A FRAMEWORK OF THE WATER QUALITY PLANNING MODEL FOR THE CONSERVATION AREAS OF THE FLORIDA EVERGLADES

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June 1977

Resource Planning Department
South Florida Water Management District
West Palm Beach, Florida 33402

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ACKNOWLEDGEMENTS

Grateful acknowledgement is made to Dr. Wayne Huber, Associate Professor in the Environmental Sciences Department of the University of Florida, for initially providing valuable insight into the application of the water quality portion of the EPA SWMM Model to the conservation areas. Mr. Peter B. Rhoads, Director of the Resource Planning Department and Mr. Stanley Winn, Deputy Director of the Resource Planning Department have coordinated this modeling work as a part of the water use and supply development plan for the lower east coast of south Florida. An interdisciplinary team of geologists, chemists and biologists including Dr. Pat Gleason, Steve Davis, Peter Stone, John Lutz, Fred Davis and Walter Dineen of the South Florida Water Management District have provided water quality field data in addition to practical assistance in describing the reality of water quality interactions in the conservation areas. Finally, acknowledgements are also due to many others who assisted directly or indirectly in developing the water quality model to its current form.

This report is prepared as a part of the documentation efforts initiated by Stan Winn, Deputy Director of Resource Planning Department. The technical editing was done by Ashok N. Shahane of the Water Resources Division.

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NOTATIONS

C	Concentration of chemical parameter,
ΔC_j	Change in concentration at junction j,
V	Velocity in ft/sec,
ΔX_i	Length of the link i,
K	Decay coefficient
S	Sources or sinks,
j	Junction number or node number,
Q	Discharge in cfs,
i	Entering reach,
TDN	Concentration of total dissolved nitrogen (mg/litre),
Cl	Chloride concentration (mg/litre),
TDP	Concentration of total dissolved phosphorus,
X	Distance,
t	Time,
A_x	Cross-sectional area,
D_L	Dispersion coefficient
U	Stream velocity,
A	Algal biomass concentration,
μ	Local specific growth rate of algae,
ρ	Local respiration rate of algae,
σ_1	Local settling rate for algae,
θ	Average stream depth,
α_1	The fraction of respired algal biomass
α_2	The fraction of algal biomass that is phosphorus
α_3	The rate of oxygen production per unit of algae (photosynthesis). (This coefficient is used in the equation for dissolved oxygen),
α_4	The rate of oxygen uptake per unit of algae respired,

NOTATIONS (Continued)

β_1 Rate constant for the biological oxidation of ammonia nitrogen,

β_2 Rate constant for the oxidation of nitrite nitrogen,

σ_2 Benthos source rate for phosphorus,

K_1 Rate of decay of carbonaceous BOD,

K_3 Rate of loss of carbonaceous BOD due to settling,

L_1 Concentration of carbonaceous BOD,

L_2 Benthic oxygen demand,

K_4 Constant benthetic uptake,

α_5 Rate of oxygen uptake per unit of ammonia oxidation,

α_6 Rate of oxygen uptake per unit of nitrite nitrogen oxidation,

K_2 Aeration rate,

K_5 Coliform die-off rate,

K_r Radioactivity decay rate,

Δ_t Unit time step.

ABSTRACT

There are three water conservation areas in the south Florida Everglades which are ecologically active water storage areas providing flood control and water supply benefits. In the development of the Water Use and Supply Plan for the region, a water management alternative called "backpumping" is considered as one of several water management schemes. In the backpumping schemes, normal eastward flow of excess water to the Atlantic Ocean is reversed by pumping it westward to the conservation areas in the wet period (May through October) to increase the water supply capability for the region of south Florida during the dry period (November through April).

A framework associated with a modified version of the receiving water quality portion of the EPA stormwater management model is presented in this report for assessing the water quality impact of various water management related backpumping schemes in these water conservation areas.

For the given link-node representation of the conservation areas, the water quality model uses velocities, discharges and other hydraulic output from the water quantity model in conjunction with historical and future loadings of the chemical constituents. Daily concentrations of these constituents are generated at twenty points called "nodes". The model is first calibrated for the available chloride field data of 1974. The response of the model to wet and dry conditions is then examined by simulating possible concentrations of chlorides for four years (1968-1971). After reasonable results from these runs, the model is then used to estimate the spatial and time distribution of chlorides under historical and backpumping conditions. Using the comparative chloride pollutographs of Conservation Area 1 as an illustration, it is demonstrated how the model output can be utilized in

assessing the impact of various water management related backpumping schemes. Since the District is currently in the process of broadening its limited water quality data base, the model is demonstrated only for chlorides at this time. It is expected that the integrative capability of the current model will be extended to nutrients and heavy metals to make the backpumping impact analysis more complete when a broader water quality data base becomes available.

1. INTRODUCTION

1.1 INTRODUCTION

It is a matter of common observance that quantification of water related interactions plays an important role in effective and efficient management of water resources. In addition, due to the steady increase in population, industrialization and urbanization, pressure on the capacity and performance of the water system also increases. As a result, it becomes necessary to examine the water systems in terms of their future response and limitations to increasing water demands along with possible adverse impacts on other related issues. For example, the typical water system of south Florida (including lakes, reservoirs, channelized rivers, groundwater, intercoastal water, etc., etc.) coupled with its varieties of beneficial water uses, demands balanced scientific investigations to design guidelines for adequately maintaining these water bodies by considering chemical, biological, hydraulic, hydrologic and many other possible interactions. One of the many challenging tasks of such scientific investigations is to quantify to the extent possible the various implications of future water management strategies considered in developing the current water supply capabilities. Use of mathematical techniques, coupled with data collection tasks and the practical judgment of the physical system, is receiving an increasing acceptance from members of water related interdisciplinary teams. Especially in the planning stages of the water management decision making process, the technique of mathematical models appears to be the most powerful tool to assess beneficial, adverse or status quo impacts of future actions. As a consequence, varieties of mathematical models in the areas of water, air, land and energy resources are constructed to examine a series of options for different levels of development of the resource under investigation.

1.2 THE NEED FOR THE WATER QUALITY MODEL

Backpumping was considered as one of several water management schemes in the development of the water supply and water use plan for the lower east coast of south Florida. Basically, backpumping means that excess water (which is normally discharged eastward to the ocean through existing canals) is pumped westward to selected areas (in our case, the conservation areas) during the wet period to increase the water supply capability for the region of south Florida during the dry period. This concept of backpumping is illustrated in Figure 1. In the upper portion of Figure 1, the direction of the arrows indicates normal eastward flow of water from Lake Okeechobee to the ocean through the existing canal system. The lower portion of the figure represents pumping of water westward to the conservation areas of the Everglades for increasing storage capacity of the region in addition to providing flood protection to some urban areas. Although the inherent goals of the backpumping scheme are sound from a water quantity viewpoint, there are some points that need considerable environmental assessment). One of these points relates to the water quality impact of the backpumped water. In backpumping operations, surface water runoff from surrounding land uses and practices drains into a canal (which in turn is backpumped into the conservation area). The extent to which the conservation areas are affected from a water quality standpoint becomes a matter of great significance in evaluating the overall effectiveness and trade-offs of future backpumping schemes. Secondly, the water quality impact assessment of future backpumping schemes must be completed on a timely basis to facilitate the comparative evaluation of this alternative with other possible water management alternatives. These two points create the basic need for a water quality planning model which can estimate the spatial and time distribution of selected chemical constituents

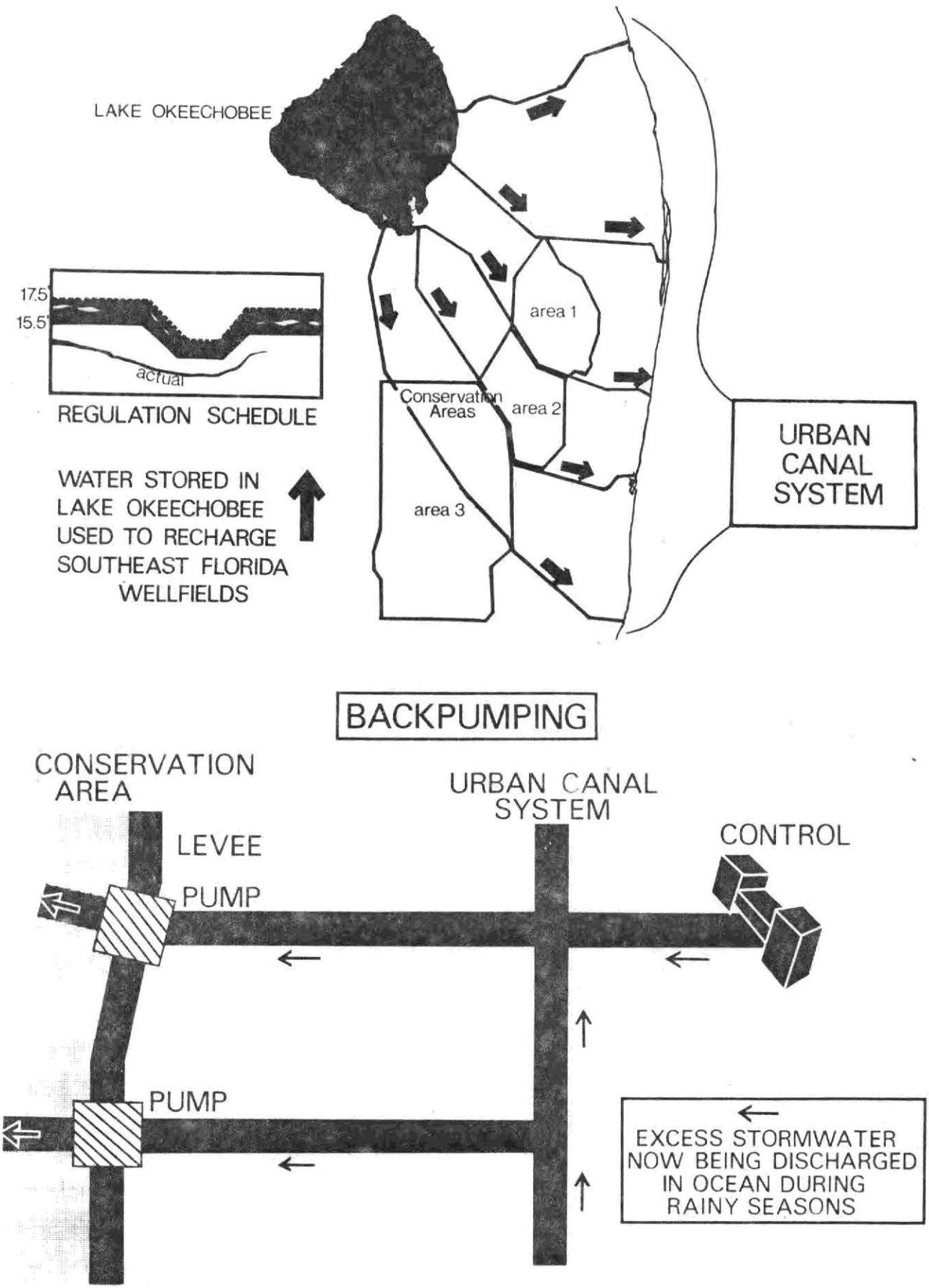

Figure 1. Comparison of Normal and Backpumping Flow Directions.

(in our case at present, chlorides) in the conservation areas for the expected future inputs of different backpumping schemes.

1.3 SPECIFIC OBJECTIVES

As a part of the broad, modern methodologies for analyzing backpumping schemes, the specific objectives of the water quality model are as follows:

1. To modify the receiving water quality part of the EPA Stormwater Management Model so as to include typical characteristics (physical, chemical, biological and hydrogeological) of the three conservation areas in the model,

2. To obtain time and spatial distribution for a conservative substance (chloride in this case) and for two nonconservative chemical constituents (total dissolved nitrogen [TDN] and total dissolved phosphorus [TDP] in our case) for the three conservation areas,

3. To calibrate the model for the available field data of the year 1974,

4. To obtain time and spatial distribution of three chemical constituents (Cl, TDN, TDP) for a wet year and a dry year,

5. To estimate time and spatial distributions of two chemical parameters (TDN and TDP) for the various quality inputs generated for different viable backpumping management alternatives,

6. To provide some insights into the distribution of chemical inputs in the conservation areas by adequately considering the hydrologic, hydraulic and many other regimes of the physical system, and

7. To facilitate the assessment of the water quality impact of backpumping inputs by examining the extent to which these inputs are dispersed through the integrated channel and marsh system as the water moves from Conservation Areas 1 through 3.

2. WATER QUALITY MODEL

2.1 FUNDAMENTALS OF WATER QUALITY MODELS

Although the original concept of formulating water quality parameters in terms of the net result of various physical, biological and chemical interactions goes back to the third decade of the twentieth century, a tremendous amount of developmental modeling work has been observed during the last twenty years as a result of increased public awareness and their demands for better analysis of aquatic environments. The availability of more sophisticated data acquisition systems, improved measurement techniques and powerful tools of systems analysis also provided impetus for examining water systems from different angles. Among other types of endeavors undertaken during this period, efforts toward developing mathematical models for aquatic interactions have indeed played a significant role in providing interdisciplinary models in general and water quality models in particular. Basically, water quality models are developed for assessing the water quality changes that can occur as a result of the stress (natural or man made) imposed on the system. Since water quality changes are functions of biological, chemical, physical and many other numerous factors, these factors are first identified and interactions between these factors are then formulated. The mathematical representation of these interrelationships (reflecting the interactions) can take the form of either a simple algebraic equation tying together various factors or a differential equation representing the change of a certain parameter as a function of other variables or more sophisticated mathematical forms such as probabilistic or stochastic models. Most of the water quality modeling efforts are first involved with formulating the concentration of a certain chemical parameter of the aquatic environment in terms of various processes responsible for causing a concentration change in

that parameter. Mathematically, the identified processes are included in terms of coefficients reflecting the rate and characteristic information of the processes. With such generalized mathematical representation, the formulations can be applied to many different types of water systems with different forms of coefficients and rate kinetics. Although such generalized procedures look straightforward, there are many variations possible in terms of the (a) number of processes included in the formulation, (b) type of mathematical model, (c) category of the water system, (d) characteristics of the chemical parameters, (e) mathematical scheme to obtain the solution and (f) simplifications, approximations and assumptions of the modeling methodologies. As a consequence, there exist varieties of water quality models to include these different conditions. From an applications standpoint, these water quality models can be broadly categorized as follows:

1. QUAL I (using Streeter-Phelp formulations),
2. QUAL II,
3. STORM Model,
4. Statistical models with probabilistic, stochastic and deterministic rationales,
5. Agricultural runoff quality-quantity models (ARM Models), and
6. EPA Storm Water Management Model

To understand the selected water quality model for the conservation areas in the proper perspective, it is necessary to examine the existing models in light of their different rationales and methodologies. Thus, an effort is made in the following section to briefly review these models in terms of (1) what are they designed for? (2) what kind of useful information do they provide, and (3) whether or not they are applicable in our specific investigations of the three conservation areas, etc., etc.

2.1.1 SALIENT FEATURES OF EXISTING WATER QUALITY MODELS

2.1.1.1 QUAL I

A starting point in the development of water quality models appears to be the effort made by Streeter and Phelp in 1925 to formulate the dissolved oxygen profile as a function of organic load, deoxygenation and reaeration rates. The QUAL I model which was developed by the Texas Water Development Board and which is based on the formulations of oxygen sag equations, predicts the time and spatial distribution of Biochemical Oxygen Demand (BOD) and Dissolved Oxygen (DO) at the downstream side of the point of discharge. Essentially, QUAL I was developed for one dimensional flow with steady state conditions for stream and canal systems. After estimating, either in the laboratory or in the field, the rate coefficients for deoxygenation and reaeration processes, QUAL I estimates the critical time and the downstream point where minimum concentration of dissolved oxygen can occur. Although several applications of QUAL I to various streams in the United States have been reported, a recent study by the U. S. Geological Survey and Connell Associates, Inc., of Miami, Florida, has explored the QUAL I model as a management tool to predict the spatial and temporal distribution of dissolved oxygen and biochemical oxygen demand in the Plantation Canal of south Florida, and for the St. Johns River, Kissimmee River, lower Florida and east coast basins, respectively (14, 20)*. It should also be noted that although most of the applications of QUAL I have considered the interplay of only deoxygenation and reaeration processes, formulations are available to include other dissolved oxygen related processes such as photosynthesis, nitrification and benthic oxygen demands for estimating the impact of waste discharges on the dissolved oxygen reservoir of stream and canal systems.

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* Numbers in the parenthesis refer to the reference numbers of the bibliography.

2.1.1.2 QUAL II

This is a modified version of QUAL I and it was developed by Water Resources Engineers, Inc., (WRE) of Walnut Creek, California, to simulate the steady state behavior of (a) chlorophyll, (b) nitrogen, (c) phosphorus, (d) coliforms, and (e) radioactive material in addition to two parameters of dissolved oxygen and biochemical oxygen demand considered in QUAL I. The complete set of differential equations for water quality parameters of QUAL II is repeated in Table 1 for a ready reference. It is clear from the table that these formulations represent the rate of change of chemical parameters as the net interactions of dispersion advection, constituent reactions, and various sinks and sources. (12). An implicit type numerical technique is then applied to solve these differential equations for each of the numerous reaches constituting the river system. As an outcome, this model estimates time and spatial distribution of various parameters. Since QUAL II deals with varieties of physical, chemical and biological processes that are built into the formulations, there are relatively large numbers of constants and rate coefficients associated with this type of water quality model.

2.1.1.3 STORM Model

As a part of urban stormwater management, the STORM Model was designed by the Hydrologic Engineering Center of the U.S. Corps of Engineers to estimate the quantity and quality of runoff from small and urban watersheds so that pollution from stormwater could be controlled by providing a combination of storage and treatment facilities (18). By considering precipitation, air temperature for rainfall/snowmelt, pollutant accumulation, and land surface erosion, the amount of runoff associated with its water quality are estimated. The water quality parameters considered in the STORM Model

TABLE 1

SUMMARY OF DIFFERENTIAL EQUATIONS USED IN QUAL II MODEL (Reference No. 12)

Conservative mineral (c)	$\frac{\partial c}{\partial t} = \frac{\partial(A_x D_L \frac{\partial c}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u c)}{A_x \partial x}$
Algae (A)	$\frac{\partial A}{\partial t} = \frac{\partial(A_x D_L \frac{\partial A}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u A)}{A_x \partial x} + (\mu - \rho - \frac{\sigma_1}{D}) A$
Ammonia nitrogen (N_1)	$\frac{\partial N_1}{\partial t} = \frac{\partial(A_x D_L \frac{\partial N_1}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u N_1)}{A_x \partial x} + (\alpha_1 \rho A - \beta_1 N_1 + \frac{\alpha_3}{D})$
Nitrite nitrogen (N_2)	$\frac{\partial N_2}{\partial t} = \frac{\partial(A_x D_L \frac{\partial N_2}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u N_2)}{A_x \partial x} + (\alpha_5 N_1 - \beta_2 N_2)$
Nitrate nitrogen (N_3)	$\frac{\partial N_3}{\partial t} = \frac{\partial(A_x D_L \frac{\partial N_3}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u N_3)}{A_x \partial x} + (\beta_2 N_2 - \alpha_1 \mu A)$
Phosphate phosphorus (P)	$\frac{\partial P}{\partial t} = \frac{\partial(A_x D_L \frac{\partial P}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u P)}{A_x \partial x} + (\alpha_2(\rho - \mu) A + \frac{\sigma_2}{D})$
Biochemical oxygen demand (L)	$\frac{\partial L}{\partial t} = \frac{\partial(A_x D_L \frac{\partial L}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u L)}{A_x \partial x} - (K_1 + K_3) L$
Dissolved oxygen (ϕ)	$\frac{\partial \phi}{\partial t} = \frac{\partial(A_x D_L \frac{\partial \phi}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u \phi)}{A_x \partial x} + [K_2(\phi^* - \phi) + (\alpha_3 \mu - \alpha_4 \rho) A - K_1 L - \frac{K_4}{D} - \alpha_5 \beta_1 N_1 - \alpha_6 \beta_2 N_2]$
Coliform (F)	$\frac{\partial F}{\partial t} = \frac{\partial(A_x D_L \frac{\partial F}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u F)}{A_x \partial x} - K_5 F$
Radioactive material (R)	$\frac{\partial R}{\partial t} = \frac{\partial(A_x D_L \frac{\partial R}{\partial x})}{A_x \partial x} - \frac{\partial(A_x u R)}{A_x \partial x} - K_r R$

include suspended and settleable solids, biochemical oxygen demand (BOD), total nitrogen (TN), orthophosphate (PO_4), and total phosphorus (TP).

2.1.1.4 Statistical Models

Since many professional water scientists feel that natural processes are too complex to be derived by mathematical formulations, the inter-relationships are empirically established by statistical methods. For example, a deterministic model developed by Reid, G. W. (13) using the statistical technique of multiple regression analysis for storm drainage is written as

$$Y_2 = 4.8 + 0.082X_2 + 0.48X_8$$

$$Y_5 = 2.38 - 0.188 \ln X_1 + 0.310 \ln X_{10} \text{ and}$$

$$Y_6 = 2.90 + 0.00003X_1 - .0001X_3 - 0.0137X_8 - 0.741X_{11}$$

where

X_1 = population,

X_2 = population density,

X_3 = number of households,

X_8 = commercial establishments,

X_{10} = streets,

X_{11} = environmental index,

Y_2 = B.O.D.,

Y_5 = total nitrogen, and

Y_6 = total phosphorus (13).

Another interesting empirical relationship provided by Reid, G. W. (13) for the eutrophication process relates to the required nutritional dilution with eutrophication parameters as shown in the following:

$$Q_n = \frac{Z \cdot P}{F_n RQS_n} (1 - TL_n) - 1.44 (1 - TL_L) \cdot (TL_L\ 3250)$$

$$Q_p = \frac{Z \cdot P}{F_n RQS_n} (1 - TL_p) - 0.27 (1 - TL_L) \cdot (TL_L\ 1080)$$

where

Q_p or Q_n = nutritional dilution required,

Z = relative portion impounded and affected by RQS level

TL_p or TL_n = phosphorus or nitrogen removal level expresssed as a decimal,

F_p or F_n = BOD/P ratio or BOD/N ratio,

TL_L = BOD removal level expressed as a decimal,

RQS_p or RQS_n = acceptable level for phosphorus and nitrogen.

Likewise, varieties of statistical water quality models with probabilistic and stochastic rationales can be found in the literature (1). Criticism that is generally heard regarding these statistical models is that they are not generalized and thus they should not be applied to any other situation. However, for setting short term planning guidelines on a regional basis, these empirical models may become more handy than the generalized solution of rigorous mathematical formulations.

2.1.1.5 Agricultural Runoff Quality-Quantity Models (ARM)

These water quality and quantity oriented models are developed basically for describing the movement of chemicals in and across an agricultural watershed. There are two kinds of models available in this category. The first type of model (which was developed by a research team of the Agricultural Research Service) uses USDAHL-74 model of watershed hydrology to estimate runoff hydrographs for a given watershed by considering precipitation, hydrologic characteristics of soils and land use, evapotranspiration, infiltration and routing techniques (9). The estimated runoff values are then further used in the water quality model (developed by the same research team) which is called an Agricultural Chemical Transport Model (ACTMO). The net result of the combination of the USDAHL 74 Model and the ACTMO Model gives the quality and quantity of runoff from an agricultural watershed for

a given rainfall distribution and hydrogeologic, climatologic and many other watershed characteristics (6). The second type of model is advocated by Hydrocomp, Inc., of Palo Alto, California and is called the Pesticide Transport and Runoff Model (PTR Model). Although the basic purpose behind the development of ACTMO and PTR Models is the same, the methodology is different in terms of assumptions, computational procedures and the way different hydrologic processes are included in the model. ACTMO estimates chemical transport of the pesticide Carbofuran as against the herbicides (such as Paraquat, Dippenamid, etc.,) used in the PTR Model. Since most of the processes considered in the ARM Model are expressed in terms of empirical equations with the characteristics of the region built into the various coefficients of the equations, the success of the model is largely dependent on the accuracy of these coefficients. It should be noted that the ARM Model was not developed in terms of differential equations, it was developed using daily accounting procedures of various interactions.

2.1.1.6 EPA Stormwater Management Model

While trying to establish a generalized and uniform procedure for estimating various aspects of storm water nationwide, the stormwater management model was evolved as a combined effort of Metcalf & Eddy, Inc., the Department of Environmental Engineering of the University of Florida at Gainesville, and Water Resources Engineers, Inc., under the sponsorship of the federal Environmental Protection Agency(11). Basically, this model (which is widely known as the SWMM Model) estimates runoff hydrographs (using any rainfall hyetograph or multiple hyetographs) and continuous runoff quality graphs (pollutographs) on the basis of the volume of storm runoff, rainfall history, street sweeping data, land use and related data (11). As a next step, the computed hydrographs and pollutographs are routed

through the simulation of the physical transport system. After obtaining the routed quality and quantity of stormwater, the various options for storage and treatment facilities are examined in terms of their cost effectiveness. This comprehensive model has several sub-models (such as surface runoff quantity model, dry weather flow quantity model, infiltration model, transport model, storage model, receiving water quantity model, surface runoff quality model, dry weather flow quality model, treatment model and finally cost-effectiveness model) which are linked together to achieve the final result of providing the optimum combination of stormwater treatment and storage facilities to minimize, in the final analysis, the stormwater pollution (11). Although the SWMM Model is designed for stormwater management, many concepts and procedures used in this comprehensive model seem to be useful in various contemporary environmental models and simulations.

2.2 SELECTION OF A SUITABLE MODEL

Considering the specific objectives (as outlined in Section 1.3) for developing a water quality model for the three conservation areas, the receiving water quality part of the EPA Stormwater Management Model appears to be more applicable for the following reasons:

1. Since QUAL I is designed primarily for stream and canal systems to handle only two chemical parameters (such as dissolved oxygen and biochemical oxygen demand) and since our water system consists largely of a marsh with feeding canals, QUAL I is not directly applicable to analyze the distribution of chlorides and dissolved nutrients in the conservation areas.

2. Although the QUAL II Model has a sophisticated approach using differential equations for conservative as well as nonconservative parameters, the coefficients and rate constants of the equations cannot be adequately determined by the existing limited water quality data base. Because of such

a limitation, it cannot be adequately used as a management tool to analyze backpumping schemes at the present time.

3. As mentioned earlier, the STORM Model was developed specifically to estimate quantity and quality of surface runoff from a given watershed only at an outlet of the watershed. As a result, our specific objective of estimating temporal and spatial distribution of chemical parameters in the conservation areas cannot be fulfilled by the STORM Model, although its useful role is utilized in other aspects of backpumping analysis.

4. Lack of sufficient water quality data has prevented the availability of well established statistical models interrelating various water quality parameters at different points in the conservation areas.

5. ARM Models do include sophisticated scientific bases in their water quantity and quality counterparts; however, these two integrated parts cannot be separately processed. In other words, before the water quality part is developed for the conservation areas, its water quantity counterpart should be ready. Since neither the Stanford Watershed Model nor the USDAHL 74 Hydrology Model has been available for the three conservation areas due to many conceptual difficulties, ARM models are not considered as a logical choice.

6. In spite of the fact that the EPA stormwater management model was developed for urban stormwater movement, and although this comprehensive model has varieties of pieces built into it, the methodology of the receiving water quantity model and the receiving water quality model can be separately developed. Furthermore, the receiving water quantity model was recently applied to the three conservation areas and the hydraulic output (which becomes part of the input data set for the receiving water quality model) is available. This is one of the main reasons why the EPA SWMM

Model is more suitable in our water quality investigations of backpumping schemes. Furthermore, the network analysis implied in the receiving water quality model enables us to obtain the wanted information regarding temporal and spatial distribution of chemical constituents for various backpumping inputs. It is also conceived that some of the peculiarities of the conservation areas may be included by perhaps modifying the basic concepts of the receiving water quality model.

2.3 DESCRIPTION OF THE SELECTED MODEL

The relative position of the selected receiving water quality model in an overall perspective of backpumping analysis is depicted in Figure 3. As shown in Figure 3, three major types of input sets are required for a water quality model. Using such input information (in terms of historical loading, future expected loading from the backpumping alternatives and hydraulic output of the receiving water quantity part of the SWMM Model), the water quality model estimates concentration of the selected chemical constituents at various points in the three conservation areas, the general area of which is shown in Figure 2. Such an output is expected to be helpful in evaluating the water quality impact of backpumping alternatives and in providing some insights into the travel of the backpumped inputs through the three conservation areas.

Since the selected receiving water quality model is essentially a network analysis, the three conservation areas under investigation are first represented in a series of networks as shown in Figures 4, 5 and 6. The circles are called nodes and the line joining two nodes represents a link. Number of nodes, number of links, number of raingages and area contained in each conservation area are given in Figures 4, 5 and 6. Additional points to be remembered regarding Figures 4, 5 and 6 are as follows:

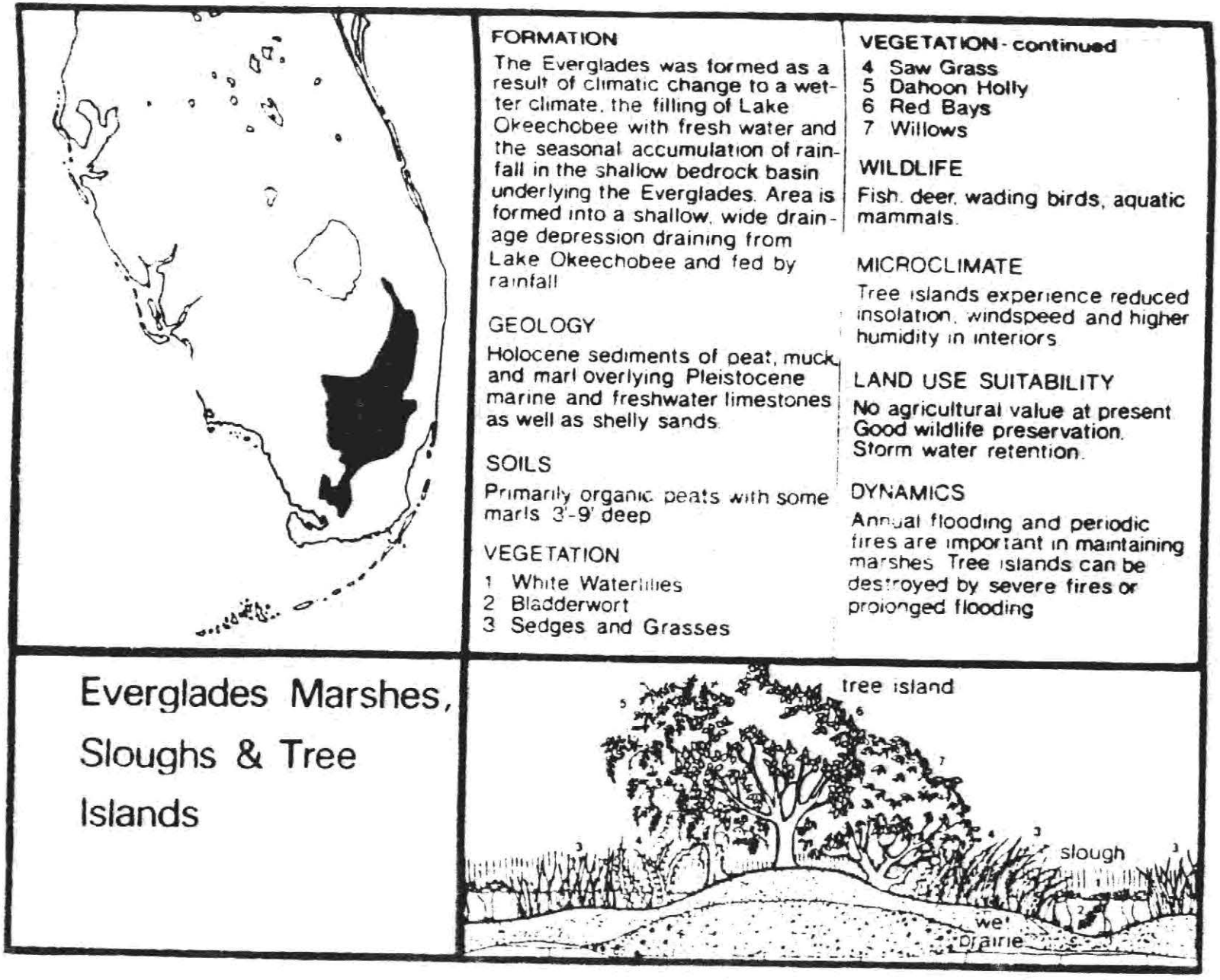


Figure 2. General Features of Conservation Areas of the Florida Everglades (2/)

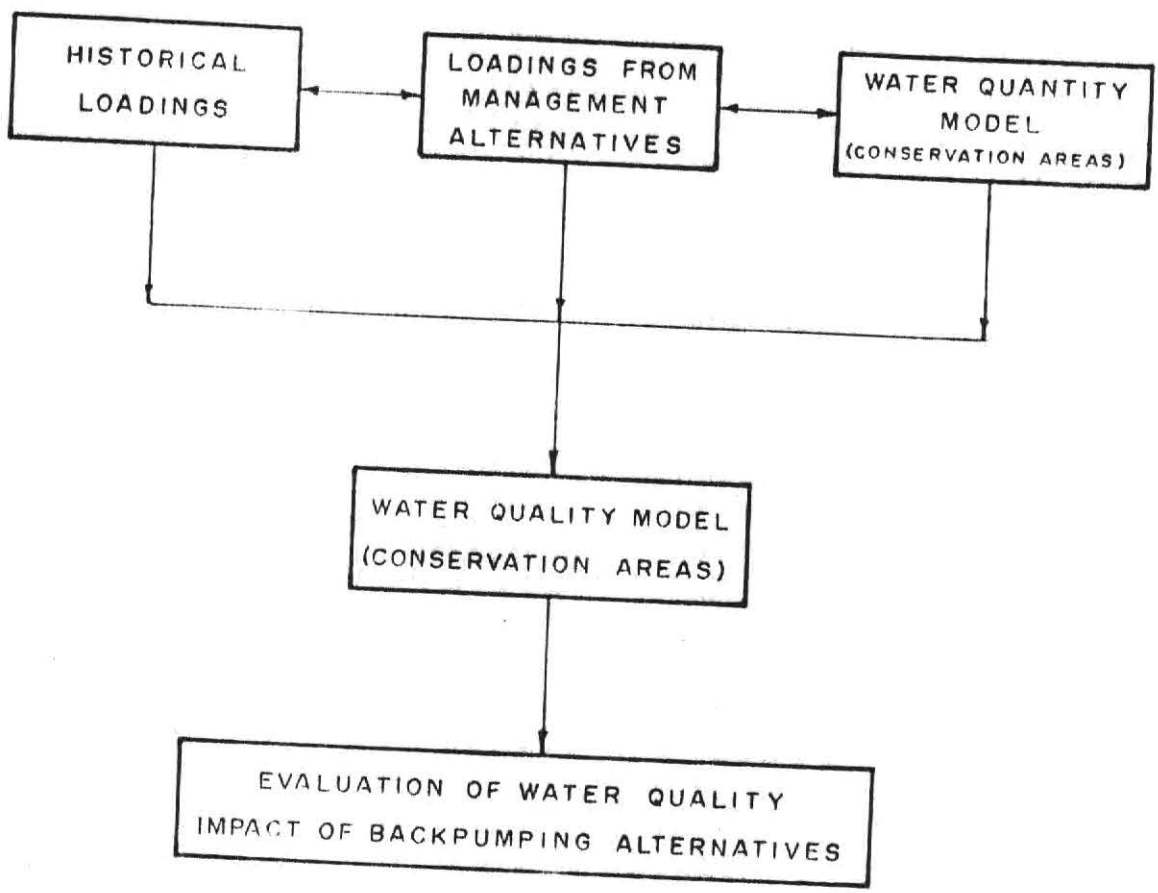


Figure 3. AN OVERALL PERSPECTIVE OF BACKPUMPING ANALYSIS

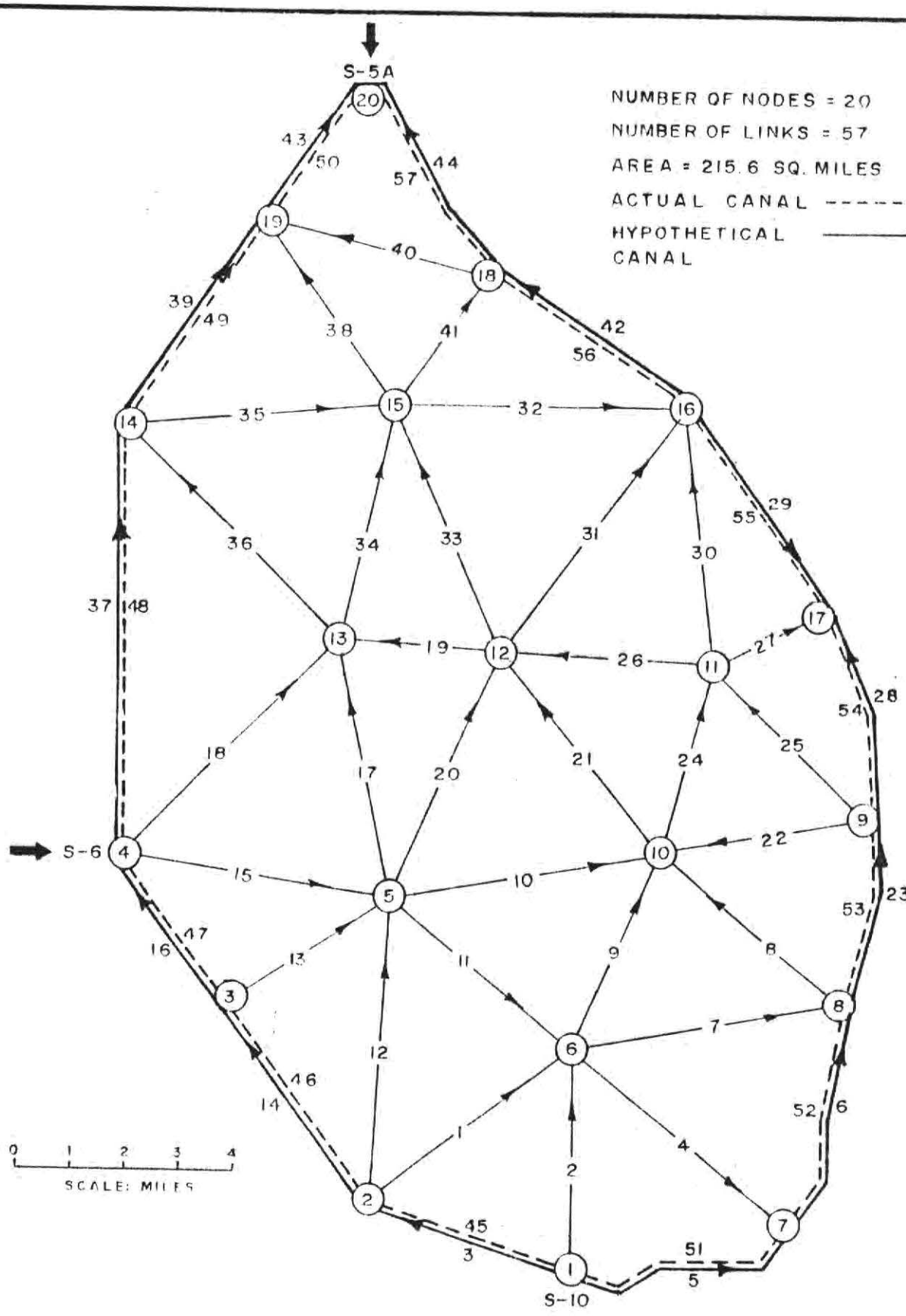


Figure 4. LINK-NODE REPRESENTATION OF CONSERVATION AREA 1

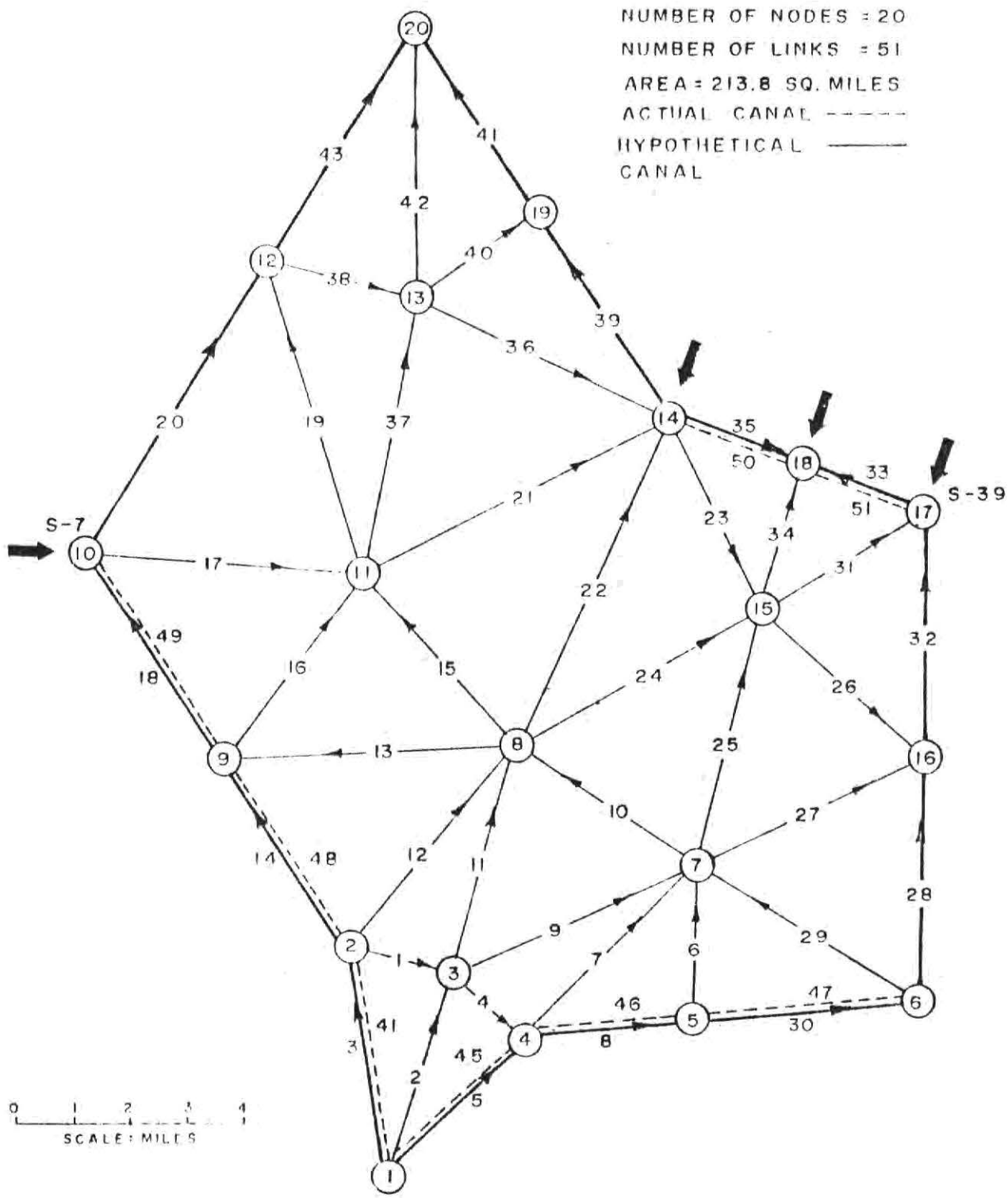


Figure 5. LINK-NODE REPRESENTATION OF CONSERVATION AREA 2A

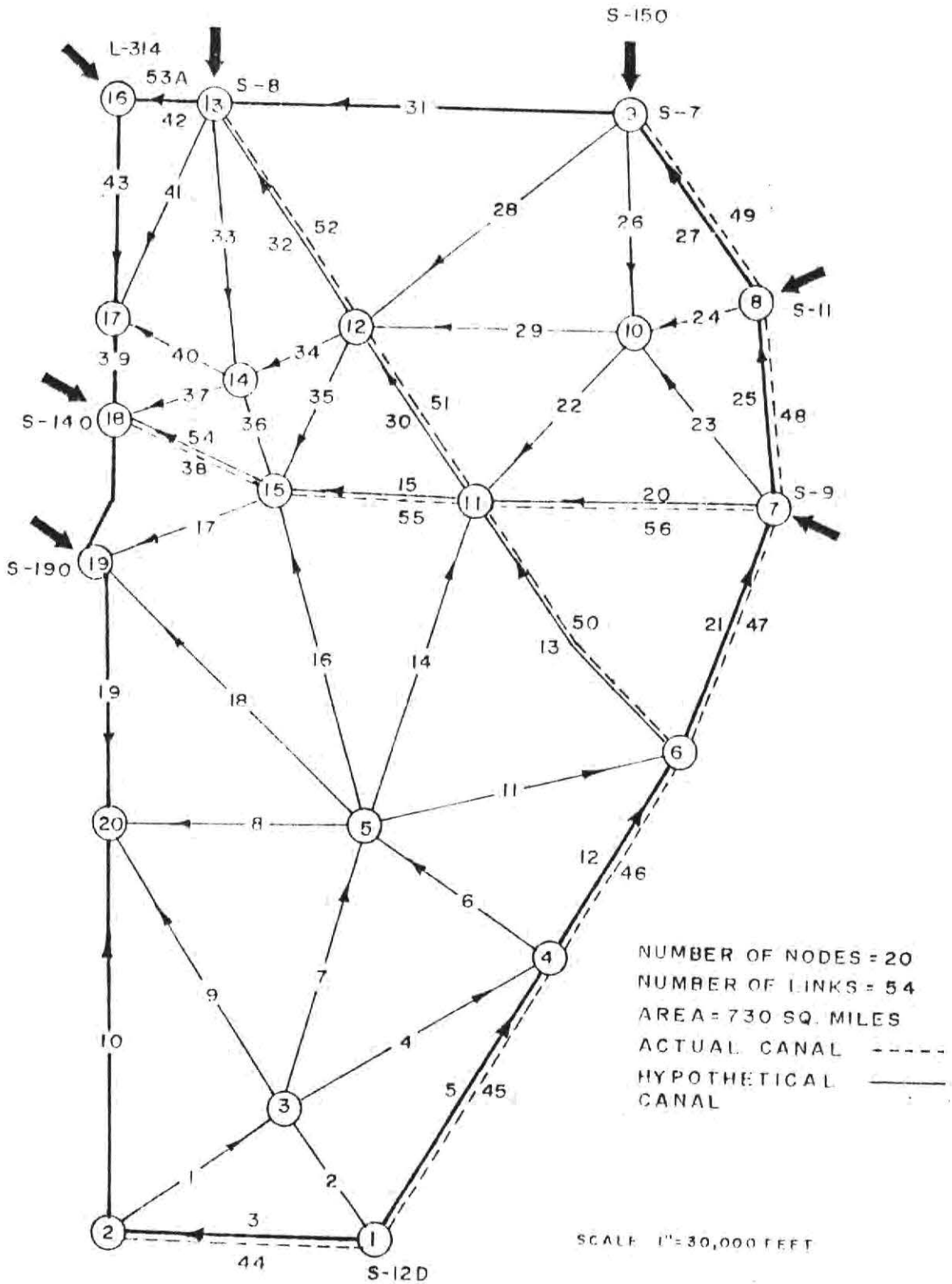


Figure 6. LINK-NODE REPRESENTATION OF CONSERVATION AREA 3A

1. Link number appears on each link.

2. The purpose of showing a directional arrow on the link is to represent it easily in a computer simulation. The direction shown does not necessarily represent the direction of flow through the link. For example, if the velocity and discharge for a particular day through link 20 of Conservation Area 1 are positive, then flow takes place from node 5 to node 12; however, if in the next day both are negative, then flow occurs from node 12 to node 5 (see Figure 4).

3. Solid lines represent hypothetical links (usually in the marshes), whereas dotted lines represent existing canals, channels or ditches.

4. External inputs through existing water control structures are shown by external arrows. Nodes at which these external inputs are considered are known as inlet nodes.

5. The rationale for selection of a particular type of network for the three conservation areas goes back to the water quantity model. Since the water quality model uses the output of the water quantity model, the same network that is selected for the water quantity model is used in the quality model in order to maintain uniformity and continuity in these two related models. Furthermore, considering the trade-off between the available computer memory and the realistic areal coverage, the suitable number of nodes and links are selected for the conservation areas as shown in Figure 4.

2.3.1 Formulations

For a given link-node representation of a water system, the water quality model is primarily geared to the following basic continuity equation (11).

$$\frac{\Delta C_j}{\Delta t} = - \frac{\sum_{i=1}^{N} Q_i V_i \frac{\Delta C_{i,j}}{\Delta X_i}}{\sum_{i=1}^{N} Q_i} - KC_j \pm S_j \qquad (1)$$

where

C_j = concentration at node j, (mg/litre),

ΔC_j = change in concentration at node j, (mg/litre),

Δt = time (number of seconds in unit time step),

V_i = velocity of entering link, (ft/sec),

Q_i = discharge of entering link, (cu.ft./sec.),

ΔX = length of entering reach (ft.),

K = decay coefficient,

S_j = source at node j (when +ve), or

= sink at node j (when -ve),

N = total number of incoming links at a given node j,

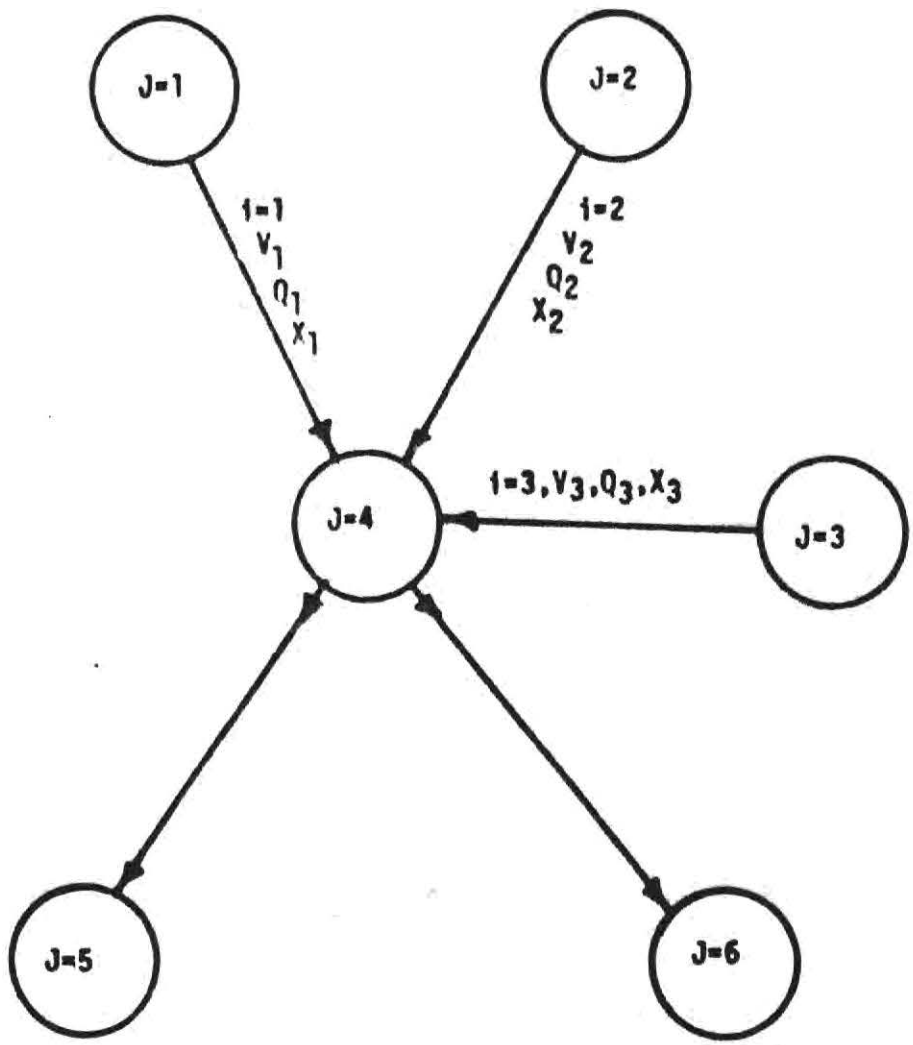
i = incoming link,

$\Delta C_{i,j}$ = concentration gradient in the incoming link at node J, or

= (concentration at node j) - (concentration of upstream node).

To illustrate the working of this basic continuity equation, an illustrative node-link system is presented in Figure 7. There are six nodes with node No. 4 as a central node where change in concentration during Δt time is sought. As shown in Figure 7, there are three incoming links (which are only to be considered) and two outgoing links. In addition, the velocities (V_1, V_2 and V_3), discharges (Q_1, Q_2 and Q_3) and distances (X_1, X_2 and X_3) corresponding to three incoming links are also given. Similarly, concentrations at nodes 1, 2 and 3 (C_1, C_2 and C_3) are also required. Using such information, equation (1) can be expanded for an illustrative node-link system as shown here:

$$\frac{\Delta C4}{\Delta t} = - \frac{[Q_1V_1 \frac{\Delta C_1}{X_1} + Q_2V_2 \frac{\Delta C_2}{X_2} + Q_3V_3 \frac{\Delta C_3}{X_3}]}{Q_1 + Q_2 + Q_3} - KC$$



Illustrative node-link system for explaining the continuity expression for water quality model.

FIGURE 7

where

ΔC_4 = change in concentration at node 4

= $C_4(t+1) - C_4(t)$

C_4 = $C_4(t)$

ΔC_1 = $C_4(t) - C_1(t)$

ΔC_2 = $C_4(t) - C_2(t)$

ΔC_3 = $C_4(t) - C_3(t)$

$C_4(t)$ = concentration at node 4 of previous time step,

$C_1(t)$ = concentration at node 1 of previous time step,

$C_2(t)$ = concentration at node 2 of previous time step,

$C_3(t)$ = concentration of current time step at node 4, and

K = decay coefficient.

2.3.2 NATURE OF THE WATER QUALITY MODEL

1. The formulation around which the whole framework of the water quality model is built is a simple and basic finite difference version of double weighted procedures in which the concentration gradient along a link is first weighted according to incoming flows and second, is weighted according to distance traveled along the link by inflow during the unit time step for an advective transport.

2. In accordance with the generally accepted definition of steady and unsteady states, the water quality model is a simple form of unsteady state formulation and thus the model can estimate dynamic type water quality behavior of the water systems using physical, chemical and biological factors.

3. The water quality model, based on the basic continuity equation, includes advective transport (first term on the right hand side of Equation 1), decay process (second term of Equation 1) and a combination of sources

or sinks (third term of Equation 1). For example, external water quality input through rainwater or an increase in concentration due to evaporation can be included in the model through the third term of sources and sinks.

4. The manner in which the receiving water quality part of the comprehensive SWMM Model was originally developed is applicable to the conservation areas as well as to urban, rural and to other types of water systems. Furthermore, it can handle conservative (such as chlorides) and nonconservative parameters (such as dissolved nitrogen and phosphorus).

5. There is no restriction on any kind of stability criteria because the outcome of the model is not based on an iterative procedures. However, since the advective term is a double weighted average of flows and distance, the time step should be such that $\frac{(V)(\Delta T)}{X}$ is always less than or equal to one. This puts some restriction on the model, although the restriction can be easily surmounted in many different ways.

6. Computational time is relatively small (a matter of minutes) as compared to the execution time of the water quantity model (which is a matter of hours).

7. It can be seen from Equation 1 that the receiving water quality model requires a set of velocities and discharges (for all the links) which are generated in the receiving water quantity part of the SWMM Model. Thus, it becomes very essential to have the output of the receiving water quantity model available as one of the major inputs to the water quality model.

2.3.3 COMPUTATIONAL PROCEDURE

The basic computational procedure involved in the application of the water quality model to the three conservation areas is outlined in Figure 8.

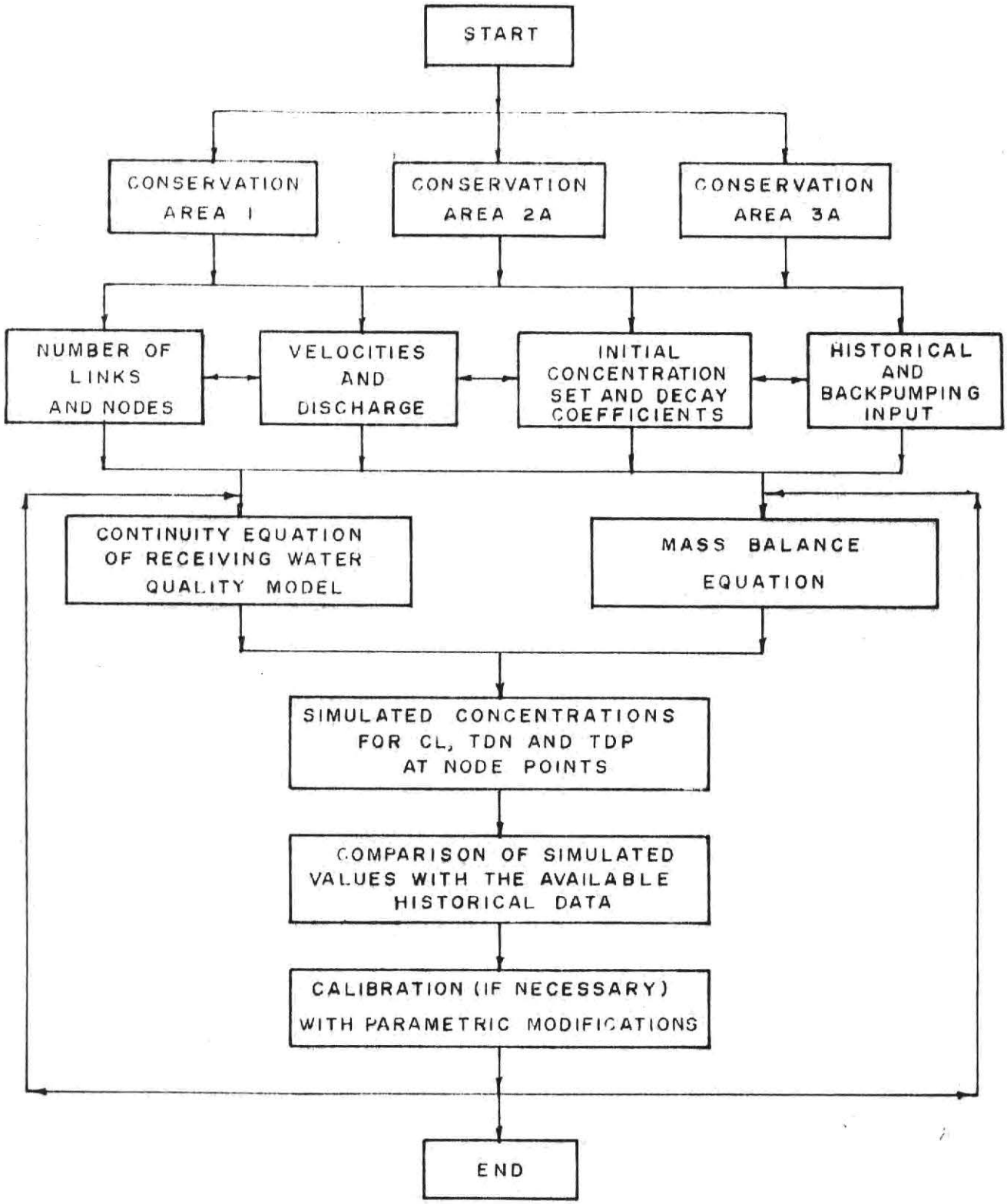


Figure 8. BASIC PROCEDURE OF THE WATER

As a starting step, Conservation Area 1 is considered first. With the selected link and node representation of the conservation area (as shown in Figure 4) daily velocities and discharges of the full year of 1974 for all of the links are transferred from the water quantity model and are stored on a tape in addition to the other necessary information (such as initial concentrations of chlorides, total dissolved nitrogen and total dissolved phosphorus for twenty nodes, decay coefficients for total dissolved nitrogen, (TDN) and total dissolved phosphorus (TDP) and historical inputs at inlet controlling structures). With such input information, the continuity equation of the water quality model is then used to estimate daily concentrations of chlorides, TDN and TDP at twenty nodes for the historical case of the year 1974. To calibrate the model, generated concentrations are compared with the available historical water quality data set of Table 2. These comparisons also provide the direction in which the model should be further improved. After completion of such calibration processes for Conservation Area 1, Conservation Areas 2A and 3A, respectively. In this manner, three conservation areas are integrated in the model as they are connected in reality in terms of hydraulic movement and chemical transport.

While working closely with the basic continuity equation, another type of basic water quality formulation (based on mass-balance principle) is also tried. The basic form of such equation is as follows:

For $D_{j,t+1} > 0$

$$C_{j,t+1} = \frac{\sum_{i=1}^{N} [Q_{i,t+1} \cdot \Delta t \cdot C_{i,t}] - \sum_{OT=1}^{M} [(Q_{OT,t+1}) \cdot \Delta t \cdot C_{j,t}] + [\frac{D_{j,t}}{12} \cdot A_j \cdot C_{j,t}] + [\frac{R_{j,t+1}}{12} \cdot A_j \cdot C_R] - K[\frac{D_{j,t}}{12} \cdot A_j \cdot C_{j,t}]}{\{\frac{D_{j,t+1}}{12} \quad A_j\}} \qquad (2)$$

TABLE 2. HISTORICAL WATER QUALITY DATA FOR CALIBRATING THE MODEL

Date	Cons. Area	Water Quality Parameter	Number of Stations
Jan. 29, 1974	1	P, N and Cl	5 (FCD)
Jan. 31, 1974	1	P, N and Cl	5 (FCD)
Feb. 25, 1974	1	P, N and Cl	13 (FCD)
Mar. 12, 1974	1	P, N and Cl	5 (FCD)
Mar. 13, 1974	1	P, N and Cl	5 (FCD)
Mar. 27, 1974	1	P, N and Cl	14 (FCD)
Dec. 13, 1974	1	P, N and Cl	8 (USF&WS)
Sep. 26, 1974	3	P, N and Cl	12 (FCD)
Jan. 29, 1974	2A	P, N and Cl	15 (FCD)
Feb. 25, 1974	2A	P, N and Cl	15 (FCD)
Mar. 27, 1974	2A	P, N and Cl	13 (FCD)
May 30, 1974	2A	P, N and Cl	13 (FCD)
June 24, 1974	2A	P, N and Cl	14 (FCDO
July 24, 1974	2A	P, N and Cl	15 (FCD)
Sep. 29, 1974	2A	P, N and Cl	15 (FCD)
Dec. 20, 1974	2A	P, N and Cl	15 (FCD)

Source: Reference No. 8

where

Δt = number of seconds in unit time step,

N = number of inflows,

M = number of outflows,

$Q_{i,t+1}$ = inflows in link i during t+1, (cfs)

$Q_{OT,t+1}$ = outflows in link OT during t+1, (cfs)

$C_{j,t}$ = concentration at node j at previous time step t, (mg/litre)

$D_{j,t}$ = depth in inches at node j at previous time step t,

A_j = area in square ft. at node j,

$C_{i,t}$ = concentration at upstream node i at previous time step, (mg/litre),

$R_{j,t+1}$ = rainfall in inches at node j during time (t+1)

C_R = concentration of rainfall quality (mg/litre).

Conceptually, mass balance equation and basic continuity equation include all the major characteristics of physical processes of the conservation areas; however, the parameters used in the computational procedures are slightly different. For example, velocity is used in receiving water quality formulation whereas areas at the node are included in mass balance equation. It is emphasized that speculation twoard savings in computer time and perhaps better inclusion of sources or sinks at low water depths have encouraged the authors to try the mass balance equation. Only results can prove the validity of these speculations, however. Other comparative differences are obvious from Equations (1) and (2). Merits of each equation and the final selection will be fully discussed in light of the results in a later chapter.

2.3.4 ASSUMPTIONS

1. Considering the type of flow regime in the conservation areas, the phenomenon of diffusion seems to have insignificant contribution in changing the concentration of selected water quality parameters. Thus, the diffusion term in the basic continuity equation is assumed to be negligible.

2. The basic continuity equation considers only incoming links to estimate concentration change at a given node. In this technique, it is assumed that the water quality contributions of incoming links is well mixed and the resultant concentration is passed on through the outgoing links.

3. Due to very limited chemical information and related data base, the relationships between (1) total dissolved nitrogen and total nitrogen and (2) total dissolved phosphorus and total phosphorus are not yet well established for the three conservation areas. Therefore, the following mathematical relationships (which were developed using the available data for the S-10 structure) are assumed to hold good for converting these two parameters back and forth in the three conservation areas (10).

$TDN = TN$ for $TN < 1.44$

$TDN = 2.1769(TN) - 3.1597$ for $1.44 \leq TN \leq 3$

$TDN = Tn$ for $TN > 3$

and

$TDP = 0.8257(TP) + 0.002$

4. The resultant concentration at an inlet node is assumed to be a weighted average of incoming concentration (through the controlling structure) and the computed concentrations in terms of their volumes expressed in depth units.

5. Nodes in the existing channels or borrow canals are assumed to be points in the main channel and thus, direct water quality contributions from rain to the channel nodes are assumed to be negligible.

6. In any period of the year (usually in the wet period), if the velocity in any link is observed to be high enough to pass the link length in a unit time step, then concentration change contributed by the advective term is assumed to be a weighted average of inflows at that node.

7. Although quantity contribution of rainfall is included in velocities and discharges of the water quantity model, the rainfall water quality inputs are included by assuming the physical mixing of surface water and rain water. An adequate parameter to take the weighted average of rain water quality and surface water quality is assumed to be a depth in inches.

2.3.5 INPUT DATA REQUIREMENTS

As shown in Figure 6, different kinds of input data sets are required in the water quality model. These input data sets are related to

1. Number of nodes and links considered in the network representation of the conservation areas,

2. Starting concentrations at every node of the conservation areas,

3. Velocities and discharges for all the links and depth, and area for each of twenty nodes.

4. Historical loading (i.e., concentration and discharge through the controlling structure) to the three conservation areas.

5. Backpumped loading and the point at which the backpumped inputs are delivered in the conservation areas.

The network representation of the conservation areas with its links and nodes are shown in detail in Figures 4, 5 and 6.

Initial concentrations at every node of the conservation areas are essential to start the computational steps of the model. Since it is difficult to obtain water quality measurements at every node point, a valid approximation is made to obtain the starting concentration set. Such concentration sets (derived from the available water quality data, the available distribution maps of the U. S. Geological Survey and other operational information on the physical characteristics and water movement patterns in the conservation areas) used in the model for the three conservation areas are given in Tables 3, 4 and 5.

Node No.	TN**	TP**	Cl*
1	3.45	0.092	176
2	2.65	0.070	272
3	2.65	0.070	242
4	2.65	0.070	253
5	2.45	0.008	19.25
6	2.45	0.008	16.50
7	3.57	0.092	148
8	3.55	0.090	115.50
9	3.53	0.088	83
10	2.45	0.008	18
11	2.45	0.008	37
12	2.45	0.008	24
13	2.45	0.008	33.50
14	2.95	0.076	325.50
15	2.45	0.008	37
16	3.49	0.084	281
17	3.51	0.086	189
18	3.47	0.082	141
19	3.25	0.073	187
20	3.59	0.080	138

* Based on general distribution of chlorides observed in CA 1 (See Figure 9)
**USGS publication prepared in cooperation with the Corps of Engineers, Dec. 1975. (Reference No. 19)

TABLE 3

INITIAL CONCENTRATIONS FOR CONSERVATION AREA 1 BEFORE JANUARY 1974

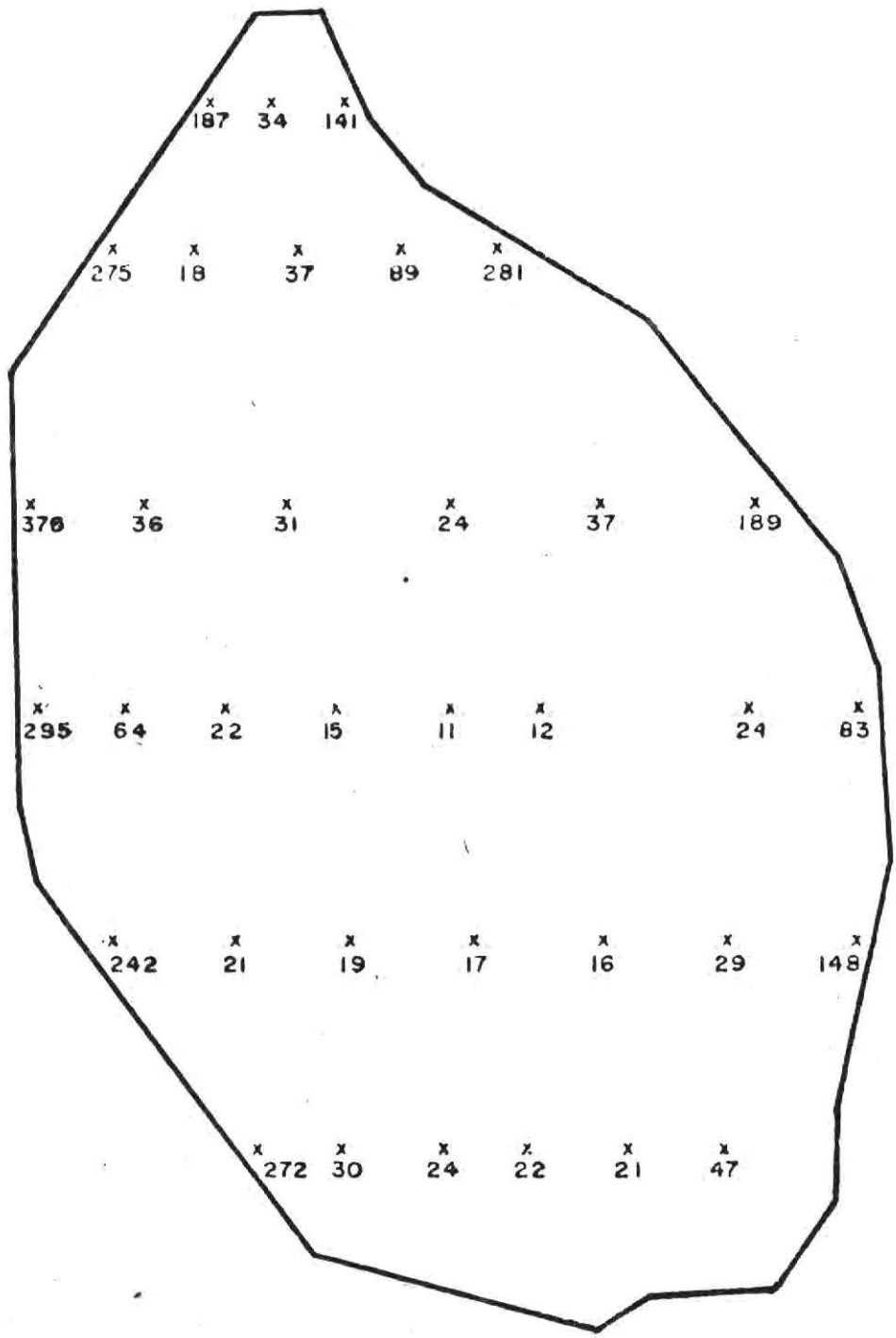


Figure 9. CHLORIDE VARIATIONS OF SURFACE WATER IN CONSERVATION AREA 1
Source: Reference No. 7

Node No.	TN	TP	Cl
20	3.12	0.006	249.3
19	3.12	0.006	249.3
18	3.45	0.092	176
17	3.45	0.092	176
16	2.72	0.004	158
15	3.01	0.002	178
14	3.45	0.092	176
13	3.12	0.006	195.9
12	3.12	0.006	142.5
11	5.14	0.002	142.5
10	2.35	0.030	227
9	2.35	0.030	227
8	5.83	0.003	185
7	5.86	0.003	187.5
6	2.62	0.010	150
5	2.62	0.010	160
4	2.62	0.010	160
3	2.35	0.003	157
2	2.62	0010	154
1	2.62	0.010	154

TABLE 4

INITIAL CONCENTRATION BEFORE JANUARY 1974 FOR CONSERVATION AREA 2A

Node No.	TN**	TP**	Cl*
1	2.58	0.002	31.94
2	2.60	0.002	31.94
3	2.59	0.002	16.9
4	1.60	0.04	31.9
5	2.59	0.002	33.9
6	1.60	0.04	86
8	2.62	0.01	154
9	3.48	0.101	140
10	2.23	0.008	150
11	3.20	0.09	63.65
12	3.20	0.09	61
13	3.2	0.09	130
14	2.26	0.008	17.5
15	1.86	0.09	25.7
16	2.00	0.027	49
17	2.45	0.008	33.9
18	1.86	0.09	50
19	0.92	0.02	38
20	2.55	0.004	20.9

* Based on the unpublished data by Pat Gleason, Nov. 27, 1973

** USGS publication prepared in cooperation with the Corps of Engineers, Dec. 1975.

TABLE 5

INITIAL CONCENTRATION FOR CONSERVATION AREA 3 BEFORE JANUARY 1974

One of the very important sets of input data is related to the collection of velocities, discharges, depth, rainfall, length of the links and the concentrations of chemical parameters in the rain water along with the decay coefficients for TDN and TDP. Since velocities, discharges through the links and through the inlet and outlet structures, depth of water, rainfall amounts and link lengths are all parts of the output from the water quantity model, these values are available in the form of a series of magnetic tapes which are used as input tapes in the water quality model. As provided by the Water Chemistry Division of the South Florida Water Management District, the following concentrations of three water quality parameters of rain water along with the estimated decay coefficients are used in the water quality model (2, 10).

Chlorides = 4 mg/litre

Total Dissolved Nitrogen = 1.2 mg/litre

Total Dissolved Phosphorus = 0.045 mg/litre

Decay coefficient (K) for TDP = 0.57/day

Decay coefficient (K) for total inorganic nitrogen = 0.46/day

Last, but not least, the input data set includes the concentrations of inflows. Although water quality sampling and measurements are made at discrete time steps, the recorded values are interpolated for each inlet structure in the computational steps. A complete set of these concentration values for two inlets (S-5A and S-6) of Conservation Area 1, two (S-7 and S-10) inlet structures of Conservation Area 2A and seven (S-11, L-314, S-140, S-190, S-150, S-8 and S-9) inlets of Conservation Area 3A are included in Exhibit 1.

3. RESULTS AND DISCUSSION

3.1 NATURE OF THE OUTPUT

Within a framework of input data, assumptions, formulations and simplifications as presented earlier, the water quality model provides output for various conditions. As shown in Figure 10, the water quality model output is generated for the following cases:

1. Historical case of 1974,
2. Four years (1968, 1969, 1970 and 1971) including wet and dry water years of 1968/69 and 1970/71.
3. Four years (1968, 1969, 1970, and 1971) including wet and dry water years of 1968/69 and 1970/71 for each of the feasible backpumping schemes, and
4. Slug runs for a wet year of 1968 and dry year of 1971 for each of the feasible backpumping schemes.

Although the water quality model is designed to simulate daily concentrations of chlorides, total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP) at all the twenty nodes of Conservation Areas 1, 2A and 3A at the current stage, only chloride results will be examined to demonstrate the framework of the model. Thus, the output for different conditions (compiled in various data files of Reference No. 12) includes essentially the simulated daily values of chlorides. After complete scrutinization of the current chloride output, it is possible to generate nutrient output at a later date when sufficient field data is collected to support some of the nutrient related key parameters of the model. In essence, the current output from the water quality model provides the time and spatial distribution of chlorides as the water moves from Conservation Areas 1 through 3A under historical, wet, dry, slug and future backpumping conditions. The final goal of this section is to demonstrate the utilization of the model output (chloride results) in assessing the water quality impact of backpumping schemes.

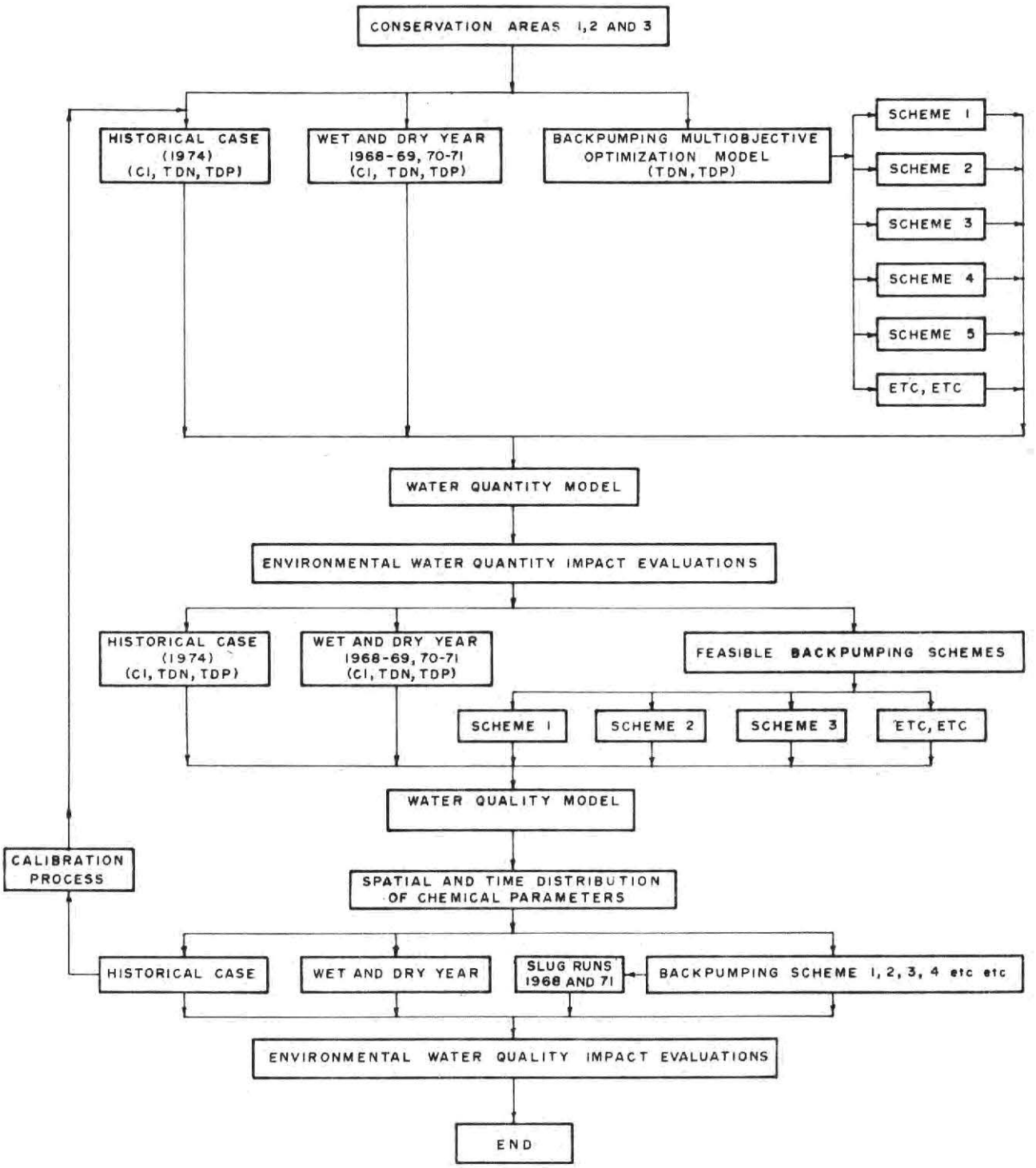


Figure 10. FLOWCHART OF THE MODELING PROCEEDURE FOR FACILITATING THE WATER QUALITY — QUANTITY EVALUATION OF BACKPUMPING ALTERNATIVES

3.2 DISCUSSION

Although the computational steps of the water quality model look straightforward, there are many intermediate points that have to be considered and investigated before a final stage is achieved. An effort is made in the following sections to elaborate on these points.

3.2.1 MASS BALANCE AND CONTINUITY EQUATION APPROACHES

As presented earlier in Section 2.3.3, two independent approaches (one using continuity equations and the other based on the mass balance principle) are tried to obtain time and spatial distribution of chemical parameters. Results have clearly indicated that mass-balance equations have failed to simulate the chemical interactions in the conservation areas. This is due to the combination of the following factors:

a. lack of indirect or direct control on the magnitude of the expressions in the numerator as well as in the denominator of the equation,

b. conceptual inadequacies in separating the channel nodes from the marsh area,

c. difficulties involved in carrying forward the accumulated mass under dry conditions, and

d. sensitivity to minor variations in outflows, inflows, depth and rainfall amounts.

As compared to the results of the mass balance equation, the methodology based on the continuity equation provided satisfactory results and thus the continuity equation is selected as a final choice in simulating water quality behavior in the conservation areas.

3.2.2 SLUG ANALYSIS

When the water quality model is extended to the future backpumping schemes with backpumping inputs at specific nodes of conservation areas, the simulated concentrations are essentially the net results of the backpumping and historical loadings. These resultant concentrations at various nodes

represent the estimated concentrations that are expected to be observed under different backpumping schemes; however, the increase or decrease due to the backpumping input alone cannot be separated out due to the background concentrations of historical inputs. In other words, the dispersion of backpumped input cannot be evaluated easily due to additive or subtractive masking effects of other incoming historical concentrations. With a rationale of studying the pattern of dispersion of only backpumped inputs, the slug runs are designed. These slug runs require all the input data sets and computational steps of the water quality model with the exception that the chloride concentrations of the historical inputs and the background concentrations are set to zero. In this manner, it is possible to clearly observe the pattern of movement of the known concentrations of backpumped inputs. It is to be noted that the procedure of slug runs requires the same set of velocities and discharges through the links, backpumped inflows and rainfall inputs. The results of these slug runs for each of the backpumping schemes are compiled in Reference No. 16.

For illustrative purposes, Tables 11, 12, 13, 14 and 15 are prepared for representative nodes in the marsh and in the channels of Conservation Area 1. From these tables, the following observations can be made:

1. As a net result of flow pattern, initial dilution and rainfall, the backpumped water quality inputs are dispersed in Conservation Area 1 in varying amounts with as high as 34.4 percent of input reaching node 15 during the wet season.

2. The increase in percentage contribution of backpumped input at interior nodes usually occurs in the wet season when relatively more water enters the core of Conservation Area 1.

3. Any specific pattern of increases or decreases (due to the effects of dry or wet years is not apparent from the tables, although some differences in percentage values can be attributed to the increase or decrease

TABLE 6. RESULTS OF SLUG ANALYSIS FOR NODE NO.5 IN CONSERVATION AREA 1

BACK-PUMPING SCHEMES	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71
#1	0	.7	1.0	1.2	1.3	1.9	1.3	5.6	3.4	7.6	3.7	9.3	4.4	13.3	4.8	14.9	4.3	14.2	3.9	14.8	3.7	10.7	3.6	9.8
#2	0	0	.5	.2	1.2	.3	1.7	.6	3.6	2.2	2.5	5.2	1.0	12	6.3	18.5	8.0	13.5	8.8	10.4	11.7	8.7	12.7	8.5
#3	1.7	.1	4.4	.2	3.6	1.2	3.4	2.1	4.4	3.8	3.5	6.9	1.3	8.7	7.2	14.2	6.4	10.3	6.0	9.1	7.9	6.1	9.2	6.6
#4	0	.1	.3	1.2	.4	1.6	.6	10.4	1.3	9.3	1.0	9.6	1.6	10.8	2.6	9.7	2.6	7.6	2.8	5.8	3.7	5.0	5.9	8.2
#5	0	0	0	0	0	0	0	0	.1	0	3.9	0	4.4	0	5.3	0	6.3	1.0	6.1	2.1	8.1	2.5	8.9	2.5
#6	0	.1	1.4	.2	3.1	1.1	4.7	2.9	4.6	5.1	3.9	7.9	1.0	7.5	4.1	11.2	6.8	8.1	7.9	12.9	11.2	11.0	11.4	11.7

NOTES: 1. The numbers given in the table represent percentages of the concentration of the backpumped water.
2. The point of entry of backpumped water in Conservation Area 1 is node 18 (see Figure 4).
3. The numbers are given for a wet year of 1968 and a dry year of 1971.

TABLE 7 . RESULTS OF SLUG ANALYSIS FOR NODE NO. 10 IN CONSERVATION AREA 1

BACK-PUMPING SCHEMES	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71
#1	0	.1	0	.5	0	1.0	0	1.9	0	3.0	0	4.1	.9	5.6	.4	6.5	3.5	6.5	3.7	7.3	3.6	8.4	3.8	8.0
#2	.1	.1	1.0	.5	2.7	.6	4.1	1.3	5.1	2.9	6.8	11.5	7.2	12.5	8.6	13.6	9.2	11.7	10.4	10.0	11.3	9.6	11.7	9.4
#3	0	.2	0	0	0	.1	4.2	.7	0	1.6	0	1.4	0	1.1	.5	1.8	.5	4.8	1.3	8.3	2.3	13.4	0	12.4
#4	.1	.1	.6	1.1	.8	1.4	1.0	3.5	2.4	6.0	4.2	7.1	5.3	7.8	5.5	7.4	5.5	6.0	5.4	5.3	5.5	5.1	5.4	5.4
#5	.1	.1	.9	.3	1.5	.3	2	.5	4.3	3.7	7.0	22.1	7.4	25.1	7.9	24.8	7.9	20.1	8.2	17.1	8.1	16.5	8.2	16.8
#6	.1	.1	3.7	1.0	4.9	1.8	4.2	4.7	4.2	5.3	6.8	5.0	7.3	8.0	8.9	7.5	9.7	8.1	10.9	8.3	11.6	9.1	11.7	9.7

NOTES: 1. The numbers given in the table represent percentages of the concentration of the backpumped water.
2. The point of entry of backpumped water in Conservation Area 1 is node 18 (see Figure 4).
3. The numbers are given for a wet year of 1968 and a dry year of 1971

TABLE 8. RESULTS OF SLUG ANALYSIS FOR NODE NO. 12 IN CONSERVATION AREA 1

BACK-PUMPING SCHEMES	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71
#1	.3	.2	1.0	.5	1.3	.9	1.4	2.0	3.1	3.1	5.7	4.4	5.9	5.6	5.0	6.4	4.9	6.6	4.9	7.1	5.8	7.8	7.0	7.5
#2	0	.1	1.3	.2	2.1	.4	2.1	.8	4.8	3	7.0	3.7	6.5	7.0	7.9	8.7	8.5	8.1	10.4	7.0	12	7.3	12	7.0
#3	0	.2	1.5	.2	2.3	.4	2.3	.9	7.1	3.2	9.0	7.3	7.4	6.1	7.1	9.3	6.9	10.6	6.8	8.4	7.2	8.2	7.2	7.6
#4	.3	.2	1.0	.5	1.2	1.1	1.4	2.4	3.1	4.1	5.7	4.8	5.9	5.2	5.0	5.6	4.9	5.1	4.9	4.7	5.8	4.5	7.0	5.0
#5	0	.1	1.3	.1	1.9	.2	1.9	.3	6.4	2.1	8.3	21.1	7.1	34	6.6	32.1	8.4	22.6	8.1	17.2	8.3	16.2	8.2	15.1
#6	0	.2	2	1.6	4.9	1.8	8.0	2.4	6.6	5.0	8.2	5.8	7.0	6.6	7.9	7.7	8.8	9.7	10.7	10.3	11.7	9.8	11.7	9.2

NOTES: 1. The numbers given in the table represent percentages of the concentration of the backpumped water.
2. The point of entry of backpumped water in Conservation Area 1 is node 18 (see Figure 4).
3. The numbers are given for a wet year of 1968 and a dry year of 1971.

TABLE 9. RESULTS OF SLUG ANALYSIS FOR NODE NO. 15 IN CONSERVATION AREA 1

BACK-PUMPING SCHEMES	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71
#1	3.5	1.0	3.5	1.0	3.5	3.0	3.5	3.0	4	4.3	9.4	4.9	6.8	7.9	5.1	10.4	4.9	12.3	7.8	11.8	9.2	17.3	9.2	13.9
#2	.5	.5	3.8	2.3	7.9	2.3	7.9	2.3	6.4	2.4	9.9	2.4	16.4	2.7	17.1	6.1	16.4	13.9	34.4	8.4	31.0	25.0	29.5	18.7
#3	3.2	.4	3.2	.4	7.9	.4	7.9	1.1	11.5	5.7	10.0	17.6	17.8	27.8	13.5	27.8	11.3	20.3	17.8	10.0	18.6	23.0	17.5	16.4
#4	3.5	.1	3.5	.8	2.5	1.0	3.5	3.4	4.0	4.3	9.4	6.8	6.8	8.4	5.1	9.2	4.9	7.5	7.8	7.1	9.2	10.1	9.2	10.8
#5	.5	.4	3.8	1.3	7.4	2.3	7.4	2.3	8.8	2.7	10.2	4.1	17.0	5.9	14.6	4.3	11.4	11.9	18.2	11.8	16.2	21.9	15.2	20.8
#6	0	0	3.8	0	20.5	0	23.9	0	7.2	2.4	10	2.7	17.9	2.7	18.2	2.7	17.2	8.8	34.5	9.8	31.2	17.2	29.4	14.7

NOTES: 1. The numbers given in the table represent percentages of the concentration of the backpumped water.
2. The point of entry of backpumped water in Conservation Area 1 is node 18 (see Figure 4).
3. The numbers are given for a wet year of 1968 and a dry year of 1971.

TABLE 10. RESULTS OF SLUG ANALYSIS FOR NODE NO. 17 IN CONSERVATION AREA 1

BACK-PUMPING SCHEMES	JAN.		FEB.		MARCH		APRIL		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.	
	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71	68	71
#1	2.0	6.1	2.2	7.1	2.9	80.3	3.4	66.7	2.5	68	12.7	79.5	10.3	99.8	1.2	74.2	2.9	22.7	17.2	22.3	25.5	73.3	13.9	46.3
#2	4.4	4.5	69.4	30.5	99.8	17.1	77	78	50.2	66.8	14.5	95.1	69.4	97.2	54.2	76.7	21.2	58.0	49.2	36.3	41.5	77.6	36.5	70.9
#3	25.7	5.7	30.9	17.1	87.2	51.3	99.5	46.1	11.2	70.5	15.7	91.4	71.8	88.1	37.9	83.9	16.4	63.0	26.2	26.1	44.5	82.5	27.	74.8
#4	2.0	28.3	2.2	35.5	2.9	86.1	3.4	80.3	2.5	72.4	12.7	54.3	10.3	39.1	1.2	20.5	2.9	9.1	17.2	2.2	25.5	44.9	13.9	41.2
#5	4.4	9.8	67.5	11.1	99.6	52.3	17.0	51.4	46.2	62.2	14.7	91.7	70.8	82.4	36.1	58.1	14.7	65.6	31.9	19.9	37.7	77.6	41.4	72.5
#6	27	47.6	72.6	47	87.4	31.4	99.6	54	50.5	74.2	15.7	83.3	71.2	83.6	54.2	77.5	22	66.7	50.9	31.1	40.3	77.6	31.9	72.0

NOTES: 1. The numbers given in the table represent percentages of the concentration of the backpumped water.
2. The point of entry of backpumped water in Conservation Area 1 is node 18 (see Figure 4).
3. The numbers are given for a wet year of 1968 and a dry year of 1971.

of flow volumes in wet and dry years, respectively.

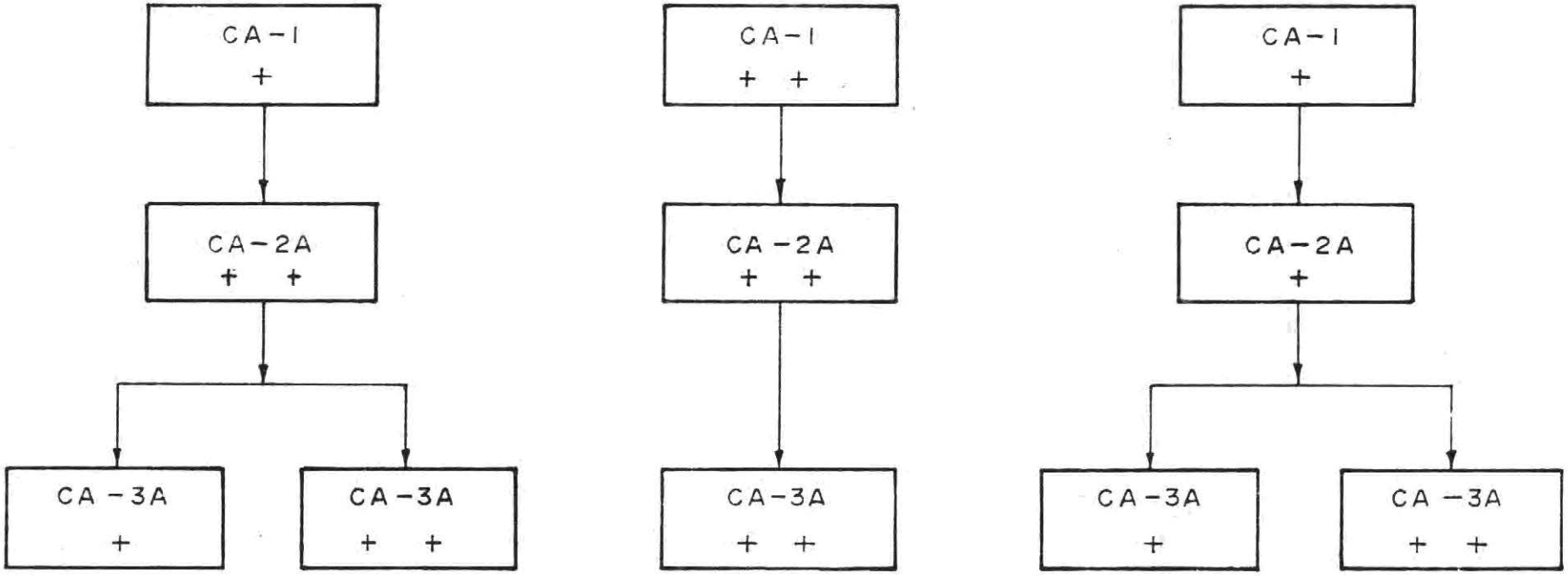
4. The transfer of backpumped inputs in the channel nodes as against marsh nodes can be distinguished from the numbers of these tables.

5. The illustrative results of these tables and the results compiled in Reference No. 16 indicate the usefulness of the slug runs in evaluating the relative dispersion of backpumped inputs under different backpumping schemes.

In addition to the type of input data sets described earlier, chloride concentrations of backpumped input are also required. A set of chloride concentrations of backpumping inputs to the West Palm Beach Canal (C-51), Hillsboro Canal (C-14) and Tamiami Canal (C-4) used in the water quality model is given in Exhibit 1.

3.2.3 DIRECT RAINFALL QUALITY INPUTS

After computing the concentration of chlorides at a given node, the concentration values of the rain (as given in section 2.3.5) are combined with the computed concentration according to the simulated depth of water in inches at the node and the rainfall amounts in inches. Such a weighing factor procedure considers a simple physical process of mixing rainfall concentration with the concentration of the water at a node. For example, when an inch of surface water with 15 mg/litre of chloride), the resultant concentration becomes 10 mg/litre. Although such a simple mathematical procedure is valid from a physical standpoint, it may or may not follow the events that actually take place in the field as a result of numerous known and unknown interacting elements. To examine to the extent possible the various aspects of such thinking, all the possible combinations are tried for the historical case of 1974 as depicted in Figure 11. As shown in Figure 11, various runs for Conservation Areas 1, 2 and 3 are made to include and exclude the final weighing procedure for the chloride input from rain. The results of these combinations and the final selection of



\+ RAIN CONTRIBUTION OF CHLORIDES IS INCLUDED IN FINAL STAGE

\+ + RAIN CONTRIBUTION OF CHLORIDES IS NOT INCLUDED IN FINAL STAGE

Figure II THE POSSIBLE COMBINATIONS OF CHLORIDE RUNS FOR A HISTORICAL CASE OF 1974

the combination is discussed in the subsequent section.

3.2.4 CORRELATIONS BETWEEN SIMULATED AND OBSERVED SETS

As an essential step of any modeling effort, the water quality model is calibrated in light of the available historical data set as shown in Table 2. In such an effort, the output of the model is compared with the observed field data for the three conservation areas. Such comparisons are provided in Tables 11,12 and 13.These tables also include the chloride concentrations obtained under different conditions. These comparative tables indicate that the model is capable of generating the chloride concentrations which are in reasonable agreement with the observed field data of 1974. There are two important observations associated with these comparative tables. First, the inclusion of rainfall quality in the computations for Conservation Areas 1 and 3A seems to be very essential because otherwise, the concentrations in the interior marsh nodes tend to build up in the wet period when some movement of water into the marsh occurs under high concentration gradient. However, exclusion of rainfall quality in the computational procedure of the model for Conservation Area 2A seeems to produce results which are better matched with the field data as compared to the results of the procedure including rainfall quality (see Table 12). Although such nonuniformity in applying basic principles can be attributed to the different types of hydraulic and hydrologic regimes of these conservation areas, it was suspected that the observed nonuniformity is a result of inadequacies of simulated depths when the area goes dry. To clarify the suspicion, an effort was made to assume 1", 2" and 3" of mushy water in dry conditions so that the final weighing procedure was based on these depths and rainfall amounts. Unfortunately, results from such effort did not provide the rationale for adequately eliminating the observed nonuniformity. Underground flow of water with high concentration of chlorides in Conservation Area 2A could be an important element in bringing uniformity in the modeling

Table 11. Comparison of Simulated and Recorded Values for Chlorides for Conservation Area 1 for the Year 1974

Date		NODE NUMBERS 1	5	13	12	11	15	
Jan. 29, 1974	a)	159.9	44	30.8	20.3	22.1		
	b)	169	40	28	28	16		
Jan. 31, 1974	a)	159.3	45.3	31.6	20.4	22.1		
	b)	166.6	40	28	28	16		
Feb. 25, 1974	a)	166.9						
	b)	185.7						
Mar. 12, 1974	a)	164.4	45.15	31.1	20.5	21.15	46.97	(Node 5+6+10)
Marc. 13, 1974	b)	196.6	45	35	35	25	32	(Apr. 16, 1974)
Mar. 27, 1974	a)	161.1				145.2*	141.6	(Node 19)
	b)	202.2				199.2	186.9	
Dec. 13, 1974	a)		89.4	38.6	31.8	47.2	38.6	
	b)		69.97	43.3	39.3	77.8	33.3	

a) Simulated chloride concentrations.
b) Historical data.

* Node 14

Table12. Comparison of simulated and recorded values of chlorides for CA2A for the Year 1974

DATE		CONCENTRATIONS AT NODES							
		1	5	6	7	8	9	11	15
Jan. 29	a)	156.3	155.1	149.2	85.2	152	165.8	42.7	154.9
	b)	160.4	158.4	151.7	185.5	180.3	171.0	144.5	177.3
	c)	165	166.8	157.9	173.7	179.2	115.4	137.5	175.2
Feb. 25	a)	155.8	154.8	148.9	86.4	150.3	164.3	42.7	158.7
	b)	160.2	158.5	151.8	185.3	179.8	170.1	144.5	168.5
	c)	185.7	189.3	158.8	179.7	182.85	171.9	197.2	163
Mar. 27	a)	155.5	154.7	148.2	86.4	133	163.3	42.7	148.9
	b)	162.8	159.3	156.3	185.3	175.6	169.8	144.5	166.2
	c)	202.2	167.7	196	207.6	200	174.15	270.6	220.4
May 30	a)	106.5	120.2	112.6	80	40	116.8	51.2	115.6
	b)	124.5	122.2	165.3	179.3	165.2	118.0	146.9	155.3
	c)	191.7	183.2	209.6*					
June 24	a)	81.3	95.2	103.3	89.2	47.9	65.1	33.7	97.4
	b)	137.3	141.1	135.2	166.3	154.4	147.2	147.2	150.4
	c)	186.4			149.3	101.45		117.50	193.8
July 24	a)	85.8	88.1	98.4	77.7	106.3	105	36.9	157.6
	b)	146.8	149.1	149.3	162.8	161.8	142.3	153.8	168.5
	c)	184.5	104.6	183.5	178.28	200.2	136.45	137.35	208.1
Aug. 29	a)	119.7	122.6	129.8	113.9	130.2	117.8	68.7	149.7
	b)	148.6	163.5	163.5	163.4	163.3	134.8	168.2	158.8
	c)	161.5	112.1	139	192.17	150	116.3	149.83	180.30
Dec. 20	a)	102.1	102.6	75.3	92.7	29.6	127.9	35.4	55.1
	b)	141.1	150	154.2	155.7	158.3	142.9	176	155.7*
	c)	-	156.4	150.4	178.87	163.05	137.40	170.75	150.4

a) Final weighing procedure includes rainfall contribution of chlorides
b) Final weighing procedure excludes rainfall contribution of chlorides
c) Historical data
* Node 16

Table 13. Comparison of simulated and recorded values of the calibration runs for Conservation Area 3A for the year 1974

Date		NODE NUMBERS 2	11	5	10	12	14
Sept. 26	a)		79.6		75.1	78.2	16.3
	b)		66		89	62	19.3
Apr. 15	a)	31.9	109.3	33.9	150.5		
Apr. 16	b)	59	99	28	140		

a) Simulated chloride concentration

b) Historical data

procedure for the three conservation areas. However, because of the lack of information on the spatial distribution of seepage water with its varying chloride concentration, any further improvement is not possible at this stage.

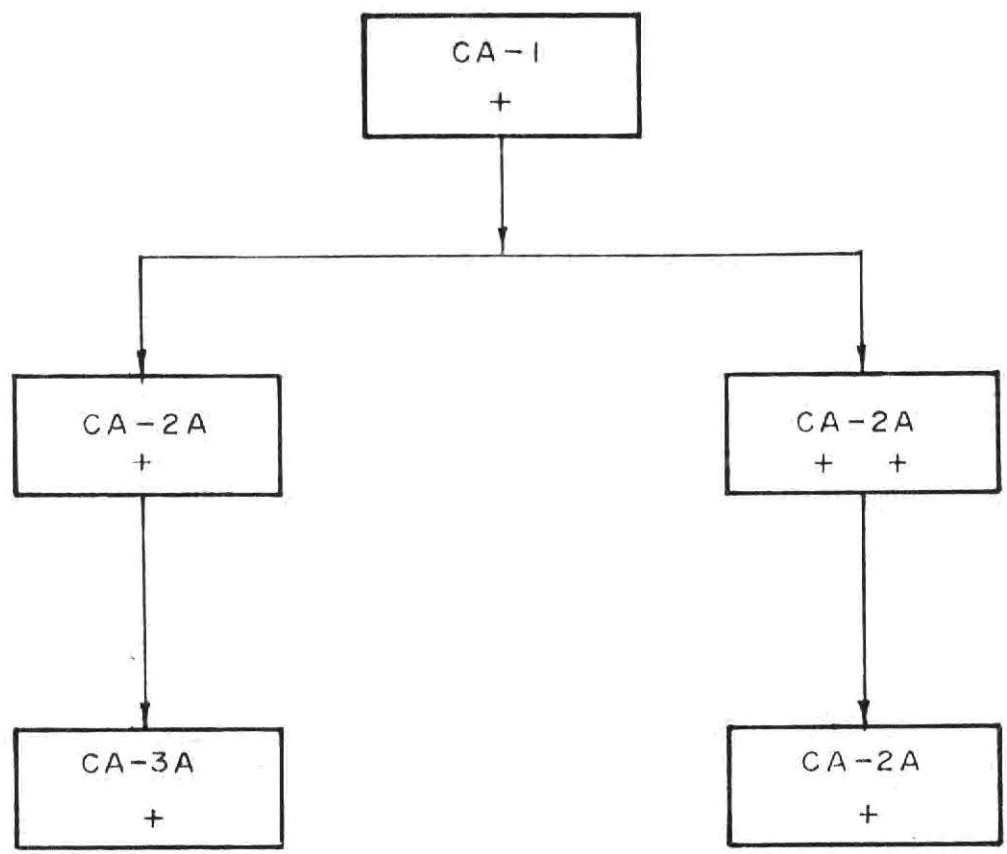
Secondly, the analyses of Conservation Area 2A with and without rainfall quality contributions seem to have no significant effect on the results of Conservation Area 3A. In other words, this means that outputs from Conservation Area 2A at node 1 (which is fed as an input to Conservation Area 3A) for the cases with and without rainwater quality are not significantly different.

Considering these two points, the final selection among the various combinations of Figure 11 is as shown in Figure 12. It should be noted that the combination shown in Figure 12 is used subsequently for generating chloride concentrations for various historical and backpumping conditions.

As an additional part of the calibration task, an effort is made to examine the response of the model output to the stage variations observed for the calibration year and for dry and wet conditions in Conservation Area 1. Such stage-concentration responses for some illustrative nodes of Conservation Area 1 are presented in Figures 13, 14, 15, 16 and 17. Again, these figures indicate clearly that the water quality model output for the calibration year of 1974, wet year and dry years of 1968-71, is in general agreement with the variational pattern of stages that are observed at three gages (1-8, S-10, S-5A) in Conservation Area 1. These satisfactory correlations supplement further the reasonable calibration results of Tables 11, 12 and 13.

3.2.5 PARAMETRIC SENSITIVITY ANALYSIS

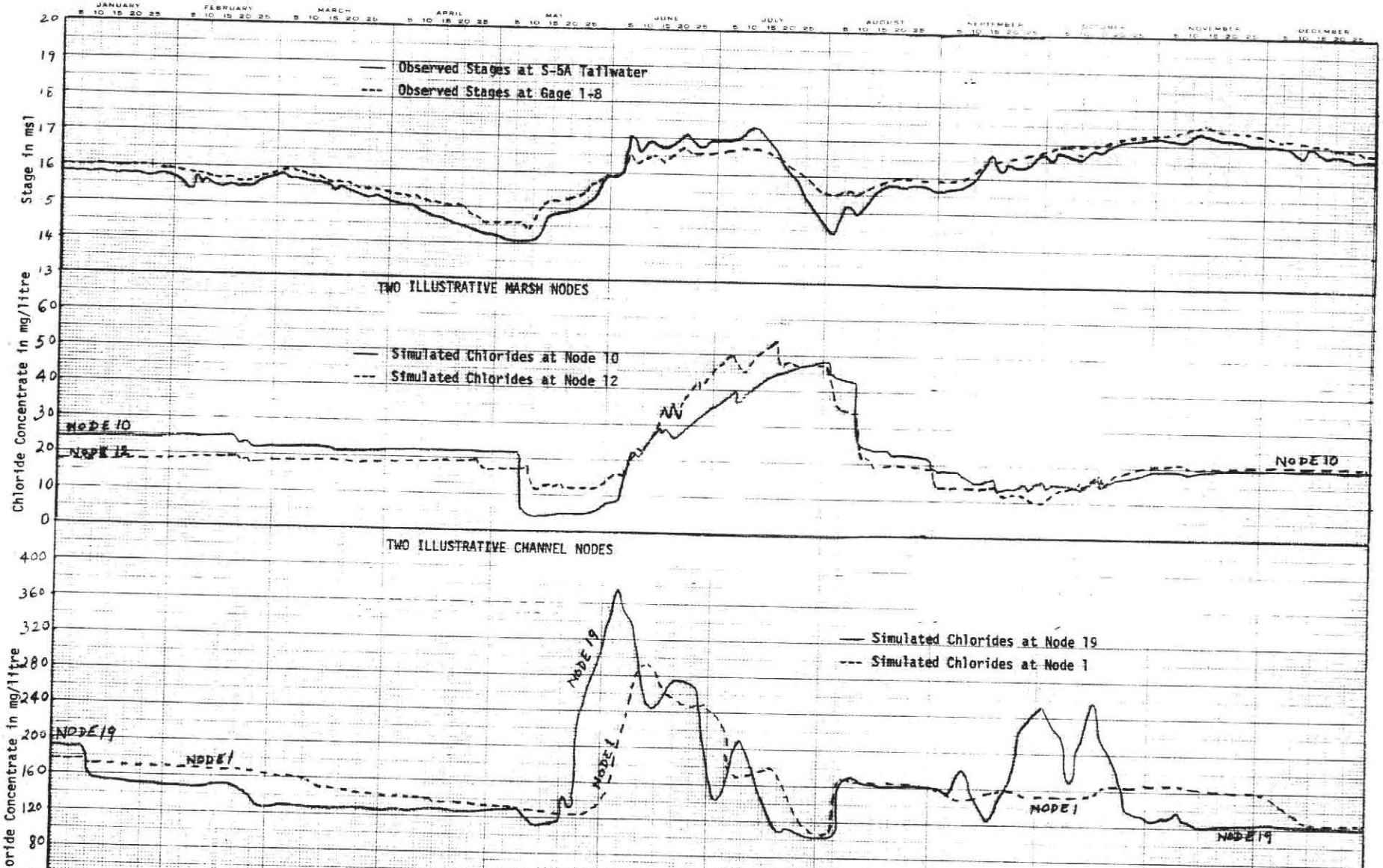
Like any other useful planning oriented water quality model, sensitivity of various parameters to the final outcome is usually examined by a



\+ RAIN CONTRIBUTION OF CHLORIDES IS INCLUDED IN FINAL STAGE

\+ \+ RAIN CONTRIBUTION OF CHLORIDES IS NOT INCLUDED IN FINAL STAGE

Figure 12 SELECTED COMBINATION OF CHLORIDE RUNS FOR THE HISTORICAL WET AND DRY YEARS AND FOR VARIOUS BACKPUMPING SCHEMES


JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
NOVEMBER
DECEMBER
Stage in msl
Observed Stages at S-5A Tailwater
Observed Stages at Gage 1-8
TWO ILLUSTRATIVE MARSH NODES
Chloride Concentrate in mg/litre
Simulated Chlorides at Node 10
Simulated Chlorides at Node 12
NODE 10
NODE 12
NODE 10
TWO ILLUSTRATIVE CHANNEL NODES
Chloride Concentrate in mg/litre
Simulated Chlorides at Node 19
Simulated Chlorides at Node 1
NODE 19
NODE 1
NODE 19
NODE 1
NODE 1
NODE 19

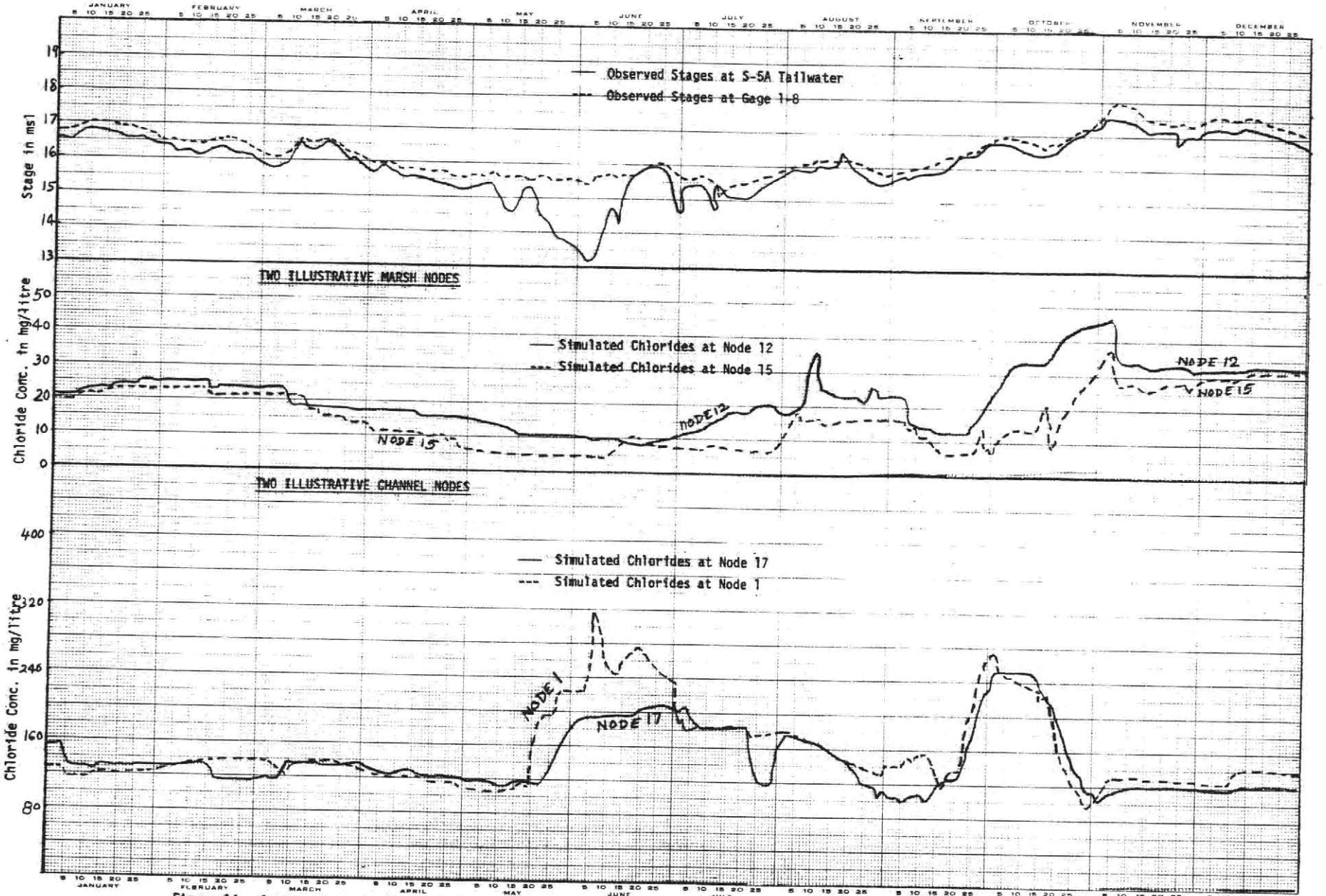


Figure 14. Stage - Concentration Response for Some Illustrative Nodes of Conservation Area 1 for the Year 1969

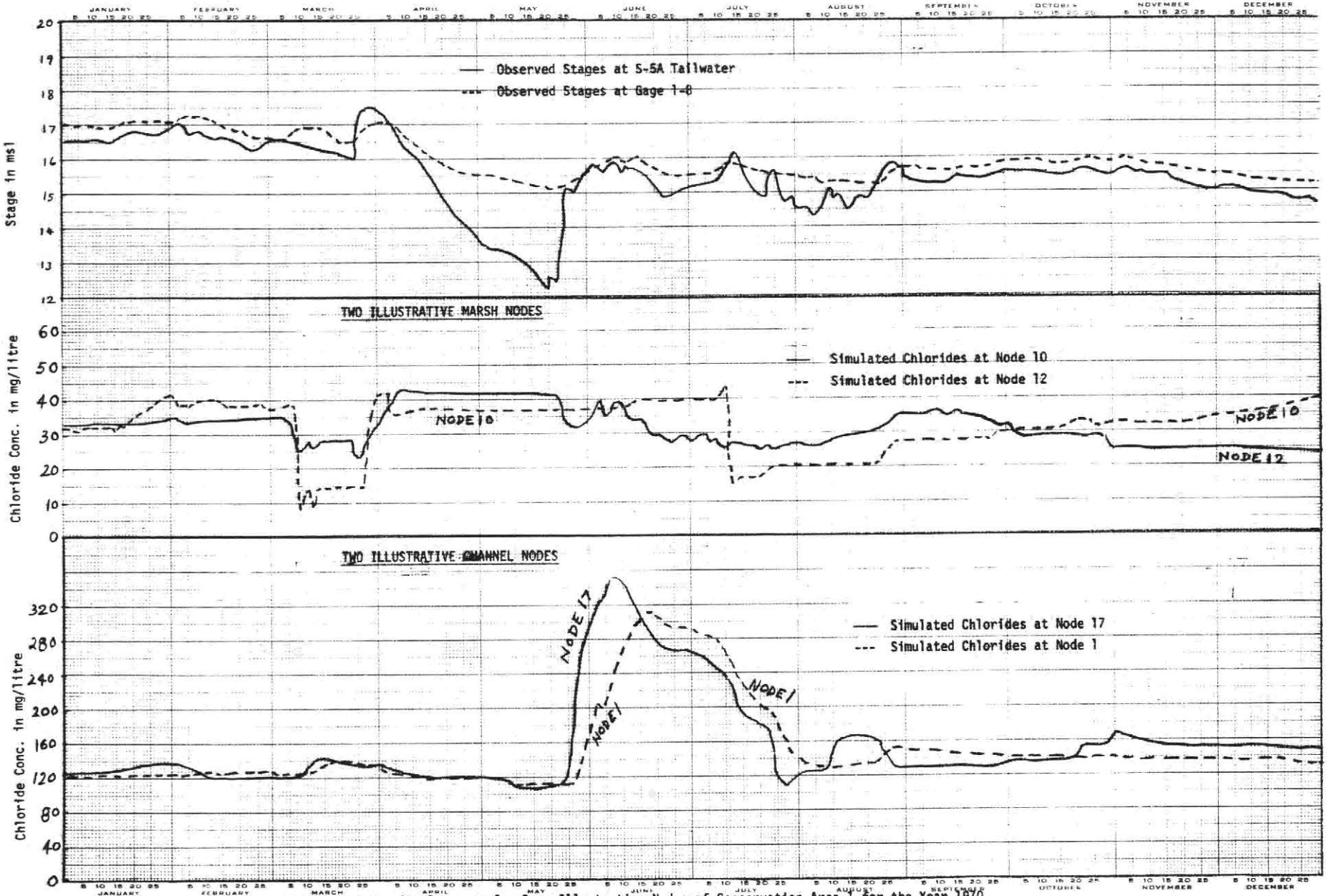


Figure 15. Stage-Concentration Response for Some Illustrative Nodes of Conservation Area 1 for the Year 1970.

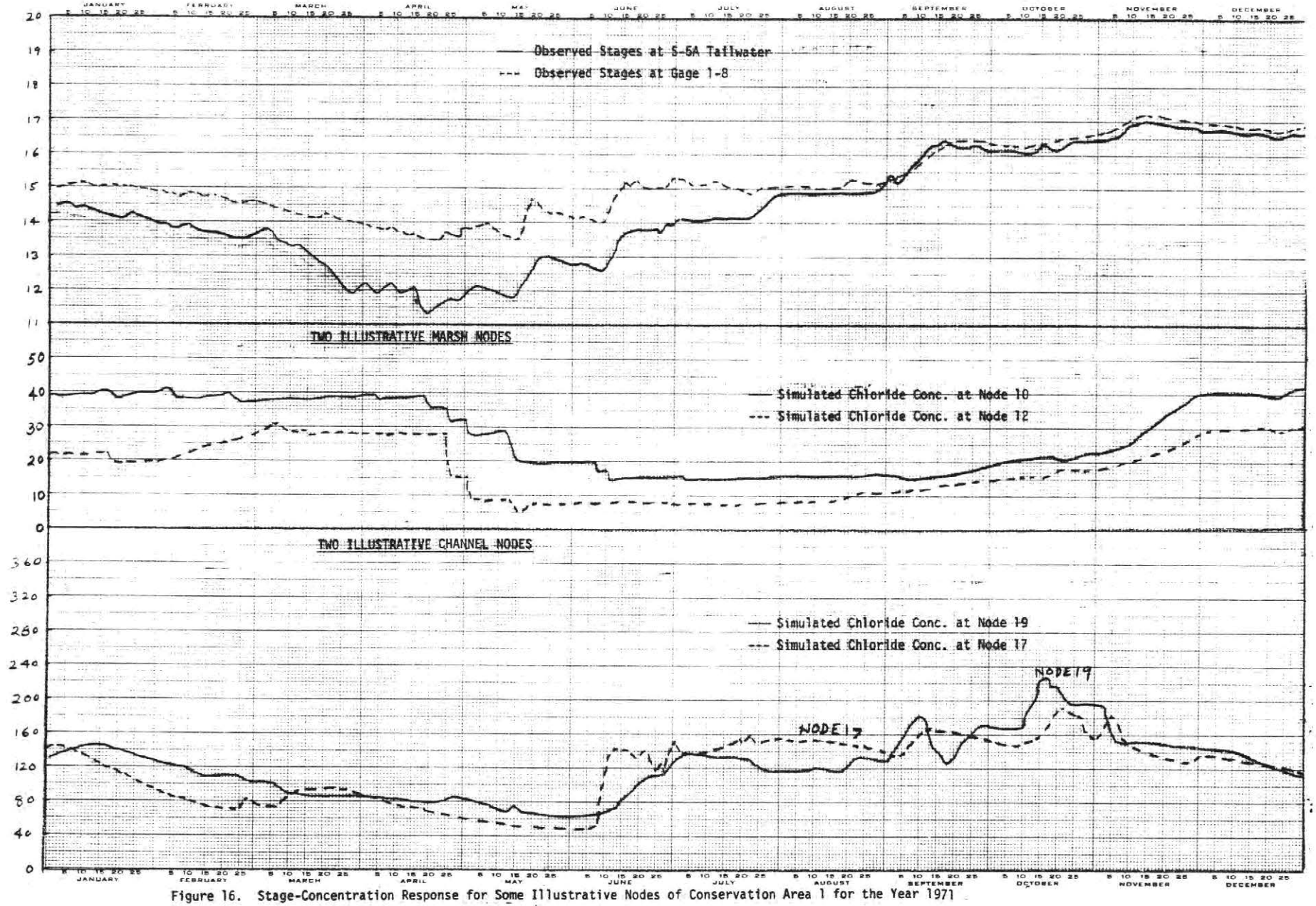


Figure 16. Stage-Concentration Response for Some Illustrative Nodes of Conservation Area 1 for the Year 1971

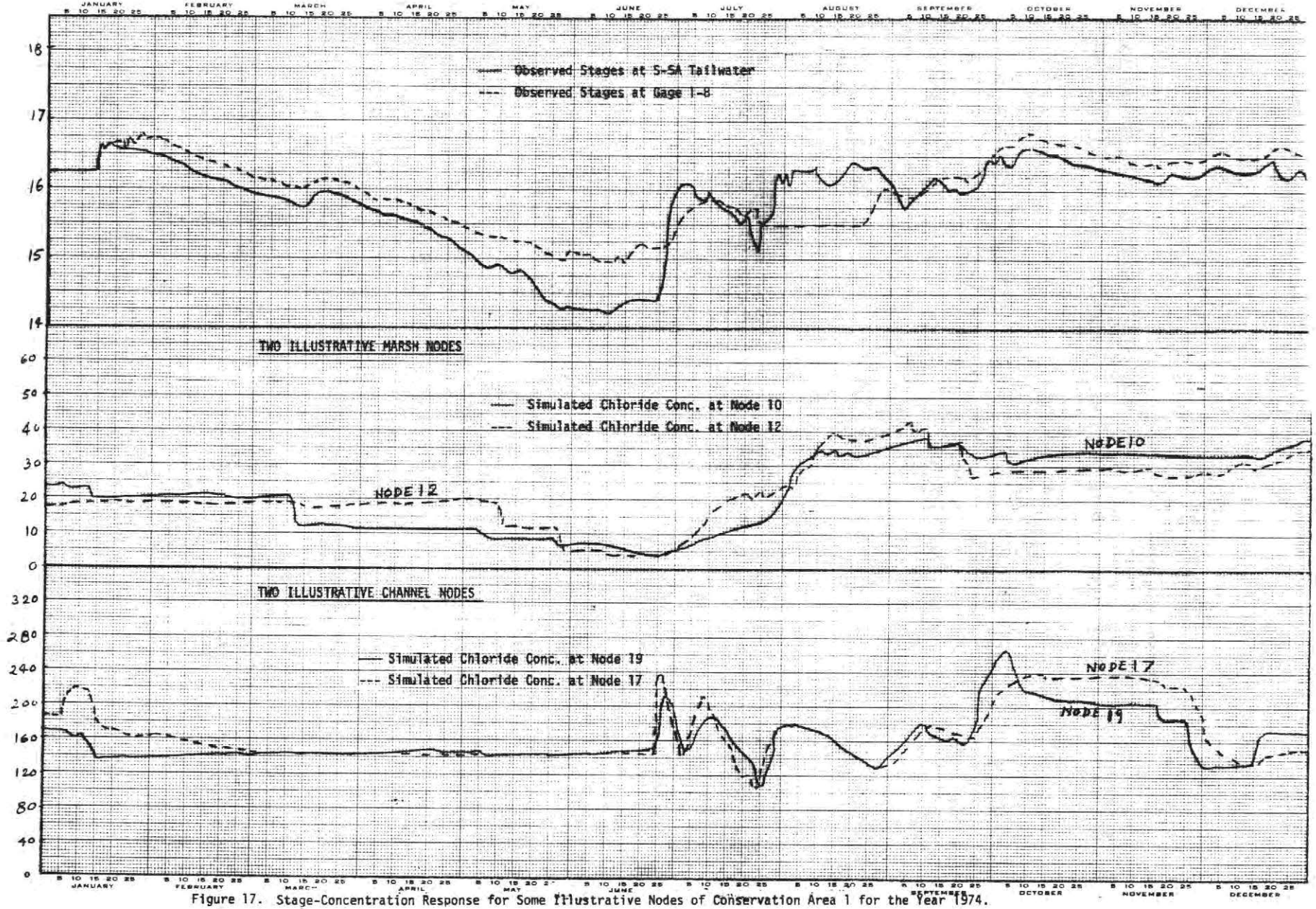


Figure 17. Stage-Concentration Response for Some Illustrative Nodes of Conservation Area 1 for the Year 1974.

procedure which is called parametric sensitivity analysis. As far as chloride runs are concerned, the parametric analyses were performed on the unit time step to examine its sensitivity on the final result. In such analyses, runs were made using time steps of 24 hours, 12 hours, 6 hours, 4 hours, 3 hours, 2 hours and 1 hour. Among all these runs, the water quality model (based on computations at every hour) produced conceptually the most accurate results, but it took 45 minutes to generate one year of chloride concentrations. For a time step of 2 hours, 3 hours, 4 hours, 6 hours, 12 hours and 24 hours, the water quality model took 20 minutes, 15 minutes, 12 minutes, 10 minutes, 8 minutes and 6 minutes, respectively. A time step of 24 hours provided results which were significantly different from the most accurate results obtained for a unit step of 1 hour with 45 minutes of computer time. Comparisons of these numbers indicate clearly the necessity of trade-off considerations in selecting the optimum unit time step. Considering the realistic computer time requirement without sacrificing the accuracy of the results, a time step of 2 hours is finally selected (with 20 minutes of computer time) to process one chemical parameter for one conservation area for a full year.

3.2.6 COMPUTER PROGRAM AND TIME REQUIREMENTS

All the computational steps of the water quality model are included in the computer program which is designed for the CDC 3100 computer facility. The listing of such a program is given in Exhibit II. The estimated computer time requirements for various conditions are given in Table 14. Note that the estimates given in Table 14 are for

a. Chloride parameter with the selected combination of Figure 12,

b. Three conservation areas, and

c. A unit time step of 2 hours.

Table 14. Computer time requirements of the water quality model for different conditions.

Case No.	Description	Computer Time
1	Historical Case of 1974	1 hour
2	Selected combination for a historical case of 1974	1 hour 40 min.
3	To create disk files of the useful output of the water quantity model	1 hour 30 min.
4	Four years including wet and dry water year of 68-69 and 70-71	6 hrs. 40 min.
5	To create disk files and to run the model for four years for a backpumping scheme	8 hrs. 10 min.

3.2.7 ANALYSIS OF THE MODEL OUTPUT IN EVALUATING BACKPUMPING SCHEMES

After satisfactory calibration results of historical cases of dry, wet and average years, the model is used to obtain the time and spatial distribution of chlorides in the channel and marsh nodes of the three conservation areas for various backpumping schemes of Table 15. From a computational standpoint, the velocities and discharges of the links, depths at node points and inlet discharges will be different for each of these alternatives. As a consequence, the water quality model will generate different sets of spatial and time distribution of chlorides which can be compared with historical distribution to quantitatively define the water quality impact (adverse or status quo or beneficial) of these backpumping schemes. Looking at these different sets of spatial and time distributions of chlorides (also known as pollutographs) as depicted in Figures 18 through 37, the following points can be observed.

1. For channel nodes (i.e., nodes No. 1, 2, 3, 4, 7, 8, 9, 14, 16, 17, 18, 19 and 20) the historical pollutograph is higher than pollutographs of backpumping schemes. This is further substantiated by the values of Table 16 for these nodes of Conservation Area 1.

2. For marsh nodes (i.e., Nos. 5, 6, 10, 11, 12, 13 and 15), the historical pollutograph is surpassed by some pollutographs of backpumping schemes.

3. Although an increase in chloride concentrations was observed for two or three nodes for backpumping conditions, a similar increase also occurred historically for these nodes.

Considering these observations, coupled with the information of Figures 13 to 17 and of Tables 6 through 10, results of Conservation Area 1 indicate that the backpumping schemes seem to have a status quo type water quality impact. It should be noted that this preliminary conclusion may be

Table 15. Backpumping schemes and their proposed points of discharge in the three conservation areas.

Backpumping Scheme #	Points of Discharge*		
	CA-1	CA-2	CA-3
1	18	-	-
2	18	-	1
3	18	17	1
4	18	-	-
5	18	17	-
6	18	-	-

Note:

CA-1 = Conservation Area 1

CA-2 = Conservation Area 2A

CA-3 = Conservation Area 3A

*Point of discharge is at a node (number of which is given in the table).

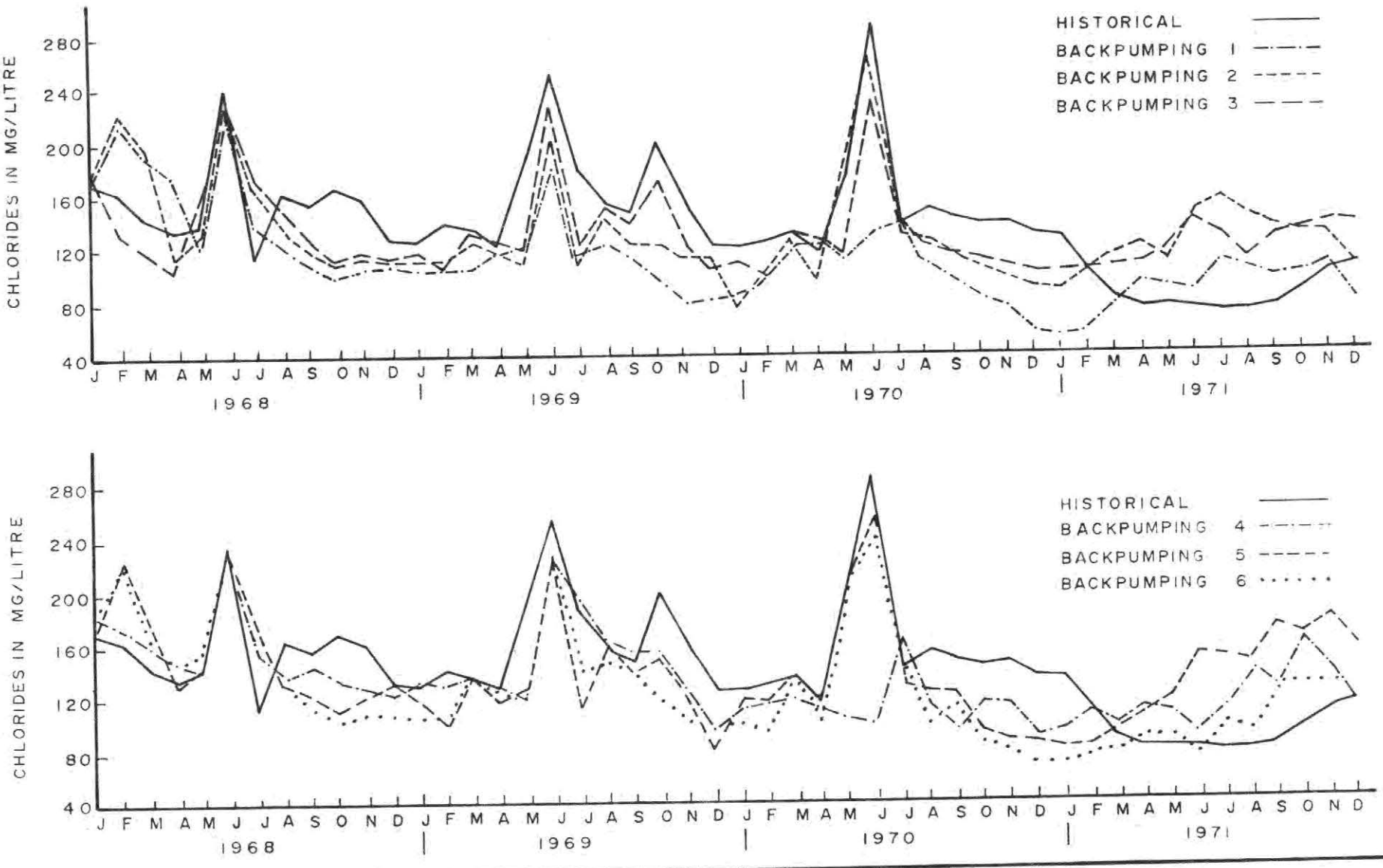


Figure 18. POLLUTOGRAPH OF CHLORIDES FOR NODE 1 OF CONSERVATION AREA 1

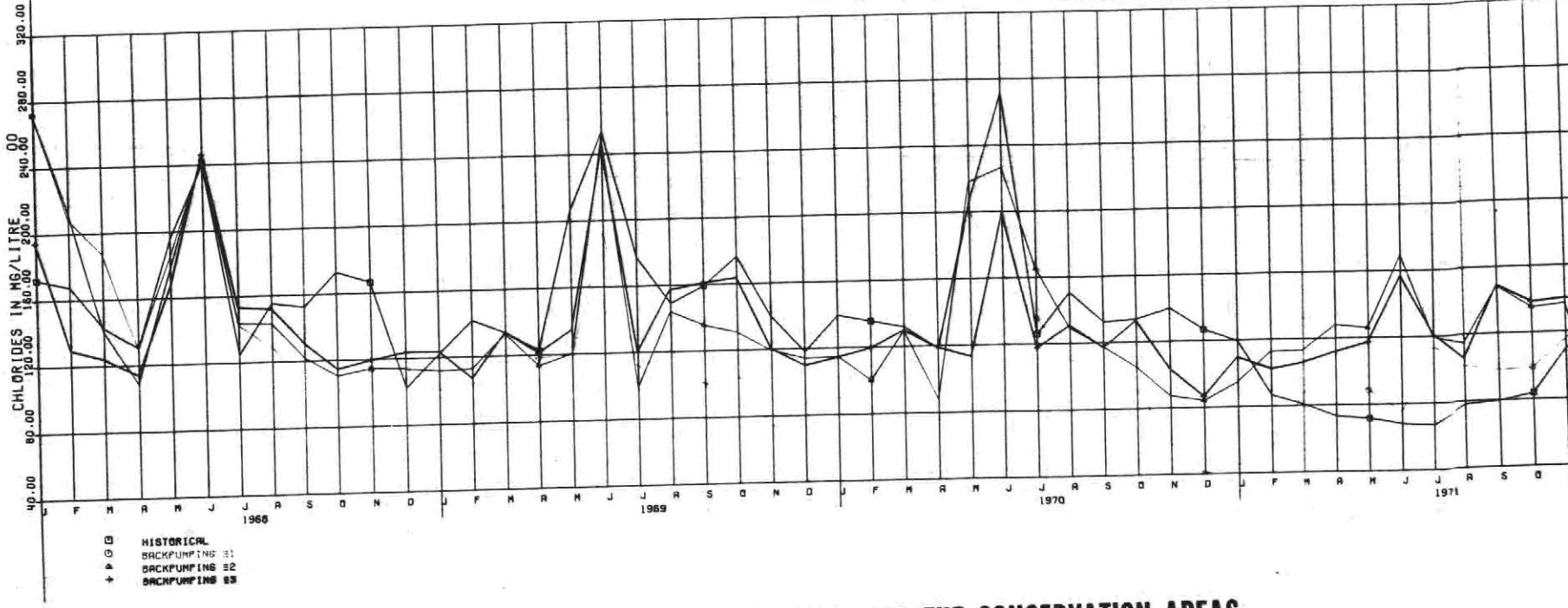
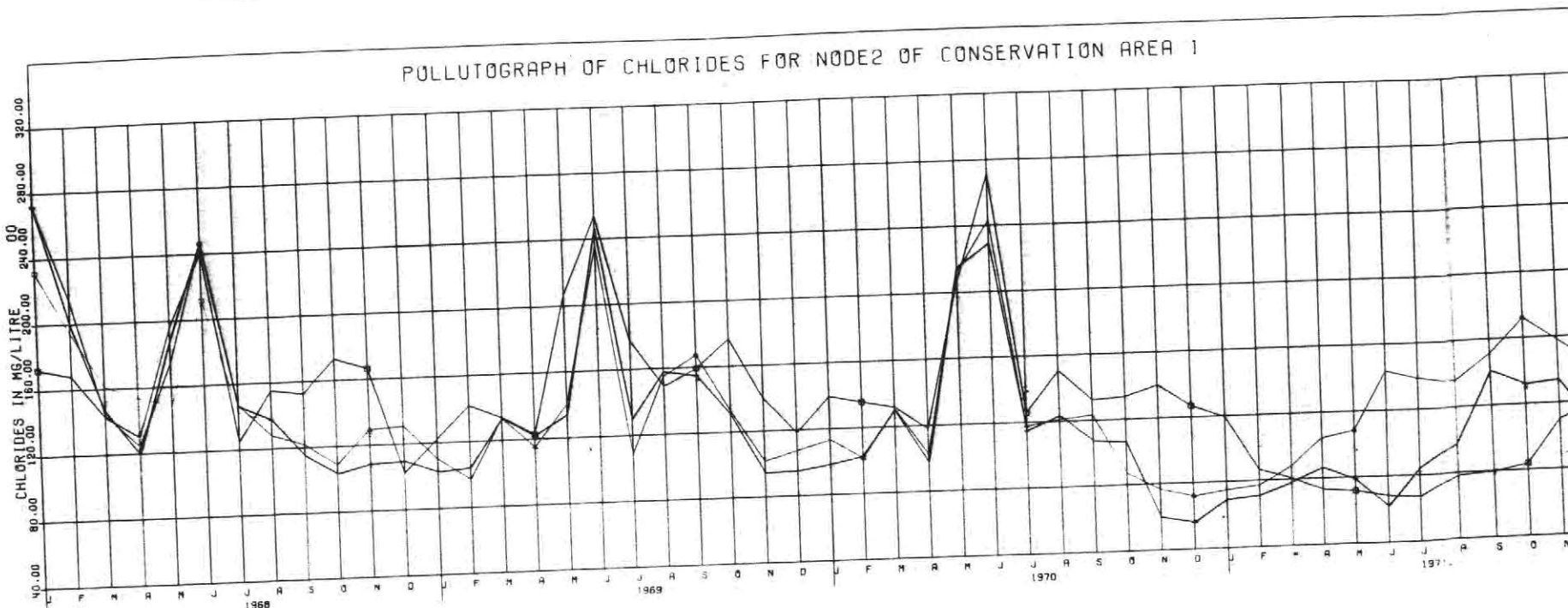


FIGURE 19. **OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS**



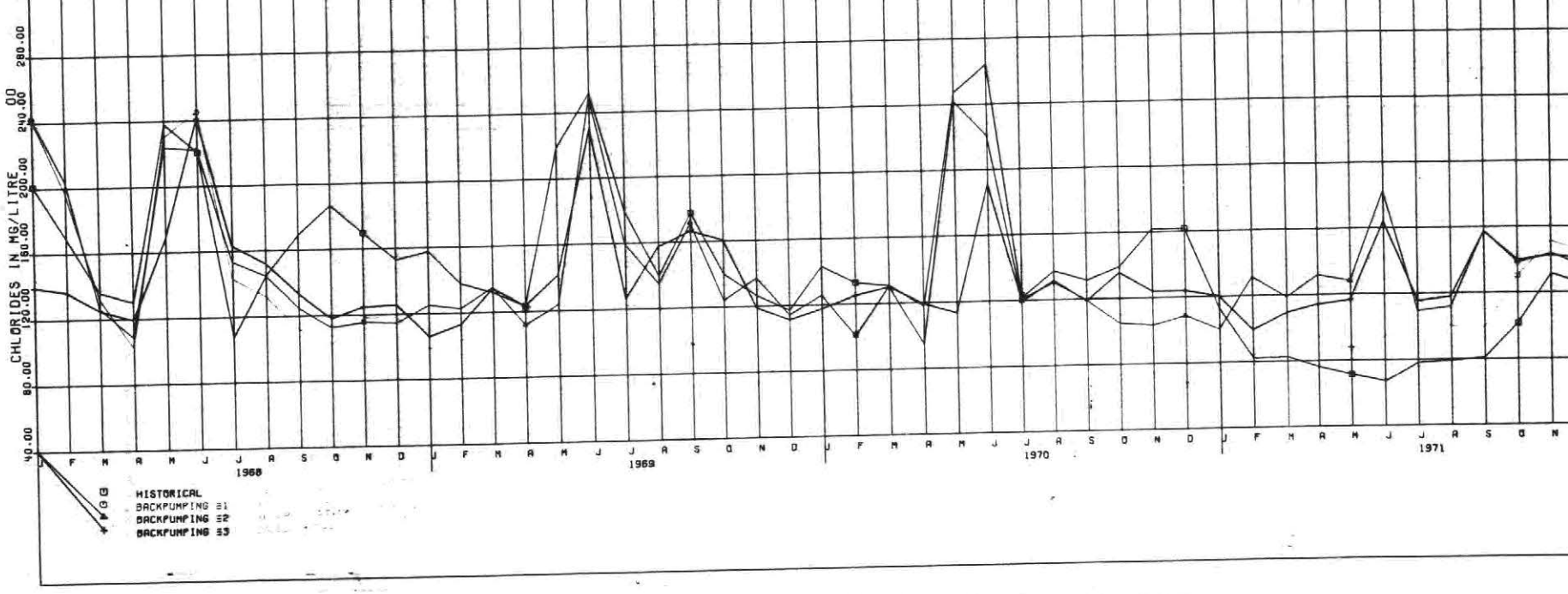
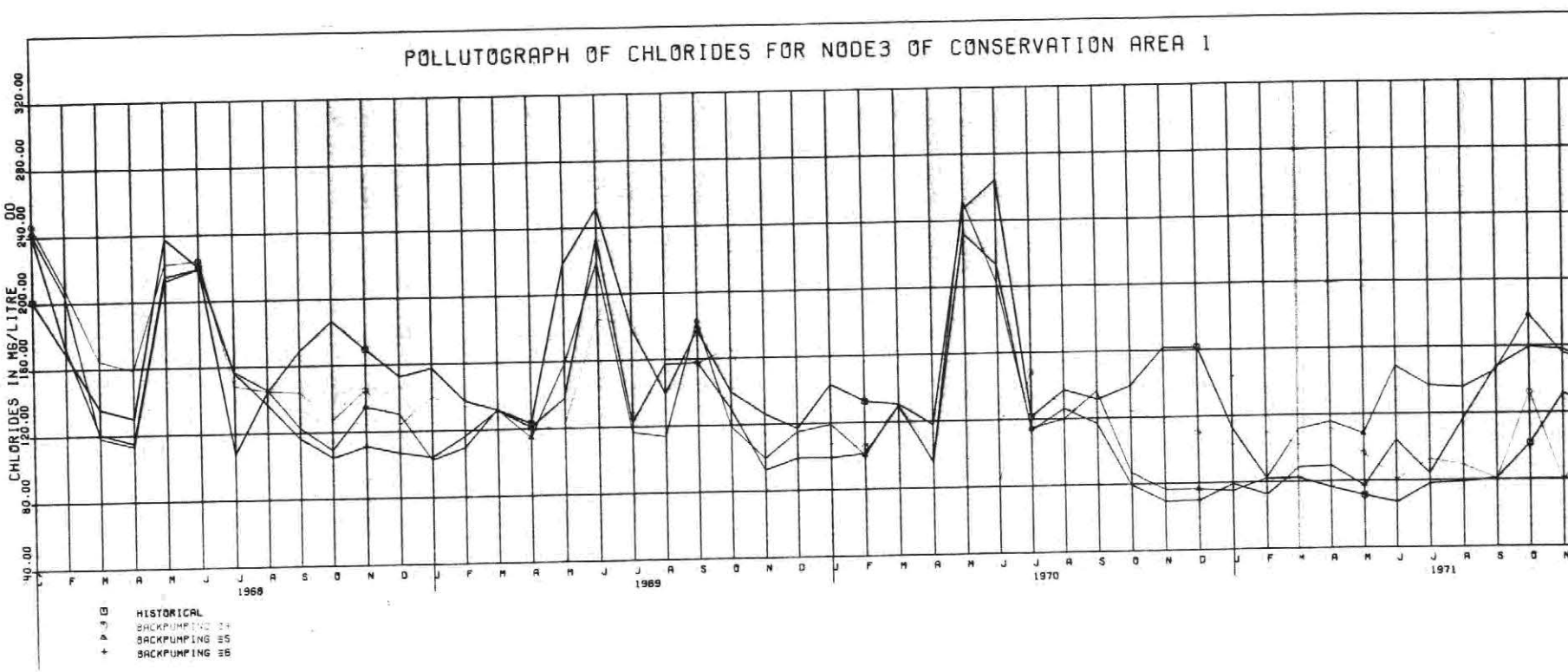


FIGURE 20. **OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS**



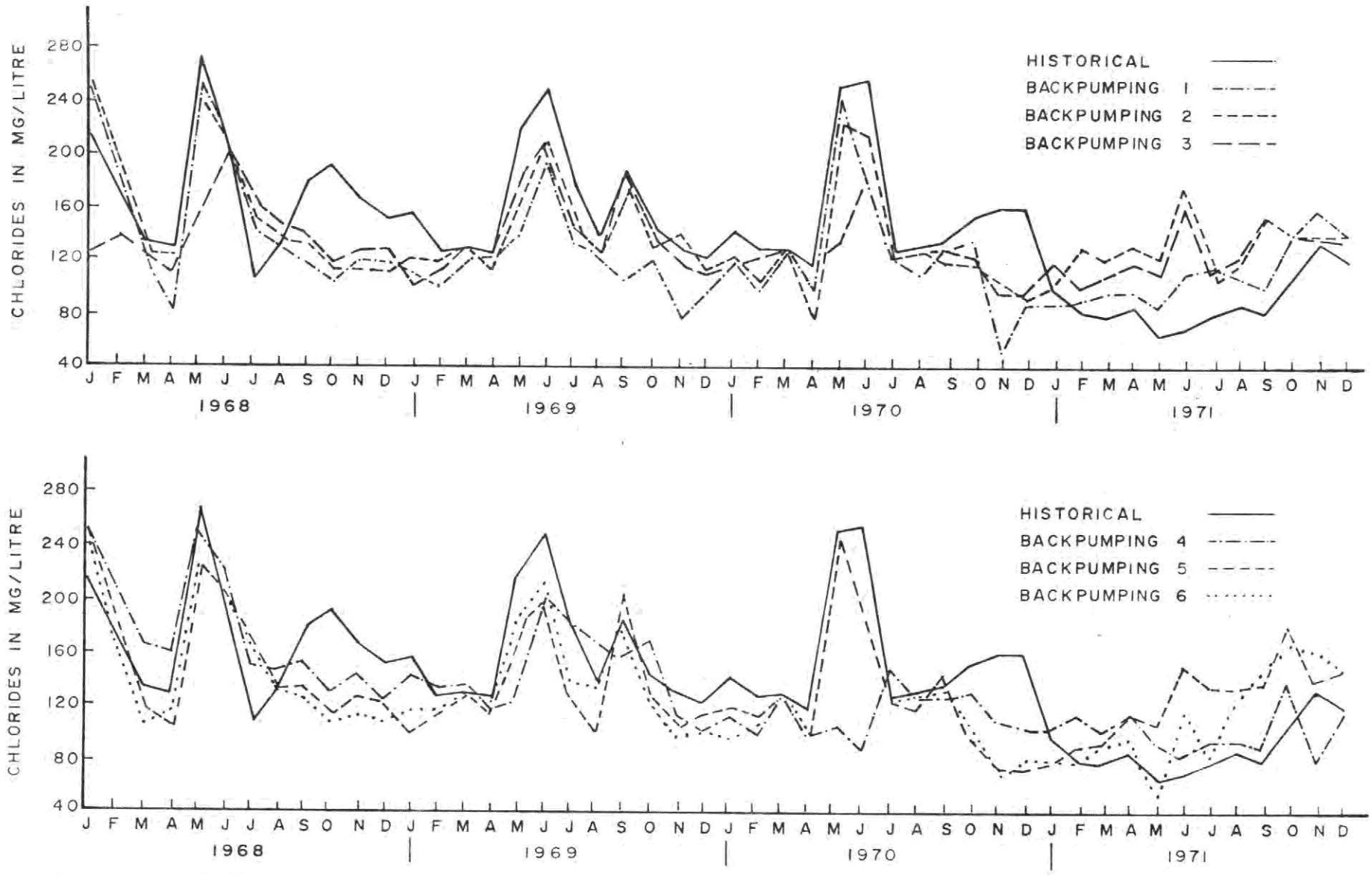


Figure 21. POLLUTOGRAPH OF CHLORIDES FOR NODE 4 OF CONSERVATION AREA 1

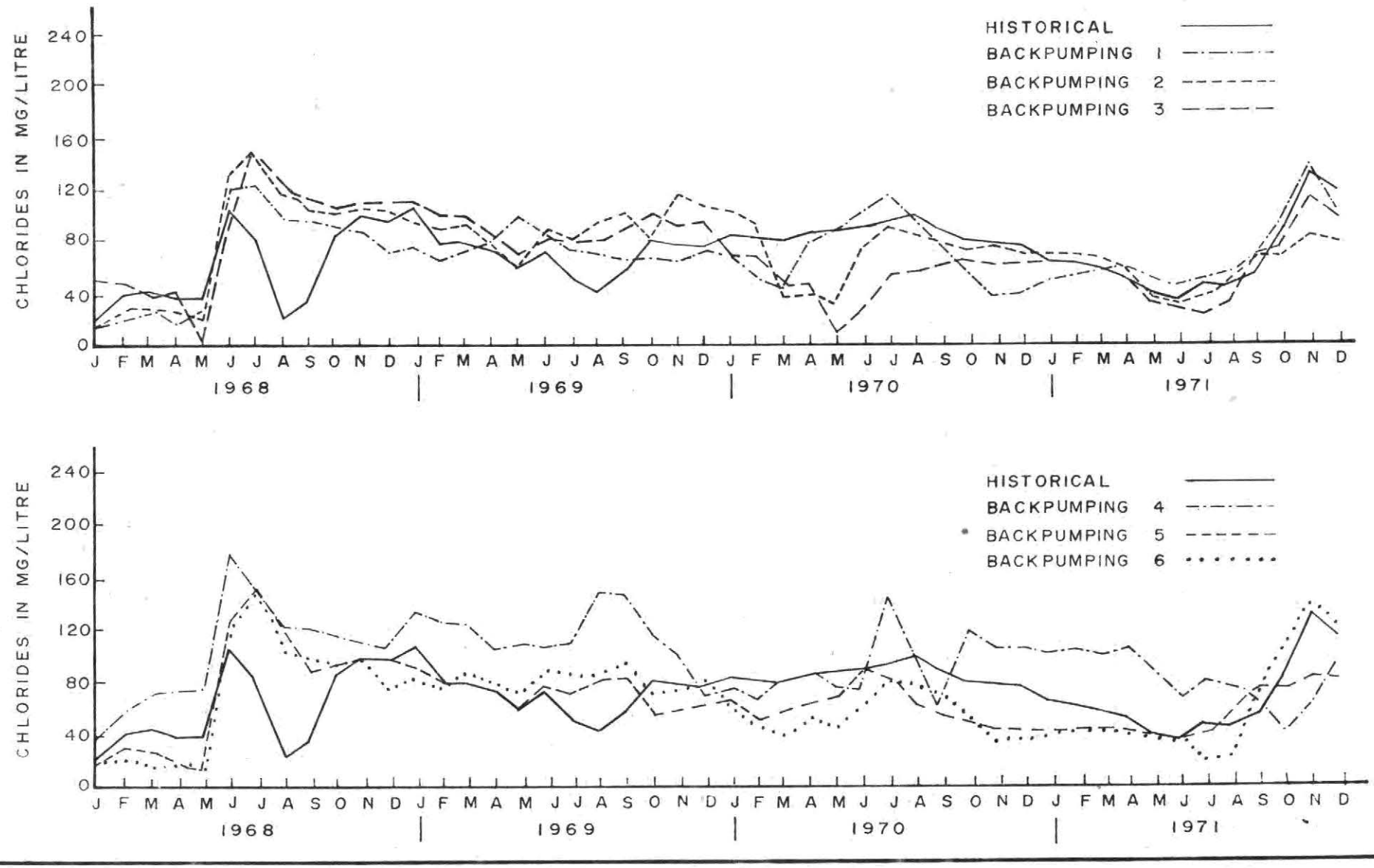


Figure 22. POLLUTOGRAPH OF CHLORIDES FOR NODE 5 OF CONSERVATION AREA 1

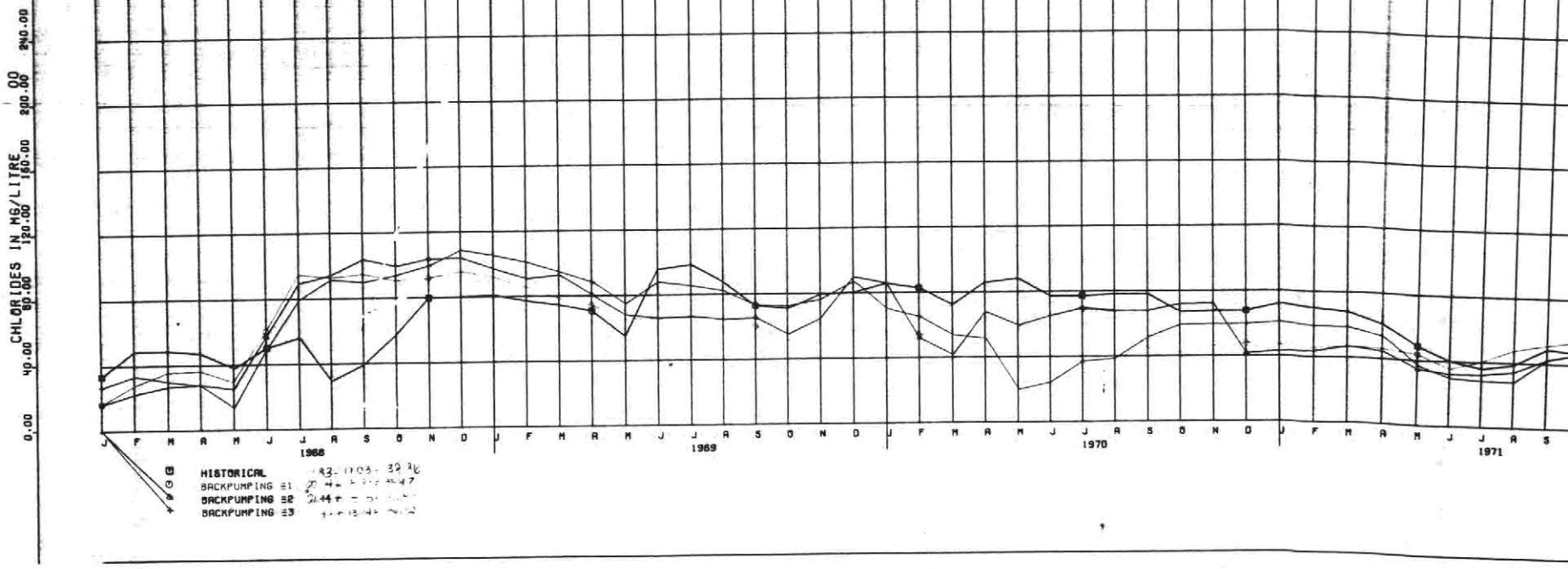
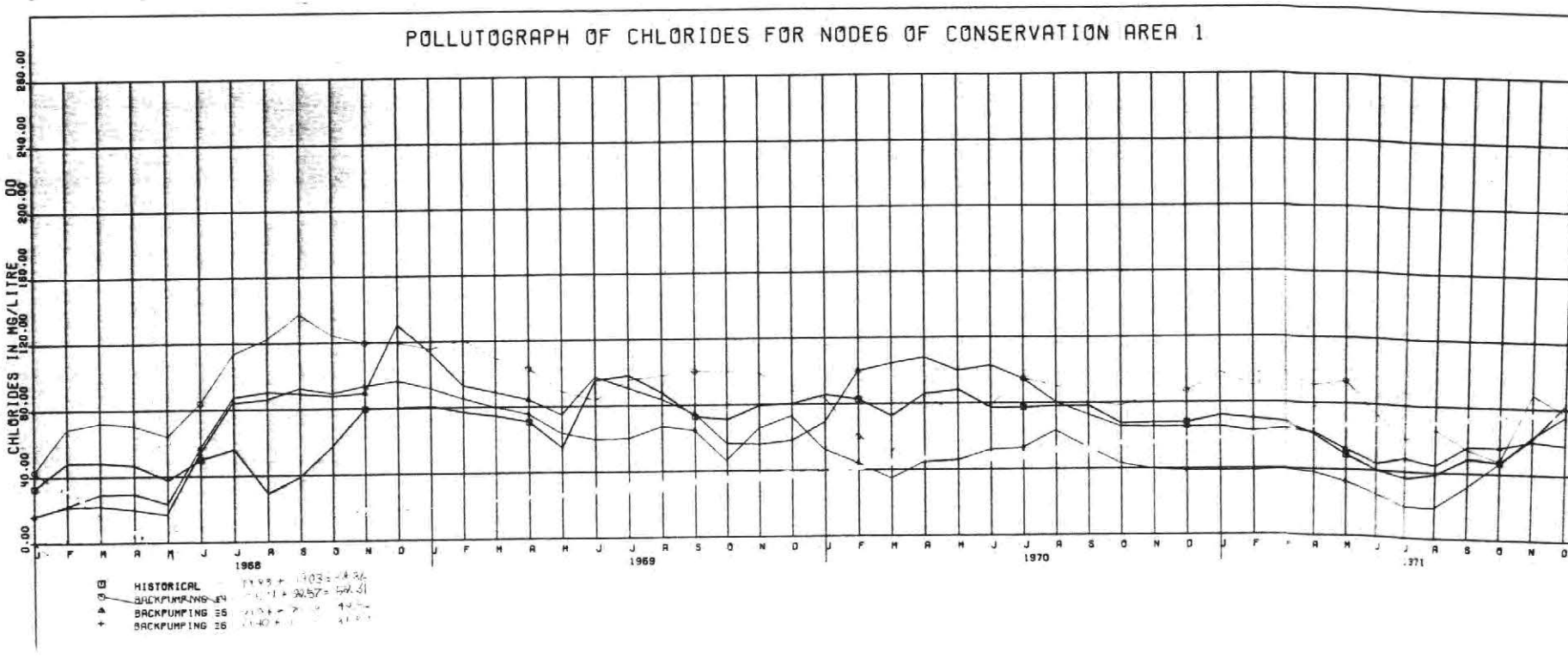


FIGURE 23. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



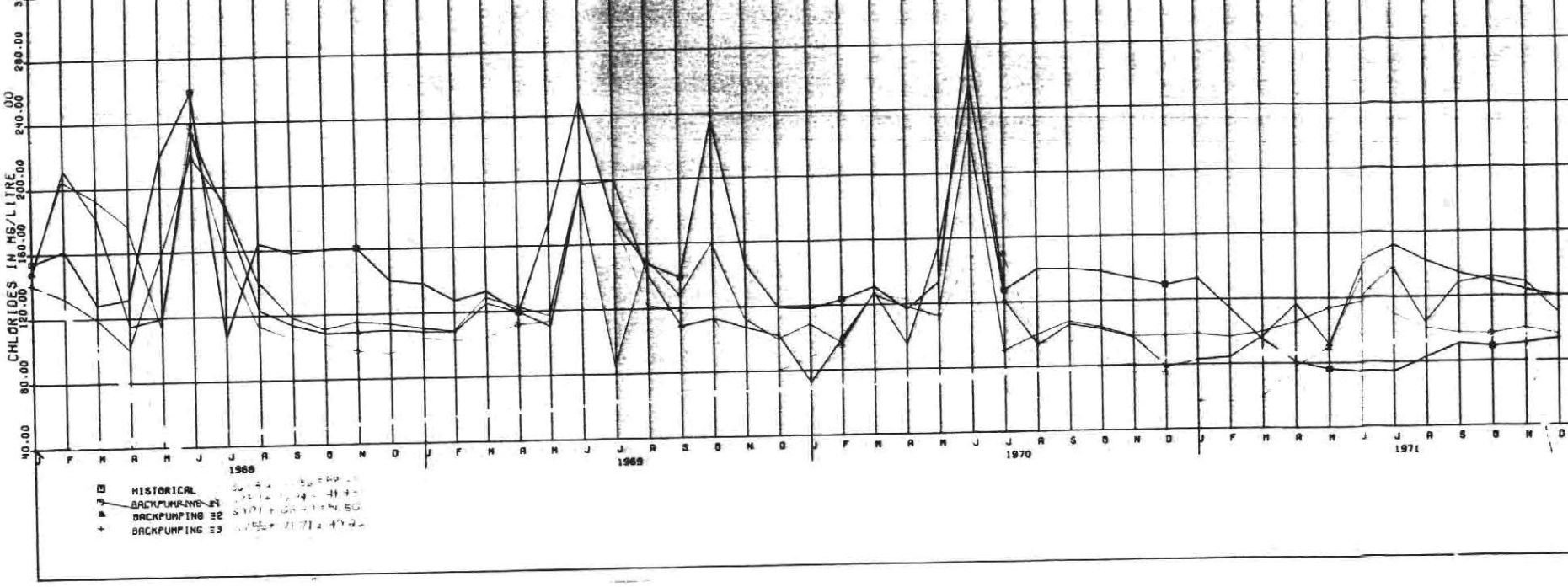
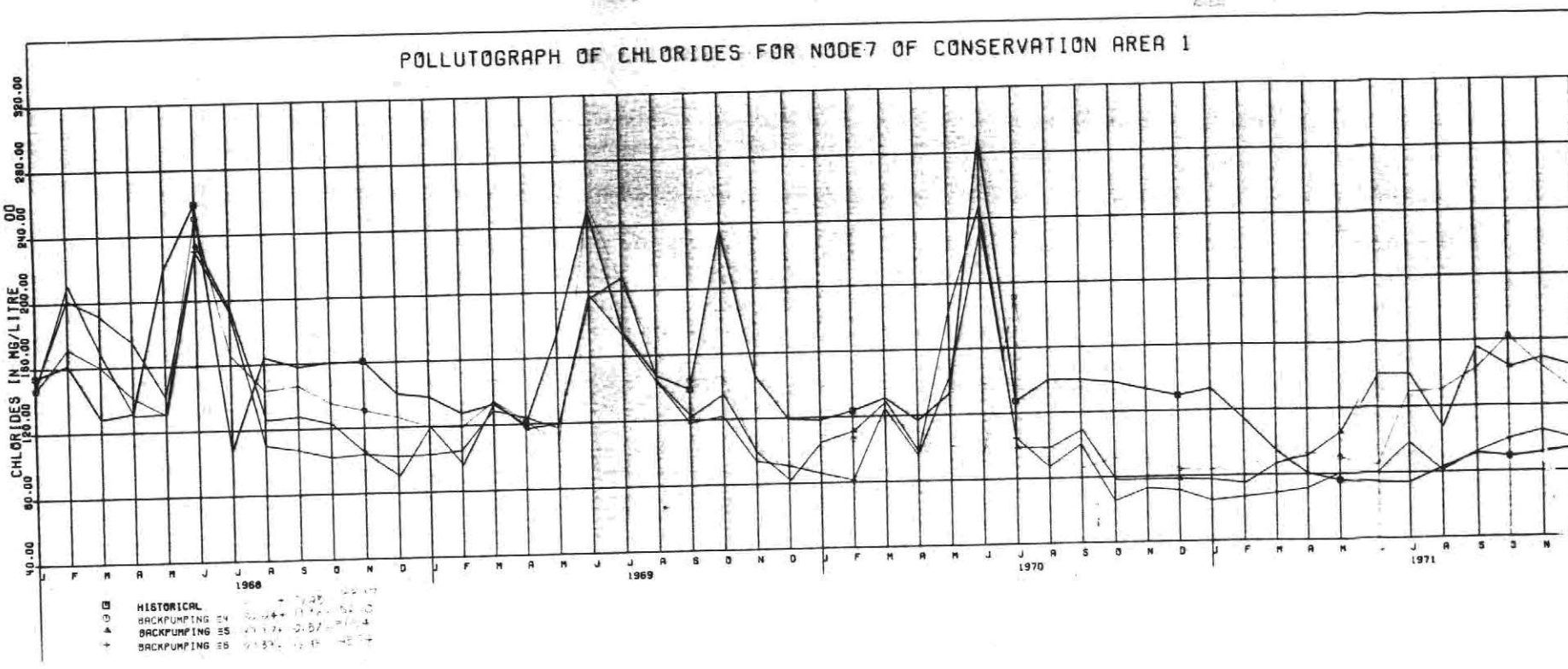


FIGURE 24. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



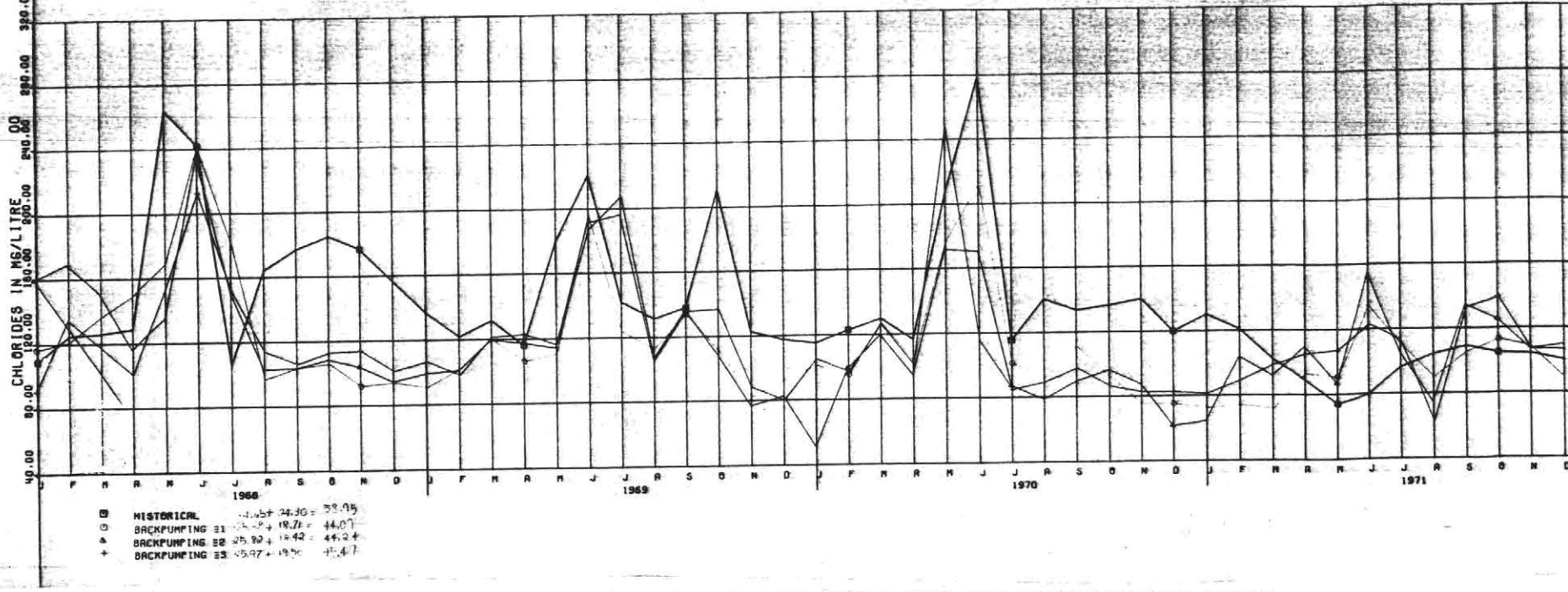
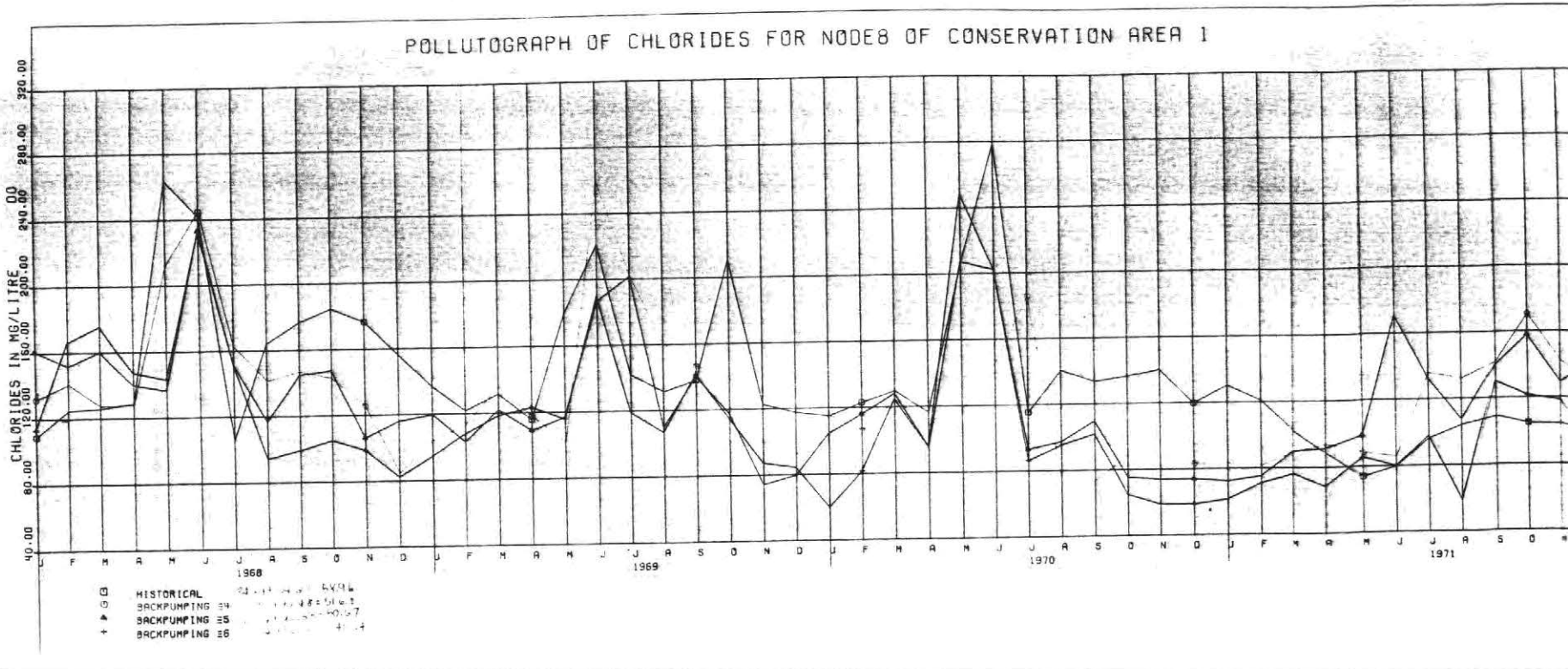


FIGURE 25. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



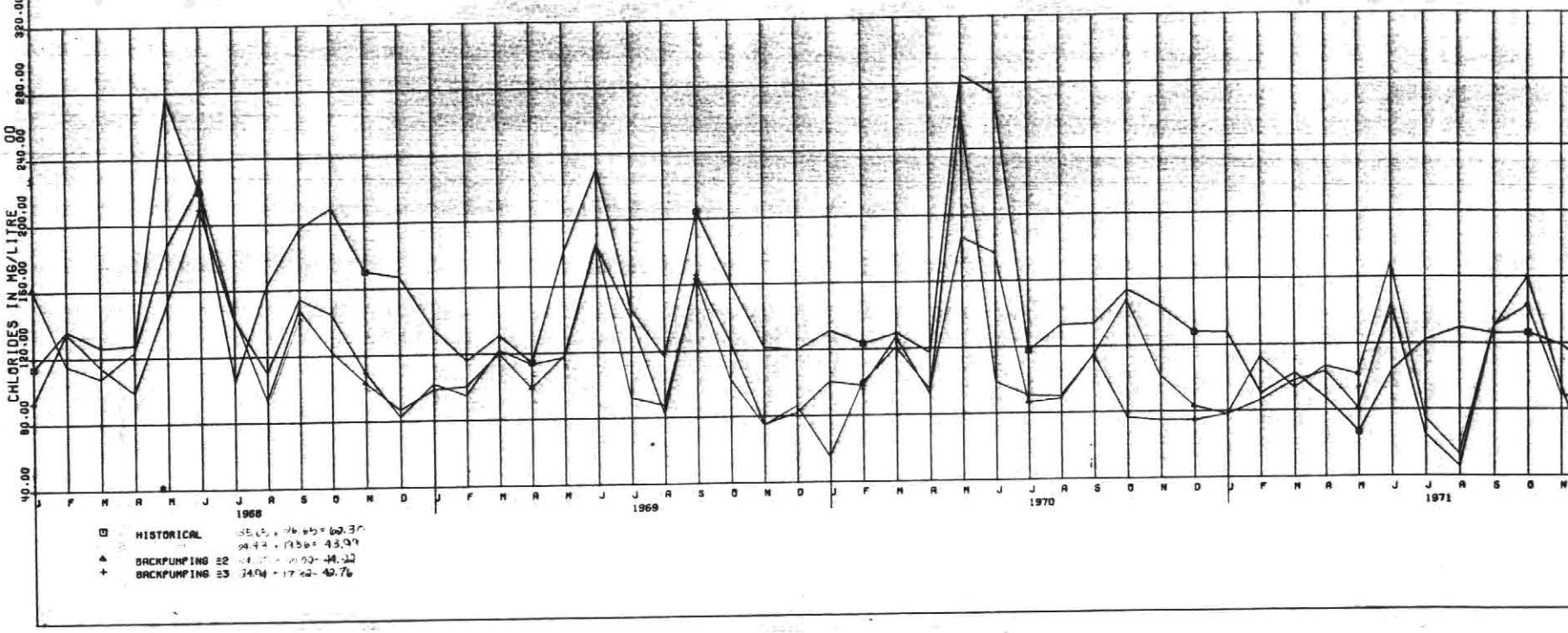
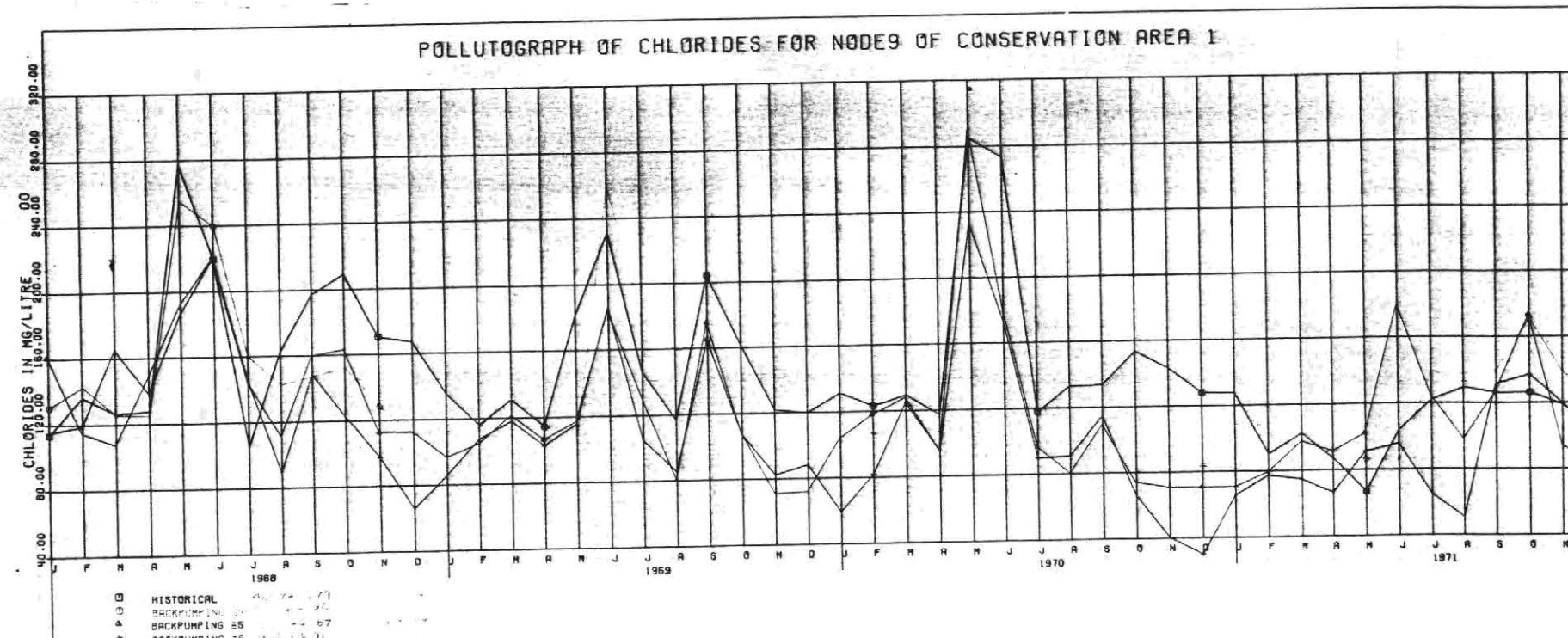


FIGURE 26. - OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



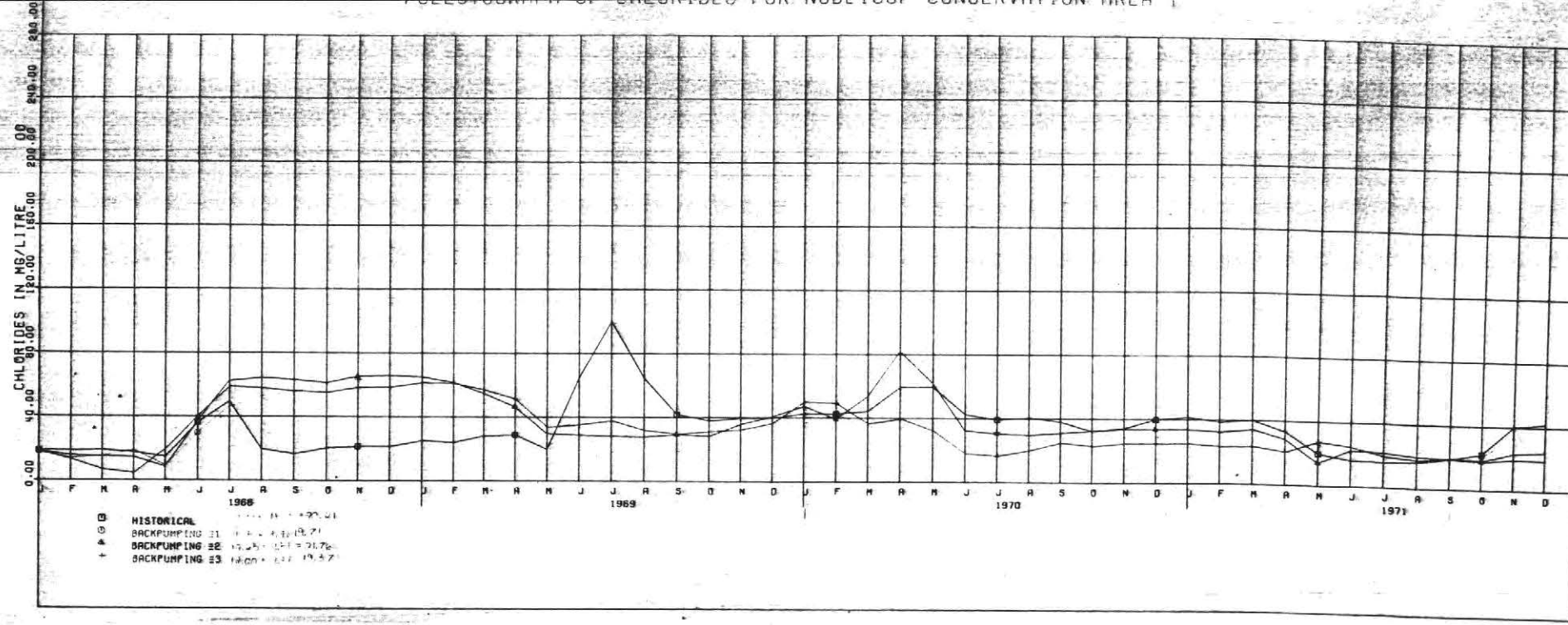
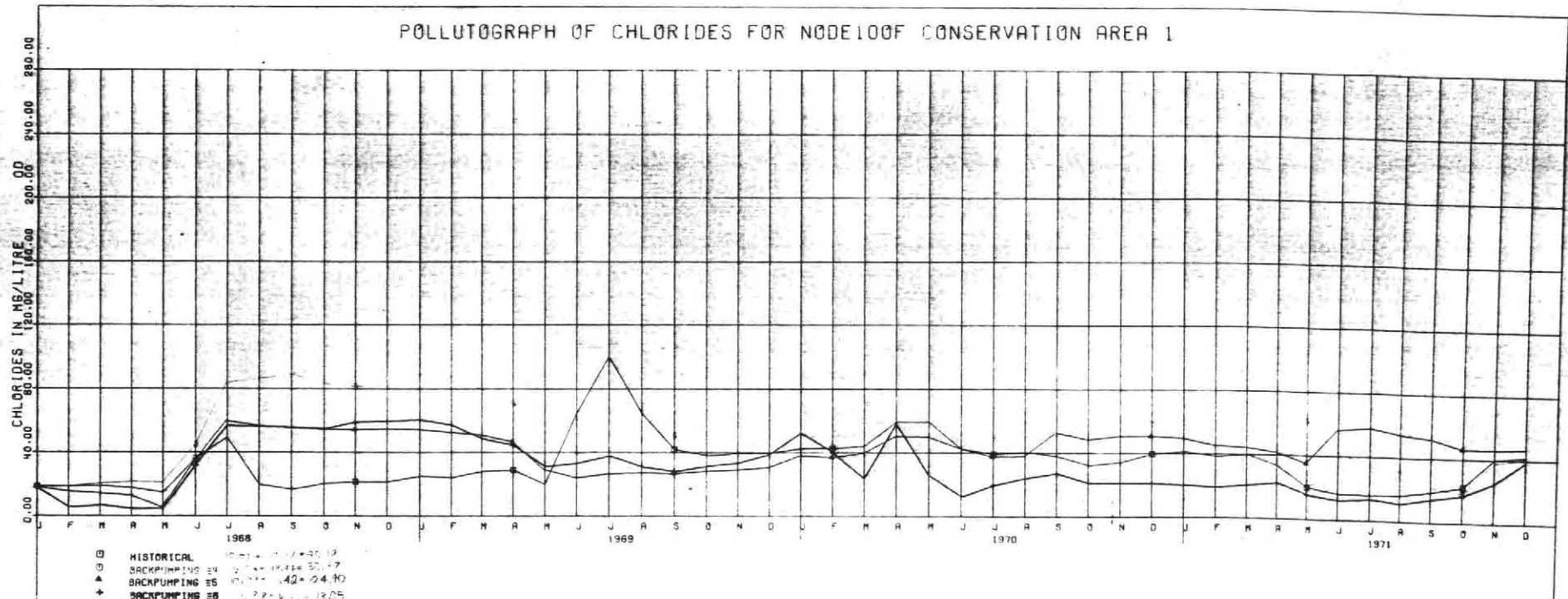


FIGURE 27. - OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



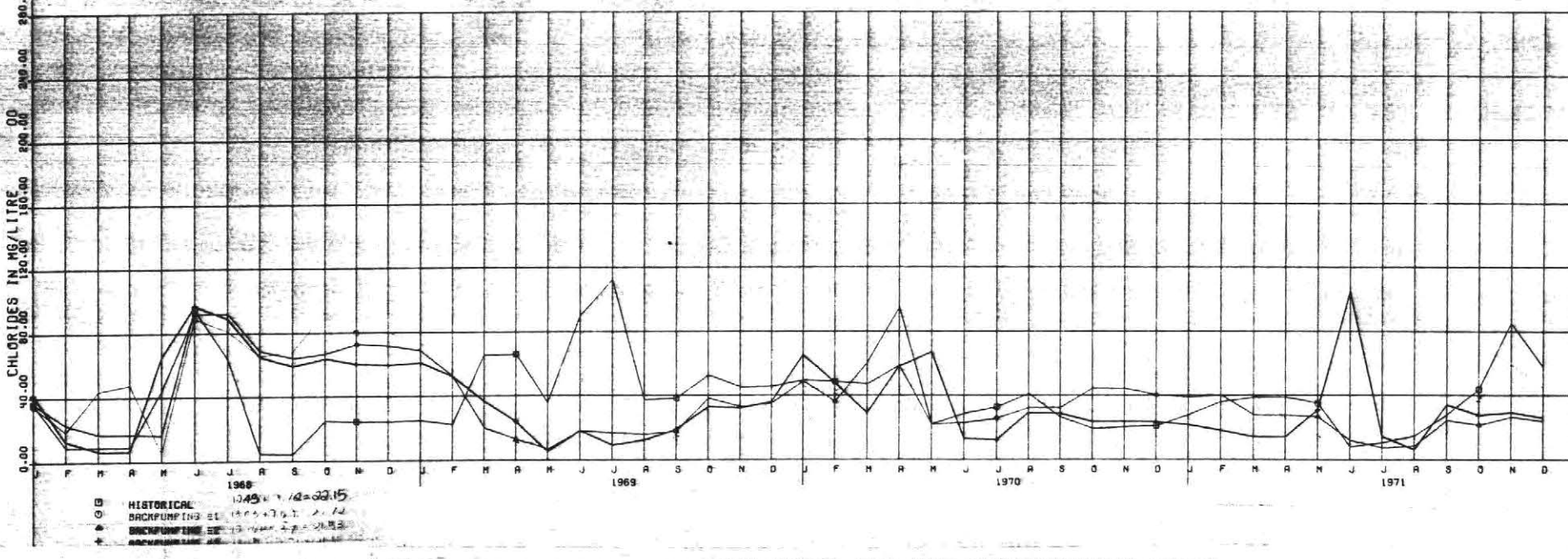


FIGURE 28. - OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS

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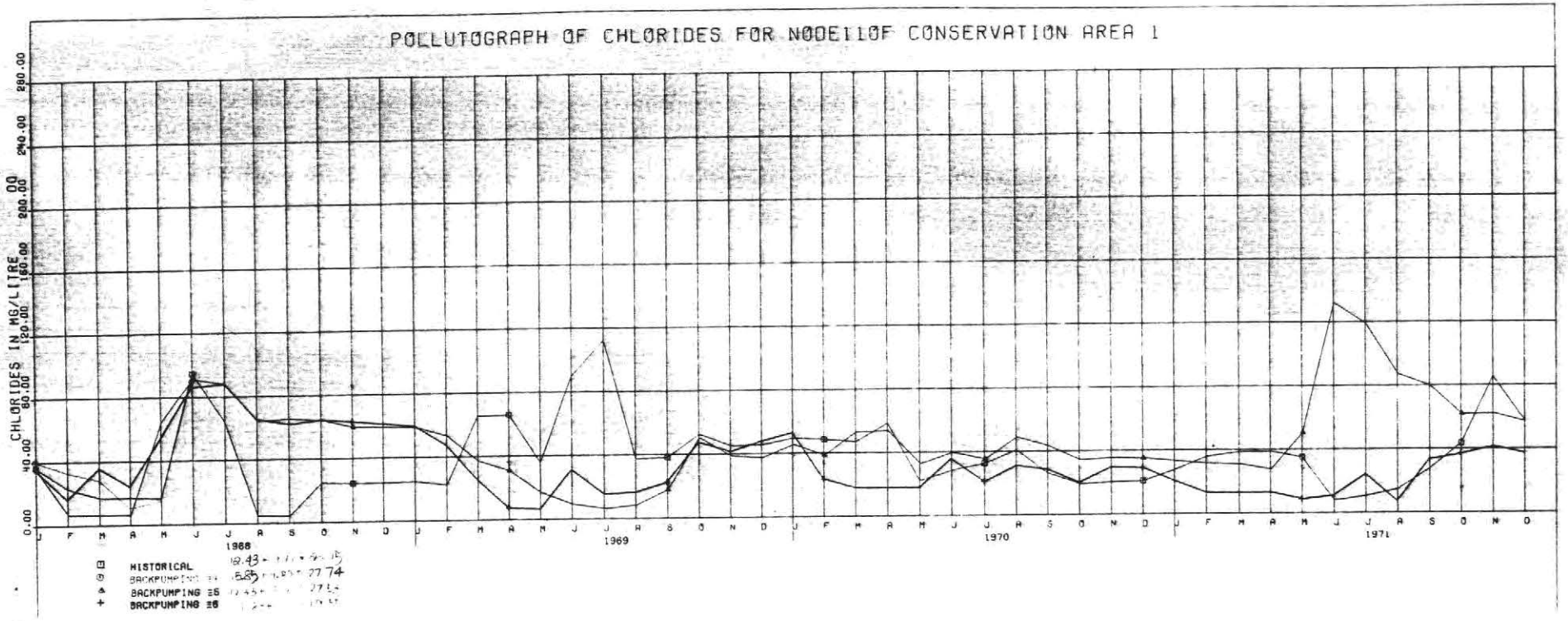


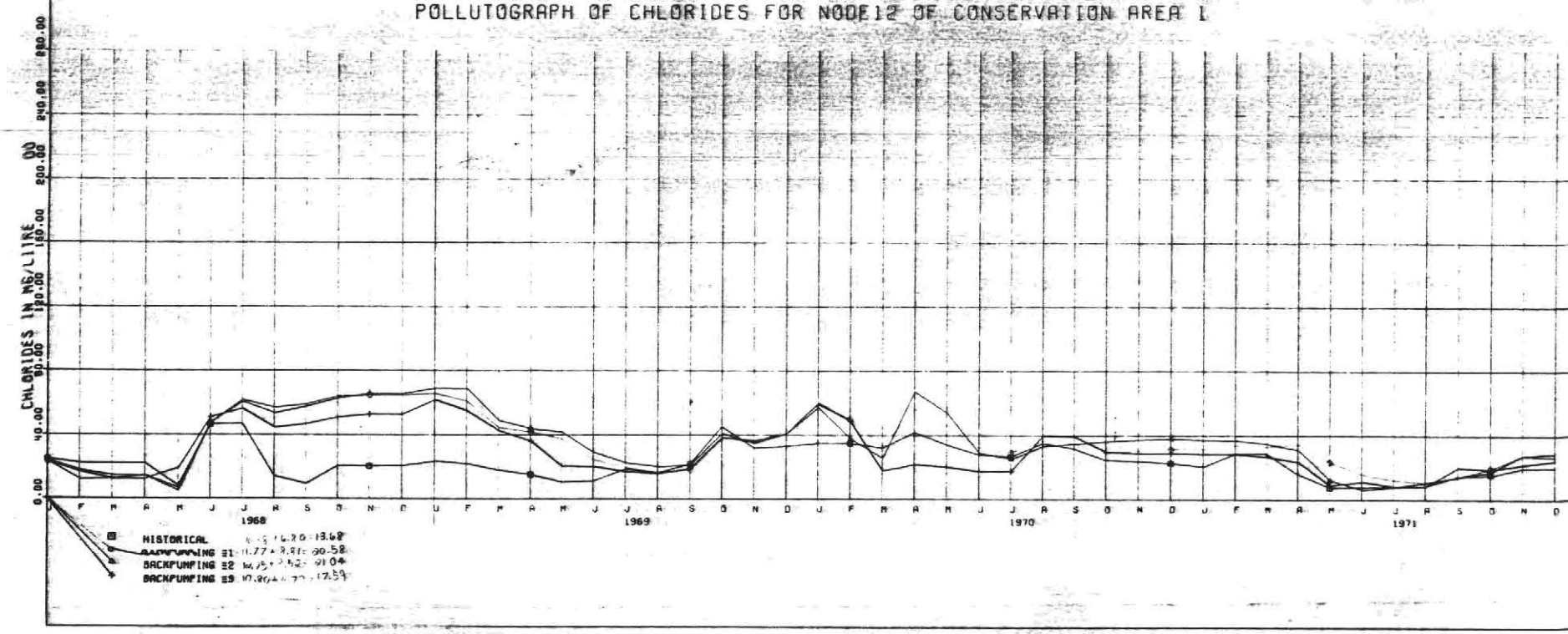
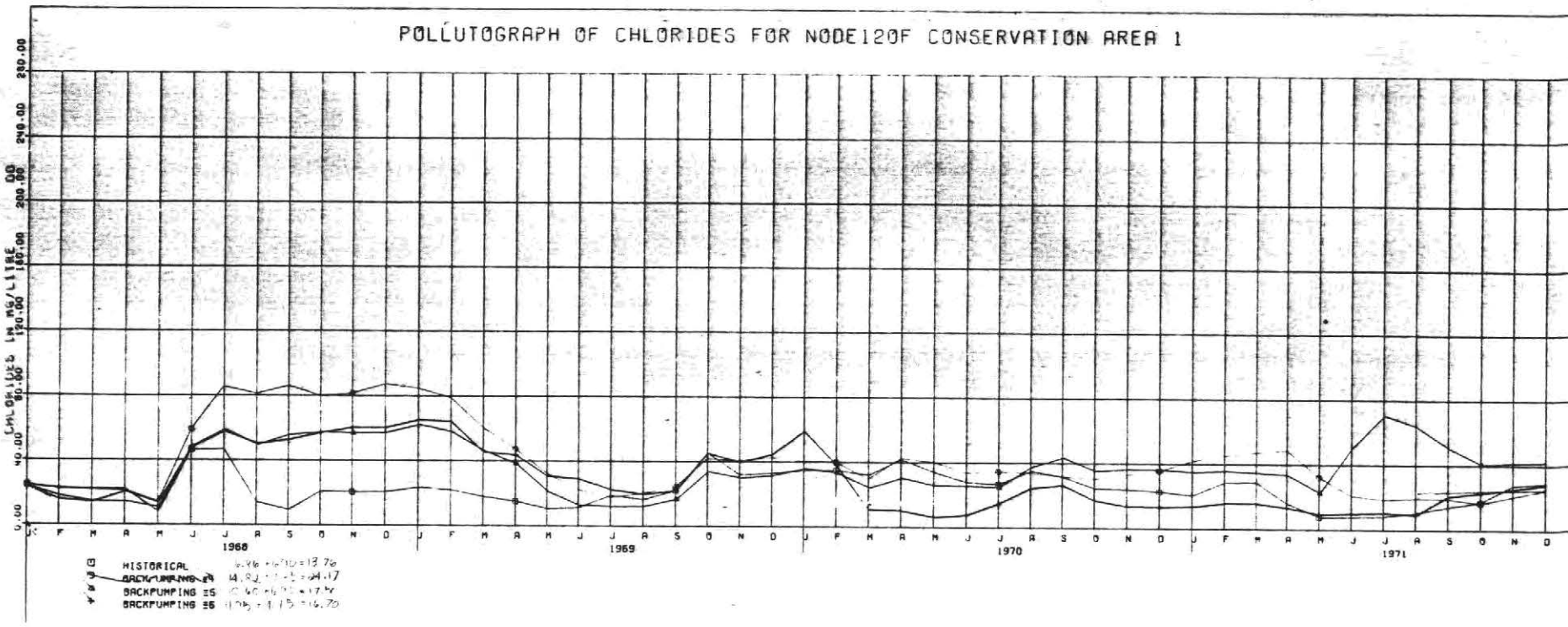


FIGURE 29. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



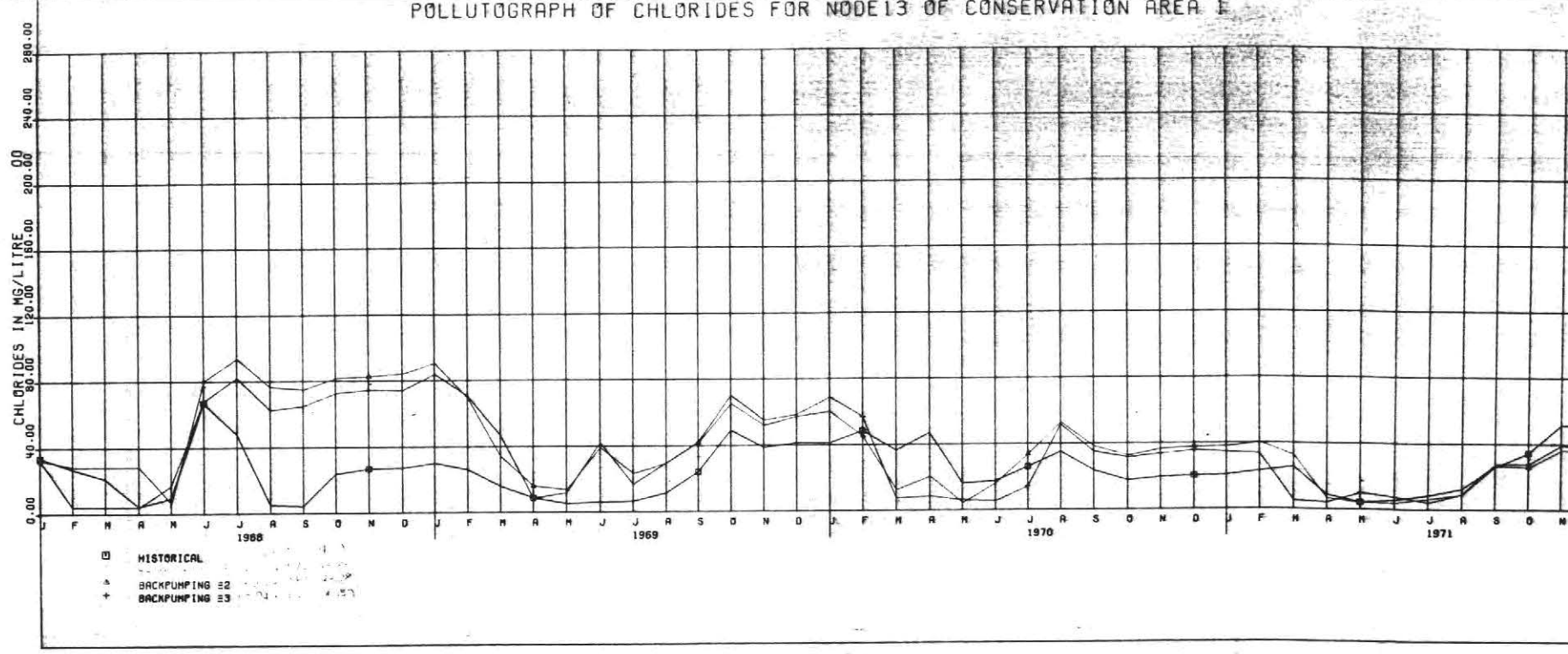
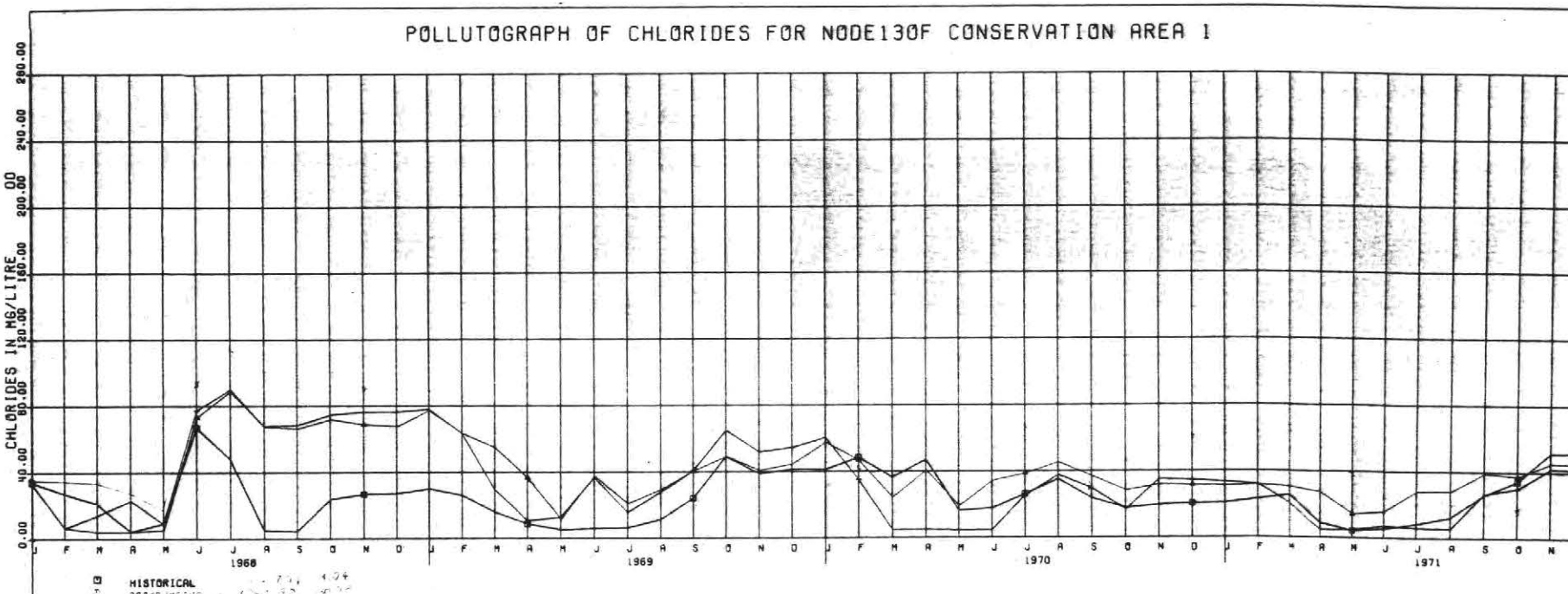


FIGURE 30. - OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



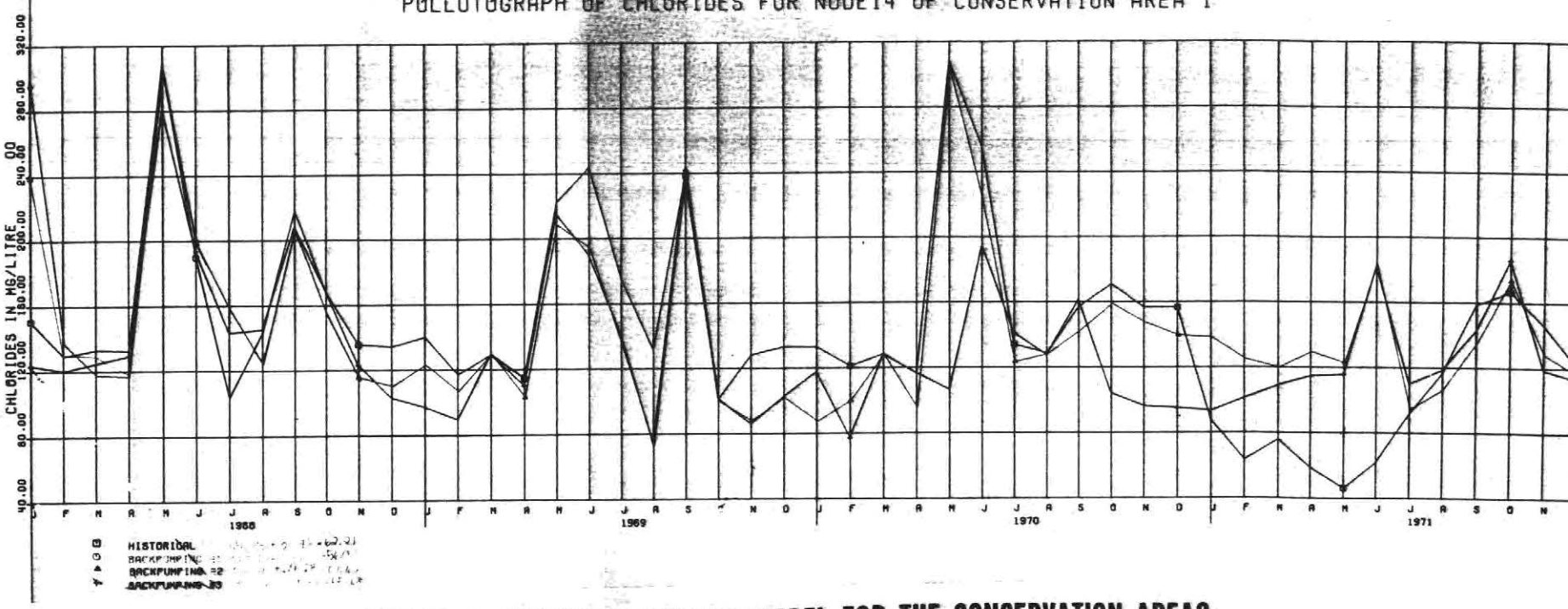
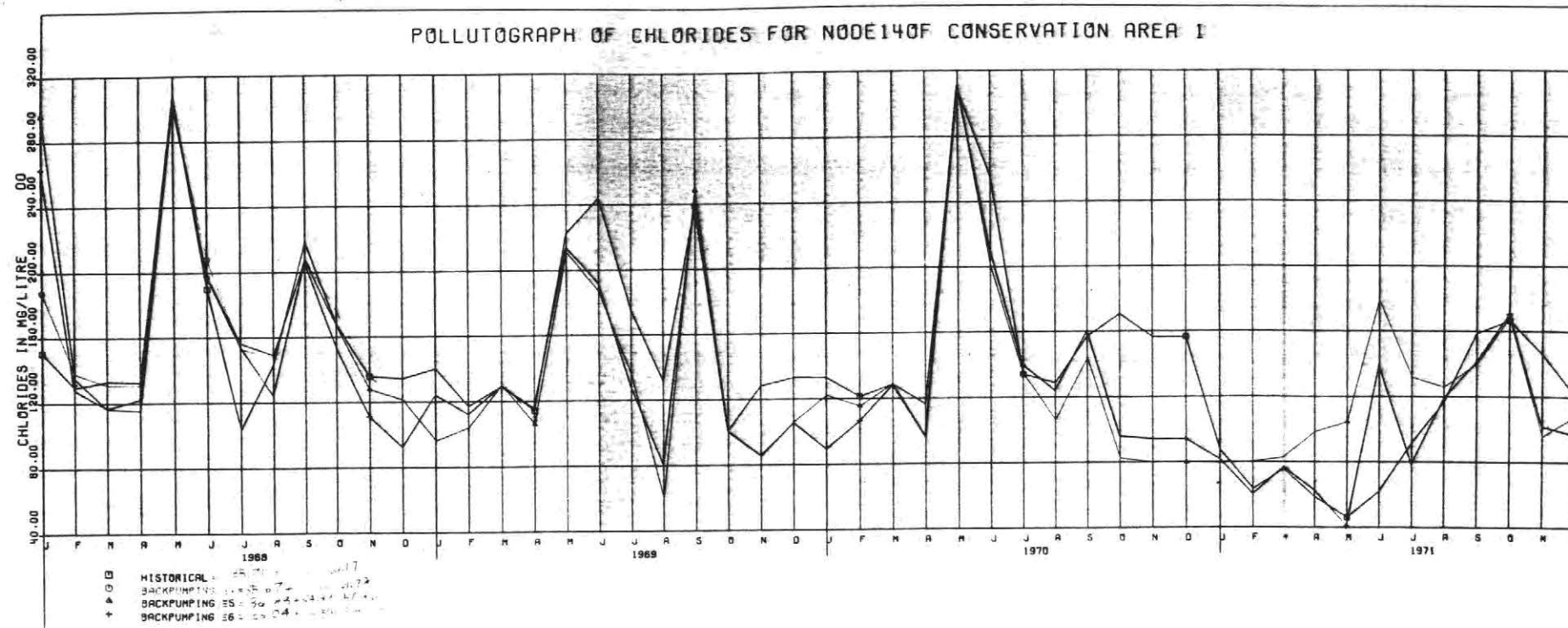


FIGURE 31. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



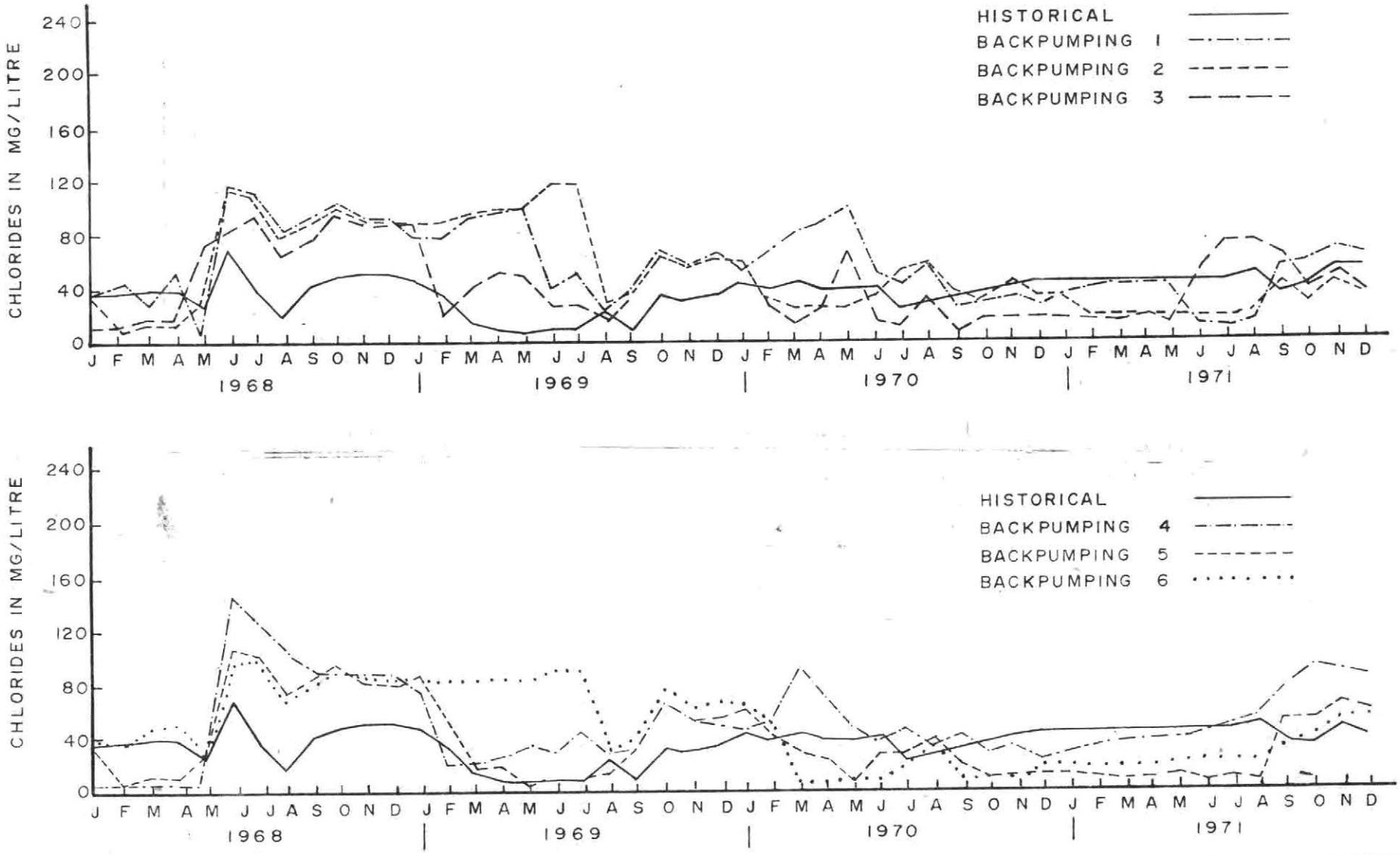


Figure 32. POLLUTOGRAPH OF CHLORIDES FOR NODE 15 OF CONSERVATION AREA 1

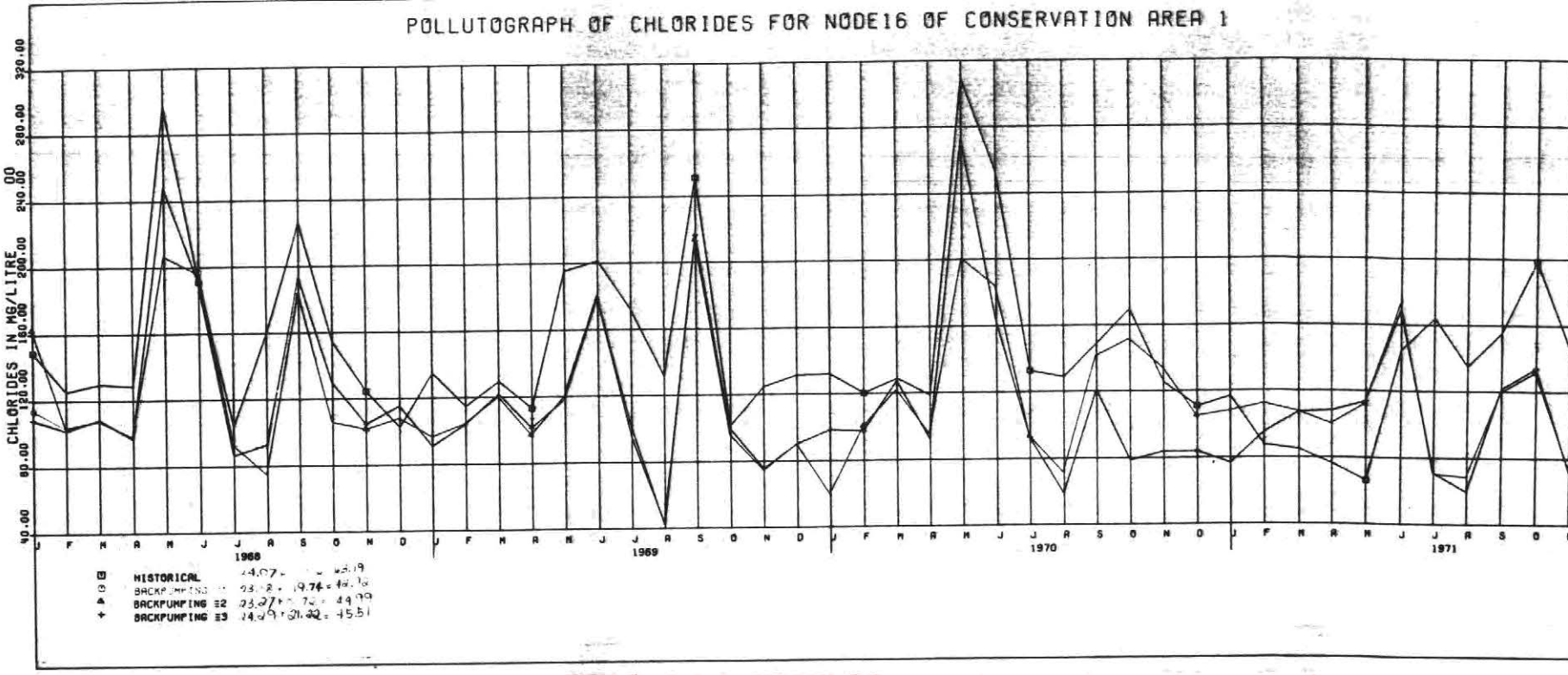
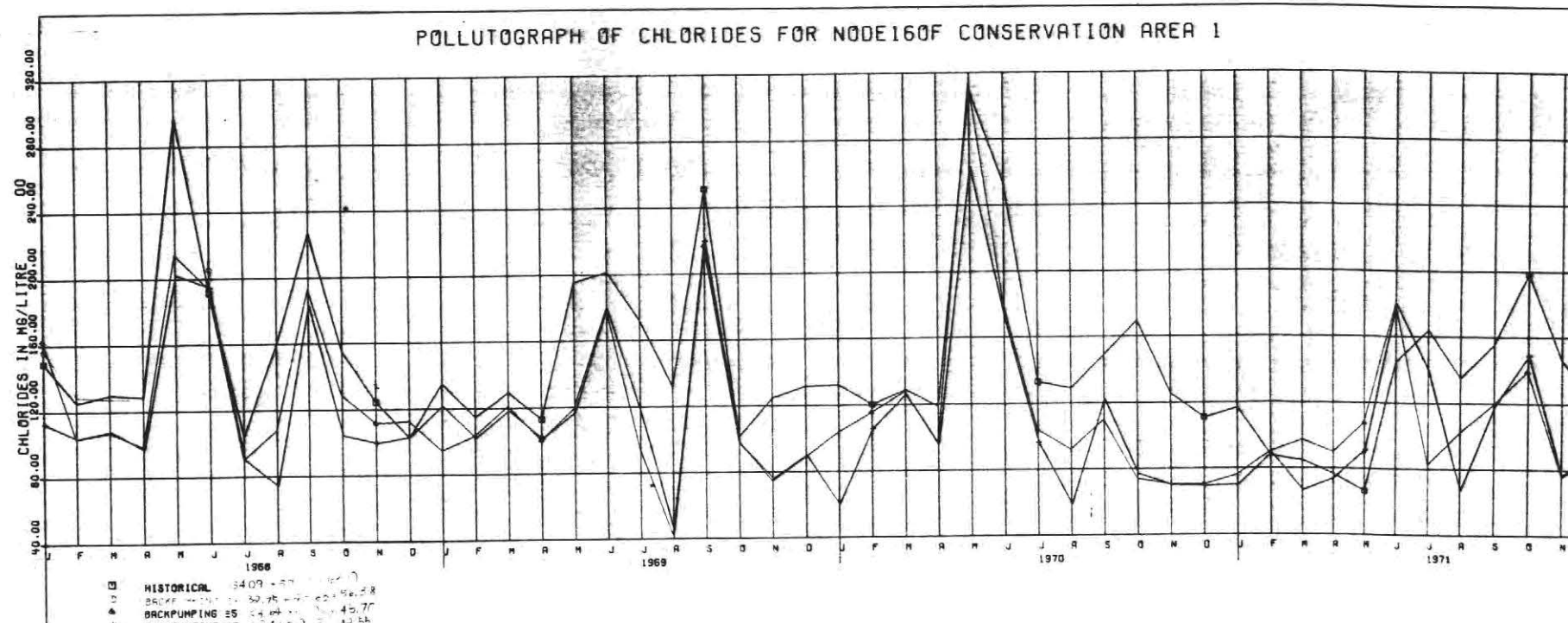


FIGURE 33. **OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS**



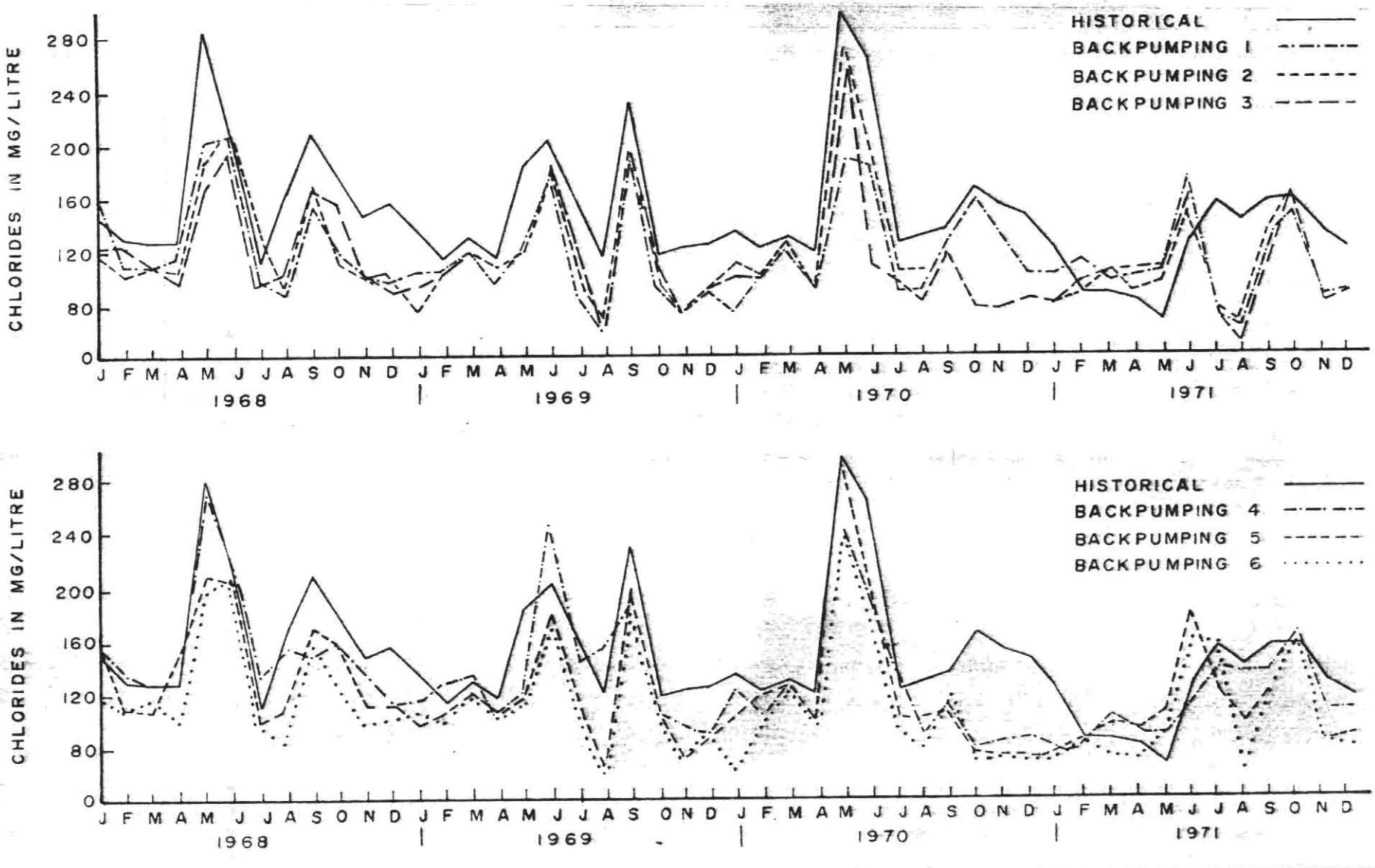


FIGURE 34. POLLUTOGRAPH OF CHLORIDES FOR NODE 17 OF CONSERVATION AREA 1

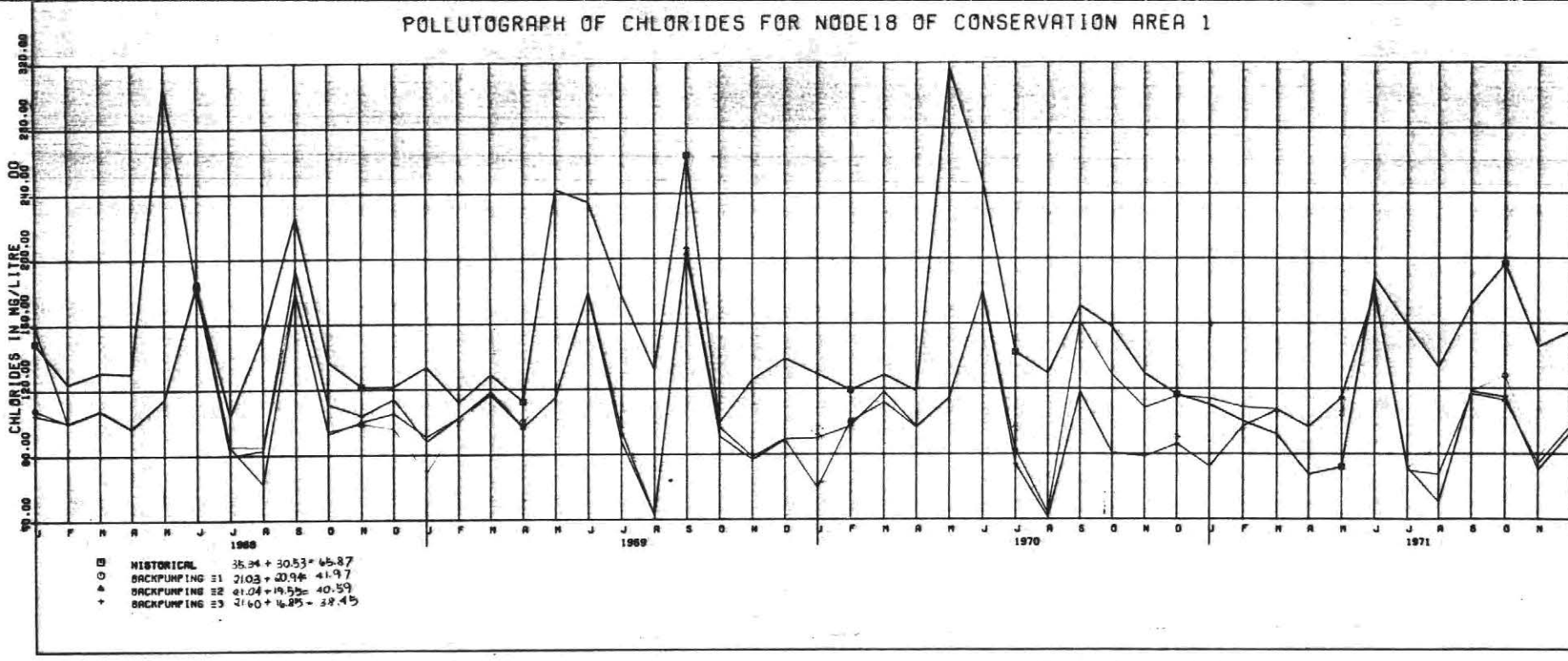
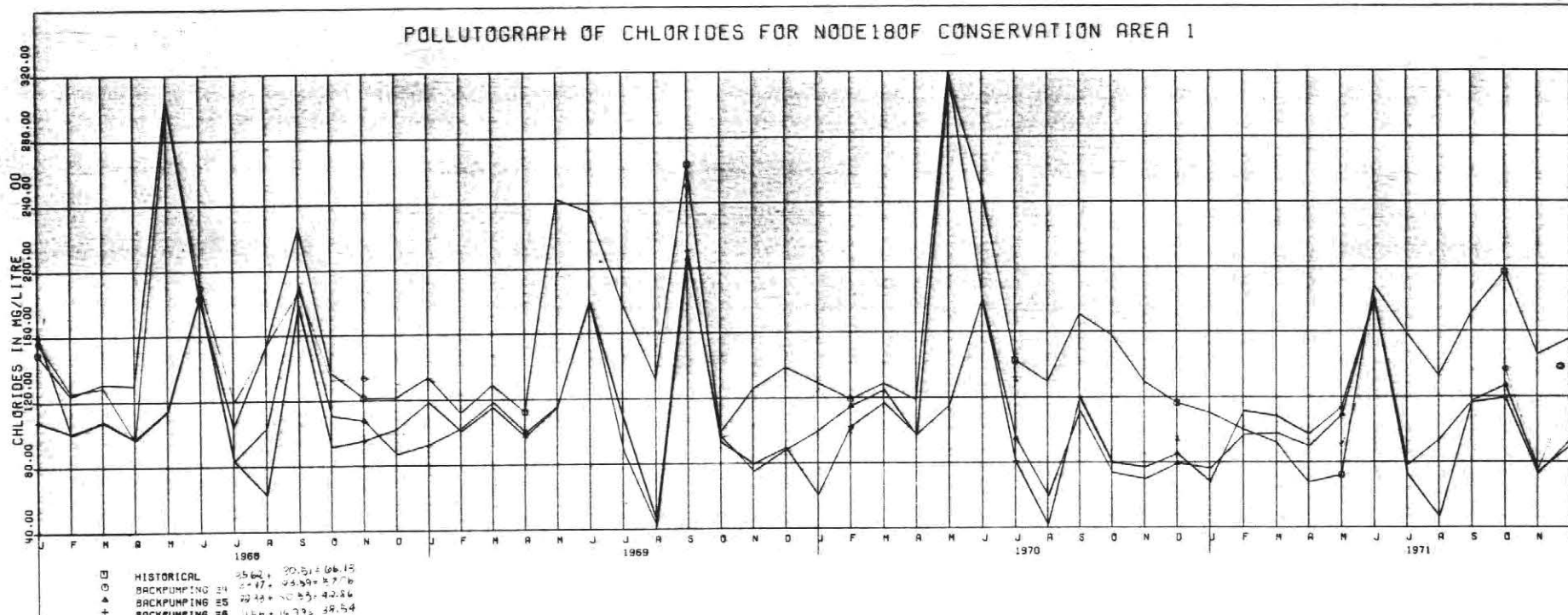


FIGURE 35. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



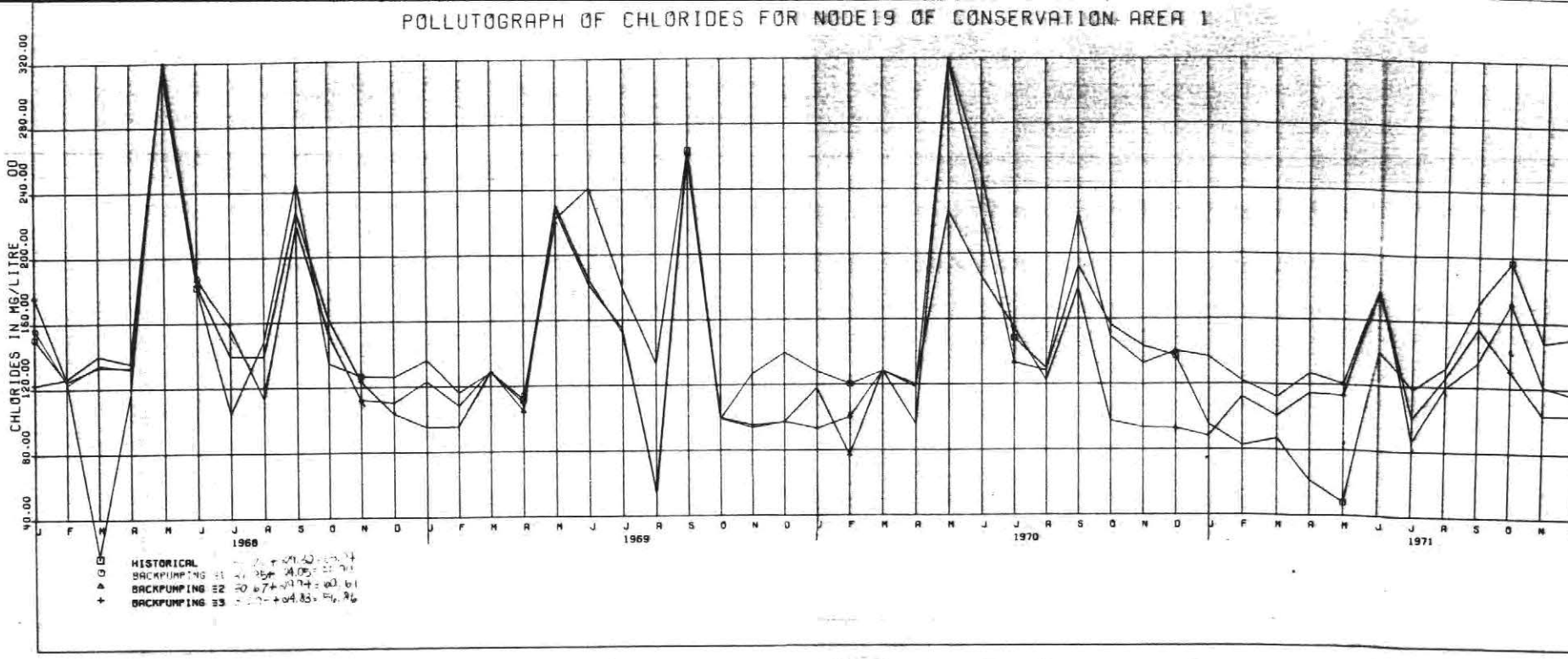
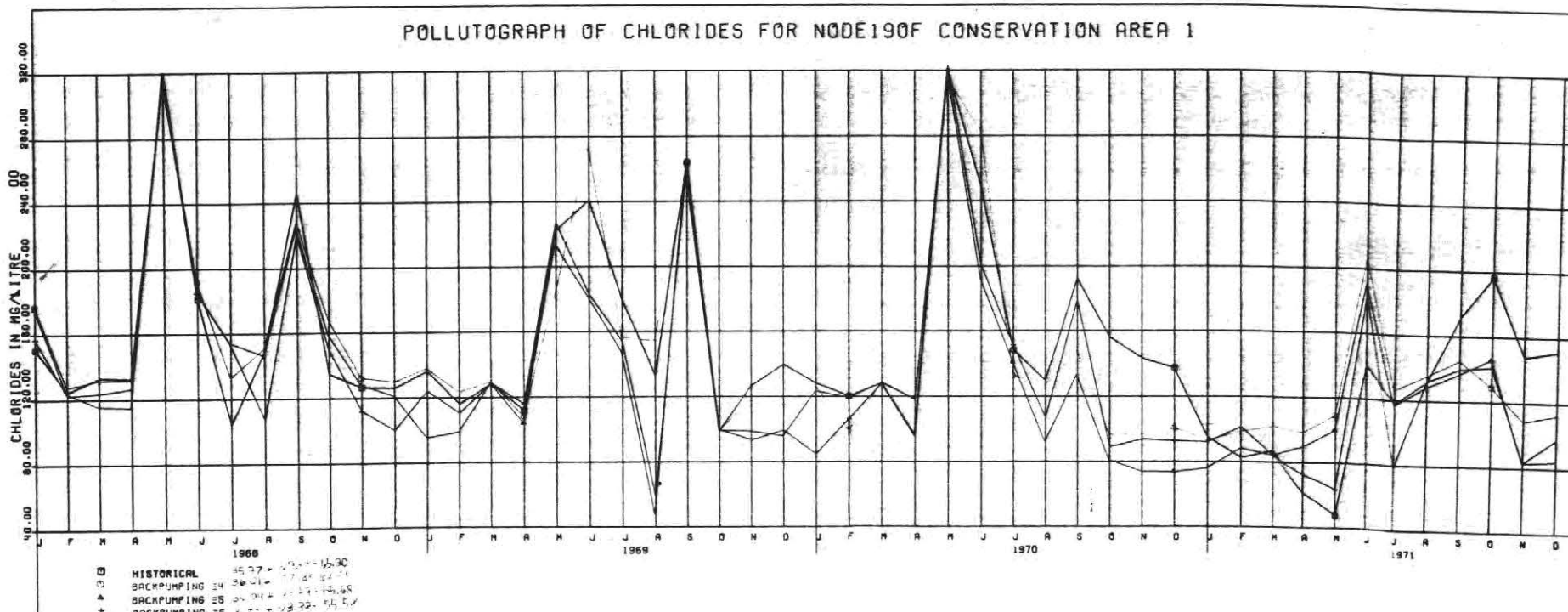


FIGURE 36. **OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS**



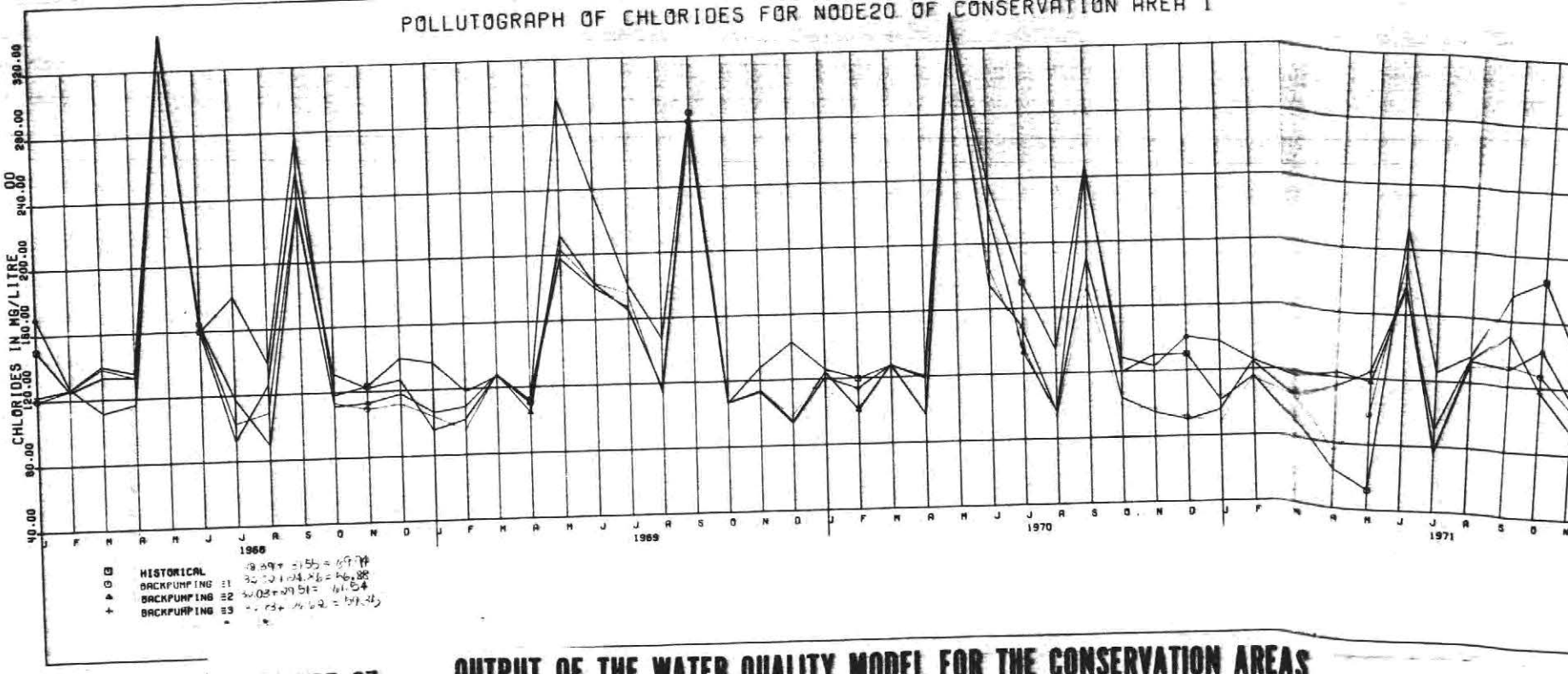
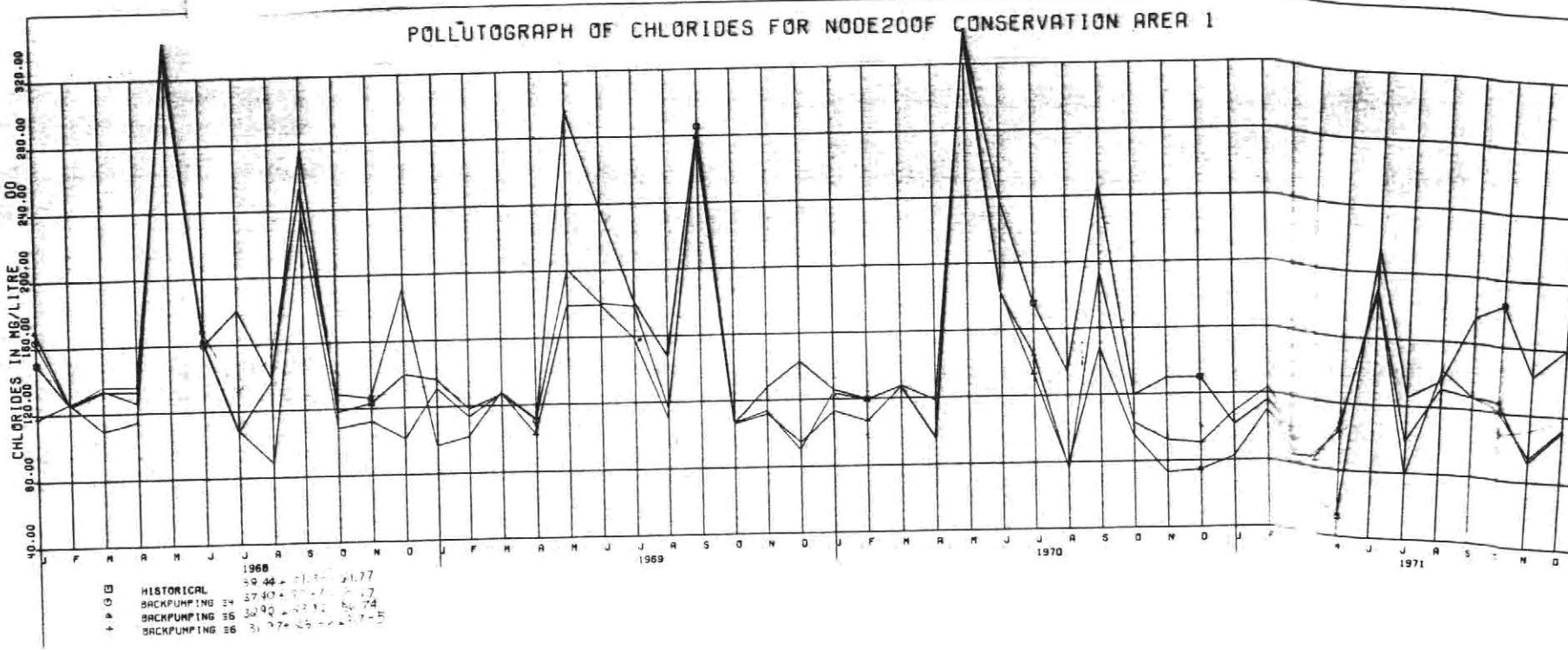


FIGURE 37. OUTPUT OF THE WATER QUALITY MODEL FOR THE CONSERVATION AREAS



Cases	NODES																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Historical	57.35	58.53	60.99	62.12	41.25	38.86	58.69	58.95	62.30	20.18	22.15	13.68	14.19	62.17	20.38	63.19	63.20	65.87	65.04	69.77
B.P. #1	42.35	45.99	49.62	51.38	41.22	35.47	44.43	44.09	43.99	19.71	22.72	20.58	23.83	56.03	33.22	42.92	44.84	41.97	55.90	56.88
B.P. #2	54.05	56.19	59.16	58.67	44.26	36.59	51.50	44.24	44.22	21.76	21.53	21.04	23.08	61.62	29.53	44.99	45.31	40.59	60.61	61.54
B.P. #3	53.01	55.29	56.58	55.97	41.49	36.32	49.26	45.27	42.76	19.37	21.16	17.59	20.59	55.18	24.06	45.51	43.62	38.45	56.86	59.35
B.P. #4	51.29	50.25	53.75	56.05	57.74	52.31	52.10	51.69	53.20	30.37	27.74	24.17	30.93	61.78	29.97	56.38	53.92	57.06	63.39	65.27
B.P. #5	54.67	55.84	56.30	56.80	38.57	42.52	51.54	50.67	48.34	24.40	27.53	17.50	22.72	57.26	20.40	45.70	47.54	42.86	55.68	56.74
B.P. #6	47.38	50.26	51.90	54.13	38.58	31.59	45.84	41.64	40.56	18.05	19.55	16.70	20.18	54.63	26.51	42.55	42.49	38.54	55.58	57.35

Table 16. AREAS (IN INCHES) UNDER VARIOUS OUTPUT CHLORIDE CURVES FOR DIFFERENT BACKPUMPING SCHEMES IN CONSERVATION AREA 1.

proved or disproved in further analyses when a broader field data set is available. As indicated earlier, the primary purpose of this report is to place emphasis on the framework of utilizing the model output in assessing the possible water quality impact of backpumping rather than the derived specific conclusion which is preliminary at this time.

3.2.8 AREAS OF FURTHER INVESTIGATIONS

While developing the water quality planning model for the three conservation areas, there are several points which impose limitations of one kind or another on the effective use of the model in its current form. Following are the areas of investigation which are necessary to improve the model to the more useful level.

1. As a part of the current efforts to broaden the water quality data base of the conservation areas, short term extensive sampling programs or a bimonthly or quarterly sampling scheme is desirable to obtain more water quality data points at interior nodes and channel nodes of the network of the water quality model.

2. Although the current method of combining rainfall and surface water as two mixing processes is conceptually sound, a better method of taking weighted averages of these two processes should be explored in search of (1) a better parameter other than depth of water, and (2) theoretically supported field experiments for combining rainfall and surface water. Some practical criteria to include groundwater storage of certain chemical concentrations is needed to define adequately the dilution and resuspension of ions due to rain in the model.

3. As more and more samples will be analyzed for total nitrogen, total dissolved nitrogen, total phosphorus and total dissolved phosphorus, a better and perhaps different mathematical relationship for these parameters will be available for different points in the system.

4. An assessment of decay coefficients (K) in terms of biological factors and hydrologic-hydraulic regimes is an essential step in understanding the different interactions in the channels as compared to in the marsh. In other words, the decay coefficients in the channel as well as in the marsh must be determined with sufficient field data so as to provide a realistic input to the model for nutrient estimation.

5. The parametric sensitivity analysis is planned to analyze the concentrations of total dissolved phosphates and total dissolved nitrogen in the manner shown in Figure 38. As shown in the figure, the values of the decay coefficient (K) for TDP and TDN will be systematically varied. For each of these values, the concentrations will be simulated. The decay coefficient for which the output is best matched with the historical set will be selected. Such a procedure is repeated for each conservation area for TDP and TDN concentrations. Since adequate quantitative information regarding decay coefficients for the three conservation areas is not available, the procedure depicted in Figure 38 will be designed to systematically pinpoint a reasonable set of decay coefficients. It is expected that these parametric sensitivity analyses will be coupled to the field data that will be available in the near future.

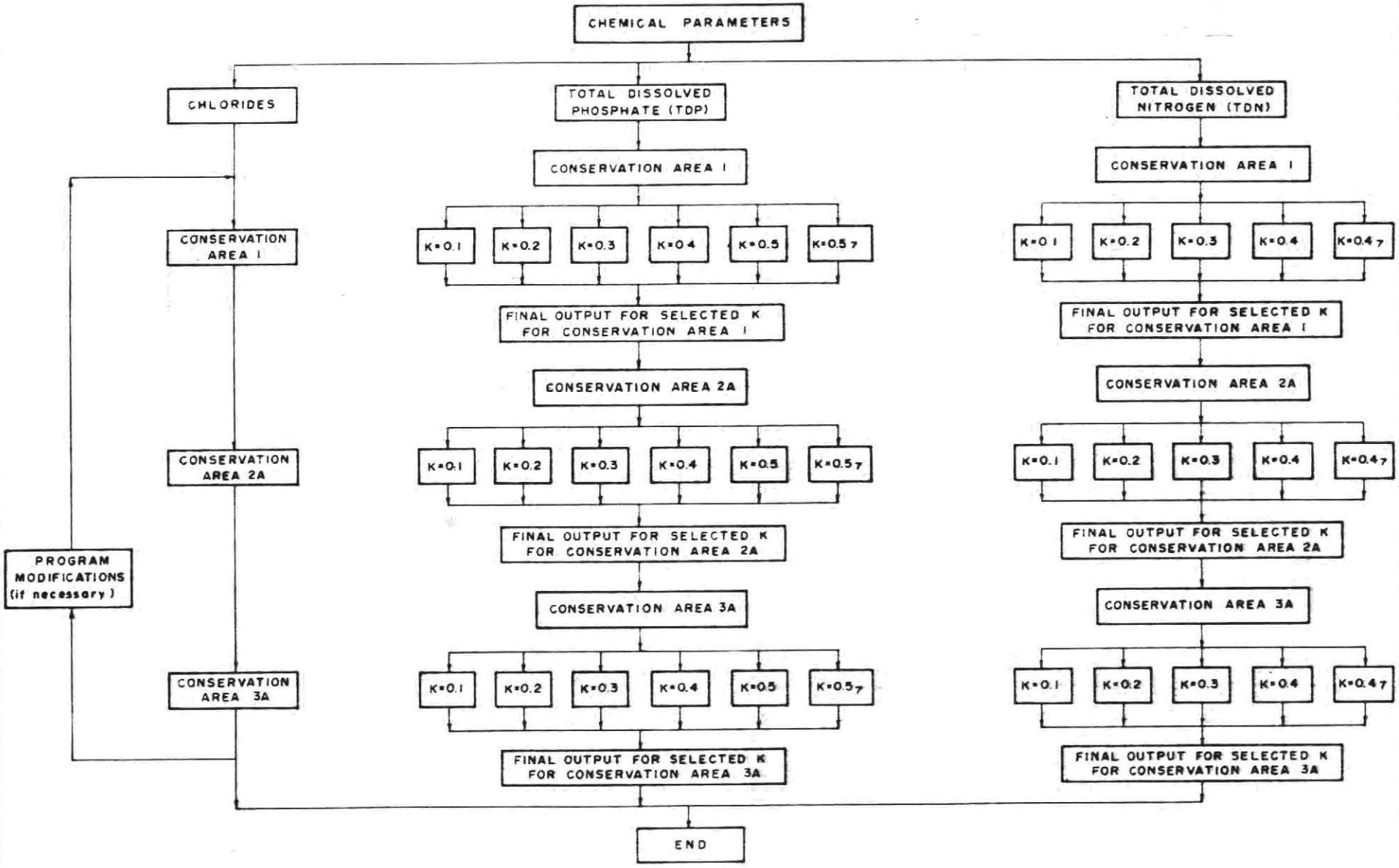


Figure 38. PARAMETRIC SENSITIVITY ANALYSES IN CALIBRATION RUN FOR HISTORICAL CASE OF THE YEAR 1974

4.0 CONCLUSIONS

Using a reasonable set of assumptions, mathematical simplifications and input information, the framework of the water quality model was developed to simulate daily conservative concentrations (chloride, in our case) in the three conservation areas as the water moves from Conservation Areas 1 to 3 through an integrated system of channels, marshes and controlling gate structures.

The model was calibrated for the historical data of 1974 and its sensitivity has been tested over a four year period of record including the wet year of 1968-69 and the dry year of 1970-71. After reasonable calibration and correlation of the results, the model was extended to estimate the chloride concentrations for the expected future hydraulic and hydrologic regimes for the viable backpumping schemes.

Because of the present lack of appropriate water quality data base, a first-cut demonstration of the model output has been performed for Conservation Area 1 only. Using comparative pollutographs (graphs showing the variations of chlorides with time) for all the 20 nodes of Conservation Area 1 it has been concluded (although it is preliminary at this time) that the backpumping schemes seem to have a status quo type water quality impact. It should be noted that this preliminary conclusion may be proved or disproved in further analyses when a broader field data set is available. Furthermore, the emphasis of this report is on presenting a framework of the modeling procedure in assessing the possible water quality impact rather than on the derived specific conclusion.

The model, in its current form, is designed to provide information on nutrients such as total dissolved phosphorus (TDP) and total dissolved nitrogen (TDN). It is expected that time and spatial distribution of these nutrients will be available in the future when an adequate data base

related to nutrient dependent key parameters in the marsh and channels is obtained.

The quantitative framework, as demonstrated in the report, can be useful in providing insight into chemical transport within the conservation areas in general and to assess the water quality impact of water management options in particular.

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EXHIBIT I

Input Data Sets

LINK DATA FOR CONSERVATION AREA 1

07/04/68

LINK	LENGTH	BEGIN NODE	END NODE	VELOCITY	DISCHARGE
1	24816	2	6	-0.01807	-1194.22900
2	21676	1	6	-0.01110	-6071.85946
3	21044	1	2	.02263	-4938.56355
4	27459	6	7	.00753	839.77391
5	21654	1	7	.00199	-1602.66688
6	22667	7	8	-0.00755	-528.77885
7	27915	6	8	-0.00377	-484.76817
8	23088	8	10	.00174	-576.93762
9	21731	6	10	-0.00875	-2156.35246
10	27183	5	10	.00756	-150.71024
11	23545	5	6	.01377	2964.98197
12	31221	2	5	-0.02117	-769.38864
13	19623	3	5	.02052	-928.40300
14	24833	2	3	-0.04105	-3632.08152
15	26658	4	5	.02004	846.72878
16	17647	3	4	-0.01949	-1929.51146
17	25270	5	13	-0.01298	-960.36516
18	30245	4	13	.00705	-875.57281
19	15849	12	13	-0.00769	65.09752
20	26702	5	12	-0.00891	-847.82794
21	25978	10	12	-0.00811	-492.51512
22	21440	9	10	.00125	221.15877
23	18484	8	9	.00310	-363.50037
24	19594	10	11	-0.00946	-633.19102
25	22421	9	11	-0.00767	-195.16636
26	20651	11	12	-0.00149	-39.56496
27	13036	11	17	.00534	54.33003
28	20511	9	17	.00611	-179.74543
29	25919	16	17	.01713	102.83292
30	26484	11	16	-0.01538	-244.26157
31	30944	12	16	-0.01535	-233.33076
32	28530	15	16	.00852	80.82160
33	25790	12	15	-0.01354	-231.97803
34	23946	13	15	-0.01030	-167.68664
35	26951	14	15	.00356	-124.20474
36	30620	13	14	-0.01543	-410.98749
37	43293	4	14	-0.01518	-0.00000
38	22379	15	19	-0.01633	-59.80256
39	24152	14	19	-0.02133	-160.01208
40	23191	18	19	-0.00968	21.41860
41	17011	15	18	-0.01680	-142.95055
42	22412	16	18	-0.02477	-233.41555
43	16363	19	20	-0.02335	-126.61286
44	21059	18	20	-0.02297	-77.02802
45	10560	1	2	.21057	-3262.01583
46	12210	2	3	-0.43518	-1650.50399
47	8980	3	4	-0.32330	-1860.27194
48	21450	4	14	-0.37179	-1868.20734
49	12210	14	19	-0.49658	-1504.38018
50	7920	19	20	-0.54391	-1234.61958
51	10560	1	7	-0.02786	-4007.58724
52	11620	7	8	-0.19245	-2688.53271
53	9240	8	9	-0.09384	-1826.72601
54	10500	9	17	-0.04392	-1432.32152
55	12670	16	17	.43184	1217.69917
56	11090	16	18	-0.55788	-1058.14992
57	10560	18	20	-0.54866	-1036.73130

LINK DATA FOR CONSERVATION AREA 3A
07/04/69

LINK	LENGTH	BEGIN NODE	END NODE	VELOCITY	DISCHARGE
1	9535	2	3	-0.02507	-1176.60490
2	20786	1	3	-0.02632	-333.80208
3	22260	1	2	-0.01380	-39.39110
4	9437	3	4	.00822	10.35755
5	18580	1	4	-0.02685	-421.19872
6	14800	5	7	-0.01691	-2351.26769
7	23059	4	7	-0.04313	-736.99068
8	16013	4	5	-0.05935	-2136.68417
9	22260	3	7	.01960	-499.91744
10	20639	7	8	-0.01391	-1377.38156
11	22436	3	8	-0.12224	-3412.53092
12	25140	2	8	-0.13488	-2370.21329
13	27135	8	9	.04381	431.50254
14	21080	2	9	-0.16011	-3489.67964
15	20942	8	11	-0.05972	-3113.42443
16	22029	9	11	-0.08287	-2742.13932
17	26419	10	11	.03151	836.54680
18	23424	9	10	-0.11027	-1859.86799
19	30042	11	12	-0.01472	-176.50941
20	32278	10	12	.00822	73.70802
21	32789	11	14	-0.03645	-550.80714
22	33948	8	14	-0.06141	-559.96503
23	19126	14	15	.02720	679.04201
24	27958	8	15	-0.07499	-2584.16856
25	26005	7	15	-0.03111	-1327.78873
26	20436	15	16	.06652	1869.52646
27	23568	7	16	-0.01780	-1130.97533
28	23200	6	16	-0.09083	-1418.90743
29	24627	6	7	-0.01464	-527.64250
30	21204	5	6	.00853	-927.98740
31	16739	15	17	-0.01557	-278.30836
32	23300	16	17	-0.05836	-237.38106
33	13092	17	18	-0.02813	-244.94697
34	13039	15	18	-0.04098	-1059.58305
35	11985	14	18	-0.01396	-177.03259
36	26420	13	14	-0.02719	-363.91984
37	26341	11	13	-0.01634	-407.56722
38	14534	12	13	-0.00482	-141.57656
39	22726	14	19	.02851	246.30195
40	13543	13	19	-0.00870	-230.01961
41	20747	19	20	.00302	20.46369
42	25302	13	20	-0.00443	-20.88104
43	26670	12	20	-0.00520	-12.76972
44	21100	1	2	-0.15305	-249.99866
45	18200	1	4	-0.29421	-435.70740
46	16400	4	5	-0.58406	-1722.06867
47	21100	5	6	.08169	-421.36519
48	21100	2	9	-2.13423	-2764.36885
49	23500	9	10	-1.03809	-1149.36230
50	12600	14	18	-0.20289	-133.38725
51	12600	17	18	-0.41388	-266.35909

LINK DATA FOR CONSERVATION AREA 3A
07/04/68

LINK	LENGTH	BEGIN NODE	END NODE	VELOCITY	DISCHARGE
1	40804	2	3	-0.00266	-530.02511
2	29125	1	3	-0.01695	-7297.90556
3	49500	1	2	-0.02881	-77.84462
4	55823	3	4	-0.01967	-2489.37219
5	61225	1	4	-0.02307	-297.19617
6	40804	4	5	.00216	244.60985
7	54601	3	5	-0.02204	-3402.96739
8	48000	5	20	.01410	1019.31441
9	62010	3	20	-0.00950	-1147.60099
10	76500	2	20	-0.00973	-0.00000
11	59018	5	6	-0.01495	-789.61472
12	46049	4	6	-0.01624	-700.60007
13	59979	6	11	-0.01760	-940.34985
14	64295	5	11	-0.02131	-1077.43638
15	36761	11	15	.00057	27.39212
16	64944	5	15	-0.01923	-661.46749
17	33953	15	19	-0.02175	-478.92242
18	66830	5	19	-0.02150	-316.82229
19	46500	19	20	.01673	204.10290
20	56250	7	11	.01132	387.24256
21	49583	6	7	-0.02464	-1110.41270
22	42986	10	11	.02136	1322.33506
23	41488	7	10	-0.02047	-1084.68142
24	23944	8	10	.02849	2430.52545
25	38001	7	8	-0.03112	-668.83144
26	40500	9	10	.00331	164.39036
27	41270	8	9	.01709	148.92060
28	65125	9	12	-0.00209	-66.56484
29	51000	10	12	-0.00420	-143.07547
30	38279	11	12	-0.02207	-786.42080
31	78000	9	13	-0.02112	-99.12344
32	48675	12	13	-0.02883	-1660.78581
33	51285	13	14	.02076	84.95617
34	24017	12	14	.00667	220.55348
35	34079	12	15	.02148	336.96874
36	21156	14	15	.01683	370.63462
37	24573	14	18	-0.00011	-2.04989
38	32539	15	18	-0.01978	-0.00000
39	17100	17	18	.01504	142.27357
40	25293	14	17	-0.00787	-120.64494
41	45144	13	17	.01085	144.08202
42	18000	13	16	-0.02432	-748.64170
43	41400	16	17	.01467	142.88179
44	57800	1	2	-0.42343	-604.59350
45	71000	1	4	-0.36155	-1513.25588
46	46500	4	6	-0.28140	-496.83537
47	53901	6	7	-0.40765	-645.18908
48	32718	7	8	-0.53251	-539.52790
49	47352	8	9	.22139	63.31342
50	61535	6	11	-0.33750	-245.39419
51	39000	11	12	-0.43844	-288.37815
52	48000	12	13	-0.53538	-309.75779
53	22000	13	16	-0.15286	-18.10416
54	37940	15	18	-0.28947	-65.39045
55	37940	11	15	.00736	2.48235
56	56250	7	11	.17861	109.11013

CONSERVATION AREA 1
INPUT-NODE : 4 (S-6)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	253.0	.070	2.650
1/ 2/74	2	253.0	.070	2.650
1/ 3/74	3	253.0	.070	2.650
1/ 4/74	4	253.0	.070	2.650
1/ 5/74	5	253.0	.070	2.650
1/ 6/74	6	253.0	.070	2.650
1/ 7/74	7	253.0	.070	2.650
1/ 8/74	8	253.0	.070	2.650
1/ 9/74	9	253.0	.070	2.650
1/10/74	10	253.0	.070	2.650
1/11/74	11	253.0	.070	2.650
1/12/74	12	253.0	.070	2.650
1/13/74	13	253.0	.070	2.650
1/14/74	14	253.0	.070	2.650
1/15/74	15	253.0	.070	2.650
1/16/74	16	253.0	.070	2.650
1/17/74	17	253.0	.070	2.650
1/18/74	18	253.0 *	.070 *	2.650 *
1/19/74	19	251.3	.068	2.676
1/20/74	20	249.6	.066	2.701
1/21/74	21	248.0	.065	2.727
1/22/74	22	246.3	.063	2.753
1/23/74	23	244.6	.061	2.779
1/24/74	24	242.9	.059	2.804
1/25/74	25	241.3	.057	2.830
1/26/74	26	239.6	.056	2.856
1/27/74	27	237.9	.054	2.881
1/28/74	28	236.2	.052	2.907
1/29/74	29	234.5	.050	2.933
1/30/74	30	232.9	.049	2.959
1/31/74	31	231.2	.047	2.984
2/ 1/74	32	229.5	.045	3.010
2/ 2/74	33	227.8	.043	3.036
2/ 3/74	34	226.1	.041	3.061
2/ 4/74	35	224.5	.040	3.087
2/ 5/74	36	222.8	.038	3.113
2/ 6/74	37	221.1	.036	3.139
2/ 7/74	38	219.4	.034	3.164
2/ 8/74	39	217.8	.032	3.190
2/ 9/74	40	216.1	.031	3.216
2/10/74	41	214.4	.029	3.241
2/11/74	42	212.7	.027	3.267
2/12/74	43	211.0	.025	3.293
2/13/74	44	209.4	.024	3.319
2/14/74	45	207.7	.022	3.344
2/15/74	46	206.0 *	.020 *	3.370 *
2/16/74	47	203.7	.021	3.331
2/17/74	48	201.3	.022	3.291
2/18/74	49	199.0	.023	3.252
2/19/74	50	196.6	.024	3.213
2/20/74	51	194.3	.025	3.173
2/21/74	52	191.9	.026	3.134
2/22/74	53	189.6	.027	3.095
		187.2	.028	3.056

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-MODE : 4 (S-6)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	184.9	.029	3.016
2/24/74	55	182.6	.030	2.977
2/25/74	56	180.2	.031	2.938
2/26/74	57	177.9	.032	2.898
2/27/74	58	175.5	.033	2.859
2/28/74	59	173.2	.034	2.820
3/ 1/74	60	170.8	.036	2.780
3/ 2/74	61	168.5	.037	2.741
3/ 3/74	62	166.1	.038	2.702
3/ 4/74	63	163.8	.039	2.662
3/ 5/74	64	161.4	.040	2.623
3/ 6/74	65	159.1	.041	2.584
3/ 7/74	66	156.8	.042	2.544
3/ 8/74	67	154.4	.043	2.505
3/ 9/74	68	152.1	.044	2.466
3/10/74	69	149.7	.045	2.427
3/11/74	70	147.4	.046	2.387
3/12/74	71	145.0	.047	2.348
3/13/74	72	142.7	.048	2.309
3/14/74	73	140.3	.049	2.269
3/15/74	74	138.0 *	.050 *	2.230 *
3/16/74	75	138.1	.052	2.276
3/17/74	76	138.1	.054	2.322
3/18/74	77	138.2	.055	2.367
3/19/74	78	138.2	.057	2.413
3/20/74	79	138.3	.059	2.459
3/21/74	80	138.4	.061	2.505
3/22/74	81	138.4	.063	2.550
3/23/74	82	138.5	.065	2.596
3/24/74	83	138.5	.066	2.642
3/25/74	84	138.6	.068	2.688
3/26/74	85	138.7	.070	2.733
3/27/74	86	138.7	.072	2.779
3/28/74	87	138.8	.074	2.825
3/29/74	88	138.8	.075	2.871
3/30/74	89	138.9	.077	2.916
3/31/74	90	139.0	.079	2.962
4/ 1/74	91	139.0	.081	3.008
4/ 2/74	92	139.1	.083	3.054
4/ 3/74	93	139.2	.085	3.099
4/ 4/74	94	139.2	.086	3.145
4/ 5/74	95	139.3	.088	3.191
4/ 6/74	96	139.3	.090	3.237
4/ 7/74	97	139.4	.092	3.282
4/ 8/74	98	139.5	.094	3.328
4/ 9/74	99	139.5	.095	3.374
4/10/74	100	139.6	.097	3.420
4/11/74	101	139.6	.099	3.465
4/12/74	102	139.7	.101	3.511
4/13/74	103	139.8	.103	3.557
4/14/74	104	139.8	.105	3.603
4/15/74	105	139.9	.106	3.648
4/16/74	106	139.9	.108	3.694

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 4 (S-6)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	140.0 *	.110 *	3.740 *
4/18/74	108	140.0	.108	3.686
4/19/74	109	140.0	.105	3.632
4/20/74	110	140.0	.103	3.578
4/21/74	111	140.0	.100	3.523
4/22/74	112	140.0	.098	3.469
4/23/74	113	140.0	.096	3.415
4/24/74	114	140.0	.093	3.361
4/25/74	115	140.0	.091	3.307
4/26/74	116	140.0	.088	3.253
4/27/74	117	140.0	.086	3.199
4/28/74	118	140.0	.083	3.144
4/29/74	119	140.0	.081	3.090
4/30/74	120	140.0	.079	3.036
5/ 1/74	121	140.0	.076	2.982
5/ 2/74	122	140.0	.074	2.928
5/ 3/74	123	140.0	.071	2.874
5/ 4/74	124	140.0	.069	2.820
5/ 5/74	125	140.0	.067	2.766
5/ 6/74	126	140.0	.064	2.711
5/ 7/74	127	140.0	.062	2.657
5/ 8/74	128	140.0	.059	2.603
5/ 9/74	129	140.0	.057	2.549
5/10/74	130	140.0	.054	2.495
5/11/74	131	140.0	.052	2.441
5/12/74	132	140.0	.050	2.387
5/13/74	133	140.0	.047	2.332
5/14/74	134	140.0	.045	2.278
5/15/74	135	140.0	.042	2.224
5/16/74	136	140.0 *	.040 *	2.170 *
5/17/74	137	141.2	.040	2.199
5/18/74	138	142.3	.039	2.228
5/19/74	139	143.5	.039	2.256
5/20/74	140	144.7	.038	2.285
5/21/74	141	145.9	.038	2.314
5/22/74	142	147.0	.038	2.343
5/23/74	143	148.2	.037	2.372
5/24/74	144	149.4	.037	2.400
5/25/74	145	150.6	.037	2.429
5/26/74	146	151.7	.036	2.458
5/27/74	147	152.9	.036	2.487
5/28/74	148	154.1	.035	2.516
5/29/74	149	155.2	.035	2.544
5/30/74	150	156.4	.035	2.573
5/31/74	151	157.6	.034	2.602
6/ 1/74	152	158.8	.034	2.631
6/ 2/74	153	159.9	.033	2.660
6/ 3/74	154	161.1 *	.033 *	2.688
6/ 4/74	155	165.7	.032	2.717
6/ 5/74	156	170.4	.031	2.746
6/ 6/74	157	175.0	.030	2.775
6/ 7/74	158	179.6	.028	2.804
6/ 8/74	159	184.2	.027	2.832

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 4 (S-6)

DATE	DAY	CL	T-P04	TOT-N
6/ 9/74	160	188.9	.026	2.861
6/10/74	161	193.5 *	.025 *	2.890 *
6/11/74	162	194.9	.031	4.287
6/12/74	163	196.4	.037	5.684
6/13/74	164	197.8	.043	7.081
6/14/74	165	199.3	.049	8.479
6/15/74	166	200.7	.055	9.876
6/16/74	167	202.2	.061	11.273
6/17/74	168	203.6 *	.067 *	12.670 *
6/18/74	169	202.3	.063	11.127
6/19/74	170	201.0	.058	9.584
6/20/74	171	199.7	.054	8.041
6/21/74	172	198.4	.049	6.499
6/22/74	173	197.1	.045	4.956
6/23/74	174	195.8	.040	3.413
6/24/74	175	194.5 *	.036 *	1.870 *
6/25/74	176	189.9	.069	2.814
6/26/74	177	185.2	.102	3.759
6/27/74	178	180.6	.135	4.703
6/28/74	179	175.9	.169	5.647
6/29/74	180	171.3	.202	6.591
6/30/74	181	166.6	.235	7.536
7/ 1/74	182	162.0 *	.268 *	8.480 *
7/ 2/74	183	160.7	.235	7.690
7/ 3/74	184	159.4	.201	6.900
7/ 4/74	185	158.1	.168	6.110
7/ 5/74	186	156.8	.135	5.320
7/ 6/74	187	155.5	.102	4.530
7/ 7/74	188	154.2	.068	3.740
7/ 8/74	189	152.9 *	.035 *	2.950 *
7/ 9/74	190	159.7	.061	2.962
7/10/74	191	166.4	.086	2.974
7/11/74	192	173.2	.112	2.986
7/12/74	193	179.9	.138	2.998
7/13/74	194	186.7	.164	3.010
7/14/74	195	193.4	.189	3.021
7/15/74	196	200.2 *	.215 *	3.033
7/16/74	197	179.4	.212	3.045
7/17/74	198	158.5	.209	3.057
7/18/74	199	137.7	.205	3.069
7/19/74	200	116.9	.202	3.081
7/20/74	201	96.1	.199	3.093
7/21/74	202	75.2	.196	3.105
7/22/74	203	54.4 *	.193	3.117
7/23/74	204	73.5	.189	3.129
7/24/74	205	92.7	.186	3.140
7/25/74	206	111.8	.183	3.152
7/26/74	207	131.0	.180	3.164
7/27/74	208	150.1	.176	3.176
7/28/74	209	169.3	.173	3.188
7/29/74	210	188.4 *	.170 *	3.200 *
7/30/74	211	189.3	.165	3.240
7/31/74	212	190.1	.161	3.280

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 4 (S-6)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	191.0	.156	3.320
8/ 2/74	214	191.9	.151	3.360
8/ 3/74	215	192.8	.146	3.400
8/ 4/74	216	193.6	.142	3.440
8/ 5/74	217	194.5 *	.137 *	3.480 *
8/ 6/74	218	192.4	.129	4.357
8/ 7/74	219	190.3	.121	5.234
8/ 8/74	220	188.2	.113	6.111
8/ 9/74	221	186.1	.104	6.989
8/10/74	222	184.0	.096	7.866
8/11/74	223	181.9	.088	8.743
8/12/74	224	179.8 *	.080 *	9.620 *
8/13/74	225	179.5	.076	9.160
8/14/74	226	179.2	.071	8.700
8/15/74	227	178.9	.067	8.240
8/16/74	228	178.6	.062	7.780
8/17/74	229	178.3	.058	7.320
8/18/74	230	178.0	.053	6.860
8/19/74	231	177.6	.049	6.400
8/20/74	232	177.3	.045	5.940
8/21/74	233	177.0	.040	5.480
8/22/74	234	176.7	.036	5.020
8/23/74	235	176.4	.031	4.560
8/24/74	236	176.1	.027	4.100
8/25/74	237	175.8	.022	3.640
8/26/74	238	175.5 *	.018 *	3.180 *
8/27/74	239	174.7	.025	3.176
8/28/74	240	173.9	.032	3.173
8/29/74	241	173.1	.039	3.169
8/30/74	242	172.3	.047	3.166
8/31/74	243	171.5	.054	3.162
9/ 1/74	244	170.7	.061	3.159
9/ 2/74	245	169.8	.068	3.155
9/ 3/74	246	169.0	.075	3.151
9/ 4/74	247	168.2	.082	3.148
9/ 5/74	248	167.4	.089	3.144
9/ 6/74	249	166.6	.097	3.141
9/ 7/74	250	165.8	.104	3.137
9/ 8/74	251	165.0	.111	3.134
9/ 9/74	252	164.2 *	.118 *	3.130 *
9/10/74	253	167.6	.108	3.209
9/11/74	254	171.0	.099	3.287
9/12/74	255	174.4	.089	3.366
9/13/74	256	177.8	.080	3.444
9/14/74	257	181.2	.070	3.523
9/15/74	258	184.6	.061	3.601
9/16/74	259	188.0 *	.051 *	3.680
9/17/74	260	181.9	.064	3.759
9/18/74	261	175.8	.077	3.837
9/19/74	262	169.7	.090	3.916
9/20/74	263	163.7	.102	3.994
9/21/74	264	157.6	.115	4.073
9/22/74	265	151.5	.128	4.151

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 4 (S-6)

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	145.4 *	.141 *	4.230 *
9/24/74	267	148.5	.135	4.079
9/25/74	268	151.7	.130	3.927
9/26/74	269	154.8	.124	3.776
9/27/74	270	158.0	.119	3.624
9/28/74	271	161.1	.113	3.473
9/29/74	272	164.3	.108	3.321
9/30/74	273	167.4 *	.102 *	3.170 *
10/ 1/74	274	163.6	.090	2.977
10/ 2/74	275	159.8	.077	2.784
10/ 3/74	276	156.0	.065	2.591
10/ 4/74	277	152.3	.053	2.399
10/ 5/74	278	148.5	.041	2.206
10/ 6/74	279	144.7	.028	2.013
10/ 7/74	280	140.9 *	.016 *	1.820 *
10/ 8/74	281	142.8	.018	1.926
10/ 9/74	282	144.7	.020	2.031
10/10/74	283	146.6	.022	2.137
10/11/74	284	148.5	.024	2.243
10/12/74	285	150.4	.026	2.349
10/13/74	286	152.3	.028	2.454
10/14/74	287	154.2 *	.030 *	2.560 *
10/15/74	288	155.9	.028	2.280
10/16/74	289	157.6	.027	2.000
10/17/74	290	159.3	.025	1.720
10/18/74	291	161.0	.024	1.440
10/19/74	292	162.7	.022	1.160
10/20/74	293	164.4	.021	.880
10/21/74	294	166.1 *	.019 *	.600 *
10/22/74	295	169.9	.019	.754
10/23/74	296	173.8	.019	.908
10/24/74	297	177.6	.019	1.061
10/25/74	298	181.5	.019	1.215
10/26/74	299	185.3	.018	1.369
10/27/74	300	189.1	.018	1.523
10/28/74	301	193.0	.018	1.676
10/29/74	302	196.8 *	.018 *	1.830 *
10/30/74	303	202.7	.017	1.878
10/31/74	304	208.7	.015	1.927
11/ 1/74	305	214.6	.014	1.975
11/ 2/74	306	220.5	.013	2.023
11/ 3/74	307	226.5	.011	2.072
11/ 4/74	308	232.4 *	.010 *	2.120 *
11/ 5/74	309	226.8	.011	2.084
11/ 6/74	310	221.1	.011	2.047
11/ 7/74	311	215.5	.012	2.011
11/ 8/74	312	209.9	.013	1.974
11/ 9/74	313	204.3	.014	1.938
11/10/74	314	198.6	.014	1.901
11/11/74	315	193.0	.015	1.865
11/12/74	316	187.4	.016	1.829
11/13/74	317	181.7	.016	1.792
11/14/74	318	176.1	.017	1.756

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 4 (S-6)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	170.5	.018	1.719
11/16/74	320	164.9	.019	1.683
11/17/74	321	159.2	.019	1.646
11/18/74	322	153.6 *	.020 *	1.610 *
11/19/74	323	155.2	.024	1.621
11/20/74	324	156.7	.029	1.633
11/21/74	325	158.3	.033	1.644
11/22/74	326	159.9	.038	1.656
11/23/74	327	161.4	.042	1.667
11/24/74	328	163.0	.047	1.679
11/25/74	329	164.6	.051	1.690
11/26/74	330	166.1	.055	1.701
11/27/74	331	167.7	.060	1.713
11/28/74	332	169.3	.064	1.724
11/29/74	333	170.8	.069	1.736
11/30/74	334	172.4	.073	1.747
12/ 1/74	335	174.0	.078	1.759
12/ 2/74	336	175.6	.082 *	1.770
12/ 3/74	337	177.1	.079	1.781
12/ 4/74	338	178.7	.076	1.793
12/ 5/74	339	180.3	.074	1.804
12/ 6/74	340	181.8	.071	1.816
12/ 7/74	341	183.4	.068	1.827
12/ 8/74	342	185.0	.065	1.839
12/ 9/74	343	186.5	.063	1.850
12/10/74	344	188.1	.060	1.861
12/11/74	345	189.7	.057	1.873
12/12/74	346	191.2	.054	1.884
12/13/74	347	192.8	.051	1.896
12/14/74	348	194.4	.049	1.907
12/15/74	349	195.9	.046	1.919
12/16/74	350	197.5 *	.043 *	1.930 *
12/17/74	351	201.8	.041	2.040
12/18/74	352	206.1	.040	2.150
12/19/74	353	210.4	.038	2.260
12/20/74	354	214.6	.037	2.370
12/21/74	355	218.9	.035	2.480
12/22/74	356	223.2	.033	2.590
12/23/74	357	227.5	.032	2.700
12/24/74	358	231.8	.030	2.810
12/25/74	359	236.1	.029	2.920
12/26/74	360	240.4	.027	3.030
12/27/74	361	244.7	.025	3.140
12/28/74	362	248.9	.024	3.250
12/29/74	363	253.2	.022	3.360
12/30/74	364	257.5	.021	3.470
12/31/74	365	261.8 *	.019 *	3.580 *

CONSERVATION AREA 1
INPUT-NODE : 70 (S-5)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	138.0	.080	3.590
1/ 2/74	2	138.0	.080	3.590
1/ 3/74	3	138.0	.080	3.590
1/ 4/74	4	138.0	.080	3.590
1/ 5/74	5	138.0	.080	3.590
1/ 6/74	6	138.0	.080	3.590
1/ 7/74	7	138.0	.080	3.590
1/ 8/74	8	138.0	.080	3.590
1/ 9/74	9	138.0	.080	3.590
1/10/74	10	138.0	.080	3.590
1/11/74	11	138.0	.080	3.590
1/12/74	12	138.0	.080	3.590
1/13/74	13	138.0	.080	3.590
1/14/74	14	138.0	.080	3.590
1/15/74	15	138.0	.080	3.590
1/16/74	16	138.0 *	.080 *	3.590 *
1/17/74	17	137.1	.079	3.535
1/18/74	18	136.1	.077	3.480
1/19/74	19	135.2	.076	3.426
1/20/74	20	134.3	.074	3.371
1/21/74	21	133.3	.073	3.316
1/22/74	22	132.4	.072	3.261
1/23/74	23	131.5	.070	3.206
1/24/74	24	130.6	.069	3.151
1/25/74	25	129.6	.068	3.097
1/26/74	26	128.7	.066	3.042
1/27/74	27	127.8	.065	2.987
1/28/74	28	126.8	.063	2.932
1/29/74	29	125.9	.062	2.877
1/30/74	30	125.0	.061	2.822
1/31/74	31	124.0	.059	2.768
2/ 1/74	32	123.1	.058	2.713
2/ 2/74	33	122.2	.057	2.658
2/ 3/74	34	121.2	.055	2.603
2/ 4/74	35	120.3	.054	2.548
2/ 5/74	36	119.4	.052	2.493
2/ 6/74	37	118.4	.051	2.439
2/ 7/74	38	117.5	.050	2.384
2/ 8/74	39	116.6	.048	2.329
2/ 9/74	40	115.7	.047	2.274
2/10/74	41	114.7	.046	2.219
2/11/74	42	113.8	.044	2.164
2/12/74	43	112.9	.043	2.110
2/13/74	44	111.9	.041	2.055
2/14/74	45	111.0 *	.040 *	2.000 *
2/15/74	46	112.2	.040	2.011
2/16/74	47	113.4	.040	2.022
2/17/74	48	114.5	.040	2.033
2/18/74	49	115.7	.040	2.044
2/19/74	50	116.9	.040	2.055
2/20/74	51	118.1	.040	2.066
2/21/74	52	119.3	.040	2.078
2/22/74	53	120.4	.040	2.089

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 20 (S-5A

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	121.6	.040	2.100
2/24/74	55	122.8	.040	2.111
2/25/74	56	124.0	.040	2.122
2/26/74	57	125.1	.040	2.133
2/27/74	58	126.3	.040	2.144
2/28/74	59	127.5	.040	2.155
3/ 1/74	60	128.7	.040	2.166
3/ 2/74	61	129.9	.040	2.177
3/ 3/74	62	131.0	.040	2.188
3/ 4/74	63	132.2	.040	2.199
3/ 5/74	64	133.4	.040	2.210
3/ 6/74	65	134.6	.040	2.221
3/ 7/74	66	135.8	.040	2.232
3/ 8/74	67	136.9	.040	2.244
3/ 9/74	68	138.1	.040	2.255
3/10/74	69	139.3	.040	2.266
3/11/74	70	140.5	.040	2.277
3/12/74	71	141.6	.040	2.288
3/13/74	72	142.8	.040	2.299
3/14/74	73	144.0 *	.040 *	2.310 *
3/15/74	74	143.0	.040	2.310
3/16/74	75	142.0	.039	2.310
3/17/74	76	141.0	.039	2.310
3/18/74	77	140.0	.039	2.310
3/19/74	78	139.0	.039	2.310
3/20/74	79	138.0	.038	2.310
3/21/74	80	137.0	.038	2.310
3/22/74	81	136.0	.038	2.310
3/23/74	82	135.0	.037	2.310
3/24/74	83	134.0	.037	2.310
3/25/74	84	133.0	.037	2.310
3/26/74	85	132.0	.036	2.310
3/27/74	86	131.0	.036	2.310
3/28/74	87	130.0	.036	2.310
3/29/74	88	129.0	.036	2.310
3/30/74	89	128.0	.035	2.310
3/31/74	90	127.0	.035	2.310
4/ 1/74	91	126.0	.035	2.310
4/ 2/74	92	125.0	.034	2.310
4/ 3/74	93	124.0	.034	2.310
4/ 4/74	94	123.0	.034	2.310
4/ 5/74	95	122.0	.034	2.310
4/ 6/74	96	121.0	.033	2.310
4/ 7/74	97	120.0	.033	2.310
4/ 8/74	98	119.0	.033	2.310
4/ 9/74	99	118.0	.032	2.310
4/10/74	100	117.0	.032	2.310
4/11/74	101	116.0	.032	2.310
4/12/74	102	115.0	.031	2.310
4/13/74	103	114.0	.031	2.310
4/14/74	104	113.0	.031	2.310 *
4/15/74	105	112.0	.031	2.305
4/16/74	106	111.0	.030	2.301

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 20 (S-54)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	110.0 *	.030 *	2.296
4/18/74	108	110.0	.031	2.292
4/19/74	109	110.0	.031	2.287
4/20/74	110	110.0	.032	2.283
4/21/74	111	110.0	.033	2.278
4/22/74	112	110.0	.034	2.274
4/23/74	113	110.0	.034	2.269
4/24/74	114	110.0	.035	2.265
4/25/74	115	110.0	.036	2.260
4/26/74	116	110.0	.036	2.256
4/27/74	117	110.0	.037	2.251
4/28/74	118	110.0	.038	2.247
4/29/74	119	110.0	.039	2.242
4/30/74	120	110.0	.039	2.238
5/ 1/74	121	110.0	.040	2.233
5/ 2/74	122	110.0	.041	2.229
5/ 3/74	123	110.0	.041	2.224
5/ 4/74	124	110.0	.042	2.220
5/ 5/74	125	110.0	.043	2.215
5/ 6/74	126	110.0	.044	2.211
5/ 7/74	127	110.0	.044	2.206
5/ 8/74	128	110.0	.045	2.202
5/ 9/74	129	110.0	.046	2.197
5/10/74	130	110.0	.046	2.193
5/11/74	131	110.0	.047	2.188
5/12/74	132	110.0	.048	2.184
5/13/74	133	110.0	.049	2.179
5/14/74	134	110.0	.049	2.175
5/15/74	135	110.0 *	.050 *	2.170 *
5/16/74	136	124.5	.050	2.542
5/17/74	137	139.0	.050	2.914
5/18/74	138	153.5	.050	3.286
5/19/74	139	167.9	.051	3.658
5/20/74	140	182.4	.051	4.031
5/21/74	141	196.9	.051	4.403
5/22/74	142	211.4	.051	4.775
5/23/74	143	225.9	.051	5.147
5/24/74	144	240.4	.051	5.519
5/25/74	145	254.8	.052	5.891
5/26/74	146	269.3	.052	6.263
5/27/74	147	283.8	.052	6.635
5/28/74	148	298.3	.052	7.008
5/29/74	149	312.8	.052	7.380
5/30/74	150	327.3	.052	7.752
5/31/74	151	341.7	.053	8.124
6/ 1/74	152	356.2	.053	8.496
6/ 2/74	153	370.7	.053	8.868
6/ 3/74	154	385.2 *	.053 *	9.240
6/ 4/74	155	363.5	.060	9.612
6/ 5/74	156	341.8	.067	9.985
6/ 6/74	157	320.1	.074	10.357
6/ 7/74	158	298.3	.082	10.729
6/ 8/74	159	276.6	.089	11.101

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 20 (S-5A

DATE	DAY	CL		T-PO4		TOT-N	
6/ 9/74	160	254.9		.096		11.473	
6/10/74	161	233.2	*	.103	*	11.845	
6/11/74	162	239.7		.104		12.217	
6/12/74	163	246.2		.104		12.589	
6/13/74	164	252.7		.105		12.962	
6/14/74	165	259.3		.106		13.334	
6/15/74	166	265.8		.107		13.706	
6/16/74	167	272.3		.107		14.078	
6/17/74	168	278.8	*	.108	*	14.450	*
6/18/74	169	277.7		.108		12.971	
6/19/74	170	276.6		.109		11.493	
6/20/74	171	275.5		.109		10.014	
6/21/74	172	274.5		.110		8.536	
6/22/74	173	273.4		.110		7.057	
6/23/74	174	272.3		.111		5.579	
6/24/74	175	271.2	*	.111	*	4.100	*
6/25/74	176	251.4		.122		5.461	
6/26/74	177	231.5		.134		6.823	
6/27/74	178	211.7		.145		8.184	
6/28/74	179	191.9		.156		9.546	
6/29/74	180	172.1		.167		10.907	
6/30/74	181	152.2		.179		12.269	
7/ 1/74	182	132.4	*	.190	*	13.630	*
7/ 2/74	183	144.8		.182		13.054	
7/ 3/74	184	157.3		.174		12.479	
7/ 4/74	185	169.7		.166		11.903	
7/ 5/74	186	182.2		.158		11.327	
7/ 6/74	187	194.6		.150		10.751	
7/ 7/74	188	207.1		.142		10.176	
7/ 8/74	189	219.5	*	.134	*	9.600	*
7/ 9/74	190	206.9		.126		9.196	
7/10/74	191	194.3		.118		8.793	
7/11/74	192	181.7		.110		8.389	
7/12/74	193	169.1		.103		7.986	
7/13/74	194	156.5		.095		7.582	
7/14/74	195	143.9		.087		7.179	
7/15/74	196	131.3	*	.079	*	6.775	
7/16/74	197	124.6		.081		6.371	
7/17/74	198	118.0		.083		5.968	
7/18/74	199	111.3		.085		5.564	
7/19/74	200	104.7		.086		5.161	
7/20/74	201	98.0		.088		4.757	
7/21/74	202	91.4		.090		4.354	
7/22/74	203	84.7	*	.092	*	3.950	*
7/23/74	204	98.7		.091		5.606	
7/24/74	205	112.7		.090		7.261	
7/25/74	206	126.7		.089		8.917	
7/26/74	207	140.7		.087		10.573	
7/27/74	208	154.7		.086		12.229	
7/28/74	209	168.7		.085		13.884	
7/29/74	210	182.7	*	.084	*	15.540	*
7/30/74	211	181.6		.094		14.620	
7/31/74	212	180.6		.104		13.700	

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 20 (S-5A.

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	179.5	.114	12.780
8/ 2/74	214	178.4	.123	11.860
8/ 3/74	215	177.3	.133	10.940
8/ 4/74	216	176.3	.143	10.020
8/ 5/74	217	175.2 *	.153 *	9.100 *
8/ 6/74	218	173.8	.150	9.121
8/ 7/74	219	172.4	.146	9.143
8/ 8/74	220	171.0	.143	9.164
8/ 9/74	221	169.5	.140	9.186
8/10/74	222	168.1	.137	9.207
8/11/74	223	166.7	.133	9.229
8/12/74	224	165.3 *	.130 *	9.250 *
8/13/74	225	162.5	.123	8.838
8/14/74	226	159.7	.115	8.426
8/15/74	227	156.8	.108	8.014
8/16/74	228	154.0	.101	7.601
8/17/74	229	151.2	.093	7.189
8/18/74	230	148.4	.086	6.777
8/19/74	231	145.6	.078	6.365
8/20/74	232	142.7	.071	5.953
8/21/74	233	139.9	.064	5.541
8/22/74	234	137.1	.056	5.129
8/23/74	235	134.3	.049	4.716
8/24/74	236	131.4	.042	4.304
8/25/74	237	128.6	.034	3.892
8/26/74	238	125.8 *	.027 *	3.480 *
8/27/74	239	130.0	.037	3.465
8/28/74	240	134.3	.048	3.450
8/29/74	241	138.5	.058	3.435
8/30/74	242	142.7	.068	3.420
8/31/74	243	146.9	.079	3.405
9/ 1/74	244	151.2	.089	3.390
9/ 2/74	245	155.4	.099	3.375
9/ 3/74	246	159.6	.110	3.360
9/ 4/74	247	163.9	.120	3.345
9/ 5/74	248	168.1	.131	3.330
9/ 6/74	249	172.3	.141	3.315
9/ 7/74	250	176.5	.151	3.300
9/ 8/74	251	180.8	.162	3.285
9/ 9/74	252	185.0 *	.172 *	3.270 *
9/10/74	253	174.7	.175	3.247
9/11/74	254	164.5	.178	3.224
9/12/74	255	154.2	.181	3.201
9/13/74	256	144.0	.185	3.179
9/14/74	257	133.7	.188	3.156
9/15/74	258	123.5	.191	3.133
9/16/74	259	113.2 *	.194 *	3.110
9/17/74	260	126.6	.177	3.087
9/18/74	261	140.1	.161	3.064
9/19/74	262	153.5	.144	3.041
9/20/74	263	166.9	.127	3.019
9/21/74	264	180.3	.110	2.996
9/22/74	265	193.8	.094	2.973

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 20 (S-5A

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	207.2 *	.077 *	2.950 *
9/24/74	267	219.6	.083	3.210
9/25/74	268	232.1	.089	3.470
9/26/74	269	244.5	.095	3.730
9/27/74	270	256.9	.100	3.990
9/28/74	271	269.3	.106	4.250
9/29/74	272	281.8	.112	4.510
9/30/74	273	294.2 *	.118 *	4.770 *
10/ 1/74	274	271.8	.105	4.304
10/ 2/74	275	249.5	.092	3.839
10/ 3/74	276	227.1	.079	3.373
10/ 4/74	277	204.8	.066	2.907
10/ 5/74	278	182.4	.053	2.441
10/ 6/74	279	160.1	.040	1.976
10/ 7/74	280	137.7 *	.027 *	1.510 *
10/ 8/74	281	158.8	.035	1.879
10/ 9/74	282	180.0	.044	2.247
10/10/74	283	201.1	.052	2.616
10/11/74	284	222.2	.060	2.984
10/12/74	285	243.3	.068	3.353
10/13/74	286	264.5	.077	3.721
10/14/74	287	285.6 *	.085 *	4.090 *
10/15/74	288	265.4	.084	3.959
10/16/74	289	245.1	.082	3.827
10/17/74	290	224.9	.081	3.696
10/18/74	291	204.6	.079	3.564
10/19/74	292	184.4	.078	3.433
10/20/74	293	164.1	.076	3.301
10/21/74	294	143.9 *	.075 *	3.170 *
10/22/74	295	137.4	.072	2.979
10/23/74	296	130.9	.069	2.788
10/24/74	297	124.3	.065	2.596
10/25/74	298	117.8	.062	2.405
10/26/74	299	111.3	.059	2.214
10/27/74	300	104.8	.056	2.023
10/28/74	301	98.2	.052	1.831
10/29/74	302	91.7 *	.049 *	1.640 *
10/30/74	303	100.8	.047	1.692
10/31/74	304	109.9	.045	1.743
11/ 1/74	305	119.1	.043	1.795
11/ 2/74	306	128.2	.041	1.847
11/ 3/74	307	137.3	.039	1.898
11/ 4/74	308	146.4 *	.037 *	1.950 *
11/ 5/74	309	141.9	.038	1.902
11/ 6/74	310	137.3	.039	1.854
11/ 7/74	311	132.8	.039	1.806
11/ 8/74	312	128.2	.040	1.759
11/ 9/74	313	123.7	.041	1.711
11/10/74	314	119.1	.042	1.663
11/11/74	315	114.6	.043	1.615
11/12/74	316	110.0	.043	1.567
11/13/74	317	105.5	.044	1.519
11/14/74	318	100.9	.045	1.471

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 1
INPUT-NODE : 20 (S-5A)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	96.4	.046	1.424
11/16/74	320	91.8	.046	1.376
11/17/74	321	87.3	.047	1.328
11/18/74	322	82.7 *	.048 *	1.280 *
11/19/74	323	86.8	.050	1.323
11/20/74	324	90.9	.052	1.366
11/21/74	325	95.0	.054	1.410
11/22/74	326	99.1	.057	1.453
11/23/74	327	103.2	.059	1.496
11/24/74	328	107.3	.061	1.539
11/25/74	329	111.4	.063	1.583
11/26/74	330	115.5	.065	1.626
11/27/74	331	119.6	.067	1.669
11/28/74	332	123.7	.069	1.712
11/29/74	333	127.8	.072	1.755
11/30/74	334	131.9	.074	1.799
12/ 1/74	335	136.0	.076	1.842
12/ 2/74	336	140.1	.078 *	1.885
12/ 3/74	337	144.2	.076	1.928
12/ 4/74	338	148.3	.074	1.971
12/ 5/74	339	152.4	.071	2.015
12/ 6/74	340	156.5	.069	2.058
12/ 7/74	341	160.6	.067	2.101
12/ 8/74	342	164.7	.065	2.144
12/ 9/74	343	168.8	.063	2.188
12/10/74	344	172.9	.060	2.231
12/11/74	345	177.0	.058	2.274
12/12/74	346	181.1	.056	2.317
12/13/74	347	185.2	.054	2.360
12/14/74	348	189.3	.051	2.404
12/15/74	349	193.4	.049	2.447
12/16/74	350	197.5 *	.047 *	2.490 *
12/17/74	351	196.7	.047	2.539
12/18/74	352	195.9	.046	2.589
12/19/74	353	195.1	.046	2.638
12/20/74	354	194.3	.045	2.687
12/21/74	355	193.5	.045	2.737
12/22/74	356	192.7	.044	2.786
12/23/74	357	191.9	.044	2.835
12/24/74	358	191.2	.043	2.885
12/25/74	359	190.4	.043	2.934
12/26/74	360	189.6	.042	2.983
12/27/74	361	188.8	.042	3.033
12/28/74	362	188.0	.041	3.082
12/29/74	363	187.2	.041	3.131
12/30/74	364	186.4	.040	3.181
12/31/74	365	185.6 *	.040 *	3.230 *

CONSERVATION AREA 2A
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	227.0 *	.030	2.350 *
1/ 2/74	2	224.6	.030	2.333
1/ 3/74	3	222.1	.030	2.316
1/ 4/74	4	219.7	.030	2.299
1/ 5/74	5	217.3	.030	2.282
1/ 6/74	6	214.8	.030	2.266
1/ 7/74	7	212.4	.030	2.249
1/ 8/74	8	209.9	.030	2.232
1/ 9/74	9	207.5	.030	2.215
1/10/74	10	205.1	.030	2.198
1/11/74	11	202.6	.030	2.181
1/12/74	12	200.2	.030	2.164
1/13/74	13	197.8	.030	2.148
1/14/74	14	195.3	.030	2.131
1/15/74	15	192.9	.030	2.114
1/16/74	16	190.4	.030	2.097
1/17/74	17	188.0 *	.030 *	2.080 *
1/18/74	18	186.7	.030	2.062
1/19/74	19	185.5	.029	2.044
1/20/74	20	184.2	.029	2.026
1/21/74	21	183.0	.029	2.007
1/22/74	22	181.7	.028	1.989
1/23/74	23	180.4	.028	1.971
1/24/74	24	179.2	.027	1.953
1/25/74	25	177.9	.027	1.935
1/26/74	26	176.7	.027	1.917
1/27/74	27	175.4	.026	1.899
1/28/74	28	174.1	.026	1.880
1/29/74	29	172.9	.026	1.862
1/30/74	30	171.6	.025	1.844
1/31/74	31	170.4	.025	1.826
2/ 1/74	32	169.1	.024	1.808
2/ 2/74	33	167.9	.024	1.790
2/ 3/74	34	166.6	.024	1.771
2/ 4/74	35	165.3	.023	1.753
2/ 5/74	36	164.1	.023	1.735
2/ 6/74	37	162.8	.023	1.717
2/ 7/74	38	161.6	.022	1.699
2/ 8/74	39	160.3	.022	1.681
2/ 9/74	40	159.0	.021	1.663
2/10/74	41	157.8	.021	1.644
2/11/74	42	156.5	.021	1.626
2/12/74	43	155.3	.020	1.608
2/13/74	44	154.0 *	.020 *	1.590 *
2/14/74	45	153.3	.020	1.601
2/15/74	46	152.6	.020	1.612
2/16/74	47	151.9	.020	1.623
2/17/74	48	151.2	.020	1.634
2/18/74	49	150.5	.020	1.645
2/19/74	50	149.8	.020	1.656
2/20/74	51	149.1	.020	1.667
2/21/74	52	148.4	.020	1.678
2/22/74	53	147.7	.020	1.689

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2A
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	147.0	.020	1.700
2/24/74	55	146.3	.020	1.711
2/25/74	56	145.6	.020	1.722
2/26/74	57	144.9	.020	1.733
2/27/74	58	144.2	.020	1.744
2/28/74	59	143.5	.020	1.755
3/ 1/74	60	142.8	.020	1.766
3/ 2/74	61	142.1	.020	1.777
3/ 3/74	62	141.4	.020	1.788
3/ 4/74	63	140.7	.020	1.799
3/ 5/74	64	140.0	.020	1.810
3/ 6/74	65	139.3	.020	1.821
3/ 7/74	66	138.6	.020	1.832
3/ 8/74	67	137.9	.020	1.843
3/ 9/74	68	137.2	.020	1.854
3/10/74	69	136.5	.020	1.865
3/11/74	70	135.8	.020	1.876
3/12/74	71	135.1	.020	1.887
3/13/74	72	134.4	.020	1.898
3/14/74	73	133.7	.020	1.909
3/15/74	74	133.0 *	.020	1.920 *
3/16/74	75	132.6	.020	1.925
3/17/74	76	132.2	.020	1.929
3/18/74	77	131.8	.020	1.934
3/19/74	78	131.4	.020	1.938
3/20/74	79	131.0	.020	1.943
3/21/74	80	130.6	.020	1.947
3/22/74	81	130.2	.020	1.952
3/23/74	82	129.8	.020	1.956
3/24/74	83	129.5	.020	1.961
3/25/74	84	129.1	.020	1.965
3/26/74	85	128.7	.020	1.970
3/27/74	86	128.3	.020	1.975
3/28/74	87	127.9	.020	1.979
3/29/74	88	127.5	.020	1.984
3/30/74	89	127.1	.020	1.988
3/31/74	90	126.7	.020	1.993
4/ 1/74	91	126.3	.020	1.997
4/ 2/74	92	125.9	.020	2.002
4/ 3/74	93	125.5	.020	2.006
4/ 4/74	94	125.1	.020	2.011
4/ 5/74	95	124.7	.020	2.015
4/ 6/74	96	124.3	.020	2.020
4/ 7/74	97	123.9	.020	2.025
4/ 8/74	98	123.5	.020	2.029
4/ 9/74	99	123.2	.020	2.034
4/10/74	100	122.8	.020	2.038
4/11/74	101	122.4	.020	2.043
4/12/74	102	122.0	.020	2.047
4/13/74	103	121.6	.020	2.052
4/14/74	104	121.2	.020	2.056
4/15/74	105	120.8	.020	2.061
4/16/74	106	120.4	.020	2.065

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2A
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	120.0 *	.020	2.070 *
4/18/74	108	120.0	.020	2.097
4/19/74	109	120.0	.020	2.124
4/20/74	110	120.0	.020	2.152
4/21/74	111	120.0	.020	2.179
4/22/74	112	120.0	.020	2.206
4/23/74	113	120.0	.020	2.233
4/24/74	114	120.0	.020	2.261
4/25/74	115	120.0	.020	2.288
4/26/74	116	120.0	.020	2.315
4/27/74	117	120.0	.020	2.342
4/28/74	118	120.0	.020	2.370
4/29/74	119	120.0	.020	2.397
4/30/74	120	120.0	.020	2.424
5/ 1/74	121	120.0	.020	2.451
5/ 2/74	122	120.0	.020	2.479
5/ 3/74	123	120.0	.020	2.506
5/ 4/74	124	120.0	.020	2.533
5/ 5/74	125	120.0	.020	2.560
5/ 6/74	126	120.0	.020	2.588
5/ 7/74	127	120.0	.020	2.615
5/ 8/74	128	120.0	.020	2.642
5/ 9/74	129	120.0	.020	2.669
5/10/74	130	120.0	.020	2.697
5/11/74	131	120.0	.020	2.724
5/12/74	132	120.0	.020	2.751
5/13/74	133	120.0	.020	2.778
5/14/74	134	120.0	.020	2.806
5/15/74	135	120.0	.020	2.833
5/16/74	136	120.0 *	.020 *	2.860 *
5/17/74	137	119.8	.021	2.814
5/18/74	138	119.6	.022	2.769
5/19/74	139	119.3	.022	2.723
5/20/74	140	119.1	.023	2.678
5/21/74	141	118.9	.024	2.632
5/22/74	142	118.7	.025	2.586
5/23/74	143	118.4	.025	2.541
5/24/74	144	118.2	.026	2.495
5/25/74	145	118.0	.027	2.450
5/26/74	146	117.8	.028	2.404
5/27/74	147	117.6	.029	2.358
5/28/74	148	117.3	.029	2.313
5/29/74	149	117.1	.030	2.267
5/30/74	150	116.9	.031	2.222
5/31/74	151	116.7	.032	2.176
6/ 1/74	152	116.4	.032	2.130
6/ 2/74	153	116.2	.033	2.085
6/ 3/74	154	116.0 *	.034 *	2.039
6/ 4/74	155	121.6	.037	1.994
6/ 5/74	156	127.3	.040	1.948
6/ 6/74	157	132.9	.043	1.902
6/ 7/74	158	138.5	.047	1.857
6/ 8/74	159	144.1	.050	1.811

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2A
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	149.8	.053	1.766
6/10/74	161	155.4 *	.056 *	1.720 *
6/11/74	162	155.5	.063	2.194
6/12/74	163	155.7	.071	2.669
6/13/74	164	155.8	.078	3.143
6/14/74	165	155.9	.085	3.617
6/15/74	166	156.0	.092	4.091
6/16/74	167	156.2	.100	4.566
6/17/74	168	156.3 *	.107 *	5.040 *
6/18/74	169	162.0	.100	4.556
6/19/74	170	167.7	.094	4.071
6/20/74	171	173.4	.087	3.587
6/21/74	172	179.0	.080	3.103
6/22/74	173	184.7	.073	2.619
6/23/74	174	190.4	.067	2.134
6/24/74	175	196.1 *	.060 *	1.650 *
6/25/74	176	182.5	.061	1.786
6/26/74	177	169.0	.063	1.921
6/27/74	178	155.4	.064	2.057
6/28/74	179	141.9	.065	2.193
6/29/74	180	128.3	.066	2.329
6/30/74	181	114.8	.068	2.464
7/ 1/74	182	101.2 *	.069 *	2.600 *
7/ 2/74	183	101.2	.089	2.967
7/ 3/74	184	101.2	.110	3.334
7/ 4/74	185	101.2	.130	3.701
7/ 5/74	186	101.2	.151	4.069
7/ 6/74	187	101.2	.171	4.436
7/ 7/74	188	101.2	.192	4.803
7/ 8/74	189	101.2 *	.212 *	5.170 *
7/ 9/74	190	105.4	.189	5.050
7/10/74	191	109.5	.167	4.931
7/11/74	192	113.7	.144	4.811
7/12/74	193	117.8	.122	4.692
7/13/74	194	122.0	.099	4.572
7/14/74	195	126.1	.077	4.453
7/15/74	196	130.3 *	.054 *	4.333
7/16/74	197	137.8	.055	4.214
7/17/74	198	145.3	.056	4.094
7/18/74	199	152.8	.057	3.975
7/19/74	200	160.2	.059	3.855
7/20/74	201	167.7	.060	3.736
7/21/74	202	175.2	.061	3.616
7/22/74	203	182.7 *	.062	3.497
7/23/74	204	182.6	.063	3.377
7/24/74	205	182.5	.064	3.258
7/25/74	206	182.4	.065	3.138
7/26/74	207	182.3	.067	3.019
7/27/74	208	182.2	.068	2.899
7/28/74	209	182.1	.069	2.780
7/29/74	210	182.0 *	.070 *	2.660 *
7/30/74	211	169.7	.063	3.059
7/31/74	212	157.4	.057	3.459

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2A
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	145.1	.050	3.858
8/ 2/74	214	132.9	.043	4.257
8/ 3/74	215	120.6	.036	4.656
8/ 4/74	216	108.3	.030	5.056
8/ 5/74	217	96.0 *	.023 *	5.455
8/ 6/74	218	101.2	.030	5.854
8/ 7/74	219	106.4	.038	6.254
8/ 8/74	220	111.6	.045	6.653
8/ 9/74	221	116.8	.052	7.052
8/10/74	222	122.0	.059	7.451
8/11/74	223	127.2	.067	7.851
8/12/74	224	132.4 *	.074 *	8.250 *
8/13/74	225	131.9	.069	8.059
8/14/74	226	131.5	.064	7.867
8/15/74	227	131.0	.059	7.676
8/16/74	228	130.6	.055	7.484
8/17/74	229	130.1	.050	7.293
8/18/74	230	129.7	.045	7.101
8/19/74	231	129.2	.040	6.910
8/20/74	232	128.7	.035	6.719
8/21/74	233	128.3	.030	6.527
8/22/74	234	127.8	.025	6.336
8/23/74	235	127.4	.021	6.144
8/24/74	236	126.9	.016	5.953
8/25/74	237	126.5	.011	5.761
8/26/74	238	126.0 *	.006 *	5.570
8/27/74	239	128.3	.007	5.379
8/28/74	240	130.6	.009	5.187
8/29/74	241	132.9	.010	4.996
8/30/74	242	135.2	.011	4.804
8/31/74	243	137.5	.013	4.613
9/ 1/74	244	139.8	.014	4.421
9/ 2/74	245	142.1	.016	4.230
9/ 3/74	246	144.4	.017	4.039
9/ 4/74	247	146.7	.018	3.847
9/ 5/74	248	149.0	.020	3.656
9/ 6/74	249	151.3	.021	3.464
9/ 7/74	250	153.6	.022	3.273
9/ 8/74	251	155.9	.024	3.081
9/ 9/74	252	158.2 *	.025 *	2.890 *
9/10/74	253	151.5	.028	2.828
9/11/74	254	144.9	.030	2.766
9/12/74	255	138.2	.033	2.704
9/13/74	256	131.6	.036	2.641
9/14/74	257	124.9	.039	2.579
9/15/74	258	118.3	.041	2.517
9/16/74	259	111.6 *	.044 *	2.455
9/17/74	260	114.7	.040	2.393
9/18/74	261	117.8	.036	2.331
9/19/74	262	120.9	.032	2.269
9/20/74	263	124.0	.027	2.206
9/21/74	264	127.1	.023	2.144
9/22/74	265	130.2	.019	2.082

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2/
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	133.3 *	.015 *	2.020 *
9/24/74	267	132.7	.019	2.186
9/25/74	268	132.1	.023	2.351
9/26/74	269	131.5	.027	2.517
9/27/74	270	131.0	.031	2.683
9/28/74	271	130.4	.035	2.849
9/29/74	272	129.8	.039	3.014
9/30/74	273	129.2 *	.043 *	3.180 *
10/ 1/74	274	133.0	.040	3.060
10/ 2/74	275	136.8	.036	2.940
10/ 3/74	276	140.6	.033	2.820
10/ 4/74	277	144.3	.030	2.700
10/ 5/74	278	148.1	.027	2.580
10/ 6/74	279	151.9	.023	2.460
10/ 7/74	280	155.7 *	.020 *	2.340 *
10/ 8/74	281	155.9	.019	2.351
10/ 9/74	282	156.1	.019	2.363
10/10/74	283	156.3	.018	2.374
10/11/74	284	156.6	.018	2.386
10/12/74	285	156.8	.017	2.397
10/13/74	286	157.0	.017	2.409
10/14/74	287	157.2 *	.016 *	2.420 *
10/15/74	288	161.7	.016	2.309
10/16/74	289	166.1	.015	2.197
10/17/74	290	170.6	.015	2.086
10/18/74	291	175.1	.015	1.974
10/19/74	292	179.6	.015	1.863
10/20/74	293	184.0	.014	1.751
10/21/74	294	188.5 *	.014 *	1.640 *
10/22/74	295	190.0	.014	1.666
10/23/74	296	191.6	.013	1.693
10/24/74	297	193.1	.013	1.719
10/25/74	298	194.7	.013	1.745
10/26/74	299	196.2	.012	1.771
10/27/74	300	197.7	.012	1.797
10/28/74	301	199.3	.011	1.824
10/29/74	302	200.8 *	.011 *	1.850 *
10/30/74	303	199.8	.012	1.883
10/31/74	304	198.7	.013	1.917
11/ 1/74	305	197.7	.014	1.950
11/ 2/74	306	196.7	.015	1.983
11/ 3/74	307	195.6	.016	2.017
11/ 4/74	308	194.6 *	.017 *	2.050 *
11/ 5/74	309	188.0	.017	2.023
11/ 6/74	310	181.5	.017	1.996
11/ 7/74	311	174.9	.018	1.969
11/ 8/74	312	168.3	.018	1.941
11/ 9/74	313	161.7	.018	1.914
11/10/74	314	155.2	.018	1.887
11/11/74	315	148.6	.019	1.860
11/12/74	316	142.0	.019	1.833
11/13/74	317	135.5	.019	1.806
11/14/74	318	128.9	.019	1.779

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2/
INPUT-NODE : 10 (S-7)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	122.3	.019	1.751
11/16/74	320	115.7	.020	1.724
11/17/74	321	109.2	.020	1.697
11/18/74	322	102.6 *	.020 *	1.670 *
11/19/74	323	104.3	.033	1.703
11/20/74	324	105.9	.046	1.736
11/21/74	325	107.6	.059	1.770
11/22/74	326	109.2	.072	1.803
11/23/74	327	110.9	.085	1.836
11/24/74	328	112.5	.098	1.869
11/25/74	329	114.2	.111	1.902
11/26/74	330	115.8	.124	1.936
11/27/74	331	117.5	.137	1.969
11/28/74	332	119.1	.150	2.002
11/29/74	333	120.8	.163	2.035
11/30/74	334	122.4	.176	2.069
12/ 1/74	335	124.1	.189	2.102
12/ 2/74	336	125.7	.202 *	2.135
12/ 3/74	337	127.4	.194	2.168
12/ 4/74	338	129.0	.186	2.201
12/ 5/74	339	130.6	.178	2.235
12/ 6/74	340	132.3	.170	2.268
12/ 7/74	341	133.9	.162	2.301
12/ 8/74	342	135.6	.154	2.334
12/ 9/74	343	137.3	.146	2.367
12/10/74	344	138.9	.138	2.401
12/11/74	345	140.6	.130	2.434
12/12/74	346	142.2	.122	2.467
12/13/74	347	143.9	.114	2.500
12/14/74	348	145.5	.106	2.534
12/15/74	349	147.1	.098	2.567
12/16/74	350	148.8 *	.090 *	2.600 *
12/17/74	351	154.0	.086	2.583
12/18/74	352	159.2	.081	2.567
12/19/74	353	164.4	.077	2.550
12/20/74	354	169.7	.073	2.533
12/21/74	355	174.9	.068	2.517
12/22/74	356	180.1	.064	2.500
12/23/74	357	185.3	.060	2.483
12/24/74	358	190.5	.055	2.467
12/25/74	359	195.7	.051	2.450
12/26/74	360	200.9	.047	2.433
12/27/74	361	206.1	.042	2.417
12/28/74	362	211.4	.038	2.400
12/29/74	363	216.6	.034	2.383
12/30/74	364	221.8	.029	2.367
12/31/74	365	227.0 *	.025 *	2.350 *

CONSERVATION AREA 2
INPUT-NODE : 14 (S-10)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	176.0 *	.092 *	3.450 *
1/ 2/74	2	174.6	.088	3.344
1/ 3/74	3	173.2	.084	3.238
1/ 4/74	4	171.8	.080	3.132
1/ 5/74	5	170.4	.075	3.026
1/ 6/74	6	169.0	.071	2.920
1/ 7/74	7	167.6	.067	2.814
1/ 8/74	8	166.2	.063	2.708
1/ 9/74	9	164.8	.059	2.602
1/10/74	10	163.4	.055	2.496
1/11/74	11	162.0	.051	2.390
1/12/74	12	160.6	.047	2.284
1/13/74	13	159.2	.042	2.178
1/14/74	14	157.8	.038	2.072
1/15/74	15	156.4	.034	1.966
1/16/74	16	155.0 *	.030 *	1.860 *
1/17/74	17	155.8	.030	1.862
1/18/74	18	156.5	.029	1.864
1/19/74	19	157.3	.029	1.866
1/20/74	20	158.1	.029	1.868
1/21/74	21	158.9	.029	1.870
1/22/74	22	159.6	.028	1.872
1/23/74	23	160.4	.028	1.874
1/24/74	24	161.2	.028	1.876
1/25/74	25	161.9	.027	1.878
1/26/74	26	162.7	.027	1.880
1/27/74	27	163.5	.027	1.882
1/28/74	28	164.3	.027	1.884
1/29/74	29	165.0	.026	1.886
1/30/74	30	165.8	.026	1.888
1/31/74	31	166.6	.026	1.890
2/ 1/74	32	167.3	.025	1.892
2/ 2/74	33	168.1	.025	1.894
2/ 3/74	34	168.9	.025	1.896
2/ 4/74	35	169.7	.025	1.898
2/ 5/74	36	170.4	.024	1.900
2/ 6/74	37	171.2	.024	1.902
2/ 7/74	38	172.0	.024	1.904
2/ 8/74	39	172.7	.023	1.906
2/ 9/74	40	173.5	.023	1.908
2/10/74	41	174.3	.023	1.910
2/11/74	42	175.1	.023	1.912
2/12/74	43	175.8	.022	1.914
2/13/74	44	176.6	.022	1.916
2/14/74	45	177.4	.022	1.918
2/15/74	46	178.1	.021	1.920
2/16/74	47	178.9	.021	1.922
2/17/74	48	179.7	.021	1.924
2/18/74	49	180.5	.021	1.926
2/19/74	50	181.2	.020	1.928
2/20/74	51	182.0 *	.020 *	1.930 *
2/21/74	52	182.7	.020	1.910
2/22/74	53	183.5	.020	1.890

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2
INPUT-NODE : 14 (S-16)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	184.2	.020	1.870
2/24/74	55	184.9	.020	1.850
2/25/74	56	185.7	.020	1.830
2/26/74	57	186.4	.020	1.810
2/27/74	58	187.2	.020	1.790
2/28/74	59	187.9	.020	1.770
3/ 1/74	60	188.6	.020	1.750
3/ 2/74	61	189.4	.020	1.730
3/ 3/74	62	190.1	.020	1.710
3/ 4/74	63	190.8	.020	1.690
3/ 5/74	64	191.6	.020	1.670
3/ 6/74	65	192.3	.020	1.650
3/ 7/74	66	193.1	.020	1.630
3/ 8/74	67	193.8	.020	1.610
3/ 9/74	68	194.5	.020	1.590
3/10/74	69	195.3	.020	1.570
3/11/74	70	196.0 *	.020 *	1.550 *
3/12/74	71	196.4	.020	1.566
3/13/74	72	196.8	.019	1.582
3/14/74	73	197.2	.019	1.598
3/15/74	74	197.6	.019	1.614
3/16/74	75	197.9	.019	1.631
3/17/74	76	198.3	.018	1.647
3/18/74	77	198.7	.018	1.663
3/19/74	78	199.1	.018	1.679
3/20/74	79	199.5	.018	1.695
3/21/74	80	199.9	.017	1.711
3/22/74	81	200.3	.017	1.727
3/23/74	82	200.7	.017	1.743
3/24/74	83	201.1	.016	1.759
3/25/74	84	201.4	.016	1.776
3/26/74	85	201.8	.016	1.792
3/27/74	86	202.2	.016	1.808
3/28/74	87	202.6	.015	1.824
3/29/74	88	203.0	.015	1.840
3/30/74	89	203.4	.015	1.856
3/31/74	90	203.8	.014	1.872
4/ 1/74	91	204.2	.014	1.888
4/ 2/74	92	204.6	.014	1.904
4/ 3/74	93	204.9	.014	1.921
4/ 4/74	94	205.3	.013	1.937
4/ 5/74	95	205.7	.013	1.953
4/ 6/74	96	206.1	.013	1.969
4/ 7/74	97	206.5	.013	1.985
4/ 8/74	98	206.9	.012	2.001
4/ 9/74	99	207.3	.012	2.017
4/10/74	100	207.7	.012	2.033
4/11/74	101	208.1	.011	2.049
4/12/74	102	208.4	.011	2.066
4/13/74	103	208.8	.011	2.082
4/14/74	104	209.2	.011	2.098
4/15/74	105	209.6	.010	2.114
4/16/74	106	210.0 *	.010 *	2.130 *

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION APEA 2
INPUT-NODE : 14 (S-10)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	209.5	.010	2.128
4/18/74	108	209.1	.011	2.127
4/19/74	109	208.6	.011	2.125
4/20/74	110	208.2	.011	2.124
4/21/74	111	207.7	.012	2.122
4/22/74	112	207.3	.012	2.120
4/23/74	113	206.8	.012	2.119
4/24/74	114	206.4	.013	2.117
4/25/74	115	205.9	.013	2.115
4/26/74	116	205.5	.013	2.114
4/27/74	117	205.0	.014	2.112
4/28/74	118	204.6	.014	2.111
4/29/74	119	204.1	.014	2.109
4/30/74	120	203.7	.015	2.107
5/ 1/74	121	203.2	.015	2.106
5/ 2/74	122	202.8	.015	2.104
5/ 3/74	123	202.3	.015	2.103
5/ 4/74	124	201.9	.016	2.101
5/ 5/74	125	201.4	.016	2.099
5/ 6/74	126	201.0	.016	2.098
5/ 7/74	127	200.5	.017	2.096
5/ 8/74	128	200.1	.017	2.095
5/ 9/74	129	199.6	.017	2.093
5/10/74	130	199.2	.018	2.091
5/11/74	131	198.7	.018	2.090
5/12/74	132	198.3	.018	2.088
5/13/74	133	197.8	.019	2.086
5/14/74	134	197.4	.019	2.085
5/15/74	135	196.9	.019	2.083
5/16/74	136	196.5	.020	2.082
5/17/74	137	196.0 *	.020 *	2.080 *
5/18/74	138	195.7	.020	2.076
5/19/74	139	195.3	.020	2.072
5/20/74	140	195.0	.020	2.069
5/21/74	141	194.7	.020	2.065
5/22/74	142	194.3	.020	2.061
5/23/74	143	194.0	.020	2.057
5/24/74	144	193.7	.020	2.053
5/25/74	145	193.3	.020	2.050
5/26/74	146	193.0	.020	2.046
5/27/74	147	192.7	.020	2.042
5/28/74	148	192.3	.020	2.038
5/29/74	149	192.0	.020	2.034
5/30/74	150	191.7	.020	2.030
5/31/74	151	191.3	.020	2.027
6/ 1/74	152	191.0	.020	2.023
6/ 2/74	153	190.7	.020	2.019
6/ 3/74	154	190.3	.020	2.015
6/ 4/74	155	190.0	.020	2.011
6/ 5/74	156	189.7	.020	2.008
6/ 6/74	157	189.3	.020	2.004
6/ 7/74	158	189.0 *	.020 *	2.000 *
6/ 8/74	159	188.8	.021	1.995

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2/
INPUT-NODE : 14 (S-16)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	188.7	.022	1.991
6/10/74	161	188.5	.022	1.986
6/11/74	162	188.4	.023	1.982
6/12/74	163	188.2	.024	1.977
6/13/74	164	188.1	.025	1.972
6/14/74	165	187.9	.025	1.968
6/15/74	166	187.8	.026	1.963
6/16/74	167	187.6	.027	1.958
6/17/74	168	187.5	.028	1.954
6/18/74	169	187.3	.028	1.949
6/19/74	170	187.2	.029	1.945
6/20/74	171	187.0	.030	1.940
6/21/74	172	186.8	.031	1.935
6/22/74	173	186.7	.032	1.931
6/23/74	174	186.5	.032	1.926
6/24/74	175	186.4	.033	1.922
6/25/74	176	186.2	.034	1.917
6/26/74	177	186.1	.035	1.912
6/27/74	178	185.9	.035	1.908
6/28/74	179	185.8	.036	1.903
6/29/74	180	185.6	.037	1.898
6/30/74	181	185.5	.038	1.894
7/ 1/74	182	185.3	.038	1.889
7/ 2/74	183	185.2	.039	1.885
7/ 3/74	184	185.0	.040	1.880
7/ 4/74	185	184.8	.041	1.875
7/ 5/74	186	184.7	.042	1.871
7/ 6/74	187	184.5	.042	1.866
7/ 7/74	188	184.4	.043	1.862
7/ 8/74	189	184.2	.044	1.857
7/ 9/74	190	184.1	.045	1.852
7/10/74	191	183.9	.045	1.848
7/11/74	192	183.8	.046	1.843
7/12/74	193	183.6	.047	1.838
7/13/74	194	183.5	.048	1.834
7/14/74	195	183.3	.048	1.829
7/15/74	196	183.2	.049	1.825
7/16/74	197	183.0 *	.050 *	1.820 *
7/17/74	198	183.2	.051	1.844
7/18/74	199	183.4	.052	1.868
7/19/74	200	183.5	.053	1.892
7/20/74	201	183.7	.054	1.916
7/21/74	202	183.9	.055	1.940
7/22/74	203	184.1	.055	1.964
7/23/74	204	184.3	.056	1.988
7/24/74	205	184.5	.057	2.012
7/25/74	206	184.6	.058	2.035
7/26/74	207	184.8	.059	2.059
7/27/74	208	185.0	.060	2.083
7/28/74	209	185.2	.061	2.107
7/29/74	210	185.4	.062	2.131
7/30/74	211	185.5	.063	2.155
7/31/74	212	185.7	.064	2.179

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2
INPUT-NODE : 14 (S-10)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	185.9	.065	2.203
8/ 2/74	214	186.1	.065	2.227
8/ 3/74	215	186.3	.066	2.251
8/ 4/74	216	186.5	.067	2.275
8/ 5/74	217	186.6	.068	2.299
8/ 6/74	218	186.8	.069	2.323
8/ 7/74	219	187.0	.070	2.347
8/ 8/74	220	187.2	.071	2.371
8/ 9/74	221	187.4	.072	2.395
8/10/74	222	187.5	.073	2.418
8/11/74	223	187.7	.074	2.442
8/12/74	224	187.9	.075	2.466
8/13/74	225	188.1	.075	2.490
8/14/74	226	188.3	.076	2.514
8/15/74	227	188.5	.077	2.538
8/16/74	228	188.6	.078	2.562
8/17/74	229	188.8	.079	2.586
8/18/74	230	189.0 *	.080 *	2.610 *
8/19/74	231	186.5	.077	2.659
8/20/74	232	184.0	.075	2.707
8/21/74	233	181.5	.072	2.756
8/22/74	234	179.0	.069	2.804
8/23/74	235	176.5	.066	2.853
8/24/74	236	174.0	.064	2.901
8/25/74	237	171.5	.061	2.950
8/26/74	238	169.0	.058	2.999
8/27/74	239	166.5	.056	3.047
8/28/74	240	164.0	.053	3.096
8/29/74	241	161.5	.050	3.144
8/30/74	242	159.0	.047	3.193
8/31/74	243	156.5	.045	3.241
9/ 1/74	244	154.0 *	.042 *	3.290 *
9/ 2/74	245	154.0	.042	3.290
9/ 3/74	246	154.0	.042	3.290
9/ 4/74	247	154.0	.042	3.290
9/ 5/74	248	154.0	.042	3.290
9/ 6/74	249	154.0	.042	3.290
9/ 7/74	250	154.0	.042	3.290
9/ 8/74	251	154.0	.042	3.290
9/ 9/74	252	154.0	.042	3.290
9/10/74	253	154.0	.042	3.290
9/11/74	254	154.0	.042	3.290
9/12/74	255	154.0	.042	3.290
9/13/74	256	154.0	.042	3.290
9/14/74	257	154.0	.042	3.290
9/15/74	258	154.0	.042	3.290
9/16/74	259	154.0	.042	3.290
9/17/74	260	154.0	.042	3.290
9/18/74	261	154.0	.042	3.290
9/19/74	262	154.0	.042	3.290
9/20/74	263	154.0	.042	3.290
9/21/74	264	154.0	.042	3.290
9/22/74	265	154.0	.042	3.290

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2I
INPUT-NODE : 14 (S-10)

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	154.0	.042	3.290
9/24/74	267	154.0	.042	3.290
9/25/74	268	154.0	.042	3.290
9/26/74	269	154.0	.042	3.290
9/27/74	270	154.0	.042	3.290
9/28/74	271	154.0	.042	3.290
9/29/74	272	154.0	.042	3.290
9/30/74	273	154.0 *	.042 *	3.290 *
10/ 1/74	274	148.1	.041	3.219
10/ 2/74	275	142.1	.040	3.147
10/ 3/74	276	136.2	.040	3.076
10/ 4/74	277	130.3	.039	3.005
10/ 5/74	278	124.3	.038	2.933
10/ 6/74	279	118.4	.037	2.862
10/ 7/74	280	112.5	.036	2.791
10/ 8/74	281	106.5	.036	2.719
10/ 9/74	282	100.6	.035	2.648
10/10/74	283	94.7	.034	2.577
10/11/74	284	88.7	.033	2.505
10/12/74	285	82.8	.032	2.434
10/13/74	286	76.9	.032	2.363
10/14/74	287	70.9	.031	2.291
10/15/74	288	65.0 *	.030 *	2.220 *
10/16/74	289	65.0	.030	2.229
10/17/74	290	65.0	.030	2.239
10/18/74	291	65.0	.030	2.248
10/19/74	292	65.0	.030	2.257
10/20/74	293	65.0	.030	2.266
10/21/74	294	65.0	.030	2.276
10/22/74	295	65.0	.030	2.285
10/23/74	296	65.0	.030	2.294
10/24/74	297	65.0	.030	2.304
10/25/74	298	65.0	.030	2.313
10/26/74	299	65.0	.030	2.322
10/27/74	300	65.0	.030	2.331
10/28/74	301	65.0	.030	2.341
10/29/74	302	65.0	.030	2.350
10/30/74	303	65.0	.030	2.359
10/31/74	304	65.0	.030	2.369
11/ 1/74	305	65.0	.030	2.378
11/ 2/74	306	65.0	.030	2.387
11/ 3/74	307	65.0	.030	2.396
11/ 4/74	308	65.0	.030	2.406
11/ 5/74	309	65.0	.030	2.415
11/ 6/74	310	65.0	.030	2.424
11/ 7/74	311	65.0	.030	2.434
11/ 8/74	312	65.0	.030	2.443
11/ 9/74	313	65.0	.030	2.452
11/10/74	314	65.0	.030	2.461
11/11/74	315	65.0	.030	2.471
11/12/74	316	65.0 *	.030	2.480 *
11/13/74	317	65.0	.030	2.480
11/14/74	318	65.0	.030	2.480

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 2A
INPUT-NODE : 10 (S-10)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	65.0	.030	2.480
11/16/74	320	65.0	.030	2.480
11/17/74	321	65.0	.030	2.480
11/18/74	322	65.0	.030	2.480
11/19/74	323	65.0	.030	2.480
11/20/74	324	65.0	.030	2.480
11/21/74	325	65.0	.030	2.480
11/22/74	326	65.0	.030	2.480
11/23/74	327	65.0	.030	2.480
11/24/74	328	65.0	.030	2.480
11/25/74	329	65.0	.030	2.480
11/26/74	330	65.0	.030	2.480
11/27/74	331	65.0	.030	2.480
11/28/74	332	65.0	.030	2.480
11/29/74	333	65.0	.030	2.480
11/30/74	334	65.0	.030	2.480
12/ 1/74	335	65.0	.030	2.480
12/ 2/74	336	65.0	.030	2.480
12/ 3/74	337	65.0	.030	2.480
12/ 4/74	338	65.0	.030	2.480
12/ 5/74	339	65.0	.030	2.480
12/ 6/74	340	65.0	.030	2.480
12/ 7/74	341	65.0	.030	2.480
12/ 8/74	342	65.0	.030	2.480
12/ 9/74	343	65.0	.030	2.480
12/10/74	344	65.0	.030	2.480
12/11/74	345	65.0	.030	2.480
12/12/74	346	65.0	.030	2.480
12/13/74	347	65.0	.030	2.480
12/14/74	348	65.0	.030	2.480
12/15/74	349	65.0	.030	2.480
12/16/74	350	65.0	.030	2.480
12/17/74	351	65.0	.030	2.480
12/18/74	352	65.0	.030	2.480
12/19/74	353	65.0	.030	2.480
12/20/74	354	65.0	.030	2.480
12/21/74	355	65.0	.030	2.480
12/22/74	356	65.0	.030	2.480
12/23/74	357	65.0	.030	2.480
12/24/74	358	65.0	.030	2.480
12/25/74	359	65.0	.030	2.480
12/26/74	360	65.0	.030	2.480
12/27/74	361	65.0	.030	2.480
12/28/74	362	65.0	.030	2.480
12/29/74	363	65.0	.030	2.480
12/30/74	364	65.0	.030	2.480
12/31/74	365	65.0	.030	2.480

CONSERVATION AREA 3
INPUT-MODE : 16 (L-37 .

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	49.0	.027	2.000
1/ 2/74	2	49.0	.027	2.000
1/ 3/74	3	49.0	.027	2.000
1/ 4/74	4	49.0	.027	2.000
1/ 5/74	5	49.0	.027	2.000
1/ 6/74	6	49.0	.027	2.000
1/ 7/74	7	49.0	.027	2.000
1/ 8/74	8	49.0 *	.027 *	2.000 *
1/ 9/74	9	50.3	.027	1.996
1/10/74	10	51.6	.026	1.993
1/11/74	11	52.9	.026	1.989
1/12/74	12	54.2	.026	1.985
1/13/74	13	55.6	.026	1.982
1/14/74	14	56.9	.025	1.978
1/15/74	15	58.2	.025	1.974
1/16/74	16	59.5	.025	1.971
1/17/74	17	60.8	.025	1.967
1/18/74	18	62.1	.024	1.963
1/19/74	19	63.4	.024	1.959
1/20/74	20	64.7	.024	1.956
1/21/74	21	66.0	.024	1.952
1/22/74	22	67.3	.023	1.948
1/23/74	23	68.7	.023	1.945
1/24/74	24	70.0	.023	1.941
1/25/74	25	71.3	.023	1.937
1/26/74	26	72.6	.022	1.934
1/27/74	27	73.9	.022	1.930
1/28/74	28	75.2	.022	1.926
1/29/74	29	76.5	.021	1.923
1/30/74	30	77.8	.021	1.919
1/31/74	31	79.1	.021	1.915
2/ 1/74	32	80.5	.021	1.912
2/ 2/74	33	81.8	.020	1.908
2/ 3/74	34	83.1	.020	1.904
2/ 4/74	35	84.4	.020	1.901
2/ 5/74	36	85.7	.020	1.897
2/ 6/74	37	87.0	.019	1.893
2/ 7/74	38	88.3	.019	1.889
2/ 8/74	39	89.6	.019	1.886
2/ 9/74	40	90.9	.019	1.882
2/10/74	41	92.2	.018	1.878
2/11/74	42	93.6	.018	1.875
2/12/74	43	94.9	.018	1.871
2/13/74	44	96.2	.018	1.867
2/14/74	45	97.5	.017	1.864
2/15/74	46	98.8 *	.017 *	1.860 *
2/16/74	47	96.9	.017	1.846
2/17/74	48	95.0	.018	1.831
2/18/74	49	93.2	.018	1.817
2/19/74	50	91.3	.018	1.802
2/20/74	51	89.4	.019	1.788
2/21/74	52	87.5	.019	1.773
2/22/74	53	85.7	.019	1.759

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-CODE : 16 (L-3/+)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	83.8	.020	1.744
2/24/74	55	81.9	.020	1.730
2/25/74	56	80.0	.020	1.716
2/26/74	57	78.1	.021	1.701
2/27/74	58	76.3	.021	1.687
2/28/74	59	74.4	.021	1.672
3/ 1/74	60	72.5	.022	1.658
3/ 2/74	61	70.6	.022	1.643
3/ 3/74	62	68.8	.022	1.629
3/ 4/74	63	66.9	.023	1.614
3/ 5/74	64	65.0	.023	1.600
3/ 6/74	65	63.1	.023	1.586
3/ 7/74	66	61.2	.024	1.571
3/ 8/74	67	59.4	.024	1.557
3/ 9/74	68	57.5	.024	1.542
3/10/74	69	55.6	.025	1.528
3/11/74	70	53.7	.025	1.513
3/12/74	71	51.9	.025	1.499
3/13/74	72	50.0	.026	1.484
3/14/74	73	48.1 *	.026 *	1.470 *
3/15/74	74	48.4	.026	1.473
3/16/74	75	48.6	.026	1.476
3/17/74	76	48.9	.026	1.480
3/18/74	77	49.1	.025	1.483
3/19/74	78	49.4	.025	1.486
3/20/74	79	49.6	.025	1.489
3/21/74	80	49.9	.025	1.492
3/22/74	81	50.2	.025	1.496
3/23/74	82	50.4	.025	1.499
3/24/74	83	50.7	.025	1.502
3/25/74	84	50.9	.024	1.505
3/26/74	85	51.2	.024	1.509
3/27/74	86	51.4	.024	1.512
3/28/74	87	51.7	.024	1.515
3/29/74	88	52.0	.024	1.518
3/30/74	89	52.2	.024	1.521
3/31/74	90	52.5	.024	1.525
4/ 1/74	91	52.7	.023	1.528
4/ 2/74	92	53.0	.023	1.531
4/ 3/74	93	53.2	.023	1.534
4/ 4/74	94	53.5	.023	1.538
4/ 5/74	95	53.8	.023	1.541
4/ 6/74	96	54.0	.023	1.544
4/ 7/74	97	54.3	.023	1.547
4/ 8/74	98	54.5	.022	1.550
4/ 9/74	99	54.8	.022	1.554
4/10/74	100	55.0	.022	1.557
4/11/74	101	55.3 *	.022 *	1.560 *
4/12/74	102	55.2	.022	1.566
4/13/74	103	55.1	.022	1.572
4/14/74	104	55.0	.022	1.578
4/15/74	105	54.9	.023	1.584
4/16/74	106	54.8	.023	1.591

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 16 (L-37)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	54.8	.023	1.597
4/18/74	108	54.7	.023	1.603
4/19/74	109	54.6	.023	1.609
4/20/74	110	54.5	.023	1.615
4/21/74	111	54.4	.023	1.621
4/22/74	112	54.3	.024	1.627
4/23/74	113	54.2	.024	1.633
4/24/74	114	54.1	.024	1.639
4/25/74	115	54.0	.024	1.646
4/26/74	116	53.9	.024	1.652
4/27/74	117	53.8	.024	1.658
4/28/74	118	53.7	.024	1.664
4/29/74	119	53.7	.024	1.670
4/30/74	120	53.6	.025	1.676
5/ 1/74	121	53.5	.025	1.682
5/ 2/74	122	53.4	.025	1.688
5/ 3/74	123	53.3	.025	1.694
5/ 4/74	124	53.2	.025	1.701
5/ 5/74	125	53.1	.025	1.707
5/ 6/74	126	53.0	.025	1.713
5/ 7/74	127	52.9	.026	1.719
5/ 8/74	128	52.8	.026	1.725
5/ 9/74	129	52.7	.026	1.731
5/10/74	130	52.6	.026	1.737
5/11/74	131	52.5	.026	1.743
5/12/74	132	52.5	.026	1.749
5/13/74	133	52.4	.026	1.756
5/14/74	134	52.3	.027	1.762
5/15/74	135	52.2	.027	1.768
5/16/74	136	52.1	.027	1.774
5/17/74	137	52.0 *	.027 *	1.780 *
5/18/74	138	51.8	.027	1.762
5/19/74	139	51.6	.027	1.744
5/20/74	140	51.4	.026	1.726
5/21/74	141	51.2	.026	1.709
5/22/74	142	51.0	.026	1.691
5/23/74	143	50.8	.026	1.673
5/24/74	144	50.7	.026	1.655
5/25/74	145	50.5	.026	1.637
5/26/74	146	50.3	.025	1.619
5/27/74	147	50.1	.025	1.601
5/28/74	148	49.9	.025	1.584
5/29/74	149	49.7	.025	1.566
5/30/74	150	49.5	.025	1.548
5/31/74	151	49.3	.024	1.530
6/ 1/74	152	49.1	.024	1.512
6/ 2/74	153	48.9	.024	1.494
6/ 3/74	154	48.7	.024	1.476
6/ 4/74	155	48.5	.024	1.459
6/ 5/74	156	48.3	.024	1.441
6/ 6/74	157	48.1	.023	1.423
6/ 7/74	158	48.0	.023	1.405
6/ 8/74	159	47.8	.023	1.387

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 16 (L-3.)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	47.6	.023	1.369
6/10/74	161	47.4	.023	1.351
6/11/74	162	47.2	.023	1.334
6/12/74	163	47.0	.022	1.316
6/13/74	164	46.8	.022	1.298
6/14/74	165	46.6 *	.022 *	1.280 *
6/15/74	166	45.8	.033	1.275
6/16/74	167	45.0	.044	1.270
6/17/74	168	44.2	.055	1.265
6/18/74	169	43.4	.066	1.259
6/19/74	170	42.5	.077	1.254
6/20/74	171	41.7	.088	1.249
6/21/74	172	40.9	.099	1.244
6/22/74	173	40.1	.110	1.239
6/23/74	174	39.3	.121	1.234
6/24/74	175	38.5	.132	1.228
6/25/74	176	37.7	.143	1.223
6/26/74	177	36.9	.154	1.218
6/27/74	178	36.0	.165	1.213
6/28/74	179	35.2	.176	1.208
6/29/74	180	34.4	.187	1.203
6/30/74	181	33.6	.198	1.198
7/ 1/74	182	32.8	.208	1.192
7/ 2/74	183	32.0	.219	1.187
7/ 3/74	184	31.2	.230	1.182
7/ 4/74	185	30.4	.241	1.177
7/ 5/74	186	29.5	.252	1.172
7/ 6/74	187	28.7	.263	1.167
7/ 7/74	188	27.9	.274	1.162
7/ 8/74	189	27.1	.285	1.156
7/ 9/74	190	26.3	.296	1.151
7/10/74	191	25.5	.307	1.146
7/11/74	192	24.7	.318	1.141
7/12/74	193	23.9	.329	1.136
7/13/74	194	23.0	.340	1.131
7/14/74	195	22.2	.351	1.125
7/15/74	196	21.4	.362	1.120
7/16/74	197	20.6	.373	1.115
7/17/74	198	19.8 *	.384 *	1.110 *
7/18/74	199	19.7	.376	1.114
7/19/74	200	19.6	.368	1.117
7/20/74	201	19.5	.360	1.121
7/21/74	202	19.3	.351	1.125
7/22/74	203	19.2	.343	1.128
7/23/74	204	19.1	.335	1.132
7/24/74	205	19.0	.327	1.136
7/25/74	206	18.9	.319	1.140
7/26/74	207	18.8	.311	1.143
7/27/74	208	18.7	.302	1.147
7/28/74	209	18.6	.294	1.151
7/29/74	210	18.4	.286	1.154
7/30/74	211	18.3	.278	1.158
7/31/74	212	18.2	.270	1.162

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 16 (L-3)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	18.1	.262	1.165
8/ 2/74	214	18.0	.253	1.169
8/ 3/74	215	17.9	.245	1.173
8/ 4/74	216	17.8	.237	1.177
8/ 5/74	217	17.6	.229	1.180
8/ 6/74	218	17.5	.221	1.184
8/ 7/74	219	17.4	.213	1.188
8/ 8/74	220	17.3	.205	1.191
8/ 9/74	221	17.2	.196	1.195
8/10/74	222	17.1	.188	1.199
8/11/74	223	17.0	.180	1.202
8/12/74	224	16.8	.172	1.206
8/13/74	225	16.7	.164	1.210
8/14/74	226	16.6	.156	1.213
8/15/74	227	16.5	.147	1.217
8/16/74	228	16.4	.139	1.221
8/17/74	229	16.3	.131	1.225
8/18/74	230	16.2	.123	1.228
8/19/74	231	16.1	.115	1.232
8/20/74	232	15.9	.107	1.236
8/21/74	233	15.8	.098	1.239
8/22/74	234	15.7	.090	1.243
8/23/74	235	15.6	.082	1.247
8/24/74	236	15.5	.074	1.250
8/25/74	237	15.4	.066	1.254
8/26/74	238	15.3	.058	1.258
8/27/74	239	15.1	.049	1.262
8/28/74	240	15.0	.041	1.265
8/29/74	241	14.9	.033	1.269
8/30/74	242	14.8 *	.025 *	1.273
8/31/74	243	20.9	.061	1.276
9/ 1/74	244	26.9 *	.096 *	1.280 *
9/ 2/74	245	26.9	.096	1.280
9/ 3/74	246	26.9	.096	1.280
9/ 4/74	247	26.9	.096	1.280
9/ 5/74	248	26.9	.096	1.280
9/ 6/74	249	26.9	.096	1.280
9/ 7/74	250	26.9	.096	1.280
9/ 8/74	251	26.9	.096	1.280
9/ 9/74	252	26.9	.096	1.280
9/10/74	253	26.9	.096	1.280
9/11/74	254	26.9	.096	1.280
9/12/74	255	26.9	.096	1.280
9/13/74	256	26.9	.096	1.280
9/14/74	257	26.9	.096	1.280
9/15/74	258	26.9	.096	1.280
9/16/74	259	26.9	.096	1.280
9/17/74	260	26.9	.096	1.280
9/18/74	261	26.9	.096	1.280
9/19/74	262	26.9	.096	1.280
9/20/74	263	26.9	.096	1.280
9/21/74	264	26.9	.096	1.280
9/22/74	265	26.9	.096	1.280

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3

INPUT-NODE : 16 (L-3)

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	26.9	.096	1.280
9/24/74	267	26.9	.096	1.280
9/25/74	268	26.9	.096	1.280
9/26/74	269	26.9	.096	1.280
9/27/74	270	26.9	.096	1.280
9/28/74	271	26.9	.096	1.280
9/29/74	272	26.9	.096	1.280
9/30/74	273	26.9 *	.096 *	1.280 *
10/ 1/74	274	36.0 *	.072 *	1.450 *
10/ 2/74	275	36.0	.072	1.450
10/ 3/74	276	36.0	.072	1.450
10/ 4/74	277	36.0	.072	1.450
10/ 5/74	278	36.0	.072	1.450
10/ 6/74	279	36.0	.072	1.450
10/ 7/74	280	36.0	.072	1.450
10/ 8/74	281	36.0	.072	1.450
10/ 9/74	282	36.0	.072	1.450
10/10/74	283	36.0	.072	1.450
10/11/74	284	36.0	.072	1.450
10/12/74	285	36.0	.072	1.450
10/13/74	286	36.0	.072	1.450
10/14/74	287	36.0	.072	1.450
10/15/74	288	36.0	.072	1.450
10/16/74	289	36.0	.072	1.450
10/17/74	290	36.0	.072	1.450
10/18/74	291	36.0	.072	1.450
10/19/74	292	36.0	.072	1.450
10/20/74	293	36.0	.072	1.450
10/21/74	294	36.0	.072	1.450
10/22/74	295	36.0	.072	1.450
10/23/74	296	36.0	.072	1.450
10/24/74	297	36.0	.072	1.450
10/25/74	298	36.0	.072	1.450
10/26/74	299	36.0	.072	1.450
10/27/74	300	36.0	.072	1.450
10/28/74	301	36.0	.072	1.450
10/29/74	302	36.0	.072	1.450
10/30/74	303	36.0	.072	1.450
10/31/74	304	36.0	.072 *	1.450 *
11/ 1/74	305	36.0	.070	1.476
11/ 2/74	306	36.0	.069	1.502
11/ 3/74	307	36.0	.067	1.527
11/ 4/74	308	36.0	.066	1.553
11/ 5/74	309	36.0	.064	1.579
11/ 6/74	310	36.0	.062	1.605
11/ 7/74	311	36.0	.061	1.631
11/ 8/74	312	36.0	.059	1.656
11/ 9/74	313	36.0	.057	1.682
11/10/74	314	36.0	.056	1.708
11/11/74	315	36.0	.054	1.734
11/12/74	316	36.0	.053	1.760
11/13/74	317	36.0	.051	1.785
11/14/74	318	36.0	.049	1.811

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 16 (L-3)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	36.0	.048	1.837
11/16/74	320	36.0	.046	1.863
11/17/74	321	36.0	.045	1.889
11/18/74	322	36.0	.043	1.915
11/19/74	323	36.0	.041	1.940
11/20/74	324	36.0	.040	1.966
11/21/74	325	36.0	.038	1.992
11/22/74	326	36.0	.037	2.018
11/23/74	327	36.0	.035	2.044
11/24/74	328	36.0	.033	2.069
11/25/74	329	36.0	.032	2.095
11/26/74	330	36.0	.030	2.121
11/27/74	331	36.0	.028	2.147
11/28/74	332	36.0	.027	2.173
11/29/74	333	36.0	.025	2.198
11/30/74	334	36.0	.024	2.224
12/ 1/74	335	36.0	.022 *	2.250 *
12/ 2/74	336	36.0	.022	2.250
12/ 3/74	337	36.0	.022	2.250
12/ 4/74	338	36.0	.022	2.250
12/ 5/74	339	36.0	.022	2.250
12/ 6/74	340	36.0	.022	2.250
12/ 7/74	341	36.0	.022	2.250
12/ 8/74	342	36.0	.022	2.250
12/ 9/74	343	36.0	.022	2.250
12/10/74	344	36.0	.022	2.250
12/11/74	345	36.0	.022	2.250
12/12/74	346	36.0	.022	2.250
12/13/74	347	36.0	.022	2.250
12/14/74	348	36.0	.022	2.250
12/15/74	349	36.0	.022	2.250
12/16/74	350	36.0	.022	2.250
12/17/74	351	36.0	.022	2.250
12/18/74	352	36.0	.022	2.250
12/19/74	353	36.0	.022	2.250
12/20/74	354	36.0	.022	2.250
12/21/74	355	36.0	.022	2.250
12/22/74	356	36.0	.022	2.250
12/23/74	357	36.0	.022	2.250
12/24/74	358	36.0	.022	2.250
12/25/74	359	36.0	.022	2.250
12/26/74	360	36.0	.022	2.250
12/27/74	361	36.0	.022	2.250
12/28/74	362	36.0	.022	2.250
12/29/74	363	36.0	.022	2.250
12/30/74	364	36.0	.022	2.250
12/31/74	365	36.0	.022	2.250

CONSERVATION AREA 3
INPUT-NODE : 18 (S-14)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	50.0 *	.090 *	1.860 *
1/ 2/74	2	50.0	.086	1.827
1/ 3/74	3	50.0	.083	1.794
1/ 4/74	4	50.0	.079	1.761
1/ 5/74	5	50.0	.076	1.728
1/ 6/74	6	50.0	.073	1.695
1/ 7/74	7	50.0	.069	1.662
1/ 8/74	8	50.0	.066	1.629
1/ 9/74	9	50.0	.062	1.596
1/10/74	10	50.0	.058	1.563
1/11/74	11	50.0	.055	1.530
1/12/74	12	50.0	.051	1.497
1/13/74	13	50.0	.048	1.464
1/14/74	14	50.0	.044	1.431
1/15/74	15	50.0	.041	1.398
1/16/74	16	50.0	.038	1.365
1/17/74	17	50.0	.034	1.332
1/18/74	18	50.0	.030	1.299
1/19/74	19	50.0	.027	1.266
1/20/74	20	50.0	.023	1.233
1/21/74	21	50.0	.020 *	1.200 *
1/22/74	22	50.0	.021	1.215
1/23/74	23	50.0	.022	1.231
1/24/74	24	50.0	.023	1.246
1/25/74	25	50.0	.023	1.262
1/26/74	26	50.0	.024	1.277
1/27/74	27	50.0	.025	1.293
1/28/74	28	50.0	.026	1.308
1/29/74	29	50.0	.027	1.323
1/30/74	30	50.0	.028	1.339
1/31/74	31	50.0	.028	1.354
2/ 1/74	32	50.0	.029	1.370
2/ 2/74	33	50.0	.030	1.385
2/ 3/74	34	50.0	.031	1.400
2/ 4/74	35	50.0	.032	1.416
2/ 5/74	36	50.0	.033	1.431
2/ 6/74	37	50.0	.033	1.447
2/ 7/74	38	50.0	.034	1.462
2/ 8/74	39	50.0	.035	1.478
2/ 9/74	40	50.0	.036	1.493
2/10/74	41	50.0	.037	1.508
2/11/74	42	50.0	.038	1.524
2/12/74	43	50.0	.038	1.539
2/13/74	44	50.0	.039	1.555
2/14/74	45	50.0	.040 *	1.570 *
2/15/74	46	50.0	.039	1.554
2/16/74	47	50.0	.039	1.538
2/17/74	48	50.0	.038	1.521
2/18/74	49	50.0	.037	1.505
2/19/74	50	50.0	.037	1.489
2/20/74	51	50.0	.036	1.473
2/21/74	52	50.0	.035	1.457
2/22/74	53	50.0	.034	1.440

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : 18 (S-1)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	50.0	.034	1.424
2/24/74	55	50.0	.033	1.408
2/25/74	56	50.0	.032	1.392
2/26/74	57	50.0	.032	1.376
2/27/74	58	50.0	.031	1.359
2/28/74	59	50.0	.030	1.343
3/ 1/74	60	50.0	.030	1.327
3/ 2/74	61	50.0	.029	1.311
3/ 3/74	62	50.0	.028	1.294
3/ 4/74	63	50.0	.028	1.278
3/ 5/74	64	50.0	.027	1.262
3/ 6/74	65	50.0	.026	1.246
3/ 7/74	66	50.0	.026	1.230
3/ 8/74	67	50.0	.025	1.213
3/ 9/74	68	50.0	.024	1.197
3/10/74	69	50.0	.023	1.181
3/11/74	70	50.0	.023	1.165
3/12/74	71	50.0	.022	1.149
3/13/74	72	50.0	.021	1.132
3/14/74	73	50.0	.021	1.116
3/15/74	74	50.0	.020 *	1.100 *
3/16/74	75	50.0	.020	1.118
3/17/74	76	50.0	.020	1.136
3/18/74	77	50.0	.020	1.154
3/19/74	78	50.0	.020	1.172
3/20/74	79	50.0	.020	1.190
3/21/74	80	50.0	.020	1.208
3/22/74	81	50.0	.020	1.226
3/23/74	82	50.0	.020	1.244
3/24/74	83	50.0	.020	1.262
3/25/74	84	50.0	.020	1.280
3/26/74	85	50.0	.020	1.298
3/27/74	86	50.0	.020	1.316
3/28/74	87	50.0	.020	1.334
3/29/74	88	50.0	.020	1.352
3/30/74	89	50.0	.020	1.370
3/31/74	90	50.0	.020	1.388
4/ 1/74	91	50.0	.020	1.406
4/ 2/74	92	50.0	.020	1.424
4/ 3/74	93	50.0	.020	1.442
4/ 4/74	94	50.0	.020	1.460
4/ 5/74	95	50.0	.020	1.478
4/ 6/74	96	50.0	.020	1.496
4/ 7/74	97	50.0	.020	1.514
4/ 8/74	98	50.0	.020	1.532
4/ 9/74	99	50.0	.020	1.550
4/10/74	100	50.0	.020	1.568
4/11/74	101	50.0	.020	1.586
4/12/74	102	50.0	.020	1.604
4/13/74	103	50.0	.020	1.622
4/14/74	104	50.0	.020	1.640
4/15/74	105	50.0	.020	1.658
4/16/74	106	50.0	.020	1.676

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODEL : 18 (S-14

DATE	DAY	CL	T-PO4		TOT-N	
4/17/74	107	50.0	.020		1.694	
4/18/74	108	50.0	.020		1.712	
4/19/74	109	50.0	.020		1.730	*
4/20/74	110	50.0	.020		1.730	
4/21/74	111	50.0	.020		1.730	
4/22/74	112	50.0	.020		1.730	
4/23/74	113	50.0	.020		1.730	
4/24/74	114	50.0	.020		1.730	
4/25/74	115	50.0	.020		1.730	
4/26/74	116	50.0	.020		1.730	
4/27/74	117	50.0	.020		1.730	
4/28/74	118	50.0	.020		1.730	
4/29/74	119	50.0	.020		1.730	
4/30/74	120	50.0	.020		1.730	
5/ 1/74	121	50.0	.020		1.730	
5/ 2/74	122	50.0	.020		1.730	
5/ 3/74	123	50.0	.020		1.730	
5/ 4/74	124	50.0	.020		1.730	
5/ 5/74	125	50.0	.020		1.730	
5/ 6/74	126	50.0	.020		1.730	
5/ 7/74	127	50.0	.020		1.730	
5/ 8/74	128	50.0	.020		1.730	
5/ 9/74	129	50.0	.020		1.730	
5/10/74	130	50.0	.020		1.730	
5/11/74	131	50.0	.020		1.730	
5/12/74	132	50.0	.020		1.730	
5/13/74	133	50.0	.020		1.730	
5/14/74	134	50.0	.020		1.730	
5/15/74	135	50.0	.020		1.730	
5/16/74	136	50.0	.020	*	1.730	*
5/17/74	137	50.0	.021		1.727	
5/18/74	138	50.0	.022		1.724	
5/19/74	139	50.0	.024		1.721	
5/20/74	140	50.0	.025		1.718	
5/21/74	141	50.0	.026		1.715	
5/22/74	142	50.0	.027		1.712	
5/23/74	143	50.0	.028		1.709	
5/24/74	144	50.0	.030		1.706	
5/25/74	145	50.0	.031		1.703	
5/26/74	146	50.0	.032		1.700	
5/27/74	147	50.0	.033		1.697	
5/28/74	148	50.0	.035		1.694	
5/29/74	149	50.0	.036		1.691	
5/30/74	150	50.0	.037		1.688	
5/31/74	151	50.0	.038		1.685	
6/ 1/74	152	50.0	.039		1.682	
6/ 2/74	153	50.0	.041		1.678	
6/ 3/74	154	50.0	.042		1.675	
6/ 4/74	155	50.0	.043		1.672	
6/ 5/74	156	50.0	.044		1.669	
6/ 6/74	157	50.0	.045		1.666	
6/ 7/74	158	50.0	.047		1.663	
6/ 8/74	159	50.0	.048		1.660	

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 18 (S-1)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	50.0	.049	1.657
6/10/74	161	50.0	.050	1.654
6/11/74	162	50.0	.052	1.651
6/12/74	163	50.0	.053	1.648
6/13/74	164	50.0	.054	1.645
6/14/74	165	50.0	.055	1.642
6/15/74	166	50.0	.056	1.639
6/16/74	167	50.0	.058	1.636
6/17/74	168	50.0	.059	1.633
6/18/74	169	50.0	.060 *	1.630 *
6/19/74	170	50.0	.066	1.634
6/20/74	171	50.0	.071	1.637
6/21/74	172	50.0	.077	1.641
6/22/74	173	50.0	.083	1.645
6/23/74	174	50.0	.088	1.648
6/24/74	175	50.0	.094	1.652
6/25/74	176	50.0	.100	1.656
6/26/74	177	50.0	.105	1.659
6/27/74	178	50.0	.111	1.663
6/28/74	179	50.0	.117	1.667
6/29/74	180	50.0	.122	1.670
6/30/74	181	50.0	.128	1.674
7/ 1/74	182	50.0	.134	1.678
7/ 2/74	183	50.0	.139	1.681
7/ 3/74	184	50.0	.145	1.685
7/ 4/74	185	50.0	.151	1.689
7/ 5/74	186	50.0	.156	1.692
7/ 6/74	187	50.0	.162	1.696
7/ 7/74	188	50.0	.168	1.700
7/ 8/74	189	50.0	.173	1.703
7/ 9/74	190	50.0	.179	1.707
7/10/74	191	50.0	.185	1.711
7/11/74	192	50.0	.190	1.714
7/12/74	193	50.0	.196	1.718
7/13/74	194	50.0	.202	1.722
7/14/74	195	50.0	.207	1.725
7/15/74	196	50.0	.213	1.729
7/16/74	197	50.0	.219	1.733
7/17/74	198	50.0	.224	1.736
7/18/74	199	50.0	.230 *	1.740 *
7/19/74	200	50.0	.223	1.736
7/20/74	201	50.0	.216	1.733
7/21/74	202	50.0	.209	1.729
7/22/74	203	50.0	.201	1.726
7/23/74	204	50.0	.194	1.722
7/24/74	205	50.0	.187	1.719
7/25/74	206	50.0	.180	1.715
7/26/74	207	50.0	.173	1.711
7/27/74	208	50.0	.166	1.708
7/28/74	209	50.0	.159	1.704
7/29/74	210	50.0	.151	1.701
7/30/74	211	50.0	.144	1.697
7/31/74	212	50.0	.137	1.694

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
SEGMENT : 18 (S-14)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	50.0	.130 *	1.690 *
8/ 2/74	214	50.0	.130	1.690
8/ 3/74	215	50.0	.130	1.690
8/ 4/74	216	50.0	.130	1.690
8/ 5/74	217	50.0	.130	1.690
8/ 6/74	218	50.0	.130	1.690
8/ 7/74	219	50.0	.130	1.690
8/ 8/74	220	50.0	.130	1.690
8/ 9/74	221	50.0	.130	1.690
8/10/74	222	50.0	.130	1.690
8/11/74	223	50.0	.130	1.690
8/12/74	224	50.0	.130	1.690
8/13/74	225	50.0	.130	1.690
8/14/74	226	50.0	.130	1.690
8/15/74	227	50.0	.130	1.690
8/16/74	228	50.0	.130	1.690
8/17/74	229	50.0	.130	1.690
8/18/74	230	50.0	.130	1.690
8/19/74	231	50.0	.130	1.690
8/20/74	232	50.0	.130	1.690
8/21/74	233	50.0	.130	1.690
8/22/74	234	50.0	.130	1.690
8/23/74	235	50.0	.130	1.690
8/24/74	236	50.0	.130	1.690
8/25/74	237	50.0	.130	1.690
8/26/74	238	50.0	.130	1.690
8/27/74	239	50.0	.130	1.690
8/28/74	240	50.0	.130	1.690
8/29/74	241	50.0	.130	1.690
8/30/74	242	50.0	.130	1.690
8/31/74	243	50.0	.130 *	1.690 *
9/ 1/74	244	50.0	.124	1.687
9/ 2/74	245	50.0	.118	1.683
9/ 3/74	246	50.0	.112	1.680
9/ 4/74	247	50.0	.106	1.677
9/ 5/74	248	50.0	.099	1.673
9/ 6/74	249	50.0	.093	1.670
9/ 7/74	250	50.0	.087	1.667
9/ 8/74	251	50.0	.081	1.663
9/ 9/74	252	50.0	.075	1.660
9/10/74	253	50.0	.069	1.657
9/11/74	254	50.0	.063	1.653
9/12/74	255	50.0	.057	1.650
9/13/74	256	50.0	.051	1.647
9/14/74	257	50.0	.044	1.643
9/15/74	258	50.0	.038	1.640
9/16/74	259	50.0	.032	1.637
9/17/74	260	50.0	.026	1.633
9/18/74	261	50.0	.020 *	1.630 *
9/19/74	262	50.0	.021	1.644
9/20/74	263	50.0	.021	1.658
9/21/74	264	50.0	.022	1.671
9/22/74	265	50.0	.023	1.685

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : 1 (S-14

DATE	DAY	CL	T-P04	TOT-N
9/23/74	266	50.0	.023	1.699
9/24/74	267	50.0	.024	1.713
9/25/74	268	50.0	.025	1.727
9/26/74	269	50.0	.026	1.740
9/27/74	270	50.0	.026	1.754
9/28/74	271	50.0	.027	1.768
9/29/74	272	50.0	.028	1.782
9/30/74	273	50.0	.028	1.796
10/ 1/74	274	50.0	.029	1.809
10/ 2/74	275	50.0	.030	1.823
10/ 3/74	276	50.0	.030	1.837
10/ 4/74	277	50.0	.031	1.851
10/ 5/74	278	50.0	.032	1.864
10/ 6/74	279	50.0	.032	1.878
10/ 7/74	280	50.0	.033	1.892
10/ 8/74	281	50.0	.034	1.906
10/ 9/74	282	50.0	.034	1.920
10/10/74	283	50.0	.035	1.933
10/11/74	284	50.0	.036	1.947
10/12/74	285	50.0	.037	1.961
10/13/74	286	50.0	.037	1.975
10/14/74	287	50.0	.038	1.989
10/15/74	288	50.0	.039	2.002
10/16/74	289	50.0	.039	2.016
10/17/74	290	50.0	.040 *	2.030 *
10/18/74	291	50.0	.040	2.017
10/19/74	292	50.0	.041	2.004
10/20/74	293	50.0	.041	1.991
10/21/74	294	50.0	.042	1.978
10/22/74	295	50.0	.042	1.965
10/23/74	296	50.0	.042	1.952
10/24/74	297	50.0	.043	1.938
10/25/74	298	50.0	.043	1.925
10/26/74	299	50.0	.043	1.912
10/27/74	300	50.0	.044	1.899
10/28/74	301	50.0	.044	1.886
10/29/74	302	50.0	.045	1.873
10/30/74	303	50.0	.045	1.860
10/31/74	304	50.0	.045	1.847
11/ 1/74	305	50.0	.046	1.834
11/ 2/74	306	50.0	.046	1.821
11/ 3/74	307	50.0	.047	1.808
11/ 4/74	308	50.0	.047	1.795
11/ 5/74	309	50.0	.047	1.782
11/ 6/74	310	50.0	.048	1.768
11/ 7/74	311	50.0	.048	1.755
11/ 8/74	312	50.0	.048	1.742
11/ 9/74	313	50.0	.049	1.729
11/10/74	314	50.0	.049	1.716
11/11/74	315	50.0	.050	1.703
11/12/74	316	50.0	.050 *	1.690 *
11/13/74	317	50.0	.049	1.685
11/14/74	318	50.0	.049	1.679

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 18 (S-18)

DATE	DAY	CL	T-P04	TOT-N
11/15/74	319	50.0	.048	1.674
11/16/74	320	50.0	.048	1.669
11/17/74	321	50.0	.047	1.664
11/18/74	322	50.0	.047	1.658
11/19/74	323	50.0	.046	1.653
11/20/74	324	50.0	.046	1.648
11/21/74	325	50.0	.045	1.643
11/22/74	326	50.0	.045	1.637
11/23/74	327	50.0	.044	1.632
11/24/74	328	50.0	.044	1.627
11/25/74	329	50.0	.043	1.622
11/26/74	330	50.0	.043	1.616
11/27/74	331	50.0	.042	1.611
11/28/74	332	50.0	.042	1.606
11/29/74	333	50.0	.041	1.601
11/30/74	334	50.0	.041	1.595
12/ 1/74	335	50.0	.040 *	1.590 *
12/ 2/74	336	50.0	.040	1.590
12/ 3/74	337	50.0	.040	1.590
12/ 4/74	338	50.0	.040	1.590
12/ 5/74	339	50.0	.040	1.590
12/ 6/74	340	50.0	.040	1.590
12/ 7/74	341	50.0	.040	1.590
12/ 8/74	342	50.0	.040	1.590
12/ 9/74	343	50.0	.040	1.590
12/10/74	344	50.0	.040	1.590
12/11/74	345	50.0	.040	1.590
12/12/74	346	50.0	.040	1.590
12/13/74	347	50.0	.040	1.590
12/14/74	348	50.0	.040	1.590
12/15/74	349	50.0	.040	1.590
12/16/74	350	50.0	.040	1.590
12/17/74	351	50.0	.040	1.590
12/18/74	352	50.0	.040	1.590
12/19/74	353	50.0	.040	1.590
12/20/74	354	50.0	.040	1.590
12/21/74	355	50.0	.040	1.590
12/22/74	356	50.0	.040	1.590
12/23/74	357	50.0	.040	1.590
12/24/74	358	50.0	.040	1.590
12/25/74	359	50.0	.040	1.590
12/26/74	360	50.0	.040	1.590
12/27/74	361	50.0	.040	1.590
12/28/74	362	50.0	.040	1.590
12/29/74	363	50.0	.040	1.590
12/30/74	364	50.0	.040	1.590
12/31/74	365	50.0 *	.040	1.590

CONSERVATION AREA 3

INPUT-MODE : 19 (S-15,)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	38.0 *	.020 *	.920 *
1/ 2/74	2	38.0	.021	.918
1/ 3/74	3	38.0	.021	.915
1/ 4/74	4	38.0	.022	.913
1/ 5/74	5	38.0	.022	.910
1/ 6/74	6	38.0	.023	.908
1/ 7/74	7	38.0	.023	.905
1/ 8/74	8	38.0	.024	.903
1/ 9/74	9	38.0	.024	.900
1/10/74	10	38.0	.024	.898
1/11/74	11	38.0	.025	.895
1/12/74	12	38.0	.026	.893
1/13/74	13	38.0	.026	.890
1/14/74	14	38.0	.026	.887
1/15/74	15	38.0	.027	.885
1/16/74	16	38.0	.028	.882
1/17/74	17	38.0	.028	.880
1/18/74	18	38.0	.028	.878
1/19/74	19	38.0	.029	.875
1/20/74	20	38.0	.030	.872
1/21/74	21	38.0	.030 *	.870 *
1/22/74	22	38.0	.031	.888
1/23/74	23	38.0	.033	.905
1/24/74	24	38.0	.034	.923
1/25/74	25	38.0	.035	.941
1/26/74	26	38.0	.037	.958
1/27/74	27	38.0	.038	.976
1/28/74	28	38.0	.039	.994
1/29/74	29	38.0	.041	1.011
1/30/74	30	38.0	.042	1.029
1/31/74	31	38.0	.043	1.047
2/ 1/74	32	38.0	.045	1.064
2/ 2/74	33	38.0	.046	1.082
2/ 3/74	34	38.0	.047	1.100
2/ 4/74	35	38.0	.049	1.117
2/ 5/74	36	38.0	.050	1.135
2/ 6/74	37	38.0	.051	1.153
2/ 7/74	38	38.0	.053	1.170
2/ 8/74	39	38.0	.054	1.188
2/ 9/74	40	38.0	.055	1.206
2/10/74	41	38.0	.057	1.223
2/11/74	42	38.0	.058	1.241
2/12/74	43	38.0	.059	1.259
2/13/74	44	38.0	.061	1.276
2/14/74	45	38.0	.062	1.294
2/15/74	46	38.0	.063	1.312
2/16/74	47	38.0	.065	1.329
2/17/74	48	38.0	.066	1.347
2/18/74	49	38.0	.067	1.365
2/19/74	50	38.0	.069	1.382
2/20/74	51	38.0	.070 *	1.400 *
2/21/74	52	38.0	.069	1.389
2/22/74	53	38.0	.068	1.379

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 19 (S-1)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	38.0	.067	1.368
2/24/74	55	38.0	.066	1.358
2/25/74	56	38.0	.065	1.347
2/26/74	57	38.0	.064	1.337
2/27/74	58	38.0	.063	1.326
2/28/74	59	38.0	.062	1.316
3/ 1/74	60	38.0	.061	1.305
3/ 2/74	61	38.0	.059	1.295
3/ 3/74	62	38.0	.058	1.284
3/ 4/74	63	38.0	.057	1.274
3/ 5/74	64	38.0	.056	1.263
3/ 6/74	65	38.0	.055	1.253
3/ 7/74	66	38.0	.054	1.242
3/ 8/74	67	38.0	.053	1.232
3/ 9/74	68	38.0	.052	1.221
3/10/74	69	38.0	.051	1.211
3/11/74	70	38.0	.050 *	1.200 *
3/12/74	71	38.0	.049	1.203
3/13/74	72	38.0	.048	1.206
3/14/74	73	38.0	.047	1.209
3/15/74	74	38.0	.047	1.212
3/16/74	75	38.0	.046	1.215
3/17/74	76	38.0	.045	1.218
3/18/74	77	38.0	.044	1.221
3/19/74	78	38.0	.043	1.224
3/20/74	79	38.0	.042	1.228
3/21/74	80	38.0	.042	1.231
3/22/74	81	38.0	.041	1.234
3/23/74	82	38.0	.040	1.237
3/24/74	83	38.0	.039	1.240
3/25/74	84	38.0	.038	1.243
3/26/74	85	38.0	.037	1.246
3/27/74	86	38.0	.037	1.249
3/28/74	87	38.0	.036	1.252
3/29/74	88	38.0	.035	1.255
3/30/74	89	38.0	.034	1.258
3/31/74	90	38.0	.033	1.261
4/ 1/74	91	38.0	.033	1.264
4/ 2/74	92	38.0	.032	1.267
4/ 3/74	93	38.0	.031	1.270
4/ 4/74	94	38.0	.030	1.273
4/ 5/74	95	38.0	.029	1.276
4/ 6/74	96	38.0	.028	1.279
4/ 7/74	97	38.0	.028	1.283
4/ 8/74	98	38.0	.027	1.286
4/ 9/74	99	38.0	.026	1.289
4/10/74	100	38.0	.025	1.292
4/11/74	101	38.0	.024	1.295
4/12/74	102	38.0	.023	1.298
4/13/74	103	38.0	.023	1.301
4/14/74	104	38.0	.022	1.304
4/15/74	105	38.0	.021	1.307
4/16/74	106	38.0	.020 *	1.310 *

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 13 (S-1)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	38.0	.020	1.312
4/18/74	108	38.0	.020	1.314
4/19/74	109	38.0	.020	1.316
4/20/74	110	38.0	.020	1.318
4/21/74	111	38.0	.020	1.320
4/22/74	112	38.0	.020	1.322
4/23/74	113	38.0	.020	1.324
4/24/74	114	38.0	.020	1.326
4/25/74	115	38.0	.020	1.328
4/26/74	116	38.0	.020	1.330
4/27/74	117	38.0	.020	1.332
4/28/74	118	38.0	.020	1.334
4/29/74	119	38.0	.020	1.336
4/30/74	120	38.0	.020	1.338
5/ 1/74	121	38.0	.020	1.340
5/ 2/74	122	38.0	.020	1.342
5/ 3/74	123	38.0	.020	1.344
5/ 4/74	124	38.0	.020	1.346
5/ 5/74	125	38.0	.020	1.348
5/ 6/74	126	38.0	.020	1.350
5/ 7/74	127	38.0	.020	1.352
5/ 8/74	128	38.0	.020	1.354
5/ 9/74	129	38.0	.020	1.356
5/10/74	130	38.0	.020	1.358
5/11/74	131	38.0	.020	1.360
5/12/74	132	38.0	.020	1.362
5/13/74	133	38.0	.020	1.364
5/14/74	134	38.0	.020	1.366
5/15/74	135	38.0	.020	1.368
5/16/74	136	38.0	.020 *	1.370 *
5/17/74	137	38.0	.021	1.367
5/18/74	138	38.0	.023	1.365
5/19/74	139	38.0	.024	1.362
5/20/74	140	38.0	.025	1.359
5/21/74	141	38.0	.027	1.356
5/22/74	142	38.0	.028	1.354
5/23/74	143	38.0	.030	1.351
5/24/74	144	38.0	.031	1.348
5/25/74	145	38.0	.032	1.345
5/26/74	146	38.0	.034	1.343
5/27/74	147	38.0	.035	1.340
5/28/74	148	38.0	.036	1.337
5/29/74	149	38.0	.038	1.335
5/30/74	150	38.0	.039	1.332
5/31/74	151	38.0	.040	1.329
6/ 1/74	152	38.0	.042	1.326
6/ 2/74	153	38.0	.043	1.324
6/ 3/74	154	38.0	.045	1.321
6/ 4/74	155	38.0	.046	1.318
6/ 5/74	156	38.0	.047	1.315
6/ 6/74	157	38.0	.049	1.313
6/ 7/74	158	38.0	.050 *	1.310 *
6/ 8/74	159	38.0	.051	1.304

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 19 (S-1)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	38.0	.051	1.297
6/10/74	161	38.0	.052	1.291
6/11/74	162	38.0	.052	1.284
6/12/74	163	38.0	.053	1.278
6/13/74	164	38.0	.053	1.272
6/14/74	165	38.0	.054	1.265
6/15/74	166	38.0	.054	1.259
6/16/74	167	38.0	.055	1.252
6/17/74	168	38.0	.055	1.246
6/18/74	169	38.0	.056	1.239
6/19/74	170	38.0	.056	1.233
6/20/74	171	38.0	.057	1.227
6/21/74	172	38.0	.057	1.220
6/22/74	173	38.0	.058	1.214
6/23/74	174	38.0	.058	1.207
6/24/74	175	38.0	.059	1.201
6/25/74	176	38.0	.059	1.195
6/26/74	177	38.0	.060	1.188
6/27/74	178	38.0	.060	1.182
6/28/74	179	38.0	.061	1.175
6/29/74	180	38.0	.061	1.169
6/30/74	181	38.0	.062	1.163
7/ 1/74	182	38.0	.062	1.156
7/ 2/74	183	38.0	.063	1.150
7/ 3/74	184	38.0	.063	1.143
7/ 4/74	185	38.0	.064	1.137
7/ 5/74	186	38.0	.064	1.131
7/ 6/74	187	38.0	.065	1.124
7/ 7/74	188	38.0	.065	1.118
7/ 8/74	189	38.0	.066	1.111
7/ 9/74	190	38.0	.066	1.105
7/10/74	191	38.0	.067	1.098
7/11/74	192	38.0	.067	1.092
7/12/74	193	38.0	.068	1.086
7/13/74	194	38.0	.068	1.079
7/14/74	195	38.0	.069	1.073
7/15/74	196	38.0	.069	1.066
7/16/74	197	38.0	.070 *	1.060 *
7/17/74	198	38.0	.071	1.072
7/18/74	199	38.0	.072	1.085
7/19/74	200	38.0	.073	1.097
7/20/74	201	38.0	.074	1.110
7/21/74	202	38.0	.075	1.122
7/22/74	203	38.0	.075	1.135
7/23/74	204	38.0	.076	1.147
7/24/74	205	38.0	.077	1.159
7/25/74	206	38.0	.078	1.172
7/26/74	207	38.0	.079	1.184
7/27/74	208	38.0	.080	1.197
7/28/74	209	38.0	.081	1.209
7/29/74	210	38.0	.082	1.222
7/30/74	211	38.0	.083	1.234
7/31/74	212	38.0	.084	1.246

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : 19 (S-1)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	38.0	.085	1.259
8/ 2/74	214	38.0	.085	1.271
8/ 3/74	215	38.0	.086	1.284
8/ 4/74	216	38.0	.087	1.296
8/ 5/74	217	38.0	.088	1.308
8/ 6/74	218	38.0	.089	1.321
8/ 7/74	219	38.0	.090	1.333
8/ 8/74	220	38.0	.091	1.346
8/ 9/74	221	38.0	.092	1.358
8/10/74	222	38.0	.093	1.371
8/11/74	223	38.0	.094	1.383
8/12/74	224	38.0	.095	1.395
8/13/74	225	38.0	.095	1.408
8/14/74	226	38.0	.096	1.420
8/15/74	227	38.0	.097	1.433
8/16/74	228	38.0	.098	1.445
8/17/74	229	38.0	.099	1.458
8/18/74	230	38.0	.100 *	1.470 *
8/19/74	231	38.0	.099	1.458
8/20/74	232	38.0	.097	1.446
8/21/74	233	38.0	.096	1.434
8/22/74	234	38.0	.094	1.421
8/23/74	235	38.0	.093	1.409
8/24/74	236	38.0	.091	1.397
8/25/74	237	38.0	.090	1.385
8/26/74	238	38.0	.089	1.373
8/27/74	239	38.0	.087	1.361
8/28/74	240	38.0	.086	1.349
8/29/74	241	38.0	.084	1.336
8/30/74	242	38.0	.083	1.324
8/31/74	243	38.0	.081	1.312
9/ 1/74	244	38.0	.080 *	1.300 *
9/ 2/74	245	38.0	.080	1.300
9/ 3/74	246	38.0	.080	1.300
9/ 4/74	247	38.0	.080	1.300
9/ 5/74	248	38.0	.080	1.300
9/ 6/74	249	38.0	.080	1.300
9/ 7/74	250	38.0	.080	1.300
9/ 8/74	251	38.0	.080	1.300
9/ 9/74	252	38.0	.080	1.300
9/10/74	253	38.0	.080	1.300
9/11/74	254	38.0	.080	1.300
9/12/74	255	38.0	.080	1.300
9/13/74	256	38.0	.080	1.300
9/14/74	257	38.0	.080	1.300
9/15/74	258	38.0	.080	1.300
9/16/74	259	38.0	.080	1.300
9/17/74	260	38.0	.080	1.300
9/18/74	261	38.0	.080	1.300
9/19/74	262	38.0	.080	1.300
9/20/74	263	38.0	.080	1.300
9/21/74	264	38.0	.080	1.300
9/22/74	265	38.0	.080	1.300

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 19 (S-19

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	38.0	.080	1.300
9/24/74	267	38.0	.080	1.300
9/25/74	268	38.0	.080	1.300
9/26/74	269	38.0	.080	1.300
9/27/74	270	38.0	.080	1.300
9/28/74	271	38.0	.080	1.300
9/29/74	272	38.0	.080	1.300
9/30/74	273	38.0	.080 *	1.300 *
10/ 1/74	274	38.0	.078	1.289
10/ 2/74	275	38.0	.076	1.279
10/ 3/74	276	38.0	.075	1.268
10/ 4/74	277	38.0	.073	1.258
10/ 5/74	278	38.0	.071	1.247
10/ 6/74	279	38.0	.069	1.236
10/ 7/74	280	38.0	.068	1.226
10/ 8/74	281	38.0	.066	1.215
10/ 9/74	282	38.0	.064	1.205
10/10/74	283	38.0	.062	1.194
10/11/74	284	38.0	.061	1.184
10/12/74	285	38.0	.059	1.173
10/13/74	286	38.0	.057	1.162
10/14/74	287	38.0	.055	1.152
10/15/74	288	38.0	.054	1.141
10/16/74	289	38.0	.052	1.131
10/17/74	290	38.0	.050 *	1.120 *
10/18/74	291	38.0	.050	1.126
10/19/74	292	38.0	.051	1.132
10/20/74	293	38.0	.051	1.137
10/21/74	294	38.0	.052	1.143
10/22/74	295	38.0	.052	1.149
10/23/74	296	38.0	.052	1.155
10/24/74	297	38.0	.053	1.160
10/25/74	298	38.0	.053	1.166
10/26/74	299	38.0	.053	1.172
10/27/74	300	38.0	.054	1.178
10/28/74	301	38.0	.054	1.183
10/29/74	302	38.0	.055	1.189
10/30/74	303	38.0	.055	1.195
10/31/74	304	38.0	.055	1.201
11/ 1/74	305	38.0	.056	1.207
11/ 2/74	306	38.0	.056	1.212
11/ 3/74	307	38.0	.057	1.218
11/ 4/74	308	38.0	.057	1.224
11/ 5/74	309	38.0	.057	1.230
11/ 6/74	310	38.0	.058	1.235
11/ 7/74	311	38.0	.058	1.241
11/ 8/74	312	38.0	.058	1.247
11/ 9/74	313	38.0	.059	1.253
11/10/74	314	38.0	.059	1.258
11/11/74	315	38.0	.060	1.264
11/12/74	316	38.0	.060 *	1.270 *
11/13/74	317	38.0	.083	1.268
11/14/74	318	38.0	.105	1.266

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : I? (S-I?

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	38.0	.128	1.264
11/16/74	320	38.0	.151	1.262
11/17/74	321	38.0	.173	1.260
11/18/74	322	38.0	.196	1.258
11/19/74	323	38.0	.219	1.256
11/20/74	324	38.0	.241	1.254
11/21/74	325	38.0	.264	1.252
11/22/74	326	38.0	.287	1.250
11/23/74	327	38.0	.309	1.248
11/24/74	328	38.0	.332	1.246
11/25/74	329	38.0	.354	1.243
11/26/74	330	38.0	.377	1.241
11/27/74	331	38.0	.400	1.239
11/28/74	332	38.0	.422	1.237
11/29/74	333	38.0	.445	1.235
11/30/74	334	38.0	.468	1.233
12/ 1/74	335	38.0	.490	1.231
12/ 2/74	336	38.0	.513	1.229
12/ 3/74	337	38.0	.536	1.227
12/ 4/74	338	38.0	.558	1.225
12/ 5/74	339	38.0	.581	1.223
12/ 6/74	340	38.0	.604	1.221
12/ 7/74	341	38.0	.626	1.219
12/ 8/74	342	38.0	.649	1.217
12/ 9/74	343	38.0	.672	1.215
12/10/74	344	38.0	.694	1.213
12/11/74	345	38.0	.717	1.211
12/12/74	346	38.0	.740	1.209
12/13/74	347	38.0	.762	1.207
12/14/74	348	38.0	.785	1.205
12/15/74	349	38.0	.808	1.203
12/16/74	350	38.0	.830	1.201
12/17/74	351	38.0	.853	1.199
12/18/74	352	38.0	.876	1.197
12/19/74	353	38.0	.898	1.194
12/20/74	354	38.0	.921	1.192
12/21/74	355	38.0	.943	1.190
12/22/74	356	38.0	.966	1.188
12/23/74	357	38.0	.989	1.186
12/24/74	358	38.0	1.011	1.184
12/25/74	359	38.0	1.034	1.182
12/26/74	360	38.0	1.057	1.180
12/27/74	361	38.0	1.079	1.178
12/28/74	362	38.0	1.102	1.176
12/29/74	363	38.0	1.125	1.174
12/30/74	364	38.0	1.147	1.172
12/31/74	365	38.0 *	1.170 *	1.170 *

CONSERVATION AREA 3
INPUT-NODE : 9 (S-15)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	140.0	.101	3.480
1/ 2/74	2	140.0	.101	3.480
1/ 3/74	3	140.0	.101	3.480
1/ 4/74	4	140.0	.101	3.480
1/ 5/74	5	140.0	.101	3.480
1/ 6/74	6	140.0	.101	3.480
1/ 7/74	7	140.0	.101	3.480
1/ 8/74	8	140.0	.101	3.480
1/ 9/74	9	140.0	.101	3.480
1/10/74	10	140.0	.101	3.480
1/11/74	11	140.0	.101	3.480
1/12/74	12	140.0	.101	3.480
1/13/74	13	140.0	.101	3.480
1/14/74	14	140.0	.101	3.480
1/15/74	15	140.0	.101	3.480
1/16/74	16	140.0	.101	3.480
1/17/74	17	140.0	.101	3.480
1/18/74	18	140.0	.101	3.480
1/19/74	19	140.0	.101	3.480
1/20/74	20	140.0	.101	3.480
1/21/74	21	140.0	.101	3.480
1/22/74	22	140.0	.101	3.480
1/23/74	23	140.0	.101	3.480
1/24/74	24	140.0	.101	3.480
1/25/74	25	140.0	.101	3.480
1/26/74	26	140.0	.101	3.480
1/27/74	27	140.0	.101	3.480
1/28/74	28	140.0	.101	3.480
1/29/74	29	140.0	.101	3.480
1/30/74	30	140.0	.101	3.480
1/31/74	31	140.0	.101	3.480
2/ 1/74	32	140.0	.101	3.480
2/ 2/74	33	140.0	.101	3.480
2/ 3/74	34	140.0	.101	3.480
2/ 4/74	35	140.0	.101	3.480
2/ 5/74	36	140.0	.101	3.480
2/ 6/74	37	140.0	.101	3.480
2/ 7/74	38	140.0	.101	3.480
2/ 8/74	39	140.0	.101	3.480
2/ 9/74	40	140.0	.101	3.480
2/10/74	41	140.0	.101	3.480
2/11/74	42	140.0	.101	3.480
2/12/74	43	140.0	.101	3.480
2/13/74	44	140.0	.101	3.480
2/14/74	45	140.0	.101	3.480
2/15/74	46	140.0	.101	3.480
2/16/74	47	140.0	.101	3.480
2/17/74	48	140.0	.101	3.480
2/18/74	49	140.0	.101	3.480
2/19/74	50	140.0	.101	3.480
2/20/74	51	140.0	.101	3.480
2/21/74	52	140.0	.101	3.480
2/22/74	53	140.0	.101	3.480

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 9 (S-15)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	140.0	.101	3.480
2/24/74	55	140.0	.101	3.480
2/25/74	56	140.0	.101	3.480
2/26/74	57	140.0	.101	3.480
2/27/74	58	140.0	.101	3.480
2/28/74	59	140.0	.101	3.480
3/ 1/74	60	140.0	.101	3.480
3/ 2/74	61	140.0	.101	3.480
3/ 3/74	62	140.0	.101	3.480
3/ 4/74	63	140.0	.101	3.480
3/ 5/74	64	140.0	.101	3.480
3/ 6/74	65	140.0	.101	3.480
3/ 7/74	66	140.0	.101	3.480
3/ 8/74	67	140.0	.101	3.480
3/ 9/74	68	140.0	.101	3.480
3/10/74	69	140.0	.101	3.480
3/11/74	70	140.0	.101	3.480
3/12/74	71	140.0	.101	3.480
3/13/74	72	140.0	.101	3.480
3/14/74	73	140.0	.101	3.480
3/15/74	74	140.0	.101	3.480
3/16/74	75	140.0	.101	3.480
3/17/74	76	140.0	.101	3.480
3/18/74	77	140.0	.101	3.480
3/19/74	78	140.0	.101	3.480
3/20/74	79	140.0	.101	3.480
3/21/74	80	140.0	.101	3.480
3/22/74	81	140.0	.101	3.480
3/23/74	82	140.0	.101	3.480
3/24/74	83	140.0	.101	3.480
3/25/74	84	140.0	.101	3.480
3/26/74	85	140.0	.101	3.480
3/27/74	86	140.0	.101	3.480
3/28/74	87	140.0	.101	3.480
3/29/74	88	140.0	.101	3.480
3/30/74	89	140.0	.101	3.480
3/31/74	90	140.0	.101	3.480
4/ 1/74	91	140.0	.101	3.480
4/ 2/74	92	140.0	.101	3.480
4/ 3/74	93	140.0	.101	3.480
4/ 4/74	94	140.0	.101	3.480
4/ 5/74	95	140.0	.101	3.480
4/ 6/74	96	140.0	.101	3.480
4/ 7/74	97	140.0	.101	3.480
4/ 8/74	98	140.0	.101	3.480
4/ 9/74	99	140.0	.101	3.480
4/10/74	100	140.0	.101	3.480
4/11/74	101	140.0	.101	3.480
4/12/74	102	140.0	.101	3.480
4/13/74	103	140.0	.101	3.480
4/14/74	104	140.0	.101	3.480
4/15/74	105	140.0	.101	3.480
4/16/74	106	140.0	.101	3.480

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 7 (S-15C

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	140.0	.101	3.480
4/18/74	108	140.0	.101	3.480
4/19/74	109	140.0	.101	3.480
4/20/74	110	140.0	.101	3.480
4/21/74	111	140.0	.101	3.480
4/22/74	112	140.0	.101	3.480
4/23/74	113	140.0	.101	3.480
4/24/74	114	140.0	.101	3.480
4/25/74	115	140.0	.101	3.480
4/26/74	116	140.0	.101	3.480
4/27/74	117	140.0	.101	3.480
4/28/74	118	140.0	.101	3.480
4/29/74	119	140.0	.101	3.480
4/30/74	120	140.0	.101	3.480
5/ 1/74	121	140.0	.101	3.480
5/ 2/74	122	140.0	.101	3.480
5/ 3/74	123	140.0	.101	3.480
5/ 4/74	124	140.0	.101	3.480
5/ 5/74	125	140.0	.101	3.480
5/ 6/74	126	140.0	.101	3.480
5/ 7/74	127	140.0	.101	3.480
5/ 8/74	128	140.0	.101	3.480
5/ 9/74	129	140.0	.101	3.480
5/10/74	130	140.0	.101	3.480
5/11/74	131	140.0	.101	3.480
5/12/74	132	140.0	.101	3.480
5/13/74	133	140.0	.101	3.480
5/14/74	134	140.0	.101	3.480
5/15/74	135	140.0	.101	3.480
5/16/74	136	140.0	.101	3.480
5/17/74	137	140.0	.101	3.480
5/18/74	138	140.0	.101	3.480
5/19/74	139	140.0	.101	3.480
5/20/74	140	140.0	.101	3.480
5/21/74	141	140.0	.101	3.480
5/22/74	142	140.0	.101	3.480
5/23/74	143	140.0	.101	3.480
5/24/74	144	140.0	.101	3.480
5/25/74	145	140.0	.101	3.480
5/26/74	146	140.0	.101	3.480
5/27/74	147	140.0	.101	3.480
5/28/74	148	140.0	.101	3.480
5/29/74	149	140.0	.101	3.480
5/30/74	150	140.0	.101	3.480
5/31/74	151	140.0	.101	3.480
6/ 1/74	152	140.0	.101	3.480
6/ 2/74	153	140.0	.101	3.480
6/ 3/74	154	140.0	.101	3.480
6/ 4/74	155	140.0	.101	3.480
6/ 5/74	156	140.0	.101	3.480
6/ 6/74	157	140.0	.101	3.480
6/ 7/74	158	140.0	.101	3.480
6/ 8/74	159	140.0	.101	3.480

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : 2 (S-15C

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	140.0	.101	3.480
6/10/74	161	140.0	.101	3.480
6/11/74	162	140.0	.101	3.480
6/12/74	163	140.0	.101	3.480
6/13/74	164	140.0	.101	3.480
6/14/74	165	140.0	.101	3.480
6/15/74	166	140.0	.101	3.480
6/16/74	167	140.0	.101	3.480
6/17/74	168	140.0	.101	3.480
6/18/74	169	140.0	.101	3.480
6/19/74	170	140.0	.101	3.480
6/20/74	171	140.0	.101	3.480
6/21/74	172	140.0	.101	3.480
6/22/74	173	140.0	.101	3.480
6/23/74	174	140.0	.101	3.480
6/24/74	175	140.0	.101	3.480
6/25/74	176	140.0	.101	3.480
6/26/74	177	140.0	.101	3.480
6/27/74	178	140.0	.101	3.480
6/28/74	179	140.0	.101	3.480
6/29/74	180	140.0	.101	3.480
6/30/74	181	140.0	.101	3.480
7/ 1/74	182	140.0	.101	3.480
7/ 2/74	183	140.0	.101	3.480
7/ 3/74	184	140.0	.101	3.480
7/ 4/74	185	140.0	.101	3.480
7/ 5/74	186	140.0	.101	3.480
7/ 6/74	187	140.0	.101	3.480
7/ 7/74	188	140.0	.101	3.480
7/ 8/74	189	140.0	.101	3.480
7/ 9/74	190	140.0	.101	3.480
7/10/74	191	140.0	.101	3.480
7/11/74	192	140.0	.101	3.480
7/12/74	193	140.0	.101	3.480
7/13/74	194	140.0	.101	3.480
7/14/74	195	140.0	.101	3.480
7/15/74	196	140.0	.101	3.480
7/16/74	197	140.0	.101	3.480
7/17/74	198	140.0	.101	3.480
7/18/74	199	140.0	.101	3.480
7/19/74	200	140.0	.101	3.480
7/20/74	201	140.0	.101	3.480
7/21/74	202	140.0	.101	3.480
7/22/74	203	140.0	.101	3.480
7/23/74	204	140.0	.101	3.480
7/24/74	205	140.0	.101	3.480
7/25/74	206	140.0	.101	3.480
7/26/74	207	140.0	.101	3.480
7/27/74	208	140.0	.101	3.480
7/28/74	209	140.0	.101	3.480
7/29/74	210	140.0	.101	3.480
7/30/74	211	140.0	.101	3.480
7/31/74	212	140.0 *	.101 *	3.480 *

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : (S-156.

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	118.0 *	.034 *	8.250 *
8/ 2/74	214	118.0	.034	8.250
8/ 3/74	215	118.0	.034	8.250
8/ 4/74	216	118.0	.034	8.250
8/ 5/74	217	118.0	.034	8.250
8/ 6/74	218	118.0	.034	8.250
8/ 7/74	219	118.0	.034	8.250
8/ 8/74	220	118.0	.034	8.250
8/ 9/74	221	118.0	.034	8.250
8/10/74	222	118.0	.034	8.250
8/11/74	223	118.0	.034	8.250
8/12/74	224	118.0	.034	8.250
8/13/74	225	118.0	.034	8.250
8/14/74	226	118.0	.034	8.250
8/15/74	227	118.0	.034	8.250
8/16/74	228	118.0	.034	8.250
8/17/74	229	118.0	.034	8.250
8/18/74	230	118.0	.034	8.250
8/19/74	231	118.0	.034	8.250
8/20/74	232	118.0	.034	8.250
8/21/74	233	118.0	.034	8.250
8/22/74	234	118.0	.034	8.250
8/23/74	235	118.0	.034	8.250
8/24/74	236	118.0	.034	8.250
8/25/74	237	118.0	.034	8.250
8/26/74	238	118.0	.034	8.250
8/27/74	239	118.0	.034	8.250
8/28/74	240	118.0	.034	8.250
8/29/74	241	118.0	.034	8.250
8/30/74	242	118.0	.034	8.250
8/31/74	243	118.0	.034	8.250
9/ 1/74	244	118.0	.034	8.250
9/ 2/74	245	118.0	.034	8.250
9/ 3/74	246	118.0	.034	8.250
9/ 4/74	247	118.0	.034	8.250
9/ 5/74	248	118.0	.034	8.250
9/ 6/74	249	118.0	.034	8.250
9/ 7/74	250	118.0	.034	8.250
9/ 8/74	251	118.0	.034	8.250
9/ 9/74	252	118.0	.034	8.250
9/10/74	253	118.0	.034	8.250
9/11/74	254	118.0	.034	8.250
9/12/74	255	118.0	.034	8.250
9/13/74	256	118.0	.034	8.250
9/14/74	257	118.0	.034	8.250
9/15/74	258	118.0	.034	8.250
9/16/74	259	118.0	.034	8.250
9/17/74	260	118.0	.034	8.250
9/18/74	261	118.0	.034	8.250
9/19/74	262	118.0	.034	8.250
9/20/74	263	118.0	.034	8.250
9/21/74	264	118.0	.034	8.250
9/22/74	265	118.0	.034	8.250

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 9 (S-15C

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	118.0	.034	8.250
9/24/74	267	118.0	.034	8.250
9/25/74	268	118.0	.034	8.250
9/26/74	269	118.0	.034	8.250
9/27/74	270	118.0	.034	8.250
9/28/74	271	118.0	.034	8.250
9/29/74	272	118.0	.034	8.250
9/30/74	273	118.0	.034	8.250
10/ 1/74	274	118.0	.034	8.250
10/ 2/74	275	118.0	.034	8.250
10/ 3/74	276	118.0	.034	8.250
10/ 4/74	277	118.0	.034	8.250
10/ 5/74	278	118.0	.034	8.250
10/ 6/74	279	118.0	.034	8.250
10/ 7/74	280	118.0	.034	8.250
10/ 8/74	281	118.0	.034	8.250
10/ 9/74	282	118.0	.034	8.250
10/10/74	283	118.0	.034	8.250
10/11/74	284	118.0	.034	8.250
10/12/74	285	118.0	.034	8.250
10/13/74	286	118.0	.034	8.250
10/14/74	287	118.0	.034	8.250
10/15/74	288	118.0	.034	8.250
10/16/74	289	118.0	.034	8.250
10/17/74	290	118.0	.034	8.250
10/18/74	291	118.0	.034	8.250
10/19/74	292	118.0	.034	8.250
10/20/74	293	118.0	.034	8.250
10/21/74	294	118.0	.034	8.250
10/22/74	295	118.0	.034	8.250
10/23/74	296	118.0	.034	8.250
10/24/74	297	118.0	.034	8.250
10/25/74	298	118.0	.034	8.250
10/26/74	299	118.0	.034	8.250
10/27/74	300	118.0	.034	8.250
10/28/74	301	118.0	.034	8.250
10/29/74	302	118.0	.034	8.250
10/30/74	303	118.0	.034	8.250
10/31/74	304	118.0	.034	8.250
11/ 1/74	305	118.0	.034	8.250
11/ 2/74	306	118.0	.034	8.250
11/ 3/74	307	118.0	.034	8.250
11/ 4/74	308	118.0	.034	8.250
11/ 5/74	309	118.0	.034	8.250
11/ 6/74	310	118.0	.034	8.250
11/ 7/74	311	118.0	.034	8.250
11/ 8/74	312	118.0	.034	8.250
11/ 9/74	313	118.0	.034	8.250
11/10/74	314	118.0	.034	8.250
11/11/74	315	118.0	.034	8.250
11/12/74	316	118.0	.034	8.250
11/13/74	317	118.0	.034	8.250
11/14/74	318	118.0	.034	8.250

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 1 (S-150)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	118.0	.034	8.250
11/16/74	320	118.0	.034	8.250
11/17/74	321	118.0	.034	8.250
11/18/74	322	118.0	.034	8.250
11/19/74	323	118.0	.034	8.250
11/20/74	324	118.0	.034	8.250
11/21/74	325	118.0	.034	8.250
11/22/74	326	118.0	.034	8.250
11/23/74	327	118.0	.034	8.250
11/24/74	328	118.0	.034	8.250
11/25/74	329	118.0	.034	8.250
11/26/74	330	118.0	.034	8.250
11/27/74	331	118.0	.034	8.250
11/28/74	332	118.0	.034	8.250
11/29/74	333	118.0	.034	8.250
11/30/74	334	118.0	.034	8.250
12/ 1/74	335	118.0	.034	8.250
12/ 2/74	336	118.0	.034	8.250
12/ 3/74	337	118.0	.034	8.250
12/ 4/74	338	118.0	.034	8.250
12/ 5/74	339	118.0	.034	8.250
12/ 6/74	340	118.0	.034	8.250
12/ 7/74	341	118.0	.034	8.250
12/ 8/74	342	118.0	.034	8.250
12/ 9/74	343	118.0	.034	8.250
12/10/74	344	118.0	.034	8.250
12/11/74	345	118.0	.034	8.250
12/12/74	346	118.0	.034	8.250
12/13/74	347	118.0	.034	8.250
12/14/74	348	118.0	.034	8.250
12/15/74	349	118.0	.034	8.250
12/16/74	350	118.0	.034	8.250
12/17/74	351	118.0	.034	8.250
12/18/74	352	118.0	.034	8.250
12/19/74	353	118.0	.034	8.250
12/20/74	354	118.0	.034	8.250
12/21/74	355	118.0	.034	8.250
12/22/74	356	118.0	.034	8.250
12/23/74	357	118.0	.034	8.250
12/24/74	358	118.0	.034	8.250
12/25/74	359	118.0	.034	8.250
12/26/74	360	118.0	.034	8.250
12/27/74	361	118.0	.034	8.250
12/28/74	362	118.0	.034	8.250
12/29/74	363	118.0	.034	8.250
12/30/74	364	118.0	.034	8.250
12/31/74	365	118.0	.034	8.250

CONSERVATION AREA 3
INPUT-MODE : 13 (S-8)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	130.0 *	.090	3.200
1/ 2/74	2	130.0	.090	3.200
1/ 3/74	3	130.0	.090	3.200
1/ 4/74	4	130.0	.090	3.200
1/ 5/74	5	130.0	.090	3.200
1/ 6/74	6	130.0	.090	3.200
1/ 7/74	7	130.0	.090	3.200
1/ 8/74	8	130.0	.090	3.200
1/ 9/74	9	130.0	.090	3.200
1/10/74	10	130.0	.090	3.200
1/11/74	11	130.0	.090	3.200
1/12/74	12	130.0	.090	3.200
1/13/74	13	130.0	.090	3.200
1/14/74	14	130.0	.090	3.200
1/15/74	15	130.0	.090	3.200
1/16/74	16	130.0	.090	3.200
1/17/74	17	130.0	.090	3.200
1/18/74	18	130.0	.090	3.200
1/19/74	19	130.0	.090	3.200
1/20/74	20	130.0	.090	3.200
1/21/74	21	130.0	.090	3.200
1/22/74	22	130.0	.090	3.200
1/23/74	23	130.0	.090	3.200
1/24/74	24	130.0	.090	3.200
1/25/74	25	130.0	.090	3.200
1/26/74	26	130.0	.090	3.200
1/27/74	27	130.0	.090	3.200
1/28/74	28	130.0	.090	3.200
1/29/74	29	130.0	.090	3.200
1/30/74	30	130.0	.090	3.200
1/31/74	31	130.0 *	.090 *	3.200 *
2/ 1/74	32	123.0 *	.040 *	2.590 *
2/ 2/74	33	123.0	.040	2.590
2/ 3/74	34	123.0	.040	2.590
2/ 4/74	35	123.0	.040	2.590
2/ 5/74	36	123.0	.040	2.590
2/ 6/74	37	123.0	.040	2.590
2/ 7/74	38	123.0	.040	2.590
2/ 8/74	39	123.0	.040	2.590
2/ 9/74	40	123.0	.040	2.590
2/10/74	41	123.0	.040	2.590
2/11/74	42	123.0	.040	2.590
2/12/74	43	123.0	.040	2.590
2/13/74	44	123.0	.040	2.590
2/14/74	45	123.0	.040	2.590
2/15/74	46	123.0	.040	2.590
2/16/74	47	123.0	.040	2.590
2/17/74	48	123.0	.040	2.590
2/18/74	49	123.0	.040	2.590
2/19/74	50	123.0	.040	2.590
2/20/74	51	123.0	.040	2.590
2/21/74	52	123.0	.040	2.590
2/22/74	53	123.0	.040	2.590

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 1[illegible] (S-R)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	123.0	.040	2.590
2/24/74	55	123.0	.040	2.590
2/25/74	56	123.0	.040	2.590
2/26/74	57	123.0	.040	2.590
2/27/74	58	123.0	.040	2.590
2/28/74	59	123.0 *	.040	2.590 *
3/ 1/74	60	121.0 *	.040	1.650 *
3/ 2/74	61	121.0	.040	1.650
3/ 3/74	62	121.0	.040	1.650
3/ 4/74	63	121.0	.040	1.650
3/ 5/74	64	121.0	.040	1.650
3/ 6/74	65	121.0	.040	1.650
3/ 7/74	66	121.0	.040	1.650
3/ 8/74	67	121.0	.040	1.650
3/ 9/74	68	121.0	.040	1.650
3/10/74	69	121.0	.040	1.650
3/11/74	70	121.0	.040	1.650
3/12/74	71	121.0	.040	1.650
3/13/74	72	121.0	.040	1.650
3/14/74	73	121.0	.040	1.650
3/15/74	74	121.0	.040	1.650
3/16/74	75	121.0	.040	1.650
3/17/74	76	121.0	.040	1.650
3/18/74	77	121.0	.040	1.650
3/19/74	78	121.0	.040	1.650
3/20/74	79	121.0	.040	1.650
3/21/74	80	121.0	.040	1.650
3/22/74	81	121.0	.040	1.650
3/23/74	82	121.0	.040	1.650
3/24/74	83	121.0	.040	1.650
3/25/74	84	121.0	.040	1.650
3/26/74	85	121.0	.040	1.650
3/27/74	86	121.0	.040	1.650
3/28/74	87	121.0	.040	1.650
3/29/74	88	121.0	.040	1.650
3/30/74	89	121.0	.040	1.650
3/31/74	90	121.0 *	.040 *	1.650 *
4/ 1/74	91	98.0 *	.030 *	1.950 *
4/ 2/74	92	98.0	.030	1.950
4/ 3/74	93	98.0	.030	1.950
4/ 4/74	94	98.0	.030	1.950
4/ 5/74	95	98.0	.030	1.950
4/ 6/74	96	98.0	.030	1.950
4/ 7/74	97	98.0	.030	1.950
4/ 8/74	98	98.0	.030	1.950
4/ 9/74	99	98.0	.030	1.950
4/10/74	100	98.0	.030	1.950
4/11/74	101	98.0	.030	1.950
4/12/74	102	98.0	.030	1.950
4/13/74	103	98.0	.030	1.950
4/14/74	104	98.0	.030	1.950
4/15/74	105	98.0	.030	1.950
4/16/74	106	98.0	.030	1.950

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3

[illegible] : 13 (S-8)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	98.0	.030	1.950
4/18/74	108	98.0	.030	1.950
4/19/74	109	98.0	.030	1.950
4/20/74	110	98.0	.030	1.950
4/21/74	111	98.0	.030	1.950
4/22/74	112	98.0	.030	1.950
4/23/74	113	98.0	.030	1.950
4/24/74	114	98.0	.030	1.950
4/25/74	115	98.0	.030	1.950
4/26/74	116	98.0	.030	1.950
4/27/74	117	98.0	.030	1.950
4/28/74	118	98.0	.030	1.950
4/29/74	119	98.0	.030	1.950
4/30/74	120	98.0	.030	1.950 *
5/ 1/74	121	98.0	.030	1.860 *
5/ 2/74	122	98.0	.030	1.860
5/ 3/74	123	98.0	.030	1.860
5/ 4/74	124	98.0	.030	1.860
5/ 5/74	125	98.0	.030	1.860
5/ 6/74	126	98.0	.030	1.860
5/ 7/74	127	98.0	.030	1.860
5/ 8/74	128	98.0	.030	1.860
5/ 9/74	129	98.0	.030	1.860
5/10/74	130	98.0	.030	1.860
5/11/74	131	98.0	.030	1.860
5/12/74	132	98.0	.030	1.860
5/13/74	133	98.0	.030	1.860
5/14/74	134	98.0	.030	1.860
5/15/74	135	98.0	.030	1.860
5/16/74	136	98.0	.030	1.860
5/17/74	137	98.0	.030	1.860
5/18/74	138	98.0	.030	1.860
5/19/74	139	98.0	.030	1.860
5/20/74	140	98.0	.030	1.860
5/21/74	141	98.0	.030	1.860
5/22/74	142	98.0	.030	1.860
5/23/74	143	98.0	.030	1.860
5/24/74	144	98.0	.030	1.860
5/25/74	145	98.0	.030	1.860
5/26/74	146	98.0	.030	1.860
5/27/74	147	98.0	.030	1.860
5/28/74	148	98.0	.030	1.860
5/29/74	149	98.0	.030	1.860
5/30/74	150	98.0	.030	1.860
5/31/74	151	98.0 *	.030 *	1.860 *
6/ 1/74	152	100.6	.029	1.836
6/ 2/74	153	103.2	.029	1.812
6/ 3/74	154	105.8 *	.028 *	1.788
6/ 4/74	155	105.0	.027	1.764
6/ 5/74	156	104.2	.027	1.740
6/ 6/74	157	103.4	.026	1.716
6/ 7/74	158	102.6	.026	1.692
6/ 8/74	159	101.8	.025	1.668

* ACTUAL CURVE POINT

(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
[illegible]-NODE : 13 (S-8)

DATE	DAY	CL		T-PO4		TOT-N	
6/ 9/74	160	101.0		.025		1.644	
6/10/74	161	100.2	*	.024	*	1.620	*
6/11/74	162	101.2		.024		3.874	
6/12/74	163	102.3		.024		6.129	
6/13/74	164	103.3		.024		8.383	
6/14/74	165	104.4		.023		10.637	
6/15/74	166	105.4		.023		12.891	
6/16/74	167	106.5		.023		15.146	
6/17/74	168	107.5	*	.023	*	17.400	*
6/18/74	169	109.3		.022		15.729	
6/19/74	170	111.0		.021		14.057	
6/20/74	171	112.8		.020		12.386	
6/21/74	172	114.5		.019		10.714	
6/22/74	173	116.3		.018		9.043	
6/23/74	174	118.0		.017		7.371	
6/24/74	175	119.8	*	.016	*	5.700	*
6/25/74	176	118.1		.041		5.667	
6/26/74	177	116.3		.066		5.634	
6/27/74	178	114.6		.091		5.601	
6/28/74	179	112.8		.115		5.569	
6/29/74	180	111.1		.140		5.536	
6/30/74	181	109.3		.165		5.503	
7/ 1/74	182	107.6	*	.190	*	5.470	*
7/ 2/74	183	99.1		.195		5.280	
7/ 3/74	184	90.6		.200		5.090	
7/ 4/74	185	82.1		.206		4.900	
7/ 5/74	186	73.6		.211		4.710	
7/ 6/74	187	65.1		.216		4.520	
7/ 7/74	188	56.6		.221		4.330	
7/ 8/74	189	48.1	*	.227		4.140	
7/ 9/74	190	50.3		.232		3.950	
7/10/74	191	52.5		.237		3.760	
7/11/74	192	54.7		.242		3.570	
7/12/74	193	57.0		.247		3.380	
7/13/74	194	59.2		.253		3.190	
7/14/74	195	61.4		.258		3.000	
7/15/74	196	63.6	*	.263	*	2.810	
7/16/74	197	81.4		.233		2.620	
7/17/74	198	99.3		.203		2.430	
7/18/74	199	117.1		.173		2.240	
7/19/74	200	134.9		.144		2.050	
7/20/74	201	152.7		.114		1.860	
7/21/74	202	170.5		.084		1.670	
7/22/74	203	188.4	*	.054	*	1.480	*
7/23/74	204	175.2		.056		1.720	
7/24/74	205	162.1		.059		1.960	
7/25/74	206	148.9		.061		2.200	
7/26/74	207	135.7		.063		2.440	
7/27/74	208	122.5		.065		2.680	
7/28/74	209	109.4		.068		2.920	
7/29/74	210	96.2	*	.070	*	3.160	*
7/30/74	211	101.4		.077		2.983	
7/31/74	212	106.7		.085		2.806	

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : 13 (S-R)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	111.9	.092	2.629
8/ 2/74	214	117.2	.100	2.451
8/ 3/74	215	122.4	.107	2.274
8/ 4/74	216	127.7	.115	2.097
8/ 5/74	217	132.9 *	.122 *	1.920 *
8/ 6/74	218	124.7	.116	2.963
8/ 7/74	219	116.4	.110	4.006
8/ 8/74	220	108.2	.104	5.049
8/ 9/74	221	100.0	.098	6.091
8/10/74	222	91.8	.092	7.134
8/11/74	223	83.5	.086	8.177
8/12/74	224	75.3 *	.080 *	9.220 *
8/13/74	225	76.7	.075	8.998
8/14/74	226	78.1	.070	8.775
8/15/74	227	79.5	.065	8.552
8/16/74	228	80.8	.060	8.330
8/17/74	229	82.2	.055	8.107
8/18/74	230	83.6	.050	7.885
8/19/74	231	85.0	.046	7.662
8/20/74	232	86.4	.041	7.440
8/21/74	233	87.8	.036	7.218
8/22/74	234	89.2	.031	6.995
8/23/74	235	90.5	.026	6.772
8/24/74	236	91.9	.021	6.550
8/25/74	237	93.3	.016	6.327
8/26/74	238	94.7 *	.011 *	6.105
8/27/74	239	92.5	.016	5.883
8/28/74	240	90.3	.020	5.660
8/29/74	241	88.2	.024	5.438
8/30/74	242	86.0	.029	5.215
8/31/74	243	83.8	.033	4.992
9/ 1/74	244	81.6	.038	4.770
9/ 2/74	245	79.5	.043	4.547
9/ 3/74	246	77.3	.047	4.325
9/ 4/74	247	75.1	.052	4.103
9/ 5/74	248	72.9	.056	3.880
9/ 6/74	249	70.7	.061	3.657
9/ 7/74	250	68.5	.065	3.435
9/ 8/74	251	66.4	.069	3.212
9/ 9/74	252	64.2 *	.074 *	2.990 *
9/10/74	253	69.3	.074	2.984
9/11/74	254	74.3	.073	2.977
9/12/74	255	79.4	.073	2.971
9/13/74	256	84.4	.073	2.964
9/14/74	257	89.5	.073	2.958
9/15/74	258	94.5	.072	2.951
9/16/74	259	99.6 *	.072 *	2.945
9/17/74	260	95.8	.067	2.939
9/18/74	261	92.0	.063	2.932
9/19/74	262	88.2	.058	2.926
9/20/74	263	84.3	.054	2.919
9/21/74	264	80.5	.049	2.913
9/22/74	265	76.7	.045	2.906

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 13 (5-8)

DATE	DAY	CL		T-PO4		TOT-N	
9/23/74	266	72.9	*	.040	*	2.900	*
9/24/74	267	71.1		.039		2.951	
9/25/74	268	69.2		.039		3.003	
9/26/74	269	67.4		.038		3.054	
9/27/74	270	65.5		.037		3.106	
9/28/74	271	63.7		.036		3.157	
9/29/74	272	61.8		.036		3.209	
9/30/74	273	60.0	*	.035	*	3.260	*
10/ 1/74	274	59.5		.036		3.221	
10/ 2/74	275	58.9		.038		3.183	
10/ 3/74	276	58.4		.039		3.144	
10/ 4/74	277	57.9		.040		3.106	
10/ 5/74	278	57.4		.041		3.067	
10/ 6/74	279	56.8		.043		3.029	
10/ 7/74	280	56.3	*	.044	*	2.990	*
10/ 8/74	281	55.4		.045		2.819	
10/ 9/74	282	54.5		.047		2.647	
10/10/74	283	53.6		.048		2.476	
10/11/74	284	52.7		.049		2.304	
10/12/74	285	51.8		.050		2.133	
10/13/74	286	50.9		.052		1.961	
10/14/74	287	50.0	*	.053	*	1.790	*
10/15/74	288	49.5		.051		1.813	
10/16/74	289	49.0		.049		1.836	
10/17/74	290	48.5		.047		1.859	
10/18/74	291	48.0		.045		1.881	
10/19/74	292	47.5		.043		1.904	
10/20/74	293	47.0		.041		1.927	
10/21/74	294	46.5	*	.039	*	1.950	*
10/22/74	295	45.6		.038		1.961	
10/23/74	296	44.7		.037		1.973	
10/24/74	297	43.8		.036		1.984	
10/25/74	298	42.8		.036		1.995	
10/26/74	299	41.9		.035		2.006	
10/27/74	300	41.0		.034		2.017	
10/28/74	301	40.1		.033		2.029	
10/29/74	302	39.2	*	.032	*	2.040	*
10/30/74	303	47.3		.029		2.087	
10/31/74	304	55.4		.025		2.133	
11/ 1/74	305	63.5		.022		2.180	
11/ 2/74	306	71.7		.018		2.227	
11/ 3/74	307	79.8		.015		2.273	
11/ 4/74	308	87.9	*	.011	*	2.320	*
11/ 5/74	309	88.2		.011		2.327	
11/ 6/74	310	88.6		.011		2.334	
11/ 7/74	311	88.9		.012		2.341	
11/ 8/74	312	89.2		.012		2.349	
11/ 9/74	313	89.6		.012		2.356	
11/10/74	314	89.9		.012		2.363	
11/11/74	315	90.3		.013		2.370	
11/12/74	316	90.6		.013		2.377	
11/13/74	317	90.9		.013		2.384	
11/14/74	318	91.3		.013		2.391	

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERV LINE AREA 3
[illegible] : 13 (S-8)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	91.6	.013	2.394
11/16/74	320	91.9	.014	2.406
11/17/74	321	92.3	.014	2.413
11/18/74	322	92.6 *	.014 *	2.420 *
11/19/74	323	92.5	.017	2.389
11/20/74	324	92.4	.021	2.357
11/21/74	325	92.3	.024	2.326
11/22/74	326	92.2	.028	2.294
11/23/74	327	92.2	.031	2.263
11/24/74	328	92.1	.035	2.231
11/25/74	329	92.0	.038	2.200
11/26/74	330	91.9	.042	2.169
11/27/74	331	91.8	.045	2.137
11/28/74	332	91.7	.049	2.105
11/29/74	333	91.6	.052	2.074
11/30/74	334	91.5	.056	2.043
12/ 1/74	335	91.4	.059	2.011
12/ 2/74	336	91.3	.063 *	1.980
12/ 3/74	337	91.3	.059	1.949
12/ 4/74	338	91.2	.055	1.917
12/ 5/74	339	91.1	.051	1.886
12/ 6/74	340	91.0	.046	1.854
12/ 7/74	341	90.9	.042	1.823
12/ 8/74	342	90.8	.038	1.791
12/ 9/74	343	90.7	.034	1.760
12/10/74	344	90.6	.030	1.729
12/11/74	345	90.5	.026	1.697
12/12/74	346	90.5	.022	1.666
12/13/74	347	90.4	.017	1.634
12/14/74	348	90.3	.013	1.603
12/15/74	349	90.2	.009	1.571
12/16/74	350	90.1 *	.005 *	1.540 *
12/17/74	351	95.7	.006	1.596
12/18/74	352	101.2	.006	1.652
12/19/74	353	106.8	.007	1.708
12/20/74	354	112.4	.008	1.764
12/21/74	355	118.0	.008	1.820
12/22/74	356	123.5	.009	1.876
12/23/74	357	129.1	.010	1.932
12/24/74	358	134.7	.010	1.988
12/25/74	359	140.3	.011	2.044
12/26/74	360	145.8	.012	2.100
12/27/74	361	151.4	.012	2.156
12/28/74	362	157.0	.013	2.212
12/29/74	363	162.6	.014	2.268
12/30/74	364	168.1	.014	2.324
12/31/74	365	173.7 *	.015 *	2.380 *

CONSERVATION AREA 3
INPUT-NODE : / (S-9)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	86.0	.040	1.600
1/ 2/74	2	86.0	.040	1.600
1/ 3/74	3	86.0	.040	1.600
1/ 4/74	4	86.0	.040	1.600
1/ 5/74	5	86.0	.040	1.600
1/ 6/74	6	86.0	.040	1.600
1/ 7/74	7	86.0	.040	1.600
1/ 8/74	8	86.0	.040	1.600
1/ 9/74	9	86.0	.040	1.600
1/10/74	10	86.0	.040	1.600
1/11/74	11	86.0	.040	1.600
1/12/74	12	86.0	.040	1.600
1/13/74	13	86.0	.040	1.600
1/14/74	14	86.0	.040	1.600
1/15/74	15	86.0	.040	1.600
1/16/74	16	86.0	.040	1.600
1/17/74	17	86.0	.040	1.600
1/18/74	18	86.0	.040	1.600
1/19/74	19	86.0	.040	1.600
1/20/74	20	86.0	.040	1.600
1/21/74	21	86.0	.040	1.600
1/22/74	22	86.0	.040	1.600
1/23/74	23	86.0	.040	1.600
1/24/74	24	86.0	.040	1.600
1/25/74	25	86.0	.040	1.600
1/26/74	26	86.0	.040	1.600
1/27/74	27	86.0	.040	1.600
1/28/74	28	86.0	.040	1.600
1/29/74	29	86.0	.040	1.600
1/30/74	30	86.0	.040	1.600
1/31/74	31	86.0 *	.040 *	1.600 *
2/ 1/74	32	86.3	.038	1.648
2/ 2/74	33	86.6	.037	1.695
2/ 3/74	34	86.9	.035	1.743
2/ 4/74	35	87.3	.034	1.791
2/ 5/74	36	87.6	.032	1.838
2/ 6/74	37	87.9	.031	1.886
2/ 7/74	38	88.2	.029	1.934
2/ 8/74	39	88.5	.028	1.982
2/ 9/74	40	88.8	.026	2.029
2/10/74	41	89.2	.025	2.077
2/11/74	42	89.5	.023	2.125
2/12/74	43	89.8	.022	2.172
2/13/74	44	90.1	.020 *	2.220 *
2/14/74	45	90.4	.020	2.189
2/15/74	46	90.7	.020	2.158
2/16/74	47	91.1	.020	2.127
2/17/74	48	91.4	.020	2.096
2/18/74	49	91.7	.020	2.065
2/19/74	50	92.0	.020	2.034
2/20/74	51	92.3	.020	2.003
2/21/74	52	92.6	.020	1.972
2/22/74	53	92.9	.020	1.941

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : / (5-9)

DATE	DAY	CL	T-PO4	TOT-N	
2/23/74	54	93.3	.020	1.910	
2/24/74	55	93.6	.020	1.879	
2/25/74	56	93.9	.020	1.848	
2/26/74	57	94.2	.020	1.817	
2/27/74	58	94.5	.020	1.786	
2/28/74	59	94.8	.020	1.754	
3/ 1/74	60	95.2	.020	1.723	
3/ 2/74	61	95.5	.020	1.692	
3/ 3/74	62	95.8	.020	1.661	
3/ 4/74	63	96.1	.020	1.630	
3/ 5/74	64	96.4	.020	1.599	
3/ 6/74	65	96.7	.020	1.568	
3/ 7/74	66	97.1	.020	1.537	
3/ 8/74	67	97.4	.020	1.506	
3/ 9/74	68	97.7	.020	1.475	
3/10/74	69	98.0	.020	1.444	
3/11/74	70	98.3	.020	1.413	
3/12/74	71	98.6	.020	1.382	
3/13/74	72	98.9	.020	1.351	
3/14/74	73	99.3	.020	1.320	*
3/15/74	74	99.6	.020	1.342	
3/16/74	75	99.9	.020	1.365	
3/17/74	76	100.2	.020	1.387	
3/18/74	77	100.5	.020	1.409	
3/19/74	78	100.8	.020	1.432	
3/20/74	79	101.2	.020	1.454	
3/21/74	80	101.5	.020	1.476	
3/22/74	81	101.8	.020	1.499	
3/23/74	82	102.1	.020	1.521	
3/24/74	83	102.4	.020	1.544	
3/25/74	84	102.7	.020	1.566	
3/26/74	85	103.1	.020	1.588	
3/27/74	86	103.4	.020	1.611	
3/28/74	87	103.7	.020	1.633	
3/29/74	88	104.0	.020	1.655	
3/30/74	89	104.3	.020	1.678	
3/31/74	90	104.6	.020	1.700	
4/ 1/74	91	104.9	.020	1.722	
4/ 2/74	92	105.3	.020	1.745	
4/ 3/74	93	105.6	.020	1.767	
4/ 4/74	94	105.9	.020	1.789	
4/ 5/74	95	106.2	.020	1.812	
4/ 6/74	96	106.5	.020	1.834	
4/ 7/74	97	106.8	.020	1.856	
4/ 8/74	98	107.2	.020	1.879	
4/ 9/74	99	107.5	.020	1.901	
4/10/74	100	107.8	.020	1.924	
4/11/74	101	108.1	.020	1.946	
4/12/74	102	108.4	.020	1.968	
4/13/74	103	108.7	.020	1.991	
4/14/74	104	109.1	.020	2.013	
4/15/74	105	109.4	.020	2.035	
4/16/74	106	109.7	.020	2.058	

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
T-POINT-NODE : 7 (S-9)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	110.0 *	.020	2.080 *
4/18/74	108	110.0	.020	1.880 *
4/19/74	109	110.0	.020	1.876
4/20/74	110	110.0	.020	1.873
4/21/74	111	110.0	.020	1.869
4/22/74	112	110.0	.020	1.865
4/23/74	113	110.0	.020	1.861
4/24/74	114	110.0	.020	1.858
4/25/74	115	110.0	.020	1.854
4/26/74	116	110.0	.020	1.850
4/27/74	117	110.0	.020	1.847
4/28/74	118	110.0	.020	1.843
4/29/74	119	110.0	.020	1.839
4/30/74	120	110.0	.020	1.836
5/ 1/74	121	110.0	.020	1.832
5/ 2/74	122	110.0	.020	1.828
5/ 3/74	123	110.0	.020	1.824
5/ 4/74	124	110.0	.020	1.821
5/ 5/74	125	110.0	.020	1.817
5/ 6/74	126	110.0	.020	1.813
5/ 7/74	127	110.0	.020	1.810
5/ 8/74	128	110.0	.020	1.806
5/ 9/74	129	110.0	.020	1.802
5/10/74	130	110.0	.020	1.799
5/11/74	131	110.0	.020	1.795
5/12/74	132	110.0	.020	1.791
5/13/74	133	110.0	.020	1.787
5/14/74	134	110.0	.020	1.784
5/15/74	135	110.0	.020 *	1.780 *
5/16/74	136	110.0	.020	1.787
5/17/74	137	110.0	.021	1.793
5/18/74	138	110.0	.021	1.800
5/19/74	139	110.0	.021	1.807
5/20/74	140	110.0	.022	1.813
5/21/74	141	110.0	.022	1.820
5/22/74	142	110.0	.022	1.827
5/23/74	143	110.0	.022	1.833
5/24/74	144	110.0	.023	1.840
5/25/74	145	110.0	.023	1.847
5/26/74	146	110.0	.023	1.853
5/27/74	147	110.0	.024	1.860
5/28/74	148	110.0	.024	1.867
5/29/74	149	110.0	.024	1.873
5/30/74	150	110.0	.025	1.880
5/31/74	151	110.0	.025	1.887
6/ 1/74	152	110.0	.025	1.893
6/ 2/74	153	110.0	.025	1.900
6/ 3/74	154	110.0	.026	1.907
6/ 4/74	155	110.0	.026	1.913
6/ 5/74	156	110.0	.026	1.920
6/ 6/74	157	110.0	.027	1.927
6/ 7/74	158	110.0	.027	1.933
6/ 8/74	159	110.0	.027	1.940

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 7 (S-9)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	110.0	.028	1.947
6/10/74	161	110.0	.028	1.953
6/11/74	162	110.0	.028	1.960
6/12/74	163	110.0	.028	1.967
6/13/74	164	110.0	.029	1.973
6/14/74	165	110.0	.029	1.980
6/15/74	166	110.0	.029	1.987
6/16/74	167	110.0	.030	1.993
6/17/74	168	110.0 *	.030 *	2.000 *
6/18/74	169	109.9	.031	1.991
6/19/74	170	109.9	.031	1.981
6/20/74	171	109.8	.032	1.972
6/21/74	172	109.7	.033	1.963
6/22/74	173	109.7	.033	1.953
6/23/74	174	109.6	.034	1.944
6/24/74	175	109.5	.035	1.935
6/25/74	176	109.5	.035	1.925
6/26/74	177	109.4	.036	1.916
6/27/74	178	109.3	.037	1.907
6/28/74	179	109.3	.037	1.897
6/29/74	180	109.2	.038	1.888
6/30/74	181	109.1	.039	1.879
7/ 1/74	182	109.1	.039	1.869
7/ 2/74	183	109.0	.040	1.860
7/ 3/74	184	108.9	.041	1.851
7/ 4/74	185	108.9	.041	1.841
7/ 5/74	186	108.8	.042	1.832
7/ 6/74	187	108.7	.043	1.823
7/ 7/74	188	108.7	.043	1.813
7/ 8/74	189	108.6	.044	1.804
7/ 9/74	190	108.5	.045	1.795
7/10/74	191	108.5	.045	1.785
7/11/74	192	108.4	.046	1.776
7/12/74	193	108.3	.047	1.767
7/13/74	194	108.3	.047	1.757
7/14/74	195	108.2	.048	1.748
7/15/74	196	108.1	.049	1.739
7/16/74	197	108.1	.049	1.729
7/17/74	198	108.0 *	.050 *	1.720 *
7/18/74	199	107.8	.050	1.720
7/19/74	200	107.5	.050	1.720
7/20/74	201	107.3	.049	1.721
7/21/74	202	107.1	.049	1.721
7/22/74	203	106.9	.049	1.721
7/23/74	204	106.6	.049	1.721
7/24/74	205	106.4	.048	1.722
7/25/74	206	106.2	.048	1.722
7/26/74	207	106.0	.048	1.722
7/27/74	208	105.7	.048	1.722
7/28/74	209	105.5	.047	1.722
7/29/74	210	105.3	.047	1.723
7/30/74	211	105.0	.047	1.723
7/31/74	212	104.8	.047	1.723

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
TOPOT-DODE : 7 (S-9)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	104.6	.047	1.723
8/ 2/74	214	104.4	.046	1.724
8/ 3/74	215	104.1	.046	1.724
8/ 4/74	216	103.9	.046	1.724
8/ 5/74	217	103.7	.046	1.724
8/ 6/74	218	103.5	.045	1.725
8/ 7/74	219	103.2	.045	1.725
8/ 8/74	220	103.0	.045	1.725
8/ 9/74	221	102.8	.045	1.725
8/10/74	222	102.5	.045	1.725
8/11/74	223	102.3	.044	1.726
8/12/74	224	102.1	.044	1.726
8/13/74	225	101.9	.044	1.726
8/14/74	226	101.6	.044	1.726
8/15/74	227	101.4	.043	1.727
8/16/74	228	101.2	.043	1.727
8/17/74	229	101.0	.043	1.727
8/18/74	230	100.7	.043	1.727
8/19/74	231	100.5	.043	1.727
8/20/74	232	100.3	.042	1.728
8/21/74	233	100.0	.042	1.728
8/22/74	234	99.8	.042	1.728
8/23/74	235	99.6	.042	1.728
8/24/74	236	99.4	.041	1.729
8/25/74	237	99.1	.041	1.729
8/26/74	238	98.9	.041	1.729
8/27/74	239	98.7	.041	1.729
8/28/74	240	98.5	.040	1.730
8/29/74	241	98.2	.040	1.730
8/30/74	242	98.0 *	.040 *	1.730 *
8/31/74	243	98.5	.025	1.685
9/ 1/74	244	99.0 *	.010 *	1.640 *
9/ 2/74	245	99.0	.010	1.640
9/ 3/74	246	99.0	.010	1.640
9/ 4/74	247	99.0	.010	1.640
9/ 5/74	248	99.0	.010	1.640
9/ 6/74	249	99.0	.010	1.640
9/ 7/74	250	99.0	.010	1.640
9/ 8/74	251	99.0	.010	1.640
9/ 9/74	252	99.0	.010	1.640
9/10/74	253	99.0	.010	1.640
9/11/74	254	99.0	.010	1.640
9/12/74	255	99.0	.010	1.640
9/13/74	256	99.0	.010	1.640
9/14/74	257	99.0	.010	1.640
9/15/74	258	99.0	.010	1.640
9/16/74	259	99.0	.010	1.640
9/17/74	260	99.0	.010	1.640
9/18/74	261	99.0	.010	1.640
9/19/74	262	99.0	.010	1.640
9/20/74	263	99.0	.010	1.640
9/21/74	264	99.0	.010	1.640
9/22/74	265	99.0	.010	1.640

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : 7 (S-9)

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	99.0	.010	1.640
9/24/74	267	99.0	.010	1.640
9/25/74	268	99.0	.010	1.640
9/26/74	269	99.0	.010	1.640
9/27/74	270	99.0	.010	1.640
9/28/74	271	99.0	.010	1.640
9/29/74	272	99.0	.010	1.640
9/30/74	273	99.0	.010 *	1.640 *
10/ 1/74	274	99.0	.020 *	1.660 *
10/ 2/74	275	99.0	.020	1.660
10/ 3/74	276	99.0	.020	1.660
10/ 4/74	277	99.0	.020	1.660
10/ 5/74	278	99.0	.020	1.660
10/ 6/74	279	99.0	.020	1.660
10/ 7/74	280	99.0	.020	1.660
10/ 8/74	281	99.0	.020	1.660
10/ 9/74	282	99.0	.020	1.660
10/10/74	283	99.0	.020	1.660
10/11/74	284	99.0	.020	1.660
10/12/74	285	99.0	.020	1.660
10/13/74	286	99.0	.020	1.660
10/14/74	287	99.0	.020	1.660
10/15/74	288	99.0	.020	1.660
10/16/74	289	99.0	.020	1.660
10/17/74	290	99.0	.020	1.660
10/18/74	291	99.0	.020	1.660
10/19/74	292	99.0	.020	1.660
10/20/74	293	99.0	.020	1.660
10/21/74	294	99.0	.020	1.660
10/22/74	295	99.0	.020	1.660
10/23/74	296	99.0	.020	1.660
10/24/74	297	99.0	.020	1.660
10/25/74	298	99.0	.020	1.660
10/26/74	299	99.0	.020	1.660
10/27/74	300	99.0	.020	1.660
10/28/74	301	99.0	.020	1.660
10/29/74	302	99.0	.020	1.660
10/30/74	303	99.0	.020	1.660
10/31/74	304	99.0 *	.020	1.660 *
11/ 1/74	305	100.5	.020	1.686
11/ 2/74	306	102.1	.020	1.712
11/ 3/74	307	103.6	.020	1.738
11/ 4/74	308	105.2	.020	1.765
11/ 5/74	309	106.7	.020	1.791
11/ 6/74	310	108.2	.020	1.817
11/ 7/74	311	109.8	.020	1.843
11/ 8/74	312	111.3	.020	1.869
11/ 9/74	313	112.8	.020	1.895
11/10/74	314	114.4	.020	1.922
11/11/74	315	115.9	.020	1.948
11/12/74	316	117.5	.020	1.974
11/13/74	317	119.0 *	.020 *	2.000 *
11/14/74	318	118.6	.020	1.990

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
[illegible] : 7 (5-9)

DATE	DAY	CL	T-PO4	TOT-N
11/15/74	319	118.2	.019	1.979
11/16/74	320	117.8	.019	1.969
11/17/74	321	117.4	.019	1.959
11/18/74	322	117.0	.018	1.948
11/19/74	323	116.6	.018	1.938
11/20/74	324	116.2	.018	1.928
11/21/74	325	115.8	.018	1.918
11/22/74	326	115.5	.017	1.907
11/23/74	327	115.1	.017	1.897
11/24/74	328	114.7	.017	1.887
11/25/74	329	114.3	.016	1.876
11/26/74	330	113.9	.016	1.866
11/27/74	331	113.5	.016	1.856
11/28/74	332	113.1	.015	1.845
11/29/74	333	112.7	.015	1.835
11/30/74	334	112.3	.015	1.825
12/ 1/74	335	111.9	.015	1.815
12/ 2/74	336	111.5	.014	1.804
12/ 3/74	337	111.1	.014	1.794
12/ 4/74	338	110.7	.014	1.784
12/ 5/74	339	110.3	.013	1.773
12/ 6/74	340	109.9	.013	1.763
12/ 7/74	341	109.5	.013	1.753
12/ 8/74	342	109.2	.012	1.742
12/ 9/74	343	108.8	.012	1.732
12/10/74	344	108.4	.012	1.722
12/11/74	345	108.0	.012	1.712
12/12/74	346	107.6	.011	1.701
12/13/74	347	107.2	.011	1.691
12/14/74	348	106.8	.011	1.681
12/15/74	349	106.4	.010	1.670
12/16/74	350	106.0 *	.010 *	1.660 *
12/17/74	351	106.2	.010	1.668
12/18/74	352	106.4	.010	1.676
12/19/74	353	106.6	.010	1.684
12/20/74	354	106.8	.010	1.692
12/21/74	355	107.0	.010	1.700
12/22/74	356	107.2	.010	1.708
12/23/74	357	107.4	.010	1.716
12/24/74	358	107.6	.010	1.724
12/25/74	359	107.8	.010	1.732
12/26/74	360	108.0	.010	1.740
12/27/74	361	108.2	.010	1.748
12/28/74	362	108.4	.010	1.756
12/29/74	363	108.6	.010	1.764
12/30/74	364	108.8	.010	1.772
12/31/74	365	109.0 *	.010	1.780 *

CONSERVATION AREA 3
INPUT-MODE : * (S-11)

DATE	DAY	CL	T-PO4	TOT-N
1/ 1/74	1	100.0	.010 *	2.620 *
1/ 2/74	2	100.0	.010	2.611
1/ 3/74	3	100.0	.010	2.602
1/ 4/74	4	100.0	.010	2.593
1/ 5/74	5	100.0	.010	2.584
1/ 6/74	6	100.0	.010	2.575
1/ 7/74	7	100.0	.010	2.566
1/ 8/74	8	100.0	.010	2.557
1/ 9/74	9	100.0	.010	2.549
1/10/74	10	100.0	.010	2.540
1/11/74	11	100.0	.010	2.531
1/12/74	12	100.0	.010	2.522
1/13/74	13	100.0	.010	2.513
1/14/74	14	100.0	.010	2.504
1/15/74	15	100.0	.010	2.495
1/16/74	16	100.0	.010	2.486
1/17/74	17	100.0 *	.010 *	2.477
1/18/74	18	101.7	.010	2.468
1/19/74	19	103.3	.010	2.459
1/20/74	20	105.0	.010	2.450
1/21/74	21	106.7	.010	2.441
1/22/74	22	108.3	.010	2.432
1/23/74	23	110.0	.010	2.424
1/24/74	24	111.7	.010	2.415
1/25/74	25	113.3	.010	2.406
1/26/74	26	115.0	.010	2.397
1/27/74	27	116.7	.010	2.388
1/28/74	28	118.3	.010	2.379
1/29/74	29	120.0 *	.010 *	2.370 *
1/30/74	30	120.0	.011	2.364
1/31/74	31	120.0	.011	2.358
2/ 1/74	32	120.0	.012	2.352
2/ 2/74	33	120.0	.013	2.346
2/ 3/74	34	120.0	.013	2.340
2/ 4/74	35	120.0	.014	2.334
2/ 5/74	36	120.0	.015	2.328
2/ 6/74	37	120.0	.015	2.322
2/ 7/74	38	120.0	.016	2.316
2/ 8/74	39	120.0	.017	2.310
2/ 9/74	40	120.0	.017	2.304
2/10/74	41	120.0	.018	2.298
2/11/74	42	120.0	.019	2.292
2/12/74	43	120.0	.019	2.286
2/13/74	44	120.0	.020 *	2.280 *
2/14/74	45	120.0	.020	2.272
2/15/74	46	120.0	.020	2.265
2/16/74	47	120.0	.020	2.257
2/17/74	48	120.0	.020	2.250
2/18/74	49	120.0	.020	2.242
2/19/74	50	120.0	.020	2.234
2/20/74	51	120.0	.020	2.227
2/21/74	52	120.0	.020	2.219
2/22/74	53	120.0	.020	2.212

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-MODE : * (S-11)

DATE	DAY	CL	T-PO4	TOT-N
2/23/74	54	120.0	.020	2.204
2/24/74	55	120.0	.020	2.197
2/25/74	56	120.0	.020	2.189
2/26/74	57	120.0	.020	2.181
2/27/74	58	120.0	.020	2.174
2/28/74	59	120.0	.020	2.166
3/ 1/74	60	120.0	.020	2.159
3/ 2/74	61	120.0	.020	2.151
3/ 3/74	62	120.0	.020	2.143
3/ 4/74	63	120.0	.020	2.136
3/ 5/74	64	120.0	.020	2.128
3/ 6/74	65	120.0	.020	2.121
3/ 7/74	66	120.0	.020	2.113
3/ 8/74	67	120.0	.020	2.106
3/ 9/74	68	120.0	.020	2.098
3/10/74	69	120.0	.020	2.090
3/11/74	70	120.0	.020	2.083
3/12/74	71	120.0	.020	2.075
3/13/74	72	120.0	.020	2.068
3/14/74	73	120.0	.020	2.060 *
3/15/74	74	120.0	.020	2.058
3/16/74	75	120.0	.020	2.056
3/17/74	76	120.0	.020	2.054
3/18/74	77	120.0	.020	2.052
3/19/74	78	120.0	.020	2.050
3/20/74	79	120.0	.020	2.048
3/21/74	80	120.0	.020	2.046
3/22/74	81	120.0	.020	2.044
3/23/74	82	120.0	.020	2.041
3/24/74	83	120.0	.020	2.039
3/25/74	84	120.0	.020	2.037
3/26/74	85	120.0	.020	2.035
3/27/74	86	120.0	.020	2.033
3/28/74	87	120.0	.020	2.031
3/29/74	88	120.0	.020	2.029
3/30/74	89	120.0	.020	2.027
3/31/74	90	120.0	.020	2.025
4/ 1/74	91	120.0	.020	2.023
4/ 2/74	92	120.0	.020	2.021
4/ 3/74	93	120.0	.020	2.019
4/ 4/74	94	120.0	.020	2.017
4/ 5/74	95	120.0	.020	2.015
4/ 6/74	96	120.0	.020	2.013
4/ 7/74	97	120.0	.020	2.011
4/ 8/74	98	120.0	.020	2.009
4/ 9/74	99	120.0	.020	2.006
4/10/74	100	120.0	.020	2.004
4/11/74	101	120.0	.020	2.002
4/12/74	102	120.0	.020	2.000
4/13/74	103	120.0	.020	1.998
4/14/74	104	120.0	.020	1.996
4/15/74	105	120.0	.020	1.994
4/16/74	106	120.0	.020	1.992

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 8 (S-11)

DATE	DAY	CL	T-PO4	TOT-N
4/17/74	107	120.0 *	.020 *	1.990 *
4/18/74	108	120.2	.020	1.982
4/19/74	109	120.4	.021	1.974
4/20/74	110	120.5	.021	1.965
4/21/74	111	120.7	.021	1.957
4/22/74	112	120.9	.022	1.949
4/23/74	113	121.1	.022	1.941
4/24/74	114	121.3	.023	1.932
4/25/74	115	121.4	.023	1.924
4/26/74	116	121.6	.023	1.916
4/27/74	117	121.8	.024	1.908
4/28/74	118	122.0	.024	1.900
4/29/74	119	122.1	.024	1.891
4/30/74	120	122.3	.025	1.883
5/ 1/74	121	122.5	.025	1.875
5/ 2/74	122	122.7	.025	1.867
5/ 3/74	123	122.9	.026	1.859
5/ 4/74	124	123.0	.026	1.850
5/ 5/74	125	123.2	.026	1.842
5/ 6/74	126	123.4	.027	1.834
5/ 7/74	127	123.6	.027	1.826
5/ 8/74	128	123.8	.028	1.818
5/ 9/74	129	123.9	.028	1.809
5/10/74	130	124.1	.028	1.801
5/11/74	131	124.3	.029	1.793
5/12/74	132	124.5	.029	1.785
5/13/74	133	124.6	.029	1.776
5/14/74	134	124.8	.030	1.768
5/15/74	135	125.0 *	.030 *	1.760 *
5/16/74	136	125.0	.031	1.794
5/17/74	137	125.0	.031	1.828
5/18/74	138	125.0	.032	1.862
5/19/74	139	125.0	.032	1.896
5/20/74	140	125.0	.033	1.930
5/21/74	141	125.0	.034	1.964
5/22/74	142	125.0	.034	1.998
5/23/74	143	125.0	.035	2.032
5/24/74	144	125.0	.035	2.065
5/25/74	145	125.0	.036	2.099
5/26/74	146	125.0	.037	2.133
5/27/74	147	125.0	.037	2.167
5/28/74	148	125.0	.038	2.201
5/29/74	149	125.0	.038	2.235
5/30/74	150	125.0	.039	2.269
5/31/74	151	125.0	.040	2.303
6/ 1/74	152	125.0	.040	2.337
6/ 2/74	153	125.0	.041	2.371
6/ 3/74	154	125.0	.042	2.405
6/ 4/74	155	125.0	.042	2.439
6/ 5/74	156	125.0	.043	2.473
6/ 6/74	157	125.0	.043	2.507
6/ 7/74	158	125.0	.044	2.541
6/ 8/74	159	125.0	.045	2.575

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 8 (S-11)

DATE	DAY	CL	T-PO4	TOT-N
6/ 9/74	160	125.0	.045	2.608
6/10/74	161	125.0	.046	2.642
6/11/74	162	125.0	.046	2.676
6/12/74	163	125.0	.047	2.710
6/13/74	164	125.0	.048	2.744
6/14/74	165	125.0	.048	2.778
6/15/74	166	125.0	.049	2.812
6/16/74	167	125.0	.049	2.846
6/17/74	168	125.0	.050 *	2.880 *
6/18/74	169	125.0	.051	2.857
6/19/74	170	125.0	.052	2.835
6/20/74	171	125.0	.053	2.812
6/21/74	172	125.0	.054	2.789
6/22/74	173	125.0	.055	2.767
6/23/74	174	125.0	.056	2.744
6/24/74	175	125.0	.057	2.721
6/25/74	176	125.0	.058	2.699
6/26/74	177	125.0	.059	2.676
6/27/74	178	125.0	.060	2.653
6/28/74	179	125.0	.061	2.631
6/29/74	180	125.0	.062	2.608
6/30/74	181	125.0	.063	2.585
7/ 1/74	182	125.0	.064	2.563
7/ 2/74	183	125.0	.065	2.540
7/ 3/74	184	125.0	.066	2.517
7/ 4/74	185	125.0	.067	2.495
7/ 5/74	186	125.0	.068	2.472
7/ 6/74	187	125.0	.069	2.449
7/ 7/74	188	125.0	.070	2.427
7/ 8/74	189	125.0	.071	2.404
7/ 9/74	190	125.0	.072	2.381
7/10/74	191	125.0	.073	2.359
7/11/74	192	125.0	.074	2.336
7/12/74	193	125.0	.075	2.313
7/13/74	194	125.0	.076	2.291
7/14/74	195	125.0	.077	2.268
7/15/74	196	125.0	.078	2.245
7/16/74	197	125.0	.079	2.223
7/17/74	198	125.0 *	.080 *	2.200 *
7/18/74	199	125.3	.076	2.185
7/19/74	200	125.7	.071	2.171
7/20/74	201	126.0	.067	2.156
7/21/74	202	126.3	.063	2.141
7/22/74	203	126.7	.059	2.127
7/23/74	204	127.0	.054	2.112
7/24/74	205	127.3	.050	2.097
7/25/74	206	127.7	.046	2.083
7/26/74	207	128.0	.042	2.068
7/27/74	208	128.3	.037	2.053
7/28/74	209	128.7	.033	2.039
7/29/74	210	129.0	.029	2.024
7/30/74	211	129.3	.025	2.009
7/31/74	212	129.7	.020	1.995

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 8 (S-11)

DATE	DAY	CL	T-PO4	TOT-N
8/ 1/74	213	130.0 *	.016 *	1.980 *
8/ 2/74	214	130.0	.016	1.980
8/ 3/74	215	130.0	.016	1.980
8/ 4/74	216	130.0	.016	1.980
8/ 5/74	217	130.0	.016	1.980
8/ 6/74	218	130.0	.016	1.980
8/ 7/74	219	130.0	.016	1.980
8/ 8/74	220	130.0	.016	1.980
8/ 9/74	221	130.0	.016	1.980
8/10/74	222	130.0	.016	1.980
8/11/74	223	130.0	.016	1.980
8/12/74	224	130.0	.016	1.980
8/13/74	225	130.0	.016	1.980
8/14/74	226	130.0	.016	1.980
8/15/74	227	130.0	.016	1.980
8/16/74	228	130.0	.016	1.980
8/17/74	229	130.0	.016	1.980
8/18/74	230	130.0	.016	1.980
8/19/74	231	130.0	.016	1.980
8/20/74	232	130.0	.016	1.980
8/21/74	233	130.0	.016	1.980
8/22/74	234	130.0	.016	1.980
8/23/74	235	130.0	.016	1.980
8/24/74	236	130.0	.016	1.980
8/25/74	237	130.0	.016	1.980
8/26/74	238	130.0	.016	1.980
8/27/74	239	130.0	.016	1.980
8/28/74	240	130.0	.016	1.980
8/29/74	241	130.0	.016	1.980
8/30/74	242	130.0	.016 *	1.980
8/31/74	243	130.0 *	.018	1.980 *
9/ 1/74	244	130.3	.020	2.022
9/ 2/74	245	130.6	.021	2.063
9/ 3/74	246	130.8	.023	2.105
9/ 4/74	247	131.1	.025	2.147
9/ 5/74	248	131.4	.027	2.188
9/ 6/74	249	131.7	.029	2.230
9/ 7/74	250	131.9	.030	2.272
9/ 8/74	251	132.2	.032	2.313
9/ 9/74	252	132.5	.034	2.355
9/10/74	253	132.8	.036	2.397
9/11/74	254	133.1	.037	2.438
9/12/74	255	133.3	.039	2.480
9/13/74	256	133.6	.041	2.522
9/14/74	257	133.9	.043	2.563
9/15/74	258	134.2	.045	2.605
9/16/74	259	134.4	.046	2.647
9/17/74	260	134.7	.048	2.688
9/18/74	261	135.0 *	.050 *	2.730 *
9/19/74	262	135.0	.050	2.730
9/20/74	263	135.0	.050	2.730
9/21/74	264	135.0	.050	2.730
9/22/74	265	135.0	.050	2.730

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 3 (S-11)

DATE	DAY	CL	T-PO4	TOT-N
9/23/74	266	135.0	.050	2.730
9/24/74	267	135.0	.050	2.730
9/25/74	268	135.0	.050	2.730
9/26/74	269	135.0	.050	2.730
9/27/74	270	135.0	.050	2.730
9/28/74	271	135.0	.050	2.730
9/29/74	272	135.0	.050	2.730
9/30/74	273	135.0	.050	2.730
10/ 1/74	274	135.0	.050	2.730
10/ 2/74	275	135.0	.050	2.730
10/ 3/74	276	135.0	.050	2.730
10/ 4/74	277	135.0	.050	2.730
10/ 5/74	278	135.0	.050	2.730
10/ 6/74	279	135.0	.050	2.730
10/ 7/74	280	135.0	.050	2.730
10/ 8/74	281	135.0	.050	2.730
10/ 9/74	282	135.0	.050	2.730
10/10/74	283	135.0	.050	2.730
10/11/74	284	135.0	.050	2.730
10/12/74	285	135.0	.050	2.730
10/13/74	286	135.0	.050	2.730
10/14/74	287	135.0	.050	2.730
10/15/74	288	135.0	.050	2.730
10/16/74	289	135.0	.050	2.730
10/17/74	290	135.0	.050	2.730
10/18/74	291	135.0	.050	2.730
10/19/74	292	135.0	.050	2.730
10/20/74	293	135.0	.050	2.730
10/21/74	294	135.0	.050	2.730
10/22/74	295	135.0	.050	2.730
10/23/74	296	135.0	.050	2.730
10/24/74	297	135.0	.050	2.730
10/25/74	298	135.0	.050	2.730
10/26/74	299	135.0	.050	2.730
10/27/74	300	135.0	.050	2.730
10/28/74	301	135.0	.050	2.730
10/29/74	302	135.0	.050	2.730
10/30/74	303	135.0	.050	2.730
10/31/74	304	135.0	.050	2.730
11/ 1/74	305	135.0	.050	2.730
11/ 2/74	306	135.0	.050	2.730
11/ 3/74	307	135.0	.050	2.730
11/ 4/74	308	135.0	.050	2.730
11/ 5/74	309	135.0	.050	2.730
11/ 6/74	310	135.0	.050	2.730
11/ 7/74	311	135.0	.050	2.730
11/ 8/74	312	135.0	.050	2.730
11/ 9/74	313	135.0	.050	2.730
11/10/74	314	135.0	.050	2.730
11/11/74	315	135.0	.050	2.730
11/12/74	316	135.0	.050	2.730
11/13/74	317	135.0	.050	2.730
11/14/74	318	135.0	.050	2.730

* ACTUAL CURVE POINT
(ALL OTHER VALUES ARE INTERPOLATED)

CONSERVATION AREA 3
INPUT-NODE : 8 (S-11)

DATE	DAY	CL	T-P04	TOT-N
11/15/74	319	135.0	.050	2.730
11/16/74	320	135.0	.050	2.730
11/17/74	321	135.0	.050	2.730
11/18/74	322	135.0	.050	2.730
11/19/74	323	135.0	.050	2.730
11/20/74	324	135.0	.050	2.730
11/21/74	325	135.0	.050	2.730
11/22/74	326	135.0	.050	2.730
11/23/74	327	135.0	.050	2.730
11/24/74	328	135.0	.050	2.730
11/25/74	329	135.0	.050	2.730
11/26/74	330	135.0	.050	2.730
11/27/74	331	135.0	.050	2.730
11/28/74	332	135.0	.050	2.730
11/29/74	333	135.0	.050	2.730
11/30/74	334	135.0	.050	2.730
12/ 1/74	335	135.0	.050	2.730
12/ 2/74	336	135.0	.050	2.730
12/ 3/74	337	135.0	.050	2.730
12/ 4/74	338	135.0	.050	2.730
12/ 5/74	339	135.0	.050	2.730
12/ 6/74	340	135.0	.050	2.730
12/ 7/74	341	135.0	.050	2.730
12/ 8/74	342	135.0	.050	2.730
12/ 9/74	343	135.0	.050	2.730
12/10/74	344	135.0	.050	2.730
12/11/74	345	135.0	.050	2.730
12/12/74	346	135.0	.050	2.730
12/13/74	347	135.0	.050	2.730
12/14/74	348	135.0	.050	2.730
12/15/74	349	135.0	.050	2.730
12/16/74	350	135.0	.050	2.730
12/17/74	351	135.0	.050	2.730
12/18/74	352	135.0	.050	2.730
12/19/74	353	135.0	.050	2.730
12/20/74	354	135.0	.050	2.730
12/21/74	355	135.0	.050	2.730
12/22/74	356	135.0	.050	2.730
12/23/74	357	135.0	.050	2.730
12/24/74	358	135.0	.050	2.730
12/25/74	359	135.0	.050	2.730
12/26/74	360	135.0	.050	2.730
12/27/74	361	135.0	.050	2.730
12/28/74	362	135.0	.050	2.730
12/29/74	363	135.0	.050	2.730
12/30/74	364	135.0	.050	2.730
12/31/74	365	135.0	.050	2.730

CHLORIDE DATA FOR BACKPUMPED INPUTS

Month	C-51 (mg/l)	Tamiami (mg/l)	Hillsboro (mg/l)
January	58.7	61.3	121.7
February	99.8	46.3	102.0
March	107.2	41.9	106.9
April	96.1	68.4	133.4
May	114.1	54.5	126.1
June	179.3	52.9	102.5
July	70.9	42.2	76.3
August	36.4	33.9	81.8
September	114.4	50.8	81.2
October	74.1	40.1	70.3
November	67.6	50.3	92.3
December	86.6	45.3	76.0

Source: Unpublished data of Jay Foy, Water Resource Division.

EXHIBIT II

Computer Program Listings

```
      PROGRAM QUALITY
C
C ***************************************************************************
C
C     THIS PROGRAM WILL PERFORM COMPUTATIONAL STEPS TO CALIBRATE THE
C     WATER QUALITY MODEL FOR AN ILLUSTRATIVE CONSERVATIONAL AREA
C
C ***************************************************************************
C
      COMMON IYRB, IMOB, IDYB, IYRE, IMOE, IDYE, IYRR, IMOR, IDYR
     X,      IHR, IMN, NCA, KNAME(2), IDATES(5)
     X,      HRNODE(20,24)
     X,      DECAY
C
      DIMENSION LENGTH(60), LBEG(60), LEND(60), CON(20), Q(60)
     X,         NODE(9), NPTS(9), KDAYS(12), VEL(60)
     X,         CHEM1(2,50), CHEM2(2,50), CHEM3(2,50), CHEM4(2,50)
     X,         CHEM5(2,50), CHEM6(2,50), CHEM7(2,50), CHEM8(2,50)
     X,         CHEM9(2,50), XCON(20), DUM(60), NLINKS(3)
     X,         MDAYS(4,20), MTDAYS(4,20), RGMIN(4), RGMAX(4)
     X,         Q1(31), Q2(31), Q3(31), Q4(31), Q5(31), Q6(31), Q7(31)
     X,         Q8(31), Q9(31), DEPTHS(20), RAIN(20), AREA(20), QIN(20)
     X,         RCON(3), QX(31), SAVCON(20), DFITT(3), NORAIN(2)
     X,         NSKIP(20), ISKIP1(9), ISKIP2(9), ISKIP3(9)
C
C ***                  JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
      DATA (KDAYS = 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31)
     X,    (LENGTH = 60(0)), (NLINKS = 57, 51, 56)
     X,    (MDAYS = 80(0)), (MTDAYS = 80(0)), (DFTTT = 0.,0.,0.)
     X,    (RCON = .045, 4.0, 1.2), (ISKIP1 = 4,20,0*0,0,0,0,0,0)
     X,    (ISKIP2 = 10,14,17,18,0,0,0,0,0)
     X,    (ISKIP3 = 7,8,9,13,16,18,19,0,0)
C
C
C *** READ IN CONSERVATION AREAS
      READ  (60,1) NCA, LOOP, NORAIN
      WRITE (61,1) NCA, LOOP, NORAIN
    1 FORMAT (18X, A2, X, I2, X, 2A4)
      NUP = 1
      INIT = 1
      NL = NGET (NCA,1,1)
      LNBR = NLINKS(NL)
C
C *** READ IN DATES OF REPORT
      CALL READ (IDATES,1,20,NER)
      CALL PRINT (IDATES,1,20,NER)
C
C *** READ IN PARAMETER NODES
      READ (60,2) ISKIP, NSKIP
      WRITE (61,2) ISKIP, NSKIP
    2 FORMAT (21I3)
C
C *** PREPARE DATES FOR PRINT FORMAT
      CALL TIME
C
C *** READ IN LINK DATA (LENGTH, BEGIN-JUNCTION, END-JUNCTION)
```

```
      READ (1) LINKS
      WRITE (61,3)LINKS
    3 FORMAT (6X, I2)
C
      DO 10 I = 1,LINKS
      READ (1) L, LENGTH(L), LBEG(L), LEND(L)
      WRITE (61,5) L, LENGTH(L), LBEG(L), LEND(L)
    5 FORMAT (5X, I2, 3X, 3I5)
   10 CONTINUE
C
C *** READ IN NUMBER OF INLET NODES FOR THIS AREA
      READ (1) INLETS
   12 FORMAT (13X, I1)
C
C *** REWIND ALL INPUT DATA FILES
   15 REWIND 2
      REWIND 3
      REWIND 4
      REWIND 5
      REWIND 6
      REWIND 7
      REWIND 8
C
C *** READ IN NEW CHEMICAL PARAMETER AND DECAY COEFFICIENT
      READ (60,20) KNAME, DECAY
   20 FORMAT (2A4, F7.2)
      IF (EOFCKF(60) .EQ. 1) GO TO 400
C
      IF (KNAME(1) .EQ. 4HT-PO) NCHEM = 1
      IF (KNAME(1) .EQ. 4HCL  ) NCHEM = 2
      IF (KNAME(1) .EQ. 4HTOTA) NCHEM = 3
C
C *** READ IN INITIAL TOTAL CONCENTRATION CONDITIONS AT ALL NODES
      READ (9) CON
   21 FORMAT (8F10.3)
C
C *** IF T-PO4 OR TOT-N, CONVERT TOTAL CONCENTRATIONS TO DISOLVED VALUE
      IF (NCHEM .NE. 2) CALL DSOLV (CON,NCHEM,1)
      WRITE (61,25) (CON(I), I = 1,20)
   25 FORMAT (/// (10F13.5))
C
      MO  = IMOB
      IYR = IYRB
      DAY = 0.
      MO1 = MO - 1
      DO 22 I = 1,MO1
      DAY = DAY + KDAYS(I)
   22 CONTINUE
C
C
C *** READ IN RANGE-LIMITS FOR QUICK ANALYSIS OF PRINTOUT
      READ (60,27) (RGMIN(I), RGMAX(I), I = 1,4)
   27 FORMAT (8F10.4)
C
C *** READ IN CHEMICAL CONCENTRATION CURVES FOR INLET-NODES
      DO 60 N = 1,INLETS
```

```
      READ (1) NODE(N), NPTS(N)
   30 FORMAT (4X, 2I3)
      NNPTS = NPTS(N)
C
      GO TO (31, 32, 33, 34, 35, 36, 37, 38, 39), N
C
   31 READ (1) (CHEM1(1,I), CHEM1(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM1,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM1,NCHEM,2)
      WRITE (61,25) (CHEM1(2,I), I = 1,NNPTS)
      GO TO 60
   32 READ (1) (CHEM2(1,I), CHEM2(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM2,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM2,NCHEM,2)
      WRITE (61,25) (CHEM2(2,I), I = 1,NNPTS)
      GO TO 60
   33 READ (1) (CHEM3(1,I), CHEM3(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM3,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM3,NCHEM,2)
      WRITE (61,25) (CHEM3(2,I), I = 1,NNPTS)
      GO TO 60
   34 READ (1) (CHEM4(1,I), CHEM4(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM4,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM4,NCHEM,2)
      WRITE (61,25) (CHEM4(2,I), I = 1,NNPTS)
      GO TO 60
   35 READ (1) (CHEM5(1,I), CHEM5(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM5,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM5,NCHEM,2)
      WRITE (61,25) (CHEM5(2,I), I = 1,NNPTS)
      GO TO 60
   36 READ (1) (CHEM6(1,I), CHEM6(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM6,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM6,NCHEM,2)
      WRITE (61,25) (CHEM6(2,I), I = 1,NNPTS)
      GO TO 60
   37 READ (1) (CHEM7(1,I), CHEM7(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM7,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM7,NCHEM,2)
      WRITE (61,25) (CHEM7(2,I), I = 1,NNPTS)
      GO TO 60
   38 READ (1) (CHEM8(1,I), CHEM8(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM8,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM8,NCHEM,2)
      WRITE (61,25) (CHEM8(2,I), I = 1,NNPTS)
      GO TO 60
   39 READ (1) (CHEM9(1,I), CHEM9(2,I), I = 1,NNPTS)
      CALL CONVERT (CHEM9,NNPTS)
      IF (NCHEM .NE. 2) CALL DSOLV (CHEM9,NCHEM,2)
      WRITE (61,25) (CHEM9(2,I), I = 1,NNPTS)
C
   40 FORMAT (8F10.4)
   60 CONTINUE
C
C *** READ IN AREAS FOR ALL NODES
      READ (4) (AREA(I), I = 1,20)
```

```
      DO 70 I = 1,20
      AREA(I) = AREA(I) * 10**6
      SAVCON(I) = 0.0
      QIN(I) = 0.0
   70 CONTINUE
C
C *** START NEW PAGE FOR EACH MONTH
   90 CALL HEADNG
      K = 1
C
C *** READ INLET-NODE DISCHARGES FOR ENTIRE MONTH
      READ (2) NDAY, INODES
      DO 100 I = 1,INODES
      READ (2) NNODE
      GO TO (91, 92, 93, 94, 95, 96, 97, 98, 99), I
C
   91 READ (2) (Q1(N), N = 1,NDAY)
      NODE(1) = NNODE
      GO TO 100
   92 READ (2) (Q2(N), N = 1,NDAY)
      NODE(2) = NNODE
      GO TO 100
   93 IF (NL .EQ. 2) GO TO 91
      READ (2) (Q3(N), N = 1,NDAY)
      NODE(3) = NNODE
      GO TO 100
   94 READ (2) (Q4(N), N = 1,NDAY)
      NODE(4) = NNODE
      GO TO 100
   95 READ (2) (Q5(N), N = 1,NDAY)
      NODE(5) = NNODE
      GO TO 100
   96 READ (2) (Q6(N), N = 1,NDAY)
      NODE(6) = NNODE
      GO TO 100
   97 READ (2) (Q7(N), N = 1,NDAY)
      NODE(7) = NNODE
      GO TO 100
   98 READ (2) (Q8(N), N = 1,NDAY)
      NODE(8) = NNODE
      GO TO 100
   99 READ (2) (Q9(N), N = 1,NDAY)
      NODE(9) = NNODE
  100 CONTINUE
C
C *** READ IN EXIT-NODE DISCHARGE FOR ENTIRE MONTH
      IF (NL .NE. 1) READ (6) (QX(I), I = 1,NDAY)
   61 FORMAT (14X,10F6.0, / 14X,10F6.0, / 14X,11F6.0)
C
C *** CALCULATE A NEW DAILY CONCENTRATION FOR EACH NODE
      DO 200 I = 1,NDAY
      K = K + 1
      DAY = DAY + 1
C
C *** READ IN DAILY RAINFALL FOR ALL NODES
      READ (3) (RAIN(N), N = 1,20)
```

```
C
C *** READ IN DAILY DEPTHS FOR ALL NODES
      READ (4) (DEPTHS(N), N = 1,20)
C
C *** READ IN DAILY VELOCITIES FOR ALL LINKS
      READ (5) (VEL(L), L = 1,LNBR)
C
C *** READ IN DAILY DISCHARGES FOR ALL LINKS
      READ (5) (Q(L), L = 1,LNBR)
C
C *** INTERPOLATE INPUT CURVES TO GET DAILY CONCENTRATIONS AT INLET NODE
      DO 115 J = 1,INLETS
      GO TO (101, 102, 103, 104, 105, 106, 107, 108, 109), J
C
  101 CALL INTERP (CHEM1,DAY,NPTS(J),VALUE)
      QVAL = Q1(I)
      GO TO 110
  102 CALL INTERP (CHEM2,DAY,NPTS(J),VALUE)
      QVAL = Q2(I)
      GO TO 110
  103 CALL INTERP (CHEM3,DAY,NPTS(J),VALUE)
      QVAL = Q3(I)
      GO TO 110
  104 CALL INTERP (CHEM4,DAY,NPTS(J),VALUE)
      QVAL = Q4(I)
      GO TO 110
  105 CALL INTERP (CHEM5,DAY,NPTS(J),VALUE)
      QVAL = Q5(I)
      GO TO 110
  106 CALL INTERP (CHEM6,DAY,NPTS(J),VALUE)
      QVAL = Q6(I)
      GO TO 110
  107 CALL INTERP (CHEM7,DAY,NPTS(J),VALUE)
      QVAL = Q7(I)
      GO TO 110
  108 CALL INTERP (CHEM8,DAY,NPTS(J),VALUE)
      QVAL = Q8(I)
      GO TO 110
  109 CALL INTERP (CHEM9,DAY,NPTS(J),VALUE)
      QVAL = Q9(I)
C
  110 NN = NODE(J)
      SAVCON(NN) = VALUE
      QIN(NN) = QVAL
  115 CONTINUE
C
C *** IF NOT CA-1, GET INLET-NODE DISCHARGE FROM PREVIOUS AREA
      IF (NL .EQ. 1) GO TO 114
      IF (NL .EQ. 2) QIN(14) = QIN(17) = QIN(18) = QX(I)/3
      IF (NL .EQ. 3) QIN(8) = QX(I)
      IF (NL .EQ. 3 .AND. QX(I) .GE. 1500.) QIN(8) = QIN(9) = QX(I) / 2
C
C *** IF CA-2, GET CONCENTRATIONS FOR NODES: 14, 17, 18 FROM CA-1
  114 IF (NL .EQ. 1) GO TO 116
      READ (7) XCON1
      IF (NL .EQ. 2) SAVCON(14) = SAVCON(17) = SAVCON(18) = XCON1
```

```
      IF (NL .EQ. 3) SAVCON(8) = XCON1
      IF (NL .EQ. 3 .AND. QX(I) .GE. 1500.) SAVCON(9) = XCON1
C
C *** LOOP TO BREAK UP DAY INTO FRACTIONAL PARTS
  116 FUDGE = 86400 / LOOP
      DO 190 IHR = 1,LOOP
C
C *** FETCH ALL CONNECTING LINKS FOR EACH NODE
  117 DO 180 N = 1,20
      DO 160 L = 1,LNBR
      IF (LENGTH(L) .LE. 0) GO TO 160
C
C *** DISCHARGE AND VELOCITY MUST BE IN THE SAME DIRECTION
      IF (Q(L) .GT. 0. .AND. VEL(L) .LT. 0.) VEL(L) = -VEL(L)
      IF (Q(L) .LT. 0. .AND. VEL(L) .GT. 0.) VEL(L) = -VEL(L)
C
      IF (LBEG(L) .EQ. N) GO TO 120
      IF (LEND(L) .EQ. N) GO TO 130
      GO TO 160
C
C *** IF LINK VELOCITY FOR BEGIN-NODE IS POSITIVE, SKIP CALCULATIONS
  120 IF (VEL(L) .GE. 0.) GO TO 160
      NUP = LEND(L)
      INIT = LBEG(L)
      GO TO 140
C
C *** IF LINK VELOCITY FOR END-NODE IS NEGATIVE, SKIP CALCULATIONS
  130 IF (VEL(L) .LE. 0.) GO TO 160
      NUP = LBEG(L)
      INIT = LEND(L)
C
C *** CALCULATE CONCENTRATION GRADIENT ACROSS LINK
  140 GRAD = CON(INIT) - CON(NUP)
C
C *** CALCULATE CHANGE OF CONCENTRATION PER DAY
      AQ = ABSF(Q(L))
      AVEL = ABSF(VEL(L))
      FLIMIT = AVEL / LENGTH(L) * FUDGE
      IF (FLIMIT .GT. 1.0) FLIMIT = 1.0
      DELTAC = - (AQ * GRAD * FLIMIT)
C
C *** ACCUMULATE DELTAC AND Q FOR ALL CONNECTING LINKS
      TOTDEL = TOTDEL + DELTAC
      TOTQ = TOTQ + AQ
C
C *** END OF DO-LOOP FOR LINKS
  160 CONTINUE
C
C *** CALCULATE NEW CONCENTRATION FOR THIS NODE
      IF (TOTQ .EQ. 0.0) GO TO 170
      DK = DECAY
      DO 172 KK = 1,ISKIP
      IF (N .NE. NSKIP(KK)) GO TO 172
      DK = DK / 2
      IF (MO .GE. 6 .AND. MO .LE. 11) DK = 0.0
  172 CONTINUE
```

```
      DO 173 JJ = 1,9
      IF (N .NE. ISKIP1(JJ)) GO TO 173
      DK = DK / 2
      IF (MO .GE. 6 .AND. MO .LE. 11) DK = 0.0
  173 CONTINUE
      XTOT = TOTDEL/TOTQ - DK/LOOP * CON(N)
  170 XCON(N) = CON(N) + XTOT
      HRNODE(N,IHR) = XCON(N)
      XTOT = 0.0
      TOTQ = 0.0
      TOTDEL = 0.0
      IF (IHR .LT. LOOP) GO TO 180
C
C *** IS THIS VALUE WITHIN ONE OF OUR DESIRABLE RANGES
      DO 175 M = 1,4
      IF (XCON(N) .GE. RGMIN(M) .AND. XCON(N) .LE. RGMAX(M)) GO TO 178
  175 CONTINUE
      GO TO 180
C
C *** KEEP TRACK OF THE NUMBER OF DAYS FALLING WITHIN THESE RANGES
  178 MDAYS(M,N)  = MDAYS(M,N) + 1
      MTDAYS(M,N) = MTDAYS(M,N) + 1
C
C *** END OF DO-LOOP FOR NODES
  180 CONTINUE
C
  181 DO 185 M = 1,20
      CON(M) = XCON(M)
      XCON(M) = 0.0
  185 CONTINUE
  190 CONTINUE
      IF (MO .EQ. 1) WRITE (61,800) ((HRNODE(N,M), N=1,20), M=1,LOOP)
  800 FORMAT (1X, 20F6.1)
C
C *** AVERAGE HOURLY CONCENTRATIONS FOR EACH NODE
      CALL AVGOUT (XCON,LOOP)
C
C *** NEW METHOD FOR CALCULATING FINAL DAILY CONCENTRATION
      DO 187 N = 1,20
      DO 186 M = 1,ISKIP
      IF (N .EQ. NSKIP(M)) GO TO 187
  186 CONTINUE
      RAINI = RAIN(N)
      IF (NORAIN(1) .EQ. 4HNORA) RAINI = 0.0
      DEPTI = DEPTHS(N) + DFITT(NL)
      QAREA = QIN(N) * 86400 * 12 / AREA(N)
C
C *** IF INLET NODES, SET RAINFALL = 0
      DO 188 M = 1,9
      IF (NL .EQ. 1 .AND. N .EQ. ISKIP1(M)) RAINI = 0.0
      IF (NL .EQ. 2 .AND. N .EQ. ISKIP2(M)) RAINI = 0.0
      IF (NL .EQ. 3 .AND. N .EQ. ISKIP3(M)) RAINI = 0.0
  188 CONTINUE
      IF (RAINI.LE.0. .AND. DEPTI.LE.0. .AND. QAREA.LE.0.) GO TO 187
      IF (DEPTI .LE. 0. .AND. QAREA .LE. 0.) GO TO 187
      XCON(N) = (RCON(NCHEM)*RAINI + XCON(N)*DEPTI + SAVCON(N)*QAREA)
```

```
     X        / (RAINI + DEPTI + QAREA)
  187 CONTINUE
C
C *** PRINT OUT RESULTS FOR ONE DAY
      GO TO (191, 192, 193), NCHEM
C
C *** FORMAT FOR PHOSPHATES (F6.3)
  191 WRITE (61,195) MO, I, IYR, XCON
  195 FORMAT (X, I2,1H/,I2,1H/,I2, 6X, 20F6.3)
      GO TO 199
C
C *** FORMAT FOR CHLORIDES (F6.1)
  192 WRITE (61,196) MO, I, IYR, XCON
  196 FORMAT (X, I2,1H/,I2,1H/,I2, 6X, 20F6.1)
      GO TO 199
C
C *** FORMAT FOR NITROGEN (F6.3)
  193 WRITE (61,197) MO, I, IYR, XCON
  197 FORMAT (X, I2,1H/,I2,1H/,I2, 6X, 20F6.3)
C
C *** END OF MONTHLY DO-LOOP
  199 DO 198 M = 1,20
      CON(M) = XCON(M)
      XCON(M) = 0.0
      QIN(M) = 0.0
      SAVCON(M) = 0.0
  198 CONTINUE
      IF (NL .LT. 3) WRITE (8) CON(1)
      IF (K .LT. 10) GO TO 200
      CALL SKIP (1H ,ICH)
      K = 0
  200 CONTINUE
C
C *** PRINT NUMBER OF DAYS THAT FELL WITHIN DESIRED RANGES THIS MONTH
      WRITE (61,204)
  204 FORMAT (/ X, 33(4H****), 2H**, /)
      WRITE (61,205)
  205 FORMAT (15H NUMBER OF DAYS, / 15H WITHIN RANGE : )
      DO 210 M = 1,4
      WRITE (61,206) RGMIN(M), RGMAX(M), (MDAYS(M,N), N = 1,20)
  206 FORMAT (/ 5H MIN:, F8.3 / 5H MAX:, F8.3, X, 20I6)
      DO 210 N = 1,20
      MDAYS(M,N) = 0
  210 CONTINUE
C
C *** GO ON TO NEXT MONTH IF END-DATE IS NOT REACHED
      IF (IYR .EQ. IYRE .AND. MO .GE. IMOE) GO TO 300
      MO = MO + 1
      IF (MO .LE. 12) GO TO 90
      IYR = IYR + 1
      MO = 1
      GO TO 90
C
C *** PRINT TOTAL NUMBER OF DAYS THAT FELL WITHIN DESIRED RANGES
  300 CALL HEADNG
      WRITE (61,301)
```

```
  301 FORMAT (6H TOTAL)
      WRITE (61,205)
      DO 310 M = 1,4
      WRITE (61,206) RGMIN(M), RGMAX(M), (MTDAYS(M,N), N = 1,20)
      DO 310 N = 1,20
      MTDAYS(M,N) = 0
  310 CONTINUE
      WRITE (61,204)
      IF (IYR .EQ. IYRE .AND. MO .GE. IMOE) GO TO 15
C
C *** SAVE LAST DAYS CONCENTRATIONS FOR NEW INITIAL CONDITIONS
  400 REWIND 9
      WRITE (9) CON
      CALL EXIT
      END
```

PROGRAM VARIABLES

07120 R	A0	04570 R	DUM	07140 I	KK	0476
06441 R	AREA	07124 R	FLIMIT	07046 I	L	0710
07122 R	AVEL	07113 R	FUDGE	00232 I	LBEG	0707
01110 R	CHEM1	07116 R	GRAD	00326 I	LEND	0707
01420 R	CHEM2	07045 I	I	00136 I	LENGTH	0066
01730 R	CHEM3	07156 I	ICH	07042 I	LINKS	0674
02240 R	CHEM4	07033 I	INIT	07035 I	LNBR	0067
02550 R	CHEM5	07050 I	INLETS	07030 I	LOOP	0674
03060 R	CHEM6	07076 I	INODES	07145 I	M	0703
03370 R	CHEM7	07041 I	ISKIP	04763 I	MDAYS	0047
03700 R	CHEM8	06771 I	ISKIP1	07063 I	MO	0524
04210 R	CHEM9	07002 I	ISKIP2	07067 I	MO1	0534
00422 R	CON	07013 I	ISKIP3	05103 I	MTDAYS	0543
07065 R	DAY	07064 I	IYR	07070 I	N	0553
07130 R	DELTAC	07100 I	J	07057 I	NCHEM	0563
06321 R	DEPTHS	07142 I	JJ	07075 I	NDAY	0573
07151 R	DEPTI	07074 I	K	07037 I	NER	0602
06735 R	DFITT	00704 I	KDAYS	07034 I	NL	0612
07136 R	DK					

COMMON VARIABLES

01723 R	DECAY	00005 I	IDYE	00012 I	IMN	0000
00023 R	HRNODE	00010 I	IDYR	00001 I	IMOB	0000
00016 I	IDATES	00011 I	IHR	00004 I	IMOE	0000
00002 I	IDYB					

STATEMENT NUMBERS

1	00000	33	10166	93	11076	107	11602
2	00005	34	10247	94	11126	108	11617
3	00007	35	10330	95	11150	109	11634
5	00011	36	10411	96	11172	110	11650
10	07546	37	10472	97	11214	114	11741
12	00015	38	10553	98	11236	115	11661
15	07563	39	10634	99	11260	116	12007
20	00017	40	00034	100	11301	117	12016
21	00022	60	10714	101	11464	120	12100
22	07733	61	00036	102	11501	130	12120
25	00024	70	10760	103	11516	140	12137
27	00030	90	10770	104	11533	160	12211
30	00032	91	11032	105	11550	170	12337

```
      SUBROUTINE DSOLV (XKON,NCHEM,K)
C
C *** ROUTINE TO CONVERT T-PO4, AND TOT-N CONCENTRATIONS TO DISOLVED
C *** VALUES.
C
      DIMENSION XKON(100)
C
C *** CONTROL-PARAMETERS FOR INITIAL CONDITIONS
      I1 = 1
      I2 = 20
      I3 = 1
      IF (K .EQ. 1) GO TO 50
C
C *** CONTROL-PARAMETERS FOR INLET-NODE CONCENTRATION CURVES
      I1 = 2
      I2 = 100
      I3 = 2
C
   50 DO 100 I = I1,I2,I3
      IF (NCHEM .EQ. 1) GO TO 60
      IF (XKON(I) .GT. 1.44 .AND. XKON(I) .LT. 3.0)
     X    XKON(I) = XKON(I) * 2.1769 - 3.1597
      GO TO 100
C
   60 XKON(I) = XKON(I) * .8257 + .002
  100 CONTINUE
C
      RETURN
      END
```

PROGRAM VARIABLES

```
00007 I    I            00000 I    I1           00002 I    I2           00004
```

STATEMENT NUMBERS

```
 50 00062          60 00111          100 00116
```

FORTRAN DIAGNOSTIC RESULTS FOR DSOLV

```
COMPILED LENGTHS OF DSOLV    - P   00164   C   00000   D   00000
0 ERRORS
EWIND.54

ROSSREF
```

```
      SUBROUTINE AVGOUT (XCON,LOOP)
C
C *** ROUTINE TO ACCUMULATE ALL INTERVAL CONCENTRATIONS FOR EACH NODE AN
C     DIVIDE BY THE NUMBER OF INTERVALS
C
      COMMON IYRB, IMOB, IDYB, IYRE, IMOE, IDYE, IYRR, IMOR, IDYR
     X,      IHR, IMN, NCA, KNAME(2), IDATES(5)
     X,      HRNODE(20,24)
     X,      DECAY
C
      DIMENSION XCON(20)
C
      DO 20 I = 1,20
      DO 10 J = 1,LOOP
      XCON(I) = XCON(I) + HRNODE(I,J)
   10 CONTINUE
      XCON(I) = XCON(I) / LOOP
   20 CONTINUE
C
      RETURN
      END
```

PROGRAM VARIABLES

00001	I	I	00003	I	J				

COMMON VARIABLES

01723	R	DECAY	00005	I	IDYE	00012	I	IMN	0000
00023	R	HRNODE	00010	I	IDYR	00001	I	IMOB	0000
00016	I	IDATES	00011	I	IHR	00004	I	IMOE	0000
00002	I	IDYB							

STATEMENT NUMBERS

10 00046 20 00063

EXTERNAL REFERENCES

SYSTEM EXTERNALS ONLY

FORTRAN DIAGNOSTIC RESULTS FOR AVGOUT

COMPILED LENGTHS OF AVGOUT - P 00126 C 01725 D 00000
0 ERRORS

```
      SUBROUTINE HEADNG
C
C *** ROUTINE TO SKIP TO NEW PAGE AT FIRST OF EACH MONTH AND PRINT TITLE
C
      COMMON IYRB, IMOB, IDYB, IYRE, IMOE, IDYE, IYRR, IMOR, IDYR
     X,      IHR, IMN, NCA, KNAME(2), IDATES(5)
     X,      HRNODE(20,24)
     X,      DECAY
C
      DATA (IPAGE = 0)
C
      IPAGE = IPAGE + 1
C
      WRITE (61,10) KNAME, IMOR, IDYR, IYRR, IPAGE
   10 FORMAT (1H1, 18H CHEM-PARAMETER : , 2A4, 31X, 13HWATER QUALITY
     X,            6H MODEL, 24X, I2,1H/,I2,1H/,I2, 19X, 5HPAGE , I3)
C
      WRITE (61,20) IHR, IMN, IMOB, IDYB, IYRB, IMOE, IDYE, IYRE, NCA
     X,             DECAY
   20 FORMAT (65X, 3HFOR, 35X, I2,1H:,I2, / X, I2,1H/,I2,1H/,I2, 3H -
     X,       I2,1H/,I2,1H/,I2, 37X, 18HCONSERVATION AREA , A2, 51X
     X,       4HK = , F3.2, /)
C
      WRITE (61,25)
   25 FORMAT (1X, 33(4H****), 2H** )
      WRITE (61,30)
   30 FORMAT (3X, 4HDATE, 8X, 20(2X,4HNODE))
C
      WRITE (61,40) (I, I = 1,20)
   40 FORMAT (14X, 20(4X,I2), )
      WRITE (61,45)
   45 FORMAT (1X, 33(4H****), 2H**, /)
C
      RETURN
      END
```

PROGRAM VARIABLES

```
00120 I    I              00114 I    IPAGE
```

COMMON VARIABLES

```
01723 R    DECAY          00005 I    IDYE           00012 I    IMN            0000
00023 R    HRNODE         00010 I    IDYR           00001 I    IMOB           0000
00016 I    IDATES         00011 I    IHR            00004 I    IMOE           0000
00002 I    IDYB
```

STATEMENT NUMBERS

```
 10 00000          20 00031          25 00064          30 00073
```

EXTERNAL REFERENCES

SYSTEM EXTERNALS ONLY

FORTRAN DIAGNOSTIC RESULTS FOR HEADNG

```
COMPILED LENGTHS OF HEADNG   - P   00247   C   01725   D   00000
0 ERRORS
```

```
      SUBROUTINE INTERP (CHEM,DAY,NPTS,VALUE)
C
C *** ROUTINE TO INTERPOLATE DAILY VALUES FROM CHEM-CURVES
C
      DIMENSION CHEM(2,50)
C
      IF (DAY .GT. CHEM(1,1)) GO TO 10
      VALUE = CHEM(2,1)
      RETURN
C
   10 IF (DAY .LT. CHEM(1,NPTS)) GO TO 20
      VALUE = CHEM(2,NPTS)
      RETURN
C
   20 DO 30 I = 2,NPTS
      IF (DAY .LE. CHEM(1,I)) GO TO 40
   30 CONTINUE
C
   40 X1 = CHEM(1,I-1)
      Y1 = CHEM(2,I-1)
      X2 = CHEM(1,I)
      Y2 = CHEM(2,I)
C
      VALUE = Y1 + (Y2-Y1) * (DAY-X1) / (X2-X1)
C
      RETURN
      END
```

PROGRAM VARIABLES

```
00001 I    I            00004 R    X1           00010 R    X2           0000
```

STATEMENT NUMBERS

```
 10 00055          20 00070          30 00101          40 00111
```

FORTRAN DIAGNOSTIC RESULTS FOR INTERP

```
COMPILED LENGTHS OF INTERP   - P   00226   C   00000   D   00000
NO ERRORS
```

```
      SUBROUTINE CONVERT (CHEM,NPTS)
C
C *** ROUTINE TO CONVERT JULIAN DATE INTO DAY-OF-YEAR
C
      DIMENSION CHEM(2,50), KDAYS(12)
C
C ***                 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
      DATA (KDAYS = 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31)
C
      DO 20 I = 1,NPTS
      IMO = CHEM(1,I) / 100
      IDY = CHEM(1,I) - IMO * 100
C
      NDAY = IDY
      IMO = IMO - 1
C
      DO 10 J = 1,IMO
      NDAY = NDAY + KDAYS(J)
   10 CONTINUE
C
      CHEM(1,I) = NDAY
   20 CONTINUE
C
      RETURN
      END
```

PROGRAM VARIABLES

```
00014 I     I              00016 I     IMO            00023 I     J              000
00021 I     IDY
```

STATEMENT NUMBERS

```
 10 00072              20 00105
```

EXTERNAL REFERENCES

SYSTEM EXTERNALS ONLY

```
                FORTRAN DIAGNOSTIC RESULTS FOR    CONVERT

COMPILED LENGTHS OF CONVERT  - P   00146   C   00000   D   00000
NO ERRORS
```

```
      SUBROUTINE TIME
C
C *** ROUTINE TO PREPARE DATES AND TIME FOR PRINT-OUT
C
      COMMON IYRB, IMOB, IDYB, IYRE, IMOE, IDYE, IYRR, IMOR, IDYR
     X,      IHR, IMN, NCA, KNAME(2), IDATES(5)
     X,      HRNODE(20,24)
     X,      DECAY
C
      DIMENSION KDATE(5), KTIME(5)
C
C *** CALCULATE TIME AND DATE OF THIS RUN FOR THE TITLE
      CALL CDATE (KDATE,1)
      CALL JTIME (KTIME,1)
C
      IMOR = NGET(KDATE,1,2)
      IDYR = NGET(KDATE,3,4)
      IYRR = NGET(KDATE,5,6)
      IHR  = NGET(KTIME,1,2)
      IMN = NGET(KTIME,3,4)
C
C *** SEPARATE BEGIN AND END DATES
      IYRB = NGET(IDATES,7,8)
      IMOB = NGET(IDATES,9,10)
      IDYB = NGET(IDATES,11,12)
C
      IYRE = NGET(IDATES,14,15)
      IMOE = NGET(IDATES,16,17)
      IDYE = NGET(IDATES,18,19)
C
      RETURN
      END
```

PROGRAM VARIABLES

00000 I	KDATE	00005 I	KTIME				

COMMON VARIABLES

01723 R	DECAY	00005 I	IDYE	00012 I	IMN	00	
00023 R	HRNODE	00010 I	IDYR	00001 I	IMOB	00	
00016 I	IDATES	00011 I	IHR	00004 I	IMOE	00	
00002 I	IDYB						

EXTERNAL REFERENCES

CDATE JTIME NGET

FORTRAN DIAGNOSTIC RESULTS FOR TIME

COMPILED LENGTHS OF TIME - P 00154 C 01725 D 00000
NO ERRORS

```
 31 10024          92 11054          106 11565          172 12260
 32 10105
```

EXTERNAL REFERENCES

ABSF	DSOLV	HEADNG
AVGOUT	EOFCKF	INTERP
CONVERT	EXIT	NGET

FORTRAN DIAGNOSTIC RESULTS FOR QUALITY

```
NULL STATEMENT NUMBERS
     181          117          40          30          21          12          6
 COMPILED LENGTHS OF QUALITY - P   13340   C   01725   D   00000
```

EXHIBIT III

Illustrative Numerical Examples

NOTATIONS USED IN EXHIBIT III

Q — Discharge in cfs

N — Number of incoming links i

V — Velocity in ft/sec

C_{up} — Initial concentration of upstream node (mg/litre),

C_j — Initial concentration at node j (mg/litre)

Length — Length of the link in ft.

$$GRAD = \frac{(Q)(V)(C_j - C_{up})}{Length} \Delta t$$

$$TOTQ = \sum_{i=1}^{N} Q_i$$

$$TOTDEL = \sum_{i=1}^{N} GRAD$$

XTOT = Total change in concentration in a unit time step, (mg/litre)

$$= \frac{TOTDEL}{TOTQ}$$

XCON = Final concentration as a result of hydraulic transport, (mg/litre)

$$= C_j + XTOT$$

EXAMPLE # 1

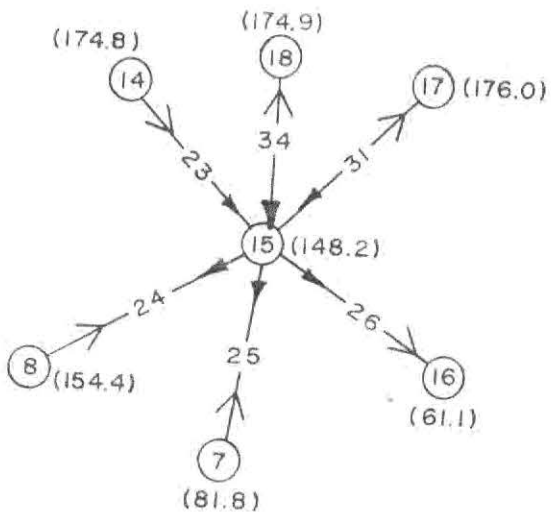
CONSERVATION AREA: CA-2A

DATE: Jan. 25, 1974

NODE # 15

TIME PERIOD: 1st 2 hours

CHEMICAL PARAMETER: CL



→ Conventional representation of a link

→ Flow direction

------ Channel link

Note: Numbers in the brackets represent concentrations at a given node for a previous time step.

LINKS	C_j (Node #)	C_{up}	LENGTH	Q	V	GRAD	REMARKS
23	148.2	174.8	19126	21.35740	.00952	-26.6	Incoming Link
24	148.2	148.2	27958	-196.24736	-.01919	-	Outgoing Link
25	148.2	148.2	26005	-14.89673	-.00659	-	Outgoing Link
26	148.2	148.2	20436	23.34822	.00722	-	Outgoing Link
31	148.2	176.0	16739	-17.80044	-.00970	-27.8	Incoming Link
34	148.2	174.9	13039	-82.74562	-.02063	-26.7	Incoming Link

TOTDEL = 29.2683674
TOTQ = 121.90346
XTOT = .2400946

XCON = C_j + XTOT = 148.2 + 0.24 = 148.44

Note: Only Incoming Links are considered in the computations for the reasons stated in the "assumption" section.

EXAMPLE # 2

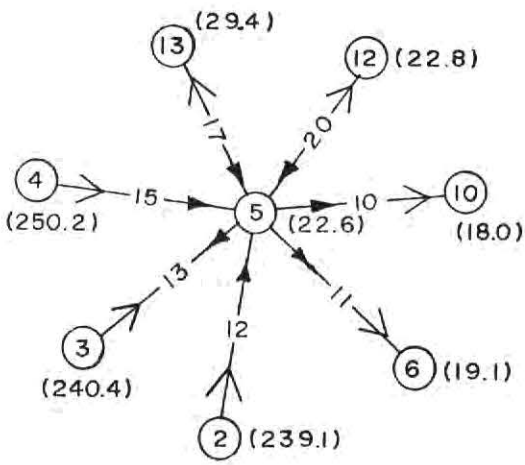
CONSERVATION AREA: CA-1

DATE: Jan. 8, 1974

NODE #5

TIME PERIOD: 1st 2 hours

CHEMICAL PARAMETER: CL



Conventional representation of a link

Flow direction

Channel link

Note: Numbers in the brackets represent concentrations at a given node for a previous time step.

LINKS	C_j (Node #)	C_{up}	LENGTH	Q	V	GRAD
10	-	-	27183	3.00738	-.00168	-
11	-	-	23545	14.99045	-.00262	-
12	22.6	239.1	31221	5.64755	-.00703	-216.50
13	-	-	19623	-113.41767	.01052	-
15	22.6	250.2	26658	110.95354	.00499	-227.60
17	22.6	29.4	25270	-40.87087	-.00286	-6.80
20	22.6	22.8	26702	-9.58686	-.00218	-.20

TOTDEL = 36.2443152
TOTQ = 167.05882
XTOT = .2169554

XCON = 22.8169

EXAMPLE # 3

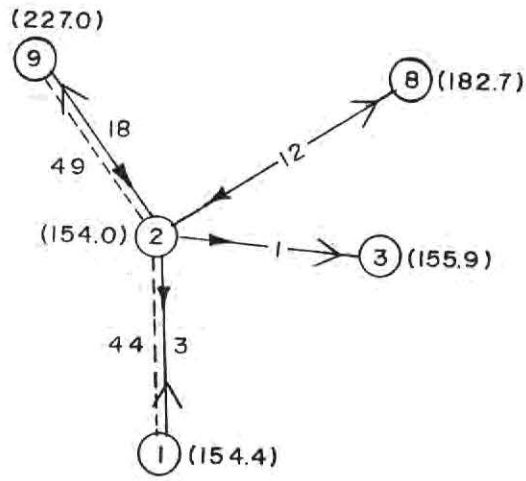
CONSERVATION AREA: CA-2A

DATE: Jan. 13, 1974

NODE # 2

TIME PERIOD: 1st 2 hours

CHEMICAL PARAMETER: CL



Conventional representation of a link

Flow direction

Channel link

Note: Numbers in the brackets represent concentrations at a given node for a previous time step.

LINKS	C_j (Node #)	C_{up}	LENGTH	Q	V	GRAD
1	154.0	154.0	9535	812.90212	.00384	0
3	154.0	154.0	22260	-59.01257	-.00251	0
12	-	-	25140	-344.01346	0	-
18	-	-	23424	-15.96152	0	-
44	154.0	154.0	21100	-87.61436	-.00456	
49	-	-	23500	-149.93053	0	-

TOTDEL = 0.0
TOTQ = 0.0
XTOT = 0.0

XCON = 154.0

EXAMPLE #4

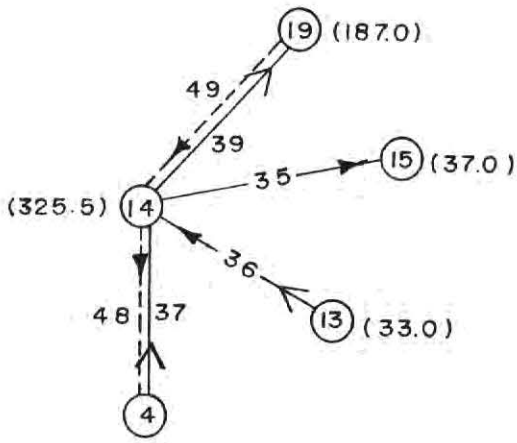
CONSERVATION AREA: CA-1

DATE: Jan. 7, 1974

NODE # 14

TIME PERIOD: 1st 2 hours

CHEMICAL PARAMETER: CL



Conventional representation of a link

Flow direction

Channel link

Note: Numbers in the brackets represent concentrations at a given node for a previous time step.

LINKS	C_j (Node #)	C_{up}	LENGTH	Q	V	GRAD
35	-	-	26951	0	0	-
36	325.5	33.0	30620	1.69304	.00028	292.5
37	-	-	43293	0	0	-
39	-	-	24152	0	0	-
48	325.5	325.5	21450	-100.06011	-.03850	0
49	325.5	187.0	12210	-226.92740	-.09475	138.5

TOTDEL = -1756.0659
TOTQ = 228.62044
XTOT = -7.6811416

XCON = 317.818

EXAMPLE # 5

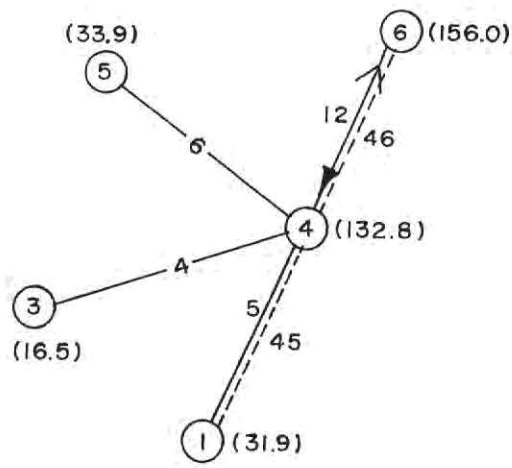
CONSERVATION AREA: CA-3A

DATE: Jan. 26, 1974

NODE # 4

TIME PERIOD: 1st 2 hours

CHEMICAL PARAMETER: CL



→ Conventional representation of a link

→ Flow direction

------ Channel link

Note: Numbers in the brackets represent concentrations at a given node for a previous time step.

LINKS	C_j (Node #)	C_{up}	LENGTH	Q	V	GRAD
4	-	-	55823	-2.11915	0	-
5	-	-	61225	0	0	-
6	-	-	40804	9.55580	0	-
12	132.8	156.0	46049	-.12680	-.00042	-23.20
45	-	-	71000	-392.23118	0	-
46	132.8	156.0	46500	-336.95778	-.21995	-23.20

TOTDEL = 266.2363178
TOTQ = 337.08458
XTOT = .7898205

XCON = 133.589