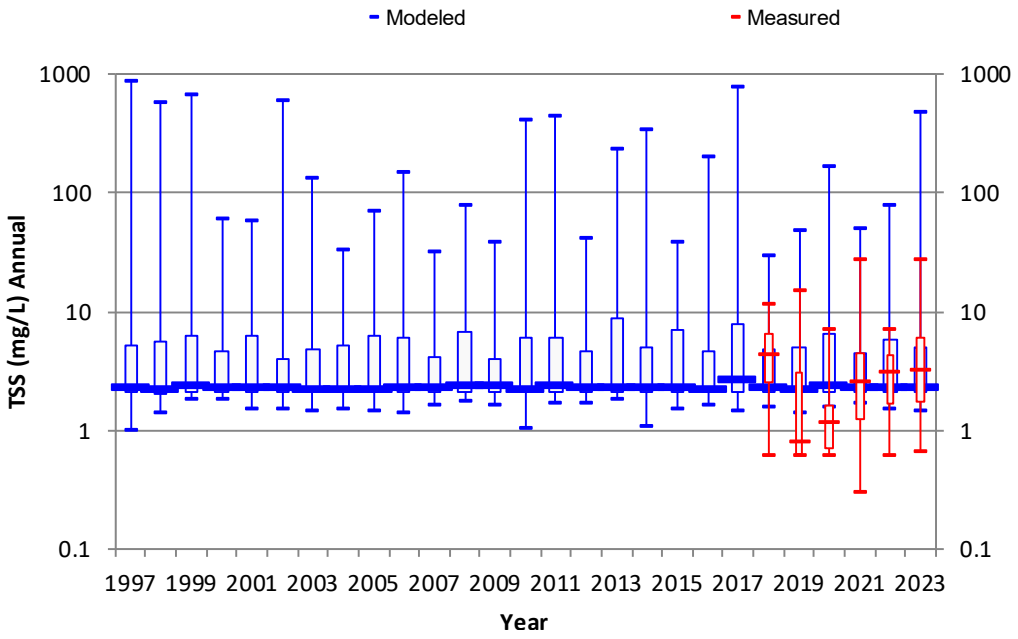


Figure C-160 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH125 Trout Creek

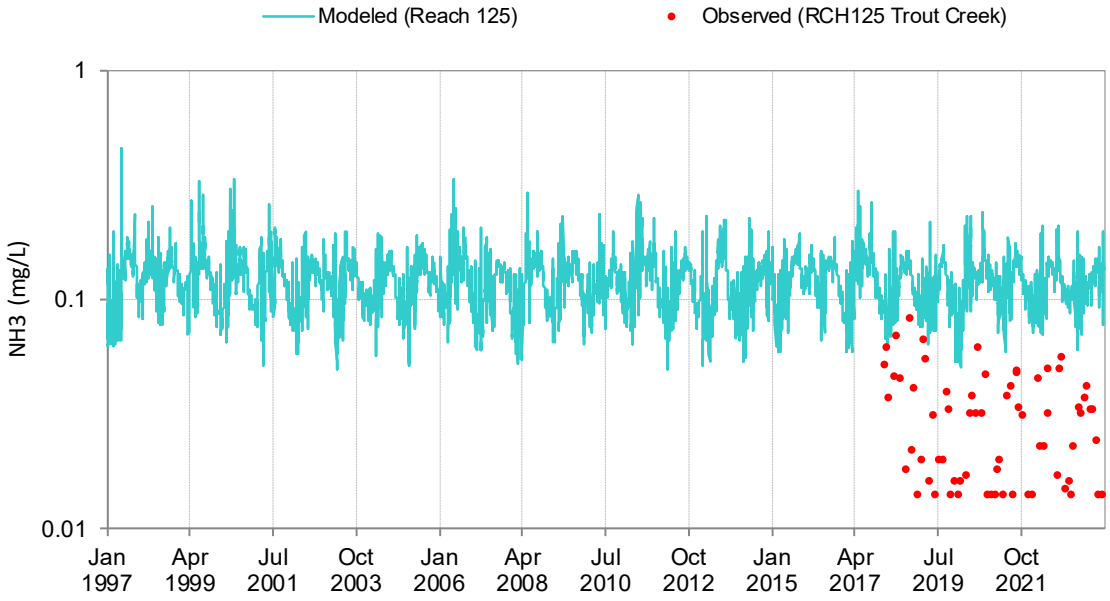


Figure C-161 Modeled Vs Observed NH3 (mg/L) at RCH125 Trout Creek

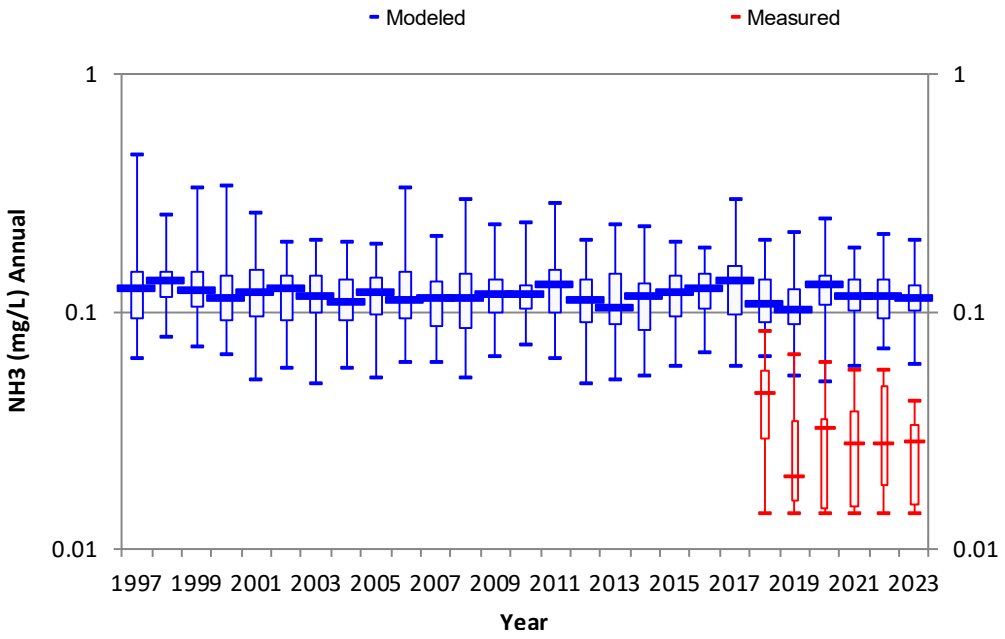


Figure C-162 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH125 Trout Creek

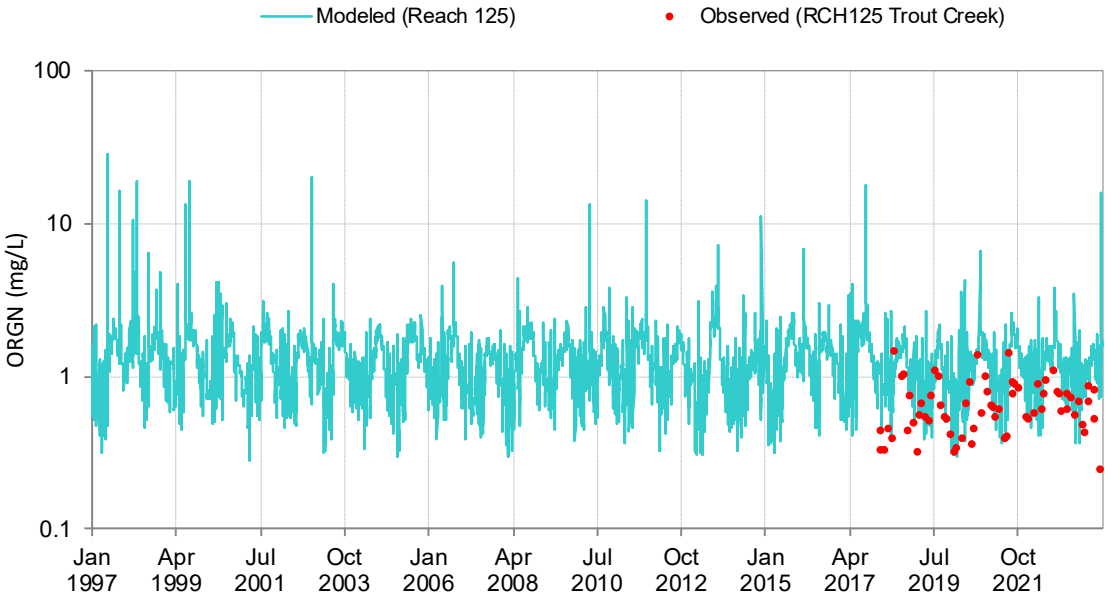


Figure C-163 Modeled Vs Observed ORGN (mg/L) at RCH125 Trout Creek

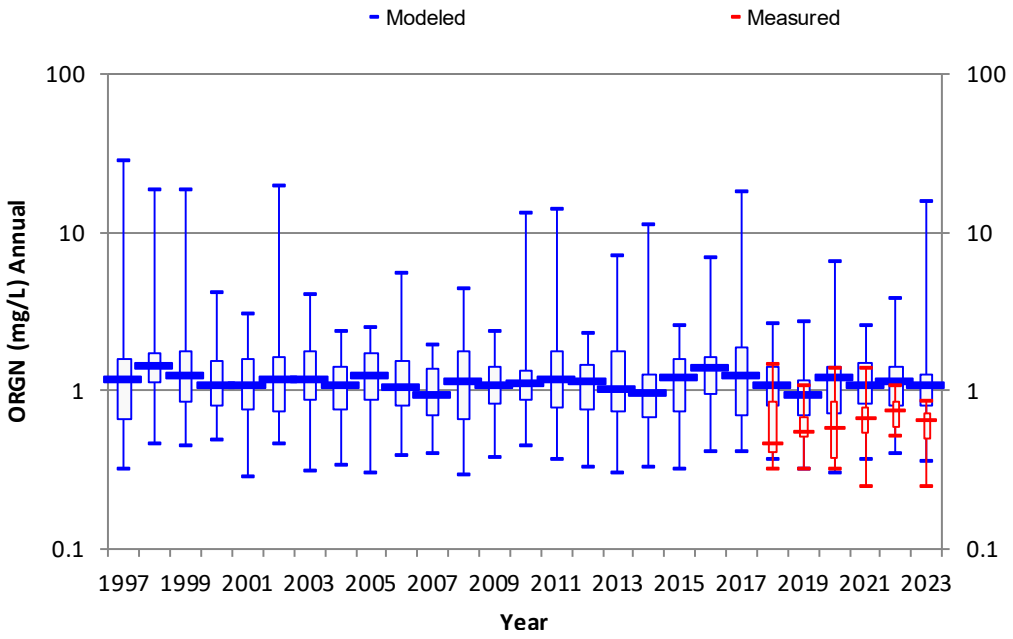


Figure C-164 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH125 Trout Creek

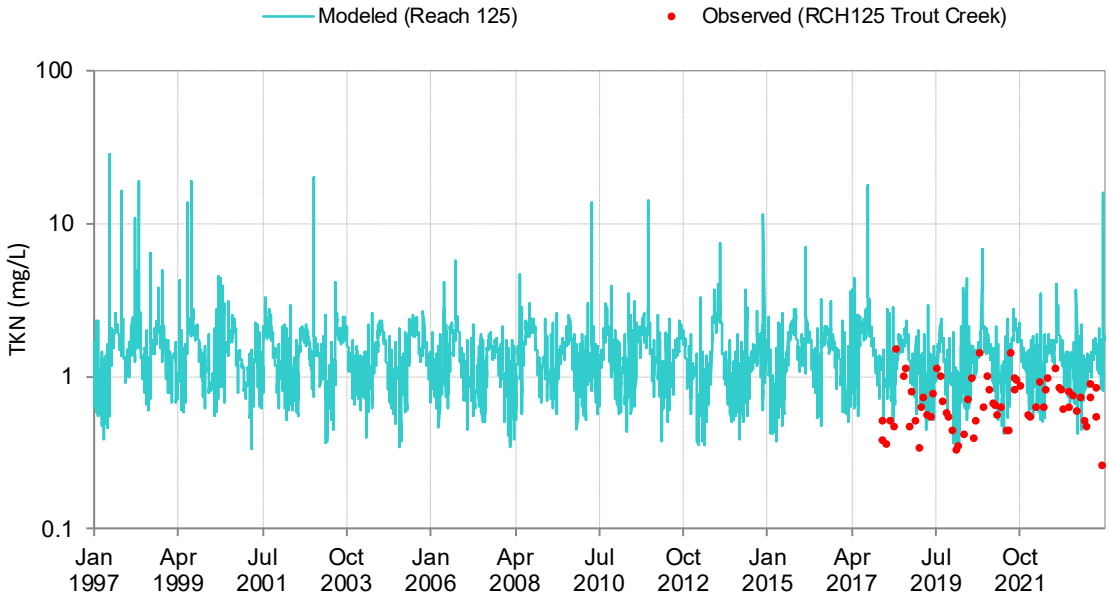


Figure C-165 Modeled Vs Observed TKN (mg/L) at RCH125 Trout Creek

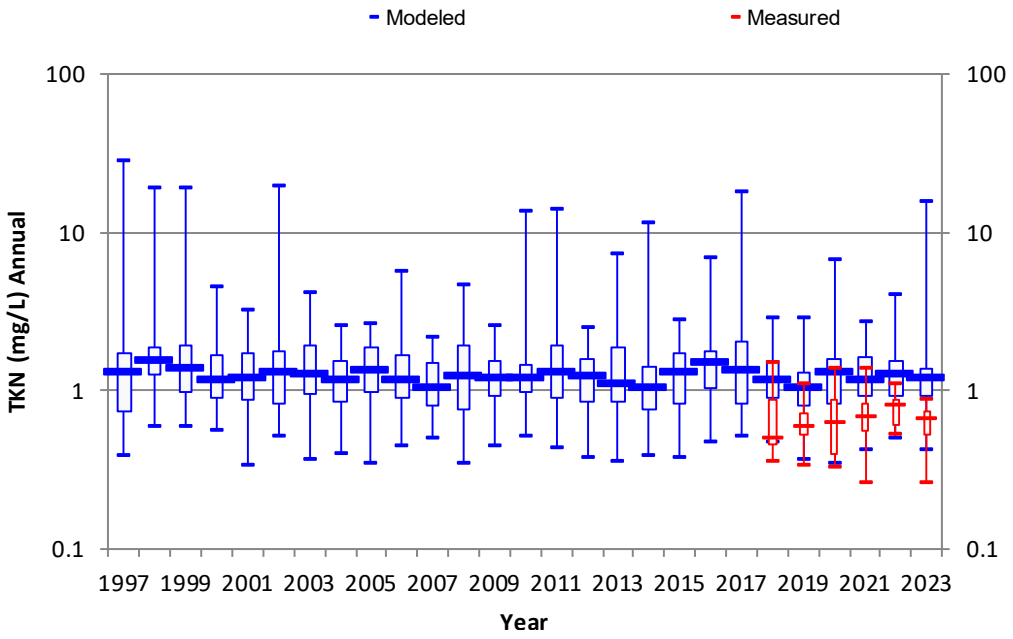


Figure C-166 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH125 Trout Creek

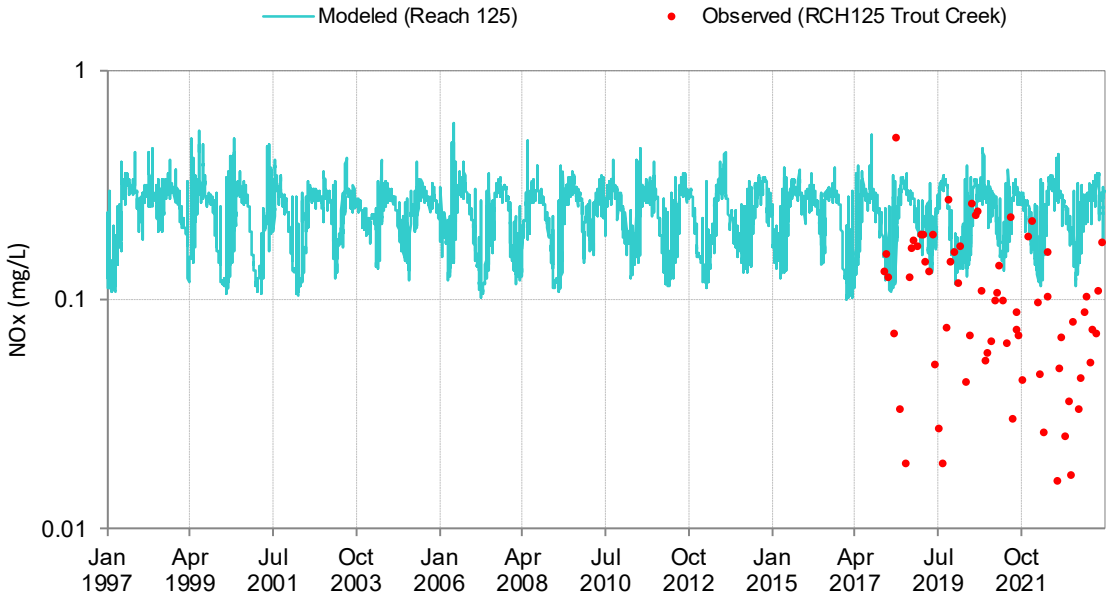


Figure C-167 Modeled Vs Observed NOx (mg/L) at RCH125 Trout Creek

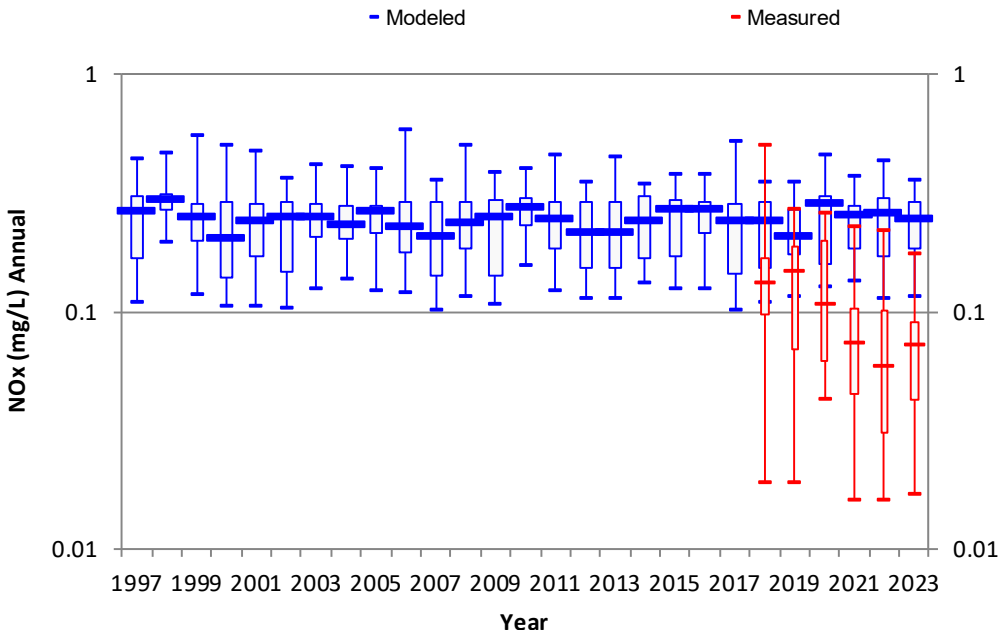


Figure C-168 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH125 Trout Creek

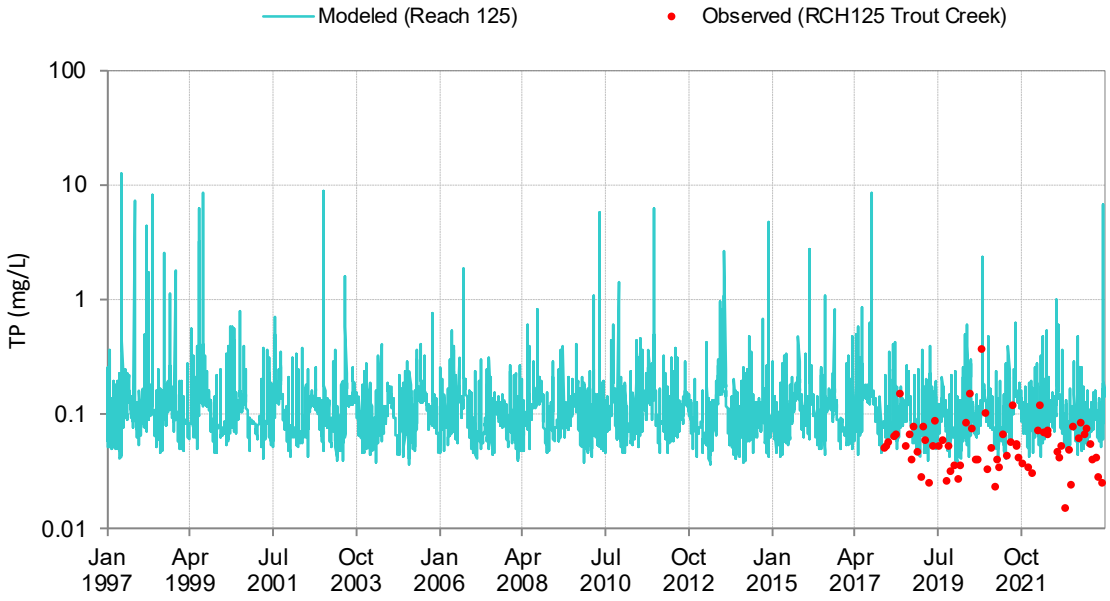


Figure C-169 Modeled Vs Observed TP (mg/L) at RCH125 Trout Creek

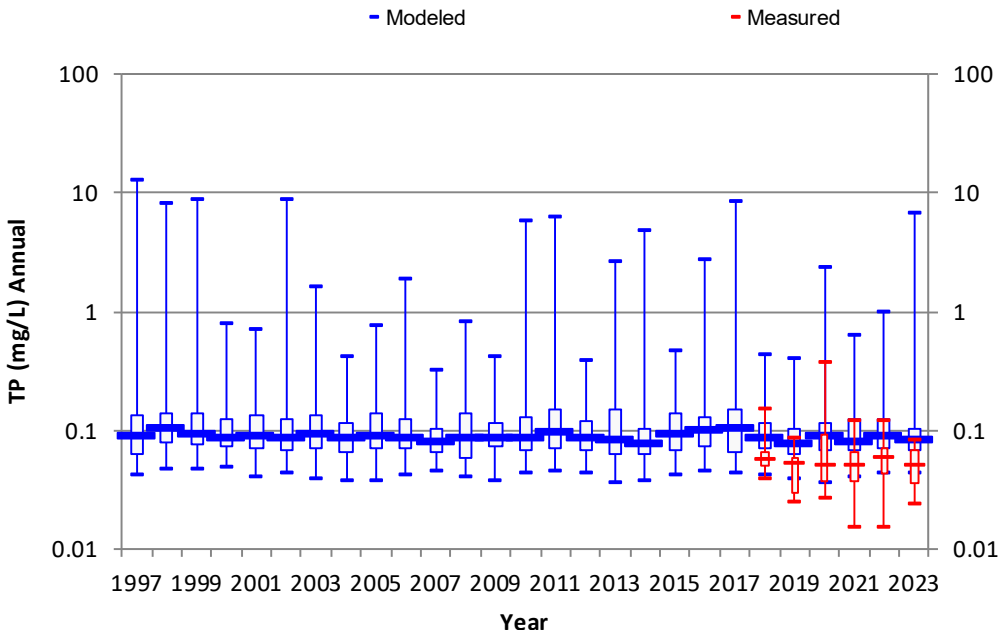


Figure C-170 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH125 Trout Creek

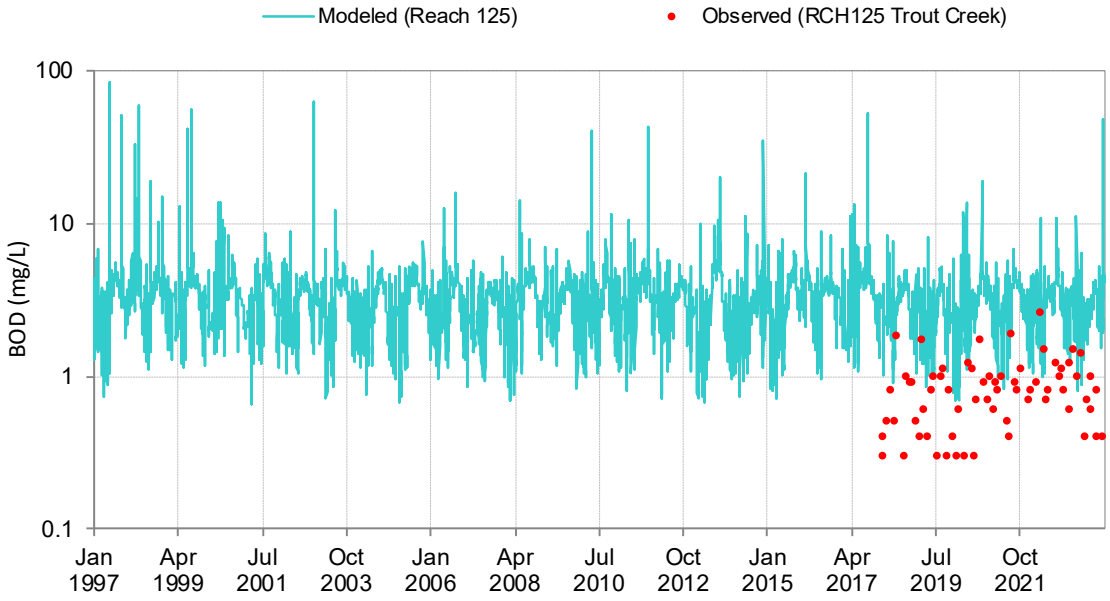


Figure C-171 Modeled Vs Observed BOD (mg/L) at RCH125 Trout Creek

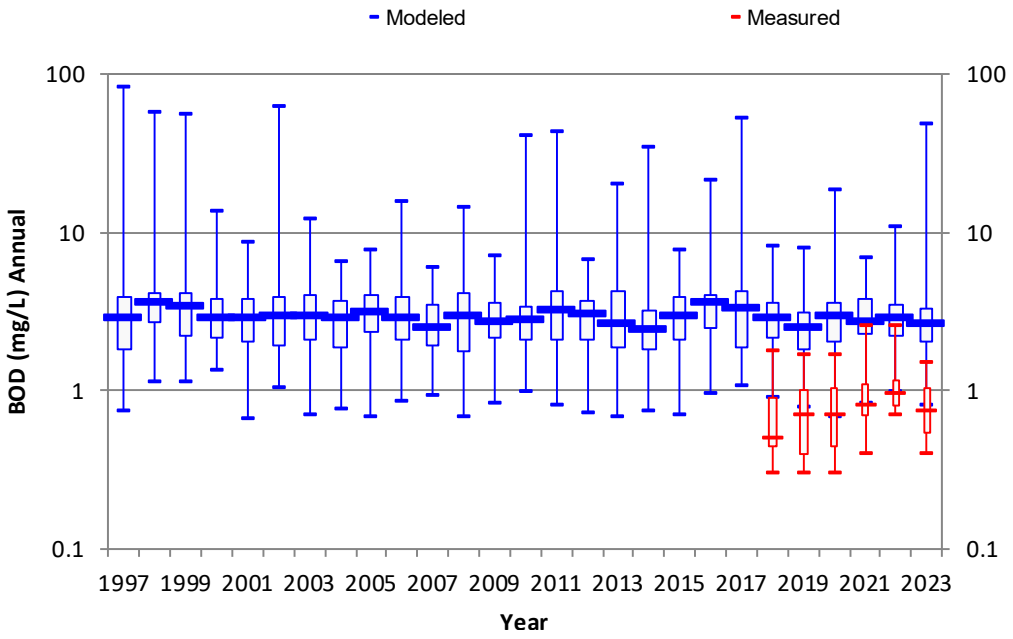


Figure C-172 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH125 Trout Creek

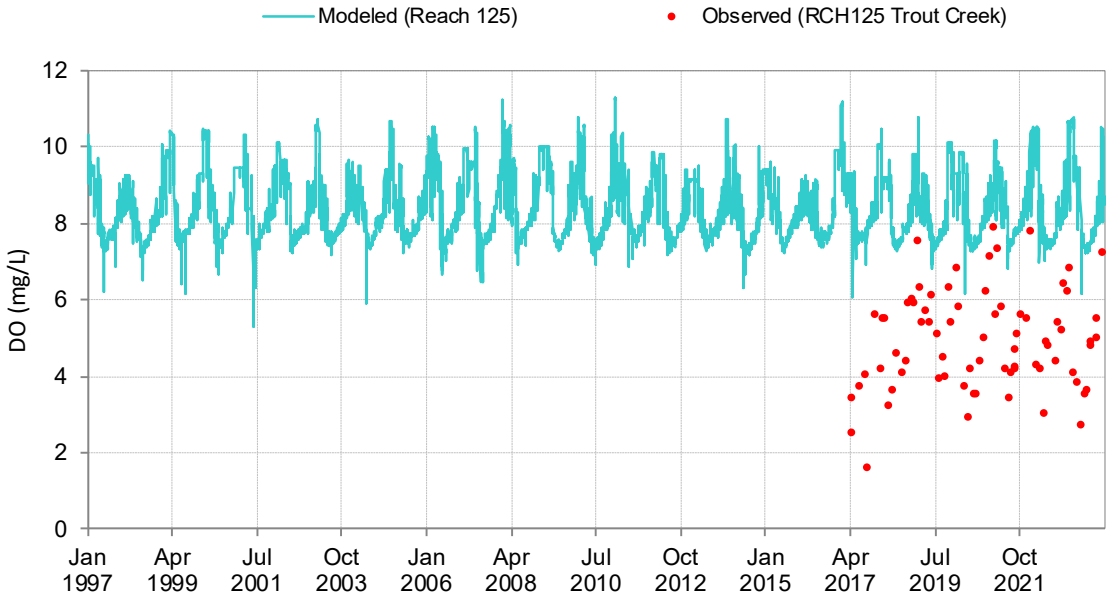


Figure C-173 Modeled Vs Observed DO (mg/L) at RCH125 Trout Creek

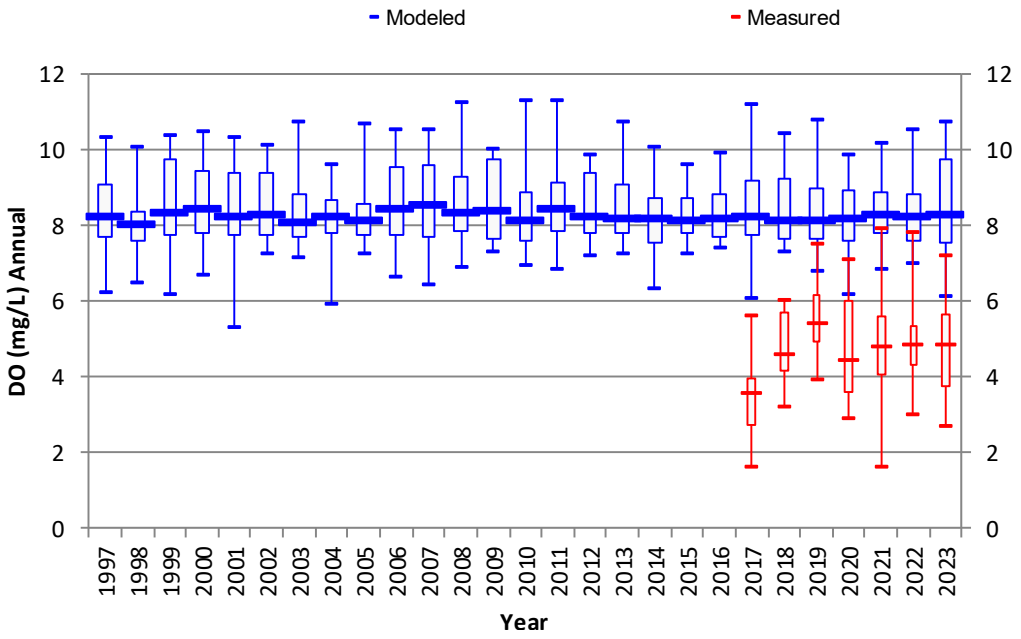


Figure C-174 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH125 Trout Creek

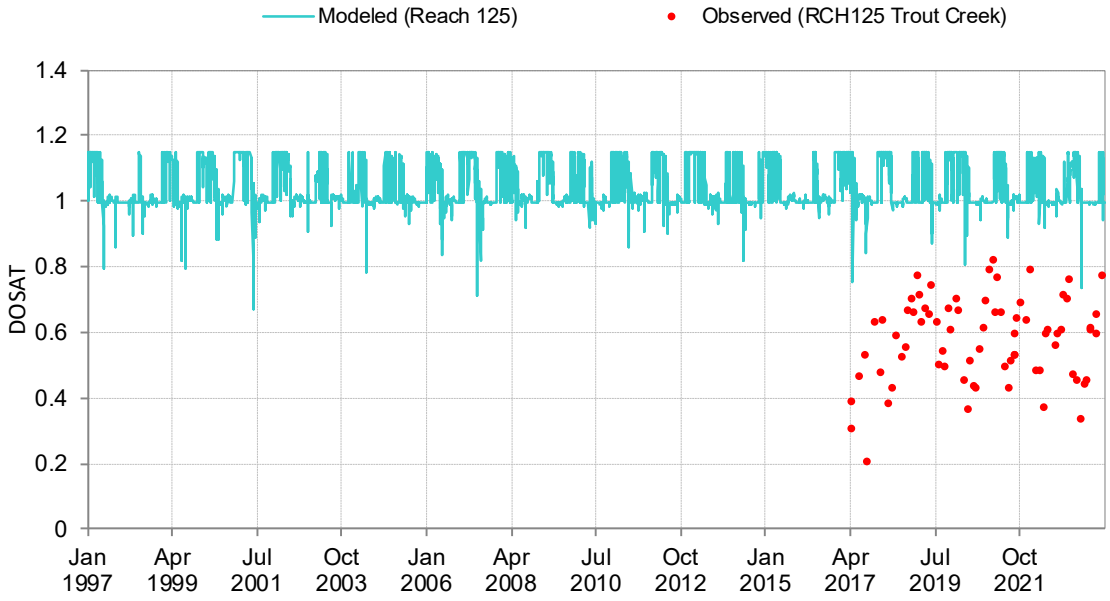


Figure C-175 Modeled Vs Observed DOSAT at RCH125 Trout Creek

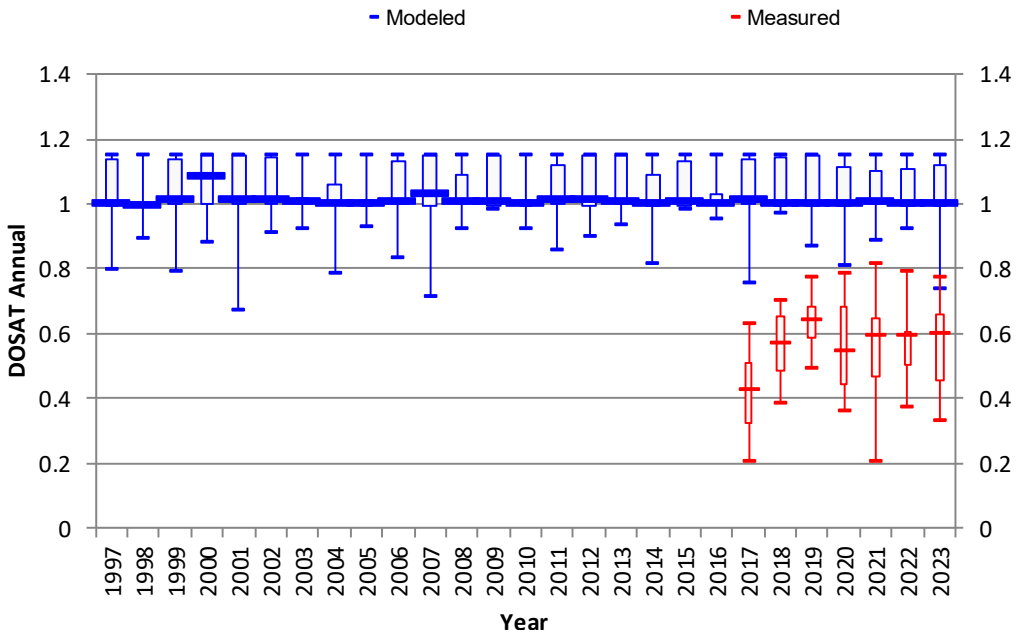


Figure C-176 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH125 Trout Creek

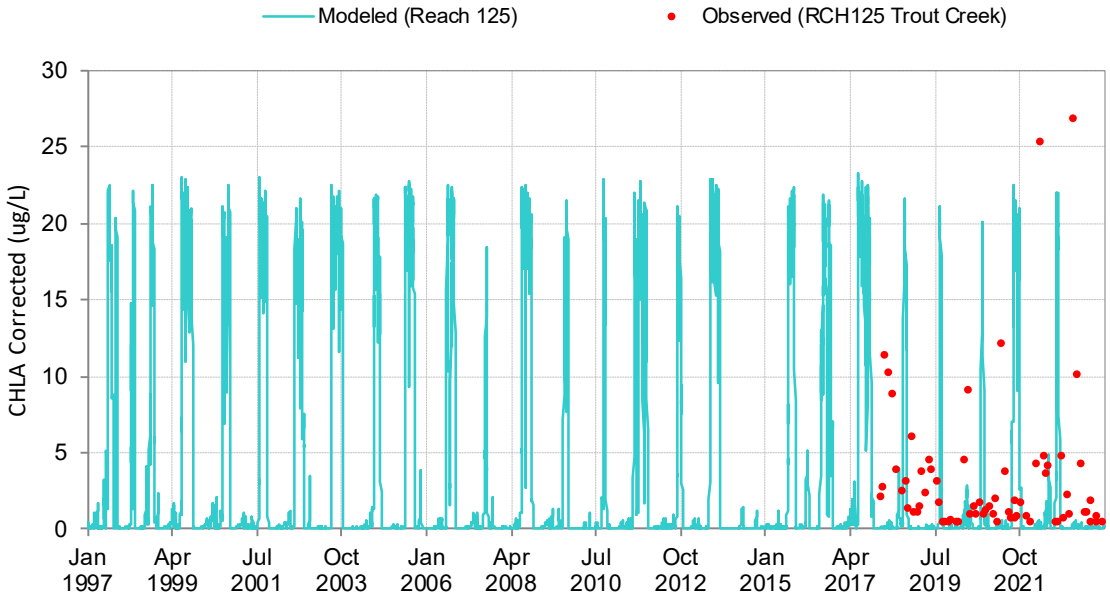


Figure C-177 Modeled Vs Observed CHLA Corrected (ug/L) at RCH125 Trout Creek

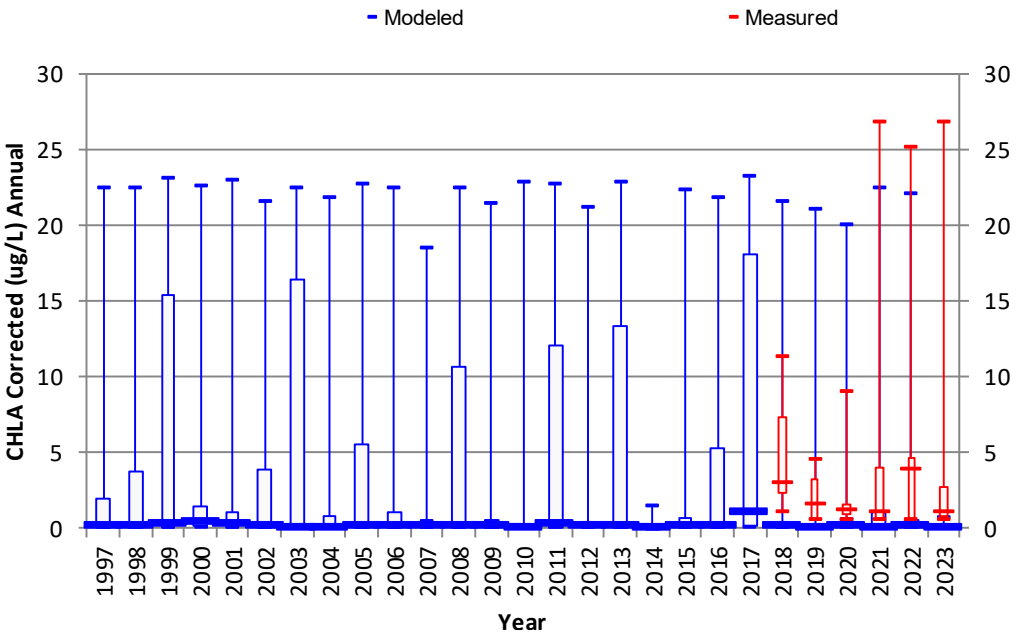


Figure C-178 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH125 Trout Creek

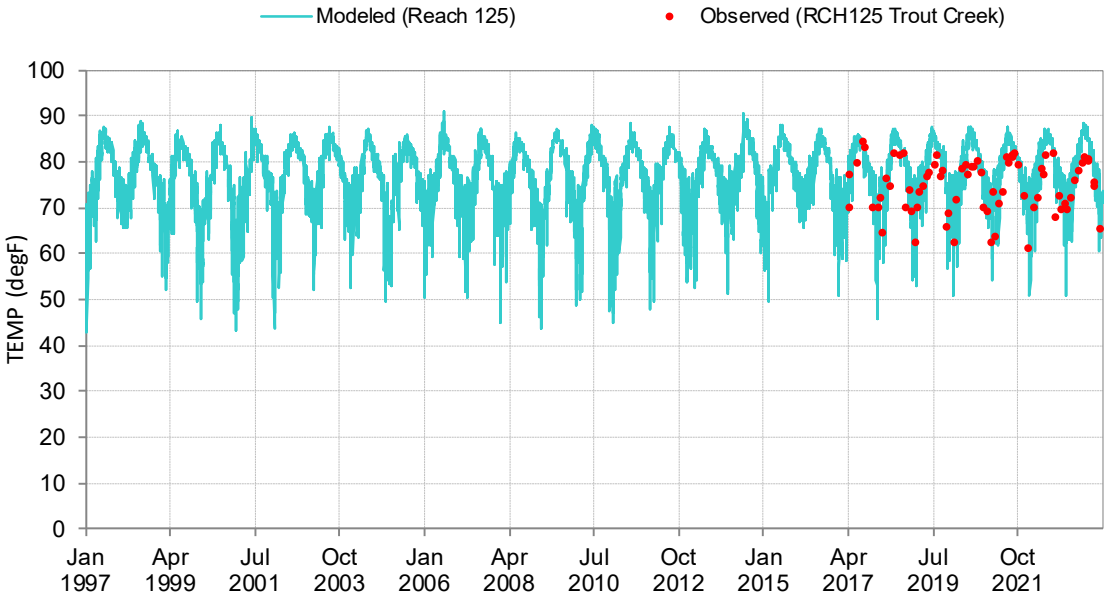


Figure C-179 Modeled Vs Observed TEMP (deg F) at RCH125 Trout Creek

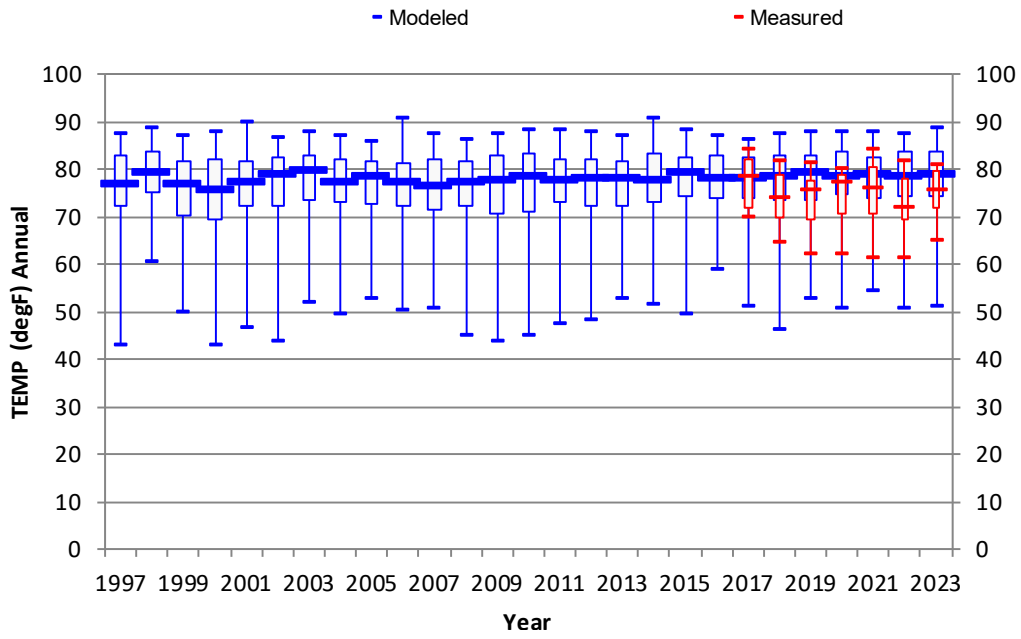


Figure C-180 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH125 Trout Creek

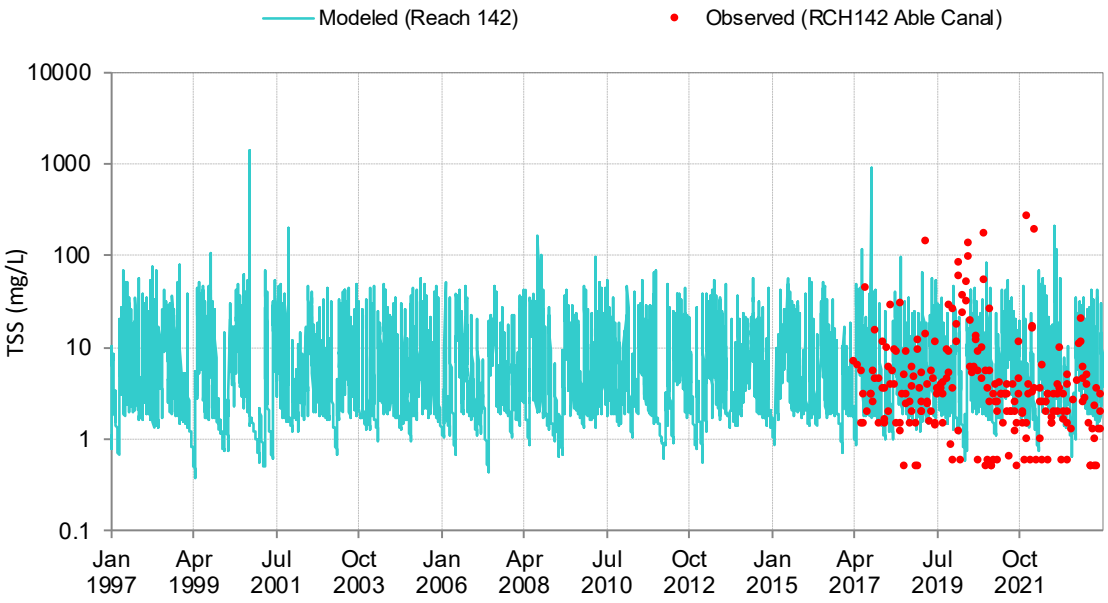


Figure C-181 Modeled Vs Observed TSS (mg/L) at RCH142 Able Canal

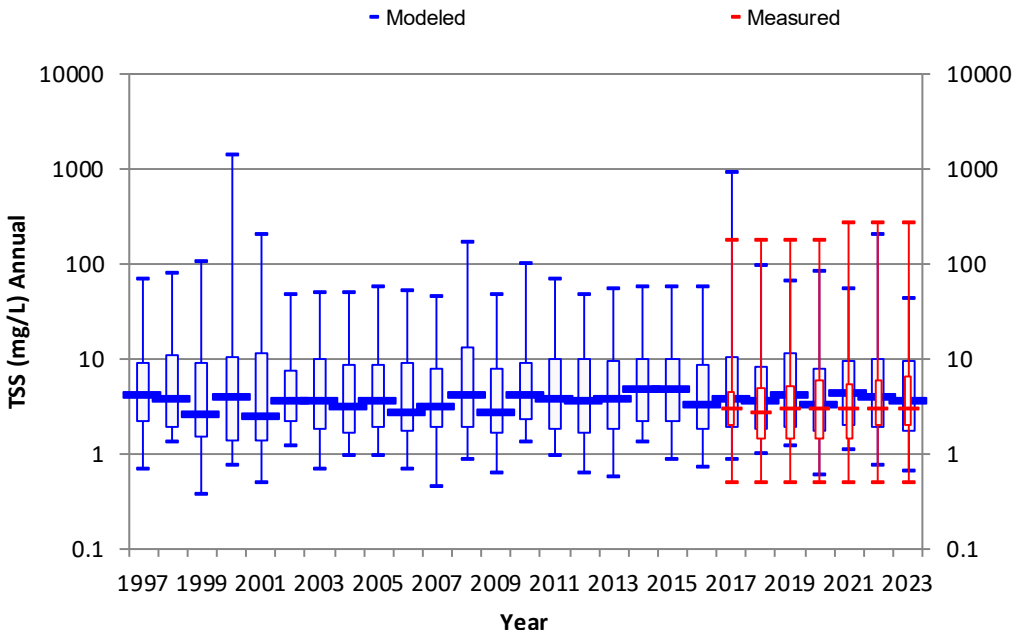


Figure C-182 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH142 Able Canal

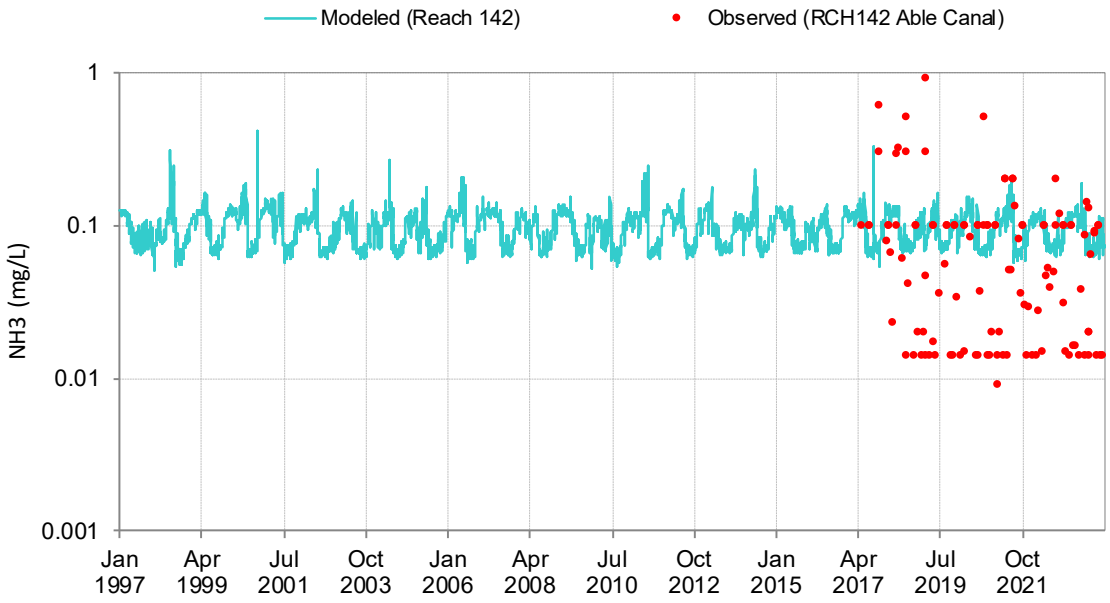


Figure C-183 Modeled Vs Observed NH3 (mg/L) at RCH142 Able Canal

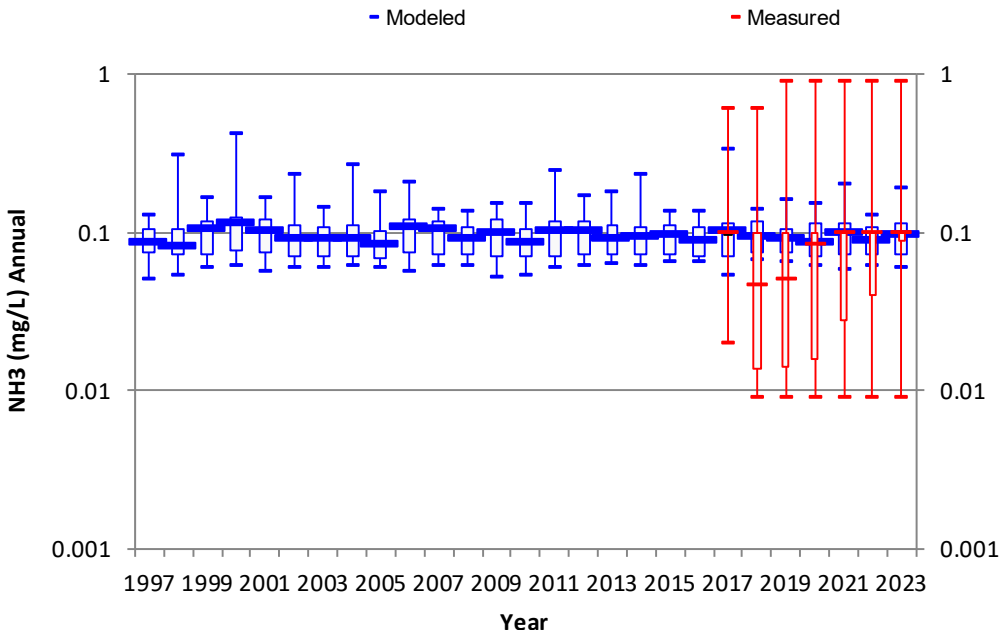


Figure C-184 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH142 Able Canal

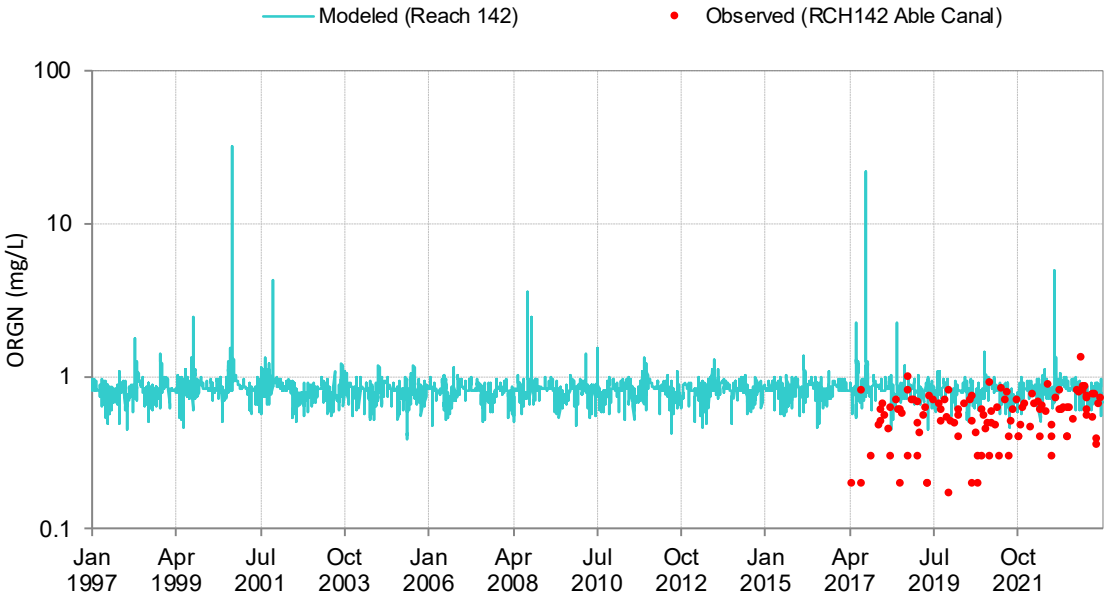


Figure C-185 Modeled Vs Observed ORGN (mg/L) at RCH142 Able Canal

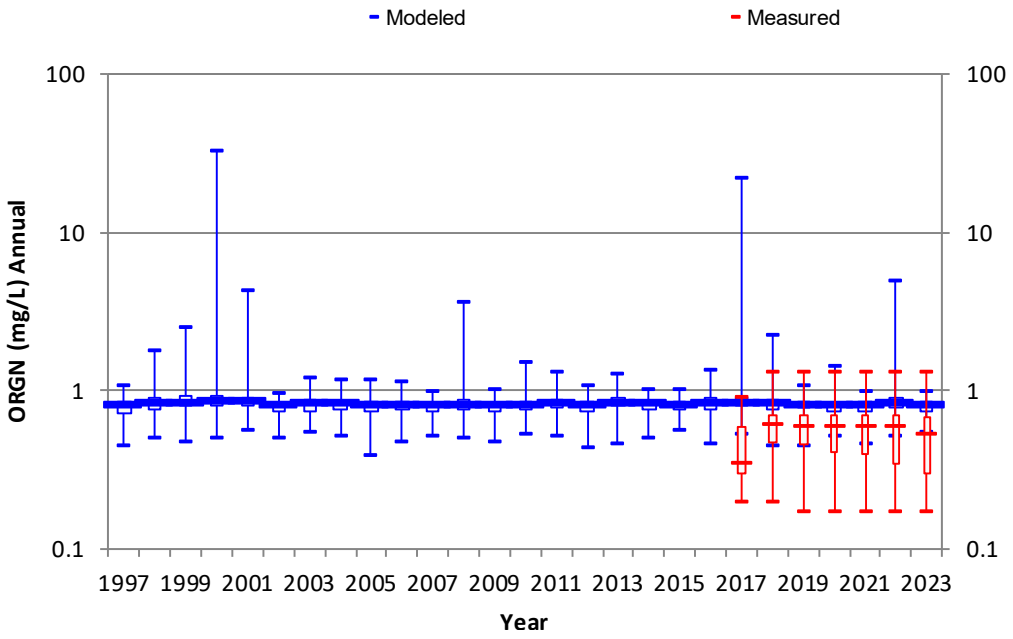


Figure C-186 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH142 Able Canal

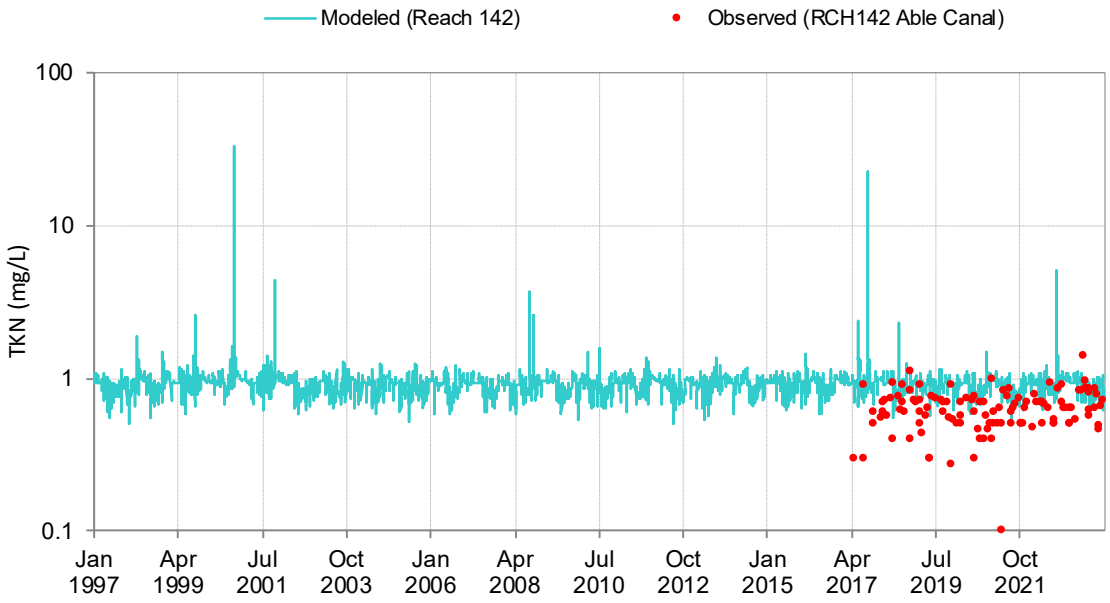


Figure C-187 Modeled Vs Observed TKN (mg/L) at RCH142 Able Canal

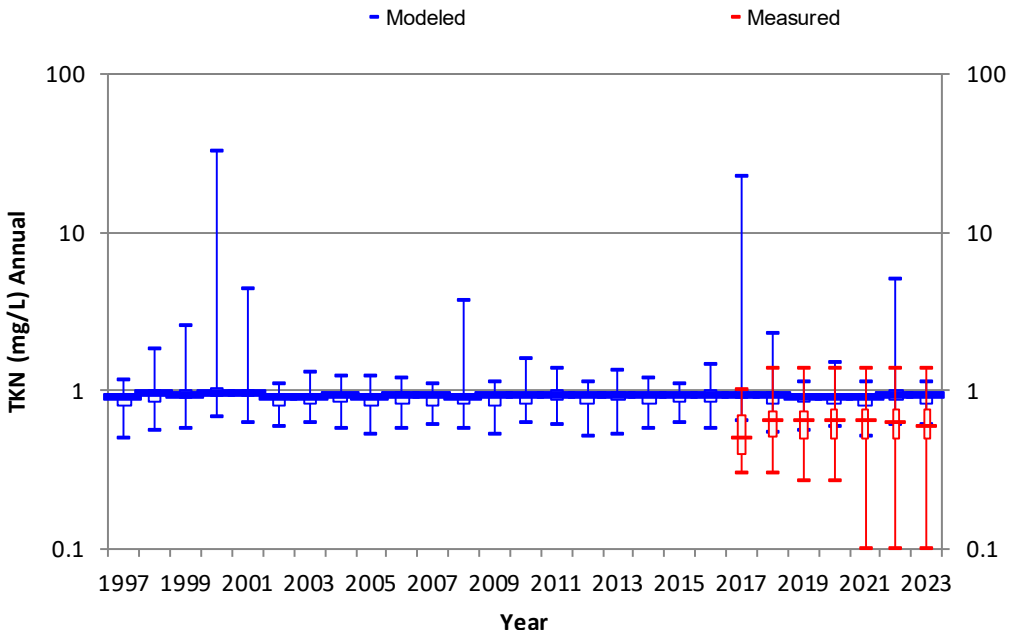


Figure C-188 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH142 Able Canal

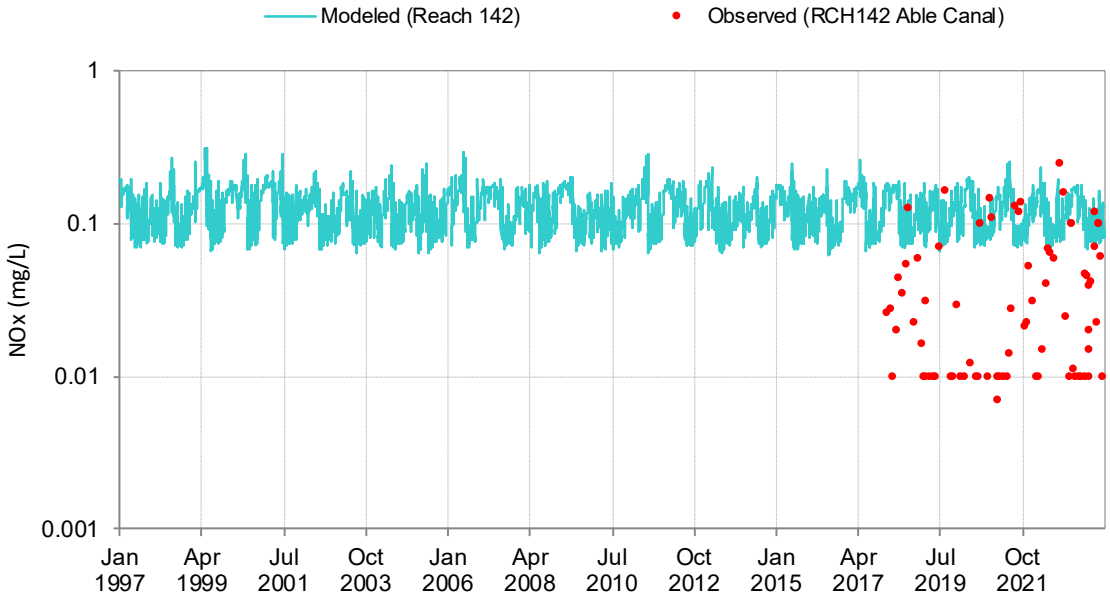


Figure C-189 Modeled Vs Observed NOx (mg/L) at RCH142 Able Canal

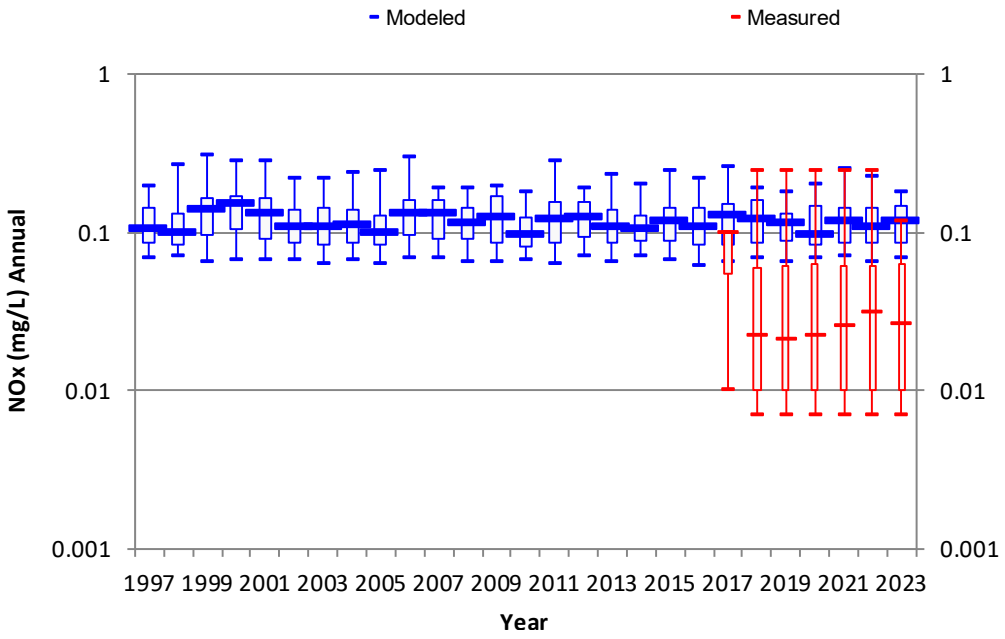


Figure C-190 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH142 Able Canal

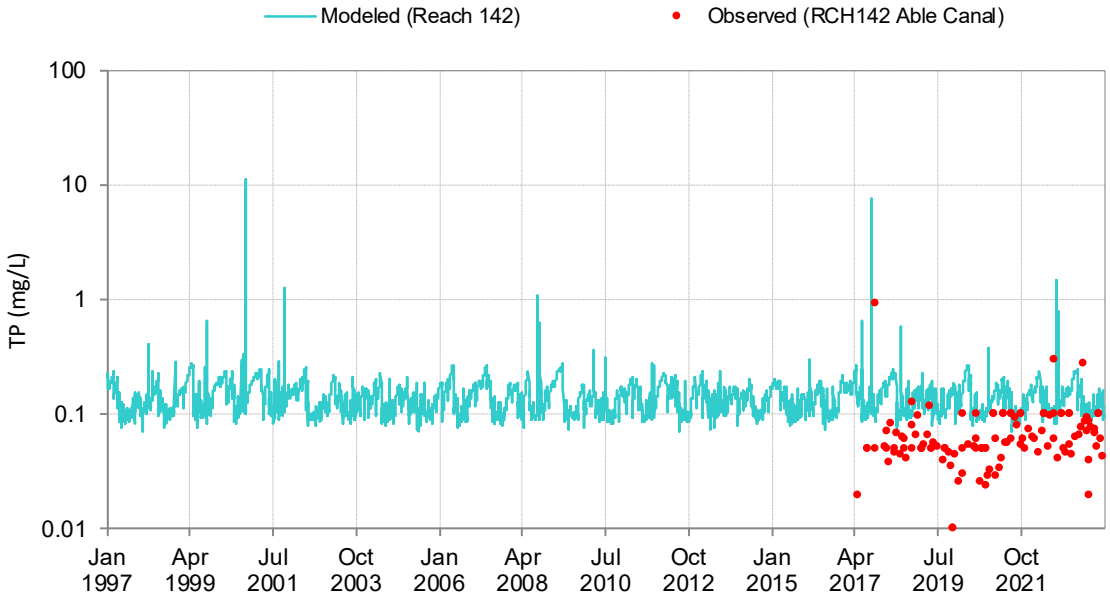


Figure C-191 Modeled Vs Observed TP (mg/L) at RCH142 Able Canal

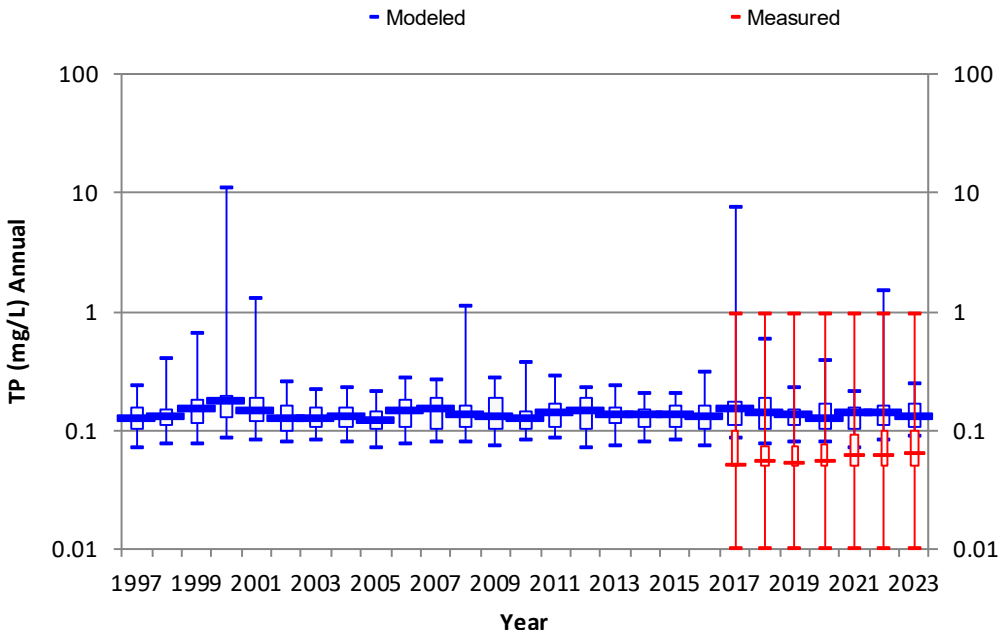


Figure C-192 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH142 Able Canal

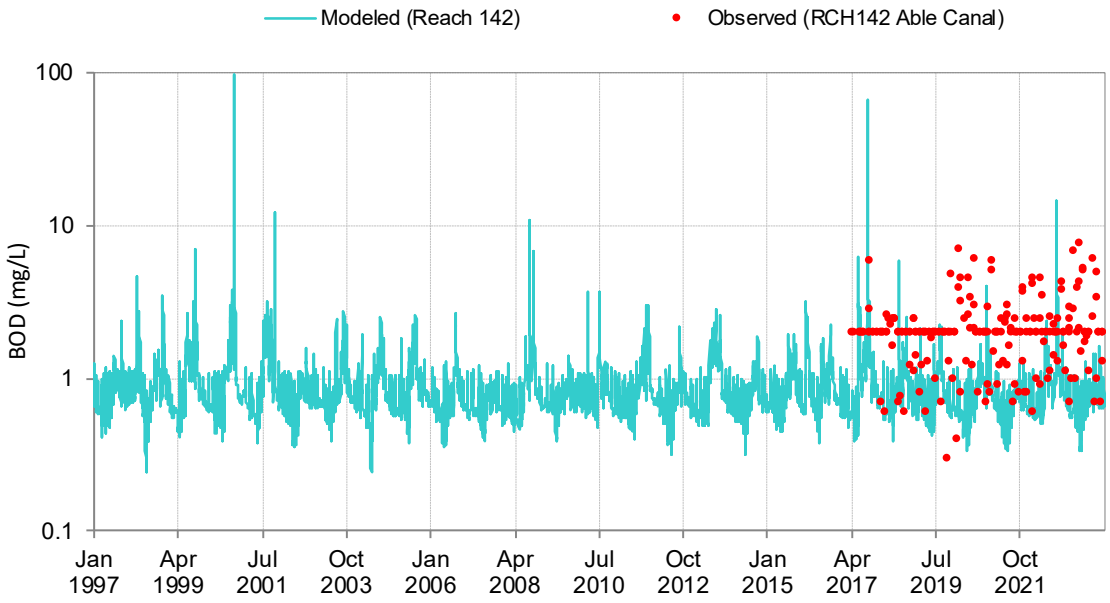


Figure C-193 Modeled Vs Observed BOD (mg/L) at RCH142 Able Canal

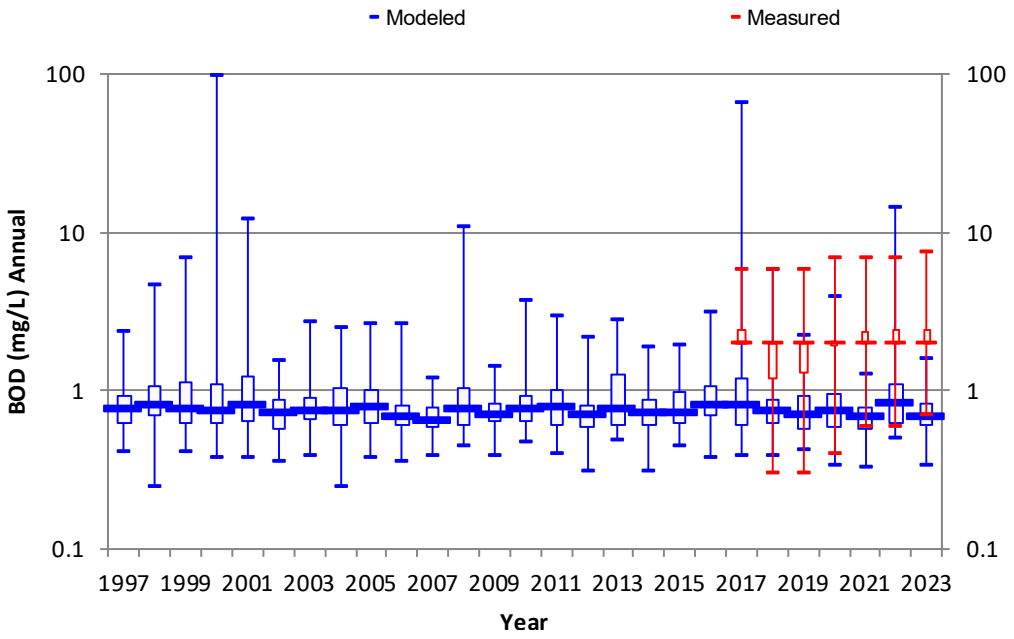


Figure C-194 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH142 Able Canal

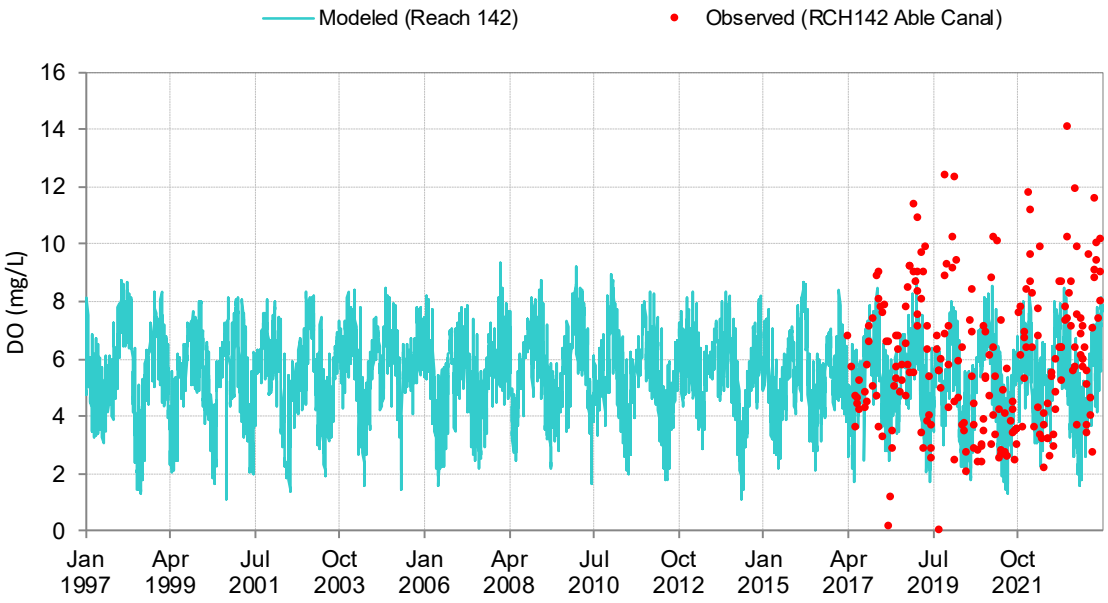


Figure C-195 Modeled Vs Observed DO (mg/L) at RCH142 Able Canal

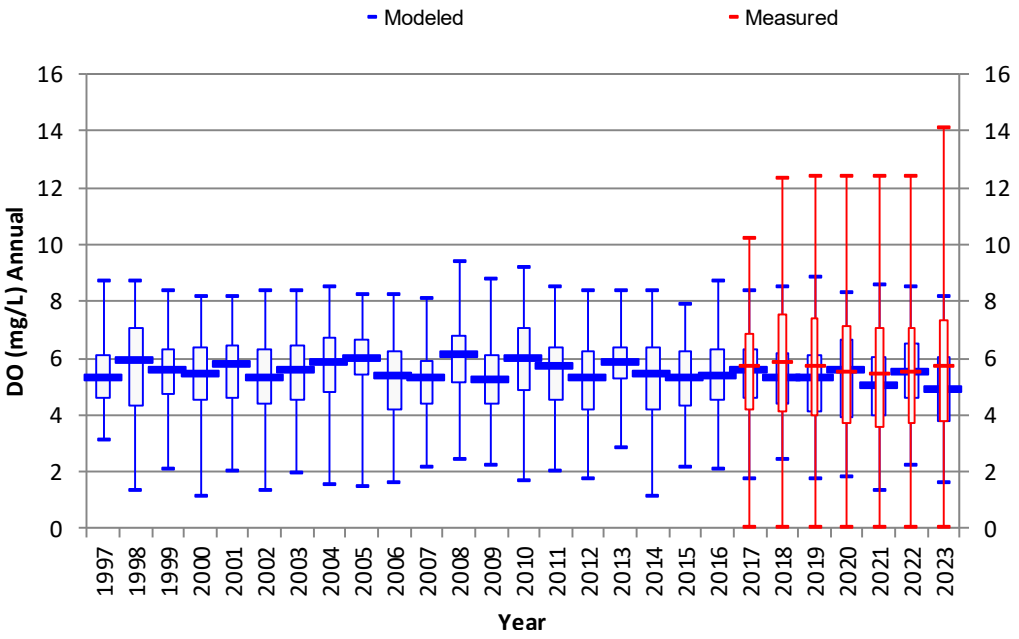


Figure C-196 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH142 Able Canal

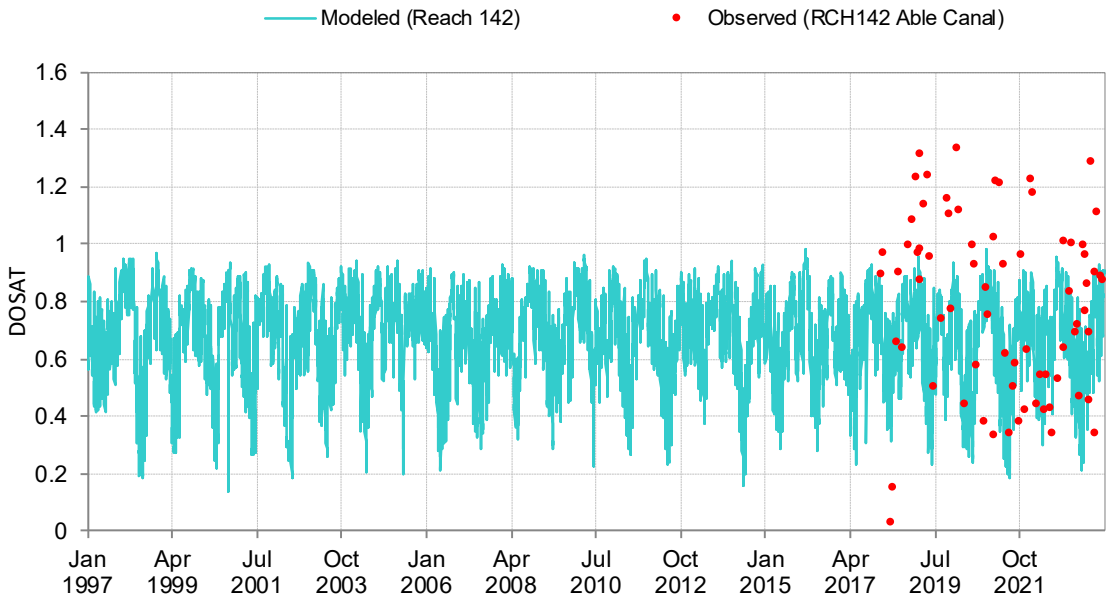


Figure C-197 Modeled Vs Observed DOSAT at RCH142 Able Canal

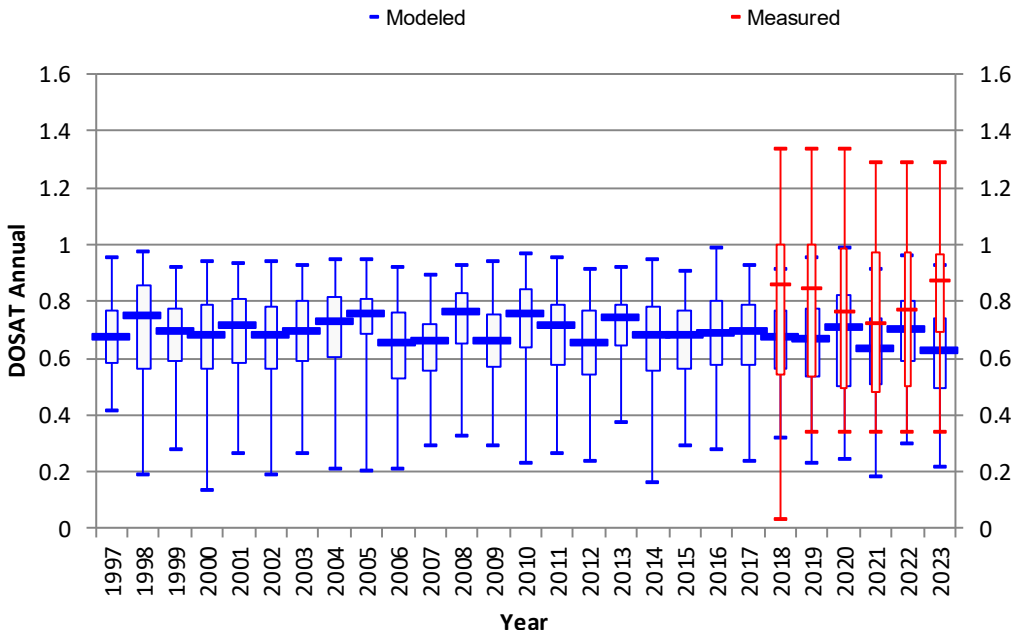


Figure C-198 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH142 Able Canal

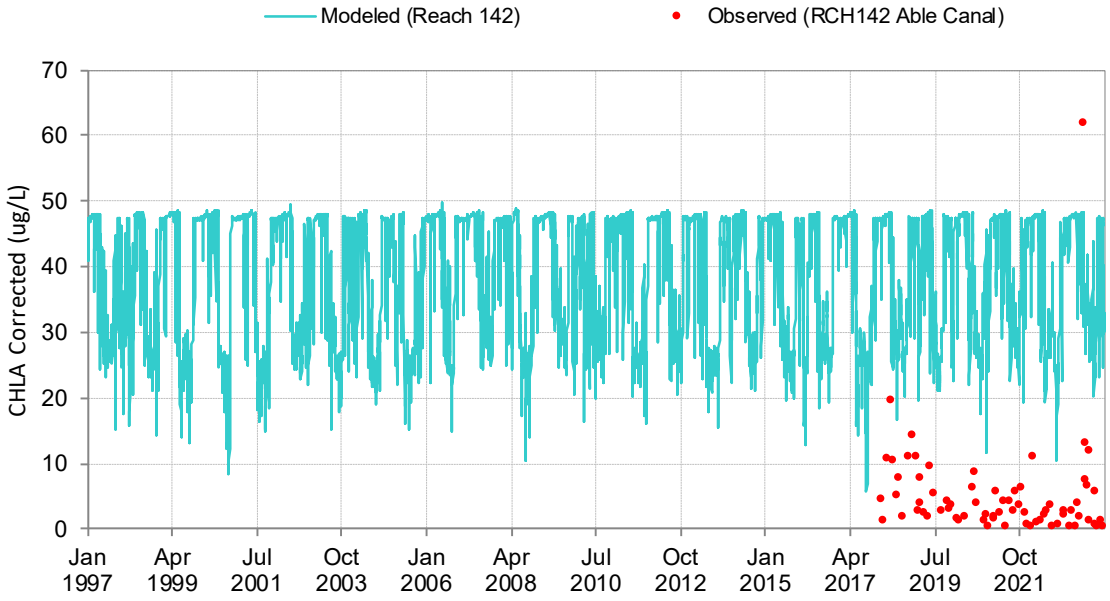


Figure C-199 Modeled Vs Observed CHLA Corrected (ug/L) at RCH142 Able Canal

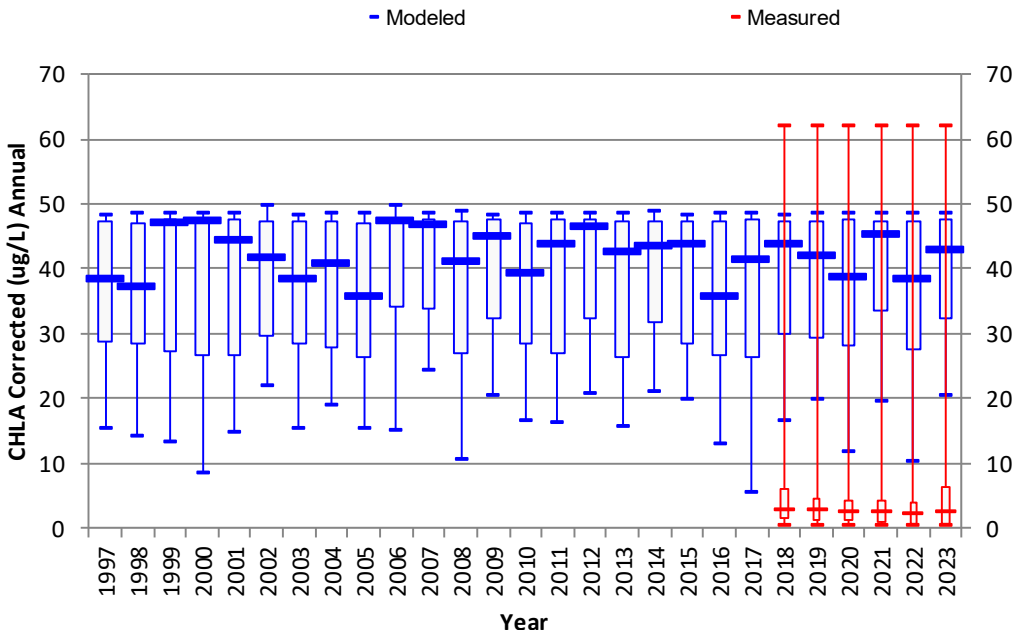


Figure C-200 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH142 Able Canal

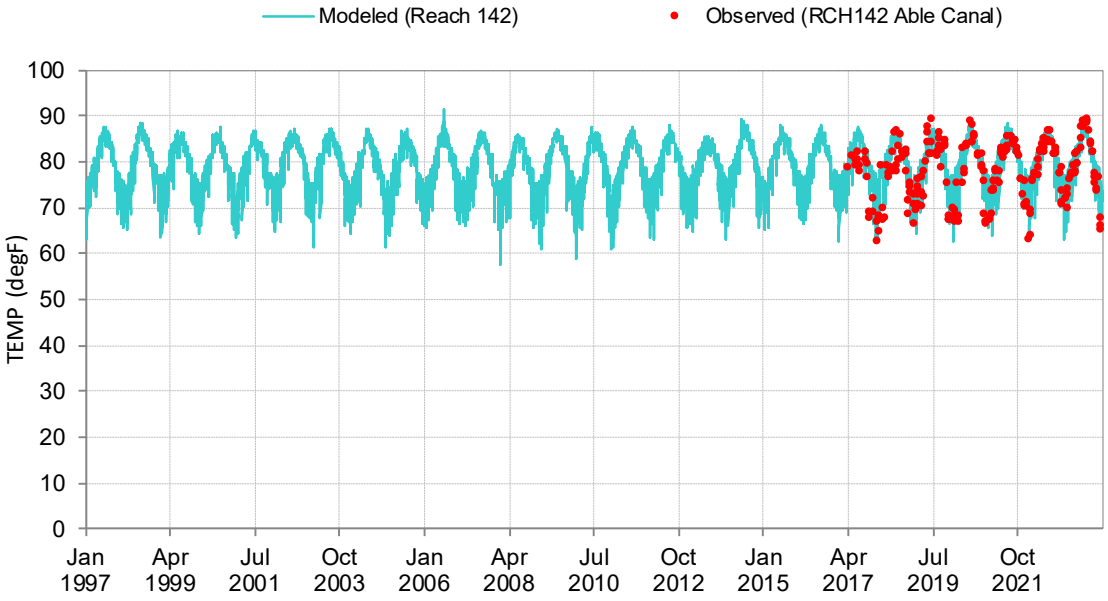


Figure C-201 Modeled Vs Observed TEMP (deg F) at RCH142 Able Canal

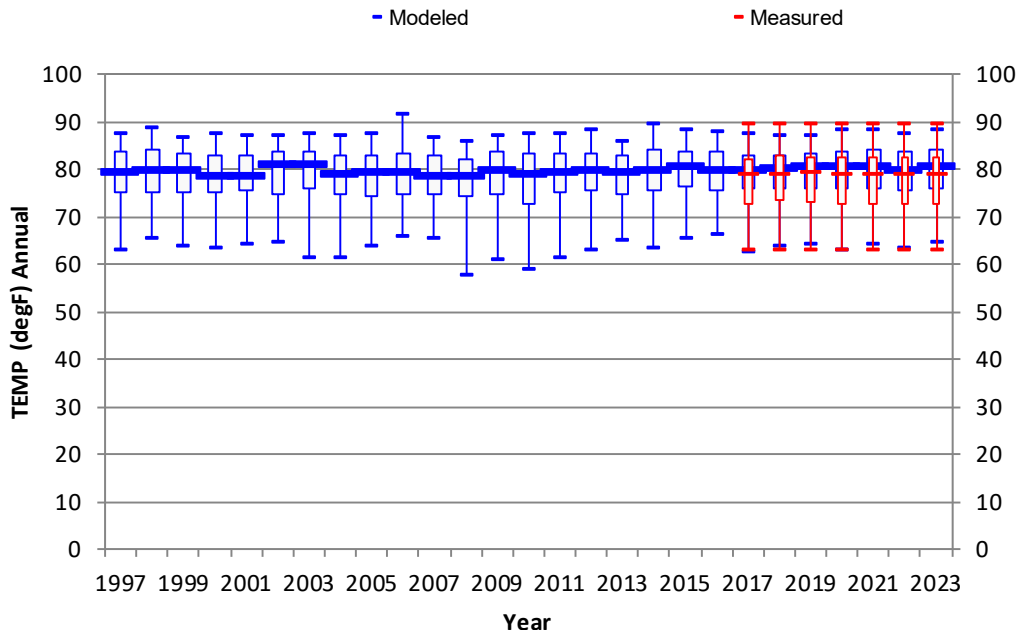


Figure C-202 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH142 Able Canal

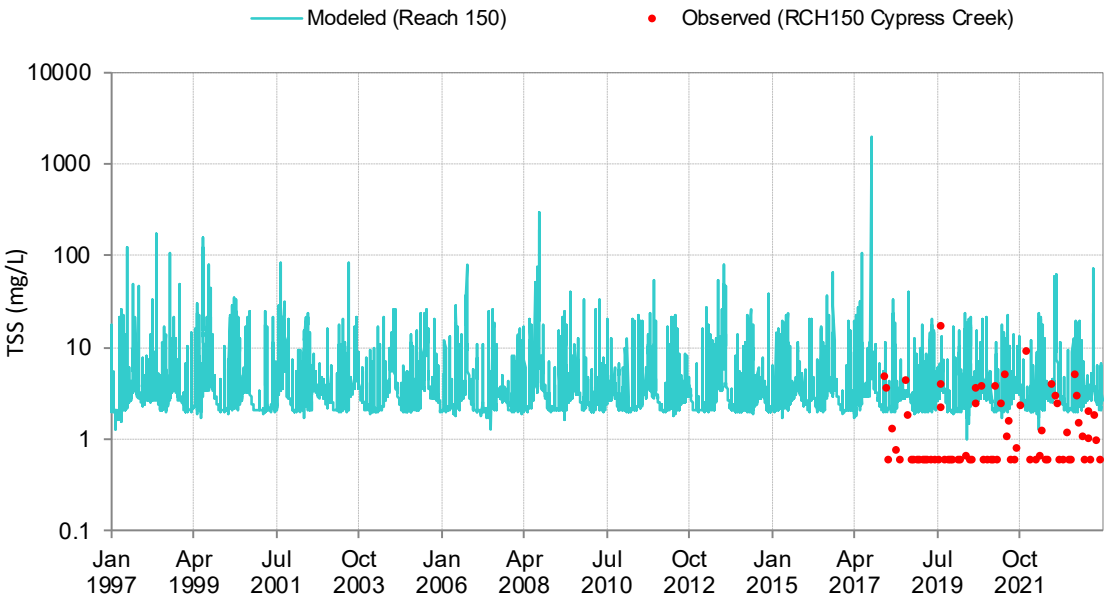


Figure C-203 Modeled Vs Observed TSS (mg/L) at RCH150 Cypress Creek

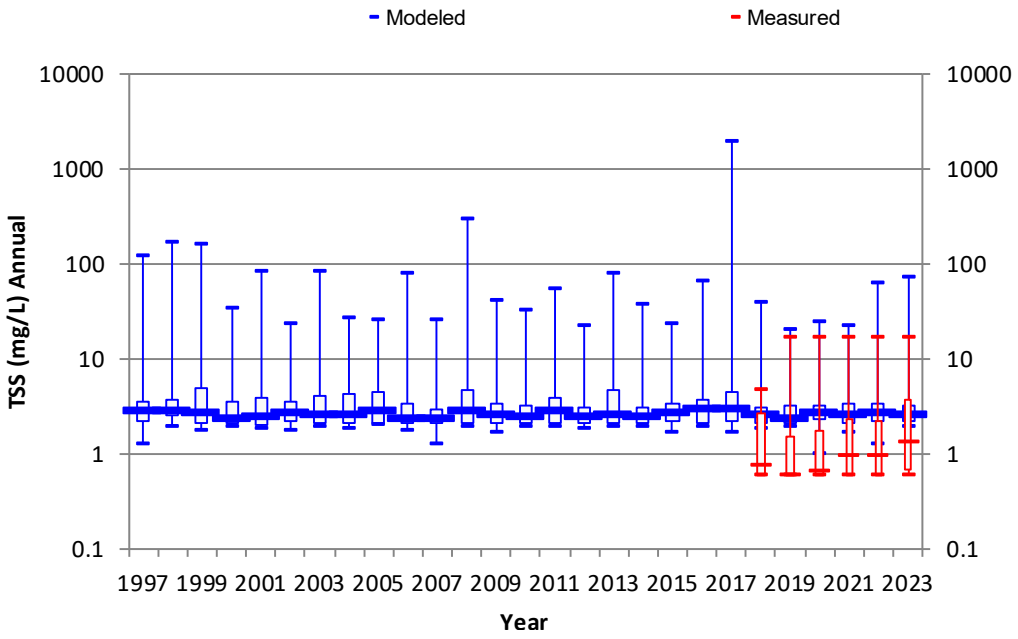


Figure C-204 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH150 Cypress Creek

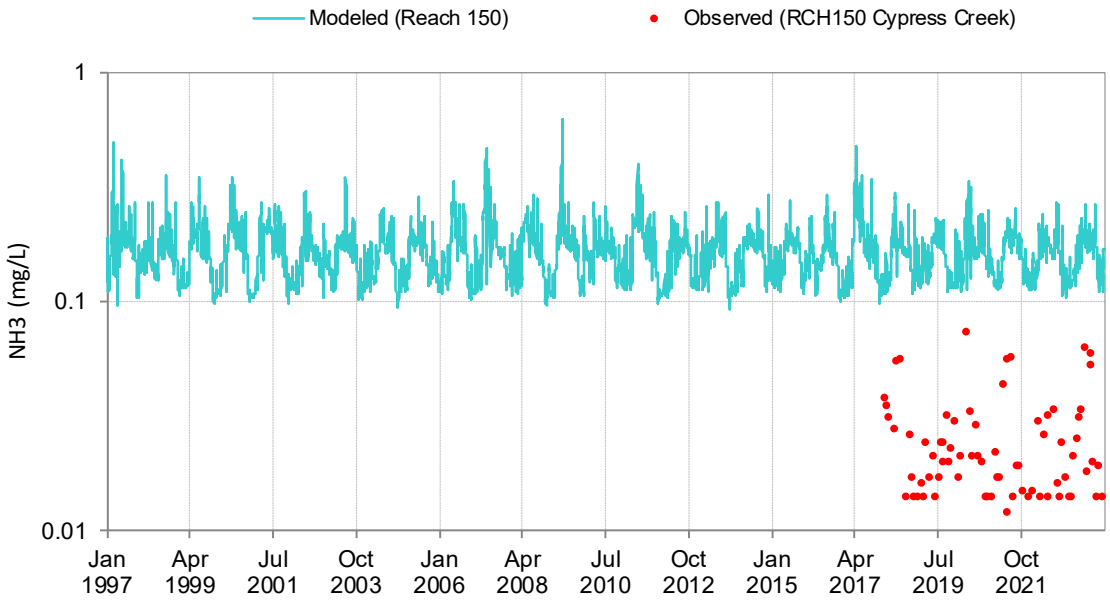


Figure C-205 Modeled Vs Observed NH3 (mg/L) at RCH150 Cypress Creek

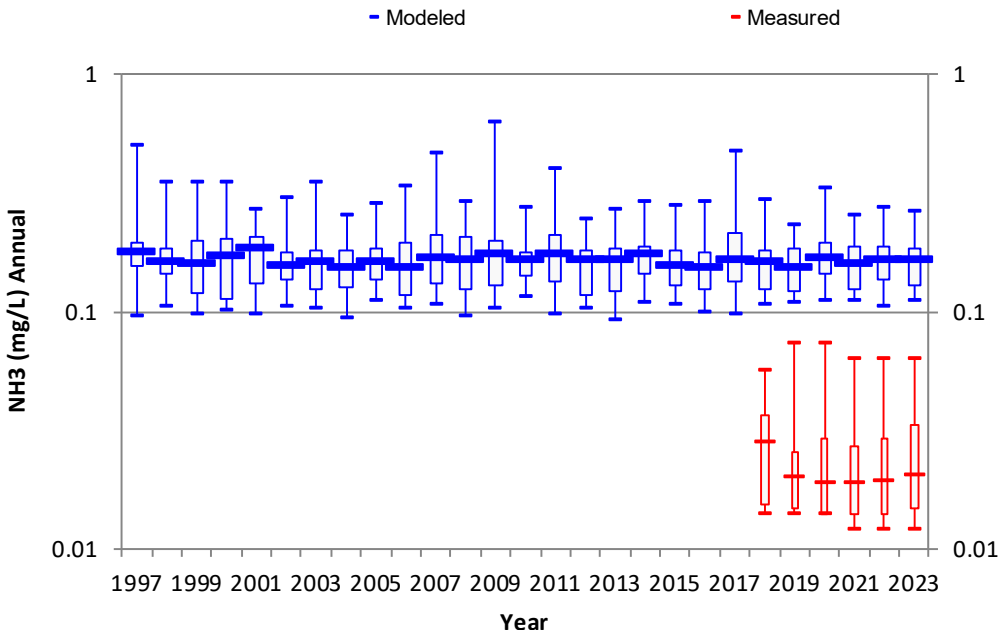


Figure C-206 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH150 Cypress Creek

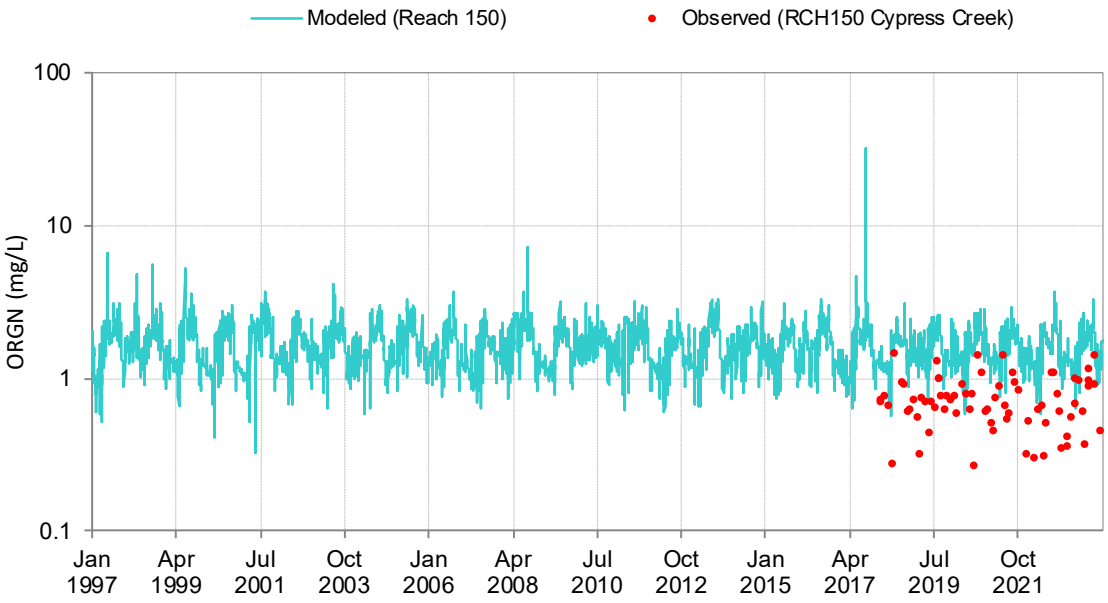


Figure C-207 Modeled Vs Observed ORGN (mg/L) at RCH150 Cypress Creek

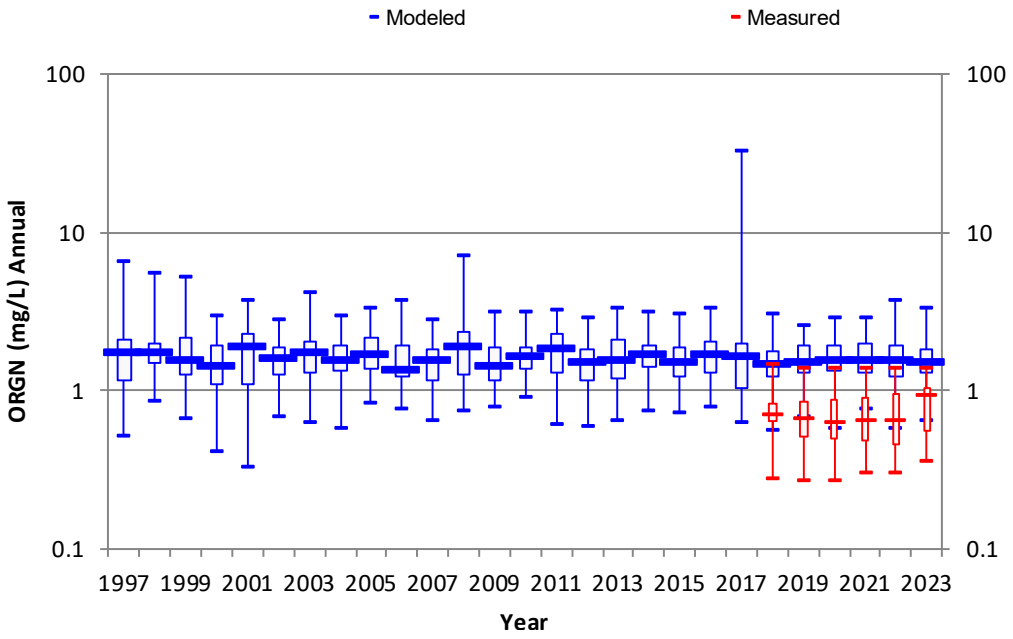


Figure C-208 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH150 Cypress Creek

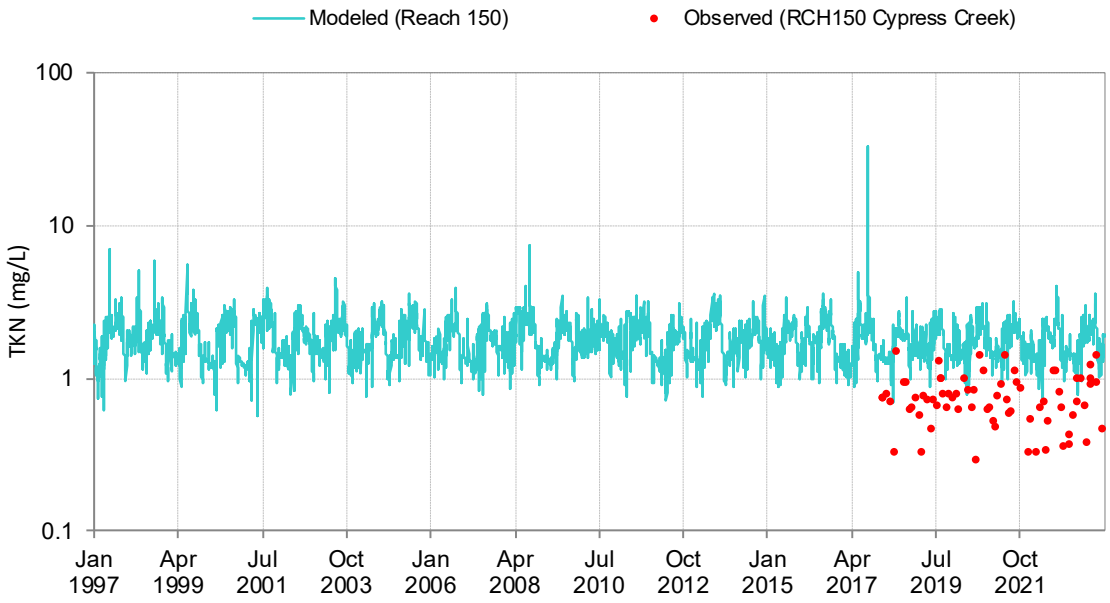


Figure C-209 Modeled Vs Observed TKN (mg/L) at RCH150 Cypress Creek

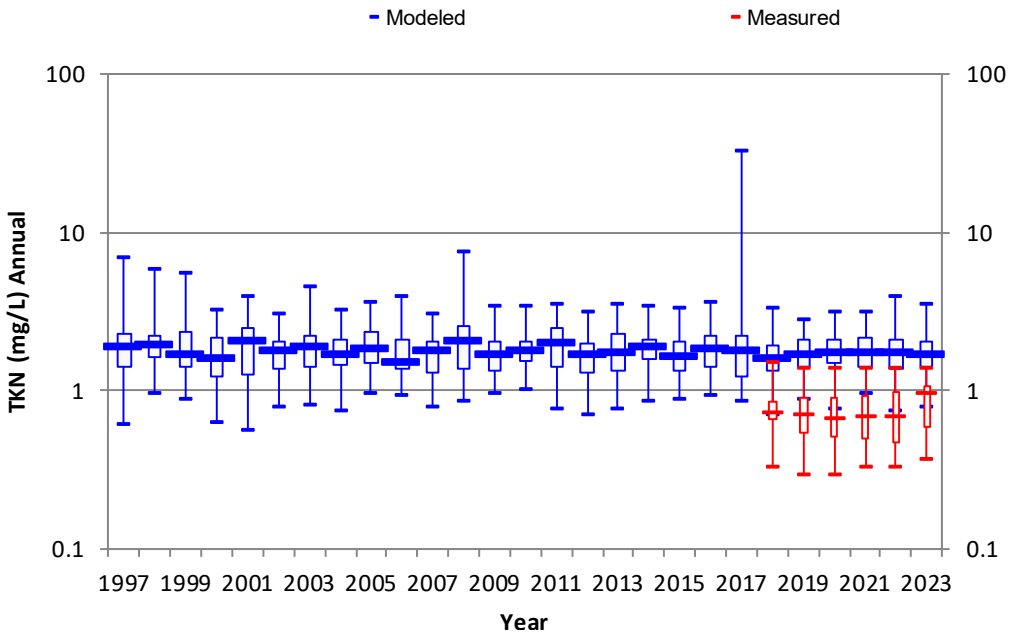


Figure C-210 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH150 Cypress Creek

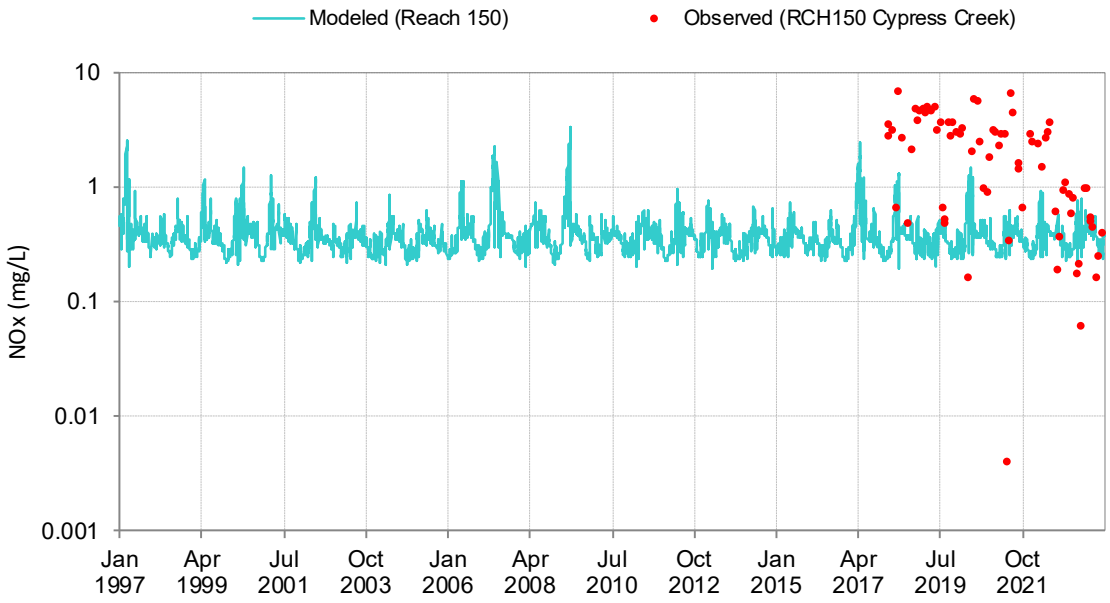


Figure C-211 Modeled Vs Observed NOx (mg/L) at RCH150 Cypress Creek

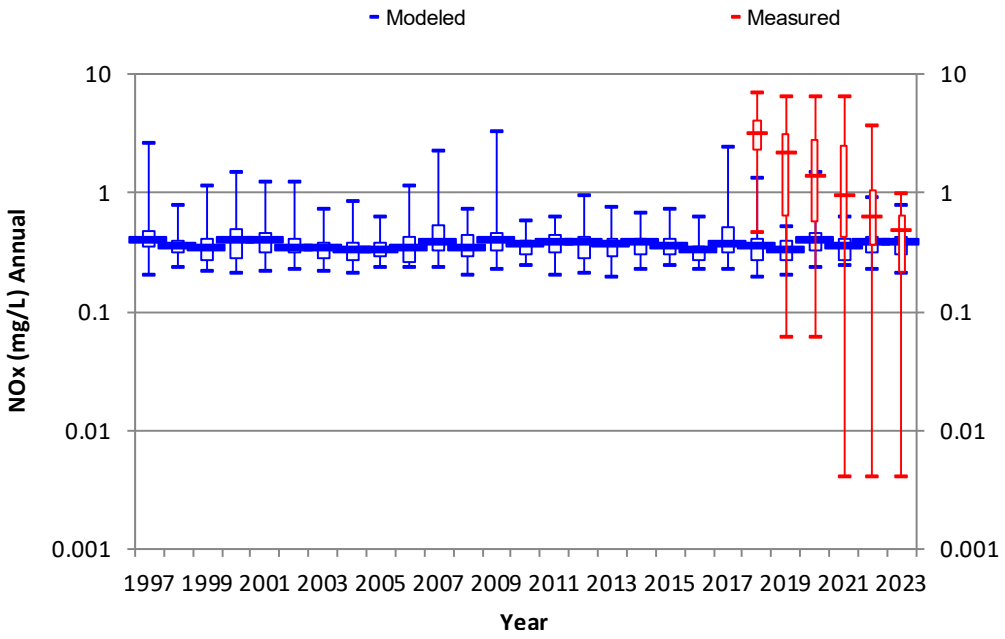


Figure C-212 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH150 Cypress Creek

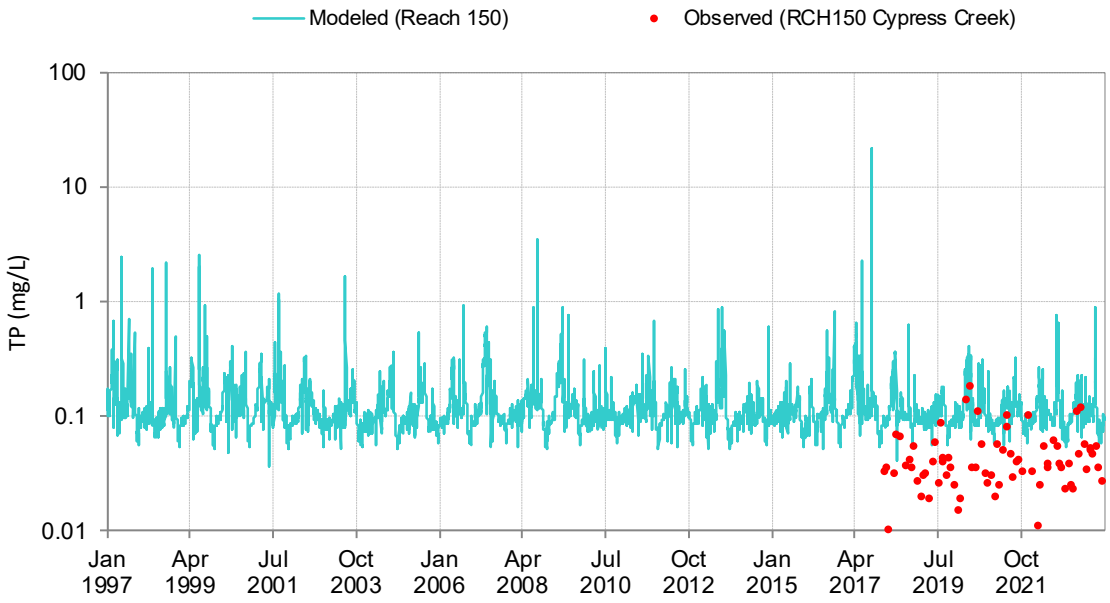


Figure C-213 Modeled Vs Observed TP (mg/L) at RCH150 Cypress Creek

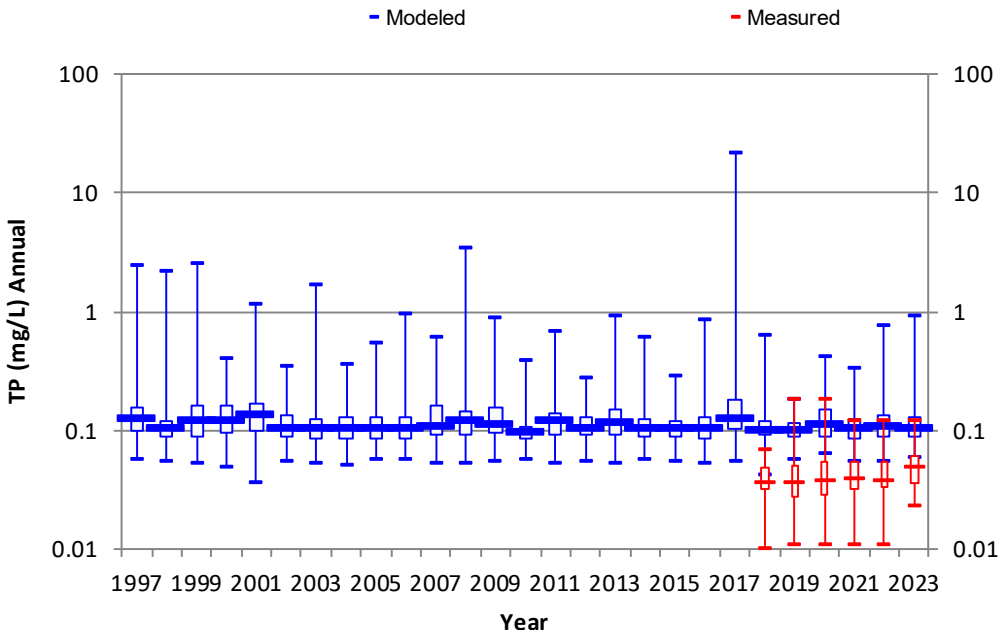


Figure C-214 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH150 Cypress Creek

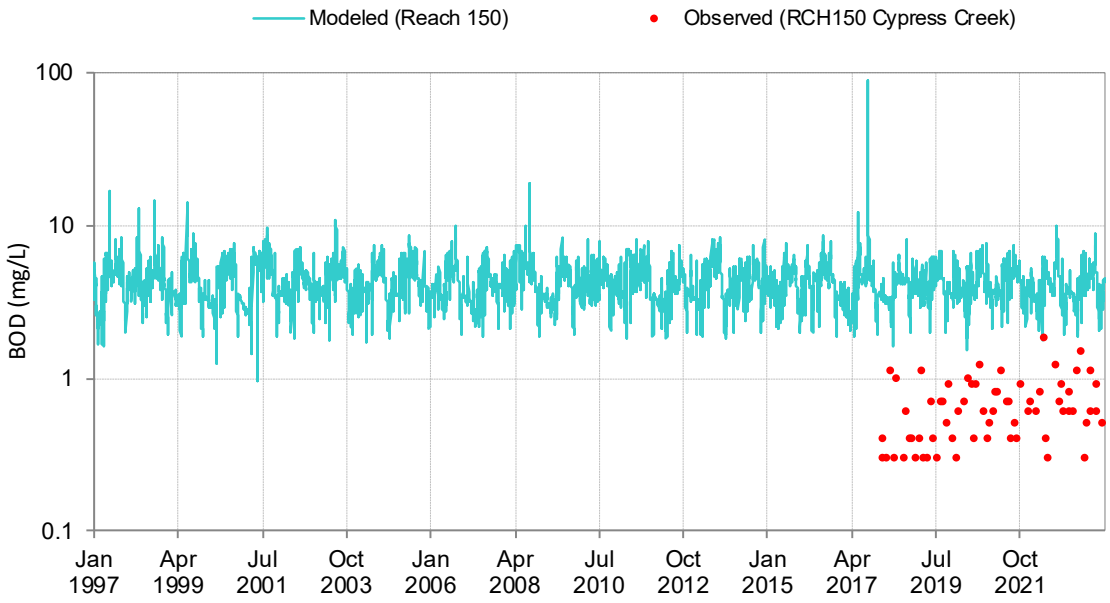


Figure C-215 Modeled Vs Observed BOD (mg/L) at RCH150 Cypress Creek

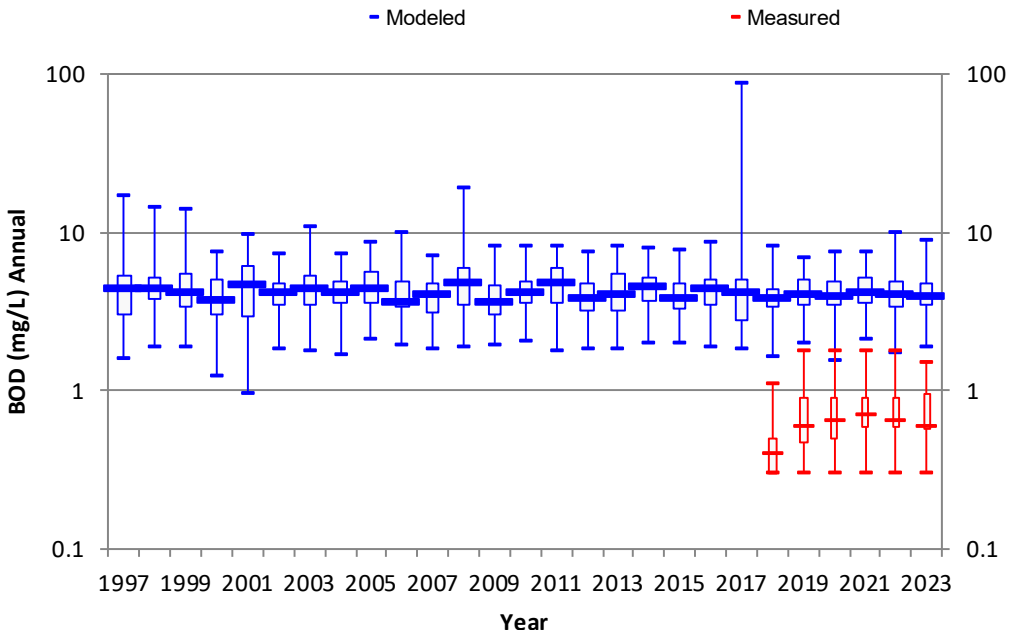


Figure C-216 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH150 Cypress Creek

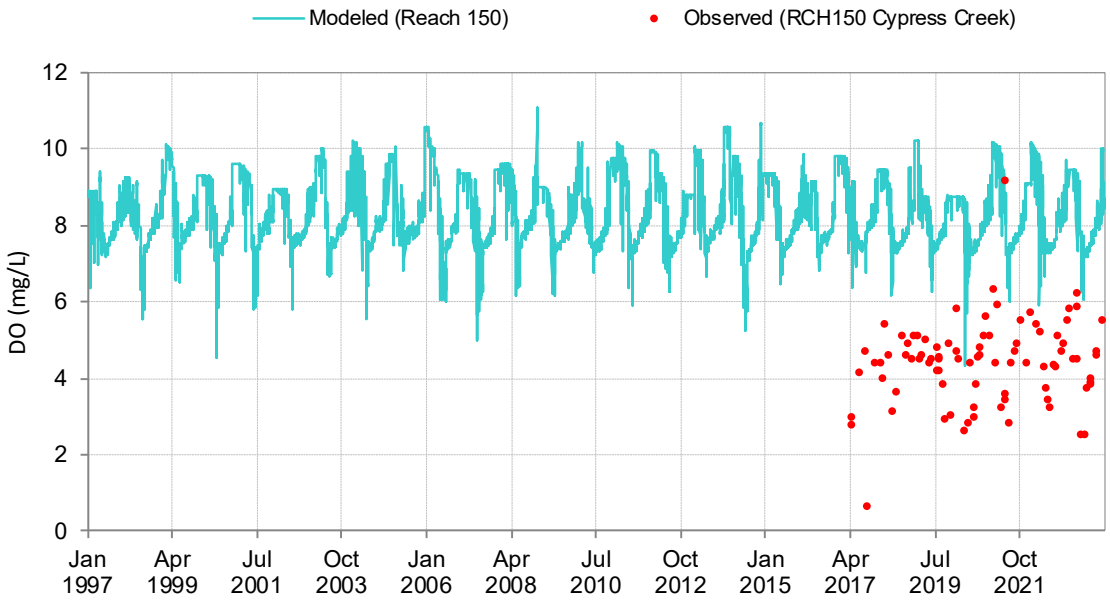


Figure C-217 Modeled Vs Observed DO (mg/L) at RCH150 Cypress Creek

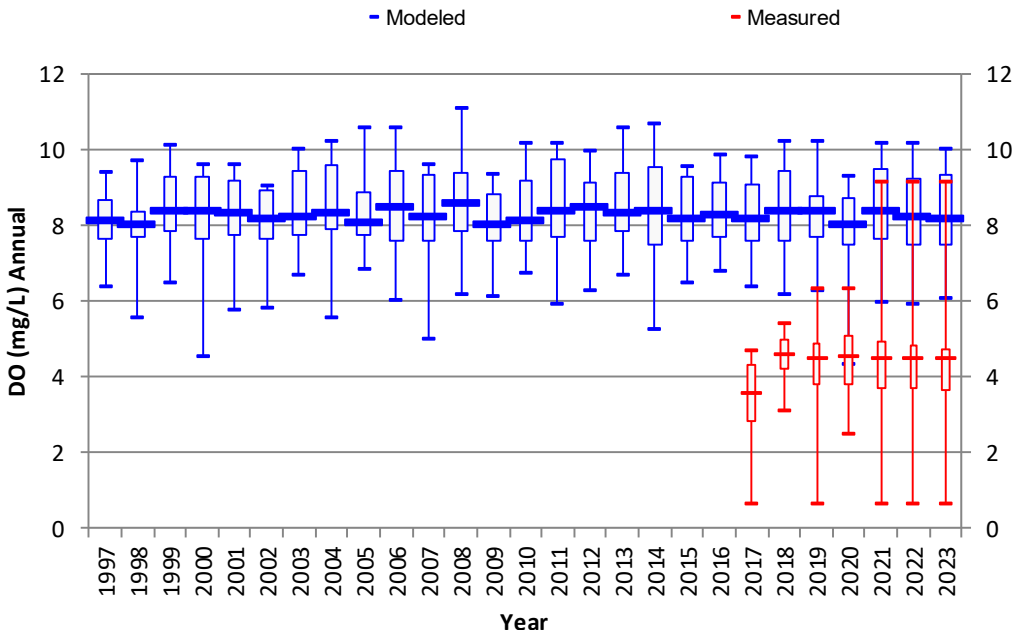


Figure C-218 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH150 Cypress Creek

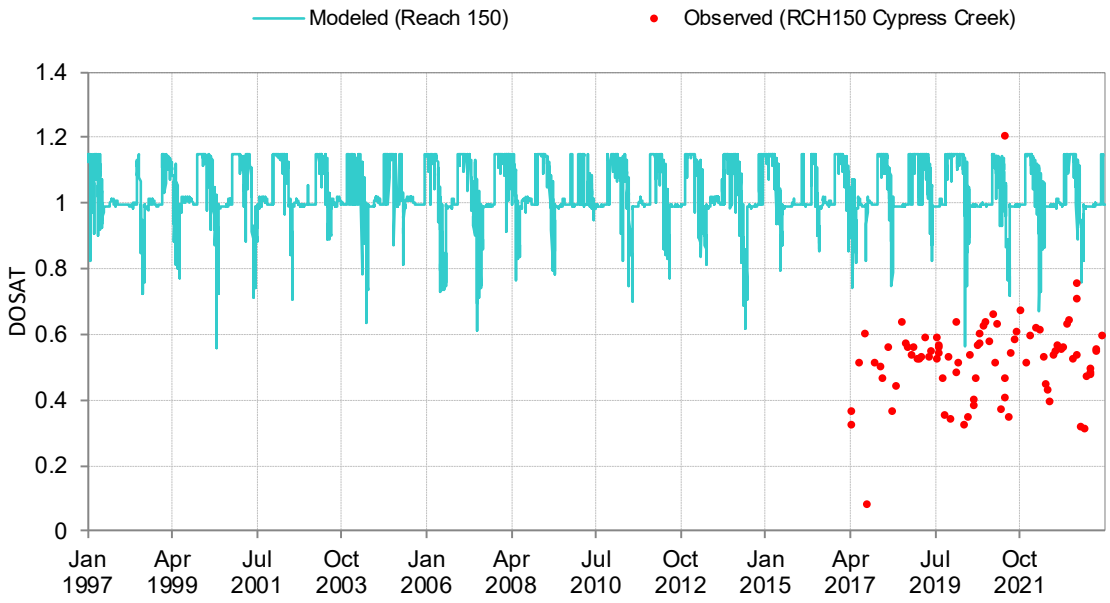


Figure C-219 Modeled Vs Observed DOSAT at RCH150 Cypress Creek

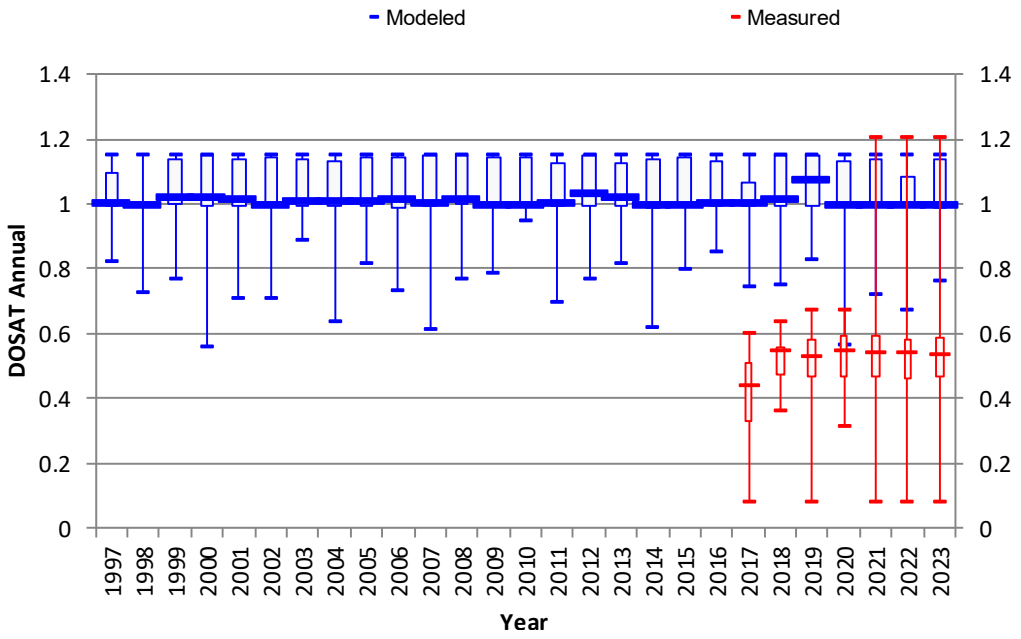


Figure C-220 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH150 Cypress Creek

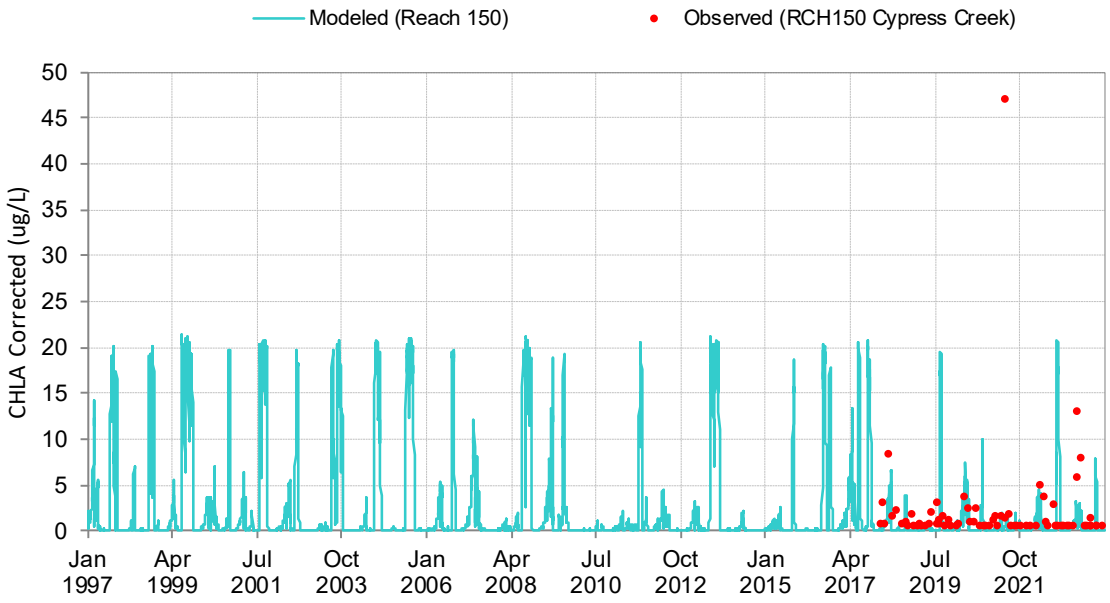


Figure C-221 Modeled Vs Observed CHLA Corrected (ug/L) at RCH150 Cypress Creek

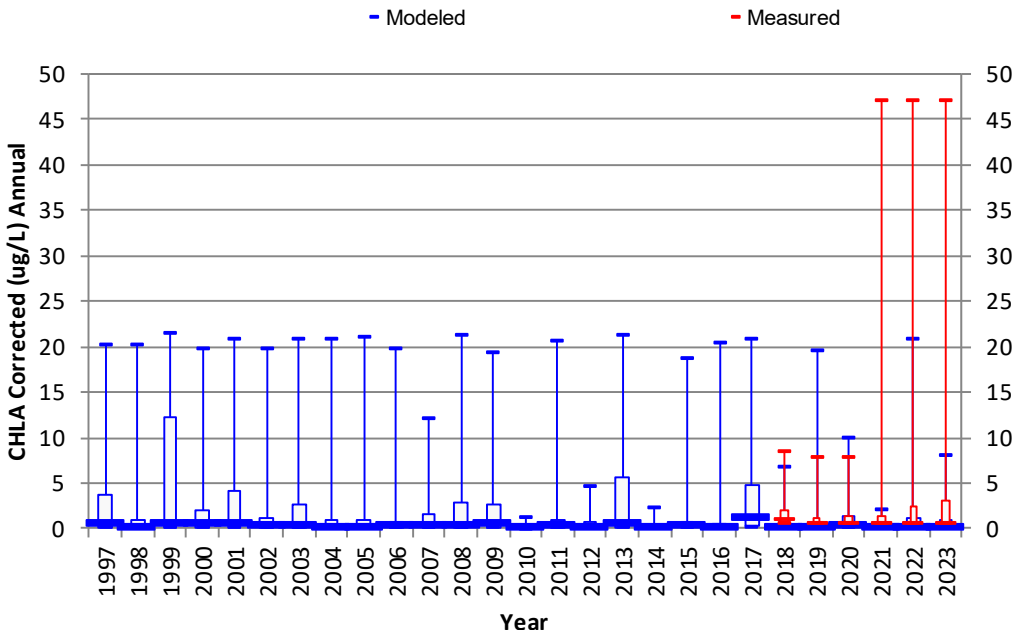


Figure C-222 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH150 Cypress Creek

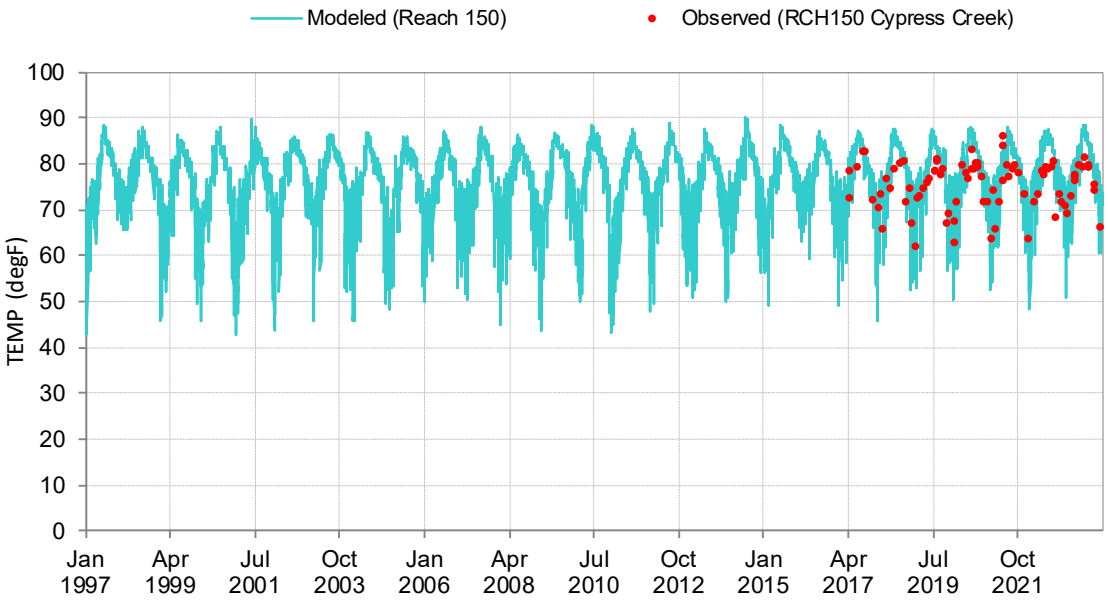


Figure C-223 Modeled Vs Observed TEMP (deg F) at RCH150 Cypress Creek

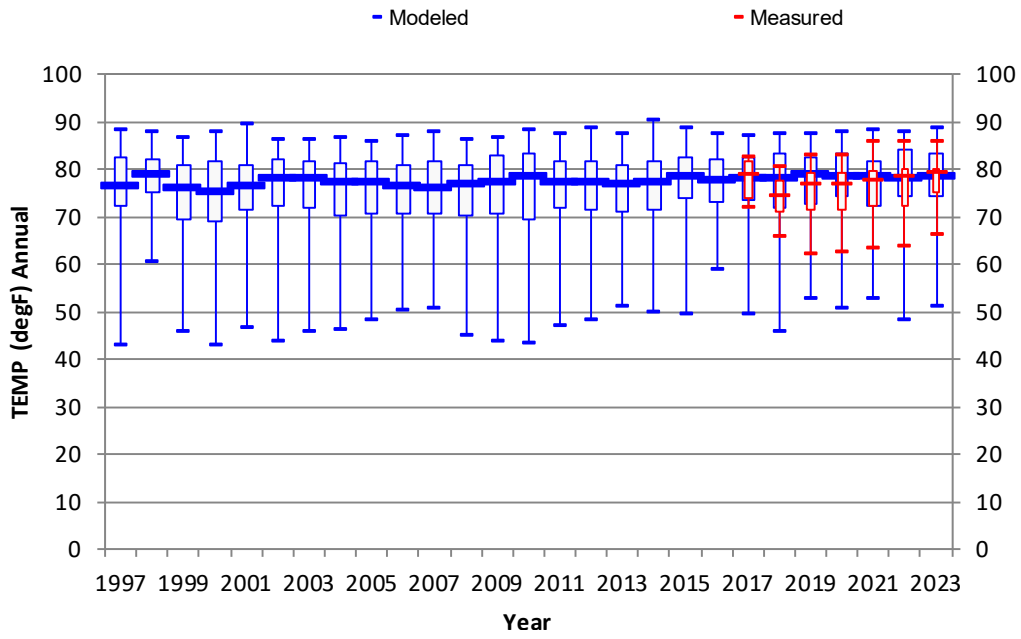


Figure C-224 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH150 Cypress Creek

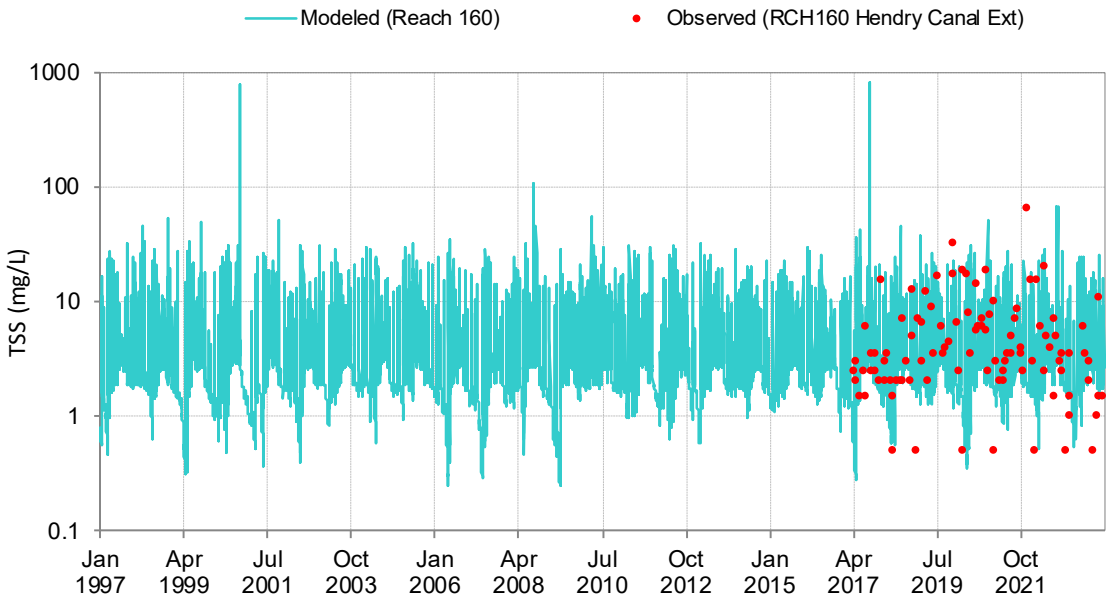


Figure C-225 Modeled Vs Observed TSS (mg/L) at RCH160 Hendry Canal Ext

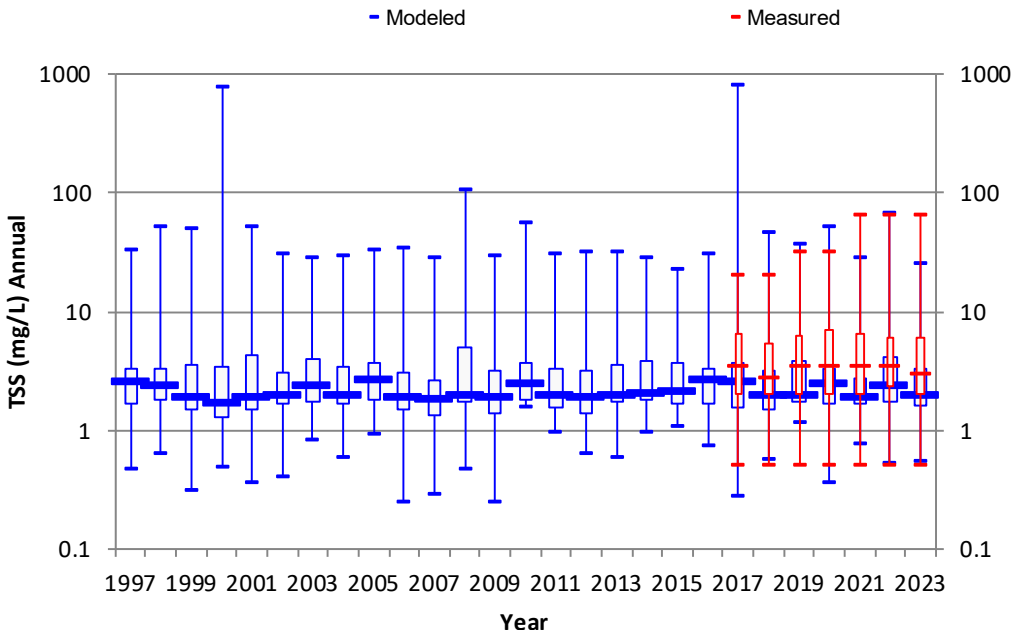


Figure C-226 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH160 Hendry Canal Ext

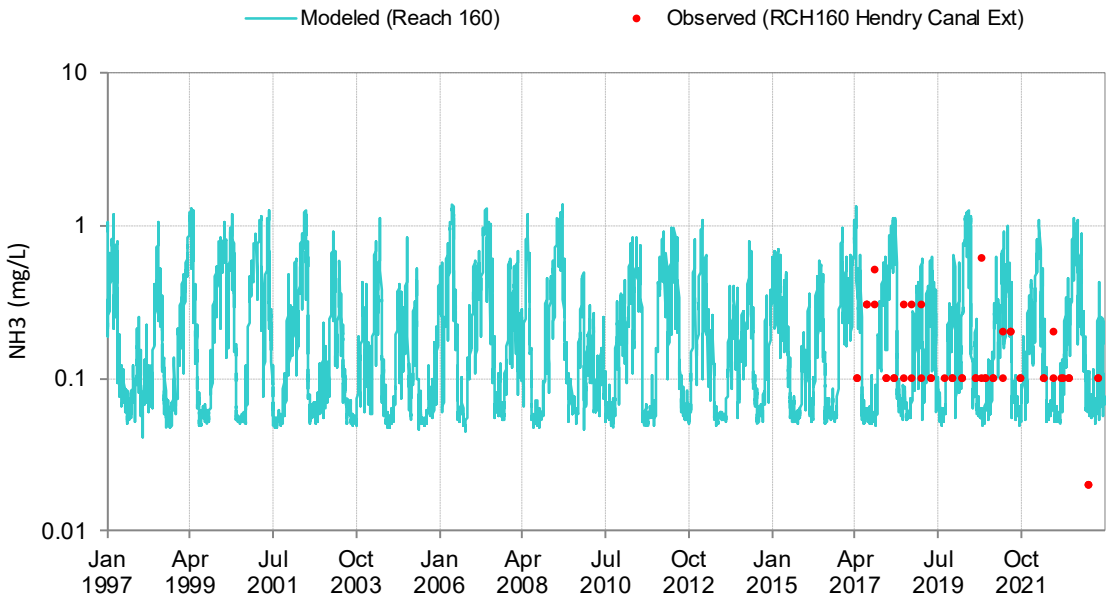


Figure C-227 Modeled Vs Observed NH3 (mg/L) at RCH160 Hendry Canal Ext

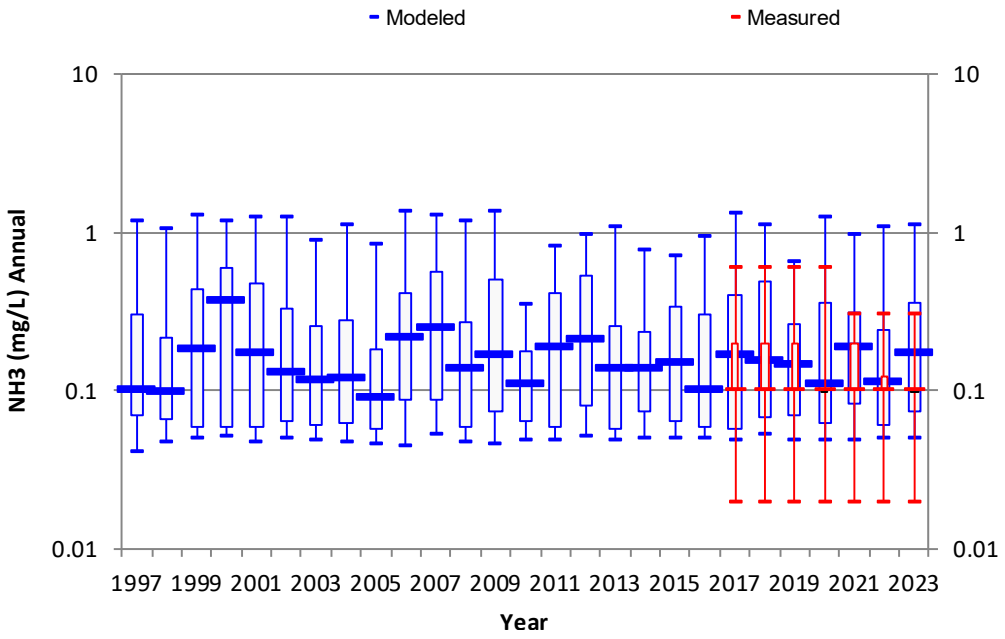


Figure C-228 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH160 Hendry Canal Ext

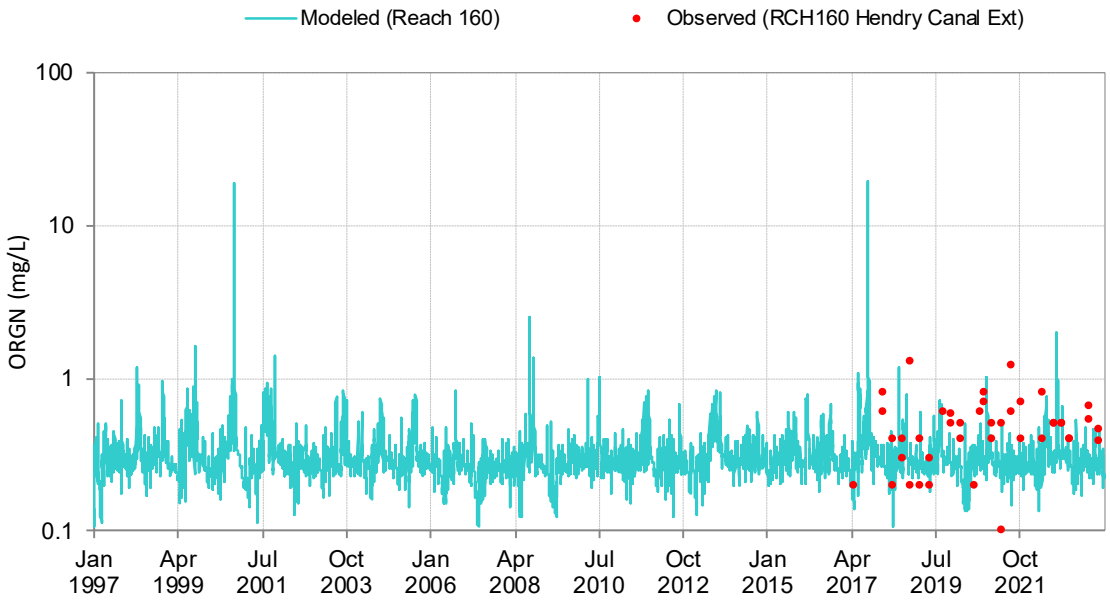


Figure C-229 Modeled Vs Observed ORGN (mg/L) at RCH160 Hendry Canal Ext

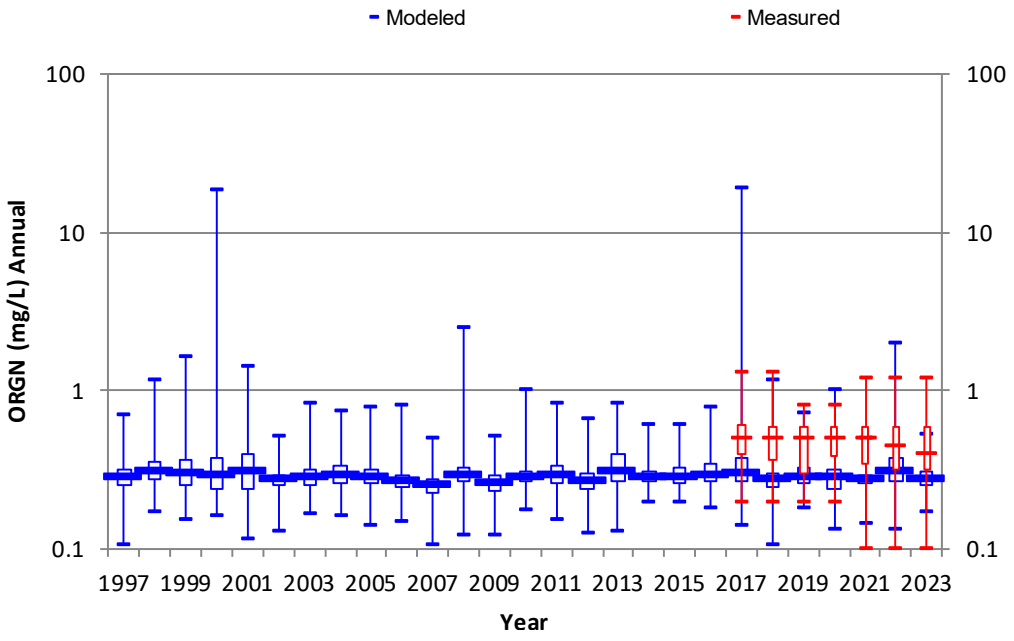


Figure C-230 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH160 Hendry Canal Ext

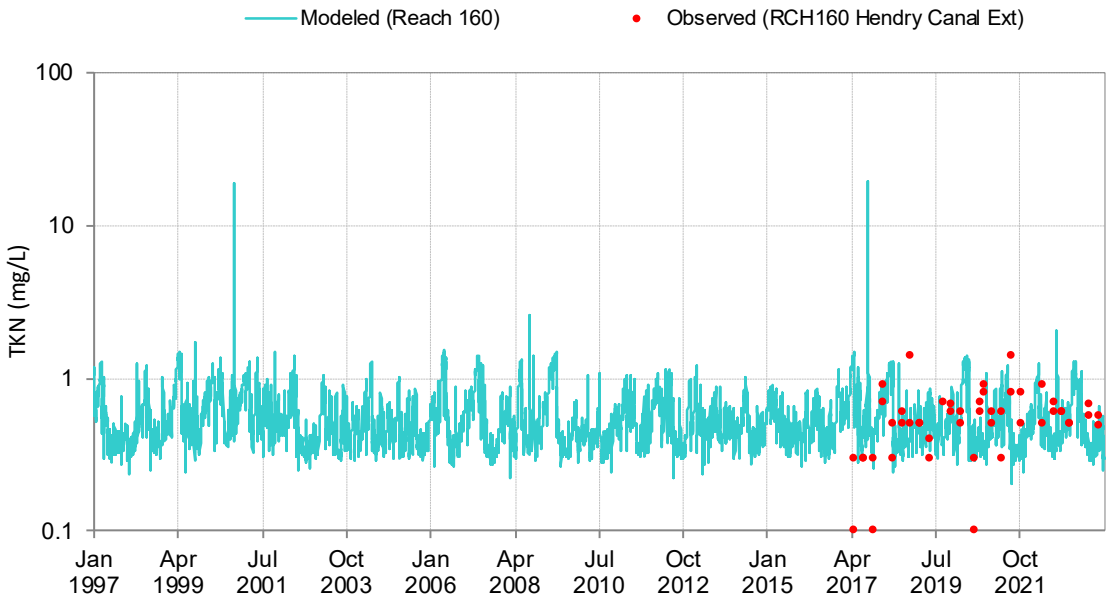


Figure C-231 Modeled Vs Observed TKN (mg/L) at RCH160 Hendry Canal Ext

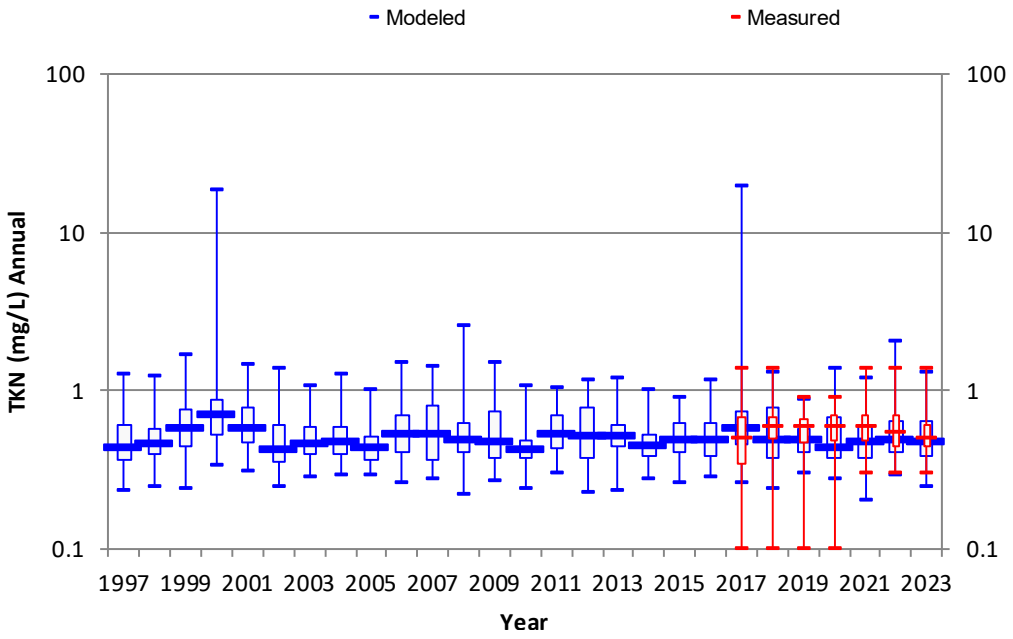


Figure C-232 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH160 Hendry Canal Ext

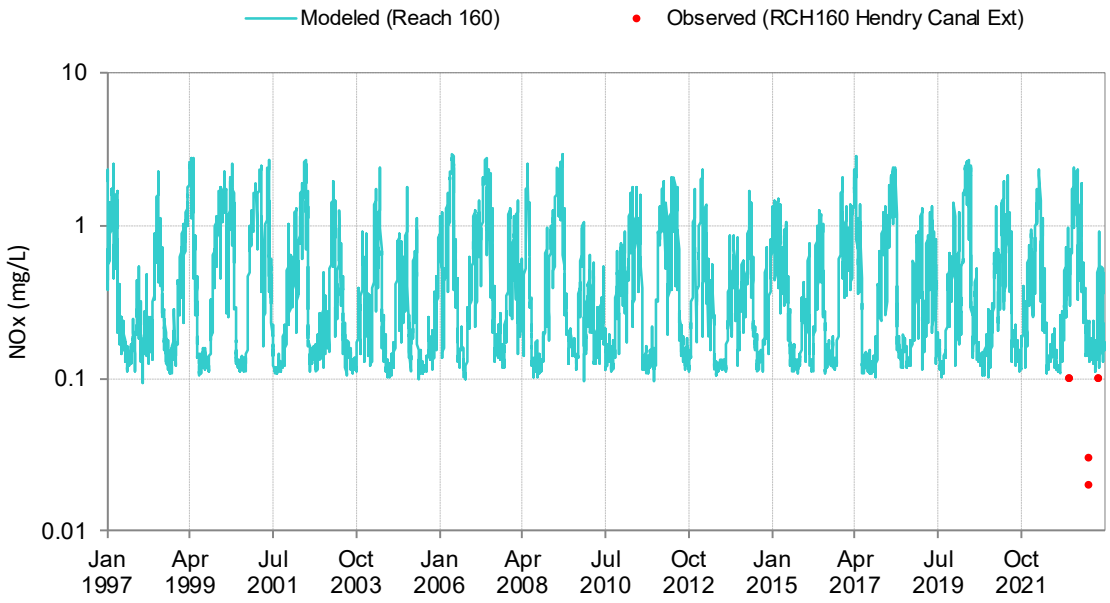


Figure C-233 Modeled Vs Observed NOx (mg/L) at RCH160 Hendry Canal Ext

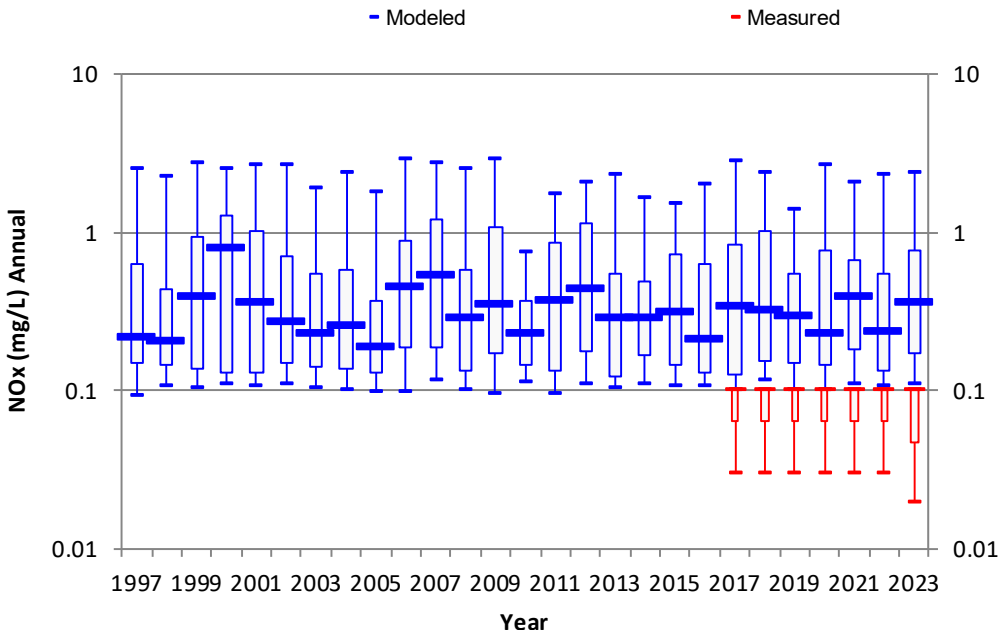


Figure C-234 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH160 Hendry Canal Ext

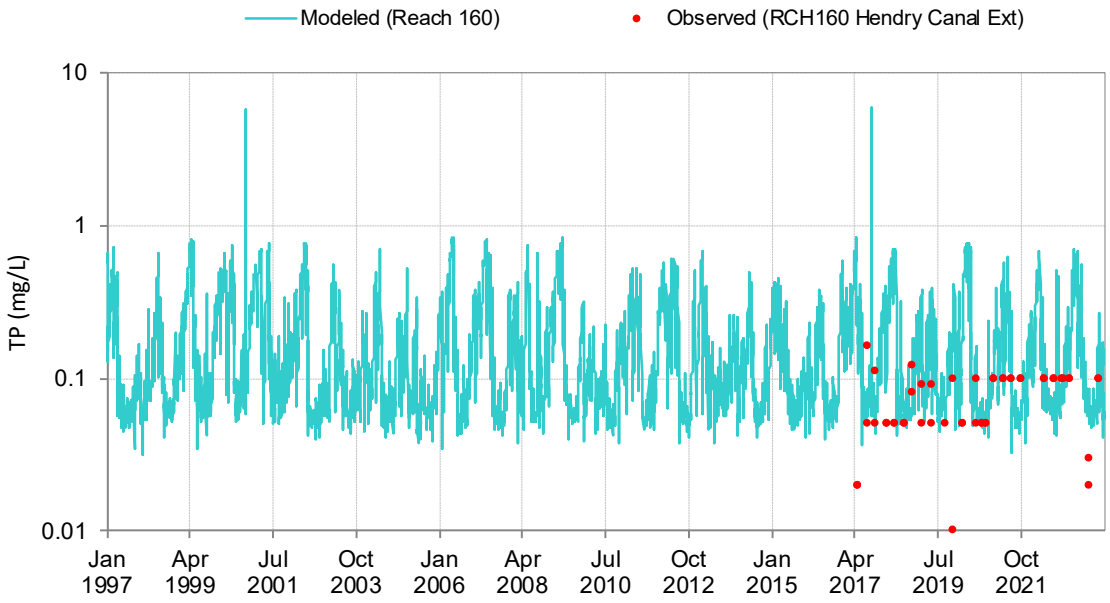


Figure C-235 Modeled Vs Observed TP (mg/L) at RCH160 Hendry Canal Ext

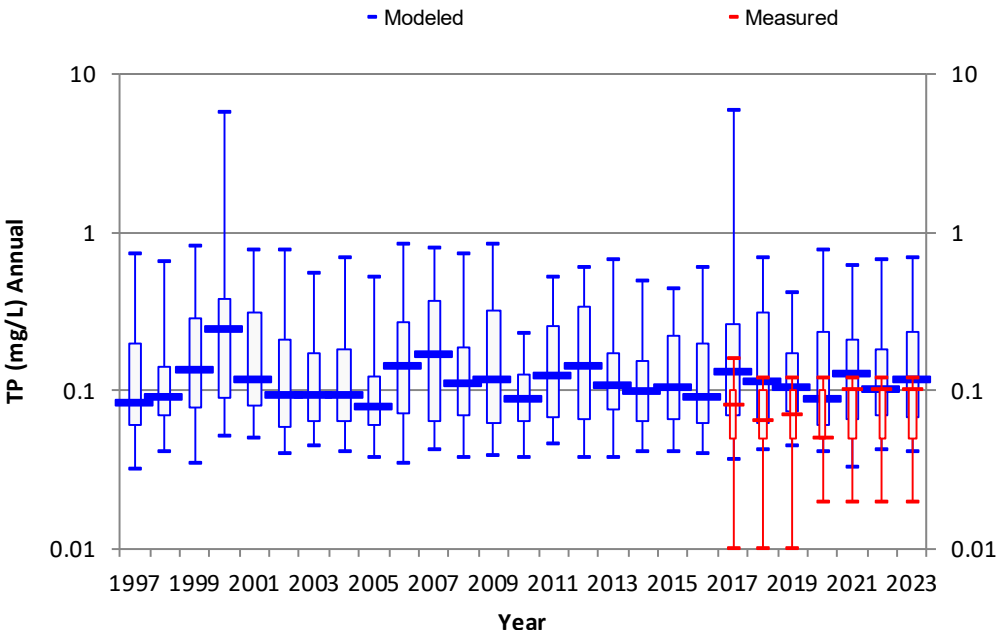


Figure C-236 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH160 Hendry Canal Ext

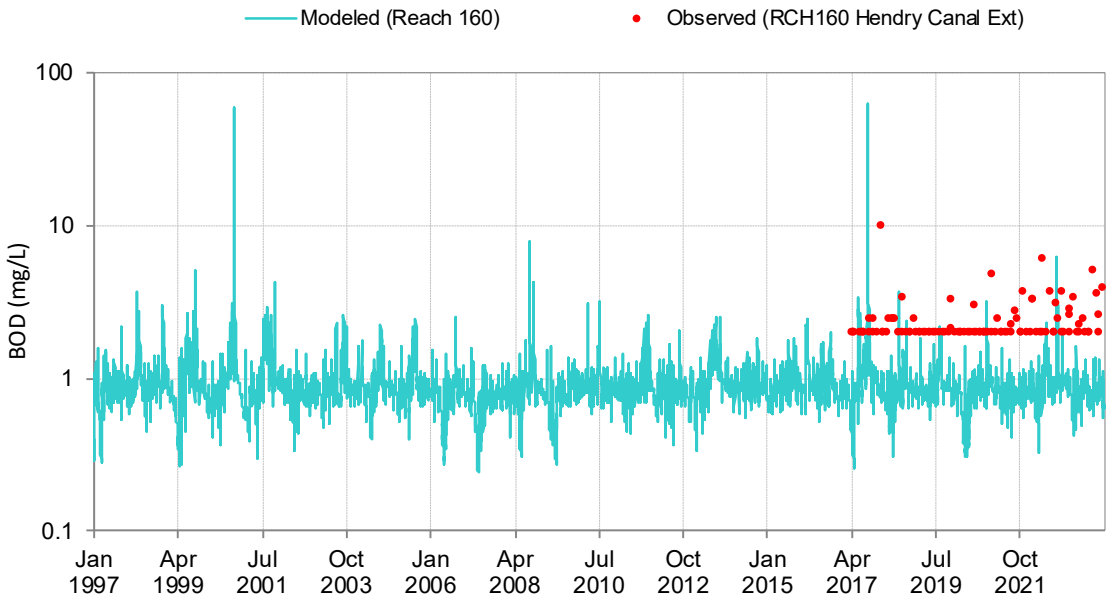


Figure C-237 Modeled Vs Observed BOD (mg/L) at RCH160 Hendry Canal Ext

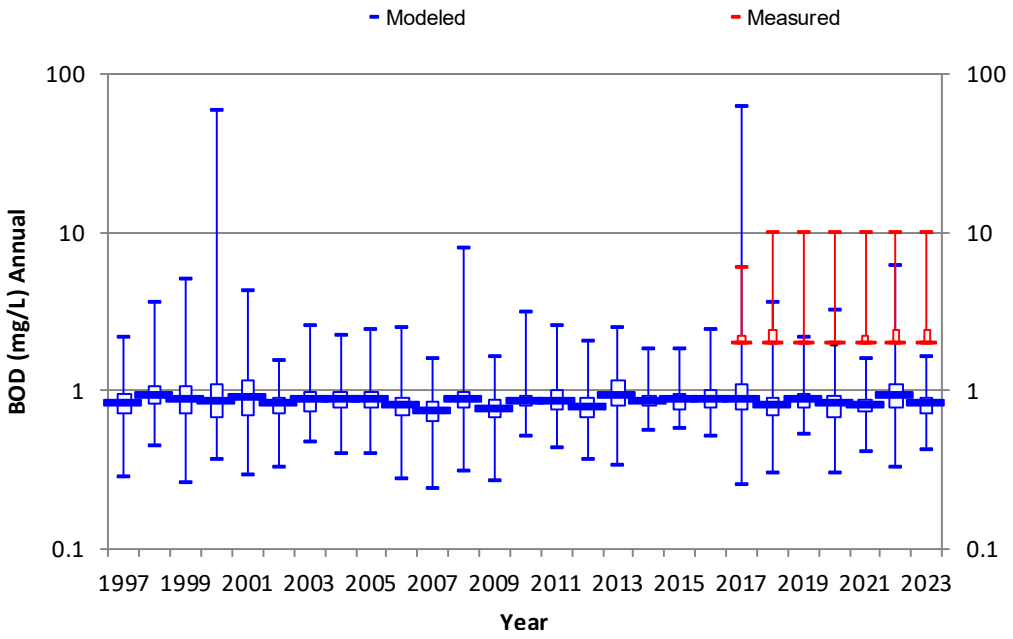


Figure C-238 Box and Whisker plot of Modeled Vs Observed BOD (mg/L) at RCH160 Hendry Canal Ext

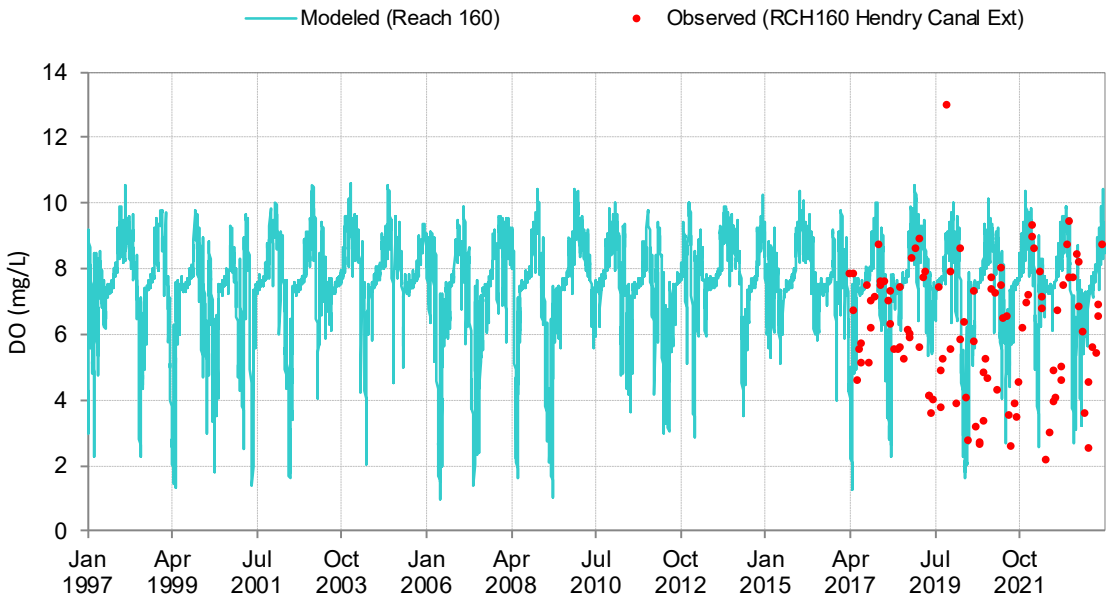


Figure C-239 Modeled Vs Observed DO (mg/L) at RCH160 Hendry Canal Ext

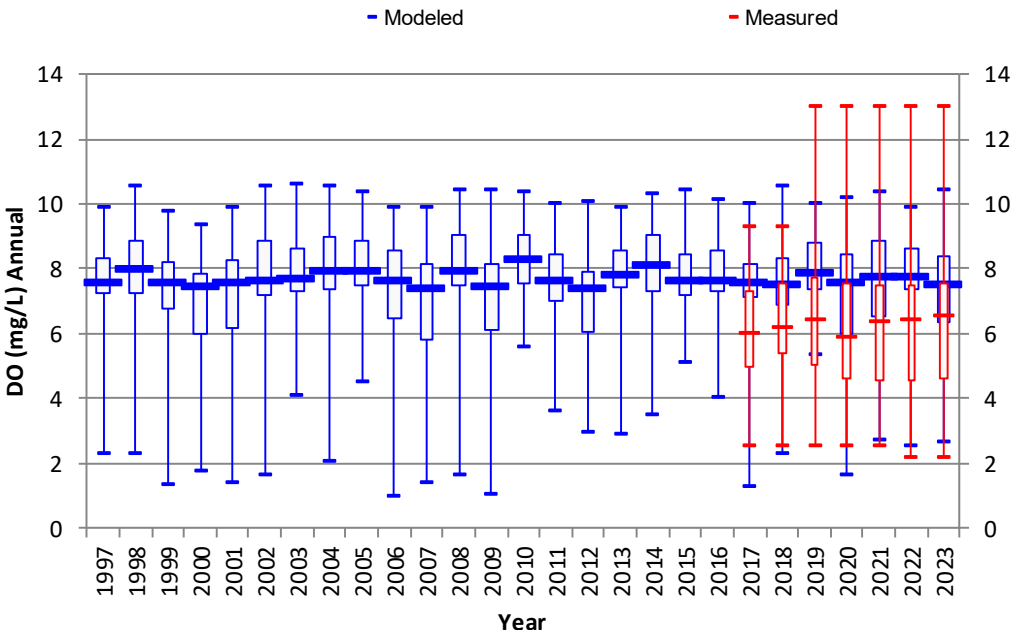


Figure C-240 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH160 Hendry Canal Ext

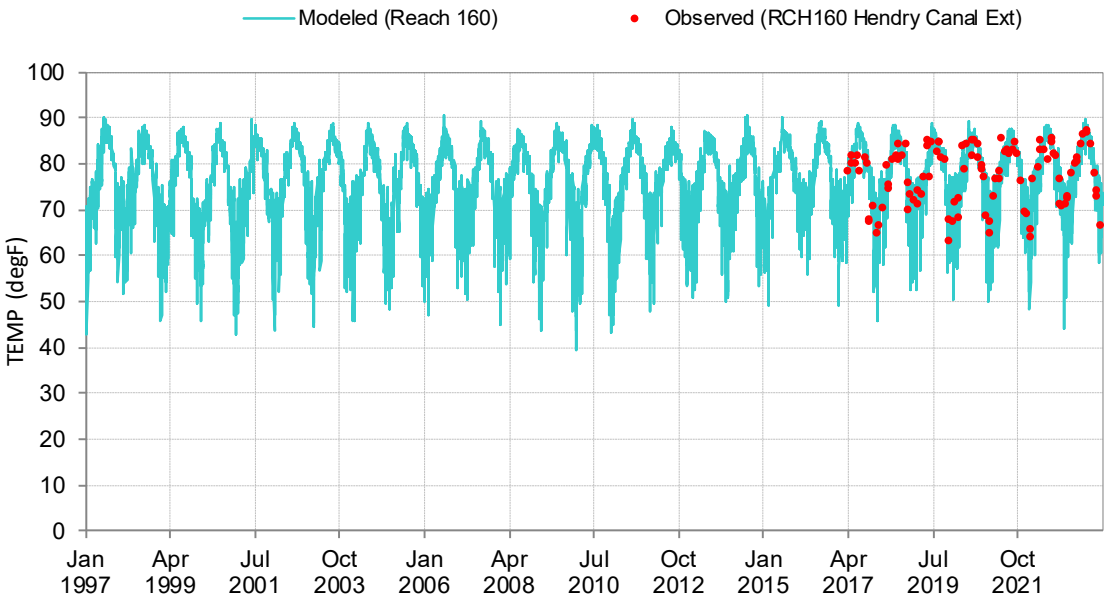


Figure C-241 Modeled Vs Observed TEMP (deg F) at RCH160 Hendry Canal Ext

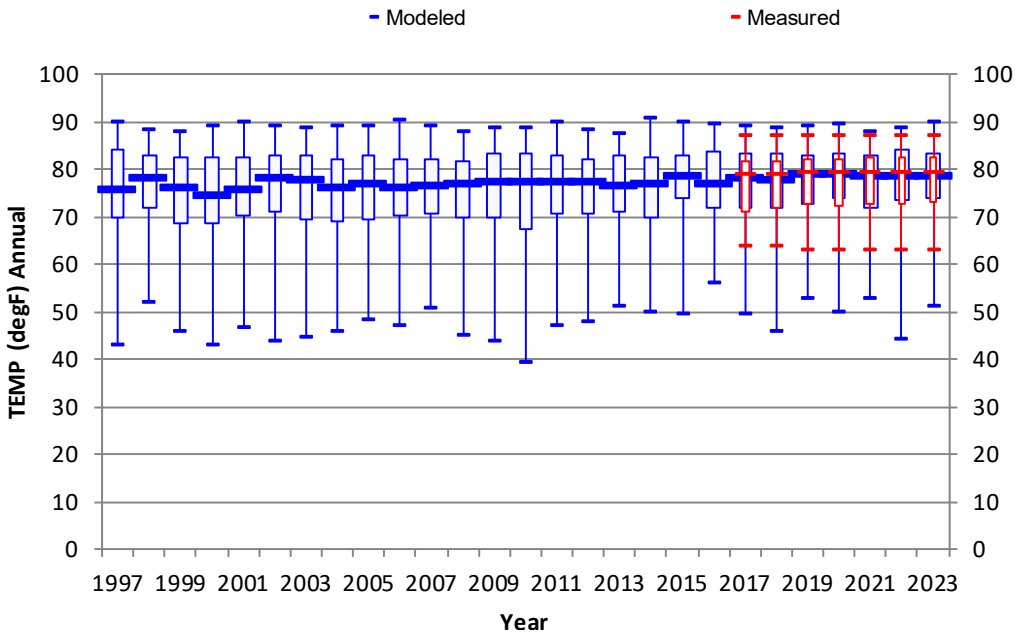


Figure C-242 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH160 Hendry Canal Ext

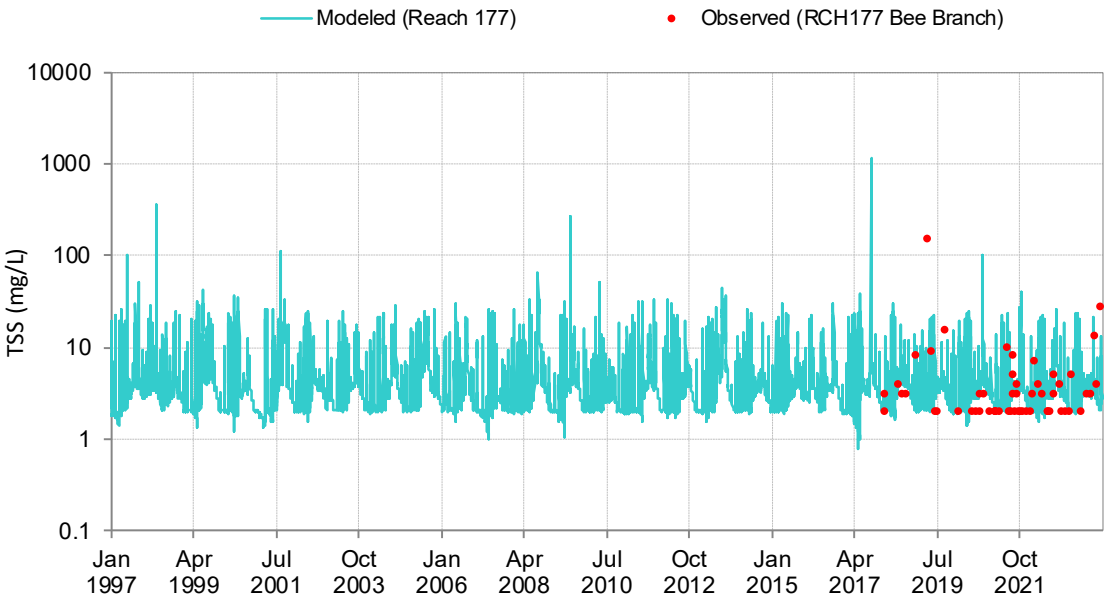


Figure C-243 Modeled Vs Observed TSS (mg/L) at RCH177 Bee Branch

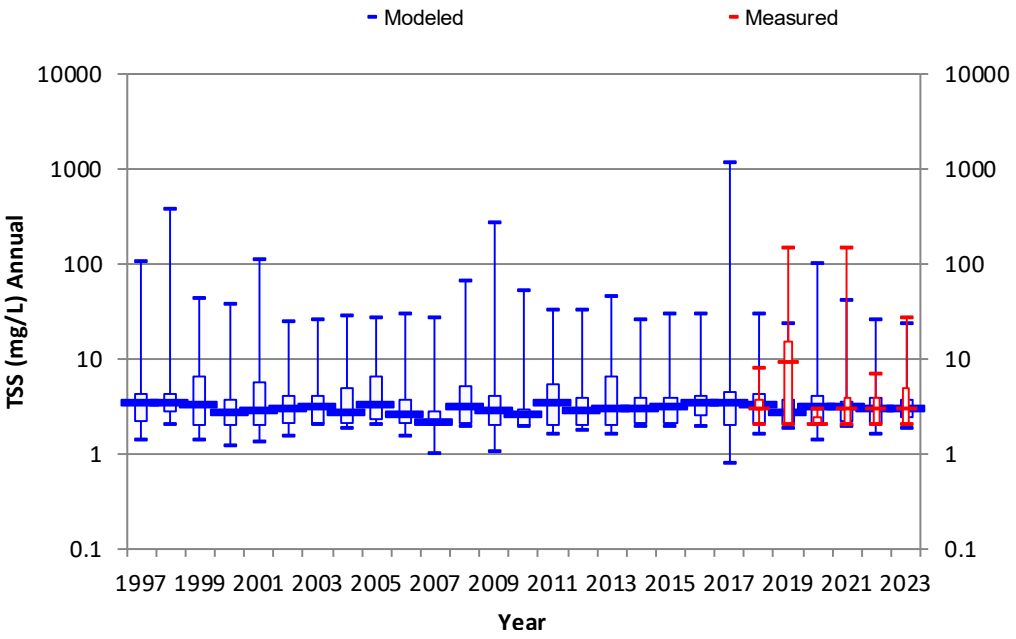


Figure C-244 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH177 Bee Branch

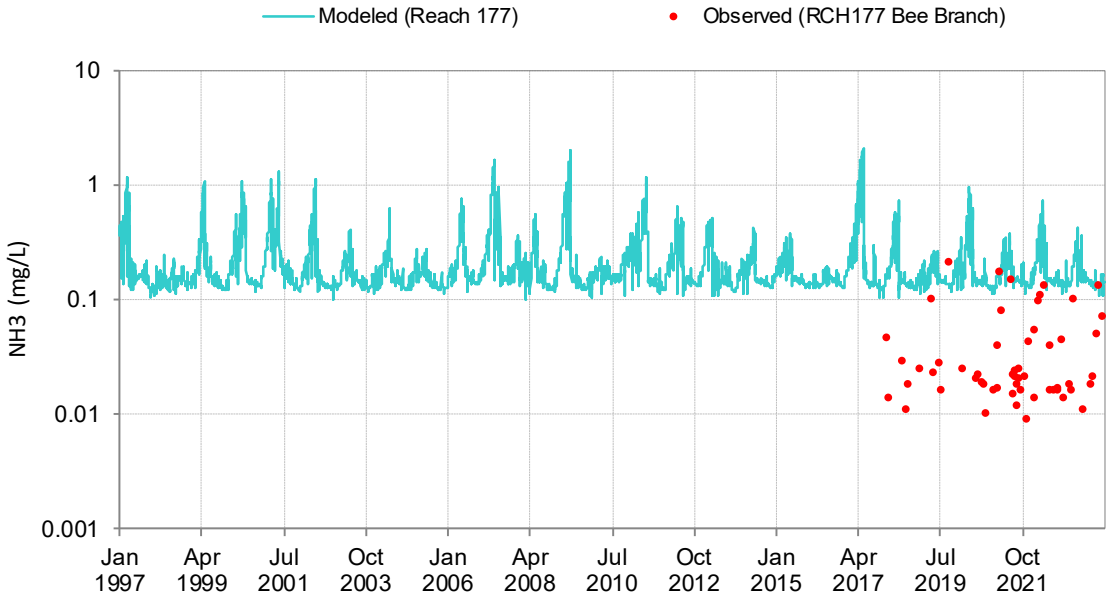


Figure C-245 Modeled Vs Observed NH3 (mg/L) at RCH177 Bee Branch

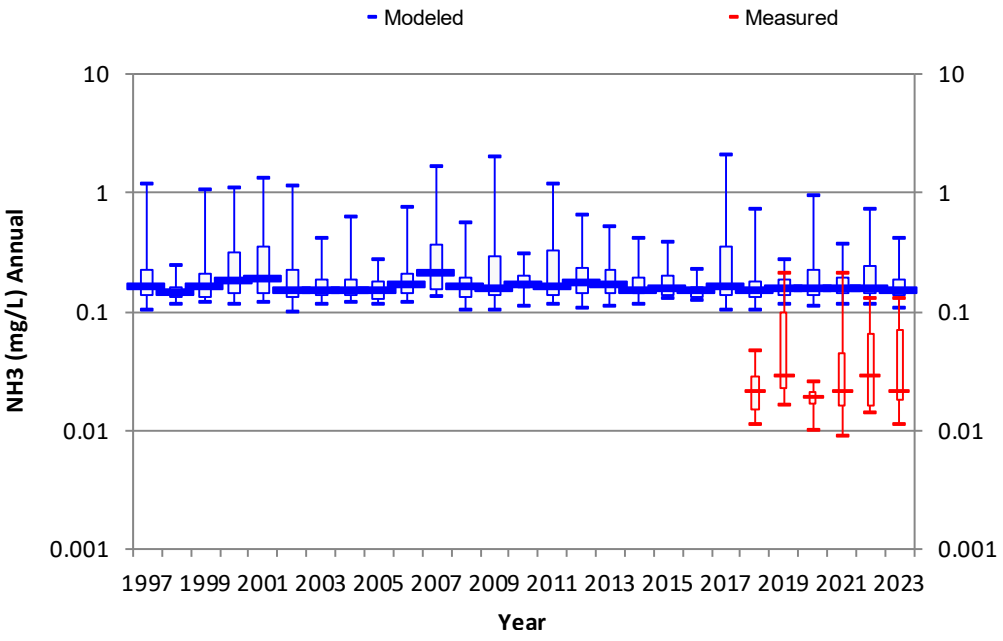


Figure C-246 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH177 Bee Branch

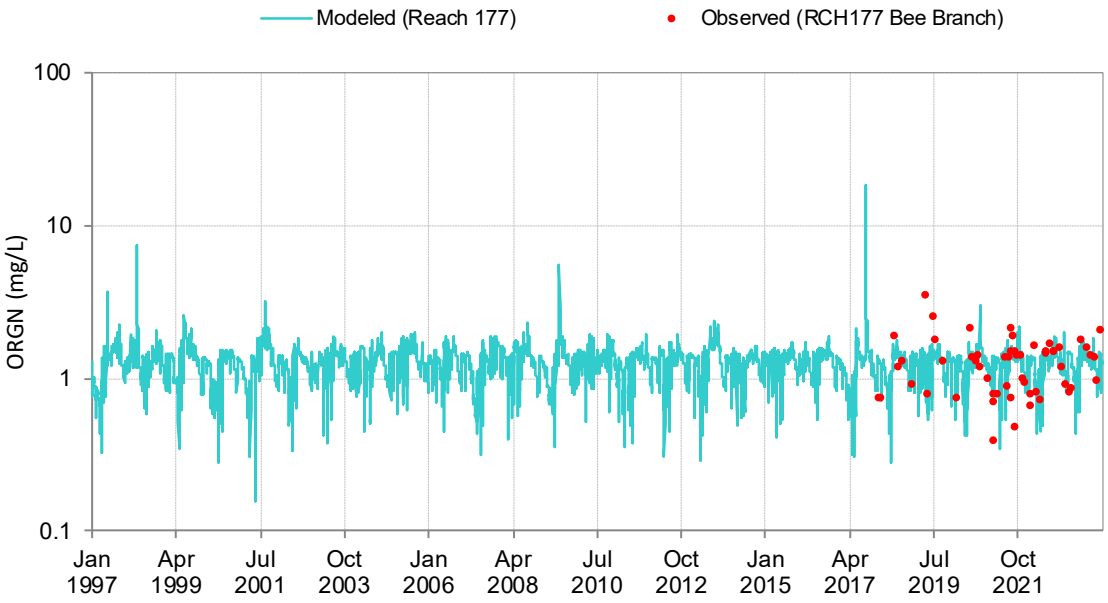


Figure C-247 Modeled Vs Observed ORGN (mg/L) at RCH177 Bee Branch

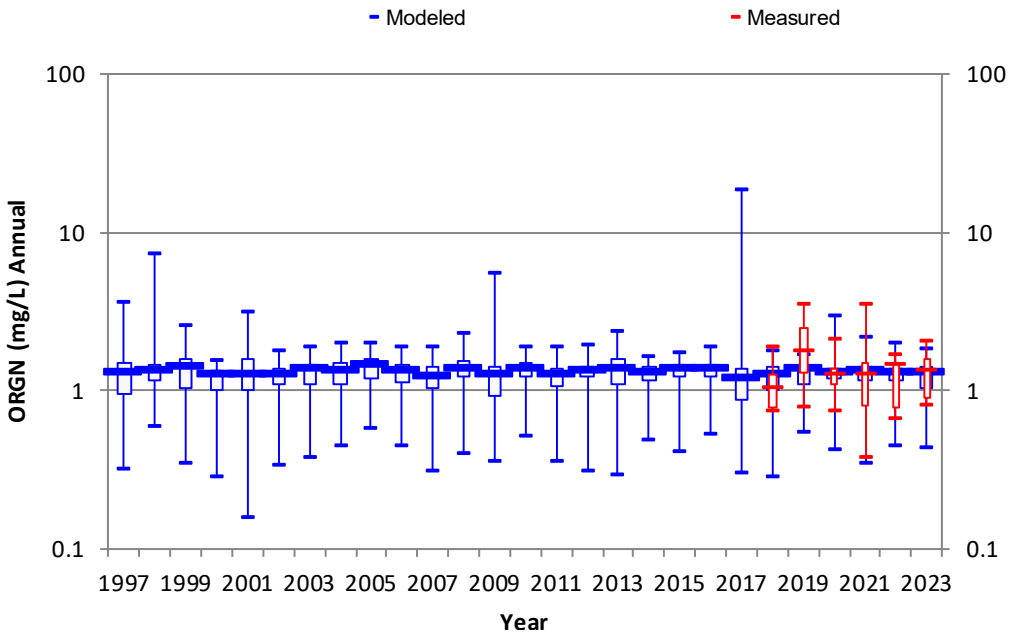


Figure C-248 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH177 Bee Branch

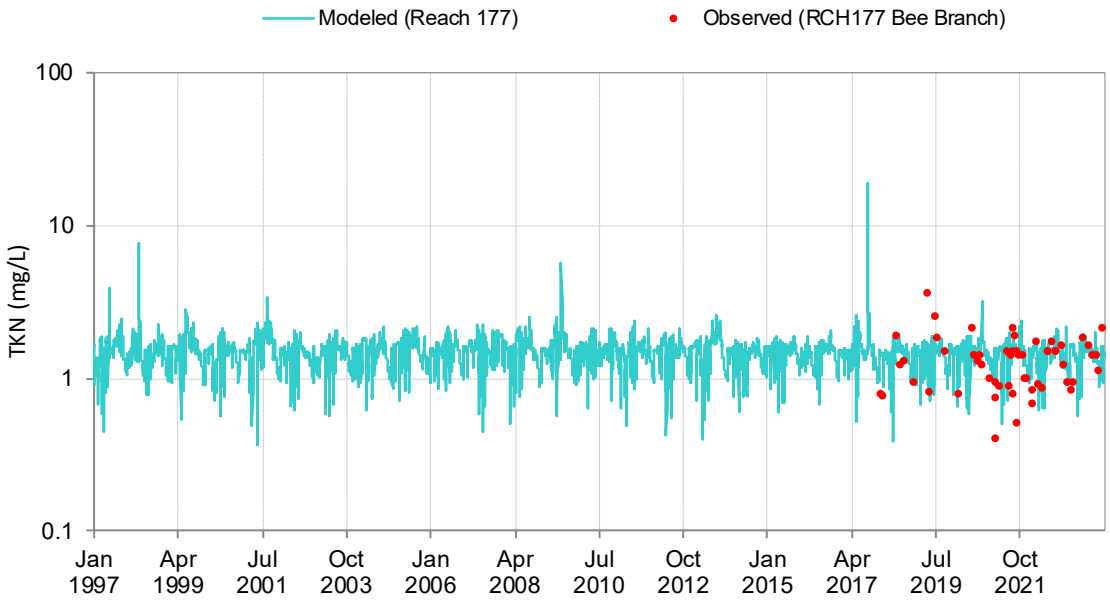


Figure C-249 Modeled Vs Observed TKN (mg/L) at RCH177 Bee Branch

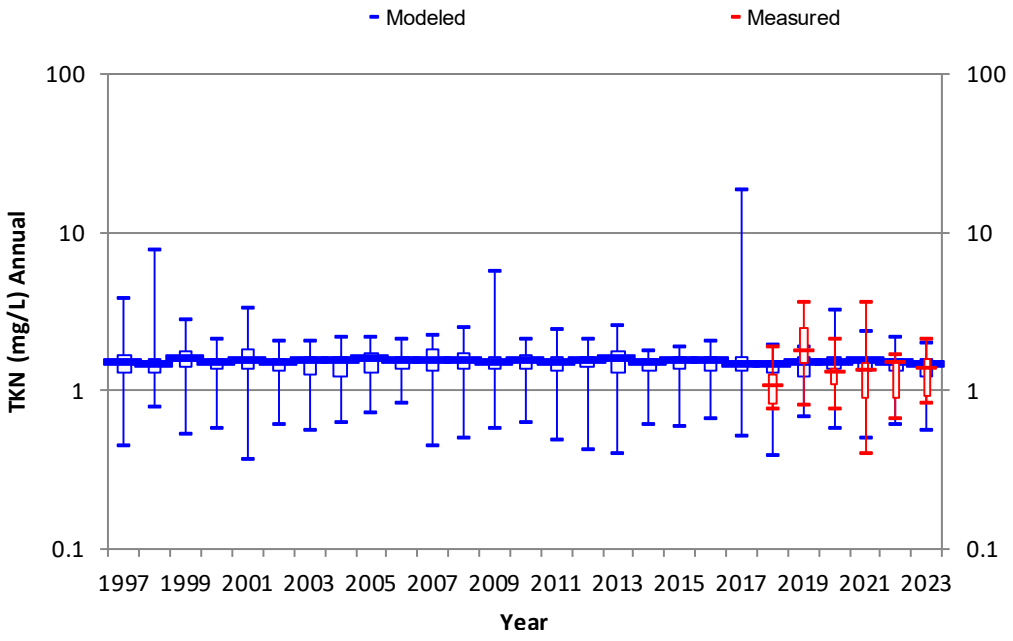


Figure C-250 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH177 Bee Branch

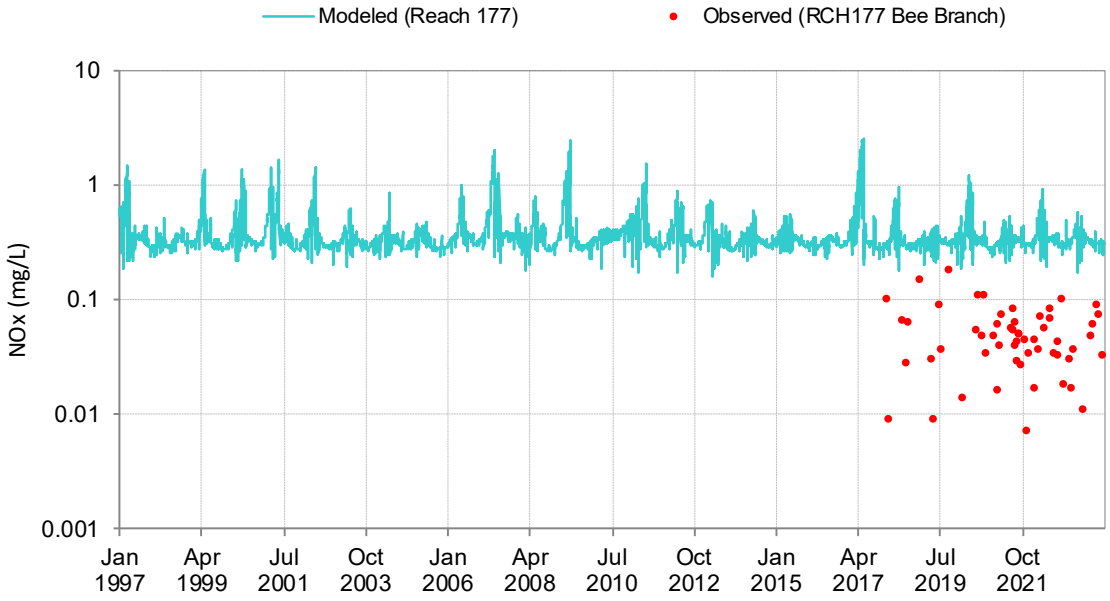


Figure C-251 Modeled Vs Observed NOx (mg/L) at RCH177 Bee Branch

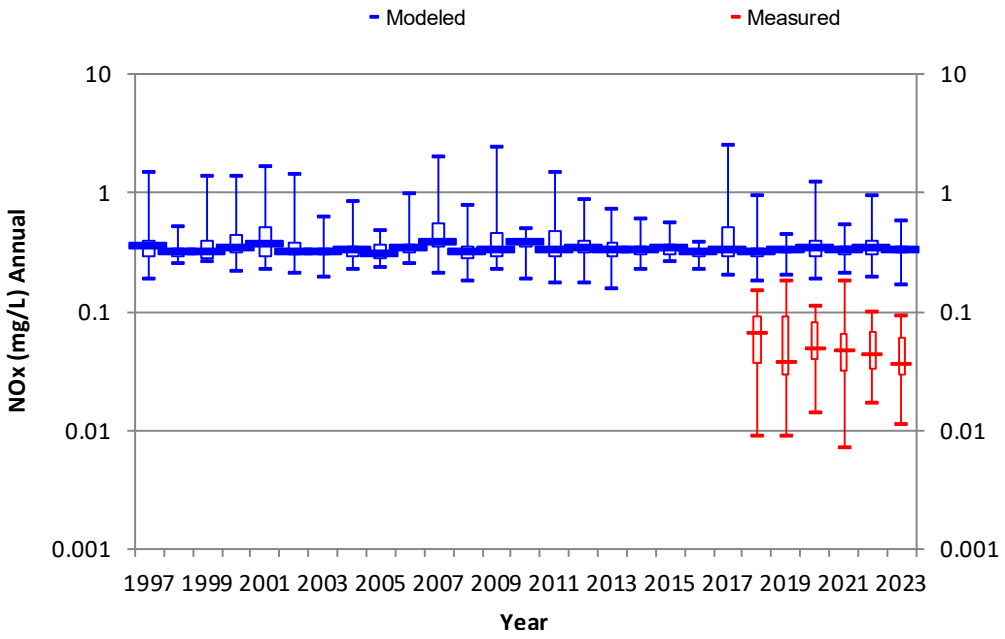


Figure C-252 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH177 Bee Branch

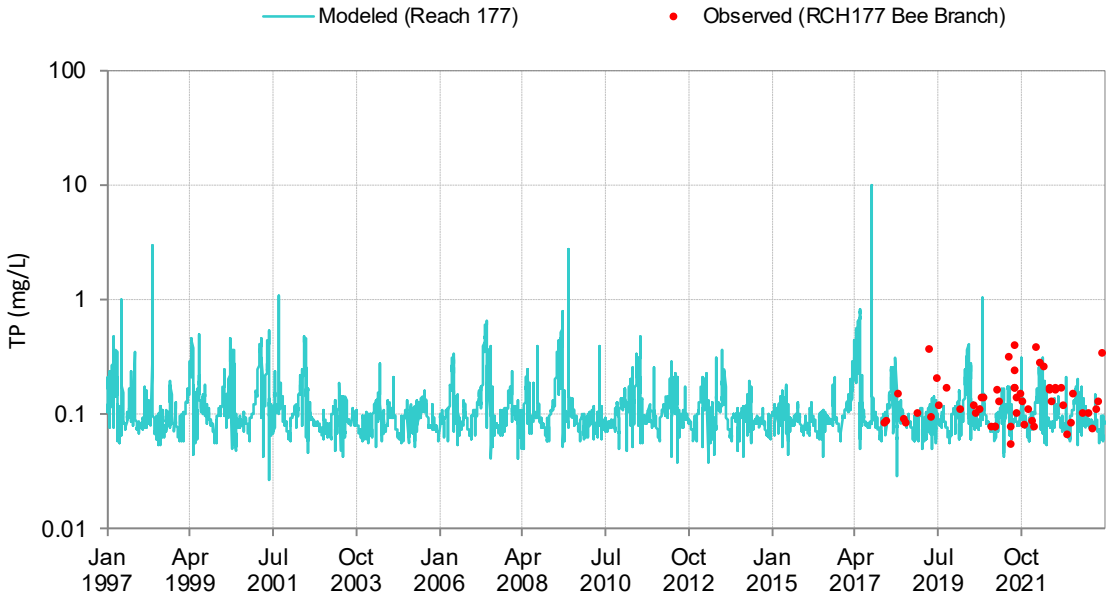


Figure C-253 Modeled Vs Observed TP (mg/L) at RCH177 Bee Branch

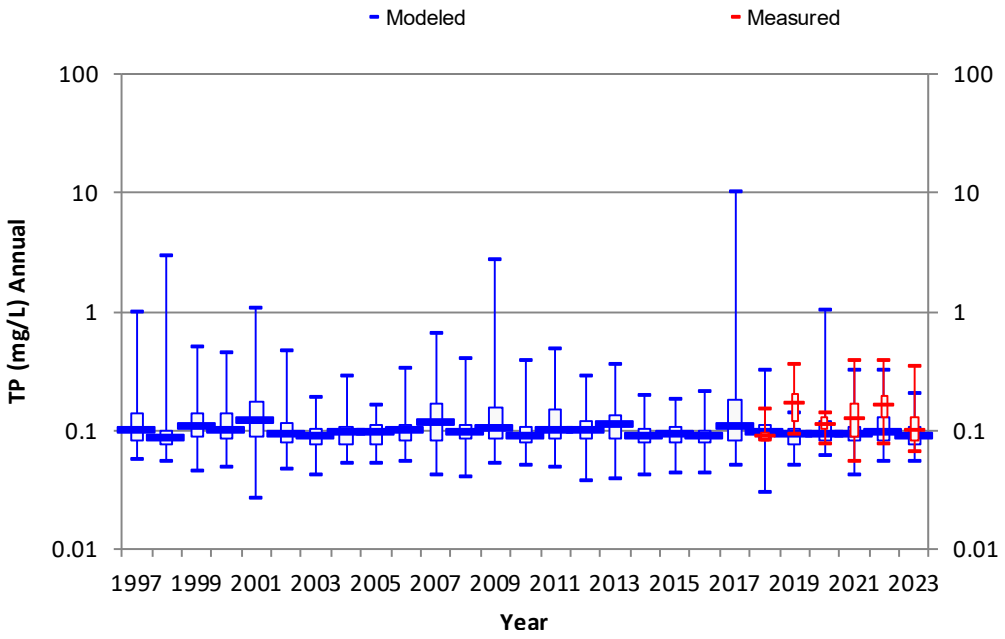


Figure C-254 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH177 Bee Branch

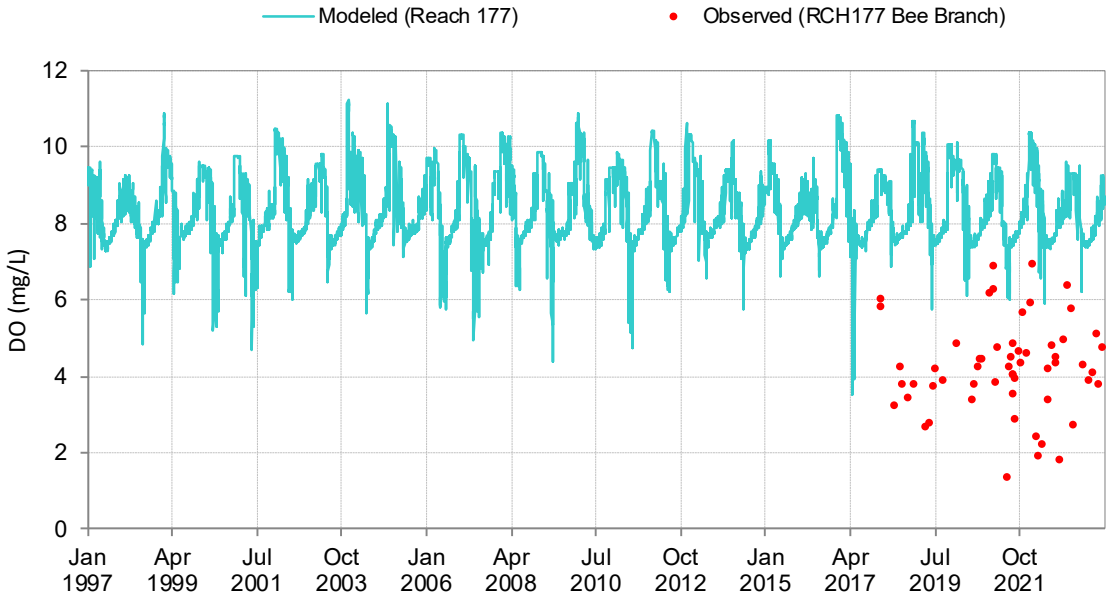


Figure C-255 Modeled Vs Observed DO (mg/L) at RCH177 Bee Branch

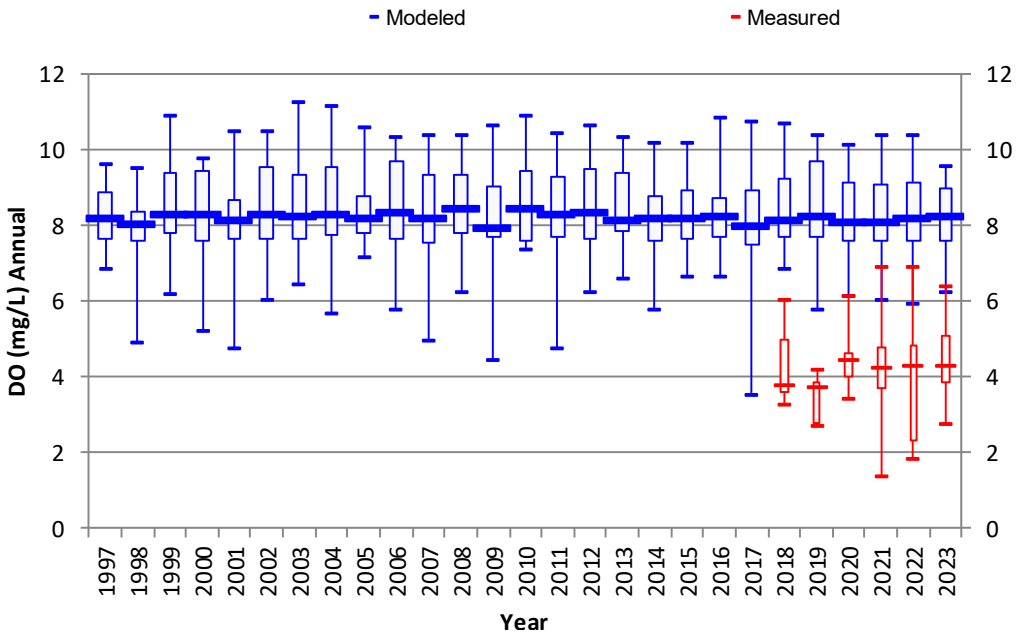


Figure C-256 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH177 Bee Branch

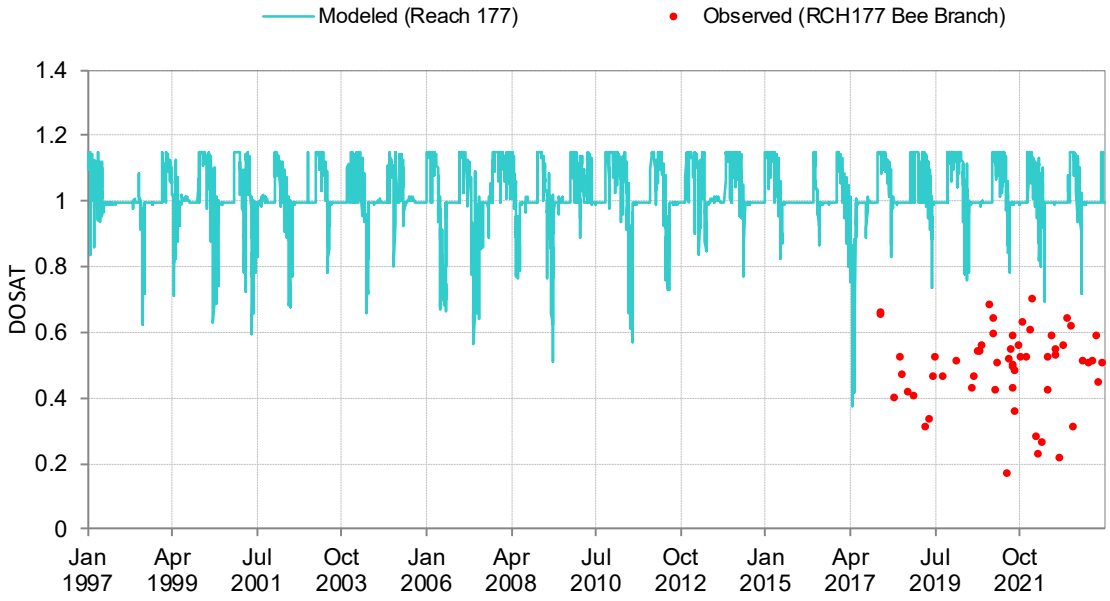


Figure C-257 Modeled Vs Observed DOSAT at RCH177 Bee Branch

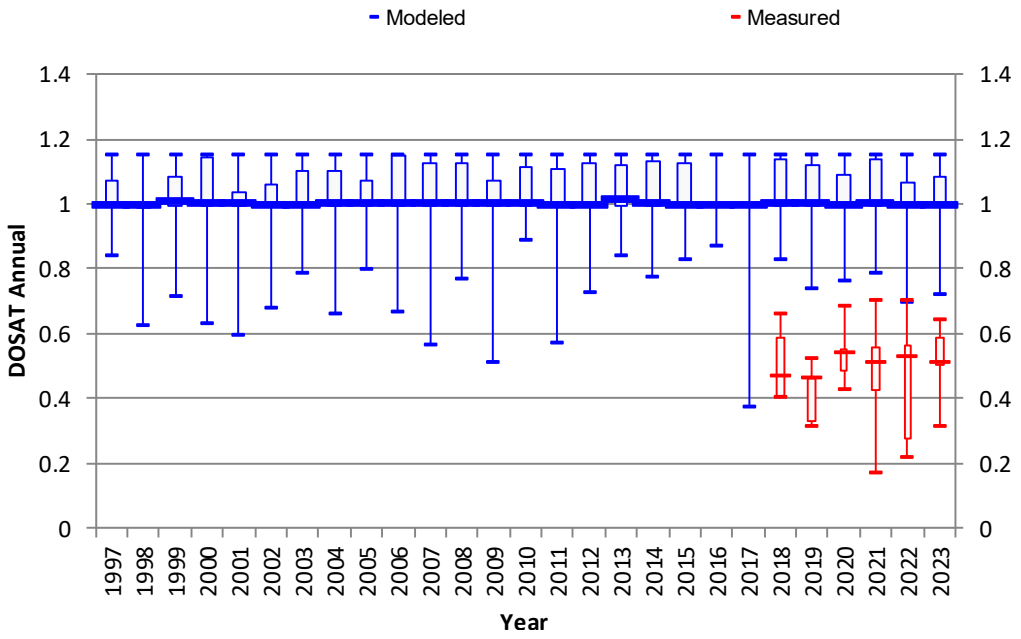


Figure C-258 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH177 Bee Branch

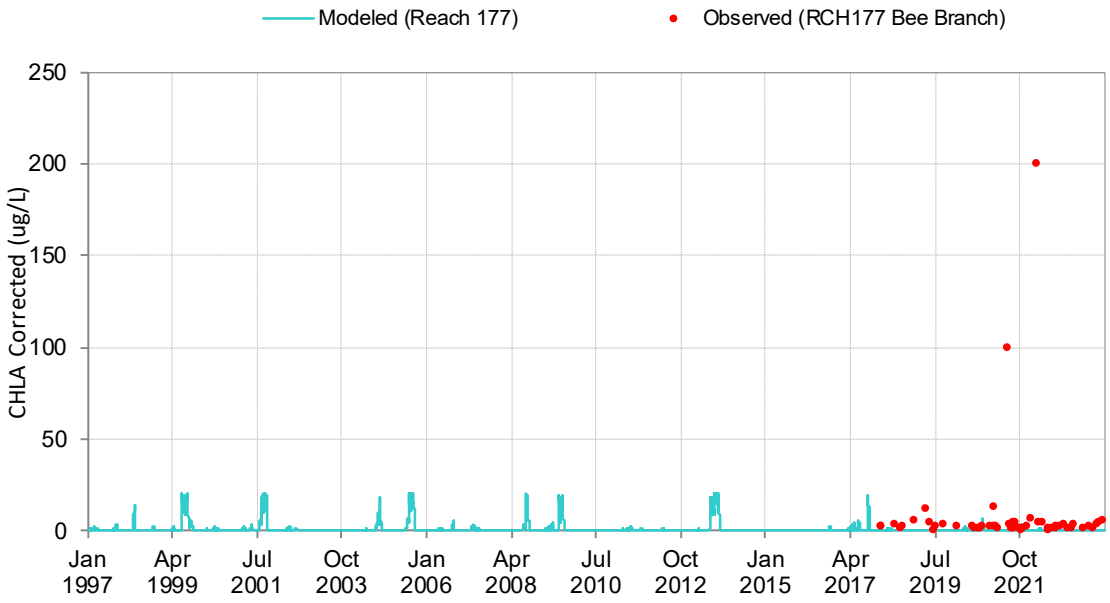


Figure C-259 Modeled Vs Observed CHLA Corrected (ug/L) at RCH177 Bee Branch

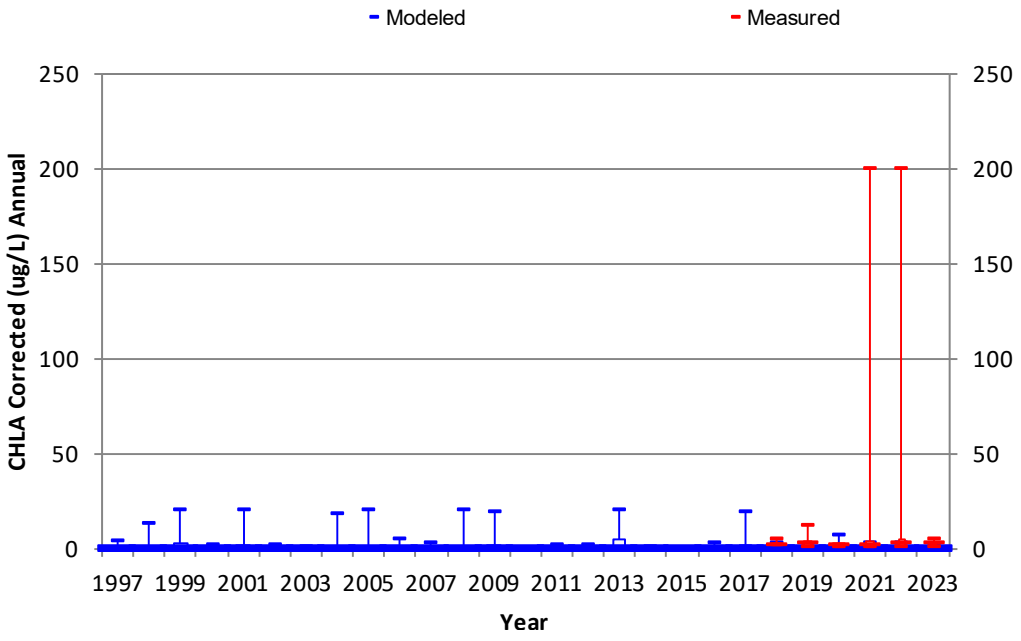


Figure C-260 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH177 Bee Branch

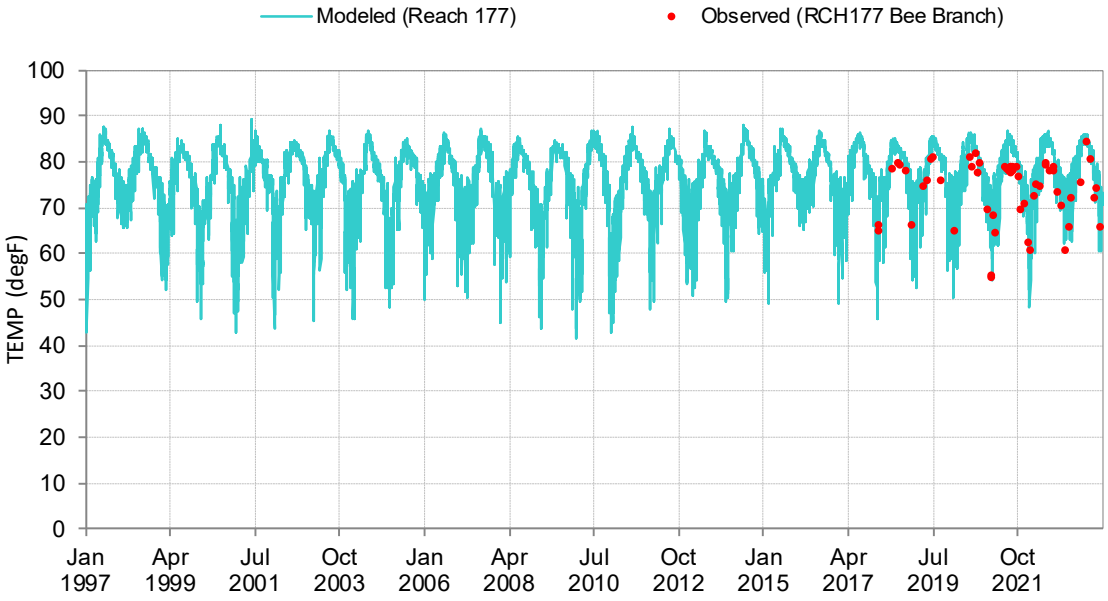


Figure C-261 Modeled Vs Observed TEMP (deg F) at RCH177 Bee Branch

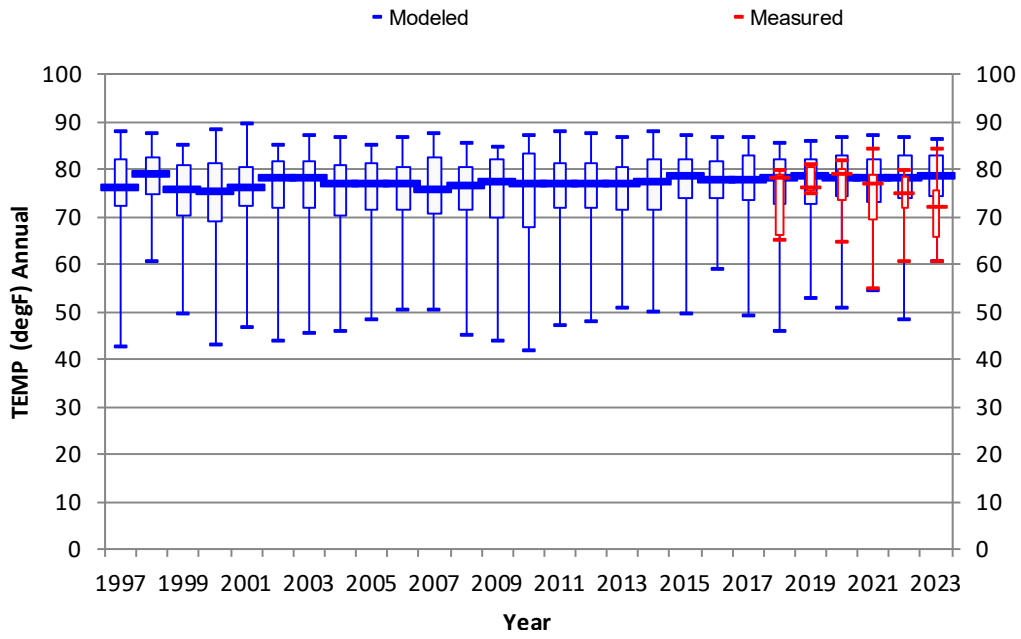


Figure C-262 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH177 Bee Branch

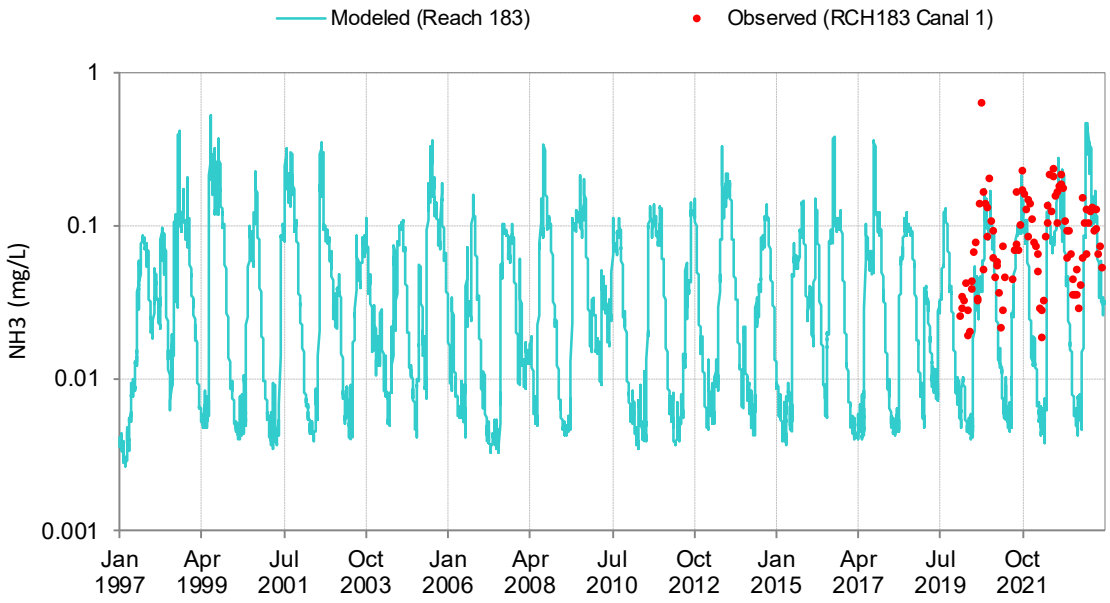


Figure C-263 Modeled Vs Observed NH3 (mg/L) at RCH183 Canal 1

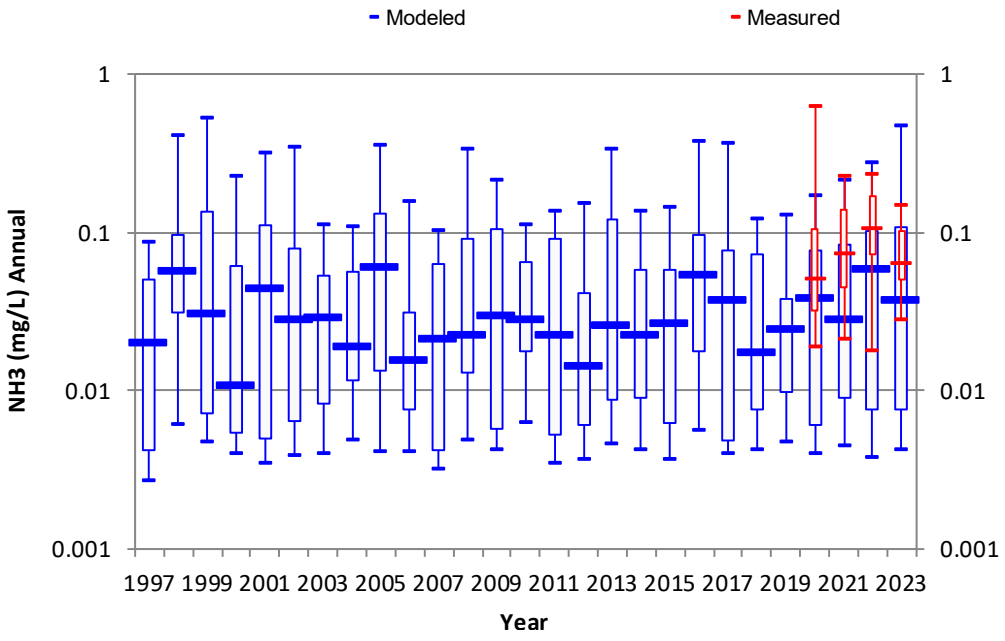


Figure C-264 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH183 Canal 1

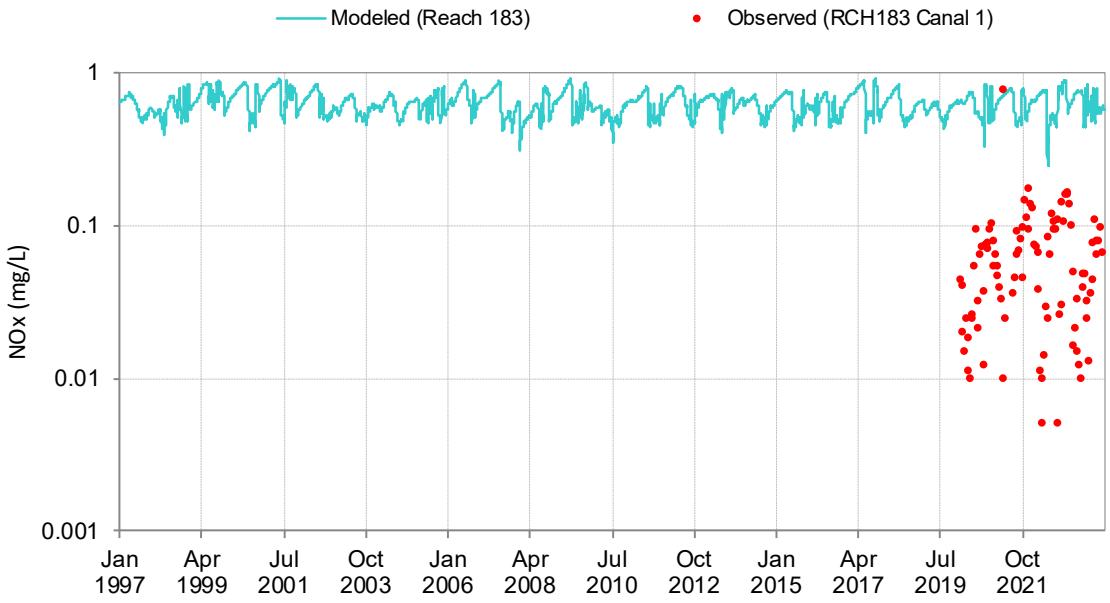


Figure C-265 Modeled Vs Observed NOx (mg/L) at RCH183 Canal 1

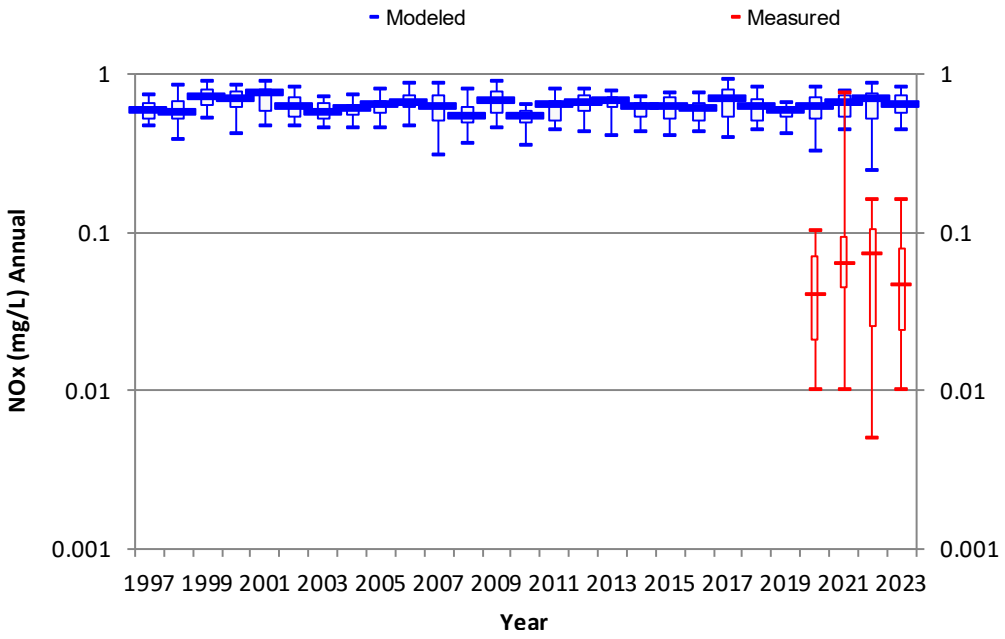


Figure C-266 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH183 Canal 1

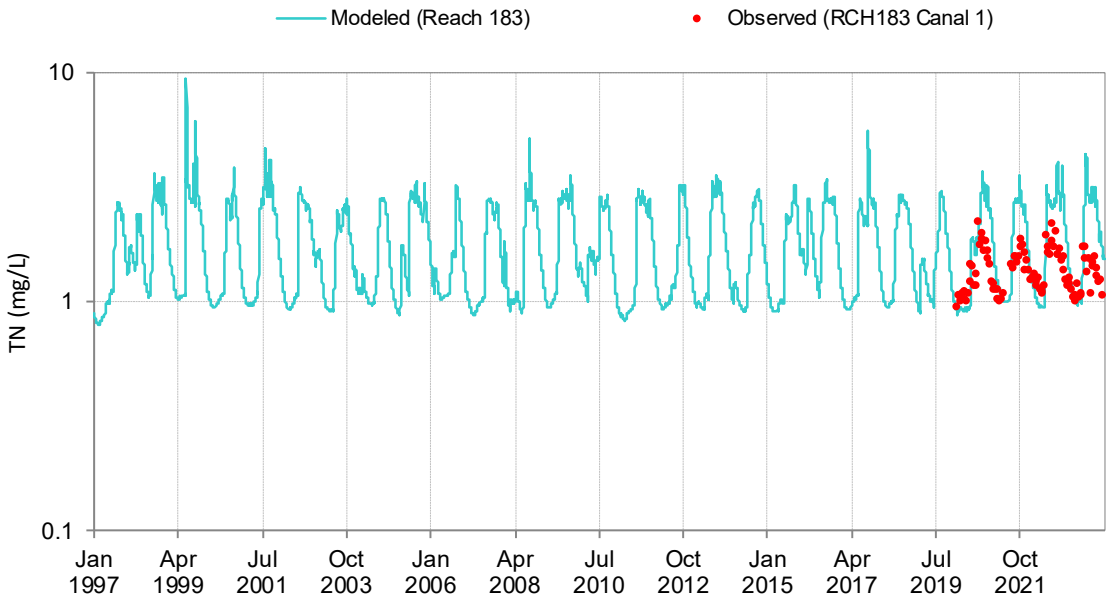


Figure C-267 Modeled Vs Observed TN (mg/L) at RCH183 Canal 1

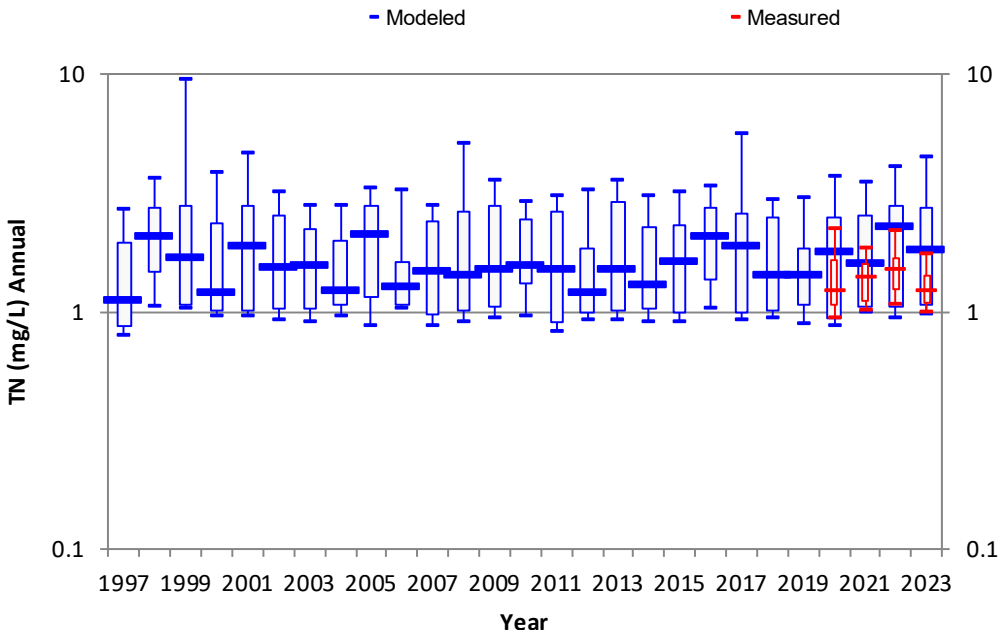


Figure C-268 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH183 Canal 1

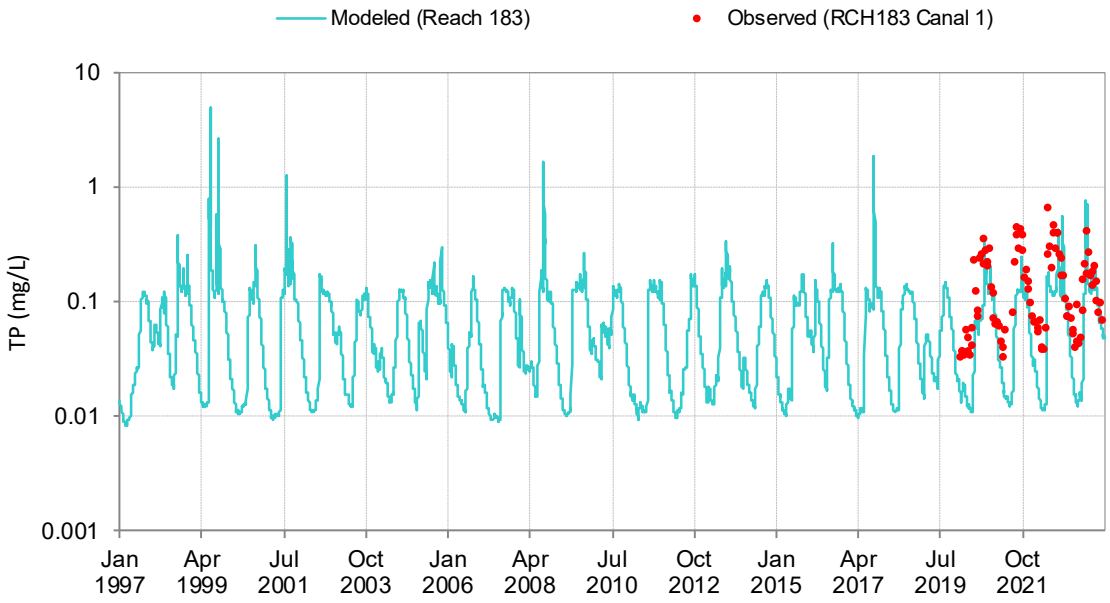


Figure C-269 Modeled Vs Observed TP (mg/L) at RCH183 Canal 1

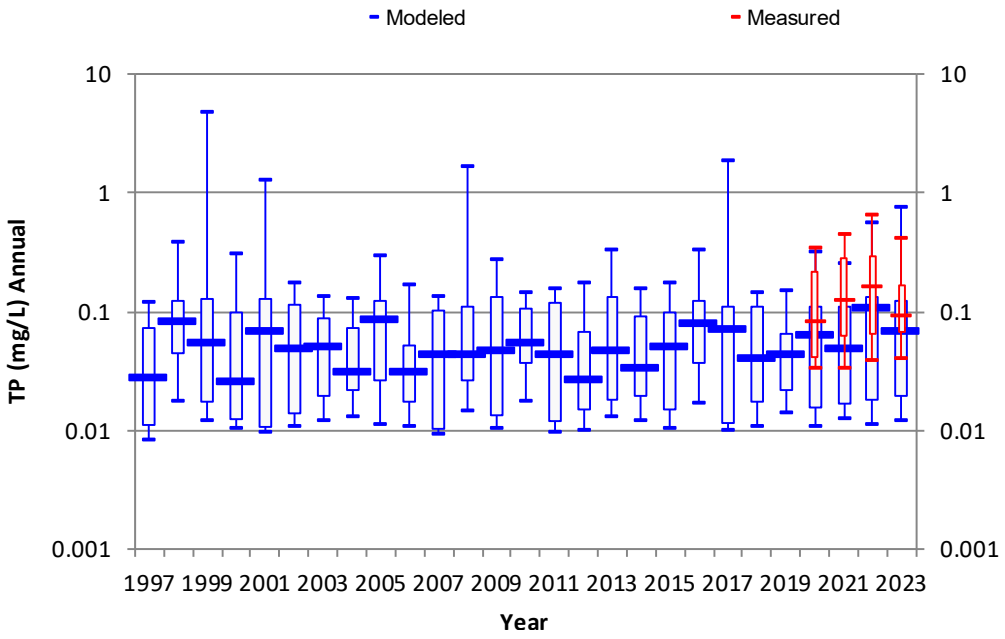


Figure C-270 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH183 Canal 1

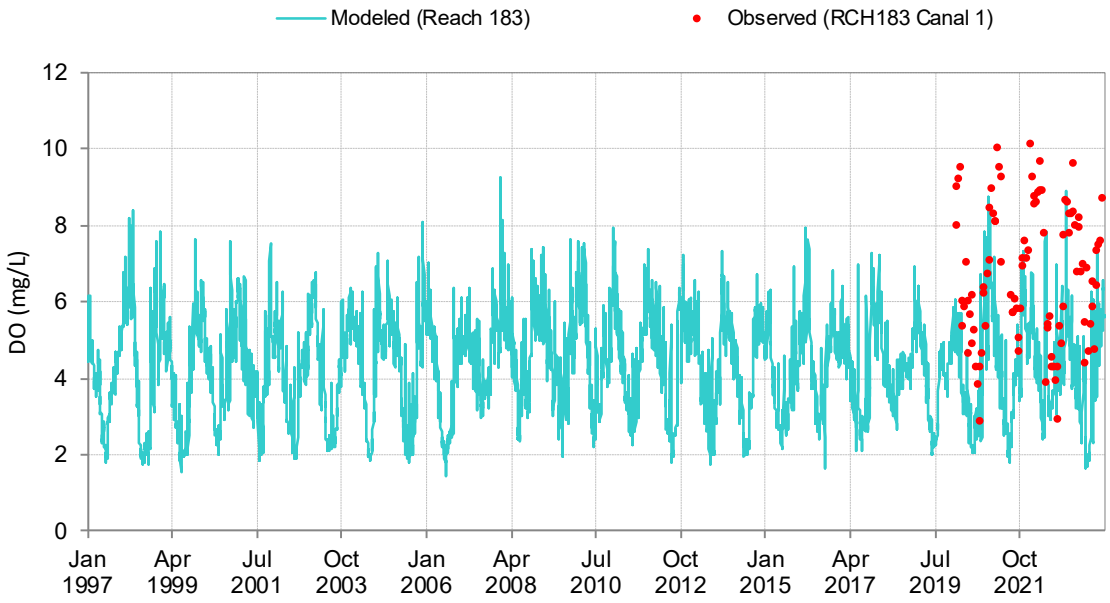


Figure C-271 Modeled Vs Observed DO (mg/L) at RCH183 Canal 1

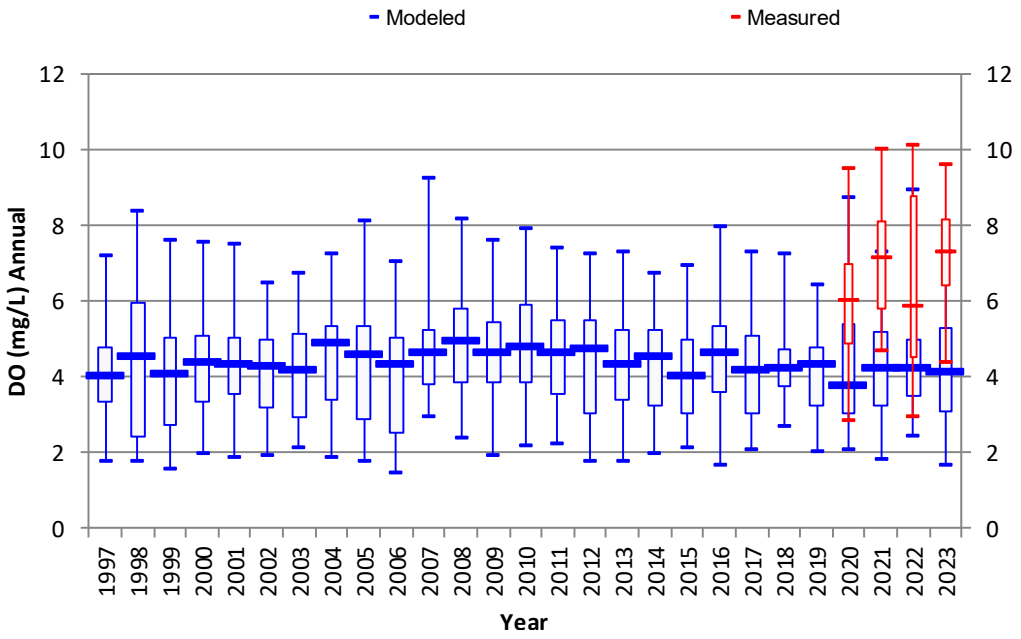


Figure C-272 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH183 Canal 1

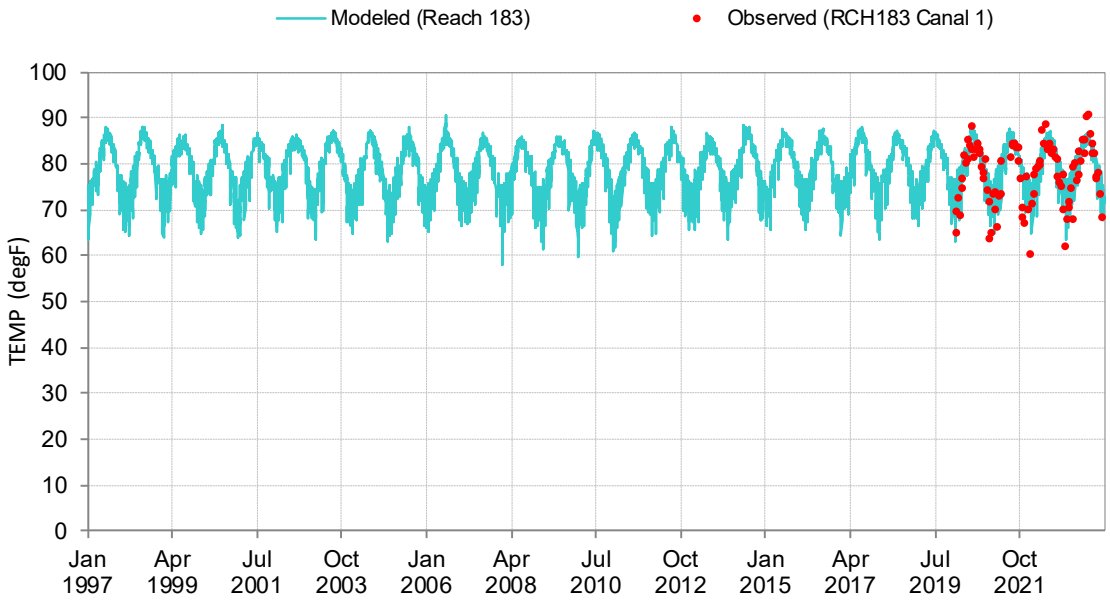


Figure C-273 Modeled Vs Observed TEMP (deg F) at RCH183 Canal 1

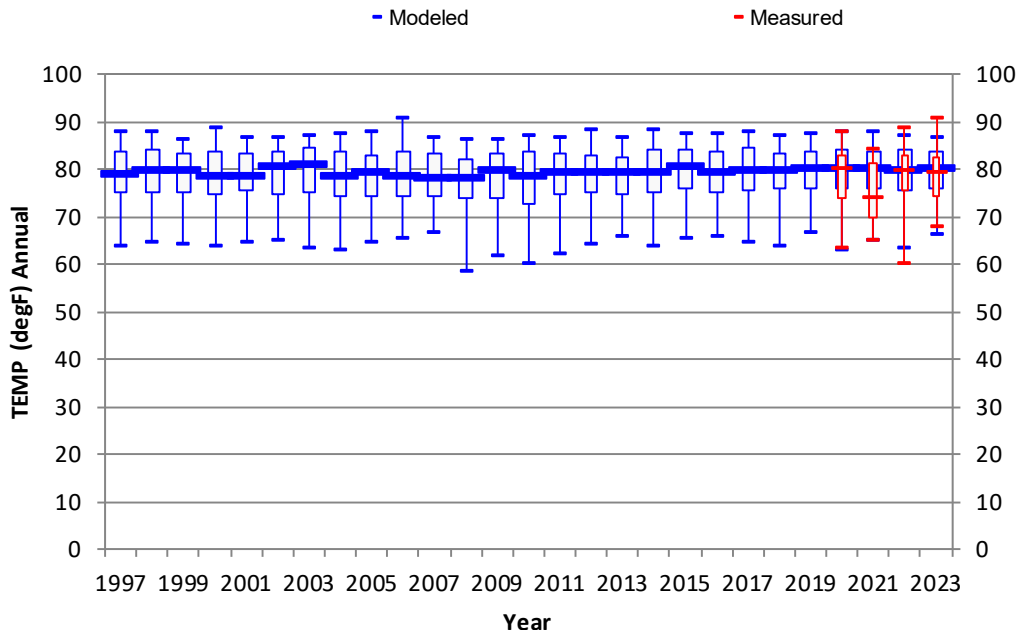


Figure C-274 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH183 Canal 1

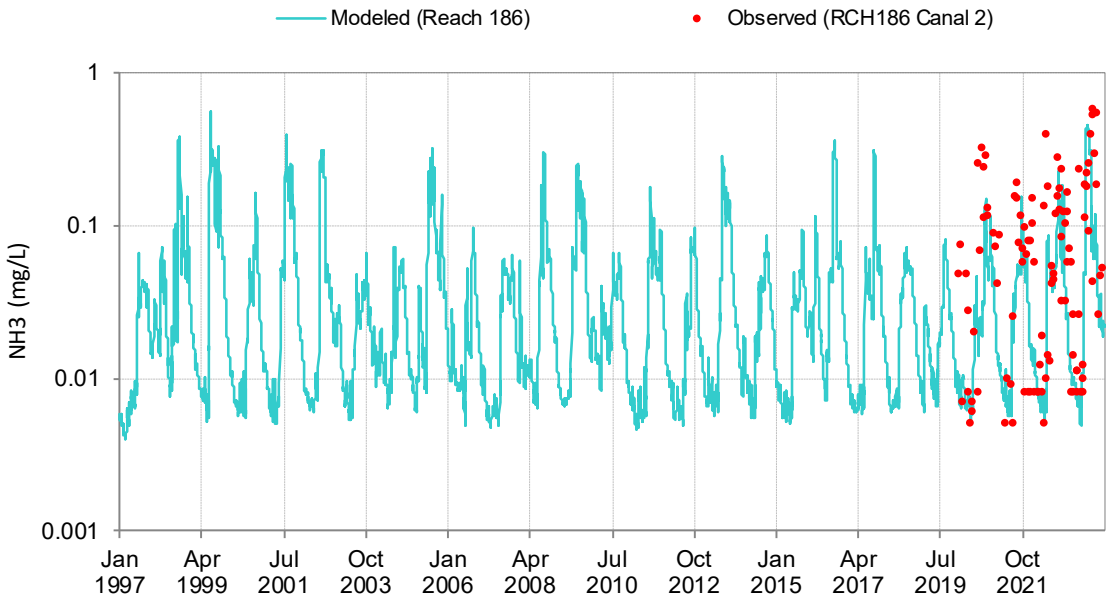


Figure C-275 Modeled Vs Observed NH3 (mg/L) at RCH186 Canal 2

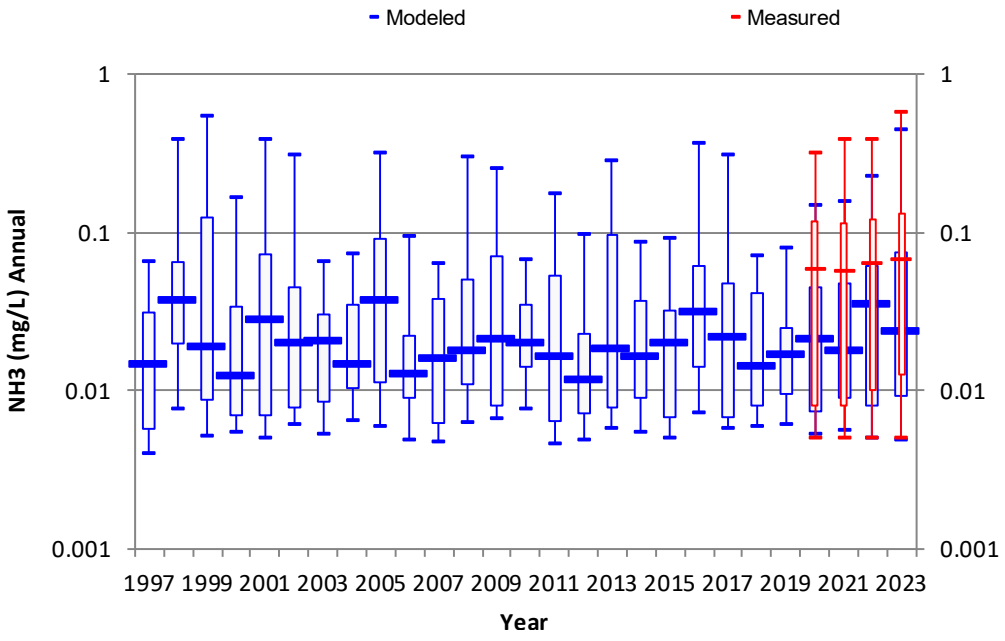


Figure C-276 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH186 Canal 2

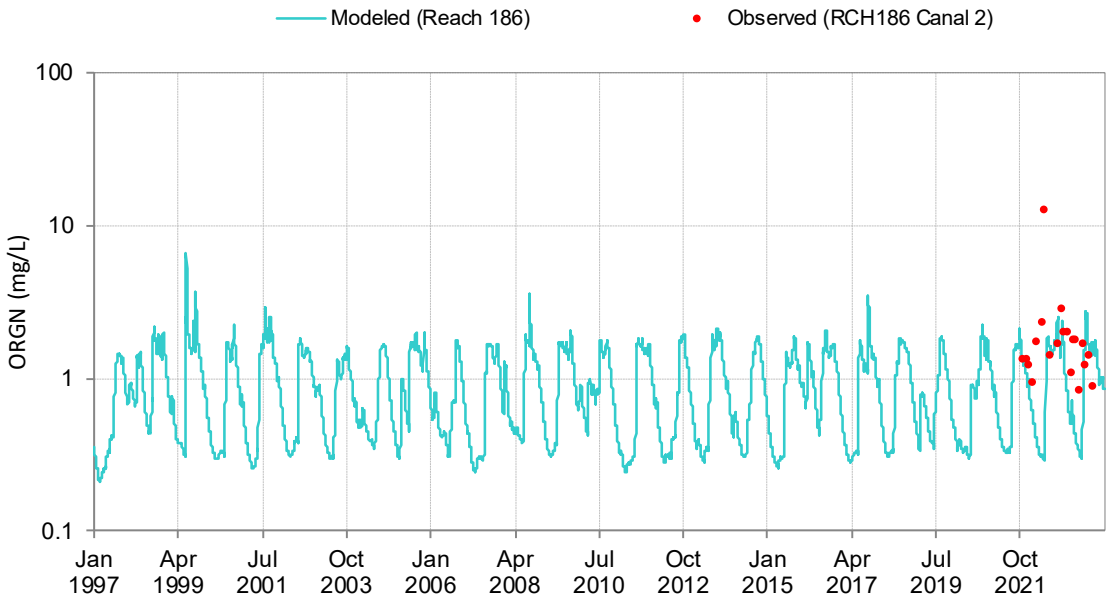


Figure C-277 Modeled Vs Observed ORGN (mg/L) at RCH186 Canal 2

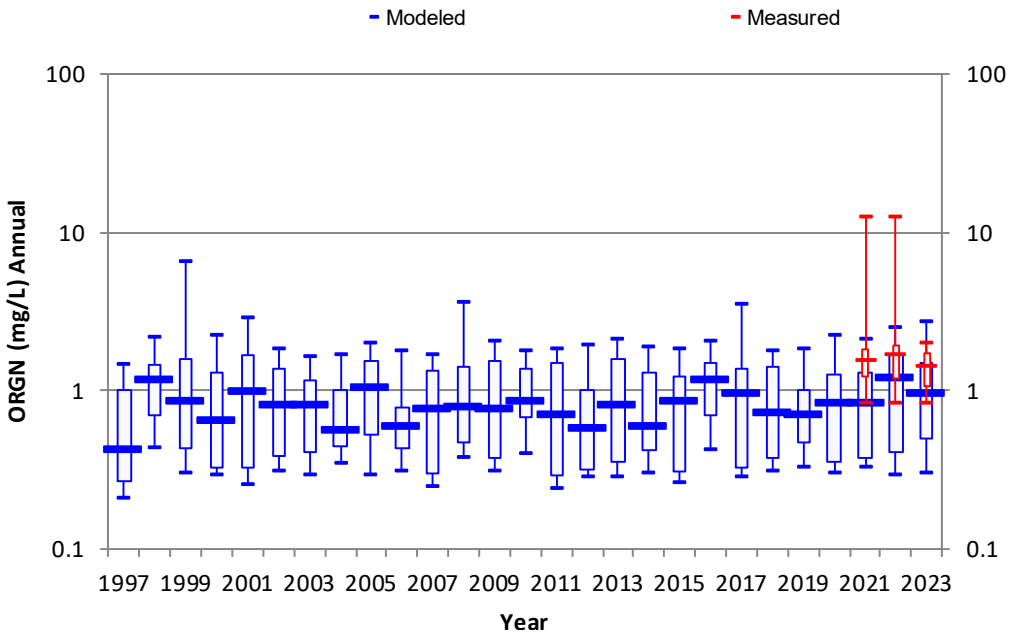


Figure C-278 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH186 Canal 2

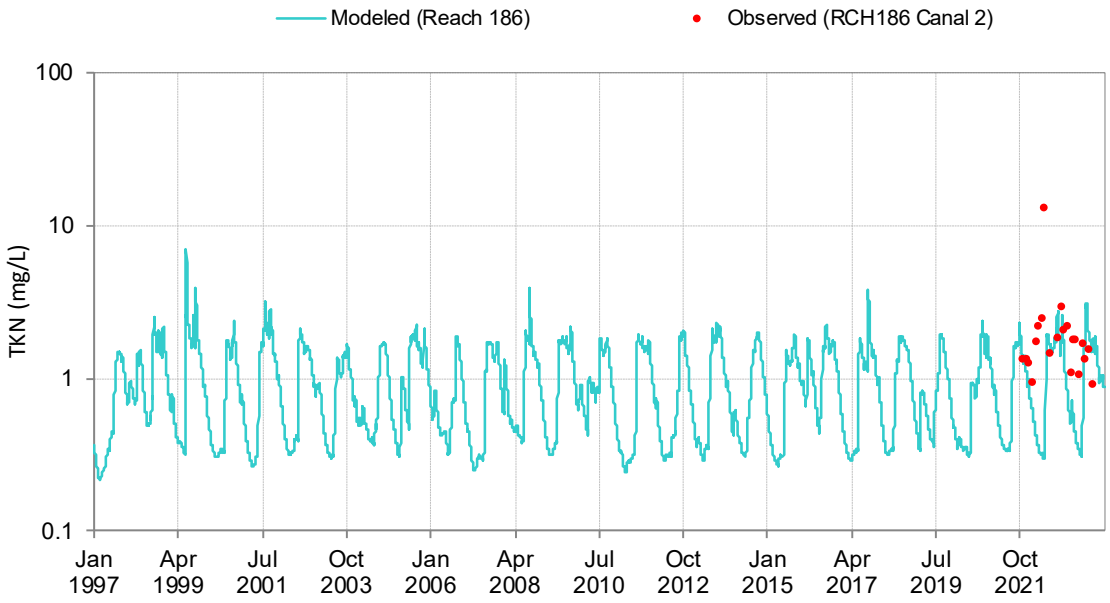


Figure C-279 Modeled Vs Observed TKN (mg/L) at RCH186 Canal 2

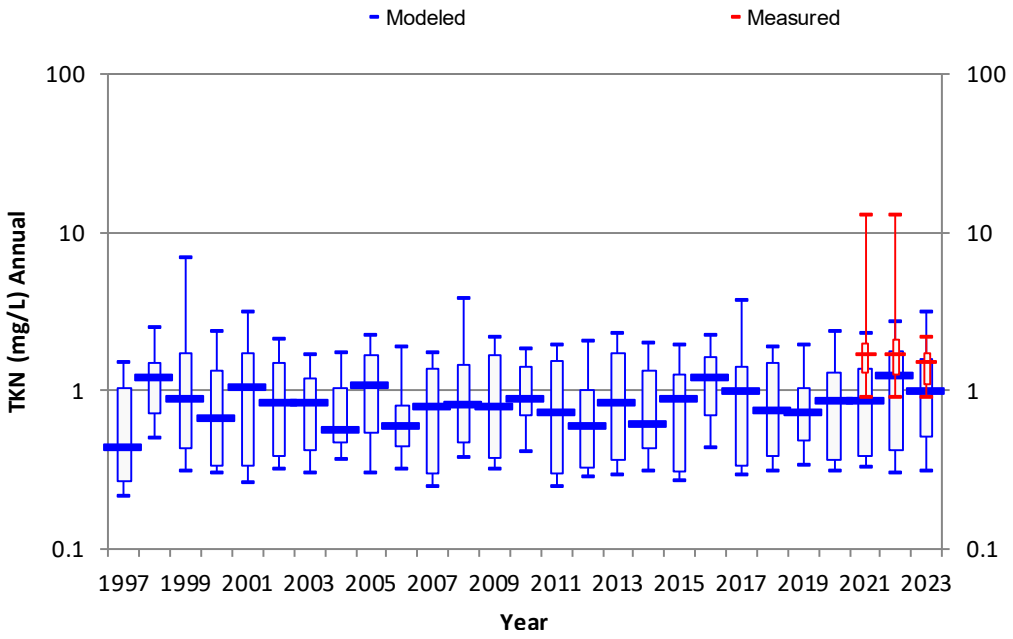


Figure C-280 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH186 Canal 2

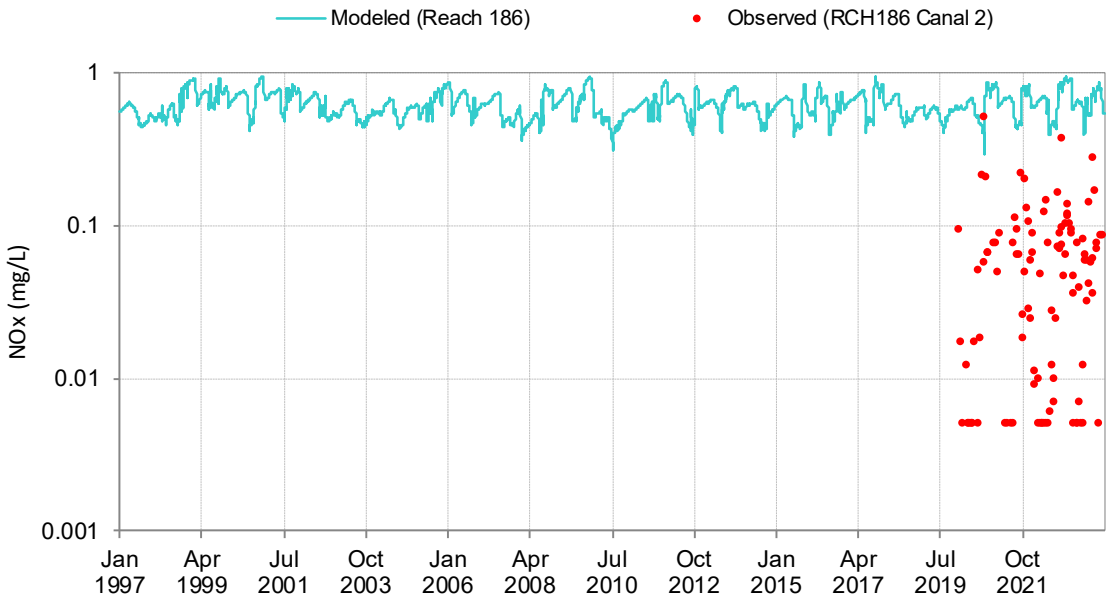


Figure C-281 Modeled Vs Observed NOx (mg/L) at RCH186 Canal 2

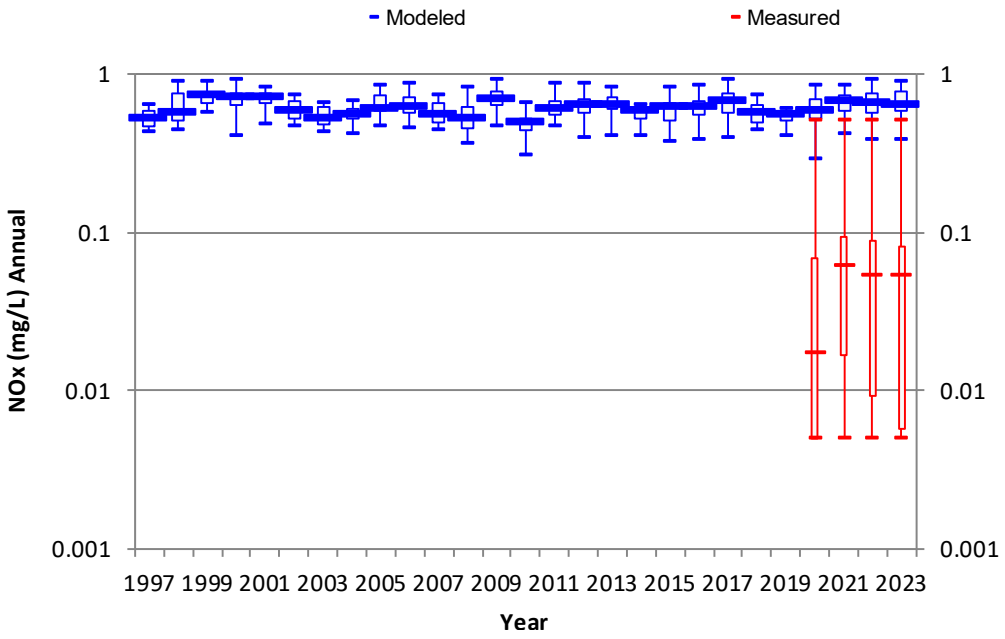


Figure C-282 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH186 Canal 2

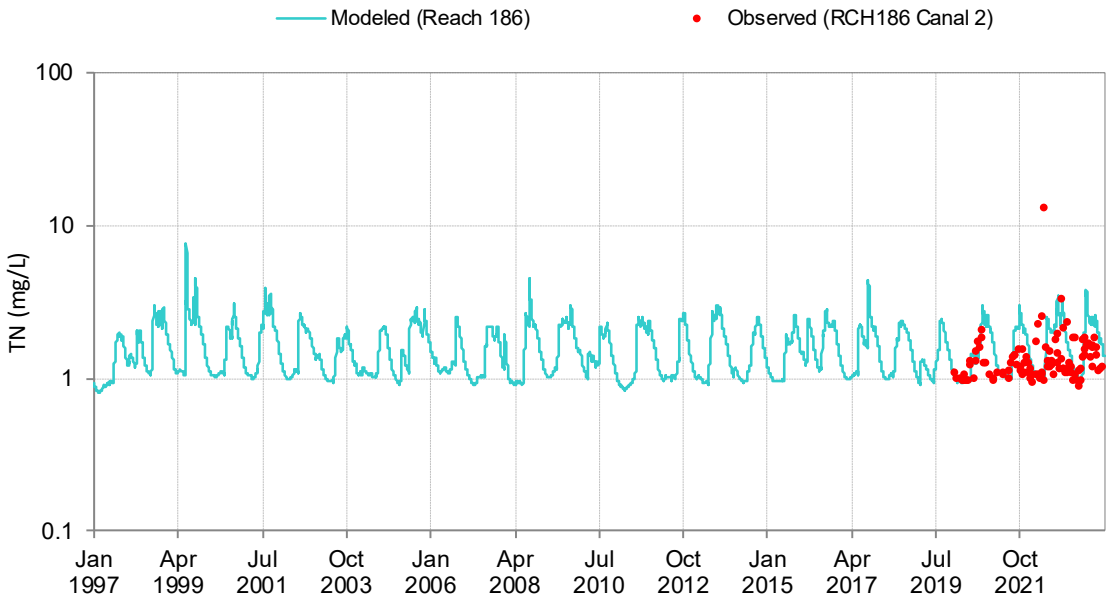


Figure C-283 Modeled Vs Observed TN (mg/L) at RCH186 Canal 2

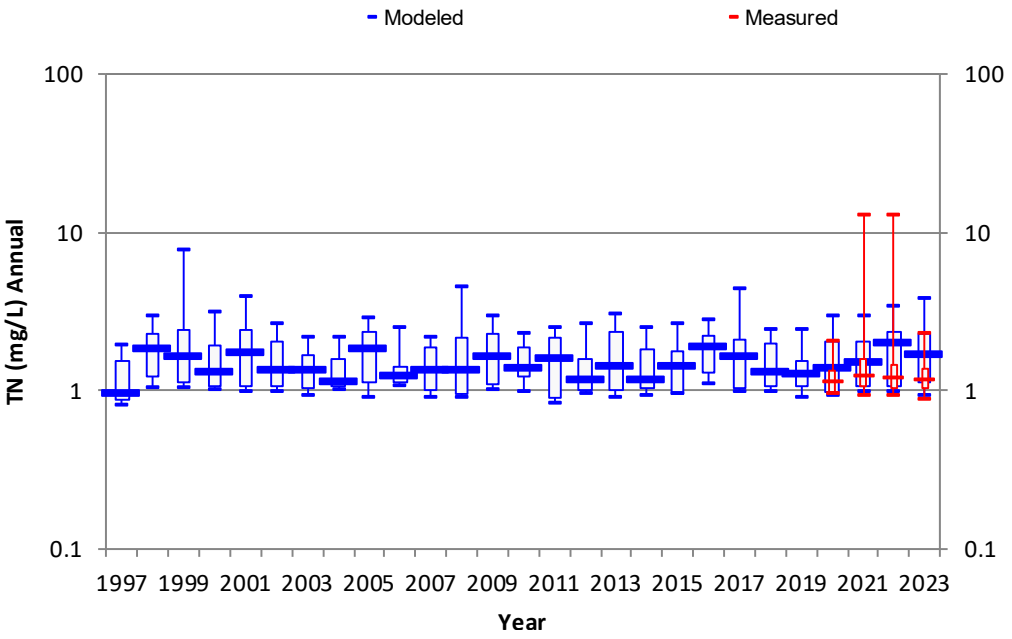


Figure C-284 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH186 Canal 2

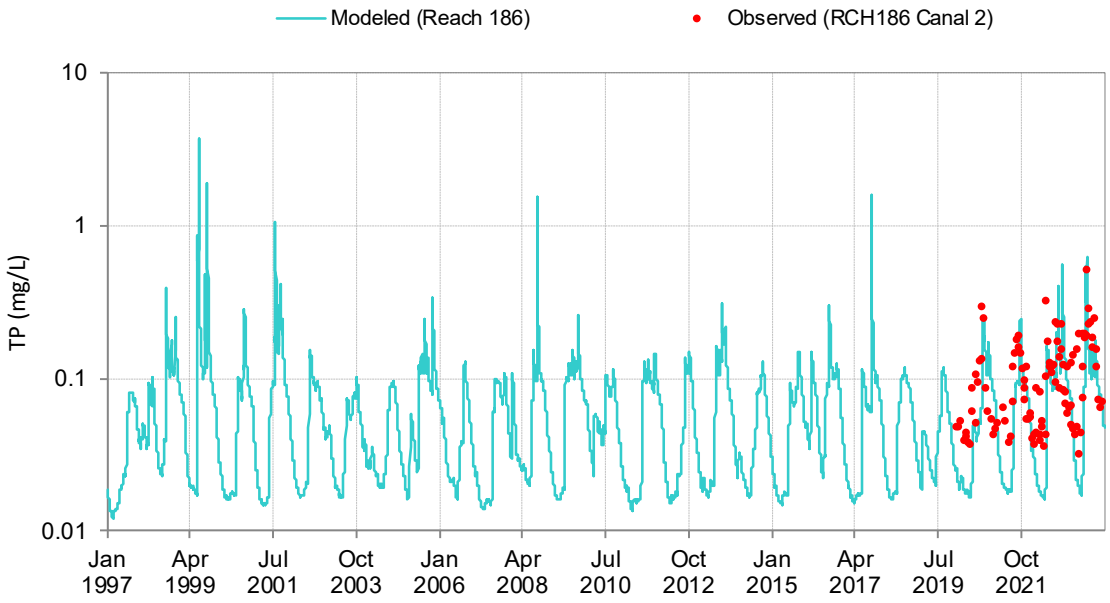


Figure C-285 Modeled Vs Observed TP (mg/L) at RCH186 Canal 2

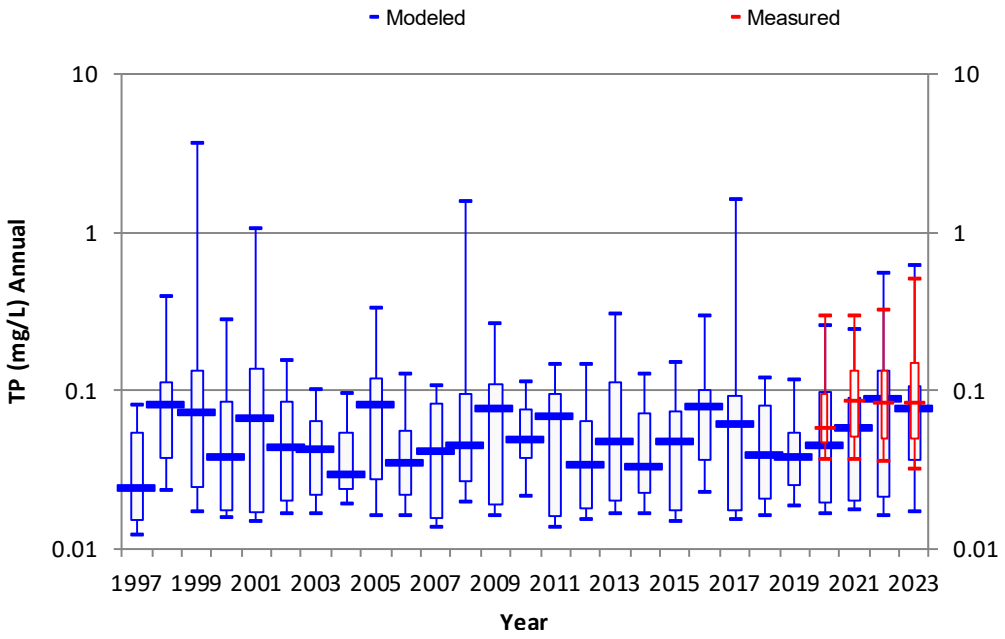


Figure C-286 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH186 Canal 2

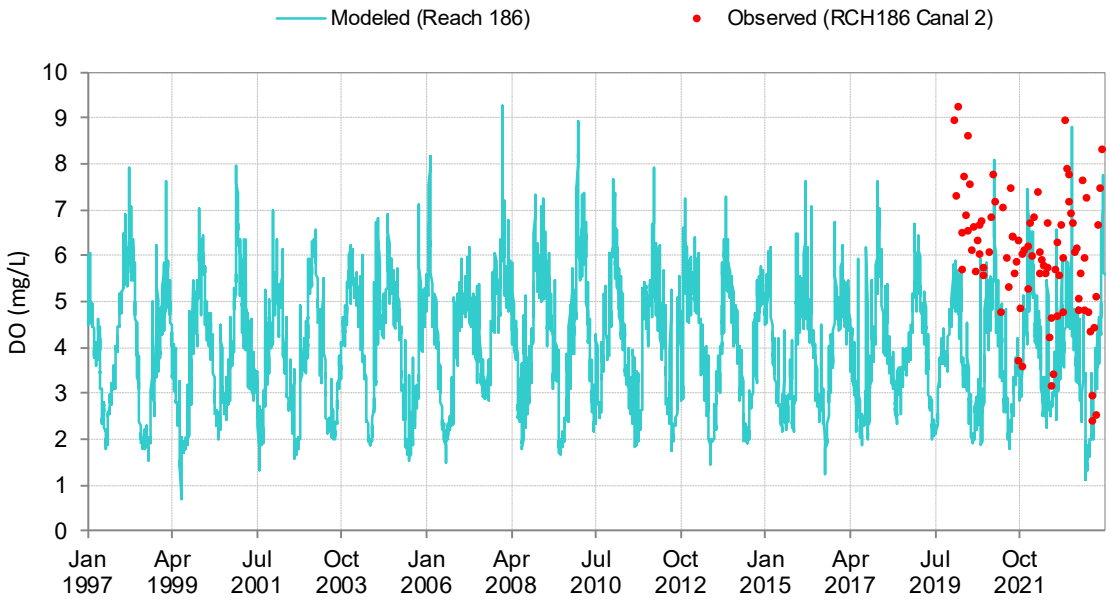


Figure C-287 Modeled Vs Observed DO (mg/L) at RCH186 Canal 2

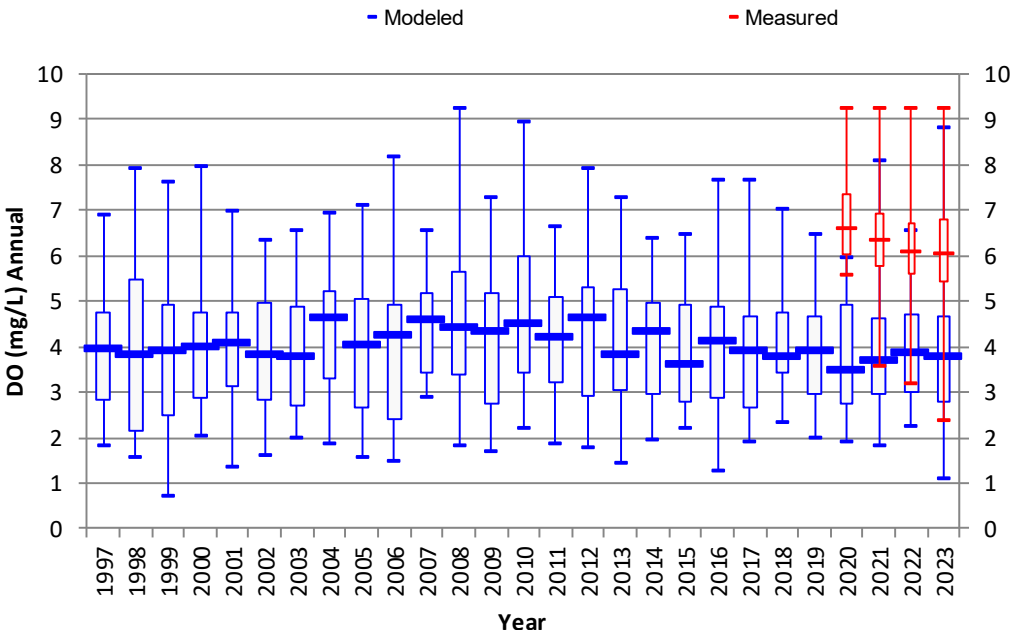


Figure C-288 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH186 Canal 2

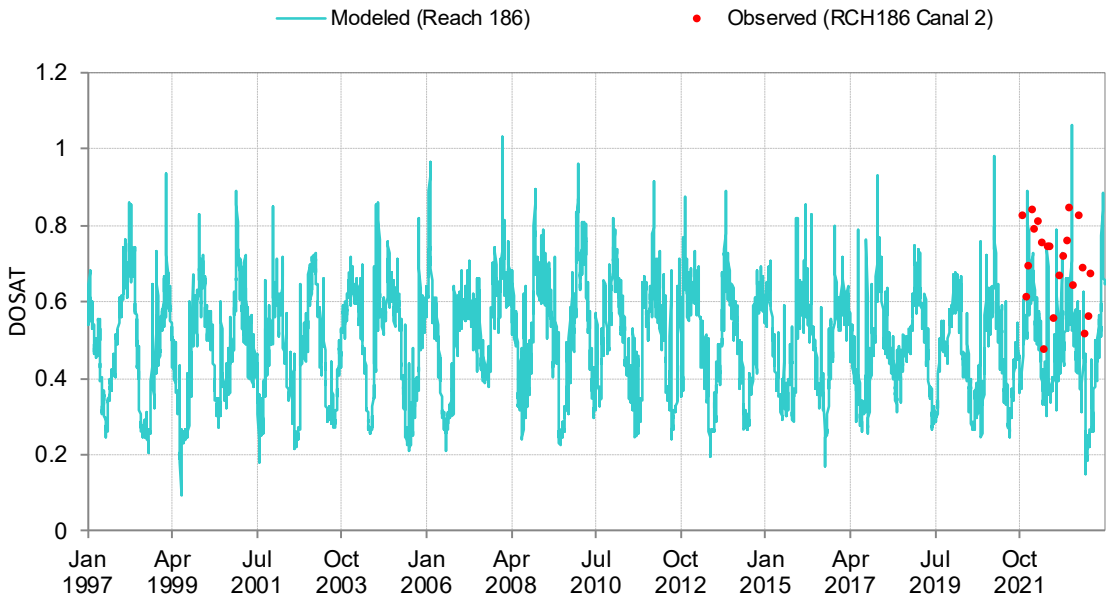


Figure C-289 Modeled Vs Observed DOSAT at RCH186 Canal 2

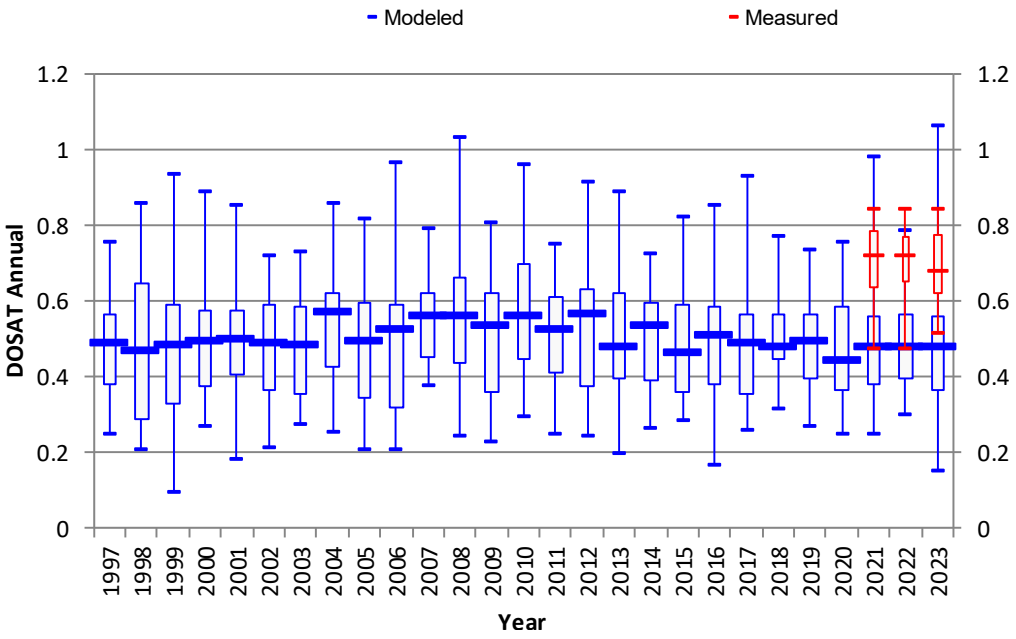


Figure C-290 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH186 Canal 2

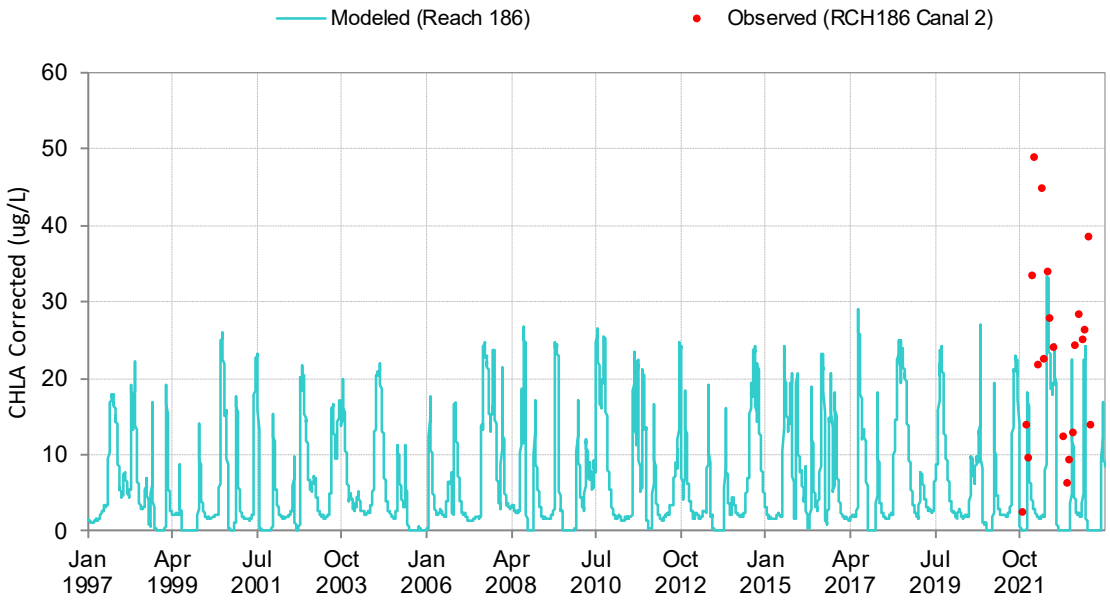


Figure C-291 Modeled Vs Observed CHLA Corrected (ug/L) at RCH186 Canal 2

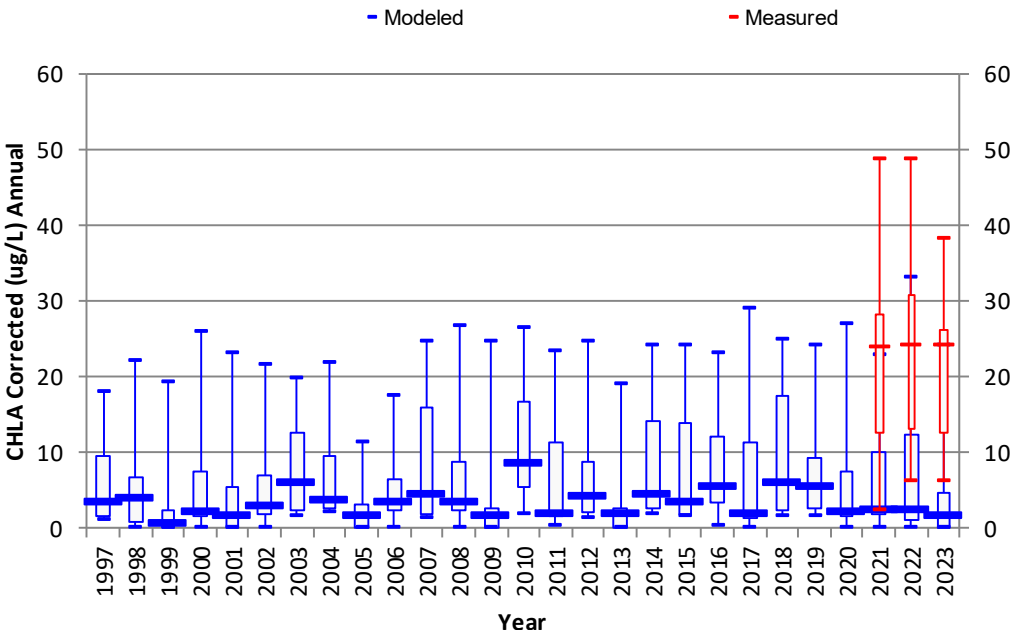


Figure C-292 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH186 Canal 2

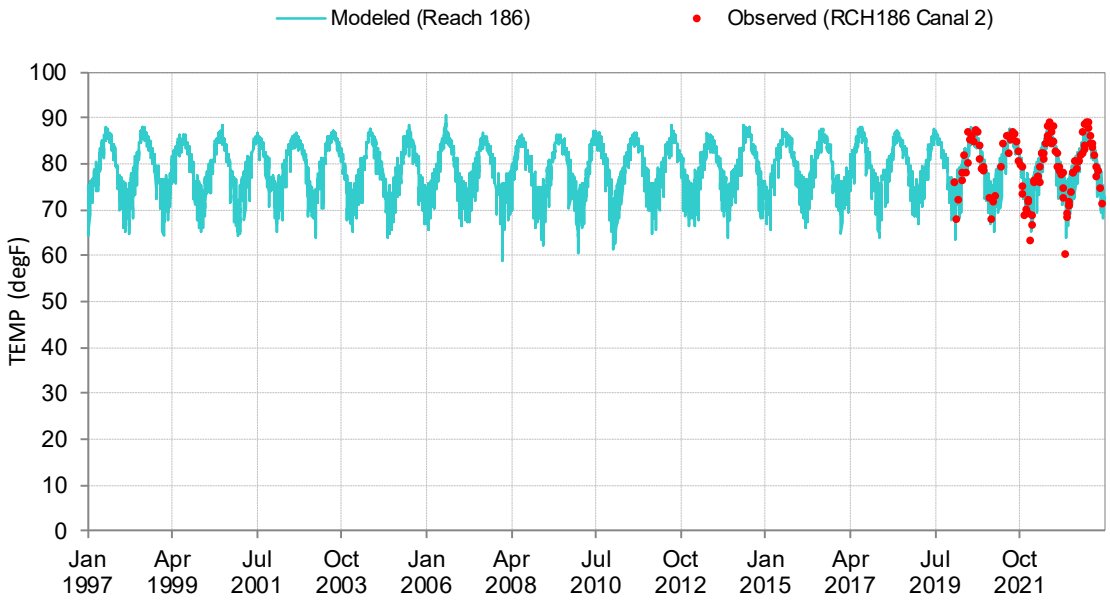


Figure C-293 Modeled Vs Observed TEMP (deg F) at RCH186 Canal 2

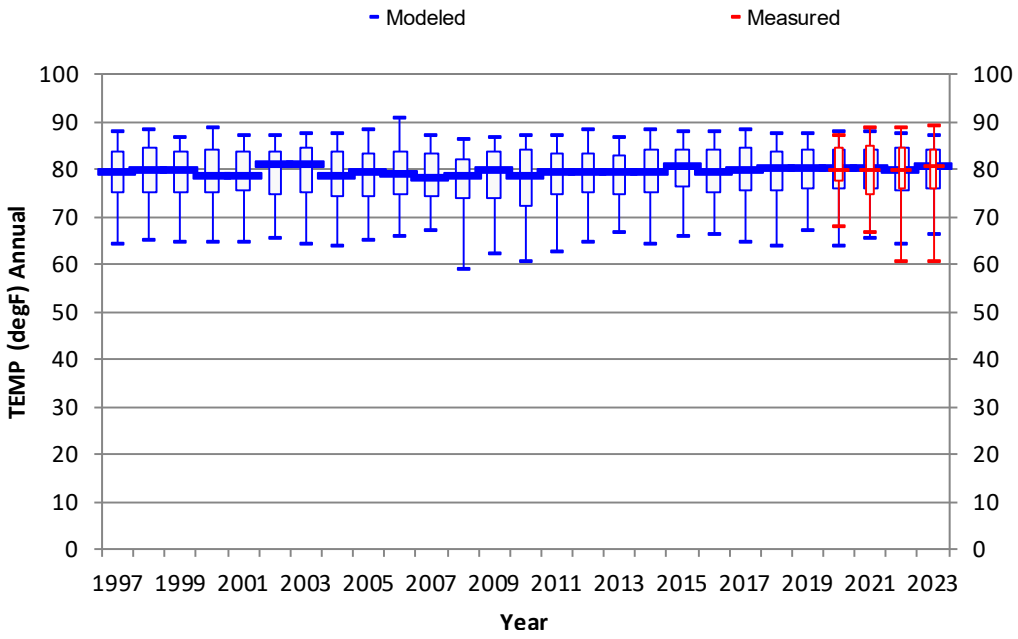


Figure C-294 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH186 Canal 2

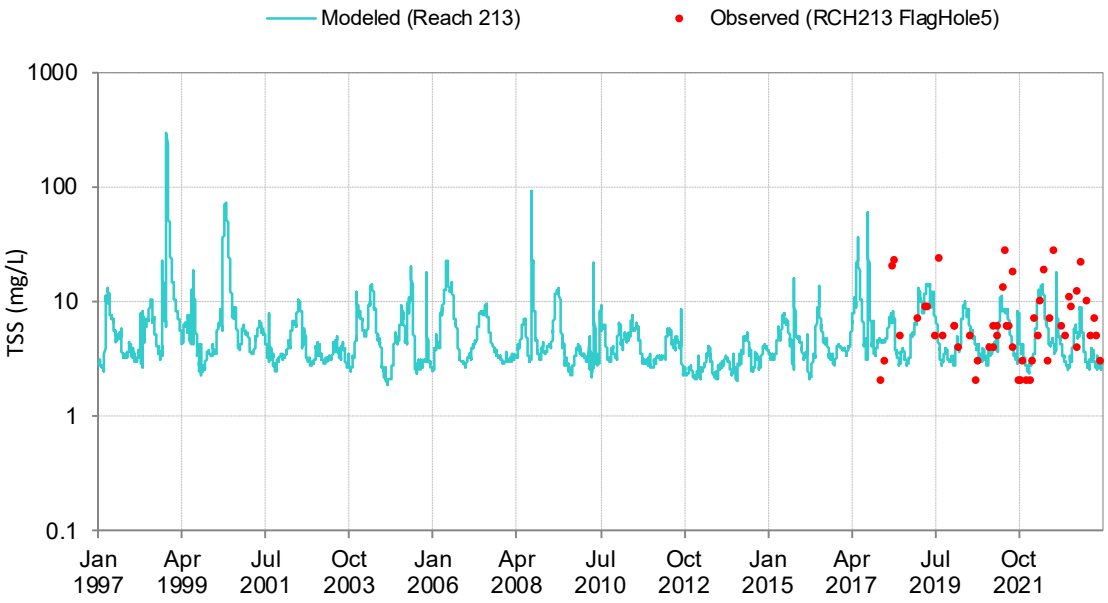


Figure C-295 Modeled Vs Observed TSS (mg/L) at RCH213 FlagHole5

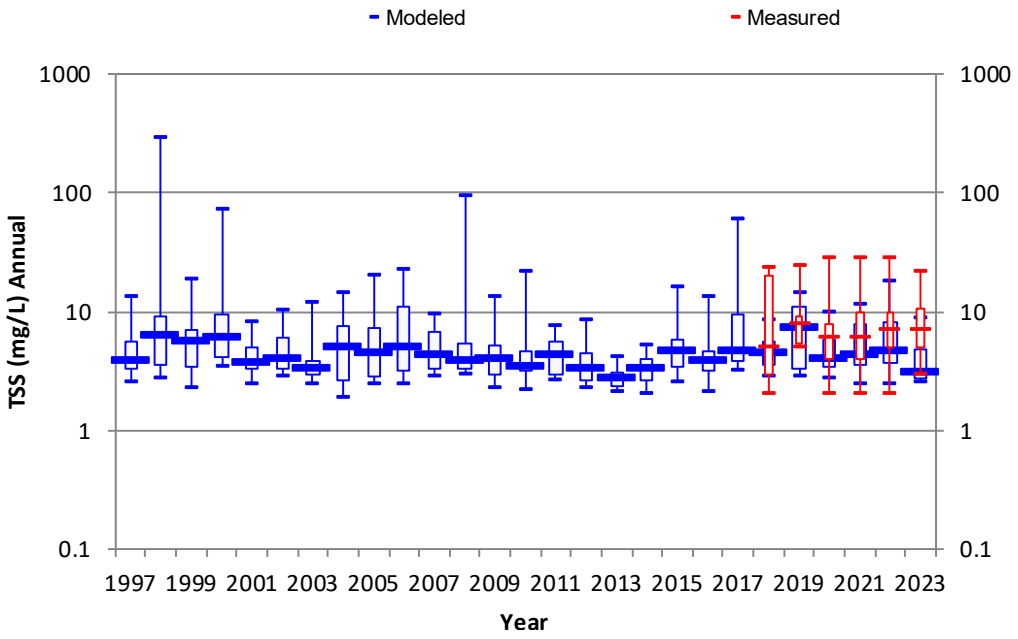


Figure C-296 Box and Whisker plot of Modeled Vs Observed TSS (mg/L) at RCH213 FlagHole5

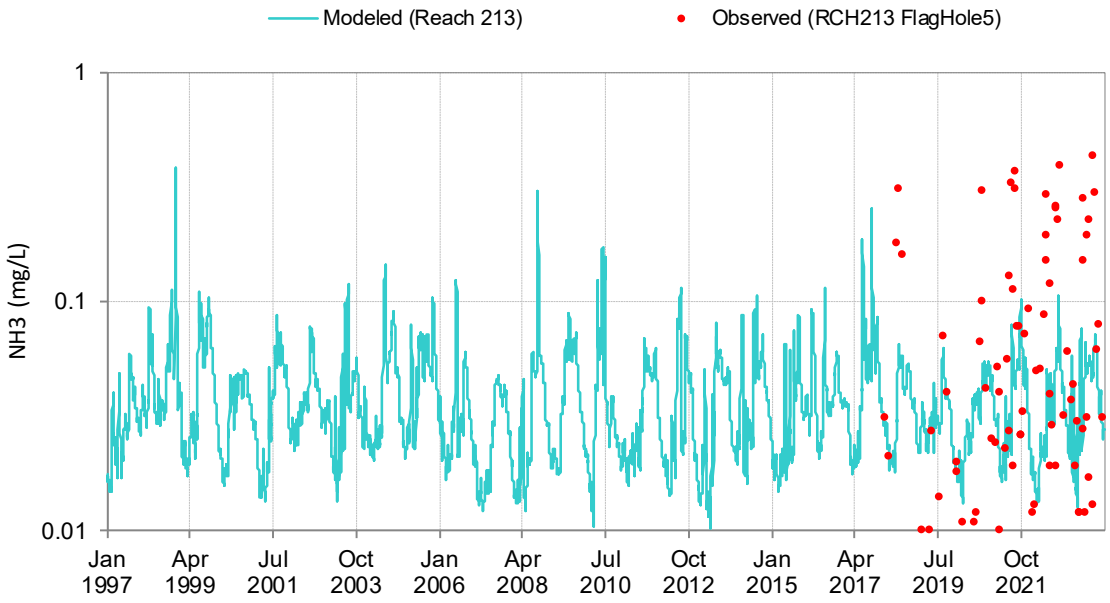


Figure C-297 Modeled Vs Observed NH3 (mg/L) at RCH213 FlagHole5

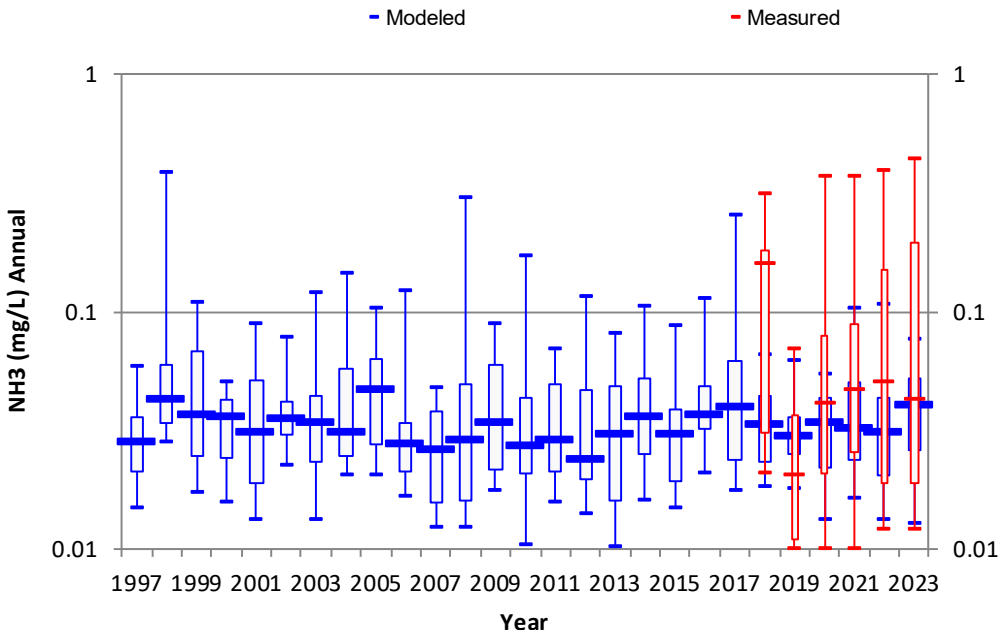


Figure C-298 Box and Whisker plot of Modeled Vs Observed NH3 (mg/L) at RCH213 FlagHole5

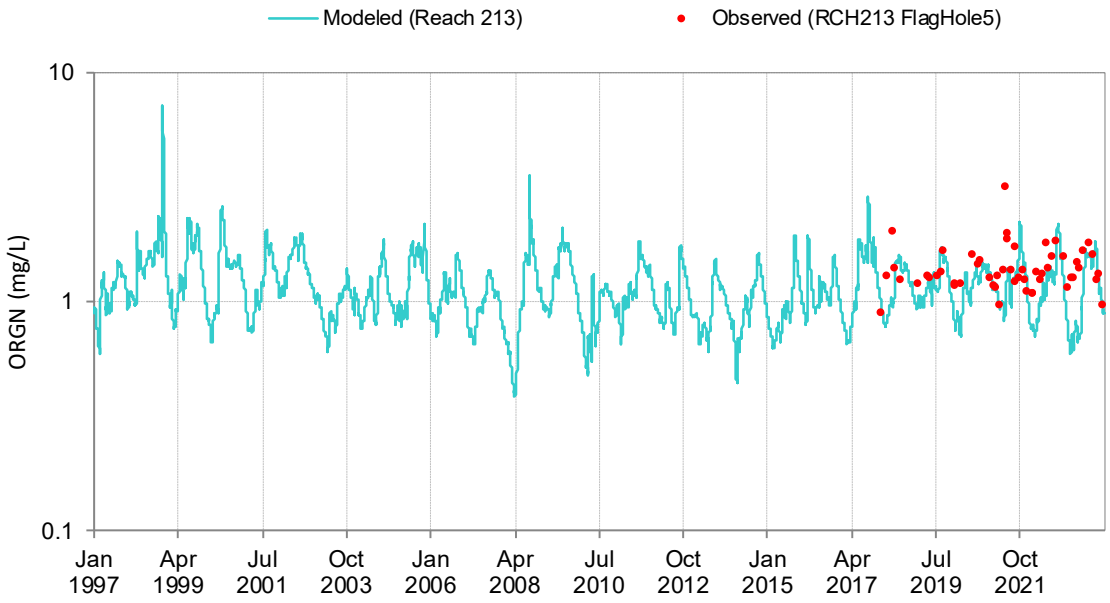


Figure C-299 Modeled Vs Observed ORGN (mg/L) at RCH213 FlagHole5

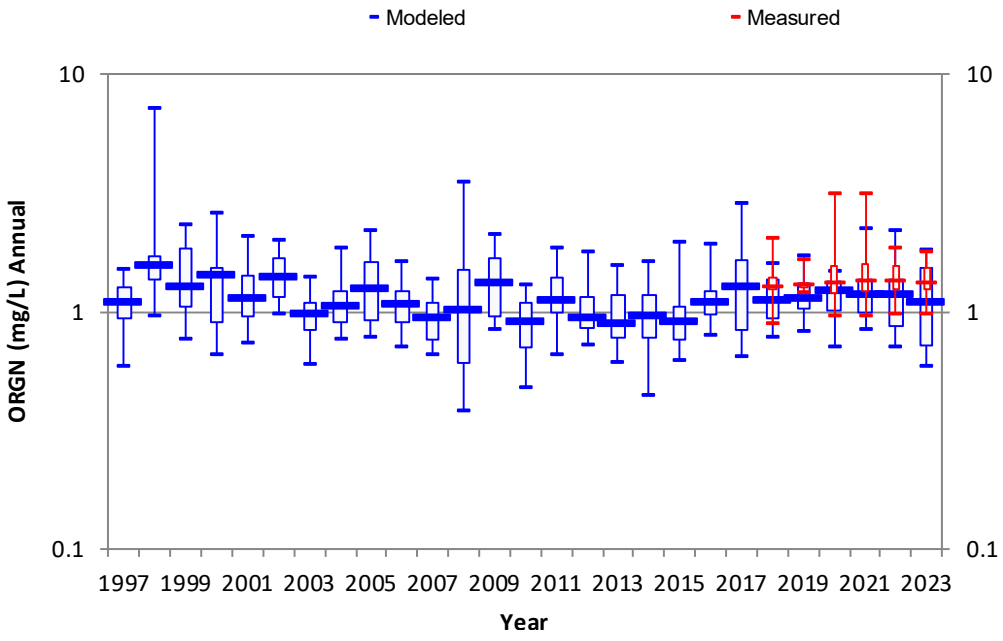


Figure C-300 Box and Whisker plot of Modeled Vs Observed ORGN (mg/L) at RCH213 FlagHole5

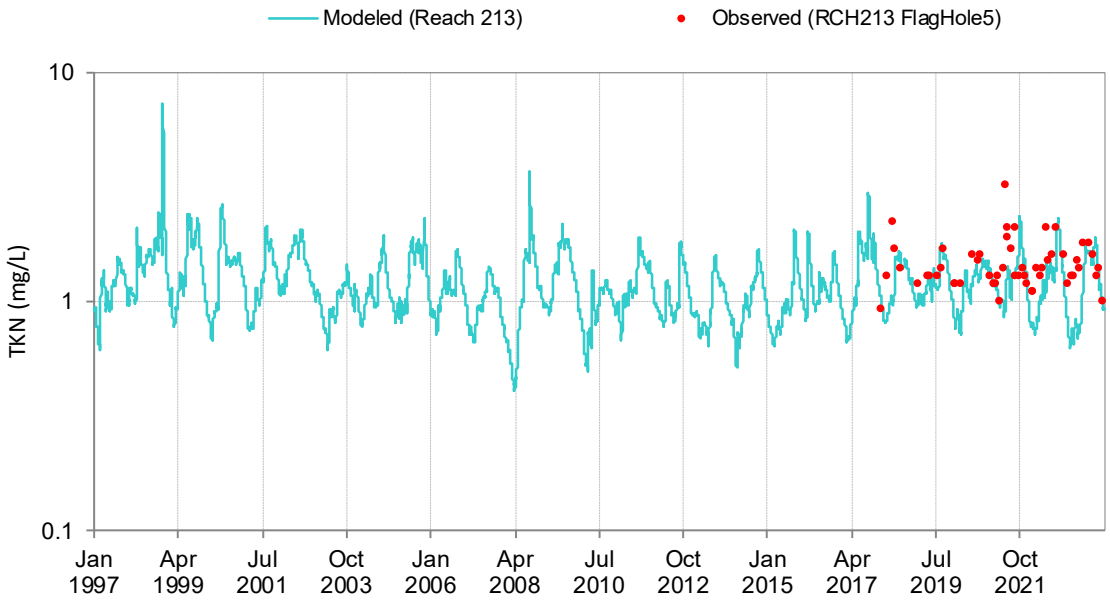


Figure C-301 Modeled Vs Observed TKN (mg/L) at RCH213 FlagHole5

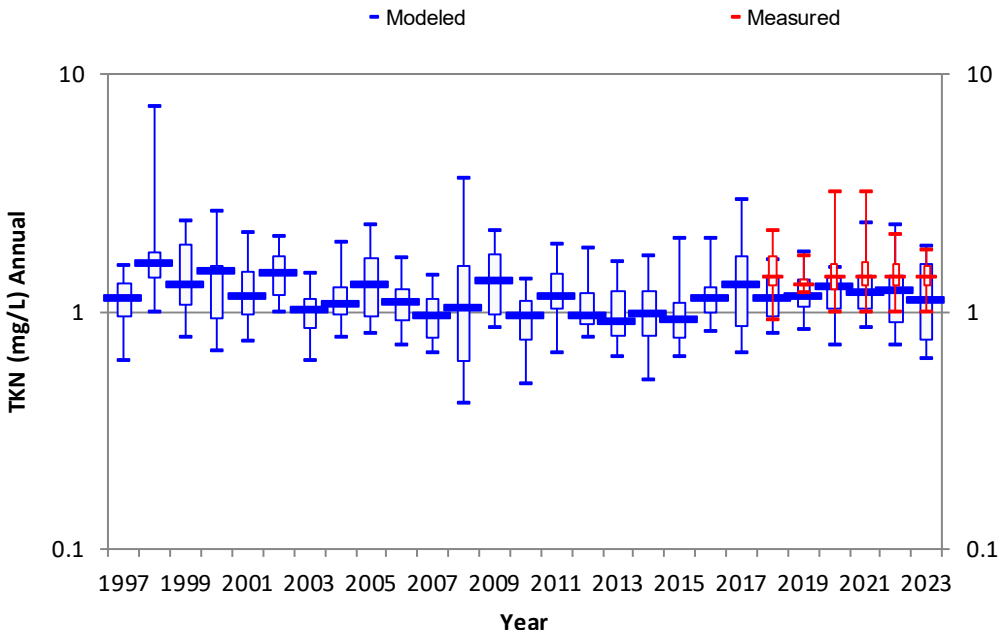


Figure C-302 Box and Whisker plot of Modeled Vs Observed TKN (mg/L) at RCH213 FlagHole5

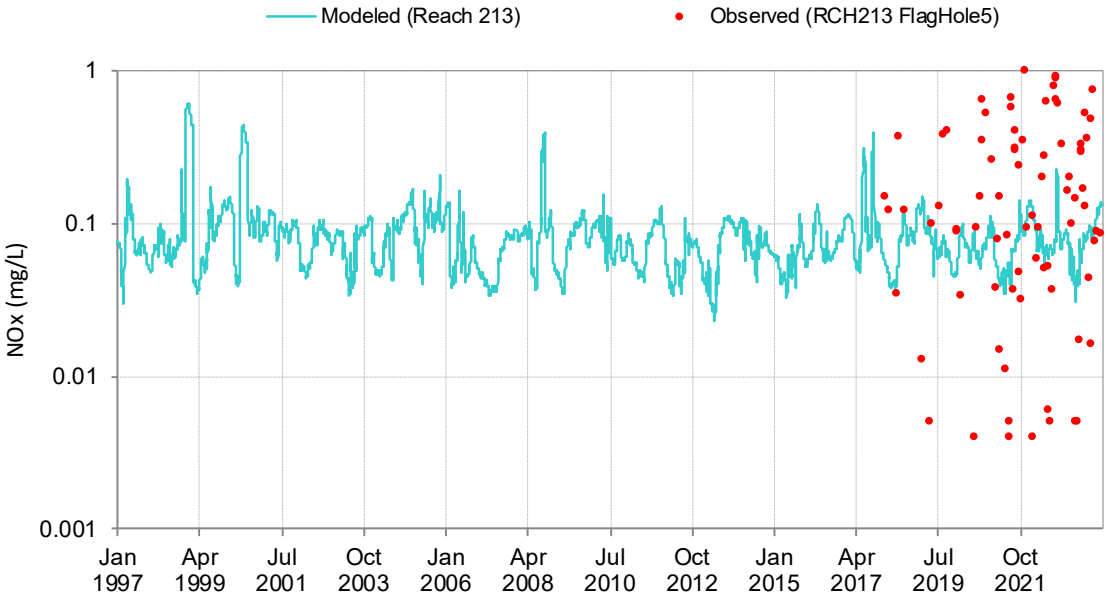


Figure C-303 Modeled Vs Observed NOx (mg/L) at RCH213 FlagHole5

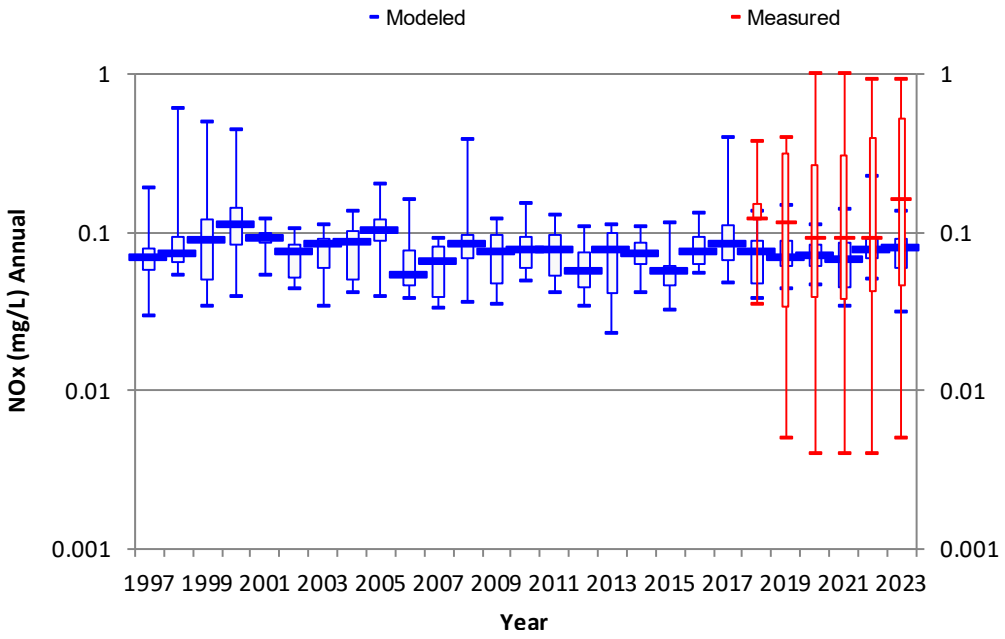


Figure C-304 Box and Whisker plot of Modeled Vs Observed NOx (mg/L) at RCH213 FlagHole5

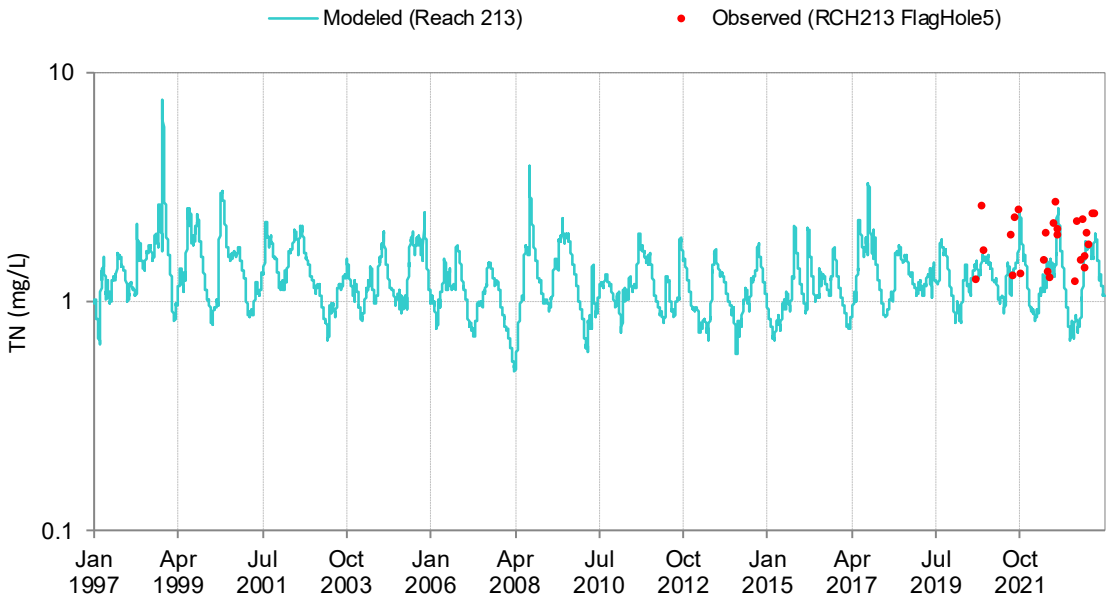


Figure C-305 Modeled Vs Observed TN (mg/L) at RCH213 FlagHole5

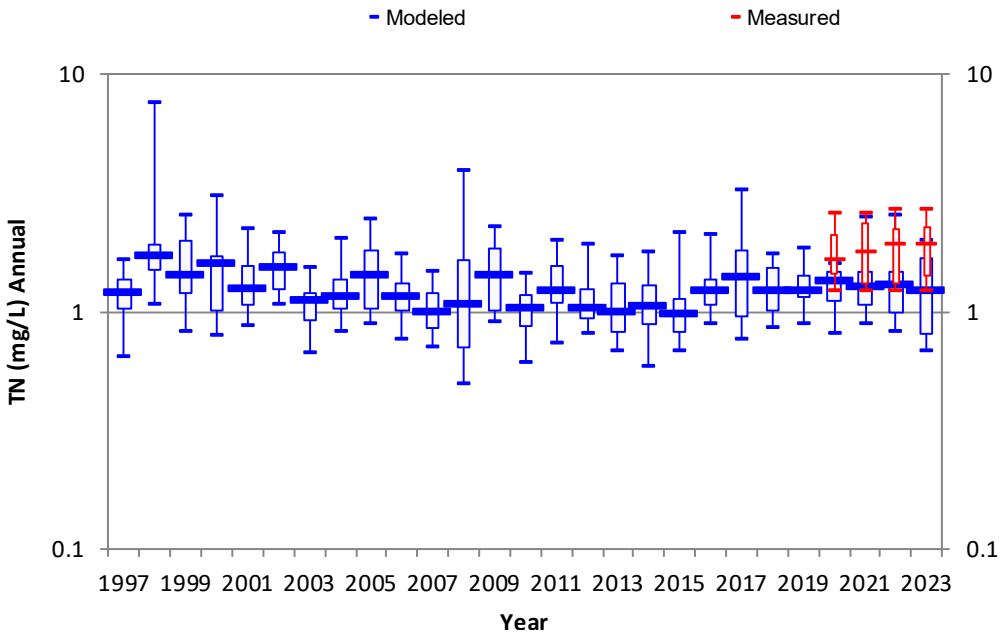


Figure C-306 Box and Whisker plot of Modeled Vs Observed TN (mg/L) at RCH213 FlagHole5

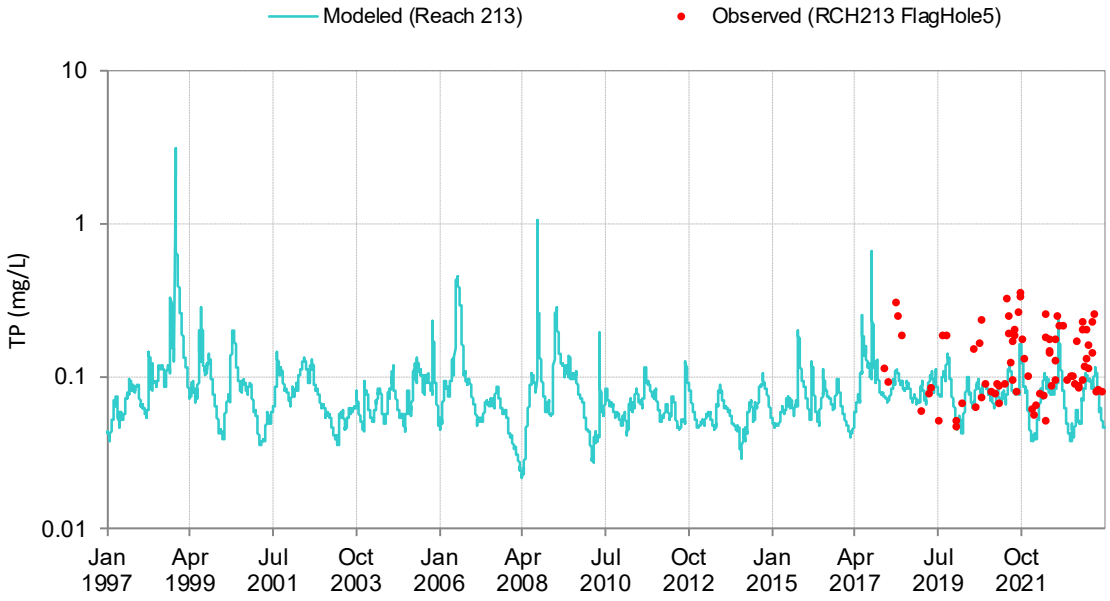


Figure C-307 Modeled Vs Observed TP (mg/L) at RCH213 FlagHole5

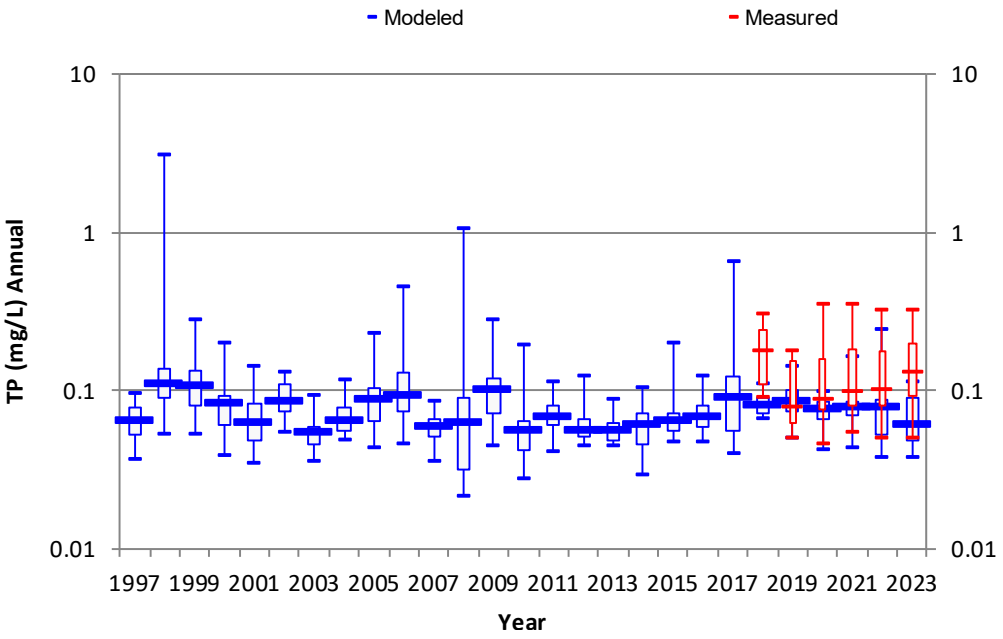


Figure C-308 Box and Whisker plot of Modeled Vs Observed TP (mg/L) at RCH213 FlagHole5

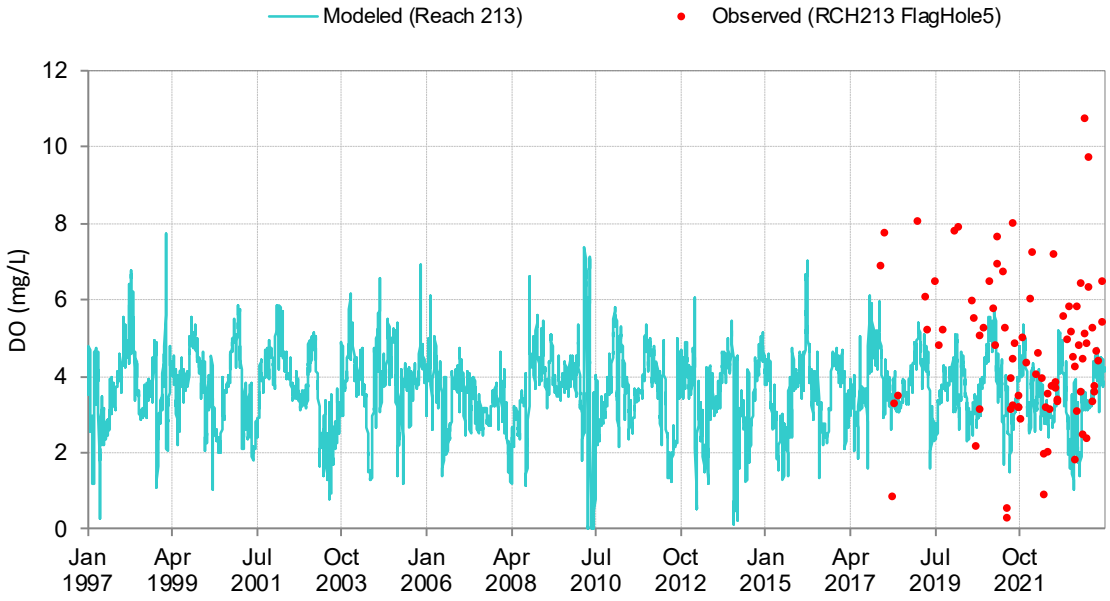


Figure C-309 Modeled Vs Observed DO (mg/L) at RCH213 FlagHole5

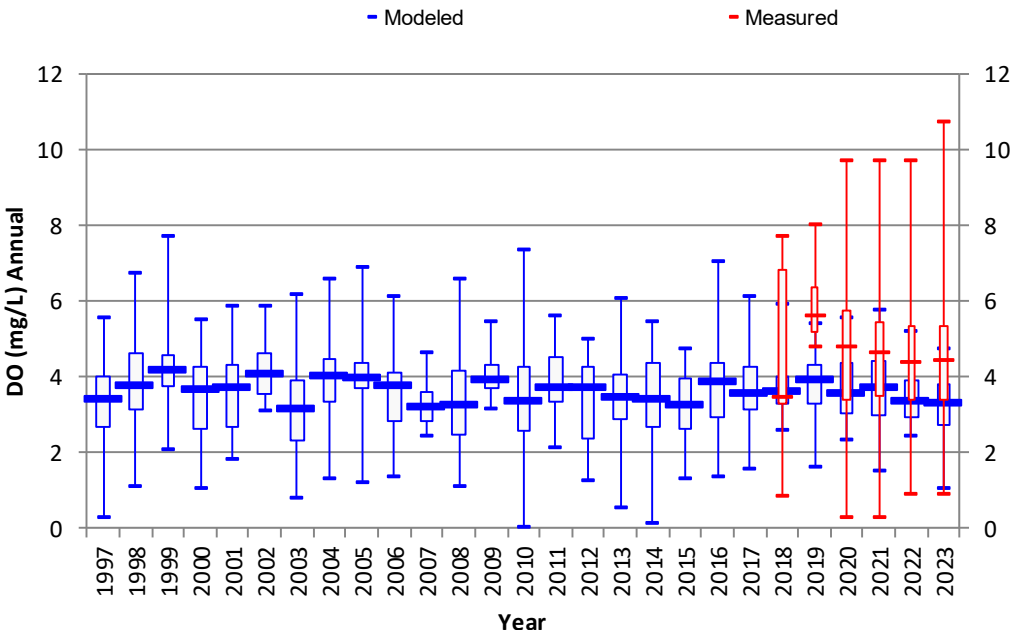


Figure C-310 Box and Whisker plot of Modeled Vs Observed DO (mg/L) at RCH213 FlagHole5

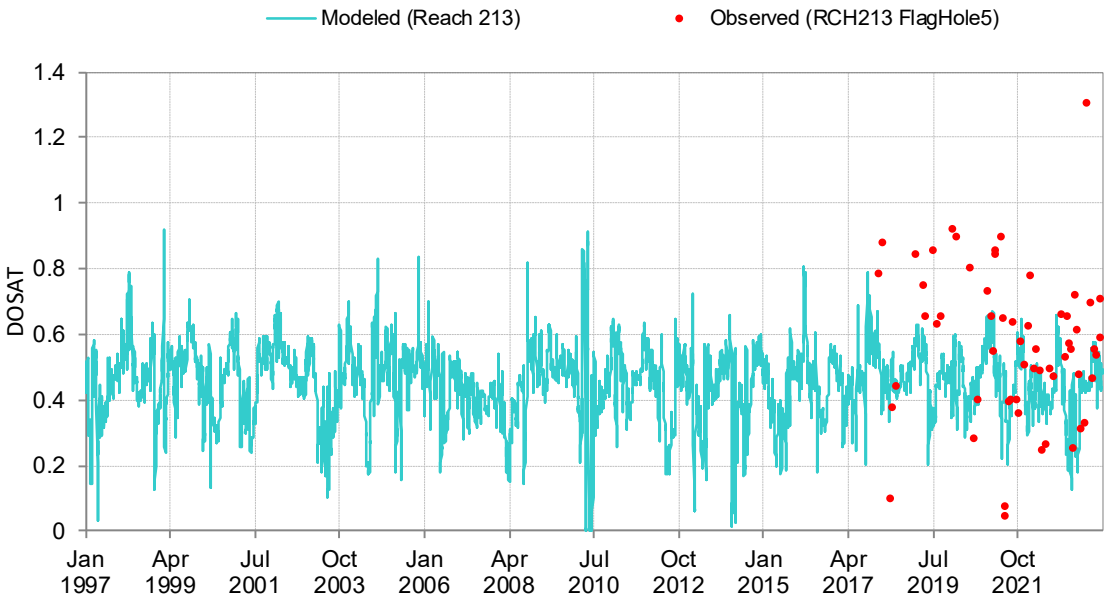


Figure C-311 Modeled Vs Observed DOSAT at RCH213 FlagHole5

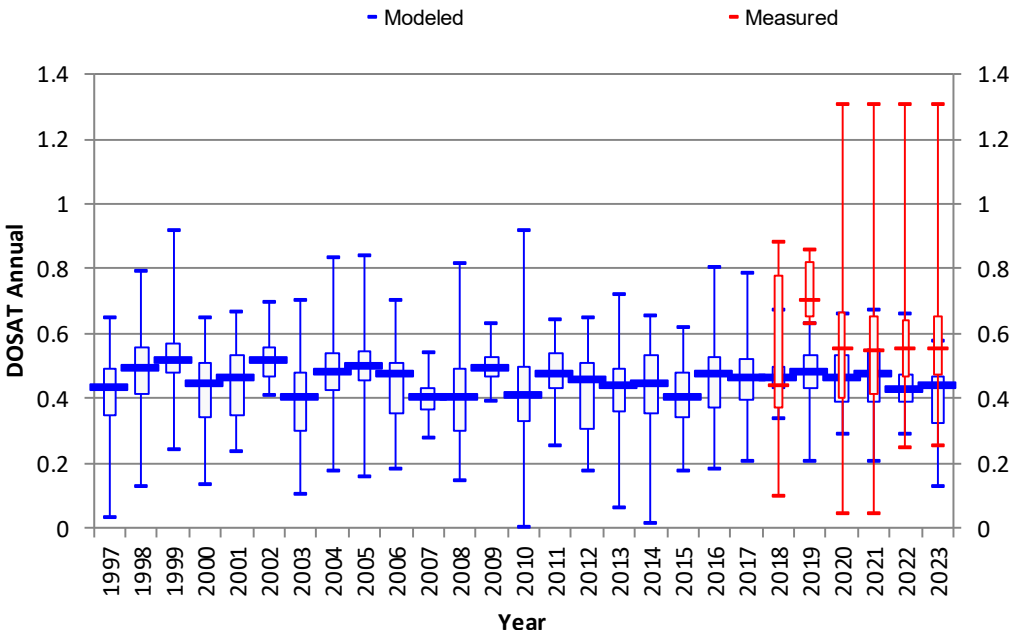


Figure C-312 Box and Whisker plot of Modeled Vs Observed DOSAT at RCH213 FlagHole5

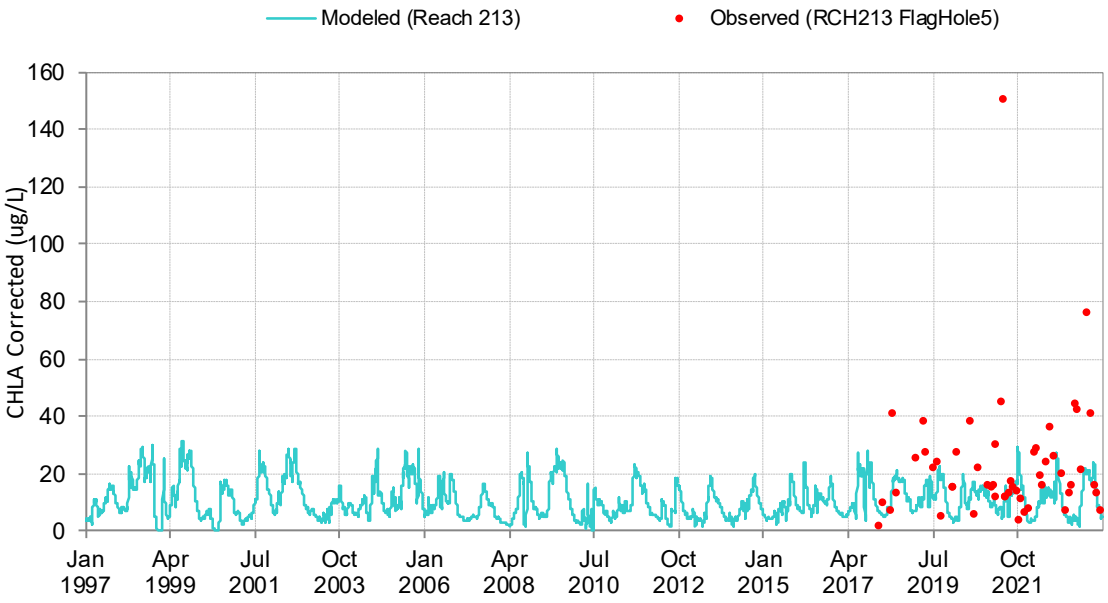


Figure C-313 Modeled Vs Observed CHLA Corrected (ug/L) at RCH213 FlagHole5

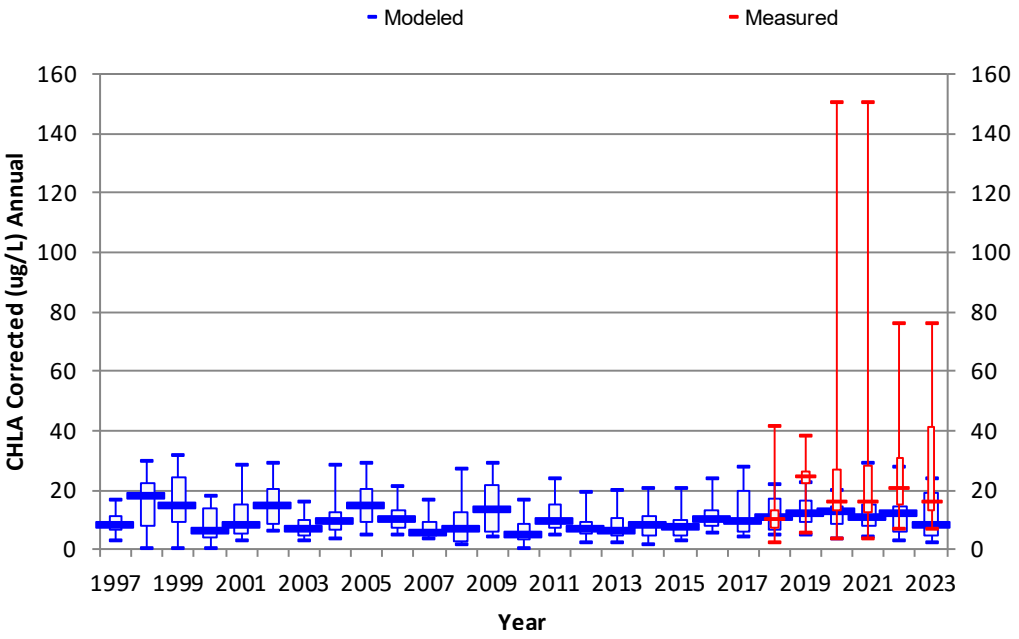


Figure C-314 Box and Whisker plot of Modeled Vs Observed CHLA Corrected (ug/L) at RCH213 FlagHole5

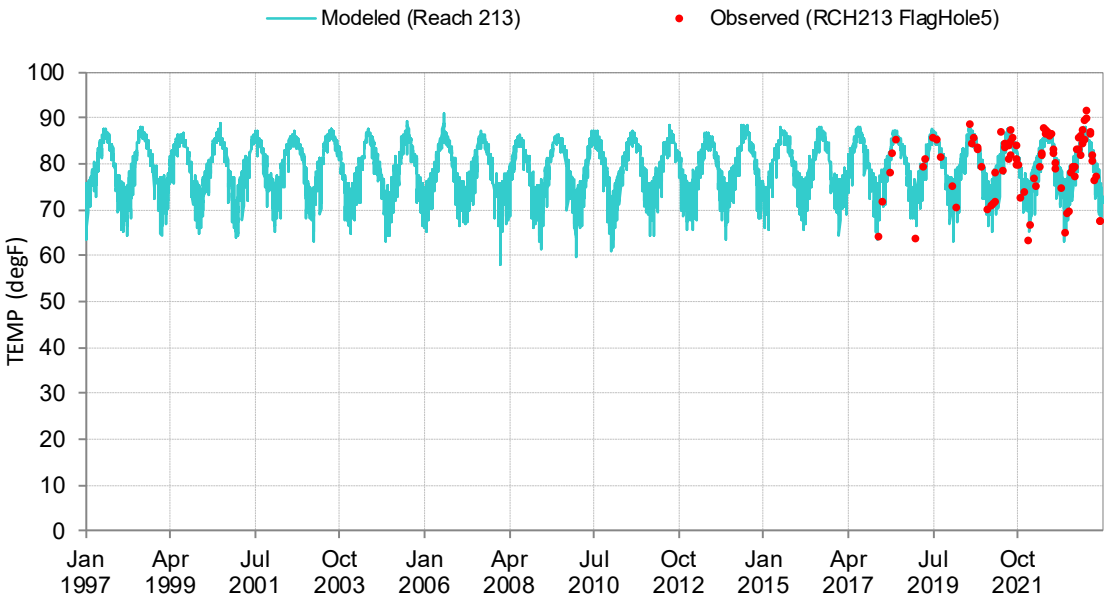


Figure C-315 Modeled Vs Observed TEMP (deg F) at RCH213 FlagHole5

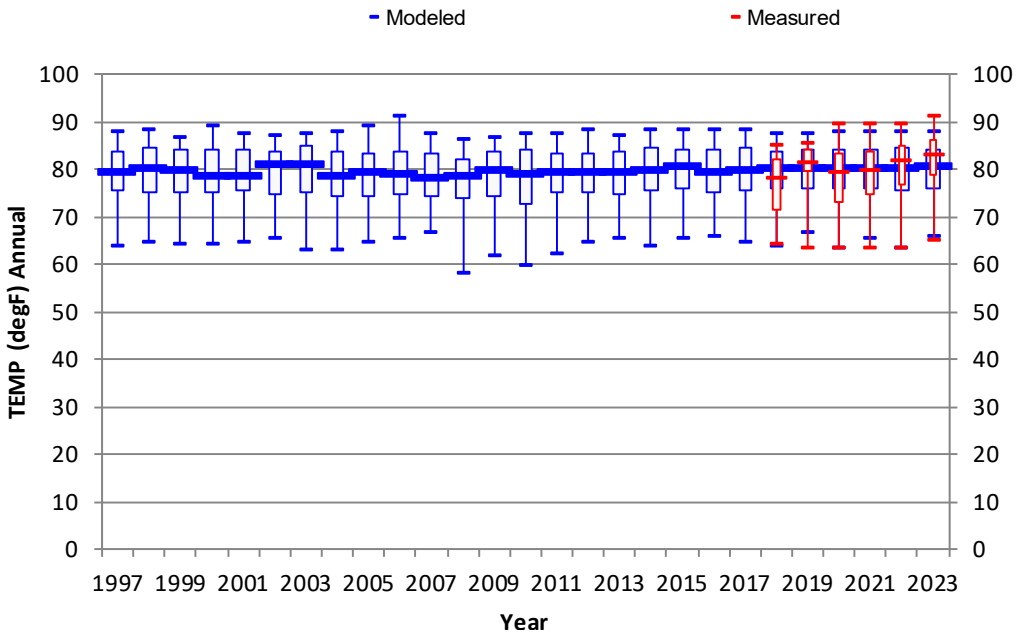


Figure C-316 Box and Whisker plot of Modeled Vs Observed TEMP (deg F) at RCH213 FlagHole5

APPENDIX D: 2025 HSPF WATER QUALITY INSTREAM LOADS RESULTS

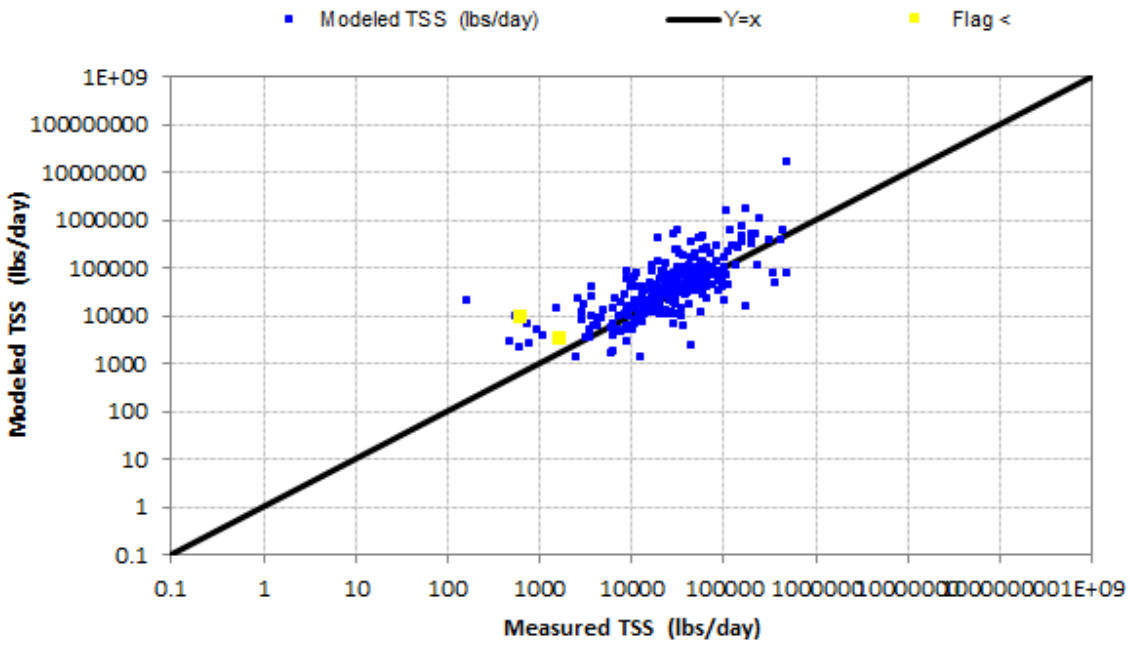


Figure D-15 Modeled vs. Observed Load TSS at RCH147 Caloosahatchee River (S-79) and USGS 02292900

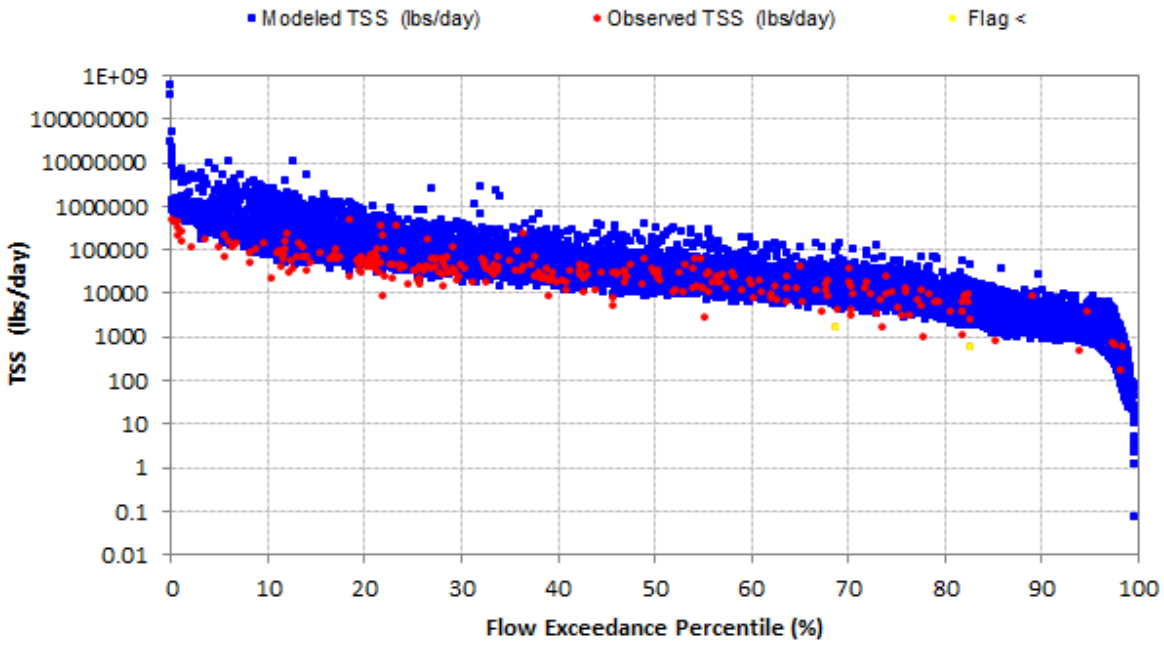


Figure D-16 Modeled vs. Observed Load TSS at RCH147 Caloosahatchee River (S-79) and USGS 02292900

Table D-19 Modeled vs. Observed Load TSS at RCH147 Caloosahatchee River (S-79) and USGS 02292900

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2006	21,370,988	8,151,339	162.2	P	8,146,703	162.3	P
2007	1,687,230	839,220	101	P	790,125	113.5	P
2008	153,323,643	12,917,390	1087	P	11,025,734	1290.6	P
2009	27,047,001	5,164,983	423.7	P	5,288,610	411.4	P
2010	43,563,649	11,840,273	267.9	P	12,186,893	257.5	P
2011	8,859,496	5,380,831	64.6	P	4,445,497	99.3	P
2012	8,738,113	7,868,486	11.1	VG	7,315,448	19.4	G
2013	66,432,313	32,033,727	107.4	P	33,426,839	98.7	P
2014	8,613,606	6,302,248	36.7	P	6,287,787	37	P
2017	1,095,567,989	16,086,986	6710.3	P	69,800,925	1469.6	P
2018	26,184,845	26,515,900	-1.2	VG	25,605,959	2.3	VG
2019	12,456,215	12,790,908	-2.6	VG	11,733,858	6.2	VG
2020	40,133,316	18,257,492	119.8	P	17,597,317	128.1	P
2021	42,322,975	18,562,312	128	P	18,090,886	133.9	P
2022	67,860,559	17,093,610	297	P	17,068,618	297.6	P
2023	41,199,907	19,423,014	112.1	P	19,235,827	114.2	P
Average	104,085,115	13,701,795	659.6	P	16,752,939	521.3	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	29,292,830.6	490,466.4	5872.4	P
Average	155,357.5	46,125.5	236.8	P
25 perc.	16,981.2	9,977.2	70.2	P
Median	39,912.1	26,760.1	49.1	P
75th perc.	89,114.8	50,748.1	75.6	P
Geomean	40,456.5	26,147.3	54.7	P
Nash SutCliffe		-154.04		

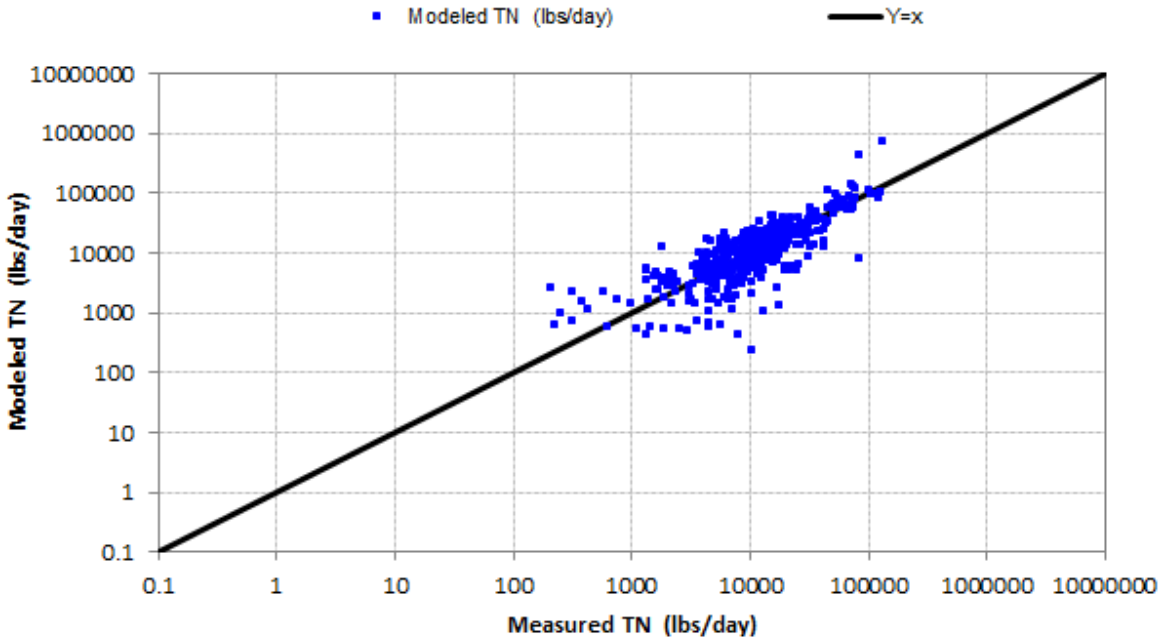


Figure D-17 Modeled vs. Observed Load TN at RCH147 Caloosahatchee River (S-79) and USGS 02292900

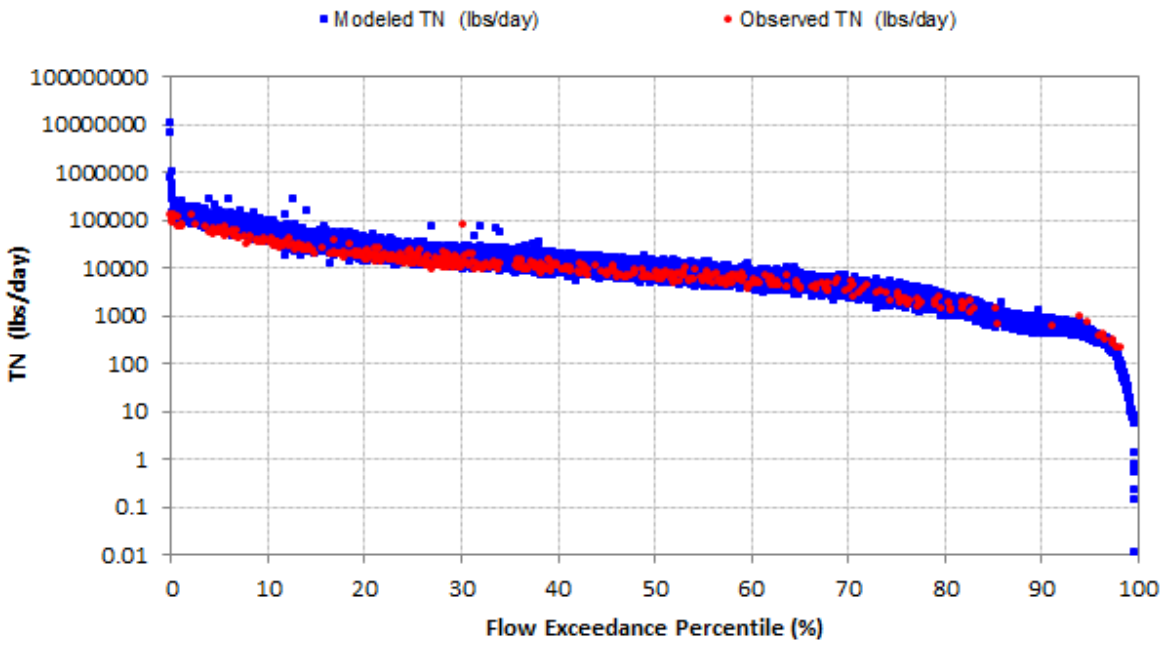


Figure D-18 Modeled vs. Observed Load TN at RCH147 Caloosahatchee River (S-79) and USGS 02292900

Table D-20 Modeled vs. Observed Load TN at RCH147 Caloosahatchee River (S-79) and USGS 02292900

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2006	3,112,537	3,229,630	-3.6	VG	3,228,351	-3.6	VG
2007	767,472	329,661	132.8	P	326,190	135.3	P
2008	8,038,415	3,790,696	112.1	P	3,854,393	108.6	P
2009	4,358,216	3,141,234	38.7	G	3,169,363	37.5	G
2010	4,943,375	7,487,231	-34	G	7,547,882	-34.5	G
2011	2,792,514	2,893,631	-3.5	VG	2,898,395	-3.7	VG
2012	3,734,050	6,033,750	-38.1	G	6,246,759	-40.2	G
2013	10,332,914	13,107,510	-21.2	VG	13,174,948	-21.6	VG
2014	3,379,202	3,814,091	-11.4	VG	3,847,192	-12.2	VG
2016	12,414,251	12,041,301	3.1	VG	12,288,653	1	VG
2017	29,425,440	10,724,657	174.4	P	11,116,460	164.7	P
2018	6,346,792	6,192,743	2.5	VG	6,482,141	-2.1	VG
2019	3,063,421	3,882,373	-21.1	VG	3,904,525	-21.5	VG
2020	6,727,166	6,556,269	2.6	VG	6,582,662	2.2	VG
2021	5,502,838	5,445,806	1	VG	5,441,980	1.1	VG
2022	6,532,545	5,796,574	12.7	VG	5,767,569	13.3	VG
2023	6,201,588	6,278,425	-1.2	VG	6,280,874	-1.3	VG
Average	6,921,926	5,926,211	16.8	VG	6,009,314	15.2	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	740,530.9	131,589.2	462.8	P
Average	17,613.6	15,971.6	10.3	VG
25 perc.	4,979.9	5,245.1	-5.1	VG
Median	10,883.9	10,396.9	4.7	VG
75th perc.	19,357.9	17,786.4	8.8	VG
Geomean	9,497.1	10,390.	-8.6	VG
Nash SutCliffe		-1.81		

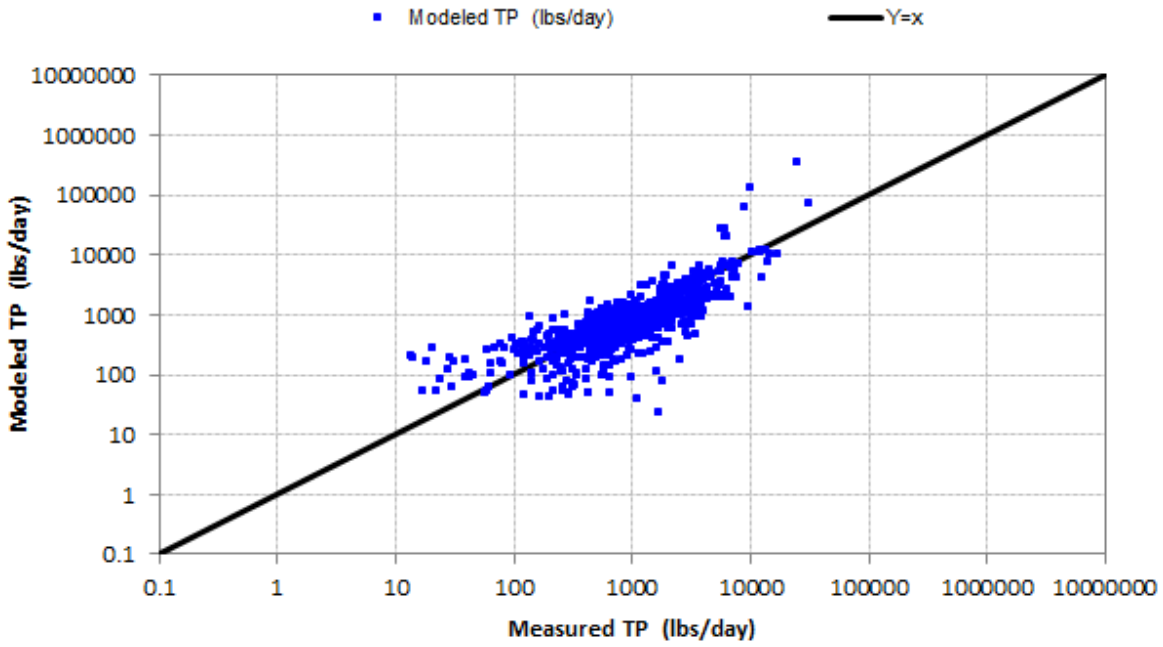


Figure D-19 Modeled vs. Observed Load TP at RCH147 Caloosahatchee River (S-79) and USGS 02292900

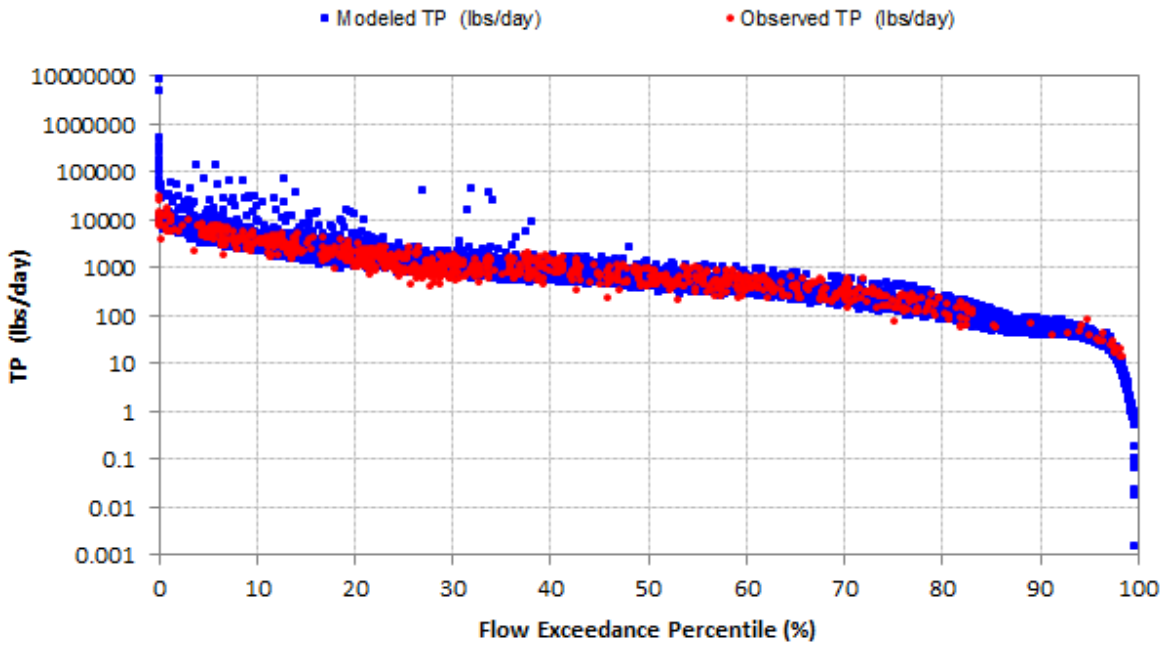


Figure D-20 Modeled vs. Observed Load TP at RCH147 Caloosahatchee River (S-79) and USGS 02292900

Table D-21 Modeled vs. Observed Load TP at RCH147 Caloosahatchee River (S-79) and USGS 02292900

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2006	228,084	425,503	-46.4	F	425,450	-46.4	F
2007	46,538	47,009	-1	VG	46,356	0.4	VG
2008	1,401,794	428,590	227.1	P	414,945	237.8	P
2009	361,826	347,429	4.1	VG	339,639	6.5	VG
2010	360,108	442,292	-18.6	VG	437,616	-17.7	VG
2011	169,222	213,810	-20.9	VG	191,304	-11.5	VG
2012	267,129	287,677	-7.1	VG	281,768	-5.2	VG
2013	710,447	601,770	18.1	VG	572,147	24.2	VG
2014	219,005	324,091	-32.4	G	325,089	-32.6	G
2016	905,129	1,053,614	-14.1	VG	977,410	-7.4	VG
2017	14,811,405	938,407	1478.4	P	817,702	1711.3	P
2018	529,246	569,106	-7	VG	599,806	-11.8	VG
2019	199,330	376,863	-47.1	F	377,531	-47.2	F
2020	566,486	574,615	-1.4	VG	649,050	-12.7	VG
2021	499,273	529,298	-5.7	VG	358,401	39.3	G
2022	614,831	590,415	4.1	VG	545,412	12.7	VG
2023	461,277	617,868	-25.3	VG	509,503	-9.5	VG
Average	1,314,772	492,256	167.1	P	462,890	184	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	339,463.1	31,734.6	969.7	P
Average	1,811.1	1,549.1	16.9	VG
25 perc.	366.1	444.1	-17.6	VG
Median	761.7	863.7	-11.8	VG
75th perc.	1,214.3	1,792.	-32.2	G
Geomean	695.7	915.9	-24	VG
Nash SutCliffe		-23.47		

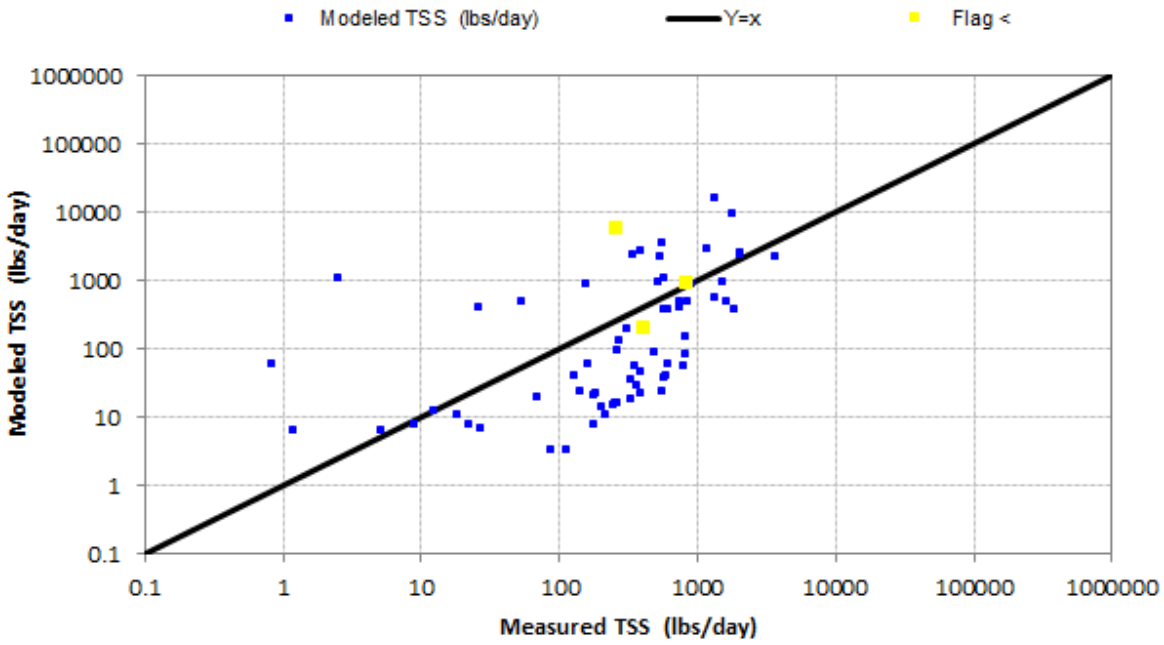


Figure D-21 Modeled vs. Observed Load TSS at RCH107 San Carlos Canal and USGS 02293241

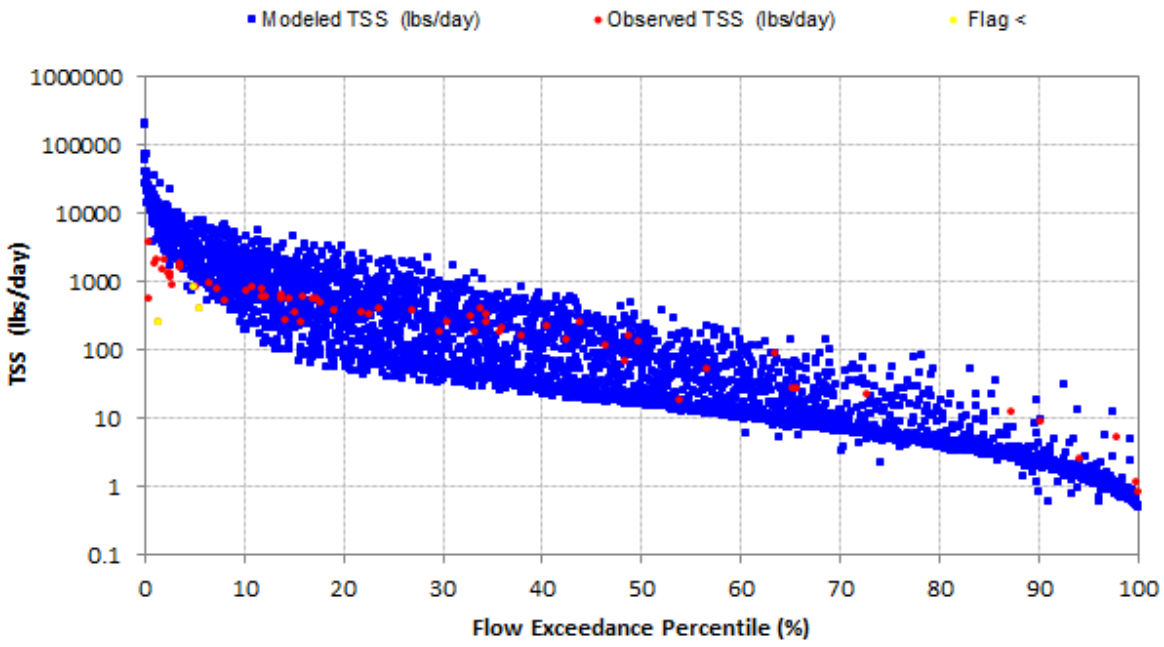


Figure D-22 Modeled vs. Observed Load TSS at RCH107 San Carlos Canal and USGS 02293241

Table D-22 Modeled vs. Observed Load TSS at RCH107 San Carlos Canal and USGS 02293241

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	406,187	95,108	327.1	P	90,186	350.4	P
2001	585,588	103,971	463.2	P	92,756	531.3	P
2002	421,437	117,367	259.1	P	113,803	270.3	P
2003	284,394	177,302	60.4	P	161,166	76.5	P
2004	236,944	111,106	113.3	P	97,089	144	P
2005	324,566	133,337	143.4	P	129,988	149.7	P
2006	201,977	159,953	26.3	F	145,076	39.2	P
2007	104,658	105,723	-1	VG	95,958	9.1	VG
2008	305,075	93,053	227.8	P	90,241	238.1	P
2009	165,037	120,423	37	P	115,171	43.3	P
2010	340,826	200,817	69.7	P	165,323	106.2	P
2011	328,122	115,366	184.4	P	107,524	205.2	P
2012	208,422	53,670	288.3	P	48,957	325.7	P
Average	301,018	122,092	146.6	P	111,788	169.3	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.7	.		VG
Maximum	16,272.7	3,656.5	345	P
Average	578.	251.9	129.5	P
25 perc.	7.7	.		VG
Median	37.4	.		VG
75th perc.	321.3	317.7	1.1	VG
Geomean	47.9	243.2	-80.3	P
Nash SutCliffe		-10.23		

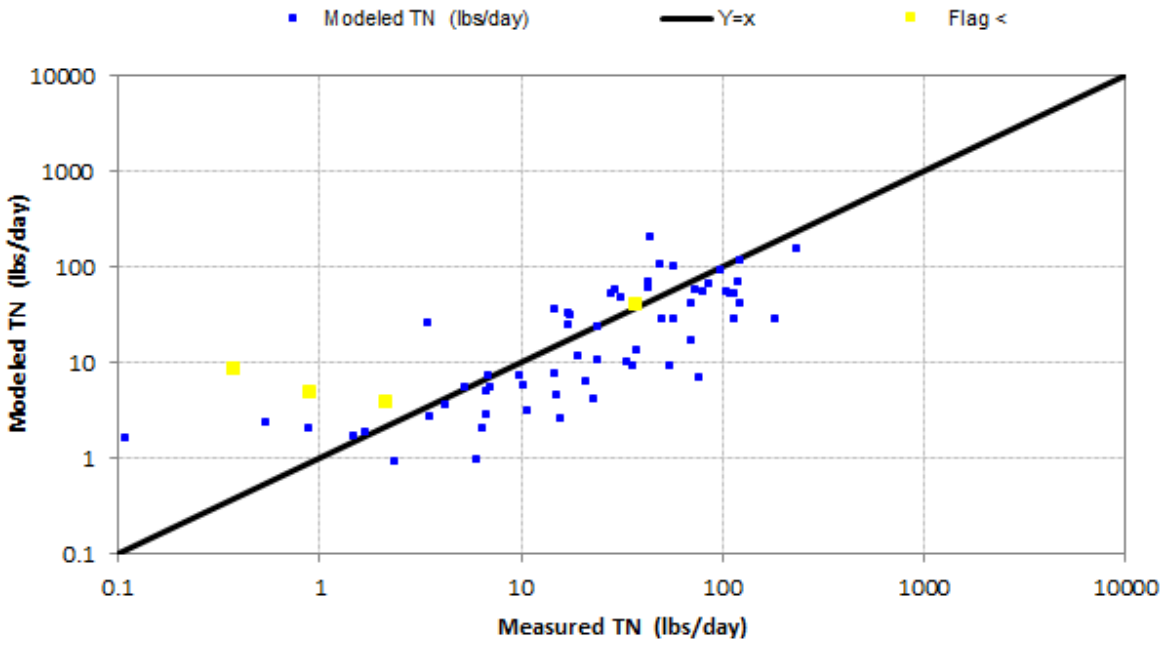


Figure D-23 Modeled vs. Observed Load TN at RCH107 San Carlos Canal and USGS 02293241

Figure D-24 Modeled vs. Observed Load TN at RCH107 San Carlos Canal and USGS 02293241

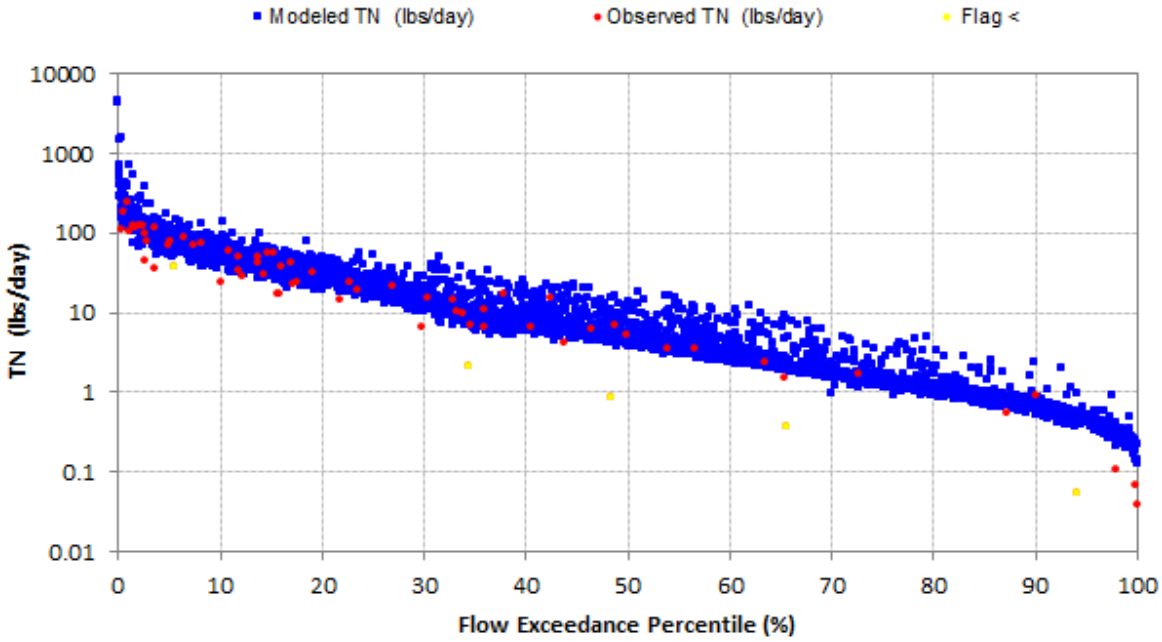


Table D-23 Modeled vs. Observed Load TN at RCH107 San Carlos Canal and USGS 02293241

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	11,604	6,984	66.1	P	6,660	74.2	P
2001	15,602	13,218	18	VG	11,851	31.7	G
2002	12,336	7,459	65.4	P	6,777	82	P
2003	7,897	11,185	-29.4	VG	10,332	-23.6	VG
2004	6,818	4,403	54.9	F	4,735	44	G
2005	8,535	7,590	12.5	VG	7,405	15.3	VG
2006	6,394	6,448	-0.8	VG	7,018	-8.9	VG
2007	3,655	3,919	-6.7	VG	4,203	-13	VG
2008	7,966	4,350	83.1	P	4,352	83.1	P
2009	5,078	8,174	-37.9	G	8,028	-36.7	G
2010	8,333	6,561	27	VG	6,199	34.4	G
2011	8,963	9,304	-3.7	VG	9,585	-6.5	VG
2012	5,428	5,660	-4.1	VG	5,213	4.1	VG
Average	8,355	7,327	14	VG	7,104	17.6	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.3	.		VG
Maximum	204.9	236.8	-13.4	VG
Average	18.8	18.2	3.1	VG
25 perc.	1.7	.		VG
Median	5.	.		VG
75th perc.	24.2	17.4	39.5	G
Geomean	5.8	14.	-58.2	F
Nash SutCliffe		0.3		

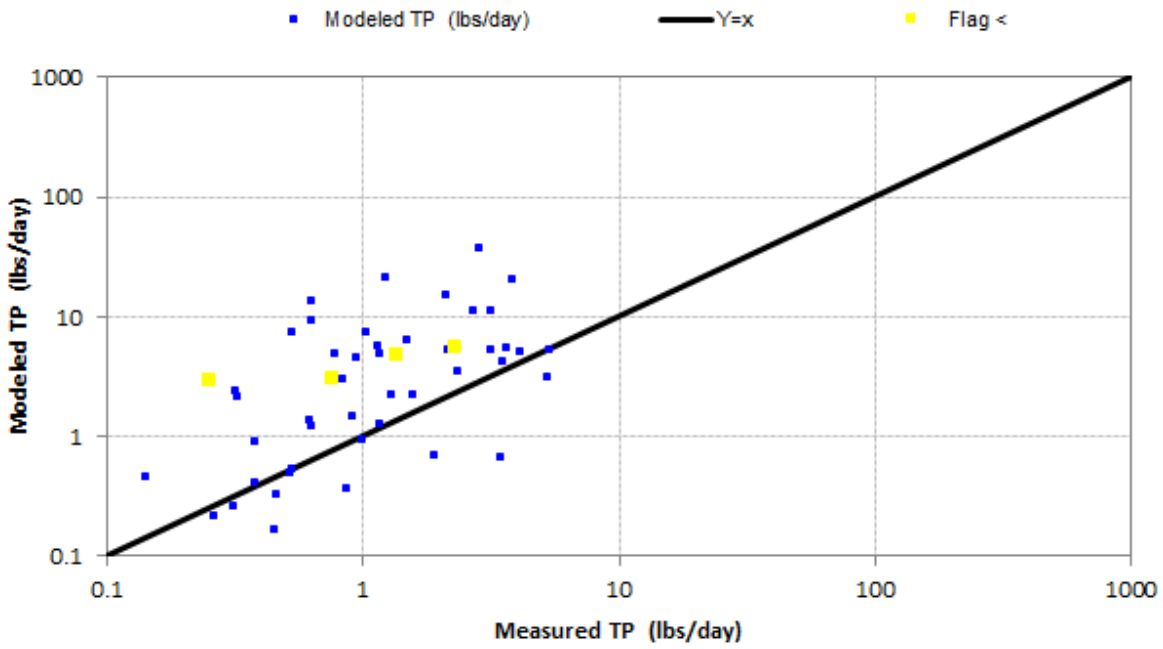


Figure D-25 Modeled vs. Observed Load TP at RCH107 San Carlos Canal and USGS 02293241

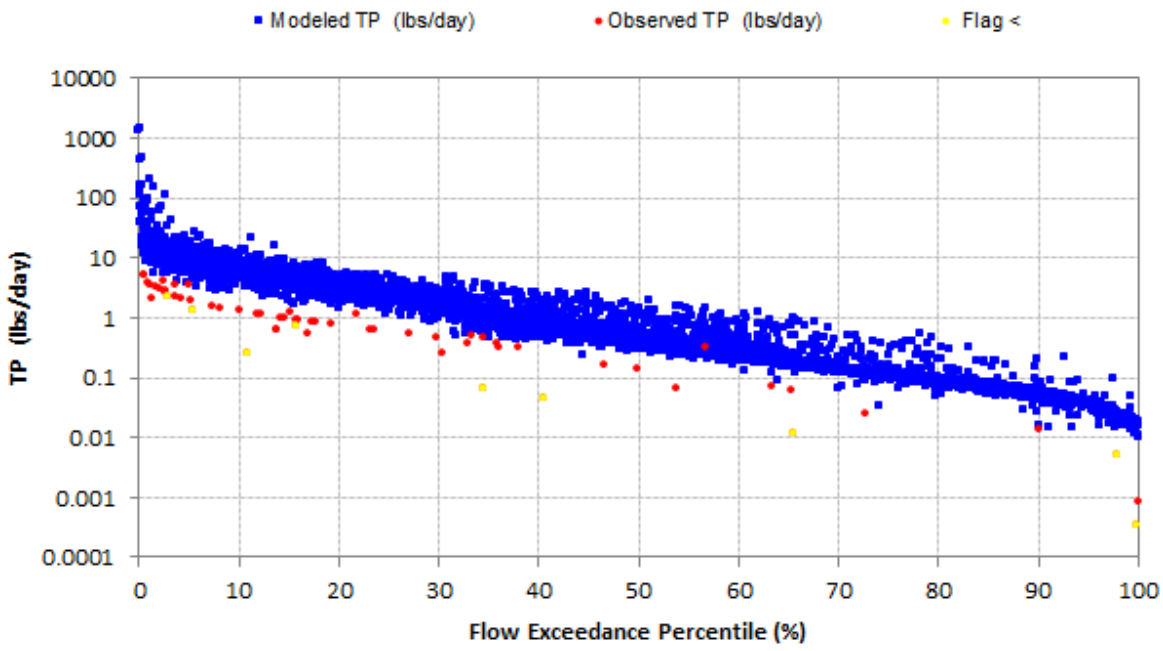


Figure D-26 Modeled vs. Observed Load TP at RCH107 San Carlos Canal and USGS 02293241

Table D-24 Modeled vs. Observed Load TP at RCH107 San Carlos Canal and USGS 02293241

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	1,961	91	2058.4	P	91	2058.4	P
2001	3,160	307	927.8	P	293	977.2	P
2002	2,348	246	855.9	P	249	844.4	P
2003	988	713	38.6	G	560	76.3	P
2004	698	161	333.1	P	173	302.5	P
2005	894	236	279.5	P	220	306.9	P
2006	659	270	143.8	P	259	154.3	P
2007	354	176	101.2	P	179	98.2	P
2008	949	115	726.3	P	114	729.2	P
2009	553	169	227.4	P	164	236.4	P
2010	1,206	174	591.5	P	172	600.3	P
2011	1,506	247	509	P	246	511.4	P
2012	628	102	514.9	P	103	511.4	P
Average	1,223	231	429.4	P	217	463.6	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	37.1	5.4	588.7	P
Average	2.3	.6	294.7	P
25 perc.	.1	.		VG
Median	.5	.		VG
75th perc.	2.5	.6	292.1	P
Geomean	.6	.5	14.6	VG
Nash SutCliffe		-16.48		

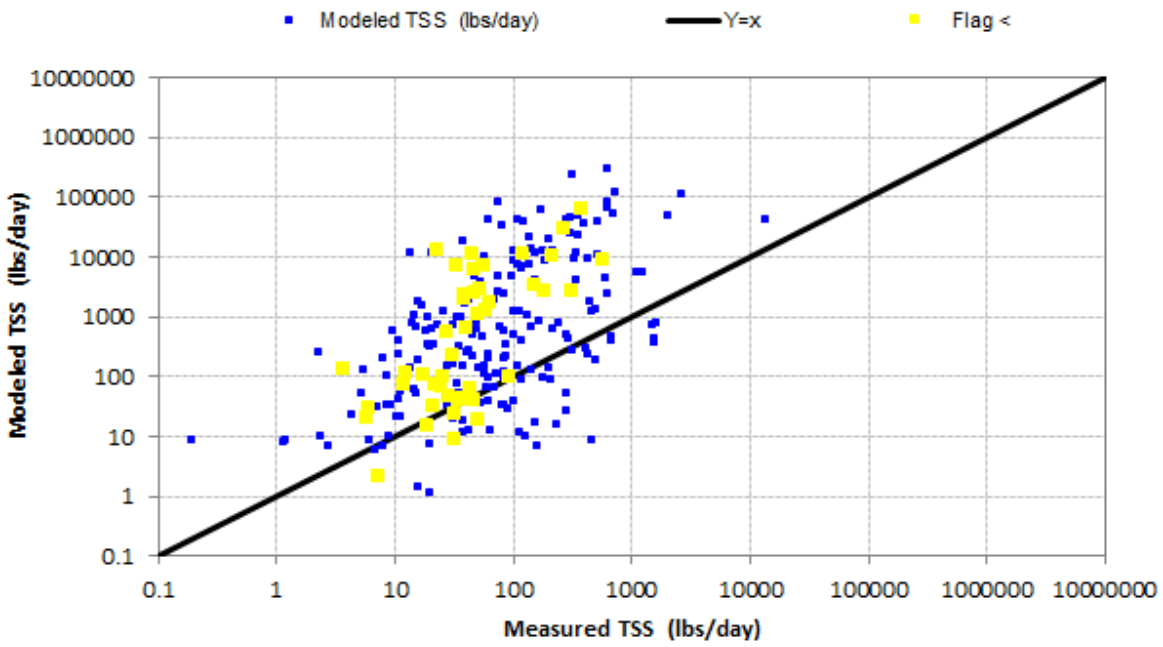


Figure D-27 Modeled vs. Observed Load TSS at RCH135 Whiskey Creek and USGS 02293230

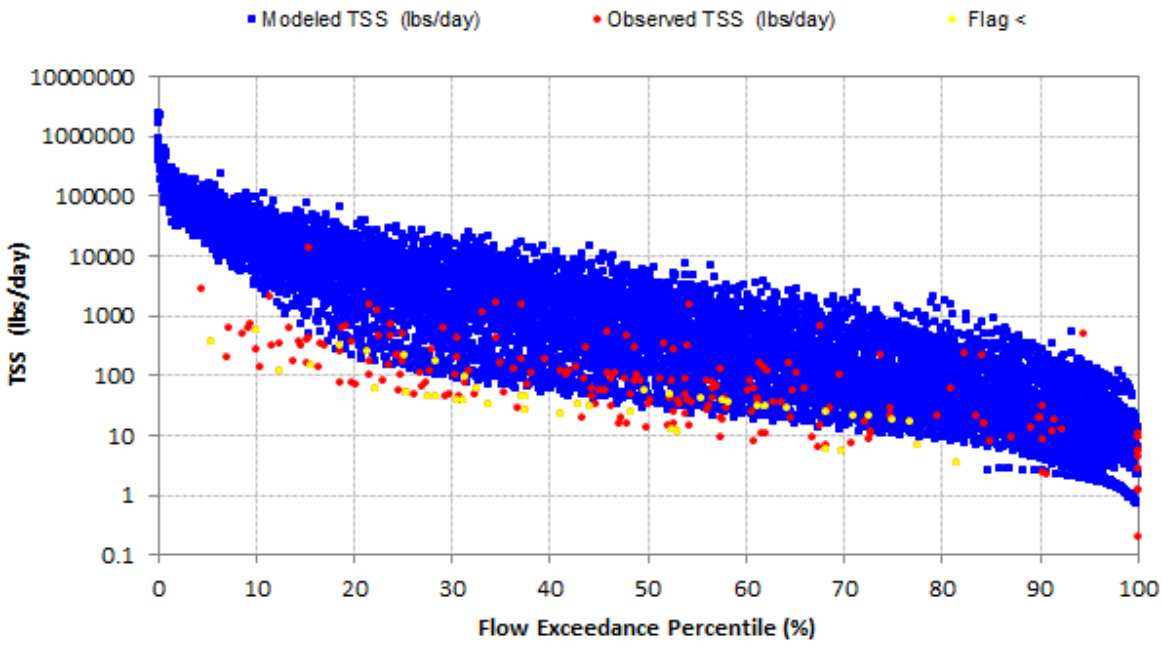


Figure D-28 Modeled vs. Observed Load TSS at RCH135 Whiskey Creek and USGS 02293230

Table D-25 Modeled vs. Observed Load TSS at RCH135 Whiskey Creek and USGS 02293230

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	5,561,609	67,463	8144	P	47,717	11555.5	P
2001	6,122,428	80,763	7480.8	P	69,341	8729.5	P
2002	4,259,228	26,672	15868.7	P	29,351	14411.2	P
2003	4,467,918	50,387	8767.2	P	50,793	8696.3	P
2004	3,503,622	55,439	6219.8	P	61,933	5557.1	P
2005	5,097,644	55,479	9088.5	P	50,915	9912.1	P
2006	3,052,148	44,318	6786.9	P	38,957	7734.6	P
2007	1,597,431	154,109	936.6	P	141,301	1030.5	P
2008	4,654,080	197,899	2251.7	P	183,775	2432.5	P
2009	2,159,303	70,372	2968.4	P	107,393	1910.6	P
2010	4,741,981	114,088	4056.4	P	113,309	4085	P
2011	4,760,360	589,823	707.1	P	528,101	801.4	P
2012	3,739,057	52,741	6989.5	P	68,506	5358	P
2013	4,909,130	249,792	1865.3	P	161,974	2930.8	P
2014	4,044,246	36,815	10885.3	P	43,927	9106.7	P
2018	2,307,263	69,450	3222.2	P	72,947	3062.9	P
2019	2,666,945	39,196	6704.2	P	38,066	6906.2	P
2020	3,269,194	18,352	17714.2	P	26,096	12427.4	P
2021	3,215,313	16,535	19345.3	P	15,676	20411	P
2022	5,121,229	16,568	30811	P	17,568	29051.1	P
2023	2,433,467	30,678	7832.3	P	32,578	7369.7	P
Average	3,889,695	96,997	3910.1	P	90,487	4198.6	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	1.1	.		VG
Maximum	294,835.3	13,510.3	2082.3	P
Average	8,848.8	227.1	3797.3	P
25 perc.	62.1	22.1	180.8	P
Median	439.5	55.8	687.8	P
75th perc.	4,206.2	168.5	2396.4	P
Geomean	504.1	62.9	701.3	P
Nash SutCliffe		-1090.21		

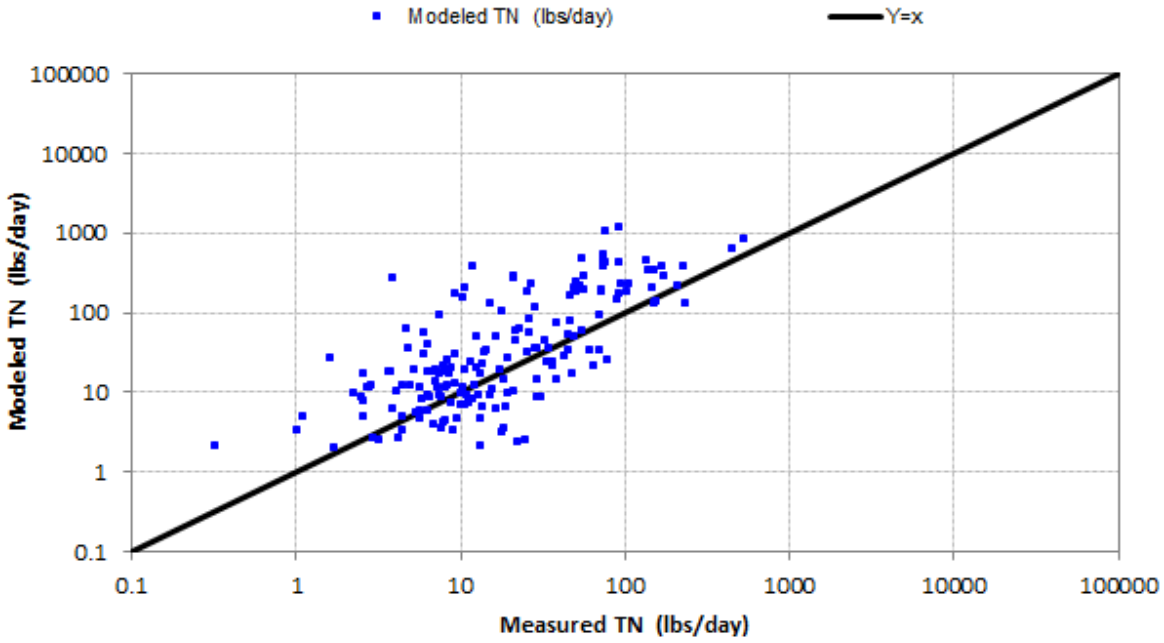


Figure D-29 Modeled vs. Observed Load TN at RCH135 Whiskey Creek and USGS 02293230

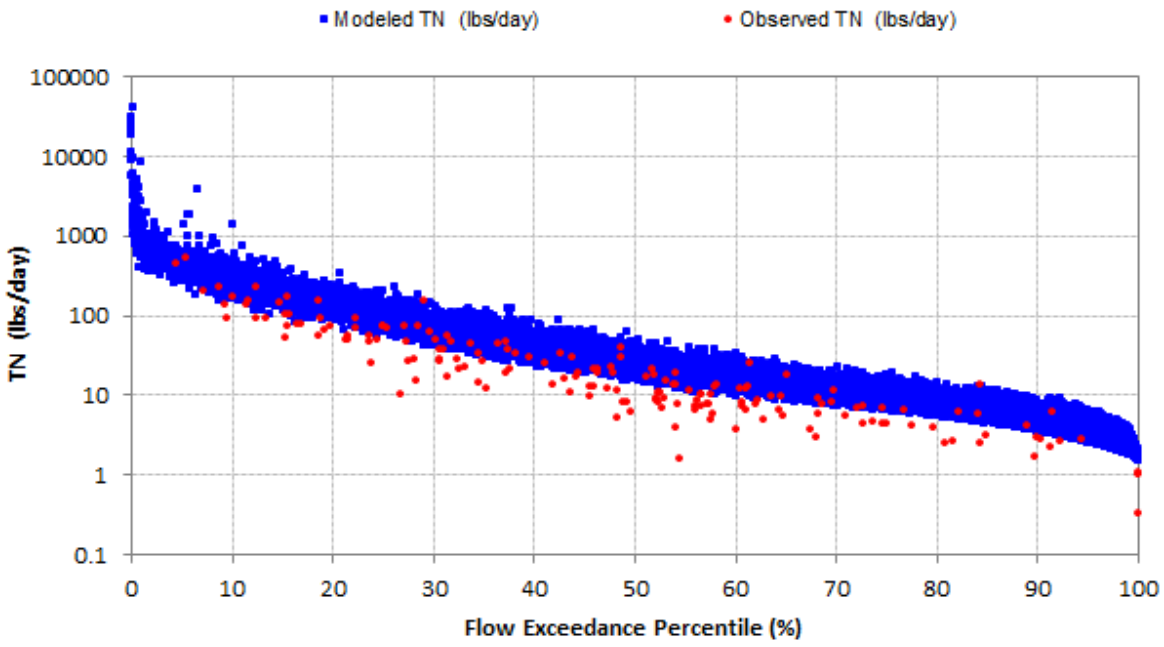


Figure D-30 Modeled vs. Observed Load TN at RCH135 Whiskey Creek and USGS 02293230

Table D-26 Modeled vs. Observed Load TN at RCH135 Whiskey Creek and USGS 02293230

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	56,695	20,297	179.3	P	20,203	180.6	P
2001	59,103	12,883	358.8	P	12,437	375.2	P
2002	48,884	9,381	421.1	P	9,041	440.7	P
2003	39,929	15,560	156.6	P	13,682	191.8	P
2004	33,163	15,341	116.2	P	15,284	117	P
2005	44,648	24,878	79.5	P	23,599	89.2	P
2006	30,325	14,795	105	P	16,579	82.9	P
2007	19,777	9,977	98.2	P	9,335	111.9	P
2008	41,275	11,733	251.8	P	11,947	245.5	P
2009	22,998	9,675	137.7	P	9,899	132.3	P
2010	42,944	17,534	144.9	P	17,063	151.7	P
2011	51,405	16,673	208.3	P	17,288	197.3	P
2012	31,738	17,288	83.6	P	16,149	96.5	P
2013	44,229	15,823	179.5	P	15,646	182.7	P
2014	54,029	4,613	1071.1	P	4,598	1075	P
Average	41,409	14,430	187	P	14,183	192	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	2.	.		VG
Maximum	1,176.2	524.4	124.3	P
Average	90.6	38.1	137.8	P
25 perc.	8.9	7.	26.9	VG
Median	23.	13.7	68.3	P
75th perc.	93.3	45.9	103.2	P
Geomean	28.9	17.	69.7	P
Nash SutCliffe		-4.69		

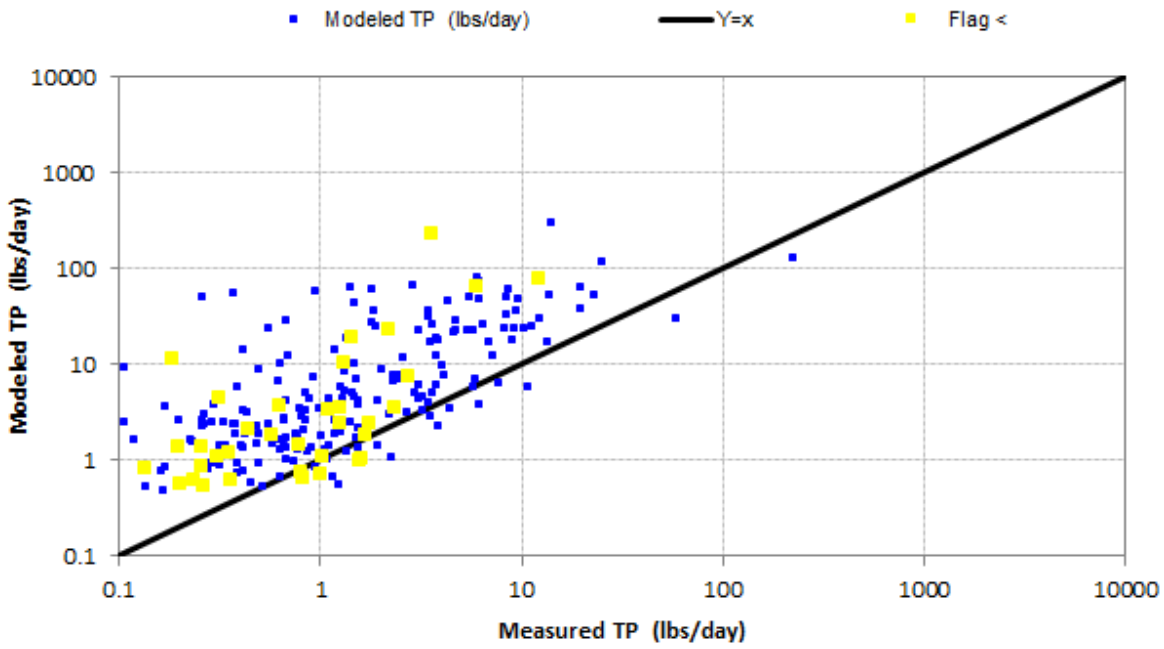


Figure D-31 Modeled vs. Observed Load TP at RCH135 Whiskey Creek and USGS 02293230

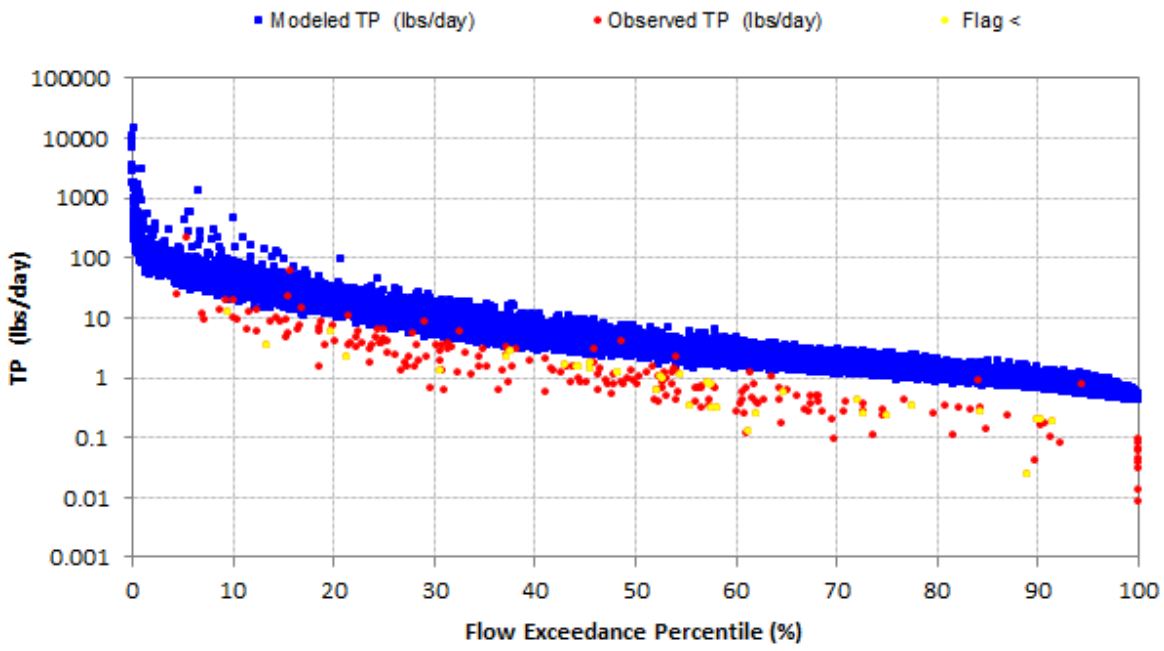


Figure D-32 Modeled vs. Observed Load TP at RCH135 Whiskey Creek and USGS 02293230

Table D-27 Modeled vs. Observed Load TP at RCH135 Whiskey Creek and USGS 02293230

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	12,633	5,261	140.1	P	6,411	97.1	P
2001	13,129	1,658	692.1	P	1,631	704.9	P
2002	10,968	1,019	976.9	P	1,049	945.7	P
2003	6,549	1,317	397.5	P	1,381	374.3	P
2004	4,694	817	474.8	P	768	511.5	P
2005	6,382	1,163	448.5	P	1,163	448.8	P
2006	4,267	1,141	273.8	P	1,167	265.7	P
2007	2,738	700	290.9	P	637	329.7	P
2008	6,909	1,312	426.5	P	1,394	395.8	P
2009	3,308	808	309.4	P	791	318.1	P
2010	7,848	865	806.8	P	818	859.5	P
2011	10,595	1,182	796.7	P	1,331	696.1	P
2012	5,044	468	978.2	P	455	1008.9	P
2013	8,172	752	986.3	P	709	1052.6	P
2014	13,145	254	5078.7	P	275	4672.5	P
2018	4,294	1,148	273.9	P	1,102	289.7	P
2019	3,897	1,064	266.4	P	1,211	221.7	P
2020	5,044	888	467.9	P	852	492.1	P
2021	5,093	906	461.9	P	872	483.8	P
2022	9,424	685	1275.1	P	741	1172.5	P
2023	3,669	799	359.3	P	819	347.7	P
Average	7,038	1,153	510.4	P	1,218	477.8	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.5	.		VG
Maximum	294.1	223.7	31.5	G
Average	13.8	3.6	286.3	P
25 perc.	1.4	.4	261.5	P
Median	3.2	1.	214.9	P
75th perc.	12.3	3.1	299.3	P
Geomean	4.4	1.1	317.1	P
Nash SutCliffe		-3.06		

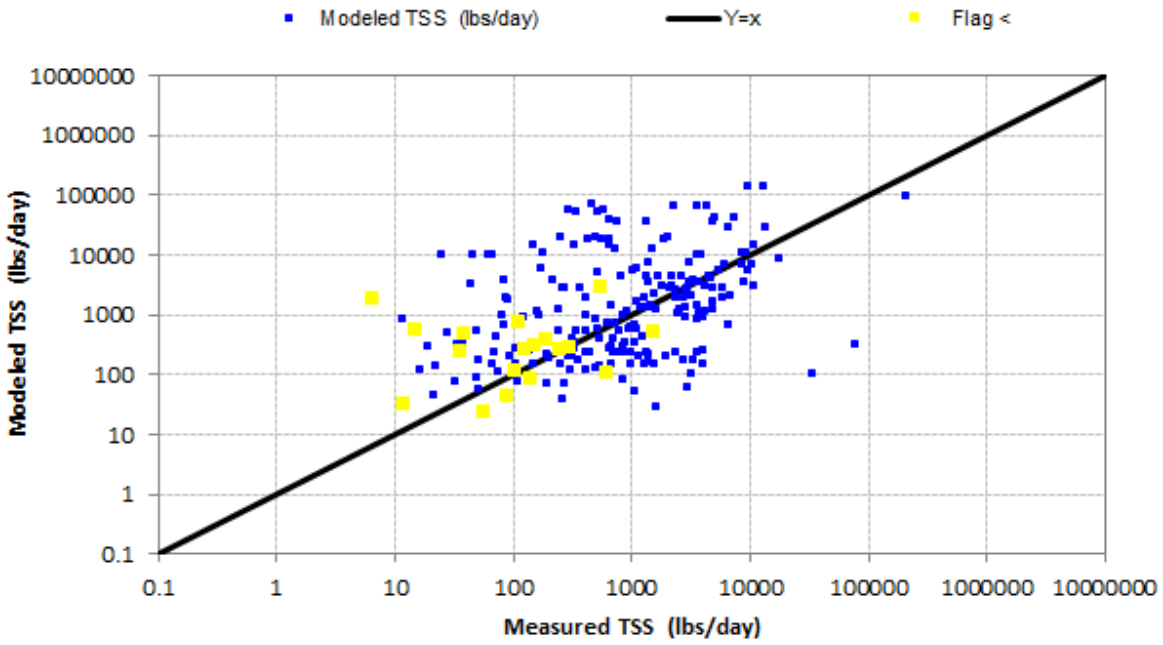


Figure D-33 Modeled vs. Observed Load TSS at RCH139 Orange River and USGS 02293055

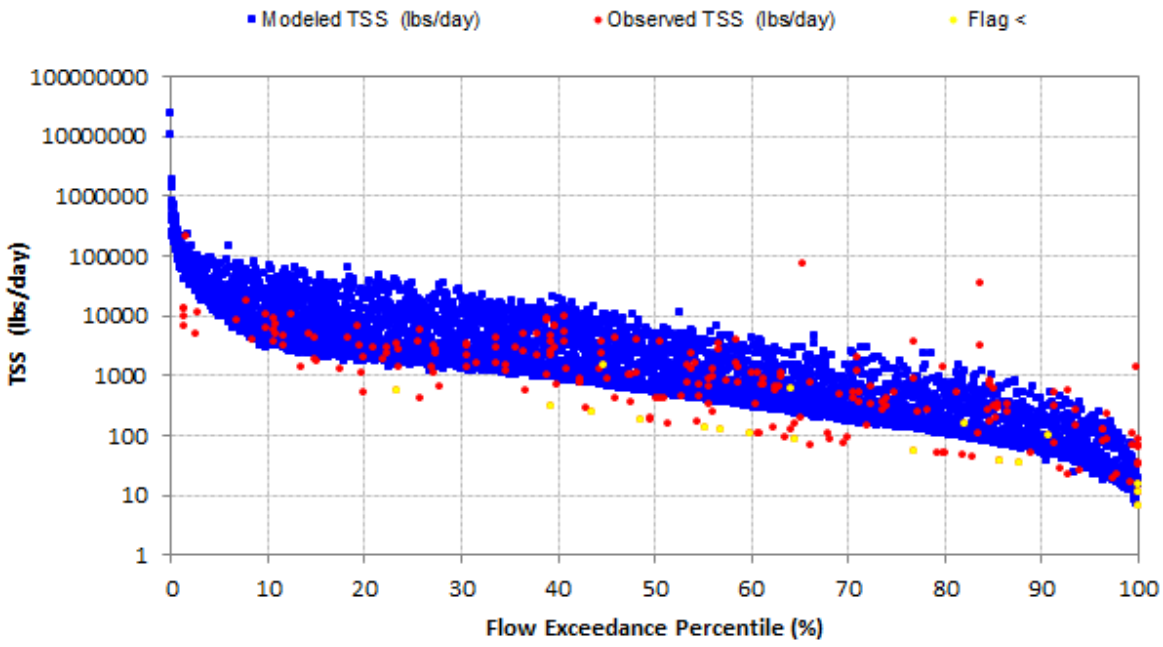


Figure D-34 Modeled vs. Observed Load TSS at RCH139 Orange River and USGS 02293055

Table D-28 Modeled vs. Observed Load TSS at RCH139 Orange River and USGS 02293055

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2007	1,166,168	97,698	1093.6	P	70,237	1560.3	P
2008	7,428,470	4,175,569	77.9	P	5,178,440	43.4	P
2009	1,521,019	728,332	108.8	P	634,511	139.7	P
2010	3,631,297	3,319,463	9.4	VG	3,338,555	8.8	VG
2011	3,292,594	769,467	327.9	P	524,888	527.3	P
2012	1,659,771	386,242	329.7	P	405,429	309.4	P
2013	3,792,169	11,969	31583.8	P	9,400	40241.6	P
2014	1,874,678						
2015	2,208,976						
2017	39,431,672						
2018	2,322,604	207,110	1021.4	P	171,326	1255.7	P
2019	2,890,472	260,659	1008.9	P	285,799	911.4	P
2020	2,895,175	259,803	1014.4	P	410,146	605.9	P
2021	1,498,932	369,784	305.4	P	414,435	261.7	P
2022	7,500,393	1,354,900	453.6	P	1,521,337	393	P
2023	1,857,994	562,505	230.3	P	490,646	278.7	P
Average	5,310,774	961,808	452.2	P	1,035,011	413.1	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	15.7	.		VG
Maximum	140,839.	207,985.9	-32.3	F
Average	6,677.2	2,073.	222.1	P
25 perc.	228.4	.		VG
Median	1,028.8	155.2	563.1	P
75th perc.	3,939.3	1,304.4	202	P
Geomean	1,096.2	687.1	59.5	P
Nash SutCliffe		-1.21		

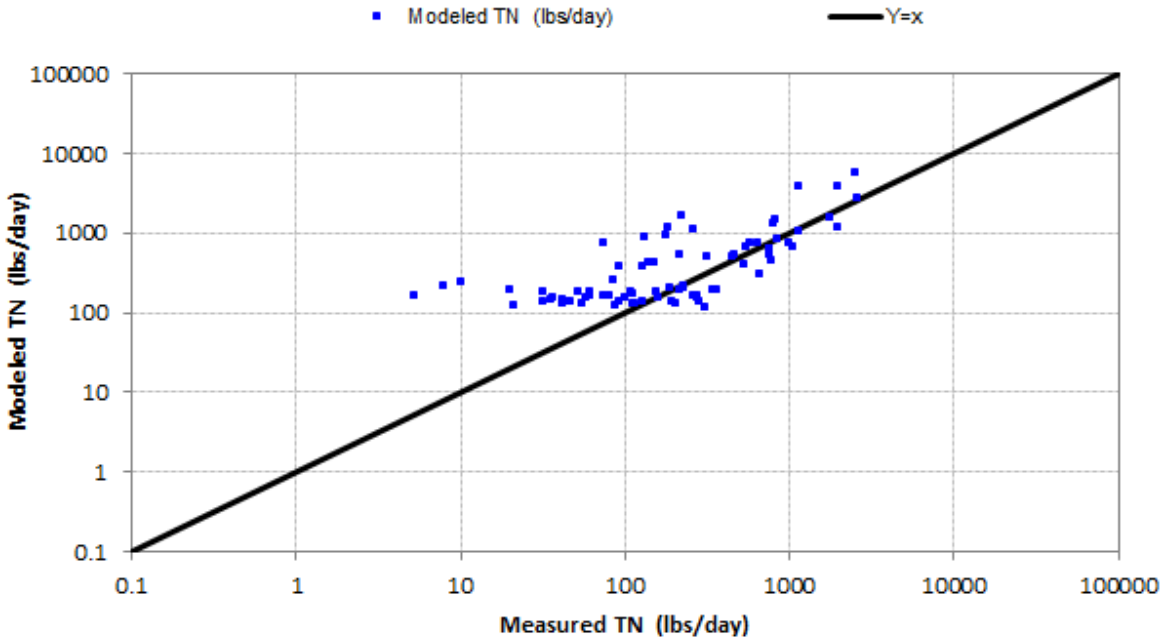


Figure D-35 Modeled vs. Observed Load TN at RCH139 Orange River and USGS 02293055

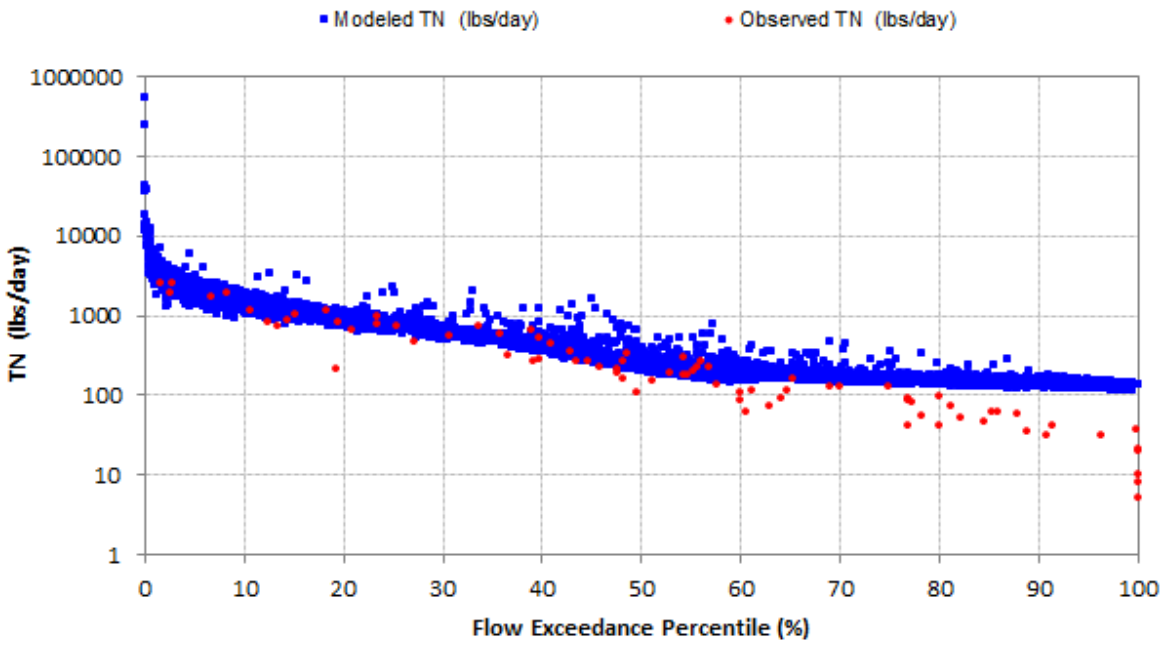


Figure D-36 Modeled vs. Observed Load TN at RCH139 Orange River and USGS 02293055

Table D-29 Modeled vs. Observed Load TN at RCH139 Orange River and USGS 02293055

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2007	133,958	10,681	1154.2	P	10,790	1141.5	P
2008	397,584	202,223	96.6	P	203,975	94.9	P
2009	157,398	86,926	81.1	P	93,931	67.6	P
2010	235,813	195,740	20.5	VG	202,274	16.6	VG
2011	272,661	138,965	96.2	P	129,854	110	P
2012	161,883	110,163	46.9	F	108,081	49.8	F
2013	334,547	3,787	8734.3	P	3,842	8608.7	P
2014	162,077						
2015	229,636						
Average	231,729	106,926	116.7	P	107,535	115.5	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	118.5	.		VG
Maximum	7,126.7	2,556.3	178.8	P
Average	620.3	223.2	177.9	P
25 perc.	160.1	.		VG
Median	226.4	36.4	521.9	P
75th perc.	787.8	217.5	262.3	P
Geomean	360.6	182.6	97.5	P
Nash SutCliffe		-1.31		

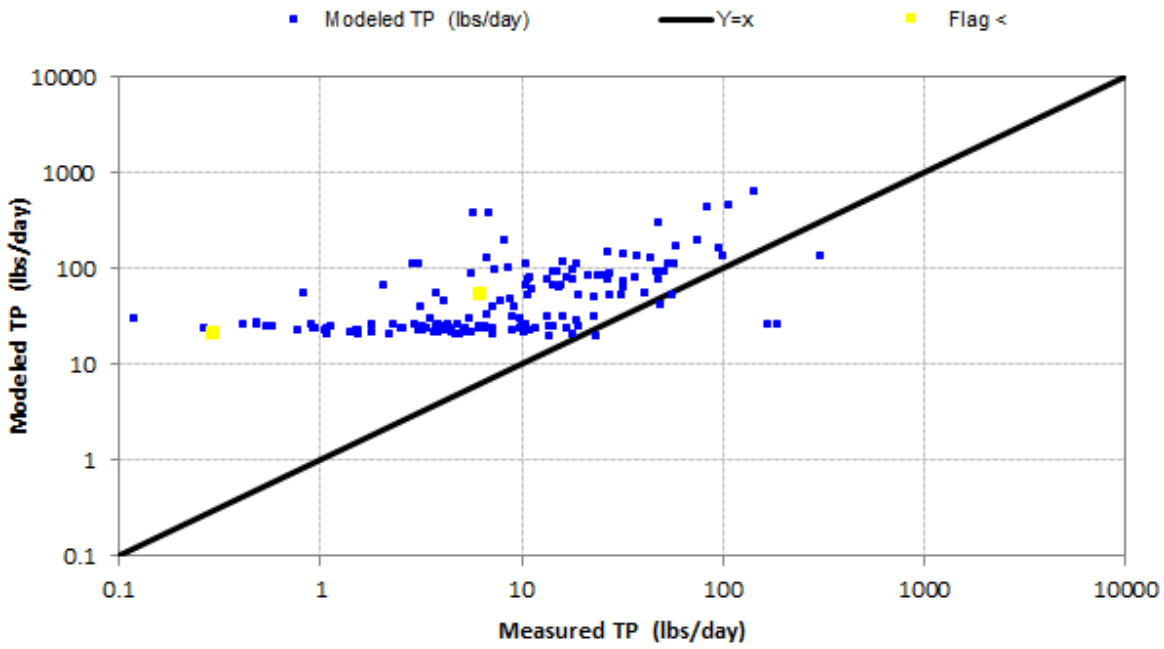


Figure D-37 Modeled vs. Observed Load TP at RCH139 Orange River and USGS 02293055

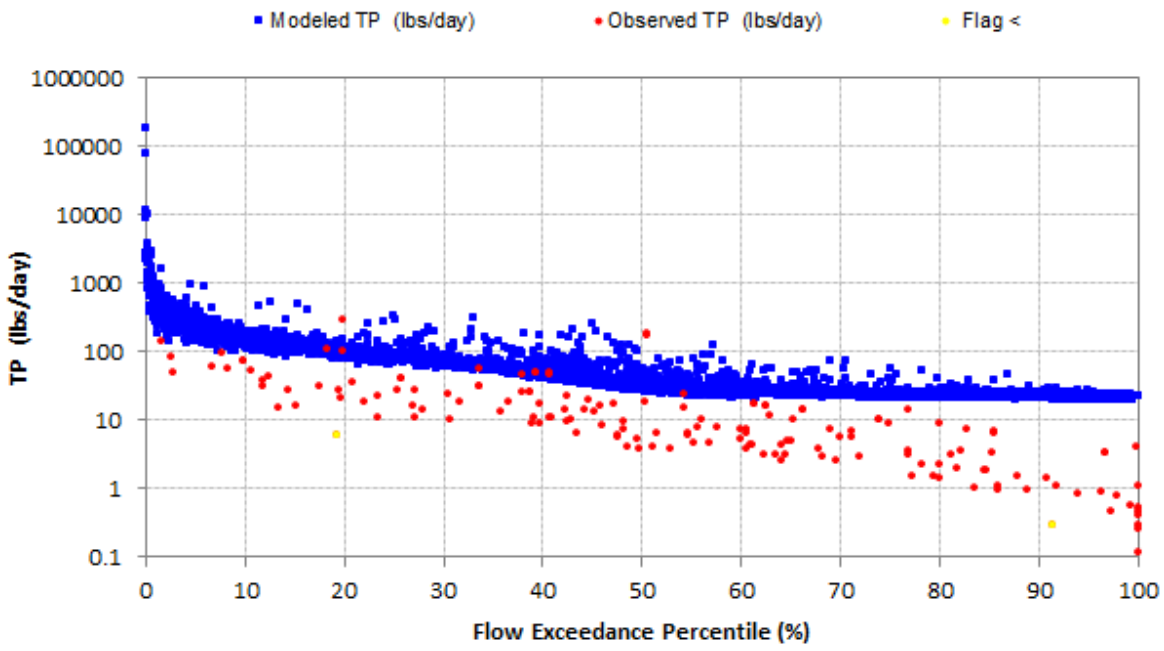


Figure D-38 Modeled vs. Observed Load TP at RCH139 Orange River and USGS 02293055

Table D-30 Modeled vs. Observed Load TP at RCH139 Orange River and USGS 02293055

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2007	16,355	601	2619.3	P	510	3106	P
2008	55,975	10,927	412.3	P	11,025	407.7	P
2009	18,630	5,592	233.2	P	5,079	266.8	P
2010	30,602	5,367	470.1	P	5,682	438.6	P
2011	33,628	7,898	325.8	P	5,702	489.8	P
2012	19,368	2,911	565.3	P	3,015	542.4	P
2013	40,310	177	22656.3	P	224	17922	P
2014	19,955						
2015	26,190						
2017	310,421						
2018	27,597	4,232	552.2	P	2,934	840.7	P
2019	26,565	3,498	659.4	P	4,139	541.8	P
2020	27,637	4,266	547.9	P	4,200	558.1	P
2021	19,226	11,631	65.3	P	11,640	65.2	P
2022	60,327	25,715	134.6	P	31,909	89.1	P
2023	19,509	8,018	143.3	P	8,108	140.6	P
Average	47,018	6,987	572.9	P	7,244	549.1	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	19.9	.		VG
Maximum	882.5	304.2	190.1	P
Average	72.9	12.9	464.4	P
25 perc.	23.8	.		VG
Median	29.9	3.	888.4	P
75th perc.	86.4	12.2	610.4	P
Geomean	46.8	8.3	465	P
Nash SutCliffe		-7.13		

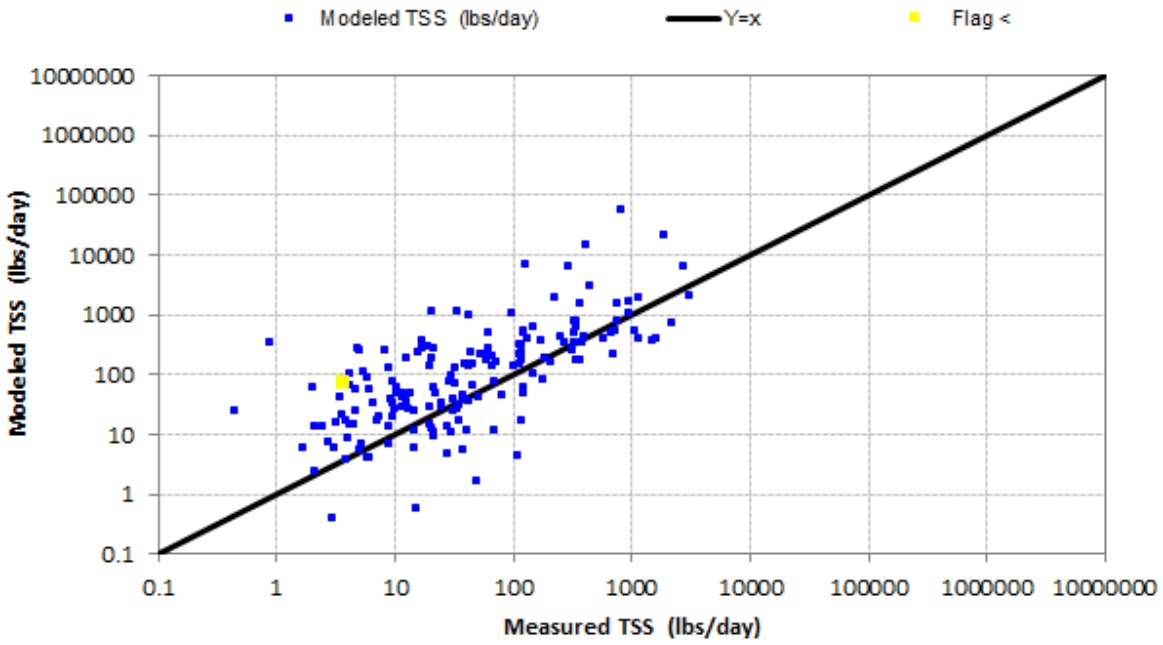


Figure D-39 Modeled vs. Observed Load TSS at RCH120 Popash Creek and USGS 02293090

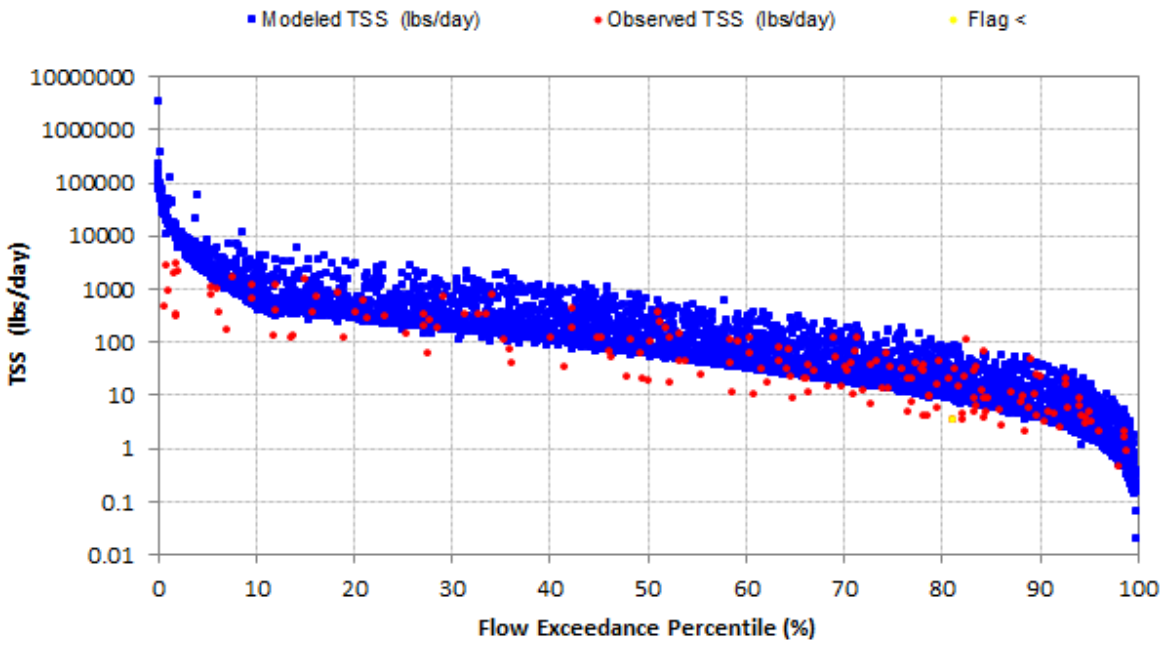


Figure D-40 Modeled vs. Observed Load TSS at RCH120 Popash Creek and USGS 02293090

Table D-31 Modeled vs. Observed Load TSS at RCH120 Popash Creek and USGS 02293090

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	668,376	125,173	434	P	112,323	495	P
2009	53,710	10,746	399.8	P	11,318	374.6	P
2010	254,107	75,969	234.5	P	79,225	220.7	P
2011	317,286	113,314	180	P	84,488	275.5	P
2012	182,783	53,990	238.5	P	55,688	228.2	P
2013	1,125,591	6,237	17947.7	P	6,632	16872.2	P
2014	60,228						
2018	151,241	13,508	1019.6	P	13,416	1027.4	P
2019	156,649	32,459	382.6	P	29,274	435.1	P
2020	627,740	35,065	1690.2	P	33,704	1762.5	P
2021	190,466	24,955	663.2	P	23,520	709.8	P
2022	644,550	22,996	2702.9	P	29,477	2086.6	P
2023	141,543	30,679	361.4	P	28,013	405.3	P
Average	351,867	45,424	674.6	P	42,257	732.7	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	122,536.8	3,054.7	3911.4	P
Average	1,323.9	153.2	764.2	P
25 perc.	23.7	1.3	1750.8	P
Median	102.7	16.	542	P
75th perc.	325.7	105.5	208.6	P
Geomean	88.4	40.6	117.9	P
Nash SutCliffe		-114.92		

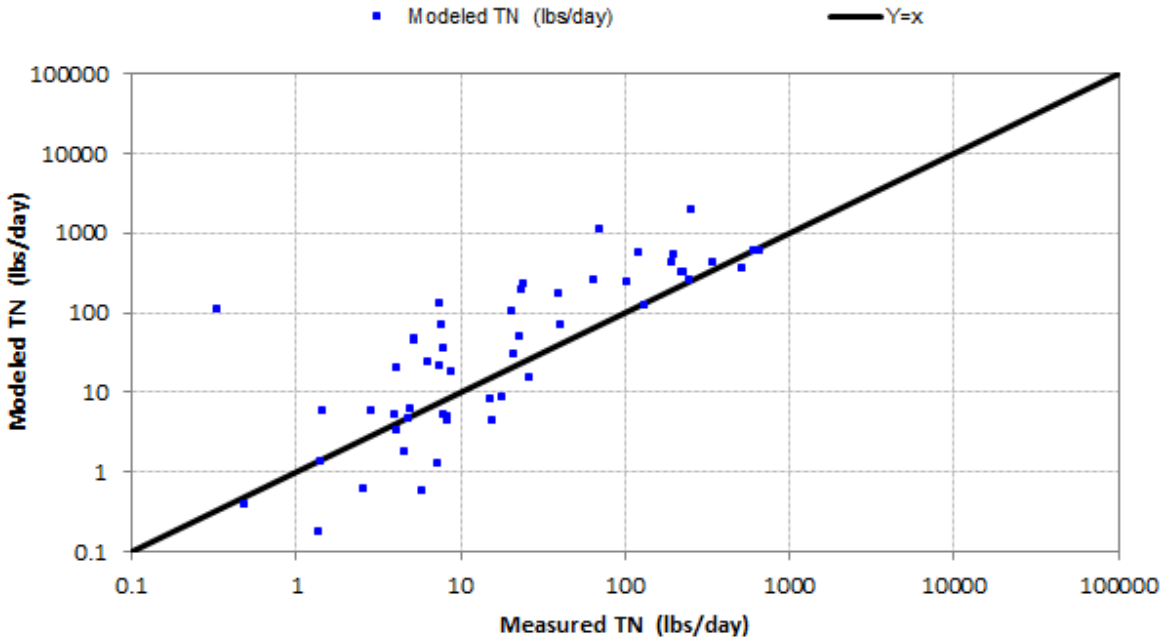


Figure D-41 Modeled vs. Observed Load TN at RCH120 Popash Creek and USGS 02293090

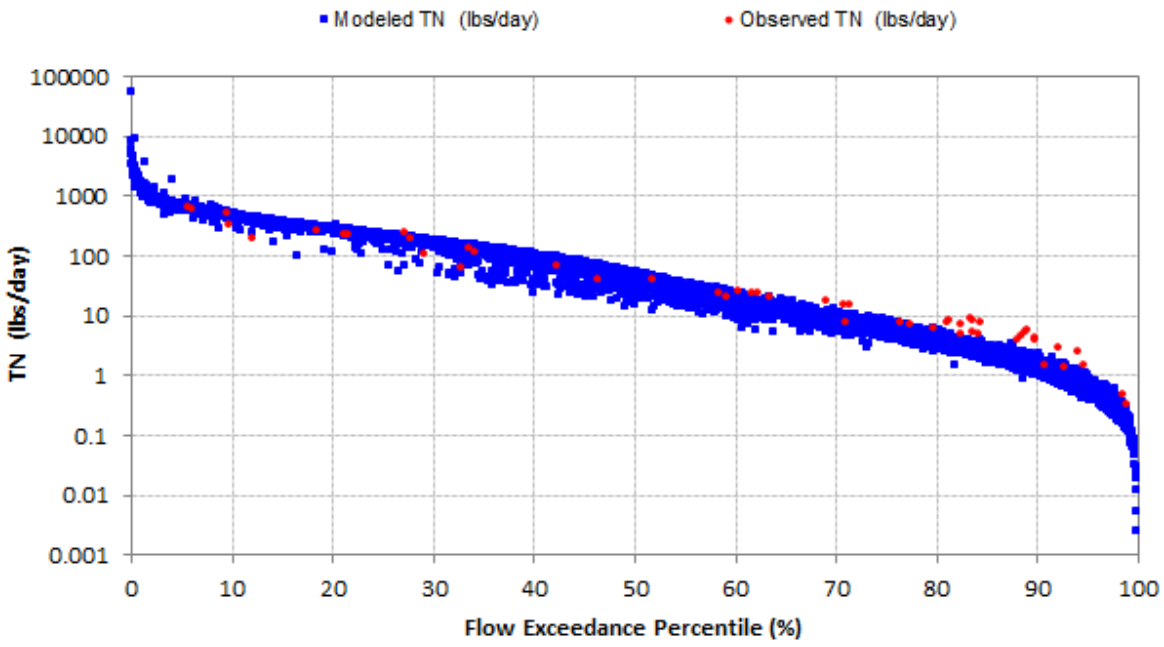


Figure D-42 Modeled vs. Observed Load TN at RCH120 Popash Creek and USGS 02293090

Table D-32 Modeled vs. Observed Load TN at RCH120 Popash Creek and USGS 02293090

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	82,182	21,951	274.4	P	19,575	319.8	P
2009	23,767	2,542	835	P	2,610	810.7	P
2010	44,126	20,491	115.3	P	22,078	99.9	P
2011	60,072	37,778	59	F	38,899	54.4	F
2012	54,875	40,114	36.8	G	40,201	36.5	G
2013	102,305	640	15878.1	P	622	16352.6	P
2014	18,010						
Average	55,048	20,586	167.4	P	20,664	166.4	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	3,620.	669.3	440.8	P
Average	161.3	53.4	201.8	P
25 perc.	5.5	.		VG
Median	36.8	4.8	674.7	P
75th perc.	189.9	22.6	739.8	P
Geomean	29.8	18.	65.4	P
Nash SutCliffe		-4.49		

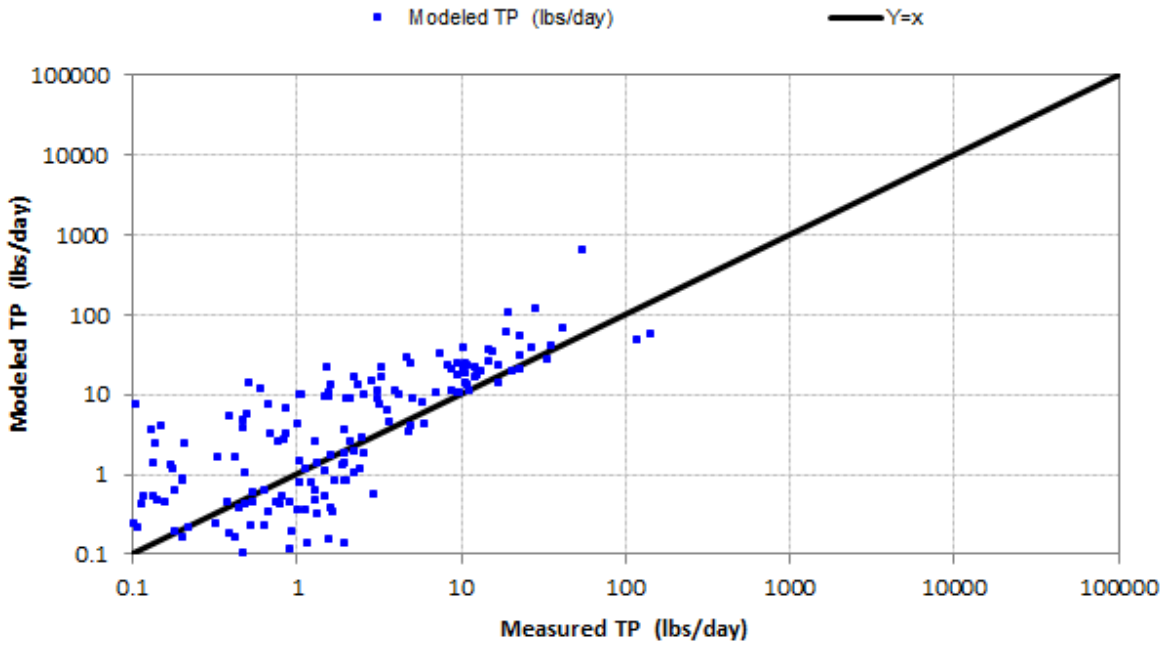


Figure D-43 Modeled vs. Observed Load TP at RCH120 Popash Creek and USGS 02293090

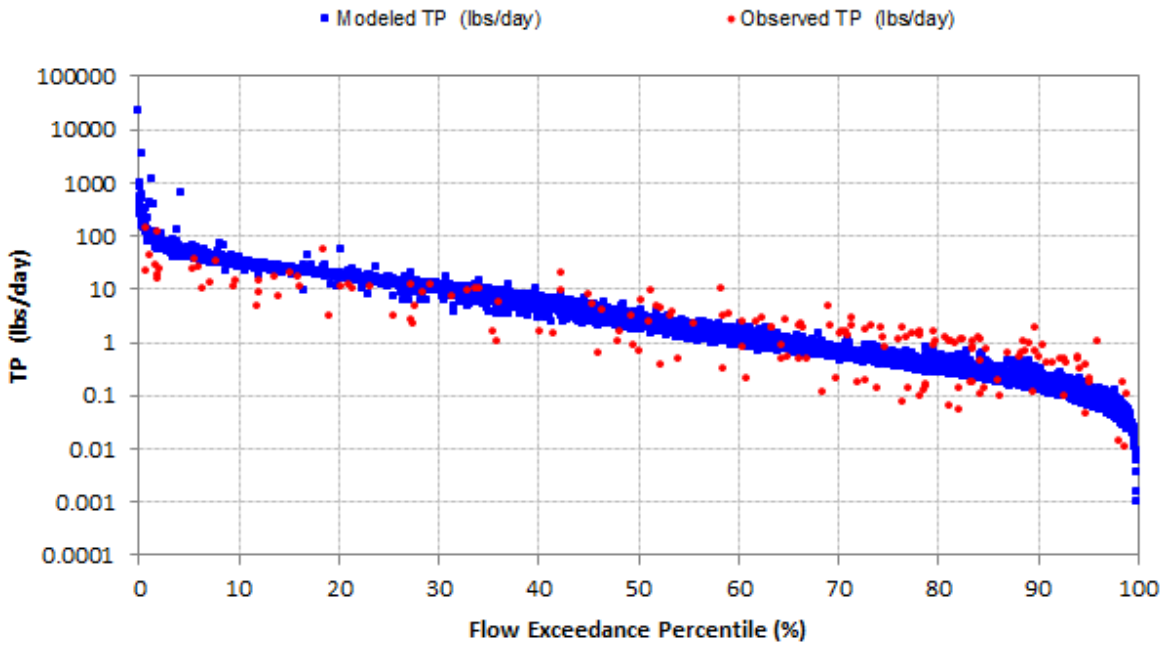


Figure D-44 Modeled vs. Observed Load TP at RCH120 Popash Creek and USGS 02293090

Table D-33 Modeled vs. Observed Load TP at RCH120 Popash Creek and USGS 02293090

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	5,986	3,273	82.9	P	2,439	145.4	P
2009	1,597	424	276.4	P	382	318.4	P
2010	3,796	2,273	67	P	2,123	78.8	P
2011	4,607	3,819	20.6	VG	2,868	60.6	P
2012	3,731	1,839	102.9	P	1,840	102.8	P
2013	9,144	82	10985.3	P	91	9989.5	P
2014	1,294						
2018	3,582	450	695.8	P	638	461.7	P
2019	2,538	823	208.2	P	786	222.9	P
2020	7,919	1,686	369.6	P	1,641	382.6	P
2021	3,940	708	456.5	P	752	424	P
2022	5,674	990	473	P	1,004	465.2	P
2023	2,731	372	634.4	P	331	724.6	P
Average	4,349	1,395	211.8	P	1,241	250.4	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.	.		VG
Maximum	1,128.3	141.3	698.5	P
Average	17.3	4.8	263	P
25 perc.	.5	.	1400	P
Median	2.6	.8	207.2	P
75th perc.	13.3	2.9	353.8	P
Geomean	2.4	1.5	59.5	F
Nash SutCliffe		-8.16		

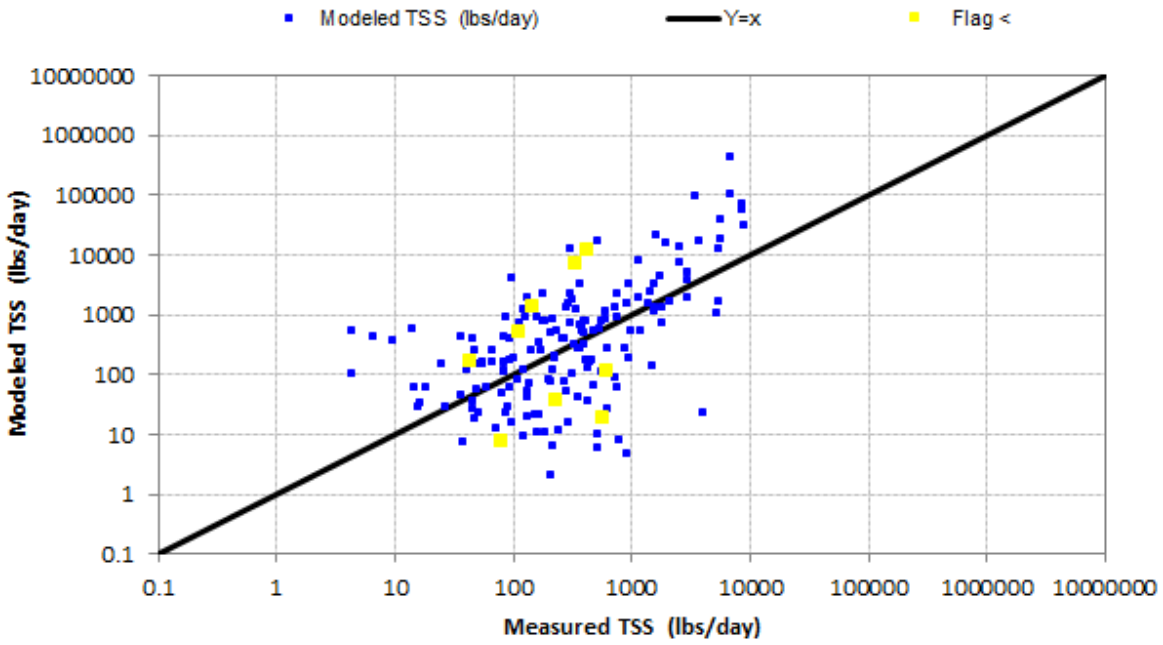


Figure D-45 Modeled vs. Observed Load TSS at RCH127 Telegraph Creek at USGS 022929176

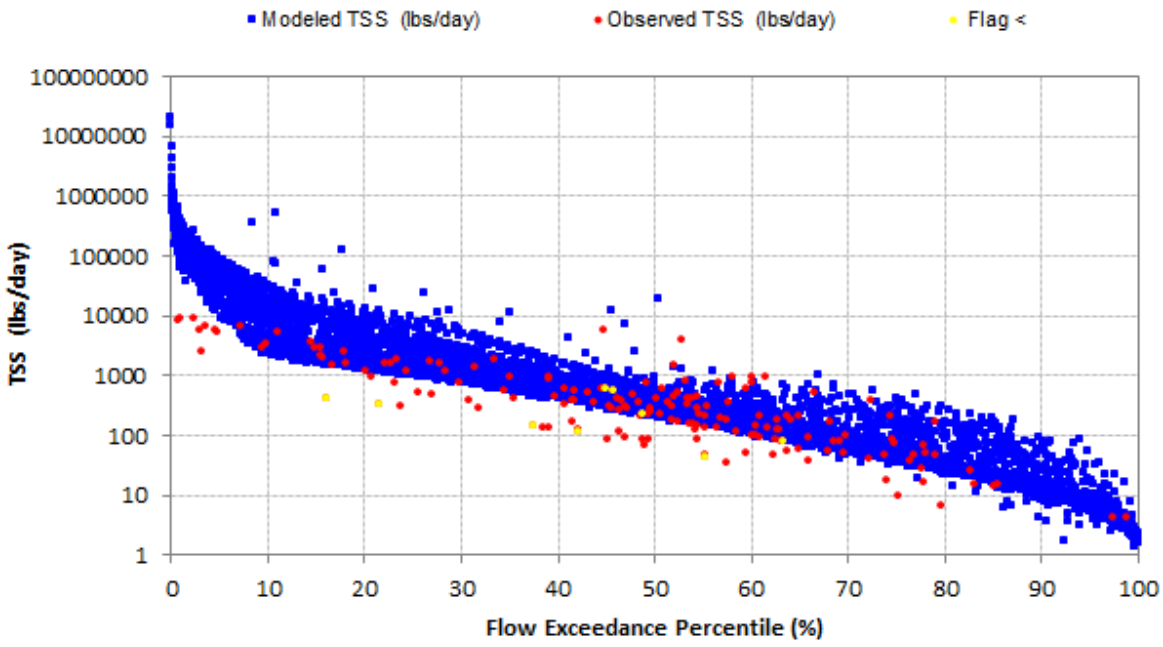


Figure D-46 Modeled vs. Observed Load TSS at RCH127 Telegraph Creek at USGS 022929176

Table D-34 Modeled vs. Observed Load TSS at RCH127 Telegraph Creek at USGS 022929176

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2007	129,621	17,746	630.4	P	23,217	458.3	P
2008	15,310,733	798,080	1818.4	P	748,912	1944.4	P
2009	2,944,275	357,545	723.5	P	341,607	761.9	P
2010	1,055,737	238,243	343.1	P	254,629	314.6	P
2011	4,010,660	661,091	506.7	P	570,502	603	P
2012	1,534,461	368,956	315.9	P	428,088	258.4	P
2013	4,947,729	13,312	37068.1	P	14,278	34553.5	P
2014	254,762						
2015	3,980,136						
2017	61,173,312						
2018	1,197,880	33,155	3513	P	28,388	4119.7	P
2019	331,968	215,212	54.3	P	202,379	64	P
2020	2,163,406	171,035	1164.9	P	182,322	1086.6	P
2021	219,315	50,249	336.5	P	50,249	336.5	P
2022	4,863,143	53,591	8974.6	P	53,591	8974.6	P
2023	743,463	16,077	4524.4	P	16,077	4524.4	P
Average	6,553,788	230,330	2745.4	P	224,172	2823.6	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	2.	.		VG
Maximum	671,290.6	9,059.2	7310.1	P
Average	9,489.	531.3	1686	P
25 perc.	58.6	.		VG
Median	368.7	71.2	417.6	P
75th perc.	1,335.7	370.9	260.1	P
Geomean	347.	281.1	23.4	G
Nash SutCliffe		-788.8		

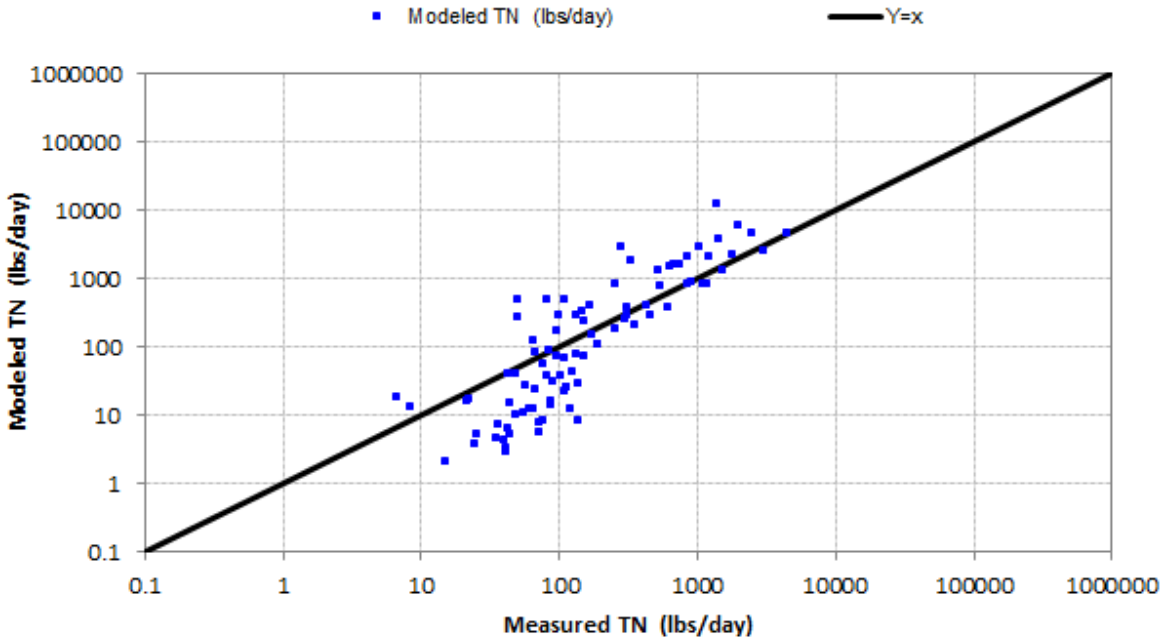


Figure D-47 Modeled vs. Observed Load TN at RCH127 Telegraph Creek at USGS 022929176

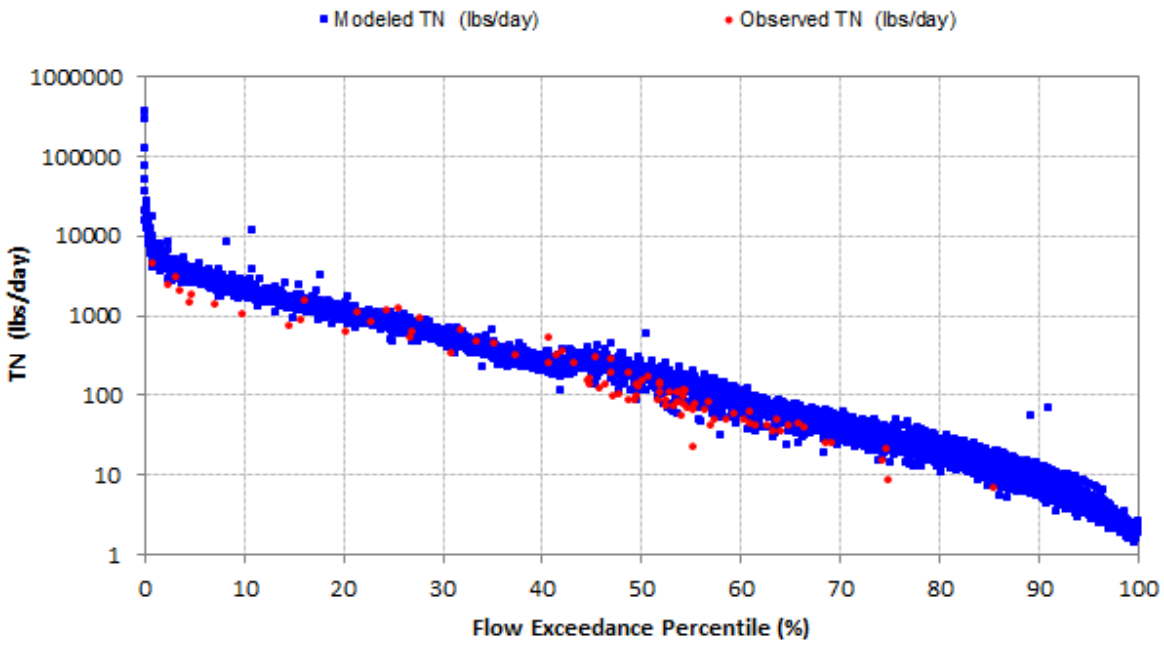


Figure D-48 Modeled vs. Observed Load TN at RCH127 Telegraph Creek at USGS 022929176

Table D-35 Modeled vs. Observed Load TN at RCH127 Telegraph Creek at USGS 022929176

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2007	80,419	7,281	1004.5	P	7,268	1006.5	P
2008	570,297	201,671	182.8	P	189,712	200.6	P
2009	314,713	130,139	141.8	P	120,633	160.9	P
2010	181,638	171,973	5.6	VG	173,262	4.8	VG
2011	329,852	204,220	61.5	P	191,717	72.1	P
2012	253,415	209,749	20.8	VG	184,722	37.2	G
2013	377,395	5,661	6566.8	P	5,110	7285.2	P
2014	119,763						
2015	356,018						
Average	287,057	132,956	115.9	P	124,632	130.3	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	2.1	.		VG
Maximum	12,600.	4,407.2	185.9	P
Average	718.6	266.7	169.5	P
25 perc.	29.5	.		VG
Median	173.3	55.9	210	P
75th perc.	768.8	158.8	384.1	P
Geomean	141.1	155.1	-9.1	VG
Nash SutCliffe		-4.59		

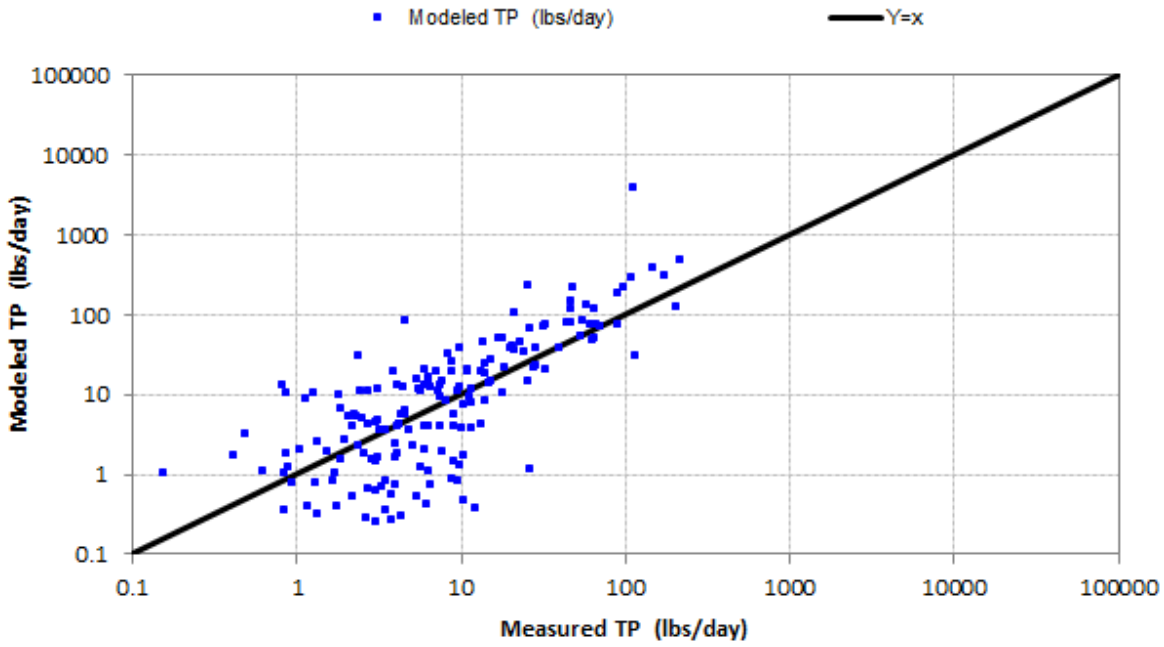


Figure D-49 Modeled vs. Observed Load TP at RCH127 Telegraph Creek at USGS 022929176

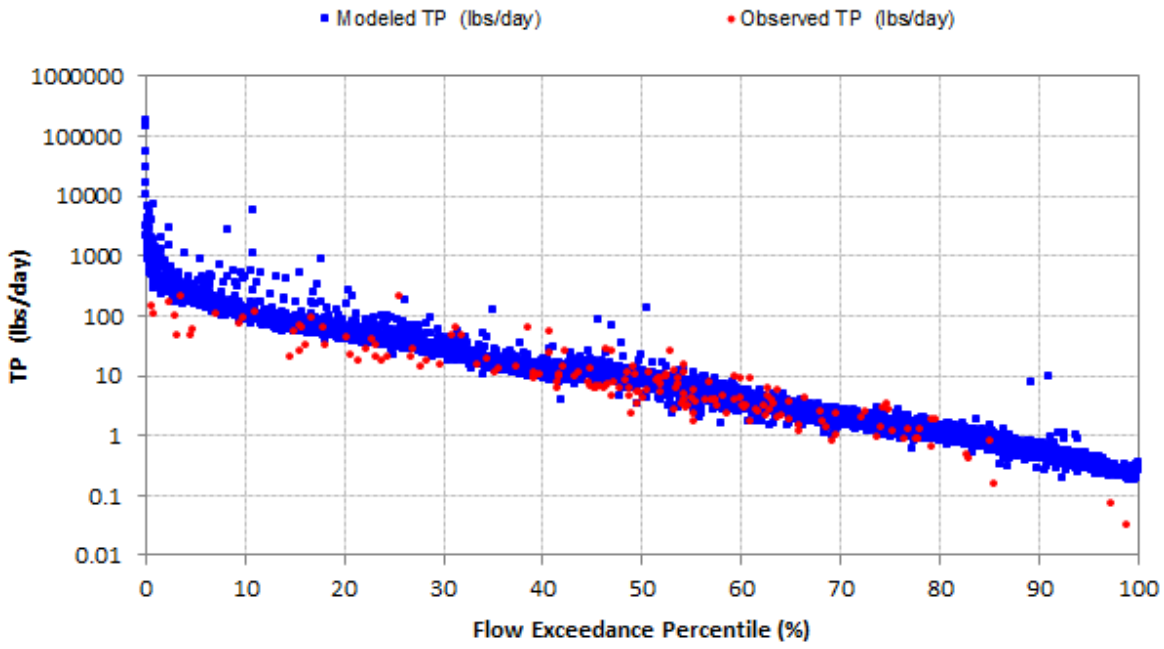


Figure D-50 Modeled vs. Observed Load TP at RCH127 Telegraph Creek at USGS 022929176

Table D-36 Modeled vs. Observed Load TP at RCH127 Telegraph Creek at USGS 022929176

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2007	3,409	756	350.9	P	632	439.4	P
2008	60,429	16,583	264.4	P	15,865	280.9	P
2009	19,548	15,220	28.4	VG	12,479	56.6	F
2010	13,827	6,202	123	P	5,970	131.6	P
2011	24,900	9,603	159.3	P	8,911	179.4	P
2012	14,669	6,597	122.4	P	6,175	137.6	P
2013	25,527	188	13476.3	P	208	12156.2	P
2014	5,628						
2015	22,520						
2017	482,780						
2018	14,610	978	1393.4	P	1,058	1280.6	P
2019	6,093	5,624	8.3	VG	5,047	20.7	VG
2020	28,965	8,967	223	P	7,756	273.5	P
2021	6,845	3,350	104.3	P	-10,670	-164.2	P
2022	18,907	3,573	429.2	P	-33,774	-156	P
2023	11,106	1,072	936.2	P	-16,458	-167.5	P
Average	47,485	6,055	684.2	P	246	19202.8	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.2	.		VG
Maximum	3,917.9	215.2	1720.8	P
Average	58.4	11.5	407.3	P
25 perc.	1.6	.		VG
Median	8.4	2.2	286.6	P
75th perc.	35.5	8.8	302	P
Geomean	7.8	7.1	9.7	VG
Nash SutCliffe		-73.8		

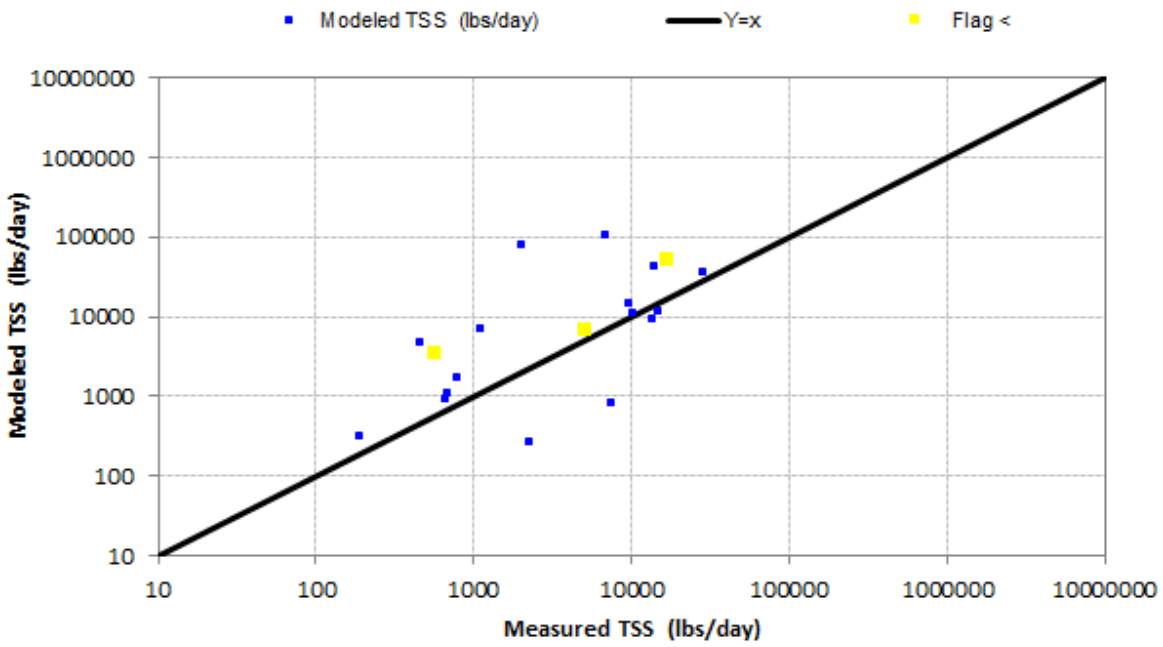


Figure D-51 Modeled vs. Observed Load TSS at RCH188 Caloosahatchee River (S-78) and USGS 02292000

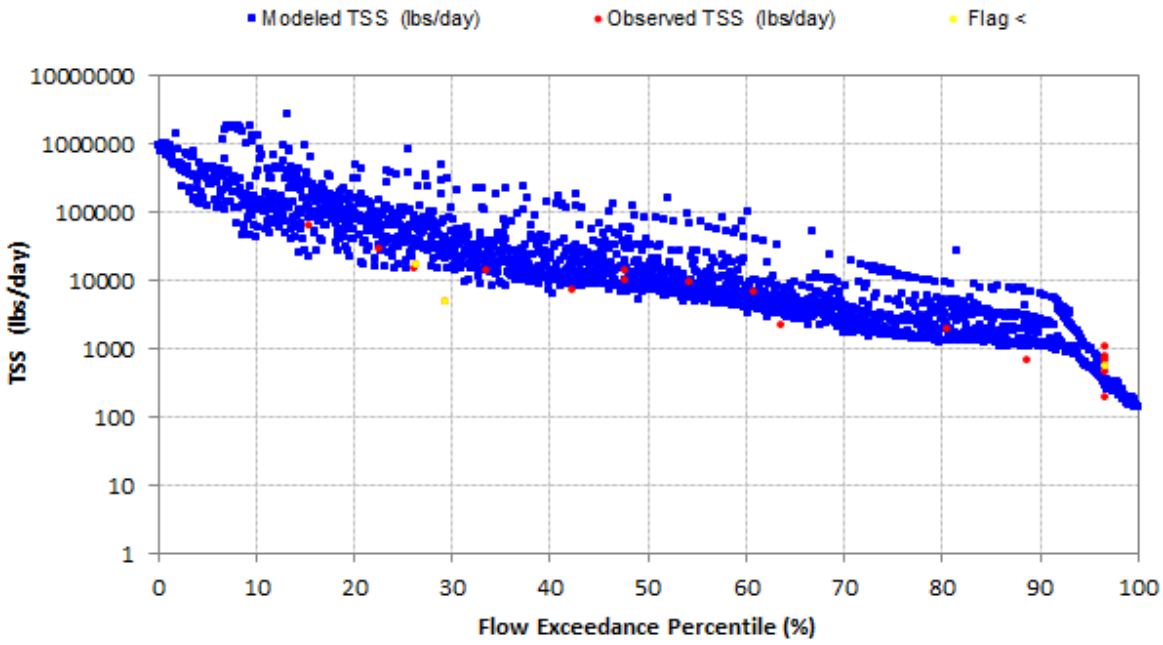


Figure D-52 Modeled vs. Observed Load TSS at RCH188 Caloosahatchee River (S-78) and USGS 02292000

Table D-37 Modeled vs. Observed Load TSS at RCH188 Caloosahatchee River (S-78) and USGS 02292000

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	43,242,409	4,046,913	968.5	P	4,350,071	894.1	P
2001	8,438,040	1,485,664	468	P	1,136,240	642.6	P
2002	13,970,340	9,357,097	49.3	P	10,031,086	39.3	P
Average	21,883,596	4,963,225	340.9	P	5,172,466	323.1	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	259.8	188.8	37.6	P
Maximum	102,850.1	28,777.1	257.4	P
Average	20,323.8	7,125.2	185.2	P
25 perc.	1,383.8	736.1	88	P
Median	7,157.3	5,010.1	42.9	P
75th perc.	25,081.3	11,907.7	110.6	P
Geomean	6,182.3	3,147.3	96.4	P
Nash SutCliffe		-15.31		

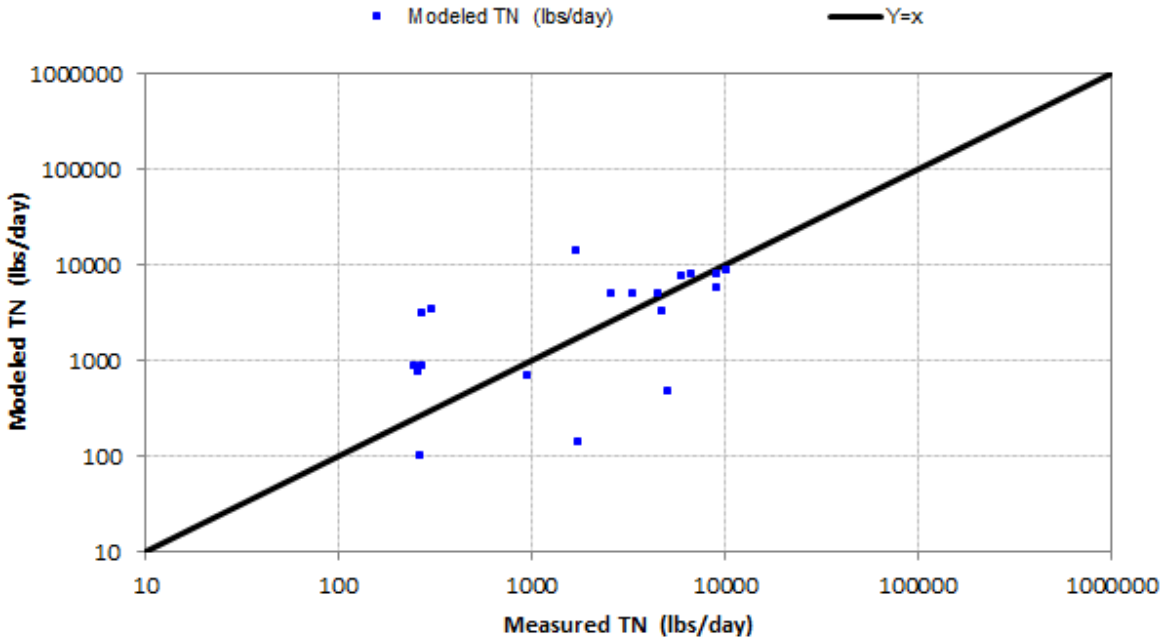


Figure D-53 Modeled vs. Observed Load TN at RCH188 Caloosahatchee River (S-78) and USGS 02292000

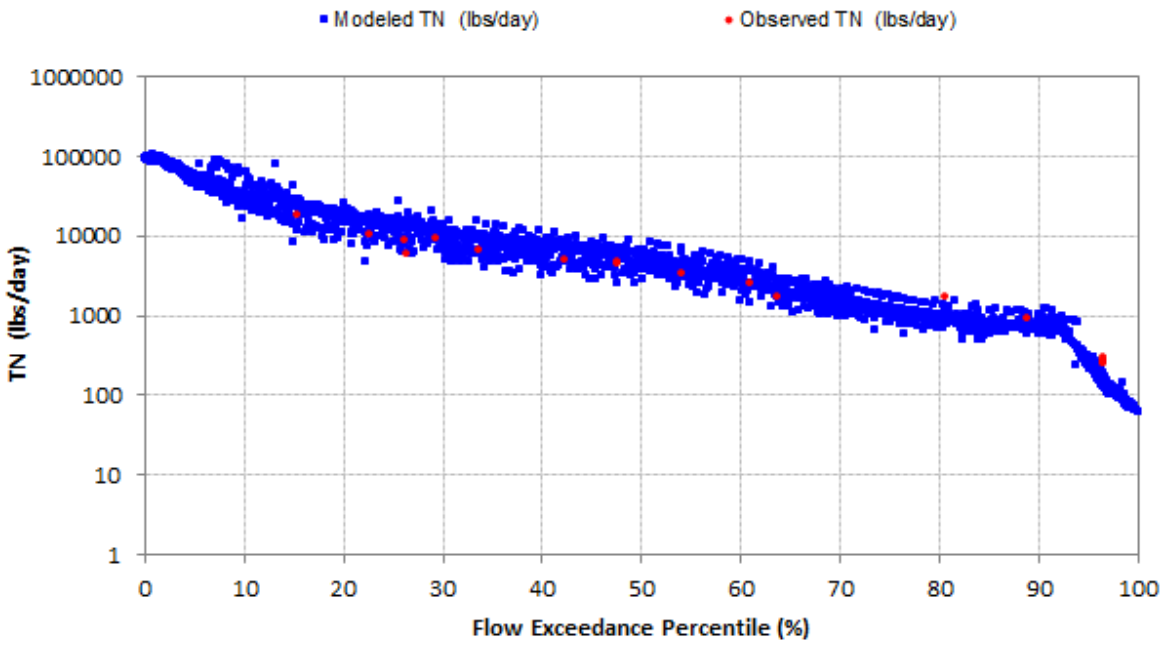


Figure D-54 Modeled vs. Observed Load TN at RCH188 Caloosahatchee River (S-78) and USGS 02292000

Table D-38 Modeled vs. Observed Load TN at RCH188 Caloosahatchee River (S-78) and USGS 02292000

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	3,379,902	1,560,742	116.6	P	1,688,224	100.2	P
2001	1,649,520	1,327,722	24.2	VG	1,164,916	41.6	G
2002	3,733,708	4,266,542	-12.5	VG	4,312,795	-13.4	VG
Average	2,921,043	2,385,002	22.5	VG	2,388,645	22.3	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	101.6	248.8	-59.2	F
Maximum	14,140.8	10,303.4	37.2	G
Average	4,235.3	3,542.4	19.6	VG
25 perc.	798.8	288.9	176.5	P
Median	3,378.	2,575.	31.2	G
75th perc.	6,612.6	5,519.	19.8	VG
Geomean	2,207.8	1,732.2	27.5	VG
Nash SutCliffe		-0.11		

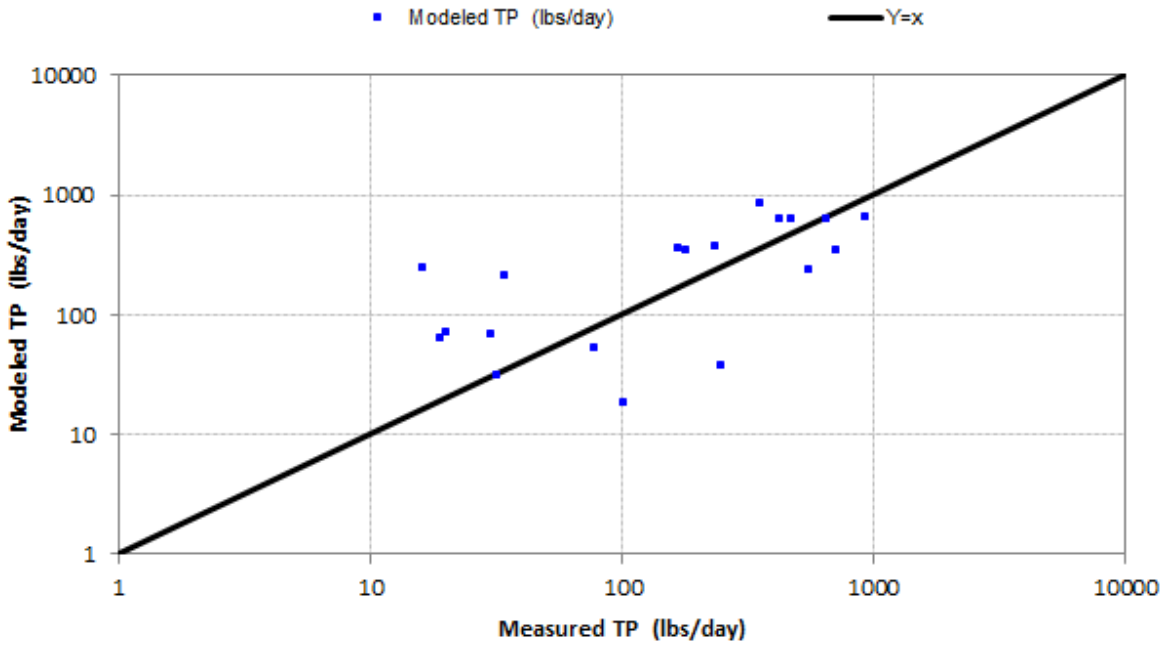


Figure D-55 Modeled vs. Observed Load TP at RCH188 Caloosahatchee River (S-78) and USGS 02292000

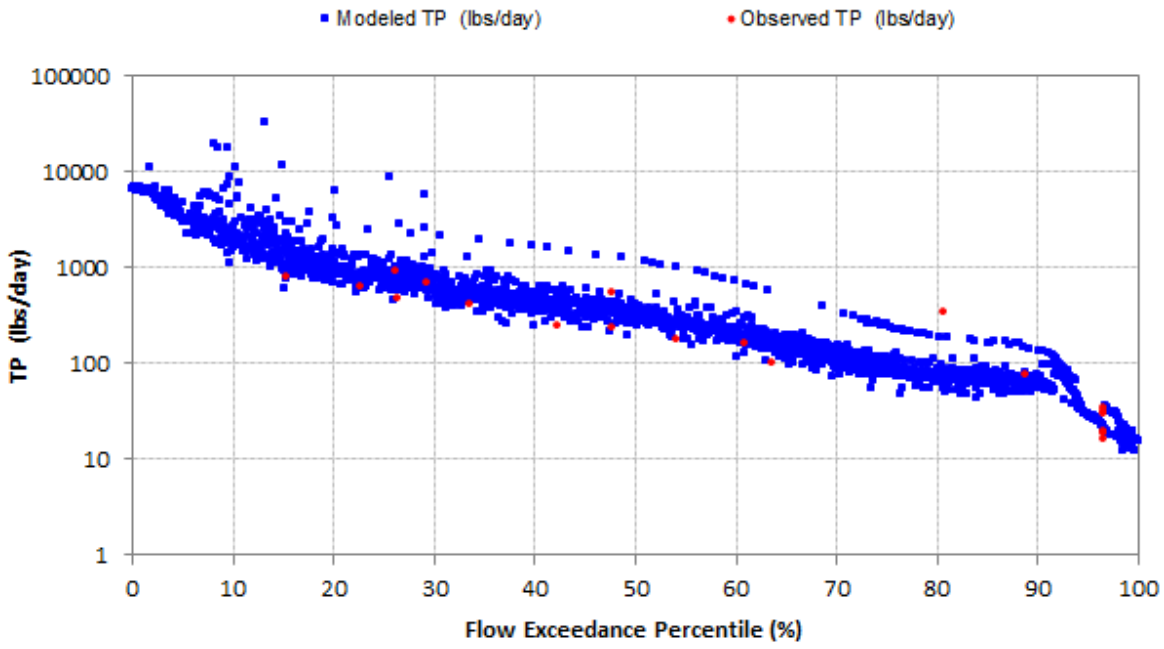


Figure D-56 Modeled vs. Observed Load TP at RCH188 Caloosahatchee River (S-78) and USGS 02292000

Table D-39 Modeled vs. Observed Load TP at RCH188 Caloosahatchee River (S-78) and USGS 02292000

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	239,234	117,327	103.9	P	121,960	96.2	P
2001	110,537	232,321	-52.4	F	160,969	-31.3	G
2002	270,525	407,548	-33.6	G	374,588	-27.8	VG
Average	206,765	252,399	-18.1	VG	219,172	-5.7	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	18.6	16.	16.1	VG
Maximum	840.7	936.7	-10.2	VG
Average	306.	276.7	10.6	VG
25 perc.	66.5	32.8	102.4	P
Median	247.1	181.2	36.4	G
75th perc.	494.5	448.5	10.3	VG
Geomean	182.2	138.1	31.9	G
Nash SutCliffe		0.38		

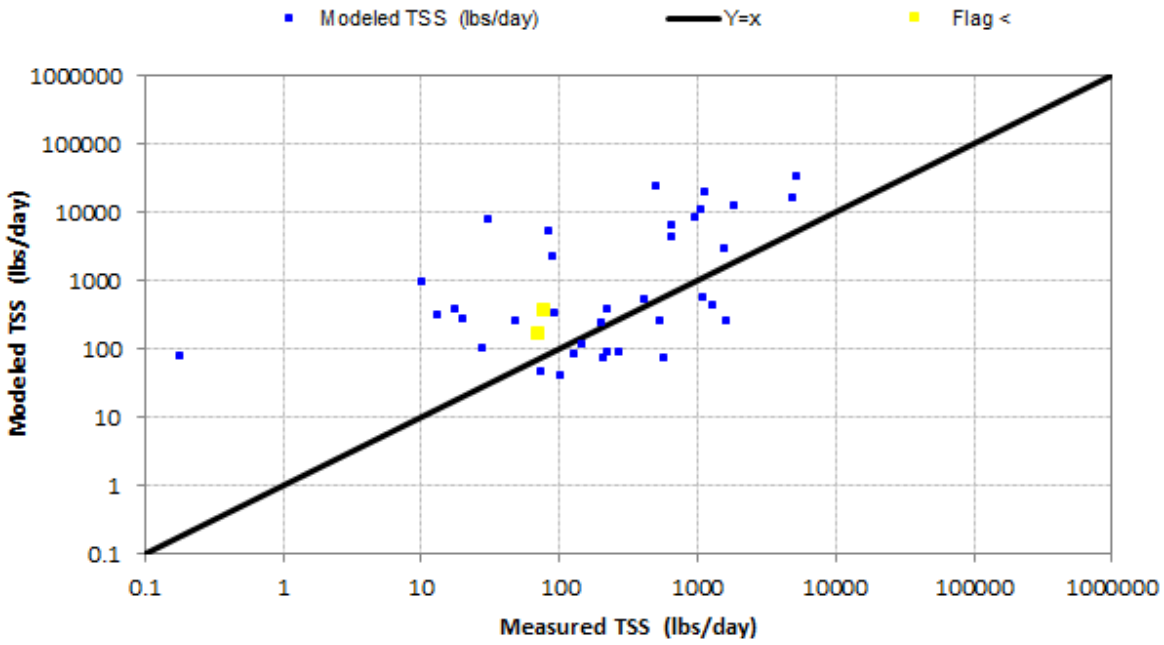


Figure D-57 Modeled vs. Observed Load TSS at RCH137 Billy Creek at USGS 02293190

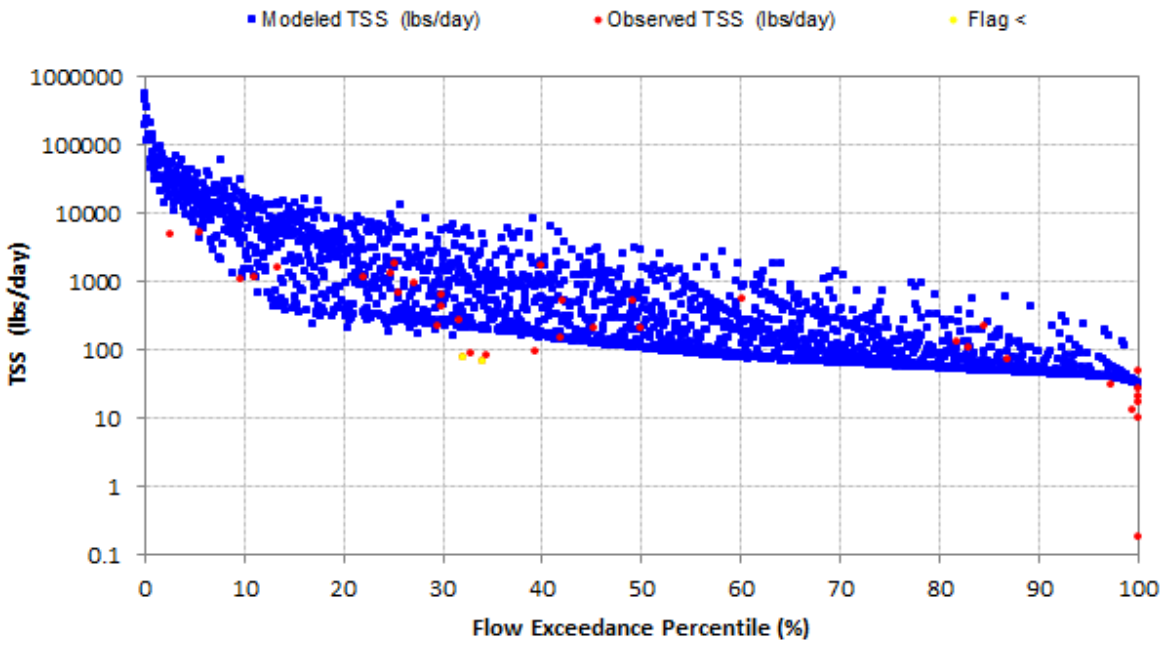


Figure D-58 Modeled vs. Observed Load TSS at RCH137 Billy Creek at USGS 02293190

Table D-40 Modeled vs. Observed Load TSS at RCH137 Billy Creek at USGS 02293190

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	1,806,206	78,603	2197.9	P	95,372	1793.8	P
2009	838,848	78,739	965.3	P	71,699	1070	P
2010	1,916,880	179,859	965.8	P	234,109	718.8	P
2011	2,233,123	285,671	681.7	P	232,726	859.5	P
2012	1,406,178	143,684	878.7	P	146,798	857.9	P
2013	2,074,351	4,355	47536.1	P	4,068	50892.9	P
Average	1,712,598	128,485	1232.9	P	130,795	1209.4	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	36.9	.		VG
Maximum	33,879.3	5,224.7	548.4	P
Average	2,600.2	370.3	602.1	P
25 perc.	80.7	.		VG
Median	264.6	13.4	1874.6	P
75th perc.	1,854.	226.3	719.4	P
Geomean	413.	192.9	114.1	P
Nash SutCliffe		-37.99		

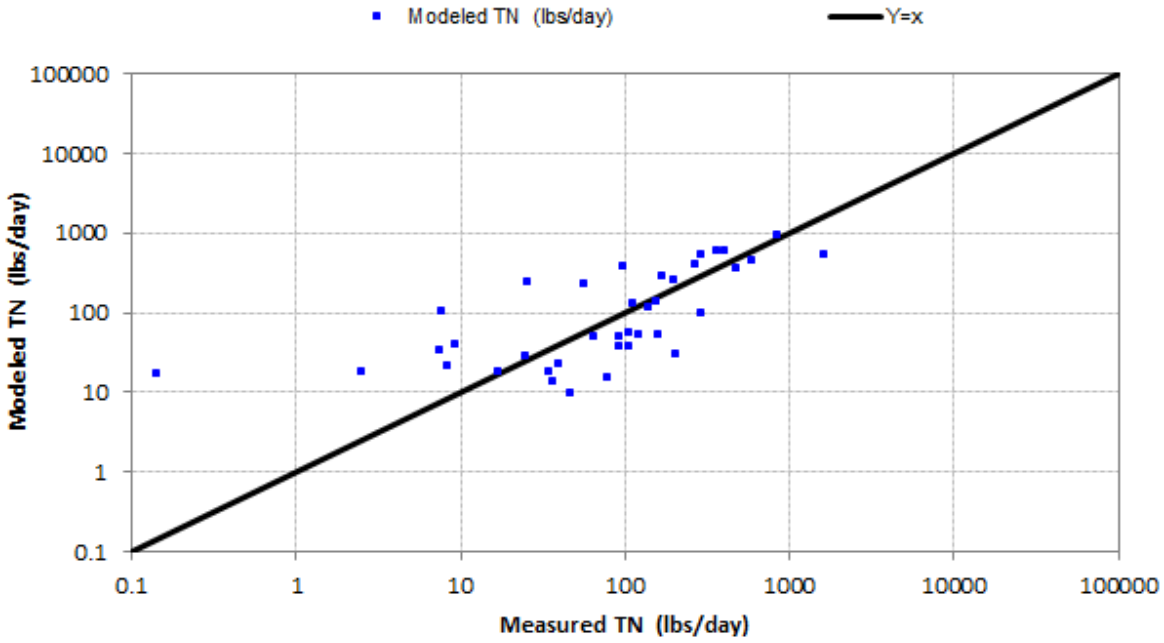


Figure D-59 Modeled vs. Observed Load TN at RCH137 Billy Creek at USGS 02293190

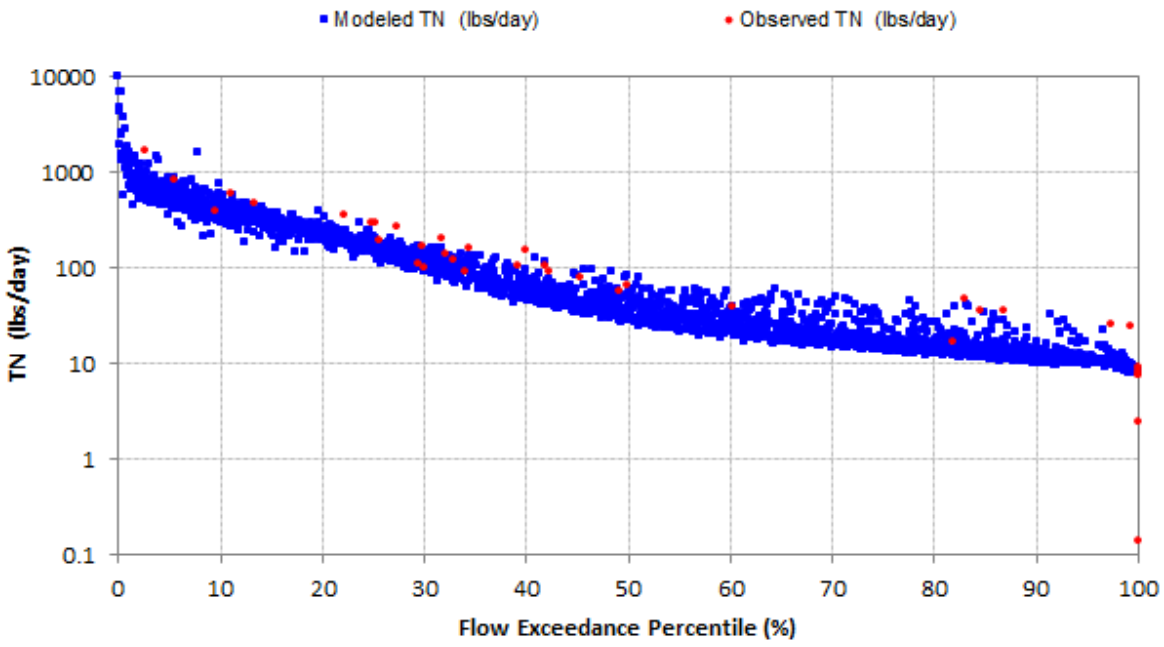


Figure D-60 Modeled vs. Observed Load TN at RCH137 Billy Creek at USGS 02293190

Table D-41 Modeled vs. Observed Load TN at RCH137 Billy Creek at USGS 02293190

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	59,820	34,141	75.2	P	34,619	72.8	P
2009	31,563	25,783	22.4	VG	26,107	20.9	VG
2010	57,492	41,869	37.3	G	43,734	31.5	G
2011	72,720	55,493	31	G	56,532	28.6	VG
2012	48,126	47,902	0.5	VG	49,279	-2.3	VG
2013	70,295	2,927	2301.7	P	2,774	2434.4	P
Average	56,669	34,686	63.4	P	35,508	59.6	F

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	9.1	.		VG
Maximum	910.1	1,649.7	-44.8	G
Average	132.8	104.3	27.4	VG
25 perc.	18.4	.		VG
Median	37.8	7.5	403.5	P
75th perc.	131.3	107.	22.7	VG
Geomean	55.4	72.4	-23.5	VG
Nash SutCliffe		0.4		

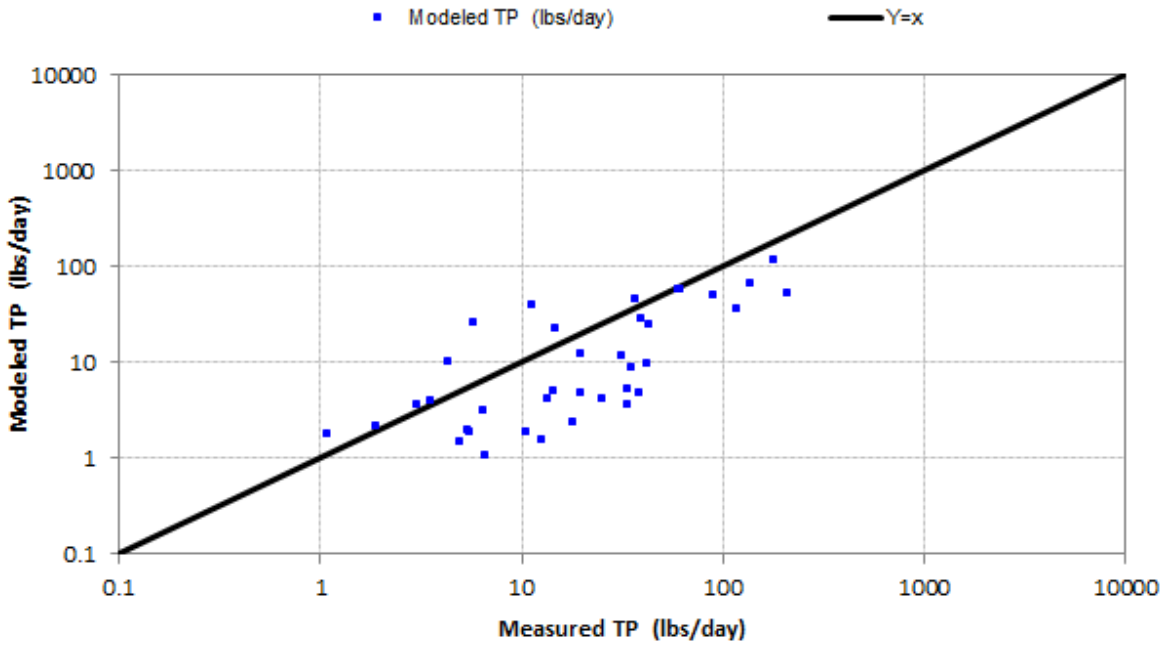


Figure D-61 Modeled vs. Observed Load TP at RCH137 Billy Creek at USGS 02293190

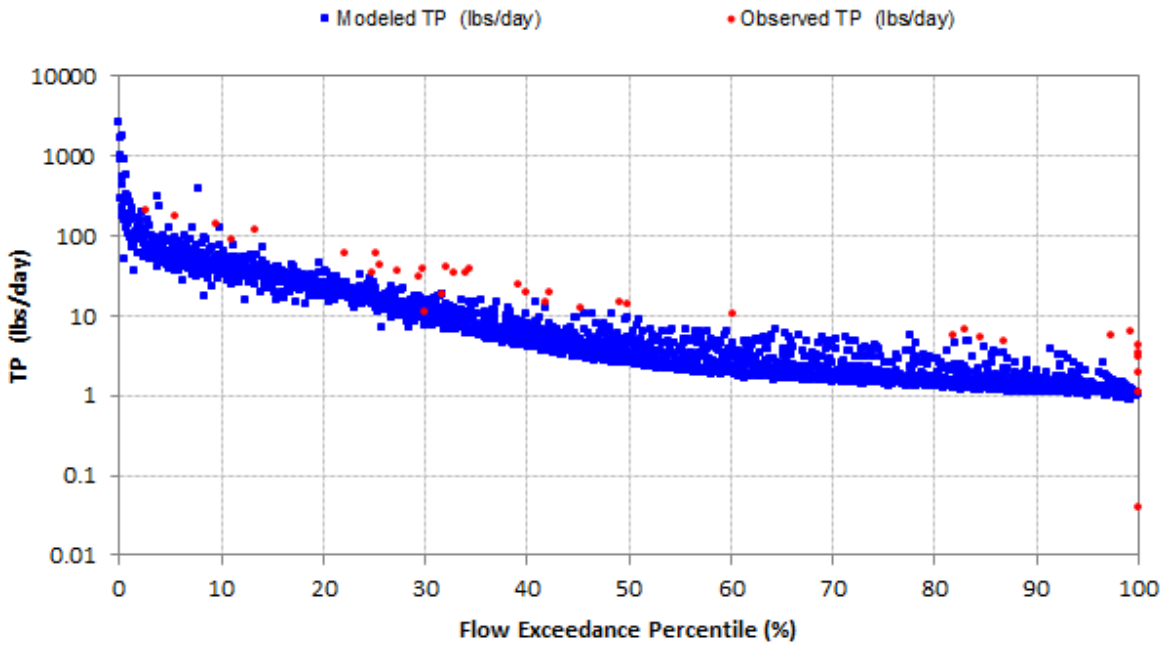


Figure D-62 Modeled vs. Observed Load TP at RCH137 Billy Creek at USGS 02293190

Table D-42 Modeled vs. Observed Load TP at RCH137 Billy Creek at USGS 02293190

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	7,096	8,583	-17.3	VG	8,256	-14.1	VG
2009	3,291	7,067	-53.4	F	6,435	-48.9	F
2010	7,783	8,559	-9.1	VG	8,406	-7.4	VG
2011	10,930	10,272	6.4	VG	9,736	12.3	VG
2012	5,408	9,112	-40.7	G	8,442	-35.9	G
2013	9,156	603	1419	P	621	1373.8	P
Average	7,277	7,366	-1.2	VG	6,983	4.2	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	1.	.		VG
Maximum	120.2	208.4	-42.3	G
Average	14.2	19.7	-27.7	VG
25 perc.	1.9	.		VG
Median	3.9	1.9	107.4	P
75th perc.	12.	19.8	-39.4	G
Geomean	5.7	15.7	-63.8	P
Nash SutCliffe		0.49		

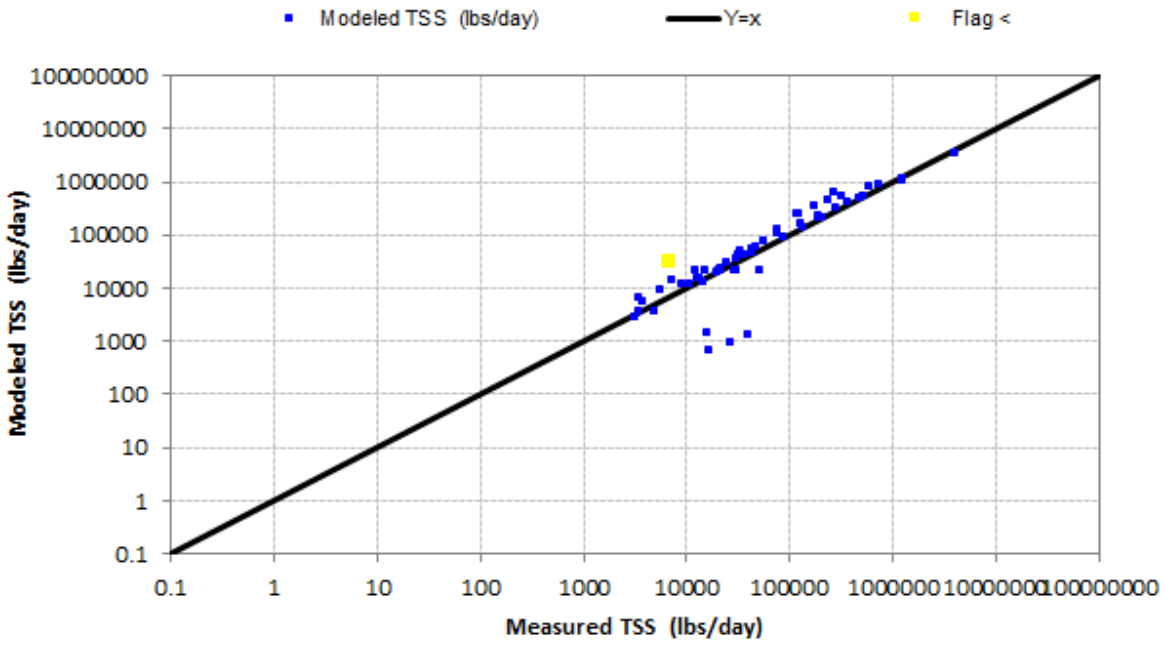


Figure D-63 Modeled vs. Observed Load TSS at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

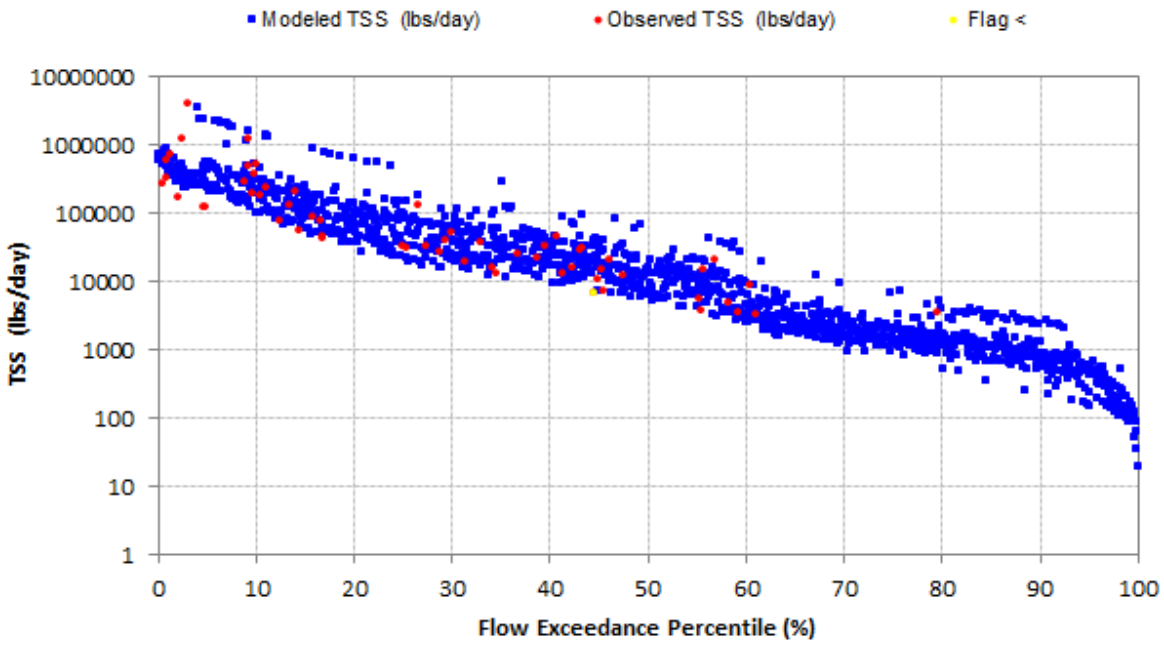


Figure D-64 Modeled vs. Observed Load TSS at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

Table D-43 Modeled vs. Observed Load TSS at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	60,470,717	85,150,272	-29	F	80,449,062	-24.8	G
2001	2,355,513	2,234,732	5.4	VG	2,571,232	-8.4	VG
2002	15,220,944	11,487,516	32.5	F	12,653,146	20.3	G
2003	53,607,045	34,845,652	53.8	P	34,848,309	53.8	P
Average	32,913,555	33,429,543	-1.5	VG	32,630,437	0.9	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	89.9	.		VG
Maximum	3,404,021.2	3,962,237.1	-14.1	VG
Average	205,247.	111,469.3	84.1	P
25 perc.	1,406.3	.		VG
Median	13,423.8	3,483.9	285.3	P
75th perc.	145,629.3	38,898.6	274.4	P
Geomean	14,209.	50,339.1	-71.8	P
Nash SutCliffe		0.93		

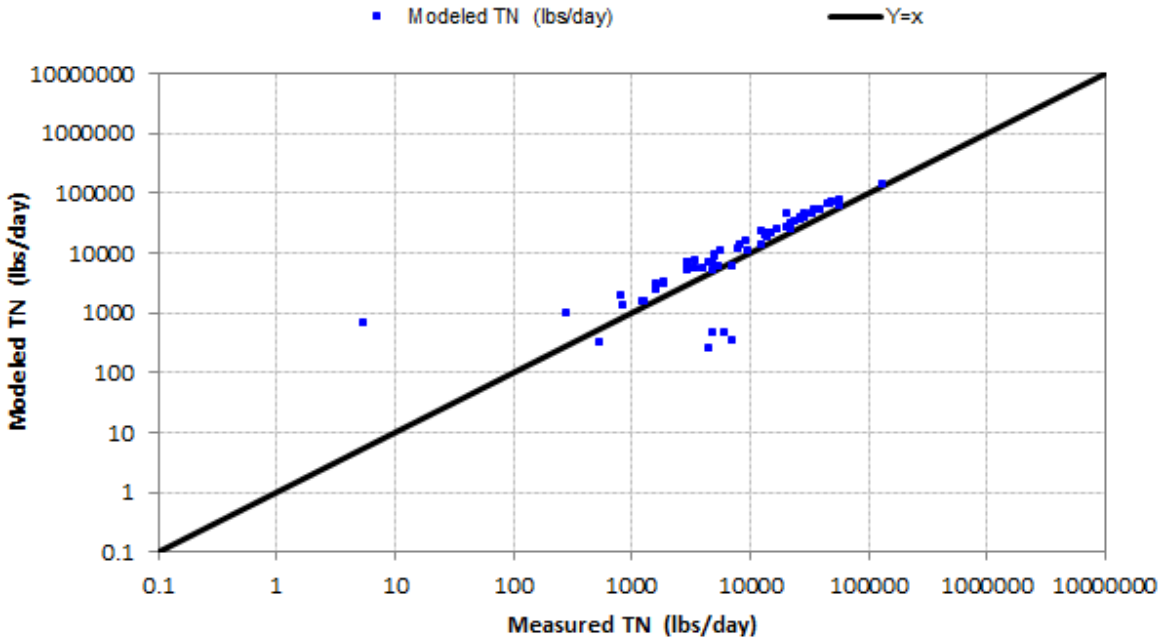


Figure D-65 Modeled vs. Observed Load TN at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

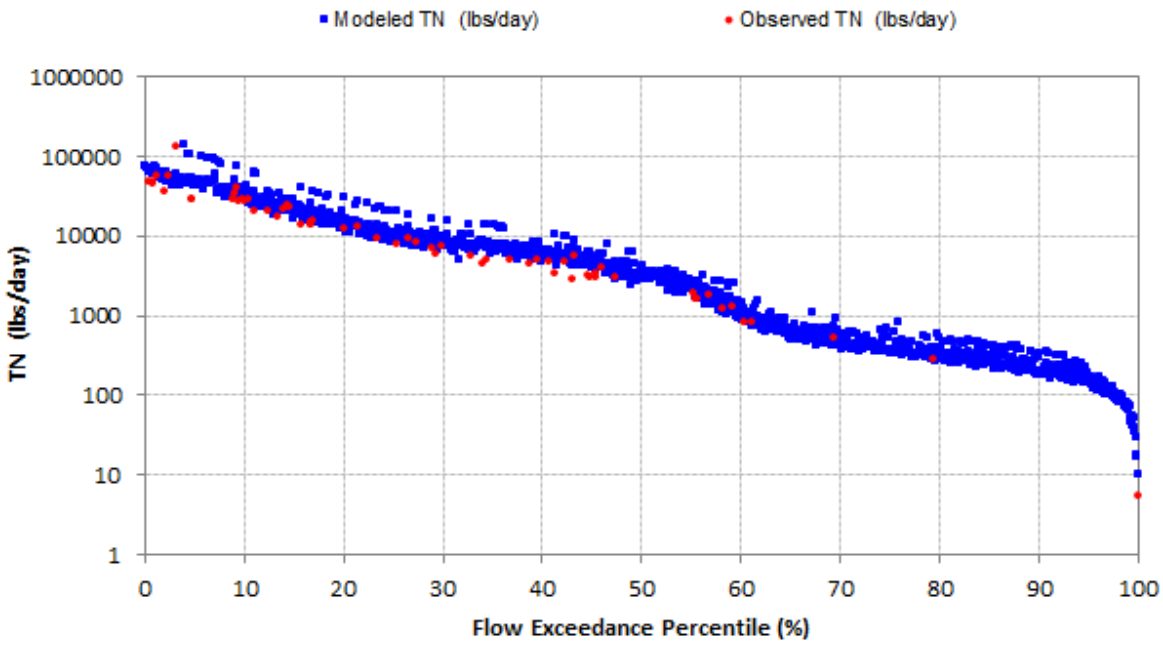


Figure D-66 Modeled vs. Observed Load TN at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

Table D-44 Modeled vs. Observed Load TN at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	4,014,602	3,792,617	5.9	VG	3,743,167	7.3	VG
2001	612,915	536,422	14.3	VG	512,851	19.5	VG
2002	3,274,028	2,182,691	50	F	2,154,236	52	F
2003	7,541,372	4,164,707	81.1	P	4,118,351	83.1	P
Average	3,860,729	2,669,109	44.6	G	2,632,151	46.7	F

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	16.5	.		VG
Maximum	137,433.6	131,807.1	4.3	VG
Average	17,027.2	8,389.4	103	P
25 perc.	383.1	.		VG
Median	2,907.7	142.2	1944.2	P
75th perc.	27,413.4	8,132.3	237.1	P
Geomean	2,920.5	7,474.7	-60.9	P
Nash SutCliffe		0.51		

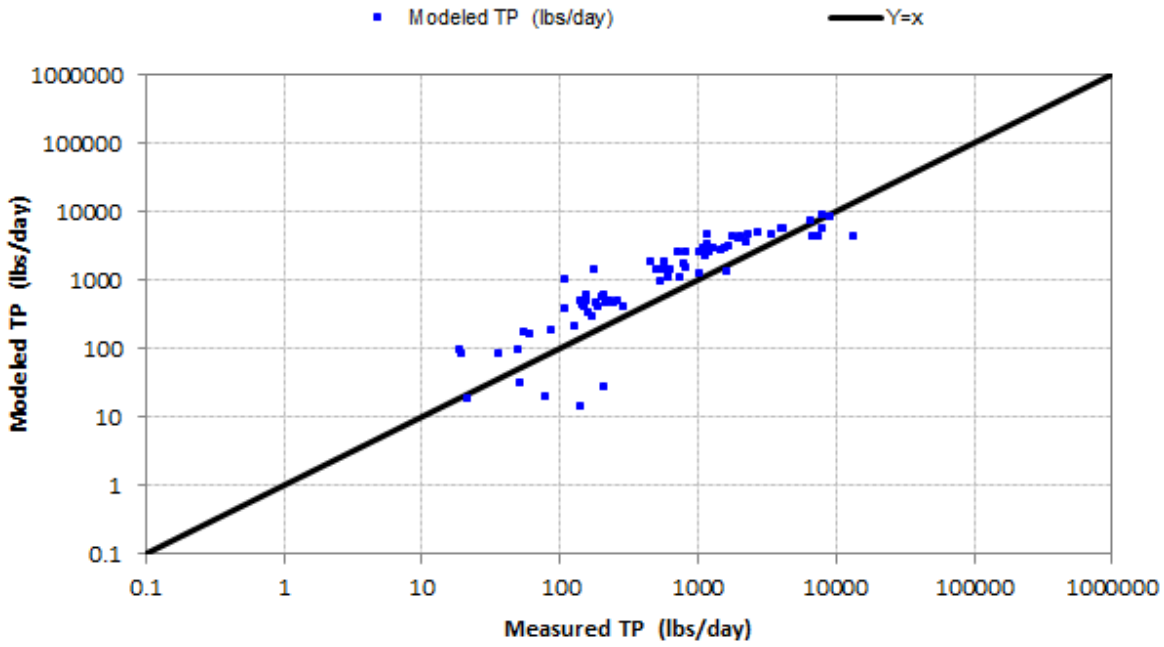


Figure D-67 Modeled vs. Observed Load TP at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

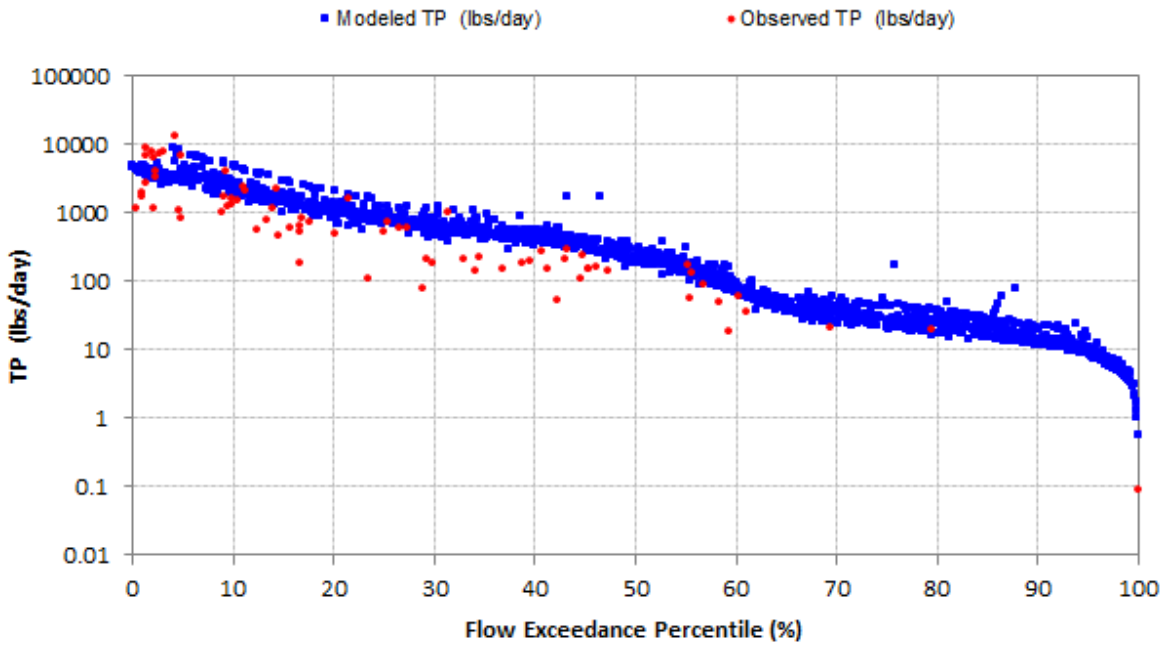


Figure D-68 Modeled vs. Observed Load TP at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

Table D-45 Modeled vs. Observed Load TP at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2000-2003)

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2000	296,223	220,499	34.3	G	227,774	30.1	G
2001	48,326	23,153	108.7	P	21,044	129.6	P
2002	254,493	125,833	102.2	P	115,340	120.6	P
2003	529,696	184,636	186.9	P	194,224	172.7	P
Average	282,185	138,530	103.7	P	139,596	102.1	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	1.4	.		VG
Maximum	9,277.2	13,392.9	-30.7	G
Average	1,250.8	859.2	45.6	F
25 perc.	27.5	.		VG
Median	209.6	51.	311.3	P
75th perc.	1,863.2	615.1	202.9	P
Geomean	210.5	470.8	-55.3	F
Nash SutCliffe		0.56		

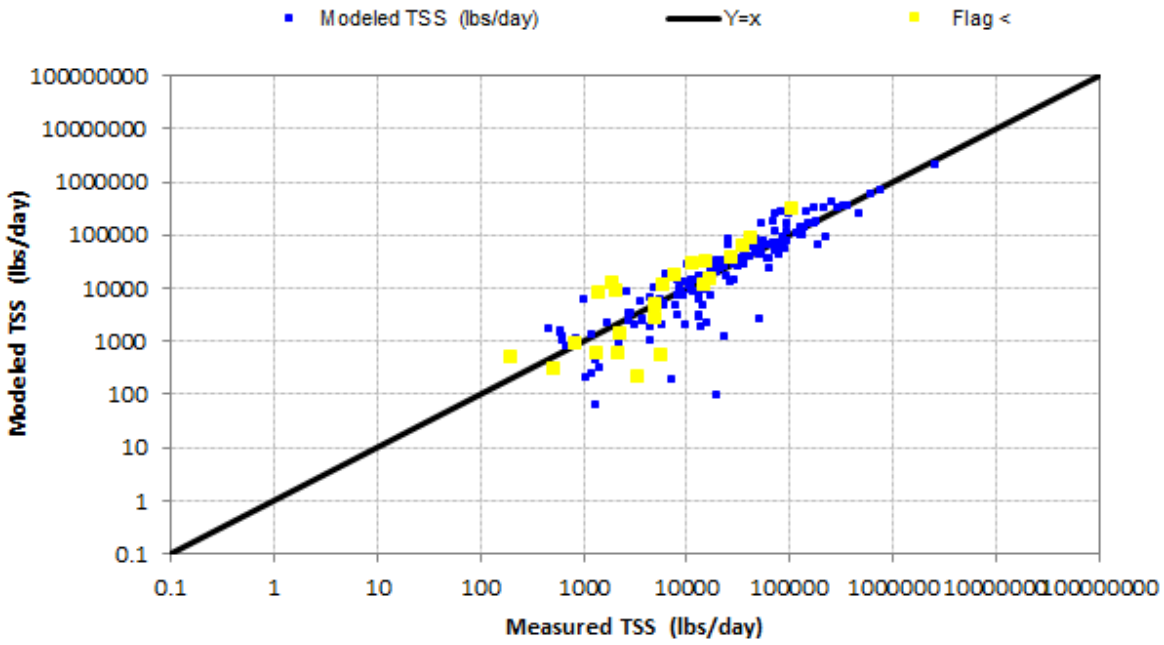


Figure D-69 Modeled vs. Observed Load TSS at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

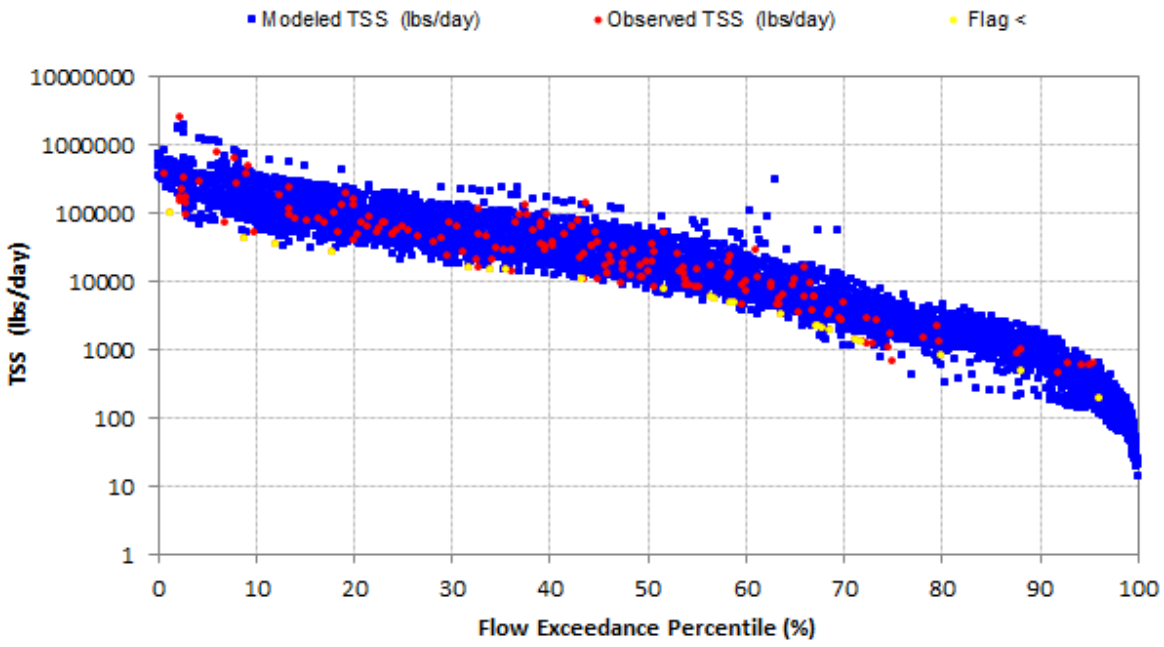


Figure D-70 Modeled vs. Observed Load TSS at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

Table D-46 Modeled vs. Observed Load TSS at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	6,953,831	4,534,494	53.4	P	4,961,282	40.2	P
2009	9,203,032	10,963,330	-16.1	G	10,663,533	-13.7	VG
2010	50,033,244	55,831,798	-10.4	VG	61,295,053	-18.4	G
2011	2,412,921	2,340,322	3.1	VG	2,570,262	-6.1	VG
2012	9,348,709	7,458,619	25.3	F	7,288,239	28.3	F
2013	28,988,836	22,178,652	30.7	F	21,997,945	31.8	F
2014	7,796,861	6,517,852	19.6	G	6,369,221	22.4	G
2017	43,195,956	11,392,541	279.2	P	35,461,068	21.8	G
2018	34,113,541	42,679,601	-20.1	G	39,555,755	-13.8	VG
2019	13,828,684	9,458,496	46.2	P	9,140,673	51.3	P
2020	17,405,596	16,804,740	3.6	VG	14,692,786	18.5	G
2021	19,798,319	14,746,091	34.3	F	15,274,798	29.6	F
2022	25,298,483	14,015,667	80.5	P	14,464,485	74.9	P
2023	23,827,250	35,316,968	-32.5	F	32,057,192	-25.7	F
Average	20,871,805	18,159,941	14.9	VG	19,699,449	6	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	23.5	.		VG
Maximum	1,994,730.4	2,573,108.2	-22.5	G
Average	64,370.	52,084.2	23.6	G
25 perc.	2,820.	618.	356.3	P
Median	22,188.2	11,411.6	94.4	P
75th perc.	74,244.3	47,178.	57.4	P
Geomean	14,819.5	19,007.4	-22	G
Nash SutCliffe		0.91		

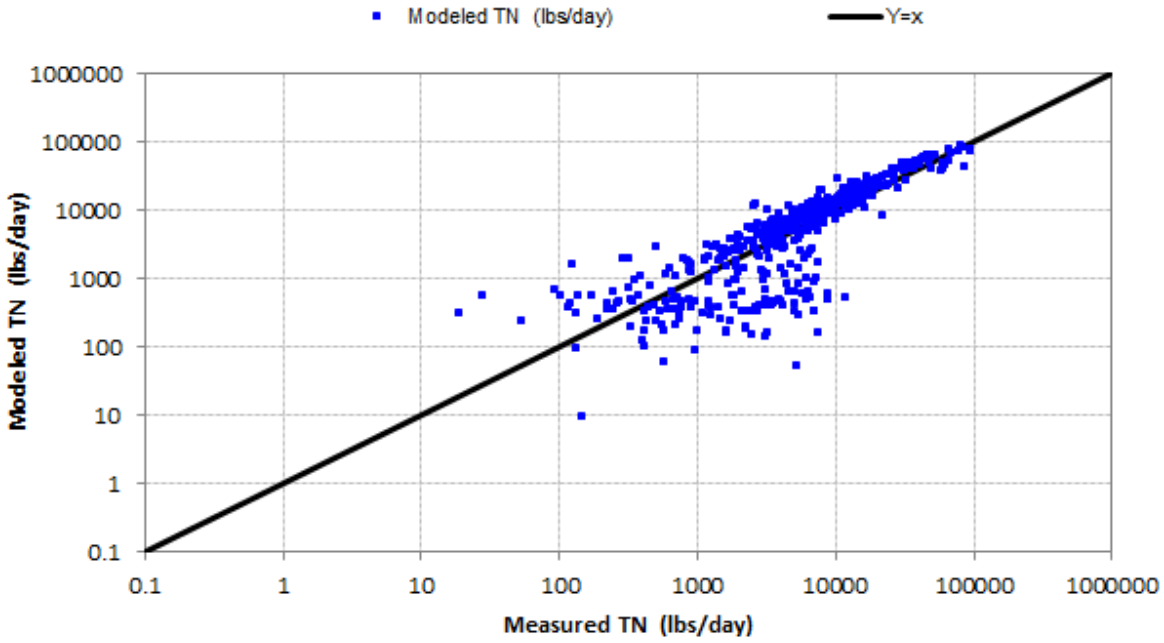


Figure D-71 Modeled vs. Observed Load TN at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

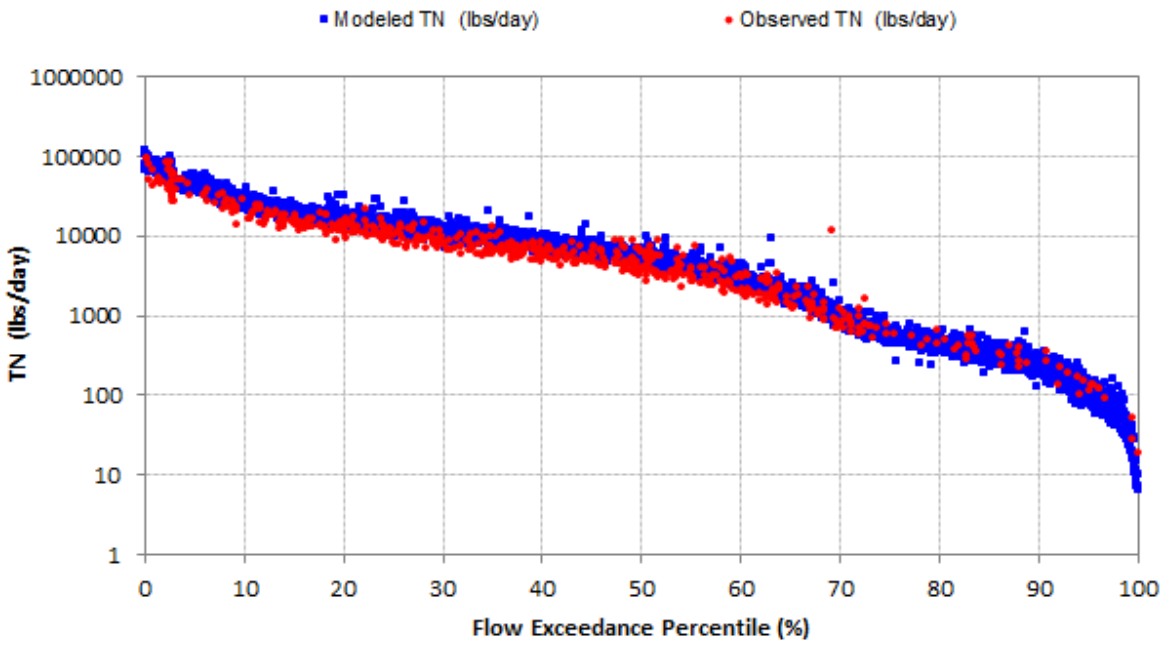


Figure D-72 Modeled vs. Observed Load TN at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

Table D-47 Modeled vs. Observed Load TN at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	1,690,416	1,294,702	30.6	G	1,328,084	27.3	VG
2009	1,628,643	1,389,941	17.2	VG	1,362,353	19.5	VG
2010	4,335,273	3,635,790	19.2	VG	3,358,237	29.1	VG
2011	611,983	473,326	29.3	VG	473,839	29.2	VG
2012	2,906,348	2,043,732	42.2	G	1,998,486	45.4	F
2013	6,286,275	4,688,339	34.1	G	4,635,604	35.6	G
2014	2,063,007	1,581,267	30.5	G	1,587,266	30	VG
2017	7,334,058	4,279,798	71.4	P	5,323,258	37.8	G
2018	5,386,544	4,416,940	22	VG	4,368,273	23.3	VG
2019	1,980,798	1,746,058	13.4	VG	1,722,247	15	VG
2020	3,999,918	5,353,517	-25.3	VG	5,368,228	-25.5	VG
2021	3,205,679	3,117,124	2.8	VG	3,131,803	2.4	VG
2022	3,131,824	3,026,702	3.5	VG	3,010,657	4	VG
2023	3,976,358	4,042,965	-1.6	VG	4,036,805	-1.5	VG
Average	3,466,937	2,935,014	18.1	VG	2,978,939	16.4	VG

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	8.1	.		VG
Maximum	88,111.7	95,664.3	-7.9	VG
Average	10,125.5	8,360.1	21.1	VG
25 perc.	583.8	888.9	-34.3	G
Median	5,792.	4,827.1	20	VG
75th perc.	13,268.8	9,872.4	34.4	G
Geomean	3,321.5	5,060.9	-34.4	G
Nash SutCliffe		0.87		

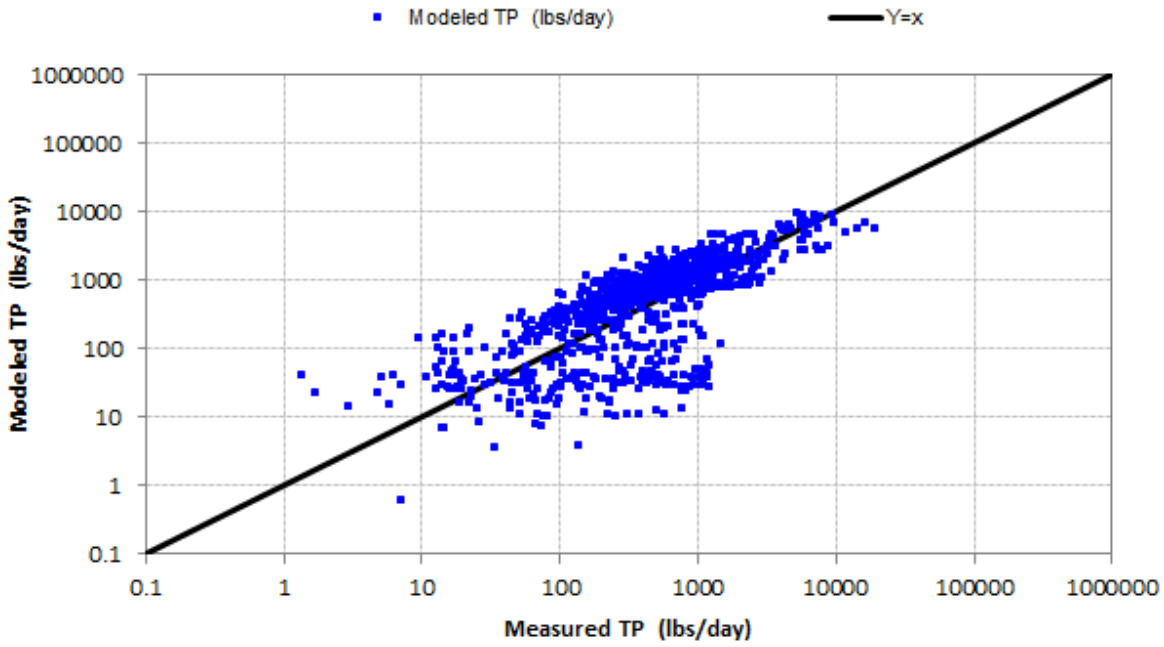


Figure D-73 Modeled vs. Observed Load TP at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

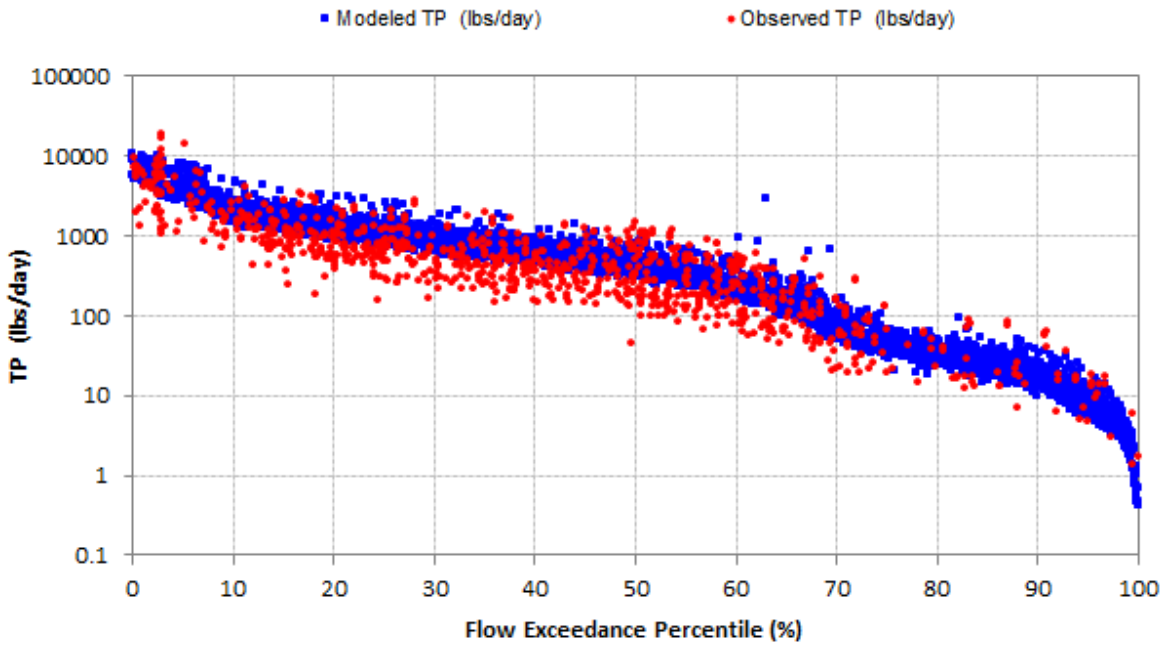


Figure D-74 Modeled vs. Observed Load TP at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

Table D-48 Modeled vs. Observed Load TP at RCH215 Caloosahatchee (S-77) at USGS 02292480 (2008-2033)

Annual Loads

Year	Simulated (lbs/yr)	Measured Stepwise (lbs/yr)	% Error	Rating	Measured Interpolation (lbs/yr)	% Error	Rating
2008	195,716	154,019	27.1	VG	148,460	31.8	G
2009	134,789	92,717	45.4	F	87,353	54.3	F
2010	353,711	211,137	67.5	P	185,932	90.2	P
2011	45,674	24,333	87.7	P	24,409	87.1	P
2012	238,828	118,143	102.2	P	105,250	126.9	P
2013	487,566	226,647	115.1	P	219,519	122.1	P
2014	164,944	94,588	74.4	P	94,783	74	P
2017	696,091	208,863	233.3	P	264,837	162.8	P
2018	556,926	606,840	-8.2	VG	581,161	-4.2	VG
2019	169,195	126,150	34.1	G	125,124	35.2	G
2020	314,016	513,463	-38.8	G	577,803	-45.7	F
2021	265,380	224,335	18.3	VG	190,531	39.3	G
2022	274,451	224,066	22.5	VG	142,949	92	P
2023	346,657	458,280	-24.4	VG	-226,968	-252.7	P
Average	303,139	234,542	29.2	VG	180,082	68.3	P

Daily Paired Load

Statistic	Simulated (lbs/day)	Measured (lbs/day)	% Error	% Rating
Minimum	.6	.		VG
Maximum	9,713.4	19,099.3	-49.1	F
Average	886.	772.8	14.6	VG
25 perc.	46.2	98.6	-53.2	F
Median	464.8	349.3	33.1	G
75th perc.	1,089.5	793.1	37.4	G
Geomean	270.7	381.5	-29.1	VG
Nash SutCliffe		0.6		