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## Application of the BATHTUB Model to Selected Southeastern Reservoirs

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Final report

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### Preface

The work described herein was conducted under a Military Interdepartmental Purchase Request by the U.S. Army Engineer Waterways Experiment Station (WES), Vicksburg, MS, for the U.S. Army Engineer District, Mobile.

This report was prepared by Dr. Robert H. Kennedy of the Environmental Processes and Effects Division (EPED), Environmental Laboratory (EL), WES. Ms. Kelly Johnson and Ms. Laura Scott, AScI Corporation, Alexandria, VA, and Ms. Katherine Long, EPED, assisted with site descriptions, data compilation, and selected analyses.

The work was performed under the general supervision of Dr. Richard E. Price, Acting Chief, Ecosystem Processes and Effects Branch, EPED; Mr. Donald L. Robey, Chief, EPED; and Dr. John W. Keeley, Director, EL.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Bruce K. Howard, EN.

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## 1 Introduction

Eutrophication is the natural, long-term process by which lakes become enriched with nutrients, organic matter, and sediment. Symptomatic of the occurrence of this process are decreased water clarity, excessive algal production, reduced dissolved oxygen in bottom waters during stratified periods, and decreased volume. For lakes impacted by human activity in the watershed, this process is often greatly accelerated. Since reservoirs are commonly constructed on rivers and streams draining relatively large and often extensively developed watersheds, they receive elevated loads of nutrients and sediment and are, therefore, highly susceptible to accelerated eutrophication (Kennedy, Thornton, and Ford 1985).

The U.S. Army Corps of Engineers has erected dams in the Chattahoochee and Coosa river basins creating a series of large impoundments. These include Lake Sidney Lanier, West Point Lake, Walter F. George Lake (Chattahoochee River basin), and Allatoona Lake (Coosa River basin). The Chattahoochee River basin includes Atlanta, a large and growing population center, as well as extensive agricultural lands, both of which contribute significantly to accelerated eutrophication of these impoundments. Further, urban centers now place high demand on water, power, and recreation resources. The Coosa River basin above Allatoona Lake, while still relatively rural, has undergone significant development in recent years. This trend is expected to continue as increases in population associated with growth in and around Atlanta result in a northward expansion of metropolitan and residential areas.

Reallocating water in the Chattahoochee and Coosa river basins has been proposed as a means to better meet water demands of the area. Since such reallocations would impact water quantity, concerns over the potential for impacts to water quality have been raised. Water quality concerns related to population growth and resultant increases in the potential material loadings to both rivers have also been the subject of great debate.

Results of applying the empirical model BATHTUB to predict eutrophication responses of Lake Sidney Lanier, West Point Lake, Walter F. George Lake, and Allatoona Lake to a variety of conditions thought to affect nutrient levels and corresponding algal growth are summarized herein. Included are estimates of responses to changes in nutrient loading

and water residence time. These responses to prescribed conditions could serve as decision-making aids to managers charged with optimizing the use of these valuable resources.

## 2 Site Description

### **River Basins**

#### Chattahoochee River basin

The Chattahoochee River flows approximately 400 km from its headwaters in the Blue Ridge Mountains in northeast Georgia, to its confluence with the Flint River to form the Appalachicola River at Lake Seminole near Chattahoochee, FL. Draining approximately 19,500 km<sup>2</sup>, the river flows southwest past Atlanta, to the Georgia-Alabama border before turning south. Along this course, waters are impounded by a total of 14 dams constructed to meet a variety of water uses. Included among these are Buford Dam (Lake Sidney Lanier), West Point Dam (West Point Lake), and Walter F. George Lock and Dam (Walter F. George Lake; Figure 1), all of which are operated by the U.S. Army Corps of Engineers (CE).

The drainage basin crosses three distinct physiographic regions. The Mountain region slopes steeply from the crest of the Blue Ridge Mountains (ca. 1,220 m NGVD) to the vicinity of Atlanta (ca. 305 m NGVD). The Piedmont Plateau region extends from the foothills of the Blue Ridge Mountains near Atlanta to the fall line just north of Columbus, GA. The remainder of the basin is located in the Upper Coastal Plain, a region characterized by low-lying and gently rolling topography. Average precipitation across the basin is high, ranging from 1.27 to 1.37 m. The underlying bedrock is igneous and metamorphic, and the waters of the Chattahoochee River are typically soft with low mineral content.

#### Coosa River basin

The Coosa River, a tributary of the Alabama River, arises in northeast Georgia with the confluence of the Etowah and Oostamaula rivers near Rome. Headwater areas are in the Appalachian Plateau and Valley physiographic regions (Wharton 1977), which exhibit steeply to moderately sloping topography. The area is currently sparsely populated, and

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natural areas are dominated by a mix of hardwood and coniferous forests. The CE has constructed two reservoirs in this portion of the basin; Carters Lake on the Coosawattee River and Allatoona Lake to the south on the Etowah River (Figure 1).

### Reservoirs

#### Lake Sidney Lanier

Buford Dam and Lake Sidney Lanier is the uppermost CE water resource project on the Chattahoochee and Chestatee rivers. Authorized project purposes include flood control, hydropower, recreation, wildlife development, and streamflow regulation. Buford Dam, completed in 1957, is a 720-m-long, rolled, earth-filled structure with a top elevation of 337 m NGVD. The lake has an average surface area of 156 km<sup>2</sup> and a volume of 2,411 hm<sup>3</sup>.

Watershed land uses include woodland (71 percent), pasture (12 percent), water (6 percent), crop (3 percent), and urban and developed land (9 percent). Potential direct sources of pollution are discharges from municipal sewage treatment plants on Flat Creek, animal food processing plants located to the north, and erosion from shorelines, haul forest roads, and construction sites. The soils are iron-stained clays, which make suspended sediments highly visible.

#### West Point Lake

Authorized project purposes for West Point Dam and Lake include flood control, hydropower, recreation, fish and wildlife development, and streamflow regulation for downstream navigation. West Point Dam is located nearly 8 miles north of West Point, GA; Walter F. George Lock and Dam is located 121 km downstream.

West Point Dam, a gravity-type structure 2,211 m long and 29.6 m high, combines a penstock intake section and powerhouse, a concrete overflow section, and earthen embankments. The maximum power pool elevation is 194 m NGVD in the summer and 191 m NGVD during winter. During summer, the surface area and volume average 104.8 km<sup>2</sup> and 746 hm<sup>3</sup>, respectively; shoreline length averages 840 km (Georgia Department of Natural Resources 1991).

Water loads from the Chattahoochee River account for over 90 percent of the water budget. Other tributaries include Yellowjacket, Wehadkee, Whitewater, Potato, and Maple creeks, and New River. Impoundment resulted in the creation of several large embayments, particularly in the floodplains of Yellowjacket and Wehadkee creeks.

Land uses in the West Point Lake drainage basin include forest (79 percent), rural (17 percent), and urban (4 percent). Original vegetation was mainly oak-hickory forest, little of which is left. At the time of the construction of West Point Dam, 50 percent of the city of Atlanta's effluent was being discharged into the Chattahoochee River between Lake Sidney Lanier and the West Point dam site. In the mid to late 1980s, there was an increase of phosphorus in point source discharges. In 1989, a regional phosphorus detergent ban reduced the phosphorus concentration of effluent by 50 percent. In 1991, a statewide phosphorus detergent ban was instituted (Georgia Department of Natural Resources 1991).

#### Walter F. George Lake

The Walter F. George Lock and Dam project was developed by the CE to provide or improve flood control, navigation, and hydroelectric power. It has become an important recreation resource as well, with some 7 million visitors annually.

The project, fully operational since May 1963, impounds a lake along the reach of the Chattahoochee River from the dam site near Columbus, GA, upstream to Phoenix City, AL. The average slope from the upper reaches of the pool to the dam is 0.19 m/km. The area acquired by the CE for project construction consists of level to undulating floodplain characterized by alluvial soils. The mean annual temperature of the region is 18.9 °C, while summer temperatures range from 30 to 40 °C. Average annual evaporation is 0.97 m/year, and average annual precipitation is 1.27 m/year, much of which occurs in winter and spring.

Walter F. George Lock and Dam is 4,141 m in length and has a maximum height of 34.7 m. The outlet structure consists of 14 tainter gates, with dimensions of 12.8 by 8.8 m, and four generating units. Each unit has the capacity of 32,500 kW, with the average annual production of 436 million kilowatts. The lock section has a total width of 50 m with inside chamber dimensions of 25 by 137 m, and its maximum lift is 26.8 m. The area of the lake at normal pool level (57.9 m NGVD) is 182.8 km<sup>2</sup>; the volume at this elevation is 1,152.6 hm<sup>3</sup>.

#### Allatoona Lake

Allatoona Dam and Lake, the oldest CE multipurpose reservoir in the southeast, provides flood control, power, and recreation in the Coosa River drainage basin. Allatoona Dam is located approximately 78 km upstream from Rome, GA, and 8 km due east of Cartersville, GA. The area of the drainage basin upstream of the impoundment is 2,845 km<sup>2</sup>. The dam is a concrete gravity-type structure on a curved axis with an overall length of 311 m and a height of 58 m. The spillway is controlled by 11 tainter gates, 9 of which measure 12.2 by 7.9 m and 2 of which measure 6 by 7.9 m. Structures associated with power generation, which allow

release of hypolimnetic water, are located on the left bank. Two units have a 36,000-kW capacity each, and one unit has a 2,000-kW capacity. Because of the relatively small size of the lake, power generation can cause lake surface levels to fluctuate widely; daily fluctuations of 1 m or more are not uncommon.

At normal pool elevation (256 m msl), the reservoir has a surface area of 48 km<sup>2</sup> and a volume of 453.4 hm<sup>3</sup>. Mean and maximum depths are 9.4 and 44.2 m, respectively. A shoreline development ratio of 17.7 reflects the irregularity of the 432-km shoreline, which includes many coves and embayments. Allatoona Lake has two main arms, the streambeds of the Etowah River and Allatoona Creek, respectively. Bethany Bridge near the dam across the Allatoona Creek embayment and Knox Bridge across the Etowah River at the upper reach of the lake, with their associated abutments, somewhat constrict the reservoir at these locations.

Land uses in the 2,845-km<sup>2</sup> drainage area above Allatoona Dam include cropland and pasture, woodland, and forest. The closest large urban center is Atlanta, GA, 24 km outside the basin and about 72 km from the dam. Small urban areas within the basin include the towns of Canton, Jasper, Dawsonville, and Acworth, GA.

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details of the development, assumptions, and use of these programs and empirical models can be found in Walker (1981, 1982, 1985, 1987).

## 3 Modeling Approach

The empirical reservoir water quality model BATHTUB (Walker 1987) was used to address water quality concerns at the lakes in this study. Although based on theoretical concepts, such as mass balance and nutrient limitation of algal growth, the model does not attempt to simulate explicitly the dynamics of a reservoir in either space or time. Instead, BATH-TUB produces spatially and temporally averaged estimates of reservoir water quality conditions.

BATHTUB, developed from a CE-wide database, models water quality conditions in a two-stage procedure involving two model types. First, nutrient concentrations are estimated based on nutrient loads, morphometry, and hydrology. Second, a eutrophication response model is executed to relate pool nutrient concentrations to chlorophyll concentrations and transparency. These models produce estimates of steady-state, longterm (growing season or annual), water quality conditions in the epilimnion and are not intended to predict or describe short-term, event-related dynamics in reservoirs or to generate vertical profiles of water quality conditions.

Three phases are involved in applying BATHTUB:

a. Analysis and reduction of tributary water quality data.

b. Analysis and reduction of pool water quality data.

c. Model implementation.

The first phase can be performed using the data reduction routine FLUX (Walker 1987). This program uses tributary flow and nutrient concentration data to estimate nutrient loadings. The second phase can be carried out using either PROFILE (Walker 1987), a data reduction routine for pool water quality data, or any statistical analysis software package. In the third phase, implementation of the BATHTUB model, descriptions of nutrient loads, and expected lake responses are evaluated and compared with observed data. Resulting model descriptions, appropriately calibrated and verified against an independent data set, can then be used to evaluate expected responses to selected management decisions. Further

## 4 Data Compilation and Analysis

### Introduction

Data describing eutrophication response and nutrient loads were compiled, assessed, and summarized for each lake and its tributaries, respectively. Nutrient and water loads for major tributaries were, in general, determined using data describing daily flow conditions and water chemistry. Variables sought when compiling water chemistry data included total nitrogen, total phosphorus, soluble reactive phosphorus, nitrate and nitrite nitrogen, and ammonium nitrogen. Paired observations of flow and nutrient concentration and continuous flow measurements were assessed to identify a calculation method providing the best estimate of average load over the summer-growing season. In most cases, this was accomplished using the FLUX program (Walker 1987), which allows the user to address variability associated with changes in concentration, flow, and season. For tributaries lacking continuous flow data, simple flow-weighted averages were computed. In the absence of original data, loading estimates from other sources were evaluated and adopted.

Nutrient loads from nonpoint sources were estimated based on average concentrations determined for gauged tributaries, runoff coefficients, and drainage areas. Runoff from ungauged watershed areas was estimated from water export rates from gauged tributaries or published values. Drainage areas were delineated on maps, measured planimetrically, and proportionalized to reported drainage area data. In several instances, published nutrient export rates were evaluated and adopted.

Eutrophication response data were summarized for the upper, mixedlayer for the growing season (generally, April-October). Mixed-layer depths were determined based on review of temperature profiles. Independent summary values were obtained for individual model segments. For segments containing two or more sample stations, data were averaged. The location and size of segments were determined based on number and location of sampling sites, physical constrictions, location of streams, and longitudinal patterns in water chemistry. Eutrophication response

#### Allatoona Lake

Allatoona Lake water quality data were obtained for 1973 and 1992. Sources for these data were, respectively, the U.S. Environmental Protection Agency's (USEPA) National Eutrophication Survey (NES) (USEPA 1978) and the USEPA-sponsored Clean Lake Phase I - Diagnostic/ Feasibility Study (CLDFS) conducted for the State of Georgia by Kennesaw State College (Dirnburger, Rascati, and Msimanga 1993). NES data were retrieved from the USEPA's STORET database, while the CLDFS data were provided by Kennesaw State College.<sup>1</sup> Station descriptions and their designated association with particular model segments (see Chapter 5) are presented in Table 1. NES data were collected on three occasions during the period June-November 1973; CLDFS data were collected approximately bimonthly during 1992.

Mean, mixed-layer, growing-season total phosphorus and nitrogen concentrations, chlorophyll *a* concentrations, and Secchi disk transparency values were computed for all model segments for which data were available. In cases where two or more stations were located in a single segment, data were averaged across stations. Data summaries (mean and coefficient of variation or CV) for 1973 and 1992 are presented in Tables 2 and 3. With the exception of total nitrogen concentrations, which were considerably higher in 1992, values obtained were similar for both years.

Given the lack of marked change in other water quality variables, observed differences in total nitrogen concentrations between years were unexpectedly large. Results of a review of water quality characteristics for other Georgia impoundments, as well as data for other CE reservoirs included in this study (Table 4), support the suggestion that reported total nitrogen concentrations for 1992 may be erroneous.

Mean flow and nutrient concentrations for selected tributaries to the lake and for contiguous land-use areas were computed for both study years. Seven tributary streams, including the Etowah River and the discharge from Lake Acworth, were sampled during the NES study in 1973. Flow and nutrient concentration data for these streams were adopted from NES (USEPA 1978) and are presented in Table 5. Data needed to compute

<sup>&</sup>lt;sup>1</sup> Personal Communication, 1993, Harold McGinnis, Director, A. L. Burruss Institute of Public Service, Kennesaw State College, Marietta, GA.

CV values were not available. Noonday Creek and Little River, both of which were potentially impacted by discharges from sewage treatment facilities, exhibited the highest nutrient concentrations for inflowing streams.

Mean flow and nutrient concentrations for eleven tributary streams were computed for 1992 (Table 6). In addition to those identified in the 1973 study, tributary streams sampled in 1992 included Tanyard Creek, Kellog Creek, Owl Creek, and Rowland Creek. Since daily flow values were not available, nutrient concentrations for the modeling period were computed as flow-weighted means based on paired observations of concentration and flow.

Mean flows for contributing land-use areas for 1973 were calculated using a runoff coefficient of 0.31 m/year. This value was based on discharge and drainage area relationships for gauged tributary streams. In the absence of information describing land-use patterns in 1973, nutrient concentrations for contributing land-use areas were set equal to the average value for Allatoona Creek and Shoal Creek (Table 7). Conditions in these subbasins were assumed to be representative of conditions in ungauged portions of the basin. Computed values for total phosphorus and nitrogen were 36  $\mu$ g P/L and 544  $\mu$ g N/L, respectively.

Mean flows for contributing land-use areas for 1992 were calculated using a runoff coefficient of 0.26 m/year and the same computational approach discussed above for 1973. Estimated flows from contributing areas to each segment are presented in Table 8. Also presented in Table 8 are mean total phosphorus concentrations for contributing land-use areas. Because of considerations discussed above, total nitrogen concentrations were not computed.

Total phosphorus concentrations were estimated for four assumed landuse types in 1992. Land-use types were defined based on differences in tributary stream concentrations and the location of gauged streams. For areas assumed to be relatively unimpacted, the average of flow-weighted mean concentrations for Tanyard Creek, Allatoona Creek, and Shoal Creek was applied. Since marked differences were observed for Owl Creek and Kellog Creek (see Table 6), the total phosphorus concentration for contributing areas to model segment 7 was computed as the average of mean concentrations for each creek. Mean total phosphorus concentrations for Tanyard Creek and Rowland Creek were used for model segments 2 and 5, respectively. It was assumed that concentrations for these tributary streams were representative for concentrations in runoff from these subbasins.

d Analysis

#### Walter F. George Lake

Water quality data for Walter F. George Lake were collected as part of an USEPA-sponsored Clean Lakes Phase I -Diagnostic/Feasibility Study (CLDFS) performed by Auburn University.<sup>1</sup> Data included selected nutrient concentrations, in situ values, and chlorophyll concentrations for multiple stations for the period May-October 1992. Station names and locations are presented in Table 9. Because of the limited number of stations sampled during other years and the lack of reasonable information for the estimation of nutrient loads (see below), additional water quality descriptions sufficiently detailed for model evaluation were not available.

The existence of backwater areas upstream from Walter F. George Lake precluded computation of nutrient loads for the Chattahoochee River using paired observations of nutrient concentration and gauged flow. Instead time-weighted mean nutrient concentrations for the lake water quality sampling station located near Bluff Creek Park were used to estimate inflow nutrient concentrations. Mean flow was estimated from operations records<sup>2</sup> as the mean of differences in daily pool volume and discharge. Since a majority of the water load to Walter F. George Lake is associated with the Chattahoochee River, and since information required for estimating land-use nutrient contributions from contiguous areas was lacking, the Chattahoochee River inflow was assumed to be the sole source of water and nutrient loads.

Mean, mixed-layer total phosphorus and nitrogen concentrations, chlorophyll *a* concentrations, and Secchi disk transparency values were computed for the growing season for all model segments (Table 10). In general, nutrient concentrations declined with distance downstream. Chlorophyll *a* concentrations, however, were relatively unchanged across segments.

#### Lake Sidney Lanier

Water quality data for Lake Sidney Lanier were obtained only for 1973. Efforts to include data collected more recently were complicated by the limited number of stations sampled (often a single near-dam station), infrequent sample collection, or the lack of appropriate eutrophication response variables. Data collected as part of a USEPA-sponsored CLDFS performed by the University of Georgia<sup>3</sup> were not available at the time this study was conducted.

<sup>&</sup>lt;sup>1</sup> Personal Communication, 1993, David Bayne, Department of Fisheries and Allied Aquaculture, Auburn University, Auburn, AL.

<sup>&</sup>lt;sup>2</sup> Personal Communication, 1993, Diane Findley, Planning Division, U.S. Army Engineer District, Mobile, Mobile, AL.

<sup>&</sup>lt;sup>3</sup> Personal Communication, 1993, Kathryn J. Hatcher, Institute of Natural Resources, University of Georgia, Athens, GA.

Data for 1973 were collected as part of the USEPA NES study (USEPA 1978). Stations for which data were available and the segments with which they were associated for the purpose of this study are listed in Table 11. Mean concentrations and associated CV values for total phosphorus, total nitrogen and chlorophyll *a* concentrations, and Secchi depths are presented in Table 12.

Low nutrient and chlorophyll *a* concentrations indicate that at the time of sample collection, Lake Sidney Lanier was oligotrophic to mesotrophic. A notable exception was segment 14, which was clearly influenced by excessive nutrient inputs from waste treatment facilities located on Flat Creek, a major tributary to this portion of the lake (see also below). Nutrient concentrations were also higher in the upstream portions of the Chattahoochee River arm (segment 16) and the Chestatee River arm (segment 4).

Mean streamflows and total phosphorus and nitrogen concentrations for major tributaries, also obtained from the NES study, are listed in Table 13. While similarities were apparent for most streams, Limestone Creek and, especially, Flat Creek exhibited markedly elevated total phosphorus concentrations. Total nitrogen concentrations for Flat Creek were also elevated. These observations were related to the existence of significant point and nonpoint nutrient sources. Values for nonpoint source inputs from contiguous watershed areas were based averaged values for selected gauged streams. Resulting values for total phosphorus and total nitrogen concentrations were 52  $\mu$ g P/L and 850  $\mu$ g N/L, respectively.

#### West Point Lake

Water quality data for West Point Lake were obtained for 1990 and 1991. Data describing water quality conditions at six stations located along the major axis of the Chattahoochee River portion of the lake were collected by the Georgia Department of Natural Resources (GDNR) (GDNR 1991). These data were collected as part of a GDNR intensive monitoring program conducted during the period April through October 1990.

Water quality data collected as part of an extensive survey conducted for the U.S. Army Engineer District, Mobile, by the U.S. Army Engineer Waterways Experiment Station (Kennedy et al. 1994) were used to estimate conditions during 1991. This study involved the collection of selected water quality data for 56 stations distributed throughout major portions of the lake, including embayments and large coves. Names of stations identified in the original data sets for each year and the model segment with which they were associated are presented in Table 14.

Mean, mixed-layer summaries of total nitrogen, total phosphorus, and chlorophyll *a* concentrations, and Secchi disk transparency were computed for each model segment for the growing season of each year. Station means were averaged for segments having multiple stations. Data summaries (mean and CV) for 1990 and 1991 are presented in Tables 15 and 16, respectively.

Nutrient and water loads for 1990 were computed based on information for the Chattahoochee River reported by the U.S. Geological Survey (USGS) (Stokes, McFarlane, and Buell 1990). Similar data for secondary tributaries were not available. Unfortunately, nutrient-loading information was limited to total phosphorus; appropriate data for computing total nitrogen loads were not collected for sites located reasonable distances upstream from the lake. Total phosphorus loads were computed using FLUX and total phosphorus concentrations observed at the USGS gauge site located at Franklin, GA. Since this area is frequently influenced by fluctuating lake levels, the USGS does not collect coincident discharge data. Therefore, flows were estimated based on observed flows at the USGS gauge at Whitesburg, GA. This was accomplished by estimating the rate of increase in flow between successive gauge sites and extrapolating observed flows at Whitesburg to Franklin. Mean flow and total phosphorus concentration determined for the growing season for 1990 were 3,926 hm<sup>3</sup>/year ( $10^6$  m<sup>3</sup>/year) and 178.8 µg P/L, respectively.

In addition to flow and total phosphorus concentration data for 1991 for the Chattahoochee River at Franklin, GA, which were summarized using methods described above for 1990, data were also collected for selected secondary tributaries to the lake (Kennedy et al. 1994). Staff gauges were installed on Yellowjacket, Shoal, and Beech creeks, and observed weekly coincident with water sample collection. Stagedischarge relations, based on periodic measurement of streamflow, channel cross section, and stage by the USGS, were used to estimate flow from stage elevation. Continuous (daily) flow records were established by comparing observed flows with those recorded at the USGS gauge located on New River; resulting relations were used to generate daily records for each tributary based on daily flows in New River.

Estimates of discharge for Whitewater Creek were obtained using a small rotating bucket flowmeter. Multiple measurements were areaaveraged using cross-section geometry (Kennedy et al. 1994). Flow measurements and the collection of water samples occurred weekly. Total phosphorus load for this tributary was computed as the product of the flow-weighted average total phosphorus concentration and average flow.

Nutrient load estimates were obtained from estimated flows and observed nutrient concentrations using FLUX. While nitrogen loads were computed for each of the sampled secondary tributaries, a similar estimate was not computed for the Chattahoochee River for reasons discussed above. Mean tributary flows and total phosphorus concentrations for 1991 are presented in Table 17.

The contribution of water and total phosphorus from ungauged areas contiguous with the lake for both 1990 and 1991 were based on estimated runoff and tributary nutrient data for 1991. In doing so, it was assumed (a) that data for tributaries selected for sampling in 1991 were representative of land-use contributions and (b) that land use was unchanged. Resultant estimates and the model segment with which they are associated are presented in Table 18.

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## 5 Model Application

### Introduction

The empirical model BATHTUB (Walker 1987) was employed to describe eutrophication-related characteristics and to assess potential trophic responses to selected changes in loading. Data summarizing growing-season conditions were used to calibrate the model for each reservoir. Since these reservoirs exhibited marked spatial heterogeneity, calibration was based on regional groupings of model segments. In general, main stem segments were grouped to best describe longitudinal gradients in nutrient and chlorophyll *a* concentrations. Additionally, descriptions of segments located in major embayments were improved by regional calibration. Default model coefficients were applied to segments lacking observed data and a logical association with other regional groupings.

Calibrated models were verified by comparison of predicted and observed responses following application to an independent data set. As mentioned in Chapter 4, appropriate verification data sets were not available for Lake Sidney Lanier and Walter F. George Lake. Evaluations of model performance are presented in the following section.

### Results

#### Allatoona Lake

A total of 10 model segments distributed across four regions were identified for Allatoona Lake based on morphometric, land-use, and water quality considerations (Figure 2, Table 19). Major regions included Allatoona Creek embayment (region 1), Little River embayment (region 2), Stamp Creek embayment (region 3), and the main portion of the pool extending from the Etowah River inflow to the dam (region 4). While region 2 and 3 consisted of a single segment each, region 1 and 4 consisted of 3 and 5 segments, respectively. The assignment of sampling stations and associated water quality summaries to model segments and regions were presented previously in Tables 1-3. BATHTUB input files were constructed for 1973 and 1992 (see Appendix A). Since a greater number of stations were sampled during 1992, this year was used for model calibration. However, the lack of reasonable total nitrogen data in 1992 (see Chapter 4) precluded the use of a chlorophyll response model based on composite nutrient (sensu Walker 1985) concentration. Instead, a model incorporating the effects of phosphorus concentration, light, and flushing rate was used to describe chlorophyll response. Changes in pool total phosphorus concentration were described as a second-order reaction.

Comparisons of observed water quality conditions in 1992 and those predicted based on application of BATHTUB employing default coefficients are presented in Figure 3. While reasonable patterns of change in total phosphorus concentration were obtained, concentrations were poorly predicted for segments 1, 4, 6, and 7 (underpredicted) and segment 5 (overpredicted). Despite this, predictions of chlorophyll and Secchi disk responses were reasonable.

Model calibration by region greatly improved model prediction for all response variables (Figure 4). This process involved computation of calibration coefficients providing minimum differences between predicted and observed values across segments within each region. Resulting calibration factors are presented in Table 19.

It was noted that calibration factors for total phosphorus for regions 2 (factor = 6.912) and 3 (factor = 0.123) were unusually distant from a value of 1.0. These extreme deviations resulted from differences in concentration between tributary streams and the receiving lake segment. For Stamp Creek embayment, calculated mean inflow total phosphorus concentration was 24.4  $\mu$ g P/L, while the mean mixed-layer total phosphorus concentration for segment 5, the segment into which Stamp Creek flows, was 33.8  $\mu$ g P/L. Assuming both concentrations to be correct, such differences would suggest that other, unsampled sources of total phosphorus led to the observed total phosphorus concentration in Stamp Creek embayment. Thus, predictions for Stamp Creek embayment may be unreliable.

Differences between the mean total phosphorus concentrations for Noonday Creek and Little River (150.0  $\mu$ g P/L and 50.0  $\mu$ g P/L, respectively), and Noonday Creek embayment (segment 4) suggest that phosphorus losses because of sedimentation were high for this region of the lake. Alternatively, failure to use a sedimentation model addressing partitioning of phosphorus between particulate and dissolved forms inflated the calibration factor. However, assuming that conditions in this portion of the lake and basin remain relatively unchanged, reasonable predictions for this segment should be possible.

Applicability of the calibrated BATHTUB model for Allatoona Lake was verified by application using loading information for 1973. Comparisons between predicted and observed response variables (Figure 5) indicate that the model performs relatively well. While total phosphorus

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concentration was underpredicted for segments 6 and 8, water quality predictions for other segments and those for chlorophyll and Secchi disk were not significantly different from observed conditions. Performance of the model for regions 2 and 3 could not be evaluated because of lack of observed data (see Appendix A for BATHTUB input files).

#### Walter F. George Lake

Seven model segments were defined for Walter F. George Lake (Figure 6). These segments were associated as a single, linear region extending from a point near Bluff Creek Park to the dam. As indicated above, water quality data for the lake station at Bluff Creek Park were used for estimation of inflow conditions and were not included with observed lake water quality data for this application.

Since both nitrogen and phosphorus data were available for 1992, model options involving the prediction of chlorophyll response based on changes in composite nutrient concentration were evaluated. Comparison with model results in which chlorophyll responses were estimated based solely on total phosphorus concentration led to a decision to include both nutrients in subsequent model applications. The model estimated changes in chlorophyll based on the combined effects of composite nutrient concentration, light, and flushing. In the absence of information concerning nutrient partitioning, the availability factors for total nitrogen and phosphorus were set to a value of 1.0. Changes in total nitrogen and phosphorus were described as a second-order reaction.

Comparisons of observed and predicted water quality responses for 1992 based on application of BATHTUB employing default coefficients and the above model assumptions are presented in Figures 7 and 8. Total nitrogen and phosphorus concentrations were estimated reasonably well in mid and uplake segments, but underestimated in downstream segments. Chlorophyll concentrations and Secchi disk transparency were poorly estimated by the uncalibrated model.

Model calibration against observed data for 1992 greatly improved model predictions (Figures 9 and 10). During initial calibration attempts, accounting for the shape of longitudinal changes in water quality resulted in improved predictions for downstream segments but poor predictions for segment 1. This result was due to similarities in water quality conditions in segment 1 and those at the station used for describing inflow conditions. To compensate for this shortcoming, calibration factors for segment 1 were set to default values for all response variables. Resultant calibration factors are presented in Table 20 (see Appendix B for BATHTUB input files).

#### Lake Sidney Lanier

Morphologic and water quality features for Lake Sidney Lanier were addressed by delineating 21 model segments (Figure 11). Features addressed included embayments associated with the inflow of the Chestatee and Chattahoochee rivers, both of which exhibited longitudinal gradients; embayments associated with Wahoo Creek and neighboring tributaries; a series of small embayments associated with the main portion of the lake but receiving inflows from several secondary tributaries; and the area proximal to the confluence of the lake with Flat Creek, a tributary with markedly higher nutrient concentrations because of the influence of point sources.

Water quality and loading data collected in 1973 as part of an NES study were used for model evaluation and calibration. Since both nitrogen and phosphorus data were available, a response model incorporating the effects of composite nutrient concentration was applied (see Appendix C for BATHTUB input files). Initial application of the model using default coefficients indicated a reasonable correspondence between predicted and observed values (Figures 12 and 13).

Large differences were apparent, however, for nutrient concentrations for selected segments (Figure 12). Total nitrogen concentration was greatly overpredicted for segments 11 and 12. This observation may be related to overestimation of inflow nitrogen concentrations, which were based on a basin-wide summary, or the potentially long retention time in Young Deer and Bald Ridge embayments. Predicted total phosphorus concentrations were markedly below observed concentrations for segment 4 (Yellow Creek) and segment 9 (Four Mile Creek and Six Mile Creek embayment). While loading data were available for Four Mile Creek, potentially inaccurate estimates for Yellow Creek and Six Mile Creek may have led to poor predictions for these two segments. Reasonable predictions of chlorophyll concentration were obtained for most segment 16, located immediately downstream from the inflow of the Chattahoochee River.

Regional calibration greatly improved performance of the model (Figures 14 and 15). Segment associations for calibration were based on review of observed water quality data and iterative evaluation of model performance using alternative associations. Regional calibration groups and corresponding calibration factors are presented in Table 21. As discussed in Chapter 4, shortcomings in other data sets precluded verification of calibration values based on 1973 data.

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#### West Point Lake

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Twenty-two model segments were delineated for the application of BATHTUB to West Point Lake (Figure 16). The number and location of segments were based on recent assessments of patterns in water quality (Kennedy et al. 1994) and lake geometry. The Chattahoochee River portion of the lake was represented by 13 segments, while the two major embayments, Yellowjacket and Wehadkee Creek embayments, were each represented by a single segment each. Additional segments were added for major coves and other important embayment areas. These include Potato, Wolf, and Brush Creek embayments, New River and Maple Creek embayments, and Whitewater and Thompson Creek embayment.

Data for 1991 were used for initial model evaluation and for subsequent model calibration; verification of model calibration was performed using data for 1990 (see Appendix D for BATHTUB input files). As indicated in Chapter 4, the absence of adequate data describing total nitrogen loads to the lake from the Chattahoochee River precluded consideration of nitrogen in evaluations of models for describing or predicting chlorophyll *a* concentration. While this shortcoming could impact predictions in upstream reaches of the Chattahoochee River portion of the lake, where nitrogen to phosphorus ratios indicate the potential for limitation by phosphorus (Kennedy et al. 1994), highly turbid conditions and excessive nutrient concentrations suggest that other factors would control algal responses here.

Mixed-layer total phosphorus concentrations in 1991 decreased with increasing distance from the Chattahoochee River inflow (segments 12, 13, and 15), but were relatively unchanged in downstream portions of the lake (segments 17, 18, and 20-23). In general, total phosphorus concentrations for selected coves and embayments (segments 2, 5, and 7-9) were similar to or less than those observed in the downstream portion of the lake. Initial model application using default calibration resulted in over-prediction of concentrations throughout the Chattahoochee River portion of the lake; predictions for cove and embayment sites were similar to those observed (Figure 17).

While predicted chlorophyll *a* concentrations were in reasonable agreement with those observed for the downstream portion of the lake and for coves and embayments, those for upstream segments were nearly double those observed (Figure 17). This latter difference was potentially related to the effects of nonalgal turbidity and inflow processes on expected relations between nutrient concentration and algal response.

Despite the above differences in chlorophyll *a* concentrations, marked differences between observed and predicted Secchi depth were not apparent for most upstream segments (Figure 17). Exceptions were segments 15 and 16, both of which are located near the region of transition from riverine to lake-like conditions. Since prediction of Secchi disk depth is based on the combined effects of predicted chlorophyll *a* concentrations

and observed nonalgal turbidity, predicted values would be determined to a great extent by the presence of nonalgal particulates.

Model calibration greatly improved model performance (Figure 18). Longitudinal gradients in the main stem were well described, as were responses for major tributary embayments. Model calibration values and the assignment of model segments to regions are presented in Table 22.

Subsequent application of BATHTUB to observed data for 1990 provides independent evidence of model performance (Figure 19). As was noted for 1991, longitudinal gradients in the main stem were well described. Since data were not available for segments located in tributary embayments, verification of model performance in these areas of the lake was not possible.

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# 6 Water Quality Response Assessment

### Introduction

Two different loading scenarios, both of which are relevant to current management issues, were evaluated for each reservoir. In the first, observed inflow nutrient concentrations were increased and decreased by 50 percent while holding average water loads constant. Such changes would be expected if processes controlling nutrient contributions alone were affected by watershed activities. These would include, for example, decreased nutrient contributions from point sources following management efforts to increase wastewater treatment efficiencies or increases because of increased demands on existing waste treatment facilities. The second evaluation scenario involved similar changes in water inflow rates while holding nutrient concentrations constant. Although such changes result in 50-percent changes in nutrient mass loads (i.e., mass of nutrient delivered to the lake during the summary period), model assumptions are based on inflow nutrient concentrations; therefore, this scenario allows evaluation of changes in flushing rate. Such changes could occur if processes affecting change in the quantity of water delivered to the lake were modified. While other scenarios could be developed, these two provide a reasonable evaluation of the possible-direction and magnitude of lake response given changes in nutrient concentration or water loading. Results of these evaluations are presented in the following sections.

### Results

#### Allatoona Lake

Changes in the average inflow total phosphorus concentration from the Etowah River markedly impacted mixed-layer total phosphorus concentrations in the upstream portion of the main stem of the lake (Figure 20). However, concentration changes in more downstream segments and, in

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particular, near the dam were proportionally smaller ( $\pm$  15 percent). Sedimentary losses in upper to midlake regions would account for such differences. Increases in water retention time (i.e., decreased water inflow rate), while reducing total phosphorus concentrations throughout, did not result in marked longitudinal changes.

Trophic response to changes in inflow total phosphorus concentrations. were pronounced in upstream segments because of increased nutrient availability (Figure 21). Like changes in mixed-layer nutrient concentrations, the magnitude of changes in chlorophyll concentration decreased with increasing distance downstream. Changes in Secchi depth, which are determined in the model by the combined effects of fixed values of nonalgal turbidity and predicted changes in chlorophyll concentration, were less pronounced. Changes in trophic response following changes in water inflow rate were minimal (Figure 22). Such a result would be expected given the small changes in nutrient levels and the fact that retention times are long relative to algal growth rates.

#### Walter F. George Lake

Changes in nutrient and trophic responses reflect the narrow morphometry and advective characteristics of Walter F. George Lake. As was noted from observed data, this impoundment exhibits marked gradients in water quality. Nutrient concentrations decrease dramatically through the transition from riverine to lake-like conditions in the upstream half of the lake, but are relatively unchanged in downstream areas. A similar pattern is predicted for potential changes in nutrient levels following changes in inflow nutrient concentrations (Figure 23). Because of the advective nature of the upstream reaches of the lake, changes in mixed-layer nutrient levels because of selected changes in water inflow rate are predicted only for downstream segments (Figure 23).

Predicted trophic responses (Figure 24) reflect the combined influences of longitudinal changes in mixed-layer nutrient concentrations and in-lake flow regime. Changes in chlorophyll concentration were greatest in upstream segments; concentrations declined sharply in midlake. It is interesting to note the possible downstream shift in chlorophyll maximum when inflow nutrient concentration was reduced by 50 percent. Changes in chlorophyll concentration in upstream areas were unchanged by changes in flow evaluated in this study. This would be expected since algal standing crop here is likely controlled by flushing rate. Secchi depths, while relatively unchanged at upstream locations, were greatly increased in downstream areas with a 50-percent decline in inflow nutrient concentrations.

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#### Lake Sidney Lanier

Observed and predicted mixed-layer nutrient concentrations for model segments for the two major tributary arms of Lake Sidney Lanier are presented in Figure 25. Sharp declines in mixed-layer nutrient levels reflect sedimentary losses as channel dimensions and water residence increase. As a result, little change was predicted for downstream areas of the lake. Similar conclusions follow assessment of nutrient changes in response to changes in water inflow rates.

Few changes in trophic response are predicted for selected ( $\pm 50$  percent) changes in either inflow nutrient concentration or water load (Figure 26). This outcome is related, in part, to the small ratio of water load to lake volume. With the exception of the riverine-dominated portions of the lake, chlorophyll concentrations are low and nearly uniform across model segments.

Since Lake Sidney Lanier is morphologically complex, lake trophic responses were summarized for individual lake regions (Figure 27). Downstream regions of the lake and associated embayments (region 1) would be expected to change little following the changes in nutrient or water inputs chosen for this evaluation. However, moderate changes would be expected for the Chattahoochee and Chestatee River arms (region 3 and 4, respectively). Changes would be minimal for the Flat Creek area (region 2) and the Wahoo Creek embayment (region 5). Such a result would be expected since these areas are relatively isolated from inflows from the major tributaries. While data availability precluded realistic assessments of the Wahoo Creek embayment, manipulations of nutrient concentrations for Flat Creek markedly influenced trophic response in the Flat and Balus Creek embayment.

#### West Point Lake

West Point Lake exhibits strong longitudinal gradients in water quality. As documented by Kennedy, Thornton, and Gunkel (1982) and Kennedy et al. (1994), these gradients are related to mixing and flow regimes, high nutrient levels, and the influence of nonalgal turbidity on algal productivity. In general, nutrient and nonalgal turbidity levels decline sharply as riverine influences lessen with increased distance from the Chattahoochee River inflow. As nonalgal turbidity levels decrease (and light levels increase) because of sedimentation, algal production increases. This often results in a mid-lake maxima in the region immediately upstream from the Yellowjacket Creek confluence.

Nutrient and trophic responses predicted here are consistent with past observations of water quality patterns. While changes in inflow rate ( $\pm 50$  percent) had little effect on in-pool total phosphorus levels, marked changes followed changes in inflow total phosphorus concentration

(Figure 28). However, relative differences decreased with increased distance, and nutrient conditions near the dam changed little.

Changes in inflow nutrient concentration greatly influenced trophic response in mid and downlake regions (Figure 29). While the location of the chlorophyll maxima was unchanged, expected concentrations were markedly impacted. However, increases and decreases in inflow rate shifted the location of the chlorophyll maxima downstream and upstream, respectively (Figure 30). This result is anticipated since algal standing crop in this region of the lake is controlled in large part by flushing rate. Since the BATHTUB model does not predict nonalgal turbidity, such changes could not be directly assessed. However, it is possible that changes could accompany efforts to reduce loading from nonpoint sources. Such changes would change the light regime, thus dramatically influencing the distribution and quantity of algal biomass, particularly in the upper reaches of the lake. Kennedy et al. (1994) reached a similar conclusion after evaluating algal and nutrient data for the lake. Lakewide trophic responses to the combined effects of incremental changes in inflow rate and nutrient concentration are presented in Figure 31.

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## 7 Summary

The BATHTUB model provides a means for assessing the potential effects of a variety of management alternatives involving changes in nutrient and/or water inputs to reservoirs. This report documents efforts to apply the model to Allatoona Lake, Walter F. George Lake, Lake Sidney Lanier, and West Point Lake. Underlying assumptions are discussed in the context of data reduction and model application.

Changes discussed here were limited to 50-percent increases and decreases in inflow nutrient concentration and discharge rate. The intent was to demonstrate application of the model and to delineate general directions of potential change in lake trophic response. Calibrated models developed here (see model input data sets in Appendices A-D) provide lake managers with the opportunity to assess additional or future management alternatives.

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Figure 1. Map of study area indicating the locations of Allatoona Lake (Coosa River basin) and Lake Sidney Lanier, West Point Lake, and Walter F. George Lake (Chattahoochee River basin)

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its (bottom). Contiguous segments are nyor






Figure 4. Observed (solid circles) and predicted (open circles) total phosphorus concentrations, chlorophyll *a* concentrations, and Secchi depths for modeled segments of Allatoona Lake for 1992. Predicted values based on computed calibration factors. Vertical bars represent observed and predicted variability. Segment 11 represents the lakewide, weighted average



Figure 5. Observed (solid circles) and predicted (open circles) total phosphorus concentrations, chlorophyll *a* concentrations, and Secchi depths for modeled segments of Allatoona Lake for 1973. Predicted values based on computed calibration factors for 1992. Vertical bars represent observed and predicted variability. Segment 11 represents the lakewide, weighted average



Figure 6. Map of Walter F. George Lake (left) and assigned locations of model segments (right). Contiguous segments are hydraulically linked



Figure 7. Observed (solid circles) and predicted (open circles) total phosphorus and total nitrogen concentrations for modeled segments of Walter F. George Lake for 1992. Predicted values based on default calibration factors. Vertical bars represent observed and predicted variability. Segment 8 represents the lakewide, weighted average



Figure 8. Observed (solid circles) and predicted (open circles) chlorophyll *a* concentrations and Secchi depths for modeled segments of Walter F. George Lake for 1992. Predicted values based on default calibration factors. Vertical bars represent observed and predicted variability. Segment 8 represents the lakewide, weighted average



Figure 9. Observed (solid circles) and predicted (open circles) total phosphorus and total nitrogen concentrations for modeled segments of Walter F. George Lake for 1992. Predicted values based on computed calibration factors. Vertical bars represent observed and predicted variability. Segment 8 represents the lakewide, weighted average



Figure 10. Observed (solid circles) and predicted (open circles) chlorophyll *a* concentrations and Secchi depths for modeled segments of Walter F. George Lake for 1992. Predicted values based on computed calibration factors. Vertical bars represent observed and predicted variability. Segment 8 represents the lakewide, weighted average



Figure 11. Map of Lake Sidney Lanier (left) and assigned locations of model segments (right). Contiguous segments are hydraulically linked



Figure 12. Observed (solid circles) and predicted (open circles) total phosphorus and total nitrogen concentrations for modeled segments of Lake Sidney Lanier for 1973. Predicted values based on default calibration factors. Vertical bars represent observed and predicted variability. Segment 22 represents the lakewide, weighted average



Figure 13. Observed (solid circles) and predicted (open circles) chlorophyll *a* concentrations and Secchi depths for modeled segments of Lake Sidney Lanier for 1973. Predicted values based on default calibration factors. Vertical bars represent observed and predicted variability. Segment 22 represents the lakewide, weighted average



Figure 14. Observed (solid circles) and predicted (open circles) total phosphorus and total nitrogen concentrations for modeled segments of Lake Sidney Lanier for 1973. Predicted values based on computed calibration factors. Vertical bars represent observed and predicted variability. Segment 22 represents the lakewide, weighted average







Map of West Point Lake (left) and assigned locations of model segments (right). Contiguous segments are hydraulically linked



Figure 17. Observed (solid circles) and predicted (open circles) total phosphorus concentrations, chlorophyll *a* concentrations, and Secchi depths for modeled segments of West Point Lake for 1991. Predicted values based on default calibration factors. Vertical bars represent observed and predicted variability. Segment 23 represents the lakewide, weighted average





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Figure 19. Observed (solid circles) and predicted (open circles) total phosphorus concentrations, chlorophyll *a* concentrations, and Secchi depths for modeled segments of West Point Lake for 1990. Predicted values based on computed calibration factors for 1991. Vertical bars represent observed and predicted variability. Segment 23 represents the lakewide, weighted average



Figure 20. Predicted changes in total phosphorus concentrations in Allatoona Lake associated with changes in inflow nutrient concentration (upper) and inflow volume (lower). Predictions for increases of 50 percent (open circles) and decreases of 50 percent (closed circles) are compared with observed data (solid line)



Figure 21. Predicted changes in chlorophyll *a* concentrations (upper) and Secchi depths (lower) in Allatoona Lake associated with changes in inflow nutrient concentration. Predictions for increases of 50 percent (open circles) and decreases of 50 percent (closed circles) are compared with observed data (solid line)







Figure 23. Predicted changes in phosphorus (left) and nitrogen (right) concentrations in Walter F. George Lake associated with changes in inflow nutrient concentration (upper) and inflow volume (lower). Predictions for increases of 50 percent (open circles) and decreases of 50 percent (closed circles) are compared with observed data



Figure 24. Predicted changes in chlorophyll a (left) and Secchi depth (right) in Walter F. George Lake associated with changes in inflow nutrient concentration (upper) and inflow volume (lower). Predictions for increases of 50 percent (open circles) and decreases of 50 percent (closed circles) are compared with observed data

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Figure 25. Predicted changes in phosphorus (upper) and nitrogen (lower) concentrations in Lake Sidney Lanier associated with changes in inflow nutrient concentration (left) and inflow volume (right). Predictions for increases of 50 percent (open circles) and decreases of 50 percent (closed circles) are compared with observed data



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Figure 26. Predicted changes in chlorophyll a (upper) and Secchi depths (lower) in Lake Sidney Lanier associated with changes in inflow nutrient concentration (left) and inflow volume (right). Predictions for increases of 50 percent (open circles) and decreases of 50 percent (closed circles) are compared with observed data



Figure 27. Trophic responses (i.e., changes in chlorophyll *a* concentrations) of major limnological regions (1-5) of Lake Sidney Lanier to changes in nutrient inflow concentrations and inflow volume. Region 6 is a lakewide summary of predicted responses















Figure 31. Predicted lakewide trophic response (i.e., changes in chlorophyll *a* concentrations and Secchi depths) of West Point Lake relative to changes in inflow nutrient concentration and inflow volume

Water Quality Sampling Stations Associated with BATHTUB Model Segments for Allatoona Lake for Calibration (1992) and Verification (1973) Years (Station descriptions are those identified in the original data)

		Station Descriptions			
Segment	1973	1992			
1	313	28A Marker			
2	-	Tanyard Creek Embayment			
3		8A-10A Marker			
4		Little River Embayment			
5		Carter Creek Embayment Stamp Creek Embayment			
6	315 316	44E-45E Marker			
7		Kellog/Owl Creek Embayment 39E Marker			
8	314	9E Marker 13E Marker 18E-19E Marker			
9	312	-			
10	311	1E Marker			

Mean, Mixed-Layer (i.e., depth < 6 m) Water Quality Conditions, Including Associated CV Values, for Allatoona Lake, May-October 1973 (CV values calculated as the standard error divided by the mean)

Segment		Total Phosphorus µg P/L	Total Nitrogen μg N/L	Chlorophyll <i>a</i> µg/L	Secchi, m
1	Mean CV	22.9 0.12	648.5 0.14	7.5 0.17	1.3 0.15
2	Mean CV	_	-		
3	Mean CV		_	_	=
4	Mean CV	-	_	_	_
5	Mean CV		_		_
6	Mean CV	33.7 0.13	561.6 0.12	6.3 0.27	1.3 0.08
7	Mean CV	_		_	Ξ.
8	Mean CV	15.4 0.09	490.0 0.18	12.5 0.34	1.7 0.14
9	Mean CV	20.4 0.10	677.0 0.23	8.0 0.20	1.4 0.16
10	Mean CV	17.5 0.04	547.3 0.27	4.3 0.06	1.7 0.18

Mean Mixed-Layer Water Quality Conditions and Associated CV Values for Allatoona Lake, May-October 1992 (CV values calculated as the standard error divided by the mean)

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Segment	(*	Total Phosphorus μg P/L	Total Nitrogen μg N/L	Chlorophyll a µg/L	: Secchi, m
1	Mean	18.5	1,346.7	9.4	1.5
	CV	0.13	0.10	0.15	0.08
2	Mean	24.9	1,560.0	10.7	1.4
	CV	0.12	0.18	0.11	0.08
3	Mean	23.2	2,007.1	7.8	2.1
	CV	0.14	0.21	0.17	0.04
4	Mean	34.8	1,871.1	18.1	1.2
	CV	0.19	0.12	0.10	0.08
5	Mean	33.8	1,617.5	9.2	1.8
	CV	0.13	0.19	0.09	0.04
6	Mean	28.9	1,711.4	11.2	1.7
	CV	0.15	0.29	0.07	0.08
7	Mean	24.9	2,497.9	9.9	1.9
	CV	0.08	0.29	0.05	0.04
8	Mean	25.1	1,653.8	8.3	2.1
	CV	0.09	0.19	0.05	0.03
9	Mean CV	-	=	=	-
10	Mean	26.5	2,425.0	7.8	2.3
	CV	0.18	0.25	0.12	0.06

Table 4 Median Water Quality Characteristics of Selected Georgia Impoundments and of Those Included in This Study						
Impoundment	Total Phosphorus μg P/L	Total Nitrogen μg N/L	Chlorophyll a µg/L	Secchi, m	Source	
Clobert	30	440	15.3	0.9	USEPA	
Commerce	70	785	29.3	0.4	USEPA	
Chapman	20	470	10.8	1.4	USEPA	
Olgethorpe	20	430	10.0	1.5	USEPA	
Union Point	30	560	11,1	1.1	USEPA	
Bialock	40	1,320	22.9	1.1	USEPA	
Shamrock	50	1,020	29.8	1.0	USEPA	
Brantley	35	800	22.6	0.6	USEPA	
Clarks Hill	24	430	6.7	1.5	NES	
Chatuge	14	330	6.3	3.0	NES	
Burton	7	270	2.7	3.4	NES	
Blackshear	35	690	1.9	0.8	NES	
Blue Ridge	10	240	3.1	2.7	NES	
Harding	114	880	7.4	0.8	NES	
High Falls	47	830	15.1	1.0	NES	
Jackson	94	980	14.6	1.0	NES	
Nottely	15	325	6.7	2.4	NES	
Allatoona 1973 1992	22 25	585 1,682	7.7 10.3	1.5 1.8	NES KSC	
W. F. George 1992	39	573	17.9	1.3	AU	
Lanier 1973	16	460	5.4	2.6	NES	
West Point 1990 1991	52 39	734 797	18.6 14.5	1.1 1.1	GDNR USAEWES	

Note: The following codes indicate data source: USEPA -U.S. Environmental Protection Agency (1993), Region IV, Environmental Services Division, Athens, GA. NES -USEPA National Eutrophication Survey. KSC - Kennesaw State College, Marietta, GA. AU - Aubum University, Aubum, AL. GDNR - Georgia Department of Natural Resources (1991), Atlanta, GA. USAEWES - U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

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Mean Flows and Flow-Weighted Mean Total Phosphorus and Total Nitrogen Concentrations for 1973 for Selected Tributary Streams Entering Allatoona Lake (Based on data collected during the National Eutrophication Survey (U.S. Environmental Protection Agency 1978), May-October 1973)

Tributary Name	Flow, m <sup>3</sup> /sec	Total Phosphorus μg P/L	Total Nitrogen μg N/L
Etowah River	34.59	51.0	587.0
Allatoona Creek	0.713	35.0	572.0
Acworth Lake Discharge	0.700	49.0	537.0
Noonday Creek	1.800	244.0	1,105.0
Little River	5.000	88.0	1,020.0
Shoal Creek	2.600	36.0	515.0
Stamp Creek	0.458	24.0	401.0

Mean Flows and Flow-Weighted Mean Total Phosphorus Concentrations, Including Associated CV Values, for 1992 for Selected Tributary Streams Entering Allatoona Lake (Based on data collected by Kennesaw State College, May-October 1992. CV values were calculated as the standard error divided by the mean)

Tributary Name		Flow, m <sup>3</sup> /sec	Total Phosphorus μg P/L
Etowah River	Mean	27.65	65.6
	CV	0.123	0.328
Allatoona Creek	Mean	0.305	44.5
	CV	0.187	0.219
Acworth Lake Discharge	Mean	0.131	22.4
	CV	0.123	0.089
Tanyard Creek	Mean	0.432	44.6
	CV	0.969	0.961
Kellog Creek	Mean	0.014	59.5
	CV	0.297	0.410
Owl Creek	Mean	0.025	133.8
	CV	0.156	0.275
Noonday Creek	Mean	1.577	150.0
	CV	0.194	0.205
Little River	Mean	4.068	50.0
	CV	0.184	0.200
Shoal Creek	Mean	1.518	37.9
	CV	0.130	0.127
Stamp Creek	Mean	0.346	24.4
	CV	0.087	0.190
Rowland Creek	Mean	0.026	65.0
	CV	0.265	0.285

# Contributing Area and Estimated Flow and Total Phosphorus and Nitrogen Concentrations for Ungauged Local Land-Use Areas for Allatoona Lake for 1973

2 .

Model Segment	Contributing Land-use Area km <sup>2</sup>	Estimated Mean Flow <sup>1</sup> hm <sup>3</sup> /year	Total Phosphorus <sup>2</sup> μg P/L	Total Nitrogen <sup>2</sup> μg N/L
1	46.18	14.32	36.0	544.0
2	95.18	29.51	36.0	544.0
3	11.65	3.61	36.0	544.0
4	62.65	19.42	36.0	544.0
5	29.72	9.21	36.0	544.0
6	36.14	11.20	36.0	544.0
7	62.65	19.30	36.0	544.0
8	39.76	12.33	36.0	544.0
9	11.65	3.61	36.0	544.0
10	96.38	29.88	36.0	544.0

<sup>2</sup> Total phosphorus and total nitrogen concentration estimated as the average of 1992 flow-weighted concentrations for Allatoona Creek and Shoal Creek.

Contributing Areas and Estimated Flow and Total Phosphorus Concentrations for Ungauged Local Land-Use Areas for Allatoona Lake for 1992

Model Segment	Contributing Land-use Area km <sup>2</sup>	Estimated Mean Flow <sup>1</sup> hm <sup>3</sup> /year	Mean Total Phosphorus µg P/L	Remark <sup>2</sup>
1	46.18	12.01	42.3	1
2	95.18	24.75	44.6	2
3	11.65	3.03	42.3	1
4	62.65	16.29	42.3	1
5	29.72	7.73	65.0	3
6	36.14	9.40	42.3	1
7	62.65	16.29	52.0	4
8	39.76	10.34	42.3	1
9	11.65	3.03	42.3	1
10	96.38	26.06	42.3	1

<sup>1</sup> Estimated discharge for ungauged land-use areas based on an estimated runoff of 0.26 m/year.
<sup>2</sup> Estimates of total phosphorus concentration obtained from the following sources and/or

methods: 1.Average of 1992 flow-weighted concentrations for Tanyard Creek, Allatoona Creek, and Shoal Creek.

Shoal Creek.
 2.Flow-weighted concentration for Tanyard Creek for 1992.
 3.Flow-weighted concentration for Rowland Creek for 1992.
 4.Average of 1992 flow-weighted concentrations for Owl Creek and Kellog Creek.
# Table 9 Water Quality Sampling Stations Associated with BATHTUB Model Segments for Walter F. George Lake for 1992 (Station descriptions are those identified in the original data)

Segment	Station	Station Descriptions
1	.7	Railroad Bridge near Omaha, GA (RM 120.3) <sup>1</sup>
2	6	Off Florence Marina State Park (RM 112.7)
3	5	Near Confluence of Cowikee Creek (RM 101.7)
4	4	Upstream from Highway 82 (RM 94.9)
5	3	Off Cheneyhatchee Creek embayment (RM 89.5)
6	2	Off Pataula Creek embayment (RM 82.3)
7	1	Walter F. George Forebay (RM 75.4)
<sup>1</sup> RM indicates	approximate river n	nile.

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Mean Mixed-Layer Water Quality Conditions and Associated CV Values for Walter F. George Lake, May-October 1992 (CV values calculated as the standard error divided by the mean)

Segment		Total Phosphorus μg P/L	Total Nitrogen μg N/L	Chlorophyll <i>a</i> μg/L	Secchi, m
1	Mean	56.7	889.0	16.5	0.9
	CV	0.05	0.06	0.27	0.08
2	Mean	53.7	858.0	18.3	0.9
	CV	0.04	0.09	0.08	0.08
3	Mean	42,8	-742.0	19.6	1.1
	CV	0.06	0.04	0.04	0.05
4	Mean	38.7	624.0	19.6	1.3
	CV	0.06	0.07	0.10	0.04
5	Mean	31.3	521.0	16.3	1.6
	CV	0.05	0.07	0.08	0.02
6	Mean	26.2	479.0	18.5	1.7
	CV	0.08	0.05	0.19	0.08
7	Mean	22.8	475.0	16.7	1.8
	CV	0.09	0.03	0.15	0.07

# Table 11Water Quality Sampling Stations Associated with BATHTUB ModelSegments for Lake Sidney Lanier for 1973 (Station names anddescriptions are those identified in the original data)

Segment	Station	Description	
4	320	Wilkie Bridge	
7	319	Boiling Bridge	
9	316	Middle Six Mile Creek Arm	
11	314	Mary Alice Park	
12	313	Lanier Islands Beach	
14	318	Near Buoy FC6	
16	322	Thompson Bridge	
17	321	Near Gainesville Marina	
19	317	Main Channel Old Federal	
20	315	Open Channel Tidwell Access	
21	312	Buford Dam	

1 .

Mean Mixed-Layer Water Quality Conditions and Associated CV Values for Lake Sidney Lanier, May-October 1973 (CV values calculated as the standard error divided by the mean)

Segment		Total Phosphorus μg P/L	Total Nitrogen μg N/L	Chlorophyll a µg/L	Secchi, m
4	Mean	21.3	486.0	6.7	2.0
	CV	0.20	0.08	0.08	0.04
7	Mean	12.5	485.6	5.2	2.1
	CV	0.05	0.07	0.03	0.09
9	Mean	17.3	286.0	5.0	3.0
	CV	0.18	0.14	0.19	0.03
11	Mean	19.1	457.0	4.7	3.0
	CV	0.14	0.28	0.00	0.00
12	Mean	8.6	480.0	3.4	2.9
	CV	0.07	0.36	0.03	0.03
14	Mean	44.0	657.0	11.3	1.9
	CV	0.04	0.10	0.08	0.21
16	Mean	17.2	543.0	11.4	2.1
	CV	0.10	0.05	0.18	0.04
17	Mean	13.1	457.0	5.0	2.4
	CV	0.07	0.15	0.07	0.00
19	Mean	8.7	300.0	4.8	3.0
	CV	0.19	0.14	0.19	0.12
20	Mean	14.8	359.8	4.2	3.2
	CV	0.20	0.19	0.05	0.02
21	Mean	7.0	256.9	4.2	3.2
	CV	0.11	0.14	0.08	0.03

Mean Flows and Flow-Weighted Mean Total Phosphorus and Total Nitrogen Concentrations for 1973 for Selected Tributary Streams Entering Lake Sidney Lanier (Based on data collected during the National Eutrophication Survey (U.S. Environmental Protection Agency 1978), May-October 1973)

Tributary Name	Flow, m <sup>3</sup> /sec	Total Phosphorus μg P/L	Total Nitrogen μg N/L
Chattahoochee River	28.4	50	717
Chestatee River	15.8	69	623
Wahoo Creek	1.8	72	931
West Fork Little River	0.9	55	1,072
East Fork Little River	0.8	62	1,295
Flat Creek (F1)	0.3	2,234	10,324
Flat Creek (H1)	1.0	41	739
Limestone Creek	0.2	158	1,036
Four Mile Creek	0.3	52	1,293

200

Water Quality Sampling Stations Associated with BATHTUB Model Segments for Calibration (1990) and Verification (1991) Years for West Point Lake (Station descriptions are those identified in the original data)

Station Descriptions				
1991 <sup>2</sup>				
_				
NR3				
BEC1, YC10, YC13JC, YC17, YC27BEC, YC29, YC2HC, YC7				
TC2, WWC2TC, WWC6, WWC9				
SC2, VC3, WEC10, WEC18, WEC26, WEC29CC, WEC5VC, WEC6				
MC2, MC2EC, MC7				
123				
113, 110, 106				
104, 101				
96, 89				
84, 74, 71				
65, 60				
56YC				
50, 45				
41, 39				
36AWIC, 29				
15IC, 16, 18BC, 21AC, 25WEC, IC2				
WES1, WES2, 8				
1, 2MC, EC2				
1				

<sup>2</sup> Stations included in the water quality study conducted by U.S. Army Engineer Waterways Experiment Station for the U.S. Army Engineer District, Mobile (Kennedy et al. 1994).

#### Mean Mixed-Layer Water Quality Conditions and Associated CV Values for West Point Lake, May-October 1990 (CV values calculated as the standard error divided by the mean)

Segment		Total Phosphorus μg P/L	Total Nitrogen μg N/L	Chlorophyll a µg/L	Secchi, m
10	Mean CV	132.0 0.21	1,526.0 0.17	=	_
13	Mean	74.0	1,060.0	23.2	0.7
	CV	0.11	0.11	0.25	0.00
15	Mean	62.0	716.0	24.2	0.9
	CV	0.06	0.25	0.23	0.10
18	Mean	42.0	752.0	19.8	1.10
	CV	0.09	0.08	0.14	0.08
20	Mean	26.0	630.0	14.4	1.3
	CV	0.09	0.15	0.05	0.10
22	Mean	17.5	517.0	11.2	1.6
	CV	0.06	0.14	0.17	0.08

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#### Mean Mixed-Layer Water Quality Conditions and Associated CV Values for West Point Lake, May-October 1991 (CV values calculated as the standard error divided by the mean)

Segment		Total Phosphorus μg P/L	Total Nitrogen μg N/L	Chlorophyll a µg/L	Secchi, m
2	Mean	51.5	652.0	19.4	0.6
	CV	0.06	0.17	0.09	0.00
5	Mean	27.5	595.0	15.5	1.3
	CV	0.12	0.14	0.11	0.10
6	Mean CV	=	-	19.2 0.09	1.1 0.07
7	Mean	38.6	926.0	17.5	1.4
	CV	0.07	0.02	0.08	0.03
8	Mean	20.6	471.0	12.3	1.4
	CV	0.04	0.24	0.12	0.07
9	Mean	22.3	605.0	12.4	1.6
	CV	0.10	0.05	0.16	0.10
10	Mean CV	-	-	3.3 0.37	0.5 0.19
11	Mean CV	_	_	6.0 0.29	0.4 0.18
12	Mean	91.8	1,085.0	8.0	0.5
	CV	0.08	0.09	0.24	0.12
13	Mean CV	_	-	16.8 0.30	0.6 0.14
14	Mean	77.2	1,087.0	17.5	0.8
	CV	0.12	0.05	0.20	0.13
15	Mean	66.0	856.0	20.1	1.0
	CV	0.17	0.22	0.10	0.10
16	Mean CV	=	-	21.9 0.08	1.2 0.10
17	Mean	47.5	965.0	22.0	1.1
	CV	0.10	0.07	0.10	0.06
18	Mean	41.4	932.0	20.0	1.4
	CV	0.08	0.05	0.11	0.05
19	Mean CV	-	_	19.7 0.11	1.4 0.05
20	Mean	33.5	797.0	16.4	1.5
	CV	0.12	0.10	0.12	0.08
21	Mean	25.8	722.0	13.6	1.6
	CV	0.06	0.06	0.12	0.10
22	Mean	23.0	675.0	14.9	1.6
	CV	0.03	0.07	0.13	0.10

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Mean Flows and Flow-Weighted Mean Total Phosphorus Concentrations for 1991 for Selected Tributary Streams Entering West Point Lake (Based on data collected by USGS (Chattahoochee River only) and the U.S. Army Engineer Waterways Experiment Station, May-October 1991)

Tributary Name	Flow, m <sup>3</sup> /sec	Total Phosphorus, µg P/L
Chattahoochee River	160.8	198.8
Yellowjacket Creek	3.2	48.0
Shoal Creek	0.4	32.0
Beech Creek	0.5	39.0
Whitewater Creek	0.2	19.0

Contributing Area and Estimated Flow and Total Phosphorus Concentrations for Ungauged Local Land-Use Areas for West Point Lake, 1990 and 1991

Segment	Contributing Land Area, km <sup>2</sup>	1991 Estimated Flow <sup>1</sup> hm <sup>3</sup> /year	1990 Estimated Flow <sup>2</sup> hm <sup>3</sup> /year	Total Phosphorus <sup>3</sup> μg P/L
1	69.1	16.1	10.4	34.5
2	119.4	28.3	17.9	34.5
3	235.0	55.7	35.3	34.5
4	50.2	11.9	7.5	34.5
5	130.9	31.0	19.6	34.5
6	64.2	15.2	9.6	34.5
7	38.9	9.2	5.8	34.5
8	606.6	143.8	91.0	34.5
9	64.2	15.2	9.6	34.5
10	114.7	27.2	17.2	34.5
11	52.5	12.4	7.9	34.5
12	31.1	7.4	4.7	34.5
13	19.5	4.6	2.9	34.5
14	5.8	1.4	0.9	34.5
15	33.1	7.8	5.0	34.5
16	18.1	4.3	2.7	34.5
17	8.4	2.0	1.3	34.5
18	7.8	1.8	1.2	34.5
19	18.1	4.3	2.7	34.5
20	44.7	10.6	6.7	34.5
21	22.4	5.3	3.4	34.5
22	14.6	3.5	2.2	34.5

<sup>1</sup> Estimated discharge for ungauged land-use areas for 1991 based on an estimated runoff of 0.237 m/year.
 <sup>2</sup> Estimated discharge for ungauged land-use areas for 1990 based on an estimated runoff of 0.150 m/year.

<sup>3</sup> Estimated total phosphorus concentration computed as the average of mean concentrations for Yellowjacket, Beech, Shoal, and Whitewater creeks for 1991.

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## Table 19Regional Model Calibration Factors for BATHTUB for AllatoonaLake (Based on water quality data for 1992)

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Region	Segments	Lake Region or Embayment	Total Phosphorus	Chlorophyll a
1	1-3	Allatoona Creek	1.105	1.140
2	4	Little River	6.912	1.277
3	5	Stamp Creek	0.123	0.893
4	6-10	Etowah River	1.442	0.976

## Table 20Regional Model Calibration Factors for BATHTUB for Walter F.George Lake (Based on water quality data for 1992)

Segments	Region	Phosphorus	Nitrogen	Chlorophyll a
1	Upper George Lake	1.00	1.00	1.00
2-7	Mid and Lower George Lake	1.31	1.56	2.10

#### Table 21 Regional and Local Model Calibration Factors for BATHTUB for Lake Sidney Lanier (Based on water quality data for 1973) Lake Region or Embayment Total Total Region Segment Nitrogen Chlorophyll a Phosphorus 1-3 9-11 12-13 1 Wahoo Creek 0.42 0.39 1.14 North Embayments South Embayments 17-21 Lower Chattahoochee 2 14 Flat Creek 1.43 0.94 0.91

4.01

6.94

0.84

1.25

2.50

1.18

Upper Chattahoochee

**Chestatee River** 

3

4

15-16

4-8

#### Table 22 Regional and Local Model Calibration Factors for BATHTUB for West Point Lake (Based on water quality data for 1991)

Region	Segments	Lake Region or Embayment	Total Phosphorus	Chlorophyll a
1	7	Wilson Creek	0.29	1.37
2	5	Yellowjacket Creek	1.11	1.49
3	6	Whitewater Creek	1.00	1.76
4	8	Wehadkee Creek	1.05	1.81
5	10	Upper Chattahoochee	2.24	0.27
5	11	Upper Chattahoochee	2.24	0.85
5	12	Upper Chattahoochee	2.24	1.46
5	13	Upper Chattahoochee	2.24	2.82
5	14	Upper Chattahoochee	2.24	3.02
5	15	Upper Chattahoochee	2.24	3.10
5	16	Upper Chattahoochee	2.24	2.61
6	17-22	Lower Chattahoochee	9.25	2.07
7	9	Maple Creek	3.28	1.69
8	1-4	Upper Embayments	1.73	1.02

## Appendix A Model Input Files for Allatoona Lake

ALLATOONA LAK	E 1992 (TP MG	DEL - UNC	LIBRATE	D)	
INPUT GROUP 2	- PRINT OPTI	ONS			
1 LIST INPUT 2 HYDRAULICS 3 GROSS WATE 4 DETAILED B. 5 SUMMARIZE I 6 COMPARE OB 7 DIAGNOSTIC 8 PROFILES 9 PLOTS 10 SENSITIVIT	S & DISPERSION R & MASS BALA ALANCES BY SE BALANCES BY SE S & PREDICTED S Y ANALYSIS	I INCES IGMENT SEGMENT OF CONCS	0 NO 1 YES 2 ESTI 2 ESTI 1 OBSE 1 ALL 2 ESTI 2 GEOM 0 NO	MATED CONCS MATED CONCS RVED CONCS SEGMENTS SEGMENTS MATED & OBSERVED ETRIC SCALE	CONCS
INPUT GROUP 3	- MODEL OPT	ONS		550	
1 CONSERVATI 2 PHOSPHORUS 3 NITROGEN B 4 CHLOROPHYL 5 SECCHI DEP 6 DISPERSION 7 PHOSPHORUS 8 NITROGEN C 9 ERROR ANAL 10 AVAILABILI	VE SUBSTANCE BALANCE ALANCE L-A TK CALIBRATION ALIBRATION YSIS TY FACTORS		0 NOT 1 2ND 0 NOT 2 P, L 1 VS. 1 FISC 1 DECA 1 DECA 1 MODE 0 MODE	COMPUTED ORDER, AVAIL P COMPUTED IGHT, T CHLA & TURBIDITY HER-NUMERIC Y RATES Y RATES L & DATA L 1 ONLY	u N
INPUT GROUP 4	- VARIABLES				
A	TMOSPHERIC LO KG/KM2-YR	DADINGS AV	AILABILI FACTOR	ΤY	
1 CONSERV 2 TOTAL P 3 TOTAL N 4 ORTHO P 5 INORG N	.00 30.00 500.00 .00 .00	.00 .50 .50 .00	.00 1.00 1.00 .00		243
INPUT GROUP 5	- GLOBAL PAR	RAMETERS			
PARAMETER		1	HEAN	cv	
1 PERIOD LEN 2 PRECIPITAT 3 EVAPORATIO 4 INCREASE I 5 FLOW FACTO 6 DISPERSION 7 TOTAL AREA 8 TOTAL VOLU	GTH YRS Ion M N M N Storage M R Factor KM2 Me HM3	1	.586 .746 .759 .070 .000 .000 .000 .000	000 200 300 000 000 700 000 000	

	1 IFC	SEG	NAME	1013	DRAI	NAGE AREA	MEAN	FLOW	CV OF ME	AN	
				KM2		HHS/TK	FLOW			~*	
1	1	6	Etowal	h River		1675.700	130	2.046	•	23	
3	1	1	Lk Aci	worth Disc	h	49,200	130	4.132		23	
4	1	ં	Allate	oona Creek		72.500		9.626	1	87	
5	2	1	Land \$	Seg1		46.180	13	2.007		000	
6	2	2	Land !	Seg2		95.180	2	4.747	-0	000	
7	2	3	Land	Seg3		11.650	40	3.029		000	
8		2	LITTL	E KIVER		126 000	120	0.298	•	04	
10	1	6	Shoal	Creek		173.500	4	7.862		30	
11	2	7	Land S	Seg7		62.650	1	6.185		000	
12	2	8	Land S	Seg8		39.760	1	0.338	.0	000	
13	2	9	Land :	Seg9		11.650		3.029	•	000	
14	1	5	Stamp	Creek		46.600	1	0.916		087	
15	2	5	Land	Seg5		29.720	~	7.727		000	
17	2	10	Land	Segiu		40.380 62 650	2	6 286		000	
18	2	6	Land	Segó		36.140		9.396		000	
TNP	UT GI		7 - TI	PTRUTARY, C	ONCEN	TRATIONS (	PPR) . M	FANZOV			
ID		CO	ISERV	TOTAL P	oncer	TOTAL N	ORTH	D P	INORG	N	
4		0.	00	45 41 77	0	0 ( 00	0/	00	0/ 00		
2		.0/	.00	49 2/ 38		0/ 00	.0/.	00	0/ 00		
3		.0/	.00	.22.4/.09	,	.0/.00	.0/.	00	.0/.00		
4	÷	.0/	.00	44.5/.22		.0/.00	.0/.	00	.0/.00		
5	10	.0/	.00	42.3/.00	1	.0/.00	.0/.	00	.0/.00		
6		.0/	.00	44.6/.00	6	.0/.00	.0/.	00	.0/.00		
7		.0/	.00	42.3/.00		.0/.00	.0/.	00	.0/.00		
8		.0/	.00	50.0/.20		.0/.00	.0/.	00	.0/.00		
10		.0/	.00	37 8/ 13		0/ 00	.0/.	00	0/ 00		
11		.0/	-00	52.0/.00		.0/.00	-0/-	00	.0/.00		
12		.0/	.00	42.3/.00	)	.0/.00	.0/.	00	.0/.00		
13		.0/	.00	42.3/.00	)	.0/.00	.0/.	00	.0/.00		
14		.0/	.00	24.4/.19	)	.0/.00	.0/.	00	.0/.00		
15		.0/	-00	65.0/.00	)	.0/.00	.0/.	00	.0/.00		
16		.0/	.00	42.3/.00	ł	.0/.00	.0/.	00	.0/.00		
1/		.0/	-00	42.3/.00		.0/.00	_0/.	00	.0/.00		
10		.07		42.37.00		.07.00	.0/.		.07.00		
INP	UTG	ROUP	8 - M	ODEL SEGME	NTS		CAL	IBRATIO	N FACTOR	ks	
SEG	OUT	FLOW	GROUP	SEGMENT N	AME	P SED	N SED	CHL-A	SECCHI	ROD	DI
1		2	1	Segment 1	-1	1.00	1.00	1.00	1.00	1.00	1.0
2		3	1	Segment 2	-1	1.00	1.00	1.00	1.00	1.00	1.0
5		10	1	Segment 3	. 1	1.00	1.00	1.00	1.00	1.00	1.0
* 5		0	2	Segment 5	. 3	1.00	1 00	1.00	1 00	1 00	1.0
6		7	4	Segment 6	4	1.00	1.00	1,00	1.00	1.00	1.0
7		8	4	Segment 7	.4	1.00	1.00	1.00	1.00	1.00	1.0
8		9	4	Segment 8	3.4	1.00	1.00	1.00	1.00	1.00	1.0
9		10	4	Segment 9	.4	1.00	1.00	1.00	1.00.	1.00	1.0
10		0	4	Segment 1	0.4	1.00	1.00	1.00	1.00	1.00	1.0
							-				
										21	
									÷		

INPUT (	GROUP	9 - s	EGME	NT MORF	HOMETRY	: MEAN/	CV					
ID LAB	EL	•	L	ENGTH KM	ARE. KN	A ZMEA 2	M	Z	M M	ZHY	TAR	ET P PPB
1 Segr 2 Segr	ment 1 ment 2	.1		6.10 5.00	4.455 3.662	0 2.0 0 8.1	3 2 0 6	.03/	.12	.00/	.00	.0
3 Segr	ment 3	1.1		5.50	6.632	0 12.1	5 7	.28/	.12	.00/	.00	.0
4 Segr	nent 4	-2		10.50	4.570	0 2.0	3 2	.03/	.12	.00/	.00	.0
5 Segr	ment 5	.3		7.60	3.431	0 10.1	2 6	.80/	.12	-00/	.00	.0
6 Segr	ment é	-4		10.00	7.439	0 4.1	2 3	.9//	.12	-00/	.00	.0
7 Segr	ment /	-4		9.70	0.9/8	0 0.1	0 0	. 13/	.12	.00/	.00	.0
8 Seg	ment c			3 80	3 201	0 3/ 5		-09/	.12	.00/	.00	.0
10 Segr	ment 1	0.4		1.20	.692	0 29.3	5 8	3.39/	.12	.00/	.00	.0
INPUT (	GROUP	10 -	OBSE	RVED W	ATER QUA	LITY						
SEG	TURBI 1/M	D CON	SER ?	TOTALP MG/M3	TOTALN MG/M3	CHL-A MG/M3	SECCH	NI C	DRG-N G/M3	TP-OP MG/H3 MI	HODV G/M3-D	MODV NG/M3-I
1 MN:	-4	6	.0	18.5	1346.7	9.4	1,	.5	.0	.0	.0	.0
2 MM	- 2	2	.00	2/ 0	1560 0	10.7	-	10	.00	.00	.00	.00
CV.		2	00	12	1300.0	10.7		18		.0	.0	
3 MN		3	.00	23 2	2007.1	7.8	2	1	.00	.0	.00	.0
CV:		0	.00	. 14	.21	.17		04	.00	.00	.00	.00
4 MN:	.4	9	.0	34.8	1871.1	18.1	1.	.2	.0	.0	.0	.0
CV:	.1	16	.00	.19	.12	.10	.0	8	.00	.00	.00	.00
5 MN:	.3	57	.0	33.8	1617.5	9.2	1.	.8	.0	-0	.0	-0
CV:	-0	8	.00	.13	.19	.09	.0	04	.00	.00	.00	.00
6 MN:		58	.0	28.9	1711.4	11.2	1.	.7	.0	.0	.0	.0
CV:		13	.00	.15	.29	.07		80	.00	.00	.00	-00
/ MN:		02	.0	24.9	2497.9	9.9	1.		.0	-0	-0	.0
R MN-		50	.00	25 1	1653 8	8 3	2	1	.00	.00	.00	.00
CV:		15	.00	.09	19	.05		3	- 00	.00	.00	-00
9 MN:		50	.0	.0	.0	.0		.0	.0	.0	.0	.0
CV:	.0	00	.00	.00	.00	.00		00	.00	.00	.00	.00
10 MN:		29	-0	26.5	2425.0	7.8	2	.3	.0	-0	.0	.0
		11 -	.00	-18		.12		20	.00	-00	.00	.00
ID COD	NAME		Ge	meral	Stamp	N/A	N/A	Ro	wland	Kellog	Owl	Tanyar
F 7	Land	Cont	,	4 10		00	00		00	00	00	
6 2	Land	Seg1		0.10	.00	.00	.00	,	00	-00	-00	05 18
7 2	Land	Sea3	1	1.65	.00	.00	.00		.00	.00	.00	.00
11 2	Land	Seg7		.00	.00	.00	.00		.00	31.13	31.13	.00
12 2	Land	Seg8	3	9.76	.00	.00	.00		.00	.00	.00	.00
13 2	Land	Seg9	1	1.65	.00	.00	-00		.00	.00	.00	.00
15 2	Land	Seg5		.00	.00	.00	.00	29	.72	.00	.00	.00
16 2	Land	Seg10	5	6.38	-00	.00	.00		.00	.00	.00	-00
17 2	Land	Seg4	6	2.64	.00	.00	.00		.00	.00	.00	.00
18 2	Land	Sego	3	0.14	.00	-00	.00	) )	.00	.00	.00	-00
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Appendix A Model Input Files for Allatoona Lake

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1 General .26 .0 42.3 .0 .0 .0 CV: .00 .00 .00 .00 .00 2 Stamp Creek .26 .0 24.4 .0 .0 .4 CV: .00 .00 .00 .00 .00 GV: .00 3 N/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 4 N/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .00 .00 .00 .00 5 Rowland Spr .26 .0 65.0 .0 .0 .4 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 6 Kellog Cr226 .0 59.5 .0 .0 .4 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 6 Kellog Cr226 .0 133.8 .0 .0 .4 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 1 P DECAY RATE 1.000 .55 3 CHL-A MCOEL 1.000 .15 5 ROWL N MODEL 1.000 .15 5 ROWL N MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .15 7 HOOV MODEL 1.000 .22 9 BETA M2/MG .020 .00 1 NPUT GROUP 14 - CASE MOTES Observed W0 data from Clean Lakes/Kennesaw State College	1 General .26 .0 42.3 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 2 Stamp Creek .26 .0 24.4 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 3 W/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 .0 4 W/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 .0 5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 6 Kellog Cr26 .0 59.5 .0 .0 .0 CV: .00 .00 .00 .00 .00 7 Owl Cr26 .0 133.8 .0 .0 .0 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 .0 CV: .00 .00 .00 .00 .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .15 3 OGANIC N MODEL 1.000 .15 3 OGANIC N MODEL 1.000 .15 3 MOV MODEL 1.000 .15 3 MOV MODEL 1.000 .15 3 MOV MODEL 1.000 .22 9 BETA M2/MG .220 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	1 General .26 .0 42.3 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 2 Stamp Creek .26 .0 24.4 .0 .0 CV: .00 .0 .0 .00 .00 .00 3 N/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .00 .00 .00 .0 CV: .00 .0 .00 .00 .00 .0 CV: .00 .0 .00 .00 .00 .0 S Tanyard Cr26 .0 44.6 .0 .0 . CV: .00 .0 .00 .00 .00 .0 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 RGANIC N MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 7 HOV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMM GS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	IC LAND USE		RUNOFF M/YR	CONSERV	TOTAL P PPB	TOTAL N PPB	ORTHO P PPB	INORG I
CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .0 .0 .0 .0 .0 CV: .00 .0 S Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .0 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .12 6 TP-OP MODEL 1.000 .12 1 FLUSHING EFFECT 1.000 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College	CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .0 .0 .0 .0 .0 CV: .00 .0 .00 .00 .00 CV: .00 S Rowland Spr .26 .0 65.0 .0 .0 CV: .00 .0 .00 .00 .00 CV: .00 CV: .00 .0 .00 .00 .00 CV: .00 CV: .00 .0 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 CV: .00 S Tanyard Cr26 .0 133.8 .0 .0 CV: .00 S Tanyard Cr26 .0 44.6 .0 .0 CV: .00 S Tanyard Cr26 .0 44.6 .0 .0 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .55 3 CH-A MODEL 1.000 .15 S MODY MODEL 1.000 .15 S MODY MODEL 1.000 .15 S MODY MODEL 1.000 .22 9 BETA M2/MG .020 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	CV: .00 .00 .00 .00 .00 .00 2 Stamp Creek .26 .0 24.4 .0 .0 CV: .00 .00 .00 .00 .00 3 N/A .00 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 4 N/A .00 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 CV: .00 .0 .00 .00 .00 5 Rowland Spr .26 .0 65.0 .0 .0 CV: .00 .00 .00 .00 .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 .00 .00 .00 .00 7 Cwl Cr26 .0 133.8 .0 .0 CV: .00 .00 .00 .00 .00 7 Cwl Cr26 .0 .0 .0 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 .0 .0 CV: .00 .00 .00 .00 .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 Cul-A MODEL 1.000 .10 5 ROWADEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .00 10 HINTMUM OS .100 .00 11 FLUSTING EFFECT 1.000 .00 12 CHOROPHYL-A CV .620 .00 1NPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	1 General		.26	.0	42.3	.0	.0	
CV: .00 2 Stamp Creek .26 .0 24.4 .0 .0 CV: .00 .00 .00 .00 .00 3 N/A .00 .0 .0 .0 .0 .0 CV: .00 4 N/A .00 .0 .0 .0 .0 .0 CV: .00 5 Rowland Spr .26 .0 65.0 .0 .0 CV: .00 5 Rowland Spr .26 .0 65.0 .0 .0 CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 7 Owl Cr26 .0 44.6 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 1 P DECAY RATE 1.000 .45 CV: .00 1 P DECAY RATE 1.000 .45 S ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .12 1 P USHING EFFECT 1.000 .00 1 NPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College	CV: .00 CV:	CV: .00 CV:		CV:	.00	.00	.00	.00	.00	
2 Stamp Creek .26 .0 24.4 .0 .0 .0 CV: .00 .0 .00 .00 .00 .00 3 N/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 .0 4 N/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .00 .00 .00 .00 5 Rowland Spr .26 .0 65.0 .0 .0 .1 CV: .00 .00 .00 .00 .00 .00 6 Kellog Cr26 .0 59,5 .0 .0 .1 CV: .00 .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 S Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 S Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 S Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 S Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODY MODEL 1.000 .12 6 TP-OP MODEL 1.000 .22 9 BETA M2/MG .020 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College	2 Stamp Creek .26 .0 24.4 .0 .0 CV: .00 .00 .00 .00 .00 .00 CV: .00 .0 .0 .0 .0 .00 .00 CV: .00 .00 .00 .00 .00 .00 CV: .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .0 .0 .0 .0 .0 CV: .00 .0 .00 .00 .00 .00 5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 6 Kellog Cr26 .0 59.5 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 7 Owl Cr26 .0 133.8 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 .0 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 .0 CV: .00 .00 .00 .00 .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 W DECAY RATE 1.000 .12 6 TP-OP MODEL 1.000 .10 5 RGANIC N MODEL 1.000 .15 8 MOV MODEL 1.000 .15 8 MOV MODEL 1.000 .15 8 MOV MODEL 1.000 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 11 NUM Gata from Clean Lakes/Kennesaw State College P, Light, Flushing Model	2 Stamp Creek	(a) 5.55	CV:	.00					
CV: 100 100 100 100 100 100 3 N/A	CV: 100 100 100 100 100 100 CV: 00 0 0 0 00 00 00 CV: 00 0 0 0 0 00 00 CV: 00 0 0 0 0 0 0 0 0 0 CV: 00 0 0 0 0 0 CV: 00 0 0 0 0 0 CV: 00 0 0 0 0 CV: 00 0 S Tanyard Cr. 226 0 44.6 0 0 CV: 00 0 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM 0S .100 .00 11 FLUSHING EFFECT 1.000 .00 11 PUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	CV: .00 .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 S Tanyard Cr26 .0 44.6 .0 .0 . CV: .00 .00 .00 .00 .00 S Tanyard Cr26 .0 44.6 .0 .0 . CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .12 6 TP-OP MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .00 11 FLUSHING EFFECT 1.000 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	2 Stamp Creek	<b>M</b> -	.26	.0	24.4	.0	.0	- (
3 N/A       .00       .0       .0       .0       .0       .0         CV:       .00       .00       .00       .00       .00       .00         4 N/A       .00       .0       .0       .0       .0       .0       .00         4 N/A       .00       .0       .0       .0       .0       .0       .0         4 N/A       .00       .0       .0       .0       .0       .0       .0         4 N/A       .00       .00       .00       .00       .00       .00       .00         4 N/A       .00       .00       .00       .00       .00       .00       .00         5 Rowland Spr       .26       .0       65.0       .0       .0       .0         6 Kellog Cr.       .26       .0       133.8       .0       .0       .0         CV:       .00       .00       .00       .00       .00       .00       .00         7 Owl Cr.       .26       .0       44.6       .0       .0       .0         CV:       .00       .00       .00       .00       .00       .00         INPUT GROUP 13 - MODEL       1.000       .55	3 N/A	3 N/A		CV:	.00	.00	.00	.00	.00	
CV:00 .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 .00 CV: .00 5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 .0 CV: .00 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 .0 CV: .00 .00 .00 .00 .00 7 Owl Cr26 .0 44.6 .0 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 .0 CV: .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .00 11 FLUSHING EFFECT 1.000 .00 11 NPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College	CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .0 .0 .0 .0 .00 CV: .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 T OWL Cr26 .0 133.8 .0 .0 CV: .00 T OWL Cr26 .0 44.6 .0 .0 CV: .00 S Tanyard Cr26 .0 44.6 .0 .0 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .12 6 TP-OP MODEL 1.000 .12 1 FLUSHING EFFECT 1.000 .00 1 NPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel	CV: 00 00 00 00 00 00 4 N/A 00 0 0 00 00 00 00 CV: 00 5 Rowland Spr 226 0 65.0 0 0 00 CV: 00 6 Kellog Cr. 226 0 59.5 0 0 CV: 00 00 00 00 00 CV: 00 7 Owl Cr. 226 0 133.8 0 0 CV: 00 00 00 00 00 CV: 00 8 Tanyard Cr. 226 0 44.6 0 0 CV: 00 CV: 00 00 00 00 00 CV: 00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 45 2 N DECAY RATE 1.000 10 5 GRGANIC N MODEL 1.000 10 5 GRGANIC N MODEL 1.000 15 7 HOOV MODEL 1.000 15 7 HOOV MODEL 1.000 15 8 MOV MODEL 1.000 00 11 FLUSHING EFFECT 1.000 00 1NPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel	3 N/A		.00	-0	.0	.0	.0	
CV: .00 4 N/A .00 .0 .0 .0 .0 .0 .0 CV: .00 .00 .00 .00 .00 5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 6 Kellog Cr26 .0 59.5 .0 .0 .1 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 7 Owl Cr26 .0 133.8 .0 .0 .1 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .12 6 TP-OP MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODY MODEL 1.000 .22 9 BETA M2/MG .022 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College	CV: .00 CV: .00 CV: .00 5 Rowland Spr .26 .0 65.0 .0 .0 CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 7 Owl Cr26 .0 44.6 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .12 6 SPC-OF MODEL 1.000 .12 6 SPC-OF MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .220 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	CV: .00 CV: .00 CV: .00 CV: .00 5 Rowland Spr .26 .0 CV: .00 6 Kellog Cr26 .0 CV: .00 CV: .00 7 Owl Cr26 .0 CV: .00 7 Owl Cr26 .0 CV: .00 7 Owl Cr26 .0 CV: .00 CV: .00 .0 .0 .0 .0 .0 .0 .0 .0 .0	•	CV:	.00	.00	.00	.00	.00	
4 N/A	4 N/A	4 N/A		CV:	.00					
CV: .00 .00 .00 .00 .00 .00 CV: .00 5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 7 Owl Cr26 .0 133.8 .0 .0 .1 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 1 FLUSHING EFFECT 1.000 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College	CV: .00 .00 .00 .00 .00 .00 CV: .00 CV: .00 CV: .00 CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 1 P DECAY RATE 1.000 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MOOY MODEL 1.000 .15 8 MOOY MODEL 1.000 .22 9 BETA M2/MG .020 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	CV: .00 .00 .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 .00 .00 .00 .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 1NPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 W DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .12 6 TP-OP MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel	4 N/A		.00	.0	.0	.0	.0	
5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 .1 CV: .00 .00 .00 .00 .00 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 .1 CV: .00 .00 .00 .00 .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 .1 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Dbserved W9 data from Clean Lakes/Kennesaw State College	5 Rowland Spr .26 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 8 Tenyard Cr26 .0 44.6 .0 .0 CV: .00 1 P DECAY RATE 1.000 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .26 4 SECCHI MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .15 3 CHL-A MODEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	5 Rowland Spr .266 .0 65.0 .0 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 .00 .00 .00 .00 S Tanyard Cr266 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .226 4 SECCHI MCDEL 1.000 .15 8 MODV MODEL 1.000 .15 7 HODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM GS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model		CV:	.00	.00	.00	.00	-00	122
CV:       100       100       100       100       100         CV:       100       100       100       100       100         6 Kellog Cr.       26       10       59.5       0       0         7 Owl Cr.       26       0       133.8       0       0         7 Owl Cr.       26       0       133.8       0       0         7 Owl Cr.       26       0       133.8       0       0         CV:       100       .00       .00       .00       .00         8 Tanyard Cr.       26       .0       44.6       .0       .0         INPUT GROUP 13 - MODEL COEFFICIENTS       IC COEFFICIENT       IC COEFFICIENT       IC COEFFICIENT         INPUT GROUP 13 - MODEL       1.000       .45       .0       .00       .00         INPUT GROUP 13 - MODEL       1.000       .45       .0       .0       .0         I P DECAY RATE       1.000       .45       .0       .0       .0         J C DECAY RATE       1.000       .10       .0       .0       .0         S CRGANIC N MODEL       1.000       .15       .0       .0       .0         9 BETA M2/MG       .00	S KONTAIN SPI       120       100       100       100       100         CV:       100       100       100       100       100       100         6 Kellog Cr.       226       100       100       100       100       100         7 Owl Cr.       126       133.8       0       0       100       100         7 Owl Cr.       126       133.8       0       0       100       100         8 Tanyard Cr.       126       10       100       100       100       100         8 Tanyard Cr.       126       10       100       100       100       100         1NPUT GROUP 13 - MODEL COEFFICIENTS       100       10       100       10         1NPUT GROUP 13 - MODEL       1.000       12       100       10         1 P DECAY RATE       1.000       12       100       10         5 ORGANIC N MODEL       1.000       12       100       15         7 HOOV MODEL       1.000       15       100       10         6 TP-OP MODEL       1.000       22       9       9 BETA M2/MG       0.20       10         10 MINIMUM QS       .100       .00       .00       .00	CV:       LOO       L	5 Bouland Spr	CV:	.00	0	65 0	0	.0	
CV:       .00       .00       .00       .00       .00         6 Kellog Cr.       .26       .0       59,5       .0       .0       .00         CV:       .00       .00       .00       .00       .00       .00       .00         7 Owl Cr.       .26       .0       133,8       .0       .0       .1         CV:       .00       .00       .00       .00       .00       .00       .00         8 Tanyard Cr.       .26       .0       44.6       .0       .0       .1         CV:       .00       .00       .00       .00       .00       .00       .00         8 Tanyard Cr.       .26       .0       44.6       .0       .0       .1         CV:       .00       .00       .00       .00       .00       .00         INPUT GROUP 13 - MODEL COEFFICIENTS       IC COEFFICIENT       MEAN       CV       1       P DECAY RATE       1.000       .45         I P DECAY RATE       1.000       .05       .0       .100       .26       4       SECCHI MODEL       1.000       .15         S MODV MODEL       1.000       .15       .100       .00       .15       .100	CV: .00 6 Kellog Cr26 .0 59.5 .0 .0 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 7 HOOV MODEL 1.000 .15 8 MOOV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	CV: .00 6 Kellog Cr26 .0 59,5 .0 .0 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 1NPUT GROUP 13 - HODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .22 9 BETA MZ/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	2 KOWLAND SPI	CV.	.00	.00	.00	- 00	.00	-
6 Kellog Cr26 .0 59.5 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .12 6 TP-OP MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 11 PUT GROUP 14 - CASE NOTES Dbserved WQ data from Clean Lakes/Kennesaw State College	6 Kellog Cr	6 Kellog Cr26 .0 59.5 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 7 Owl Cr26 .0 133.8 .0 .0 . CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 . CV: .00 .00 .00 .00 .00 .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM GS .100 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model		CV:	.00			••••		
CV: .00 .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .26 4 SECCHI MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 11 FLUSHING EFFECT 1.000 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Dbserved W9 data from Clean Lakes/Kennesaw State College	CV: .00 .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .15 8 MODY MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CY .620 .00 INPUT GROUP 14 - CASE NOTES Dbserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel	CV: .00 .00 .00 .00 .00 .00 CV: .00 CV: .00 .00 .00 .00 .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .01 14 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Dbserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel	6 Kellog Cr.		.26	.0	59.5	.0	-0	-
CV: .00 7 Owl Cr26 .0 133.8 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .26 4 SECCHI MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 7 HODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Dbserved W9 data from Clean Lakes/Kennesaw State College	CV: .00 7 Owl Cr26 CV: .00 8 Tanyard Cr26 CV: .00 CV: .00 CV: .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed W0 data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel	CV: .00 CV: .00 .00 .00 .00 .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Dobserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Wodel		CV:	.00	.00	.00	.00	.00	
<pre>/ ONL Cr</pre>	<pre>/ ONL CF</pre>	<pre>/ UNL CF</pre>	7	CV:	.00					
CV:       .00       .00       .00       .00         8 Tanyard Cr.       .26       .0       44.6       .0       .0         CV:       .00       .00       .00       .00       .00       .00         INPUT GROUP 13 - MODEL COEFFICIENTS         IC COEFFICIENT       MEAN       CV         1 P DECAY RATE       1.000       .45         2 N DECAY RATE       1.000       .45         3 CHL-A MODEL       1.000       .10         5 ORGANIC N MODEL       1.000       .12         6 TP-OP MODEL       1.000       .15         8 MODY MODEL       1.000       .22         9 BETA M2/MG       .020       .00         10 MINIMUM QS       .100       .00         11 FLUSHING EFFECT       1.000       .00         12 CHLOROPHYLL-A CV       .620       .00         10 NINUT GROUP 14 - CASE NOTES       .00         Doserved WQ data from Clean Lakes/Kennesaw State College       .00	CV:         .00         .00         .00         .00           8 Tanyard Cr.         .26         .0         44.6         .0         .0           CV:         .00         .00         .00         .00         .00         .00           INPUT GROUP 13 - MODEL COEFFICIENTS           IC COEFFICIENT         MEAN         CV           1 P DECAY RATE         1.000         .45           2 N DECAY RATE         1.000         .45           3 CHL-A MODEL         1.000         .26           4 SECCHI MODEL         1.000         .10           5 ORGANIC N MODEL         1.000         .15           7 HOOV MODEL         1.000         .15           8 MOV MODEL         1.000         .22           9 BETA M2/MG         .020         .00           10 MINIHUM QS         .100         .00           11 FLUSHING EFFECT         1.000         .00           12 CHLOROPHYLL-A CV         .620         .00           13 FLUSHING EFFECT         .000         .00 </td <td>CV: .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .26 4 SECCHI MODEL 1.000 .12 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Deserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model</td> <td>/ Owl Cr.</td> <td>CV-</td> <td>.26</td> <td>.0</td> <td>135.8</td> <td>.0</td> <td>.0</td> <td>•</td>	CV: .00 CV: .00 8 Tanyard Cr26 .0 44.6 .0 .0 CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .26 4 SECCHI MODEL 1.000 .12 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Deserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	/ Owl Cr.	CV-	.26	.0	135.8	.0	.0	•
8 Tanyard Cr.       .26       .0       44.6       .0       .0         CV:       .00       .00       .00       .00       .00       .00         INPUT GROUP 13 - MODEL COEFFICIENTS         IC COEFFICIENT       MEAN       CV         1 P DECAY RATE       1.000       .45         2 N DECAY RATE       1.000       .45         3 CHL-A MODEL       1.000       .26         4 SECCHI MODEL       1.000       .10         5 ORGANIC N MODEL       1.000       .12         6 TP-OP MODEL       1.000       .15         8 MODV MODEL       1.000       .22         9 BETA M2/MG       .020       .00         10 MINIMUM QS       .100       .00         11 FLUSHING EFFECT       1.000       .00         12 CHLOROPHYLL-A CV       .620       .00         10 MINIMUM QS       .100       .00         12 CHLOROPHYLL-A CV       .620       .00         12 CHLOROPHYLL-A CV       .620       .00         13 Served WQ data from Clean Lakes/Kennesaw State College       .00	8 Tanyard Cr.       .26       .0       44.6       .0       .0         CV:       .00       .00       .00       .00       .00       .00         INPUT GROUP 13 - MODEL COEFFICIENTS         IC COEFFICIENT       MEAN       CV         1 P DECAY RATE       1.000       .45         2 N DECAY RATE       1.000       .55         3 CH-A MODEL       1.000       .26         4 SECCHI MODEL       1.000       .12         6 TP-OP MODEL       1.000       .15         7 HODV MODEL       1.000       .15         8 MOV MODEL       1.000       .22         9 BETA       M2/MG       .020       .00         10 MINIMUM QS       .100       .00         11 FLUSHING EFFECT       1.000       .00         12 CHLOROPHYLL-A CV       .620       .00         11 FUUT GROUP 14 - CASE NOTES       Deserved WQ data from Clean Lakes/Kennesaw State College         >, Light, Flushing Model       .20	8 Tanyard Cr.       .26       .0       44.6       .0       .0         CV:       .00       .00       .00       .00       .00       .00         INPUT GROUP 13 - MODEL COEFFICIENTS         IC COEFFICIENT       MEAN       CV         1 P DECAY RATE       1.000       .45         2 N DECAY RATE       1.000       .45         3 CHL-A MODEL       1.000       .26         4 SECCHI MODEL       1.000       .12         6 TP-OP MODEL       1.000       .15         7 HOOV MODEL       1.000       .22         9 BETA       M2/MG       .020       .00         10 MINIMUM QS       .100       .00       .15         8 MODV MODEL       1.000       .00       .00         11 FLUSHING EFFECT       1.000       .00       .00         12 CHLOROPHYLL-A CV       .620       .00       .00         12 CHLOROPHYLL-A CV       .620       .00       .00         12 CHLOROPHYLL-A CV       .620       .00       .00         INPUT GROUP 14 - CASE NOTES       .13       .14       .14         Dbserved WQ data from Clean Lakes/Kennesaw State College       .13       .13         .13       .14 <td></td> <td>CV:</td> <td>.00</td> <td>-00</td> <td>.00</td> <td>-00</td> <td>.00</td> <td></td>		CV:	.00	-00	.00	-00	.00	
CV:         .00         .00         .00         .00           INPUT GROUP 13 - MODEL COEFFICIENTS           IC COEFFICIENT         MEAN         CV           1 P DECAY RATE         1.000         .45           2 N DECAY RATE         1.000         .55           3 CHL-A MODEL         1.000         .26           4 SECCHI MODEL         1.000         .10           5 ORGANIC N MODEL         1.000         .15           8 MODV MODEL         1.000         .15           8 MODV MODEL         1.000         .22           9 BETA MZ/MG         .020         .00           10 MINIMUM QS         .100         .00           11 FLUSHING EFFECT         1.000         .00           12 CHLOROPHYLL-A CV         .620         .00           13 CHLOROPHYLL-A CV         .620         .00	CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .12 4 SECCHI MODEL 1.000 .12 5 ORGANIC N MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Deserved WQ data from Clean Lakes/Kennesaw State College 2, Light, Flushing Wodel	CV: .00 .00 .00 .00 .00 CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .45 3 CHL-A MODEL 1.000 .12 4 SECCHI MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Deserved WQ data from Clean Lakes/Kennesaw State College 2, Light, Flushing Wodel	8 Tanyard Cr.		-26	.0	64.6	_0	-0	
CV:.00INPUT GROUP 13 - MODEL COEFFICIENTSIC COEFFICIENTMEANCV1 P DECAY RATE1.0002 N DECAY RATE1.000.553 CHL-A MODEL1.000.100.264 SECCHI MODEL1.000.100.126 TP-OP MODEL1.000.157 HODV MODEL1.000.158 MODV MODEL1.000.158 MODV MODEL1.000.1510 MINITHUM QS.100.12 CHLOROPHYLL-A CV.620.00INPUT GROUP 14 - CASE NOTESDoserved WQ data from Clean Lakes/Kennesaw State College	CV:.00INPUT GROUP 13 - MODEL COEFFICIENTSIC COEFFICIENTMEANCV1 P DECAY RATE1.000.452 N DECAY RATE1.000.553 CHL-A MODEL1.000.264 SECCHI MODEL1.000.1005 ORGANIC N MODEL1.000.126 TP-OP MODEL1.000.100.157 HODV MODEL1.000.100.158 MODV MODEL1.000.101.101.101.100.101.100.101.100.101.100.102.0011FLUSHING EFFECT.1000.0012CHLOROPHYLL-A CV.620.00INPUT GROUP 14 - CASE NOTESDbserved WQ data from Clean Lakes/Kennesaw State College., Light, Flushing Model	CV: .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .00 10 MINIHUM OS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Deserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model	,	CV:	.00	.00	.00	.00	.00	
INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Doserved W0 data from Clean Lakes/Kennesaw State College	INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 4 SECCHI MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODV MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MININUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Observed WQ data from Clean Lakes/Kennesaw State College 2, Light, Flushing Wodel	INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 4 SECCHI MODEL 1.000 .15 7 HODY MODEL 1.000 .15 8 MODY MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 11 FLUSHING EFFECT 1.000 .00 12 CHLOROPHYLL-A CV .620 .00 INPUT GROUP 14 - CASE NOTES Deserved WQ data from Clean Lakes/Kennesaw State College P, Light, Flushing Model		CV:	.00					
	P, Light, Flushing Model	P, Light, Flushing Model	6 TP-OP MODEL 7 HODV MODEL 8 MODV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Dbserved WQ da	FECT -A CV - CASI ta fro	1.00 1.00 1.00 .00 .10 1.00 .60 E NOTES	00 - 00 - 00 - 00 - 00 - 00 - 00 - 00	15 15 22 00 00 00 00 00	State Co	ilege	
						÷				
	151									•1
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8.2 ALLATOONA LAKE 1992 (TP NODEL - CALIBRATED) INPUT GROUP 2 - PRINT OPTIONS 1 LIST INPUTS O NO 2 HYDRAULICS & DISPERSION 1 YES 3 GROSS WATER & MASS BALANCES 2 ESTIMATED CONCS 2 ESTIMATED CONCS 4 DETAILED BALANCES BY SEGMENT 5 SUMMARIZE BALANCES BY SEGMENT **1 OBSERVED CONCS** 6 COMPARE OBS & PREDICTED CONCS 1 ALL SEGMENTS 7 DIAGNOSTICS 1 ALL SEGMENTS 2 ESTIMATED & OBSERVED CONCS 8 PROFILES 9 PLOTS 2 GEOMETRIC SCALE 10 SENSITIVITY ANALYSIS O NO INPUT GROUP 3 - MODEL OPTIONS 1 CONSERVATIVE SUBSTANCE O NOT COMPUTED 2 PHOSPHORUS BALANCE 1 2ND ORDER, AVAIL P **3 NITROGEN BALANCE** O NOT COMPUTED 2 P, LIGHT, T 1 VS. CHLA & TURBIDITY 4 CHLOROPHYLL-A 5 SECCHI DEPTH 1 FISCHER-NUMERIC 6 DISPERSION 7 PHOSPHORUS CALIBRATION **1 DECAY RATES** 8 NITROGEN CALIBRATION 1 DECAY RATES 9 ERROR ANALYSIS 1 MODEL & DATA 10 AVAILABILITY FACTORS 0 MODEL 1 ONLY INPUT GROUP 4 - VARIABLES ATMOSPHERIC LOADINGS AVAILABILITY VARIABLE KG/KM2-YR FACTOR CV 1 CONSERV .00 .00 .00 2 TOTAL P 30.00 1.00 .50 3 TOTAL N 500.00 .50 1.00 4 ORTHO P .00 .00 .00 5 INORG N .00 .00 .00 INPUT GROUP 5 - GLOBAL PARAMETERS PARAMETER MEAN CV 1 PERIOD LENGTH YRS .586 .000 2 PRECIPITATION M .746 .200 M .300 **3 EVAPORATION** .759 4 INCREASE IN STORAGE M -.070 .000 **5 FLOW FACTOR** .000 1.000 6 DISPERSION FACTOR 1.000 .700 7 TOTAL AREA KM2 .000 .000 8 TOTAL VOLUME HM3 .000 .000

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Appendix A Model Input Files for Allatoona Lake

A5

ID T	YPE	SEG	NAME		DRA	INAGE A	REA KM2	MEAN HM	FLOW 3/YR	CV OF M	IEAN FL	ow.
1	1	6	Etowah	River		1675.	700	872	.046		123	
2	4	10	Allato	ona Dis	ch	2900.	800	1304	.810		194	
3	1	1	Lk Ach	orth Di	sch	49.	200	4	.132		123	
4	1	1	Allato	ona Cre	ek	72.	500	5	.626	-	187	
5	2	1	Land S	ieg1		46.	180	12	.007	•	.000	
6	2	2	Land S	ieg2		95.	180	24	.747		000	
7	2	3	Land S	ieg3		11.	650	3	.029	•	.000	
8	1	4	Little	River		354.	800	128	. 298		104	
9	1	4	Noonda	y Creek		126.	900	49	.735		174	
10	1	6	Shoal	Creek		1/3.	500	41	1002		000	
11	2	- 7	Land S	ieg/		62.	050	10	770		000	
12	2	8	Land S	egð		39.	160	10	020		000	
13	2	9	Land S	Seg9		11.	650		.029	•	000	
14	1	5	Stamp	Creek		40.	600	10	.910		000	
15	2	5	Lands	Sego		29.	720		.121		000	
16	2	10	Land S	Segiu		90.	380	2	2029		000	
17	2	4	Land S	Seg4 Seg6		62. 36.	140	10	2.396		.000	
INPL	JT G	ROUP	7 - TF	BUTARY	CONCE	INTRATIO	ons (	PPB): ME	AN/CV			
ID		CO	NSERV	тот	AL P	тот	AL N	0	RTHO P	11	NORG N	ECOR
1		.0/	.00	65.6/	.33	.0/	.00	.0,	.00	.0,	.00	
2		.0/	.00	49.2/	.38	.0/	.00	.0,	.00	.0,	/ .00	
3		.0/	.00	22.4/	.09	.0/	.00	.0,	.00	_0,	.00	
4		.0/	.00	44.5/	.22	.0/	.00	.0,	.00	_0,	/ .00	6
5		.0/	.00	42.3/	.00	.0/	.00	.0,	.00	.0,	.00	
6		.0/	.00	44.6/	.00	.0/	.00	_0,	.00	.0,	/ .00	
7		.0/	.00	42.3/	.00	.0/	.00	.0,	.00	.0,	/ .00	5
8		.0/	.00	50.0/	.20	.0/	.00	.0,	.00	.0,	/ .00	3
9		.0/	.00	150.0/	.20	.0/	.00	.0,	.00	.0,	/ .00	
10		.0/	.00	37.8/	.13	.0/	.00	.0,	.00	.0,	/ .00	3
11		.0/	-00	52.0/	.00	.0/	.00	.0.	.00	.0,	/ .00	
12		.0/	.00	42.3/	.00	.0/	.00	-0	.00	.0,	.00	÷.
13		.0/	.00	42.3/	.00	.0/	.00	.0	.00	-0,	/ .00	3
14		.0/	.00	24.4/	.19	.0/	.00	.0	/ .00	.0,	/ .00	
15		.0/	.00	65.0/	.00	.0/	.00	.0	.00	.0	/ .00	
16		-0/	.00	42.3/	.00	.0/	.00	.0	.00	.0	/ .00	
17		.0/	.00	42.3/	.00	-0/	.00	.0	/ .00	.0	/ .00	
18		.0/	-00	42.3/	.00	.0/	.00	.0	/ .00	-0	/ .00	
INP	JT G	ROUP	8 - M	ODEL SEC	MENTS	-		CAL	IBRATI	ON FACT	ORS	
SEG	OUT	FLOW	GROUP	SEGMEN	NAME	P	SED	N SED	CHL-	SECCHI	HO	D
1		2	1	Segment	1.1		1.05	1.00	1.14	1.00	1.0	0 1.
27		5	1	Segmen	2.1		1.05	1.00	1 14	1.00	1.0	n 1.
3		10	1	Segmen			6.01	1.00	1 20	1.00	1.0	1 1
4		0	2	Segmen	4.6	3	12	1 00	1.20	1.00	1.0	1
2		7	2	Segmen	5.3		1 /7	1.00	.05	1 00	1.0	1
2		1	4	Segmen	. 7 /		1.47	1.00	. 90	1.00	1.0	1 1
1		8	4	Segmen	1.4		1.41	1.00	.90		1.0	0 1
8		10	*	Segmen	0.4		1 17	1.00	.90	1.00	1.0	1
		10	4	Segmen	10 /		1 17	1.00	. 90	1.00	1.0	0 1
10		U	4	segmen	10.4		1.47	1.00	. 90	, 1.00	1.0	

INPUT GROUP 9 - SEGMENT MORPHOMETRY: MEAN/CV ZMIX ZHYP TARGET P LENGTH AREA ZMEAN ID LABEL M PPB KM KM2 M M 1 Segment 1.1 6.10 4.4550 2.03 2.03/ .12 .00/ .00 .0 2 Segment 2.1 3.6620 6.13/ .12 .00/ .00 .0 5.00 8.10 .0 3 Segment 3.1 5.50 6.6320 12.15 7.28/ .12 .00/ .00 2.03/ .12 .0 10.50 4.5700 .00/ .00 4 Segment 4.2 2.03 .0 3.4310 6.80/ .12 .00/ .00 5 Segment 5.3 7.60 10.12 6 Segment 6.4 10.00 7.4390 4.12 3.97/ .12 .00/ .00 .0 7 Segment 7.4 9.70 6.9780 8.10 6.13/ .12 .00/ .00 .0 .00/ .00 .0 8 Segment 8.4 8.20 6.4010 16.19 7.89/ .12 3.2010 8.36/ .12 .00/ .00 .0 9 Segment 9.4 2.80 24.29 .0 10 Segment 10.4 1.20 .6920 29.35 8.39/ .12 .00/ .00 INPUT GROUP 10 - OBSERVED WATER QUALITY TURBID CONSER TOTALP TOTALN CHL-A SECCHI ORG-N TP-OP HODV SEG MODV MG/H3 MG/H3 MG/M3 MG/H3 MG/M3 MG/M3-D MG/M3-D 7 1/M M 1 MN: .0 18.5 1346.7 9.4 1.5 .0 .0 .0 .0 .46 .00 CV: .13 .00 .13 .10 .15 .08 .00 .00 .00 24.9 1560.0 2 MN: .53 .0 10.7 1.4 .0 .0 .0 .0 .12 .00 .11 7.8 .08 .00 .00 .00 .00 CV: .12 .18 23.2 2007.1 3 MN: 2.1 .33 .0 .0 .0 .0 - 0 CV: .10 .00 .14 .21 .17 .04 .00 .00 .00 .00 4 MN: .49 .0 34.8 1871.1 18.1 1.2 .0 .0 .0 .0 CV: .16 .00 .19 .12 -10 .08 .00 .00 .00 :00 33.8 1617.5 5 MN: .37 .0 9.2 .0 .0 .0 1.8 .0 .08 .19 .00 .00 CV: .00 .09 .00 .00 .13 .04 .38 28.9 1711.4 6 MN : .0 11.2 1.7 .0 .0 .0 ÷0 CV: .13 .00 .15 .29 .07 .08 .00 .00 .00 .00 24.9 2497.9 7 MN: .32 .0 9.9 1.9 .0 .0 .0 .0 .07 .00 .00 CV: .00 .08 .29 .05 .04 .00 .00 25.1 1653.8 8 MN : .30 .0 8.3 2.1 .0 -0 .0 0 .05 .00 CV: :09 . 19 .05 .03 .00 .00 .00 .00 9 MN: .30 .0 .0 .0 .0 .0 .0 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 10 MN: .29 .0 26.5 2425.0 7.8 2.3 .0 .0 .0 .0 .00 .18 CV: .11 .00 .25 .06 .00 .00 .00 .12 INPUT GROUP 11 - NON-POINT WATERSHED AREAS (KM2) ID COD NAME General Stamp N/A N/A Rowland Kellog Owl Tanyard 5 2 Land Seg1 46.18 .00 .00 .00 .00 .00 .00 .00 2 Land Seg2 .00 .00 .00 6 -00 -00 .00 .00 95.18 7 2 Land Seg3 11.65 .00 .00 .00 .00 .00 .00 .00 11 2 Land Seg7 .00 .00 .00 .00 .00 31.13 31.13 .00 12 2 Land Seg8 39.76 .00 .00 .00 .00 .00 .00 .00 13 2 Land Seg9 11.65 .00 .00 -00 .00 .00 .00 -00 .00 .00 .00 15 .00 29.72 .00 .00 .00 2 Land Seg5 16 2 Land Seg10 96.38 .00 .00 .00 .00 .00 .00 .00 17 2 Land Seg4 62.64 .00 .00 .00 .00 .00 .00 .00 18 2 Land Seg6 36.14 .00 .00 .00 .00 .00 .00 .00

TO EARD DOL		RUNOFF CO	WSERV T	OTAL P PPB	TOTAL N PPB	ORTHO P PPB	INORG I
1 Conoral		26	0	42 7	0	0	al and a second
General	rv.	.20	00	42.5	_00	.00	
	CV:	.00					
2 Stamp Creek		.26	.0	24.4	.0	.0	
	CV:	.00	.00	.00	.00	.00	
	CV:	.00					
3 N/A		-00	.0	.0	.0	.0	
	CV:	.00	.00	.00	.00	.00	
<ul> <li>dented</li> </ul>	CV:	.00		•		•	. a
4 N/A	<b>C</b> 14	.00	.0	.0	-0	.0	
	CV.	.00	.00	.00	.00	.00	
5 Rowland Spr		.26	- 0	65.0	.0	-0	
S KONTAKA OPI	CV:	.00	.00	.00	.00	.00	
	CV:	.00					
6 Kellog cr.	0000074	.26	.0	59.5	.0	.0	
en anta non	CV:	.00	.00	.00	.00	.00	
	CV:	.00					
		an Definition		1730000 ×		(M. 1	
7 Owl Cr.		.26	.0	133.8	.0	.0	-
	CV:	.00	.00	.00	· .00	.00	
0 Temperad O	CV:	.00	~		~	0	
o lanyard Cr.	CV	.20	.0	44.6	.0	.0	•
	CV:	.00	.00	.00	.00	.00	
		.00	1.0				
INPUT GROUP 13	- MODE	L COEFFI	CIENTS				
IC COEFFICIENT		MEAN	CI	1			
1 P DECAY RATE	E	1.000	.45	5			
2 N DECAY RATE	E	1.000	.55	5			
3 CHL-A MODEL		1.000	.26	5			
4 SECCHI MODEL	L	1.000	. 10	)			
5 ORGANIC N HC	ODEL	1.000	- 12	2			
6 TP-OP MODEL		1.000	- 15	2	1971	9	
9 MODY MODEL		1.000	. 1.	, ,			
O RETA N2/MG		020		<u>-</u>			
O MINIMUM OS		.100	.00	Ś			
11 FLUSHING EFT	FECT	1.000	.00	5			
12 CHLOROPHYLL	-A CV	.620	.00	0			
INPUT GROUP 14	- CASE	NOTES					
	ta from	m Clean L	akes/Ke	mesaw	State Co	llege	
Observed WQ dat							
Observed WQ dam P, Light, Flush Regional calibr	h Mode ration	L					
Observed WQ da P, Light, Flush Regional calib	h Mode ration					5	
Observed WQ da P, Light, Flush Regional calibo	h Mode ration	L				2	
Observed WQ da P, Light, Flusi Regional calibu	h Mode ration	L				J	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L					
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				2	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				) 1	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				5	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				5	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				2	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				2	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L				2	
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L					
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L					
Observed WQ da P, Light, Flus Regional calib	h Mode ration	L					

		7	
ALLATOONA LAKE 1973 (TP MODEL- VER	IFICATION)		
INPUT GROUP 2 - PRINT OPTIONS			
1 LIST INPUTS	0 NO		
2 HYDRAULICS & DISPERSION	1 YES	2	
3 GROSS WATER & MASS BALANCES	2 ESTIMATED CONCS		
4 DETAILED BALANCES BY SEGMENT	2 ESTIMATED CONCS		
COMMARIZE BALANCES BI SEGMENI	1 ALL SECHENTS		
7 DIACHOSTICS	1 ALL SEGMENTS		
8 PROFILES	2 ESTIMATED & OBSERVED CONCS		
9 PLOTS	2 GEOMETRIC SCALE		
10 SENSITIVITY ANALYSIS	O NO		
INPUT GROUP 3 - MODEL OPTIONS			
1 CONSERVATIVE SUBSTANCE	O NOT COMPUTED		
2 PHUSPHORUS BALANCE	I ZNU UKUEK, AVALL P	1	
A CHIODODHVII-A	2 P LIGHT T	1	
5 SECCHI DEPTH	1 VS. CHLA & TURBIDITY		
6 DISPERSION	1 FISCHER-NUMERIC	1	
7 PHOSPHORUS CALIBRATION	1 DECAY RATES	1	
8 NITROGEN CALIBRATION	1 DECAY RATES	1	
9 ERROR ANALYSIS	1 MODEL & DATA	1	
TU AVAILABILITY FACTORS	U MODEL I UNLY		
INPUT GROUP 4 - VARIABLES		1	
ATMOSPHERIC LOADINGS A VARIABLE KG/KM2-YR CV	VAILABILITY FACTOR		
		1	
1 CONSERV .00 .00	1.00		
3 TOTAL P 500.00 50	1 00		
4 ORTHO P .00 .00	.00	1	
5 INORG N .00 .00	.00		
INPUT GROUP 5 - GLOBAL PARAMETERS		•	
PARAMETER	MEAN CV		1
1 PERIOD LENGTH YRS	-586 -000		
2 PRECIPITATION M	.900 .200		
A INCREASE IN STOPACE M	-2.230 .000	1	
5 FLOW FACTOR	1.000 .000	1	
6 DISPERSION FACTOR	1.000 .700	1	
7 TOTAL AREA KM2	.000 .000	1	
8 TOTAL VOLUME HM3	.000 .000		
	i i i	1	
		1	
		1	

ID	TYPE	SEG	NAME		DRA	INAGE	AREA KM2	MEAN H	FLOW M3/YR	CV OF	MEAN FL	. <b>o</b> ₩
1	1	6	Etowal	h River		1675	.700	109	1.280		.000	
2	4	10	Allate	oona Disch	1	2900	.800	257	6.080		.000	
3	1	1	Lk Act	worth Disc	ch	49	.200	2	2.070		.000	
4	1	1	Allate	oona Creek	<	31	.540	2	2.475		.000	
5	2	1	Land s	Seg1		46	.180	1	4.316		.000	
6	2	2	Land !	Seg2		95	.180	2	9.506		.000	
7	2	3	Land 1	Seg3		11	.650		3.612		.000	2.4
8	1	4	Little	e River		354	.800	15	7.700		.000	
9	1	4	Noond	ay Creek		126	.900	5	6.770		.000	
10	1	6	Shoal	Creek		173	.500	8	2.000		.000	
11	2	7	Land :	Seg7		62	.650	1	9.298		.000	
12	2	8	Land 1	Seg8		39	.760	1	2.326		.000	
13	2	9	Land S	Seg9		11	.650		3.612		.000	
14	1	5	Stamp	Creek		46	.600	1	4.446		.000	
15	2	5	Land :	Seg5		29	.720		9.213		.000	
16	2	10	Land S	Seg10		96	.380	2	9.878		.000	
17	2	4	Land	Seg4		62	.650	1	9.418		.000	
18	2	6	Land	Seg6		36	.140	1	1.203		.000	
INP	NUT G	ROUP	7 - TI	RIBUTARY C	CONCE	NTRATI	ONS (	PPB): M	EAN/CV			
ID		CO	SERV	TOTAL	- P	то	TAL N	0	RTHO P	I	NORG N	ECOR
1		.0/	.00	51.0/ .1	15	587.0/	.00	.0	/ .00	.0	/ .00	
2		.0/	.00	32.0/ .1	19	.0/	.00	.0	/ .00	.0	/ .00	
3		.0/	.00	49.0/ .0	00	537.0/	.00	.0	1.00	.0	.00	
4		.0/	.00	35.0/ .0	00	572.0/	.00	.0	1.00	.0	.00	
5		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	1.00	
6		.0/	.00	36.0/ .0	00	544.0/	.00	.0	1.00	.0	1.00	
7		.0/	.00	36.0/ .0	00	544.0/	.00	.0	1.00	.0	.00	
8		.0/	.00	88.0/ .0	00 1	020.0/	.00	.0	/ .00	.0	/ .00	
9		.0/	.00	244.0/ .0	00 1	105.0/	.00	.0	/ .00	.0	/ .00	
10		.0/	.00	36.0/ .0	00	515.0/	.00	.0	/ .00	.0	.00	
11		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	1.00	
12		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	/ .00	
13		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	/ .00	
14		.0/	.00	24.0/ .0	00	401.0/	.00	.0	/ .00	.0	/ .00	
15		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	/ .00	
16		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	/ .00	
17		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	/ .00	
18		.0/	.00	36.0/ .0	00	544.0/	.00	.0	/ .00	.0	/ .00	•
INP	UT G	ROUP	8 - M	ODEL SEGME	ENTS			CAL	IRDATI		005	
SEG	OUT	FLOW	GROUP	SEGMENT )	NAME	P	SED	N SED	CHL-A	SECCHI	HOT	10 01
1		2	1	Segment	1.1		1.05	1.00	1.14	1.00	1.00	1.0
2		3	1	Segment 2	2.1		1.05	1.00	1.14	1.00	1.00	1.0
3		10	1	Segment 3	3.1		1.05	1.00	1.14	1.00	1.00	1.0
4		6	2	Segment 4	4.2		6.91	1.00	1.28	1.00	1.00	1.0
5		9	3	Segment "	5.3		.12	1.00	.89	1.00	1.00	1.0
6		7	4	Segment d	5.4		1.47	1.00	.98	1.00	1.00	1.0
7		8	4	Segment	7.4		1.47	1.00	.98	1.00	1.00	1.0
8		9	4	Segment #	8.4		1.47	1.00	.98	1.00	1.00	1.0
9		10	4	Segment (	9.4		1.47	1.00	98	1.00	1.00	1 1 0
10		0	4	Segment	10.4		1.47	1.00	.98	1.00	1.00	1.0
20070		120	05		1995-19 <b>1</b> (1995)		9013595	0.5.5.50				

INPUT GROUP 9 - SEGMENT MORPHOMETRY: MEAN/CV

			LENGTH	AREA	ZMEAN	ZMIX	ZHYP TAR	GET P
ID	LABEL		KM	KM2	M	M	M	PPB
1	Segment	1.1	6.10	4.4550	2.03	2.03/ .12	.00/ .00	.0
2	Segment	2.1	5.00	3.6620	8.10	6.13/ .12	.00/ .00	.0
3	Segment	3.1	5.50	6.6320	12.15	7.28/ .12	.00/ .00	.0
4	Segment	4.2	10.50	4.5700	2.03	2.03/ .12	.00/ .00	.0
5	Segment	5.3	7.60	3.4310	10.12	6.80/ .12	.00/ .00	.0
6	Segment	6.4	10.00	7.4390	4.12	3.97/ .12	.00/ .00	.0
7	Segment	7.4	9.70	6.9780	8.10	6.13/ .12	.00/ .00	.0
8	Segment	8.4	8.20	6.4010	16.19	7.89/ .12	.00/ .00	.0
9	Segment	9.4	2.80	3.2010	24.29	8.36/ .12	.00/ .00	.0
10	Segment	10.4	1.20	.6920	29.35	8.39/ .12	.00/ .00	.0

INPUT GROUP 10 - OBSERVED WATER QUALITY

SE	G	TURBID 1/M	CONSER ?	TOTALP MG/M3	TOTALN Mg/M3	CHL-A Mg/H3	SECCHI M	ORG-N MG/M3	TP-OP Ng/N3	HODV Mg/M3-D	MOOV Mg/M3-D
1	MN:	.65	.0	22.3	.0	7.5	1.3	.0	.0	.0	.0
	CV:	.19	.00	.39	.00	.46	.13	.00	.00	.00	.00
2	MN:	.37	.0	.0	.0	.0	.0	.0	.0	.0	-0
	CV:	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	MN:	.43	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	MN :	.68	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.71	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	MN:	.65	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	MN :	.63	.0	26.6	.0	6.3	1.3	.0	.0	.0	.0
	CV:	.46	.00	.30	.00	.75	.36	.00	.00	.00	.00
7	MN:	.29	.0	.0	.0	.0	.0	.0	4.0	.0	.0
	CV:	.36	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	MN:	.34	.0	14.3	.0	12.5	1.7	.0	.0	.0	.0
	CV:	.45	.00	.13	.00	.59	.07	.00	.00	.00	.00
9	MN:	.55	.0	19.6	.0	8.0	1.4	.0	.0	.0	.0
	CV:	.29	.00	.20	.00	.64	.17	.00	.00	.00	.00
10	MN:	-52	.0	19.3	.0	4.3	1.7	.0	.0	.0	.0
	CV:	.23	.00	.19	.00	.35	.19	.00	.00	.00	.00

INPUT GROUP 11 - NON-POINT WATERSHED AREAS (KM2)
ID COD NAME Landuse1 Landuse2 Landuse3 Landuse4

		How the		Cur Muser	(undusce	Landases	LOI MUSCH
5	2	Land	Seg1	46.18	.00	.00	.00
6	2	Land	Seg2	95.18	.00	.00	.00
7	2	Land	Seg3	11.65	.00	.00	.00
11	2	Land	Seg7	62.25	.00	.00	-00
12	2	Land	Seg8	39.76	.00	.00	.00
13	2	Land	Seg9	11.65	.00	.00	.00
15	2	Land	Seg5	29.72	.00	.00	.00
16	2	Land	Seg10	96.38	.00	.00	.00
17	2	Land	Seg4	62.64	.00	.00	.00
18	2	Land	Seg6	36.14	.00	-00	.00

#### INPUT GROUP 12 - NON-POINT EXPORT CONCENTRATIONS

IC	LAND USE		RUNOFF M/YR	CONSERV PPB	TOTAL P PPB	TOTAL N PPB	ORTHO P PPB	INORG N PPB
1	landuse1		.31	.0	36.0	544.0	.0	.0
		CV:	.00	.00	.00	.00	.00	
		CV:	.00					
2	landuse2		.00	.0	.0	.0	.0	.0
		CV:	.00	.00	.00	.00	.00	
		CV:	.00					
3	Landuse3		.00	.0	.0	.0	.0	.0
		CV:	.00	.00	.00	.00	.00	
		CV:	.00					
4	Landuse4		.00	.0	.0	.0	.0	.0
		CV:	.00	.00	.00	.00	.00	
		CV:	.00					

INPUT GROUP 13 - MODEL COEFFICIENTS

IC	COEFFICIENT	MEAN	CV
1	P DECAY RATE	1.000	.45
2	N DECAY RATE	1.000	.55
3	CHL-A MODEL	1.000	.26
4	SECCHI MODEL	1.000	.10
5	ORGANIC N MODEL	1.000	.12
6	TP-OP MODEL	1.000	.15
7	HODV MODEL	1.000	.15
8	MODV MODEL	1.000	.22
9	BETA M2/MG	.020	.00
10	MINIMUM QS	.100	.00
11	FLUSHING EFFECT	1.000	.00
12	CHLOROPHYLL-A CV	.620	.00

INPUT GROUP 14 - CASE NOTES

Observed WG data from NES P, Light, Flush Model Stream loads from NES Regional calibration from 1992 Landuse from NES

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## Appendix B Model Input Files For Walter F. George Lake

W. F. GEORG	E 1992 (P&N MO	DEL - UNC	LIBRAT	ED)		
INPUT GROUP	2 - PRINT OPT	IONS				
1 LIST INF 2 HYDRAULI 3 GROSS WA 4 DETAILEC 5 SUMMARIZ 6 COMPARE 7 DIAGNOST 8 PROFILES 9 PLOTS 10 SENSITIV	UTS CS & DISPERSIO ITER & MASS BAL BALANCES BY S E BALANCES BY OBS & PREDICTE ICS VITY ANALYSIS	N Ances Egment Segment D concs	0 NO 1 YE 2 ES 2 ES 1 AL 1 AL 1 ES 0 NO	S TIMATED COU TIMATED COU TIMATED COU L SEGMENTS L SEGMENTS TIMATED COU	NCS NCS NCS NCENTRATIONS	
INPUT GROUP	3 - MODEL OPT	IONS				
1 CONSERVAT 2 PHOSPHORU 3 NITROGEN 4 CHLOROPHY 5 SECCHI DE 6 DISPERSIO 7 PHOSPHORU 8 NITROGEN 9 ERROR ANA 10 AVAILABIL INPUT GROUP	IVE SUBSTANCE IS BALANCE BALANCE LL-A PTH S CALIBRATION CALIBRATION LYSIS ITY FACTORS 4 - VARIABLES	æ	0 NO 1 2ND 1 2ND 1 P, 1 VS. 1 FIS 1 DEC 1 DEC 1 MOD 0 MOD	T COMPUTED ORDER, AV/ ORDER, AV/ N, LIGHT, T CHLA & TUR CHER-NUMERI AY RATES AY RATES EL & DATA EL & DALY	AIL P AIL N r r bidity ic	
	+ TANIADLES	5				
	ATMOSPHERIC L	DADINGS AN	AILABI	LITY		
VARIABLE	KG/KM2-YR	CV	FACTO	R		
1 CONSERV 2 TOTAL P 3 TOTAL N 4 ORTHO P 5 INORG N	.00 30.00 1000.00 15.00 500.00	.00 .50 .50 .50 .50	.0 1.0 1.0 .0	0 0 0 0		
INPUT GROUP	5 - GLOBAL PA	RAMETERS				
PARAMETER			MEAN	CV		
1 PERIOD L 2 PRECIPIT 3 EVAPORAT 4 INCREASE 5 FLOW FAC 6 DISPERSI 7 TOTAL AR 8 TOTAL VO	ENGTH YRS ATIONM IONM IN STORAGEM TOR ONFACTOR EA KM2 LUME HM3	- 1 182 1152	.583 .000 .384 .000 .000 .000 .600	.000 .000 .000 .000 .000 .000 .000 .00		

Appendix B Model Input Files for Walter F. George Lake

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ID TI	PE SEG	NAME	Ξ		DRAI	NAGE A	REA	ME A	IM3/	LOW YR	C۷	OF MEAN
1 2	1 1 4 7	Lake Lake	e Inflo e Outflo	H DW		15731. 19321.	<b>590</b> 400	52 52	245.	800 766		.034 .038
INPUT	GROUP	7 -	TRIBUT	ARY (	CONCEN	TRATIC	MIS	(PPB)	): M	EAN/	¢ΟV	
ID	CONSE	RV	TOTAL I	P	TOTAL	. N	ORT	HO P	I	NORG	N N	ECORG P
1 2	.0/.0	) )	59.7/.0 .0/.0	06 00	847.0 .0	0/.07 0/.00	:	0/.00 0/.00	)	.0/.	00	.0 .0
INPU	T GROUP	8 -	MODEL	SEGN	ENTS			DATIO		ACTO	DC .	
SEG (	DUTFLOW	GRO	JP SEGMI NAME	ENT	PSE	ED N S	SED	CHL	AS	ECCH	II HO	DD DISP
1	2	1	Upper	Lake	1.00	1.00	1	.00	1.0	0 1	.00	1.000
3	4	1	Cowike	e	1.00	1.00	1	.00	1.0	0 1	.00	1.000
4	5	1	US82		1.00	1.00	1	.00	1.0	0 1	.00	1.000
5	6	1	Cheney	htch	1.00	1.00	1	.00	1.0	0 1	.00	1.000
7	0	1	Foreba	y y	1.00	1.00	i	.00	1.0	0 1	.00	1.000
INPU	t group	9 -	SEGMEN	t Mon	RPHOME	TRY: M	4EAN	/cv				
ID L	ABEL	L	ENGTH KM	,	AREA KM2	ZMEAN M	z	XIM M	ZH	YP M	TAR	GET P PPB
1 U	pper La	ke	8.53	3.	4000	5.00	2	.39/	.12	.00/	.00	.0
3 0	lorence		12.55	11	5000	5.00	6	.34/	.12	.00/	.00	.0
4 U	\$82		9.81	27.	5000	6.70	7	.15/	.12	.00/	.00	.0
5 CI	heneyht	ch	10.14	28.	4000	7.30	7	.39/	.12	.00/	.00	.0
0 P	orebay		5.95	28.	6000	8.00	7	.75/	.12	.00/	.00	.0
INPU	t group	10	- OBSER	VED	WATER	QUALIT	ſY					
SEG	TURBI 1/M	DC	ONSER ?	TOT. MG	AL P /M3	TOTAL MG/I	L N 13	CH MG,	L-A /M3	SE	ECCH M	I
1 M	N: .65		.0	56	.7	889	.0	1	6.5	,	.9	
2 1	N: .61		.0	53.	7	858	.0	1	8.3		.9	
C	V: .15		.00		04		.09		.08	3	.08	
3 M	N: .43		.0	42.	8 04	742	.0	1	9.6		1.1	
4 M	N: .31		.0	38.	7	624	.0	1	9.6		1.3	
C	V: .20		.00		06		.07		.10	)	.04	
5 M	N: .22		.0	31.	3	521	.0	1	6.3	i E	1.6	
6 M	N: .13		.0	26.	2	479	.0	1	8.5	· ·	1.7	
C	V: .78		.00		08	1000	.05		.15	>	.08	
7 M C	N: .13 V: .58		-0 -00	22.	8 09	475	.0 .03	1	6.7 .15	5	1.8	6
INPU	t group	11	- NON-P	OINT	WATE	RSHED	AREA	IS (K	H2)			
NON	E											
		12	- NON-P	OINT	EXPO	RT CON	CENT	RATI	ONS			•

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#### INPUT GROUP 13 - MODEL COEFFICIENTS

IC	COEFFICIENT	MEAN	CV
1	P DECAY RATE	1.000	.00
2	N DECAY RATE	1.000	.00
3	CHL-A MODEL	1.000	.00
4	SECCHI MODEL	1.000	.00
5	ORGANIC N MODEL	1.000	.12
6	TP-OP MODEL	1.000	.15
7	HOOV MODEL	1.000	.15
8	MODY MODEL	1.000	.22
9	BETA M2/MG	.025	.00
10	MINIMUM QS	.100	.00
11	FILISHING EFFECT	1.000	.00
12	CHLOROPHYLL-A CV	.620	.00

INPUT GROUP 14 - CASE NOTES

1992 Auburn Water Quality Data P and N Model TN and TP availability set to 1.0 Inflow = Station 8

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1 LIST INPUTS 2 HYDRAULICS & DISPERSION 3 GROSS WATER & MASS BALANCES 4 OFTATIED BALANCES BY SECHED	0 NO 1 YES 2 ESTIMATED CONCS 7 2 ESTIMATED CONCS
5 SUMMARIZE BALANCES BY SEGME 6 COMPARE OBS & PREDICTED CON 7 DIAGNOSTICS	T 2 ESTIMATED CONCS CS 1 ALL SEGMENTS 1 ALL SEGMENTS
8 PROFILES 9 PLOTS 10 SENSITIVITY ANALYSIS	1 ESTIMATED CONCENTRATIONS D NO D NO
INPUT GROUP 3 - NODEL OPTIONS	
1 CONSERVATIVE SUBSTANCE 2 PHOSPHORUS BALANCE 3 NITROGEN BALANCE 4 CHLOROPHYLL-A 5 SECCHI DEPTH 6 DISPERSION 7 PHOSPHORUS CALIBRATION 8 NITROGEN CALIBRATION 9 ERROR ANALYSIS 10 AVAILABLI TY FACTORS	0 NOT COMPUTED 1 2ND ORDER, AVAIL P 1 2ND ORDER, AVAIL N 1 P, N, LIGHT, T 1 VS. CHLA & TURBIDITY 1 FISCHER-NUMERIC 1 DECAY RATES 1 MODEL & DATA 0 MODEL 1 ONLY
INPUT GROUP 4 - VARIABLES	
ATMOSPHERIC LOADIN VARIABLE KG/KM2-YR CV	IGS AVAILABILITY / FACTOR
1 CONSERV .00 .00 2 TOTAL P 30.00 .50 3 TOTAL N 1000.00 .50 4 ORTHO P 15.00 .50 5 INORG N 500.00 .50 INPLIT GROUP 5 - GLOBAL PARAMET	) .00 ) 1.00 ) 1.00 ) .00 ) .00
PARAMETER	MEAN CV
1 PERIOD LENGTH YRS 2 PRECIPITATION M 3 EVAPORATION M 4 INCREASE IN STORAGE M 5 FLOW FACTOR 6 DISPERSION FACTOR 7 TOTAL AREA KM2 8 TOTAL VOLUME HM3	.583 .000 .000 .000 .384 .000 1.000 .000 1.000 .000 182.000 .000 1152.600 .000
INPUT GROUP 6 - TRIBUTARY DRA	INAGE AREAS AND FLOWS
ID TYPE SEG NAME UN	KM2 HH3/YR FLOW
1 1 1 Lake Inflow 2 4 7 Lake Outflow	15731.590 5245.800 .034 19321.400 5264.766 .038

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INPUT GROUP 7 - TRIBUTARY CONCENTRATIONS (PPB): MEAN/CV ECORG P CONSERV TOTAL P TOTAL N ORTHO P INORG N ID 59.7/.06 847.0/.07 .0/.00 .0 .0/.00 1 .0/ .0 .0 .0/.00 2 .0/ .00 .0/.00 .0/.00 .0/.00 INPUT GROUP 8 - MODEL SEGMENTS ----- CALIBRATION FACTORS -----P SED N SED CHL-A SECCHI HOD DISP SEG OUTFLOW GROUP SEGMENT NAME Upper Lake 1.00 1.00 1.00 1.00 1.00 1.000 1 2 1.31 2.10 1.00 1.00 1.000 2 3 Florence 1.56 3 1.31 1.00 1.000 4 Cowikee 1.56 2.10 1.00 1 1.00 4 2.10 1.00 1.000 5 **US82** 1.31 1.56 1 2.10 1.00 1.000 5 6 Cheneyhtch 1.31 1.56 1.00 1 7 Pataula 1.31 1.56 2.10 1.00 1.00 1.000 6 7 0 Forebay 1.31 1.56 2.10 1.00 1.00 1.000 1 INPUT GROUP 9 - SEGMENT MORPHOMETRY: MEAN/CV LENGTH AREA ZMEAN ZMIX ZHYP TARGET P ID LABEL KM KM2 м N м PPB 5.00 1 Upper Lake 8.53 3.4000 2.39/.12 .00/.00 .0 5.00 12.55 5.0000 6.34/.12 .00/.00 .0 2 Florence 11.5000 6.34/.12 .00/.00 3 Cowikee 14.32 5.00 .0 4 US82 9.81 27.5000 6.70 7.15/.12 .00/.00 .0 5 Cheneyhtch 10.14 28.4000 7.30 7.39/.12 .00/.00 .0 46.3000 8.00 7.59/.12 .00/.00 .0 6 Pataula 11.58 7 Forebay 5.95 28.6000 8.70 7.75/.12 .00/.00 .0 INPUT GROUP 10 - OBSERVED WATER QUALITY SEG TURBID CONSER TOTALP TOTALN CHL-A SECCHI ORG-N TP-OP MG/M3 MG/M3 MG/M3 1/M ? MG/M3 MG/M3 M 1 MN: 889.0 .65 .0 56.7 16.5 .9 .0 -0 .08 CV: .21 .00 .05 .06 .27 .00 .00 2 MN: .61 .0 53.7 858.0 18.3 .9 .0 .0 CV: .15 .00 .04 .09 .08 .08 .00 .00 742.0 3 MN: 42.8 .0 .0 .43 .0 19.6 1.1 .00 CV: .11 .00 -04 .05 .00 .06 .04 4 MN: .31 .0 38.7 624.0 19.6 1.3 .0 .0 CV: .20 .00 .06 .07 .10 .04 .00 .00 5 MN: .22 .0 31.3 521.0 16.3 1.6 .0 .0 CV: .00 .00 .16 .05 .07 .08 .02 .00 6 MN: .13 .0 26.2 479.0 18.5 1.7 .0 .0 .00 .00 CV: .78 .08 .05 .19 .08 .00 475.0 1.8 -0 7 MN: .13 .0 22.8 16.7 -0 .58 .00 .09 .03 .07 .00 .00 CV: .15 INPUT GROUP 11 - NON-POINT WATERSHED AREAS (KM2) NONE INPUT GROUP 12 - NON-POINT EXPORT CONCENTRATIONS NONE

Appendix B Model Input Files for Walter F. George Lake

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#### INPUT GROUP 13 - MODEL COEFFICIENTS

IC	COEFFICIENT	MEAN	CV
1	P DECAY RATE	1.000	.00
2	N DECAY RATE	1.000	.00
3	CHL-A MODEL	1.000	.00
4	SECCHI MODEL	1.000	- 00
5	ORGANIC N MODEL	1.000	.12
6	TP-OP MODEL	1.000	. 15
7	HODY MODEL	1.000	.15
8	MODY MODEL	1.000	.22
Ģ	BETA NZ/NG	.025	.00
10	MINIMUM QS	.100	.00
11	FILISHING EFFECT	1.000	.00
12	CHLOROPHYLL-A CV	.620	.00

INPUT GROUP 14 - CASE NOTES

1992 Auburn Water Quality data P and N Model TN and TP availbility set to 1.0 Inflow = Station 8 Calibrated with 1992 data Segment 1 set to defaults (not calibrated)

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### Appendix C Model Input Files for Lake Sidney Lanier

Lanier UNCALIB	RATED 1973					
INPUT GROUP 2	- PRINT OPT	IONS				
1 LIST INPUT	s		0 1	NO		
2 HYDRAULICS	& DISPERSIO	N	1	YES		
3 GROSS WATE	R & MASS BAL	ANCES	2 1	ESTIMATED	CONCS	
4 DETAILED B	ALANCES BY SI	EGMENT	0 1	NO		
5 SUMMARIZE	BALANCES BY	SEGMENT	0 1	NO		
6 COMPARE OB	S & PREDICTER	CONCS	0 1	NO		
7 DIAGNOSTIC	S		1.	ALL SEGME	NTS	
8 PROFILES			1 1	ESTIMATED	CONCENTRATIONS	
9 PLOTS			2	GEOMETRIC	SCALE	23.1
10 SENSITIVIT	Y ANALYSIS		0 1	NO		
INPUT GROUP 3	- MODEL OPT	IONS				
1 CONSERVATI	VE SUBSTANCE		0	NOT COMPL	ITED	
2 PHOSPHORUS	BALANCE		1	2ND ORDER	AVAIL P	
3 NITROGEN P	ALANCE		1	2ND ORDER	AVAIL	
4 CHLOROPHYL	L-A		1	P. N. LIG	HT. T	
5 SECCHI DEP	TH		1	VS. CHLA	& TURBIDITY	
6 DISPERSION			1	FISCHER-N	UNERIC	
7 PHOSPHORUS	CALIBRATION		1	DECAY RAT	ES	
8 NITROGEN C	ALIBRATION		11	DECAY RAT	ES	
9 ERROR ANAL	YSIS		1	MODEL & D	ATA	
10 AVAILABILI	TY FACTORS		0 1	MODEL 1 C	WLY	
INPUT GROUP 4	- VARIABLES					
,	THOSPHERIC L	DADINGS	AVAILA	BILITY		
VARIABLE	KG/KM2-YR	CV	FAC	TOR		
1 CONSERV	.00	.00		.00		
2 TOTAL P	25.40	.50	1	.00		
3 TOTAL N	927.00	.50	1	.00		
4 ORTHO P	13.00	.50		-00		
5 INORG N	450.00	.50		.00		
INPUT GROUP 5	- GLOBAL PA	RAMETERS	5			
PARAMETER			MEAN	CV		
1 PERIOD LEN	IGTH YRS		.583	.000		
2 PRECIPITAT	ION M		.932	.200		
3 EVAPORATIC	N M		1.148	.300		
4 INCREASE	N STORAGE M		-1.058	.000		
5 FLOW FACTO	R		1.000	.000		
6 DISPERSION	FACTOR		1.000	.700		
7 TOTAL AREA	KH2	8	155.979	.000		
8 TOTAL VOLL	ME HN3	24	11.739	.000		

1.00	T CP	alle	6 - TRIBUTAR		TNACE AREAS AN	ELOUS	
ID T	YPE	SEG	NAME	1 DAX	RAINAGE AREA	MEAN FLOW	CV OF MEAN FLOW
					KM2	HM3/YR	
1	1	15	CHATTAHOOCHE	ERV	11137.000	895.740	.000
2	2	1	Runoff 1		249.000	79.060	.000
3	2	2	Runoff 2		496.000	157.391	-000
4	2	5	Runoff 5		5.300	20.700	.000
6	2	5	Runoff 5		23 300	7 386	.000
7	ž	6	Runoff 6		30.300	9.605	.000
8	2	7	Runoff 7		28.000	8.876	.000
9	2	8	Runoff 8		37.300	11.824	.000
10	2	9	Runoff 9		74.600	23.648	-000
11	2	10	Runoff 10		35.000	11.095	.000
12	2	11	RUNOTT 11		207.400	03.740	.000
14	2	13	Runoff 13		42 000	13 314	.000
15	ž	14	Runoff 14		93.200	29.544	.000
16	2	15	Runoff 15		815.800	258.609	.000
17	2	16	Runoff 16		23.300	7.354	-000
18	2	17	Runoff 17		32.600	10.334	.000
19	2	18	Runoff 18		32.600	10.334	.000
20	2	20	RUDOTT 19		102 600	21.429	.000
22	2	21	Runoff 21		7 000	2 210	-000
23	1	4	CHESTATEE RIV	VER	613,800	498.330	.000
24	1	3	WAHOO CREEK	TRIB	64.700	57.772	.000
25	1	2	W FORK LITTLI	ERV	46.600	28.386	.000
26	1	2	E FORK LITTL	ERV	41.400	25.232	.000
27	1	14	FLAT CREEK (	F1)	15.500	9.462	.000
20	4	15	LIMESTONE CRI		10.400	6.508	-000
30	1	0	FOUR MILE OF	FFK	20 700	0 / 62	000
31	1	21	OUTFLOW		689.900	2691.370	-000
INPL	IT GR	OUP	7 - TRIBUTAR	Y CON	CENTRATIONS (P	PB): MEAN/CV	
10		CON	ISERV IU	IAL F	717 OL OD	ORTHO P	INORG N ECORG
;		.0/	.00 .0.0/	.00	111.0/ .00	n/ nn	0/ 00 0
3		07	00 52 07	00	850 07 00	.0/ .00	0. 00. \0.
_		.0/	.00 52.0/	.00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00	0. 00. \0. 0. 00. \0. 0. 00. \0.
4		.0/ .0/ .0/	.00 52.0/ .00 52.0/ .00 52.0/	.00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00	0. 00. \0. 0. 00 \0. 0. 00 \0. 0. 00 \0.
45		.0/ .0/ .0/	.00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/	.00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0. 00. \0. 0. 00. \0. 0. 00. \0. 0. 00. \0. 0. 00. \0.
456		.0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/	.00 .00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0. 00. 0 0. 00. 0 0. 00. 0 0. 00. 0 0. 00. 0 0. 00. 0 0. 00. 0
4567		.0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/	.00 .00 .00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	0, 00 0, 00 0, 00 0, 00 0, 00 0, 00 0, 00	0, 00, 00, 0 0,
456789		.0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0, 00, 00, 0 0, 0, 0 0, 0 0, 0, 0 0, 0, 0 0, 0, 0 0, 0, 0 0, 0 0
4 5 6 7 8 9		.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0, 00, 00, 0 0, 0, 0 0, 0 0, 0, 0 0,
4 5 6 7 8 9 10		.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0, 00, 00, 0 0, 0, 0 0, 0 0, 0, 0 0,
4 5 6 7 8 9 10 11 12		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00 850.0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0, 00, 00, 0 0, 0, 0 0, 0
4 5 6 7 8 9 10 1 12 13		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0         .00       .00       .0
456789101121314		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0
4567890112345		.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0         00       00       0
456789011234567		.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.00       .00       .0         .01       .00       .0
4567890112345678		.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.00       .00       .0         .01       .00       .0      .
45678901123456789		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.00       .00       .0         .01       .00       .0      .
456789101123145677890		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.0/       .00       .0         .0/       .00       .0      .
4567890111234456789021		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.00         .00         .0           .01         .00         .0      .01
45678901112131456778902122		-0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0      .0/
456789011121314516718190212223		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/ .00	.0/ .00 .0/ .00	.0/       .00       .0         .0/       .00       .0      .
45678901112314567890222234		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0      .0/
45678910112314567189021223245		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	850.0/ .00 850.0/	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0      .0/
456789101123145678902122324567		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	-00 -00 -00 -00 -00 -00 -00 -00	850.0/ .00 850.0/	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0      .0/
4567890112345678901222222222222		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	-00 -00 -00 -00 -00 -00 -00 -00	850.0/ .00 850.0/	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0      .0/
45678901123415678902122324256789		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	-00 -00 -00 -00 -00 -00 -00 -00	850.0/ .00 850.0/ .00 1072.0/ .00 10324.0/ .00 1036.0/ .00	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0      .0/
456789011234567890222222222222222222222222222222222222		-0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/ -0/	.00 52.0/ .00 52.0/	-00 -00 -00 -00 -00 -00 -00 -00	850.0/ .00 850.0/ .00 1072.0/ .00 10324.0/ .00 1295.0/ .00 1293.0/ .00	.0/ .00 .0/ .00	.0/         .00         .0           .0/         .00         .0   .0/

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	TNE	UT GROUP 8	- M	DEL SEGMENT	s				1.1			
					٠ ١		CA	LIBRAT	ION FAC	TORS	•••••	
	SEG	OUTFLOW GR	OUP 1	SEGHENT NAM	E I	P SED I	SED	CHL-A	SECCHI	1 00	DISP	
	2	3	1	WEST FORK		1.00	1.00	1.00	1.00	1.00	1.000	8
	3	16	1	WAHOO-LITTL	E RIV	1.00	1.00	1.00	1.00	1.00	1.000	ŝ.
	4	6	4	YELLOW CREE	K	1.00	1.00	1.00	1.00	1.00	1.000	
	6	67	4	THOMPSON CR	EEK	1.00	1.00	1.00	1.00	1.00	1 000	
	7	8	4	TAYLOR CREE	ĸ	1.00	1.00	1.00	1.00	1.00	1.000	
	8	18	4	LATHAM CREE	K	1.00	1.00	1.00	1.00	1.00	1.000	
	9	20	1	SIX-FOUR MI	LE	1.00	1.00	1.00	1.00	1.00	1.000	
	10	21	1	RAID BRIDGE	CRK	1.00	1.00	1.00	1.00	1.00	1.000	
	12	21	1	SHOAL CREEK	UNK	1.00	1.00	1.00	1.00	1.00	1.000	
	13	14	1	BALUS CREEK		1.00	1.00	1.00	1.00	1.00	1.000	
	14	19	2	FLAT CREEK		1.00	1.00	1.00	1.00	1.00	1.000	
	16	17	3	CHAT2-SARDI	S-ADA	1.00	1.00	1.00	1.00	1.00	1.000	
	17	18	1	CHAT3		1.00	1.00	1.00	1.00	1.00	1.000	
	18	19	1	CHAT4-CHEST	BAY	1.00	1.00	1.00	1.00	1.00	1.000	
	20	20	1	CHATS-2-MIL	Y BIG	1.00	1.00	1.00	1.00	1.00	1.000	
	21	0	1	CHAT7-BUFOR	D DAM	1.00	1.00	1.00	1.00	1.00	1.000	
							- Carroso-1012					
	INP	UT GROUP Y	- 50	ENGTH	OMETRY:	MEAN/C	/ 7	MIX	789		FTP	
	ID	LABEL		KM	KH2	M		M	2.11.1	1	PPB	
	1	WAHOO CREEK		3.80	2.3890	5.69	6.00	/ .12	.00/	.00	.0	
	4	WEST FORK	FD	5.00 V 5.00	2.6550	16.07	6.00	1.12	.00/	.00	.0	
	4	YELLOW CREE	ĸ	11.30	5.8370	9.62	6.00	.12	.00/	.00	.0	
	5	THOMPSON CRI	EEK	5.00	3.3130	11.77	6.00	.00	.00/	.00	.0	
	6	CHEST1	2	3.00	3.3740	16.53	6.00	/ .12	.00/	.00	.0	
	8	LATHAM CREE	ĸ	5.00	10.7300	20.36	6.00	00	.00/	-00	.0	
	9	SIX-FOUR MI	LE	6.30	7.6730	17.84	6.00	/ .00	.00/	.00	.0	
	10	YOUNG DEER	CRK	5.00	4.1130	16.31	6.00	/ .12	-00/	.00	.0	
	12	SHOAL CREEK	CRI	3 80	5 7880	18.92	6.00	00 10	.00/	.00	.0	
	13	BALUS CREEK		2.50	1.3850	21.43	6.00	12	.00/	.00	.0	
	14	FLAT CREEK		5.80	3.7410	19.22	6.00	00. 1	.00/	.00	.0	
	15	CHAT2-SAPDI	C-41	15.00	6.8800	12.57	6.00	.12	.00/	.00	.0	
	17	CHAT3	5 74	6.30	9.6640	18.58	6.00	.00	.00/	.00	.0	
	18	CHAT4-CHEST	BAY	5.00	8.8780	24.34	6.00	1.12	.00/	.00	.0	
	19	CHATS-2-MIL	E,ML	JD 6.20	22.8600	21.97	6.00	.00	.00/	.00	.0	
	20	CHAT7-BUFOR	т, в. D D/	M 5.00	11.2700	24.13	6.00	V .12	.00/	.00	.0	
			,			with the	0.00	,				
			34									
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IN	PUT	GROUP 10	- OBSE	RVED W	TER QU	ALITY	SECONT	OPC-N	TD-00	NODV	MODV
56	.u	10KB1D	2	NG/H3	HG/H3	NG/M3	SECUTI	MG/M3	MG/M3	MG/M3-D	MG/M3-D
1	MN :	.20	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	MN:	.20	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.00	.00	.00	-00	.00	.00	.00	-00	.00	.00
-	PIN:	.20	.0	. 00	.0	.0	.0	.0	-0	.0	.0
4	MN-	.37	.00	21.3	486.0	6.7	2.0	.00	6.8	.0	.0
5.00	CV:	.06	.00	.20	.08	.08	.04	.00	.22	.00	.00
5	MN:	.30	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.00	.00	.00	.00	.00	.00	-00	.00	.00	.00
6	MN:	.30	-0	.0	.0	.0	.0	.0	.0	.0	.0
1	CV:	.00	.00	.00	.00	.00	.00	-00	.00	.00	-00
	EN:	- 30	.0	12.5	402.0	03	00	.0	9.0	.0	.0
8	MN:	.35	.00	-0		.03	.07	.00	.00	-0	.0
1.5	CV:	.22	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	MN:	.24	.0	17.3	286.0	5.0	3.0	.0	3.6	.0	.0
	CV:	-09	.00	.18	-14	.19	.03	.00	.18	.00	.00
10	MN:	.20	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	UV:	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	CV:	_00	.00	.14	28	-00	00	- 00	20	.00	.00
12	MN:	.28	.0	8.6	480.0	3.4	2.9	.0	3.8	.0	.0
	CV:	.04	.00	.07	.36	.03	.03	.00	.24	.00	.00
13	MN :	.30	.0	.0	.0	.0	.0	.0	.0	.0	.0
	CV:	.00	.00	-00	.00	.00	.00	.00	_00	.00	.00
14	MN:	.29	.0	44.0	657.0	11.3	1.9	.0	30.0	.0	.0
15	MN-	- 20	-00-0	.04	. 10	.08	-21	.00	.00	.00	-00
	CV:	.00	-00	.00	.00	.00	.00	.00	.00	.00	.00
16	MN :	.26	.0	17.2	543.0	11.4	2.1	.0	2.4	.0	.0
	CV:	.18	.00	.10	.05	.18	.04	.00	.16	.00	.00
17	MN:	.31	.0	13.1	457.0	5.0	2.4	.0	3.6	.0	.0
4.0	CV:	.02	.00	.07	.15	.07	.00	.00	.10	.00	.00
10	CV-	.20	.0	-0	.0	.0	0.	.0	.0	.0	-0
19	MN :	.24		8.7	300 0	4.8	3 0	.00	6.0	.00	.00
105	CV:	.19	.00	.19	.14	.19	.12	.00	.26	.00	.00
20	MN :	.23	.0	14.8	359.8	4.2	3.2	.0	12.5	.0	.0
	CV:	.03	.00	.20	. 19	.05	.02	.00	.10	.00	.00
21	MN :	.23	-0	7.0	256.9	4.2	3.2	.0	5.0	.0	.0
	CV:	- 05	.00	.17	. 14	.08	.03	.00	.07	.00	.00
TN	RIT	GROUP 11	- NON-	POINT	JATERSH		(1112)				
iD	COD	NAME	HON	land	juse1 l	anduse2	landuse	Landu	se4		
2	2	Runoff	1	24	9.40	.00	.00	)	.00		
3	2	Runoff	2	4	6.50	.00	.00	)	.00		
4	2	Runoff	3		5.30	.00	.00	2	.00		
5	2	Runoff	4 5	20	1.10	.00	.00	,	.00		
7		RUDOFF	6	4	50 30	-00	.00	) )	.00		
8	2	Runoff	7		28.00	.00	-00	ń	.00	2	
9	2	Runoff	8		\$7.30	.00	.00	5	.00		
10	2	Runoff	9		74.60	.00	.00	)	.00		
11	2	Runoff	10		35.00	.00	.00	)	.00		
12	2	Runoff	11	20	07.40	.00	.00	2	.00		
13	2	Runoff	12		28.00	.00	.00		.00		
15	2	Runoff	14		12.00	-00	.00	ן ר	.00	•	
- 16	5	Runoff	15	8	15.80	.00	.00	5	.00		
17	2	Runoff	16	Ĭ	23.20	.00	.00	5	.00		
18	2	Runoff	17		\$2.60	.00	.00	כ	.00		
19	2	Runoff	18		32.60	.00	.00	5	.00		
20	2	Runoff	19	1	57.60	.00	.00	2	.00		
21	2	RUNOTT	20	10	7 00	.00	.00		.00		
22	2	KUNOTT	61		7.00	.00	.00		.00		

1
			M/YR	РРВ	PPB	PPB	PPB	PP
1	landuse1		.32	.0	52.0	850.0	.0	
		CV:	.00	-00	.00	.00	.00	.0
2	landuse2		.00	.0	.0	.0	.0	
		CV:	.00	.00	.00	.00	.00	-0
3	landuse3		.00	.0	.0	.0	.0	
		CV:	.00	.00	.00	.00	.00	.0
4	Landuse4		.00	.0	.0	.0	.0	
	×.	CV:	.00	.00	.00	.00	.00	.0
INP	UT GROUP 1	3 - MOO	EL COEFFI	CIENTS				
IC	COEFFICIEN	т	MEAN	CV				
1	P DECAY RA	TE	1.000	.45				
2	N DECAY RA	TE	1.000	.55				
3	CHL-A MODE	L	1.000	.26				
4	SECCHI MOD	EL	1.000	.10				
5	ORGANIC N	MODEL	1.000	.12				
6	TP-OP MODE	L	1.000	.15				
(	HODV MODEL		1.000	.15				
8	MODY MODEL		1.000	.22				
	BETA M2/M	G	.020	.00				
10	MINIMUM QS		-100	.00				
11	FLUSHING E	FFECT	1.000	.00				
12	CHLOROPHYL	L-A CV	.620	.00				

З

9 998 C			
Lanier (	ALIBRATION SET 197	973	
INPUT G	OUP 2 - PRINT OPT!	TONS	
1 LIST	INPUTS	O NO	
2 HYDR	ULICS & DISPERSION	DN 1 YES	
3 GROSS	WATER & MASS BALA	ANCES 2 ESTIMATED CONCS	
5 SUMM	RIZE BALANCES BI SC	SEGMENT ONO	
6 COMP/	RE OBS & PREDICTED	D CONCS O NO	
7 DIAG	OSTICS	1 ALL SEGMENTS	
8 PROFI	LES	1 ESTIMATED CONCENTRATIONS	
10 SENSI	TIVITY ANALYSIS	D NO	
INPUT G	OUP 3 - MODEL OPTI	TIONS	
1 CONSE	RVATIVE SUBSTANCE	0 NOT COMPUTED	
2 PHOSE	HORUS BALANCE	1 2ND ORDER, AVAIL P	
5 NITRO	IGEN BALANCE	1 D N LICHT T	
5 SECCI	I DEPTH	1 VS. CHLA & TURBIDITY	
6 DISPE	RSION	1 FISCHER-NUMERIC	
7 PHOSE	HORUS CALIBRATION	1 DECAY RATES	
8 NITRO	ANALYSIS	1 DECAT RATES	
10 AVAI1	ABILITY FACTORS	0 MODEL 1 ONLY	
INPUT G	OUP 4 - VARIABLES	\$	
	ATMOSPHERIC LO	LOADINGS AVAILABILITY	
VARIABLE	KG/KM2-YR	CV FACTOR	
1 CONSI	RV .00	.00 .00	
2 TOTAL	N 927 00	.50 1.00	
4 ORTHO	P 13.00	.50 .00	
5 INOR	N 450.00	.50 .00	
INPUT G	OUP 5 - GLOBAL PA	ARAMETERS	
PARAMET		MEAN CV	
2 DOCT	DILENGIN TRS	932 200	
3 EVAP	DRATION M	1.148 .300	
4 INCR	ASE IN STORAGE M	-1.058 .000	
5 FLOW	FACTOR	1.000 .000	
6 DISP	ADEA MAR	1.000 .700	
7 IUIA	VOLUME HM3	2411.739 _000	
8 TOTAL		2000	
8 TOTAL			
8 TOTAL INPUT GI ID TYPE	COUP 6 - TRIBUTARY SEG NAME	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW	ł
8 TOTAL INPUT GI ID TYPE	COUP 6 - TRIBUTARY SEG NAME	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR	ł
8 TOTAI INPUT GI ID TYPE 1 1 2 2	COUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Ruroff 1	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREAN MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.040 000	ı
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391000	ı
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000	ı
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000	ı
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.00 9.605 .000	ł
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 6 7 Runoff 7	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.300 9.605 .000 28.000 8.876 .000	ł
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 7 2 8 2 9 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 8	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.300 9.605 .000 28.000 8.876 .000 37.300 11.824 .000	,
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 8 9 Runoff 9	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.300 9.605 .000 28.000 8.876 .000 37.300 11.824 .000 74.600 23.648 .000	1
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 8 9 Runoff 9 10 Runoff 10	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.300 9.605 .000 28.000 8.876 .000 37.300 11.824 .000 74.600 23.648 .000 35.000 11.095 .000	1
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 11 2 11 2 11 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 8 9 Runoff 9 10 Runoff 10 11 Runoff 11	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.300 9.605 .000 28.000 8.876 .000 37.300 11.824 .000 74.600 23.648 .000 35.000 11.095 .000 207.400 65.746 .000 28.000 8.876 .000	ł
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 14 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 10 11 Runoff 11 12 Runoff 12 13 Runoff 13	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR E RV 11137.000 895.740 .000 249.000 79.060 .000 496.000 157.391 .000 65.300 20.700 .000 261.100 82.769 .000 23.300 7.386 .000 30.300 9.605 .000 28.000 8.876 .000 37.300 11.824 .000 74.600 23.648 .000 35.000 11.095 .000 207.400 65.746 .000 28.000 8.876 .000 28.000 8.876 .000 200.000 13.314 .000	ı
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 14 2 15 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 10 11 Runoff 11 12 Runoff 13 14 Runoff 14	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA         MEAN FLOW         CV OF MEAN FLOW           KM2         HM3/YR         CV OF MEAN FLOW         CV OF MEAN FLOW           E RV         11137.000         895.740         .000           249.000         79.060         .000           496.000         157.391         .000           65.300         20.700         .000           261.100         82.769         .000           30.300         9.605         .000           33.300         7.386         .000           37.300         11.824         .000           35.000         11.095         .000           28.000         8.876         .000           35.000         11.095         .000           207.400         65.746         .000           93.200         29.544         .000	ł
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 14 2 13 2 14 2 15 2 16 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 6 7 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 10 11 Runoff 10 11 Runoff 12 13 Runoff 13 14 Runoff 14 15 Runoff 15	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA         MEAN FLOW         CV OF MEAN FLOW           KM2         HM3/YR         000         000           249.000         79.060         .000           496.000         157.391         .000           65.300         20.700         .000           261.100         82.769         .000           23.300         7.386         .000           30.300         9.605         .000           37.300         11.824         .000           35.000         11.095         .000           28.000         8.876         .000           35.000         11.095         .000           28.000         8.876         .000           35.000         11.095         .000           28.000         8.876         .000           35.000         13.314         .000           93.200         29.544         .000           815.800         258.609         .000	i
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 14 2 13 2 14 2 15 2 16 2 17 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 6 7 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 10 11 Runoff 10 11 Runoff 11 12 Runoff 13 14 Runoff 15 16 Runoff 15 16 Runoff 16	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA         MEAN FLOW         CV OF MEAN FLOW           KM2         HM3/YR         CV OF MEAN FLOW         CV OF MEAN FLOW           E RV         11137.000         895.740         .000           249.000         79.060         .000           496.000         157.391         .000           65.300         20.700         .000           261.100         82.769         .000           30.300         9.605         .000           33.300         7.386         .000           37.300         11.824         .000           35.000         11.095         .000           28.000         8.876         .000           35.000         11.095         .000           28.000         8.876         .000           28.000         8.876         .000           28.000         8.876         .000           93.200         29.544         .000           815.800         258.609         .000           23.300         7.354         .000	i
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 14 2 15 2 14 2 15 2 14 2 15 2 16 2 17 2 18 2 17 2 18 2 2 17 2 2 18 2 2 19 2 2 10 2 2 11 2 2 12 2 3 2 4 2 5 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 12 2 13 2 12 2 13 2 12 2 12	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 10 11 Runoff 11 12 Runoff 12 13 Runoff 13 14 Runoff 15 16 Runoff 16 17 Runoff 17 18 Runoff 17	Y DRAINAGE AREAS AND FLOWS DRAINAGE AREA         MEAN FLOW         CV OF MEAN FLOW           KM2         HM3/YR         CV OF MEAN FLOW         CV OF MEAN FLOW           E RV         11137.000         895.740         .000           249.000         79.060         .000           496.000         157.391         .000           65.300         20.700         .000           261.100         82.769         .000           30.300         9.605         .000           33.300         7.386         .000           37.300         11.824         .000           35.000         11.095         .000           207.400         65.746         .000           207.400         65.746         .000           23.200         29.544         .000           93.200         29.544         .000           315.800         258.609         .000           32.600         10.334         .000	1
8 TOTAI INPUT GI ID TYPE 1 1 2 2 3 2 4 2 5 2 6 2 7 2 8 2 9 2 10 2 11 2 12 2 13 2 14 2 15 2 16 2 11 2 15 2 16 2 17 2 18 2 217 2 19 2 20 2	ROUP 6 - TRIBUTARY SEG NAME 15 CHATTAHOOCHEE 1 Runoff 1 2 Runoff 2 3 Runoff 3 4 Runoff 4 5 Runoff 5 6 Runoff 6 7 Runoff 7 8 Runoff 7 8 Runoff 10 11 Runoff 10 11 Runoff 11 12 Runoff 13 14 Runoff 15 16 Runoff 15 16 Runoff 17 18 Runoff 18 19 Runoff 19	Y DRAINAGE AREAS AND FLOWS           DRAINAGE AREA         MEAN FLOW         CV OF MEAN FLOW           KM2         HM3/YR         000           249.000         79.060         .000           496.000         157.391         .000           65.300         20.700         .000           261.100         82.769         .000           23.300         7.386         .000           30.300         9.605         .000           28.000         8.876         .000           35.000         11.824         .000           35.000         11.095         .000           207.400         65.746         .000           35.000         11.095         .000           28.000         8.876         .000           23.300         7.354         .000           35.000         11.095         .000           207.400         65.746         .000           23.300         7.354         .000           315.800         258.609         .000           23.300         7.354         .000           32.600         10.334         .000           32.600         10.334         .000      <	1

2 20 Runoff 20 102.600 32.524 .000 21 .000 22 2 21 Runoff 21 7.000 2.219 23 CHESTATES RIVER 613.800 498.330 .000 1 4 24 .000 57.772 1 **3 WAHOO CREEK TRIB** 64.700 25 2 W FORK LITTLE RV 46.600 28,386 .000 1 26 1 2 E FORK LITTLE RV 41.400 25.232 .000 27 14 FLAT CREEK (F1) 15.500 9.462 .000 28 **15 LIMESTONE CREEK** 10.400 6.308 .000 1 14 FLAT CREEK (H1) .000 29 31.540 46.600 1 30 1 9 FOUR MILE CREEK 20.700 9.462 .000 31 21 OUTFLOW 689.900 2691.370 .000 1 INPUT GROUP 7 - TRIBUTARY CONCENTRATIONS (PPB): MEAN/CV CONSERV TOTAL P ID TOTAL N ORTHO P THORG N ECORG P 1 .0/ .00 50.0/ .00 717.0/ .00 .0/ .00 .0/ .00 .0 2 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 0 3 .0/ .00 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0 4 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 5 52.0/ .00 .0/ .00 .0 .0/ .00 850.0/ .00 .0/ .00 52.0/ .00 .0/ .00 6 .0/ .00 850.0/ .00 .0/ .00 - D 7 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 8 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 9 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 52.0/ .00 10 .0/ .00 .0/ .00 .0/ .00 .0 850.07 .00 11 .0/ .00 .0/ .00 850.0/ .00 .0/ .00 .0 12 .0/ .00 52.0/ .00 850.0/ .00 . .0/ .00 .0/ .00 .0 13 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 14 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0 15 .0/ .00 .0/ .00 52.0/ .00 850.0/ .00 .0 .0/ .00 .0/ .00 16 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 - 0 17 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 18 .0/ .00 52.0/ .00 850.0/ :00 .0/ .00 .0/ .00 .0 19 .0/ .00 52.0/ .00 850.0/ :00 .0/ .00 .0/ .00 .0 20 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 21 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 22 .0/ .00 52.0/ .00 850.0/ .00 .0/ .00 .0/ .00 .0 23 .0/ .00 69.0/ .00 623.0/ .00 .0/ .00 .0/ .00 .0 24 .0/ .00 72.0/ .00 931.0/ .00 .0/ .00 .0/ .00 .0 25 .0/ .00 55.0/ .00 1072.0/ .00 :0/ .00 .0/ .00 .0 26 .0/ .00 62.0/ .00 1295.0/ .00 .0/ .00 .0 .0/ .00 27 .0/ .00 2234.0/ .00 10324.0/ .00 .0/ .00 .0/ .00 .0 28 .0/ .00 158.0/ .00 1036.0/ .00 .0/ .00 .0/ .00 .0 29 .0/ .00 41.0/ .00 739.0/ .00 .0/ .00 .0/ .00 .0 30 .0/ .00 52.0/ .00 1293.0/ .00 .0/ .00 .0/ .00 .0 31 .0/ .00 359.9/ .00 14.8/ .00 .0/ .00 .0/ .00 .0 INPUT GROUP 8 - MODEL SEGMENTS ----- CALIBRATION FACTORS ---...... SEG OUTFLOW GROUP SEGMENT NAME P SED N SED CHL-A SECCHI HOD DISP .42 1 2 WAHOO CREEK .39 1.00 1.000 1 1.14 1.00 3 WEST FORK .39 1.00 1.000 2 .42 1.14 1.00 3 16 WAHOO-LITTLE RIV .42 .39 1.14 1.00 1.00 1.000 1 1.00 4 YELLOW CREEK 6.94 1.00 1.000 6 4 1.25 1.18 5 THOMPSON CREEK 6.94 6 4 1.25 1.18 1.00 1.00 1.000 6 7 4 CHEST1 6.94 1.25 1.18 1.00 1.00 1.000 6.94 7 8 4 TAYLOR CREEK 1.25 1.00 1.00 1.000 1.18 6.94 8 18 LATHAM CREEK 1.25 4 1.18 1.00 1.00 1.000 1.14 9 20 1 SIX-FOUR MILE .42 .39 1.00 1.00 1.000 10 21 YOUNG DEER CRK .42 .39 1.14 1.00 1.00 1.000 11 21 BALD BRIDGE CRK .42 .39 1.14 1.00 1.00 1.000 1 1.00 21 SHOAL CREEK 1.000 12 .42 .39 1.00 1 1.14 13 BALUS CREEK 14 1 .42 .39 1.14 1.00 1.00 1.000 14 19 2 FLAT CREEK 1.43 .94 .91 1.00 1.00 1.000 15 3 .84 2.50 16 CHAT1 4.01 1.00 1.00 1.000 17 CHAT2-SARDIS-ADA 4.01 .84 2.50 16 3 1.00 1.00 1.000 .39 17 1.14 1.00 1.000 18 1 CHAT3 .42 1.00 18 19 1 CHAT4-CHEST BAY .42 .39 1.14 1.00 1.00 1.000 19 20 CHATS-2-MILE, MUD .42 .39 1.00 1.000 1.14 1.00 20 21 1 CHAT6-FLOWRY, BIG .42 .39 1.14 1.00 1,00 1.000

Appendix C Model Input Files for Lake Sidney Lanier

C7

21		0	1 CH/	T7-BUF	ORD DAM	.42	.39	1.14	1.00	1.00	1.000
IN	IPUT	GROUP 9 -	SEGME	ENT MORF	HOMETRY	: MEAN/CV A ZMEAN	:	ZMIX	ZHY	P TARG	ET P
ID	LAB	EL		KM	KM	2 M		м	2000	M	PPB
1	WAH	OO CREEK		3.80	2.389	0 5.69	6.00	0/ .12	.00/	.00	.0
.2	WES	T FORK		5.00	2.655	0 16.07	6.0	0/ .12	.00/	.00	.0
3	UAH	00-LITTLE	RIV	5.00	3 857	0 15 12	6.0	0/ 12	00/	.00	.0
4	YEL	ON CREEK		11.30	5.837	0 9.62	6.0	0/ .12	.00/	.00	.0
5	THO	NDSON CPE	FY	5 00	3 313	0 11 77	6.00	0/ 00	007	00	n
	CHE	CT1	LA	3 00	3 37/	0 16 53	6.00	0/ 12	.00/	00	
7	TAV	JOD CDEEK		5.00	3.3/4	0 10.55	6.00	0/ 12	.00/	.00	.0
	101	LOR GREEK		5.00	2.150	0 15.50	0.00		-00/	.00	.0
	LAI	MAM LKEEK		5.00	10.750	0 20.36	0.00	0/ .00	.00/	.00	.0
	214	-FOUR HIL	E	D.30	1.013	0 17.84	0.00	0/ .00	.00/	-00	.0
10	100	NG DEEK L	KK ODK	5.00	4.113	0 16.31	0.00	.12	.00/	.00	.0
	BAL	D BRIDGE	CKK	7.50	7.155	0 18.92	6.00	0/ .00	.00/	.00	.0
12	SHO	AL CREEK		3.80	5.788	0 22.21	6.00	0/ .00	.00/	-00	.0
15	BAL	US CREEK		2.50	1.385	0 21.43	6.00	0/ .12	.00/	.00	.0
14	FLA	T CREEK		5.80	3.741	0 19.22	6.00	0/.00	.00/	.00	.0
15	CHA	T1		15.00	6.880	0 12.57	6.00	0/ .12	.00/	.00	_0
16	CHA	12-SARDIS	S-ADA	5.00	8.903	0 14.74	6.00	00. \0	.00/	.00	.0
17	CHA	13		6.30	9.664	0 18.58	6.00	0/ .00	.00/	.00	.0
18	CHA	T4-CHEST	BAY	5.00	8.878	0 24.34	6.00	0/ .12	.00/	-00	.0
19	CHA	T5-2-MILE	, MUD	6.20	22.860	0 21.97	6.00	00. 10	.00/	.00	.0
20	CHA	T6-FLOWRY	BIG	5.00	25.240	0 24.13	6.00	0/ .12	.00/	.00	.0
21	CHA	T7-BUFORD	DAM	5.00	11.270	0 27.72	6.00	00. 10	.00/	.00	.0
		5.21									
IN	PUT	GROUP 10	· OBSE	RVED WA	TER QUA	LITY					
SE	G	TURBID C	OWSER	TOTALP	TOTALN	CHI -A SE	THU	OPG-N	TP-OP	HODY	NODV
		1/H	2	MG/M3	MG/M3	MG/M3	M	MC/M3	MC/N3 1	IC/MT-D	NC/N3-D
1	MN .	20	<b>^</b> 0	13/10	10,10	0				0-617,01	Hu/HJ-D
	cv.	.20	00	.0		.0	.0	.0	.0	.0	.0
2	Mal.	.00		.00	.00	.00	.00	.00	.00	.00	.00
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		-20			.0			.0	.0	-0	.0
_	CV:	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	CV: MN:	.00	.00	.00	.00 .0	.00	.00 .0	.00	.00 .0	.00 .0	.00
3	CV: MN: CV:	.00 .20 .00	.00 .0	.00 .0 .00	.00 .0 .00	.00 .0 .00	.00 .0	.00 .0 .00	.00 .0 .00	00. 00. 00.	.00 .0 .00
3	CV: MN: CV: MN:	.00 .20 .00 .37	.00 .0 .00	.00 .0 .00 21.3	.00 .0 .00 486.0	.00 .0 .00 6.7	.00 .0 .00 2.0	00. 0. 00.	.00 .0 .00 6.8	00. 00. 00. 00.	.00 .0 .00 .00
3	CV: MN: CV: MN: CV:	.20 .00 .20 .00 .37 .06	.00 .0 .00 .00	.00 .00 21.3 .20	.00 .00 .00 486.0 .08	.00 .0 .00 6.7 .08	.00 .00 2.0 .04	00. 0. 00. 00.	.00 .00 .00 6.8 .22	00. 00. 00. 00.	.00 .0 .00 .00
3 4 5	CV: MN: CV: MN: CV: MN:	.20 .00 .20 .00 .37 .06 .30	00. 0. 00. 00. 00.	.00 .00 21.3 .20	.00 .00 .00 486.0 .08 .0	.00 .0 .00 6.7 .08 .0	.00 .00 2.0 .04 .0	00. 0. 00. 00. 00.	.00 .00 .00 6.8 .22 .0	00. 00. 00. 00.	.00 .00 .00 .00
3 4 5	CV: MN: CV: MN: CV: MN: CV:	.20 .00 .20 .00 .37 .06 .30 .00	.00 .00 .00 .00 .00	.00 .00 21.3 .20 .00	.00 .00 .00 486.0 .08 .0	.00 .00 6.7 .08 .0	.00 .00 2.0 .04 .0 .00	00. 0. 00. 0. 00. 0. 00.	.00 .00 .00 6.8 .22 .0	00. 00. 00. 00. 00. 00.	.00 .0 .00 .00 .00 .00
3 4 5 6	CV: MN: CV: MN: CV: MN: CV: MN:	.20 .00 .20 .37 .06 .30 .00 .30	.00 .00 .00 .00 .00 .00	.00 .00 21.3 .20 .00 .00	.00 .00 486.0 .08 .0 .00	.00 .00 6.7 .08 .0 .00	.00 .00 2.0 .04 .0 .00	00. 0. 00. 00. 00. 00. 00.	.00 .00 .00 6.8 .22 .0 .00 .00	00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00
3 4 5 6	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV:	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00	00. 0. 00. 00. 00. 00. 00. 00.	.00 .00 21.3 .20 .00 .00 .00	.00 .00 .00 486.0 .08 .00 .00 .00	.00 .0 .00 6.7 .08 .0 .00 .0	.00 .00 2.0 .04 .00 .00 .00	00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .0 .00 .00	00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00
3 4 5 6 7	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN:	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38	00. 0. 00. 00. 00. 00. 00. 00. 00.	.00 .00 21.3 .20 .00 .00 .00 12.5	.0 .00 .00 486.0 .08 .0 .00 .00 .00 485.6	.00 .00 6.7 .08 .00 .00 .00 5.2	.00 .00 2.0 .04 .00 .00 .00 2.1	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .0 .00 .00 .00 9.0	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00
3 4 5 6 7	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV:	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11	.00 .00 .00 .00 .00 .00 .00 .00	.00 .00 21.3 .20 .00 .00 .00 .00 12.5 .05	.0 .00 .00 486.0 .08 .00 .00 .00 .00 485.6 .07	.00 .00 6.7 .08 .00 .00 .00 .00 5.2 .03	.00 .00 2.0 .00 .00 .00 2.1 .09	.00 .00 .00 .00 .00 .00 .00 .00	.00 .00 6.8 .22 .0 .00 .00 .00 9.0	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN:	.20 .00 .20 .37 .06 .30 .00 .30 .00 .38 .11 .35	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 21.3 .20 .00 .00 .00 12.5 .05	.00 .00 486.0 .08 .00 .00 .00 485.6 .07 .0	.00 .00 6.7 .08 .00 .00 .00 5.2 .03 .0	.00 .00 2.0 .00 .00 .00 2.1 .09 .0	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .0 .00 .00 .00 9.0	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: CV: CV:	.20 .00 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22	.00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 21.3 .20 .00 .00 .00 12.5 .05 .00	.00 .00 .00 486.0 .08 .00 .00 .00 485.6 .07 .0 .00	.00 .00 6.7 .08 .00 .00 .00 5.2 .03 .00	.00 .00 2.0 .04 .00 .00 .00 2.1 .09 .00	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 6.8 .22 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9	CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	.20 .00 .20 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 21.3 .20 .00 .00 .00 12.5 .05 .00 .00 17.3	.0 .00 .00 486.0 .08 .00 .00 .00 485.6 .07 .00 286.0	.00 .00 6.7 .08 .0 .00 .00 5.2 .03 .00 5.0	.00 .00 2.0 .04 .00 .00 2.1 .00 2.1 .09 .00 3.0	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09	00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00	.00 .00 21.3 .20 .00 .00 .00 12.5 .05 .00 .00 17.3 .18	.0 .00 .00 486.0 .08 .00 .00 .00 485.6 .07 .00 .00 .286.0 .14	.00 .00 6.7 .08 .0 .00 .00 5.2 .03 .00 5.0 .00 5.0	.00 .00 2.0 .04 .00 .00 2.1 .00 2.1 .00 2.1 .00 2.1 .00 .00 3.0 .03	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9	CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09 .20	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 21.3 .20 .00 .00 12.55 .00 .00 17.3 .18	.0 .00 .00 486.0 .08 .00 .00 .00 485.6 .07 .00 286.0 .14	.00 .00 .00 6.7 .08 .00 .00 .00 5.2 .03 .00 5.0 .00 5.0	.00 .00 2.0 .04 .00 .00 2.1 .00 2.1 .00 2.1 .00 2.0 .00 2.1 .00 .00 2.0 .00 2.0	00. 0. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 3.6 .18	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
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3 4 5 6 7 8 9 10	CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	.20 .00 .20 .37 .06 .30 .30 .30 .30 .30 .30 .30 .30 .30 .20 .24 .09 .20 .20 .23	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 21.3 .20 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 486.0 .08 .00 .00 485.6 .07 .00 286.0 .14 .00 .00	.00 .00 6.7 .08 .00 .00 5.2 .00 5.0 .00 5.0 .00 .19 .00 .00	.00 .00 2.0 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 31	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	.20 .00 .20 .00 .37 .06 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 .00 21.3 .20 .00 .00 .00 12.5 .05 .00 17.3 .18 .00 .00 19.1	.0 .00 .00 486.0 .08 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 286.0 .14 .00 286.0 .28	.00 .00 6.7 .08 .0 .00 .00 5.2 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.7	.00 .00 2.0 .00 .00 .00 2.0 .00 2.0 .00 .0	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11	CV:: MN:: CV:: CV:: CV:: CV:: CV:: CV:: CV:: C	-20 .00 .20 .00 .37 .06 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 21.3 .20 .00 .00 .00 12.5 .05 .00 17.3 .18 .00 19.1 .14	.0 .00 .00 486.0 .08 .00 .00 .00 485.6 .07 .00 286.0 .00 286.0 .00 457.0 .28 480.0	.00 .00 6.7 .08 .0 .00 .00 .00 5.2 .03 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0	.00 .00 2.0 .00 .00 2.1 .00 .00 2.1 .00 .00 3.0 .00 3.0 .00 3.0 .00 3.0	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 3.6 .00 5.4 .20	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00 .23	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 .00 21.3 .20 .00 .00 12.5 .00 17.3 .18 .00 17.3 .18 .00 17.4 .14 .14	.00 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0	.00 .00 6.7 .08 .00 .00 5.2 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 .00	.00 .00 2.0 .00 2.0 .00 2.1 .00 .00 2.1 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 9.0 .00 9.0 .00 3.6 8 .00 5.4 .20 3.8	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12	CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	-20 .00 .20 .37 .06 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30	00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00	.00 .00 21.3 .20 .00 .00 .00 12.5 .00 17.3 .18 .00 17.3 .18 .00 .00 17.3 .18 .00 .00	.0 .00 .00 486.0 .00 .00 .00 485.6 .07 .0 .00 286.0 .14 .00 286.0 .14 .00 457.0 .28 480.0 .36	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12 13	CV: MN: CV: CV: MN: CV: CV: MN: CV: CV: CV: CV: CV: CV: CV: CV: CV: CV	-20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00 .23 .00 .28 .04 .30	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 .00 21.3 .20 .00 .00 .00 .00 12.5 .05 .05 .05 .00 17.3 .18 .00 .00 17.3 .18 .00 .00	.0 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 286.0 .14 .00 457.0 .28 480.0 .36 .0	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12 13	CV: CV: CV: CV: CV: CV: CV: CV: CV: CV:	-20 -00 -20 -00 -37 -06 -30 -00 -38 -11 -35 -22 -24 -09 -20 -00 -23 -00 -23 -00 -23 -00 -20 -20 -20 -20 -20 -20 -20	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 .00 21.3 .20 .00 .00 12.5 .05 .00 12.5 .05 .00 17.3 .18 .00 19.1 .14 .44 8.66 .07 .00 .00	.0 .00 .00 486.0 .08 .00 .00 485.6 .07 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0 .28 480.0	.00 .00 .00 6.7 .08 .00 .00 5.2 .03 .00 5.2 .03 .00 5.2 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.0 .00 5.2 .00 5.00 5	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 9.0 .00 9.0 .00 .00 3.6 .18 .00 5.4 .20 3.8 .24 .00 5.4 .20 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12 13 14	CV:: CV:: CV:: CV:: CV:: CV:: CV:: CV::	-20 .00 .20 .00 .37 .06 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .00 .37 .00 .30 .00 .30 .00 .37 .00 .30 .00 .20 .00 .30 .00 .30 .00 .30 .00 .00 .30 .00 .20 .00 .30 .00 .00 .30 .00 .00 .30 .00 .0	00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00 00.00	.00 .00 21.3 .20 .00 .00 12.5 .00 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 19.1 .14 8.6 .00 .00 .00 .00 .00	.00 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0 .36 .00 657.0	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12 13 14	CV: CV: CV: CV: CV: CV: CV: CV: CV: CV:	-20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00 .23 .00 .28 .04 .30 .00 .28 .00 .28 .00 .20 .30 .30 .30 .30 .30 .30 .30 .30 .30 .3	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 .00 21.3 .20 .00 .00 .00 12.5 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	.00 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0 .36 .00 657.0 .10	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12 13 14 15	CV:: CV:: CV:: CV:: CV:: CV:: CV:: CV::	-20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00 .23 .00 .28 .04 .30 .00 .28 .00 .30 .30 .30 .30 .30 .30 .30 .30 .30	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 21.3 .20 .00 .00 .00 .00 12.5 .00 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	.0 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 286.0 .14 .00 457.0 .28 480.0 .36 .00 657.0 .10 .00	.00 .00 .00 6.7 .08 .00 .00 5.2 .00 5.0 .00 5.0 .00 5.0 .00 .19 .00 .00 .19 .00 .00 .19 .00 .00 .19 .00 .00 .19 .00 .00 .00 5.2 .00 .00 5.2 .00 .00 5.2 .00 .00 5.2 .00 .00 5.2 .00 .00 5.2 .00 .00 5.2 .00 .00 5.2 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
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3 4 5 6 7 8 9 10 11 12 13 14 15 16	CV:: CV:: CV:: CV:: CV:: CV:: CV:: CV::	-20 -00 -20 -00 -37 -06 -30 -00 -38 -11 -35 -22 -24 -09 -20 -00 -23 -00 -23 -00 -28 -04 -30 -00 -28 -04 -30 -00 -38 -00 -30 -00 -38 -01 -30 -00 -38 -01 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -30 -00 -22 -24 -00 -20 -00 -20 -00 -20 -00 -20 -00 -20 -00 -20 -00 -20 -00 -23 -00 -28 -00 -28 -00 -28 -00 -28 -00 -28 -00 -28 -00 -28 -00 -28 -00 -28 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -29 -38 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -00 -28 -30 -30 -00 -28 -30 -30 -29 -38 -30 -30 -30 -30 -30 -30 -30 -30	00.00.00.00.00.00.00.00.00.00.00.00.00.	.00 .00 21.3 .20 .00 .00 12.5 .00 17.3 .18 .00 17.3 .18 .00 17.3 .18 .00 .00 17.4 .14 8.66 .07 .00 .00 19.1 .14 8.66 .07 .00 .00 17.2 .10	.00 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0 .36 .00 457.0 .28 480.0 .00 657.0 .00 657.0 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 9.0 .00 9.0 .00 3.6 .18 .00 5.4 .20 3.8 .24 .00 30.0 .00 .00 5.4 .20 30.0 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
3 4 5 6 7 8 9 10 11 12 13 14 15 16	CV:: CV:: CV:: CV:: CV:: CV:: CV:: CV::	.20 .00 .20 .00 .37 .06 .30 .00 .30 .00 .38 .11 .35 .22 .24 .09 .20 .00 .23 .00 .23 .00 .28 .04 .30 .00 .28 .00 .28 .00 .28 .00 .28 .00 .23 .00 .23 .00 .23 .00 .23 .24 .00 .20 .20 .30 .00 .20 .00 .30 .00 .20 .00 .30 .00 .20 .00 .30 .00 .20 .00 .20 .00 .20 .00 .20 .00 .20 .00 .20 .00 .20 .00 .20 .00 .20 .00 .23 .00 .00 .23 .00 .00 .23 .00 .00 .23 .00 .00 .23 .00 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .00 .23 .30 .00 .23 .30 .20 .23 .30 .00 .23 .30 .24 .30 .24 .30 .24 .30 .25 .24 .30 .25 .24 .30 .25 .24 .30 .00 .23 .30 .23 .30 .23 .30 .23 .30 .23 .30 .23 .30 .23 .33 .24 .33 .24 .24 .30 .25 .24 .30 .23 .25 .24 .30 .25 .25 .25 .25 .25 .25 .25 .25 .25 .25	00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 21.3 .20 .00 .00 .00 12.5 .00 17.3 .18 .00 .00 17.3 .18 .00 .00 17.3 .14 8.6 .07 .00 .00 44.0 .04 .00 .00 13.1	.00 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0 .36 .00 657.0 .00 657.0 .00 543.0 .05	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 9.0 .00 9.0 .00 9.0 .00 .00 5.4 .00 .00 5.4 .00 .00 5.4 .00 .00 5.4 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	CV:: CV:: CV:: CV:: CV:: CV:: CV:: CV::	-20 -00 -20 -00 -37 -06 -30 -00 -38 -11 -35 -22 -24 -09 -20 -00 -23 -00 -24 -30 -00 -23 -00 -23 -00 -24 -30 -00 -23 -00 -23 -00 -24 -30 -00 -23 -00 -23 -00 -24 -30 -00 -25 -26 -18 -30 -00 -26 -38 -30 -00 -29 -38 -30 -00 -26 -18 -30 -00 -26 -18 -30 -20 -20 -20 -20 -20 -20 -20 -2	00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 21.3 .20 .00 .00 12.5 .00 17.3 .18 .00 17.3 .18 .00 17.3 .18 .00 17.3 .18 .00 17.3 .10 .00 19.1 .14 .44.0 .00 .00 17.2 .10 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 486.0 .00 .00 .00 485.6 .07 .00 286.0 .14 .00 457.0 .28 480.0 .36 .00 457.0 .28 480.0 .36 .00 657.0 .00 657.0 .00 543.0 .00 543.0 .05 457.0 .00 543.0 .05 457.0 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 6.8 .22 .00 .00 9.0 .00 9.0 .00 9.0 .00 9.0 .00 3.6 8 .22 .00 .00 9.0 .00 9.0 .00 5.20 3.8 .22 .00 .00 9.0 .00 5.20 3.00 .00 9.0 .00 9.0 .00 .00 9.0 .00 .00	00. 00. 00. 00. 00. 00. 00. 00. 00. 00.	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00

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.00 .00 .03 .00 CV: .00 .20 . 19 .05 .02 .10 7.0 4.2 21 MN: .23 .0 256.9 3.2 .0 5.0 .0 .0 .05 .00 .08 .03 .00 .07 .00 .00 CV: .11 .14 INPUT GROUP 11 -NON-POINT WATERSHED AREAS (KH2) ID COD NAME landuse1 landuse2 landuse3 landuse4 2 2 Runoff 1 249.40 .00 .00 .00 3 2 Runoff 2 496.50 .00 .00 .00 4 2 Runoff 3 65.30 .00 .00 .00 5 2 Runoff 4 .00 261.10 .00 .00 6 2 Runoff 5 23.30 .00 .00 .00 7 2 Runoff 6 30.30 .00 .00 .00 8 2 Runoff 7 28.00 .00 .00 .00 9 2 Runoff 8 37.30 .00 -00 .00 .00 10 2 Runoff 9 74.60 .00 .00 11 2 Runoff 10 35.00 .00 .00 .00 12 2 Runoff 11 207.40 .00 .00 .00 13 2 Runoff 12 28.00 .00 .00 .00 2 Runoff 13 14 42,00 .00 .00 .00 15 2 Runoff 14 93.20 .00 .00 .00 2 Runoff 15 815.80 16 .00 .00 .00 17 2 Runoff 16 23.20 .00 .00 .00 18 2 Runoff 17 32.60 .00 .00 .00 19 2 Runoff 18 32.60 .00 .00 .00 20 2 Runoff 19 67.60 .00 .00 .00 21 2 Runoff 20 102.60 .00 .00 .00 22 2 Runoff 21 7.00 .00 .00 .00 INPUT GROUP 12 - NON-POINT EXPORT CONCENTRATIONS IC LAND USE RUNOFF CONSERV TOTAL P TOTAL N ORTHO P INORG N M/YR PPB PPB PPB PPR PPR 1 Landuse1 .32 .0 52.0 850.0 .0 .0 CV: .00 .00 .00 .00 .00 .00 2 Landuse2 .00 .0 .0 .0 -0 .0 CV: .00 .00 .00 .00 .00 .00 .00 3 Landuse3 .0 .0 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 4 Landuse4 .00 .0 .0 . 0 0 0 CV: .00 -00 .00 .00 .00 .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .26 4 SECCHI MODEL 1.000 .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 7 HODY MODEL 1.000 .15 8 MODV MODEL 1.000 .22 9 BETA M2/MG .020 .00 10 MINIMUM QS .100 .00 **11 FLUSHING EFFECT** 1.000 .00 12 CHLOROPHYLL-A CV .00 .620 INPUT GROUP 14 - CASE NOTES

Appendix C Model Input Files for Lake Sidney Lanier

C9

## Appendix D Model Input Files for West Point Lake

		-		
West Point 1991 (P Uncalibe	ited)			
INPUT GROUP 2 - PRINT OPTI	ONS			
T LIST INPUTS	D NO			
2 HYDRAULICS & DISPERSION	1 YES			
3 GROSS WATER & MASS BALA	NCES 2 EST	IMATED CONCS		
4 DETAILED BALANCES BY SE	GMENT O NO			
5 SUMMARIZE BALANCES BY S	EGMENT ONO			
5 COMPARE OBS & PREDICTED	CONCS 0 NO			
7 DIAGNOSTICS	1 ALL	SEGMENTS		
B PROFILES	1 EST	IMATED CONCEN	TRATIONS	
y PLOIS	2 GEO	METRIC SCALE		
TO SENSITIVITY ANALYSIS	O NO			
INPUT GROUP 3 - MODEL OPTI	ONS			
1 CONSERVATIVE SUBSTANCE	0 NOT	COMPUTED		
2 PHOSPHORUS BALANCE	1 2ND	ORDER, AVAIL	P	
3 NITROGEN BALANCE	O NOT	COMPUTED		
4 CHLOROPHYLL-A	2 P,	LIGHT, T		1
5 SECCHI DEPTH	1 VS.	CHLA & TURBI	DITY	
6 DISPERSION	1 FIS	CHER-NUMERIC		
7 PHOSPHORUS CALIBRATION	1 DEC	AY RATES		
8 NITROGEN CALIBRATION	1 DEC.	AY RATES		
9 ERROR ANALYSIS	1 MOD	EL & DATA		
10 AVAILABILITY FACTORS	0 MOD	EL 1 ONLY		
INPUT GROUP 4 - VARIABLES				
ATMOSPHERIC LO	ADINGS AVAILABIL	ITY		
VARIABLE KG/KM2-YR	CV FACTOR			J
1 CONSERV .00	.00 .00			
2 TOTAL P 30.00	.50 1.00			
3 TOTAL N 1000.00	.50 1.00			
4 ORTHO P 15.00	.50 .00			
5 INORG N 500.00	.50 .00			
INPUT GROUP 5 - GLOBAL PAR	AMETERS			
PARAMETER	MEAN	CV		
1 PERIOD LENGTH YRS	.583	.000		
2 PRECIPITATION M	.790	.200		
3 EVAPORATION M	1.000	.300		
4 INCREASE IN STORAGE M	-1.580	.000		
5 FLOW FACTOR	1.000	.000		
6 DISPERSION FACTOR	1.000	.700		
7 TOTAL AREA KM2	.000	.000		
B TOTAL VOLUME HM3	.000	.000		
INPUT GROUP 6 - TRIBUTARY		NO FLOWS		
ID TYPE SEG NAME	DRAINAGE ADEA	MEAN FLOWS	CV OF MEAN	EL OU
	NULLINGE MCM	HEAT TEAM	UT OF HEAN	FLOW .
1 1 10 CHAT AT EDANK	6941 000	5070 0/0	000	
2 2 1 RPI/SH	60 070	16 172	.000	
	110 400	28 208	-000	
4 2 3 DOTATO	235 000	55 405	.000	
5 2 4 4015	50 200	11 807	.000	
J L A WOLF	50.200	11.097	.000	

Appendix D Model Input Files for West Point Lake

6	1	5	YELL	OWJACKET	50.200	99.739	.000	
7	2	5	YC	-	7.390	1.751	.000	
8	1	5	SHOA	L	22.500	12.000	.000	
10	2	5	BEEL B3A	'n	7.780	1.844	.000	
11	2	5	B3B		7.780	1.844	.000	
12	2	5	DIXI	E	5.830	1.382	.000	
13	2	5	JACK	SON	48.620	11.523	.000	
15	ź	5	Y1A		5.830	1.382	.000	
16	ž	5	WILL	OW/SHERWOOD	38.890	9.217	.000	
17	1	6	WHIT	EWATER	86.550	5.000	.000	
18	2	6 7	THOM	IPSON ION	64.180 38.000	15.211	_000	
20	2	8	WEHA	DKEE	81.350	19.280	.000	
21	2	8	GUSS	1	180.890	42.871	.000	
22	2	8	CANE	Y	97.250	23.048	-000	
23	2	8 8	L.WE	HADKEE	132,260	31.346	-000	
25	ź	8	WEZ		9.720	2.304	.000	
26	2	8	STRO	UD	40.840	9.679	.000	
27	2	8	VEAS	EY	33.060	7.835	.000	
28	2	9	MAPL	E	64.180	15.211	.000	
30	2	10	ZACH	ARY	35.010	8.297	-000	
31	2	10	Z1-Z	2	. 44.720	10.599	.000	
32	2	11	B2		52.510	12.445	.000	
35	2	12	P5-P	6	31.110	7.373	.000	
35	2	14	P8		5.830	1.382	.000	
36	2	15	P9		33.060	7.835	.000	
37	2	16	J2A		18.080	4.285	-000	
38	2	17	J2B		8.360	1.981	-000	
40	ž	19	W2		18,080	4.285	.000	
41	2	20	WI1/	W12	44.730	10.601	.000	
42	2	21	WI3/	V2A	22,360	5.299	.000	
43	2	22	V2B	AT UD	14.580	3.455	.000	
		22	CRAI	AI WP	9194.000	5005.000	-000	
INP	UT G	ROUP	7 -	TRIBUTARY CONC	ENTRATIONS (P	PB): MEAN/CV		8
ID		CO	SERV	TOTAL P	TOTAL N	ORTHO P	INORG N	ECORG P
1		.0/	.00	198.8/ .10	.0/ .00	.0/ .00	.0/ .00	.0
4		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
4		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	-0
5		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
6		.0/	.00	48.0/ .15	964.0/ .11	25.5/ .35	242.4/ .09	.0
8		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
9		.0/	.00	39.0/ .06	751.0/ .05	9.5/ .16	206.8/ .08	.0
10		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
11		-0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
12		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
14		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
15		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
16		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
17		.0/	-00	19.0/ .02	/25.0/ .03	3.8/ .11	160.2/ .10	.0
- 19		.0/	.00	34.5/ .15	.0/ .00	-0/ -00	.0/ .00	.0
20		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
21		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
22		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
24		.0/	.00	34.5/ .15	-0/ -00	.0/ .00	.0/ .00	_0
25		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
26		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0

												-
	2											
27 28 29 30 31 32 33 34 35 36 37 38 39 40 41	.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/ 34.5/	.15 .15 .15 .15 .15 .15 .15 .15 .15 .15	.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/ .0/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	.0 .0 .0 .0 .0 .0 .0 .0 .0 .0	
42	.0/	.00	34.5/	.15	.0/	.00	.0/	.00	.0/	.00	.0	
44	.0/	.00	.0/	.00	.0/	.00	.0/	.00	.0/	-00	.0	
INPUT GR SEG DUTF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	COUP LOW 10 10 10 11 10 10 11 10 11 10 11 10 11 10 11 10 11 10 10	8 - M GROUP 8 8 8 8 8 2 3 1 4 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 6 6 6 6	DDEL SEG SEGMENT BR NR PO WO YE WH WI WE MA CH1 CH2 CH3 CH4 CH5 CH6 CH7 CH8 CH6 CH7 CH8 CH9 CH10 CH11 CH12 CH13	MENTS	P	SED 1 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	CA SED 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	LIBRAT CHL-A 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	TION FACT SECCHI 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	FORS HOO 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	DISP 1.000	
INPUT GR	OUP	9 - S	EGMENT M	orphon H	AREA	MEAN/C	v z	MIX	ZHYF	TARG	ETP	
ID LABEL 1 BR 2 NR 3 PO 4 WO 5 YE 6 WH 7 WI 8 WE 9 MA 10 CH1 11 CH2 12 CH3 13 CH4 14 CH5 15 CH6 16 CH7 17 CH8 18 CH9 19 CH10 20 CH11 21 CH12	2		2.5 4.6 1.7 19.7 19.7 19.6 5.4 2.5 19.6 8.3 2.5 2.5 2.5 2.5 2.5 2.5 2.5	M 00 1200 1200 1200 1200 1200 1200 1200	6900 .6900 .2400 .28000 .28000 .0800 .8900 .8900 .6700 .8900 .6700 .6500 .6500 .2000 .6500 .2000 .8000 .8000 .8000 .8000 .8000 .8900 .6700 .6500 .2000 .8000 .2000 .8000 .2000 .2000 .8000 .2000	K 2.21 1.89 2.21 .34 4.25 5.40 4.80 6.26 8.26 2.82 3.56 4.48 5.26 7.11 7.66 7.42 8.03 7.03 8.96 9.82 10.83	2.21 1.89 2.21 .34 4.05 5.31 6.19 2.82 3.52 4.23 4.74 5.76 5.96 6.11 5.68 6.44 6.71 6.98	M         / .12 <td>.00/ .00/ .00/ .00/ .00/ .00/ .00/ .00/</td> <td>.00 .00 .00 .00 .00 .00 .00 .00 .00 .00</td> <td>PPB .0 .0 .0 .0 .0 .0 .0 .0 .0 .0</td> <td></td>	.00/ .00/ .00/ .00/ .00/ .00/ .00/ .00/	.00 .00 .00 .00 .00 .00 .00 .00 .00 .00	PPB .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	

Appendix D Model Input Files for West Point Lake

2	2 CH1	3		1.70	4.280	14.4	6 7.6	8/ .12	.00,	.00	.0	
1 S	NPUT Eg	GROUP 10 TURBID	O - OBSE CONSER	RVED WA	TER QUA	CHL-A	SECCHI	ORG-N	TP-OP	HODV	MOOV	
	4 1411.	1/H	?	MG/M3	MG/M3	MG/H3	M	MG/M3	MG/M3	MG/MS-D	MG/M3-D	
	CV:	.00	-00	.00	.00	.00	.00	.00	.00	.00	.00	
	2 MN:	1.22	63.8	51.5	652.0	19.4	.6	.0	.0	.0	.0	
	CV:	.03	.18	.06	. 17	.09	.00	.00	.00	.00	.00	
2	3 MN:	1.62	.0	.0	.0	.0	.0	.0	.0	.0	.0	
	CV:	.00	.00	.00	.00	.00	.00	-00	.00	.00	.00	
	4 MN:	1.62	.0	-0	.0	.0	.0	.0	.0	.0	.0	
	5 MM-	.00	72 6	27.5	595 0	15 5	1 3	.00	.00	.00	.00	
	CV:	.18	.10	.12	.14	.11	.10	.00	.00	.00	.00	
	6 MN :	.50	.0	.0	.0	19.2	1.1	.0	.0	.0	.0	
	CV:	- 14	.00	.00	.00	.09	-07	.00	.00	.00	.00	
1	7 MN:	.37	80.7	38.6	926.0	17.5	1.4	.0	-0	.0	.0	
	CV:	.10	.03	.07	.02	12 7	.03	.00	.00	.00	.00	
1	CV-	-40	03.5	20.0	4/1.0	12.3	07	.0	.0	.00	.00	
	9 MN:	.39	78.3	22.3	605.0	12.4	1.6	.0	.0	.0	.0	
	CV:	.19	.02	.10	.07	.16	.10	.00	.00	.00	.00	
1	MN:	1.86	86.0	.0	.0	3.3	.5	.0	.0	.0	.0	
	CV:	.20	-00	.00	.00	.37	.19	- 00	.00	.00	-00	
1	1 MN:	2.10	.0	.0	.0	6.0	.4	.0	.0	.0	.0.	
1	CV:	.19	.00	.00	1095 0	.29	.18	.00	.00	.00	-00	
1	CV-	13	02.4	0.14	1005.0	24	12	.0	00	.00	.00	
1	3 MN :	1.30	.0	.0	0	16.8	.6	.0	.0	.0	.0	
	CV:	.19	.00	.00	.00	.30	.14	.00	.00	.00	.00	
1.	4 MN:	.90	77.2	74.5	1087.0	17.5	.8	• .0	.0	.0	.0	
	CV:	.20	.07	.12	.05	.20	.13	.00	.00	.00	.00	
1.	5 MN:	.62	79.7	66.0	856.0	20.1	1.0	.0	.0	.0	.0	
1	CV:	.10	-05	-17	.22	21 0	.10	.00	.00	.00	.00	×
	CV:	.23	-00	.00	.00	.08	.10	_00	.00	- 00	.00	
1	7 MN :	.44	79.3	47.5	965.0	22.0	1.1	.0	.0	.0	.0	
	CV:	.15	.00	.10	.07	.10	.06	.00	.00	.00	.00	
1	B MN:	.34	80.8	41.4	932.0	20.0	1.4	.0	.0	.0	.0	
	CV:	.17	.02	.08	.05	.11	.05	.00	.00	.00	.00	
1	MN:	.50	.0	.0	.0	19.7	1.4	.0	-0	.0	.0	
2	D MN -	- 10	79.1	33.5	707.0	16.4	1.5	.00	.00	.00	.00	
-	CV:	.19	.03	.12	.10	.12	.08	.00	.00	.00	.00	
2	MN:	.35	77.2	25.8	722.0	13.6	1.6	.0	.0	.0	.0	
	CV:	.20	.03	.06	.06	.12	.10	.00	.00	.00	.00	
2	2 MN:	.33	79.3	23.0	675.0	14.9	1.6	.0	.0	.0	.0	
	CV:	.22	.00	.03	.07	. 13	.10	.00	.00	.00	.00	
1	PUT	GROUP 11	I - NON-	POINT V	ATERSHE	D AREAS	5 (KM2)					
1	000	NAME		Aver	raged la	nduse2	landuse	3 landu	ise4			
	2 2	BRUSH		6	58.07	.00	.0	0	.00	: E		
1	3 2	NEW RIV	/ER	11	9.40	.00	.0	0	.00			
	2	POTATO		23	5.00	-00	.0	0	.00			
ļ.	7 2	WOLF		2	7 30	.00	.0	0	.00			
	8 1	SHOAT			2.50	.00	.0	0	00			
1	2	B3A			7.78	-00	.0	0	.00			
1	1 2	B3B			7.78	.00	.0	0	.00			
1	2 2	DIXIE			5.83	.00	.0	0	.00			
1	3 2	JACKSO	4	4	8.62	.00	.0	0	.00			
14	2	J1			8.75	- 00	.0	0	.00			
1	2	Y1A			5-83	.00	.0	0	.00			
11	2 2	THOMDO	SNEKWUU		W. 18	.00	.0	n	00	•		
10	2 2	WILSON		1	58.90	.00	.0	õ	.00			
2	2	WEHADKE	E	ĩ	31.35	.00	.0	0	.00			
100	oo shire		sound).		- 1. M. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	51×508	0.7		2017 Tranki			

21 2 GUSS		180.	89	.00	.00	.00	
22 2 CANEY	KEE	97.1	25 26	.00	-00	.00	
24 2 WE2	KLL	31.	12	.00	.00	.00	
25 2 WE3		9.	72	.00	.00	.00	
26 2 STROUD		40.	84	.00	.00	.00	
27 2 VEASEY		33.	06	.00	.00	.00	
28 2 MAPLE		04. 75	18	.00	.00	.00	
30 2 7ACHARY	r	35	01	.00	.00	.00	
31 2 21-22		44	72	.00	.00	.00	
32 2 B2		52.	51	.00	.00	.00	
33 2 P5-P6		31.	11	.00	.00	.00	
34 2 P7		19.4	45	.00	.00	.00	
30 2 00		33	60	-00	00	.00	
37 2 J2A		18.	08	.00	.00	.00	
38 2 J2B		8.	36	.00	.00	.00	
39 2 W2		7.	78	-00	.00	.00	
40 2 13	,	18.0	80	.00	.00	.00	
41 2 W11/W12 62 2 UT3/V7A		44.	36	.00	.00	.00	
43 2 V2B	•	14.	58	.00	.00	.00	
1 Averaged Us	se	M/YR	PPB	PP8	PPB	PPB	PP
	CV:	.00	.00	.15	.00	.00	.0
2 landuse2	1927	.00	.0	0	-0	.0	
7 Lond	CV:	.00	.00	.00	.00	.00	.0
2 Landuses	CV.	.00	00	-0	, U 00	. 00	- 0
4 Landuse4		.00	.0	.0	.0	.0	
	CV:	.00	.00	.00	.00	.00	.0
INPUT GROUP 13	- MODEL	COEFFIC	IENTS		2		
INPUT GROUP 13	5 - MODEL	. COEFFIC MEAN	IENTS CV				
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT	S - MODEL	COEFFIC MEAN 1.000	IENTS CV .45				
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHI-A MODE'	5 - MODEL TE TE	COEFFIC MEAN 1.000 1.000	IENTS CV .45 .55		2		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE	S - MODEL TE TE	COEFFIC MEAN 1.000 1.000 1.000 1.000	IENTS CV .45 .55 .26 .10		2		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M	5 - HODEL	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000	IENTS CV .45 .55 .26 .10 .12		3		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL	S - MODEL E E L KODEL	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000	IENTS CV .45 .55 .26 .10 .12 .15		t.		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL	S - MODEL E E L KODEL	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000	IENTS CV .455 .26 .10 .12 .15 .15		u.		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODEL 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 8 MOOV MODEL 8 RDTA M2/M	GODEL	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	IENTS CV .45 .55 .26 .10 .12 .15 .15 .22 .20		2		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A HODEL 4 SECCHI MODEL 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 8 MOOV MODEL 9 BETA M2/MG 10 MINIMUM GS	G - MODEL	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	LENTS CV .45 .55 .26 .10 .12 .15 .15 .22 .00 .00		2		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A HODEL 4 SECCHI MODEL 5 ORGANIC N H 6 TP-OP MODEL 7 HOOV MODEL 8 MOOV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF	FECT	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000	LENTS CV .45 .55 .26 .10 .10 .12 .15 .22 .00 .00 .00		2		
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 8 MOOV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLORDPHYLL	FECT	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620	LENTS CV .45 .26 .10 .12 .15 .15 .22 .00 .00 .00 .00				9
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 9 BETA M2/M0 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14	FECT FECT CASE	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES	IENTS CV .45 .26 .10 .12 .15 .15 .22 .00 .00 .00 .00				9
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODEL 5 ORGANIC N M 6 TP-OP MODEL 7 HODV MODEL 8 MODV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Water quality WES Landsat st	FECT A CV A CV A CV A CV A CV A CV A CV A CV	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES	IENTS CV .45 .55 .26 .10 .12 .15 .22 .00 .00 .00 .00		3		9
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL 7 HODV MODEL 8 MODV MODEL 8 MODV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Water quality WES Landsat st WES tributary for YC, BC,	FECT Gata for Ludy data fro	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES 1991 m 1991	IENTS CV .45 .55 .26 .10 .12 .15 .22 .00 .00 .00 .00		3		a
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL 7 HODV MODEL 8 MODV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Water quality WES Landsat st WES tributary for YC, BC, Landuse is tri P. Light Flue	FECT CASE data for udy data fro SC and b butary a butary a butary a	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES 1991 MT 1991 Kerage	IENTS CV .45 .26 .10 .12 .15 .15 .22 .00 .00 .00		3		9
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A MODEL 4 SECCHI MODE 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 8 MOOV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Water quality WES Landsat st WES tributary for YC, BC, Landuse is tri P, Light, Flus	FECT CASE data for cudy data fro SC and b butary a shing Moo	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES 1991 MM 1991 Coverage Jet	IENTS CV .45 .26 .10 .12 .15 .15 .22 .00 .00 .00		3		9
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A HODEL 4 SECCHI MODEL 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 9 BETA M2/MG 10 MINIMUM QS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Water quality WES Landsat st WES tributary for YC, BC, Landuse is tri P, Light, Flus (Uncalibrated)	FECT GODEL GODE GODE GODE GODE GODE GODE GODE GODE	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES 1991 Xm 1991 Xc verage Jel	IENTS CV .45 .26 .10 .12 .15 .15 .22 .00 .00 .00				
INPUT GROUP 13 IC COEFFICIENT 1 P DECAY RAT 2 N DECAY RAT 3 CHL-A HODEL 4 SECCHI MODEL 5 ORGANIC N M 6 TP-OP MODEL 7 HOOV MODEL 9 BETA M2/MG 10 MINIMUM GS 11 FLUSHING EF 12 CHLOROPHYLL INPUT GROUP 14 Water quality WES Landsat st WES tributary for YC, BC, Landuse is tri P, Light, Flus (Uncalibrated)	FECT Gata for SC and W SC and W Sc and W Sc and W Sc and W Sc and W	COEFFIC MEAN 1.000 1.000 1.000 1.000 1.000 1.000 1.000 .020 .100 1.000 .620 NOTES 1991 Xm 1991 Xc Xverage del	IENTS CV .45 .26 .10 .12 .15 .15 .22 .00 .00 .00				-

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West	Point 1991 (P Caliba	ited)
INPUT	GROUP 2 - PRINT OPTI	ONS
1 LIS	TINPUTS	0 NO
2 HYDI	RAULICS & DISPERSION	1 YES
3 GRO	SS WATER & MASS BALA	INCES 2 ESTIMATED CONCS
5 SIM	ATLED BALANCES DI SE	EGMENT ONO
6 COM	PARE OBS & PREDICTED	CONCS O NO
7 DIA	GNOSTICS	1 ALL SEGMENTS
8 PRO	FILES	1 ESTIMATED CONCENTRATIONS
9 PLO	IS ANALYSIS	2 GEOMETRIC SCALE
IU SEN	STITUTT ANALISIS	U RO
INPUT O	GROUP 3 - MODEL OPTI	ONS O NOT COMPLITED
2 PHO:	SPHORUS BALANCE	1 2ND ORDER, AVAIL P
3 NITH	ROGEN BALANCE	O NOT COMPUTED
4 CHL	DROPHYLL-A	2 P, LIGHT, T
5 SEC	CHI DEPTH	1 VS. CHLA & TURBIDITY
6 DIS	PERSION	1 FISCHER-NUMERIC
8 NIT	ROGEN CALIBRATION	1 DECAY RATES
9 ERR	OR ANALYSIS	1 MODEL & DATA
10 AVA	ILABILITY FACTORS	0 MODEL 1 ONLY
INPUT I	SROUP 4 - VARIABLES	
VADTAD	ATMOSPHERIC LO	
1 CON		-00 -00
2 TOT	AL P 30.00	.50 1.00
3 101/	AL N 1000.00	.50 1.00
4 ORTI	HO P 15.00	.50 .00
5 INO	RG N 500.00	.50 .00
INPUT O	GROUP 5 - GLOBAL PAR	AMETERS
1 PER	TOD LENGTH YRS	.583 .000
-	IPITATION M	.790 .200
2 PRE	att a that I what h	
2 PRE	PORATION M	1.000 .300
2 PRE	PORATION M REASE IN STORAGE M	1.000 .300 -1.580 .000
2 PRE 3 EVAI 4 INC 5 FLO	PORATION M REASE IN STORAGE M J FACTOR	1.000 .300 -1.580 .000 1.000 .000
2 PRE 3 EVA 4 INC 5 FLO 6 DIS 7 TOT	PORATION M REASE IN STORAGE M J FACTOR PERSION FACTOR AL AREA KH2	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000
2 PRE 3 EVAL 4 INC 5 FLO 6 DIS 7 TOT 8 TOT	PORATION M REASE IN STORAGE M V FACTOR PERSION FACTOR AL AREA KM2 AL VOLUME HM3	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 .000 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DIS 7 TOT 8 TOT INPUT (	CORATION M REASE IN STORAGE M FACTOR PERSION FACTOR AL AREA KH2 AL VOLUME HH3 SROUP 6 - TRIBUTARY	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS
2 PRE 3 EVAI 4 INC 5 FLO 6 DIS 7 TOT 8 TOT 1NPUT ( 1D TYPE	PORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KM2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KH2 HM3/YR
2 PRE 3 EVAI 4 INC 5 FLO 6 DIS 7 TOT 8 TOT 1 NPUT ( 1 1	PORATION M REASE IN STORAGE M V FACTOR PERSION FACTOR AL AREA KM2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KH2 HM3/YR 6941.000 5070.940 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DIS 7 TOT 8 TOT 1 NPUT ( 1 1 2 2 2	PORATION M REASE IN STORAGE M V FACTOR PERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KN2 NM3/YR 6941.000 5070.940 .000 69.070 16.133 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DIS 7 TOTA 8 TOTA 1 NPUT ( 1 1 2 2 3 2 4 2 2 2 4 2 2 2	PORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW KH2 HM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.605 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DISI 7 TOT/ 8 TOT/ 1 D TYPI 1 1 2 2 3 2 4 2 5 2 5 2 4 2 5 2 4 2 5 2 4 2 5 2 5 2 6 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7	PORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS AND FLOWS VALUE HN3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DISI 7 TOT/ 8 TOT/ 1 D TYPI 1 1 2 2 3 2 4 2 5 2 6 1	PORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 MM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DISI 7 TOT/ 8 TOT/ 1 1 2 2 3 2 4 2 5 2 6 1 7 2	PORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 MM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 7.390 1.751 .000
2 PRE 3 EVAI 4 INC 5 FLOS 7 TOT/ 8 TOT/ 1 1 2 2 3 2 4 2 5 2 6 11 7 2 8 1	CORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KM2 AL VOLUME HM3 SROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 HM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000
2 PRE 3 EVAI 4 INC 5 FLOS 7 TOT/ 8 TOT/ 1 1 2 2 3 2 4 2 5 2 6 11 7 2 8 1 9 1	CORATION M REASE IN STORAGE M W FACTOR PERSION FACTOR AL AREA KM2 AL VOLUME HM3 SROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AY FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH E 624	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KH2 HH3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 29.430 16.000 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DISI 7 TOT, 8 TOT/ INPUT ( 1 1 2 2 3 2 4 2 5 2 6 1 7 2 8 1 9 1 10 2 11 2 2	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KM2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 B7B	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KH2 HH3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 23.500 12.000 .000 7.780 1.844 .000
2 PRE 3 EVAI 4 INC 5 FLO 6 DISI 7 TOT, 8 TOT/ INPUT ( 1 1 2 2 3 2 4 2 5 2 6 1 7 2 8 1 9 1 10 2 11 2 2 12 2 12 2	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KM2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 B3B 5 DIXIE	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KH2 HM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 23.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000
2 PRE 3 EVAI 4 INCI 5 FLOD 6 DISI 7 TOTI 8 TOTI 1 1 2 2 3 2 4 2 5 2 6 1 7 2 8 1 7 2 8 1 9 1 10 2 11 2 12 2 12 2 1 2 1 2 1 2 1 2	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KM2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 B3B 5 DIXIE 5 JACKSON	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KH2 HM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 23.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000
2 PRE 3 EVAI 4 INCI 5 FLOD 6 DISI 7 TOTI 8 TOTI 1 1 2 2 3 2 4 2 5 2 6 11 7 2 8 1 7 2 8 1 9 1 10 2 11 2 12 2 11 2 12 2 12 2 12 2 11 2 12	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KM2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 DIXIE 5 JACKSON 5 J1	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KH2 HM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 50.200 99.739 .000 50.200 99.739 .000 22.500 12.000 .000 22.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000 48.620 11.523 .000
2 PRE( 3 EVA( 4 INC) 5 FLOG 6 DIS( 7 TOT) 8 TOT) 1 1 2 2 3 2 4 2 2 5 2 2 6 1 1 7 2 2 8 1 7 2 2 8 1 7 2 2 8 1 7 2 2 1 1 2 2 1 3 2 2 1 4 4 2 1 4 4 2 1 4 4 2 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 DIXIE 5 JACKSON 5 J1 5 Y1A	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 MM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000 48.620 11.523 .000 8.750 2.074 .000 5.830 1.382 .000
2 PRE 3 EVAI 4 INCI 5 FLOG 6 DISI 7 TOTI 8 TOTI 1 1 2 2 3 2 4 2 2 5 2 1 7 2 8 1 9 1 2 10 2 11 2 2 3 8 1 10 2 11 2 2 12 8 1 10 2 11 12 2 2 14 2 2 14 2 2 14 2 2 15 2 2 17 12 17 12 18 12 19 12 10 2 11 2 2 11 2 2 11 2 2 12 2 2 13 2 2 14 2 2 15 2 2	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 B3B 5 DIXIE 5 JACKSON 5 J1 5 YIA 5 WILLOW/SHERWOO 6 ULLOW/SHERWOO 6 ULLOW/SHERWOO 6 ULLOW/SHERWOO	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 MM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000 8.750 2.074 .000 5.830 1.382 .000 8.750 2.074 .000 5.830 1.382 .000
2 PREI 3 EVAI 4 INCI 5 FLOG 6 DISI 7 TOTI 8 TOTI 1 1 2 2 3 2 4 2 2 5 2 1 7 2 2 8 1 1 10 2 11 2 2 3 2 4 2 2 5 4 2 2 6 1 1 1 2 2 3 1 2 2 1 2 1 2 2 1 1 2 2 1 2 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 B3B 5 DIXIE 5 JACKSON 5 J1 5 Y1A 5 WILLOW/SHERWOC 6 WHITEWATER 6 THOMPSON	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 MM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000 48.620 11.523 .000 8.750 2.074 .000 5.830 1.382 .000 8.750 2.074 .000 5.830 1.382 .000 8.750 2.074 .000 5.830 1.382 .000 8.750 2.074 .000 5.830 1.382 .000 6.550 5.000 .000 8.751 .000
2 PRE 3 EVAI 4 INCI 5 FLO 6 DISI 7 TOTI 8 TOTI 1 1 1 2 2 3 2 4 2 5 2 6 1 1 7 2 8 10 1 2 2 3 2 4 2 5 2 6 1 2 1 2 2 1 3 2 2 1 1 2 2 1 7 1 7 1 8 2 2 2 1 7 1 7 1 8 2 2 2 1 7 1 7 1 8 1 9 2 2 1 1 7 1 9 2 2 1 1 7 1 9 2 1 9 1 1 9 2 1 9 1 1 9 2 1 9 1	CORATION M REASE IN STORAGE M W FACTOR DERSION FACTOR AL AREA KH2 AL VOLUME HM3 GROUP 6 - TRIBUTARY E SEG NAME 10 CHAT AT FRANK 1 BRUSH 2 NEW RIVER 3 POTATO 4 WOLF 5 YELLOWJACKET 5 YC 5 SHOAL 5 BEECH 5 B3A 5 B3B 5 DIXIE 5 JACKSON 5 J1 5 Y1A 5 WILLOW/SHERWOC 6 WHITEWATER 6 THOMPSON 7 WILSON	1.000 .300 -1.580 .000 1.000 .000 1.000 .700 .000 .000 DRAINAGE AREAS AND FLOWS DRAINAGE AREAS MEAN FLOW CV OF MEAN FLOW KM2 MM3/YR 6941.000 5070.940 .000 69.070 16.133 .000 119.400 28.298 .000 235.000 55.695 .000 50.200 11.897 .000 50.200 99.739 .000 50.200 99.739 .000 7.390 1.751 .000 22.500 12.000 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 7.780 1.844 .000 5.830 1.382 .000 48.620 11.523 .000 8.750 2.074 .000 5.830 1.382 .000 8.750 2.074 .000 5.830 1.382 .000 0.58.890 9.217 .000 86.550 5.000 .000 64.180 15.211 .000

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			1872						
21	2	8	GUSS		180,890	42.871	.000		
22	2	8	CANE	Y	97.250	23.048	.000		
23	2	8	L.WE	HADKEE	132.260	31.346	.000		
24	2	8	WEZ		31.120	7.375	.000		
26	ź	8	STRO	UD D	40.840	9.679	.000		
27	2	8	VEAS	EY	33.060	7.835	.000		J.
28	2	9	MAPLI	E	64.180	15.211	.000		
29	2	10	TALLI	EY	35.010	8.297	.000		
30	2	10	ZACH/	ARY 2	35.010	8,297	.000		
32	2	11	B2	2	52.510	12.445	.000		
33	2	12	P5-P6	6	31.110	7.373	.000		
34	2	13	P7		19.450	4.610	.000		
35	2	14	P8		5.830	1.382	_000		
36	2	15	P9		33.060	7.835	-000		
30	2	10	12R		18.080	4.285	.000		
39	2	18	W2		7,780	1.844	.000		
40	2	19	₩3		18.080	4.285	.000		
41	2	20	WI1/1	12	44.730	10.601	-000		
42	2	21	WI3/	V2A	22.360	5.299	.000		
43	4	22	CHAT	AT WP	9194.000	5885.000	.000		
INPL	JT GF	ROUP	7 - 1	TRIBUTARY CON	CENTRATIONS (	PPB): MEAN/CV			
ID		CONS	SERV	TOTAL P	TOTAL N	ORTHO P	INORG N	ECORG P	
1		.0/	.00	198.8/ .10	.0/ .00	.0/ .00	.0/ .00	.0	
2		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
3		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	-0	
5		-0/	00	34.5/ 15	.0/ .00	.0/ .00	.0/ .00	.0	
6		.0/	.00	48.0/ .15	964.0/ .11	25.5/ .35	242.4/ .09	.0	
7		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
8		.0/	.00	32.0/ .10	702.0/ .02	5.4/ .13	242.4/ .09	.0	
9		.0/	.00	39.0/ .06	751.0/ .05	9.5/ .16	206.8/ .08	.0	
11		.0/	.00	34.5/ .15	_0/_00	.0/ .00	.0/ .00	.0	
12		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
13		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
14		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
15		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
16		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
18		.0/	.00	34 5/ 15	125.0/ .05	3.8/ .11	160.27 .10	.0	
19		.0/	.00	34.5/ .15	.0/ .00	-0/ -00	.0/ .00	.0	
20		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
21		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
22		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
25		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
25		.0/	.00	34.5/ 15	.0/ .00	0/ 00	.07 .00	.0	
26		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
27		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
28		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
29		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
30		.0/	-00	34.5/ 15	.0/ .00	.0/ .00	.07 .00	.0	
32		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
33		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
34		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
35		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
36		.0/	.00	54.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
3/		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
39		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
40		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	
41		.0/	.00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0	

	42	.0/	.00	34.5	/ .15	.0,	.00	.0,	.00	.0/	.00	.0
	43 44	.0/ .0/	.00	34.5	/ .15 / .00	.0,	.00	.0/	.00	.0/	.00	.0
	INPUT	GROUP	8 - M	ODEL S	EGMENT	s		64		ION FACT	ORS	
	SEG OL	TFLOW	GROUP	SEGME	NT NAM	E I	P SED	N SED	CHL-A	SECCHI	HOD	DISP
	2	10	8	NR			1.73	1.00	1.02	1.00	1.00	1.000
	3	14	8	WO			1.73	1.00	1.02	1.00	1.00	1.000
	5	16 17	23	YE WH			1.11	1.00	1.49	1.00	1.00	1.000
	7	19 20	1				.29	1.00	1.37	1.00	1.00	1.000
	9	22	7	MA			3.28	1.00	1.69	1.00	1.00	1.000
	11	12	· 5	CH1 CH2			2.24	1.00	.85	1.00	1.00	1.000
	12 13	13 14	5	CH3 CH4			2.24	1.00	1.46	1.00	1.00	1.000
	14	15	5	CH5			2.24	1.00	3.02	1.00	1.00	1.000
	16	17	5	CH7			2.24	1.00	2.61	1.00	1.00	1.000
	18	19	6	CH8			9.25	1.00	2.07	1.00	1.00	1.000
	19 20	20 21	6	CH10 CH11			9.25	1.00	2.07	1.00	1.00	1.000
	21	22	6	CH12			9.25	1.00	2.07	1.00	1.00	1.000
	INPIT	GROUP	0 - 0	FGMENT	MORPH		MFAN/	-v	2.01			
	10.14		, ,	LEN	GTH	AREA	ZMEAN			ZHY	TARG	ET P
	1 BR	42L		2	.50	.6900	2.21	2.2	1/ .12	.00/	.00	.0
	2 NR 3 PO			4	.60	1.3500	1.89	2.2	9/ .12	.00/	.00	.0 .0
	4 WO			1	.70	.2400	.34	.34	4/ .12	.00/	.00	.0
	6 WH			5	.40	6.0900	5.40	4.8	3/ .12	.00/	.00	.0
	8 WE			19	.60	16.7600	6.20	5.3	1/ .12	.00/	.00	.0
	9 MA 10 CH	1		5	.00	9.2100	8.20	2 2.8	9/ .12	.00/	.00	.0
	11 CH	2		2	.50	1.8200	3.50	3.5	2/ .12	.00/	.00	.0
	13 CH	4		2	.50	3.9300	5.20	4.7	4/ .12	.00/	.00	.0
	14 CH	6		2	.50	4.6700	7.60	5.7	6/ .12	.00/	.00	.0
	16 CH	7 8		1	.30	.6500 4.6500	7.42	2 5.8	6/ .12	.00/	-00 -00	.0 .0
	18 CH	9		1	.70	5.2000	7.0	5.6	8/ .12	.00/	.00	.0
	20 CH	11		2	.50	11.2700	9-82	6.7	1/ .12	.00/	.00	.0
	21 CH 22 CH	12		1	.70	4.2800	14.40	5 7.6	8/ .12	.00/	.00	.0
	INPUT	GROUP	10 -	OBSERV	ED WA	TER QUAL	ITY					
	SEG	TURB	ID CON	ISER TO	IG/H3	MG/M3	CHL-A S	SECCHI	ORG-N MG/M3	TP-OP MG/M3	HODV MG/M3-D	MODV MG/M3-D
	1 MN	: 1.	62 00	.0	.0	.0	.0	.0	.0	.0	0	.0
2	2 MN	1.	22 6	3.8	51.5	652.0	19.4	.6	.0	.0	.0	.0
	3 MN	1.	62	.0	.00	.0	.0	.00	.00	.00	.00	.0
	CV 4 MN	: 1.	00 62	.00	-00	.00	00. 0.	00. 0.	.00 .0	.00	.00	.00
			00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	CV	: :	18	.10	.12	.14	.11	.10	.00	.00	.00	.00

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		2											
	6	MN:	.50	.0	.0	.0	19.2	1.1	.0	.0	.0	.0	
	50	CV:	. 14	.00	.00	.00	.09	.07	.00	.00	.00	.00	
	7	MN :	.37	80.7	38.6	926.0	17.5	1.4	.0	.0	.0	.0	
		CV:	.10	.03	.07	.02	.08	.03	.00	.00	.00	.00	
	8	MN:	.48 (	65.5	20.6	4/1.0	12.3	1.4	.0	.0	.0	.0	
	0	MN -	30	78.3	22 3	605.0	12.4	1.6	.00	.00	.00	-0	:
		CV:	.19	.02	.10	.07	.16	.10	.00	.00	.00	.00	
	10	MN:	1.86	86.0	.0	.0	3.3	.5	.0	.0	.0	.0	
		CV:	.20	.00	.00	.00	.37	.19	.00	.00	.00	.00	
	11	MN :	2.10	.0	.0	.0	6.0	.4	.0	.0	.0	.0	
	12	CV:	- 19	-00 82 /	.00	1095 0	.29	-18	.00	.00	.00	.00	
	12	CV:	13	_01	.08	.09	24	12	00	.00	.00	.00	
	13	MN :	1.30	.0	.0	.0	16.8	.6	.0	.0	.0	.0	
	22	CV:	.19	.00	.00	.00	.30	.14	.00	.00	.00	.00	
	14	MN:	.90	77.2	74.5	1087.0	17.5	.8	.0	.0	.0	.0	
		CV:	-20	.07	.12	.05	.20	- 13	.00	.00	.00	.00	
	15	MN:	-62	79.7	66.0	856.0	20.1	1.0	.0	-0	.0	.0	
	16	LV:	.18	.05	-17	.22	.10	.10	.00	.00	.00	.00	
	10	CV:	.23	.00	.00	00	.08	10	.00	.00	.00	.00	
	17	MN :	.44	79.3	47.5	965.0	22.0	1.1	.0	.0	.0	.0	
		CV:	. 15	.00	.10	.07	.10	.06	.00	.00	.00	.00	
	18	MN :	.34 1	80.8	41.4	932.0	20.0	1.4	.0	.0	.0	.0	
	10	CV:	.17	.02	.08	.05	.11	.05	.00	.00	.00	-00	
	19	PIN:	-50	.0	-0	.0	19.7	1.4	.0	.0	.0	.0	
	20	MN-	. 10	70.1	33 5	707 0	16 4	1 5	.00	.00	.00	.00	
		CV:	.19	.03	.12	.10	.12	.08	.00	.00	.00	-00	
	21	MN :	.35	77.2	25.8	722.0	13.6	1.6	.0	.0	.0	_0	
		CV:	.20	.03	.06	.06	.12	.10	.00	.00	.00	.00	
	22	MN :	.33	79.3	23.0	675.0	14.9	1.6	.0	.0	.0	.0	
		LV:	-22	.00	.03	.07	.13	.10	.00	.00	.00	.00	
	INP	ит о	GROUP 11 -	NON-I	POINT W	ATERSHE	AREAS	(()()(2)					
	ID	COD	NAME		Aver	aged la	nduse2	anduse3	landus	e4			
	2	2	BRUSH		6	8.07	.00	.00		00			
	3	2	NEW RIVER		11	9.40	.00	-00	•	00			
	4	2	POIATO		23	0.20	-00	.00	•	00			
	7	2	YC			7.39	00	.00		00			
	8	1	SHOAL		2	2.50	.00	-00		00			
	10	2	B3A			7.78	.00	.00		00			
	11	2	B3B			7.78	.00	.00		00			
	12	2	DIXIE			5.83	.00	-00	•	00			
	15	2	JACKSON		4	8.62	-00	.00	-	00			
	15	2	Y1A			5.83	.00	.00		00			
	16	2	WILLOW/SHE	ERMOOL	) 3	8.89	.00	.00		00			
	18	2	THOMPSON		6	4.18	.00	.00		00			
	19	2	WILSON		3	8.90	.00	.00		00			5
	20	2	WEHADKEE		8	1.35	.00	.00		00			
	21	2	GUSS		18	0.89	.00	.00	-	00			
	23	2	L.WEHADKER	F	13	2.26	.00	.00		00			
	24	2	WE2		3	1.12	.00	.00	1	00			
	25	2	WE3			9.72	.00	.00		00			
	26	2	STROUD		4	0.84	.00	.00		00			
	27	2	VEASEY		3	3.06	.00	.00	-	00			
	28	2	MAPLE		6	4.18	.00	.00	•	00			
	20		IALLET		2	5.01	.00	-00	•	00			
	29	2	ZACHADY					.00		00			
	29 30 31	222	ZACHARY 71-72		5	4.72	.00	00		00			
9	29 30 31 32	2 2 2 2 2	ZACHARY Z1-Z2 B2		3 4 5	4.72	.00	.00	ŧ	00 00			
9	29 30 31 32 33	22222	ZACHARY Z1-Z2 B2 P5-P6		3 4 5 3	4.72 2.51 1.11	.00 .00 .00	.00 .00 .00		00 00 00			
9	29 30 31 32 33 34	222222	ZACHARY Z1-Z2 B2 P5-P6 P7		3 4 5 3 1	4.72 2.51 1.11 9.45	.00 .00 .00	.00 .00 .00		00 00 00			
4	29 30 31 32 33 34 35	~~~~~~~~~~	ZACHARY Z1-Z2 B2 P5-P6 P7 P8		3 4 5 3 1	4.72 2.51 1.11 9.45 5.83	.00 .00 .00 .00	.00 .00 .00 .00	•	00 00 00 00 00			
9	29 30 31 32 33 34 35 36	222222222	ZACHARY Z1-Z2 B2 P5-P6 P7 P8 P9		3 4 5 3 1 3	4.72 2.51 1.11 9.45 5.83 3.06	.00 .00 .00 .00 .00	.00 .00 .00 .00 .00	-	00 00 00 00 00 00			

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2 J2A 18.08 .00 .00 .00 37 .00 .00 .00 38 2 J2B 8.36 .00 39 2 12 .00 7.78 .00 2 13 .00 40 18.08 .00 .00 41 2 WI1/W12 44.73 .00 .00 .00 42 2 W13/V2A 22.36 .00 .00 .00 2 V2B .00 .00 .00 43 14.58 INPUT GROUP 12 - NON-POINT EXPORT CONCENTRATIONS RUNOFF CONSERV TOTAL P TOTAL N ORTHO P INORG N IC LAND USE M/YR PPB PPB PPB PPB PPB .0 1 Averaged Use .24 .0 34.5 .0 .0 .00 CV: .00 .00 .15 .00 .00 2 Landuse2 .00 .0 .0 .0 .0 .0 .00 CV: .00 .00 .00 .00 .00 .0 .0 3 Landuse3 .00 .0 .0 .0 .00 CV: .00 .00 .00 .00 .00 4 Landuse4 .00 .0 .0 .0 .0 .0 CV: .00 .00 .00 .00 .00 .00 INPUT GROUP 13 - MODEL COEFFICIENTS IC COEFFICIENT MEAN CV 1 P DECAY RATE 1.000 .45 2 N DECAY RATE 1.000 .55 3 CHL-A MODEL 1.000 .26 1.000 4 SECCHI MODEL .10 5 ORGANIC N MODEL 1.000 .12 6 TP-OP MODEL 1.000 .15 .15 HODY MODEL 1.000 7 1.000 8 MODV MODEL .22 .020 9 BETA M2/MG .00 10 MINIMUM QS .100 .00 **11 FLUSHING EFFECT** 1.000 .00 12 CHLOROPHYLL-A CV .00 .620 INPUT GROUP 14 - CASE NOTES Water quality data for 1991 WES Landsat study WES tributary data from 1991 for YC, BC, SC and WC Landuse is tributary average P, Light, Flushing Model (Calibrated) Regional and local calibration

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WEST POINT 90 (P Verification) INPUT GROUP 2 - PRINT OPTIONS 1 LIST INPUTS O NO 2 HYDRAULICS & DISPERSION 1 YES 3 GROSS WATER & MASS BALANCES 2 ESTIMATED CONCS 4 DETAILED BALANCES BY SEGMENT O NO 5 SUMMARIZE BALANCES BY SEGMENT O NO 6 COMPARE OBS & PREDICTED CONCS 0 NO 7 DIAGNOSTICS O NO 8 PROFILES 1 ESTIMATED CONCENTRATIONS 9 PLOTS 2 GEOMETRIC SCALE 10 SENSITIVITY ANALYSIS O NO INPUT GROUP 3 - MODEL OPTIONS **1 CONSERVATIVE SUBSTANCE** O NOT COMPUTED 2 PHOSPHORUS BALANCE 1 2ND ORDER, AVAIL P 3 NITROGEN BALANCE **0 NOT COMPUTED** 4 CHLOROPHYLL-A 2 P, LIGHT, T **5 SECCHI DEPTH** 1 VS. CHLA & TURBIDITY 6 DISPERSION 1 FISCHER-NUMERIC 7 PHOSPHORUS CALIBRATION **1 DECAY RATES** 8 NITROGEN CALIBRATION **1 DECAY RATES** 9 ERROR ANALYSIS 1 MODEL & DATA **10 AVAILABILITY FACTORS** 1 ALL MODELS EXCEPT 2 INPUT GROUP 4 - VARIABLES ATMOSPHERIC LOADINGS AVAILABILITY KG/KM2-YR VARIABLE CV FACTOR 1 CONSERV .00 .00 .00 2 TOTAL P 30.00 .50 1.00 3 TOTAL N 1000.00 .50 1.00 4 ORTHO P 15.00 .50 -00 5 INORG N 500.00 .50 .00 INPUT GROUP 5 - GLOBAL PARAMETERS PARAMETER MEAN CV 1 PERIOD LENGTH YRS .583 .000 2 PRECIPITATION M .501 .200 3 EVAPORATION M 1.222 .300 **4 INCREASE IN STORAGE M** -1.250 .000 **5 FLOW FACTOR** 1.000 .000 6 DISPERSION FACTOR 1.000 .700 7 TOTAL AREA KM2 .000 .000 8 TOTAL VOLUME HM3 .000 .000 INPUT GROUP 6 - TRIBUTARY DRAINAGE AREAS AND FLOWS ID TYPE SEG NAME DRAINAGE AREA MEAN FLOW CV OF MEAN FLOW HM3/YR KH2 6941.000 10 CHAT AT FRANK 1 1 3926.000 .000 2 2 1 Brush 68.070 10.211 .000 3 2 2 Newriver 119.400 17.910 .000 2 3 Potato 4 235.300 35.295 .000 5 2 4 Wolf 29.170 4.376 .000 2 5 Yellowjacket 6 50.200 7.530 .000 2 5 Yc 7 7.390 1.109 .000 22 8 5 shoal 22.500 3.375 .000 9 5 beech 29.430 4.415 .000 10 5 b3a 2222 7.780 .000 1.167 11 5 b3b 7.780 1.167 .000 5 dixie 12 5.830 .875 .000 13 5 jackson 48.620 7.293 .000 2 2 14 5 J1 8.750 1.313 .000 15 5 y1a 5.830 .875 .000 22 5 Willow/Sherwood 16 5.833 38.890 .000 17 6 whitewater 86.550 12.983 .000 18 2 6 thompson 64.180 9.627 .000 19 2 7 wilson 38.900 .000 5.835 z 20 8 wehadkee 81.350 12.203 .000

Appendix D Model Input Files for West Point Lake

21	2 8 guss		180.890	27.134	.000	
22	2 8 cane	Y	97.250	14.588	.000	
23	2 8 l.we	hadkee	132.260	19.839	.000	
24	2 8 we2		31.120	4.668	.000	
25	2 8 we3		9.720	1.458	.000	
20	2 8 stro	kudi -	40.840	6.126	.000	
28	2 6 veas	ey	55.060	4.959	.000	
29	2 10 tall	ev	27,230	4.085	.000	
30	2 10 zach	arv	35.010	5.252	.000	
31	2 10 z1-z	2	44.720	6.708	-000	
32	2 11 b2		52.510	7.877	.000	
33	2 12 p5-p	6	31.110	4.667	.000	
34	2 13 p7		19.450	2.918	.000	
35	2 14 p8		5.830	.875	.000	
30	2 15 py		33.060	4.959	.000	
38	2 17 126		8 360	1 254	.000	
39	2 18 12		7,780	1,167	.000	
40	2 19 13		18,080	2.712	.000	
41	2 20 wi1/	wi2	44.730	6.710	.000	
42	2 21 wi3/	v2a	22.360	3.354	.000	
43	2 22 v2b		14.580	2.187	.000	
44	4 22 dis.	chat.wp	9194.000	4209.520	.000	
INPL	JT GROUP 7 -	TRIBUTARY CON	CENTRATIONS (P	PB): MEAN/CV		
ID	CONSERV	TOTAL I	P TOTAL N	ORTHO P	INORG N	ECORG
1	97.97 .02	1/8.8/ .10	1385.8/ .08	. 62.6/ .08	1105.4/ .0/	-0
2	.0/ .00	34.5/ 15	.0/ .00	.0/ .00	.0/ .00	-0
4	.0/ .00	34.5/ .15	-0/ -00	.0/ .00	.0/ .00	.0
5	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
6	.0/ .00	34.5/ .15	.0/ .00	0/ .00	.0/ .00	.0
7	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
8	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
.9	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
10	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
12	0/ 00	34.5/ 15	.0/ .00	.07 .00	.0/ .00	.0
13	.0/ .00	34.5/ .15	.0/ .00	0/ 00	0/ 00	.0
14	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
15	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
16	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
17	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
18	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
20	.0/ .00	34.5/ 15	.07 .00	.0/ .00	.07 .00	.0
21	-0/ -00	34.5/ .15	.0/ .00	.0/ .00	0/ 00	.0
22	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	-0
23	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
24	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
25	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
26	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
21	.0/ .00	54.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
	.0/ .00	34.5/ .15	.0/ .00	.0/ .00	.0/ .00	-0
20	-0/ 00	34.5/ 15	.0/ .00	.0/ .00	.0/ .00	.0
29		34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
29 30 31	.0/ .00		.0/ .00	.0/ .00	.0/ .00	.0
29 30 31 32	.0/ .00	34.5/ .15		.0/ .00	.0/ .00	.0
29 30 31 32 33	.0/ .00 .0/ .00 .0/ .00	34.5/ .15	.0/ .00	-	STADAL SADAL	0
29 30 31 32 33 34	.0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/ .15 34.5/ .15 34.5/ .15	.0/ .00	.0/ .00	.0/ .00	.0
29 30 31 32 33 34 35	.0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15	.0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00	.0/ .00 .0/ .00	.0
29 30 31 32 33 34 35 36	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15	.0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00	.0 .0
29 30 31 32 33 34 35 36 37	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15	.0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00	.0 .0 .0
29 30 31 32 33 34 35 36 37 38	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00	0. 0. 0.
29 30 31 32 33 34 35 36 37 38 39 40	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15 34.5/.15	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0.0.0.0
29 30 31 32 33 34 35 36 37 38 39 40 41	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15 34.5/ .15	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0.0 0.0 0.0
29 30 31 32 33 34 35 36 37 38 90 41 42	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	34.5/ .15 34.5/ .15	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	00. \0. 00. \0. 00. \0. 00. \0. 00. \0. 00. \0. 00. \0. 00. \0. 00. \0.	.0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00 .0/ .00	0. 0. 0. 0. 0.

43 .0/ .00	34.5/.15 .0	/.00 .0/	.00 .0,	.00 .0
44 .0/ .00	.0/ .00 .0	/.00 .0,	.00 .0,	0. 00. /
INPUT GROUP 8 - M	IODEL SEGMENTS			
SEG OUTELON GROUP	SEGNENT NAME	P SED N SED	CHI-A SECCHI	HOD DISP:
1 10 8	BR	1.73 1.00	1.02 1.00	1.00 1.000
2 10 8	NR	1.73 1.00	1.02 1.00	1.00 1.000
4 14 8	WO	1.73 1.00	1.02 1.00	1.00 1.000
5 16 2	YE	1.11 1.00	1.49 1.00	1.00 1.000
6 17 3 7 10 1	WH	1.00 1.00	1.76 1.00	1.00 1.000
8 20 4	WE	1.05 1.00	1.81 1.00	1.00 1.000
9 22 7	MA	3.28 1.00	1.69 1.00	1.00 1.000
10 11 5	CH1 -	2.24 1.00	.27 1.00	1.00 1.000
12 13 5	СНЗ	.24 1.00	1.46 1.00	1.00 1.000
13 14 5	CH4	2.24 1.00	2.82 1.00	1.00 1.000
15 16 5	CH5 CH6	2.24 1.00	3.10 1.00	1.00 1.000
16 17 5	CH7	2.24 1.00	2.61 1.00	1.00 1.000
17 18 6	CH8	9.25 1.00	2.07 1.00	1.00 1.000
19 20 6	CH10	9.25 1.00	2.07 1.00	1.00 1.000
20 21 6	CH11	9.25 1.00	2.07 1.00	1.00 1.000
21 22 6	CH12	9.25 1.00	2.07 1.00	1.00 1.000
	cirio	7.23 1.00	2.07 1.00	1.00
INPUT GROUP 9 - S	EGMENT MORPHOMETRY:	MEAN/CV		TARCET D
ID LABEL	KM KM2	ZACAN A	M ZHI	M PPB
1 BR .	2.50 .6900	2.21 2.21	/ .12 .00,	0.00 .0
2 NR 3 PO	4.60 1.3500	1.89 1.89	2/.12 .00/	0.00.
4 140	1.70 .2400	.34 .34	.12 .00	/ .00 .0
5 YE	19.70 12.8000	4.25 4.00	6/ .12 .00,	0. 00.
7 WI	2.50 1.0800	4.81 4.40	5/ 12 .00	/ .00 .0
8 WE	19.60 16.7600	6.26 5.3	/ .12 .00/	0. 00.
9 MA	5.00 9.2100	8.26 6.19	0/.12 .00/	0. 00.
11 CH2	2.50 1.8200	3.56 3.52	2/.12 .00/	/ .00 _0
12 CH3	2.50 1.8900	4.48 4.23	5/ .12 .00,	0.00
13 CH4 14 CH5	2.50 3.9300	5.26 4.74	/ .12 .00	0.00
15 CH6	2.50 4.6700	7.66 5.90	5/ .12 .00,	/ .00 .0
16 CH7	1.30 .6500	7.42 5.80	5/ .12 .00,	0.00.
18 CH9	1.70 5.2000	7.03 5.68	3/.12 .00/	/.00 .0
19 CH10	2.50 3.6100	8.96 6.44	/ .12 .00,	0.00
20 CH11 21 CH12	2.50 11.2700	9.82 6.7	/ .12 .00/	/.00 .0
22 CH13	1.70 4.2800	14.46 7.68	3/ .12 .00,	/ .00 .0
THRUT CROUP 10 -		177		
SEG TURBID CON	SER TOTALP TOTALN	CHL-A SECCHI	ORG-N TP-OP	HODV MODV
1/M	? MG/M3 MG/M3	NG/H3 M	MG/M3 MG/H3	MG/M3-D MG/M3-D
CV: .00	.00 .00 .00	.00 .00	.00 .00	.00 .00
2 MN: 1.22	.0 .0 .0	.0 .0	.0 .0	.0 .0
CV: .00	.00. 00. 00.	.00 .00	.00 .00	.00 .00
CV: .00	.00 .00 .00	.00 .00	.00 .00	.00 .00
4 MN: 1.62	0. 0. 0.	.0 .0	.0 .0	.0 .0
5 MN: -49	.00.00.00	.00 .00	.00 .00	.00 .00
CV: .18				••
	.000000	.00 .00	.00 .00	.00 .00
6 MN: .50	00. 00. 00. 0. 0. 0.	00.00. 0.0.	00.00. 0.0	00.00. 0.0.

Appendix D Model Input Files for West Point Lake

D13

	-	_											
		-	4/	00	00	00	00	00	00	00	00	00	
	7	CV:	. 14	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	(	PIN :	.37	.0	.0	.0	.0	.0	.0	.0	-00	.0	
		LV:	- 10	.00	.00	.00	.00	.00	.00	.00	-00	.00	
	0	CV.	.40	.0	.0	.0	.0	.0	00	00	00	00	
	0	MN.	30	.00	.00	.00	.00	.00		.00		-00	
	,	CV.	10	.0	.0		00	00	00	00	.00	00	
	10	MN -	1.86	103.0	132 0	1526 0						.0	
	10	CV-	20	.00	21	17	00	00	.00	.00	.00	.00	
	11	MN -	2.10		.0		.0	.0	.0	.0	.0	.0	
	•••	CV:	.19	.00	.00	.00	.00	.00	-00	.00	.00	.00	
	12	MN :	1.97	.0	.0	.0	.0	.0	.0	.0	.0	.0	
		CV:	.13	.00	.00	.00	-00	.00	.00	-00	.00	.00	
	13	MN :	1.05	87.2	74.0	1060.0	23.2	.7	.0	.0	.0	.0	
	100000	CV:	-11	.15	-11	.11	.25	.00	.00	.00	.00	.00	
	14	MN :	,90	.0	.0	.0	.0	.0	.0	.0	.0	.0	
		CV:	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	15	MN :	.65	89.6	62.0	716.0	24.2	.9	.0	.0	.0	.0	
		CV:	.24	.10	.06	.25	.23	.10	.00	.00	.00	.00	
	16	MN:	.38	.0	.0	.0	.0	.0	.0	.0	.0	.0	
		CV:	.23	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	17	MN :	.44	.0	.0	_0	.0	.0	.0	.0	.0	.0	
		CV:	. 15	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	18	MN:	.50	88.2	42.0	752.0	19.8	1.1	.0	.0	.0	.0	
		CV:	.18	.08	.09	.08	.14	.08	.00	.00	.00	.00	
	19	MN :	.30	.0	.0	.0	.0	.0	.0	.0	.0	.0	
		CV:	.18	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	20	MN :	.49	85.0	26.0	630.0	14.4	1.3	.0	.0	.0	.0	
		CV:	.16	.09	-09	.15	.05	.10	.00	.00	.00	.00	
	21	MN:	.35	.0	.0	.0	.0	.0	.0	.0	.0	.0	
		CV:	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	22	MN:	-40	82.0	17.5	517.0	11.2	1.6	.0	.0	.0	.0	
		CV:	.04	•06	.14	.17	.08	.00	.00	.00	.00	-00	
								-					
	INF	UT (	ROUP 11	- NON-	POINT &	ATERSHE	D AREAS	(1012)					
	INF 1D	000 TUS	ROUP 11 NAME	- NON-	POINT W land	ATERSHE kusel la	D AREAS nduse2 l	(KM2) anduse3	landuse	4			
	INF 1D	000 000	NAME	- NON-	POINT W land	ATERSHE kusel la	D AREAS nduse2 l	(KM2) anduse3	landuse	*4			
	INF 1D 2	2 2 2	BROUP 11 NAME Brush	- NON-	POINT W lanc	ATERSHE Kusel la 18.07	D AREAS nduse2 l .00	(1012) anduse3 .00	landuse	•4 )0			
	INF 1D 2 3 4	2 2 2 2 2	ROUP 11 NAME Brush Newrive	- NON-	POINT W land 6 11	ATERSHE kusel la 68.07 19.40	D AREAS nduse2 l .00 .00	(KM2) anduse3 .00 .00	landuse .(	-4 10 10			
	INF 1D 2 3 4 5	2 2 2 2 2 2	BROUP 11 NAME Brush Newrive Potato	- NON-	POINT L lanc 6 11 23	ATERSHE kusel la 68.07 19.40 55.30	D AREAS nduse2 l .00 .00 .00	(KM2) anduse3 .00 .00 .00	landuse .( .( .(	-4 10 10		×	
	INF 1D 2 3 4 5 6	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Brush NAME Brush Newrive Potato Wolf	- NON-	POINT L Lanc 11 23 2	ATERSHE kusel la 88.07 19.40 55.30 29.17 50.20	D AREAS nduse2 l .00 .00 .00 .00	(KM2) anduse3 .00 .00 .00 .00	Landuse .( .( .(	-4 10 10 10		×	
	INF 1D 2 3 4 5 6 7	2 COD 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ROUP 11 NAME Brush Newriver Potato Wolf Yellowj: Yo	- NON- r acket	POINT & lanc 11 23 2 5	ATERSHE kusel la 9.40 5.30 29.17 50.20 7 39	D AREAS nduse2 l .00 .00 .00 .00 .00	(KM2) anduse3 .00 .00 .00 .00 .00	Landuse .0 .0 .0 .0	-4 10 10 10 10			
	INF 1D 2 3 4 5 6 7 8	2 COD 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ROUP 11 NAME Brush Newriver Potato Wolf Yellowja Yc shoal	- NON- r acket	POINT & lanc 11 23 2 5	ATERSHE kusel la (9.40 (5.30 (9.17 (6.20 7.39 22.50	D AREAS nduse2 l .00 .00 .00 .00 .00 .00	(KM2) anduse3 .00 .00 .00 .00 .00 .00	Landuse .0 .0 .0 .0 .0	+4 10 10 10 10 10		X	
	INF 1D 23456789	2 COD 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ROUP 11 NAME Brush Newriver Potato Wolf Yellowja Yc shoal beech	- NON- r acket	POINT L Lanc 11 23 2 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHE kusel la (9.40 (5.30 (9.17 (6.20 7.39 (2.50 (2.50 (2.50)	D AREAS nduse2 l .00 .00 .00 .00 .00 .00 .00	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00	Landuse .0 .0 .0 .0 .0 .0	+4 10 10 10 10 10 10		¥	
	INF 1D 23456789	201 0 COD 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ROUP 11 NAME Brush Newriver Potato Wolf Yellowj: Yc shoal beech b3a	- NON-	POINT L Lanc 11 23 2 5 2 2 2 2 2 2 2 2 2	ATERSHE kusel La 88.07 19.40 55.30 29.17 10.20 7.39 22.50 29.43 7.78	D AREAS nduse2 l .00 .00 .00 .00 .00 .00 .00 .00	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00	Landuse .0 .0 .0 .0 .0 .0	-4 00 00 00 00 00 00 00		¥	
	INF 1D 2345678910	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ROUP 11 NAME Brush Newriver Potato Wolf Yellowj: Yc shoal beech b3a b3b	- NON- r acket	POINT L lanc 11 23 2 5 2 2 2 2 2 2 2	ATERSHE kusel la 88.07 9.40 5.30 29.17 60.20 7.39 22.50 29.43 7.78 7.78	D AREAS nduse2 l .00 .00 .00 .00 .00 .00 .00 .00 .00	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	landuse .C .C .C .C .C .C .C	-4 10 10 10 10 10 10 10 10 10 10		¥	
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	INF ID 2345678910 111213		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson	- NON- r acket	POINT L lanc 6 11 23 2 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHE kusel la 8.07 9.40 55.30 9.20 7.39 22.50 9.43 7.78 7.78 5.83 8.62	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse .C .C .C .C .C .C .C .C .C .C .C .C	54 00 00 00 00 00 00 00 00 00 00 00 00 00		÷	
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	INF ID 234567891011213141516		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/?	- NON- r acket	POINT Lanc 6 11 23 2 5 5 2 2 2 2 2 4 4 4	ATERSHEI kusel la (8.07 19.40 (5.30 (9.17 60.20 7.39 (2.50 (7.78 7.78 5.83 (8.62 8.75 5.83 (8.89	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	-4 00 00 00 00 00 00 00 00 00 00 00 00 00		×	
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	INF ID 23456789101121314516718	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beach b3b dixie jackson j1 y1a Willow/: whitewa thompso	- NON- r acket Sherwoo ter	POINT Lance 6 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 8.07 9.40 15.30 19.17 10.20 7.39 12.50 19.43 7.78 5.83 8.62 8.75 5.83 8.62 8.75 5.83 8.89 96.55 5.418	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	94 100 100 100 100 100 100 100 100 100 10		¥	
	INF ID 2345678910112131451671819		ROUP 11 NAME Brush Newrive: Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsod	- NON- r acket Sherwoo ter	POINT Lance 6 11 23 2 5 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 8.07 9.40 15.30 19.40 15.30 19.43 7.78 5.83 8.62 8.75 5.83 8.62 8.75 5.83 8.89 16.55 5.41 8.890	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	94 10 10 10 10 10 10 10 10 10 10 10 10 10		¥	
	INF 1D 23456789101121314516718920		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a dixie jackson j1 y1a Willow/: whitewa thompson wilson wehadke	- NON- r acket Sherwoo ter n	POINT Lance 11 23 5 5 2 2 2 2 2 4 4 4 3 8 6 3 8 6 3 8 6 3 8 6 6 3 8 6 6 7 1 1 1 1 1 1 2 2 5 5 5 5 5 5 5 5 5 5 5 5	ATERSHEI kusel la 88.07 19.40 19.43 19.45 19.	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse .C .C .C .C .C .C .C .C .C .C .C .C .C	-4 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0		ŏ	
	INF 1D 234567891011213145167189201		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsol wilson wehadke guss	- NON- r acket Sherwoo ter n	POINT Lance (11) 23 5 5 2 2 2 2 2 2 2 2 2 2 3 8 4 4 3 8 6 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	ATERSHEI kusel la 88.07 19.40 19.40 19.40 19.40 19.40 19.43 7.78 19.43 7.78 5.83 18.62 8.75 5.83 18.89 14.55 14.18 18.99 14.55 14.18 14.55 14.18 14.55 14.18 14.55 1	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	-4 00 00 00 00 00 00 00 00 00 0		×	
	INF ID 2345678910112314516718922122		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsol wilson wehadke guss caney	- NON- r acket Sherwoo ter n	POINT Lance 6 11 23 2 5 5 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la (kusel la (s. 07) (s. 30) (s. 30) (s	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	-4 -00 -00 -00 -00 -00 -00 -00 -		×	
	INF ID 2345678910112344567891011234456789101122223		ROUP 11 NAME Brush Newrive Potato Wolf Yellowji Yc shoal baa bab dixie jackson j1 y1a Willow/: whitewa thompso wilson wehadke guss caney l.wehad	- NON- r acket Sherwoo ter n e kee	POINT Lance 6 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 88.07 19.40 15.30 19.20 7.39 12.50 17.78 5.83 18.62 8.75 5.83 18.89 16.55 18.89 16.55 14.18 18.90 11.35 10.35 10.25 12.26	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	94 90 90 90 90 90 90 90 90 90 90 90 90 90		X	
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	INF 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 20 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsod wilson wehadke guss caney l.wehadl we2 we3	- NON- r acket Sherwoo ter n e kee	POINT Lance 11 23 5 2 2 2 2 2 2 2 3 4 4 4 3 8 6 6 3 3 8 8 6 18 8 9 13 3 3	ATERSHEI kusel la 88.07 19.40 19.	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse .C .C .C .C .C .C .C .C .C .C .C .C .C	-4 -4 -00 -00 -00 -00 -00 -00 -0		ŏ	
	INFID 2345678910112131415167181920122324526		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a dixie jackson j1 y1a Willow/: whitewa thompso willow/: whitewa thompso willow/: wehadke guss caney l.wehadl we2 we3 stroud	- NON- r acket Sherwoo ter n e kee	POINT Lance (11) (23) (22) (22) (22) (23) (23) (23) (23	ATERSHEI kusel la 88.07 19.40 19.40 19.40 19.40 19.40 19.40 19.40 19.40 19.40 19.40 19.43 19.43 19.43 17.78 19.43 19.45 19.43 19.45 19.43 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.45 19.75 19.75 10.84	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse .C .C .C .C .C .C .C .C .C .C .C .C .C	-4 -4 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0		÷	
12	INF 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 15 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsol wilson wehadke guss caney l.wehadl we2 we3 stroud veasey	- NON- r acket Sherwoo ter n e kee	POINT Lance (11) (23) (22) (22) (22) (22) (23) (23) (23	ATERSHEI kusel la 88.07 19.40 19.40 19.5.30 19.47 19.40 19.40 19.43 19.43 19.43 19.43 19.43 17.78 19.43 19.43 17.78 19.43 17.78 19.43 17.78 19.43 17.78 19.43 19.43 19.43 17.78 19.43 17.78 19.43 19.44 19.44 19.72 10.84 13.06 19.44 13.06 19.44 19.44 19.45 19.44 1	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	-4 00 00 00 00 00 00 00 00 00 0			
17	INF 1D 234567891011231456789222222222222222222222222222222222222		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompso wilson wehadke guss caney l.wehadl we2 we3 stroud veasey maple	- NON- r acket Sherwoo ter n e	POINT Lance 6 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kuse1 la 88.07 19.40 19.40 19.5.30 19.20 7.39 12.50 19.43 7.78 8.82 1.35 5.83 18.89 14.55 5.83 18.89 14.55 5.83 10.89 14.55 5.226 11.12 9.72 5.26 11.12 9.72 5.08 13.06 14.18 15.00 15.30 15.30 15.30 15.30 15.30 15.30 17.78 15.83 18.89 15.55 15.83 18.89 15.55 15.83 16.55	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	-4 00 00 00 00 00 00 00 00 00 0		×	
17	INF 1D 2345678910112131456789222222222222222222222222222222222222		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/ whitewa thompsof wilson wehadke guss caney l.wehadl we2 we3 stroud veasey maple talley	- NON- r acket sherwoo ter n e kee	POINT Lance 6 111 23 2 5 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 88.07 19.40 15.30 19.40 19.40 19.40 19.43 19.43 19.43 19.43 17.78 18.89 19.43 17.78 18.89 19.43 18.89 19.43 18.89 19.43 19.441	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	54 100 100 100 100 100 100 100 10		×	
12	INF 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 5 6 7 8 9 20 21 22 32 4 5 6 7 8 9 20 20 20 20 20 20 20 20 20 20 20 20 20		ROUP 11 NAME Brush Newrive: Potato Wolf Yellowj: Yc shoal bach b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsod wilson wehadke: guss caney l.wehad we2 we3 stroud veasey maple talley zachary	- NON- r acket sherwoo ter n e kee	POINT Lance 6 111 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 8.07 19.40 15.30 19.20 7.39 12.50 17.78 12.50 17.78 12.50 17.78 12.50 17.78 12.50 17.78 18.89 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 13.55 14.18 14.18 15.50 14.15 14.15 15.55 14.18 15.55 15	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	44 10 10 10 10 10 10 10 10 10 10		x	
17	INF 234567890112314567890222222222222222222222222222222222222		ROUP 11 NAME Brush Newrive: Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsod wilson wehadke: guss caney l.wehadk we2 we3 stroud veasey maple talley zachary z1-z2	- NON- r acket Sherwoo ter n e kee	POINT Lance 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 88.07 19.40 19.	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse .C .C .C .C .C .C .C .C .C .C .C .C .C	-4 00 00 00 00 00 00 00 00 00 0	·	ă	
17	INF 2 3 4 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 2 2 2 3 2 2 2 2 2 2 2 3 3 3 2 2 2 2 2 3 3 3 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 3 3 3 2		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompso wilson wehadke guss caney l.wehadk we2 we3 stroud veasey maple talley zachary zachary zachary	- NON- r acket Sherwoo ter n e kee	POINT Lance lance 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 88.07 19.40 19.	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse .C .C .C .C .C .C .C .C .C .C .C .C .C	-4 -4 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0			
17	INF 2 3 4 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 14 5 6 7 8 9 10 11 2 3 2 2 2 3 2 2 2 2 2 2 2 3 3 3 2 3		ROUP 11 NAME Brush Newrivel Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/: whitewa thompsol willow/: whitewa thompsol willow/: whitewa thompsol willow/: whitewa thompsol willow/: whitewa thompsol wehadker guss caney l.wehadl we2 we3 stroud veasey maple talley zachary z1-z2 b2 p5-p6	- NON- r acket Sherwoo ter n e kee	POINT Lance lance 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kusel la 88.07 19.40 19.40 19.5.30 19.20 7.39 12.50 19.43 7.78 5.83 18.62 5.83 18.89 16.55 14.18 13.06 14.72 9.72 9.72 9.72 9.72 1.72 9.72 1.72 9.72 1	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	-4 -4 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0			
17	INF 2 3 4 5 6 7 8 9 10 11 2 3 4 15 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 4 15 6 7 8 9 10 11 2 3 4 15 6 7 8 9 10 11 2 3 4 5 6 7 8 9 10 11 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		ROUP 11 NAME Brush Newrive Potato Wolf Yellowj: Yc shoal beech b3a b3b dixie jackson j1 y1a Willow/S whitewa thompsol wilson wehadke guss caney l.wehadl we2 we3 stroud veasey maple talley zachary z1-z2 b2 p5-p6	- NON- r acket Sherwoo ter n e kee	POINT Lance 6 11 23 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ATERSHEI kuse1 la 88.07 19.40 19.40 19.5.30 19.20 7.39 12.50 19.43 7.78 8.82 1.25 5.83 18.62 1.35 5.83 18.89 10.55 5.83 18.89 10.55 5.83 10.89 17.25 12.26 11.12 9.72 10.20 11.25 10.20 11.25 10.20 11.25 10.20 10.2	D AREAS nduse2 L .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	(KM2) anduse3 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	Landuse 	24 00 00 00 00 00 00 00 00 00 0		×	

34 2 př 35 2 př 36 2 př 37 2 jí 38 2 jí	7						
35 2 pc 36 2 pc 37 2 ji 38 2 ji		19.4	5	.00	.00	.00	
36 2 p <sup>6</sup> 37 2 j <i>1</i> 38 2 j <i>1</i>	3	5.8	33	.00	.00	.00	
37 2 ji 38 2 ji	2	33.0	6	.00	.00	.00	
38 2 14	2a	18.0	18	.00	.00	.00	
20 -240	26	8.3	10	.00	_00	.00	
39 2 Wa	5	18 (	18	.00	.00	.00	
41 2 4	, 1/w12	44.7	r3	.00	.00	.00	
42 2 W	3/v2a	22.3	56	.00	.00	.00	
43 2 vá	2b	14.5	i8	.00	.00	.00	
INPUT GRO	DUP 12 - NON	-POINT EXPO	ORT CONC	ENTRAT	IONS		NODC
IC LAND C		M/YR	PPB	PPB	PPB	PPB	PP
1 Landus	se1	. 15	.0	34.5	.0	.0	
	CV:	.00	.00	.15	.00	.00	.0
2 Landus	se2	.00	.0	.0	.0	.0	
7 Lander	CV:	-00	-00	.00	-00	.00	-0
5 Landus	cv.	.00	-0	.0	00	.0	
4 Landus	se4	.00	.0	.00	.0	.0	
	CV:	.00	.00	.00	.00	.00	.0
INPUT GRO	OUP 13 - MOO	EL COEFFIC	ENTS				
IC COEFF	ICIENT	HEAN	CV				
2 N DECI	AT KAIL	1.000	-45				
3 CHI-A	MODEL	1.000	.55				
4 SECCH	MODEL	1.000	.10				·
5 ORGAN	C N MODEL	1.000	.12				
6 TP-OP	MODEL	1.000	.15				
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