DANUBE POLLUTION REDUCTION PROGRAMME

NATIONAL REVIEWS 1998
CROATIA

TECHNICAL REPORTS

Part C: Water Quality
Part D: Water Environmental Engineering

State Water Directorate
State Directorate for the Protection of Nature and Environment

in cooperation with the

Programme Coordination Unit
UNDP/GEF Assistance

DANUBE POLLUTION REDUCTION PROGRAMME

NATIONAL REVIEWS 1998
CROATIA

TECHNICAL REPORTS

Part C: Water Quality
Part D: Water Environmental Engineering

State Water Directorate
State Directorate for the Protection of Nature and Environment

in cooperation with the

Programme Coordination Unit

UNDP/GEF Assistance

Preface

The National Reviews were designed to produce basic data and information for the elaboration of the Pollution Reduction Programme (PRP), the Transboundary Analysis and the revision of the Strategic Action Plan of the International Commission for the Protection of the Danube River (ICPDR). Particular attention was also given to collect data and information for specific purposes concerning the development of the Danube Water Quality Model, the identification and evaluation of hot spots, the analysis of social and economic factors, the preparation of an investment portfolio and the development of financing mechanisms for the implementation of the ICPDR Action Plan.

For the elaboration of the National Reviews, a team of national experts was recruited in each of the participating countries for a period of one to four months covering the following positions:

- Socio-economist with knowledge in population studies,
- Financial expert (preferably from the Ministry of Finance),
- Water Quality Data expert/information specialist,
- Water Engineering expert with knowledge in project development.

Each of the experts had to organize his or her work under the supervision of the respective Country Programme Coordinator and with the guidance of a team of International Consultants. The tasks were laid out in specific Terms of Reference.

At a Regional Workshop in Budapest from 27 to 29 January 1998, the national teams and the group of international consultants discussed in detail the methodological approach and the content of the National Reviews to assure coherence of results. Practical work at the national level started in March/April 1998 and results where submitted between May and October 1998. After revision by the international expert team, the different reports have been finalized and are now presented in the following volumes:

Volume 1:	Summary Report		
Volume 2:	Project Files		
Volume 3 and 4:	Technical reports containing:		
	-	Part A :	Social and Economic Analysis
	-	Part B :	Financing Mechanisms
	-	Part C :	Water Quality
	-	Part D :	Water Environmental Engineering

In the frame of national planning activities of the Pollution Reduction Programme, the results of the National Reviews provided adequate documentation for the conducting of National Planning Workshops and actually constitute a base of information for the national planning and decision making process.

Further, the basic data, as collected and analyzed in the frame of the National Reviews, will be compiled and integrated into the ICPDR Information System, which should be operational by the end of 1999. This will improve the ability to further update and access National Review data which is expected to be collected periodically by the participating countries, thereby constituting a consistently updated planning and decision making tool for the ICPDR.

UNDP/GEF provided technical and financial support to elaborate the National Reviews. Governments of participating Countries in the Danube River Basin have actively participated with professional expertise, compiling and analyzing essential data and information, and by providing financial contributions to reach the achieved results.

The National Review Reports were prepared under the guidance of the UNDP/GEF team of experts and consultants of the Danube Programme Coordination Unit (DPCU) in Vienna, Austria. The conceptual preparation and organization of activities was carried out by **Mr. Joachim Bendow**, UNDP/GEF Project Manager, and special tasks were assigned to the following staff members:

- Social and Economic Analysis and Financing Mechanisms: **Reinhard Wanninger**, Consultant
- Water Quality Data: **Donald Graybill**, Consultant,
- Water Engineering and Project Files: **Rolf Niemeyer**, Consultant
- Coordination and follow up: **Andy Garner**, UNDP/GEF Environmental Specialist

The **Croatian National Review** was prepared under the supervision of the Head of Delegation to the Danube River Protection Commission, **Mr. Zeljko Ostojic**, with the support of the Country Programme Coordinator, **Mr. Predrag Sibalic**. The authors of the respective parts of the report are:

- Part A : Social and Economic Analysis: **Mr. Ognjen Caldarovic**
- Part B : Financing Mechanisms: **Ms. Dubravka Mokos**
- Part C : Water Quality: **Ms. Marija Marijanovic**
- Part D : Water Environmental Engineering: **Mr. Silvio Brezak**

State Water Directorate

State Directorate for the Protection of Nature and Environment

The UNDP/GEF Danube Pollution Reduction Programme,

Danube Programme Coordination Unit (DPCU)

P.O.Box 500, 1400 Vienna – Austria

Tel: +43 1 26060 5610

Fax: +43 1 26060 5837

Vienna – Austria, November 1998

Part C

Water Quality

Table of Contents

1. Summary 1

1.1. Updating, Evaluation and Ranking of Hot Spots 1

1.2. Updating, Analysis and Validation of Water Quality Data 1

2. Updating of Hot Spots 3

2.1. General Approach and Methodology 3

2.1.1. Evaluation of Existing Hot Spots 6
2.1.2. Deletion of Existing Hot Spots 12
2.1.3. Addition of Hot Spots 12
2.1.4. Ranking of Hot Spots 13
2.1.5. Map of Hot Spots 14

2.2. Municipal Hot Spots 17

2.2.1. High Priority 17
2.2.2. Medium Priority 21
2.2.3. Low Priority 26

2.3. Agricultural Hot Spots 28

2.3.1. High Priority 28
2.3.2. Medium Priority 29
2.3.3. Low Priority 30

2.4. Industrial Hot Spots 31

2.4.1. High Priority 31
2.4.2. Medium Priority 33
2.4.3. Low Priority 36

3. Identification of Diffuse Sources of Agricultural Pollution 37

3.1. Land Under Cultivation 37

3.2. Grazing Areas 43

4. Updating and Validation of Water Quality Data 45

4.1. Index of Water Quality Monitoring Records 45

4.2. Data Quality Control and Quality Assurance 46

4.3. Data Consistency, Compatibility and Transparency 52

4.4. River Channel Characteristics 53

4.4.1. Network 53
4.4.2. Channel Cross Sections 53

4.4.3. Gradients 54
4.4.4. Flood Plains..54
4.4.5. Wetlands..54
4.4.6. Erosion and Degradation..55

4.5. Dams and Reservoirs..79

4.6. Other Major Structures and Encroachments..79

4.7. Major Water Transfers..80

4.8. Preferred Sampling Stations and Data Sets..80

4.9. Water Discharges 82

4.10. Sediment Discharges 82

4.11. Suspended Sediment Concentrations for 1994 - 97, Reported as Computed (i.e., not transformed)..82

4.12. Water Quality Data..82

4.12.1. Nitrogen..134
4.12.2. Phosphorus 135
4.12.3. COD 136
4.12.4. Heavy Metals..136
4.12.5. Oil and Other Hazardous Chemicals..136
4.12.6. Special Linkages 136

Annexes

1. **Index of Water Quality and Discharge Records**
2. **Summary of Simultaneous Data on Water and Sediment Discharge and Water Quality**
3. **Hydrological Data**

List Of Tables

Table 2.1. **Water class**

Table 2.2. **Final list of municipal discharging**

Table 2.3. **Final list of agricultural discharging**

Table 2.4. **Final list of industrial discharging**

Table 2.5. **Zagreb**

Table 2.6. **Osijek**

Table 2.7. **Varazdin**

Table 2.8. **Karlovac**

Table 2.9. **Sisak**

Table 2.10. **Slavonski Brod**

Table 2.11. **Bjelovar**

Table 2.12 **Belisce**

Table 2.13. **Koprivnica**

Table 2.14. **Čakovec**

Table 2.15. **Bilje**

Table 2.16. **Vukovar**

Table 2.17. **Farm Luzani**

Table 2.18. **Farm Senkovac**

Table 2.19. **Farm Dubravica**

Table 2.20. **Belisce - paper industry**

Table 2.21. **IPK Osijek - sugar factory**

Table 2.22. **Pliva - pharmacies industry**

Table 2.23. **Sladoravna Županja - food industry**

Table 2.24. **Petrokemina Kutina - fertilizer industry**

Table 2.25 **Gavrilovic - meat industry**

Table 2.26. **INA Zagreb - oil refinery**

Table 2.27 **PIK Vrbovec - meat industry**

Table 2.28 **Željezara Sisak - steel industry**

Table 2.29. **IPK Osijek - vegetable oil factory**

Table 3.1. **Total use of fertilizers in area of intensive agricultural production in 1997 in tons**

Table 3.2. **Production of single agricultural culture in region of intensive production and total production in the Danube catchement area in tons in 1997**

Table 3.3. **Number of animals in Danube catchment area**

Table 4.1. **Presentation of methods which have been used in laboratories**

Table 4.2. **Detailed presentation of methods which are used in laboratories**

Table 4.3. **The overview of the gradients of the main rivers in the Danube river basin within the country**

Table 4.4. **Summary of capacity and purpose of dams and reservoirs**

Table 4.5. **List of hydroelectrical power plants in the Danube catchment area**

Table 4.6. **Descriptions of structures**

Table 4.7. **List of channels**

Table 4.8. **Water discharges at different sampling stations at the Sava River (m^3/s)**

Table 4.9. **Water discharges at sampling station Donji Miholjac**

Table 4.10. **Water discharges at sampling stations Terezino Polje**

Table 4.11. **Water discharges at sampling station Botovo**

Table 4.12. **Concentrations of suspended sediment at sampling station Slavonski Brod**

Table 4.13. **Concentrations of suspended sediment at sampling station Donji Miholjac**

Table 4.14. **Concentrations of suspended sediment at sampling station Terezino Polje**

Table 4.15. **Concentrations of suspended sediment at sampling stations Botovo**

Table 4.16. **Concentrations of available parameters of water quality at sampling station - downstream of Županja**

Table 4.17. **Concentrations of available parameters of water quality at sampling station - upstream of Županja**

Table 4.18. **Concentrations of available parameters of water quality at sampling station - downstream of confluence with Bosna River**

Table 4.19. **Concentrations of available parameters of water quality at sampling station - upstream of confluence with Bosna River**

Table 4.20. **Concentrations of available parameters of water quality at sampling station - downstream of Slavonski Brod**

Table 4.21. **Concentrations of available parameters of water quality at sampling station - upstream of Slavonski Brod**

Table 4.22. **Concentrations of available parameters of water quality at sampling station - downstream of confluence with Vrbas**

Table 4.23. **Concentrations of available parameters of water quality at sampling station - upstream of confluence with Vrbas**

Table 4.24. **Concentrations of available parameters of water quality at sampling station - downstream of confluence with Una**

Table4.25. **Concentrations of available parameters of water quality at sampling station - upstream of confluence with Una**

Table 4.26. **Concentrations of available parameters of water quality at sampling station - downstream of confluence with Kupa**

Table 4.27. **Concentrations of available parameters of water quality at sampling station - Galdovo**

Table 4.28. **Concentrations of available parameters of water quality at sampling station - Oborovo**

Table 4.29. **Concentrations of available parameters of water quality at sampling station - Jankomir**

Table 4.30. **Concentrations of available parameters of water quality at sampling station - Jesenice**

Table 4.31. **Concentrations of available parameters of water quality at sampling station - Nemetin**

Table 4.32. **Concentrations of available parameters of water quality at sampling station - Višnjevac**

Table 4.33. **Concentrations of available parameters of water quality at sampling station - Bistrinci**

Table 4.34. **Concentrations of available parameters of water quality at sampling station - Donji Miholjac (R)**

Table 4.35. **Concentrations of available parameters of water quality at sampling station - Terezino Polje**

Table 4.36. **Concentrations of available parameters of water quality at sampling station - Botovo**

Table 4.37. **Concentrations of available parameters of water quality at sampling station - Donja Dubrava**

Table 4.38. **Concentrations of available parameters of water quality at sampling station - Varaždin**

Table 4.39. **Concentrations of available parameters of water quality at sampling station - Borovo**

Table 4.40. **Annual maximum concentrations of heavy metals at some TNMN sampling station on the Drava River**

Table 4.41. **Annual maximum concentrations of oil (mg/l) at preferred sampling stations**

Table 4.42. **Loads of some pollutants at TNMN stations on the Sava and Drava Rivers**

List of Figures

Figure 2.1. Map of hot spots

Figure 3.1. Map of intensive agricultural production and grazing

Figure 4.1. Map of sampling stations

Figure 4.2. Network diagram of the Danube River basin

Figure 4.3. Network diagram of the Danube River basin

Figure 4.4. Cross sections of the Sava River

Figure 4.5. Cross sections of the Sava River

Figure 4.6. Cross sections of the Drava River

Figure 4.7. Map of potential flood plain areas in the Danube catchment area

Figure 4.8. Map of hydro power plants in the Danube catchment area

List of Abbreviations on Water Quality

µg/l	micro gram per liter
kg/m³	kilograms per liter
m³/a	cubic meters per year (annual)
m³/s	cubic meters per second
mg/l	milligrams per liter
t/a	tons per year (annual)

Glossary on Water Quality

AAS - ET	Atomic Absorption Spectrometry - Elecrothermal Technic
AAS - F	Atomic Absorption Spectrometry - Flame Technic
BOD_5	Biological Oxygen Demand trough 5 days
C_6H_5OH	Phenol
COD - Cr	Chemical Oxygen Demand from K2Cr2O7
COD - Mn	Chemical Oxygen Demand from KMnO4
Cr tot	Total chromium, non-filtrated
Detergent	Anion active substances
F	Fluorides
Fe	Total iron, non filtrated
GC/ECD	Gas Chromatography/Electron Capture Detector
IR	Infra Red
L	Left bank
M	Middle of river flow
MBAS	Metilen Blue Active Substances
MPN	Most Probably Number
N	Inorganic nitrogen
NH_4	Ammonium
Ni	Total nickel, non filtrated
NO_2	Nitrites
NO_3	Nitrates
P	Total phosphorus
PO_4	Phosphates
Q	Total discharge waste water in year (m3/a)
Q/H	Water Discharges/Water Level
R	Right bank
S^{2-}	Sulfides
SD	Sediment discharge
SO^4	Sulphates
SS	Suspended solids
TNMN	Transnational Monitoring Network
UV	Ultraviolet
WD	Water discharge
WQ	Water quality
Zn	Total zinc, non filtrated

1. Summary

1.1. Updating, Evaluation and Ranking Hot Spots

Control of the wastewater is being regulated by Water Law and other Regulations.

Every subject, who discharges wastewater, is obliged to control discharged wastewater and treat it or pretreated wastewater before discharging. Wastewater control has been carried out by authority licensed laboratory or by self-control by own laboratory, which also has obligation to issue the license. The program for control of the wastewater is being given in water management permits. The results of analysis have to be delivered to Hrvatske vode (Croatian waters), which on the base of this data also calculates the water protection fee. The systematic uniform water quality database does not exist, and it was the main obstacle in preparing this report. Wastewater control has not been regular in last few years in the whole Danube river basin because of war situations. This is the reason for not existing information for some hot spots. Also during the analysis of water quality data the existence of the terminology of wastewater indicators problem was noticed as well as absence of methodology, non-processing of data, no regular delivery of data in Croatian waters, no systematic checks of the delivered data by Croatians waters and absence of the systematic water database. One of recommendations will be the establishing, or improving all this steps of wastewater control.

Concerning the hot spots the general conclusion is that the present situation is better than situation before the war. The reason for that is lower producing level of industry, or even stop of producing, and lower level of the discharged wastewater. Also the discharging of wastewater has the rising trend of habitants pollution. The great lack of municipal treatment plant is evident, as well as industrial pretreatment plant. The existing treatment plant needs improvements, and better maintenance. Also there is need for improvement of the wastewater control, and updating of the informations of impact on receiving water and environment. Evident is that with start the production the level of pollution load will be grow.

1.2. Updating, Analysis and Validation of Water Quality Data

The Danube River and its main tributaries from Croatia, the Sava and the Drava Rivers are transboundary and boundary forming rivers with neighboring countries. International monitoring of water quality on the Danube and the Drava River has been established since 30 years. It has been changed through the past in frequency of sampling and parameters of determination. National monitoring program of tributaries of the Drava River and on the Sava River and its tributaries has been established since 25 years.

TNMN stations from Croatia are: on the Danube River - Borovo; on the Sava River - downstream of Županja, Jasenovac (upstream of confluence with the Una river) and Jesenice. TNMN stations on the Drava River are the following: Donji Miholjac, Botovo - the boundary stations with Hungary and Varaždin.

Monitoring on TNMN stations in Croatia includes COD-Cr, total phosphorus (or its fractions), total nitrogen (or its fractions), DOC, oil and heavy metals. Some pesticides have been determined at the Drava and at the Danube from this year.

Monitoring had been discontinued on the Danube River, and at stations Jasenovac on the Sava River, during the war. It has been re-started on the Sava River in 1996, on the Danube at Borovo last year, and at Batina this year.

Available data from existing monitoring have been analyzed from 1994 to 1997 at TNMN stations from Croatia.

Concentrations of COD-Cr and nutrients have been presented with annual mean value, concentrations of oil and heavy metals with annual maximum value, and loads have been calculated from annual mean value of concentrations and annual mean value of river flow.

It has been evident that there is no uniform monitoring at TNMN stations from Croatia. At monitoring stations Danube - Borovo only COD-Cr, orthophosphate and inorganic nitrogen (what means sum of ammonium, nitrite and nitrate) have been determined, at monitoring stations on the Sava River there is no uniform monitoring, so there is no data for COD-Cr at monitoring stations Jasenovac, but there is data of total phosphorus only at that monitoring stations on the Sava River. There is uniformity in monitoring on the TNMN stations at the Drava River from 1997 in determination of nutrients and heavy metals, but there is no data for river flow at Varaždin.

It is evident that pollution of the Danube River with organic pollutants and nutrients has been some higher than at the Drava River, and lower than at the Sava River at closest station with their confluence with Danube. Organic pollution has increased along river flow of Sava, and nutrients too. That is the result of discharge of industrial and municipal wastewater into Sava without any treatment, and agricultural productions in that region with use of fertilizer, and confluence with tributaries from Croatia and Bosnia and Herzegovina. The extreme pollution with oil has been determined at Sava - Jasenovac in 1997. Pollution of the Drava River with organic pollutants has increased from Varaždin to Botovo, what is the result of confluence with the Mura River and discharge of wastewater and agricultural activities. There is similar pollution with organic pollutants and nutrients at Botovo and Donji Miholjac. Pollutions with oil and heavy metals on the Drava River are at same concentrations level.

Pollutions with organic pollutants and nutrients and their loads were at similar level from 1994 to 1996. There is some evident decreasing in concentration and loads of organic pollutants and nutrients in 1997 at all TNMN stations on the Sava and Drava Rivers, which could be result of reducing in industrial and agricultural production last year.

The main problem of pollution of tributaries of the Danube from Croatia is pollution with nutrients, especially on the Sava River downstream of Županja.

Concentration of heavy metals could have negative effects to ecosystem in Drava River. Water of the Drava and the Sava River could have negative impact on ground water, especially if it was near river channel and used for water supply and irrigation.

For detailed analysis of transboundary impact data of specific organic pollutants lacks - pesticide and herbicide which are used in that region in agricultural production, as well as data for toxic heavy metals at the Sava River.

2. Updating of Hot Spots

The list of SAP hot spots was defined on the basis of the prewar situation in the country. The biggest municipal, industrial discharges and biggest landfills were included in the list.

During last few years there were big changes in whole country, as well as in the Danube River basin caused by war, political changes and other social and economic changes. These changes have had impact on the migration of population, great fall of production level, and concerning by this, also on the quantity and quality of discharged wastewater and condition of surface and ground water.

Great migration of population was from east part of Danube River basin to the west part, low level of producing capacity or even stop of the production changed the base for defining hot spots, and this situation made the greatest shortcomings of the existing list of the hot spots.

National hot spots were defined in the State plan for protection water from pollution from 1986 year, in which the national priority in the construction of the wastewater treatment plant and other measures for reducing pollution load were defined. At present situation is rather different from situation in 1986 year, the preparation of new State plan for protection water pollution is under way, as well as other water management regulations.

Also as shortcoming of SAP and national list of hot spots difficulties in comparing and evaluation of hot spots because of small amount of data for each hot spot, different reasons for non sampling, not regular delivering the data in Hrvatske vode, non uniform format of data, and not systematic analysis of data should be mentioned.

The data about effluent quality are being used for issuing the water management permits, some specific projects and designing and defining water protection fee, but there is no integral database and analysis about quantity and quality of wastewater.

2.1. General Approach and Methodology

Main source of information about wastewater control was company Hrvatske vode (Croatian waters), where the data is being collected. Hrvatske vode offices in Osijek, Varaždin, and Zagreb (city of Zagreb and Sava River basin) delivered the data, which were used in this report. As I mentioned before, these data about effluent quality are being used for issuing the water management permits, some specific projects and designing, and defining the water protection fee.

On the basis of the data, which were used in this report, Hrvatske vode calculates the water protection fee, and this is one way of financing the water protection programs. This data of quantity and concentration of each indicator of wastewater quality is official data. The control of wastewater is being carried out by licensed laboratory, and only analysis from this laboratory can be excepted.

Obligation for wastewater controls, also the quality and quantity, come from Water Law and other water management regulation and water management permits. Detailed definition of wastewater control is taken in water management permits where program for control of wastewater, frequency of sampling, type of samples (grab, composite or other type), wastewater quality indicators, and MAC for each indicators are defined. Almost all industry fulfils the obligation about wastewater control and delivers analyses in Hrvatske vode (Croatian waters). Not depending on receiving place (rivers, streams, sewage system), control of wastewater on municipal discharge is not so regular, and need improvement.

Identification of Hot Spots has been taken by using methodology set by the guidelines for draw up the national report.

But, the absence of the systematic integral database of wastewater quantity and quality was the main obstacle in preparing this review. The database, which exists in Croatian Waters, is not uniform, systematic, and complete for drawing up any water quality analyses necessary for control and checking.

As soon as the area of the Danube River basin represents about the 60% of total Croatian territory, and this area is under great industrial development, and the volume of data is big, to collect these data and that systematization was a great obstacle.

So, in this context on the area of Danube River basin, the cities which are known as have having big industry and great number of habitants, and produce the great amount of pollution load from municipal, industrial or agricultural point source, and sensitive area, have been chosen. The chosen cities are as follow:

Drava River Basin

- Varaždin. Čakovec, Prelog, Koprivnica, Đurđevac, , Pitomača, Virovitica, Podravska Slatina, , Đurđenovac, Našice, Orahovica, Donji Miholjac, Belišće, Valpovo, Beli Manastir, Bilje, Darda, Osijek, Kopački Rit (national park)

Dunav River Basin

- Vukovar, Ilok, Dalj

Sava River Basin

- Plaški, Ogulin, Plitvička Jezera (national park), Duga Resa, Karlovas, Petrinja, Samobor, Zaprešić, Zagreb, Sesvete, Velika Gorica, Sisak, Dugo Selo, Ivanić, Križevci, Bjelovar, Čazma, Kutina, Garešnica, Grubišno Polje, Daruvar, Pakrac, Lipik, Novska, Nova Gradiška, Požega, Oriovac, Slavonski brod, Đakovo, Vinkovci, Županja

The available data about wastewater control, wastewater treatment plants, receiving waters, transboundary effects, seasonal variations and others relevant data for the years 1997, back through 1994 where possible has been collected for this point.

On the basis of the first analyses of pollution load for each indicator the first list of hot spots has been made. For this list the other relevant information has been included to define the final list which is presented here.

The pollution load has been calculated on the basis of total discharged volume of water on year (estimate on the water supply base or measurement) and years - average - value of concentration for each indicator. During analyses it has been noticed that some of data were probably not correct and needed checking. This is a result of absence of the uniform data and constant checking and control of delivered data, and also of incomplete arrangement of situation in wastewater control.

Checking for 1997 year was completely made, but also after checking some mistakes are evident. As the official database in this review has been used, we decide to present only data from this database, though in some cases these data seem incorrect.

Analyses for 1996 year were possible only partially because the data for all selected points have not been delivered. For 1995 and 1994 the situation was very similar.

The information about received waters is presented in next parts of this review.

Regulation about categorization was enacted in April 1981 like the Regulation about water class. Regulation about categorization defines the parts of rivers and coastal sea and category of theirs parts. This regulation also defines that in rivers and coastal which have been divided in categories it is necessary to keep and maintain the certain class of water. This class of water is defined in Regulation about water class. This regulation defines indicators categories and MAC for each indicators and class of water.

Table 2.1. Water Class

Indicators	Unit of measure	I class	II class	III class	IV class
Dissolved oxygen	mgO_2/l	no less than 8	no less than 6	no less than 4	no less than 3
Oxygen saturation	%	90 – 105	105-115	115-125	125-130
BOD_5	mgO_2/l	no more than 2	no more than 4	no more than 7	no more than 20
COD ($KMnO_4$)	mgO_2/l	no more than 10	no more than 12	no more than 20	no more than 40
Saprobic range (Liebmann)		oligosaprobic	mezosaprobic beta-alfa	mezosaprobic alfa-beta	alfamezosaprobic till polisaprobic
Range of biological productivity		oligotrotic	reasonable eutofic	-	-
Suspended solids	mg/l	no more than 10	no more than 30	no more than 80	no more than 100
Dry rest of filtrated water		no more than	no more than	no more than	no more than
-surface water	mg/l	350	1000	1500	1500
-groundwater in karst	mg/l	350	1000	1500	-
-groundwater out of the karst	mg/l	800	1000	1500	-
Ph		6,8-8,5	6,8-8,5	6,0-9,0	6,0-9,0
Visible waste solids		no	No	no	No
Color		no	No	low visible	-
Most probably number of koliform organism	per l	no more than 2000	no more than 20 000	no more than 200 000	-
Toxic solids, temperature change and other indicators of harmful		have not exist in any class under regulate level			
Radioactivity		total activity of flowing radioactive waste solids which can be discharged in period of one year in river, calculate on the following base: F Ai ---------------------≤ 1 Q (MDK)i A_i – total activity of “i” radionuleid which is being discharged in river in one year period in Bq $(MKD)_i$ – Max allowed concentration of “i” radionukleid in drinking water for person who doesn’t work with ionizing sources in Bq/m Q – average year flow in m3 F – security and reserve factor, nondimenzional number which depends about radiological and hydrodinamical conditions of river, water use purpose, number and discharging place, radiation situation in river basin and other information ,and defined for protection for ion radiation			

New Regulation about water class was enacted in June 1998 and this regulation defines five water classes but how new Regulation about categorization has not yet been enacted, in this review has used the “old” Regulation.

The data about seasonal variations were not so detailed. Received data was mostly about water level where it is known, river usage and variation in emission. Other information about seasonal variation has not been delivered. The environmental condition are addressed as follows:

- municipal discharge Varaždin – Receiving water is drainage channel of accumulation lake of Hydro Power Plant Čakovec, which after few km flow in “old” Drava River – environmental condition is that in the “old” Drava River the flow is on biological minimum of 8 m^3/sec, and flow variation are arranged by Hydro Power Plant Čakovec. Because of this biological minimum in “old” Drava River the municipal discharge Varaždin had sensitive downstream area.
- municipal discharge Bilje – discharge have impact on sensitive area of National Park Kopački Rit, but the detailed information about this impact is not available
- industrial discharge Pliva Savski Marof – discharging in stream Gorjak, which does not have a capacity to dilute the emission, and that is the main problem
- industrial discharge “Petrokemija” d.d. Kutina – impact on Nature park Lonjsko polje
- industrial discharge PIK “VRBOVEC” – discharging in recipient with small capacity to dilute the emission
- agricultural discharge Farm Lužani – recipient with small capacity to dilute the emission, and this recipient passes across fishpond, and after that had impact on water supply area Jasinje
- agricultural discharge Farm Senkovac – recipient with small capacity to dilute the emission
- agricultural dishrag Farm Dubravica - recipient with small capacity to dilute the emission

There have not been data about transboundary implications of any hot spots or some of transboundary hot spots from neighbor country. The basis for conclusion if there are or there are not transboundary implications is the hot spot near or on the river which is on that place boundary between countries. There were no analyses about transboundary implications and respective data does not exist. We can only suppose that hot spots have transboundary implication because these discharging places are on the river, which is boundary between countries.

2.1.1. Evaluation of the Existing Hot Spots

At first, on the basis available data about quantity and quality of discharged wastewater from municipalities, industries and farms, a separate list for municipality, agriculture and industries hot spots has been made. Each of these lists has been analyzed separately. All SAP hot spots have been included in the data.

For every list emission data for critical parameters (COD, BOD, N, P, and total oil) and quantity of discharged wastewater has been updated.

Data for heavy metals and other hazardous chemicals (except oil) were not representative because of small amount of data, but data is included in hot spots description where possible.

From list of pollution load for each parameter the first list of hot spots for each separate list has been made.

After that in this first list other available relevant information about recipient, seasonal variations and other has been included, and the final list of hot spots for municipal, industry, and agriculture point source has been made.

Municipal Hot Spots

The SAP nominated Hot Spots have been Belišće, Belje, Čakovec, Karlovac, Koprivnica, Osijek, Sisak, Slavonski Brod, Varaždin, Vukovar and Zagreb.

These have been the cities with great number of habitants and developed industries.

On the municipal lists of parameters these SAP hot spots have been marked for each parameter and evaluated in comparison with other chosen municipal points.

Updated lists show that SAP nominated municipal Hot Spots still exist.

There was only a problem with municipal system of city Čakovec, Bilje and Vukovar, because of lack of data for the last few years. Because of war there was no sampling of wastewater so data do not exist for cities Bilje and Vukovar. As the city of Vukovar is one of national priority for reconstruction and development, and recipient for wastewater is Danube (boundary with Yugoslavia) it is evident that hot spot here can be named after the reconstruction and return of population. Now it is very difficult to talk about time period of return and reconstruction, but it is expected in next few years.

Very similar situation is with Hot Spot Bilje. Within the sewage system farm and food industry Belje were connected. As production during the war was stopped, and now is on a small level of production, pollution load is probably not high, but there are no effluent data. Both municipal and industrial discharges have influence on Nature Park Kopački Rit. Hot Spot Bilje can not be deleted from the list.

There was also a problem to calculate the pollution load for municipal discharge Čakovec.

The treatment plant (mechanical - biological) is just finished with construction, and treatment will start with testing work. That is the reason for lack of data for this hot spot. The pollution load for this point has been calculated on the basis of one-day sampling (11.8.97.) during 24 hours. Samples had been taken with half-hour intervals - composite sample. After start of work the treatment and same rate of monitoring the result of treatment wastewater became sufficient for eventually deleting from the list.

With discharging the municipal wastewater the great lack of treatment plant is evident. So discharging the industrial wastewater in sewage system, which has no treatment plant, made situation worse.

After analyses of the list of Municipalities final conclusions are as follow:

- Problems with municipals are more or less the same in whole region, there are the problems with insufficient, not completely constructed sewage system, with insufficient pretreatment wastewater of connected industries, and great lack of treatment plant for cleaning the municipal wastewater before discharging.
- Also the existing municipal system has been badly maintained and controlled.
- Problem with water - resistance of sewage system pipe. New constructed pipe has been controlled on water - resistance , but there is problem with old pipes which are not being controlled systematically
- Existing treatment plant needs better maintenance and more educated personnel for improving the results of working
- The control of quality and quantities of discharged wastewater has been difficult because of, in many cases, great number of discharging places, which are not arranged for taking the samples. Also the program of wastewater control, indicators, frequency, sampling requests great improvement. Municipalities which have the obligation for control of wastewater do not deliver the wastewater control data in Croatian Waters at all or do it irregularly (municipalities are not obliged to pay water protection fee and official data were more or less established for calculating the fees). Result all of this is very bad information about real situation.

- During the analyses of wastewater data there has been problem with terminology of wastewater indicators. The explanations for terminology for some indicators have been necessary directly from the laboratory.
- Lack of strategic legislation regulations about this area
- For future project there is great need for revision of the existing designs due to new postwar changes connected with migration of population, changes in industrial producing, different social and industrial situation.

Table 2.2. Final list of municipal discharging

River basin	Parameters which define the hot spots			
	COD t/a (97)	**BOD_5 t/a (97)**	**N t/a (97)**	**P T/a (97)**
SAVA				
Bjelovar	1 673	930	103	16
Karlovac	1 570	2 532	184	21
Sisak	1 225	875	158	18
Slavonski Brod	804	251	173	11
Zagreb	38 818	13 048	(95)a126	(95)o257
DRAVA				
Belišče	3 384	1 728	89	8
Belje	in 97. – no sampling			
Čakovec	434	537	17	1
Koprivnica	1 075	755	54	9
Osijek	3 562	1362	237	69
Varaždin	3 559	1 936	440	33
DUNAV				
Vukovar	in 97. – no sampling			

Following the EMIS practice here is the list of main connected industries on municipal hot spots.

Municipal Zagreb:

- Pliva Zagreb, pharmacy industry
- Polimeri , chemical industry
- Zagreb brewery, food industry
- Kraš, food industry
- Farm Sljeme, pig farm
- Badel 1862, food industry
- Zvijezda, food industry
- Ledo, food industry
- Dukat, food industry
- Zagrepčanka, food industry

Municopal Osijek

- DP ELEKTROSLAVONIJA
- Saponia, chemical industry
- Analit,
- LIO, textile industry
- Sloboda, food industry
- IPK tvornica mlijeka, food industry
- Brewery Osijek, food industry

Municipal Varaždin

- Vindija, food industry
- VIS, textile industry
- KOKA, food industry
- PODRAVKA - KALNIK, food industry
- Kožara, leather industry
- DERMA, food industry

Municipal Karlovac

- Brewery Karlovac, food industry
- Konteks, textile industry
- Kordun, iron and steel industry
- Tvornica plinskih turbina, iron and steel industry

Municipal Sisak

- Ljudevit Posavski, food industry
- Herbos, chemical industry
- Segestica, food industry

Municipal Slavonski Brod

- Đuro Đaković, iron and steel industry

Municipal Bjelovar

- Sirela, food industry
- Chromaks, food industry
- Česma, wood industry
- Koestlin, food industry

Municipal Belišće

- Belišće, paper industry

Municipal Koprivnica

- Bilokalnik - IPA, food industry
- Podravka, food industry

Municipal Čakovec

- Čateks, textile industry
- MTČ, textile industry
- Vajda, food industry

Municipal Bilje

- BELJE, food industry

Municipal Vukovar

- Kombinat Borovo

Agricultural Hot Spots

Point sources

In SAP there were no nominated hot spots.

The agricultural lists of parameters show which points can be nominated as hot spots.

Table 2.3. Final list of agricultural discharging - point sources

River basin	Parameters which define the hot spots			
	COD t/a (97)	BOD_5 t/a (97)	N t/a (97)	P t/a (97)
SAVA				
DUBRAVICA Dubravica	589	212		
Farm LUŽANI	51	4		2
DRAVA				
FARMA SENKOVAC	4 193	1 675	10	4
DUNAV				

After analysis the list of Farms final conclusion is as follow:

- Most of farms have inappropriate pretreatment, or do not treat the whole quantity of wastewater.
- The sludge from lagoons has been used in agriculture as fertilizers according to Regulations about protection of agricultural site of pollution from harmful substances
- Control of effluent has been carried out according to Water Management Permits and it is more or less regular and successful.
- During the analysis of wastewater data there has been problem with terminology of wastewater indicators. The explanations for terminology for some indicators have been necessary directly from the laboratory.

Industrial Hot Spots

SAP nominated hot spots are as follows: "Petrokemija" Kutina - Petrochemical and fertilizer plant, IPK Osijek - sugar factory, Željezara Sisak - steel industry, PIK VRBOVEC - meet industry.

As we said before there have been great changes in industrial activity because of war, and transition in last few years. The result of this is that many industrial plants work with reduced capacity or even stop the production which finally resulted in reduction of quantity of the discharged wastewater and less pollution of the surface water.

On the industrial lists of parameters the SAP hot spots have been marked for each parameter and evaluate in comparison with other industrial points.

Updated lists for industry show that Sap nominated industrial hot spots still exist. There has been only a problem with hot spot Željezara Sisak - steel industry. It was defined that that this hot spot still stay on list of the hot spots.

Table 2.4. Final list of industrial discharging

River basin	Parameters which define the hot spots			
	COD t/a (97)	BOD_5 t/a (97)	N t/a (97)	P t/a (97)
SAVA				
GAVRILOVIĆ Petrinja	227	132	4	2
PETROKEMIJA Kutina	278	59	390	
PIK Vrbovec	210	106		
PLIVA Savski Marof	1 390	321		
RAFINERIJA Sisak	88	91		
SLADORANA Županja	1 240	560		
ŽELJEZARA Sisak	27	12	3	0,2
DRAVA				
BELIŠČE Belišče	5 950	1 586		
BELJE Bilje	in 97. – no sampling			
IPK OSIJEK ŠEĆERANA	1 328	676		
IPK OSIJEK ULJARA	86	57		
DUNAV				

After analysis the of the list of Industries the final conclusion is as follow:

- The actual production is lower than installed capacity. The reason for that is war situation, and economic transition. Quantity of discharged wastewater fell within last few years, and result of that is also the fall of pollution load.
- Pretreatment of industries is mostly not sufficient, badly maintained by not appropriately educated personnel.

- Monitoring of effluent has been carried out according to Water Management Permits and it is more or less regular and successful. Main problem in monitoring industrial wastewater is measurement of quantity of wastewater.
- During the analysis of wastewater data there has been a problem with terminology of wastewater indicators. The explanations for terminology for some indicators have been necessary directly from the laboratory.
- Delivering the data about the wastewater control is regular in many cases and Croatian Waters calculate and Croatian Waters charge the water protection fee

2.1.2. Deletion of Existing Hot Spots

According to the guidelines the main criteria for a possible deletion would be whether its current emissions or its current impact on local receiving waters is less than most other hot spots. The first criteria for updating the lists of hot spots were pollution load. This criterion is also a major basis for deletion from the lists of hot spots. It is very difficult to speak and discuss the current impact on local receiving waters because of the lack of the information.

Generally speaking as soon as the decrease of the pollution load is not result of improving the producing technology, or saving in using of water or improving the wastewater treatment technology, or constructing the wastewater treatment plant but stems from fall or even the halt of production, there is no real reason for deleting any of the hot spots from the lists. In future it is evident that with start of the “serious” production these facilities will become hot spots and will need the reduction of pollution load. Also there is no official designing for closing the facilities, in contrary the country economic politic is directed to revival of the producing wherever is possible. But it is not the purpose of this review to discuss the subject of the national economic revival and how much time it will take.

Municipal Hot Spots

There was no deletion of existing hot spots.

Agricultural Hot Spots

There was no list for agricultural hot spots, so there was no deleting.

Industrial Hot Spots

The candidate for deleting from the list was ŽELJEZARA SISAK - steel industry because of the lower pollution load. The reason for small pollution load is not improvement of treatment or production process, but low production level. This is a result of economical situation in the country. As there is no official designing about closing the capacity, in contrary, there is the attitude about revival of production, the hot spot can not be deleted from the list.

2.1.3. Addition of the Hot Spots

The guidelines are addressing the criteria for addicting the hot spots.

Addition of the hot spots on the list has been made at first on the basis of pollution load criteria. If same facility has had the pollution load bigger than some existing hot spots for most of parameters it was added on the list.

As the first criteria for the updating of the lists of hot spots was pollution load, it is also the first criteria for addition to the lists. It is very difficult to speak and discuss the current impact on local receiving waters because of the lack of the information. Among public complaints concerning environmental degradation, the bigger public complaints concerning with accidental situations or sanitary conditions on landfills are known. The public complaints for "everyday" wastewater discharging are known at Hot Spots PLIVA Savski Marof, pharmaceutical industry and Dubravica, pig farm.

The influence on recipient and present pollution status of recipients has been included where the information had available.

Municipal Hot Spots

Municipal of Bjelovar was added to the hot spots list. The reason for addition was pollution load greater than that in existing hot spots.

Agricultural Hot Spots

The following organizations are to be added to the lists because of pollution load, and impact on local receiving waters: FARM LUŽANI, FARM SENKOVAC and FARM DUBRAVICA.

The hot spot Farm Senkovac has the biggest pollution load on the agricultural lists of hot spots. Also the Farm Lužani, and Farm Dubravica have the big pollution load. Also all three farms discharge its wastewater in receiving water with small capacity to dilute the wastewater. Farm Lužani has impact on fish pond and water supply area Jasinje

Industrial Hot Spots

On the list additions are as follows:

PLIVA Savski Marof - pharmacy industry, Oil Refinery Sisak, Gavrilović Petrinja - meat industry, Sladorana Županja - sugar refinery, Belišće paper industry, Vegetable oil industry from Osijek. The reason for addition was high pollution load and impact on local receiving waters.

All nominated industries had big pollution load. PLIVA Savski Marof discharges its wastewater in receiving water with small capacity to dilute the wastewater.

2.1.4. Ranking the Hot Spots

The criteria for ranking hot spots is being addressed in the guidelines separate for municipal and agriculture hot spots and separate for industrial hot spots. As there is no detailed information about impact on the receiving waters (size of affected area, intensity of affect, duration of affect) we assume the size of pollution load and sensitivity of nearby downstreams as ranking emission criteria.

Now the national priority is reconstruction of the war-affected areas in context returning the people in these areas. So in these areas there is now great activity in reconstruction the buildings and infrastructure (water supply systems and sewage systems). So in this context the ranking of hot spots will be rather different. Generally speaking, the high priority will be the cities, municipalities on east part of Danube River basin, and Low priority will be the west part of the Danube River basin.

There is possible discussion about other ranking criteria in the future, but for any discussion there is great need for relevant information and today we don't have it all. As the pollution reduction program has reduction of the pollution as a main task, using pollution load criteria cannot be wrong as soon as these criteria is based on same information and data. Also there is information about sensitivity of the downstream river uses, and this one can be used as the ranking criteria. Combination of these two criteria was used as ranking criteria.

We repeat that development and application of the ranking criteria require better information and great discussion.

Municipal Hot Spots

High Priority: ZAGREB, OSIJEK, VARAŽDIN, KARLOVAC

All hot spots with the greatest pollution load, have no treatment plant or have only the mechanical part and Municipals Varaždin and Karlovac have downstream sensitive area.

Medium priority: SISAK, SLAVONSKI BROD, BJELOVAR, BELIŠĆE, KOPRIVNICA

All hot spots have the big pollution load.

Low priority: ČAKOVEC, BILJE, VUKOVAR

Municipals were SAP hot spots, but now we don't have appropriate information's for ranking.

Agricultural Hot Spots

High priority: FARM LUŽANI

Farm Lužani has the big pollution load, farm discharges its wastewater in receiving water with small capacity to dilute the wastewater and farm has impact on fish pond and water supply area Jasinje.

Medium priority: FARM SENKOVAC

The hot spot Farm Senkovac has the biggest pollution load on the agricultural lists of hot spots and receiving water with small capacity to dilute the wastewater.

Low priority: FARM DUBRAVICA

Farm Dubravica has the big pollution load, farm discharge its wastewater in receiving water with small capacity to dilute the wastewater, but the reconstruction on treatment plant is almost finish and after some period we have information necessary for possibly deleting from the list.

Industrial Hot Spots

High priority: BELIŠĆE, PLIVA - SAVSKI MAROF, SUGAR REFINERY OSIJEK, SLADORANA ŽUPANJA

Medium Priority: PETROKEMIJA KUTINA; GAVRILOVIĆ PETRINJA, PIK VRBOVEC, OIL REFINERY SISAK

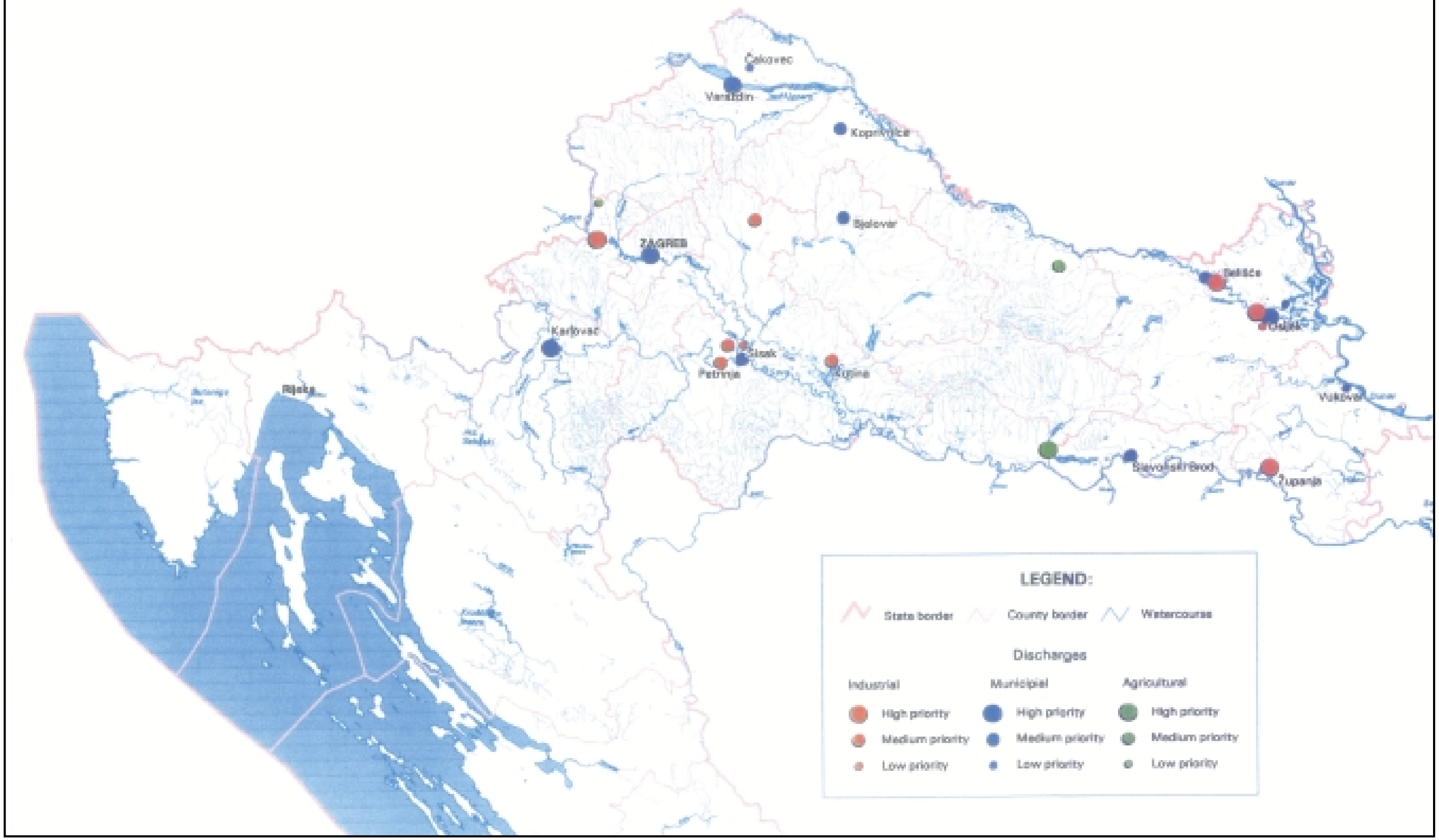
Low priority: ŽELJEZARA SISAK, VEGETABLE OIL FACTORY OSIJEK

2.1.5. Map of Hot Spots

Map of hot spots in Figure 2.1.

REPUBLIC OF CROATIA

DANUBE BASIN - MAP OF THE HOT SPOTS



2.2. Municipal Hot Spots

2.2.1. High priority

Table 2.5. Zagreb

ZAGREB	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=108 735 000 m^3/a – discharged w.w. in 97. Number of connected population: around 850 000 Pollution load in 97: COD Cr=38 818 t/a BOD5=13 048 t/a (data for other indicator has not been available) In year1995. was: Q= 110 480 000 m^3/a COD Cr= 37 784 t/a BOD5=14 031 t/a NO2= 35 t/a NO3= 93 t/a PO_4= 801 t/a mineral oil= 384 t/a F= 46 t/a
Seasonal Variations	On the Zagreb sewage system are being connected some of streams in Zagreb area. So Zagreb sewage system has great dilution of the wastewater and emission variations also depends of variations of this streams. But detail informations about this are not available.
Immediate Causes of Emissions	As potential polluters are being controlled around 230 industries facilities which are being connected to the wastewater system. Structures of polluters have been changed. The level of " serious industry" fall and level of service activity rise. Ratio of habitants and industry is 1:1 with rising trend of habitant pollution. There is no treatment plant on the wastewater system and pretreatment of most industry facilities is not appropriate.
Root Causes of Water Quality Problems	High polluted load, which need reduction.
Receiving Waters	Sava II category
Nearby Downstream Uses	There is no important nearby downstream uses.
Transboundary Implications	National problem with national cause.
Rank	High priority

Table 2.6. Osijek

OSIJEK	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=9 300 000 m^3/a – discharged w.w. in 97. Number of connected population: 90 % habitants of city Osijek Pollution load in 97: COD Cr= 3562 t/a BOD5=1362 t/a N= 237 t/a NO2= 1 t/a NO3= 53 t/a NH4= 255 t/a Total P=69 t/a PO_4= 52 t/a detergent = 28 t/a total oil= 300 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Quantity of wastewater from industries represents around 40 % of total discharged wastewater from municipality. Connected industries not have all necessary pretreatment facilities (absence, insufficient capacity etc.). Municipal wastewater system without treatment plant.
Root Causes of Water Quality Problems	High polluted load, which need reduction
Receiving Waters	Drava II category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	national problem with national cause
Rank	High priority

Table 2.7. Varazdin

VARAŽDIN	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=8 200 000 m^3/god - discharged ww in 97 Number of connected population: around 90% of total population Pollution load in 97: COD Cr= 3559 t/a BOD5=1936 t/a N= 440 t/a Total P=33 t/a total oil= 99 t/a
Seasonal Variations	Recipient is right drainage channel of accumulation lake Hydro Power Plant Čakovec, which after few km flow in Old Drava river (biological minimum - 8 m3/sec)
Immediate Causes of Emissions	After accidental pollution (April 1997) when was destroyed biological part of treatment plant municipal wastewater has been treated only mechanical. Connected industries not have all necessary pretreatment facilities (absence, insufficient capacity etc.).
Root Causes of Water Quality Problems	High pollution load, which need reduction. High priority of reconstruction biological part of treatment plant.
Receiving Waters	Drava , II category
Nearby Downstream Uses	Because of biological minimum final recipient became sensitive area.
Transboundary Implications	national problem with national cause
Rank	High priority

Table 2.8. Karlovac

KARLOVAC	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=6 853 790 m^3/a – discharged ww in 97 Number connected population: around 55 120 Pollution load in 97: COD Cr= 1570 t/a BOD5=2532 t/a N= 184 t/a Total P=21 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Wastewater system has 5 bigger discharged places - 4 in Kupa river and 1 in Mrežnica river and some of small discharged places. Future plans calculate with connection wastewater from city Duga Resa on Karlovac system. Only part of wastewater have been treated biological and discharged in Mrežnica river. Its takes around 90 359 m^3/a or 1200 PE. Rest of wastewater has not been treated, but without treated have been discharged in recipients.
Root Causes of Water Quality Problems	Lack of pretreatment in industries, to many discharged places, small capacity of treatment plant produces high pollution load, which need reduction.
Receiving Waters	Kupa II category, Mrežnica II category
Nearby Downstream Uses	Kupa river downstream have impact on water supply catchment area for city Petrinja Mrežnica- river downstream have impact on water supply catchment area for city Karlovac
Transboundary Implications	national problem with national causes
Rank	High priority

2.2.2. Medium priority

Table 2.9. Sisak

SISAK	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=3 500 000 m^3/a –discharged W.W. in 97 number of connected population: around 43 000 pollution load in 97: COD Cr=1225 t/a BOD5=875 t/a N= 157,5 t/a Total P=17,5 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Connected industries not have all necessary pretreatment facilities (absence, insufficient capacity etc.). Municipal wastewater system has 5 discharged places and there is no treatment facility.
Root Causes of Water Quality Problems	Big polluted load, which need reduction
Receiving Waters	Kupa II category, Sava II category (mouth Kupa river to Sava river)
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	national problem with national cause
Rank	Medium priority

Table 2.10. Slavonski Brod

SLAVONSKI BROD	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=1 500 000 m^3/a – discharged in 97. Number of connected population: around 35 000 Pollution load in 97: COD Cr= 804 t/a BOD5=251 t/a NH4= 75 t/a N= 173 t/a Zn=0,29 t/a Cr tot=0,013 t/a
Seasonal Variations	There are not existing important seasonal variations
Immediate Causes of Emissions	There is no treatment plant for wastewater. Wastewater from system has been discharged in recipient from 15 temperately discharged places (5 discharged places in melioration channel, 8 in river Glogovnica, 1 in river Mrsunja and 1 in Sava river). Monitoring of water quality has been doing only on two biggest discharged places.
Root Causes of Water Quality Problems	High polluter load which need reduction
Receiving Waters	Sava II category Mrsunja II category
Nearby Downstream Uses	There is no important nearby downstream uses.
Transboundary Implications	transboundary problem with national cause (Sava river is boundary with Bosnia and Herzegovina)
Rank	Medium priority

Table 2.11. Bjelovar

BJELOVAR	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=4 080 000 m^3/a – discharge ww in 97 Number of connected population: around 24 000 Pollution load in u 97: COD Cr= 1672 t/a BOD5=930 t/a NH4= 75 t/a phosphates 9 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Mechanical – biological treatment with sludge lagoon which capacity is 100 000 PE
Root Causes of Water Quality Problems	Insufficient capacity wastewater and sludge treatment
Receiving Waters	Sava, Bjelovarska II category
Nearby Downstream Uses	Near sensible area Nature park Lonjsko polje
Transboundary Implications	national problem with national causes
Rank	Medium priority

Table 2.12. Belišće

BELIŠĆE	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=3 000 000 m^3/a – discharged w.w. in 97 Number connected population: around 9 500 Pollution load in 97: COD Cr= 3348 t/a BOD5=1728 t/a N= 89 t/a Total P= 8 t/a Detergent=4,5 t/a total oil= 30 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect
Immediate Causes of Emissions	Mechanical and completed biological treatment The biggest part of wastewater came from paper industry Belišće d.d.. Part of wastewater of connected industries is around 10% of total wastewater. wastewater of city Valpovo also connected on system Belišće
Root Causes of Water Quality Problems	Insufficient capacity pretreatment of industry Belišće d.d. made big pollution load
Receiving Waters	Drava, II category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	national problem with national cause
Rank	Medium priority

Table 2.13. Koprivnica

KOPRIVNICA	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=2 815 610 m^3/a – discharge ww in 97 Number of connected population: no data Pollution load in u 97: COD Cr= 1075 t/a BOD5=755 t/a N= 54 t/a Total P= 9 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Mechanical treatment Wastewater from connected industries represent around 59% from total wastewater
Root Causes of Water Quality Problems	Insufficient treatment plant – biological treatment in plan
Receiving Waters	Drava II category, Moždanski jarak, Bistra
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	national problem with national causes
Rank	Medium priority

2.2.3. Low Priority

Table 2.14. Čakovec

ČAKOVEC	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q= 2 372 500 m^3/a – discharged in 97 Number of connected population: no data Pollution load in 97: COD Cr= 537 t/a BOD5=434 t/a N= 17 t/a total P= 1 t/a total oil= 251 t/a (pollution load has been calculated on the base of one-day sampling (11.8.97.) during 24 hours. Samples had been taken in time period of half hour – composite sample)
Seasonal Variations	There are not existing important seasonal variations
Immediate Causes of Emissions	Mechanical and completely biological treatment. (biological part just finished and facilities will start with testing work). This is reason of not existing data for 97.
Root Causes of Water Quality Problems	Pollution load which need reduction
Receiving Waters	Drava, II category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	national problem with national causes
Rank	Low priority

Table 2.15. Bilje

BILJE	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q= no data Number of connected population. no data Pollution load 97: no data
Seasonal Variations	- no data
Immediate Causes of Emissions	war affected area before war existing producing capacity which are now damage and now the production is on the very low level there was no treatment plant before the war no monitoring of wastewater
Root Causes of Water Quality Problems	In present situation no data for ranging Hot Spot, and unknown future activity.
Receiving Waters	Drava
Nearby Downstream Uses	sensitive area national park Kopački Rit
Transboundary Implications	national problem with national cause
Rank	Low priority

Table 2.16. Vukovar

VUKOVAR	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q= no data Number of connected population: no data Pollution load 97: no data
Seasonal Variations	- no data
Immediate Causes of Emissions	war affected area before war existing industries capacity whish are now damage and there are no production number of habitats rather different of number before the war
Root Causes of Water Quality Problems	In present situation no data for ranging Hot Spot, and unknown future activity.
Receiving Waters	Danube
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	transboundary problem with national cause (Danube is the border with Yugoslavia)
Rank	Low priority

2.3. Agricultural Hot Spots

2.3.1. High priority

Table 2.17. Farm Luzani

FARM LUŽANI – pig farm	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=63 550 m^3/a - discharged in 97 Pollution load in 97 COD Cr= 51 t/a BOD5=4 t/a Total P= 2 t/a NH4= 28 t/a SS= 5 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect
Immediate Causes of Emissions	Treatment plant - biological lagoon
Root Causes of Water Quality Problems	Small recipient, which pass across fish - pond, after that affect water supply area Jasinje
Receiving Waters	Sava, melioration cannel III category
Nearby Downstream Uses	fish – pond, water supply
Transboundary Implications	national problem with national cause
Rank	High priority

2.3.2. Medium priority

Table 2.18. Farm Senkovac

FARM SENKOVAC - pig farm	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=150 000 m^3/a - discharged in 97 Pollution load in 97: COD Cr= 4193 t/a BOD5=1675 t/a N= 10 t/a Total P= 4 t/a total oil= 123 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect
Immediate Causes of Emissions	Treatment plant - lagoon, but only 30 % of wastewater has been treated. Rest has been discharged in channel Slatinska Čađavica without treating. Sludge from lagoon has been transported on agricultural field. Colors of wastewater indicate existing of blood.
Root Causes of Water Quality Problems	Treated plant has inadequate capacity, treated technology need improvement, and small recipient capacity.
Receiving Waters	Drava, Čomborje, Slatinska Čađavica II category.
Nearby Downstream Uses	There is no important nearby downstream uses.
Transboundary Implications	national problem with national cause
Rank	Medium priority

2.3.3. Low priority

Table 2.19. Farm Dubravica

DUBRAVICA – pig farm	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=48 690 m^3/a - discharged in 97 Pollution load in 97: COD Cr= 589 t/a BOD5=212 t/a total oil= 6t/a SS= 14 t/a mineral oil =0,195 t/a C_6H_5OH= 0,089 t/a NO2= 0,0069 t/a NO3= 3,197 t/a
Seasonal Variations	Wastewater discharged in stream Sutlišće which after 7-km flow in Sutla river (II category, boundary with Slovenia). Sutlišće stream has small water quantity, and in summer period usually become dry.
Immediate Causes of Emissions	Treatment plant - wet and dry separation, lagoon, agricultural field Treatment plant under construction (there has been insufficient capacity) partial discharged untreated water in stream especially in period of full producing, when discharging can cause accidental pollution.
Root Causes of Water Quality Problems	Not completely constructed treatment plant. Finish of construction in plat till and of the year. After finishing treatment plant discharging of wastewater in the stream will stop (agricultural field)
Receiving Waters	Sava, Sutla II category, stream Sutlišće
Nearby Downstream Uses	There is no important downstream use.
Transboundary Implications	Transboundary problem with national cause. (Sutla river boundary with Slovenia)
Rank	Low priority

2.4. Industrial Hot Spots

2.4.1. High priority

Table 2.20. Belisce - paper industry

BELIŠĆE paper industry	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=1 801 073 m3/a Pollution load in 97 COD Cr= 5951 t/a BOD5=1586 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Treatment plant - mechanic – biological (treatment plant also used for sewage system Belišće - Hot Spot)
Root Causes of Water Quality Problems	Only 1/3 of wastewater has been treated on treatment plant
Receiving Waters	Drava II category
Nearby Downstream Uses	Periodical has affect water supply area of Osijek
Transboundary Implications	national problem with national cause
Rank	High priority

Table 2.21. IPK Osijek - sugar factory

IPK OSIJEK sugar factory	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=1 414 740 m^3/a- discharged ww in 97 Pollution load in 97: COD (Cr= 1328 t/a BOD5= 676 t/a Total oil= 24t/a
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Treatment plant - partially cleaning with press for saturated sludge
Root Causes of Water Quality Problems	High pollution load and insufficient treatment
Receiving Waters	Drava II category
Nearby Downstream Uses	Navigation
Transboundary Implications	National problem with national cause
Rank	High priority

Table 2.22. Pliva - pharmacies industry

PLIVA – pharmacies industry from Savski Marof	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=1 615 420 m^3/a - discharged in 97 Pollution load in 97: COD (Cr= 1390 t/a BOD5=321 t/a SO_4=271 t/a, C_6H_5OH= 0,15 t/a Ni= 0,16 t/a Fe=2 t/a,
Seasonal Variations	There are not existing important seasonal variations that can affect.
Immediate Causes of Emissions	Treatment plant - biological, oil separation, neutralization. Wastewater has been discharged in stream Gorjak that flow in Sava. In plans connection wastewater on sewage system Zaprešić and on central treatment plant completely cleaned. Building of central treatment plant partially will be financed by PLIVA. Main pipes for connection Pliva on sewage system pass through water supply area and pipe need to be water-resistant.
Root Causes of Water Quality Problems	High pollution load discharged in small recipient. Wastewater need to be connected on sewage system
Receiving Waters	Sava, Gorjak II category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	National problem with national cause
Rank	Medium priority

Table 2.23. Sladorana Županja - food industry

“SLADORANA” Županja	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=1 084 308 m^3/a - discharged in 97 Pollution load in 97: COD Cr= 1240 t/a BOD5=560 t/a SS= 14 t/a
Seasonal Variations	Emission variation in producing campaign
Immediate Causes of Emissions	Treatment plant - under construction. Now I treated phase
Root Causes of Water Quality Problems	High pollution load need reduction
Receiving Waters	Sava II category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	Transboundary problem with national causes (Sava boundary with Bosnia and Herzegovina)
Rank	High priority

2.4.2. Medium priority

Table 2.24. Petrokemija Kutina - fertilizer industry

“Petrokemija” d.d. Kutina- fertilizer industry	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=5 347 389 m^3/a - discharged in 97 Pollution load in 97: COD Cr= 278 t/a BOD5= 59 t/a N= 390 t/a SS 14 t/a mineral oil= 2 t/a F= 33 t/a
Seasonal Variations	-variation pollution load are in rank of 1:5, but there are not strictly seasonal -recipient variations Hmin=2cm, Hmax=364 cm
Immediate Causes of Emissions	Treatment plant has small capacity, as also the recipient. For process wastewater exist total cleaning (ion change for wastewater full with nitrogenous compounds and neutralization for fluoride water) On landfill phosphor gyps put down the sediment CaF_2 of treated fluoride water
Root Causes of Water Quality Problems	Treatment plant has been small capacity, as also the recipient.
Receiving Waters	Sava, Kutinica, lateral channel II category
Nearby Downstream Uses	Sensitive area National park Lonjsko Polje
Transboundary Implications	National problem with national cause
Rank	High priority

Table 2.25. Gavrilovic - meet industry

Gavrilović meet industry from Petrinja	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=497 856 m^3/a - discharged ww in 97 Pollution load in 97: COD Cr= 227 t/a BOD5= 132 t/a N= 5 t/a total P= 2 t/a total oil= 9 t/a SS= 16 t/a
Seasonal Variations	There are no existing important seasonal variation that can affect
Immediate Causes of Emissions	Treatment plant - out of function. destroyed in war
Root Causes of Water Quality Problems	Treatment plant out of the function
Receiving Waters	Kupa II category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	national problem with national causes
Rank	Medium priority

Table 2.26. INA Zagreb - oil refinery

INA ZAGREB, Oil Refinery in Sisak	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=2 515 672 m^3/a - discharged ww in 97 Pollution load in 97: total oil=27 t/a COD (Cr= 88 t/a BOD5= 92 t/a SS =3 t/a S^{2-} =1,5 t/a C_6H_5OH = 3 t/a
Seasonal Variations	There are not existing important seasonal variations that can affect
Immediate Causes of Emissions	Treatment plant - oil separation
Root Causes of Water Quality Problems	
Receiving Waters	Sava, melioration channel III category
Nearby Downstream Uses	There is no important nearby downstream uses
Transboundary Implications	National problem with national cause
Rank	Medium priority

Table 2.27. PIK Vrbovec - meat industry

PIK "VRBOVEC"- meat industry	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=740 000m^3/a - discharged ww in 97 Pollution load in 97: total suspended solids=190 t/a total oil=36 t/a COD Cr= 211 t/a BOD5= 106 t/a mineral oil =0,74 t/a NH4= 7 t/a PO_4= 2 t/a
Seasonal Variations	-recipient variations Hmin=13cm, Hmax=564 cm
Immediate Causes of Emissions	Mechanical treatment plant – sedimentation and fat catching, totally successfully 10 %
Root Causes of Water Quality Problems	Treatment plant is without real function, and recipient capacity is very small. Wastewater will be with before pretreatment connected to sewage system Vrbovec and together with sewage wastewater clean on central treatment plant.
Receiving Waters	Sava, Luka II category
Nearby Downstream Uses	There are no important nearby downstream uses.
Transboundary Implications	National problem with national cause
Rank	Medium priority

2.4.3. Low priority

Table 2.28. Željezara Sisak - steel industry

Željezara SISAK - steel industry	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=781 655 m^3/a - discharged ww in 97 Pollution load in 97 total suspended solids=20 t/a COD Cr= 26 484 t/a BOD5= 12 t/a N=3 t/a total P=0,2 t/a Fe=0,7 t/a
Seasonal Variations	There are no existing important seasonal variations that can affect.
Immediate Causes of Emissions	Treatment plant - neutralization, oil separator, CINDER whole (sedimentation)
Root Causes of Water Quality Problems	High pollution load, insufficient treatment
Receiving Waters	Mouth Kupa river in Sava river, bought II category
Nearby Downstream Uses	There are no important nearby downstream uses
Transboundary Implications	National problem with national cause
Rank	Low priority

Table 2.29. IPK Osijek - vegetable oil factory

IPK OSIJEK Factory of vegetable oil Čepin	Summary of Information Used for Ranking the Hot Spot
Critical Emissions	Q=109 479 m^3/a - discharged ww in 97 Pollution load in 97: Total oil=11 t/a COD Cr= 86 t/a BOD5= 57 t/a
Seasonal Variations	There are no existing important seasonal variation that can affect
Immediate Causes of Emissions	Treatment - neutralization
Root Causes of Water Quality Problems	Inadequate treatment plant
Receiving Waters	Drava, channel Palčić-Toma-Crni-Fok III category
Nearby Downstream Uses	There are no important nearby downstream uses
Transboundary Implications	National problem with national cause
Rank	Law priority

3. Identification of Diffuse Sources of Agricultural Pollution

3.1. Land Under Cultivation

Total land under agricultural cultivation in the Danube catchment area is 1 624 653 ha. Almost the whole region is area of intensive agricultural activities. Area of intensive agricultural activities is presented in the Figure 3.1.

Counties with intensive agricultural production are: Vukovarsko - srijemska, Osječko - baranjska, Brodsko - posavska, Virovitičko - podravska, Bjelovarsko - bilogorska, Koprivničko - križevačka, Sisačko - moslavačka, Međimurska i Varaždinska.

Total use of fertilizers in area of intensive agricultural region in 1997 is presented in Table 3.1.

Table 3.1. Total use of fertilizers in area of intensive agricultural production in 1997 in tones (active ingredients)

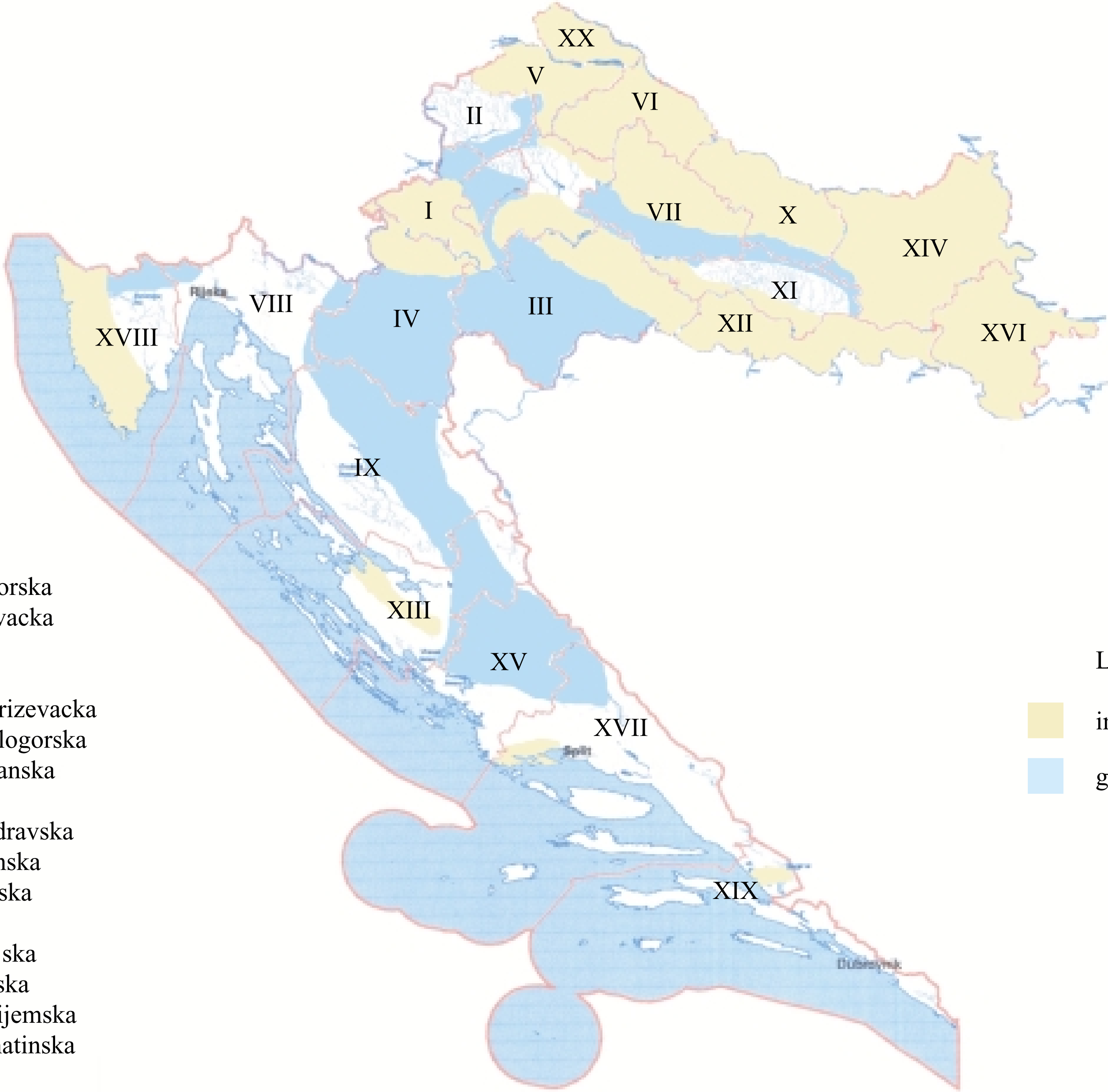
Counties	Total use of fertilizers (t)
Sisačko – moslavačka	13 919
Varaždinska	15 025
Koprivničko – križevačka	25 260
Bjelovarsko – bilogorska	27 470
Virovitičko – podravska	38 144
Brodsko – posavska	28 588
Osječko – baranjska	93 640
Vukovarsko – srijemska	50 386
Međimurska	17 322

Total amount of fertilizers used in Danube catchment area is 354 520 tones in 1997, and total amount of pesticides is 8 500 tones.

It is impossible to estimate impact on surface and groundwater from application of fertilizers and pesticides, because there is no data about that.

There is no data about erosion and soil loss in that region.

Figure 3.1. Map of intensive agricultural production and graizing



	COUNTY
I	Zagrebacka
II	Krapinsko-Zagorska
III	Sisacko-Moslavacka
IV	Karlovacka
V	Varazdinska
VI	Koprivnicko-Krizevacka
VII	Bjelovarsko-Bilogorska
VIII	Primorsko-Goranska
IX	Licko-Senjska
X	Viroviticko-Podravska
XI	Pozesko-Slavonska
XII	Brodsko-Posavska
XIII	Zadarska
XIV	Osjecko-Baranjska
XV	Sibensko-Kninska
XVI	Vukovarsko-Srijemska
XVII	Splitsko-Dalamatinska
XVIII	Istarska
XIX	Dubrovacko-Neretvanska
XX	Medimurska

LEGEND

intensive agricultural activities

graizing

Table 3.2. Production of single agricultural culture in region of intensive production and total production in the Danube catchment area in tones in 1997

Culture/Counties	Sisaèko-Moslavaèka	Varaždinska	Koprivnièko-Križevaèka	Bjelovarsko-Bilogorska	Virovitièko-Podravska	Brodsko-Posavska	Osječko-baranjska	Vukovarsko-Srijemska	Međimurska	TOTAL in Danube c. a.
Wheat	32 050	25 648	62 216	73 426	101 000	60 540	193 256	96 268	32 092	863 163
Barley	6 062	2 530	2 810	6 469	3 758	11 832	18 562	6 926	4 129	68 231
Rye	0	315	468	155	0	0	0	237	560	2 198
Oats	252	656	746	4 302	3 956	1 200	0	0	768	14 374
Oil-beet	1 473	387	1 462	1 284	2 114	852	986	481	179	13 912
Corn	130 946	102 018	183 500	155 995	213 287	165 885	398 072	205 048	107 088	2 044 847
Hemp	0	0	0	0	12	0	0	0	0	12
Sugar-beet	2 880	74 343	43 409	23 828	122 619	81 588	259 033	193 412	126 338	962 882
Sunflower	0	0	32	0	3 647	3 376	24 305	8 771	0	40 143
Soya beans	951	2	10	916	8 384	2 815	13 164	7 713	0	38 041
Tobacco	0	0	206	284	7 831	83	258	105	0	9 888
Potato	18 556	35 360	14 153	46 316	12 715	27 125	32 604	8 744	90 319	405 871
Beans-single culture	555	479	261	355	869	1 175	834	542	265	8 506

Culture/Counties	Sisaèko-Moslavaèka	Varaždinska	Koprivnièko-Križevaèka	Bjelovarsko-Bilogorska	Virovitièko-Podravska	Brodsko-Posavska	Osječko-baranjska	Vukovarsko-Srijemska	Međimurska	TOTAL
Beans-with another culture	254	1 843	1 172	470	600	411	463	32	337	11 155
Apples	8 841	2992	1 341	1 407	1 920	2 933	3 461	5 262	4 413	45 130
Pears	1 516	597	405	483	444	684	766	1 861	420	9 655
Plums	6 720	1 088	1 228	2 618	3 141	6 231	8 703	2 915	883	45 477
Walnuts	416	110	184	119	169	147	338	210	169	2 546
Grapes	11 453	58 179	21 832	10 037	8 749	5 927	7 864	331	12 529	258 060

3.2. Grazing Areas

Total land used for grazing in the Danube catchment area is 290 616 ha. Following counties are area of intensive animal grazing: Požeška - slavonska, Sisačko - moslavačka and Karlovačka, and they are presented in the Figure no. 3.1.

Data of number of animals is presented on the Table 3.3.

Table 3.3. Number of animals in Danube catchment area

Counties	Animals			
	Cattle	Pigs	Poultry	Sheeps/ Goats
Osječko-Baranjska	12 729	165 003	334 425	23 299
Zagrebačka	54 590	191 663	720 460	7 813
Krapinsko-Zagorska	24 820	38 983	321 960	1 764
Sisaèko-Moslavaèka	22 004	174 328	324 500	11 680
Karlovačka	18 633	24 294	92 830	7 310
Varaždinska	17 515	88 941	1 455 660	3 721
Koprivnièko-Križevaèka	51 131	213 888	181 872	3 577
Bjelovarsko-Bilogorska	42 997	164 450	338 500	14 414
Virovitièko-Podravska	5 050	45 100	118 000	4 470
Požeško-Slavonska	7 120	73 000	162 000	2 940
Brodsko-Posavska	12 270	86 904	375 565	2 039
Vukovarsko-Srijemska	7 526	79 487	116 431	3 041
Međimurska	11 898	62 398	1 025 000	5 319

There is no data about impact of grazing and animals on quality of surface and groundwater.

4. Updating and Validation of Water Quality

4.1. Index of Water Quality Monitoring Records

Chemical monitoring of surface water in the Danube catchment area in Croatia has been established in 1963 as international monitoring program on examination of water quality of the Danube, the Drava and the Mura Rivers, which was adopted by Croatia, Hungary and Austria. It has been changed through the past and nowadays there is an intercountry monitoring between Hungary and Croatia on the Danube, the Drava and the Mura Rivers which has took part under activities of Permanent Croatian - Hungarian Committee of Water Management. Frequency of sampling and parameters, which are tested, has been changed from 1963. Monitoring has started with quarterly sampling and determination of pH, dissolved oxygen, COD-Mn, BOD5, ammonium, nitrite, orto - phosphate, total dried residue, suspended solids, MPN (most probably number of bacteria) and total number of bacteria. Nowadays, this monitoring has included determination of COD - Cr, total nitrogen, total phosphorus, oil, heavy metals and pesticides with monthly sampling at sampling station on the Danube River at Batina, on the Drava River at sampling stations at Donji Miholjac (right and left side and middle of the river flow), Terezino Polje and Botovo, and on the Mura River at sampling station Goričan. There are some additional sampling stations with the same monitoring program, on the Drava river at sampling station Donja Dubrava and Varaždin. Changes in this monitoring are evident from Annex 1.

National monitoring program, on the Danube, the Drava and the Mura Rivers and their tributaries was established later, separately of intercountry monitoring program. National monitoring program has included weekly sampling and determination of some general parameters, like pH, conductivity, dissolved oxygen, COD-Mn, COD-Cr, BOD5, ammonium, nitrite, nitrate, orto-phosphate, total dried residue, suspended solids, oil, most probably number of bacteria and total number of bacteria on the Danube, the Drava and the Mura rivers. There are some additional sampling stations on the Drava River at sampling stations Bistrinci, Višnjevac and Nemetin in national monitoring program. Sampling of tributaries of the Danube, the Drava and the Mura Rivers has been arranged twice a year with determination the same parameters of water quality.

National monitoring program of the Sava River and its tributaries has been established at 1973 and has included 17 sampling stations on the Sava River and 54 on its tributaries. Sampling at sampling station on the Sava River has been weekly and determination of pH, conductivity, COD-Mn, BOD5, total dried residue, suspended solids, most probably number of bacteria and total number of bacteria, ammonium, nitrite, nitrate, orto-phosphate, oil, and once a month determination of COD-Cr, total nitrogen and some metals - K, Na, Fe and Mn. Determination of total phosphorus is included at few sampling stations on the Sava river.

Sampling at sampling stations on tributaries of the Sava River are conducted five times a year with a determination of the same parameters except total phosphorus, and determination metals once a year.

Hydrological monitoring in the Danube catchment area has been established much earlier, at some monitoring station in last century. There is water level record at many of hydrological monitoring station, at some water discharges records, and at few sediment discharges records.

Summary of monitoring program in the Danube catchment area is shown in Annex 1 from which type and period of monitoring at monitoring stations in the Danube catchment area in Croatia are evident.

There are no monitoring stations with hydrological monitoring only in Annex 1.

There are no available data of river kilometers, or coordinates for most of sampling data.

Most of monitoring stations from Annex 1 are presented on the map 4.1.

4.2. Data Quality Control and Quality Assurance

All of Croatian laboratories which are included in monitoring in the Danube catchment area have been licensed from State Water Directorate of Republic of Croatia under Pravilnik o uvjetima koje moraju ispunjavati ovlašteni laboratoriji (Rule Book on the Conditions which have to comply Licensed Laboratories), Narodne novine br. 78/1997 (Official Gazette no.78/1997). That rule book regulates very precisely conditions which have to be followed by the laboratories which are included in monitoring and general water examination, concerning rooms of laboratories, stuff and instruments. There is also Croatian norm HRN EN 45 001:1996 Opći kriteriji za rad ispitnih laboratorija (General criteria for the operation of testing laboratories), which complies with the European norm. That norm regulates general criteria for the operation of testing laboratories, which includes quality control and quality assurance too. Accreditation of our laboratories will be included as a criterion for these norms in future. There have been organized workshops of State Office of Standardization and Metrology for testing laboratories which should help laboratories to involve that norm in their every day work concerning preparing their own manual of quality control, manual of work, and instructions of testing.

When Croatia has become independent country, some norms of analytical methods for water quality testing from former country have been accepted, but they had no obligation form. These norms have been changed with appropriate European or ISO norms this year and the next stage should be acceptance of European or ISO norms like Croatian norms for all of parameters which are tested in laboratories which are included in monitoring and regulation of them like obligation methods for water quality examination.

Because, there is such situation with norms, a questionnaire had been sent to laboratories, which are included in monitoring in the Danube catchment area to define the methods which they use for sampling, determination of different parameters of water quality, and which elements of quality control and quality assurance for sampling and analysis they have adopted.

All of laboratories have used some method of samples preservation between sampling and analysis (for instance - acidification of samples for oil and heavy metals determination).

Summary of questionnaire of analytical methods which are used in laboratories are presented in Table 4.1. and much more detailed in Table 4.2.

From Table 4.1., it is evident that laboratories are oriented on methods from book Standard Methods for Water and Wastewater Examination, APHA, AWWA, WPCP, different edition, from 1965 to 1995, and only for few parameters have been used some ISO or EPA norms for determination of Pb and pesticides.

Some elements of quality control have been established in laboratories, such as some working instructions, calibration of balances, intralaboratory calibration of instruments. But it has not been adopted in every day work in a proper way. No laboratories have well documented procedure of quality control.

All of laboratories have been included in interlaboratory calibration exercises in organization of Referent Laboratory Ruđer Bošković Institute, Center for Marine and Environmental Research. Interlaboratory calibration exercises have been held once a year from 1991 for different parameters of water quality at wastewater concentrations level.

Interlaboratory calibration exercises have been performed for pH, chloride, sulfate, nutrients, COD-Cr, BOD5, heavy metals, oil, phenols, and some specific organic pollutants - PCBs and volatile halogenated hydrocarbons. Laboratories, except laboratory no. 3 have been included in interlaboratory calibration exercises in organization of VITUKI (Institute for Water Pollution Control, Budapest), Quake Danube, which have been organized for all countries in the Danube catchment area four times a year and included periodical test of most of parameters which have been included in monitoring of water quality - pH, conductivity, total dried residue, nutrients, COD-Mn, COD-Cr, BOD5, MBAS, total hardness, heavy metals. There are interlaboratory calibration exercises of sediment too, in organization of VITUKI, which included determination of total phosphorus, total nitrogen and heavy metals in sediment, and some of laboratories (no. 1, 5 and 8) have taken part in that intercalibration exercises. Some laboratories have been included in another interlaboratory calibration exercises, for instance Ruđer Bošković Institute in 1997 in organization of World Health Organization under Global Monitoring Program, and Institute for Public Health from Sisak in interlaboratory calibration exercises for pesticides in organization of World Health Organization - Center for Pesticide Analysis and Training, Darmstadt.

There are no available data about quality control in organizations of Croatian waters and State Hydrological and Meteorological Institute.

Figure 4.1. Sampling stations in Danube catchment area

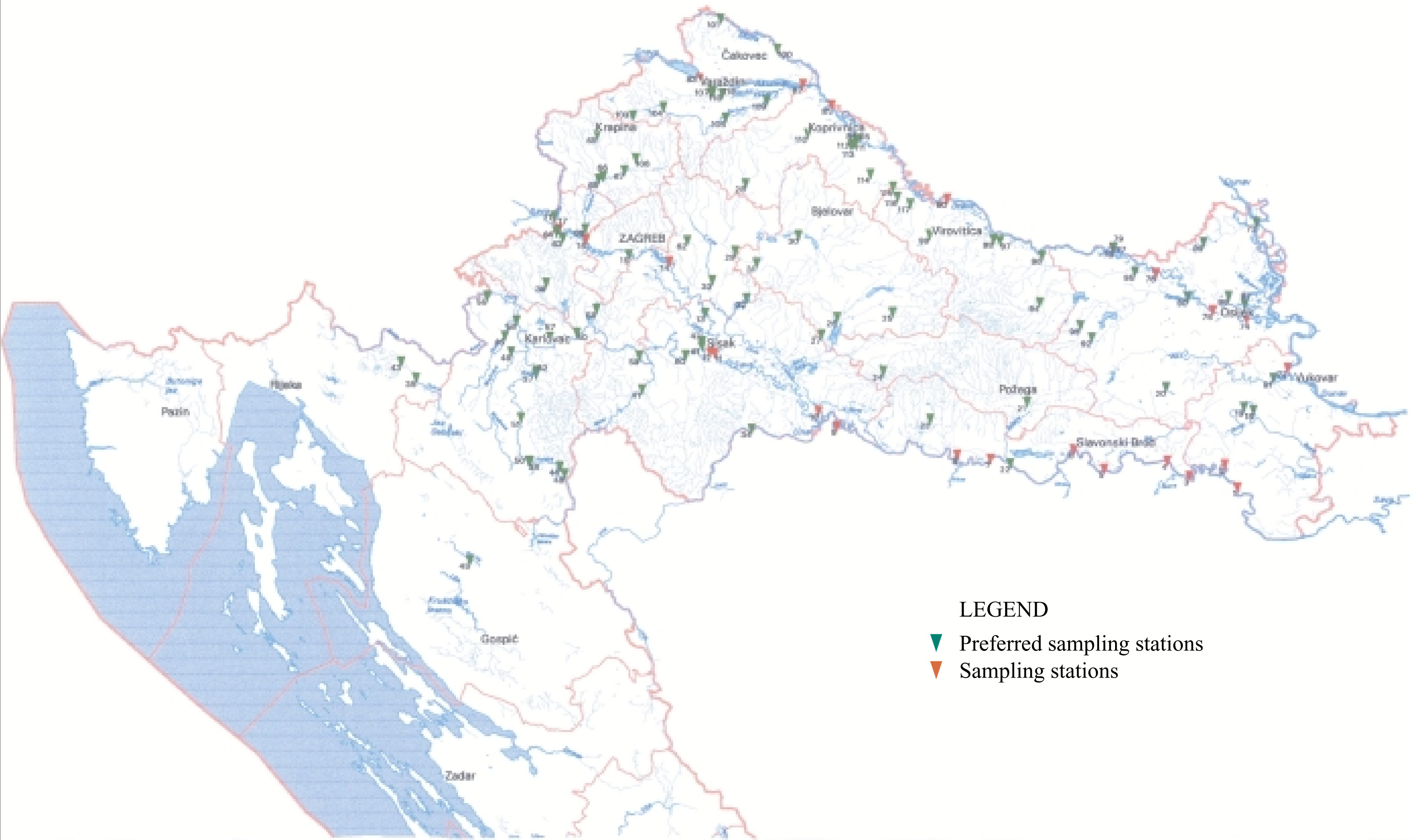


Table 4.1. Presentation of methods which have been used in laboratories

Name of Institute	Method of determination									
	COD	DOC	Total N	Total P	O-phosph	Cd	Hg	Pb	Oil	Lindane, DDT
1.Ruđer Bošković Institute Center for Marine and Environmental Research	-	Marine Chemistry 1994;47	-	-	-	-	-	-	-	-
2.University of Zagreb, Medical School, Andrija Štampar School Of Public Health	-	-	SM 4500-N org D (mod)	SM 4500-PB (mod)	-	ISO 5961	EN 1483	ISO 8288	UV spectroph	ISO 6468
3.*University of Zagreb, Faculty of Civil Engeeniring, Department of Hydrology, Laboratory for Sanitary Hydrotechnics	SM; 1980	-	SM 421;1980	-	SM 424 E; 1980	-	-	-	-	-
4.Brodska Posavina l.t.d. for water managment	SM;1971	-	SM; 1971	-	SM; 1971	-	-	-	IR spectroph	-
5.Institute of Public Health for Osijek-Baranya county	SM 508; 1985	-	SM 420 A; 1985	SM424C, SM424F; 1985		SM 304; 1985	SM 303 F; 1985	SM 304; 1985	UV spectroph	EPA 525
6.Institute of Public Health for Sisak-Moslavina county	-	-	SM**	-	SM**	-	-	-	gravimetr	-
7.Institute of Public Health for Varaždin county	SM***	-	-	-		-	-	-	-	-

** From 1998 that laboratory is: Croatian Waters, Main Licenced Water managment Laboratory*

*** Standard Methods for Testing Drinking Water*

**** SM Standard Methods for Examination Water Waste Water,APHA,AWWA, WPCP*

Table 4.2. Detailed presentation of methods which are used in laboratories

PARAMETERS	NO. OF INSTITUTE	METHOD OF DETERMINATION
COD	all of laboratories	homogenized sample, reflux with $K_2Cr_2O_7$, titration with Mohr′s solution
Ammonium	all of laboratories	original sample, spectrophotometric with Nessler raegent
	2 and 5	original sample, spectrophotometric with salicilate reagent from 1997
Nitrite	all of laboratories	original sample, spectrophotometric with sulfuric acid
Nitrate	all of laboratories except no. 5	original sample, spectrophotometric with brucine reagent
	5	original sample, spectrophotometric with Na-salicilate reagent
Organic N	all of laboratories	Kjeldahl method, homogenized sample, digestion and spectrophotometric determination
Orto-phosphate	all of laboratories except no. 3	filtered sample trough filter paper (blue line), spectrophotometric with molibdate reagent
	3	without filtration, spectrophotometric with molibdate reagent
Total P	all of laboratories	homogenized sample, digestion, spectrophotometric with molibdate reagent
Cd, Pb	2	AAS - F
	5	AAS - ET
Hg	2,5	AAS, Cold Vapor
Oil	2,3,5	original sample, extraction in different solvents, UV spectrophotometric
	6	original sample, extraction and gravimetric
	7	original sample, extraction, IR spectrophotometric
Pesticide	2,5	original sample, liquid - liquid extraction, GC/ECD

4.3. Data Consistency, Compatibility and Transparency

There is uniformity of COD and nitrogen determination and presentation - the same methods of determination and same way of presentation - mgN/l.

There is no uniformity in data for orthophosphate. One of the laboratories, which are included in water quality monitoring, does not filtrate samples for determinations orthophosphate, and there are different ways of presentation of data - mg PO4/l and mgP/l.

Determination of total phosphorus includes unfiltered samples and data include flood discharges.

There are incompatibilities in oil determination, because different analytical methods have been applied in laboratories.

Different frequencies of sampling create a problem to compare water quality data at some sampling stations.

Water discharges at all monitoring stations have been interpolated from Q/H curves from measurements of water level. Sediment discharges and water quality data are from original measurements.

Available data of water quality, water and sediment discharges at the Drava River are presented hierarchically and transparently in a way that permits aggregation and disaggregation, but at the Sava River, data are not presented in that way. There are no dates of sampling (only month), data of inorganic nitrogen are presented like sum of ammonium, nitrite and nitrate, and total nitrogen like sum of inorganic and organic nitrogen. Data are presented like monthly average at sampling stations where there are weekly samplings.

4.4. River Channel Characteristic

4.4.1. Network

The network diagram of the Danube River basin is presented in the Figures 4.2. and 4.3.

4.4.2. Channel Cross Sections

The cross section records of Sava River are maintained as digital records for the whole strech of the river within the country (for 520 kilometers of river). The average distance of the profiles is about 200 meters. For the strech downstream from Sisak the records are from 1980 and 1981 whereas for the upstream part the survey took place between 1991 and 1995.

Figures 4.4. and 4.5. contain the characteristic cross sections profiles of Sava River – two around Zagreb and two around Sisak close to the mouth of Kupa River.

For other tributaries of Sava River the cross section record is only available for Kupa River, but the survey was carried out 40 years ago.

The last complete survey of cross section of Drava River was carried out from 1966 to 1968. From that time the cross section records are available only for certain river stretches where the measurement took place for regulation works to be conducted.

The characteristic cross sections of Drava River are given in the Figure 4.6.

4.4.3. Gradients

The overview of the gradients of the part of the Danube River covered by Croatia and the major tributaries is given in the following table:

Table 4.3. The overview of the gradients of the main rivers in the Danube River basin within the country

RIVER	STRECH OF THE RIVER	GRADIENT (meters per kilometer)
Danube	Bezdan-Apatin	0.060
Danube	Apatin-Bogojevo	0.044
Danube	Bogojevo-Vukovar	0.063
Danube	Vukovar-Ilok	0.040
Drava	river mouth-Osijek	0.102
Drava	Osijek-Belišće	0.127
Drava	Belišće-river kilometer 100	0.119
Drava	River kilometer 100-T. Polje	0.145
Drava	T. Polje-river kilometer 195	0.210
Drava	River kilometer 195-Botovo	0.476
Sava	Jesenice-Podsused	0.867
Sava	Podsused-Mičevac	0.660
Sava	Mičevac-Sisak	0.051
Sava	downstream from Sisak	0.036
Kupa	Radenci-Karlovac	0.735
Kupa	Karlovac-mouth to Sava river	0.088

4.4.4. Flood plains

The flood protection in the Sava River basin is carried out with the help of the big retention basins where the flood waves are discharged in order to prevent flooding in the downstream urbanized areas. The main flood plains are Žutica, Lonjsko Polje, Mokro Polje, Zelenika and Kupčina with total capacity of 1805 mil. m^3. The manipulation of the water in the system of Srednje Posavlje is conducted with three canals, fifteen facilities and retention basins. Figure 4.7. shows the potentially flood plain areas in the Danube River Catchment Area.

The flood plains in Drava River basin are mainly situated in the inundation areas of the rivers Drava and Danube due to the dikes which are build in order to protect the wider areas from flooding.

4.4.5. Wetlands

Two main wetlands in the Danube River basin covered by Croatia are Nature Park Lonjsko Polje in the Sava River basin and Nature Park Kopački Rit in the Drava and Danube River basin.

The Nature Park Lonjsko polje with area of 50 000 ha is of international importance and all efforts are directed to the preservation of this natural phenomena. The Nature Park Kopački rit is a large flooded area (17 700 ha) at the mouth of the river Drava in Baranja. It is well preserved nature unit with numerous branches of the river, channels and flooded areas emerged due to meandering and other morphological changes, covered with swampy vegetation and woods thus forming the nature reserve rich with vegetation and animals (N 45^{0}47’01’’; W 18^{0}46’05’’; E 18^{0}57’49’’; S 45^{0}32’29’’).

4.4.6. Erosion and degradation

The erosion and degradation processes in Sava River are observed by the comparison of cross section records and by measurement of water levels. Nowadays, those processes are more present due to the widening of the riverbed by different regulation works (building of dikes, embankments, etc.). Moreover, the continuous exploitation of the sand and gravel from the river also contributes to the further development of erosion. As an example of erosion processes may serve the fact that the riverbed of Sava River near Zagreb is lowered for two meters in the last twenty years.

The Drava River is characterized by the significant morphological changes of the riverbed. The erosion and degradation processes are also present because the exploitation of sand and gravel from the river exists. Furthermore, the regulation works improved those processes together with the influence of the work of hydroelectric power plants, which are situated on Drava River upstream from the mouth of Mura River. As an example, the intensity of lowering of the Drava riverbed near Donji Miholjac is estimated around one centimeter per year.

Figure 4.2. Network diagram of the Danube River basin

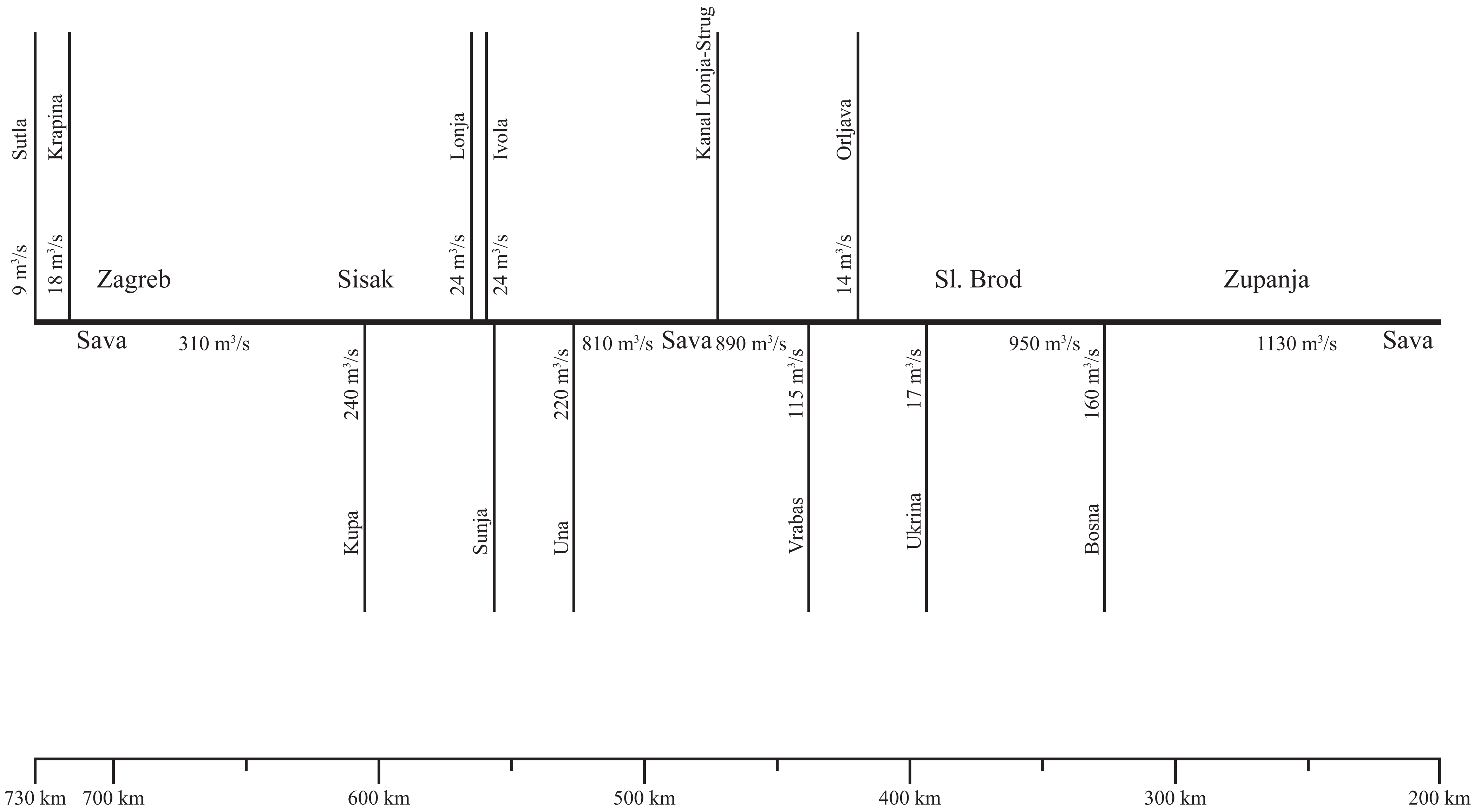


Figure 4.3. Network diagram of the Danube River basin

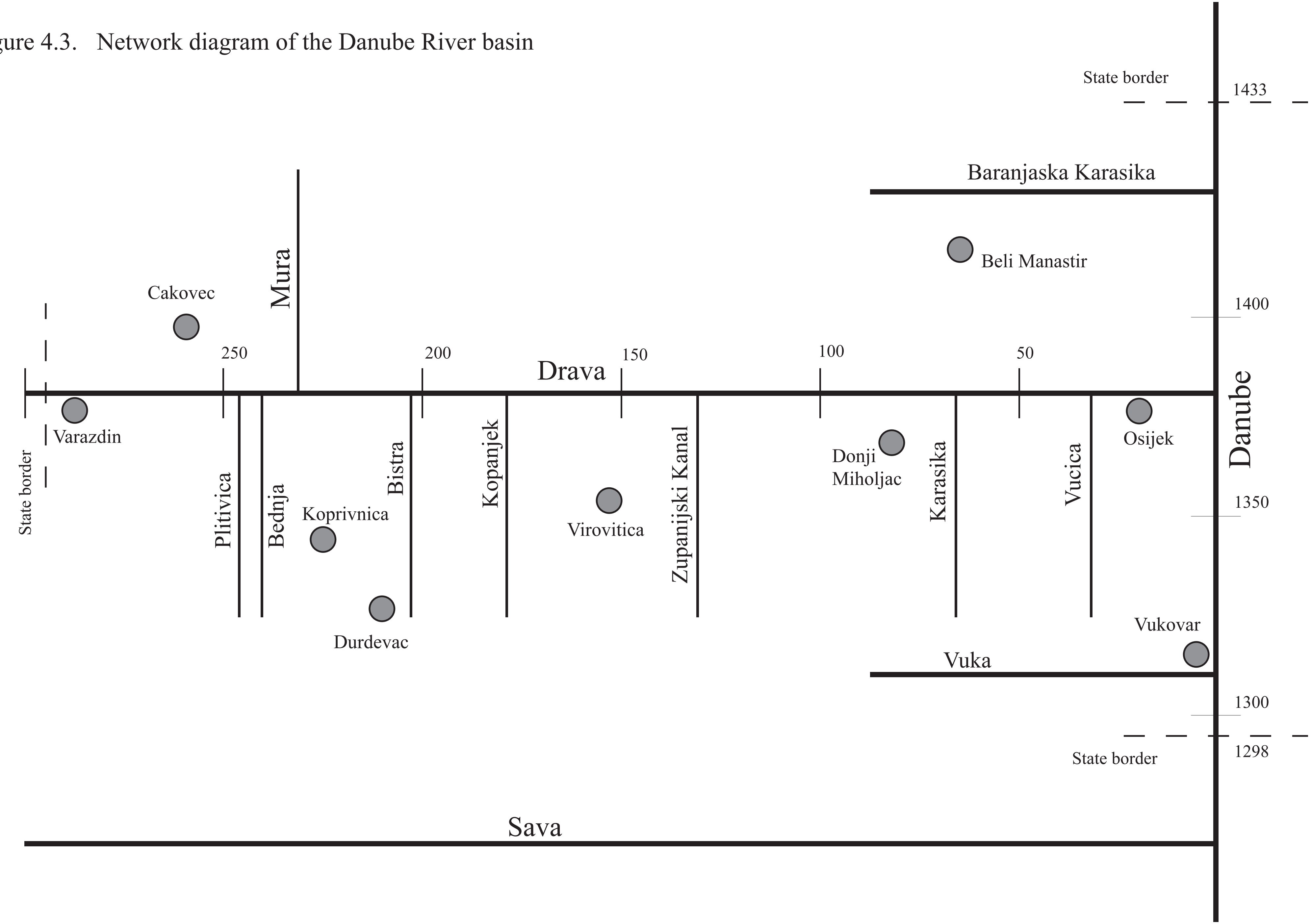
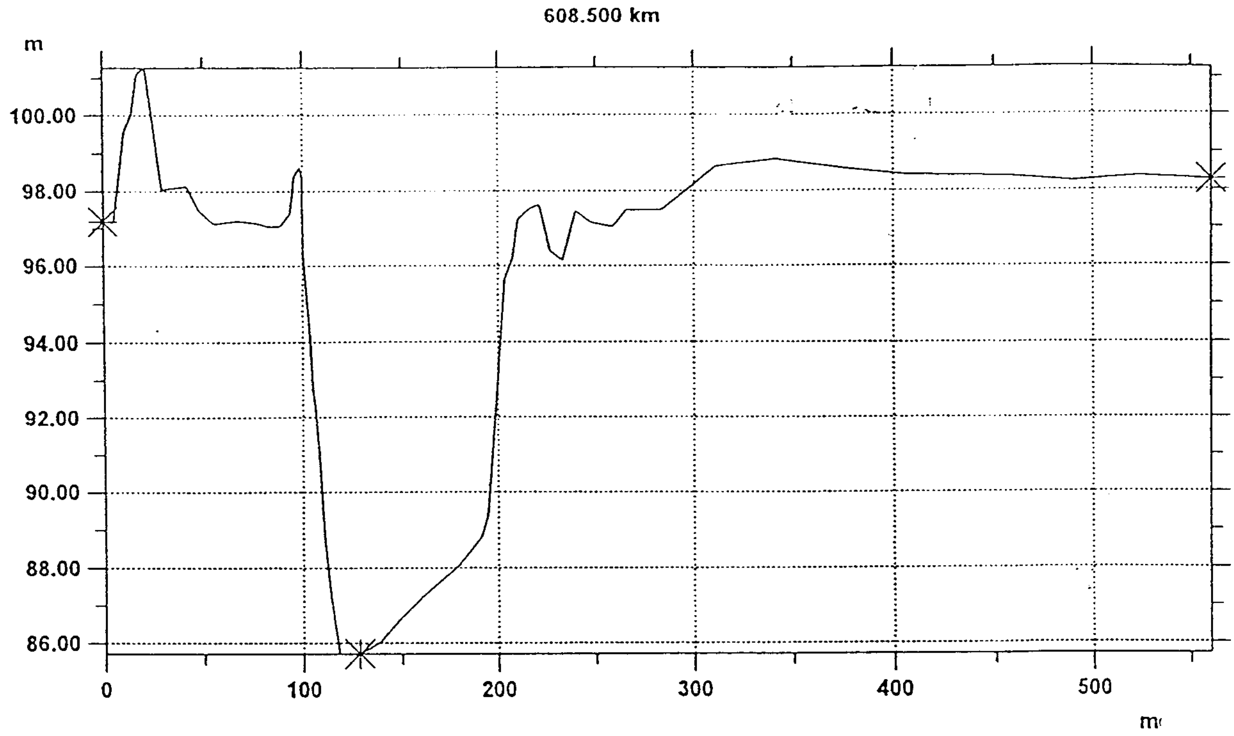


Figure 4.4. Cross sections of the Sava River



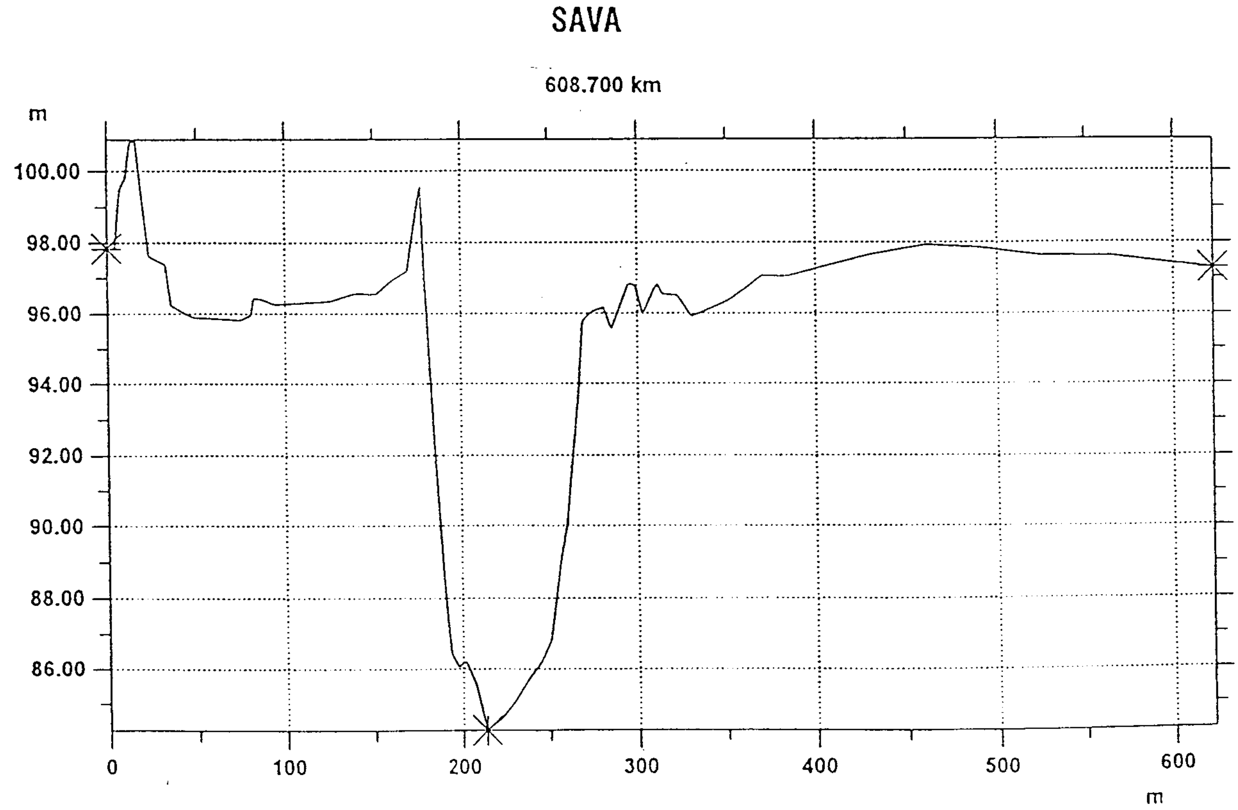
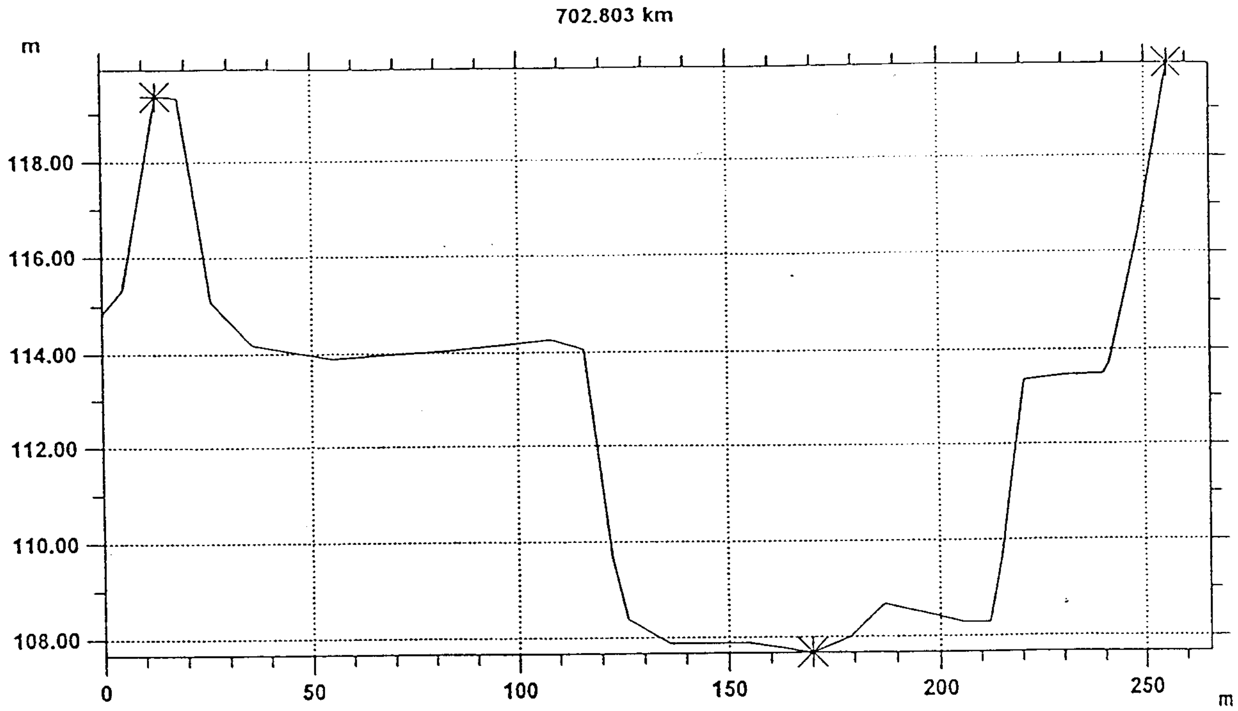


Figure 4.5. Cross section of the Sava River



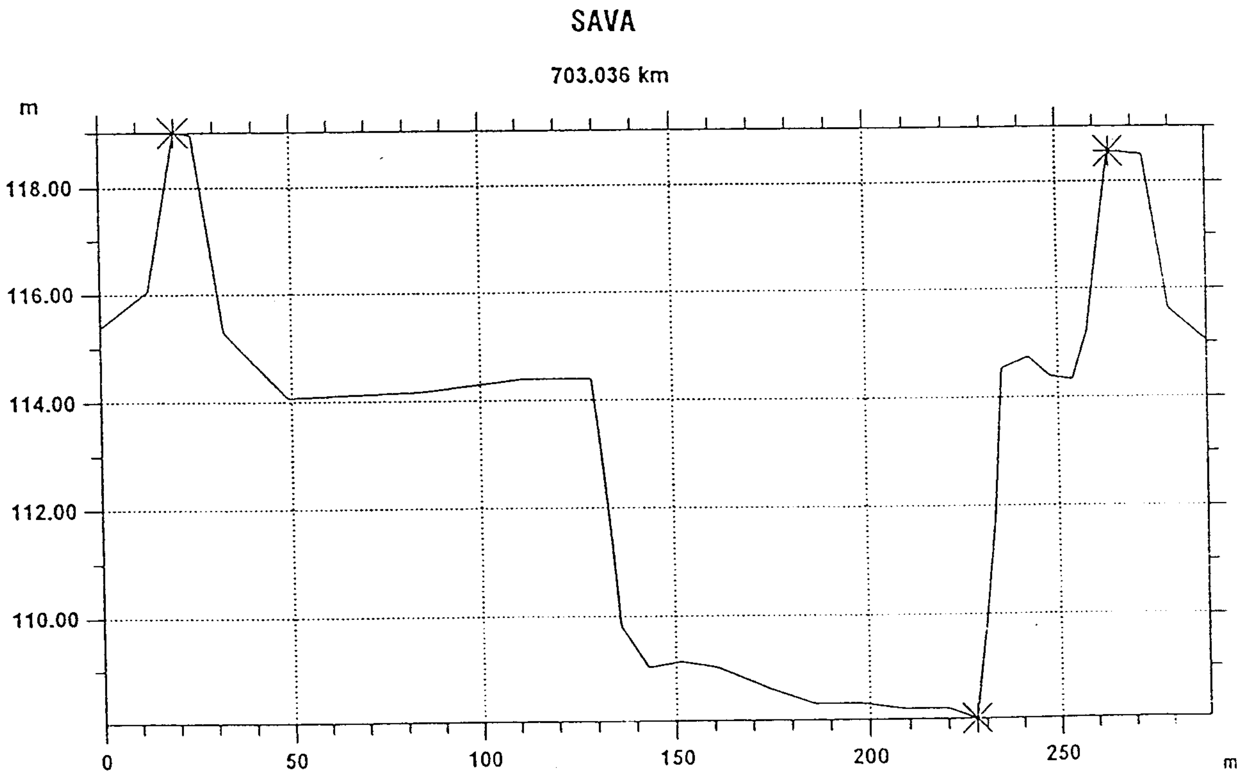
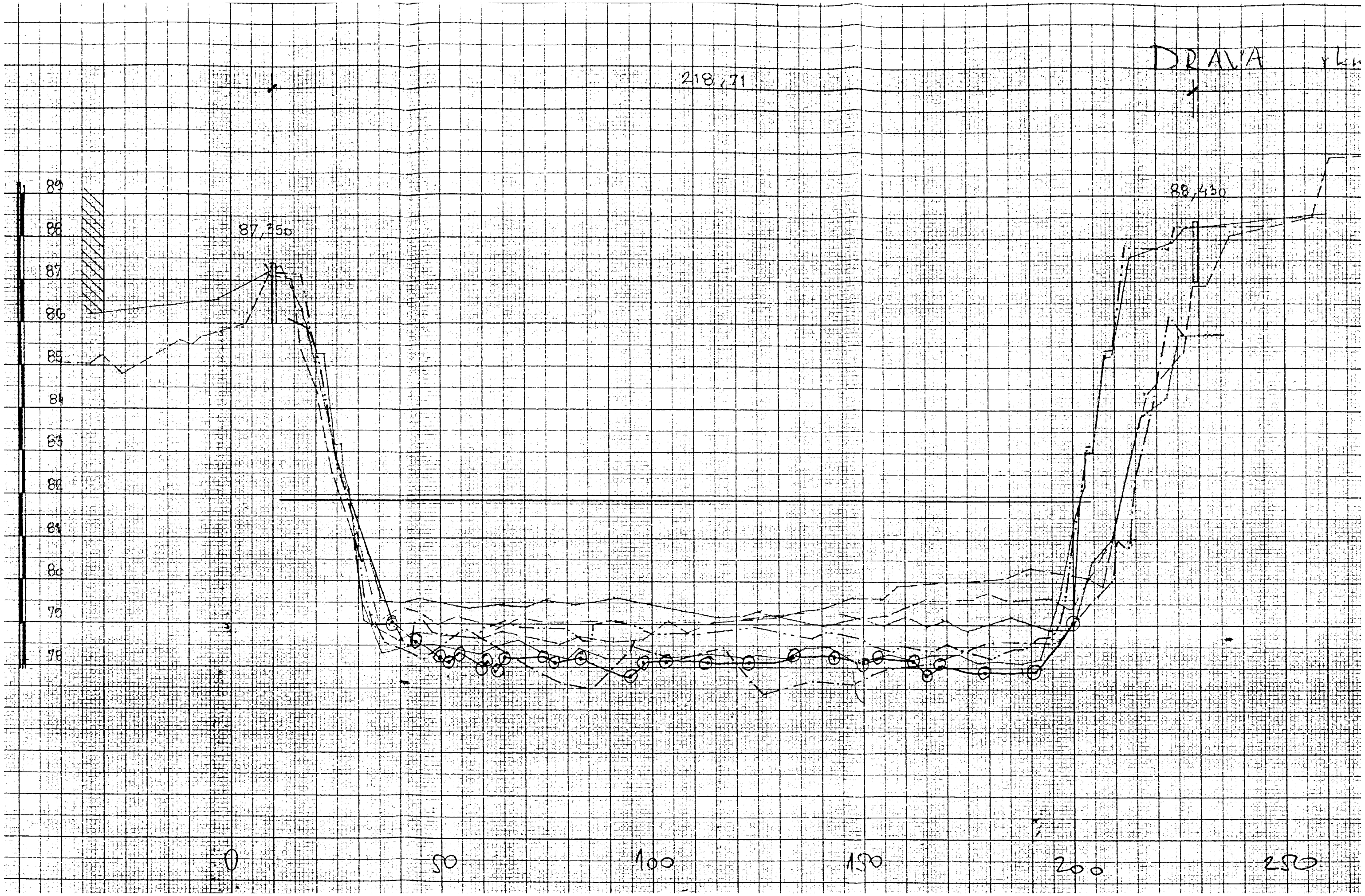
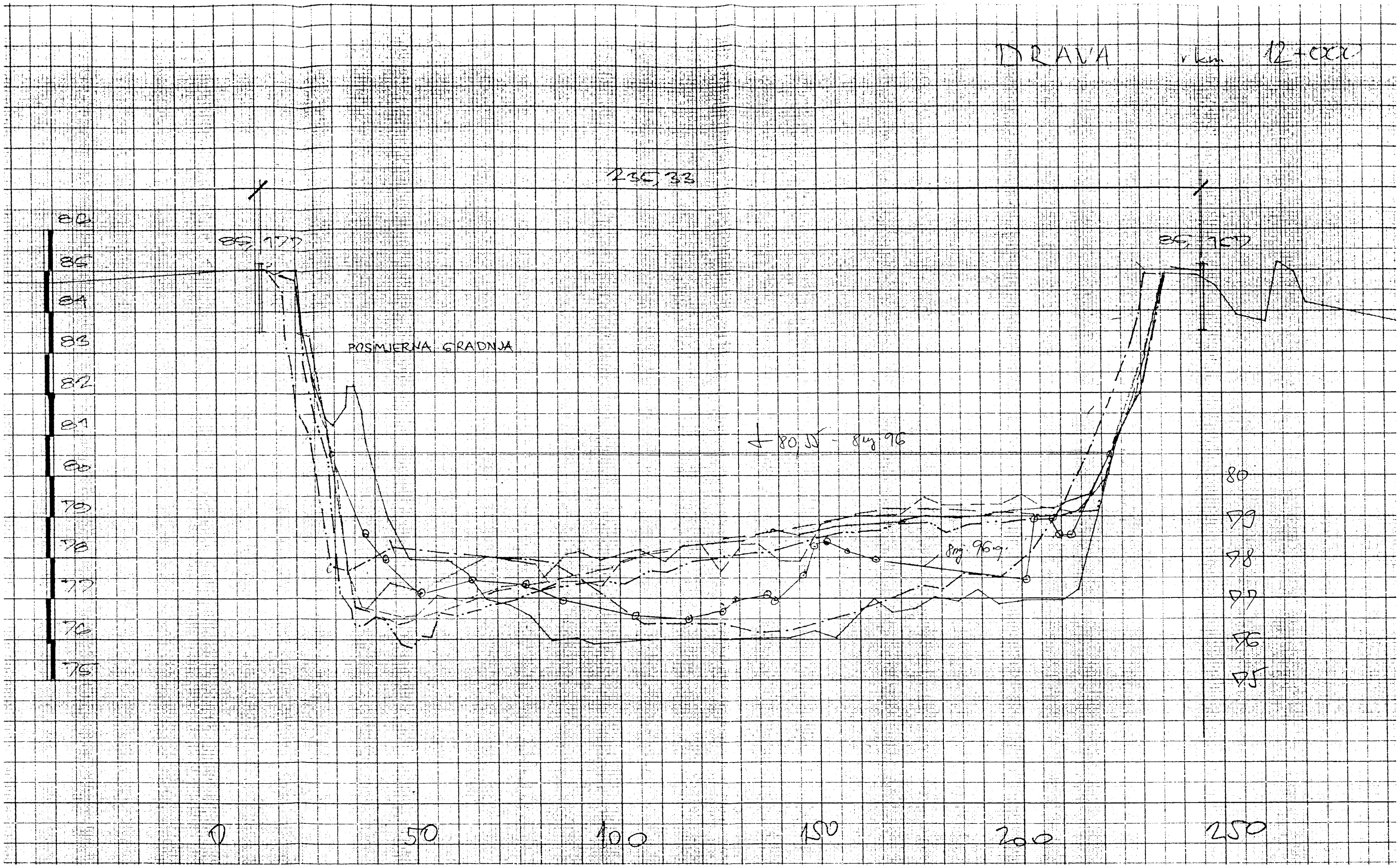


Figure 4.6.



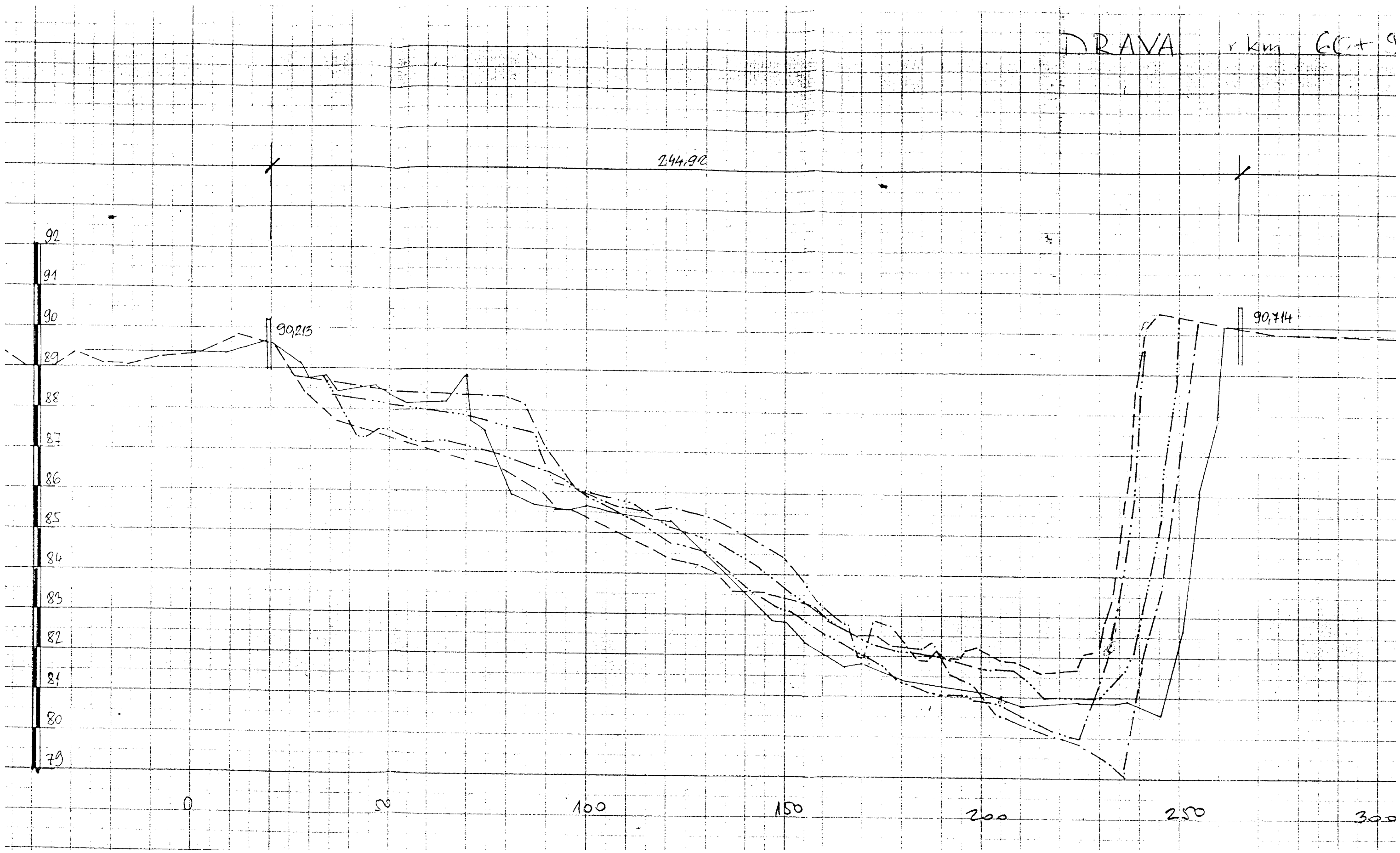
Snimljeno	Datum	Koordinate kamena		
		kam	y	x
————————	30.05.1990	EPD EPL	52493.05 52579.93	47080.86 47281.57
- - - - - - - - - -	1968			
—·—·—·—·—	1972			
—··—··—··—	14.10.1977			
━━━━━━━━	16.07.1957			
— — — — —	30.03.1960			

Figure 4.6.



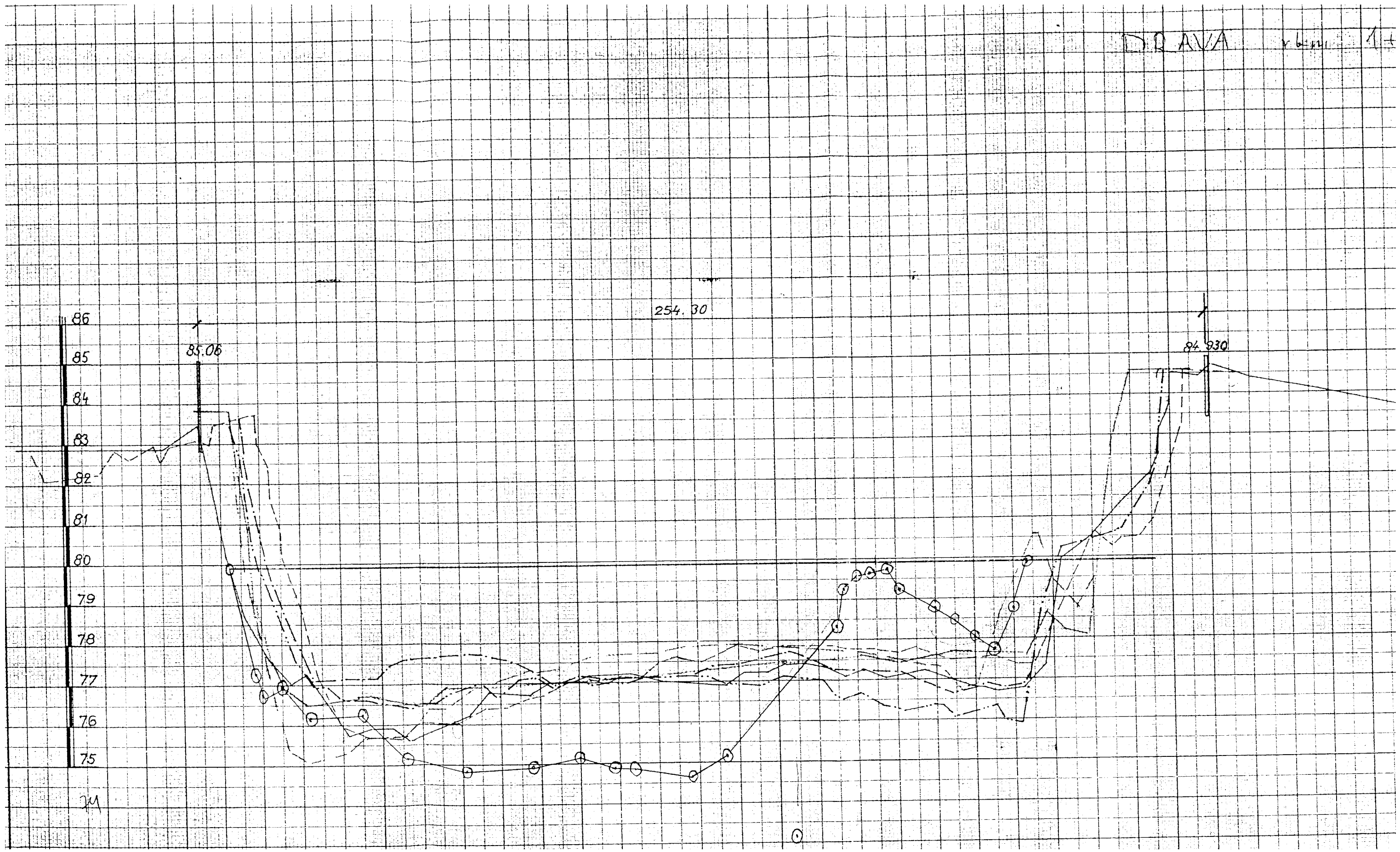
Snimljeno	Datum	Koordinate kamena		
		kam	y	x
————————	15.05.1990	EPD	61317.16	44591.35
		EPL	60201.33	44826.61
- - - - - - - - -	1968			
-·-·-·-·-·-	1972			
-··-··-··-	06.09.1977			
+++++++++	06.08.1953			
— — — — —	04.04.1960			

Figure 4.6.



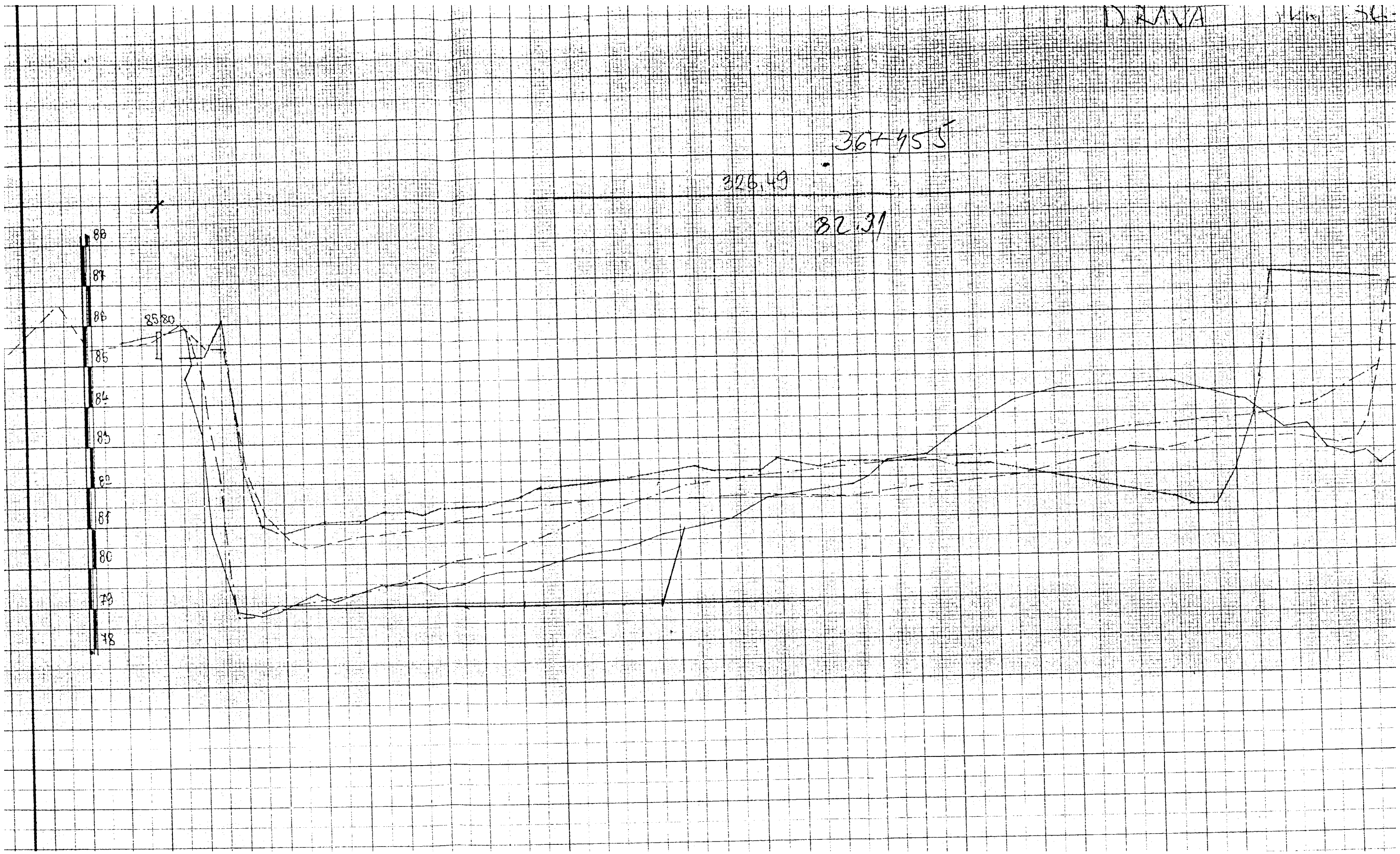
Snimljeno	Datum	Koordinate kamena		
		kam	y	x
————————	19.10.1990	EPD	28133.82	63289.42
		EPL	28094.27	63531.13
- - - - - - - - - -	1968			
—·—·—·—·—	1986			
—··—··—··—	1972			
++++++++++++	13.10.1977			

Figure 4.6.



Snimljeno	Datum	Koordinate kamena		
		kam	y	x
———————— (solid)	19.04.1991	EPD	71594.26	44839.92
		EPL	71589.14	45094.17
- - - - - - (dashed)	1968			
—·—·—·— (dash-dot)	1972			
—··—··—·· (dash-dot-dot)	03.09.1977			
++++++++ (hatched)	02.09.1954			
— — — — (long dash)	21.04.1960			

Figure 4.6.



Snimljeno	Datum	Koordinate kamena		
		kam	y	x
————————	12.06.1990	EPD	42372.90	55038.20
		EPL	42233.90	55333.62
- - - - - - - - - - -	1968			
—·—·—·—·—·—	1986			
++++++++++++	11.10.1958			

Figure 4.7. Map of potentially flood plain areas in the Danube catchment area

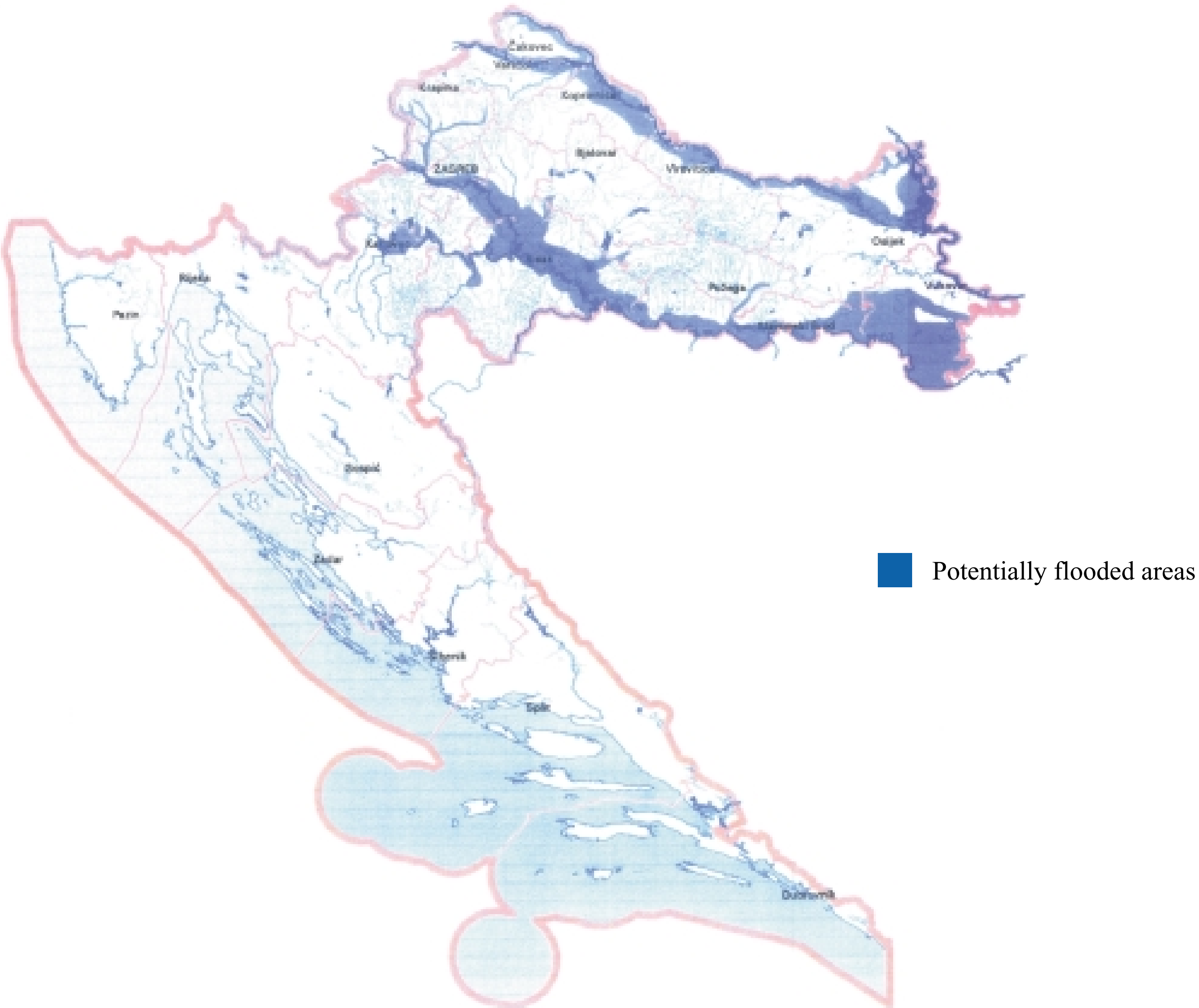
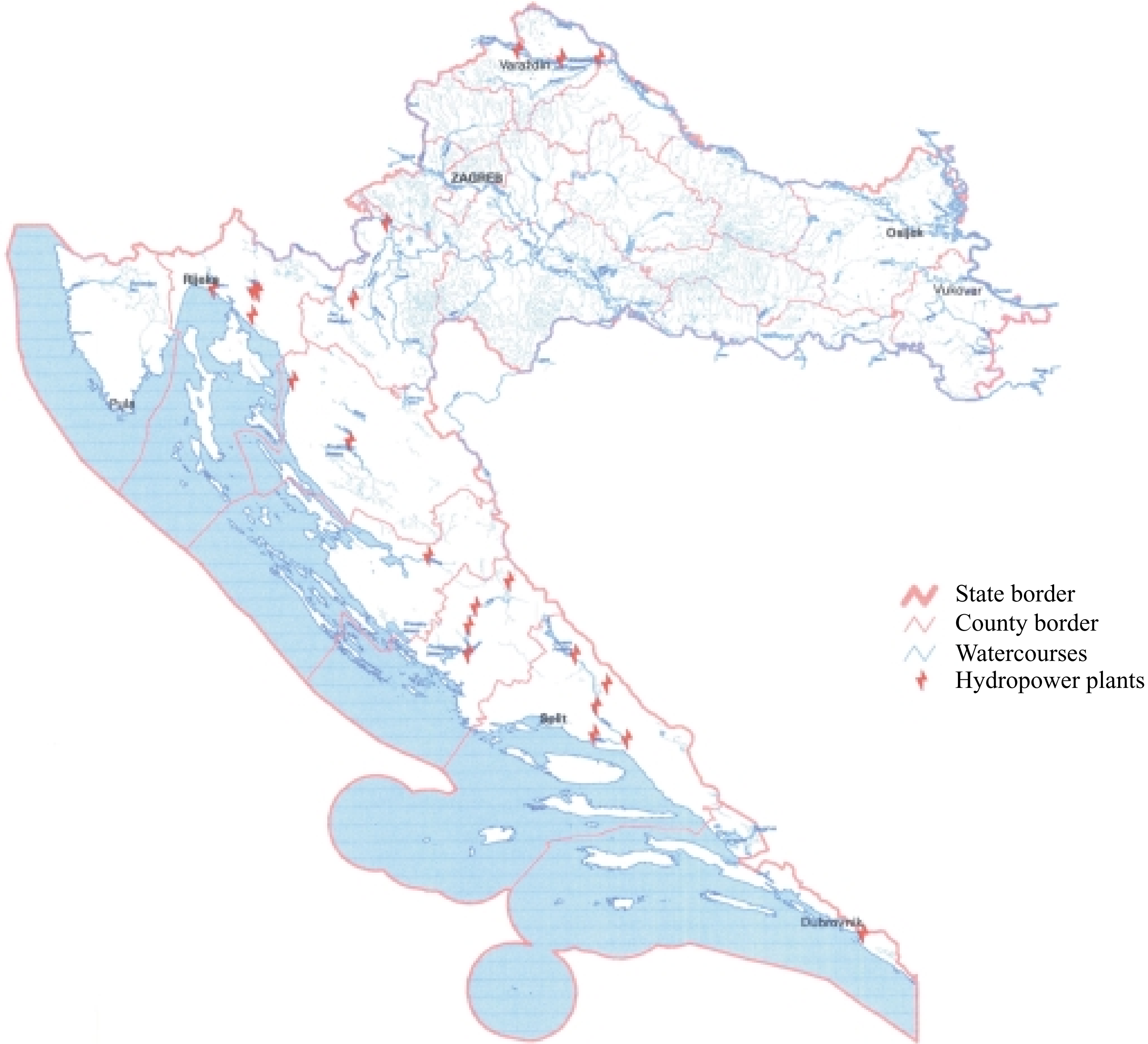


Figure 4.8. Map of hydro power plants in the Danube catchment area



4.5. Dams and Reservoirs

In the Croatian part of the Danube River basin 49 reservoirs and retention basins are build with the total capacity of 50.6 mil. m^3. Only three of them have a capacity higher than 5 mil. m^3, whereas seven reservoirs have the capacity between 1 and 5 mil. m^3 , and the rest have a capacity smaller than 1 mil. m^3. The summary of the bigger reservoirs is given in the table 4.4.:

Table 4.4. Summary of capacity and purpose of dams and reservoirs

Reservoir	River basin	Capacity	Purpose
Pakra	Sava	12 mil. m^3	water supply, flood protection
Vonarje	Sava	11.4 mil. m^3	water supply, flood protection, recreation
Borovik	Danube	9.2 mil. m^3	flood protection, irrigation, fishery, recreation

In the Croatians part of the Danube River basin six hydroelectric power plants exist and they are listed in the Table 4.5. and Figure 4.8. Some of them have multipurpose character, i.e. they are used for recreation, fishery, irrigation etc.

Table 4.5. List of hydroelectric power plant in Danube catchment area

RIVER BASIN	NAME	RIVER	VOLUME OF THE RESERVOIR	AVERAGE DISHARGE (m^3/s)	YEAR
Sava	Gorjak	Dobra	4.34 mil. m^3	32.4	1959
Sava	Ozalj 1 Ozalj 2	Kupa	0.55 mil. m^3	76.9	1908 1952
Drava	Varaždin	Drava	10.0 mil. m^3	330	1975
Drava	Čakovec	Drava	51.0 mil. m^3	335	1982
Drava	Dubrava	Drava	93.5 mil. m^3	335	1989

4.6. Other Major Structures and Encroachments

The flood protection in the Drava River basin is mainly conducted by building the dykes along the river stretches. Therefore, there are 42 723 kilometers of dykes along the Danube River in Croatia and 95,38 kilometers of dykes on the left bank of Drava River. Furthermore, there are 117,45 kilometers of dykes along the right bank of Drava River and 46,31 kilometers of dykes on the right bank of Mura River. The main exploitation fields for gravel in Drava River are situated between river kilometers 154 and 161, 159 and 162, 171 and 177, 206 and 209. The sand was dragged mainly on the river stretches from Osijek to Belišće and further upstream up to river kilometer 70.

The length of the dykes along the Sava River is 407,17 kilometers on the left bank and 135,9 kilometers on the right bank. Other major structures such as overspills and slices are incorporated into the system for flood protection Srednje Posavlje with the big retention basins already mentioned above. The description of the structures is given in the following Table 4.6.:

Table 4.6. Description of other structures

RIVER BASIN	RIVER	NAME	TYPE OF STRUCTURE	CAPACITY (m^3/s)	YEAR
Sava	Sava	Jankomir	Overspill	1000	1971
Sava	Sava	Trebež	Sluice	500	1983
Sava	Sava	Prevlaka	Sluice	450	1974
Sava	Česma	Jantak	Sluice	100	1988

4.7. Major Water Transfers

The channels, which are parts of the system for flood protection Srednje Posavlje, may be considered as the major water transfers in the Sava River basin. These channels connect different retention areas in order to manage the surplus of water when the floods occur. The listing of the channels is given in Table 4.7.:

Table 4.7. List of channels

RIVER BASIN	NAME	TOTAL LENGTH (km)	FINISHED (km)	DISCHARGES (m^3/s)
Sava	Channel Odra	51.6	33.1	1000
Sava	Channel Lonja-Strug		12.7 and partly 47.1 km	450-715
Sava	Channel Kupa-Kupa	21.9	21.9	765
Sava	Channel Zelina-Lonja-Glogovnica-Česma	29.1	29.1	95-325

4.8. Preferred Sampling Stations and Data Sets

For the purpose to evaluate hot spots and analyze transboundary effects only data of sampling stations at the Sava and the Drava River have been reported and analyzed, because the most of identified "hot spots" discharge wastewater into channels or small rivers, where there is no monitoring, or there is no monitoring upstream and downstream of their discharges, like following "hot spots": municipal wastewater from Bjelovar, Čakovec, Koprivnica, industrial wastewater from Kutina, Vrbovec, Savski Marof, Čepin and all of the farms. Some of nominated "hot spots" are inside the country and have no transboundary effects. The flows of the Sava and the Drava River trough Croatia are mostly boundary forming rivers with neighboring countries, so like almost all of the monitoring stations should be considered as preferred sampling stations at these rivers. The following sampling stations were chosen as preferred: at the Sava River - downstream and upstream of Županja, downstream and upstream of confluence with the Bosna River, downstream and upstream of Slavonski Brod, downstream and upstream of confluence with the Vrbas, downstream and upstream (Jasenovac) of the Una, downstream of the confluence with the Kupa, Galdovo, Oborovo, Jankomir, Jesenice, and at the Drava river the following sampling stations - Nemetin, Višnjevac, Bistrinci, Donji Miholjac, Terezino Polje, Botovo, Donja Dubrava and

Varaždin. Other preferred sampling stations are all TNMN stations from Croatia, the stations closest to the confluence of the Sava and Drava Rivers with Danube, upstream and downstream of each "hot spots" which discharges directly into the Sava or the Drava River and upstream and downstream of discharges of each tributaries of the Sava and the Drava Rivers.

There are only few sampling stations that simultaneously measure water discharge, sediment discharge and water quality - on the Sava River - sampling stations Županja and Slavonski Brod, on the Drava River - Donji Miholjac, Terezino Polje, and Botovo, and most with only water quality measurements.

There are determinations of total nitrogen at all preferred sampling stations on the Sava River, but not on the Drava. Total nitrogen means a sum of inorganic and organic nitrogen determined in original samples. At other sampling stations on the Drava River, there are data of inorganic nitrogen, which is a sum of ammonium, nitrite and nitrate.

There are determinations of ortho-phosphate at all preferred sampling stations, and at some of them on the Sava and the Drava Rivers there are data of total phosphorus, what means determination in original samples without filtration.

Quality control is not well documented at any sampling stations.

There are no data of COD at some sampling stations on the Sava River, and at the same stations there are data of total phosphorus and total nitrogen even weekly. There are no data of water discharges at most of preferred sampling stations, and there are no data of toxic substances (pesticides), and toxic heavy metals on the Sava River.

List of institutes and their addresses, which provided data is presented on the following list.

List of Institutes which Provided Data and their Addresses

Name of Institute	Address	Kind of Data
1.Ruđer Bošković Institute Center for Marine and Environmental Research	Zagreb, Bijenička cesta 54	WQ at sampling station: 1
2.University of Zagreb, Medical School, Andrija Štampar School Of Public Health	Zagreb, Rockefellerova 4	WQ at sampling stations: 77, 78, 79, 80, 81, 82, 83
3.*University of Zagreb, Faculty of Civil Engeeniring, Department of Hydrology, Laboratory for Sanitary Hydrotechnics	Zagreb, Kačićeva 26 from this year Zagreb, Većeslava Holjevca 15	WQ at sampling stations:14, 16, 17
4.Brodska Posavina l.t.d. for water management	Slavonski Brod, Šetalište braće Radić 22	WQ at sampling stations:1, 2, 3, 4, 5, 6, 7, 8
5.Institute of Public Health for Osijek-Baranya county	Osijek, F. Krežme 1	WQ at sampling stations:72, 73, 74, 75, 76, 78, 80,
6.Institute of Public Health for Sisak-Moslavina county	Sisak, Tomislavova 1	WQ at sampling stations:9, 10, 11, 12
7.Institute of Public Health for Varaždin county	Varaždin,	WQ at sampling stations:81, 82, 83

8.Croatian Waters, Water Management for Catchment Area of the Sava River	Zagreb, Vukovarska avenija 220	WD at sampling stations: 1, 10, 17 and collecting data of the Sava catchment area
9.Croatian Waters, Water Management for Catchment Area of the Drava River	Osijek, Splavarska 2a	collecting data of the Drava coachmen area
10.State Hydrological and Meteorological Institute	Zagreb, Grič 3	WD at sampling stations: 78, 81 SD at sampling stations: 6, 78, 80

4.9. Water Discharges

Water discharges are presented on the Tables from 4.8. to 4.11.

Data of water discharges at monitoring stations downstream of Županja and upstream of confluence with the Una River (Jasenovac) is presented like daily average once a month when it was sampling. Data of water discharges at monitoring station Jesenice at the Sava River are presented like monthly average from weekly results when it was sampling. All of them have been obtained from measurements of water level and Q/H curves. Data of water discharges at monitoring stations on the Drava River are presented like monthly average, maximum and minimum values from daily average values. Data of water discharges have been obtained from measurements of water level and Q/H curves.

4.10. Sediment Discharges

There is no available data on electronic media.

4.11. Suspended Sediment Concentrations

Suspended sediment concentrations at different monitoring stations are presented on the Tables from 4.12. to 4.15. like monthly average, maximum and minimum values from daily sampling and determination.

4.12. Water Quality Data

Water quality data of the Danube River and its main tributaries from Croatia, the Sava and the Drava Rivers are presented in the Tables 4.16 - 4.41. Available data of nitrogen, phosphorus and COD-Cr values are presented there, with monthly average if there are more than one sampling a month, and with measurement value if there was only a monthly sampling. The data on annual mean, maximum and minimum concentrations and number of sampling are also presented.

In the Table 4.40. maximum yearly concentrations of heavy metals at some preferred sampling stations on the Drava River are presented, and in the Table 4.41. maximum yearly concentrations of oil at preferred sampling stations are presented.

The loads of COD and nutrients are presented in the Table 4.42. Organic N in the Tables 4.16 to 4.42. means Total N – minus sum of ammonium, nitrite and nitrate.

Table 4.8. **Water discharges at different sampling station at the Sava River (m^3/s)**

Year	Sava – Županja											
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
1995	1030	1720	2250	2050	906	1030	1110	401	1280	1000	521	959
1996	2030	1100	836	2570	1330	610	1290	356	747	1660	794	1800
1997	2060	2250	1230	844	1550	466	415	312	285	271	852	2000
Year	Sava - Jasenovac											
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
1996	1210	716	767	1660	812	349	771	343	833	-	-	-
1997	833	791	608	510	425	592	-	197	442	231	917	1270
Year	Sava - Jesenice											
	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
1994	472	161	150	437	171	282	127	97	158	263	240	92
1995	325	234	480	216	188	275	130	187	334	123	93	321
1996	323	245	191	991	302	259	360	156	220	369	444	289
1997	267	196	140	114	142	177	175	104	107	64	219	475

Table 4.9. Water discharges at sampling station Donji Miholjac

Year	**1994**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	670	409	429	675	589	589	455	383	531	423	518	349
Maximum	1060	528	545	1100	727	860	638	547	875	761	968	439
Minimum	370	314	353	375	424	502	283	270	364	298	335	242
Year	**1995**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	422	393	630	496	577	769	617	447	677	388	267	370
Maximum	783	702	1060	723	741	1140	803	754	1360	640	374	710
Minimum	267	288	405	326	447	593	460	310	387	197	194	238
Year	**1996**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	453	321	357	752	800	547	684	472	606	891	812	559
Maximum	832	428	591	1420	1220	810	1350	630	971	1430	1520	846
Minimum	283	262	254	408	582	366	353	345	398	543	460	369
Year	**1997**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	427	416	369	333	514	633	649	563	450	293	349	483
Maximum	480	567	438	447	702	1030	862	744	610	393	552	887
Minimum	368	356	307	262	325	397	527	438	325	236	219	307

Table 4.10. Water discharges at sampling station Terezino Polje

Year	1994											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	578	361	383	634	548	544	424	362	494	402	476	318
Maximum	971	430	519	1120	728	859	625	532	943	766	987	467
Minimum	298	241	300	306	369	424	227	220	291	231	277	190
Year	**1995**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	379	363	577	471	550	732	575	424	625	360	258	336
Maximum	766	885	1050	741	766	1300	796	760	1390	566	371	698
Minimum	217	199	334	263	389	513	418	282	330	211	188	194
Year	**1996**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	421	280	335	725	789	543	695	472	580	876	803	503
Maximum	840	436	580	1460	1230	859	1480	677	1010	1500	1590	798
Minimum	220	174	196	341	522	328	299	304	341	467	450	269
Year	**1997**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	378	362	327	296	497	636	634	552	420	249	305	436
Maximum	434	545	403	472	771	1030	820	820	638	380	582	935
Minimum	284	288	240	220	274	315	469	366	265	188	177	232

Table 4.11. Water discharges at sampling station Botovo

Year	**1994**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	543	337	379	643	558	538	389	341	492	391	476	315
Maximum	936	556	654	1160	783	893	684	628	1180	840	1130	825
Minimum	186	165	192	199	237	219	157	150	172	156	171	162
Year	**1995**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	376	387	592	499	575	777	575	423	633	329	227	316
Maximum	868	1090	1190	885	881	1840	817	881	1600	651	536	790
Minimum	164	178	224	226	277	350	315	213	247	167	152	153
Year	**1996**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	370	241	303	702	752	498	647	410	498	819	726	420
Maximum	822	527	712	1680	1260	935	1690	689	1060	1630	1700	709
Minimum	170	156	160	216	324	203	199	189	221	272	246	175
Year	**1997**											
m3/s	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	292	292	272	262	458	605	572	479	347	215	267	404
Maximum	497	550	450	527	776	1090	807	867	663	453	623	1050
Minimum	174	172	172	177	205	209	262	192	172	153	146	167

Table 4.12. Concentrations of suspended sediment at sampling station Slavonski Brod

Year	1994											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	7,16	12,8	15,2	15,7	14,1	22,0	11,6	13,7	12,8	9,52	9,81	2,88
Maximum	22,6	64,9	26,9	39,5	23,6	91,1	20,6	23,3	21,6	19,2	20,3	10,3
Minimum	2,07	3,28	8,28	8,43	6,86	7,20	4,25	5,94	4,57	3,57	2,09	0,73
Year	**1995**											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	21,7	14,1	21,4	17,7	17,9	28,0	13,1	13,8	23,5	7,30	11,6	12,0
Maximum	66,6	36,5	51,9	32,8	33,4	67,8	37,0	32,2	64,0	16,2	66,3	40,0
Minimum	5,97	3,60	10,6	8,57	7,50	13,7	4,57	4,46	3,13	2,26	3,37	3,71

Table 4.13. Concentrations of suspended sediment at sampling station Donji Miholjac

Year	1994											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	24,0	23,7	8,11	17,6	13,1	17,8	21,4	10,3	8,95	5,70	8,77	6,91
Maximum	97,5	57,7	16,9	39,3	21,7	26,9	35,0	19,6	30,8	24,5	35,1	23,2
Minimum	1,00	6,54	3,46	3,08	6,90	8,96	11,8	2,42	2,04	2,08	1,72	1,62
Year	**1995**											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	12,0	5,93	15,5	7,55	9,61	12,4	8,32	6,17	4,38	3,65	7,78	5,41
Maximum	30,0	19,2	39,7	18,4	29,7	29,9	29,0	22,3	13,0	7,60	68,4	16,1
Minimum	1,34	1,30	1,62	2,72	3,06	4,62	3,24	0,54	0,88	1,98	0,82	1,72
Year	**1996**											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	6,54	6,60	7,89	15,0	9,21	8,97	12,2	8,16	17,0	7,72	11,4	11,8
Maximum	17,5	26,0	40,4	35,5	35,1	16,7	23,8	22,3	46,4	15,0	23,9	53,4
Minimum	2,50	2,46	2,76	2,64	4,78	4,66	3,24	1,36	3,40	1,64	2,06	1,62

Table 4.14. Concentrations of suspended sediment at sampling station Terezino Polje

Year	1994											
g/m3	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Average	5,81	3,95	8,04	8,92	8,18	11,3	7,45	6,26	2,63	3,33	2,62	3,42
Maximum	18,9	12,5	14,7	32,5	19,1	49,7	14,9	20,3	10,1	15,5	11,6	7,78
Minimum	1,68	1,62	1,68	1,70	1,72	1,76	3,04	1,32	0,68	1,00	0,92	0,94
Year	1995											
g/m3	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Average	7,29	4,04	4,07	2,86	3,95	3,80	2,85	1,77	2,95	3,41	3,27	3,12
Maximum	58,8	26,8	20,3	6,94	13,5	18,7	13,6	3,56	12,5	22,3	16,0	10,5
Minimum	0,84	0,58	0,32	1,04	0,52	0,36	0,58	0,86	1,36	0,46	1,12	0,54
Year	1996											
g/m3	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Average	5,53	6,28	4,87	7,21	5,74	9,29	4,47	2,82	1,66	1,69	2,03	3,01
Maximum	22,7	21,4	9,96	24,1	17,8	27,5	13,0	9,80	6,62	5,36	11,7	19,6
Minimum	0,98	1,08	1,02	2,78	0,04	2,72	0,36	0,82	0,92	0,72	0,70	0,82

Table 4.15. Concentrations of suspended sediment at sampling station Botovo

Year	1994											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	10,7	6,65	7,26	22,3	17,8	22,8	16,1	17,0	11,0	7,93	7,99	3,27
Maximum	44,3	10,8	14,1	117	30,3	82,2	45,6	42,8	35,8	24,6	25,0	21,7
Minimum	4,60	3,03	2,81	7,61	8,55	9,41	10,2	9,24	4,02	0,35	2,57	0,81
Year	**1995**											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	12,8	11,7	21,0	17,4	13,5	38,2	31,2	31,5	22,0	8,38	1,31	5,92
Maximum	88,5	81,8	106	98,6	26,6	98,3	43,3	62,1	86,6	28,5	3,28	50,0
Minimum	1,42	1,16	5,80	3,86	7,67	11,3	17,1	18,4	9,87	1,11	0,25	0,19
Year	**1996**											
g/m3	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Average	8,58	5,20	14,0	29,0	28,3	15,2	15,0	11,7	19,3	16,2	12,0	3,82
Maximum	34,2	21,2	53,8	80,0	62,3	37,2	24,8	37,0	43,9	56,0	32,5	10,0
Minimum	2,42	1,33	3,54	10,2	10,1	7,02	5,19	6,23	6,66	5,43	1,20	1,40

Table 4.16. Concentrations of available parameters of water quality at sampling station downstream of Županja

Year	**1994**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)										44	28	25	30	47	24	10
Inorg+Org N (mgN/l)										4,06	3,94	4,49	4,16	4,49	3,94	3
O-phosph (mg/l)										0,74	0,64	0,18	0,52	0,74	0,18	3
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	23	29	29	27	25	25	29	25	25	26	25	26	26	38	20	48
Inorg+Org N (mgN/l)	4,08	3,02	3,61	2,97	3,17	3,81	4,69	3,90	2,93	2,56	2,66	2,56	3,33	4,69	2,56	12
O-phosph (mg/l)	0,55	0,46	0,46	0,37	0,10	0,46	0,28	0,37	0,64	0,55	0,46	0,18	0,41	0,64	0,10	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	27	24	24	23	24	27	25	25	32	26	23	26	25	48	20	50
Inorg+Org N (mgN/l)	3,59	2,91	3,51	2,70	1,68	4,95	4,07	3,64	2,46	3,29	2,50	3,06	3,20	4,95	1,68	12
O-phosph (mg/l)	1,49	0,37	0,46	0,46	0,55	0,18	0,55	0,64	0,28	0,28	0,18	0,18	0,47	1,49	0,18	12

Year	1997														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	24	23	24	23	24	30	27	26	24	27	31	29	26	36	20	52
Inorg+Org N (mgN/l)	2,19	3,75	1,51	3,53	5,86	3,35	3,51	3,68	6,07	3,86	4,86	5,84	4,00	6,07	1,51	12
O-phosph (mg/l)	0,18	0,18	0,09	0,09	0,28	0,18	0,09	0,28	0,46	0,37	0,64	0,55	0,28	0,64	0,09	12

Table 4.17. Concentrations of available parameters of water quality at sampling station upstream of Županja

Year	1994														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)										44	31	32	36	44	31	3
Inorg+Org N (mgN/l)										3,99		4,21	4,10	4,21	3,99	2
O-phosph (mg/l)										1,76		0,18	0,97	1,76	0,18	2
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	30	26	31	27	24	27	27	23	23	24	28	29	27	31	23	12
Inorg+Org N (mgN/l)	4,44		3,48		2,71		4,63		2,49		2,85		3,43	4,63	2,49	6
O-phosph (mg/l)	0,64		0,37		0,10		0,28		0,64		0,64		0,45	0,64	0,10	6
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	25	24	25	24	22	30	27	29	28	30	29	24	26	30	22	12
Inorg+Org N (mgN/l)	3,38		3,48		1,54		3,78		3,03		2,96		3,03	3,78	1,54	6
O-phosph (mg/l)	1,38		0,46		0,55		0,46		0,28		0,18		0,55	1,38	0,18	6

Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	26	27	23	22	26	42	27	24	32	32	35	44	30	44	22	12
Inorg+Org N (mgN/l)		4,11		3,28		3,44		3,73		3,93		5,26	3,96	5,26	3,28	6
O-phosph (mg/l)		0,09		0,09		0,28		0,28		0,28		0,28	0,22	0,28	0,09	6

Table 4.18. **Concentrations of available parameters of water quality at sampling station downstream of confluence with Bosna River**

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)										40	29	27	31	43	24	10
Inorg+Org N (mgN/l)										3,79	3,75	4,49	4,01	4,49	3,75	3
O-phosph (mg/l)										0,64	0,55	0,28	0,49	0,64	0,28	3
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	27	29	27	27	28	30	29	28	26	24	27	24	27	43	21	48
Inorg+Org N (mgN/l)	4,52	3,21	3,36	2,87	2,53	4,20	4,59	3,76	2,94	2,53	2,86	2,85	3,35	4,59	2,53	12
O-phosph (mg/l)	0,56	0,37	0,37	0,37	0,18	0,55	0,74	0,37	0,74	0,46	0,74	0,28	0,48	0,74	0,18	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	23	23	23	28	25	25	26	26	36	26	25	25	26	60	20	50
Inorg+Org N (mgN/l)	3,38	2,82	3,75	2,60	1,52	4,31	4,14	3,90	3,10	2,68	2,84	3,55	3,21	4,31	1,52	12
O-phosph (mg/l)	1,38	0,28	0,55	0,46	0,64	0,18	0,46	0,55	0,28	0,18	0,18	0,18	0,44	1,38	0,18	12

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	25	24	22	23	24	25	24	25	25	26	30	27	25	36	20	52
Inorg+Org N (mgN/l)	2,26	3,65	1,66	4,34	5,44	3,45	22,11	3,72	6,20	3,84	5,09	5,23	5,58	22,11	1,66	12
O-phosph (mg/l)	0,18	0,09	0,09	0,18	0,18	0,28	0,09	0,28	0,18	0,18	0,37	0,18	0,19	0,37	0,09	12

Table 4.19. **Concentrations of available parameters of water quality at sampling station upstream of confluence with Bosna River**

Year	1996														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)								23	26	22	20	20	22	26	20	5
Inorg+Org N (mgN/l)									3,20		2,80		3,00	3,20	2,80	2
O-phosph (mg/l)									0,28		0,28		0,28	0,28	0,28	2
Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	28	23	21	22	26	27	23	24	24	24	27	32	25	32	21	12
Inorg+Org N (mgN/l)		4,00		4,79		3,25		3,95		3,74		4,65	4,06	4,79	3,25	6
O-phosph (mg/l)		0,09		0,09		0,28		0,28		0,28		0,18	0,20	0,28	0,09	6

Table 4.20. Concentrations of available parameters of water quality at sampling station downstream of Slavonski Brod

Year	1996															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)				24	25	26	25	24	28	24	24	26	25	31	13	34
Inorg+Org N (mgN/l)					2,79	4,53	3,78	3,71	3,00	2,62	2,92	3,60	3,36	4,53	2,62	8
O-phosph (mg/l)					0,64	0,28	0,18	0,55	0,28	0,28	0,28	0,18	0,33	0,64	0,18	8
Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	26	24	20	23	24	26	24	25	26	26	29	29	25	43	16	52
Inorg+Org N (mgN/l)	2,15	3,81	2,05	4,22	4,85	3,67	3,63	3,99	5,91	3,67	6,02	5,16	4,09	6,02	2,05	12
O-phosph (mg/l)	0,09	0,09	0,09	0,18	0,28	0,28	0,18	0,18	0,18	0,37	0,64	0,18	0,23	0,64	0,09	12

Table 4.21. **Concentrations of available parameters of water quality at sampling station - upstream of Slavonski Brod**

Year	**1994**														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)										32	23	24	26	32	23	3
Inorg+Org N (mgN/l)										2,24		4,20	3,21	4,20	2,24	2
O-phosph (mg/l)										1,66		0,28	0,97	1,66	0,28	2
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	26	22	23	23	28	23	31	27	20	24	22	25	25	31	20	12
Inorg+Org N (mgN/l)	4,04		2,85		2,86		4,23		2,88		3,14		3,31	4,23	2,85	6
O-phosph (mg/l)	0,55		0,28		0,10		0,56		0,55		0,46		0,43	0,55	0,10	6
Year	1996															
PARAMETERS	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean Value	Max	Min	N
COD-Cr(mgO2/l)	25	25	23	22	22	24	22	26	23	23	20	23	23	26	20	12
Inorg+Org N (mgN/l)	3,30		3,35		3,83		3,10		2,94		2,96		3,25	3,83	2,94	6
O-phosph (mg/l)	1,29		0,64		0,55		0,28		0,18		0,28		0,54	1,29	0,18	6

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	24	25	21	20	23	27	31	26	28	20	28	24	25	31	20	12
Inorg+Org N (mgN/l)		3,77		3,54		4,12		3,73		4,05		4,23	3,91	4,23	3,54	6
O-phosph (mg/l)		0,18		0,09		0,28		0,18		0,37		0,09	0,20	0,37	0,09	6

Table 4.22. Concentrations of available parameters of water quality at sampling station downstream of confluence with Vrbas

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)										36	25	25	27	43	23	10
Inorg+Org N (mgN/l)										2,42	4,10	4,31	3,61	4,31	2,42	3
O-phosph (mg/l)										2,79	0,46	0,18	1,14	2,79	0,18	3
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	24	33	24	23	27	29	24	24	26	25	24	24	26	47	19	48
Inorg+Org N (mgN/l)	3,97	3,02	3,26	2,67	3,11	4,55	4,75	3,12	2,94	2,37	3,11	2,68	3,29	4,75	2,37	12
O-phosph (mg/l)	0,46	0,46	0,28	0,46	0,10	0,46	0,55	0,37	0,55	0,55	0,37	0,18	0,40	0,55	0,10	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	24	24	24	26	26	25	25	26	34	25	28	33	26	54	20	50
Inorg+Org N (mgN/l)	3,69	3,31	3,57	3,06	4,23	4,68	3,64	3,91	3,21	3,02	2,74	3,32	3,53	4,68	2,74	12
O-phosph (mg/l)	1,10	0,46	0,55	0,55	0,74	0,28	0,37	0,37	0,28	0,18	0,28	0,18	0,45	1,10	0,18	12

Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	30	26	22	28	24	25	24	24	26	25	32	27	26	47	19	52
Inorg+Org N (mgN/l)	2,29	3,79	3,13	3,31	4,97	4,19	3,51	4,03	6,23	4,29	4,32	4,41	4,04	6,23	2,29	12
O-phosph (mg/l)	0,18	0,09	0,09	0,18	0,09	0,09	0,09	0,18	0,46	0,37	0,37	0,18	0,20	0,46	0,09	12

Table 4.23. Concentrations of available parameters of water quality at sampling station - upstream of confluence with Vrbas

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)										32	25	24	26	43	20	10
Inorg+Org N (mgN/l)										2,42	3,87	4,08	3,46	4,08	2,42	3
O-phosph (mg/l)										1,85	0,74	0,92	1,17	1,85	0,74	3
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	27	27	27	24	24	26	27	26	28	23	23	21	25	32	19	48
Inorg+Org N (mgN/l)	4,17	3,21	2,98	2,78	3,16	4,97	4,31	4,11	2,92	2,78	3,24	2,27	3,41	4,97	2,27	12
O-phosph (mg/l)	0,46	0,28	0,18	0,37	0,10	0,37	0,37	0,37	0,64	0,37	0,18	0,18	0,32	0,64	0,10	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	21	23	23	23	23	24	26	27	26	26	25	24	24	31	20	50
Inorg+Org N (mgN/l)	3,55	3,23	3,21	2,40	3,95	4,52	4,05	4,31	3,33	3,43	2,50	3,31	3,48	4,52	2,40	12
O-phosph (mg/l)	1,10	0,37	0,55	0,46	0,55	0,28	0,37	0,18	0,28	0,28	0,28	0,28	0,42	1,10	0,18	12

Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	23	23	24	22	25	29	22	26	24	27	30	26	25	36	19	52
Inorg+Org N (mgN/l)	2,32	3,22	2,20	3,23	4,59	4,70	3,78	4,57	8,27	4,26	4,20	5,14	4,27	8,27	2,32	12
O-phosph (mg/l)	0,18	0,18	0,09	0,18	0,18	0,09	0,09	0,18	0,55	0,09	0,09	0,18	0,17	0,55	0,09	12

Table 4.24. Concentrations of available parameters of water quality at sampling station downstream of confluence with Una

Year	1997														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)																
Inorg+Org N (mgN/l)		2,19			1,91	3,17				2,86		1,99	2,49	3,19	1,91	6
O-phosph (mg/l)		0,23			0,25	0,23				0,70		0,20	0,39	0,84	0,20	6
Pfosph (mgP/l)		0,13			0,11	0,15				0,32		0,08	0,19	0,39	0,08	5

Table 4.25. Concentrations of available parameters of water quality at sampling station upstream of confluence with Una

Year	1996															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)																
Inorg+Org N (mgN/l)	1,78	2,24	2,01	1,88	2,04	1,95	2,23	2,03	2,97	2,29	2,02	1,94	2,12	3,19	1,19	42
O-phosph (mg/l)	0,28	0,40	0,39	0,39	0,50	0,41	0,22	0,35	0,51	0,34	0,24	0,20	0,35	0,75	0,07	42
Phosph (mgP/l)	0,22	0,19	0,17	0,16	0,22	0,27	0,14	0,18	0,20	0,20	0,15	0,12	0,18	0,40	0,07	42
Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)																
Inorg+Org N (mgN/l)	2,47	2,37	2,60	2,11	2,60	2,93	1,85	2,61	1,62	2,69	2,83	2,18	2,39	3,88	0,73	40
O-phosph (mg/l)	0,39	0,28	0,59	0,66	0,45	0,41	0,43	0,72	0,33	0,89	0,53	0,22	0,50	1,44	0,14	40
Phosph (mgP/l)	0,17	0,14	0,26	0,29	0,23	0,21	0,25	0,27	0,19	0,38	0,23	0,13	0,23	0,58	0,05	40

Table 4.26. Concentrations of available parameters of water quality at sampling station downstream of confluence with Kupa

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	1,94	3,74	1,56	2,77	3,52	2,40	3,19	0,96	2,81	5,11	1,91	1,3	2,57	5,11	0,96	12
O-phosph (mg/l)					0,39	0,55							0,47	0,55	0,39	2
Phosph (mgP/l)							0,31	0,32	0,22	0,10	0,02	0,24	0,20	0,32	0,02	6
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	2,62	2,97	2,34	1,97	2,27	2,56	1,28	2,54	1,96	2,96	2,17	1,77	2,29	2,98	1,28	12
O-phosph (mg/l)			0,32	0,15	0,25	0,16	0,33	0,39	0,23	0,65	0,34	0,36	0,32	0,65	0,15	10
Phosph (mgP/l)	0,10	0,20	0,38	0,09	0,21	0,11	0,19	0,14	0,10	0,26	0,16	0,23	0,17	0,38	0,09	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	2,02	2,76	1,72	1,86	1,75	1,60	2,47	2,21	2,56	2,63	1,83		2,12	2,76	1,60	11
O-phosph (mg/l)	0,36	0,3	0,35	0,28	0,45	0,28	0,27	0,50	0,33	0,34	0,19		0,33	0,50	0,19	11
Phosph (mgP/l)	2,31	0,11	0,18	0,16	0,22	0,21	0,21	0,20	0,23	0,15	0,08		0,37	2,31	0,08	11

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	1,77	2,43	3,43		5,96	3,52		2,76	1,61	1,58	3,72	1,79	3,08	5,60	1,61	10
O-phosph (mg/l)	0,23	0,18	0,30		0,14	0,57		0,70	0,66	1,13	0,19	0,20	0,51	1,28	0,14	10
Phosph (mgP/l)	0,09	0,10	0,15		0,27	0,20		0,26	0,28	0,40	0,20	0,14	0,23	0,46	0,09	10

Table 4.27. Concentrations of available parameters of water quality at sampling station Galdovo

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	3,04	3,78	2,70	3,26	2,94	3,39	4,16	2,98	3,72	4,24	2,70	2,34	3,21	5,32	1,16	44
O-phosph (mg/l)		0,59	0,75	0,39	0,47	0,45							0,49	0,80	0,28	10
Phosph (mgP/l)							0,28	0,45	0,54	0,27	0,19	0,24	0,33	0,79	0,06	21
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	3,10	3,04	2,45	2,89	2,51	2,76	2,78	2,55	2,21	3,22	3,00	1,87	2,67	4,85	1,31	41
O-phosph (mg/l)			0,29	0,39	0,41	0,35	0,56	0,56	0,24	0,50	0,52	0,73	0,60	1,07	0,19	37
Phosph (mgP/l)	0,14	0,15	0,13	0,15	0,26	0,33	0,27	0,28	0,15	0,16	0,20	0,29	0,22	0,49	0,05	41
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	1,74	2,71	2,47	2,18	2,02	1,81	2,25	2,02	3,24	2,52	2,23	2,33	2,30	3,79	0,67	42
O-phosph (mg/l)	0,31	0,55	0,87	0,45	0,37	0,56	0,31	0,58	0,57	0,39	0,44	0,31	0,46	1,64	0,16	42
Phosph (mgP/l)	0,13	0,23	0,34	0,21	0,20	0,33	0,31	0,37	0,25	0,26	0,20	0,14	0,25	0,62	0,12	42

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
Inorg+Org N (mgN/l)	2,99	2,81	2,71	2,60	2,79	3,22	2,64	3,07	2,38	3,57	2,81	2,40	2,86	4,94	1,12	41
O-phosph (mg/l)	0,57	0,46	0,53	0,62	0,60	0,61	0,85	1,16	0,55	1,04	0,82	0,35	0,68	2,10	0,18	41
Phosph (mgP/l)	0,23	0,20	0,23	0,29	0,17	0,43	0,39	0,41	0,26	0,41	0,33	0,16	0,29	0,72	0,04	41

Table 4.28. Concentrations of available parameters of water quality at sampling station Oborovo

Year	1994														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,5	18	14	16	15	15	20	18	14	32	11	21	17	81	6,3	52
Inorg+Org N (mgN/l)	3,94	2,70	3,02	2,94	4,42	2,83	5,07	2,76	3,93	5,67	3,52	4,54	3,78	5,67	2,70	12
O-phosph (mg/l)	0,49	0,86	0,20	0,04	0,23	0,08	0,17	0,56	0,21	0,02	0,07	0,27	0,27	0,86	0,02	12
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	14	23	17	18	17	18	20	17	16	14	12	9,2	16	55	7,0	51
Inorg+Org N (mgN/l)	4,53	8,26	5,45	4,43	3,65	4,71	2,15	1,20	4,35	3,83	2,45	4,53	4,13	8,26	1,20	12
O-phosph (mg/l)	0,14	0,10	0,11	0,12	0,10	0,10	0,06		0,17	0,33	0,33	0,08	0,15	0,33	0,06	11
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	14	23	17	18	17	18	20	17	16	14	12	9,2	16	55	7	51
Inorg+Org N (mgN/l)	4,53	8,26	5,45	4,43	3,65	4,71	2,15	1,20	4,35	3,83	2,45	4,53	4,13	8,26	1,20	12
O-phosph (mg/l)	0,14	0,10	0,11	0,12	0,10	0,10	0,06		0,17	0,33	0,33	0,08	0,15	0,33	0,06	11

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,8	17	17	17	19	28	20	23	20	22	22	16	19	42	4,9	52
Inorg+Org N (mgN/l)	5,03	3,73	3,94	4,89	7,29	4,68	4,66	4,04	4,46	5,17	5,14	3,14	4,68	7,25	3,14	12
O-phosph (mg/l)	0,10	0,13	0,15	0,15	0,11	0,17	0,36	0,96	0,18	0,28	0,12	0,09	0,23	0,96	0,09	12

Table 4.29. Concentrations of available parameters of water quality at sampling station Jankomir

Year	1994														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	8,9	8,9	15	12	11	16	23	13	12	40	8,8	14	15	124	5,1	52
Inorg+Org N (mgN/l)	2,54	2,97	2,52	2,03	1,81	2,64	7,48	1,16	3,42	5,66	2,72	2,32	3,18	7,48	1,62	12
O-phosph (mg/l)	0,46	0,46	0,13	0,03	0,08	0,1	0,12	0,24	0,33	0,01	0,07	0,12	0,18	0,46	0,01	12
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	14	16	13	13	12	15	16	16	12	11	12	10	13	31	6,1	52
Inorg+Org N (mgN/l)	6,92	3,93	4,72	2,72	1,43	2,85	4,16	3,85	3,32	1,84	5,24	4,24	3,77	6,52	1,43	12
O-phosph (mg/l)	0,08	0,11	0,07	0,05	0,07	0,26	0,12	0,12	0,06	0,03	0,07	0,05	0,09	0,26	0,03	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,3	10	12	16	14	11	15	12	11	10	11	10	12	40	5,2	51
Inorg+Org N (mgN/l)	4,32	5,86	5,14	3,32	2,45	3,41	2,12	0,50	3,94	3,43	2,26	4,82	3,47	5,86	0,50	12
O-phosph (mg/l)	0,05	0,57	0,04	0,06	0,21	0,23	0,05		0,09	0,11	0,05	0,08	0,14	0,57	0,04	11

Year	1997														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	7,3	5,5	12	13	12	21	15	16	13	18	17	15	14	26	3,5	52
Inorg+Org N (mgN/l)	4,72	2,92	3,02	3,95	6,46	2,98	4,33	2,33	3,54	2,84	4,03	2,52	3,64	6,46	2,33	12
O-phosph (mg/l)	0,09	0,07	0,08	0,05	0,06	0,15	0,10	0,65	0,38	0,13	0,06	0,08	0,16	0,65	0,05	12

Table 4.30. Concentrations of available parameters of water quality at sampling station Jesenice

Year	**1994**														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	14	8,1	15	9,2	9,5	11	18	11	11	21	8,6	13	12	40	5	52
Inorg+Org N (mgN/l)	3,07	3,76	3,02	1,82	1,33	2,54	4,38	1,41	2,93	4,94	4,31	3,32	3,07	4,94	1,33	12
O-phosph (mg/l)	0,37	0,46	0,13	0,03	0,06	0,07	0,06	0,46	0,29	0,01	0,09	0,11	0,18	0,46	0,01	12
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	12	13	12	12	12	12	13	19	10	9,3	12	11	13	28	6,0	52
Inorg+Org N (mgN/l)	5,42	2,33	3,41	3,62	3,52	3,15	3,25	3,27	3,15	2,65	5,04	5,44	3,69	5,44	2,33	12
O-phosph (mg/l)	0,10	0,12	0,07	0,05	0,06	0,25	0,12	0,47	0,07	0,07	0,07	0,04	0,12	0,47	0,04	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,1	10	12	13	12	13	22	11	12	13	10	11	12	66	4,2	51
Inorg+Org N (mgN/l)	3,72	5,13	4,64	3,24	2,94	3,55	1,58	3,44	3,20	4,12	3,04	3,72	3,53	5,13	1,58	12
O-phosph (mg/l)	0,04	0,06	0,04	0,05	0,05	0,03	0,03	0,17	0,06	0,12	0,03	0,07	0,06	0,17	0,03	12

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	8,6	4,2	11	19	13	21	16	18	12	17	17	15	15	47	3,5	52
Inorg+Org N (mgN/l)	3,82	3,72	3,01	4,25	5,27	2,55	3,54	1,98	3,35	3,91	4,33	2,32	3,51	5,27	1,98	12
O-phosph (mg/l)	0,09	0,09	0,13	0,05	0,05	0,13	0,09	0,76	0,29	0,23	0,03	0,06	0,17	0,76	0,03	12

Table 4.31. Concentrations of available parameters of water quality at sampling station Nemetin

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	11	10	13	15	11	6,9	8,0	9,6	7,5	15	9,4	11	11	25	1,9	49
Inorg.N (mgN/l)	7,20	9,34	2,86	2,58	1,06	2,66	2,74	3,32	1,42	1,71	1,67	1,60	3,07	9,96	0,58	49
O-phosph (mg/l)	0,27	0,24	0,38	0,24	0,32	0,05	0,10	0,12	0,08	0,04	0,07	0,09	0,16	0,62	0	49
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	13	12	12	7,2	9,1	20	12	14	10	9,1	8,7	51	16	102	1,9	51
Inorg.N (mgN/l)	2,11	2,34	2,47	2,35	2,29	2,14	1,20	2,18	2,29	2,10	2,74	2,81	2,31	3,73	0,98	51
O-phosph (mg/l)	0,04	0,09	0,16	0,16	0,06	0,07	0,15	0,38	0,29	0,14	0,26	0,23	0,16	0,47	0,04	51
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	7,8	12	19	16	10	8,9	7,4	7,9	10,3	9,8	8,4	7,8	11	34	1,6	49
Inorg.N (mgN/l)	3,23	3,72	3,30	2,71	3,21	2,97	2,84	2,72	1,89	2,70	3,22	3,12	2,98	5,01	0,94	49
O-phosph (mg/l)	0,38	0,20	0,28	0,17	0,17	0,07	0,20	0,10	0,17	0,19	0,25	0,22	0,20	0,52	0,02	49

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	6,4	10	10	8,2	9,1	11	7,7	6,9	13	16	8,6	10	9,8	21	2,3	50
Inorg.N (mgN/l)	2,81	2,99	2,91	3,52	3,23	2,64	1,68	1,29	1,68	1,14	1,29	1,80	2,20	3,81	0,73	50
O-phosph (mg/l)	0,21	0,22	0,36	0,16	0,20	0,15	0,43	0,13	0,31	0,22	0,20	0,27	0,23	0,50	0,04	50

Table 4.32. Concentrations of available parameters of water quality at sampling station Višnjevac

Year	1994														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	7,4	12	12	13	9,7	7,6	11,9	7,0	9,8	12	11	11	10	22	2,3	49
Inorg.N (mgN/l)	6,59	8,99	2,96	2,55	1,46	2,53	2,64	3,00	1,22	1,51	1,67	1,50	2,96	10,22	0,58	49
O-phosph (mg/l)	0,27	0,64	0,71	0,24	0,13	0,03	0,03	0,07	0,05	0,03	0,09	0,09	0,09	1,15	0	49
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	12	10	13	11	13	16	14	5,8	5,6	8,3	9,2	44	14	97	1,4	51
Inorg.N (mgN/l)	1,91	2,66	2,67	2,05	2,49	1,93	1,20	2,38	1,99	1,58	2,84	2,81	2,21	3,93	0,98	51
O-phosph (mg/l)	0,05	0,17	0,15	0,12	0,06	0,05	0,12	0,36	0,25	0,14	0,25	0,22	0,16	0,40	0,07	51
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	8,0	9,0	16	16	11	6,7	9,4	9,4	16	7,7	13	13	11	26	1,7	49
Inorg.N (mgN/l)	2,63	3,42	3,30	2,81	3,31	2,87	2,85	2,72	2,09	2,30	3,71	3,22	2,98	5,01	0,96	49
O-phosph (mg/l)	0,38	0,10	0,30	0,15	0,16	0,05	0,05	0,09	0,15	0,17	0,22	0,21	0,17	0,60	0	49

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	8,6	12	11	11	11	11	7,8	6,1	10,2	9,9	14	11	10	27	2,5	50
Inorg. N (mgN/l)	2,71	2,89	3,21	3,42	3,33	2,34	1,78	1,19	1,68	1,14	1,30	1,80	2,20	3,81	0,73	50
O-phosph (mg/l)	0,21	0,20	0,38	0,14	0,19	0,18	0,44	0,11	0,31	0,33	0,19	0,27	0,24	0,68	0,03	50

Table 4.33. Concentrations of available parameters of water quality at sampling station Bistrinci

Year	1994														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	10	10	11	15	15	5,5	7,2	7,6	9,0	13	6,3	10	10	35	0,8	49
Inorg.N (mgN/l)	6,42	8,89	2,40	8,87	1,36	2,43	2,74	2,70	1,22	1,41	1,67	1,60	3,46	36,71	0,58	49
O-phosph (mg/l)	0,32	0,51	0,42	0,15	0,05	0,03	0,01	0,04	0,02	0,01	0,12	0,06	0,14	0,92	0	49
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,9	6,3	13	6,7	7,2	11	18	10	4,5	8,3	5,4	26	11	65	0,6	51
Inorg.N (mgN/l)	2,10	2,36	2,36	1,95	1,87	1,72	1,40	2,38	2,09	1,55	2,67	2,35	2,01	4,14	0,58	51
O-phosph (mg/l)	0,07	0,10	0,09	0,07	0,06	0,03	0,10	0,34	0,18	0,12	0,17	0,16	0,12	0,39	0	51
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	6,8	13	15	14	10	12	11	13	13	11	11	18	12	30	1,0	49
Inorg.N (mgN/l)	2,61	3,72	3,40	2,81	3,08	2,97	2,25	2,83	2,29	2,00	3,11	3,22	2,87	4,61	0,93	49
O-phosph (mg/l)	0,36	0,10	0,37	0,13	0,05	0,03	0,05	0,06	0,12	0,16	0,21	0,21	0,15	0,92	0	49

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	5,9	15	7,3	6,2	8,1	12	11	9,5	12	13	9,2	13	10	31	1,5	50
Inorg.N (mgN/l)	3,21	2,99	3,11	3,02	3,33	2,24	1,58	1,29	1,48	1,24	1,29	1,70	2,20	3,81	0,73	50
O-phosph (mg/l)	0,20	0,20	0,30	0,11	0,18	0,18	0,47	0,12	0,29	0,25	0,19	0,29	0,23	0,53	0,01	50

Table 4.34. Concentrations of available parameters of water quality at sampling station Donji Miholjac (R)

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,3	7,5	7,6	10	8,0	11	15	9,0	9,5	9,7	14	6,6	9,8	14	6,6	12
Inorg+Org N (mgN/l)	1,00	2,60	2,40	3,83	1,70	1,76	1,64	2,10	2,00	1,91	3,10	2,44	2,21	3,83	1,00	12
Phosph.(mg P/l)	0,08	0,10	0,09	0,06	0,08	0,12	0,14	0,18	0,09	0,11	0,10	0,10	0,11	0,18	0,06	12
O-phosph (mgP/l)	0,13	0,04	0,07	0,09	0,05	0,08	0,04	0,08	0,12	0,13	0,03	0,12	0,08	0,13	0,03	12
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	5,1	7,0	18	4,0	9,0	9,0	9,4	11	8,9	9,2	8,3	8,3	8,9	18	4,0	12
Inorg+Org N (mgN/l)	3,80	3,70	3,50	2,30	2,30	1,80	1,30	2,80	2,30	1,90	3,30	2,10	2,59	3,80	1,30	12
Phosph.(mgP/l)	0,13	0,06	0,33	0,21	0,06	0,18	0,23	0,09	0,26	0,19	0,14	0,21	0,17	0,33	0,06	12
O-phosph (mgP/l)	0,06	0,05	0,05	0,03	0,02	0,03	0,04	0,04	0,07	0,06	0,06	0,08	0,05	0,08	0,02	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	11	8,0	7,7	18	11	12	-	6,5	12	12	6,6	6,5	10	18	6,5	11
Inorg+Org N (mgN/l)	2,30	4,00	4,70	4,00	1,80	1,90	-	2,00	2,13	2,00	1,88	1,86	2,60	4,70	1,80	11
Phosph.(mgP/l)	0,24	0,12	0,13	0,29	0,13	0,20	-	0,08	0,36	0,14	0,09	0,09	0,17	0,36	0,08	11
O-phosph (mgP/l)	0,07	0,06	0,02	0,10	0,05	0,03	-	0,02	0,10	0,05	0,03	0,05	0,05	0,10	0,02	11

Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	5,4	6,4	9,0	8,3	11	8,5	9,3	12	7,8	6,2	8,0	9,0	8,4	12	5,4	12
Inorg+Org N (mgN/l)	3,06	2,27	1,92	1,70	1,90	1,70	1,90	2,30	1,75	1,02	0,61	0,080	1,74	3,06	0,61	12
Phosph.(mgP/l)	0,11	0,12	0,12	0,16	0,12	0,09	0,07	0,30	0,08	0,16	0,06	0,07	0,12	0,30	0,06	12
O-phosph (mgP/l)	0,04	0,12	0,03	0,086	0,04	0,04	0,05	0,07	0,04	0,05	0,03	0,04	0,05	0,12	0,03	12

Table 4.35. Concentrations of available parameters of water quality at sampling station Terezino Polje

Year	1994														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	12	4,9	5,3	7,0	14	15	9,4	8,3	7,4	7,2	11	4,3	8,9	16	0,9	25
Inorg.N (mgN/l)	4,98	8,59	2,08	2,55	0,61	1,68	2,75	2,70	2,35	0,92	1,74	1,61	2,43	8,81	0,06	25
O-phosph (mg/l)	1,00	0,44	0,17	0,58	0,12	0,01	0,04	0,07	0,03	0,01	0,13	0,01	0,21	1,43	0	25
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	7,2	14	10	6,7	23	11	15	5,8	6,4	8,1	8,0	9,8	9,5	36	2,9	24
Inorg.N (mgN/l)	3,25	3,11	2,24	1,28	2,59	1,72	2,25	2,55	1,67	2,30	2,50	1,98	2,24	3,91	0,94	24
O-phosph (mg/l)	0,05	0,14	0,03	0,04	0,06	0,11	0,13	0,25	0,31	0,11	0,44	0,16	0,14	0,48	0,02	24
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	6,5	6,0	17	17	9,6	8,8	13	12	14	6,8	9,4	18	11	22	2,0	25
Inorg. N (mgN/l)	2,90	3,10	3,18	2,31	3,01	2,78	2,18	2,58	1,66	1,98	3,78	1,78	2,55	4,60	1,34	25
O-phosph (mg/l)	0,32	0,09	0,62	0,18	0,10	0,04	0,05	0,13	0,12	0,16	0,24	0,20	0,19	0,92	0,03	25

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	17	8,1	8,6	22	11	8,3	6,7	4,8	9,2	12	7,4	11	10	33	3,6	24
Inorg.N (mgN/l)	2,98	3,11	3,32	3,49	3,03	2,88	1,78	1,80	2,18	0,84	1,29	1,54	2,32	4,31	0,74	24
O-phosph (mg/l)	0,18	0,21	0,22	0,11	0,18	0,17	0,35	0,14	0,31	0,28	0,28	0,26	0,22	0,42	0,09	24

Table 4.36. Concentrations of available parameters of water quality at sampling station Botovo

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	5,9	9,0	6,1	8,7	8,0	9,2	15	11	9,5	9,7	10	6,6	9,1	15	5,9	12
Inorg+Org N (mgN/l)	2,17	3,00	4,03	3,22	1,80	1,96	1,80	1,70	1,38	1,79	2,50	3,03	2,37	4,03	1,38	12
Phosph(mgP/l)	0,07	0,04	0,06	0,08	0,13	0,05	0,13	0,20	0,08	0,11	0,07	0,12	0,10	0,20	0,04	12
O-phosph (mgP/l)	0,09	0,10	0,08	0,11	0,04	0,04	0,03	0,03	0,13	0,08	0,05	0,15	0,08	0,15	0,03	12
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	10	5,0	16	4,4	10	10	14	9,0	9,3	7,8	12	8,3	9,7	16	4,4	12
Inorg+Org N (mgN/l)	3,80	3,40	4,30	2,20	2,40	1,60	1,10	3,50	2,40	2,00	2,70	1,90	2,90	4,30	1,80	12
Phosph.(mgP/l)	0,10	0,15	0,25	0,15	0,07	0,21	0,27	0,13	0,19	0,17	0,08	0,19	0,13	0,26	0,05	12
O-phosph (mgP/l)	0,04	0,04	0,06	0,03	0,02	0,03	0,03	0,03	0,05	0,02	0,04	0,04	0,04	0,08	0,01	12
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	15	10	8,0	13	10	15	18	5,0	7,7	9,5	5,7	6,5	10	18	5,0	12
Inorg+Org N (mgN/l)	2,90	4,30	4,00	2,80	1,80	2,20	3,46	2,92	2,25	3,70	2,35	2,10	2,90	4,30	1,80	12
Phosph.(mgP/l)	0,26	0,08	0,12	0,19	0,11	0,17	0,19	0,07	0,13	0,17	0,05	0,06	0,13	0,27	0,05	12
O-phosph (mgP/l)	0,08	0,05	0,02	0,07	0,02	0,03	0,04	0,02	0,01	0,05	0,02	0,05	0,04	0,08	0,01	12

Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	5,2	6,0	7,4	5,6	14	8,7	9,5	13	12	5,1	6,0	6,4	8,2	14	5,1	12
Inorg+Org N (mgN/l)	2,42	2,18	1,98	1,61	1,90	1,45	2,07	1,65	1,50	1,76	1,87	2,42	1,90	2,42	1,45	12
Phosph.(mgP/l)	0,10	0,06	0,16	0,10	0,16	0,05	0,05	0,10	0,17	0,13	0,02	0,05	0,10	0,17	0,02	12
O-phosph (mgP/l)	0,02	0,03	0,04	0,03	0,04	0,03	0,04	0,07	0,06	0,03	0,01	0,03	0,04	0,07	0,01	12

Table 4.37. Concentrations of available parameters of water quality at sampling station Donja Dubrava

Year	1996															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	6,3		8,3	7,9		6,8	4,0		2,3	3,1		3,9	6,4	8,3	2,3	8
Inorg+Org N (mgN/l)	2,00		1,93	2,70		1,58	2,00		1,57	2,00		2,20	1,80	2,70	1,57	8
Phosph.(mgP/l)	0,18		0,12	0,17		0,13	0,14		0,12	0,14		0,06	0,13	0,18	0,06	8
O-phosph (mgP/l)	0,04		0,02	0,05		0,02	0,02		0,01	0,03		0,02	0,03	0,05	0,01	8
Year	**1997**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	12		6,7	4,4		4,4	6,6		7,9	3,0		4,2	7,0	12	3,0	8
Inorg+Org N (mgN/l)	3,40		1,55	1,38		1,10	2,00		1,20	1,37		2,60	1,82	3,40	1,10	8
Phosph.(mgP/l)	0,47		0,03	0,06		0,05	0,02		0,06	0,11		0,03	0,07	0,17	0,02	8
O-phosph (mgP/l)	0,07		0,01	0,02		0,03	0,01		0,05	0,02		0,02	0,03	0,07	0,01	8

Table 4.38. Concentrations of available parameters of water quality at sampling station Varaždin

Year	1994															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	4,1	2,9	3,1	3,5	5,5	3,8	3,3	3,7	3,5	3,3	3,8	3,7	3,7	11	2,1	51
Inorg. N (mgN/l)	2,45	2,36	2,09	2,30	1,49	1,48	1,46	1,41	1,47	1,76	1,98	1,50	1,82	3,06	1,02	51
O-phosph (mg/l)	0,09	0,11	0,07	0,09	0,10	0,07	0,07	0,09	0,10	0,09	0,07	0,11	0,09	0,26	0,02	51
Year	**1995**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	4,2	5,1	6,8	4,3	4,4	3,7	2,6	3,4	3,5	3,2	4,7	2,4	4,0	18	1,9	52
Inorg. N (mgN/l)	2,53	2,08	2,34	2,21	1,60	1,97	1,47	1,81	3,03	1,92	2,54	2,44	2,14	8,16	0,95	52
O-phosph (mg/l)	0,11	0,11	0,34	0,04	0,07	0,12	0,09	0,06	0,18	0,08	0,14	0,10	0,12	0,58	0,01	52
Year	**1996**															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	2,2	3,4	2,6	3,9	4,7	4,7	3,6	3,4	6,3	7,4	4,1	4,5	4,2	11	1,3	52
Inorg.N (mgN/l)	2,64	2,58	2,37	2,58	1,53	1,33	1,94	1,51	1,83	1,85	2,06	2,03	2,05	3,47	1,12	52
O-phosph (mg/l)	0,11	0,11	0,09	0,11	0,09	0,07	0,09	0,09	0,09	0,11	0,10	0,09	0,10	0,16	0,03	52

Year	1997														
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	3,3	2,3	3,2	3,7	4,2	3,4	3,7	3,9	5,3	3,0	3,6	3,2	3,6	8,4	1,9	51
Inorg. N (mgN/l)	2,00	1,94	1,84	1,81	1,65	1,32	1,55	1,72	1,38	1,39	1,54	1,90	1,65	2,62	0,81	51
O-phosph (mg/l)	0,10	0,11	0,03	0,03	0,02	0,04	0,04	0,03	0,02	0,01	0,01	0,02	0,04	0,18	0,01	51

Table 4.39. Concentrations of available parameters of water quality at sampling station Borovo

Year	1997															
PARAMETERS	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Mean Value**	**Max**	**Min**	**N**
COD-Cr(mgO2/l)	9,6		9,1		30		12			13	14	5,6	11	21	3,1	25
Inorg. N (mgN/l)	3,40		3,29		2,64		1,33			0,90	1,80	2,78	1,92	3,92	0,73	25
O-phosph (mg/l)	0,31		0,13		0,15		0,48			0,39	0,25	0,36	0,32	0,48	0	9

Table 4.40. Annual maximum concentrations of heavy metals at some TNMN sampling stations on the Drava River

PARAMETERS	DRAVA - Donji Miholjac			
	1994	1995	1996	1997
Cadmium (µg/l)	2,86	1,22	1,36	1,2
Mercury (µg/l)	0,29	0,28	0,290	0,11
Lead (µg/l)	15,6	19,0	17,9	14,2
PARAMETERS	**DRAVA - Botovo**			
	1994	**1995**	**1996**	**1997**
Cadmium (µg/l)	2,64	1,26	1,24	1,7
Mercury (µg/l)	0,18	0,80	0,12	0,18
Lead (µg/l)	23,7	19,5	13,5	12,9
PARAMETERS	**DRAVA - Varaždin**			
	1994	**1995**	**1996**	**1997**
Cadmium (µg/l)	1,75	1,14	1,21	1,37
Mercury (µg/l)	0,75	0,24	0,12	0,15
Lead (µg/l)	27,3	16,2	12,0	16,6

Table 4.41. Annual maximum concentration of oil (mg/l) at preferred sampling station

River	Sampling Station	1994	1995	1996	1997
1	2	3	4	5	6
DANUBE	Borovo	-	-	-	
SAVA	Županja – downstream	-	-	0,076	-
	Županja – upstream	-	-	0,075	-
	mouth of Bosna - downstream	-	-	0,069	-
	mouth of Bosna - upstream	-	-	0,083	-
	Slavonski Brod - downstream	-	-	0,103	-
	Slavonski Brod - upstream	-	-	0,083	-
	mouth of Vrbas - downstream	-	-	0,039	-
	mouth of Vrbas - upstream	-	-	0,076	-
	mouth of Una - downstream	-	-	0,200	-
	mouth of Una - upstream	-	-	0,100	2,100

1	2	3	4	5	6
	mouth of Kupa - downstream	0,050	0,400	0,020	1,000
	Galdovo	0,040	0,050	0,050	1,300
	Oborovo	0,440	0,950	2,290	0,850
	Jankomir	0,690	0,800	0,660	0,550
	Jesenice	0,230	0,790	0,620	0,320
River	Sampling Station	1994	1995	1996	1997
DRAVA	Nemetin				
	Višnjevac				
	Bistrinci				
	Donji Miholjac	0,466	0,210	0,170	0,200
	Terezino Polje				0,170
	Botovo	0,282	0,260	0,170	0,170
	Donja Dubrava				
	Varaždin				

Loads of nutrients and COD are presented in the Table 4.42. for most of TNMN stations.

Loads of pollutants are calculated under following formula:

Loads of pollutants (t/a) = Q_{AMV}x number of days/a x 0,0864 x c_{AMV}

where, Q_{AMV} means annual mean value of river flow in m3/s

c_{AMV} means annual mean concentration of pollutant

It is not possible to calculate loads using weighted concentrations of pollutants and take care about seasonal changes in river flow and concentrations, because there are no available data of sampling on the Sava River. Only the data about month of sampling or monthly average are available and there is no possibility to estimate interval between two sampling.

Table 4.42. Loads of some Pollutants at TNMN stations on the Sava and Drava Rivers

PARAMETERS	**SAVA – Županja**			
	1994	**1995**	**1996**	**1997**
Load COD (tO2/a)	-	1 123 950	1 031 000	856 010
Load ortophosph.	-	15 237	18 570	9 300
Load total N (t/a)	-	124 680	126 650	131 660
PARAMETERS	**SAVA - upstream of confluence with Una – Jasenovac**			
	1994	**1995**	**1996**	**1997**
Load ortophosph (t/a)			9 170	9 750
Load total P (t/a)	-	-	4 775	4 500
Load total N (t/a)	-	-	83 570	46 660

PARAMETERS	SAVA – Jesenice			
	1994	1995	1996	1997
Load COD (tO2/a)	82 610	99 050	113 760	86 800
Load ortophosph (t/a)	1 220	946	593	965
Load total N (t/a)	21 130	28 080	33 430	20 270
PARAMETERS	**DRAVA - Donji Miholjac**			
	1994	**1995**	**1996**	**1997**
Load COD (tO2/a)	155 145	141 740	193 230	121 060
Load ortophosph.	3880	2440	2930	2210
Load total P (t/a)	1 740	2 710	3 250	1 730
Load total N (t/a)	34 990	41 250	49 740	25 080
PARAMETERS	**DRAVA – Botovo**			
	1994	**1995**	**1996**	**1997**
Load COD (tO2/a)	129 140	145 610	173 600	96 400
Load ortophosph.	3 480	1 840	2 070	1 295
Load total P (t/a)	1 420	2 400	2 190	1 120
Load total N (t/a)	33 630	39 180	48 880	22 350

4.12.1. Nitrogen

From the presentation of total nitrogen concentrations at the Sava River, it could be concluded, that some increase of nitrogen concentration from sampling station Jesenice to Jankomir in 1997 is a result of discharges of municipal and industrial wastewater from Zaprešić and Savski Marof and farm Dubravica trough tributaries of the Sava River - the Sutla, Krapina and Gorjak, where there is one of the hot spot - Pliva - Savski Marof. Increasing in nitrogen concentration is evident from sampling station Jankomir to Oborovo, and it is a result of discharge industrial and municipal wastewater of Zagreb directly into Sava without any treatment. Increasing of nitrogen concentrations could be a result of agricultural activities too, because these are evident seasonal variations in concentrations. Decreasing of nitrogen concentrations from sampling station Oborovo to sampling station Galdovo and further along the river flow to sampling stations upstream of confluence with the Vrbas, shows that "hot spots" from that region trough tributaries of the Sava (municipal and wastewater from Karlovac, Petrinja, Sisak, Vrbovec, Kutina) do not contribute to nitrogen concentrations. Some increase in nitrogen concentrations at sampling stations upstream and downstream of Slavonski Brod is a result of agricultural activities. Concentrations of nitrogen are on the same concentration level along the Sava River flow, and it can be concluded that "hot spots" - Lužani, Slavonski Brod and Sugar Factory Županja do not contribute to nitrogen concentrations.

From the Table 4.41. it is evident that load of total nitrogen at the Sava River increased about twice from monitoring station Jesenice to monitoring station Jasenovac, and about three times from sampling station Jasenovac to Županja.

At preferred sampling stations on the Drava River, at some stations, the data of inorganic nitrogen and at the other data of total nitrogen is available.

Increasing of concentrations of inorganic nitrogen from sampling stations Varaždin to Terezino Polje is a result of discharges of municipal and industrial wastewater from Varaždin, Čakovec, Koprivnica and agricultural activities. There are no changes in inorganic nitrogen concentrations along the Drava River flow from Terezino Polje to Nemetin, and "hot spots" from that region - municipal water from Osijek, Sugar Factory Osijek, Belje - Belišće, Farm Senkovac do not contribute to nitrogen pollution in that part of river flow.

Concentrations of total nitrogen from sampling station Donja Dubrava to Donji Miholjac show increasing along the river flow, which has the same reason like increase of inorganic nitrogen along river flow.

From the Table 4.42., it is evident that load of total nitrogen is at the same level at sampling stations Botovo and Donji Miholjac at the Drava River. From the same table increase of loads of total nitrogen for the last year is evident, except at sampling station downstream of Županja.

From that, it is evident that in upper flow of the Sava and the Drava Rivers, points of pollution have influenced nitrogen concentrations, and in down flow there is no influence of point sources from diffuse pollution.

It is impossible to compare concentrations of inorganic nitrogen at sampling station Danube - Borovo and at closest sampling stations to confluence the Sava and Drava Rivers with the Danube - at sampling stations Sava - downstream of Županja and Drava - Nemetin, because there are different frequencies of sampling.

4.12.2. Phosphorus

There is no evident increase in orthophosphate concentrations from sampling stations Jesenice to Jankomir, which means that "hot spots" from that region do not contribute to orthophosphate concentrations in upper river flow. A small increase in concentrations of orthophosphate at sampling stations Oborovo is from influence of wastewater of Zagreb. Significant increase in orthophosphate at sampling station Galdovo could be contributed to agricultural production in that region. Concentrations of orthophosphate decrease along the river flow from sampling station upstream of confluence with the Una River to sampling stations upstream of confluence with the Vrbas River and stay at similar concentrations level to sampling station downstream of Županja. It can be concluded that "hot spots" from that region do not contribute to orthophosphate concentrations and Sugar Factory Županja contributes to concentration of orthophosphate at sampling station downstream of Županja, because an increase can occur in October, November and December, when is a season of sugar production.

Concentrations of orthophosphate increased along the river flow at the Drava from Varaždin to Terezino Polje, what are the influence of discharges of tributaries with municipal and industrial wastewater from that region (Varaždin, Čakovec, Koprivnica) and agricultural activities. Concentrations of orthophosphate at sampling stations Bistrinci, Višnjevac and Nemetin are at same concentration level and it can concluded like for nitrogen concentrations, that pollution in down river flow is a result of diffuse pollution.

There are available data of total phosphorus at sampling stations Donja Dubrava, Botovo and Donji Miholjac on the Drava River, which show the similar increase along the river flow like concentrations of orthophosphate, and have the same cause.

Load of ortho-phosphate increases ten times from sampling station Sava - Jesenice to sampling station Sava - Jasenovac, and is very similar at sampling station Sava - Županja.

Loads of ortho-phosphate are at the same level at sampling stations at the Drava River - Botovo and Donji Miholjac like loads of total phosphorus, which is evident from Table 4.42.

Concentrations of orthophosphate at sampling stations Danube - Borovo are higher than at sampling stations Sava - downstream of Županja in the first part of year, and at Sava higher than at Danube in the second part of year.

Concentrations of orthophosphate at Danube - Borovo and Drava - Nemetin have different frequencies of sampling and can not compare.

4.12.3. COD

There is some increase in COD value at sampling station at the Sava River - Oborovo - what means contribution of wastewater of Zagreb to organic pollution of the Sava River, like to pollution with nutrients, and significant increase at sampling station upstream of mouth of the Vrbas River - contribution of discharge of wastewater, tributaries and agricultural production.

It is a pity, that there are no data of COD value at sampling stations Galdovo, downstream of mouth of the Kupa River and upstream and downstream of mouth of the Una River.

COD values are at the same level in down flow of Sava from sampling station upstream of mouth of the Vrbas River to downstream of Županja, so there is no influence of hot spots (Slavonski Brod, Županja) on organic pollution of the Sava River.

COD values at the Drava River show some increase from sampling station Varaždin to Terezino Polje, and than are at the same level to sampling station Nemetin. There is evident contribution of hot spots to organic pollution of the Drava River, like pollution with nutrients in upper river flow, and no influence of hot spots to organic pollution in down river flow.

Load of COD increases about ten times from sampling station Sava - Jesenice to sampling station Sava - downstream of Županja.

Load of COD is some higher at sampling station Drava - Donji Miholjac than at sampling station Drava - Botovo.

COD values at sampling stations Sava - downstream of Županja are higher than at sampling stations Danube - Borovo, and at sampling station Drava - Nemetin lower than at Danube - Borovo.

4.12.4. Heavy Metals

The data of toxic heavy metals (Cd, Hg, Pb) only at some sampling stations on the Drava River are available, and they are presented with annual maximum values on the Table 4.40.

There is no available data of concentrations of heavy metals in wastewater of "hot spots", but their concentrations are at same level along river flow and it can concluded that pollution with heavy metals originates from diffuse sources.

Concentrations of Cd, Hg and Pb could have negative effect on ecosystem of the Drava River.

4.12.5. Oil and Other Hazardous Chemicals

Available data of oil are presented on the Table 4.41. like annual maximum values.

It is very difficult to analyze that data, because different analytical methods are used in oil determination UV spectrophotometry, IR spectrophotometry and gravimetry. Concentrations along the river Drava is at same concentration level, so it can be concluded, that oil does not originate from "hot spots", rather from diffuse sources. Along the Sava River flow, there is evident some increase in oil concentrations at sampling stations near Sisak, but it can be a result of different method of determination.

4.12.6. Special Linkages

There are no available data.

Annexes

1. **Index of Water Quality and Discharge Records**
2. **Summary of Simultaneous Data on Water and Sediment Discharge and Water Quality**
3. **Hydrological Data**

Annex 1.

Index of Water Quality and Discharge Records

Sampling Station		River Name	Sam. place	River Km	Number of Years of Records and the Latest Year of Record for Each of Following Categories of Parameters											
			L, R, M		Water Dischar.	Sedim. Dischar.	Ammon	Nitrite	Nitrate	Organic N	ophos.	Phos-phorus	COD	Heavy metals	Oil	Pesticide
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Downstream of Županja	SAVA	L	255	20/98	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
2	Upstream of Županja	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
3	downstream of confluence with Bosna river	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
4	upstream of confluence with with Bosna river	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
5	downstream of Slavonski Brod	"	L		NR	37/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
6	upstream of Slavonski Brod	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
7	downstream of confluence with Vrbas river	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
8	upstream of confluence with Vrbas river	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
9	downstream of confluence with Una river	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
10	upstream of confluence with Una river - Jasenovac	SAVA	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
11	downstream of confluence with Kupa river	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
12	Galdovo	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
13	Martinska Ves	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
14	Oborovo	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
15	Petruševac	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
16	Jankomir	"	L		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
17	Jesenice	"	R		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
18	downstream of Vinkovci	BOSUT	M		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
19	upstream of Vinkovci	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	25/98	NR
20	downstream of Đakovo	JOŠAVA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
21	Pleternica	ORLJAVA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
22	Higway	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
23	Nova Gradiška	ŠUMETLIC A	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
24	Lipik	PAKRA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
25	Daruvar	TOPLICA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
26	Garešnica	ILOVA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
27	V.Vukovje	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
28	Križevci	GLOGOVN I-CA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
29	Mostari	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	25/98	25/98	NR
30	Narta	ČESMA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
31	Čazma	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
32	Obedišće	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
33	Ivanić Grad	LONJA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
34	Hrvatska Kostajnica	UNA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
35	Kamačnik	VRBOVSK O	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
36	Plavča Draga	DRETULJA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
37	Tušilović	RADONJA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
38	Slunj	SLUNJČIC A	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
39	Jastrebarsko	REKA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
40	Donja Kupčina	KUPČINA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
41	Glina	GLINA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
42	Sisak	ODRA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
43	Moravice	DOBRA	M		19/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
44	Luke	"	M		51/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
45	Lešće	"	M		51/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
46	Donje Stative	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
47	Juzbašić	MREŽNIC A	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
48	Mrzlo Polje	"	M		51/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
49	Bogovolja	KORANA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
50	Slunj	KORANA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
51	Veljun	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
52	Velemerić	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
53	Foginovo	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
54	Gaza	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
55	Kamanje	KUPA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
56	Gornje Pokuplje	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
57	Rečica	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
58	Jamnička Kiselica	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
59	Šišinec	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
60	Brest	KUPA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
61	Sisak	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
62	Božjakovina	ZELINA	M		7/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
63	Gradna	GRADNA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
64	Bregana	BREGANA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
65	Krapina	KRAPINICA	M		9/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
66	Zabok	"	M		21/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
67	Bedekovčina	KRAPINA	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
68	downstream of confluence with Krapinica	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
69	Zaprešić	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
70	Zelenjak	SUTLA	M		31/98	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
71	Harmica	"	M		NR	NR	25/98	25/98	25/98	25/98	25/98	NR	25/98	NR	25/98	NR
*72	Borovo	DANUBE	R	1337	NR	NR	21/98	21/98	12/98	NR	21/98	NR	21/98	NR	21/98	NR
*73	Batina	"	R	1424	NR	NR	0/98	0/98	0/98	0/98	0/98	0/98	0/98	NR	0/98	0/98
74	Nemetin	DRAVA	R	10,9	NR	NR	27/98	27/98	12/98	NR	27/98	NR	27/98	NR	27/98	NR
75	Višnjevac	"	R	23,5	NR	NR	27/98	27/98	12/98	NR	27/98	NR	27/98	NR	27/98	NR
76	Bistrinci	"	R	54	NR	NR	27/98	27/98	12/98	NR	27/98	12/98	27/98	NR	27/98	NR
77	Donji Miholjac	"	L	78	NR	NR										
*78	Donji Miholjac	"	R	78	10/98	31/98	27/98	27/98	27/98	27/98	27/98	NR	27/98	NR	27/98	NR
79	Donji Miholjac	"	M	78	NR	NR	32/98	32/98	32/98	12/98	32/98	12/98	32/98	NR	22/98	0/98
80	Terezino Polje	DRAVA	R, M	152	127/98	7/98	27/98	27/98	27/98	1/98	27/98	1/98	27/98	1/98	27/98	NR
*81	Botovo	"	M	226	126/98	32/98	32/98	32/98	32/98	12/98	32/68	12/98	32/98	22/98	32/98	0/98
82	Donja Dubrava	"	M	254	20/98	NR	32/98	32/98	32/98	12/98	32/68	12/98	32/98	22/98	32/98	0/98
*83	Varaždin	"	M	288	NR	NR	27/98	27/98	27/98	1/98	27/98	1/98	27/98		5/98	NR
84	Čingi-lingi	OLD DRAVA	L		NR	NR	NR	NR	5/91	NR	15/91	NR	NR	NR	NR	NR
85	Čingi-lingi	"	R		NR	NR	NR	NR	5/91	NR	5/91	NR	NR	NR	NR	NR
86	Mece	"	M		NR	NR	NR	NR	4/90	NR	5/91	NR	NR	NR	NR	NR
87.	Kopačevo	"	M		NR	NR	NR	NR	5/91	NR	4/91	NR	NR	NR	NR	NR
88	Sakadaš	lake			NR	NR	NR	NR	5/91	NR	5/91	NR	NR	NR	NR	NR
89	Branjin Vrh	Baranjska Karašica	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
90	Petrijevci	KARAŠICA	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
91	Bršadin	VUKA	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
92	Našice	NAŠIČKA RIJEKA	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
93	Đurđenovac	BUKVIK POTOK	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
94	Čačinci	VOJLOVIC A	M		24/98	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
95	Črnkovci	KARAŠIC A-VUČICA	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
96	Čađavički Lug	VOĆINSK A RIJEKA	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
97	Kapinci	ČAĐAVIC A	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
98	Vaška	Županijski kanal	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
99	Virovitica	OĐIN POTOK	M		NR	NR	NR	NR	NR	NR	4/80	NR	NR	NR	NR	NR
100	Goričan	MURA	M		50/98		32/98	32/98	32/98	12/98	32/68	12/98	32/98	22/98	32/98	0/98
101	Mursko Središće	"	M		112/98	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
102	Goričan	TRNAVA	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
103	Lepoglava	BEDNJA	M		12/98	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
104	Stažnjevec	"	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
105	Tuhovec	"	M		41/98	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
106	Mali Bukovec	"	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
107	Kučan Donji	PLITVICA	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
108	Mlačine	GLIBOKI	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
109	Sigetec	"	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
110	upstream of Koprivnica	Koprivnica	M		24/98	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
111	bridge at Molve - Bistra	"	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
112	Molve	Komarnica	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
113	upstream of confluence with Komarnica	ZDELA	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
114	Kalinovac	Čivičevac	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
115	bridge Pitomača-Sesvete Podravske	KOPANJE K	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
116	bridge east of Pitomača	PITOMAČ A	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
117	bridge north of Stari Gradac	LENDAVA	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
118	Trnovec - Zbelava	ZBEL	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR
119	upstream of confluence with Plitvica	"	M		NR	NR	27/98	27/98	27/98	NR	27/98	NR	27/98	NR	NR	NR

Annex 2.

Summary of Simultaneous Data on Water and Sediment Discharge and Water Quality

Water Discharge (m3/s)	Sediment Discharge (g/m3)	Total N (mgN/l)	Total P (mgP/l)	COD (mgO2/l)	Notable High Concentrations of Oil (mg/l)	Notable High Concentrations of Heavy Metals (µg/l)			Date
						Cd	Hg	Pb	
1	2	3	4	5	6	7	8	9	10
543	91,7	1,00	0,08	9,3	0,466	2,86	0,05	13,2	24.01.94
451	8,70	2,40	0,09	7,6	0,051	1,38	<0,05	13,2	21.03.94
670	28,5	3,83	0,06	10	0,216	0,52	0,07	25,4	25.04.94
530	21,9	1,76	0,12	11	0,120	0,92	0,05	15,6	27.06.94
330	3,42	1,79	0,11	8,0	0,160	0,94	0,29	15,1	24.10.94
405	4,60	3,03	0,12	7,2	0,14	1,59	0,05	10,5	12.12.94
351	17,6	3,80	0,13	5,1	0,140	0,92	0,28,	16	09.01.95
1040	33,5	3,50	0,33	18	0,130	1,22	0,027	15	07.03.95
629	4,62	1,80	0,18	9,0	0,090	1,00	0,19	9,3	06.06.95
745	7,36	1,30	0,23	9,4	0,140	1,19	0,07	18,2	10.07.95
445	3,34	2,30	0,26	8,9	0,120	0,93	0,19	19,0	04.09.95
261	13,9	2,10	0,21	8,3	0,070	1,17	0,12	18,0	0412.95
375	4,24	2,30	0,24	11	0,170	0,86	0,190	9,9	10.01.96
312	3,50	4,70	0,13	7,7	0,060	1,06	0,290	17,9	04.03.96
664	16,4	1,90	0,20	12	0,075	0,60	0	6,1	03.06.96
568	5,24	2,13	0,36	12	0,075	1,29	0,100	16,0	02.09.*6
810	9,28	2,00	0,14	12	0,070	1,36	0	7,2	07.10.96
810	18,7	1,86	0,09	6,5	0,075	0,81	0,050	12,0	02.12.96
453	-	3,06	0,11	5,4	0,017	1,20	0	14,2	08.01.97
399	-	1,92	0,12	9,0	0,155	0,05	0,11	2,7	0.03.97

1	2	3	4	5	6	7	8	9	10
300	-	1,70	0,16	8,3	0,200	1,73	0,03	11,5	07.04.97
587	-	1,90	0,07	9,3	0,046	0,83	<0,08	7,4	07.07.97
722	-	2,30	0,30	12	0,010	0,07	<0,05	4,7	04.08.97
317	-	1,80	0,16	6,2	0,065	0,88	0,20	9,5	06.10.97
337	-	1,95	0,17	8,0	0,080	0,05	0,10	2,7	03.03.97
284	-	1,82	0,12	7,7	0,120	1,77	-	12,6	07.04.97
412	-	1,92	0,07	8,5	0,070	0,09	0,10	3,7	02.06.97
580	-	2,14	0,06	8,5	0,035	1,20	<0,08	9,9	07.07.97
482	-	1,58	0,20	8,0	0,130	0,06	<0,05	2,1	08.09.97
244	-	1,10	0,16	5,6	0,060	1,30	0,14	10,8	06.10.97
458	8,81	2,17	0,07	5,9	0,206	2,64	0,05	8,8	24.01.94
289	10,3	4,03	0,06	6,1	0,066	1,40	<0,05	11,8	21.03.94
545	15,5	3,22	0,08	8,7	0,282	0,65	0,07	23,7	25.04.94
230	12,4	1,80	0,13	8,3	0,050	0,90	0,05	11,7	18.07.94
347	5,16	1,79	0,11	8,0	0,160	0,74	<0,07	11,0	24.10.94
295	4,07	3,03	0,12	7,2	0,140	0,54	0,09	10,3	12.12.94
257	4,17	3,80	0,10	10	0,130	1,26	0,80	14,9	09.01.95
408	3,86	2,20	0,15	4,4	0,060	1,12	0,10	15,5	03.04.95
1530	57,8	1,60	0,21	10	0,090	1,08	0,29	15,0	06.06.95
623	36,7	1,10	0,27	14	0,120	1,16	0	23,4	10.07.95
394	12,4	2,40	0,19	9,3	0,140	0,93	0,19	16,4	04.09.95
245	0,52	1,90	0,19	8,3	0,080	1,04	0	19,5	04.12.95
577	34,2	2,90	0,26	15	0,050	0,77	0,124	10,4	10.01.96
224	6,00	4,00	0,12	8,0	0,110	0,80	0,047	13,5	04.03.96

1	2	3	4	5	6	7	8	9	10
1080	21,0	2,80	0,19	13	0,170	0,89	0	12,7	09.04.96
776	26,4	3,46	0,19	18	0,080	0,88	0,08	7,8	01.07.96
353	27,1	2,25	0,13	7,7	0,075	1,09	0	11,1	02.09.96
818	14,2	3,70	0,17	9,5	0,070	1,24	0	7,2	07.10.96
264	-	2,42	0,10	5,2	0,011	1,30	0	12,9	08.01.97
290	-	1,93	0,16	7,4	0,075	0,05	0,15	2,7	03.03.97
391	-	1,61	0,10	5,6	0,170	1,70	0,05	12,3	07.04.97
585	-	2,07	0,05	9,5	0,039	1,15	<0,08	9,4	0.07.97
509	-	1,50	0,17	12	0,075	0,17	0,15	3,1	08.09.97
206	-	1,76	0,13	5,1	0,052	1,30	0,18	9,4	06.10.97
1030		4,08							xx.01.95
2050		2,97							xx.04.95
401		3,90							xx.08.95
959		2,56							xx.12.95
1100		2,91							xx.02.96
1330		1,68							xx.05.96
1290		4,07							xx07.96
794		2,50							xx.11.96
2060		2,19							xx.01.97
844		3,53							xx.04.97
312		3,68							xx.08.97
2000		5,84							xx.12.97

Annex 3.

Hydrological Data

Stage–discharge relation
(rating curve)

Table 1 Water discharge

River	Sampling Station	Hydrological Station
Danube	Borovo	*
Drava	Nemetin	Belisce
	Visnjevac	Belisce
	Bistrinci	Belisce
	Donji Miholjac	Donji Miholjac
	Terezino Pole	Terezino Pole
	Botovo	Botovo
	Donja Dubrava	Botovo
	Varazdin	-
Sava	Zupanja – downstream	Zupanja
	Zupanja – upstream	Zupanja
	mouth of Bosna – downstream	Slavonski Samac
	mouth of Bosna – upstream	Slavonski Brod
	Slavonski Brod – downstream	Slavonski Brod
	Slavonski Brod – upstream	Slavonski Brod
	mouth of Vrbas – downstream	Davor
	mouth of Vrbas – upstream	Mackovac
	mouth of Una – downstream	Mackovac
	mouth of Una – upstream	Jasenovac
	mouth of Kupa – downstream	Crnac
	Galdovo	Dubrovcak
	Oborovo	Rugvica
	Jankomir	Podsused
	Jesenice	Jesenice

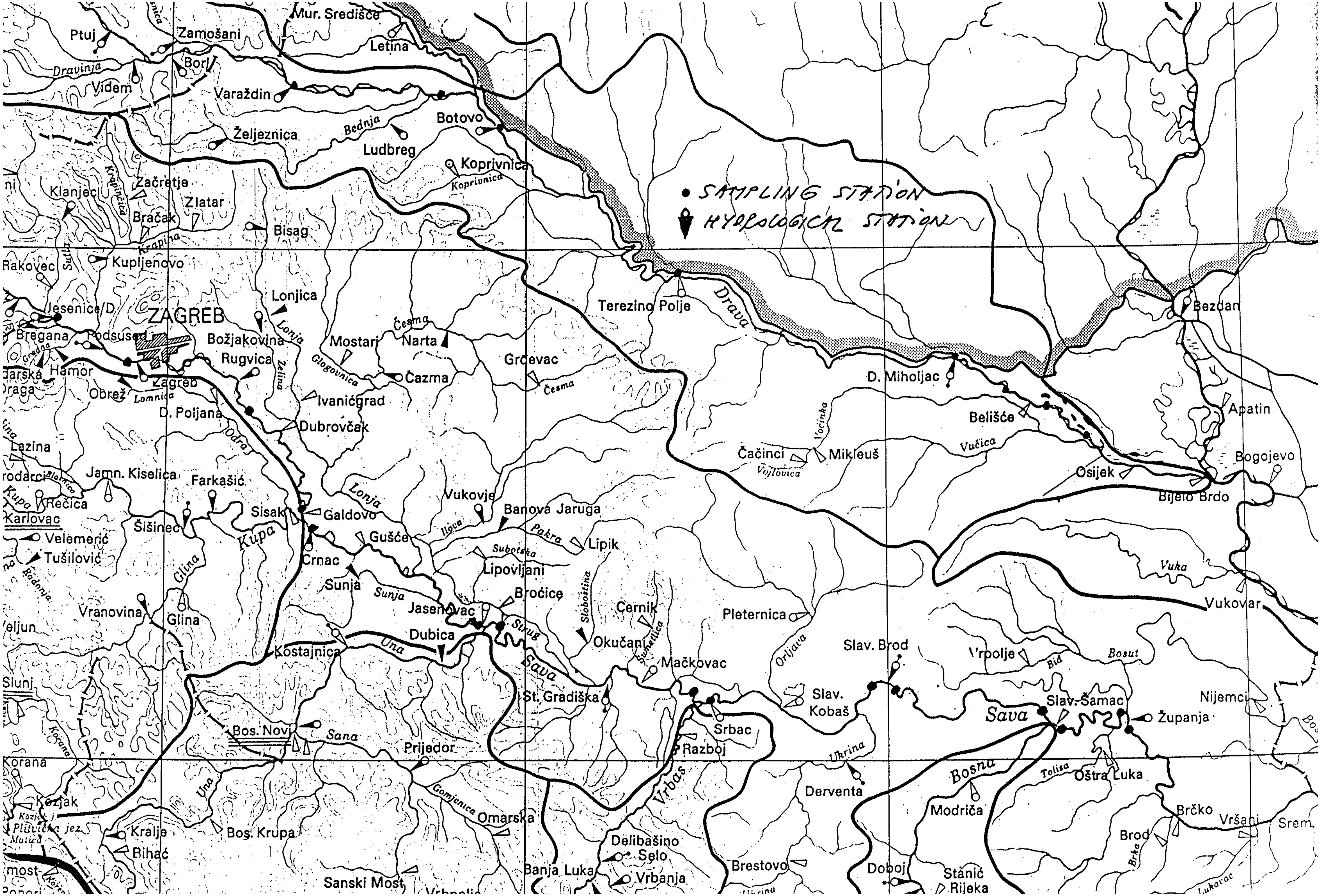
** hydrological measuring doesn't exist*

Table 2 Rating curve for 1994, 1995 and 1996

River	**Hydrological station**	**Year**		
		1994	**1995**	**1996**
Sava	Jesenice	Q/H 1994	Q/H 1995	Q/H 1996
	Podsused	Q/H 1994	Q/H 1995	Q/H 1995
	Zagreb	Q/H 1994	Q/H 1995	Q/H 1995
	Rugvica	Q/H 1994	Q/H 1995	Q/H 1995
	Crnac	-	-	-
	Jasenovac	-	-	Q/H 1990
	Mackovac	Q/H 1990	Q/H 1990	Q/H 1990
	Davor	Q/H 1993	-	-
	Slavonski Kobas	Q/H 1990	Q/H 1990	Q/H 1990
	Slavonski Brod	Q/H 1993	Q/H 1993	Q/H 1993
	Zupanja	Q/H 1996	Q/H 1996	Q/H 1996
Drava	Botovo	Q/H 1994	Q/H 1995	Q/H 1996
	Novo Virje – skela	Q/H 1994	Q/H 1995	Q/H 1996
	Terezino Pole	Q/H 1994	Q/H 1995	Q/H 1996
	Donji Mihljac	Q/H 1994	Q/H 1995	Q/H 1996
	Belisce	Q/H 1993	Q/H 1993	Q/H 1993

Q/H = discharge - stage relation (rating curve)

Figure 10


SAMPLING STATION
HYDROLOGICAL STATION
Ptuj
Zamošani
Mur. Središće
Letina
Dravinja
Borl
Videm
Varaždin
Botovo
Železnica
Bednja
Ludbreg
Koprivnica
Koprivnica
Klanjec
Začretje
Zlatar
Bračak
Krapina
Bisag
Rakovec
Kupljenovo
Lonjica
ZAGREB
Jesenice/D.
Bregana
Podsused
Božjakovina
Hamor
Rugvica
Zagreb
Obrež
Lomnica
D. Poljana
Odra
Mostari
Narta
Čazma
Glogovnica
Ivanićgrad
Dubrovčak
Grđevac
Česma
Terezino Polje
Drava
D. Miholjac
Belišće
Apatin
Bezdan
Bogojevo
Osijek
Bijelo Brdo
Vučica
Čačinci
Mikleuš
Voćinka
Lazina
Jamn. Kiselica
Farkašić
Rečica
Karlovac
Velemerić
Tušilović
Šišinec
Sisak
Galdovo
Lonja
Vukovje
Banova Jaruga
Kupa
Crnac
Gušće
Ilova
Pakra
Lipik
Subotska
Lipovljani
Sunja
Sunja
Glina
Vranovina
Glina
Jasenovac
Broćice
Cernik
Okučani
Dubica
Una
Kostajnica
Sava
Strug
St. Gradiška
Mačkovac
Pleternica
Orljava
Slav. Brod
Slav. Kobaš
Vrpolje
Bosut
Bid
Vukovar
Vuka
Slav. Šamac
Sava
Županja
Nijemci
Slunj
Korana
Bos. Novi
Sana
Prijedor
Srbac
Razboj
Vrbas
Ukrina
Derventa
Bosna
Modriča
Tolisa
Oštra Luka
Brčko
Vršani
Srem.
Brod
Brka
Kozjak
Kralje
Bihać
Bos. Krupa
Una
Gomjenica
Omarska
Delibašino Selo
Vrbanja
Banja Luka
Brestovo
Doboj
Stanić Rijeka
Sanski Most
Lukavac

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3045

POSTAJA: JESENICE POCETAK RADA 1948.
VODOTOK: SAVA KOTA "0" 132.63 mnm
P.S. 10750 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-180	160	57.192	2.500	1.777	.000
PAR	160	380	.000	305.910	212.550	.000
PAR	380	600	321.770	-2141.990	4868.370	.000

H	0	1	2	3	4	5	6	7	8	9
-180	30.3									
-170	38.5	37.6	36.8	35.9	35.1	34.3	33.5	32.7	31.9	31.1
-160	47.4	46.5	45.6	44.7	43.7	42.8	42.0	41.1	40.2	39.3
-150	57.2	56.2	55.2	54.2	53.2	52.2	51.2	50.3	49.3	48.4
-140	67.7	66.7	65.6	64.5	63.4	62.4	61.3	60.3	59.2	58.2
-130	79.1	77.9	76.7	75.6	74.5	73.3	72.2	71.1	70.0	68.8
-120	91.2	89.9	88.7	87.5	86.2	85.0	83.8	82.6	81.4	80.3
-110	104	103	101	100	98.8	97.5	96.2	94.9	93.7	92.4
-100	118	116	115	113	112	111	109	108	107	105
-90	132	130	129	127	126	125	123	122	120	119
-80	147	145	144	142	141	139	138	136	135	133
-70	163	161	159	158	156	155	153	151	150	148
-60	179	177	176	174	172	171	169	167	166	164
-50	196	194	193	191	189	187	186	184	182	181
-40	214	212	210	208	207	205	203	201	200	198
-30	232	230	228	227	225	223	221	219	217	216
-20	251	249	247	245	244	242	240	238	236	234
-10	271	269	267	265	263	261	259	257	255	253
0	291	289	287	285	283	281	279	277	275	273
0	291	293	296	298	300	302	304	306	308	310
10	312	315	317	319	321	323	325	328	330	332
20	334	336	339	341	343	345	347	350	352	354
30	356	359	361	363	365	368	370	372	375	377
40	379	382	384	386	389	391	393	396	398	401
50	403	405	408	410	412	415	417	420	422	425
60	427	430	432	434	437	439	442	444	447	449
70	452	454	457	459	462	464	467	470	472	475
80	477	480	482	485	488	490	493	495	498	501
90	503	506	509	511	514	516	519	522	524	527
100	530	533	535	538	541	543	546	549	552	554
110	557	560	563	565	568	571	574	576	579	582
120	585	588	590	593	596	599	602	605	607	610
130	613	616	619	622	625	628	631	633	636	639
140	642	645	648	651	654	657	660	663	666	669
150	672	675	678	681	684	687	690	693	696	699
160	702	705	708	711	714	717	720	723	726	730
170	733	736	739	742	745	748	751	754	757	760
180	763	766	769	772	775	778	782	785	788	791
190	794	797	800	803	806	809	812	815	818	821
200	824	827	830	834	837	840	843	846	849	852
210	855	858	861	864	867	870	873	876	879	882
220	886	889	892	895	898	901	904	907	910	913
230	916	919	922	925	928	931	934	938	941	944

H	0	1	2	3	4	5	6	7	8	9
240	947	950	953	956	959	962	965	968	971	974
250	977	980	983	987	990	993	996	999	1000	1000
260	1010	1010	1010	1020	1020	1020	1030	1030	1030	1040
270	1040	1040	1040	1050	1050	1050	1060	1060	1060	1070
280	1070	1070	1080	1080	1080	1080	1090	1090	1090	1100
290	1100	1100	1110	1110	1110	1110	1120	1120	1120	1130
300	1130	1130	1140	1140	1140	1150	1150	1150	1150	1160
310	1160	1160	1170	1170	1170	1180	1180	1180	1190	1190
320	1190	1190	1200	1200	1200	1210	1210	1210	1220	1220
330	1220	1230	1230	1230	1230	1240	1240	1240	1250	1250
340	1250	1260	1260	1260	1260	1270	1270	1270	1280	1280
350	1280	1290	1290	1290	1300	1300	1300	1300	1310	1310
360	1310	1320	1320	1320	1330	1330	1330	1340	1340	1340
370	1340	1350	1350	1350	1360	1360	1360	1370	1370	1370
380	1380	1380	1380	1380	1390	1390	1390	1400	1400	1410
390	1410	1410	1420	1420	1420	1430	1430	1440	1440	1440
400	1450	1450	1460	1460	1470	1470	1480	1480	1490	1490
410	1500	1500	1510	1510	1520	1520	1530	1530	1540	1540
420	1550	1550	1560	1570	1570	1580	1580	1590	1590	1600
430	1610	1610	1620	1630	1630	1640	1650	1650	1660	1670
440	1670	1680	1690	1690	1700	1710	1720	1720	1730	1740
450	1750	1750	1760	1770	1780	1780	1790	1800	1810	1820
460	1820	1830	1840	1850	1860	1870	1870	1880	1890	1900
470	1910	1920	1930	1940	1940	1950	1960	1970	1980	1990
480	2000	2010	2020	2030	2040	2050	2060	2070	2080	2090
490	2100	2110	2120	2130	2140	2150	2160	2170	2180	2190
500	2200	2210	2220	2240	2250	2260	2270	2280	2290	2300
510	2310	2320	2340	2350	2360	2370	2380	2390	2410	2420
520	2430	2440	2450	2470	2480	2490	2500	2520	2530	2540
530	2550	2570	2580	2590	2610	2620	2630	2640	2660	2670
540	2680	2700	2710	2720	2740	2750	2770	2780	2790	2810
550	2820	2830	2850	2860	2880	2890	2910	2920	2930	2950
560	2960	2980	2990	3010	3020	3040	3050	3070	3080	3100
570	3110	3130	3140	3160	3170	3190	3210	3220	3240	3250
580	3270	3290	3300	3320	3330	3350	3370	3380	3400	3410
590	3430	3450	3460	3480	3500	3510	3530	3550	3570	3580
600	3600									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3087

POSTAJA: PODSUSED ZICARA POCETAK RADA 1968.
VODOTOK: SAVA KOTA "0" 119.13 mnm
P.S. 12300 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-200	-20	109.890	2.310	1.685	30.000
PAR	-20	346	.000	274.945	471.689	.000
PAR	346	700	61.900	-34.320	800.500	.000

H	0	1	2	3	4	5	6	7	8	9
-200	45.3									
-190	54.5	53.5	52.5	51.5	50.6	49.6	48.7	47.8	47.0	46.1
-180	65.3	64.2	63.0	61.9	60.8	59.7	58.6	57.6	56.5	55.5
-170	77.8	76.5	75.2	73.9	72.6	71.4	70.1	68.9	67.7	66.5
-160	91.7	90.3	88.8	87.4	86.0	84.6	83.2	81.8	80.4	79.1
-150	107	105	104	102	101	99.2	97.7	96.2	94.7	93.2
-140	124	122	120	119	117	115	114	112	110	109
-130	142	140	138	136	134	133	131	129	127	125
-120	161	159	157	155	153	151	149	147	146	144
-110	182	179	177	175	173	171	169	167	165	163
-100	203	201	199	197	194	192	190	188	186	184
-90	226	224	221	219	217	214	212	210	208	205
-80	250	248	245	243	240	238	236	233	231	228
-70	275	273	270	268	265	262	260	257	255	253
-60	301	299	296	293	291	288	286	283	280	278
-50	329	326	323	320	318	315	312	309	307	304
-40	357	354	351	348	346	343	340	337	334	331
-30	386	383	380	377	374	372	369	366	363	360
-20	417	414	411	407	404	401	398	395	392	389
-10	444	441	439	436	433	430	428	425	422	419
0	472	469	466	463	461	458	455	452	450	447
0	472	474	477	480	483	485	488	491	494	496
10	499	502	505	507	510	513	516	518	521	524
20	527	529	532	535	538	540	543	546	549	551
30	554	557	560	562	565	568	571	573	576	579
40	582	584	587	590	593	595	598	601	604	606
50	609	612	615	617	620	623	626	628	631	634
60	637	639	642	645	648	650	653	656	659	661
70	664	667	670	672	675	678	681	683	686	689
80	692	694	697	700	703	705	708	711	714	716
90	719	722	725	727	730	733	736	738	741	744
100	747	749	752	755	758	760	763	766	769	771
110	774	777	780	782	785	788	791	793	796	799
120	802	804	807	810	813	815	818	821	824	826
130	829	832	835	837	840	843	846	848	851	854
140	857	859	862	865	868	870	873	876	879	881
150	884	887	890	892	895	898	901	903	906	909
160	912	914	917	920	923	925	928	931	934	936
170	939	942	945	947	950	953	956	958	961	964
180	967	969	972	975	978	980	983	986	989	991
190	994	997	1000	1000	1010	1010	1010	1010	1020	1020
200	1020	1020	1030	1030	1030	1040	1040	1040	1040	1050
210	1050	1050	1050	1060	1060	1060	1070	1070	1070	1070

H	0	1	2	3	4	5	6	7	8	9
220	1080	1080	1080	1080	1090	1090	1090	1100	1100	1100
230	1100	1110	1110	1110	1120	1120	1120	1120	1130	1130
240	1130	1130	1140	1140	1140	1150	1150	1150	1150	1160
250	1160	1160	1160	1170	1170	1170	1180	1180	1180	1180
260	1190	1190	1190	1190	1200	1200	1200	1210	1210	1210
270	1210	1220	1220	1220	1230	1230	1230	1230	1240	1240
280	1240	1240	1250	1250	1250	1260	1260	1260	1260	1270
290	1270	1270	1270	1280	1280	1280	1290	1290	1290	1290
300	1300	1300	1300	1300	1310	1310	1310	1320	1320	1320
310	1320	1330	1330	1330	1340	1340	1340	1340	1350	1350
320	1350	1350	1360	1360	1360	1370	1370	1370	1370	1380
330	1380	1380	1380	1390	1390	1390	1400	1400	1400	1400
340	1410	1410	1410	1410	1420	1420	1420	1430	1430	1430
350	1440	1440	1450	1450	1450	1460	1460	1470	1470	1480
360	1480	1480	1490	1490	1500	1500	1500	1510	1510	1520
370	1520	1530	1530	1530	1540	1540	1550	1550	1560	1560
380	1560	1570	1570	1580	1580	1590	1590	1590	1600	1600
390	1610	1610	1620	1620	1630	1630	1640	1640	1640	1650
400	1650	1660	1660	1670	1670	1680	1680	1690	1690	1700
410	1700	1710	1710	1710	1720	1720	1730	1730	1740	1740
420	1750	1750	1760	1760	1770	1770	1780	1780	1790	1790
430	1800	1800	1810	1810	1820	1820	1830	1830	1840	1840
440	1850	1850	1860	1860	1870	1870	1880	1880	1890	1890
450	1900	1900	1910	1920	1920	1930	1930	1940	1940	1950
460	1950	1960	1960	1970	1970	1980	1980	1990	2000	2000
470	2010	2010	2020	2020	2030	2030	2040	2050	2050	2060
480	2060	2070	2070	2080	2080	2090	2100	2100	2110	2110
490	2120	2120	2130	2140	2140	2150	2150	2160	2160	2170
500	2180	2180	2190	2190	2200	2210	2210	2220	2220	2230
510	2240	2240	2250	2250	2260	2270	2270	2280	2280	2290
520	2300	2300	2310	2310	2320	2330	2330	2340	2340	2350
530	2360	2360	2370	2380	2380	2390	2390	2400	2410	2410
540	2420	2430	2430	2440	2450	2450	2460	2460	2470	2480
550	2480	2490	2500	2500	2510	2520	2520	2530	2540	2540
560	2550	2560	2560	2570	2580	2580	2590	2600	2600	2610
570	2620	2620	2630	2640	2640	2650	2660	2660	2670	2680
580	2680	2690	2700	2700	2710	2720	2730	2730	2740	2750
590	2750	2760	2770	2770	2780	2790	2790	2800	2810	2820
600	2820	2830	2840	2840	2850	2860	2870	2870	2880	2890
610	2890	2900	2910	2920	2920	2930	2940	2950	2950	2960
620	2970	2970	2980	2990	3000	3000	3010	3020	3030	3030
630	3040	3050	3060	3060	3070	3080	3090	3090	3100	3110
640	3120	3120	3130	3140	3150	3150	3160	3170	3180	3180
650	3190	3200	3210	3220	3220	3230	3240	3250	3250	3260
660	3270	3280	3290	3290	3300	3310	3320	3330	3330	3340
670	3350	3360	3370	3370	3380	3390	3400	3410	3410	3420
680	3430	3440	3450	3450	3460	3470	3480	3490	3490	3500
690	3510	3520	3530	3540	3540	3550	3560	3570	3580	3590
700	3590									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3121

POSTAJA: ZAGREB POCETAK RADA 1849.
VODOTOK: SAVA KOTA "0" 112.26 mnm
P.S. 12450 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-354	-243	118.970	3.550	1.150	30.000
LOG	-243	150	170.510	3.400	1.174	.000
PAR	150	500	98.030	-26.170	921.690	.000

H	0	1	2	3	4	5	6	7	8	9
-350	33.8	32.9	32.1	31.3	30.6					
-340	43.4	42.4	41.4	40.4	39.4	38.4	37.5	36.5	35.6	34.7
-330	54.2	53.1	52.0	50.9	49.8	48.7	47.6	46.6	45.5	44.5
-320	65.6	64.4	63.2	62.1	60.9	59.8	58.7	57.5	56.4	55.3
-310	77.5	76.3	75.1	73.9	72.7	71.5	70.3	69.1	67.9	66.7
-300	89.8	88.6	87.3	86.1	84.8	83.6	82.4	81.2	79.9	78.7
-290	102	101	99.9	98.7	97.4	96.1	94.9	93.6	92.3	91.1
-280	115	114	113	112	110	109	108	106	105	104
-270	129	127	126	125	123	122	121	119	118	117
-260	142	141	139	138	137	135	134	133	131	130
-250	156	154	153	152	150	149	148	146	145	144
-240	171	169	167	165	164	163	161	160	159	157
-230	191	189	187	185	183	181	179	177	175	173
-220	211	209	207	205	203	201	199	197	195	193
-210	232	230	228	226	224	222	219	217	215	213
-200	253	251	249	247	245	243	240	238	236	234
-190	274	272	270	268	266	264	262	259	257	255
-180	296	294	292	290	287	285	283	281	279	277
-170	318	316	314	311	309	307	305	303	300	298
-160	340	338	336	333	331	329	327	325	322	320
-150	362	360	358	356	353	351	349	347	344	342
-140	385	382	380	378	376	373	371	369	367	364
-130	407	405	403	401	398	396	394	392	389	387
-120	430	428	426	423	421	419	417	414	412	410
-110	453	451	449	446	444	442	439	437	435	433
-100	477	474	472	470	467	465	463	460	458	456
-90	500	498	495	493	491	488	486	484	481	479
-80	524	521	519	516	514	512	509	507	505	502
-70	547	545	542	540	538	535	533	531	528	526
-60	571	569	566	564	562	559	557	554	552	550
-50	595	593	590	588	585	583	581	578	576	573
-40	619	617	614	612	610	607	605	602	600	598
-30	644	641	639	636	634	631	629	627	624	622
-20	668	666	663	661	658	656	653	651	648	646
-10	693	690	688	685	683	680	678	675	673	670
0	717	715	712	710	707	705	702	700	698	695
0	717	720	722	725	727	730	732	735	737	740
10	742	745	747	750	752	755	757	760	762	765
20	767	770	772	775	777	780	782	785	787	790
30	792	795	797	800	802	805	807	810	812	815
40	817	820	822	825	827	830	833	835	838	840
50	843	845	848	850	853	855	858	860	863	866
60	868	871	873	876	878	881	883	886	889	891

H	0	1	2	3	4	5	6	7	8	9
70	894	896	899	901	904	906	909	912	914	917
80	919	922	924	927	930	932	935	937	940	942
90	945	948	950	953	955	958	961	963	966	968
100	971	973	976	979	981	984	986	989	992	994
110	997	999	1000	1000	1010	1010	1010	1020	1020	1020
120	1020	1030	1030	1030	1030	1040	1040	1040	1040	1050
130	1050	1050	1050	1060	1060	1060	1060	1070	1070	1070
140	1080	1080	1080	1080	1090	1090	1090	1090	1100	1100
150	1100	1110	1110	1110	1110	1120	1120	1120	1130	1130
160	1130	1130	1140	1140	1140	1150	1150	1150	1150	1160
170	1160	1160	1170	1170	1170	1180	1180	1180	1190	1190
180	1190	1200	1200	1200	1210	1210	1210	1220	1220	1220
190	1230	1230	1230	1240	1240	1240	1250	1250	1250	1260
200	1260	1270	1270	1270	1280	1280	1280	1290	1290	1300
210	1300	1300	1310	1310	1310	1320	1320	1330	1330	1330
220	1340	1340	1350	1350	1350	1360	1360	1370	1370	1380
230	1380	1380	1390	1390	1400	1400	1410	1410	1410	1420
240	1420	1430	1430	1440	1440	1450	1450	1460	1460	1460
250	1470	1470	1480	1480	1490	1490	1500	1500	1510	1510
260	1520	1520	1530	1530	1540	1540	1550	1550	1560	1560
270	1570	1570	1580	1580	1590	1590	1600	1600	1610	1610
280	1620	1620	1630	1630	1640	1640	1650	1650	1660	1660
290	1670	1680	1680	1690	1690	1700	1700	1710	1710	1720
300	1730	1730	1740	1740	1750	1750	1760	1770	1770	1780
310	1780	1790	1790	1800	1810	1810	1820	1820	1830	1840
320	1840	1850	1850	1860	1870	1870	1880	1880	1890	1900
330	1900	1910	1920	1920	1930	1930	1940	1950	1950	1960
340	1970	1970	1980	1990	1990	2000	2000	2010	2020	2020
350	2030	2040	2040	2050	2060	2060	2070	2080	2080	2090
360	2100	2100	2110	2120	2130	2130	2140	2150	2150	2160
370	2170	2170	2180	2190	2200	2200	2210	2220	2220	2230
380	2240	2240	2250	2260	2270	2270	2280	2290	2300	2300
390	2310	2320	2330	2330	2340	2350	2360	2360	2370	2380
400	2390	2390	2400	2410	2420	2420	2430	2440	2450	2450
410	2460	2470	2480	2490	2490	2500	2510	2520	2530	2530
420	2540	2550	2560	2570	2570	2580	2590	2600	2610	2610
430	2620	2630	2640	2650	2650	2660	2670	2680	2690	2700
440	2700	2710	2720	2730	2740	2750	2750	2760	2770	2780
450	2790	2800	2810	2810	2820	2830	2840	2850	2860	2870
460	2880	2880	2890	2900	2910	2920	2930	2940	2950	2960
470	2960	2970	2980	2990	3000	3010	3020	3030	3040	3050
480	3050	3060	3070	3080	3090	3100	3110	3120	3130	3140
490	3150	3160	3170	3180	3180	3190	3200	3210	3220	3230
500	3240									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3096

POSTAJA: RUGVICA POCETAK RADA 1878.
VODOTOK: SAVA KOTA "0" 95.61 mnm
P.S. 12730 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-180	-125	97.110	1.900	2.650	40.000
LOG	-125	-11	85.200	1.570	1.797	60.000
PAR	-11	100	113.640	2.115	1.000	.000

H	0	1	2	3	4	5	6	7	8	9
-180	40.2									
-170	41.4	41.2	41.0	40.9	40.8	40.6	40.5	40.4	40.4	40.3
-160	44.0	43.7	43.3	43.0	42.7	42.5	42.2	42.0	41.8	41.6
-150	48.6	48.0	47.5	47.0	46.5	46.0	45.6	45.1	44.7	44.4
-140	55.5	54.7	53.9	53.1	52.4	51.7	51.0	50.4	49.7	49.1
-130	65.1	64.0	62.9	61.9	60.9	59.9	59.0	58.1	57.2	56.3
-120	74.3	73.6	72.9	72.3	71.6	71.0	69.8	68.5	67.4	66.2
-110	81.9	81.1	80.3	79.5	78.7	77.9	77.2	76.4	75.7	75.0
-100	91.0	90.1	89.1	88.2	87.2	86.3	85.4	84.5	83.6	82.8
-90	101	100	99.3	98.2	97.1	96.1	95.1	94.0	93.0	92.0
-80	113	112	111	110	108	107	106	105	104	103
-70	126	125	124	122	121	120	118	117	116	115
-60	141	139	138	136	135	133	132	131	129	128
-50	156	155	153	151	150	148	147	145	144	142
-40	173	171	170	168	166	164	163	161	159	158
-30	191	189	187	185	184	182	180	178	176	175
-20	210	208	206	204	202	200	198	197	195	193
-10	1.92	2.14	226	224	222	220	218	216	214	212
0	1.00	.990	1.00	1.04	1.10	1.18	1.28	1.41	1.56	1.73
0	1.00	1.03	1.09	1.17	1.27	1.39	1.54	1.70	1.90	2.11
10	2.35	2.61	2.89	3.20	3.52	3.87	4.25	4.64	5.06	5.50
20	5.97	6.46	6.97	7.50	8.05	8.63	9.23	9.86	10.5	11.2
30	11.9	12.6	13.3	14.1	14.9	15.7	16.5	17.3	18.2	19.1
40	20.0	21.0	21.9	22.9	23.9	25.0	26.0	27.1	28.2	29.3
50	30.5	31.6	32.8	34.0	35.3	36.5	37.8	39.1	40.5	41.8
60	43.2	44.6	46.0	47.4	48.9	50.4	51.9	53.4	55.0	56.6
70	58.2	59.8	61.4	63.1	64.8	66.5	68.2	70.0	71.8	73.6
80	75.4	77.3	79.1	81.0	83.0	84.9	86.9	88.9	90.9	92.9
90	95.0	97.0	99.1	101	103	106	108	110	112	114
100	117									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5008

POSTAJA: BOTOVO POCETAK RADA 1873.
VODOTOK: DRAVA KOTA "0" 121.55 mnm
P.S. 31038 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	99	18.065	.960	3.417	115.000
PAR	99	212	.000	290.090	5.010	.000
PAR	212	600	94.730	-130.800	471.810	.000

H	0	1	2	3	4	5	6	7	8	9
0	131	131	132	132	133	134	134	135	136	136
10	137	138	138	139	140	141	142	142	143	144
20	145	146	147	148	149	150	151	152	153	154
30	155	156	157	158	159	160	162	163	164	165
40	167	168	169	171	172	173	175	176	178	179
50	181	182	184	186	187	189	191	192	194	196
60	198	199	201	203	205	207	209	211	213	215
70	217	219	221	224	226	228	230	233	235	237
80	240	242	245	247	250	252	255	257	260	263
90	266	268	271	274	277	280	283	286	289	292
100	295	298	301	304	307	310	313	315	318	321
110	324	327	330	333	336	339	342	344	347	350
120	353	356	359	362	365	368	371	373	376	379
130	382	385	388	391	394	397	400	402	405	408
140	411	414	417	420	423	426	429	431	434	437
150	440	443	446	449	452	455	458	460	463	466
160	469	472	475	478	481	484	487	489	492	495
170	498	501	504	507	510	513	516	518	521	524
180	527	530	533	536	539	542	545	547	550	553
190	556	559	562	565	568	571	574	576	579	582
200	585	588	591	594	597	600	603	605	608	611
210	614	617	620	623	626	628	631	634	637	640
220	643	645	648	651	654	657	660	663	666	669
230	672	675	678	681	684	688	691	694	697	700
240	704	707	710	713	717	720	723	727	730	733
250	737	740	744	747	751	754	758	761	765	768
260	772	776	779	783	787	790	794	798	802	805
270	809	813	817	821	825	829	832	836	840	844
280	848	852	856	860	864	868	873	877	881	885
290	889	893	898	902	906	910	915	919	923	928
300	932	936	941	945	950	954	959	963	968	972
310	977	981	986	990	995	1000	1000	1010	1010	1020
320	1020	1030	1030	1040	1040	1050	1050	1060	1060	1070
330	1070	1080	1080	1090	1090	1100	1100	1110	1110	1120
340	1120	1130	1130	1140	1140	1150	1150	1160	1160	1170
350	1170	1180	1190	1190	1200	1200	1210	1210	1220	1220
360	1230	1230	1240	1250	1250	1260	1260	1270	1270	1280
370	1280	1290	1300	1300	1310	1310	1320	1330	1330	1340
380	1340	1350	1350	1360	1370	1370	1380	1380	1390	1400
390	1400	1410	1410	1420	1430	1430	1440	1450	1450	1460
400	1460	1470	1480	1480	1490	1500	1500	1510	1520	1520
410	1530	1530	1540	1550	1550	1560	1570	1570	1580	1590
420	1590	1600	1610	1610	1620	1630	1630	1640	1650	1650

H	0	1	2	3	4	5	6	7	8	9
430	1660	1670	1670	1680	1690	1700	1700	1710	1720	1720
440	1730	1740	1740	1750	1760	1770	1770	1780	1790	1790
450	1800	1810	1820	1820	1830	1840	1850	1850	1860	1870
460	1870	1880	1890	1900	1900	1910	1920	1930	1930	1940
470	1950	1960	1960	1970	1980	1990	2000	2000	2010	2020
480	2030	2030	2040	2050	2060	2070	2070	2080	2090	2100
490	2110	2110	2120	2130	2140	2150	2150	2160	2170	2180
500	2190	2190	2200	2210	2220	2230	2240	2240	2250	2260
510	2270	2280	2290	2290	2300	2310	2320	2330	2340	2340
520	2350	2360	2370	2380	2390	2400	2400	2410	2420	2430
530	2440	2450	2460	2470	2470	2480	2490	2500	2510	2520
540	2530	2540	2550	2550	2560	2570	2580	2590	2600	2610
550	2620	2630	2640	2650	2650	2660	2670	2680	2690	2700
560	2710	2720	2730	2740	2750	2760	2770	2780	2790	2790
570	2800	2810	2820	2830	2840	2850	2860	2870	2880	2890
580	2900	2910	2920	2930	2940	2950	2960	2970	2980	2990
590	3000	3010	3020	3030	3040	3050	3060	3070	3080	3090
600	3100									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5063

POSTAJA: TEREZINO POLJE POCETAK RADA 1872.
VODOTOK: DRAVA KOTA "0" 100.67 mnm
P.S. 33916 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-320	-230	184.710	3.400	1.144	140.000
PAR	-230	-140	.000	194.545	793.454	.000
PAR	-140	500	73.891	387.698	919.040	.000

H	0	1	2	3	4	5	6	7	8	9
-320	169									
-310	187	185	183	181	180	178	176	174	173	171
-300	205	203	201	199	197	196	194	192	190	188
-290	224	222	220	218	216	214	212	210	208	207
-280	243	241	239	237	235	233	231	229	227	225
-270	263	261	259	257	255	253	251	249	247	245
-260	283	281	279	277	275	273	271	269	267	265
-250	304	302	300	298	295	293	291	289	287	285
-240	325	323	320	318	316	314	312	310	308	306
-230	346	344	342	340	337	335	333	331	329	327
-220	365	364	362	360	358	356	354	352	350	348
-210	385	383	381	379	377	375	373	371	369	367
-200	404	402	400	399	397	395	393	391	389	387
-190	424	422	420	418	416	414	412	410	408	406
-180	443	441	439	437	435	434	432	430	428	426
-170	463	461	459	457	455	453	451	449	447	445
-160	482	480	478	476	474	472	471	469	467	465
-150	502	500	498	496	494	492	490	488	486	484
-140	521	519	517	515	513	511	509	507	506	504
-130	540	538	536	534	532	530	528	527	525	523
-120	560	558	556	554	552	550	548	546	544	542
-110	582	580	578	575	573	571	569	567	564	562
-100	605	603	600	598	596	593	591	589	587	584
-90	630	627	625	622	620	617	615	612	610	608
-80	656	653	651	648	646	643	640	638	635	633
-70	684	681	678	675	673	670	667	664	662	659
-60	713	710	707	704	701	698	695	692	690	687
-50	744	741	737	734	731	728	725	722	719	716
-40	776	773	769	766	763	760	756	753	750	747
-30	809	806	803	799	796	792	789	786	782	779
-20	844	841	837	834	830	827	823	820	816	813
-10	881	877	874	870	866	863	859	855	852	848
0	919	915	911	907	904	900	896	892	888	885
0	919	923	927	931	935	939	943	947	951	955
10	959	963	967	971	975	979	983	987	991	995
20	1000	1000	1010	1010	1020	1020	1020	1030	1030	1040
30	1040	1050	1050	1060	1060	1060	1070	1070	1080	1080
40	1090	1090	1090	1100	1100	1110	1110	1120	1120	1130
50	1130	1140	1140	1150	1150	1150	1160	1160	1170	1170
60	1180	1180	1190	1190	1200	1200	1210	1210	1220	1220
70	1230	1230	1240	1240	1250	1250	1260	1260	1270	1270
80	1280	1280	1290	1290	1300	1300	1310	1310	1320	1320
90	1330	1330	1340	1340	1350	1350	1360	1360	1370	1380

H	0	1	2	3	4	5	6	7	8	9
100	1380	1390	1390	1400	1400	1410	1410	1420	1420	1430
110	1430	1440	1450	1450	1460	1460	1470	1470	1480	1490
120	1490	1500	1500	1510	1510	1520	1520	1530	1540	1540
130	1550	1550	1560	1570	1570	1580	1580	1590	1590	1600
140	1610	1610	1620	1620	1630	1640	1640	1650	1650	1660
150	1670	1670	1680	1690	1690	1700	1700	1710	1720	1720
160	1730	1730	1740	1750	1750	1760	1770	1770	1780	1790
170	1790	1800	1800	1810	1820	1820	1830	1840	1840	1850
180	1860	1860	1870	1880	1880	1890	1900	1900	1910	1920
190	1920	1930	1940	1940	1950	1960	1960	1970	1980	1980
200	1990	2000	2000	2010	2020	2020	2030	2040	2050	2050
210	2060	2070	2070	2080	2090	2090	2100	2110	2120	2120
220	2130	2140	2140	2150	2160	2170	2170	2180	2190	2190
230	2200	2210	2220	2220	2230	2240	2250	2250	2260	2270
240	2280	2280	2290	2300	2300	2310	2320	2330	2330	2340
250	2350	2360	2370	2370	2380	2390	2400	2400	2410	2420
260	2430	2430	2440	2450	2460	2470	2470	2480	2490	2500
270	2500	2510	2520	2530	2540	2540	2550	2560	2570	2580
280	2580	2590	2600	2610	2620	2620	2630	2640	2650	2660
290	2660	2670	2680	2690	2700	2710	2710	2720	2730	2740
300	2750	2760	2760	2770	2780	2790	2800	2810	2810	2820
310	2830	2840	2850	2860	2860	2870	2880	2890	2900	2910
320	2920	2920	2930	2940	2950	2960	2970	2980	2990	2990
330	3000	3010	3020	3030	3040	3050	3060	3060	3070	3080
340	3090	3100	3110	3120	3130	3140	3150	3150	3160	3170
350	3180	3190	3200	3210	3220	3230	3240	3240	3250	3260
360	3270	3280	3290	3300	3310	3320	3330	3340	3350	3360
370	3370	3370	3380	3390	3400	3410	3420	3430	3440	3450
380	3460	3470	3480	3490	3500	3510	3520	3530	3540	3550
390	3550	3560	3570	3580	3590	3600	3610	3620	3630	3640
400	3650	3660	3670	3680	3690	3700	3710	3720	3730	3740
410	3750	3760	3770	3780	3790	3800	3810	3820	3830	3840
420	3850	3860	3870	3880	3890	3900	3910	3920	3930	3940
430	3950	3960	3970	3980	3990	4000	4010	4020	4030	4050
440	4060	4070	4080	4090	4100	4110	4120	4130	4140	4150
450	4160	4170	4180	4190	4200	4210	4220	4230	4240	4260
460	4270	4280	4290	4300	4310	4320	4330	4340	4350	4360
470	4370	4380	4400	4410	4420	4430	4440	4450	4460	4470
480	4480	4490	4500	4520	4530	4540	4550	4560	4570	4580
490	4590	4600	4620	4630	4640	4650	4660	4670	4680	4690
500	4700									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5150

POSTAJA: DONJI MIHOLJAC C.S. POCETAK RADA 1988.
VODOTOK: DRAVA KOTA "0" 88.57 mnm
P.S. 37142 km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-100	0	14.794	4.000	2.364	.000
PAR	0	160	.000	212.000	392.000	.000
PAR	160	500	74.647	-26.870	581.897	.000

H	0	1	2	3	4	5	6	7	8	9
-100	199									
-90	215	213	211	210	208	207	205	203	202	200
-80	231	230	228	226	225	223	221	220	218	216
-70	249	247	245	243	242	240	238	237	235	233
-60	267	265	263	261	260	258	256	254	252	251
-50	286	284	282	280	278	276	274	273	271	269
-40	306	304	302	300	298	296	294	292	290	288
-30	326	324	322	320	318	316	314	312	310	308
-20	347	345	343	341	339	337	334	332	330	328
-10	369	367	365	363	360	358	356	354	352	349
0	392	390	387	385	383	381	378	376	374	372
0	392	394	396	398	400	403	405	407	409	411
10	413	415	417	420	422	424	426	428	430	432
20	434	437	439	441	443	445	447	449	451	453
30	456	458	460	462	464	466	468	470	473	475
40	477	479	481	483	485	487	490	492	494	496
50	498	500	502	504	506	509	511	513	515	517
60	519	521	523	526	528	530	532	534	536	538
70	540	543	545	547	549	551	553	555	557	559
80	562	564	566	568	570	572	574	576	579	581
90	583	585	587	589	591	593	596	598	600	602
100	604	606	608	610	612	615	617	619	621	623
110	625	627	629	632	634	636	638	640	642	644
120	646	649	651	653	655	657	659	661	663	665
130	668	670	672	674	676	678	680	682	685	687
140	689	691	693	695	697	699	702	704	706	708
150	710	712	714	716	718	721	723	725	727	729
160	730	732	734	736	739	741	743	745	747	750
170	752	754	757	759	761	763	766	768	771	773
180	775	778	780	783	785	788	790	793	795	798
190	800	803	805	808	811	813	816	819	821	824
200	827	829	832	835	838	841	843	846	849	852
210	855	858	860	863	866	869	872	875	878	881
220	884	887	890	893	896	899	902	906	909	912
230	915	918	921	925	928	931	934	937	941	944
240	947	951	954	957	961	964	968	971	974	978
250	981	985	988	992	995	999	1000	1010	1010	1010
260	1020	1020	1020	1030	1030	1030	1040	1040	1050	1050
270	1050	1060	1060	1060	1070	1070	1080	1080	1080	1090
280	1090	1100	1100	1100	1110	1110	1120	1120	1120	1130
290	1130	1140	1140	1140	1150	1150	1160	1160	1160	1170
300	1170	1180	1180	1190	1190	1190	1200	1200	1210	1210
310	1220	1220	1220	1230	1230	1240	1240	1250	1250	1260

H	0	1	2	3	4	5	6	7	8	9
320	1260	1260	1270	1270	1280	1280	1290	1290	1300	1300
330	1310	1310	1320	1320	1320	1330	1330	1340	1340	1350
340	1350	1360	1360	1370	1370	1380	1380	1390	1390	1400
350	1400	1410	1410	1420	1420	1430	1430	1440	1440	1450
360	1450	1460	1460	1470	1470	1480	1480	1490	1490	1500
370	1500	1510	1510	1520	1530	1530	1540	1540	1550	1550
380	1560	1560	1570	1570	1580	1580	1590	1600	1600	1610
390	1610	1620	1620	1630	1630	1640	1650	1650	1660	1660
400	1670	1670	1680	1690	1690	1700	1700	1710	1710	1720
410	1730	1730	1740	1740	1750	1760	1760	1770	1770	1780
420	1790	1790	1800	1800	1810	1820	1820	1830	1830	1840
430	1850	1850	1860	1870	1870	1880	1880	1890	1900	1900
440	1910	1920	1920	1930	1930	1940	1950	1950	1960	1970
450	1970	1980	1990	1990	2000	2010	2010	2020	2020	2030
460	2040	2040	2050	2060	2060	2070	2080	2080	2090	2100
470	2100	2110	2120	2120	2130	2140	2150	2150	2160	2170
480	2170	2180	2190	2190	2200	2210	2210	2220	2230	2240
490	2240	2250	2260	2260	2270	2280	2290	2290	2300	2310
500	2310									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5098

POSTAJA: NOVO VIRJE - SKELA POCETAK RADA 1976.
VODOTOK: DRAVA KOTA "0" 108.86 mnm
P.S. km2

KRIVULJA PROTOKA ZA GODINU 1994.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-40	64	97.964	.750	1.979	120.000
PAR	64	180	44.580	168.380	182.110	.000
PAR	180	500	135.660	-159.500	477.560	.000

H	0	1	2	3	4	5	6	7	8	9
-40	132									
-30	140	139	138	138	137	136	135	134	134	133
-20	150	149	148	147	146	145	144	143	142	141
-10	162	161	159	158	157	156	154	153	152	151
0	175	174	173	171	170	168	167	166	164	163
0	175	177	178	180	181	183	185	186	188	189
10	191	193	194	196	198	200	201	203	205	207
20	209	210	212	214	216	218	220	222	224	226
30	228	230	232	234	236	238	240	243	245	247
40	249	251	254	256	258	261	263	265	268	270
50	272	275	277	280	282	285	287	290	292	295
60	297	300	303	305	308	310	313	315	317	320
70	322	324	326	329	331	333	336	338	341	343
80	345	348	350	353	355	357	360	362	365	367
90	370	372	375	377	380	382	385	387	390	392
100	395	398	400	403	405	408	411	413	416	419
110	421	424	427	429	432	435	437	440	443	446
120	448	451	454	457	459	462	465	468	471	474
130	476	479	482	485	488	491	494	496	499	502
140	505	508	511	514	517	520	523	526	529	532
150	535	538	541	544	547	550	553	556	559	563
160	566	569	572	575	578	581	584	588	591	594
170	597	600	604	607	610	613	617	620	623	626
180	630	633	637	640	643	647	650	654	657	661
190	664	668	671	675	679	682	686	690	694	697
200	701	705	709	713	717	721	725	729	733	737
210	741	745	749	753	757	762	766	770	775	779
220	783	788	792	796	801	805	810	815	819	824
230	828	833	838	842	847	852	857	862	866	871
240	876	881	886	891	896	901	906	911	916	922
250	927	932	937	942	948	953	958	964	969	974
260	980	985	991	996	1000	1010	1010	1020	1020	1030
270	1040	1040	1050	1050	1060	1060	1070	1080	1080	1090
280	1090	1100	1110	1110	1120	1120	1130	1140	1140	1150
290	1160	1160	1170	1170	1180	1190	1190	1200	1210	1210
300	1220	1230	1230	1240	1250	1250	1260	1270	1270	1280
310	1290	1290	1300	1310	1310	1320	1330	1340	1340	1350
320	1360	1360	1370	1380	1380	1390	1400	1410	1410	1420
330	1430	1440	1440	1450	1460	1470	1470	1480	1490	1500
340	1500	1510	1520	1530	1530	1540	1550	1560	1570	1570
350	1580	1590	1600	1600	1610	1620	1630	1640	1650	1650
360	1660	1670	1680	1690	1690	1700	1710	1720	1730	1740
370	1740	1750	1760	1770	1780	1790	1800	1800	1810	1820

H	0	1	2	3	4	5	6	7	8	9
380	1830	1840	1850	1860	1870	1870	1880	1890	1900	1910
390	1920	1930	1940	1950	1960	1960	1970	1980	1990	2000
400	2010	2020	2030	2040	2050	2060	2070	2080	2090	2090
410	2100	2110	2120	2130	2140	2150	2160	2170	2180	2190
420	2200	2210	2220	2230	2240	2250	2260	2270	2280	2290
430	2300	2310	2320	2330	2340	2350	2360	2370	2380	2390
440	2400	2410	2420	2430	2440	2450	2460	2480	2490	2500
450	2510	2520	2530	2540	2550	2560	2570	2580	2590	2600
460	2610	2630	2640	2650	2660	2670	2680	2690	2700	2710
470	2720	2740	2750	2760	2770	2780	2790	2800	2810	2830
480	2840	2850	2860	2870	2880	2900	2910	2920	2930	2940
490	2950	2960	2980	2990	3000	3010	3020	3040	3050	3060
500	3070									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3045

POSTAJA: JESENICE POCETAK RADA 1948.
VODOTOK: SAVA KOTA "0" 132.63 mnm
P.S. 10750 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-180	160	37.404	2.800	1.926	.000
PAR	160	330	.000	282.661	196.396	.000
PAR	330	600	266.350	-1576.800	3431.800	.000

H	0	1	2	3	4	5	6	7	8	9
-180	37.4									
-170	44.9	44.2	43.4	42.6	41.8	41.1	40.3	39.6	38.9	38.1
-160	53.1	52.3	51.4	50.6	49.8	49.0	48.1	47.3	46.5	45.7
-150	62.0	61.1	60.2	59.3	58.4	57.5	56.6	55.7	54.9	54.0
-140	71.5	70.5	69.6	68.6	67.6	66.7	65.7	64.8	63.8	62.9
-130	81.7	80.6	79.6	78.6	77.5	76.5	75.5	74.5	73.5	72.5
-120	92.5	91.4	90.3	89.2	88.1	87.0	85.9	84.8	83.8	82.7
-110	104	103	102	100	99.3	98.1	97.0	95.9	94.7	93.6
-100	116	115	114	112	111	110	109	107	106	105
-90	129	127	126	125	124	122	121	120	119	117
-80	142	141	139	138	137	135	134	133	131	130
-70	156	155	153	152	150	149	148	146	145	144
-60	171	169	168	166	165	163	162	160	159	158
-50	186	184	183	181	180	178	177	175	174	172
-40	202	200	199	197	196	194	192	191	189	188
-30	218	217	215	213	212	210	208	207	205	204
-20	236	234	232	230	229	227	225	224	222	220
-10	253	252	250	248	246	244	243	241	239	237
0	272	270	268	266	264	262	261	259	257	255
0	272	274	275	277	279	281	283	285	287	289
10	291	293	295	297	299	300	302	304	306	308
20	310	312	314	316	318	320	322	324	326	329
30	331	333	335	337	339	341	343	345	347	349
40	351	354	356	358	360	362	364	366	369	371
50	373	375	377	379	382	384	386	388	390	393
60	395	397	399	402	404	406	408	411	413	415
70	418	420	422	425	427	429	432	434	436	439
80	441	443	446	448	450	453	455	458	460	462
90	465	467	470	472	475	477	479	482	484	487
100	489	492	494	497	499	502	504	507	509	512
110	514	517	520	522	525	527	530	532	535	538
120	540	543	545	548	551	553	556	558	561	564
130	566	569	572	574	577	580	582	585	588	591
140	593	596	599	602	604	607	610	613	615	618
150	621	624	626	629	632	635	638	640	643	646
160	649	651	654	657	660	663	666	668	671	674
170	677	680	683	685	688	691	694	697	700	702
180	705	708	711	714	716	719	722	725	728	731
190	733	736	739	742	745	748	750	753	756	759
200	762	765	767	770	773	776	779	782	784	787
210	790	793	796	798	801	804	807	810	813	815
220	818	821	824	827	830	832	835	838	841	844
230	847	849	852	855	858	861	863	866	869	872

H	0	1	2	3	4	5	6	7	8	9
240	875	878	880	883	886	889	892	895	897	900
250	903	906	909	912	914	917	920	923	926	928
260	931	934	937	940	943	945	948	951	954	957
270	960	962	965	968	971	974	977	979	982	985
280	988	991	994	996	999	1000	1000	1010	1010	1010
290	1020	1020	1020	1020	1030	1030	1030	1040	1040	1040
300	1040	1050	1050	1050	1060	1060	1060	1060	1070	1070
310	1070	1080	1080	1080	1080	1090	1090	1090	1100	1100
320	1100	1100	1110	1110	1110	1120	1120	1120	1120	1130
330	1130	1130	1130	1130	1140	1140	1140	1140	1150	1150
340	1150	1150	1150	1160	1160	1160	1160	1170	1170	1170
350	1180	1180	1180	1180	1190	1190	1190	1200	1200	1200
360	1210	1210	1210	1220	1220	1220	1230	1230	1240	1240
370	1240	1250	1250	1260	1260	1260	1270	1270	1280	1280
380	1290	1290	1300	1300	1300	1310	1310	1320	1320	1330
390	1330	1340	1340	1350	1350	1360	1360	1370	1380	1380
400	1390	1390	1400	1400	1410	1410	1420	1430	1430	1440
410	1440	1450	1460	1460	1470	1480	1480	1490	1490	1500
420	1510	1510	1520	1530	1530	1540	1550	1560	1560	1570
430	1580	1580	1590	1600	1610	1610	1620	1630	1640	1640
440	1650	1660	1670	1670	1680	1690	1700	1710	1710	1720
450	1730	1740	1750	1750	1760	1770	1780	1790	1800	1810
460	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
470	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
480	2000	2010	2020	2030	2040	2050	2060	2070	2080	2090
490	2100	2110	2120	2130	2140	2150	2160	2170	2180	2200
500	2210	2220	2230	2240	2250	2260	2270	2280	2300	2310
510	2320	2330	2340	2350	2360	2380	2390	2400	2410	2420
520	2430	2450	2460	2470	2480	2490	2510	2520	2530	2540
530	2560	2570	2580	2590	2610	2620	2630	2650	2660	2670
540	2680	2700	2710	2720	2740	2750	2760	2780	2790	2800
550	2820	2830	2840	2860	2870	2880	2900	2910	2930	2940
560	2950	2970	2980	3000	3010	3030	3040	3050	3070	3080
570	3100	3110	3130	3140	3160	3170	3190	3200	3220	3230
580	3250	3260	3280	3290	3310	3320	3340	3350	3370	3380
590	3400	3420	3430	3450	3460	3480	3500	3510	3530	3540
600	3560									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3087

POSTAJA: PODSUSED ZICARA POCETAK RADA 1968.
VODOTOK: SAVA KOTA "0" 119.13 mnm
P.S. 12300 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-230	50	107.050	2.400	1.545	30.000
PAR	50	346	.000	279.530	444.260	.000
PAR	346	700	61.405	-34.045	794.096	.000

H	0	1	2	3	4	5	6	7	8	9
-230	33.1									
-220	38.9	38.2	37.6	36.9	36.3	35.7	35.1	34.6	34.0	33.5
-210	46.7	45.8	45.0	44.2	43.4	42.6	41.8	41.1	40.3	39.6
-200	56.0	55.0	54.0	53.0	52.1	51.1	50.2	49.3	48.4	47.5
-190	66.7	65.6	64.4	63.3	62.3	61.2	60.1	59.1	58.0	57.0
-180	78.6	77.4	76.1	74.9	73.7	72.5	71.3	70.1	69.0	67.8
-170	91.7	90.3	89.0	87.7	86.3	85.0	83.7	82.4	81.1	79.9
-160	106	104	103	101	100	98.6	97.2	95.8	94.4	93.1
-150	121	119	118	116	115	113	112	110	109	107
-140	137	135	134	132	131	129	127	126	124	123
-130	154	152	151	149	147	145	144	142	140	139
-120	172	170	168	166	165	163	161	159	158	156
-110	191	189	187	185	183	181	179	177	176	174
-100	210	208	206	204	202	200	198	196	194	192
-90	230	228	226	224	222	220	218	216	214	212
-80	251	249	247	245	243	241	239	237	234	232
-70	273	271	269	266	264	262	260	258	256	253
-60	295	293	291	289	286	284	282	280	277	275
-50	319	316	314	312	309	307	305	302	300	298
-40	342	340	338	335	333	330	328	326	323	321
-30	367	364	362	359	357	355	352	350	347	345
-20	392	389	387	384	382	379	377	374	372	369
-10	418	415	412	410	407	405	402	400	397	394
0	444	441	439	436	433	431	428	426	423	420
0	444	447	449	452	455	457	460	463	466	468
10	471	474	476	479	482	485	487	490	493	496
20	499	501	504	507	510	513	515	518	521	524
30	527	529	532	535	538	541	544	547	550	552
40	555	558	561	564	567	570	573	576	579	582
50	584	587	590	592	595	598	601	604	606	609
60	612	615	618	620	623	626	629	632	634	637
70	640	643	646	648	651	654	657	659	662	665
80	668	671	673	676	679	682	685	687	690	693
90	696	699	701	704	707	710	713	715	718	721
100	724	727	729	732	735	738	741	743	746	749
110	752	755	757	760	763	766	769	771	774	777
120	780	782	785	788	791	794	796	799	802	805
130	808	810	813	816	819	822	824	827	830	833
140	836	838	841	844	847	850	852	855	858	861
150	864	866	869	872	875	878	880	883	886	889
160	892	894	897	900	903	905	908	911	914	917
170	919	922	925	928	931	933	936	939	942	945
180	947	950	953	956	959	961	964	967	970	973

H	0	1	2	3	4	5	6	7	8	9
190	975	978	981	984	987	989	992	995	998	1000
200	1000	1010	1010	1010	1010	1020	1020	1020	1030	1030
210	1030	1030	1040	1040	1040	1050	1050	1050	1050	1060
220	1060	1060	1060	1070	1070	1070	1080	1080	1080	1080
230	1090	1090	1090	1100	1100	1100	1100	1110	1110	1110
240	1120	1120	1120	1120	1130	1130	1130	1130	1140	1140
250	1140	1150	1150	1150	1150	1160	1160	1160	1170	1170
260	1170	1170	1180	1180	1180	1190	1190	1190	1190	1200
270	1200	1200	1200	1210	1210	1210	1220	1220	1220	1220
280	1230	1230	1230	1240	1240	1240	1240	1250	1250	1250
290	1250	1260	1260	1260	1270	1270	1270	1270	1280	1280
300	1280	1290	1290	1290	1290	1300	1300	1300	1310	1310
310	1310	1310	1320	1320	1320	1320	1330	1330	1330	1340
320	1340	1340	1340	1350	1350	1350	1360	1360	1360	1360
330	1370	1370	1370	1380	1380	1380	1380	1390	1390	1390
340	1390	1400	1400	1400	1410	1410	1410	1420	1420	1420
350	1430	1430	1440	1440	1440	1450	1450	1460	1460	1460
360	1470	1470	1480	1480	1480	1490	1490	1500	1500	1500
370	1510	1510	1520	1520	1530	1530	1530	1540	1540	1550
380	1550	1560	1560	1560	1570	1570	1580	1580	1590	1590
390	1600	1600	1600	1610	1610	1620	1620	1630	1630	1640
400	1640	1640	1650	1650	1660	1660	1670	1670	1680	1680
410	1690	1690	1700	1700	1710	1710	1720	1720	1720	1730
420	1730	1740	1740	1750	1750	1760	1760	1770	1770	1780
430	1780	1790	1790	1800	1800	1810	1810	1820	1820	1830
440	1830	1840	1840	1850	1850	1860	1860	1870	1870	1880
450	1880	1890	1890	1900	1910	1910	1920	1920	1930	1930
460	1940	1940	1950	1950	1960	1960	1970	1970	1980	1990
470	1990	2000	2000	2010	2010	2020	2020	2030	2030	2040
480	2050	2050	2060	2060	2070	2070	2080	2080	2090	2100
490	2100	2110	2110	2120	2120	2130	2140	2140	2150	2150
500	2160	2160	2170	2180	2180	2190	2190	2200	2210	2210
510	2220	2220	2230	2240	2240	2250	2250	2260	2270	2270
520	2280	2280	2290	2300	2300	2310	2310	2320	2330	2330
530	2340	2340	2350	2360	2360	2370	2380	2380	2390	2390
540	2400	2410	2410	2420	2430	2430	2440	2450	2450	2460
550	2460	2470	2480	2480	2490	2500	2500	2510	2520	2520
560	2530	2540	2540	2550	2560	2560	2570	2580	2580	2590
570	2600	2600	2610	2620	2620	2630	2640	2640	2650	2660
580	2660	2670	2680	2680	2690	2700	2700	2710	2720	2720
590	2730	2740	2740	2750	2760	2770	2770	2780	2790	2790
600	2800	2810	2810	2820	2830	2840	2840	2850	2860	2860
610	2870	2880	2890	2890	2900	2910	2910	2920	2930	2940
620	2940	2950	2960	2970	2970	2980	2990	2990	3000	3010
630	3020	3020	3030	3040	3050	3050	3060	3070	3080	3080
640	3090	3100	3110	3110	3120	3130	3140	3140	3150	3160
650	3170	3170	3180	3190	3200	3210	3210	3220	3230	3240
660	3240	3250	3260	3270	3280	3280	3290	3300	3310	3310
670	3320	3330	3340	3350	3350	3360	3370	3380	3390	3390
680	3400	3410	3420	3430	3430	3440	3450	3460	3470	3470
690	3480	3490	3500	3510	3520	3520	3530	3540	3550	3560
700	3560									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3121

POSTAJA: ZAGREB POCETAK RADA 1849.
VODOTOK: SAVA KOTA "0" 112.26 mnm
P.S. 12450 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-350	-240	102.930	3.550	1.133	30.000
PAR	-240	80	.000	183.586	591.196	.000
PAR	80	500	136.390	-71.932	708.320	.000

H	0	1	2	3	4	5	6	7	8	9
-350	33.5									
-340	42.0	41.1	40.2	39.3	38.4	37.6	36.7	35.9	35.1	34.2
-330	51.4	50.4	49.5	48.5	47.6	46.6	45.7	44.8	43.8	42.9
-320	61.3	60.3	59.3	58.3	57.3	56.3	55.3	54.3	53.4	52.4
-310	71.7	70.6	69.6	68.5	67.5	66.4	65.4	64.4	63.4	62.3
-300	82.3	81.2	80.1	79.1	78.0	76.9	75.9	74.8	73.8	72.7
-290	93.2	92.1	91.0	89.9	88.8	87.7	86.6	85.5	84.4	83.4
-280	104	103	102	101	99.8	98.7	97.6	96.5	95.4	94.3
-270	116	114	113	112	111	110	109	108	107	105
-260	127	126	125	124	122	121	120	119	118	117
-250	139	138	136	135	134	133	132	131	129	128
-240	151	149	148	147	146	145	143	142	141	140
-230	169	167	165	163	162	160	158	156	154	152
-220	187	185	184	182	180	178	176	174	173	171
-210	206	204	202	200	198	196	195	193	191	189
-200	224	222	220	219	217	215	213	211	209	208
-190	242	241	239	237	235	233	231	230	228	226
-180	261	259	257	255	253	252	250	248	246	244
-170	279	277	275	274	272	270	268	266	264	263
-160	297	296	294	292	290	288	286	285	283	281
-150	316	314	312	310	308	307	305	303	301	299
-140	334	332	331	329	327	325	323	321	319	318
-130	353	351	349	347	345	343	342	340	338	336
-120	371	369	367	365	364	362	360	358	356	354
-110	389	387	386	384	382	380	378	376	375	373
-100	408	406	404	402	400	398	397	395	393	391
-90	426	424	422	420	419	417	415	413	411	409
-80	444	442	441	439	437	435	433	431	430	428
-70	463	461	459	457	455	454	452	450	448	446
-60	481	479	477	476	474	472	470	468	466	465
-50	499	498	496	494	492	490	488	487	485	483
-40	518	516	514	512	510	509	507	505	503	501
-30	536	534	532	531	529	527	525	523	521	520
-20	554	553	551	549	547	545	543	542	540	538
-10	573	571	569	567	565	564	562	560	558	556
0	591	589	588	586	584	582	580	578	577	575
0	591	593	595	597	599	600	602	604	606	608
10	610	611	613	615	617	619	621	622	624	626
20	628	630	632	633	635	637	639	641	643	644
30	646	648	650	652	654	655	657	659	661	663
40	665	666	668	670	672	674	676	677	679	681
50	683	685	687	688	690	692	694	696	698	700
60	701	703	705	707	709	711	712	714	716	718

H	0	1	2	3	4	5	6	7	8	9
70	720	722	723	725	727	729	731	733	734	736
80	738	740	741	743	744	746	747	749	751	752
90	754	756	758	759	761	763	765	767	769	771
100	773	775	777	779	781	783	785	788	790	792
110	794	797	799	801	804	806	808	811	813	816
120	818	821	824	826	829	832	834	837	840	842
130	845	848	851	854	857	860	863	866	869	872
140	875	878	881	884	888	891	894	897	901	904
150	907	911	914	918	921	925	928	932	935	939
160	942	946	950	953	957	961	965	969	972	976
170	980	984	988	992	996	1000	1000	1010	1010	1020
180	1020	1020	1030	1030	1040	1040	1050	1050	1060	1060
190	1060	1070	1070	1080	1080	1090	1090	1100	1100	1110
200	1110	1110	1120	1120	1130	1130	1140	1140	1150	1150
210	1160	1160	1170	1170	1180	1180	1190	1190	1200	1200
220	1210	1220	1220	1230	1230	1240	1240	1250	1250	1260
230	1260	1270	1280	1280	1290	1290	1300	1300	1310	1320
240	1320	1330	1330	1340	1340	1350	1360	1360	1370	1370
250	1380	1390	1390	1400	1410	1410	1420	1420	1430	1440
260	1440	1450	1460	1460	1470	1480	1480	1490	1500	1500
270	1510	1520	1520	1530	1540	1540	1550	1560	1560	1570
280	1580	1580	1590	1600	1600	1610	1620	1630	1630	1640
290	1650	1650	1660	1670	1680	1680	1690	1700	1710	1710
300	1720	1730	1740	1740	1750	1760	1770	1770	1780	1790
310	1800	1800	1810	1820	1830	1840	1840	1850	1860	1870
320	1870	1880	1890	1900	1910	1920	1920	1930	1940	1950
330	1960	1960	1970	1980	1990	2000	2010	2010	2020	2030
340	2040	2050	2060	2070	2070	2080	2090	2100	2110	2120
350	2130	2140	2150	2150	2160	2170	2180	2190	2200	2210
360	2220	2230	2240	2240	2250	2260	2270	2280	2290	2300
370	2310	2320	2330	2340	2350	2360	2370	2380	2390	2390
380	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490
390	2500	2510	2520	2530	2540	2550	2560	2570	2580	2590
400	2600	2610	2620	2630	2640	2650	2660	2670	2690	2700
410	2710	2720	2730	2740	2750	2760	2770	2780	2790	2800
420	2810	2820	2830	2840	2860	2870	2880	2890	2900	2910
430	2920	2930	2940	2950	2970	2980	2990	3000	3010	3020
440	3030	3040	3050	3070	3080	3090	3100	3110	3120	3130
450	3150	3160	3170	3180	3190	3200	3220	3230	3240	3250
460	3260	3280	3290	3300	3310	3320	3330	3350	3360	3370
470	3380	3400	3410	3420	3430	3440	3460	3470	3480	3490
480	3510	3520	3530	3540	3560	3570	3580	3590	3610	3620
490	3630	3640	3660	3670	3680	3690	3710	3720	3730	3750
500	3760									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3096

POSTAJA: RUGVICA POCETAK RADA 1878.
VODOTOK: SAVA KOTA "0" 95.61 mnm
P.S. 12730 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-180	-125	97.110	1.900	2.650	40.000
LOG	-125	-11	85.200	1.570	1.797	60.000
PAR	-11	100	113.640	2.115	1.000	.000

H	0	1	2	3	4	5	6	7	8	9
-180	40.2									
-170	41.4	41.2	41.0	40.9	40.8	40.6	40.5	40.4	40.4	40.3
-160	44.0	43.7	43.3	43.0	42.7	42.5	42.2	42.0	41.8	41.6
-150	48.6	48.0	47.5	47.0	46.5	46.0	45.6	45.1	44.7	44.4
-140	55.5	54.7	53.9	53.1	52.4	51.7	51.0	50.4	49.7	49.1
-130	65.1	64.0	62.9	61.9	60.9	59.9	59.0	58.1	57.2	56.3
-120	74.3	73.6	72.9	72.3	71.6	71.0	69.8	68.5	67.4	66.2
-110	81.9	81.1	80.3	79.5	78.7	77.9	77.2	76.4	75.7	75.0
-100	91.0	90.1	89.1	88.2	87.2	86.3	85.4	84.5	83.6	82.8
-90	101	100	99.3	98.2	97.1	96.1	95.1	94.0	93.0	92.0
-80	113	112	111	110	108	107	106	105	104	103
-70	126	125	124	122	121	120	118	117	116	115
-60	141	139	138	136	135	133	132	131	129	128
-50	156	155	153	151	150	148	147	145	144	142
-40	173	171	170	168	166	164	163	161	159	158
-30	191	189	187	185	184	182	180	178	176	175
-20	210	208	206	204	202	200	198	197	195	193
-10	1.92	2.14	226	224	222	220	218	216	214	212
0	1.00	.990	1.00	1.04	1.10	1.18	1.28	1.41	1.56	1.73
0	1.00	1.03	1.09	1.17	1.27	1.39	1.54	1.70	1.90	2.11
10	2.35	2.61	2.89	3.20	3.52	3.87	4.25	4.64	5.06	5.50
20	5.97	6.46	6.97	7.50	8.05	8.63	9.23	9.86	10.5	11.2
30	11.9	12.6	13.3	14.1	14.9	15.7	16.5	17.3	18.2	19.1
40	20.0	21.0	21.9	22.9	23.9	25.0	26.0	27.1	28.2	29.3
50	30.5	31.6	32.8	34.0	35.3	36.5	37.8	39.1	40.5	41.8
60	43.2	44.6	46.0	47.4	48.9	50.4	51.9	53.4	55.0	56.6
70	58.2	59.8	61.4	63.1	64.8	66.5	68.2	70.0	71.8	73.6
80	75.4	77.3	79.1	81.0	83.0	84.9	86.9	88.9	90.9	92.9
90	95.0	97.0	99.1	101	103	106	108	110	112	114
100	117									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5008

POSTAJA: BOTOVO POCETAK RADA 1873.
VODOTOK: DRAVA KOTA "0" 121.55 mnm
P.S. 31038 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	99	22.792	1.000	2.877	115.000
PAR	99	212	.000	293.827	-11.062	.000
PAR	212	600	89.720	-96.819	414.020	.000

H	0	1	2	3	4	5	6	7	8	9
0	138	138	139	140	141	141	142	143	143	144
10	145	146	147	147	148	149	150	151	152	153
20	154	154	155	156	157	158	159	160	161	162
30	163	165	166	167	168	169	170	171	173	174
40	175	176	178	179	180	181	183	184	185	187
50	188	190	191	192	194	195	197	198	200	202
60	203	205	206	208	210	211	213	215	216	218
70	220	222	223	225	227	229	231	233	235	237
80	239	241	243	245	247	249	251	253	255	257
90	259	262	264	266	268	271	273	275	278	280
100	283	286	289	292	295	297	300	303	306	309
110	312	315	318	321	324	327	330	333	336	339
120	342	344	347	350	353	356	359	362	365	368
130	371	374	377	380	383	386	389	391	394	397
140	400	403	406	409	412	415	418	421	424	427
150	430	433	436	438	441	444	447	450	453	456
160	459	462	465	468	471	474	477	480	483	486
170	488	491	494	497	500	503	506	509	512	515
180	518	521	524	527	530	533	535	538	541	544
190	547	550	553	556	559	562	565	568	571	574
200	577	580	582	585	588	591	594	597	600	603
210	606	609	612	615	618	621	623	626	629	632
220	635	638	641	644	647	650	653	657	660	663
230	666	669	672	676	679	682	685	689	692	695
240	698	702	705	709	712	715	719	722	726	729
250	733	736	740	743	747	751	754	758	761	765
260	769	773	776	780	784	788	791	795	799	803
270	807	811	814	818	822	826	830	834	838	842
280	846	850	854	859	863	867	871	875	879	884
290	888	892	896	901	905	909	914	918	922	927
300	931	935	940	944	949	953	958	962	967	972
310	976	981	985	990	995	999	1000	1010	1010	1020
320	1020	1030	1030	1040	1040	1050	1050	1060	1060	1070
330	1070	1080	1080	1090	1090	1100	1100	1110	1110	1120
340	1120	1130	1130	1140	1140	1150	1150	1160	1160	1170
350	1170	1180	1180	1190	1200	1200	1210	1210	1220	1220
360	1230	1230	1240	1240	1250	1260	1260	1270	1270	1280
370	1280	1290	1300	1300	1310	1310	1320	1320	1330	1340
380	1340	1350	1350	1360	1370	1370	1380	1380	1390	1400
390	1400	1410	1410	1420	1430	1430	1440	1440	1450	1460
400	1460	1470	1470	1480	1490	1490	1500	1510	1510	1520
410	1530	1530	1540	1540	1550	1560	1560	1570	1580	1580
420	1590	1600	1600	1610	1620	1620	1630	1640	1640	1650

H	0	1	2	3	4	5	6	7	8	9
430	1660	1660	1670	1680	1680	1690	1700	1700	1710	1720
440	1720	1730	1740	1750	1750	1760	1770	1770	1780	1790
450	1800	1800	1810	1820	1820	1830	1840	1850	1850	1860
460	1870	1870	1880	1890	1900	1900	1910	1920	1930	1930
470	1940	1950	1960	1960	1970	1980	1990	1990	2000	2010
480	2020	2020	2030	2040	2050	2050	2060	2070	2080	2090
490	2090	2100	2110	2120	2130	2130	2140	2150	2160	2160
500	2170	2180	2190	2200	2210	2210	2220	2230	2240	2250
510	2250	2260	2270	2280	2290	2300	2300	2310	2320	2330
520	2340	2340	2350	2360	2370	2380	2390	2400	2400	2410
530	2420	2430	2440	2450	2460	2460	2470	2480	2490	2500
540	2510	2520	2520	2530	2540	2550	2560	2570	2580	2590
550	2600	2600	2610	2620	2630	2640	2650	2660	2670	2680
560	2690	2690	2700	2710	2720	2730	2740	2750	2760	2770
570	2780	2790	2800	2810	2810	2820	2830	2840	2850	2860
580	2870	2880	2890	2900	2910	2920	2930	2940	2950	2960
590	2970	2980	2990	2990	3000	3010	3020	3030	3040	3050
600	3060									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5063

POSTAJA: TEREZINO POLJE POCETAK RADA 1872.
VODOTOK: DRAVA KOTA "0" 100.67 mnm
P.S. 33916 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-320	-240	190.000	3.400	1.171	140.000
PAR	-240	-80	.000	203.750	819.000	.000
PAR	-80	500	73.891	387.698	919.040	.000

H	0	1	2	3	4	5	6	7	8	9
-320	169									
-310	186	185	183	181	179	177	176	174	172	171
-300	205	203	201	199	197	196	194	192	190	188
-290	224	222	220	218	217	215	213	211	209	207
-280	244	242	240	238	236	234	232	230	228	226
-270	265	263	261	259	257	255	253	251	249	247
-260	286	284	282	280	278	276	274	271	269	267
-250	308	306	304	301	299	297	295	293	291	288
-240	330	328	326	323	321	319	317	315	312	310
-230	350	348	346	344	342	340	338	336	334	332
-220	371	369	367	365	363	361	359	356	354	352
-210	391	389	387	385	383	381	379	377	375	373
-200	412	409	407	405	403	401	399	397	395	393
-190	432	430	428	426	424	422	420	418	416	414
-180	452	450	448	446	444	442	440	438	436	434
-170	473	471	469	467	464	462	460	458	456	454
-160	493	491	489	487	485	483	481	479	477	475
-150	513	511	509	507	505	503	501	499	497	495
-140	534	532	530	528	526	524	522	519	517	515
-130	554	552	550	548	546	544	542	540	538	536
-120	575	572	570	568	566	564	562	560	558	556
-110	595	593	591	589	587	585	583	581	579	577
-100	615	613	611	609	607	605	603	601	599	597
-90	636	634	632	630	627	625	623	621	619	617
-80	656	654	652	650	648	646	644	642	640	638
-70	684	681	678	675	673	670	667	664	662	659
-60	713	710	707	704	701	698	695	692	690	687
-50	744	741	737	734	731	728	725	722	719	716
-40	776	773	769	766	763	760	756	753	750	747
-30	809	806	803	799	796	792	789	786	782	779
-20	844	841	837	834	830	827	823	820	816	813
-10	881	877	874	870	866	863	859	855	852	848
0	919	915	911	907	904	900	896	892	888	885
0	919	923	927	931	935	939	943	947	951	955
10	959	963	967	971	975	979	983	987	991	995
20	1000	1000	1010	1010	1020	1020	1020	1030	1030	1040
30	1040	1050	1050	1060	1060	1060	1070	1070	1080	1080
40	1090	1090	1090	1100	1100	1110	1110	1120	1120	1130
50	1130	1140	1140	1150	1150	1150	1160	1160	1170	1170
60	1180	1180	1190	1190	1200	1200	1210	1210	1220	1220
70	1230	1230	1240	1240	1250	1250	1260	1260	1270	1270
80	1280	1280	1290	1290	1300	1300	1310	1310	1320	1320
90	1330	1330	1340	1340	1350	1350	1360	1360	1370	1380

H	0	1	2	3	4	5	6	7	8	9
100	1380	1390	1390	1400	1400	1410	1410	1420	1420	1430
110	1430	1440	1450	1450	1460	1460	1470	1470	1480	1490
120	1490	1500	1500	1510	1510	1520	1520	1530	1540	1540
130	1550	1550	1560	1570	1570	1580	1580	1590	1590	1600
140	1610	1610	1620	1620	1630	1640	1640	1650	1650	1660
150	1670	1670	1680	1690	1690	1700	1700	1710	1720	1720
160	1730	1730	1740	1750	1750	1760	1770	1770	1780	1790
170	1790	1800	1800	1810	1820	1820	1830	1840	1840	1850
180	1860	1860	1870	1880	1880	1890	1900	1900	1910	1920
190	1920	1930	1940	1940	1950	1960	1960	1970	1980	1980
200	1990	2000	2000	2010	2020	2020	2030	2040	2050	2050
210	2060	2070	2070	2080	2090	2090	2100	2110	2120	2120
220	2130	2140	2140	2150	2160	2170	2170	2180	2190	2190
230	2200	2210	2220	2220	2230	2240	2250	2250	2260	2270
240	2280	2280	2290	2300	2300	2310	2320	2330	2330	2340
250	2350	2360	2370	2370	2380	2390	2400	2400	2410	2420
260	2430	2430	2440	2450	2460	2470	2470	2480	2490	2500
270	2500	2510	2520	2530	2540	2540	2550	2560	2570	2580
280	2580	2590	2600	2610	2620	2620	2630	2640	2650	2660
290	2660	2670	2680	2690	2700	2710	2710	2720	2730	2740
300	2750	2760	2760	2770	2780	2790	2800	2810	2810	2820
310	2830	2840	2850	2860	2860	2870	2880	2890	2900	2910
320	2920	2920	2930	2940	2950	2960	2970	2980	2990	2990
330	3000	3010	3020	3030	3040	3050	3060	3060	3070	3080
340	3090	3100	3110	3120	3130	3140	3150	3150	3160	3170
350	3180	3190	3200	3210	3220	3230	3240	3240	3250	3260
360	3270	3280	3290	3300	3310	3320	3330	3340	3350	3360
370	3370	3370	3380	3390	3400	3410	3420	3430	3440	3450
380	3460	3470	3480	3490	3500	3510	3520	3530	3540	3550
390	3550	3560	3570	3580	3590	3600	3610	3620	3630	3640
400	3650	3660	3670	3680	3690	3700	3710	3720	3730	3740
410	3750	3760	3770	3780	3790	3800	3810	3820	3830	3840
420	3850	3860	3870	3880	3890	3900	3910	3920	3930	3940
430	3950	3960	3970	3980	3990	4000	4010	4020	4030	4050
440	4060	4070	4080	4090	4100	4110	4120	4130	4140	4150
450	4160	4170	4180	4190	4200	4210	4220	4230	4240	4260
460	4270	4280	4290	4300	4310	4320	4330	4340	4350	4360
470	4370	4380	4400	4410	4420	4430	4440	4450	4460	4470
480	4480	4490	4500	4520	4530	4540	4550	4560	4570	4580
490	4590	4600	4620	4630	4640	4650	4660	4670	4680	4690
500	4700									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5150

POSTAJA: DONJI MIHOLJAC C.S. POCETAK RADA 1988.
VODOTOK: DRAVA KOTA "0" 88.57 mnm
P.S. 37142 km2

KRIVULJA PROTOKA ZA GODINU 1995.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-180	210	27.502	3.830	1.938	.000
PAR	210	600	74.149	-26.870	581.897	.000

H	0	1	2	3	4	5	6	7	8	9
-180	108									
-170	119	118	117	116	115	114	113	112	111	110
-160	130	129	128	127	126	125	123	122	121	120
-150	142	141	139	138	137	136	135	134	132	131
-140	154	152	151	150	149	148	146	145	144	143
-130	166	165	164	162	161	160	159	157	156	155
-120	179	178	177	175	174	173	171	170	169	167
-110	193	191	190	189	187	186	184	183	182	180
-100	207	205	204	202	201	199	198	197	195	194
-90	221	219	218	217	215	214	212	211	209	208
-80	236	234	233	231	230	228	227	225	224	222
-70	251	249	248	246	245	243	242	240	239	237
-60	267	265	264	262	260	259	257	256	254	253
-50	283	281	280	278	276	275	273	272	270	268
-40	300	298	296	295	293	291	290	288	286	285
-30	317	315	313	312	310	308	307	305	303	301
-20	335	333	331	329	327	326	324	322	320	319
-10	353	351	349	347	345	344	342	340	338	336
0	371	369	367	366	364	362	360	358	356	354
0	371	373	375	377	379	381	383	384	386	388
10	390	392	394	396	398	400	402	404	406	408
20	410	412	414	416	418	420	422	424	426	428
30	430	432	434	436	438	440	442	444	446	448
40	450	452	454	456	458	460	462	465	467	469
50	471	473	475	477	479	481	484	486	488	490
60	492	494	496	499	501	503	505	507	510	512
70	514	516	518	521	523	525	527	529	532	534
80	536	538	541	543	545	547	550	552	554	557
90	559	561	563	566	568	570	573	575	577	580
100	582	584	587	589	591	594	596	598	601	603
110	605	608	610	613	615	617	620	622	625	627
120	630	632	634	637	639	642	644	647	649	652
130	654	656	659	661	664	666	669	671	674	676
140	679	681	684	686	689	692	694	697	699	702
150	704	707	709	712	715	717	720	722	725	728
160	730	733	735	738	741	743	746	748	751	754
170	756	759	762	764	767	770	772	775	778	780
180	783	786	789	791	794	797	799	802	805	808
190	810	813	816	819	821	824	827	830	832	835
200	838	841	844	846	849	852	855	858	860	863
210	852	855	858	861	864	867	870	873	876	879
220	882	885	888	891	894	897	900	903	906	909
230	912	915	919	922	925	928	931	935	938	941
240	945	948	951	954	958	961	965	968	971	975

H	0	1	2	3	4	5	6	7	8	9
250	978	982	985	989	992	996	999	1000	1010	1010
260	1010	1020	1020	1020	1030	1030	1040	1040	1040	1050
270	1050	1050	1060	1060	1060	1070	1070	1080	1080	1080
280	1090	1090	1100	1100	1100	1110	1110	1120	1120	1120
290	1130	1130	1140	1140	1140	1150	1150	1160	1160	1160
300	1170	1170	1180	1180	1190	1190	1190	1200	1200	1210
310	1210	1220	1220	1220	1230	1230	1240	1240	1250	1250
320	1260	1260	1260	1270	1270	1280	1280	1290	1290	1300
330	1300	1310	1310	1310	1320	1320	1330	1330	1340	1340
340	1350	1350	1360	1360	1370	1370	1380	1380	1390	1390
350	1400	1400	1410	1410	1420	1420	1430	1430	1440	1440
360	1450	1450	1460	1460	1470	1470	1480	1480	1490	1490
370	1500	1500	1510	1510	1520	1520	1530	1530	1540	1550
380	1550	1560	1560	1570	1570	1580	1580	1590	1590	1600
390	1600	1610	1620	1620	1630	1630	1640	1640	1650	1660
400	1660	1670	1670	1680	1680	1690	1700	1700	1710	1710
410	1720	1720	1730	1740	1740	1750	1750	1760	1770	1770
420	1780	1780	1790	1790	1800	1810	1810	1820	1830	1830
430	1840	1840	1850	1860	1860	1870	1870	1880	1890	1890
440	1900	1910	1910	1920	1920	1930	1940	1940	1950	1960
450	1960	1970	1980	1980	1990	1990	2000	2010	2010	2020
460	2030	2030	2040	2050	2050	2060	2070	2070	2080	2090
470	2090	2100	2110	2110	2120	2130	2130	2140	2150	2150
480	2160	2170	2180	2180	2190	2200	2200	2210	2220	2220
490	2230	2240	2240	2250	2260	2270	2270	2280	2290	2290
500	2300	2310	2320	2320	2330	2340	2340	2350	2360	2370
510	2370	2380	2390	2400	2400	2410	2420	2420	2430	2440
520	2450	2450	2460	2470	2480	2480	2490	2500	2510	2510
530	2520	2530	2540	2550	2550	2560	2570	2580	2580	2590
540	2600	2610	2610	2620	2630	2640	2650	2650	2660	2670
550	2680	2690	2690	2700	2710	2720	2720	2730	2740	2750
560	2760	2760	2770	2780	2790	2800	2810	2810	2820	2830
570	2840	2850	2850	2860	2870	2880	2890	2900	2900	2910
580	2920	2930	2940	2950	2950	2960	2970	2980	2990	3000
590	3000	3010	3020	3030	3040	3050	3060	3060	3070	3080
600	3090									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5098

POSTAJA: NOVO VIRJE - SKELA POCETAK RADA 1976.
VODOTOK: DRAVA KOTA "0" 108.86 mnm
P.S. km2

KRIVULJA PROTOKA ZA GODINU 1995.
Za razdoblje od 01.01. do 30.09.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-30	70	91.995	.800	1.915	120.000
PAR	70	197	.000	290.910	116.360	.000
PAR	197	500	135.660	-159.500	477.560	.000

H	0	1	2	3	4	5	6	7	8	9
-30	144									
-20	155	153	152	151	150	149	148	147	146	145
-10	166	165	164	163	162	160	159	158	157	156
0	180	179	177	176	174	173	172	170	169	168
0	180	181	183	184	186	187	189	190	192	194
10	195	197	198	200	202	203	205	207	209	210
20	212	214	216	217	219	221	223	225	227	229
30	230	232	234	236	238	240	242	244	246	248
40	250	253	255	257	259	261	263	265	268	270
50	272	274	277	279	281	283	286	288	290	293
60	295	298	300	302	305	307	310	312	315	317
70	320	323	326	329	332	335	337	340	343	346
80	349	352	355	358	361	364	367	369	372	375
90	378	381	384	387	390	393	396	399	401	404
100	407	410	413	416	419	422	425	428	431	433
110	436	439	442	445	448	451	454	457	460	463
120	465	468	471	474	477	480	483	486	489	492
130	495	497	500	503	506	509	512	515	518	521
140	524	527	529	532	535	538	541	544	547	550
150	553	556	559	561	564	567	570	573	576	579
160	582	585	588	591	593	596	599	602	605	608
170	611	614	617	620	623	625	628	631	634	637
180	640	643	646	649	652	655	657	660	663	666
190	669	672	675	678	681	684	687	690	694	697
200	701	705	709	713	717	721	725	729	733	737
210	741	745	749	753	757	762	766	770	775	779
220	783	788	792	796	801	805	810	815	819	824
230	828	833	838	842	847	852	857	862	866	871
240	876	881	886	891	896	901	906	911	916	922
250	927	932	937	942	948	953	958	964	969	974
260	980	985	991	996	1000	1010	1010	1020	1020	1030
270	1040	1040	1050	1050	1060	1060	1070	1080	1080	1090
280	1090	1100	1110	1110	1120	1120	1130	1140	1140	1150
290	1160	1160	1170	1170	1180	1190	1190	1200	1210	1210
300	1220	1230	1230	1240	1250	1250	1260	1270	1270	1280
310	1290	1290	1300	1310	1310	1320	1330	1340	1340	1350
320	1360	1360	1370	1380	1380	1390	1400	1410	1410	1420
330	1430	1440	1440	1450	1460	1470	1470	1480	1490	1500
340	1500	1510	1520	1530	1530	1540	1550	1560	1570	1570
350	1580	1590	1600	1600	1610	1620	1630	1640	1650	1650
360	1660	1670	1680	1690	1690	1700	1710	1720	1730	1740
370	1740	1750	1760	1770	1780	1790	1800	1800	1810	1820
380	1830	1840	1850	1860	1870	1870	1880	1890	1900	1910

H	0	1	2	3	4	5	6	7	8	9
390	1920	1930	1940	1950	1960	1960	1970	1980	1990	2000
400	2010	2020	2030	2040	2050	2060	2070	2080	2090	2090
410	2100	2110	2120	2130	2140	2150	2160	2170	2180	2190
420	2200	2210	2220	2230	2240	2250	2260	2270	2280	2290
430	2300	2310	2320	2330	2340	2350	2360	2370	2380	2390
440	2400	2410	2420	2430	2440	2450	2460	2480	2490	2500
450	2510	2520	2530	2540	2550	2560	2570	2580	2590	2600
460	2610	2630	2640	2650	2660	2670	2680	2690	2700	2710
470	2720	2740	2750	2760	2770	2780	2790	2800	2810	2830
480	2840	2850	2860	2870	2880	2900	2910	2920	2930	2940
490	2950	2960	2980	2990	3000	3010	3020	3040	3050	3060
500	3070									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5098

POSTAJA: NOVO VIRJE - SKELA POCETAK RADA 1976.
VODOTOK: DRAVA KOTA "0" 108.86 mnm
P.S. km2

KRIVULJA PROTOKA ZA GODINU 1995.
Za razdoblje od 01.10. do 31.12.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-20	40	113.000	.600	1.498	120.000
PAR	40	180	23.920	230.900	136.990	.000
PAR	180	500	135.660	-159.500	477.560	.000

H	0	1	2	3	4	5	6	7	8	9
-20	149									
-10	160	159	158	156	155	154	153	152	151	150
0	173	171	170	169	167	166	165	164	162	161
0	173	174	175	177	178	179	181	182	183	185
10	186	188	189	191	192	193	195	196	198	199
20	201	202	204	205	207	209	210	212	213	215
30	217	218	220	221	223	225	226	228	230	231
40	233	236	238	241	243	246	248	251	253	256
50	258	261	264	266	269	271	274	276	279	282
60	284	287	289	292	295	297	300	302	305	308
70	310	313	316	318	321	324	326	329	332	334
80	337	340	342	345	348	351	353	356	359	361
90	364	367	370	372	375	378	381	383	386	389
100	392	395	397	400	403	406	409	411	414	417
110	420	423	426	428	431	434	437	440	443	446
120	449	451	454	457	460	463	466	469	472	475
130	478	481	483	486	489	492	495	498	501	504
140	507	510	513	516	519	522	525	528	531	534
150	537	540	543	546	549	552	555	558	562	565
160	568	571	574	577	580	583	586	589	592	596
170	599	602	605	608	611	614	617	621	624	627
180	630	633	637	640	643	647	650	654	657	661
190	664	668	671	675	679	682	686	690	694	697
200	701	705	709	713	717	721	725	729	733	737
210	741	745	749	753	757	762	766	770	775	779
220	783	788	792	796	801	805	810	815	819	824
230	828	833	838	842	847	852	857	862	866	871
240	876	881	886	891	896	901	906	911	916	922
250	927	932	937	942	948	953	958	964	969	974
260	980	985	991	996	1000	1010	1010	1020	1020	1030
270	1040	1040	1050	1050	1060	1060	1070	1080	1080	1090
280	1090	1100	1110	1110	1120	1120	1130	1140	1140	1150
290	1160	1160	1170	1170	1180	1190	1190	1200	1210	1210
300	1220	1230	1230	1240	1250	1250	1260	1270	1270	1280
310	1290	1290	1300	1310	1310	1320	1330	1340	1340	1350
320	1360	1360	1370	1380	1380	1390	1400	1410	1410	1420
330	1430	1440	1440	1450	1460	1470	1470	1480	1490	1500
340	1500	1510	1520	1530	1530	1540	1550	1560	1570	1570
350	1580	1590	1600	1600	1610	1620	1630	1640	1650	1650
360	1660	1670	1680	1690	1690	1700	1710	1720	1730	1740
370	1740	1750	1760	1770	1780	1790	1800	1800	1810	1820
380	1830	1840	1850	1860	1870	1870	1880	1890	1900	1910
390	1920	1930	1940	1950	1960	1960	1970	1980	1990	2000

H	0	1	2	3	4	5	6	7	8	9
400	2010	2020	2030	2040	2050	2060	2070	2080	2090	2090
410	2100	2110	2120	2130	2140	2150	2160	2170	2180	2190
420	2200	2210	2220	2230	2240	2250	2260	2270	2280	2290
430	2300	2310	2320	2330	2340	2350	2360	2370	2380	2390
440	2400	2410	2420	2430	2440	2450	2460	2480	2490	2500
450	2510	2520	2530	2540	2550	2560	2570	2580	2590	2600
460	2610	2630	2640	2650	2660	2670	2680	2690	2700	2710
470	2720	2740	2750	2760	2770	2780	2790	2800	2810	2830
480	2840	2850	2860	2870	2880	2900	2910	2920	2930	2940
490	2950	2960	2980	2990	3000	3010	3020	3040	3050	3060
500	3070									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3219

POSTAJA: JASENOVAC POCETAK RADA 1878.
VODOTOK: SAVA KOTA "0" 86.82 mnm
P.S. 38953 km2

KRIVULJA PROTOKA ZA GODINU 1990.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-120	-5	32.310	1.690	2.510	120.000
LOG	-5	765	91.720	2.100	1.285	.000
LOG	765	1000	1.139	1.700	3.272	.000

H	0	1	2	3	4	5	6	7	8	9
-120	125									
-110	129	128	128	128	127	127	127	126	126	126
-100	133	132	132	131	131	131	130	130	129	129
-90	138	137	137	136	136	135	135	134	134	133
-80	144	143	143	142	141	141	140	140	139	138
-70	152	151	150	149	148	148	147	146	146	145
-60	160	159	158	157	157	156	155	154	153	152
-50	170	169	168	167	166	165	164	163	162	161
-40	181	180	179	178	177	175	174	173	172	171
-30	194	193	191	190	189	187	186	185	184	182
-20	208	206	205	204	202	201	199	198	197	195
-10	223	222	220	219	217	216	214	212	211	209
0	238	237	235	234	232	231	230	228	227	225
0	238	239	241	242	244	245	247	248	250	251
10	253	254	256	257	259	260	262	263	264	266
20	267	269	270	272	273	275	276	278	279	281
30	283	284	286	287	289	290	292	293	295	296
40	298	299	301	302	304	305	307	308	310	312
50	313	315	316	318	319	321	322	324	326	327
60	329	330	332	333	335	337	338	340	341	343
70	344	346	348	349	351	352	354	356	357	359
80	360	362	363	365	367	368	370	371	373	375
90	376	378	380	381	383	384	386	388	389	391
100	393	394	396	397	399	401	402	404	406	407
110	409	411	412	414	415	417	419	420	422	424
120	425	427	429	430	432	434	435	437	439	440
130	442	444	445	447	449	450	452	454	455	457
140	459	460	462	464	466	467	469	471	472	474
150	476	477	479	481	482	484	486	488	489	491
160	493	494	496	498	500	501	503	505	506	508
170	510	512	513	515	517	519	520	522	524	525
180	527	529	531	532	534	536	538	539	541	543
190	545	546	548	550	552	553	555	557	559	560
200	562	564	566	567	569	571	573	575	576	578
210	580	582	583	585	587	589	591	592	594	596
220	598	599	601	603	605	607	608	610	612	614
230	616	617	619	621	623	625	626	628	630	632
240	634	635	637	639	641	643	645	646	648	650
250	652	654	655	657	659	661	663	665	666	668
260	670	672	674	676	677	679	681	683	685	687
270	688	690	692	694	696	698	700	701	703	705
280	707	709	711	712	714	716	718	720	722	724
290	726	727	729	731	733	735	737	739	740	742

H	0	1	2	3	4	5	6	7	8	9
300	744	746	748	750	752	754	755	757	759	761
310	763	765	767	769	771	772	774	776	778	780
320	782	784	786	788	790	791	793	795	797	799
330	801	803	805	807	809	810	812	814	816	818
340	820	822	824	826	828	830	832	833	835	837
350	839	841	843	845	847	849	851	853	855	857
360	859	860	862	864	866	868	870	872	874	876
370	878	880	882	884	886	888	890	892	894	895
380	897	899	901	903	905	907	909	911	913	915
390	917	919	921	923	925	927	929	931	933	935
400	937	939	941	943	945	947	949	951	953	955
410	957	958	960	962	964	966	968	970	972	974
420	976	978	980	982	984	986	988	990	992	994
430	996	998	1000	1000	1000	1010	1010	1010	1010	1010
440	1020	1020	1020	1020	1020	1030	1030	1030	1030	1030
450	1040	1040	1040	1040	1040	1050	1050	1050	1050	1050
460	1060	1060	1060	1060	1060	1070	1070	1070	1070	1080
470	1080	1080	1080	1080	1090	1090	1090	1090	1090	1100
480	1100	1100	1100	1100	1110	1110	1110	1110	1110	1120
490	1120	1120	1120	1120	1130	1130	1130	1130	1130	1140
500	1140	1140	1140	1140	1150	1150	1150	1150	1160	1160
510	1160	1160	1160	1170	1170	1170	1170	1170	1180	1180
520	1180	1180	1180	1190	1190	1190	1190	1190	1200	1200
530	1200	1200	1200	1210	1210	1210	1210	1220	1220	1220
540	1220	1220	1230	1230	1230	1230	1230	1240	1240	1240
550	1240	1240	1250	1250	1250	1250	1260	1260	1260	1260
560	1260	1270	1270	1270	1270	1270	1280	1280	1280	1280
570	1280	1290	1290	1290	1290	1300	1300	1300	1300	1300
580	1310	1310	1310	1310	1310	1320	1320	1320	1320	1330
590	1330	1330	1330	1330	1340	1340	1340	1340	1340	1350
600	1350	1350	1350	1350	1360	1360	1360	1360	1370	1370
610	1370	1370	1370	1380	1380	1380	1380	1390	1390	1390
620	1390	1390	1400	1400	1400	1400	1400	1410	1410	1410
630	1410	1420	1420	1420	1420	1420	1430	1430	1430	1430
640	1430	1440	1440	1440	1440	1450	1450	1450	1450	1450
650	1460	1460	1460	1460	1470	1470	1470	1470	1470	1480
660	1480	1480	1480	1480	1490	1490	1490	1490	1500	1500
670	1500	1500	1500	1510	1510	1510	1510	1520	1520	1520
680	1520	1520	1530	1530	1530	1530	1540	1540	1540	1540
690	1540	1550	1550	1550	1550	1560	1560	1560	1560	1560
700	1570	1570	1570	1570	1570	1580	1580	1580	1580	1590
710	1590	1590	1590	1590	1600	1600	1600	1600	1610	1610
720	1610	1610	1610	1620	1620	1620	1620	1630	1630	1630
730	1630	1640	1640	1640	1640	1640	1650	1650	1650	1650
740	1660	1660	1660	1660	1660	1670	1670	1670	1670	1680
750	1680	1680	1680	1680	1690	1690	1690	1690	1700	1700
760	1700	1700	1700	1710	1710	1710	1720	1720	1730	1730
770	1740	1750	1750	1760	1760	1770	1780	1780	1790	1800
780	1800	1810	1810	1820	1830	1830	1840	1850	1850	1860
790	1860	1870	1880	1880	1890	1900	1900	1910	1920	1920
800	1930	1940	1940	1950	1950	1960	1970	1970	1980	1990
810	1990	2000	2010	2010	2020	2030	2030	2040	2050	2050
820	2060	2070	2080	2080	2090	2100	2100	2110	2120	2120
830	2130	2140	2140	2150	2160	2170	2170	2180	2190	2190

H	0	1	2	3	4	5	6	7	8	9
840	2200	2210	2220	2220	2230	2240	2240	2250	2260	2270
850	2270	2280	2290	2300	2300	2310	2320	2320	2330	2340
860	2350	2350	2360	2370	2380	2380	2390	2400	2410	2410
870	2420	2430	2440	2450	2450	2460	2470	2480	2480	2490
880	2500	2510	2520	2520	2530	2540	2550	2550	2560	2570
890	2580	2590	2590	2600	2610	2620	2630	2630	2640	2650
900	2660	2670	2670	2680	2690	2700	2710	2720	2720	2730
910	2740	2750	2760	2770	2770	2780	2790	2800	2810	2820
920	2820	2830	2840	2850	2860	2870	2880	2880	2890	2900
930	2910	2920	2930	2940	2950	2950	2960	2970	2980	2990
940	3000	3010	3020	3020	3030	3040	3050	3060	3070	3080
950	3090	3100	3110	3110	3120	3130	3140	3150	3160	3170
960	3180	3190	3200	3210	3220	3220	3230	3240	3250	3260
970	3270	3280	3290	3300	3310	3320	3330	3340	3350	3360
980	3370	3380	3390	3390	3400	3410	3420	3430	3440	3450
990	3460	3470	3480	3490	3500	3510	3520	3530	3540	3550
1000	3560									

DRZAVNI HMZ REPUBLIKE HRVATSKE   SIFRA POSTAJE 3207

POSTAJA: MACKOVAC USTAVA   POCETAK RADA 1978.
VODOTOK: SAVA   KOTA "0" 83.64 mnm
P.S. 40838 km2

KRIVULJA PROTOKA ZA GODINU 1990.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	259	42.800	.190	1.927	80.000
LOG	259	801	140.650	-.330	1.242	.000
PAR	801	1000	91.700	-1114.020	4807.950	.000

H	0	1	2	3	4	5	6	7	8	9
0	81.7	81.9	82.1	82.3	82.5	82.7	83.0	83.2	83.4	83.7
10	83.9	84.2	84.5	84.8	85.1	85.4	85.7	86.0	86.3	86.6
20	87.0	87.3	87.7	88.0	88.4	88.8	89.2	89.6	90.0	90.4
30	90.8	91.3	91.7	92.1	92.6	93.1	93.5	94.0	94.5	95.0
40	95.5	96.0	96.5	97.0	97.6	98.1	98.7	99.2	99.8	100
50	101	102	102	103	103	104	105	105	106	107
60	107	108	109	109	110	111	111	112	113	113
70	114	115	116	116	117	118	119	120	120	121
80	122	123	124	124	125	126	127	128	129	130
90	131	131	132	133	134	135	136	137	138	139
100	140	141	142	143	144	145	146	147	148	149
110	150	151	152	153	154	155	156	157	159	160
120	161	162	163	164	165	166	168	169	170	171
130	172	173	175	176	177	178	180	181	182	183
140	185	186	187	188	190	191	192	194	195	196
150	198	199	200	202	203	204	206	207	209	210
160	211	213	214	216	217	219	220	222	223	224
170	226	227	229	230	232	233	235	237	238	240
180	241	243	244	246	247	249	251	252	254	256
190	257	259	260	262	264	265	267	269	270	272
200	274	276	277	279	281	282	284	286	288	290
210	291	293	295	297	298	300	302	304	306	308
220	309	311	313	315	317	319	321	323	324	326
230	328	330	332	334	336	338	340	342	344	346
240	348	350	352	354	356	358	360	362	364	366
250	368	370	372	374	376	379	381	383	385	387
260	389	391	394	396	398	400	402	404	406	409
270	411	413	415	417	419	422	424	426	428	430
280	432	435	437	439	441	443	445	448	450	452
290	454	456	459	461	463	465	467	470	472	474
300	476	479	481	483	485	487	490	492	494	496
310	499	501	503	505	507	510	512	514	516	519
320	521	523	526	528	530	532	535	537	539	541
330	544	546	548	550	553	555	557	560	562	564
340	566	569	571	573	576	578	580	583	585	587
350	589	592	594	596	599	601	603	606	608	610
360	613	615	617	620	622	624	627	629	631	634
370	636	638	641	643	645	648	650	652	655	657
380	660	662	664	667	669	671	674	676	678	681
390	683	686	688	690	693	695	698	700	702	705
400	707	709	712	714	717	719	721	724	726	729
410	731	733	736	738	741	743	746	748	750	753
420	755	758	760	763	765	767	770	772	775	777

H	0	1	2	3	4	5	6	7	8	9
430	780	782	784	787	789	792	794	797	799	802
440	804	806	809	811	814	816	819	821	824	826
450	829	831	834	836	838	841	843	846	848	851
460	853	856	858	861	863	866	868	871	873	876
470	878	881	883	886	888	891	893	896	898	901
480	903	906	908	911	913	916	918	921	923	926
490	928	931	933	936	939	941	944	946	949	951
500	954	956	959	961	964	966	969	972	974	977
510	979	982	984	987	989	992	994	997	1000	1000
520	1000	1010	1010	1010	1010	1020	1020	1020	1030	1030
530	1030	1030	1040	1040	1040	1040	1050	1050	1050	1050
540	1060	1060	1060	1060	1070	1070	1070	1070	1080	1080
550	1080	1080	1090	1090	1090	1100	1100	1100	1100	1110
560	1110	1110	1110	1120	1120	1120	1120	1130	1130	1130
570	1130	1140	1140	1140	1140	1150	1150	1150	1160	1160
580	1160	1160	1170	1170	1170	1170	1180	1180	1180	1180
590	1190	1190	1190	1200	1200	1200	1200	1210	1210	1210
600	1210	1220	1220	1220	1220	1230	1230	1230	1230	1240
610	1240	1240	1250	1250	1250	1250	1260	1260	1260	1260
620	1270	1270	1270	1280	1280	1280	1280	1290	1290	1290
630	1290	1300	1300	1300	1300	1310	1310	1310	1320	1320
640	1320	1320	1330	1330	1330	1330	1340	1340	1340	1350
650	1350	1350	1350	1360	1360	1360	1360	1370	1370	1370
660	1380	1380	1380	1380	1390	1390	1390	1390	1400	1400
670	1400	1410	1410	1410	1410	1420	1420	1420	1420	1430
680	1430	1430	1440	1440	1440	1440	1450	1450	1450	1450
690	1460	1460	1460	1470	1470	1470	1470	1480	1480	1480
700	1480	1490	1490	1490	1500	1500	1500	1500	1510	1510
710	1510	1520	1520	1520	1520	1530	1530	1530	1530	1540
720	1540	1540	1550	1550	1550	1550	1560	1560	1560	1570
730	1570	1570	1570	1580	1580	1580	1590	1590	1590	1590
740	1600	1600	1600	1600	1610	1610	1610	1620	1620	1620
750	1620	1630	1630	1630	1640	1640	1640	1640	1650	1650
760	1650	1660	1660	1660	1660	1670	1670	1670	1680	1680
770	1680	1680	1690	1690	1690	1700	1700	1700	1700	1710
780	1710	1710	1710	1720	1720	1720	1730	1730	1730	1730
790	1740	1740	1740	1750	1750	1750	1750	1760	1760	1760
800	1770	1770	1770	1780	1780	1780	1790	1790	1790	1800
810	1800	1800	1810	1810	1820	1820	1820	1830	1830	1840
820	1840	1840	1850	1850	1850	1860	1860	1870	1870	1870
830	1880	1880	1890	1890	1900	1900	1900	1910	1910	1920
840	1920	1920	1930	1930	1940	1940	1950	1950	1960	1960
850	1960	1970	1970	1980	1980	1990	1990	2000	2000	2000
860	2010	2010	2020	2020	2030	2030	2040	2040	2050	2050
870	2060	2060	2070	2070	2080	2080	2090	2090	2100	2100
880	2110	2110	2120	2120	2130	2130	2140	2140	2150	2150
890	2160	2160	2170	2170	2180	2180	2190	2190	2200	2200
900	2210	2210	2220	2230	2230	2240	2240	2250	2250	2260
910	2260	2270	2280	2280	2290	2290	2300	2300	2310	2310
920	2320	2330	2330	2340	2340	2350	2360	2360	2370	2370
930	2380	2380	2390	2400	2400	2410	2410	2420	2430	2430
940	2440	2440	2450	2460	2460	2470	2480	2480	2490	2490
950	2500	2510	2510	2520	2530	2530	2540	2550	2550	2560
960	2560	2570	2580	2580	2590	2600	2600	2610	2620	2620

H	0	1	2	3	4	5	6	7	8	9
970	2630	2640	2640	2650	2660	2660	2670	2680	2680	2690
980	2700	2700	2710	2720	2720	2730	2740	2750	2750	2760
990	2770	2770	2780	2790	2790	2800	2810	2820	2820	2830
1000	2840									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3177

POSTAJA: SLAVONSKI KOBAS POCETAK RADA 1886.
VODOTOK: SAVA KOTA "0" 82.69 mnm
P.S. 48744 km2

KRIVULJA PROTOKA ZA GODINU 1990.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	200	73.250	1.300	1.658	.000
LOG	200	779	127.810	.790	1.386	.000
PAR	779	1100	48.500	-284.900	1794.000	.000

H	0	1	2	3	4	5	6	7	8	9
0	113	115	116	118	119	120	122	123	125	126
10	128	129	131	133	134	136	137	139	140	142
20	143	145	147	148	150	151	153	155	156	158
30	160	161	163	165	166	168	170	171	173	175
40	177	178	180	182	184	185	187	189	191	192
50	194	196	198	200	201	203	205	207	209	210
60	212	214	216	218	220	222	224	225	227	229
70	231	233	235	237	239	241	243	245	247	249
80	251	253	255	257	259	261	263	265	267	269
90	271	273	275	277	279	281	283	285	287	289
100	291	294	296	298	300	302	304	306	308	311
110	313	315	317	319	321	324	326	328	330	332
120	335	337	339	341	344	346	348	350	353	355
130	357	359	362	364	366	369	371	373	376	378
140	380	383	385	387	390	392	394	397	399	401
150	404	406	409	411	413	416	418	421	423	426
160	428	430	433	435	438	440	443	445	448	450
170	453	455	458	460	463	465	468	470	473	476
180	478	481	483	486	488	491	494	496	499	501
190	504	507	509	512	514	517	520	522	525	528
200	530	533	535	538	540	543	546	548	551	554
210	556	559	562	564	567	570	572	575	578	581
220	583	586	589	591	594	597	600	602	605	608
230	610	613	616	619	621	624	627	630	632	635
240	638	641	644	646	649	652	655	657	660	663
250	666	669	672	674	677	680	683	686	688	691
260	694	697	700	703	705	708	711	714	717	720
270	723	726	728	731	734	737	740	743	746	749
280	751	754	757	760	763	766	769	772	775	778
290	781	784	787	789	792	795	798	801	804	807
300	810	813	816	819	822	825	828	831	834	837
310	840	843	846	849	852	855	858	861	864	867
320	870	873	876	879	882	885	888	891	894	897
330	900	903	906	910	913	916	919	922	925	928
340	931	934	937	940	943	946	950	953	956	959
350	962	965	968	971	974	978	981	984	987	990
360	993	996	999	1000	1010	1010	1010	1020	1020	1020
370	1020	1030	1030	1030	1040	1040	1040	1050	1050	1050
380	1060	1060	1060	1070	1070	1070	1080	1080	1080	1090
390	1090	1090	1090	1100	1100	1100	1110	1110	1110	1120
400	1120	1120	1130	1130	1130	1140	1140	1140	1150	1150
410	1150	1160	1160	1160	1170	1170	1170	1180	1180	1180
420	1190	1190	1190	1200	1200	1200	1210	1210	1210	1220

H	0	1	2	3	4	5	6	7	8	9
430	1220	1220	1230	1230	1230	1240	1240	1240	1250	1250
440	1250	1260	1260	1260	1270	1270	1270	1280	1280	1280
450	1290	1290	1290	1300	1300	1300	1310	1310	1310	1320
460	1320	1320	1330	1330	1330	1340	1340	1340	1350	1350
470	1350	1360	1360	1360	1370	1370	1370	1380	1380	1380
480	1390	1390	1400	1400	1400	1410	1410	1410	1420	1420
490	1420	1430	1430	1430	1440	1440	1440	1450	1450	1450
500	1460	1460	1460	1470	1470	1480	1480	1480	1490	1490
510	1490	1500	1500	1500	1510	1510	1510	1520	1520	1520
520	1530	1530	1530	1540	1540	1550	1550	1550	1560	1560
530	1560	1570	1570	1570	1580	1580	1580	1590	1590	1600
540	1600	1600	1610	1610	1610	1620	1620	1620	1630	1630
550	1630	1640	1640	1650	1650	1650	1660	1660	1660	1670
560	1670	1670	1680	1680	1690	1690	1690	1700	1700	1700
570	1710	1710	1710	1720	1720	1730	1730	1730	1740	1740
580	1740	1750	1750	1750	1760	1760	1770	1770	1770	1780
590	1780	1780	1790	1790	1800	1800	1800	1810	1810	1810
600	1820	1820	1830	1830	1830	1840	1840	1840	1850	1850
610	1850	1860	1860	1870	1870	1870	1880	1880	1880	1890
620	1890	1900	1900	1900	1910	1910	1910	1920	1920	1930
630	1930	1930	1940	1940	1950	1950	1950	1960	1960	1960
640	1970	1970	1980	1980	1980	1990	1990	1990	2000	2000
650	2010	2010	2010	2020	2020	2020	2030	2030	2040	2040
660	2040	2050	2050	2060	2060	2060	2070	2070	2070	2080
670	2080	2090	2090	2090	2100	2100	2110	2110	2110	2120
680	2120	2130	2130	2130	2140	2140	2140	2150	2150	2160
690	2160	2160	2170	2170	2180	2180	2180	2190	2190	2200
700	2200	2200	2210	2210	2210	2220	2220	2230	2230	2230
710	2240	2240	2250	2250	2250	2260	2260	2270	2270	2270
720	2280	2280	2290	2290	2290	2300	2300	2310	2310	2310
730	2320	2320	2330	2330	2330	2340	2340	2350	2350	2350
740	2360	2360	2370	2370	2370	2380	2380	2390	2390	2390
750	2400	2400	2410	2410	2410	2420	2420	2430	2430	2430
760	2440	2440	2450	2450	2450	2460	2460	2470	2470	2470
770	2480	2480	2490	2490	2490	2500	2500	2510	2510	2520
780	2520	2530	2530	2540	2540	2550	2550	2560	2560	2570
790	2570	2570	2580	2580	2590	2590	2600	2600	2610	2610
800	2620	2620	2630	2630	2640	2640	2650	2650	2660	2660
810	2670	2670	2680	2680	2690	2690	2700	2700	2710	2710
820	2720	2720	2730	2730	2740	2740	2750	2750	2760	2770
830	2770	2780	2780	2790	2790	2800	2800	2810	2810	2820
840	2820	2830	2830	2840	2840	2850	2850	2860	2870	2870
850	2880	2880	2890	2890	2900	2900	2910	2910	2920	2930
860	2930	2940	2940	2950	2950	2960	2960	2970	2980	2980
870	2990	2990	3000	3000	3010	3010	3020	3030	3030	3040
880	3040	3050	3050	3060	3070	3070	3080	3080	3090	3090
890	3100	3110	3110	3120	3120	3130	3130	3140	3150	3150
900	3160	3160	3170	3180	3180	3190	3190	3200	3210	3210
910	3220	3220	3230	3240	3240	3250	3250	3260	3270	3270
920	3280	3280	3290	3300	3300	3310	3310	3320	3330	3330
930	3340	3350	3350	3360	3360	3370	3380	3380	3390	3400
940	3400	3410	3410	3420	3430	3430	3440	3450	3450	3460
950	3460	3470	3480	3480	3490	3500	3500	3510	3520	3520
960	3530	3540	3540	3550	3550	3560	3570	3570	3580	3590

H	0	1	2	3	4	5	6	7	8	9
970	3590	3600	3610	3610	3620	3630	3630	3640	3650	3650
980	3660	3670	3670	3680	3690	3690	3700	3710	3710	3720
990	3730	3730	3740	3750	3750	3760	3770	3770	3780	3790
1000	3800	3800	3810	3820	3820	3830	3840	3840	3850	3860
1010	3860	3870	3880	3880	3890	3900	3910	3910	3920	3930
1020	3930	3940	3950	3960	3960	3970	3980	3980	3990	4000
1030	4000	4010	4020	4030	4030	4040	4050	4060	4060	4070
1040	4080	4080	4090	4100	4110	4110	4120	4130	4140	4140
1050	4150	4160	4160	4170	4180	4190	4190	4200	4210	4220
1060	4220	4230	4240	4250	4250	4260	4270	4280	4280	4290
1070	4300	4310	4310	4320	4330	4340	4340	4350	4360	4370
1080	4370	4380	4390	4400	4400	4410	4420	4430	4440	4440
1090	4450	4460	4470	4470	4480	4490	4500	4510	4510	4520
1100	4530									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3104

POSTAJA: STARA GRADISKA POCETAK RADA 1817.
VODOTOK: SAVA KOTA "0" 85.47 mnm
P.S. 40262 km2

KRIVULJA PROTOKA ZA GODINU 1990.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-60	20	115.210	.970	1.595	110.000
PAR	20	375	.000	201.820	205.540	.000
LOG	375	1200	142.730	1.230	1.188	.000

H	0	1	2	3	4	5	6	7	8	9
-60	134									
-50	145	143	142	141	140	139	138	137	136	135
-40	157	156	154	153	152	151	149	148	147	146
-30	171	169	168	167	165	164	162	161	160	158
-20	186	184	183	181	180	178	177	175	174	172
-10	202	201	199	197	196	194	192	191	189	188
0	220	218	216	214	213	211	209	207	206	204
0	220	222	223	225	227	229	231	233	235	236
10	238	240	242	244	246	248	250	252	254	256
20	246	248	250	252	254	256	258	260	262	264
30	266	268	270	272	274	276	278	280	282	284
40	286	288	290	292	294	296	298	300	302	304
50	306	308	310	313	315	317	319	321	323	325
60	327	329	331	333	335	337	339	341	343	345
70	347	349	351	353	355	357	359	361	363	365
80	367	369	371	373	375	377	379	381	383	385
90	387	389	391	393	395	397	399	401	403	405
100	407	409	411	413	415	417	419	421	424	426
110	428	430	432	434	436	438	440	442	444	446
120	448	450	452	454	456	458	460	462	464	466
130	468	470	472	474	476	478	480	482	484	486
140	488	490	492	494	496	498	500	502	504	506
150	508	510	512	514	516	518	520	522	524	526
160	528	530	532	535	537	539	541	543	545	547
170	549	551	553	555	557	559	561	563	565	567
180	569	571	573	575	577	579	581	583	585	587
190	589	591	593	595	597	599	601	603	605	607
200	609	611	613	615	617	619	621	623	625	627
210	629	631	633	635	637	639	641	643	646	648
220	650	652	654	656	658	660	662	664	666	668
230	670	672	674	676	678	680	682	684	686	688
240	690	692	694	696	698	700	702	704	706	708
250	710	712	714	716	718	720	722	724	726	728
260	730	732	734	736	738	740	742	744	746	748
270	750	752	754	757	759	761	763	765	767	769
280	771	773	775	777	779	781	783	785	787	789
290	791	793	795	797	799	801	803	805	807	809
300	811	813	815	817	819	821	823	825	827	829
310	831	833	835	837	839	841	843	845	847	849
320	851	853	855	857	859	861	863	865	868	870
330	872	874	876	878	880	882	884	886	888	890
340	892	894	896	898	900	902	904	906	908	910
350	912	914	916	918	920	922	924	926	928	930

H	0	1	2	3	4	5	6	7	8	9
360	932	934	936	938	940	942	944	946	948	950
370	952	954	956	958	960	961	964	966	968	970
380	973	975	977	980	982	984	986	989	991	993
390	996	998	1000	1000	1000	1010	1010	1010	1010	1020
400	1020	1020	1020	1030	1030	1030	1030	1040	1040	1040
410	1040	1040	1050	1050	1050	1050	1060	1060	1060	1060
420	1070	1070	1070	1070	1070	1080	1080	1080	1080	1090
430	1090	1090	1090	1100	1100	1100	1100	1110	1110	1110
440	1110	1110	1120	1120	1120	1120	1130	1130	1130	1130
450	1140	1140	1140	1140	1140	1150	1150	1150	1150	1160
460	1160	1160	1160	1170	1170	1170	1170	1180	1180	1180
470	1180	1190	1190	1190	1190	1190	1200	1200	1200	1200
480	1210	1210	1210	1210	1220	1220	1220	1220	1230	1230
490	1230	1230	1240	1240	1240	1240	1240	1250	1250	1250
500	1250	1260	1260	1260	1260	1270	1270	1270	1270	1280
510	1280	1280	1280	1290	1290	1290	1290	1290	1300	1300
520	1300	1300	1310	1310	1310	1310	1320	1320	1320	1320
530	1330	1330	1330	1330	1340	1340	1340	1340	1350	1350
540	1350	1350	1360	1360	1360	1360	1360	1370	1370	1370
550	1370	1380	1380	1380	1380	1390	1390	1390	1390	1400
560	1400	1400	1400	1410	1410	1410	1410	1420	1420	1420
570	1420	1430	1430	1430	1430	1440	1440	1440	1440	1450
580	1450	1450	1450	1460	1460	1460	1460	1460	1470	1470
590	1470	1470	1480	1480	1480	1480	1490	1490	1490	1490
600	1500	1500	1500	1500	1510	1510	1510	1510	1520	1520
610	1520	1520	1530	1530	1530	1530	1540	1540	1540	1540
620	1550	1550	1550	1550	1560	1560	1560	1560	1570	1570
630	1570	1570	1580	1580	1580	1580	1590	1590	1590	1590
640	1600	1600	1600	1600	1610	1610	1610	1610	1620	1620
650	1620	1620	1630	1630	1630	1630	1640	1640	1640	1640
660	1650	1650	1650	1650	1660	1660	1660	1660	1670	1670
670	1670	1670	1680	1680	1680	1680	1690	1690	1690	1690
680	1700	1700	1700	1700	1710	1710	1710	1710	1720	1720
690	1720	1720	1730	1730	1730	1730	1740	1740	1740	1740
700	1750	1750	1750	1750	1760	1760	1760	1760	1770	1770
710	1770	1770	1780	1780	1780	1780	1790	1790	1790	1790
720	1800	1800	1800	1800	1810	1810	1810	1810	1820	1820
730	1820	1820	1830	1830	1830	1830	1840	1840	1840	1840
740	1850	1850	1850	1850	1860	1860	1860	1860	1870	1870
750	1870	1880	1880	1880	1880	1890	1890	1890	1890	1900
760	1900	1900	1900	1910	1910	1910	1910	1920	1920	1920
770	1920	1930	1930	1930	1930	1940	1940	1940	1940	1950
780	1950	1950	1950	1960	1960	1960	1960	1970	1970	1970
790	1970	1980	1980	1980	1990	1990	1990	1990	2000	2000
800	2000	2000	2010	2010	2010	2010	2020	2020	2020	2020
810	2030	2030	2030	2030	2040	2040	2040	2040	2050	2050
820	2050	2050	2060	2060	2060	2070	2070	2070	2070	2080
830	2080	2080	2080	2090	2090	2090	2090	2100	2100	2100
840	2100	2110	2110	2110	2110	2120	2120	2120	2120	2130
850	2130	2130	2140	2140	2140	2140	2150	2150	2150	2150
860	2160	2160	2160	2160	2170	2170	2170	2170	2180	2180
870	2180	2180	2190	2190	2190	2200	2200	2200	2200	2210
880	2210	2210	2210	2220	2220	2220	2220	2230	2230	2230
890	2230	2240	2240	2240	2240	2250	2250	2250	2260	2260

H	0	1	2	3	4	5	6	7	8	9
900	2260	2260	2270	2270	2270	2270	2280	2280	2280	2280
910	2290	2290	2290	2290	2300	2300	2300	2310	2310	2310
920	2310	2320	2320	2320	2320	2330	2330	2330	2330	2340
930	2340	2340	2340	2350	2350	2350	2360	2360	2360	2360
940	2370	2370	2370	2370	2380	2380	2380	2380	2390	2390
950	2390	2400	2400	2400	2400	2410	2410	2410	2410	2420
960	2420	2420	2420	2430	2430	2430	2440	2440	2440	2440
970	2450	2450	2450	2450	2460	2460	2460	2460	2470	2470
980	2470	2470	2480	2480	2480	2490	2490	2490	2490	2500
990	2500	2500	2500	2510	2510	2510	2510	2520	2520	2520
1000	2530	2530	2530	2530	2540	2540	2540	2540	2550	2550
1010	2550	2560	2560	2560	2560	2570	2570	2570	2570	2580
1020	2580	2580	2580	2590	2590	2590	2600	2600	2600	2600
1030	2610	2610	2610	2610	2620	2620	2620	2620	2630	2630
1040	2630	2640	2640	2640	2640	2650	2650	2650	2650	2660
1050	2660	2660	2670	2670	2670	2670	2680	2680	2680	2680
1060	2690	2690	2690	2690	2700	2700	2700	2710	2710	2710
1070	2710	2720	2720	2720	2720	2730	2730	2730	2740	2740
1080	2740	2740	2750	2750	2750	2750	2760	2760	2760	2770
1090	2770	2770	2770	2780	2780	2780	2780	2790	2790	2790
1100	2790	2800	2800	2800	2810	2810	2810	2810	2820	2820
1110	2820	2820	2830	2830	2830	2840	2840	2840	2840	2850
1120	2850	2850	2850	2860	2860	2860	2870	2870	2870	2870
1130	2880	2880	2880	2880	2890	2890	2890	2900	2900	2900
1140	2900	2910	2910	2910	2910	2920	2920	2920	2930	2930
1150	2930	2930	2940	2940	2940	2940	2950	2950	2950	2960
1160	2960	2960	2960	2970	2970	2970	2980	2980	2980	2980
1170	2990	2990	2990	2990	3000	3000	3000	3010	3010	3010
1180	3010	3020	3020	3020	3020	3030	3030	3030	3040	3040
1190	3040	3040	3050	3050	3050	3050	3060	3060	3060	3070
1200	3070									

DRZAVNI HMZ REPUBLIKE HRVATSKE — SIFRA POSTAJE 3098

POSTAJA: SLAVONSKI BROD — POCETAK RADA 1855.
VODOTOK: SAVA — KOTA "0" 81.80 mnm
P.S. 50858 km2

KRIVULJA PROTOKA ZA GODINU 1993.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-60	90	43.930	1.210	2.617	136.000
PAR	90	719	11.280	222.550	238.550	.000
LOG	719	900	59.370	-2.360	2.000	1036.000

H	0	1	2	3	4	5	6	7	8	9
-60	148									
-50	154	153	153	152	151	151	150	150	149	149
-40	161	160	160	159	158	157	157	156	155	155
-30	170	169	168	167	167	166	165	164	163	162
-20	181	180	179	178	177	175	174	173	172	171
-10	194	192	191	190	188	187	186	185	183	182
0	208	207	205	204	202	201	199	198	196	195
0	208	210	212	213	215	216	218	220	222	223
10	225	227	229	230	232	234	236	238	240	242
20	244	246	248	250	252	254	256	259	261	263
30	265	267	270	272	274	277	279	281	284	286
40	289	291	294	296	299	301	304	307	309	312
50	315	318	320	323	326	329	332	335	338	341
60	344	347	350	353	356	359	362	365	368	372
70	375	378	382	385	388	392	395	399	402	406
80	409	413	416	420	423	427	431	435	438	442
90	448	450	453	455	458	460	463	465	467	470
100	472	475	477	480	482	485	487	490	492	495
110	497	499	502	504	507	509	512	514	517	519
120	522	524	527	529	532	534	537	539	542	544
130	547	549	552	554	557	560	562	565	567	570
140	572	575	577	580	582	585	588	590	593	595
150	598	600	603	605	608	611	613	616	618	621
160	624	626	629	631	634	636	639	642	644	647
170	649	652	655	657	660	663	665	668	670	673
180	676	678	681	684	686	689	692	694	697	699
190	702	705	707	710	713	715	718	721	723	726
200	729	731	734	737	739	742	745	748	750	753
210	756	758	761	764	766	769	772	775	777	780
220	783	785	788	791	794	796	799	802	805	807
230	810	813	816	818	821	824	827	829	832	835
240	838	840	843	846	849	852	854	857	860	863
250	865	868	871	874	877	879	882	885	888	891
260	893	896	899	902	905	908	910	913	916	919
270	922	925	927	930	933	936	939	942	944	947
280	950	953	956	959	962	964	967	970	973	976
290	979	982	985	987	990	993	996	999	1000	1000
300	1010	1010	1010	1020	1020	1020	1030	1030	1030	1030
310	1040	1040	1040	1050	1050	1050	1050	1060	1060	1060
320	1070	1070	1070	1080	1080	1080	1080	1090	1090	1090
330	1100	1100	1100	1100	1110	1110	1110	1120	1120	1120
340	1130	1130	1130	1130	1140	1140	1140	1150	1150	1150
350	1160	1160	1160	1160	1170	1170	1170	1180	1180	1180

H	0	1	2	3	4	5	6	7	8	9
360	1190	1190	1190	1200	1200	1200	1200	1210	1210	1210
370	1220	1220	1220	1230	1230	1230	1230	1240	1240	1240
380	1250	1250	1250	1260	1260	1260	1270	1270	1270	1270
390	1280	1280	1280	1290	1290	1290	1300	1300	1300	1310
400	1310	1310	1320	1320	1320	1320	1330	1330	1330	1340
410	1340	1340	1350	1350	1350	1360	1360	1360	1370	1370
420	1370	1380	1380	1380	1380	1390	1390	1390	1400	1400
430	1400	1410	1410	1410	1420	1420	1420	1430	1430	1430
440	1440	1440	1440	1450	1450	1450	1460	1460	1460	1470
450	1470	1470	1470	1480	1480	1480	1490	1490	1490	1500
460	1500	1500	1510	1510	1510	1520	1520	1520	1530	1530
470	1530	1540	1540	1540	1550	1550	1550	1560	1560	1560
480	1570	1570	1570	1580	1580	1580	1590	1590	1590	1600
490	1600	1600	1610	1610	1610	1620	1620	1620	1630	1630
500	1630	1640	1640	1640	1650	1650	1650	1660	1660	1660
510	1670	1670	1670	1680	1680	1680	1690	1690	1690	1700
520	1700	1700	1710	1710	1710	1720	1720	1720	1730	1730
530	1730	1740	1740	1750	1750	1750	1760	1760	1760	1770
540	1770	1770	1780	1780	1780	1790	1790	1790	1800	1800
550	1800	1810	1810	1810	1820	1820	1820	1830	1830	1840
560	1840	1840	1850	1850	1850	1860	1860	1860	1870	1870
570	1870	1880	1880	1880	1890	1890	1890	1900	1900	1910
580	1910	1910	1920	1920	1920	1930	1930	1930	1940	1940
590	1940	1950	1950	1950	1960	1960	1970	1970	1970	1980
600	1980	1980	1990	1990	1990	2000	2000	2010	2010	2010
610	2020	2020	2020	2030	2030	2030	2040	2040	2040	2050
620	2050	2060	2060	2060	2070	2070	2070	2080	2080	2080
630	2090	2090	2100	2100	2100	2110	2110	2110	2120	2120
640	2120	2130	2130	2140	2140	2140	2150	2150	2150	2160
650	2160	2170	2170	2170	2180	2180	2180	2190	2190	2200
660	2200	2200	2210	2210	2210	2220	2220	2220	2230	2230
670	2240	2240	2240	2250	2250	2250	2260	2260	2270	2270
680	2270	2280	2280	2280	2290	2290	2300	2300	2300	2310
690	2310	2310	2320	2320	2330	2330	2330	2340	2340	2350
700	2350	2350	2360	2360	2360	2370	2370	2380	2380	2380
710	2390	2390	2390	2400	2400	2410	2410	2410	2420	2420
720	2430	2430	2440	2440	2450	2460	2460	2470	2470	2480
730	2480	2490	2500	2500	2510	2510	2520	2530	2530	2540
740	2540	2550	2560	2560	2570	2570	2580	2590	2590	2600
750	2600	2610	2620	2620	2630	2640	2640	2650	2650	2660
760	2670	2670	2680	2680	2690	2700	2700	2710	2720	2720
770	2730	2740	2740	2750	2750	2760	2770	2770	2780	2790
780	2790	2800	2810	2810	2820	2830	2830	2840	2850	2850
790	2860	2860	2870	2880	2880	2890	2900	2900	2910	2920
800	2920	2930	2940	2940	2950	2960	2960	2970	2980	2990
810	2990	3000	3010	3010	3020	3030	3030	3040	3050	3050
820	3060	3070	3070	3080	3090	3100	3100	3110	3120	3120
830	3130	3140	3140	3150	3160	3170	3170	3180	3190	3190
840	3200	3210	3220	3220	3230	3240	3250	3250	3260	3270
850	3270	3280	3290	3300	3300	3310	3320	3330	3330	3340
860	3350	3360	3360	3370	3380	3380	3390	3400	3410	3410
870	3420	3430	3440	3450	3450	3460	3470	3480	3480	3490
880	3500	3510	3510	3520	3530	3540	3540	3550	3560	3570
890	3580	3580	3590	3600	3610	3610	3620	3630	3640	3650
900	3650									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 3179

POSTAJA: DAVOR C.S. POCETAK RADA 1957.
VODOTOK: SAVA KOTA "0" 82.59 mnm
P.S. 47179 km2

KRIVULJA PROTOKA ZA GODINU 1993.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	255	34.250	.700	2.110	100.000
PAR	255	500	.000	248.980	-123.900	.000
PAR	500	1100	22.960	23.120	431.900	.000

H	0	1	2	3	4	5	6	7	8	9
0	116	117	117	118	118	119	119	120	120	121
10	121	122	123	123	124	124	125	126	126	127
20	127	128	129	129	130	131	131	132	133	134
30	134	135	136	136	137	138	139	140	140	141
40	142	143	144	144	145	146	147	148	149	149
50	150	151	152	153	154	155	156	157	158	159
60	160	161	162	163	164	165	166	167	168	169
70	170	171	172	173	174	175	176	177	178	179
80	181	182	183	184	185	186	188	189	190	191
90	192	194	195	196	197	199	200	201	202	204
100	205	206	208	209	210	212	213	214	216	217
110	218	220	221	223	224	225	227	228	230	231
120	233	234	236	237	239	240	242	243	245	246
130	248	249	251	253	254	256	257	259	261	262
140	264	266	267	269	271	272	274	276	277	279
150	281	283	284	286	288	290	291	293	295	297
160	299	300	302	304	306	308	310	312	313	315
170	317	319	321	323	325	327	329	331	333	335
180	337	339	341	343	345	347	349	351	353	355
190	357	359	361	363	366	368	370	372	374	376
200	379	381	383	385	387	390	392	394	396	398
210	401	403	405	408	410	412	414	417	419	421
220	424	426	429	431	433	436	438	441	443	445
230	448	450	453	455	458	460	463	465	468	470
240	473	475	478	480	483	486	488	491	493	496
250	499	501	504	507	509	511	513	516	518	521
260	523	526	528	531	533	536	538	541	543	546
270	548	551	553	556	558	561	563	566	568	571
280	573	576	578	581	583	586	588	591	593	596
290	598	601	603	606	608	611	613	616	618	621
300	623	626	628	631	633	635	638	640	643	645
310	648	650	653	655	658	660	663	665	668	670
320	673	675	678	680	683	685	688	690	693	695
330	698	700	703	705	708	710	713	715	718	720
340	723	725	728	730	733	735	738	740	743	745
350	748	750	753	755	757	760	762	765	767	770
360	772	775	777	780	782	785	787	790	792	795
370	797	800	802	805	807	810	812	815	817	820
380	822	825	827	830	832	835	837	840	842	845
390	847	850	852	855	857	860	862	865	867	870
400	872	875	877	879	882	884	887	889	892	894
410	897	899	902	904	907	909	912	914	917	919
420	922	924	927	929	932	934	937	939	942	944

H	0	1	2	3	4	5	6	7	8	9
430	947	949	952	954	957	959	962	964	967	969
440	972	974	977	979	982	984	987	989	992	994
450	997	999	1000	1000	1010	1010	1010	1010	1020	1020
460	1020	1020	1030	1030	1030	1030	1040	1040	1040	1040
470	1050	1050	1050	1050	1060	1060	1060	1060	1070	1070
480	1070	1070	1080	1080	1080	1080	1090	1090	1090	1090
490	1100	1100	1100	1100	1110	1110	1110	1110	1120	1120
500	1120	1120	1130	1130	1130	1130	1140	1140	1140	1140
510	1150	1150	1150	1150	1160	1160	1160	1170	1170	1170
520	1170	1180	1180	1180	1180	1190	1190	1190	1190	1200
530	1200	1200	1200	1210	1210	1210	1220	1220	1220	1220
540	1230	1230	1230	1230	1240	1240	1240	1250	1250	1250
550	1250	1260	1260	1260	1260	1270	1270	1270	1280	1280
560	1280	1280	1290	1290	1290	1300	1300	1300	1300	1310
570	1310	1310	1320	1320	1320	1320	1330	1330	1330	1340
580	1340	1340	1340	1350	1350	1350	1360	1360	1360	1360
590	1370	1370	1370	1380	1380	1380	1390	1390	1390	1390
600	1400	1400	1400	1410	1410	1410	1420	1420	1420	1420
610	1430	1430	1430	1440	1440	1440	1450	1450	1450	1450
620	1460	1460	1460	1470	1470	1470	1480	1480	1480	1490
630	1490	1490	1500	1500	1500	1500	1510	1510	1510	1520
640	1520	1520	1530	1530	1530	1540	1540	1540	1550	1550
650	1550	1560	1560	1560	1570	1570	1570	1570	1580	1580
660	1580	1590	1590	1590	1600	1600	1600	1610	1610	1610
670	1620	1620	1620	1630	1630	1630	1640	1640	1640	1650
680	1650	1650	1660	1660	1660	1670	1670	1670	1680	1680
690	1680	1690	1690	1690	1700	1700	1710	1710	1710	1720
700	1720	1720	1730	1730	1730	1740	1740	1740	1750	1750
710	1750	1760	1760	1760	1770	1770	1770	1780	1780	1790
720	1790	1790	1800	1800	1800	1810	1810	1810	1820	1820
730	1820	1830	1830	1830	1840	1840	1850	1850	1850	1860
740	1860	1860	1870	1870	1870	1880	1880	1890	1890	1890
750	1900	1900	1900	1910	1910	1920	1920	1920	1930	1930
760	1930	1940	1940	1940	1950	1950	1960	1960	1960	1970
770	1970	1970	1980	1980	1990	1990	1990	2000	2000	2010
780	2010	2010	2020	2020	2020	2030	2030	2040	2040	2040
790	2050	2050	2060	2060	2060	2070	2070	2070	2080	2080
800	2090	2090	2090	2100	2100	2110	2110	2110	2120	2120
810	2130	2130	2130	2140	2140	2150	2150	2150	2160	2160
820	2170	2170	2170	2180	2180	2190	2190	2190	2200	2200
830	2210	2210	2210	2220	2220	2230	2230	2230	2240	2240
840	2250	2250	2250	2260	2260	2270	2270	2270	2280	2280
850	2290	2290	2300	2300	2300	2310	2310	2320	2320	2320
860	2330	2330	2340	2340	2350	2350	2350	2360	2360	2370
870	2370	2380	2380	2380	2390	2390	2400	2400	2400	2410
880	2410	2420	2420	2430	2430	2430	2440	2440	2450	2450
890	2460	2460	2460	2470	2470	2480	2480	2490	2490	2500
900	2500	2500	2510	2510	2520	2520	2530	2530	2530	2540
910	2540	2550	2550	2560	2560	2570	2570	2570	2580	2580
920	2590	2590	2600	2600	2610	2610	2610	2620	2620	2630
930	2630	2640	2640	2650	2650	2660	2660	2660	2670	2670
940	2680	2680	2690	2690	2700	2700	2710	2710	2710	2720
950	2720	2730	2730	2740	2740	2750	2750	2760	2760	2770
960	2770	2770	2780	2780	2790	2790	2800	2800	2810	2810

H	0	1	2	3	4	5	6	7	8	9
970	2820	2820	2830	2830	2840	2840	2840	2850	2850	2860
980	2860	2870	2870	2880	2880	2890	2890	2900	2900	2910
990	2910	2920	2920	2930	2930	2940	2940	2940	2950	2950
1000	2960	2960	2970	2970	2980	2980	2990	2990	3000	3000
1010	3010	3010	3020	3020	3030	3030	3040	3040	3050	3050
1020	3060	3060	3070	3070	3080	3080	3090	3090	3100	3100
1030	3110	3110	3120	3120	3130	3130	3140	3140	3150	3150
1040	3160	3160	3170	3170	3180	3180	3190	3190	3200	3200
1050	3210	3210	3220	3220	3230	3230	3240	3240	3250	3250
1060	3260	3260	3270	3270	3280	3280	3290	3290	3300	3300
1070	3310	3310	3320	3320	3330	3330	3340	3340	3350	3350
1080	3360	3360	3370	3380	3380	3390	3390	3400	3400	3410
1090	3410	3420	3420	3430	3430	3440	3440	3450	3450	3460
1100	3460									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5005

POSTAJA: BELISCE POCETAK RADA 1961.
VODOTOK: DRAVA KOTA "0" 83.99 mnm
P.S. km2

KRIVULJA PROTOKA ZA GODINU 1993.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	270	33.500	2.000	1.980	.000
PAR	270	700	85.640	-160.220	525.270	.000

H	0	1	2	3	4	5	6	7	8	9
0	132	133	135	136	137	139	140	141	143	144
10	146	147	148	150	151	153	154	155	157	158
20	160	161	162	164	165	167	168	170	171	173
30	174	176	177	179	180	182	183	185	186	188
40	190	191	193	194	196	198	199	201	202	204
50	206	207	209	210	212	214	215	217	219	220
60	222	224	226	227	229	231	232	234	236	238
70	239	241	243	245	246	248	250	252	254	255
80	257	259	261	263	265	266	268	270	272	274
90	276	278	280	281	283	285	287	289	291	293
100	295	297	299	301	303	305	307	309	311	313
110	315	317	319	321	323	325	327	329	331	333
120	335	337	339	341	343	346	348	350	352	354
130	356	358	360	363	365	367	369	371	374	376
140	378	380	382	385	387	389	391	393	396	398
150	400	402	405	407	409	412	414	416	419	421
160	423	426	428	430	433	435	437	440	442	444
170	447	449	452	454	456	459	461	464	466	469
180	471	473	476	478	481	483	486	488	491	493
190	496	498	501	503	506	509	511	514	516	519
200	521	524	527	529	532	534	537	540	542	545
210	547	550	553	555	558	561	563	566	569	572
220	574	577	580	582	585	588	591	593	596	599
230	602	604	607	610	613	616	618	621	624	627
240	630	632	635	638	641	644	647	650	652	655
250	658	661	664	667	670	673	676	679	682	685
260	688	691	693	696	699	702	705	708	711	714
270	717	720	723	726	729	732	735	739	742	745
280	748	751	754	758	761	764	768	771	774	778
290	781	784	788	791	794	798	801	805	808	812
300	815	819	822	826	830	833	837	841	844	848
310	852	855	859	863	867	870	874	878	882	886
320	890	893	897	901	905	909	913	917	921	925
330	929	933	937	941	946	950	954	958	962	966
340	971	975	979	983	988	992	996	1000	1000	1010
350	1010	1020	1020	1030	1030	1040	1040	1040	1050	1050
360	1060	1060	1070	1070	1080	1080	1090	1090	1100	1100
370	1100	1110	1110	1120	1120	1130	1130	1140	1140	1150
380	1150	1160	1160	1170	1170	1180	1180	1190	1190	1200
390	1200	1210	1210	1220	1220	1230	1230	1240	1240	1250
400	1250	1260	1270	1270	1280	1280	1290	1290	1300	1300
410	1310	1310	1320	1320	1330	1340	1340	1350	1350	1360
420	1360	1370	1370	1380	1390	1390	1400	1400	1410	1410
430	1420	1430	1430	1440	1440	1450	1450	1460	1470	1470

H	0	1	2	3	4	5	6	7	8	9
440	1480	1480	1490	1500	1500	1510	1510	1520	1530	1530
450	1540	1540	1550	1560	1560	1570	1580	1580	1590	1590
460	1600	1610	1610	1620	1630	1630	1640	1640	1650	1660
470	1660	1670	1680	1680	1690	1700	1700	1710	1720	1720
480	1730	1740	1740	1750	1760	1760	1770	1780	1780	1790
490	1800	1800	1810	1820	1820	1830	1840	1840	1850	1860
500	1870	1870	1880	1890	1890	1900	1910	1910	1920	1930
510	1940	1940	1950	1960	1960	1970	1980	1990	1990	2000
520	2010	2020	2020	2030	2040	2040	2050	2060	2070	2070
530	2080	2090	2100	2100	2110	2120	2130	2130	2140	2150
540	2160	2160	2170	2180	2190	2200	2200	2210	2220	2230
550	2230	2240	2250	2260	2270	2270	2280	2290	2300	2310
560	2310	2320	2330	2340	2350	2350	2360	2370	2380	2390
570	2390	2400	2410	2420	2430	2440	2440	2450	2460	2470
580	2480	2490	2490	2500	2510	2520	2530	2540	2540	2550
590	2560	2570	2580	2590	2600	2600	2610	2620	2630	2640
600	2650	2660	2660	2670	2680	2690	2700	2710	2720	2730
610	2730	2740	2750	2760	2770	2780	2790	2800	2810	2810
620	2820	2830	2840	2850	2860	2870	2880	2890	2900	2910
630	2910	2920	2930	2940	2950	2960	2970	2980	2990	3000
640	3010	3020	3030	3040	3050	3050	3060	3070	3080	3090
650	3100	3110	3120	3130	3140	3150	3160	3170	3180	3190
660	3200	3210	3220	3230	3240	3250	3260	3270	3280	3290
670	3300	3310	3320	3330	3340	3350	3360	3370	3380	3390
680	3400	3410	3420	3430	3440	3450	3460	3470	3480	3490
690	3500	3510	3520	3530	3540	3550	3560	3570	3580	3590
700	3600									

DRZAVNI HMZ REPUBLIKE HRVATSKE   SIFRA POSTAJE 3211

POSTAJA: ZUPANJA STEPENICA   POCETAK RADA 1978.
VODOTOK: SAVA   KOTA "0" 76.28 mnm
P.S. 62892 km2

KRIVULJA PROTOKA ZA GODINU 1996.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-100	250	114.770	1.890	1.330	.000
LOG	250	1000	54.440	2.670	1.653	.000

H	0	1	2	3	4	5	6	7	8	9
-100	98.3									
-90	113	112	110	109	107	106	104	103	101	99.8
-80	129	127	126	124	122	121	119	118	116	115
-70	145	143	141	140	138	137	135	133	132	130
-60	161	159	158	156	154	153	151	150	148	146
-50	178	176	174	173	171	169	168	166	164	163
-40	195	193	192	190	188	186	185	183	181	180
-30	213	211	209	207	206	204	202	200	199	197
-20	231	229	227	225	223	222	220	218	216	214
-10	249	247	245	243	242	240	238	236	234	232
0	268	266	264	262	260	258	256	255	253	251
0	268	270	271	273	275	277	279	281	283	285
10	287	289	290	292	294	296	298	300	302	304
20	306	308	310	312	314	316	318	320	322	324
30	326	328	330	331	333	335	337	339	341	343
40	345	347	349	352	354	356	358	360	362	364
50	366	368	370	372	374	376	378	380	382	384
60	386	388	390	392	394	397	399	401	403	405
70	407	409	411	413	415	417	420	422	424	426
80	428	430	432	434	436	439	441	443	445	447
90	449	451	454	456	458	460	462	464	466	469
100	471	473	475	477	479	482	484	486	488	490
110	493	495	497	499	501	504	506	508	510	512
120	515	517	519	521	523	526	528	530	532	535
130	537	539	541	544	546	548	550	553	555	557
140	559	562	564	566	568	571	573	575	578	580
150	582	584	587	589	591	594	596	598	600	603
160	605	607	610	612	614	617	619	621	624	626
170	628	631	633	635	638	640	642	645	647	649
180	652	654	656	659	661	663	666	668	670	673
190	675	678	680	682	685	687	689	692	694	697
200	699	701	704	706	709	711	713	716	718	721
210	723	725	728	730	733	735	737	740	742	745
220	747	750	752	754	757	759	762	764	767	769
230	772	774	776	779	781	784	786	789	791	794
240	796	799	801	804	806	809	811	813	816	818
250	823	825	828	831	833	836	839	841	844	847
260	849	852	855	857	860	863	865	868	871	873
270	876	879	882	884	887	890	892	895	898	901
280	903	906	909	911	914	917	920	922	925	928
290	931	933	936	939	942	945	947	950	953	956
300	959	961	964	967	970	973	975	978	981	984
310	987	989	992	995	998	1000	1000	1010	1010	1010
320	1020	1020	1020	1020	1030	1030	1030	1040	1040	1040

H	0	1	2	3	4	5	6	7	8	9
330	1040	1050	1050	1050	1060	1060	1060	1060	1070	1070
340	1070	1080	1080	1080	1080	1090	1090	1090	1100	1100
350	1100	1110	1110	1110	1110	1120	1120	1120	1130	1130
360	1130	1130	1140	1140	1140	1150	1150	1150	1160	1160
370	1160	1160	1170	1170	1170	1180	1180	1180	1190	1190
380	1190	1200	1200	1200	1200	1210	1210	1210	1220	1220
390	1220	1230	1230	1230	1240	1240	1240	1240	1250	1250
400	1250	1260	1260	1260	1270	1270	1270	1280	1280	1280
410	1280	1290	1290	1290	1300	1300	1300	1310	1310	1310
420	1320	1320	1320	1330	1330	1330	1340	1340	1340	1350
430	1350	1350	1350	1360	1360	1360	1370	1370	1370	1380
440	1380	1380	1390	1390	1390	1400	1400	1400	1410	1410
450	1410	1420	1420	1420	1430	1430	1430	1440	1440	1440
460	1450	1450	1450	1460	1460	1460	1470	1470	1470	1480
470	1480	1480	1490	1490	1490	1500	1500	1500	1510	1510
480	1510	1520	1520	1520	1530	1530	1530	1540	1540	1540
490	1550	1550	1550	1560	1560	1560	1570	1570	1570	1580
500	1580	1580	1590	1590	1590	1600	1600	1600	1610	1610
510	1610	1620	1620	1620	1630	1630	1630	1640	1640	1640
520	1650	1650	1650	1660	1660	1670	1670	1670	1680	1680
530	1680	1690	1690	1690	1700	1700	1700	1710	1710	1710
540	1720	1720	1720	1730	1730	1740	1740	1740	1750	1750
550	1750	1760	1760	1760	1770	1770	1770	1780	1780	1790
560	1790	1790	1800	1800	1800	1810	1810	1810	1820	1820
570	1820	1830	1830	1840	1840	1840	1850	1850	1850	1860
580	1860	1860	1870	1870	1880	1880	1880	1890	1890	1890
590	1900	1900	1900	1910	1910	1920	1920	1920	1930	1930
600	1930	1940	1940	1950	1950	1950	1960	1960	1960	1970
610	1970	1970	1980	1980	1990	1990	1990	2000	2000	2000
620	2010	2010	2020	2020	2020	2030	2030	2030	2040	2040
630	2050	2050	2050	2060	2060	2060	2070	2070	2080	2080
640	2080	2090	2090	2100	2100	2100	2110	2110	2110	2120
650	2120	2130	2130	2130	2140	2140	2140	2150	2150	2160
660	2160	2160	2170	2170	2180	2180	2180	2190	2190	2200
670	2200	2200	2210	2210	2210	2220	2220	2230	2230	2230
680	2240	2240	2250	2250	2250	2260	2260	2270	2270	2270
690	2280	2280	2280	2290	2290	2300	2300	2300	2310	2310
700	2320	2320	2320	2330	2330	2340	2340	2340	2350	2350
710	2360	2360	2360	2370	2370	2380	2380	2380	2390	2390
720	2400	2400	2400	2410	2410	2420	2420	2420	2430	2430
730	2440	2440	2440	2450	2450	2460	2460	2460	2470	2470
740	2480	2480	2490	2490	2490	2500	2500	2510	2510	2510
750	2520	2520	2530	2530	2530	2540	2540	2550	2550	2550
760	2560	2560	2570	2570	2580	2580	2580	2590	2590	2600
770	2600	2600	2610	2610	2620	2620	2630	2630	2630	2640
780	2640	2650	2650	2650	2660	2660	2670	2670	2680	2680
790	2680	2690	2690	2700	2700	2700	2710	2710	2720	2720
800	2730	2730	2730	2740	2740	2750	2750	2760	2760	2760
810	2770	2770	2780	2780	2790	2790	2790	2800	2800	2810
820	2810	2810	2820	2820	2830	2830	2840	2840	2840	2850
830	2850	2860	2860	2870	2870	2880	2880	2880	2890	2890
840	2900	2900	2910	2910	2910	2920	2920	2930	2930	2940
850	2940	2940	2950	2950	2960	2960	2970	2970	2970	2980
860	2980	2990	2990	3000	3000	3010	3010	3010	3020	3020

H	0	1	2	3	4	5	6	7	8	9
870	3030	3030	3040	3040	3050	3050	3050	3060	3060	3070
880	3070	3080	3080	3080	3090	3090	3100	3100	3110	3110
890	3120	3120	3120	3130	3130	3140	3140	3150	3150	3160
900	3160	3170	3170	3170	3180	3180	3190	3190	3200	3200
910	3210	3210	3210	3220	3220	3230	3230	3240	3240	3250
920	3250	3260	3260	3260	3270	3270	3280	3280	3290	3290
930	3300	3300	3310	3310	3310	3320	3320	3330	3330	3340
940	3340	3350	3350	3360	3360	3360	3370	3370	3380	3380
950	3390	3390	3400	3400	3410	3410	3420	3420	3420	3430
960	3430	3440	3440	3450	3450	3460	3460	3470	3470	3480
970	3480	3480	3490	3490	3500	3500	3510	3510	3520	3520
980	3530	3530	3540	3540	3550	3550	3550	3560	3560	3570
990	3570	3580	3580	3590	3590	3600	3600	3610	3610	3620
1000	3620									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5008

POSTAJA: BOTOVO POCETAK RADA 1873.
VODOTOK: DRAVA KOTA "0" 121.55 mnm
P.S. 31038 km2

KRIVULJA PROTOKA ZA GODINU 1996.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	0	140	29.175	1.000	2.603	115.000
PAR	140	212	.000	293.827	-11.062	.000
PAR	212	600	89.720	-96.819	414.020	.000

H	0	1	2	3	4	5	6	7	8	9
0	144	145	146	147	147	148	149	150	151	152
10	152	153	154	155	156	157	158	159	160	161
20	162	163	164	165	166	167	168	169	170	172
30	173	174	175	176	177	179	180	181	182	184
40	185	186	188	189	190	192	193	195	196	197
50	199	200	202	203	205	206	208	209	211	213
60	214	216	217	219	221	222	224	226	228	229
70	231	233	235	237	238	240	242	244	246	248
80	250	252	254	256	258	260	262	264	266	268
90	270	272	274	277	279	281	283	285	288	290
100	292	295	297	299	302	304	306	309	311	314
110	316	319	321	324	326	329	332	334	337	339
120	342	345	348	350	353	356	359	361	364	367
130	370	373	376	379	382	385	388	391	394	397
140	400	403	406	409	412	415	418	421	424	427
150	430	433	436	438	441	444	447	450	453	456
160	459	462	465	468	471	474	477	480	483	486
170	488	491	494	497	500	503	506	509	512	515
180	518	521	524	527	530	533	535	538	541	544
190	547	550	553	556	559	562	565	568	571	574
200	577	580	582	585	588	591	594	597	600	603
210	606	609	612	615	618	621	623	626	629	632
220	635	638	641	644	647	650	653	657	660	663
230	666	669	672	676	679	682	685	689	692	695
240	698	702	705	709	712	715	719	722	726	729
250	733	736	740	743	747	751	754	758	761	765
260	769	773	776	780	784	788	791	795	799	803
270	807	811	814	818	822	826	830	834	838	842
280	846	850	854	859	863	867	871	875	879	884
290	888	892	896	901	905	909	914	918	922	927
300	931	935	940	944	949	953	958	962	967	972
310	976	981	985	990	995	999	1000	1010	1010	1020
320	1020	1030	1030	1040	1040	1050	1050	1060	1060	1070
330	1070	1080	1080	1090	1090	1100	1100	1110	1110	1120
340	1120	1130	1130	1140	1140	1150	1150	1160	1160	1170
350	1170	1180	1180	1190	1200	1200	1210	1210	1220	1220
360	1230	1230	1240	1240	1250	1260	1260	1270	1270	1280
370	1280	1290	1300	1300	1310	1310	1320	1320	1330	1340
380	1340	1350	1350	1360	1370	1370	1380	1380	1390	1400
390	1400	1410	1410	1420	1430	1430	1440	1440	1450	1460
400	1460	1470	1470	1480	1490	1490	1500	1510	1510	1520
410	1530	1530	1540	1540	1550	1560	1560	1570	1580	1580
420	1590	1600	1600	1610	1620	1620	1630	1640	1640	1650

H	0	1	2	3	4	5	6	7	8	9
430	1660	1660	1670	1680	1680	1690	1700	1700	1710	1720
440	1720	1730	1740	1750	1750	1760	1770	1770	1780	1790
450	1800	1800	1810	1820	1820	1830	1840	1850	1850	1860
460	1870	1870	1880	1890	1900	1900	1910	1920	1930	1930
470	1940	1950	1960	1960	1970	1980	1990	1990	2000	2010
480	2020	2020	2030	2040	2050	2050	2060	2070	2080	2090
490	2090	2100	2110	2120	2130	2130	2140	2150	2160	2160
500	2170	2180	2190	2200	2210	2210	2220	2230	2240	2250
510	2250	2260	2270	2280	2290	2300	2300	2310	2320	2330
520	2340	2340	2350	2360	2370	2380	2390	2400	2400	2410
530	2420	2430	2440	2450	2460	2460	2470	2480	2490	2500
540	2510	2520	2520	2530	2540	2550	2560	2570	2580	2590
550	2600	2600	2610	2620	2630	2640	2650	2660	2670	2680
560	2690	2690	2700	2710	2720	2730	2740	2750	2760	2770
570	2780	2790	2800	2810	2810	2820	2830	2840	2850	2860
580	2870	2880	2890	2900	2910	2920	2930	2940	2950	2960
590	2970	2980	2990	2990	3000	3010	3020	3030	3040	3050
600	3060									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5063

POSTAJA: TEREZINO POLJE POCETAK RADA 1872.
VODOTOK: DRAVA KOTA "0" 100.67 mnm
P.S. 33916 km2

KRIVULJA PROTOKA ZA GODINU 1996.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-320	-160	190.000	3.400	1.171	140.000
PAR	-160	100	51.099	362.200	966.700	.000
PAR	100	500	73.891	387.698	919.000	.000

H	0	1	2	3	4	5	6	7	8	9
-320	169									
-310	186	185	183	181	179	177	176	174	172	171
-300	205	203	201	199	197	196	194	192	190	188
-290	224	222	220	218	217	215	213	211	209	207
-280	244	242	240	238	236	234	232	230	228	226
-270	265	263	261	259	257	255	253	251	249	247
-260	286	284	282	280	278	276	274	271	269	267
-250	308	306	304	301	299	297	295	293	291	288
-240	330	328	326	323	321	319	317	315	312	310
-230	352	350	348	346	343	341	339	337	334	332
-220	375	373	371	368	366	364	362	359	357	355
-210	398	396	394	391	389	387	384	382	380	378
-200	422	419	417	415	412	410	408	405	403	401
-190	445	443	441	438	436	434	431	429	426	424
-180	469	467	465	462	460	457	455	453	450	448
-170	494	491	489	486	484	482	479	477	474	472
-160	518	516	513	511	508	506	503	501	499	496
-150	538	536	534	532	530	528	526	524	522	520
-140	560	558	555	553	551	549	547	545	543	540
-130	582	580	578	575	573	571	569	566	564	562
-120	606	603	601	599	596	594	591	589	587	584
-110	630	628	625	623	620	618	615	613	610	608
-100	656	653	650	648	645	643	640	638	635	633
-90	682	679	677	674	671	669	666	663	661	658
-80	710	707	704	701	699	696	693	690	688	685
-70	738	735	732	730	727	724	721	718	715	712
-60	768	765	762	759	756	753	750	747	744	741
-50	798	795	792	789	786	783	780	777	774	771
-40	830	827	824	820	817	814	811	808	805	801
-30	863	859	856	853	849	846	843	840	836	833
-20	896	893	889	886	883	879	876	873	869	866
-10	931	927	924	920	917	914	910	907	903	900
0	967	963	959	956	952	949	945	942	938	935
0	967	970	974	978	981	985	989	992	996	1000
10	1000	1010	1010	1010	1020	1020	1030	1030	1030	1040
20	1040	1050	1050	1050	1060	1060	1060	1070	1070	1080
30	1080	1080	1090	1090	1100	1100	1100	1110	1110	1120
40	1120	1120	1130	1130	1140	1140	1140	1150	1150	1160
50	1160	1160	1170	1170	1180	1180	1190	1190	1190	1200
60	1200	1210	1210	1220	1220	1220	1230	1230	1240	1240
70	1250	1250	1250	1260	1260	1270	1270	1280	1280	1280
80	1290	1290	1300	1300	1310	1310	1320	1320	1330	1330
90	1330	1340	1340	1350	1350	1360	1360	1370	1370	1380

H	0	1	2	3	4	5	6	7	8	9
100	1380	1390	1390	1400	1400	1410	1410	1420	1420	1430
110	1430	1440	1450	1450	1460	1460	1470	1470	1480	1480
120	1490	1500	1500	1510	1510	1520	1520	1530	1540	1540
130	1550	1550	1560	1570	1570	1580	1580	1590	1590	1600
140	1610	1610	1620	1620	1630	1640	1640	1650	1650	1660
150	1670	1670	1680	1690	1690	1700	1700	1710	1720	1720
160	1730	1730	1740	1750	1750	1760	1770	1770	1780	1790
170	1790	1800	1800	1810	1820	1820	1830	1840	1840	1850
180	1860	1860	1870	1880	1880	1890	1900	1900	1910	1920
190	1920	1930	1940	1940	1950	1960	1960	1970	1980	1980
200	1990	2000	2000	2010	2020	2020	2030	2040	2050	2050
210	2060	2070	2070	2080	2090	2090	2100	2110	2120	2120
220	2130	2140	2140	2150	2160	2170	2170	2180	2190	2190
230	2200	2210	2220	2220	2230	2240	2250	2250	2260	2270
240	2280	2280	2290	2300	2300	2310	2320	2330	2330	2340
250	2350	2360	2370	2370	2380	2390	2400	2400	2410	2420
260	2430	2430	2440	2450	2460	2470	2470	2480	2490	2500
270	2500	2510	2520	2530	2540	2540	2550	2560	2570	2580
280	2580	2590	2600	2610	2620	2620	2630	2640	2650	2660
290	2660	2670	2680	2690	2700	2710	2710	2720	2730	2740
300	2750	2760	2760	2770	2780	2790	2800	2810	2810	2820
310	2830	2840	2850	2860	2860	2870	2880	2890	2900	2910
320	2920	2920	2930	2940	2950	2960	2970	2980	2990	2990
330	3000	3010	3020	3030	3040	3050	3060	3060	3070	3080
340	3090	3100	3110	3120	3130	3140	3150	3150	3160	3170
350	3180	3190	3200	3210	3220	3230	3240	3240	3250	3260
360	3270	3280	3290	3300	3310	3320	3330	3340	3350	3360
370	3370	3370	3380	3390	3400	3410	3420	3430	3440	3450
380	3460	3470	3480	3490	3500	3510	3520	3530	3540	3550
390	3550	3560	3570	3580	3590	3600	3610	3620	3630	3640
400	3650	3660	3670	3680	3690	3700	3710	3720	3730	3740
410	3750	3760	3770	3780	3790	3800	3810	3820	3830	3840
420	3850	3860	3870	3880	3890	3900	3910	3920	3930	3940
430	3950	3960	3970	3980	3990	4000	4010	4020	4030	4050
440	4060	4070	4080	4090	4100	4110	4120	4130	4140	4150
450	4160	4170	4180	4190	4200	4210	4220	4230	4240	4260
460	4270	4280	4290	4300	4310	4320	4330	4340	4350	4360
470	4370	4380	4400	4410	4420	4430	4440	4450	4460	4470
480	4480	4490	4500	4520	4530	4540	4550	4560	4570	4580
490	4590	4600	4620	4630	4640	4650	4660	4670	4680	4690
500	4700									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5150

POSTAJA: DONJI MIHOLJAC C.S. POCETAK RADA 1988.
VODOTOK: DRAVA KOTA "0" 88.57 mnm
P.S. 37142 km2

KRIVULJA PROTOKA ZA GODINU 1996.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-100	270	30.098	3.830	1.896	.000
PAR	270	600	75.585	-40.268	612.710	.000

H	0	1	2	3	4	5	6	7	8	9
-100	216									
-90	231	230	228	227	225	224	222	221	219	218
-80	246	245	243	242	240	239	237	236	234	233
-70	262	260	259	257	256	254	252	251	249	248
-60	278	276	275	273	271	270	268	267	265	263
-50	295	293	291	289	288	286	285	283	281	280
-40	311	310	308	306	305	303	301	300	298	296
-30	329	327	325	324	322	320	318	317	315	313
-20	347	345	343	341	340	338	336	334	332	331
-10	365	363	361	360	358	356	354	352	350	349
0	384	382	380	378	376	375	373	371	369	367
0	384	386	388	390	392	394	395	397	399	401
10	403	405	407	409	411	413	415	417	419	421
20	423	425	427	429	431	433	435	437	439	441
30	443	445	447	449	451	453	455	457	459	461
40	464	466	468	470	472	474	476	478	480	482
50	485	487	489	491	493	495	497	499	502	504
60	506	508	510	512	515	517	519	521	523	526
70	528	530	532	534	537	539	541	543	546	548
80	550	552	555	557	559	561	564	566	568	571
90	573	575	577	580	582	584	587	589	591	594
100	596	598	601	603	605	608	610	613	615	617
110	620	622	624	627	629	632	634	636	639	641
120	644	646	649	651	653	656	658	661	663	666
130	668	671	673	676	678	681	683	686	688	691
140	693	696	698	701	703	706	708	711	713	716
150	718	721	724	726	729	731	734	736	739	742
160	744	747	749	752	755	757	760	763	765	768
170	770	773	776	778	781	784	786	789	792	794
180	797	800	802	805	808	811	813	816	819	821
190	824	827	830	832	835	838	841	843	846	849
200	852	854	857	860	863	866	868	871	874	877
210	880	882	885	888	891	894	896	899	902	905
220	908	911	914	916	919	922	925	928	931	934
230	937	940	942	945	948	951	954	957	960	963
240	966	969	972	975	978	981	984	986	989	992
250	995	998	1000	1000	1010	1010	1010	1020	1020	1020
260	1030	1030	1030	1030	1040	1040	1040	1050	1050	1050
270	1060	1060	1060	1070	1070	1070	1080	1080	1080	1090
280	1090	1100	1100	1100	1110	1110	1120	1120	1120	1130
290	1130	1140	1140	1140	1150	1150	1160	1160	1160	1170
300	1170	1180	1180	1180	1190	1190	1200	1200	1210	1210
310	1210	1220	1220	1230	1230	1240	1240	1240	1250	1250
320	1260	1260	1270	1270	1280	1280	1280	1290	1290	1300

H	0	1	2	3	4	5	6	7	8	9
330	1300	1310	1310	1320	1320	1330	1330	1340	1340	1340
340	1350	1350	1360	1360	1370	1370	1380	1380	1390	1390
350	1400	1400	1410	1410	1420	1420	1430	1430	1440	1440
360	1450	1450	1460	1460	1470	1470	1480	1480	1490	1490
370	1500	1500	1510	1510	1520	1520	1530	1540	1540	1550
380	1550	1560	1560	1570	1570	1580	1580	1590	1590	1600
390	1610	1610	1620	1620	1630	1630	1640	1640	1650	1660
400	1660	1670	1670	1680	1680	1690	1700	1700	1710	1710
410	1720	1720	1730	1740	1740	1750	1750	1760	1770	1770
420	1780	1780	1790	1790	1800	1810	1810	1820	1820	1830
430	1840	1840	1850	1860	1860	1870	1870	1880	1890	1890
440	1900	1910	1910	1920	1920	1930	1940	1940	1950	1960
450	1960	1970	1970	1980	1990	1990	2000	2010	2010	2020
460	2030	2030	2040	2050	2050	2060	2070	2070	2080	2090
470	2090	2100	2110	2110	2120	2130	2130	2140	2150	2150
480	2160	2170	2170	2180	2190	2200	2200	2210	2220	2220
490	2230	2240	2240	2250	2260	2270	2270	2280	2290	2290
500	2300	2310	2320	2320	2330	2340	2340	2350	2360	2370
510	2370	2380	2390	2400	2400	2410	2420	2420	2430	2440
520	2450	2450	2460	2470	2480	2480	2490	2500	2510	2510
530	2520	2530	2540	2550	2550	2560	2570	2580	2580	2590
540	2600	2610	2610	2620	2630	2640	2650	2650	2660	2670
550	2680	2690	2690	2700	2710	2720	2730	2730	2740	2750
560	2760	2770	2770	2780	2790	2800	2810	2810	2820	2830
570	2840	2850	2860	2860	2870	2880	2890	2900	2910	2910
580	2920	2930	2940	2950	2960	2960	2970	2980	2990	3000
590	3010	3010	3020	3030	3040	3050	3060	3070	3070	3080
600	3090									

DRZAVNI HMZ REPUBLIKE HRVATSKE SIFRA POSTAJE 5098

POSTAJA: NOVO VIRJE - SKELA POCETAK RADA 1976.
VODOTOK: DRAVA KOTA "0" 108.86 mnm
P.S. km2

KRIVULJA PROTOKA ZA GODINU 1996.

VRSTA	MINH	MAXH	A(1)	A(2)	A(3)	A(4)
LOG	-40	64	97.964	.750	1.979	120.000
PAR	64	180	44.580	168.380	182.111	.000
PAR	180	500	135.660	-159.500	477.560	.000

H	0	1	2	3	4	5	6	7	8	9
-40	132									
-30	140	139	138	138	137	136	135	134	134	133
-20	150	149	148	147	146	145	144	143	142	141
-10	162	161	159	158	157	156	154	153	152	151
0	175	174	173	171	170	168	167	166	164	163
0	175	177	178	180	181	183	185	186	188	189
10	191	193	194	196	198	200	201	203	205	207
20	209	210	212	214	216	218	220	222	224	226
30	228	230	232	234	236	238	240	243	245	247
40	249	251	254	256	258	261	263	265	268	270
50	272	275	277	280	282	285	287	290	292	295
60	297	300	303	305	308	310	313	315	317	320
70	322	324	326	329	331	333	336	338	341	343
80	345	348	350	353	355	357	360	362	365	367
90	370	372	375	377	380	382	385	387	390	393
100	395	398	400	403	405	408	411	413	416	419
110	421	424	427	429	432	435	437	440	443	446
120	448	451	454	457	459	462	465	468	471	474
130	476	479	482	485	488	491	494	496	499	502
140	505	508	511	514	517	520	523	526	529	532
150	535	538	541	544	547	550	553	556	559	563
160	566	569	572	575	578	581	584	588	591	594
170	597	600	604	607	610	613	617	620	623	626
180	630	633	637	640	643	647	650	654	657	661
190	664	668	671	675	679	682	686	690	694	697
200	701	705	709	713	717	721	725	729	733	737
210	741	745	749	753	757	762	766	770	775	779
220	783	788	792	796	801	805	810	815	819	824
230	828	833	838	842	847	852	857	862	866	871
240	876	881	886	891	896	901	906	911	916	922
250	927	932	937	942	948	953	958	964	969	974
260	980	985	991	996	1000	1010	1010	1020	1020	1030
270	1040	1040	1050	1050	1060	1060	1070	1080	1080	1090
280	1090	1100	1110	1110	1120	1120	1130	1140	1140	1150
290	1160	1160	1170	1170	1180	1190	1190	1200	1210	1210
300	1220	1230	1230	1240	1250	1250	1260	1270	1270	1280
310	1290	1290	1300	1310	1310	1320	1330	1340	1340	1350
320	1360	1360	1370	1380	1380	1390	1400	1410	1410	1420
330	1430	1440	1440	1450	1460	1470	1470	1480	1490	1500
340	1500	1510	1520	1530	1530	1540	1550	1560	1570	1570
350	1580	1590	1600	1600	1610	1620	1630	1640	1650	1650
360	1660	1670	1680	1690	1690	1700	1710	1720	1730	1740
370	1740	1750	1760	1770	1780	1790	1800	1800	1810	1820

H	0	1	2	3	4	5	6	7	8	9
380	1830	1840	1850	1860	1870	1870	1880	1890	1900	1910
390	1920	1930	1940	1950	1960	1960	1970	1980	1990	2000
400	2010	2020	2030	2040	2050	2060	2070	2080	2090	2090
410	2100	2110	2120	2130	2140	2150	2160	2170	2180	2190
420	2200	2210	2220	2230	2240	2250	2260	2270	2280	2290
430	2300	2310	2320	2330	2340	2350	2360	2370	2380	2390
440	2400	2410	2420	2430	2440	2450	2460	2480	2490	2500
450	2510	2520	2530	2540	2550	2560	2570	2580	2590	2600
460	2610	2630	2640	2650	2660	2670	2680	2690	2700	2710
470	2720	2740	2750	2760	2770	2780	2790	2800	2810	2830
480	2840	2850	2860	2870	2880	2900	2910	2920	2930	2940
490	2950	2960	2980	2990	3000	3010	3020	3040	3050	3060
500	3070									

Hydrographs for 1994-1996*

*Verified data for 1997 still does not exist

Table 3 Hydrographs for 1994-1996*

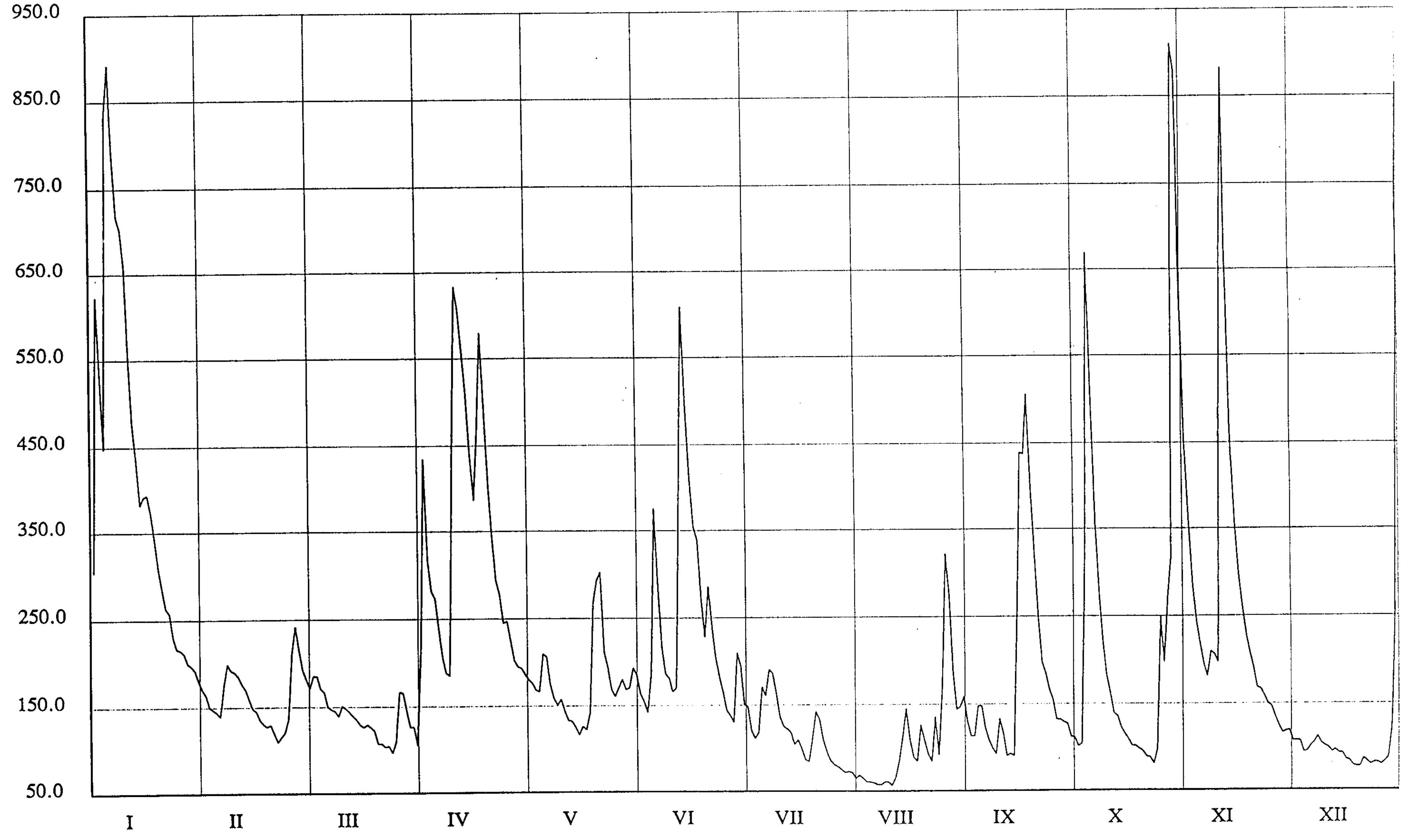
River	Hydrological station	Year		
		1994	1995	1996
Sava	Jesenice	+	+	+
	Podsused	+	+	+
	Zagreb	+	+	(.)
	Rugvica	+	+	(.)
Drava	Botovo	+	+	+
	Terezino Polje	+	+	+
	Donji Miholjac	+	+	+
	Belisce	(.)	(.)	(.)

(.) – stage

** – verified data for 1997 still does not exist*

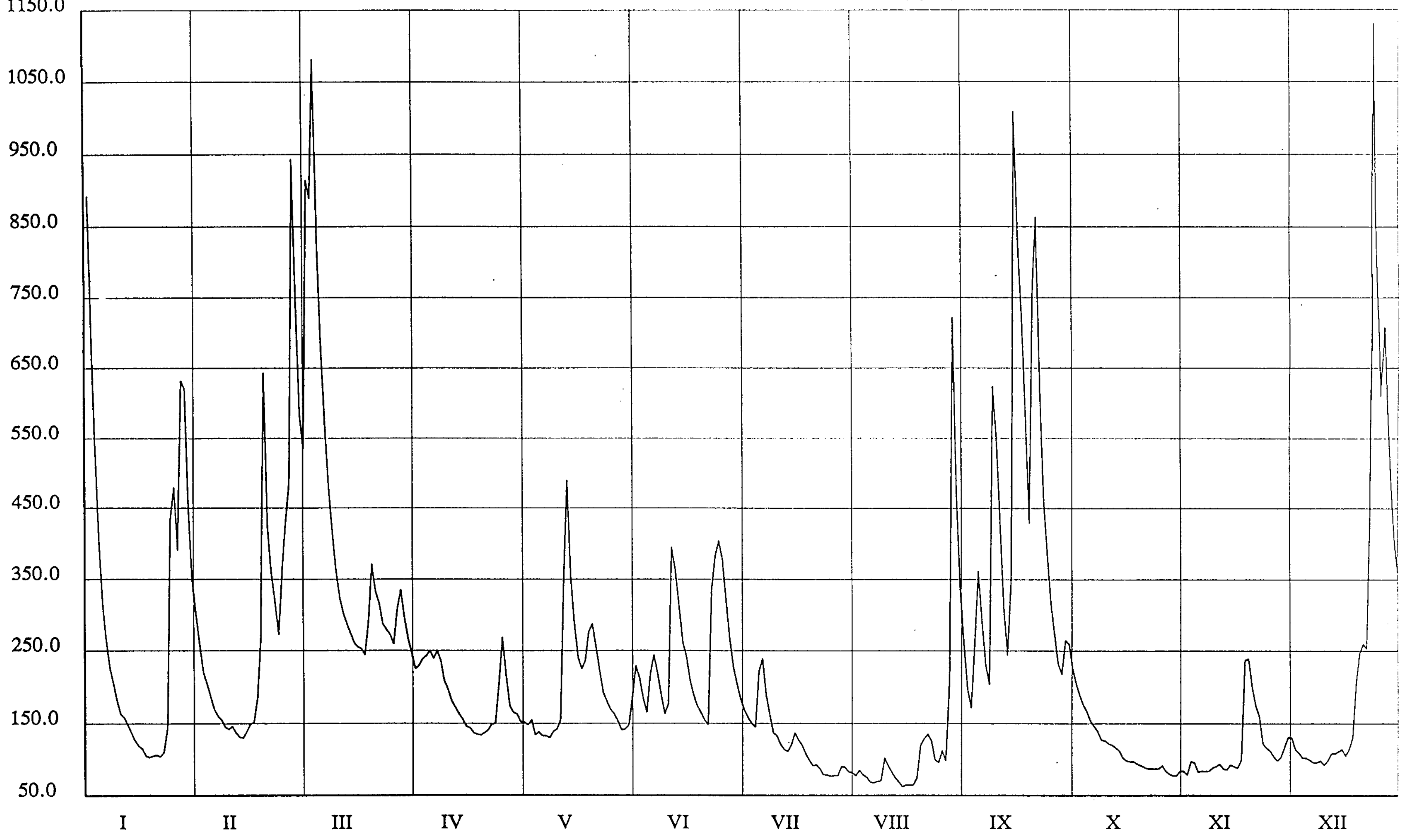
HYDROGRAPH

River: Sava Station: Jesenice 1994.



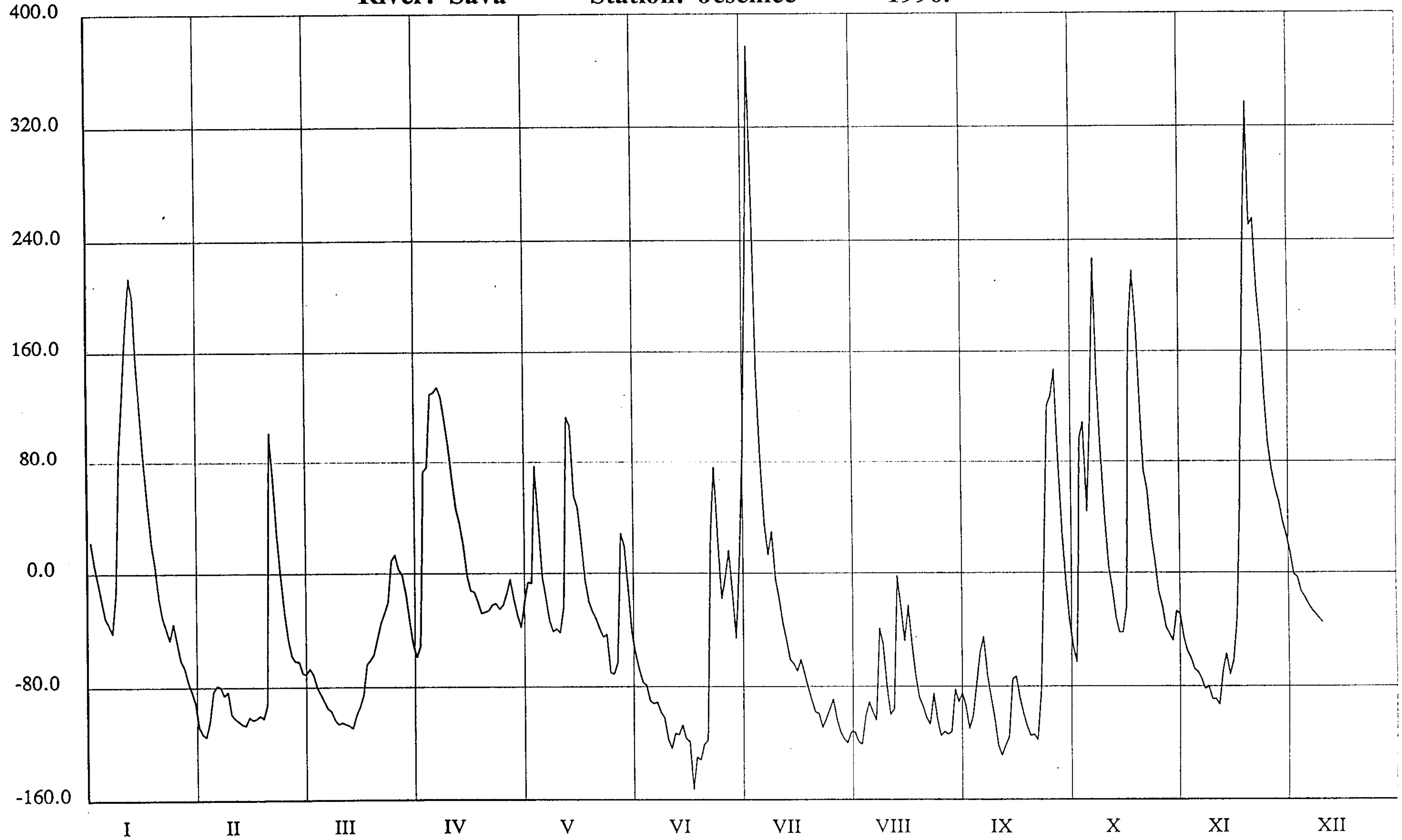
HYDROGRAPH

River: Sava   Station: Jesenice   1995.



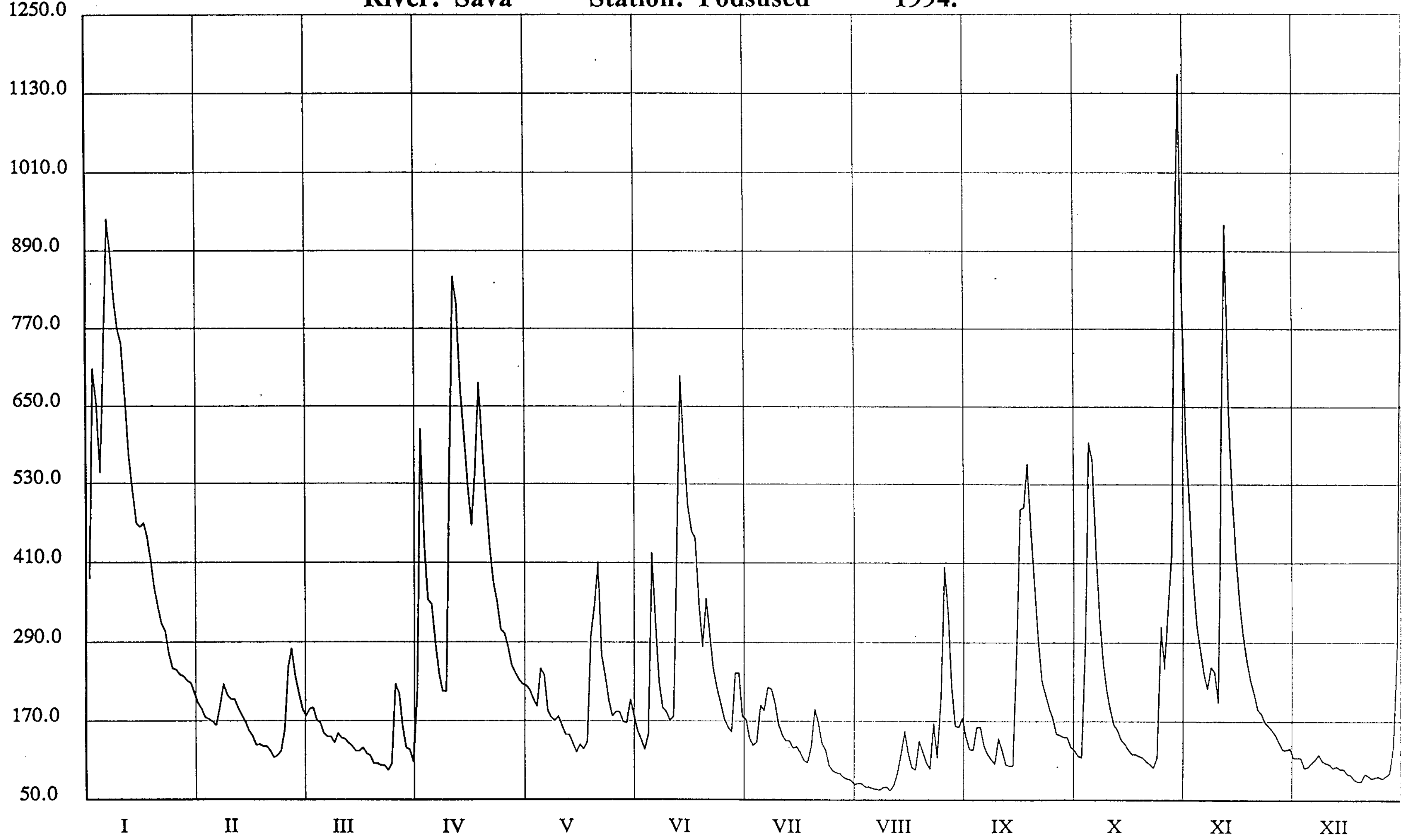
LEVEL GRAPH

River: Sava Station: Jesenice 1996.



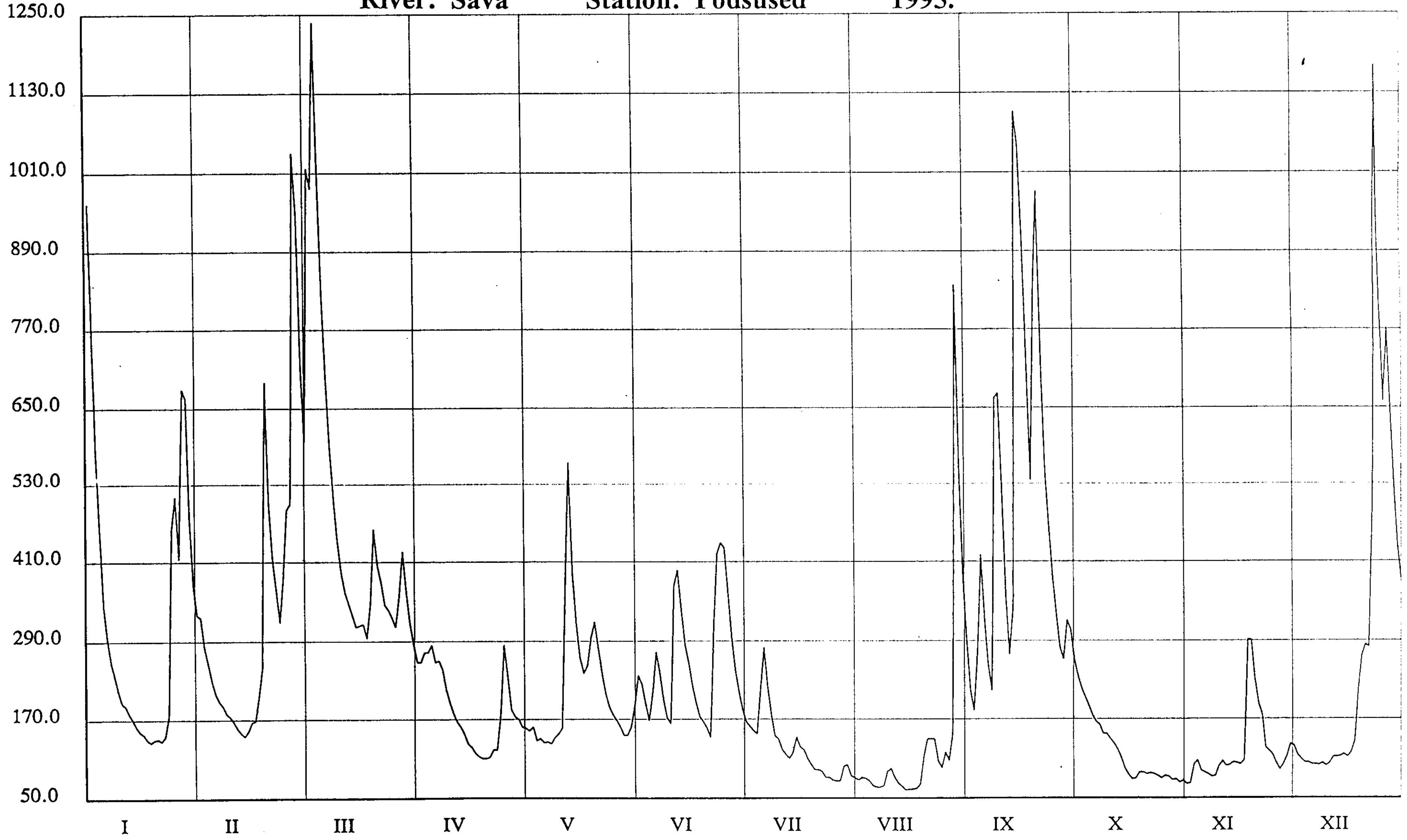
HYDROGRAPH

River: Sava Station: Podsused 1994.



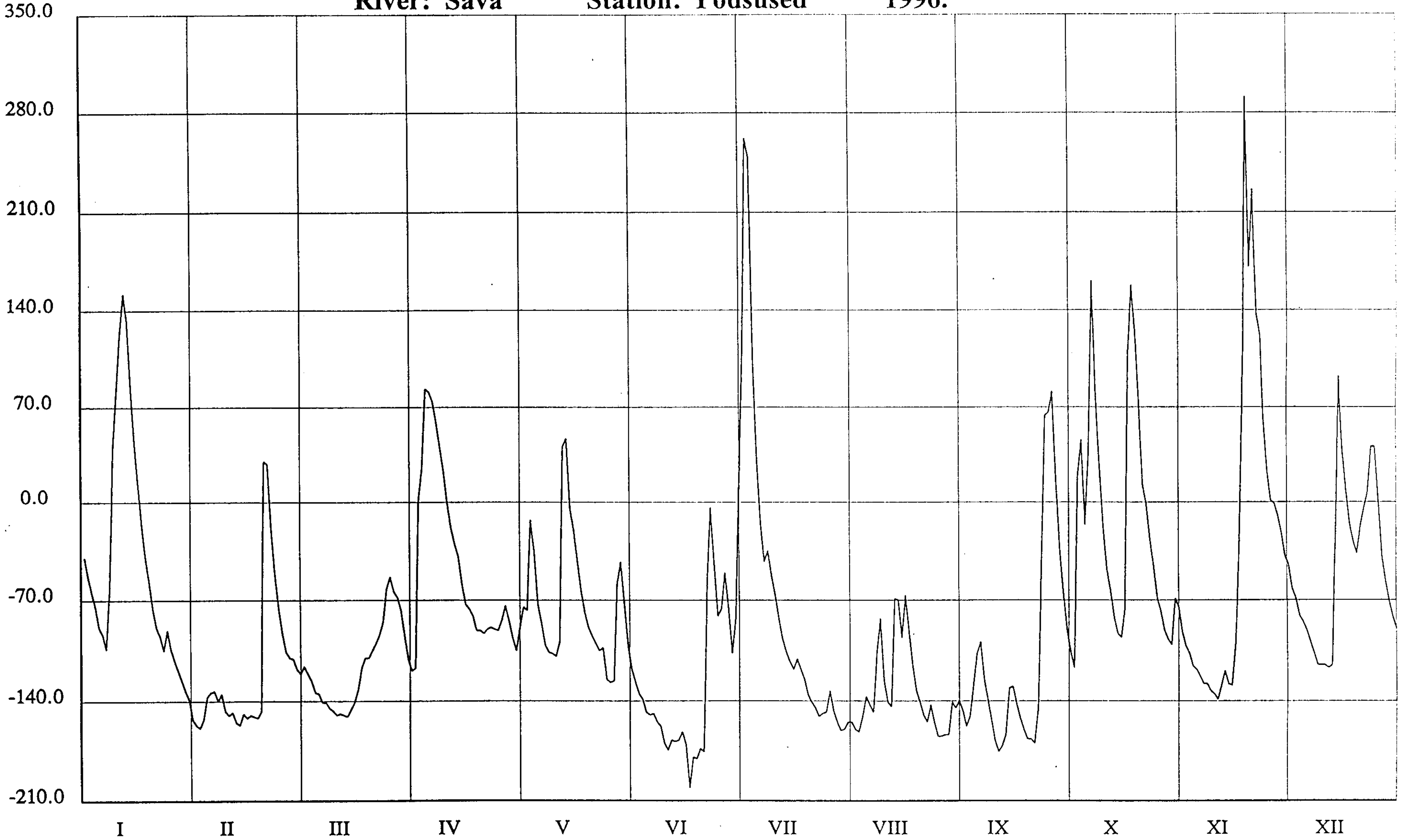
HYDROGRAPH

River: Sava   Station: Podsused   1995.



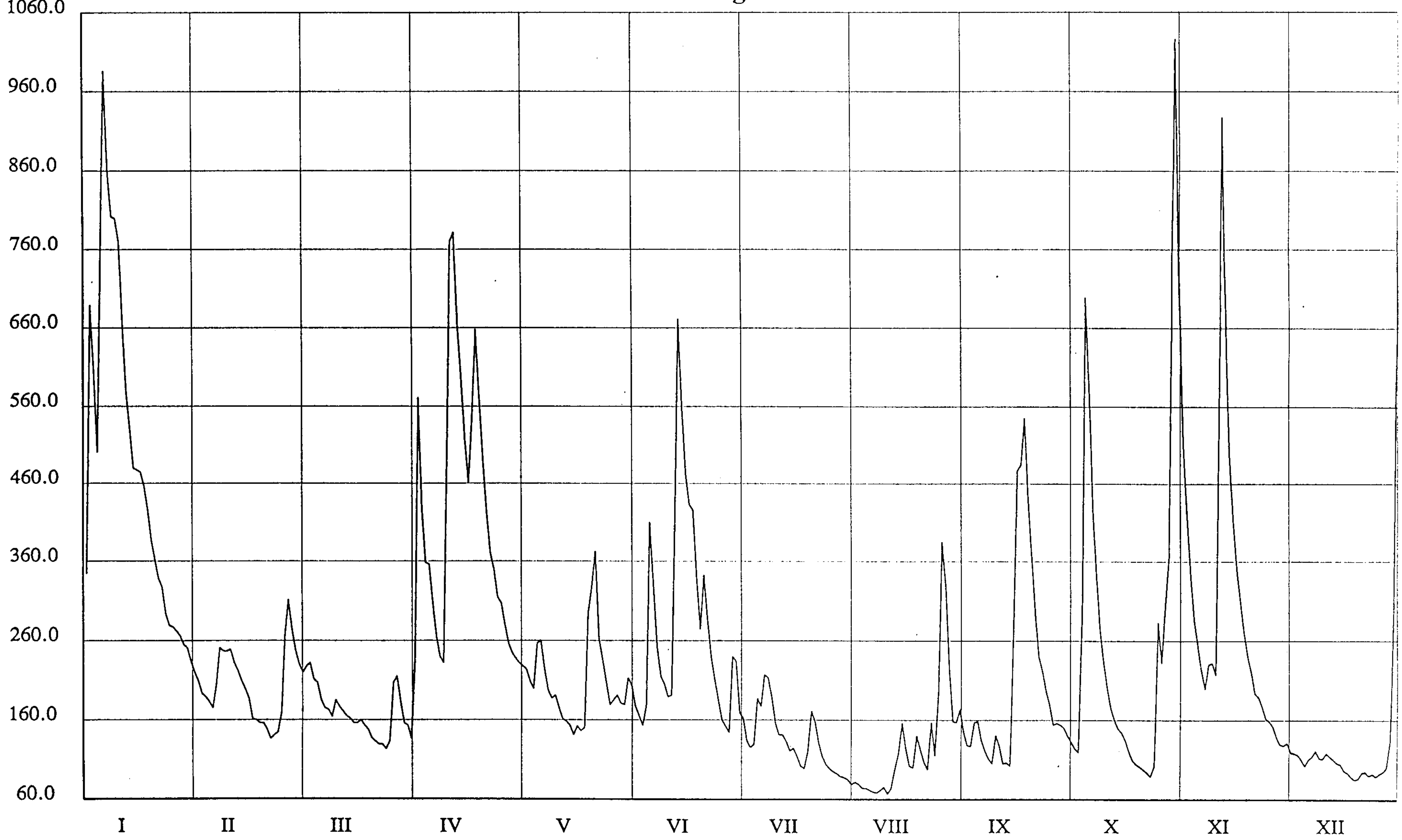
LEVEL GRAPH

River: Sava Station: Podsused 1996.



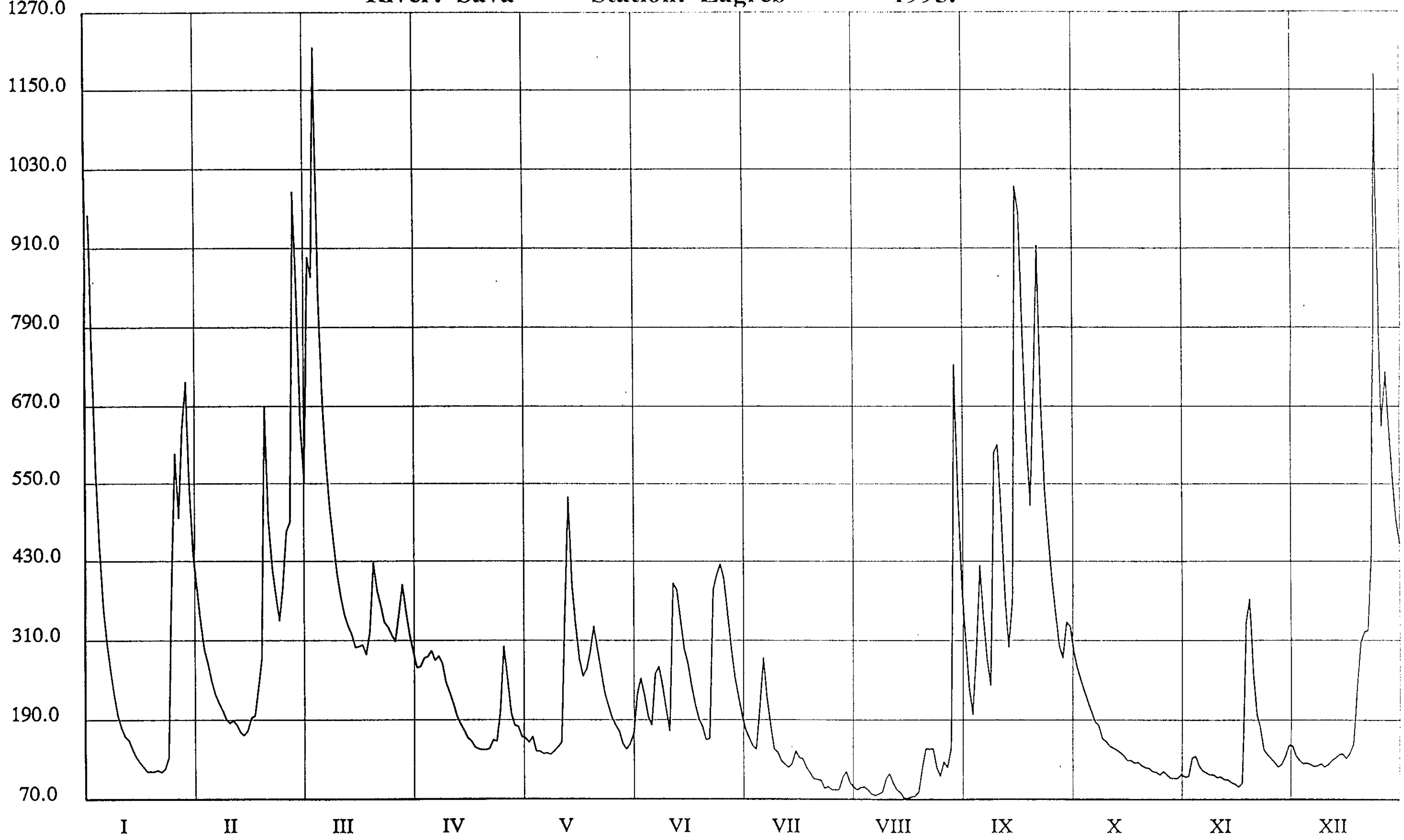
HYDROGRAPH

River: Sava **Station: Zagreb** **1994.**



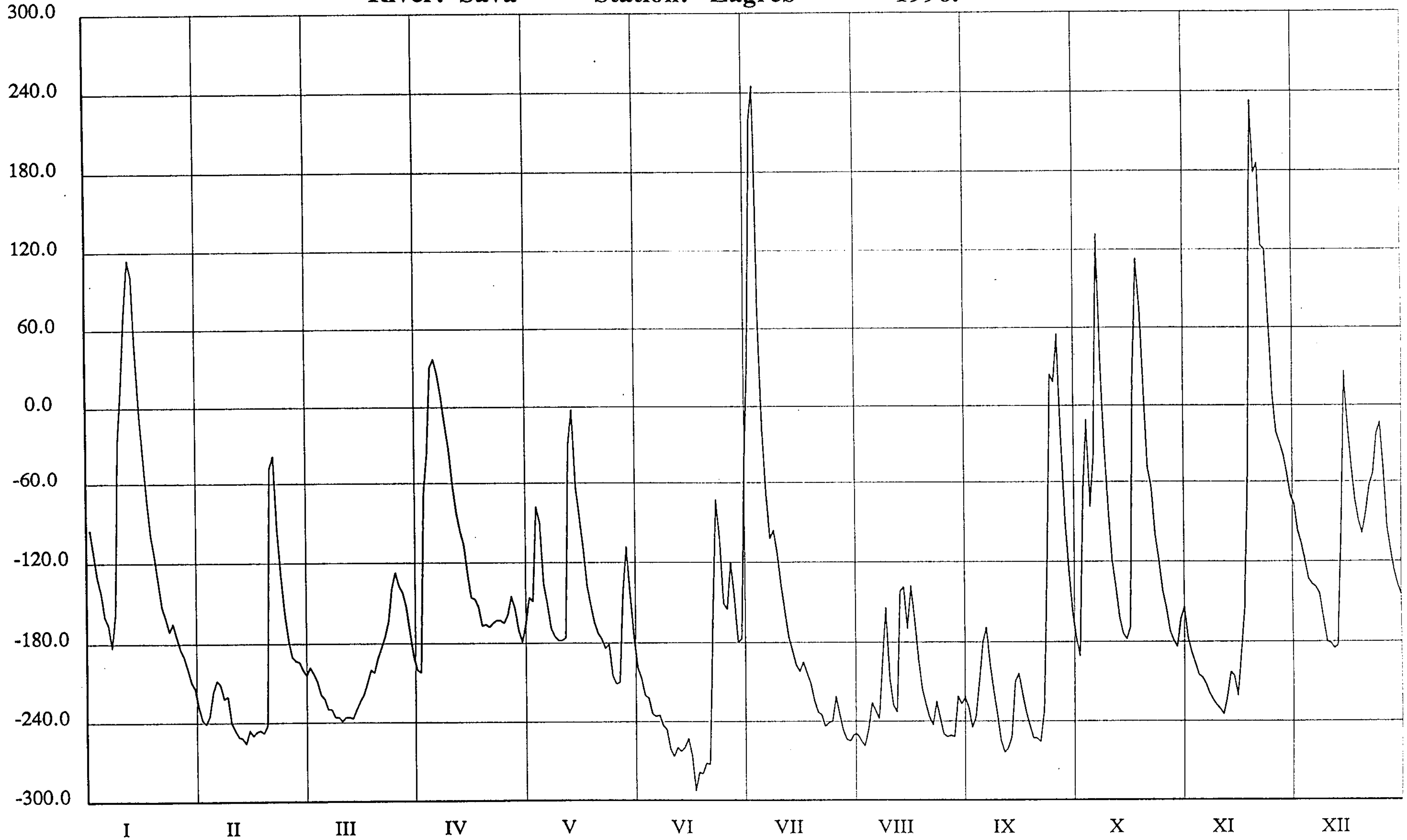
HYDROGRAPH

River: Sava Station: Zagreb 1995.



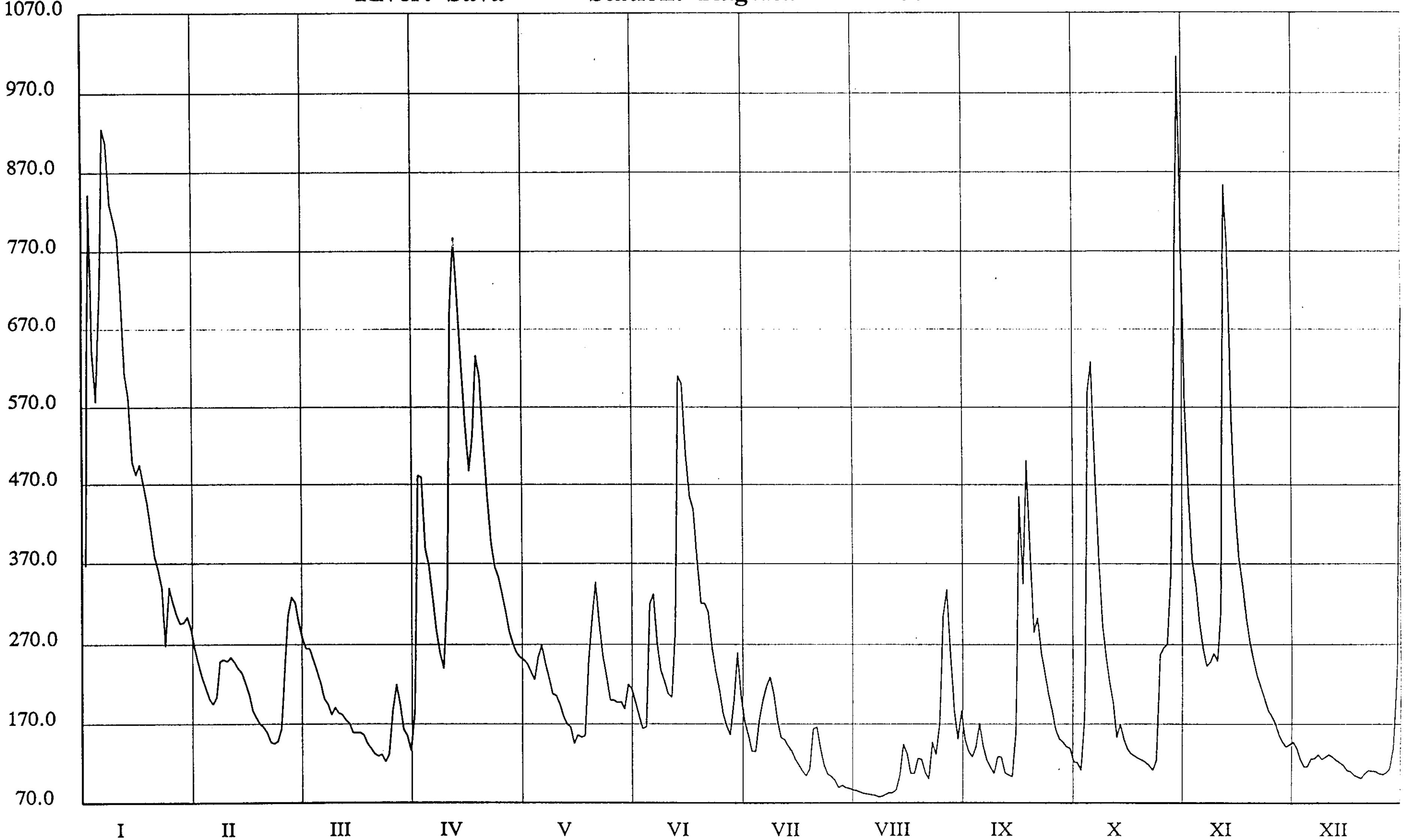
LEVEL GRAPH

River: Sava Station: Zagreb 1996.



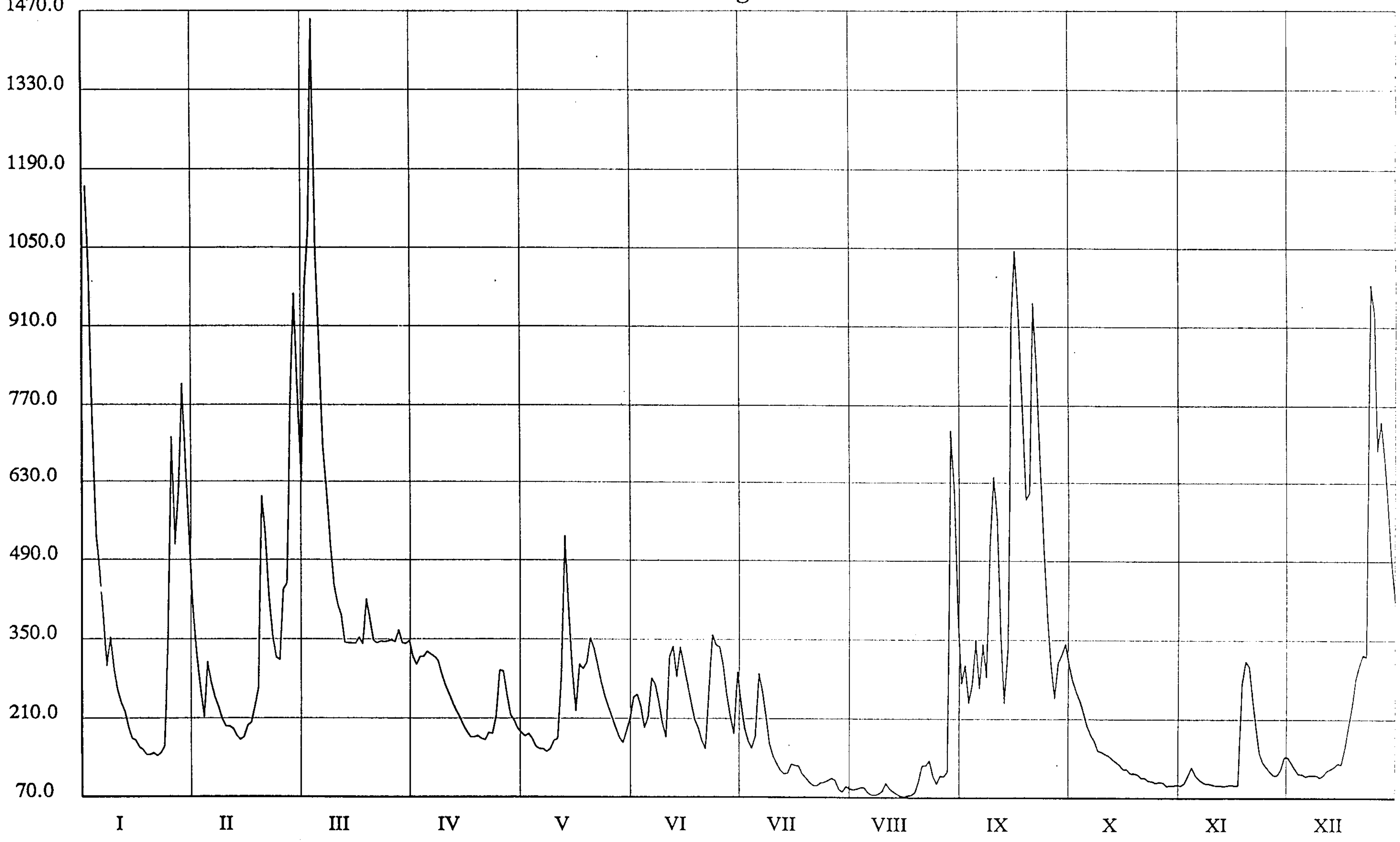
HYDROGRAPH

River: Sava Station: Rugvica 1994.



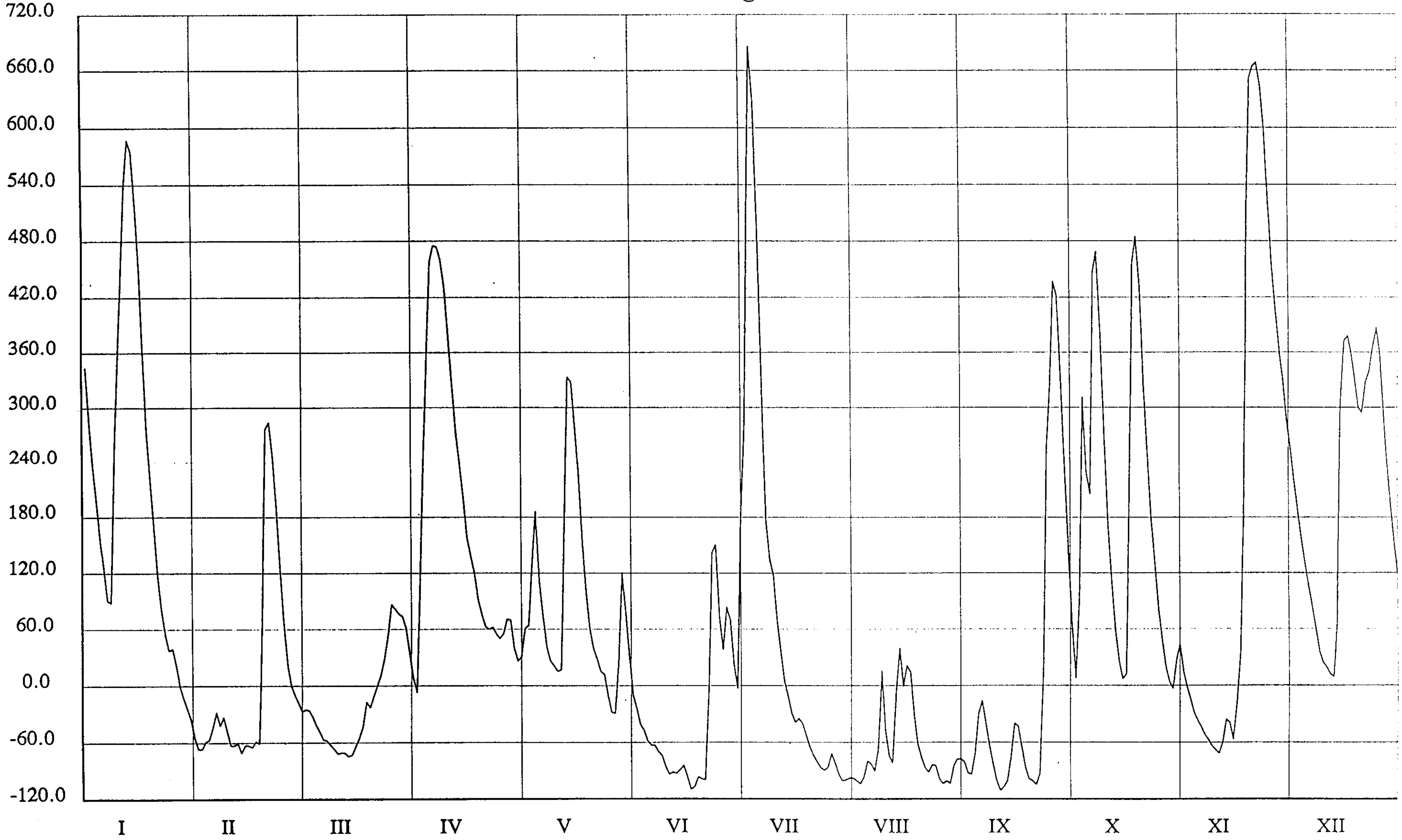
HYDROGRAPH

River: Sava Station: Rugvica 1995.



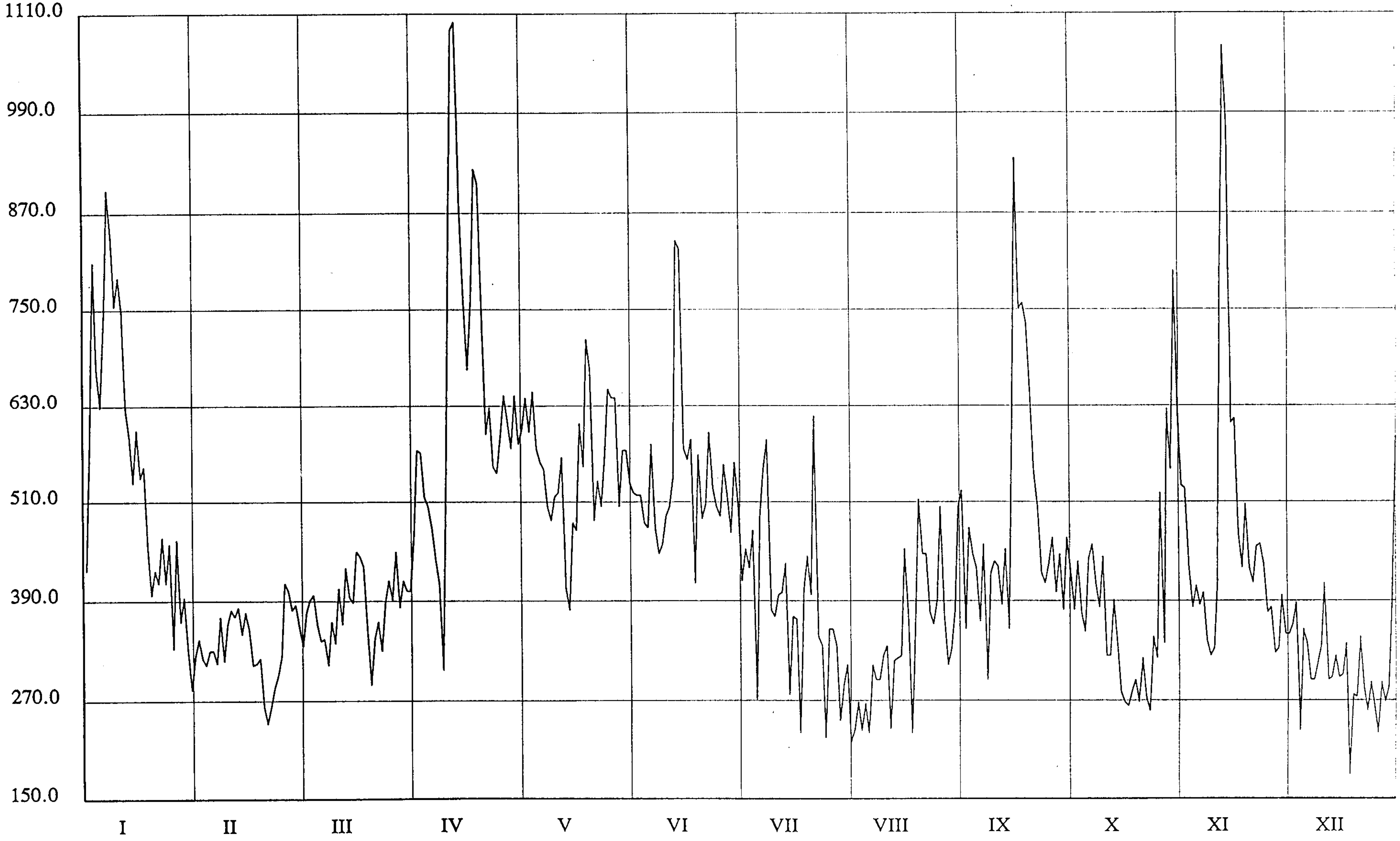
LEVEL GRAPH

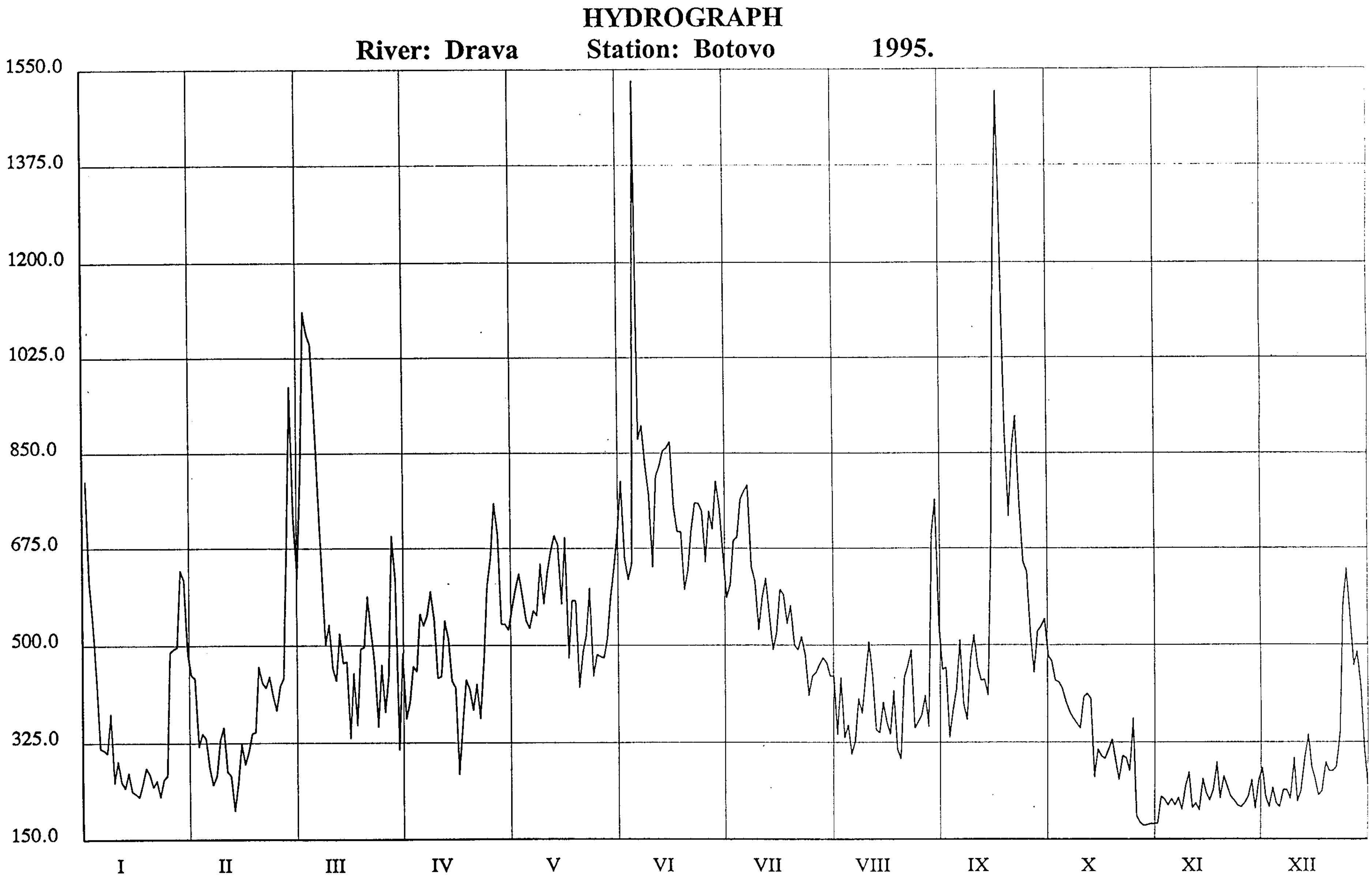
River: Sava Station: Rugvica 1996.



HYDROGRAPH

River: Drava Station: Botovo 1994.

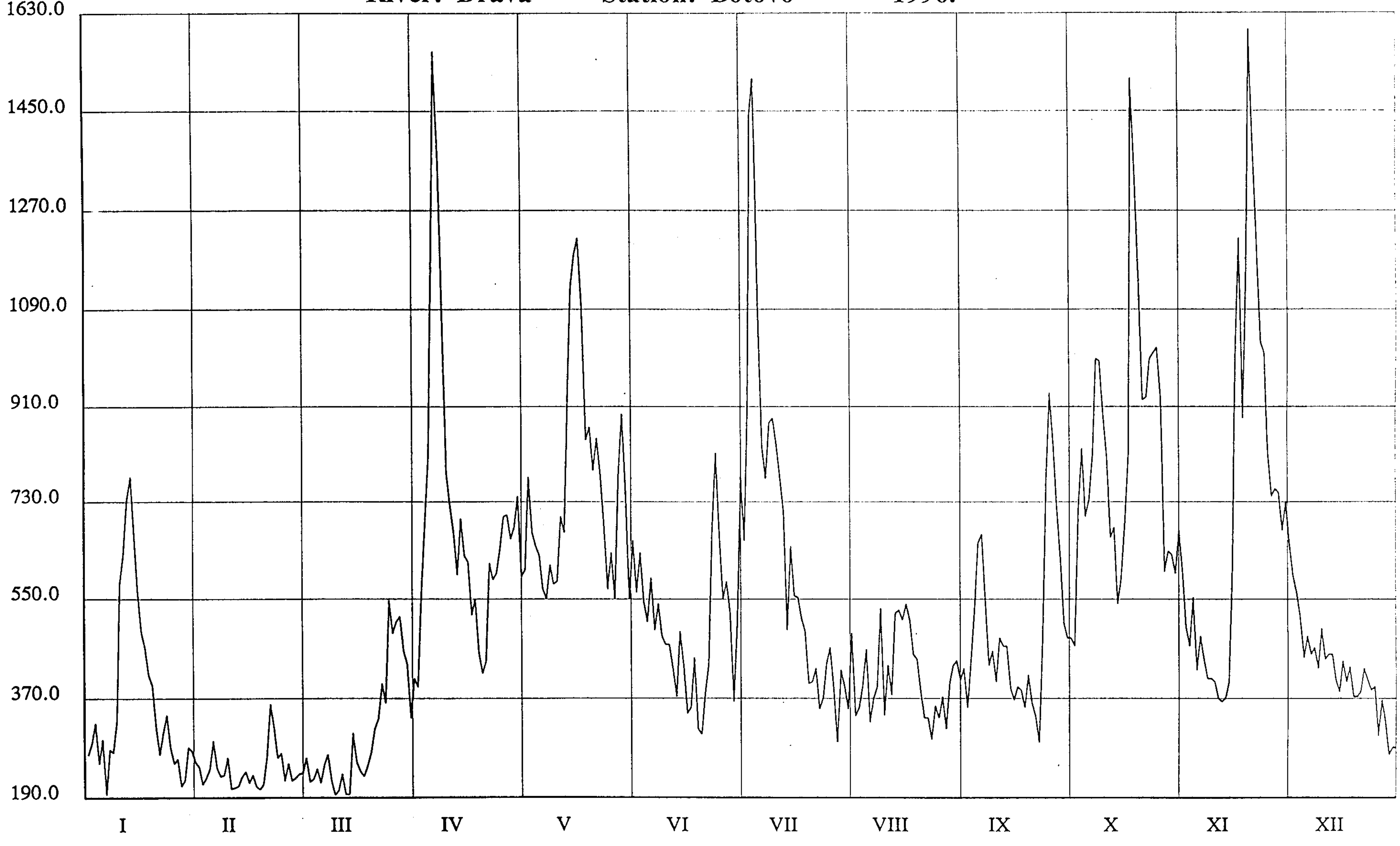




HYDROGRAPH
River: Drava
Station: Botovo
1995.
1550.0
1375.0
1200.0
1025.0
850.0
675.0
500.0
325.0
150.0
I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII

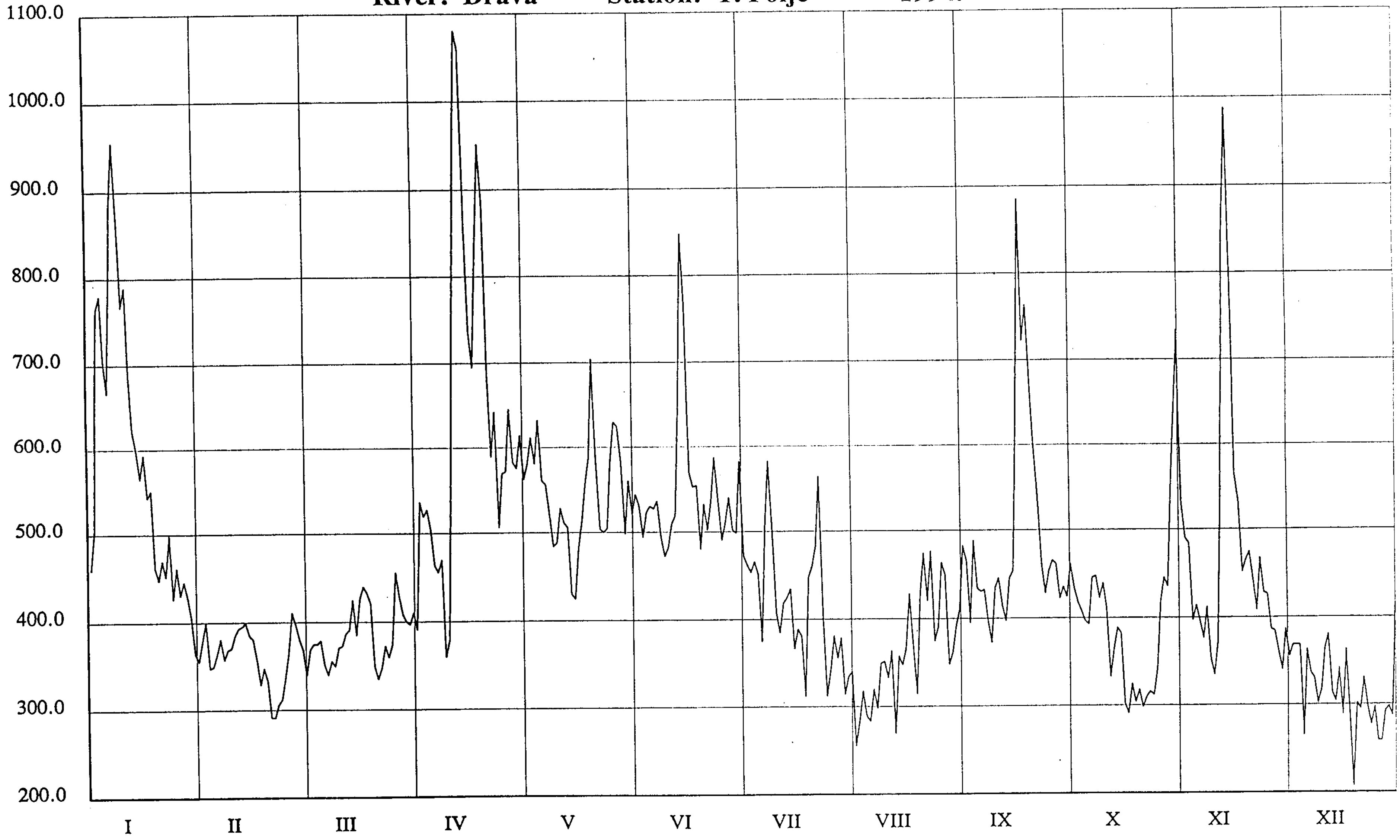
HYDROGRAPH

River: Drava Station: Botovo 1996.



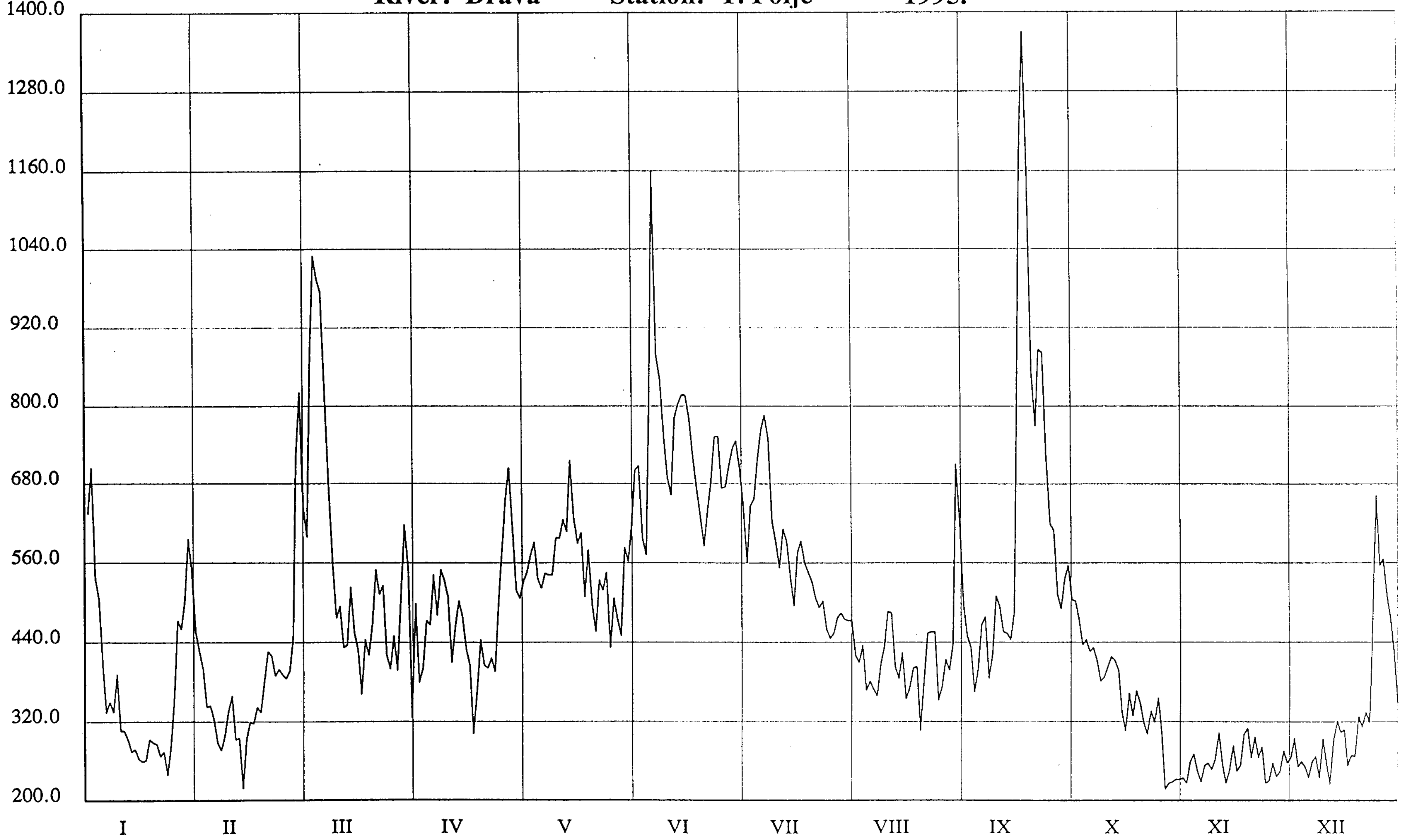
HYDROGRAPH

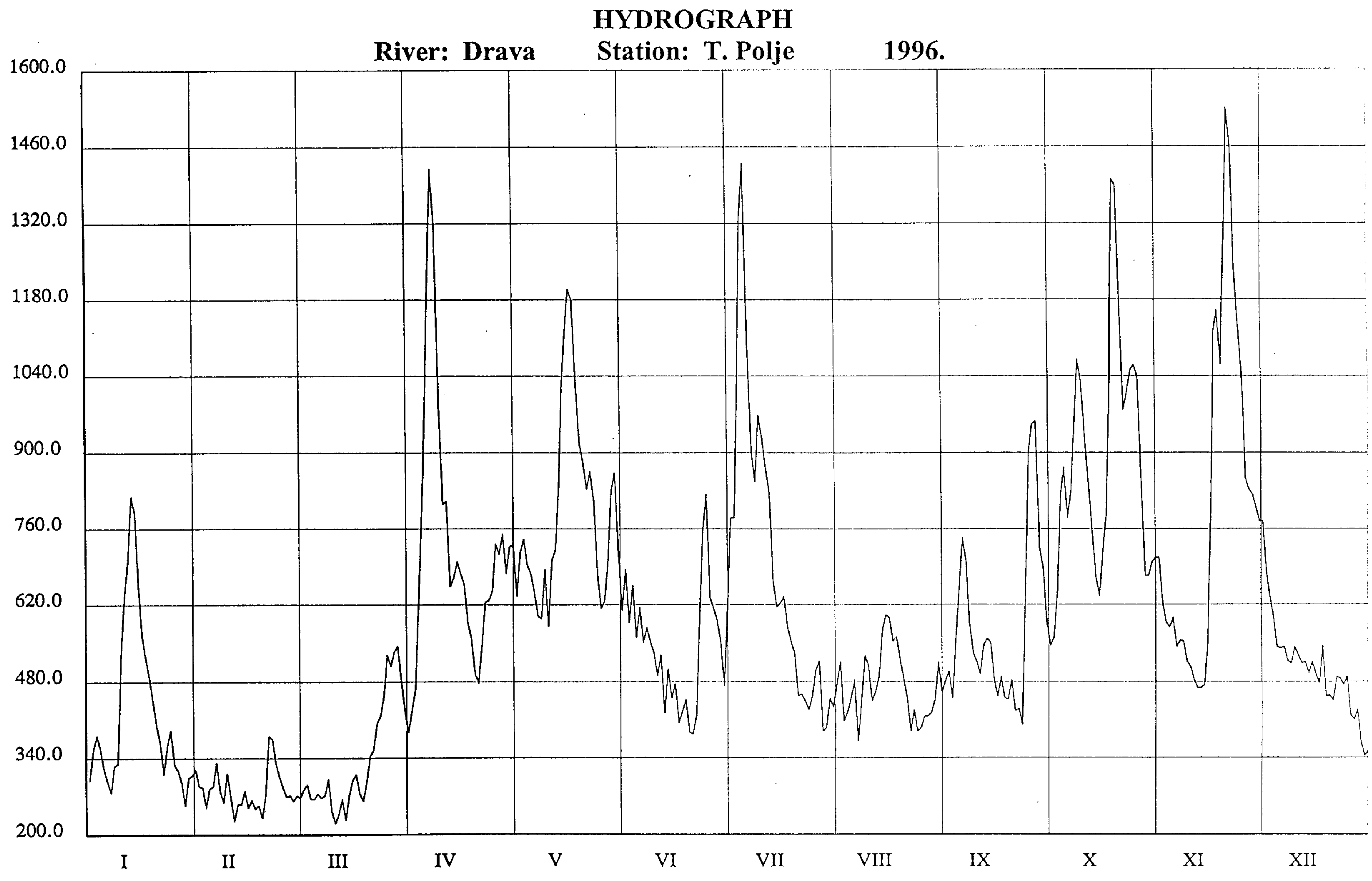
River: Drava Station: T. Polje 1994.



HYDROGRAPH

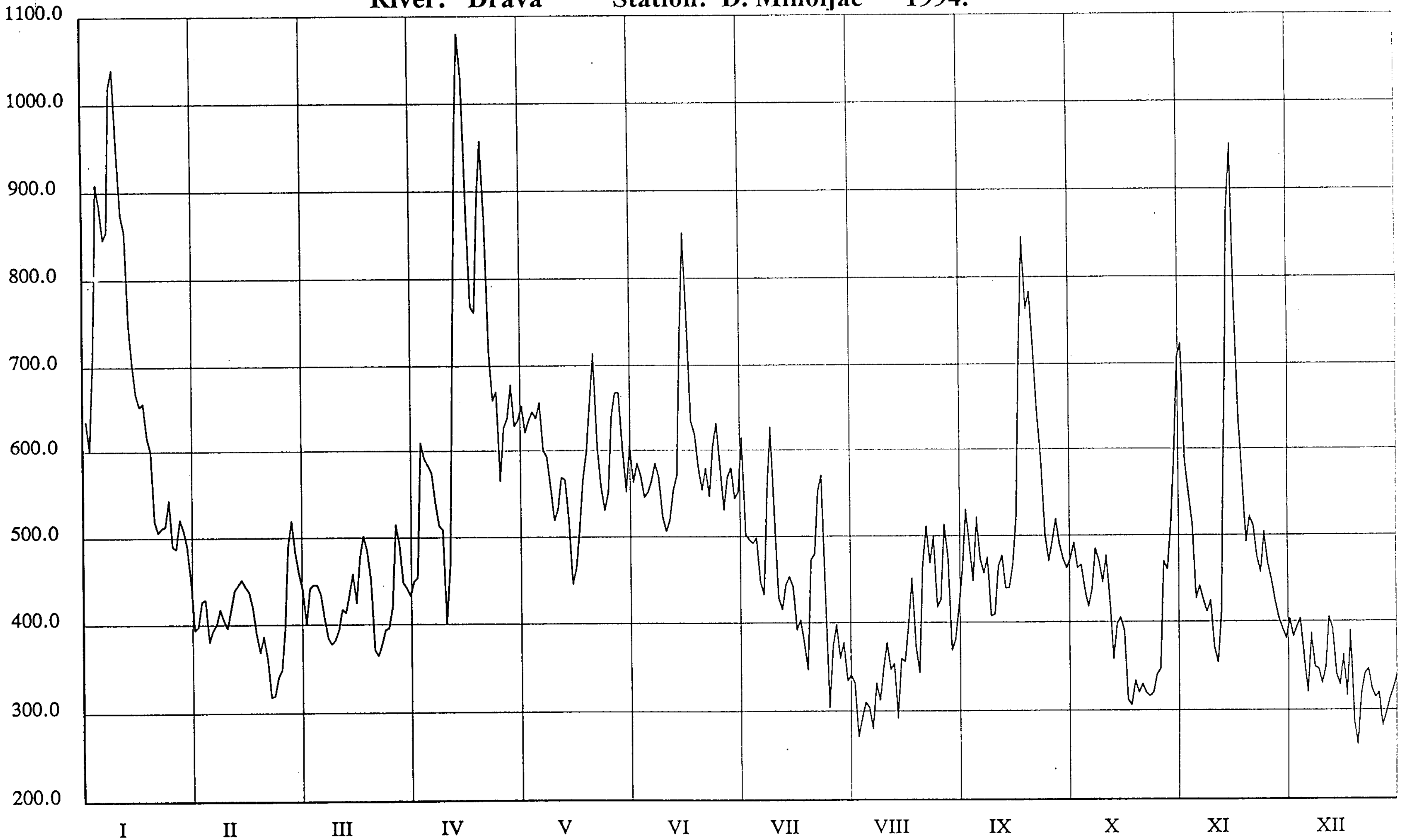
River: Drava Station: T. Polje 1995.




HYDROGRAPH
River: Drava Station: T. Polje 1996.
1600.0
1460.0
1320.0
1180.0
1040.0
900.0
760.0
620.0
480.0
340.0
200.0
I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII

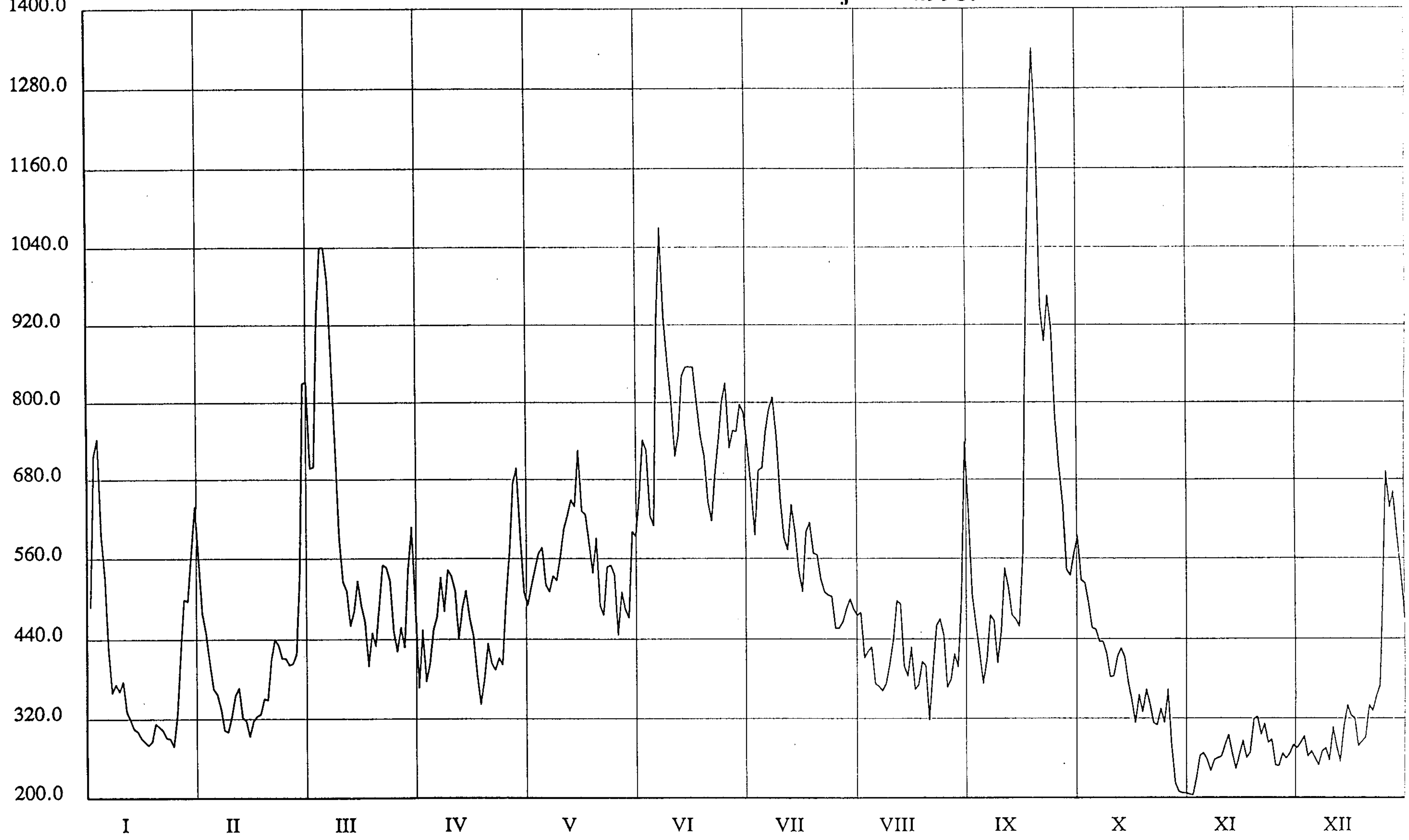
HYDROGRAPH

River: Drava   Station: D. Miholjac   1994.



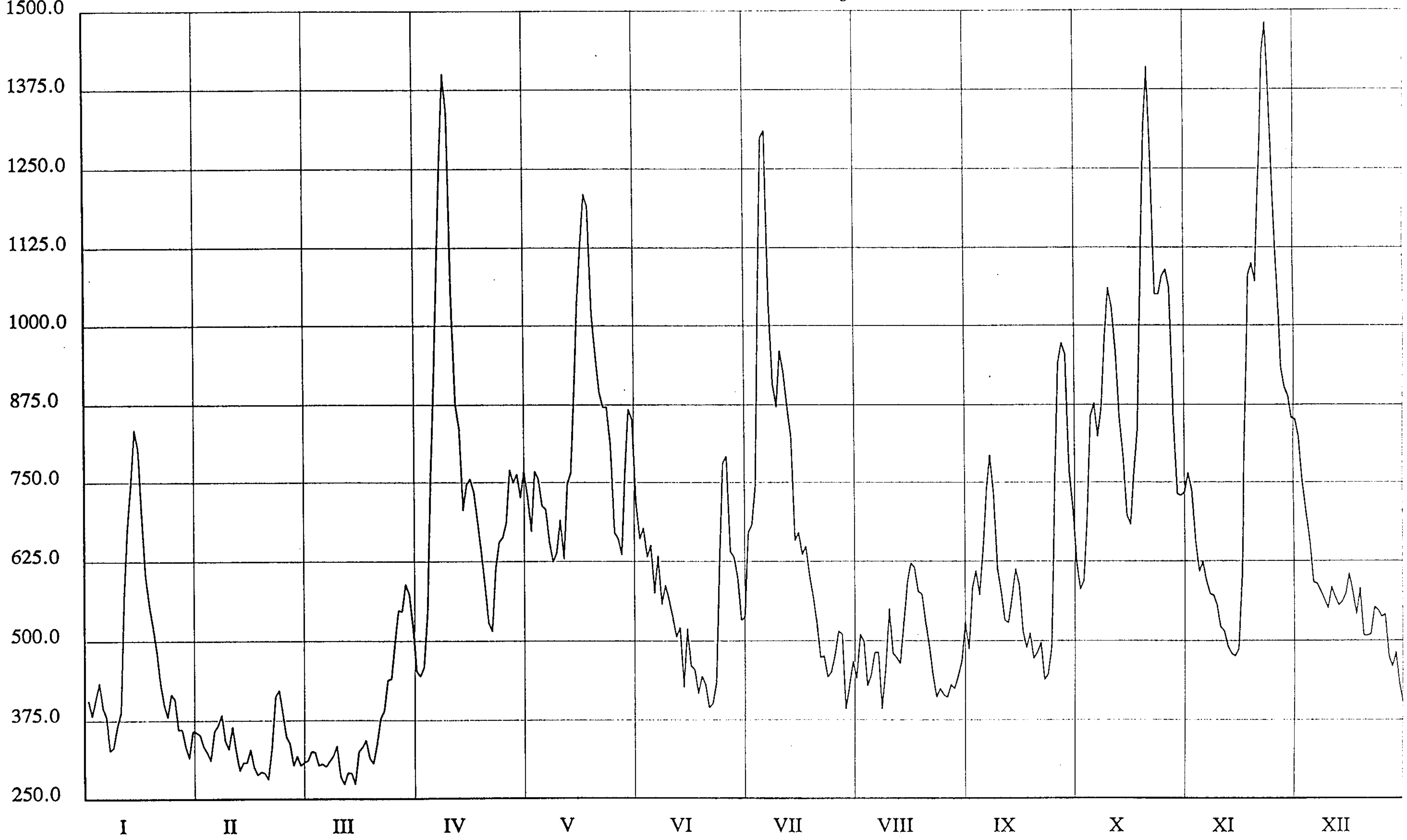
HYDROGRAPH

River: Drava Station: D. Miholjac 1995.



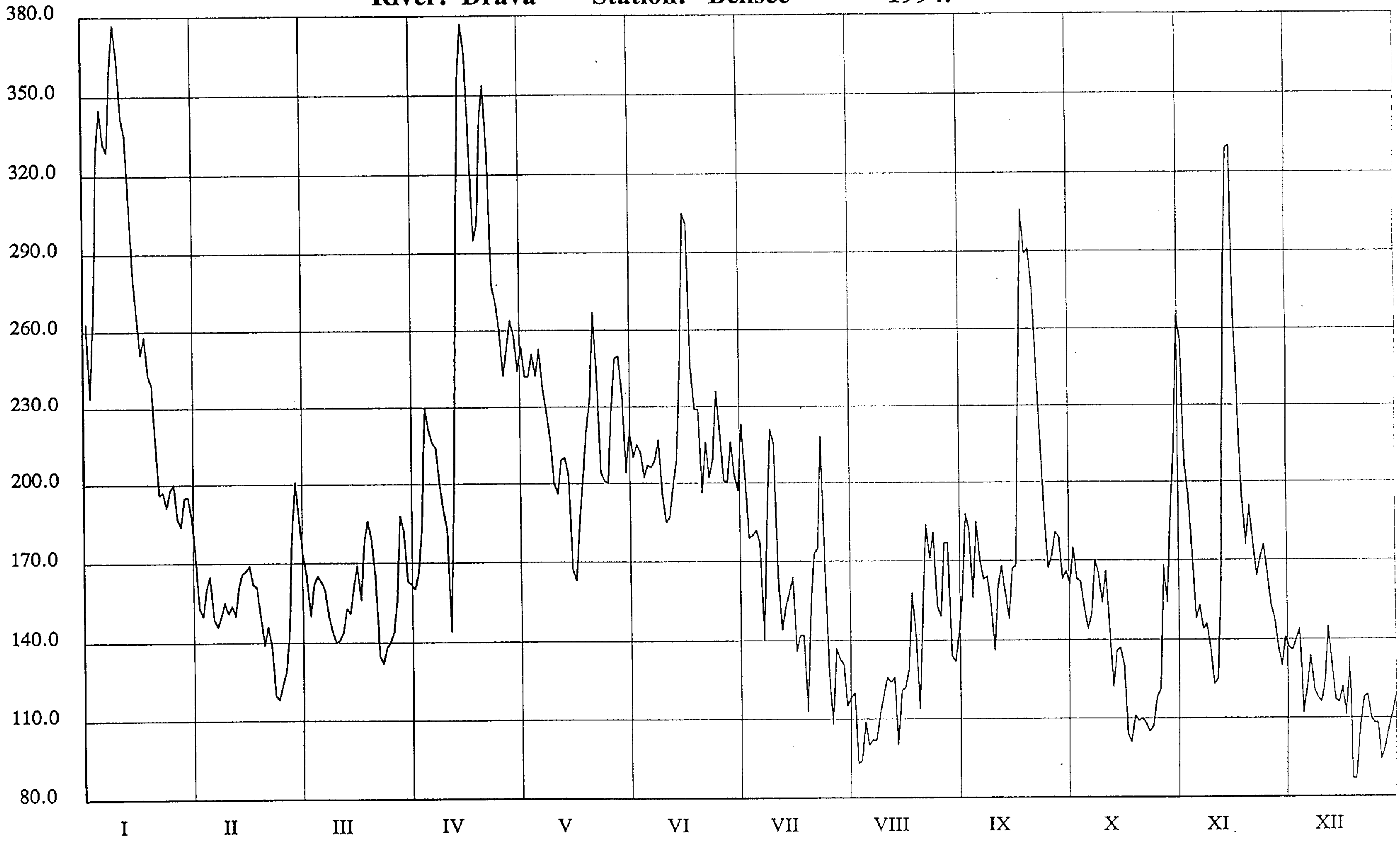
HIDROGRAPH

River: Drava Station: D. Miholjac 1996.



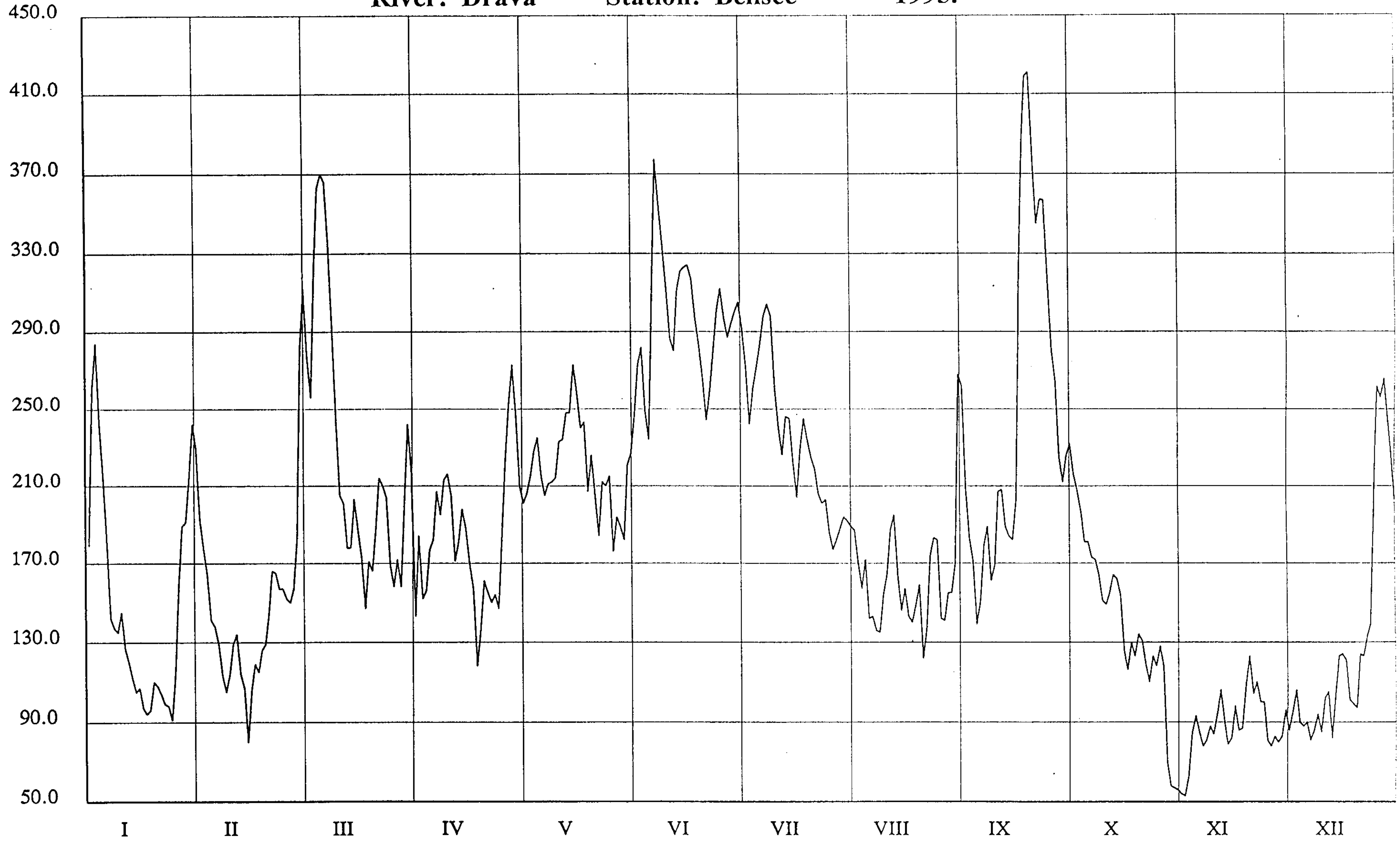
LEVEL GRAPH

River: Drava Station: Belisce 1994.



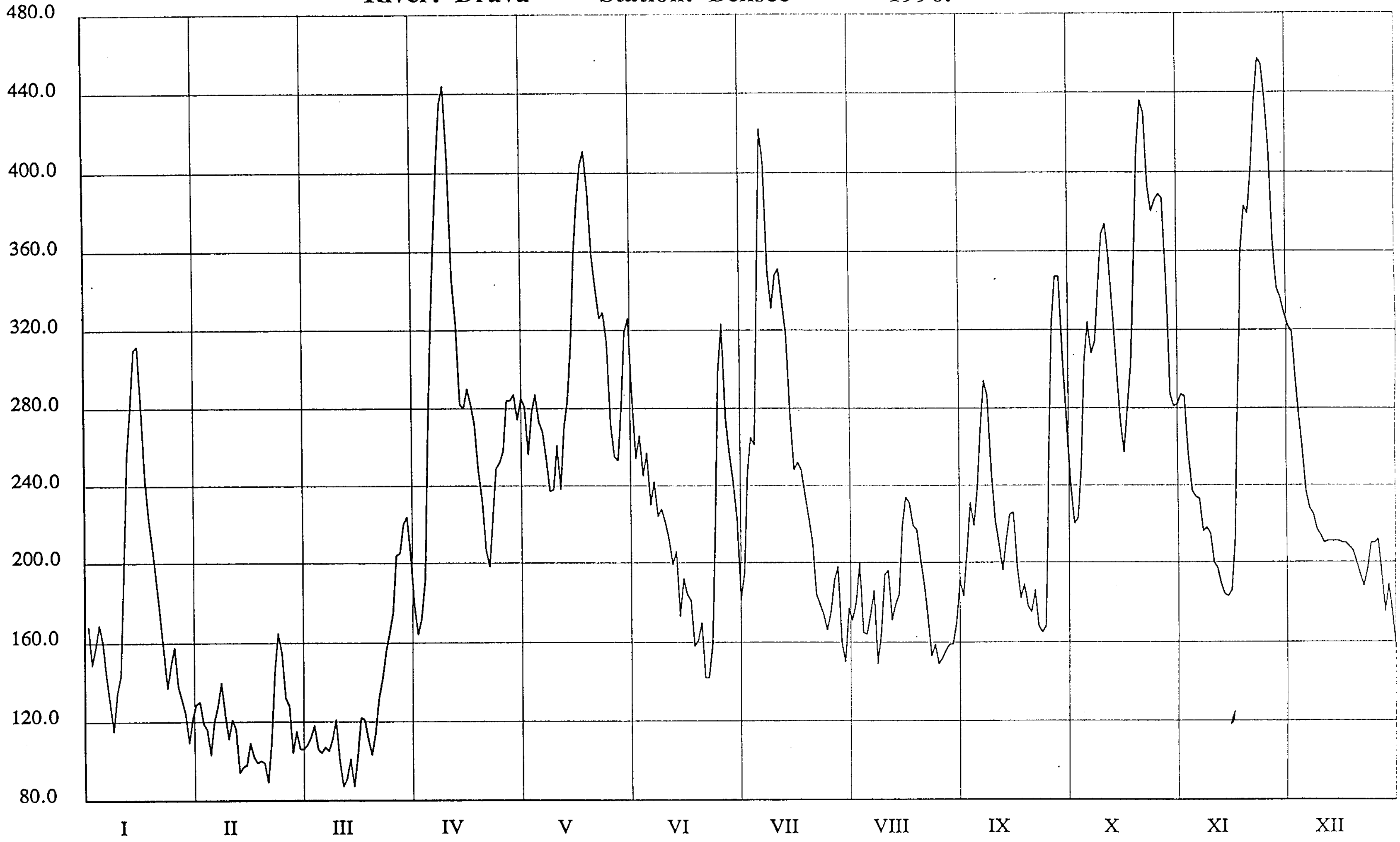
LEVEL GRAPH

River: Drava **Station: Belisce** **1995.**



LEVEL GRAPH

River: Drava   Station: Belisce   1996.



Monthly average, maximum and minimum discharges for 1994-1996*

*Verified data for 1997 still does not exist

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok SAVA
Stanica JESENICE

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	1115	273	208	723	377	681	207	386	666	1225	1124	1256	1256
1995	1073	1025	1182	287	593	458	279	934	1214	246	277	1240	1240

Vodotok SAVA
Stanica JESENICE

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	158	103	89.9	100	107	118	63.4	53.2	72.2	70.0	101	70.0	53.2
1995	92.5	124	230	92.5	119	125	70.5	56.6	155	72.5	75.5	82.7	56.6

Vodotok SAVA
Stanica JESENICE

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	412	160	140	339	176	248	117	110	185	252	267	123	211
1995	295	288	425	190	201	244	125	132	424	117	114	270	235

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok SAVA
Stanica PODSUSED ZICARA

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	961	312	275	939	477	769	245	472	692	1360	1121	1324	1360
1995	1160	1163	1297	305	648	471	316	1009	1319	289	330	1283	1319

Vodotok SAVA
Stanica PODSUSED ZICARA

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	186	110	90.3	101	114	110	73.9	61.9	84.6	91.7	112	72.6	61.9
1995	126	140	280	74.9	123	126	70.2	59.1	174	72.5	69.0	89.0	59.1

Vodotok SAVA
Stanica PODSUSED ZICARA

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	472	174	143	422	201	284	140	127	208	291	309	133	242
1995	329	331	505	192	214	257	129	138	492	123	123	288	259

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok SAVA
Stanica ZAGREB

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	1106	342	262	873	426	722	236	446	678	1247	1099	1192	1247
1995	1174	1115	1327	319	586	446	307	881	1381	314	413	1450	1450

Vodotok SAVA
Stanica ZAGREB

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	205	131	115	131	131	129	78.9	64.6	88.6	77.6	118	81.3	64.6
1995	107	162	275	113	129	133	78.0	64.4	189	94.3	85.5	109	64.4

Vodotok SAVA
Stanica ZAGREB

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	484	202	173	416	209	282	135	127	208	279	295	132	245
1995	327	338	467	216	221	267	135	143	476	152	141	305	265

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok SAVA
Stanica RUGVICA

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	972	334	307	799	347	658	235	338	523	1061	902	1066	1066
1995	1207	990	1508	351	586	374	327	815	1071	326	337	1064	1508

Vodotok SAVA
Stanica RUGVICA

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	260	141	117	129	139	145	81.1	77.2	95.0	104	135	99.3	77.2
1995	135	166	341	147	144	142	71.0	69.8	220	87.2	91.0	100	69.8

Vodotok SAVA
Stanica RUGVICA

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1995

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	512	218	186	423	220	288	142	129	195	283	319	142	254
1995	395	331	525	249	237	253	141	138	491	145	133	298	278

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok DRAVA
Stanica BOTOVO

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	936	556	654	1159	783	893	684	628	1180	840	1127	825	1180
1995	867	1092	1185	884	879	1831	814	879	1597	644	527	788	1831
1996	822	527	712	1677	1262	935	1691	689	1057	1630	1697	709	1697

Vodotok DRAVA
Stanica BOTOVO

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	186	165	192	199	237	219	157	150	172	156	171	162	150
1995	173	185	225	227	268	339	303	216	245	175	160	161	160
1996	170	156	160	216	324	203	199	189	221	272	246	175	156

Vodotok DRAVA
Stanica BOTOVO

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	543	337	379	643	558	538	389	341	492	391	476	315	450
1995	369	378	584	490	567	773	567	412	625	322	228	311	469
1996	370	241	303	702	751	498	647	410	498	819	726	420	533

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok DRAVA
Stanica NOVO VIRJE-SKELA

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	985	523	607	1137	762	881	690	578	1013	819	1200	709	1200
1995	796	974	1143	810	801	1436	819	815	1511	624	449	805	1511
1996	833	488	661	1597	1266	927	1804	729	1042	1670	1711	762	1804

Vodotok DRAVA
Stanica NOVO VIRJE-SKELA

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	226	201	240	238	300	310	175	158	200	159	207	171	158
1995	166	183	250	221	293	381	358	236	279	171	165	164	164
1996	189	163	171	272	400	240	240	234	277	372	380	243	163

Vodotok DRAVA
Stanica NOVO VIRJE-SKELA

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	569	365	387	643	562	563	425	341	477	389	493	311	460
1995	369	373	589	478	550	748	585	424	639	331	233	325	470
1996	406	276	332	729	778	523	678	445	543	882	799	486	574

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok DRAVA
Stanica TEREZINO POLJE

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	971	430	519	1118	728	859	625	532	943	766	987	467	1118
1995	766	885	1046	741	766	1297	796	760	1391	566	371	698	1391
1996	840	436	580	1463	1228	859	1479	677	1007	1496	1589	798	1589

Vodotok DRAVA
Stanica TEREZINO POLJE

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	298	241	300	306	369	424	227	220	291	231	277	190	190
1995	217	199	334	263	389	513	418	282	330	211	188	194	188
1996	220	174	196	341	522	328	299	304	341	467	450	269	174

Vodotok DRAVA
Stanica TEREZINO POLJE

SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	579	361	383	634	548	544	424	362	495	402	476	318	461
1995	379	363	577	471	550	732	575	424	625	360	258	336	471
1996	421	280	335	725	789	543	695	472	580	876	803	503	586

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Vodotok DRAVA
Stanica D.MIHOLJAC c.s.

MAKSIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	1057	528	545	1096	727	860	638	547	875	761	968	439	1096
1995	791	694	1054	720	743	1136	813	759	1352	622	356	704	1352
1996	846	441	605	1422	1227	824	1350	644	989	1427	1519	860	1519

Vodotok DRAVA
Stanica D.MIHOLJAC c.s.

MINIMALNE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	367	302	347	374	424	502	267	252	360	284	326	221	221
1995	267	285	383	317	422	570	434	303	367	205	202	242	202
1996	295	273	265	421	596	378	365	358	411	557	474	382	265

Vodotok DRAVA
Stanica D.MIHOLJAC c.s.

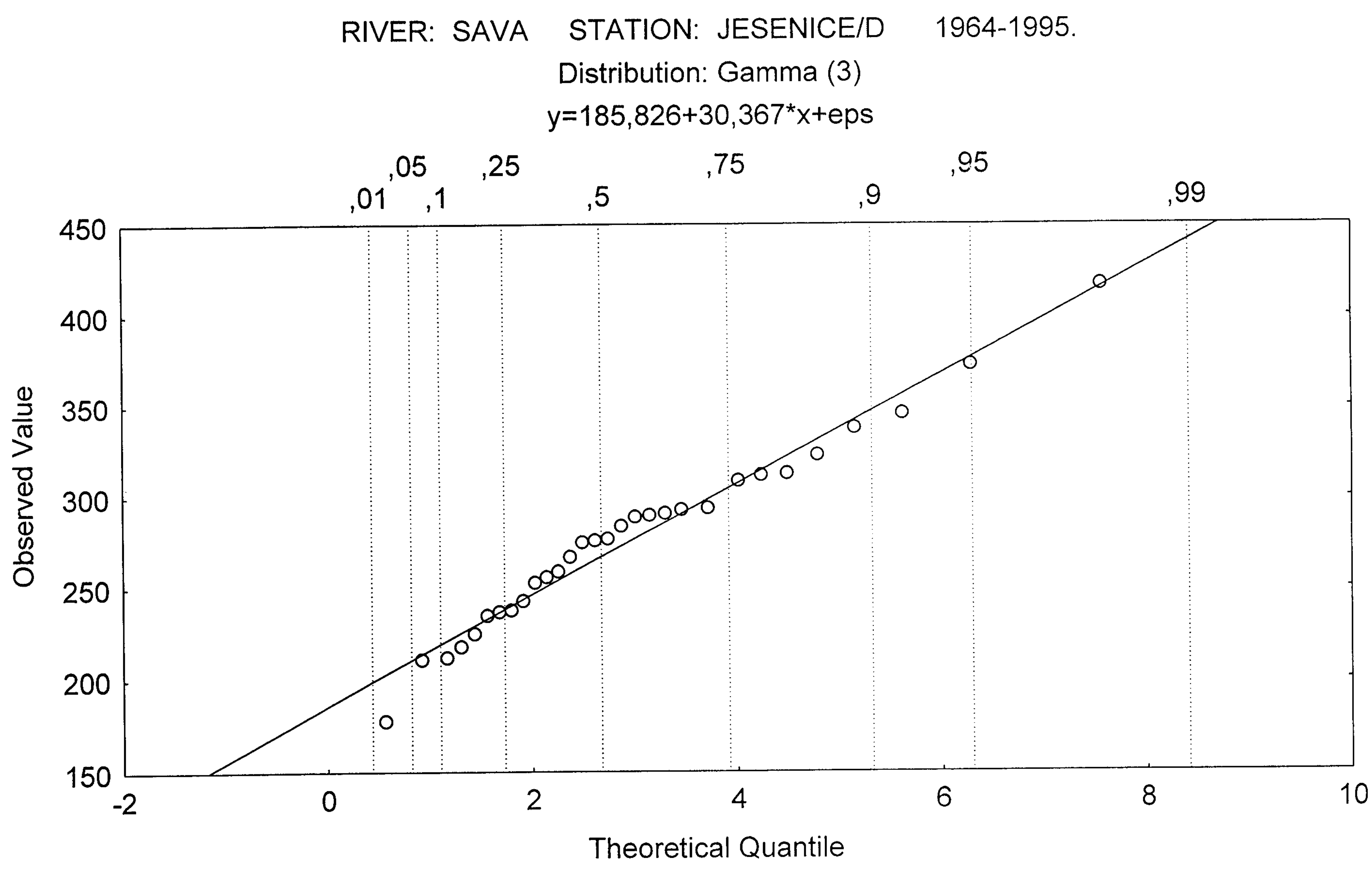
SREDNJE MJESECNE I GODISNJE VRIJEDNOSTI PROTOKA (m3/s)
1994 - 1996

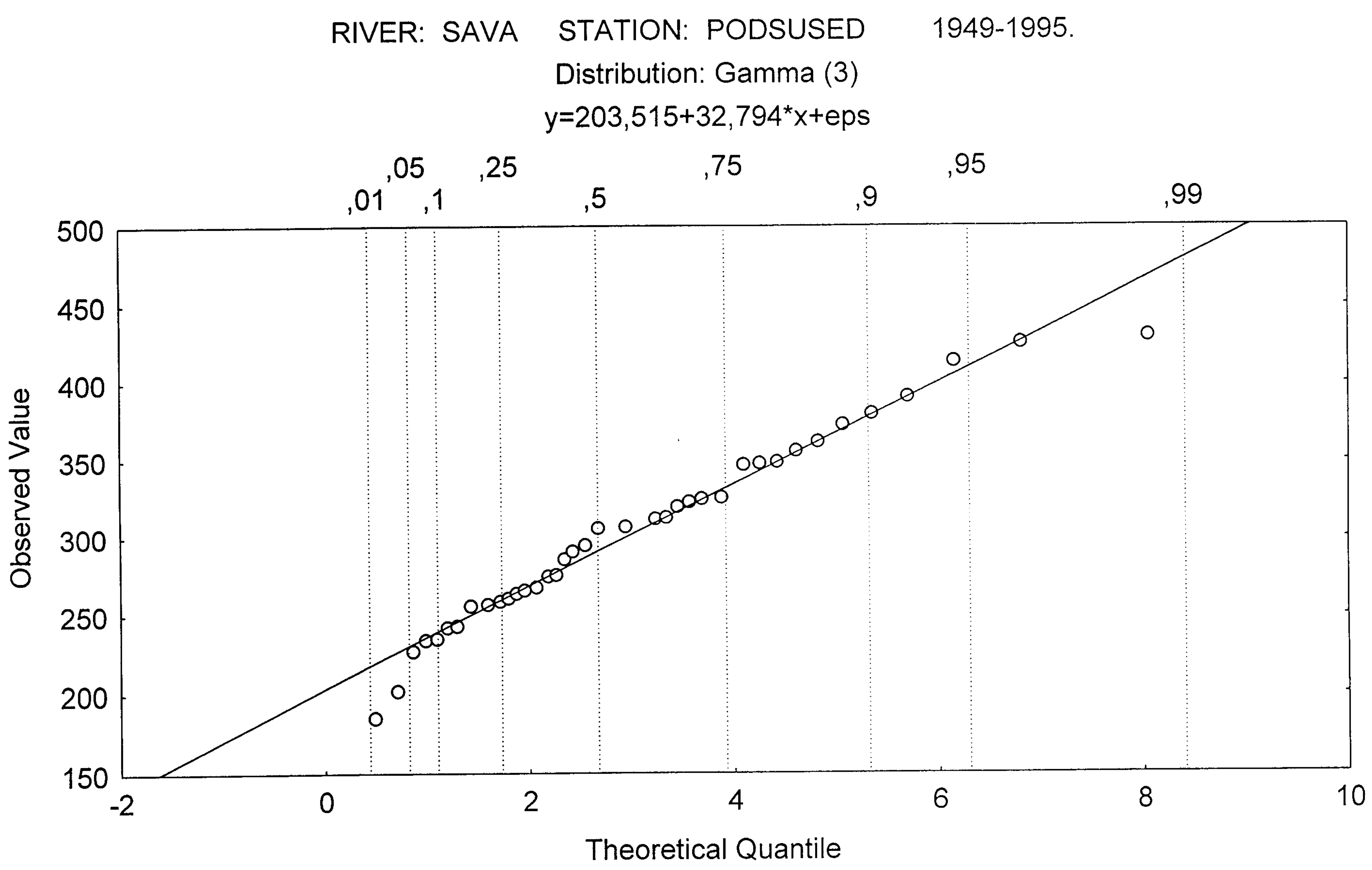
God	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	God
1994	670	408	429	674	589	590	454	378	531	420	518	343	500
1995	409	375	613	472	554	768	600	425	660	372	267	361	490
1996	466	333	369	765	814	560	698	485	621	903	824	573	618

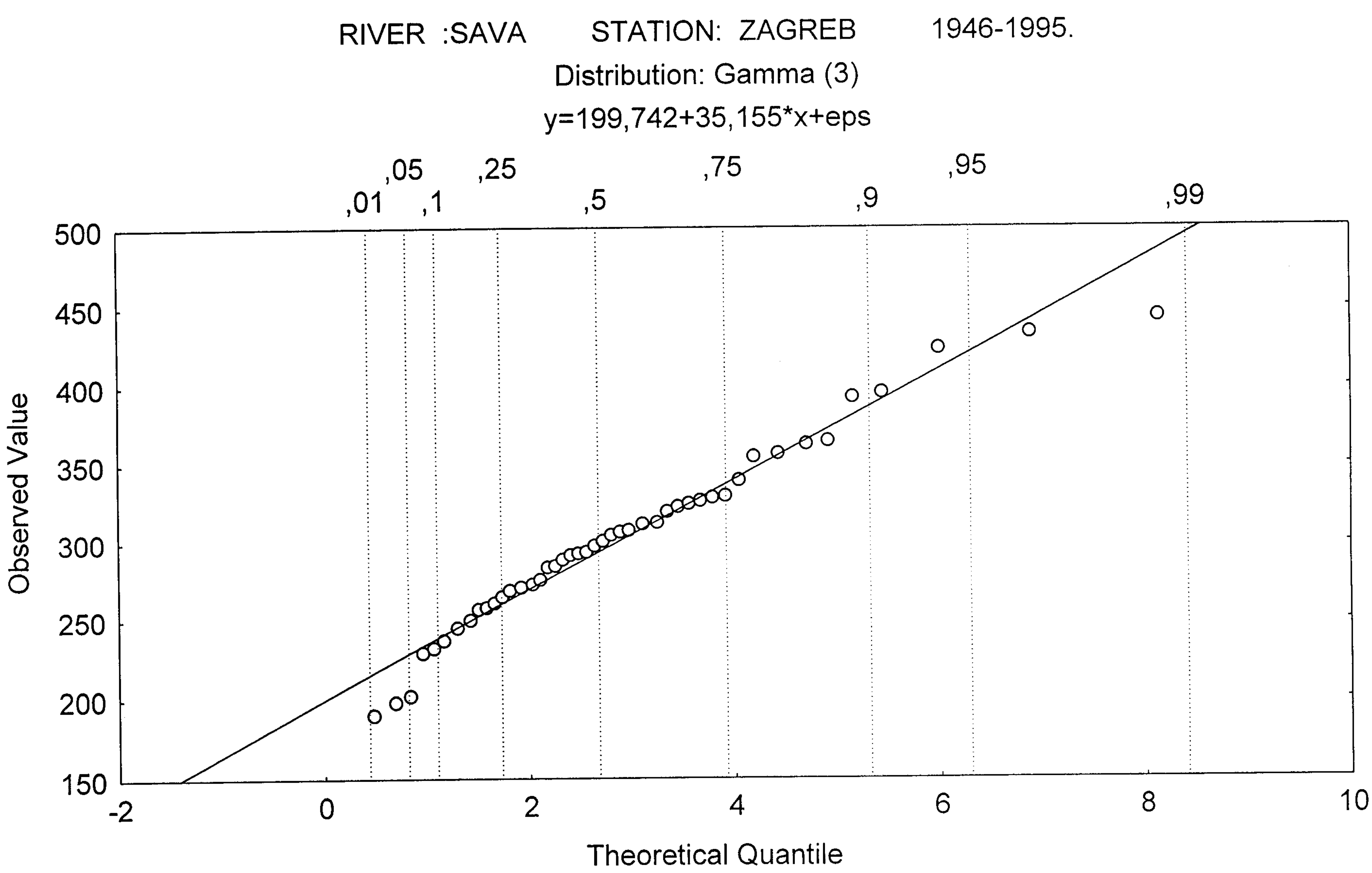
Flow duration curves
(discharge vs. Probability of exceedance)

Table 4 Flow duration curves (discharge vs. Probability of exceedance)

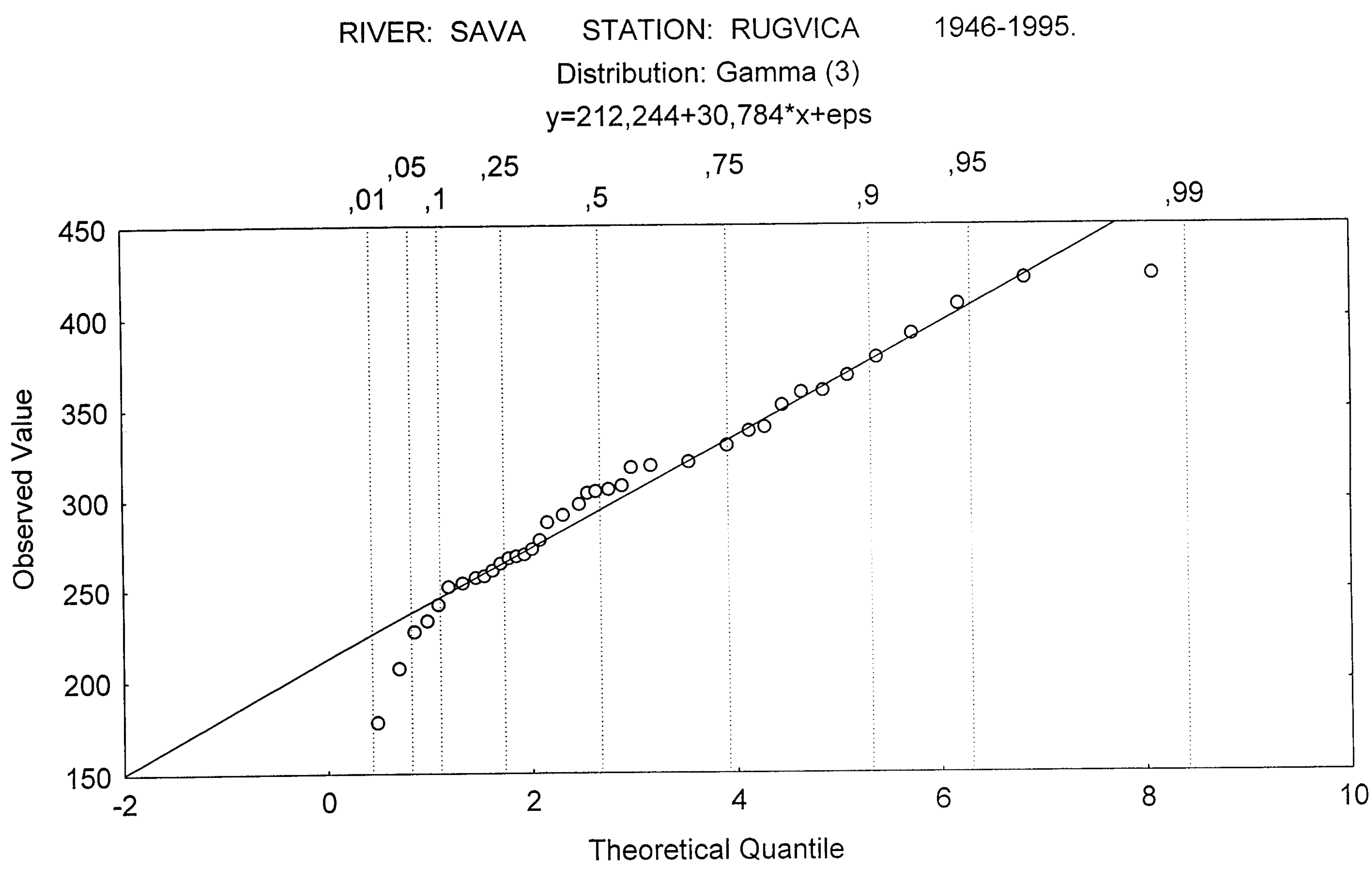
River	Hydrological station	Period
Sava	Jesenice	1964 – 1995
	Podsused	1949 – 1995
	Zagreb	1946 – 1995
	Rugvica	1946 – 1995
	Crnac	1955 – 1992
	Jasenovac	1946 – 1990
	Mackovac	1951 – 1990
	Davor	1946 – 1993
	Slavonski Kobas	1948 – 1993
	Slavonski Brod	1946 – 1993
	Zupanja	1946 – 1993
Drava	Botovo	1946 – 1996
	Terezino Polje	1961 – 1996
	Donji Miholjac	1946 – 1996
	Belisce	1962 – 1991


RIVER: SAVA STATION: JESENICE/D 1964-1995.
Distribution: Gamma (3)
y=185,826+30,367*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
450
400
350
300
250
200
150
-2
0
2
4
6
8
10
Observed Value
Theoretical Quantile


RIVER: SAVA STATION: PODSUSED 1949-1995.
Distribution: Gamma (3)
y=203,515+32,794*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
Observed Value
500
450
400
350
300
250
200
150
-2
0
2
4
6
8
10
Theoretical Quantile



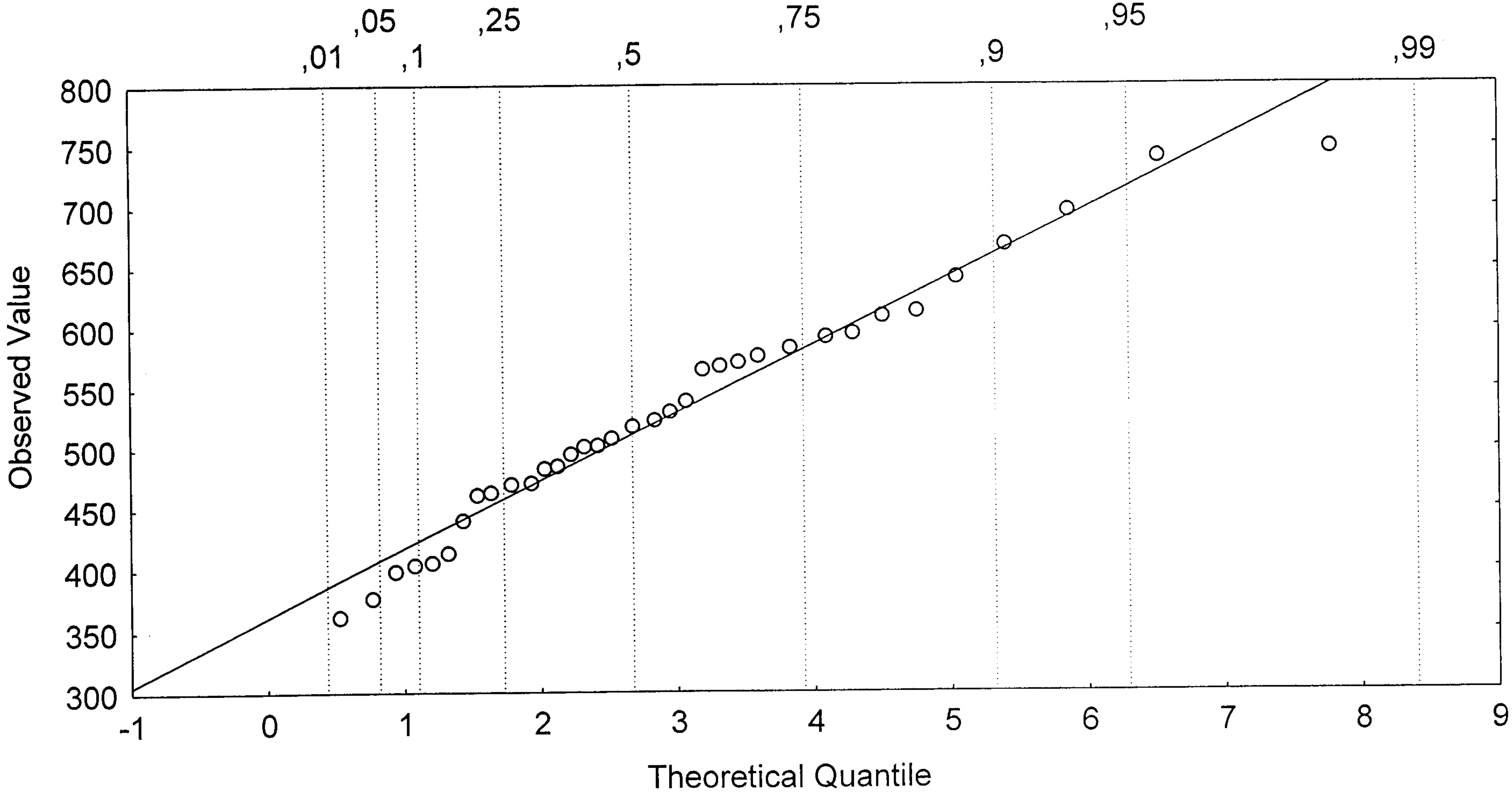
RIVER :SAVA
STATION: ZAGREB
1946-1995.
Distribution: Gamma (3)
y=199,742+35,155*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
500
450
400
350
300
250
200
150
Observed Value
-2
0
2
4
6
8
10
Theoretical Quantile

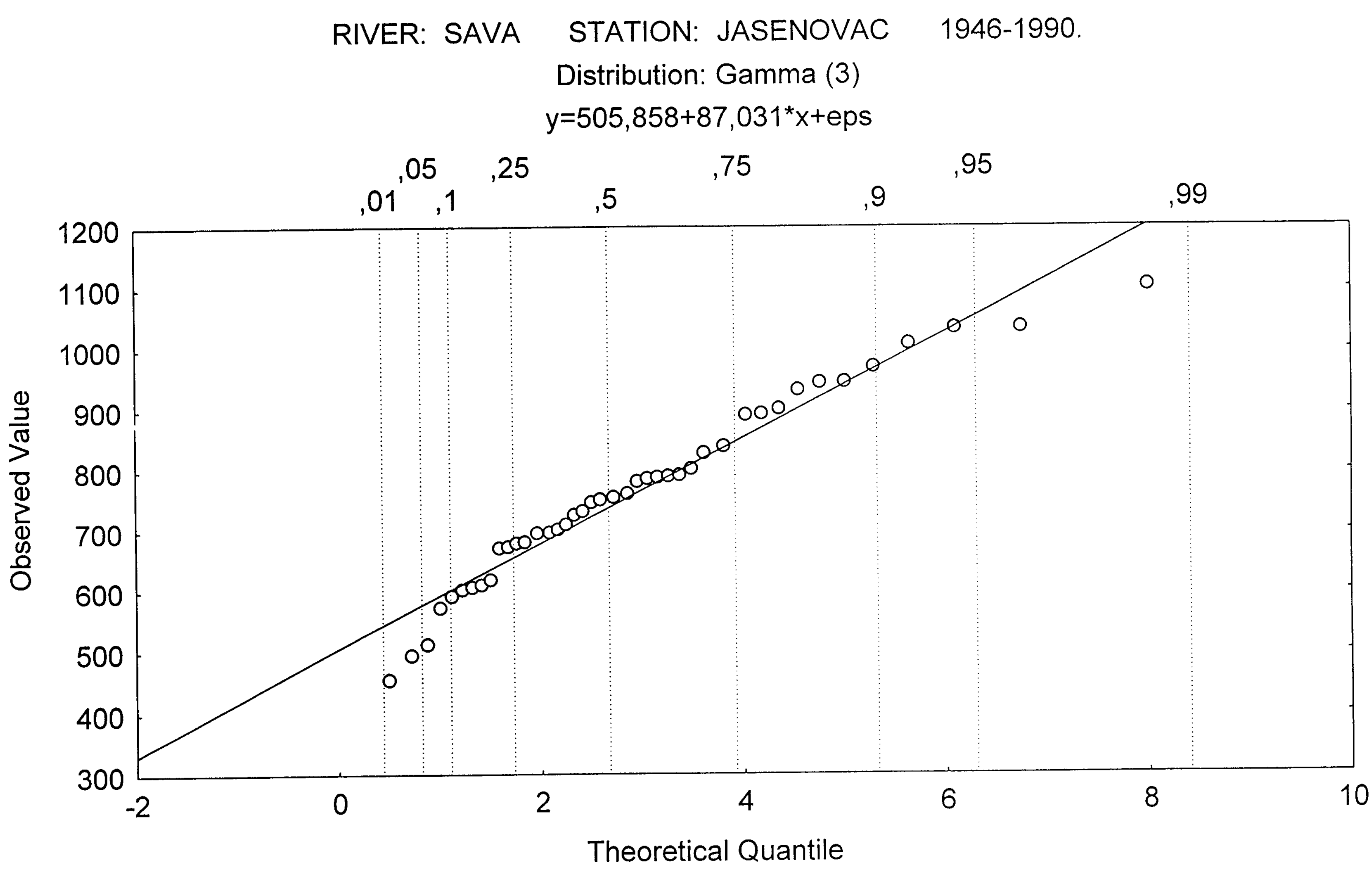

RIVER: SAVA
STATION: RUGVICA
1946-1995.
Distribution: Gamma (3)
y=212,244+30,784*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
Observed Value
450
400
350
300
250
200
150
-2
0
2
4
6
8
10
Theoretical Quantile

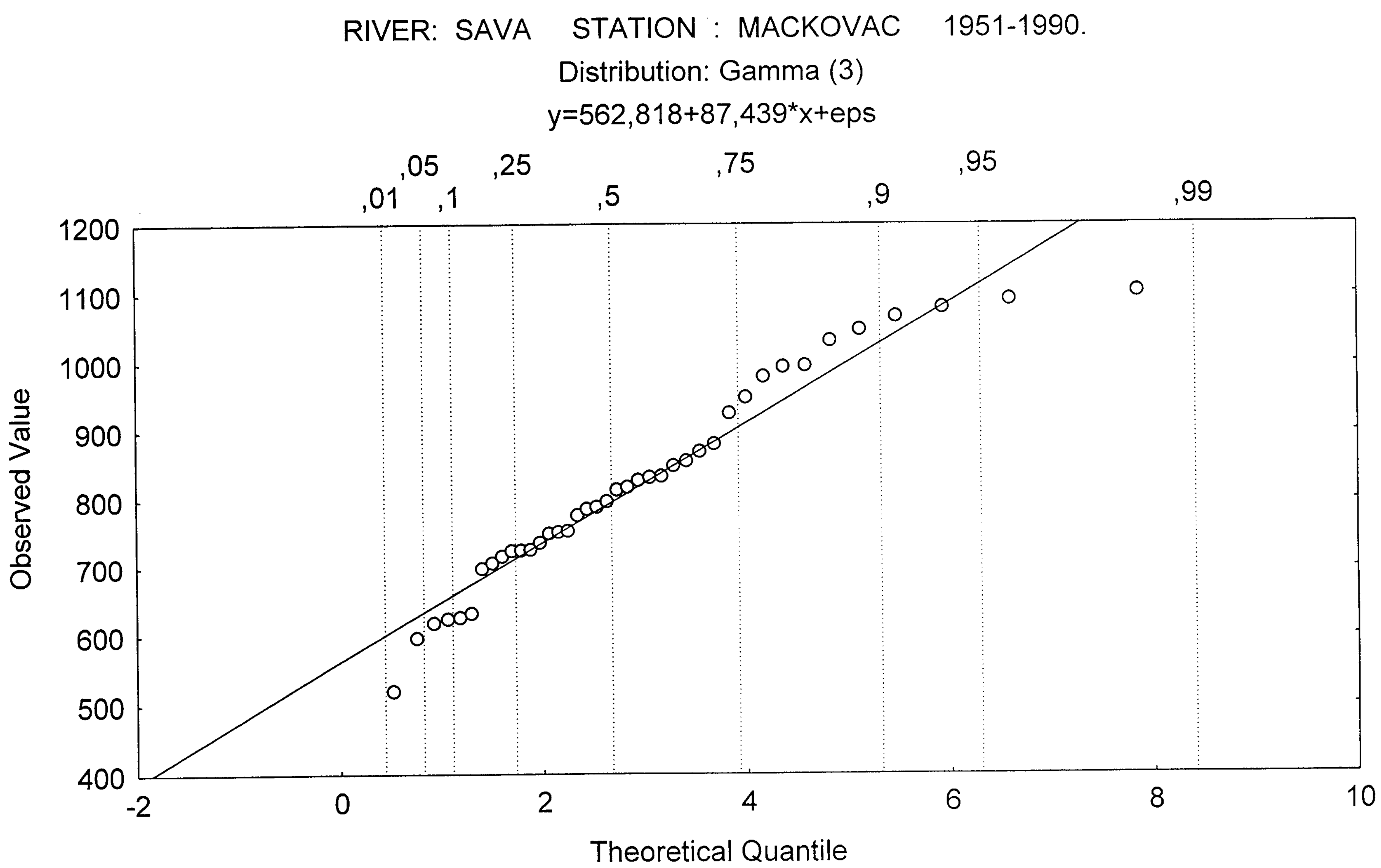
RIVER: SAVA STATION: CRNAC 1955-1992.

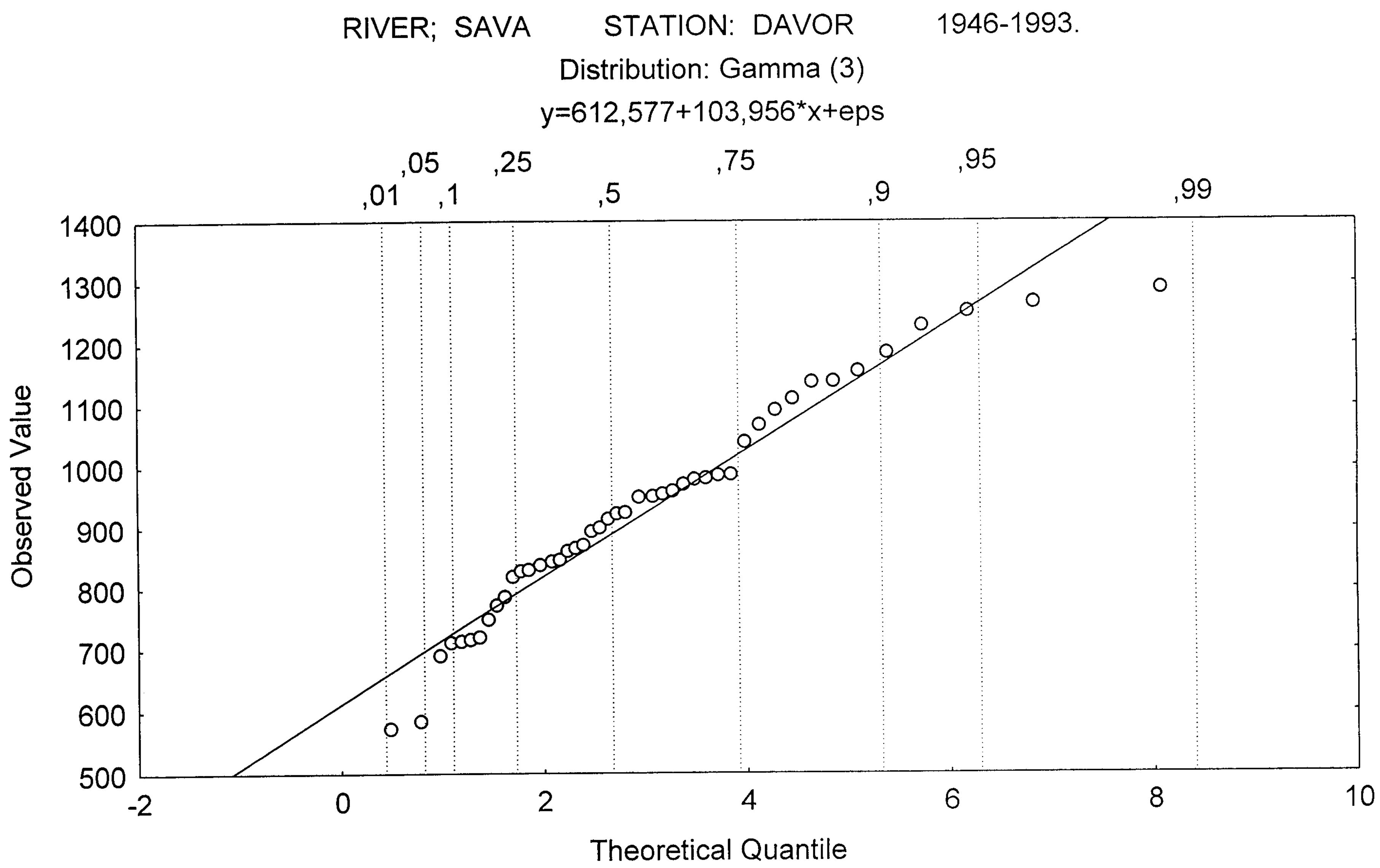
Distribution: Gamma (3)

y=361,928+56,249*x+eps




RIVER: SAVA STATION: JASENOVAC 1946-1990.
Distribution: Gamma (3)
y=505,858+87,031*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
Observed Value
1200
1100
1000
900
800
700
600
500
400
300
-2
0
2
4
6
8
10
Theoretical Quantile

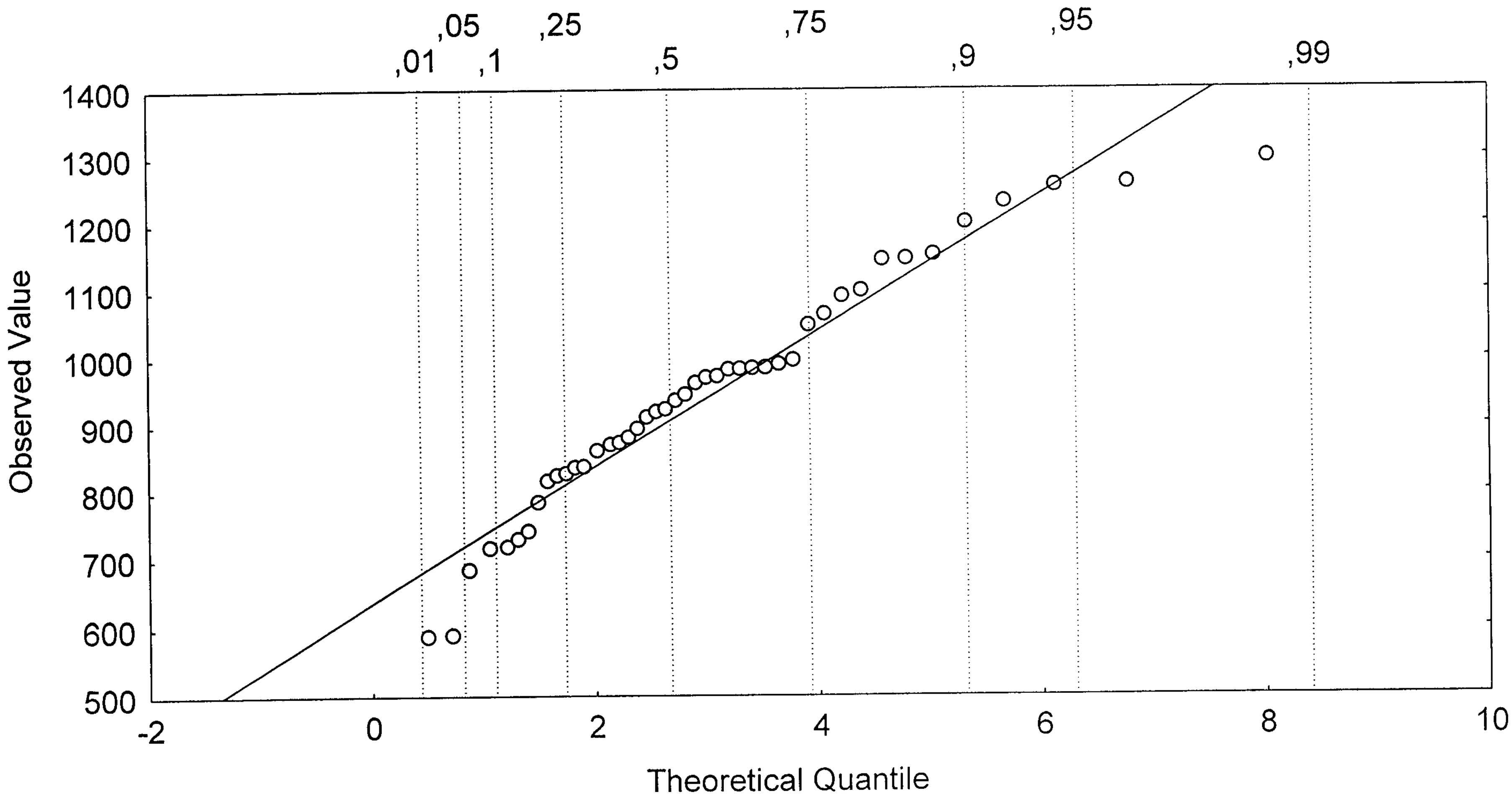

RIVER: SAVA STATION : MACKOVAC 1951-1990.
Distribution: Gamma (3)
y=562,818+87,439*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
1200
1100
1000
900
800
700
600
500
400
Observed Value
-2
0
2
4
6
8
10
Theoretical Quantile


RIVER; SAVA
STATION: DAVOR
1946-1993.
Distribution: Gamma (3)
y=612,577+103,956*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
1400
1300
1200
1100
1000
900
800
700
600
500
Observed Value
-2
0
2
4
6
8
10
Theoretical Quantile

RIVER: SAVA STATION: SL.KOBAS 1948-1993.

Distribution: Gamma (3)

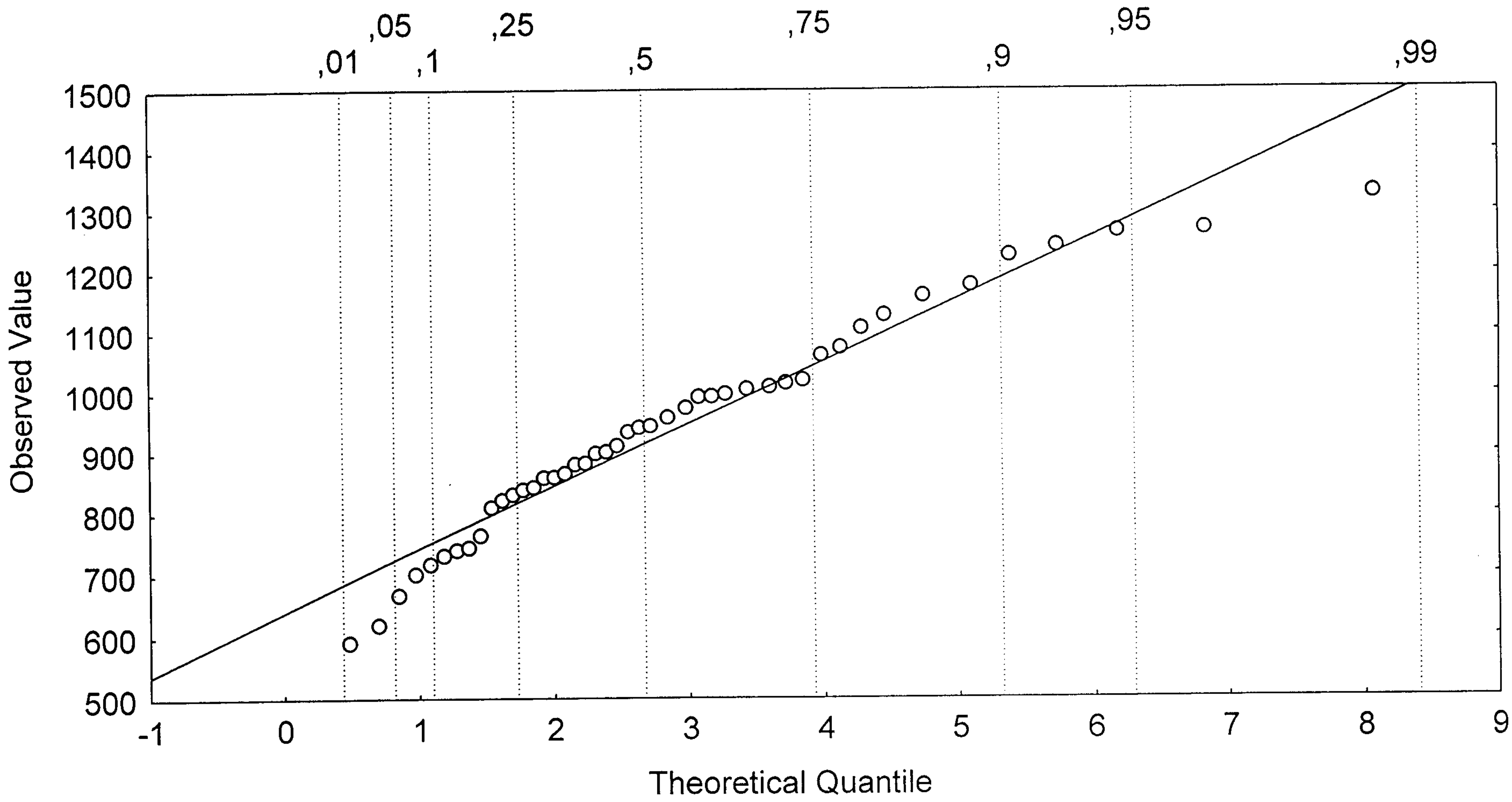
y=637,563+101,013*x+eps



RIVER: SAVA STATION: SL. BROD 1946-1993.

Distribution: Gamma (3)

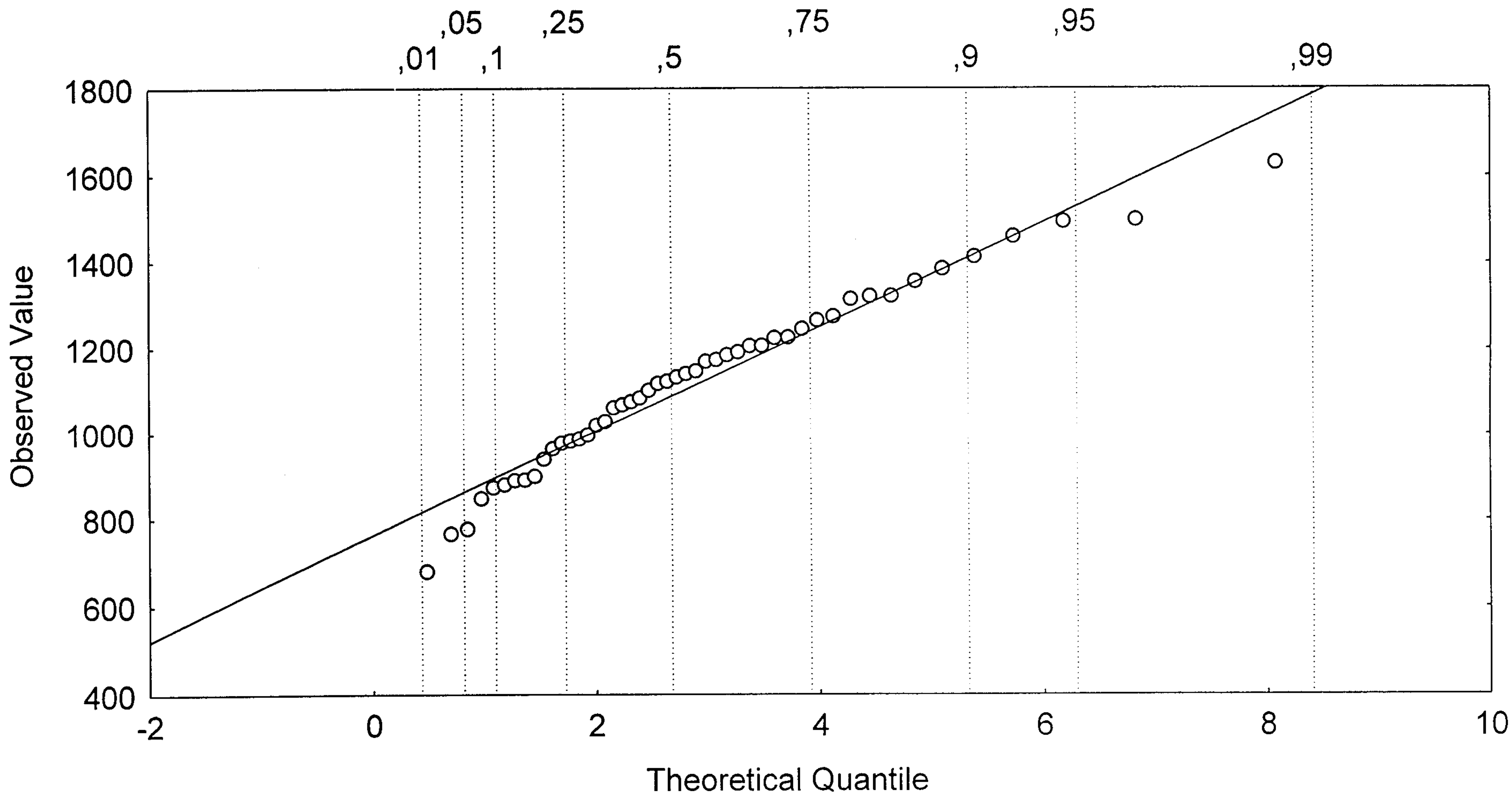
y=640,48+103,043*x+eps



RIVER: SAVA STATION: ZUPANJA 1946-1993.

Distribution: Gamma (3)

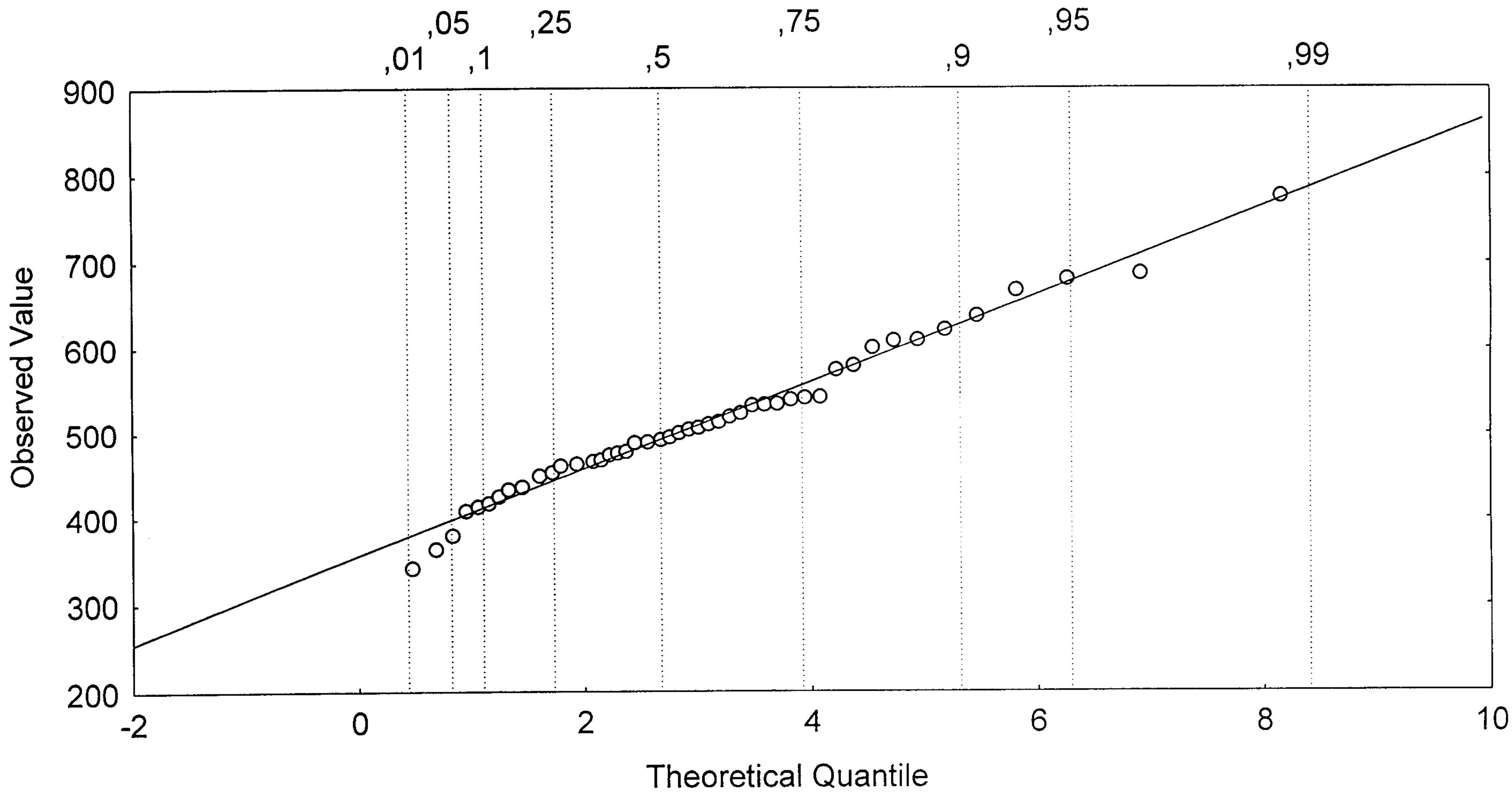
y=763,954+121,485*x+eps



RIVER: DRAVA STATION: BOTOVO 1946-1996.

Distribution: Gamma (3)

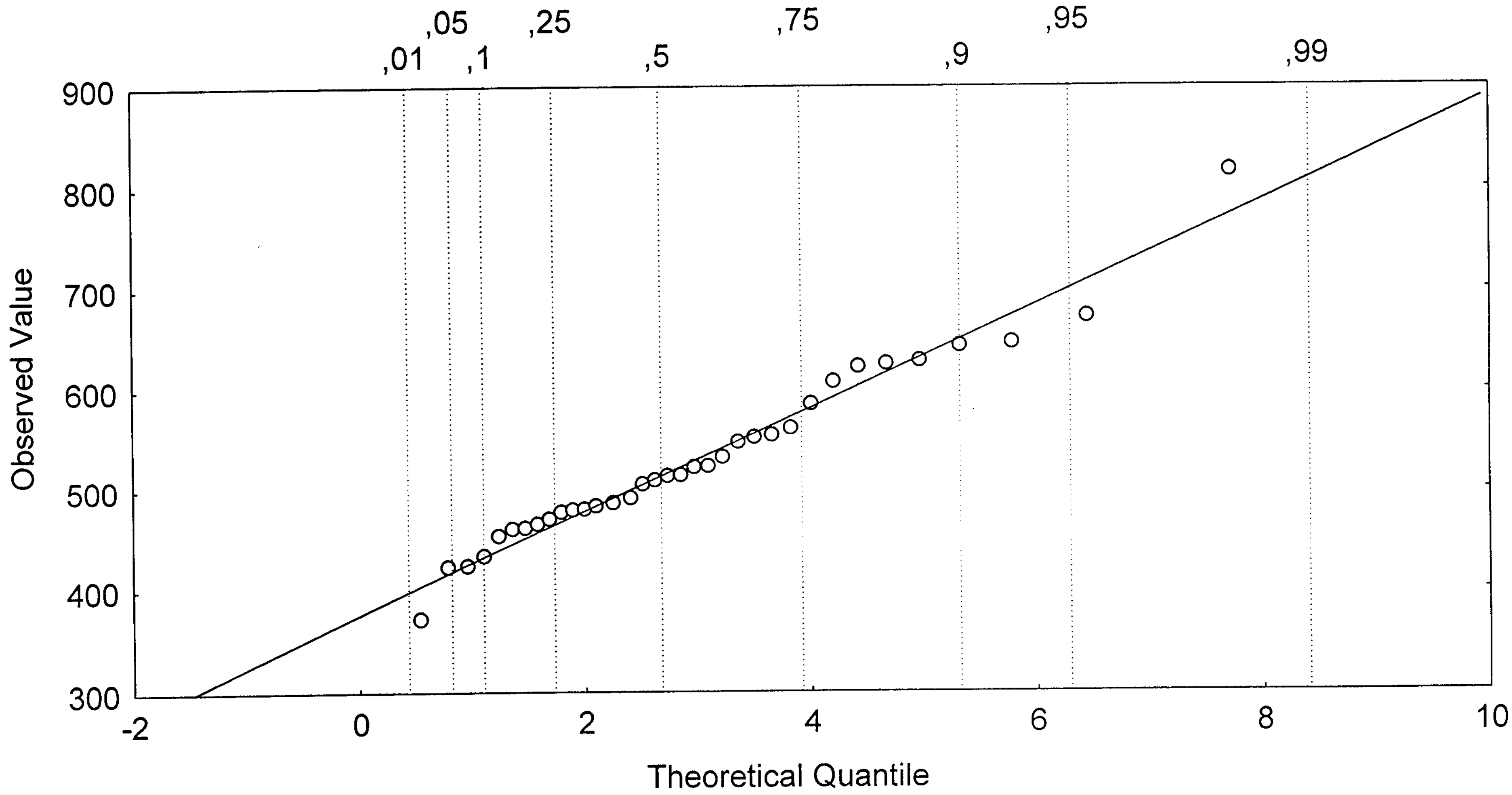
y=356,694+51,005*x+eps

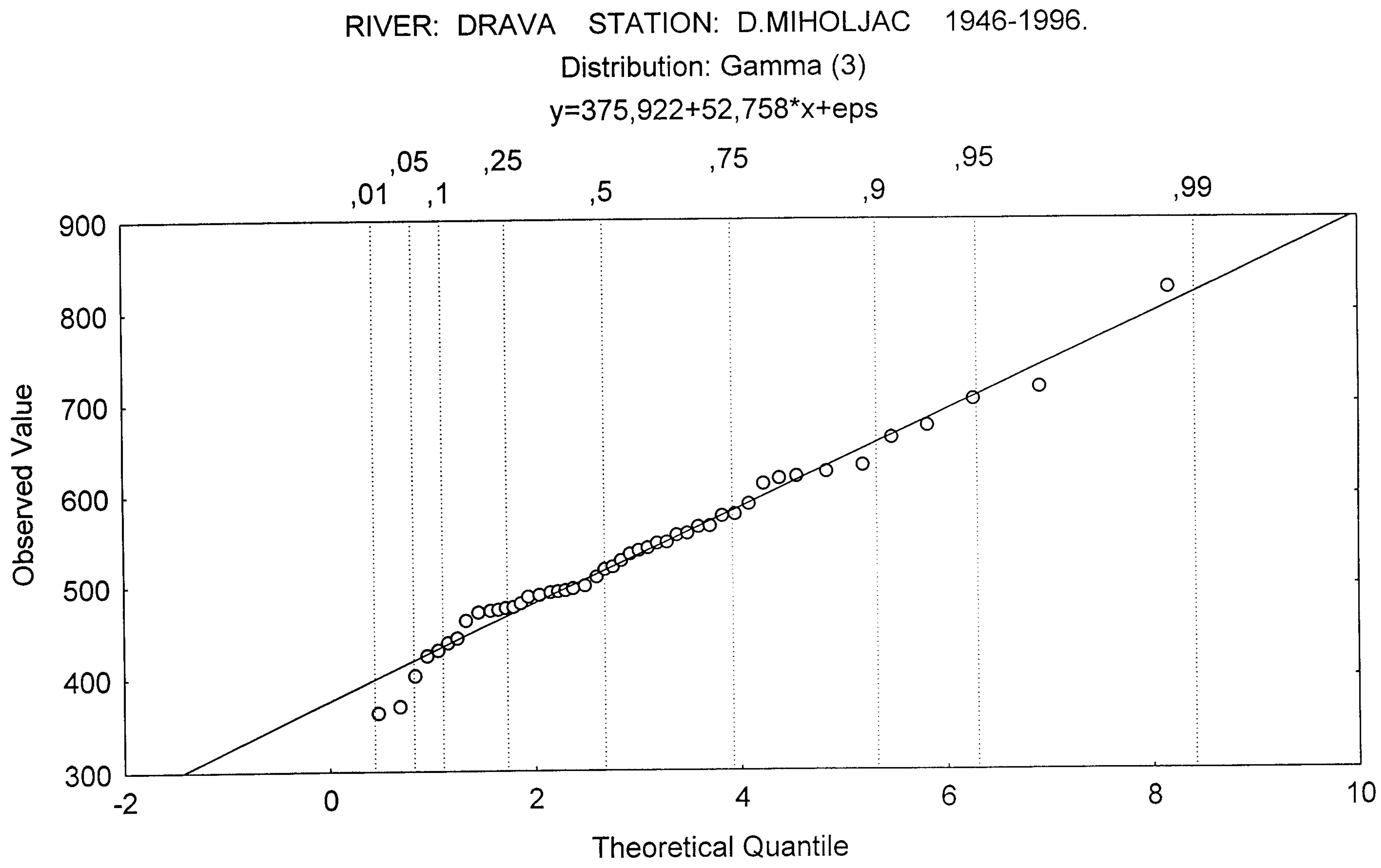


RIVER: DRAVA STATION: T. POLJE 1961-1996.

Distribution: Gamma (3)

y=375,84+51,527*x+eps

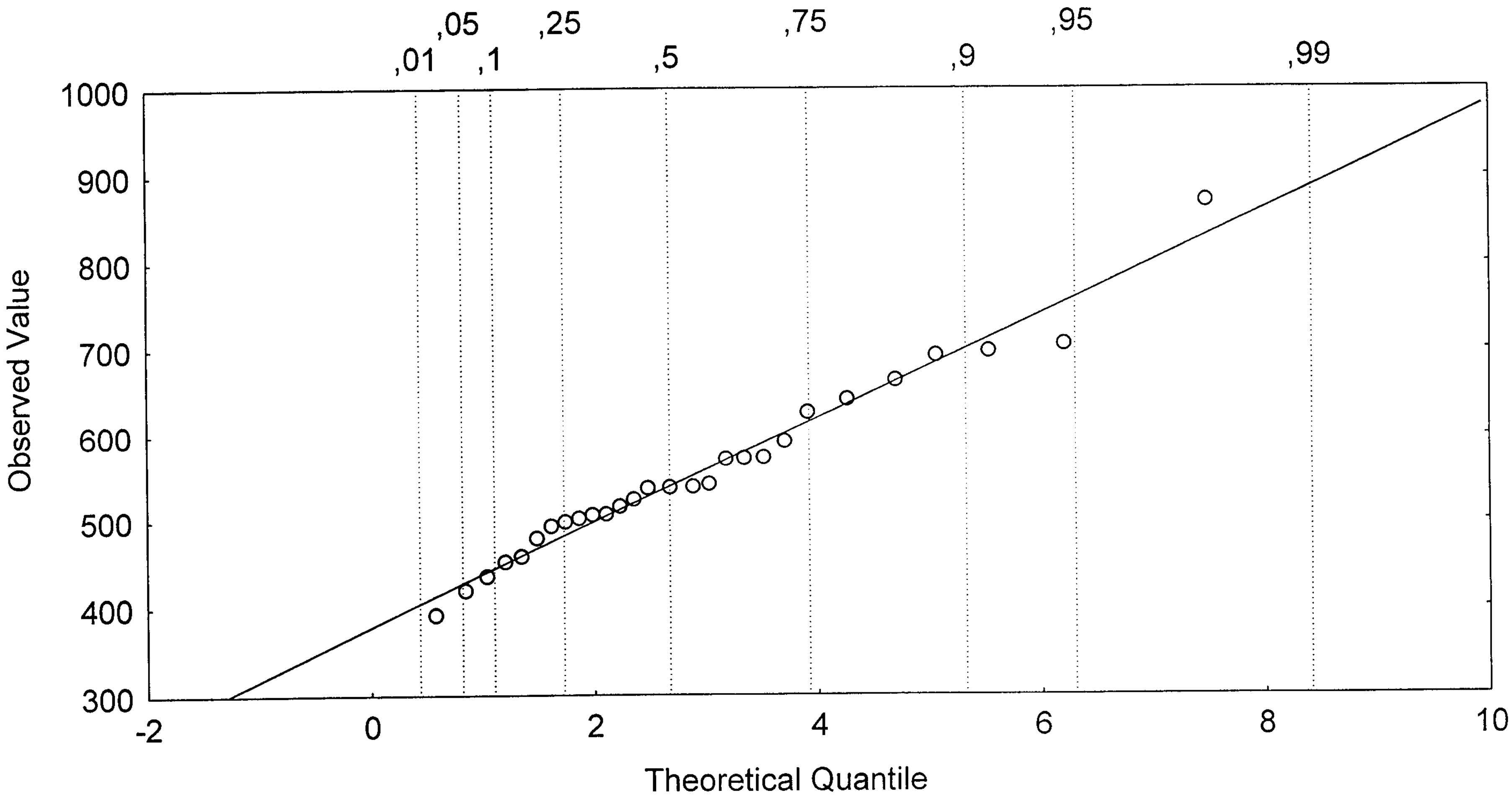



RIVER: DRAVA STATION: D.MIHOLJAC 1946-1996.
Distribution: Gamma (3)
y=375,922+52,758*x+eps
,01
,05
,1
,25
,5
,75
,9
,95
,99
900
800
700
600
500
400
300
-2
0
2
4
6
8
10
Observed Value
Theoretical Quantile

RIVER: DRAVA STATION: BELISCE 1962-1991.

Distribution: Gamma (3)

y=378,324+60,521*x+eps



Sediment Discharges

Table 5 Sediment discharges

River	Hydrological station	Year		
		1994	1995	1996
Sava	Podsused	+	+	-
	Rugvica	+	+	-
	Jasenovac	-	-	-
	Slavonski Brod	-	-	-
Drava	Botovo	+	+	+
	Terezino Polje	+	+	+
	Donji Miholjac	+	+	+

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3087

Pocetak rada 1885.

Stanica: PODSUSED ZICARA
Vodotok: SAVA
Pocetak mjerenja nanosa 1967.

kota "0" 119.13 mnm
P.S. 12316.00 km2

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	49.4	75.0	50.4	86.0	37.9	70.8	3349	60.0	78.2	90.1	6998	33.4
	2	2190	50.5	171	2250	96.8	96.4	1191	94.2	17.3	33.2	677	22.1
	3	10381	40.4	124	30925	15.7	133	669	35.0	108	67.8	684	37.4
	4	3010	92.6	90.3	9293	109	69.7	363	23.4	36.7	69.2	732	25.2
	5	558	141	236	2110	77.0	62.6	231	41.1	253	343	77.4	6.28
	6	4746	27.2	59.4	1503	240	1513	1641	15.9	55.8	1742	98.3	42.5
	7	8020	34.4	47.6	1084	236	1963	5384	29.0	51.0	2901	265	34.6
	8	5367	67.9	214	491	147	355	1436	46.4	120	893	76.5	15.1
	9	784	141	37.1	256	181	187	3765	37.6	33.9	409	86.8	58.7
	10	4169	77.9	51.7	269	97.2	111	1178	35.7	118	43.1	54.7	154
	11	894	108	76.7	7203	92.1	124	499	36.5	32.2	40.0	3124	50.8
	12	2040	115	85.3	38528	65.6	65.5	443	58.1	233	172	10296	52.3
	13	171	64.8	36.1	22605	42.2	1073	461	36.4	22.0	52.1	3032	100
	14	1118	94.8	235	9040	38.4	5342	509	214	26.8	50.8	4450	70.9
	15	266	54.4	59.3	4121	49.4	6889	284	828	293	17.2	485	166
	16	62.4	38.6	182	4326	136	1371	137	767	2940	10.3	212	16.4
	17	382	62.5	163	511	64.8	1045	184	101	10414	36.3	369	27.2
	18	306	57.0	241	1940	65.0	6372	33.3	254	5681	53.7	97.8	22.6
	19	140	53.4	125	6046	62.2	13647	102	311	1179	93.4	86.6	20.4
	20	356	92.4	124	2234	244	978	146	372	884	57.6	35.9	7.11
	21	299	29.2	164	1912	1414	9593	671	36.4	1355	49.9	63.0	14.8
	22	205	15.2	56.2	868	1122	11755	2251	15.4	60.7	20.9	43.1	24.2
	23	53.3	48.0	144	200	1281	1313	128	1268	110	61.0	120	7.19
	24	67.0	52.8	89.0	661	257	96.1	499	1005	207	70.7	54.1	28.4
	25	116	730	242	189	137	359	112	4753	126	1551	52.6	20.7
	26	49.8	5371	136	420	251	72.3	37.0	6143	21.9	2506	35.8	14.4
	27	90.1	880	309	83.1	89.7	167	79.1	6493	84.2	1390	49.4	20.8
	28	127	1183	374	247	167	315	50.6	1711	54.2	4039	22.6	38.8
	29	44.1		793	273	59.9	1371	33.0	173	45.9	12097	39.9	117
	30	124		279	149	190	3044	95.4	428	29.7	77807	49.5	1453
	31	71.8		256		421		13.2	195		10536		20618
	dan	29.	22.	13.	27.	3.	5.	31.	22.	2.	16.	28.	5.
	np	44.1	15.2	36.1	83.1	15.7	62.6	13.2	15.4	17.3	10.3	22.6	6.28
1994	sp	1492	350	169	4994	242	2318	838	826	822	3784	1082	752
	vp	10381	5371	793	38528	1414	13647	5384	6493	10414	77807	10296	20618
	dan	3.	26.	29.	12.	21.	19.	7.	27.	17.	30.	12.	31.
	suma	46255	9798	5251	149823	7488	69553	25975	25617	24672	117305	32470	23321

	np	datum	snp	sp	svp	vp	datum	suma
1994	6.28	5.12.	28.5	1473	16762	77807	30.10.	537528

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3087

Pocetak rada 1885.
kota "0" 119.13 mnm
P.S. 12316.00 km2

Stanica: PODSUSED ZICARA
Vodotok: SAVA
Pocetak mjerenja nanosa 1967.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1995. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	30567	600	12221	108	412	2756	68.1	149	500	389	131	3.12
2	10241	558	4862	274	63.9	6020	134	99.0	862	391	59.6	18.7
3	1431	737	9138	272	62.8	379	112	154	32.3	34.3	239	33.9
4	1388	240	6225	821	72.6	160	127	82.1	950	131	61.9	53.9
5	2862	236	15510	156	69.8	356	66.0	21.6	1448	161	109	150
6	180	155	5564	115	59.3	124	239	51.0	592	50.5	116	89.9
7	317	159	6063	113	83.6	889	583	41.1	809	71.7	33.1	134
8	219	133	650	194	149	292	1099	38.4	889	88.7	18.9	1426
9	314	377	685	943	115	69.8	61.8	113	54181	39.1	16.5	3044
10	279	115	2387	133	48.6	119	141	67.5	14494	14.7	21.3	560
11	40.6	318	176	109	159	232	185	155	1139	42.0	99.8	1095
12	50.1	241	235	161	78.4	940	145	63.8	1006	59.8	49.6	829
13	65.2	97.8	1060	151	3307	360	67.8	48.7	797	64.4	62.4	1500
14	221	125	1067	106	234	315	150	12.0	295	91.4	128	913
15	39.9	140	810	170	4301	182	125	42.2	39097	31.2	185	648
16	52.1	123	480	108	1567	405	70.7	12.1	7691	15.4	115	719
17	70.4	194	461	432	372	189	68.7	105	2788	47.1	132	422
18	72.1	401	863	133	1029	196	117	20.2	606	21.5	1695	549
19	98.2	5658	178	63.5	365	91.1	55.7	370	5085	14.9	1310	2385
20	52.7	12423	1772	55.9	126	228	43.6	834	3001	64.9	282	3378
21	97.5	1918	3092	72.4	1461	36.1	66.3	241	1136	18.9	506	2945
22	39.8	330	1176	135	341	142	89.3	809	2396	38.3	45.0	2710
23	116	488	530	304	62.9	2051	60.9	685	922	21.9	42.5	36469
24	3740	1032	1908	93.9	123	4532	56.8	204	222	14.6	31.2	127581
25	16480	1494	1212	81.7	57.2	766	49.7	145	1210	10.2	31.8	11379
26	1524	2595	496	319	45.0	1847	39.1	271	99.2	14.8	4.27	11160
27	1244	11681	520	541	81.6	409	24.9	623	39.7	25.3	103	11391
28	5251	6025	785	146	58.7	190	24.0	1059	222	34.2	38.7	7425
29	695		1380	346	35.3	457	254	2172	985	24.0	34.4	1159
30	969		657	34.1	57.4	256	104	18605	233	32.7	86.2	1469
31	510		486		1093		54.8	885		117		1148
dan	22.	13.	11.	30.	29.	21.	28.	14.	3.	25.	26.	1.
np	39.8	97.8	176	34.1	35.3	36.1	24.0	12.0	32.3	10.2	4.27	3.12
1995 sp	2556	1736	2666	223	519	833	145	909	4791	70.2	193	7509
vp	30567	12423	15510	943	4301	6020	1099	18605	54181	391	1695	127581
dan	1.	20.	5.	9.	15.	2.	8.	30.	9.	2.	18.	24.
suma	79228	48594	82649	6691	16092	24992	4482	28179	143726	2177	5788	232785

	np	datum	snp	sp	svp	vp	datum	suma
1995	3.12	1.12.	42.1	1850	22776	127581	24.12.	675383

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3096

Pocetak rada 1878.
kota "0" 95.61 mnm
P.S. 12730.00 km2

Stanica: RUGVICA
Vodotok: SAVA
Pocetak mjerenja nanosa 1978.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	1839	87.1	303	128	171	257	374	44.6	132	1560	615	69.2
	2	4634	73.0	238	636	338	108	151	21.8	180	1652	736	41.1
	3	1335	44.0	300	2830	159	804	257	94.6	72.4	265	395	63.6
	4	763	66.5	275	902	191	427	589	32.1	99.4	587	394	105
	5	1307	99.4	205	568	73.0	145	366	53.1	129	2149	125	84.2
	6	1974	53.8	201	390	101	182	381	27.7	70.4	4639	513	211
	7	740	99.8	203	381	107	201	394	28.2	403	2203	315	140
	8	1074	68.3	187	441	50.6	159	309	35.0	82.3	1170	945	324
	9	1505	140	194	604	60.7	87.4	185	31.2	221	1150	140	29.5
	10	1328	194	145	4562	372	102	111	47.2	140	317	183	108
	11	748	167	228	1623	46.5	131	84.5	79.4	95.1	242	96.8	18.6
	12	752	114	144	1423	106	116	185	88.0	370	177	1223	16.3
	13	3208	158	176	1578	105	306	150	259	1805	147	1426	15.0
	14	1423	117	159	1172	251	5049	108	120	545	120	2367	28.2
	15	1770	130	147	1184	72.0	1908	71.9	219	267	106	915	23.4
	16	530	255	132	854	108	815	302	89.8	853	98.4	137	24.0
	17	313	174	143	505	511	904	410	30.0	489	149	435	31.8
	18	408	194	147	1153	500	1881	170	729	779	51.2	125	29.2
	19	329	80.9	158	2748	352	991	87.7	1383	262	188	108	11.2
	20	445	126	101	1579	175	441	75.4	1123	170	73.5	159	135
	21	229	114	107	1136	249	13978	92.5	182	113	131	185	54.3
	22	205	96.5	167	785	201	1058	64.8	162	108	493	67.0	88.9
	23	155	86.4	118	616	240	315	43.5	382	149	412	49.0	76.0
	24	294	82.6	155	538	249	209	48.1	920	139	328	95.3	96.9
	25	234	622	137	488	174	1043	53.7	1429	74.5	584	26.6	57.0
	26	268	656	148	488	168	1860	39.6	559	101	1218	31.7	157
	27	325	149	452	742	218	480	91.6	415	128	6345	16.2	270
	28	177	177	251	284	306	307	103	413	74.0	3753	51.3	204
	29	210		318	188	131	532	63.7	174	414	1674	58.5	133
	30	260		104	157	105	258	25.0	284	48.0	545	105	226
	31	282		232		168		48.9	132		2045		509
	dan	23.	3.	20.	1.	11.	9.	30.	2.	30.	18.	27.	19.
	np	155	44.0	101	128	46.5	87.4	25.0	21.8	48.0	51.2	16.2	11.2
1994	sp	937	158	193	1023	195	1168	175	309	284	1115	401	109
	vp	4634	656	452	4562	511	13978	589	1429	1805	6345	2367	509
	dan	2.	26.	27.	10.	17.	21.	4.	25.	13.	27.	14.	31.
	suma	29062	4425	5973	30682	6056	35054	5437	9589	8513	34572	12041	3381

	np	datum	snp	sp	svp	vp	datum	suma
1994	11.2	19.12.	61.3	506	3153	13978	21. 6.	184785

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3096

Pocetak rada 1878.
kota "0" 95.61 mnm
P.S. 12730.00 km2

Stanica: RUGVICA
Vodotok: SAVA
Pocetak mjerenja nanosa 1978.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	1532	1416	3565	327	103	23.6	98.2	23.7	149	242	16.1	70.7
	2	1820	373	4614	309	90.6	171	181	27.1	181	131	45.7	72.4
	3	2139	192	3150	233	274	50.3	96.2	48.8	465	190	66.5	65.0
	4	476	1020	1486	224	82.1	245	75.9	56.2	385	47.9	29.8	68.9
	5	255	1241	13325	154	126	135	131	17.0	311	24.0	34.5	71.1
	6	628	165	7535	103	86.7	88.1	271	19.2	433	61.8	40.6	24.6
	7	257	101	1017	217	105	312	273	37.2	220	39.3	26.3	12.4
	8	461	39.5	2096	333	137	98.3	145	23.9	611	17.6	47.2	38.5
	9	94.1	103	1033	243	97.2	165	79.5	19.1	283	26.0	8.37	40.7
	10	103	107	406	188	141	419	106	44.1	809	53.0	44.4	47.8
	11	397	77.7	2331	129	377	120	30.5	19.0	1491	30.1	23.5	25.2
	12	112	64.3	1395	86.2	809	309	372	25.6	2339	31.4	20.3	32.1
	13	106	108	1766	62.7	327	248	32.7	20.6	2694	23.8	11.0	10.5
	14	65.8	146	416	85.9	746	216	63.8	9.84	175	23.9	272	557
	15	63.6	100	613	69.1	268	185	29.7	14.7	716	16.5	130	319
	16	29.5	244	762	51.9	214	105	130	45.0	453	17.5	80.3	41.4
	17	86.1	51.5	262	238	140	113	37.2	110	399	14.1	28.1	265
	18	57.1	220	136	169	301	63.6	42.0	294	373	34.0	108	1872
	19	89.2	200	498	182	153	70.1	23.0	261	179	10.3	76.5	142
	20	87.3	1391	695	86.3	209	60.4	43.4	210	395	31.9	71.7	192
	21	336	3456	294	112	219	105	76.1	274	1070	38.6	37.1	118
	22	293	441	298	82.1	285	277	24.8	148	1078	17.1	107	20.7
	23	354	506	320	170	180	350	24.3	175	811	39.7	51.3	78.8
	24	2656	276	292	120	135	378	49.8	116	242	32.7	48.8	180
	25	781	1366	560	146	102	193	247	108	431	41.7	19.1	2962
	26	612	784	248	614	182	399	64.3	122	88.6	43.2	24.3	2316
	27	529	1277	242	117	115	255	108	137	107	32.2	74.3	6667
	28	585	1857	89.4	208	280	353	44.7	127	101	8.41	410	5231
	29	867		452	28.7	427	138	61.8	1297	291	20.7	213	571
	30	1563		145	70.3	248	99.5	34.0	997	207	55.4	193	423
	31	513		205		217		3.31	4459		40.1		416
	dan	16.	8.	28.	29.	4.	1.	31.	14.	26.	28.	9.	13.
	np	29.5	39.5	89.4	28.7	82.1	23.6	3.31	9.84	88.6	8.41	8.37	10.5
1995	sp	579	619	1621	172	232	191	96.8	300	583	46.3	78.6	740
	vp	2656	3456	13325	614	809	419	372	4459	2694	242	410	6667
	dan	24.	21.	5.	26.	12.	10.	12.	31.	13.	1.	28.	27.
	suma	17950	17324	50249	5160	7178	5744	3000	9286	17488	1436	2357	22952

	np	datum	snp	sp	svp	vp	datum	suma
1995	3.31	31. 7.	35.2	439	3010	13325	5. 3.	160122

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5008

Pocetak rada 1873.
kota "0" 122.25 mnm
P.S. 31038.00 km2

Stanica: BOTOVO
Vodotok: DRAVA
Pocetak mjerenja nanosa 1966.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	193	187	132	304	754	953	885	214	1340	299	714	95.6
	2	500	263	167	431	1120	684	712	186	671	196	434	160
	3	1678	166	186	992	1675	604	664	287	430	182	274	160
	4	933	184	180	1534	1279	868	593	219	462	102	238	80.5
	5	765	212	198	736	997	878	603	227	552	39.3	295	99.7
	6	2794	204	125	514	876	937	349	221	473	814	266	141
	7	1528	256	83.0	491	889	1071	510	311	326	372	260	99.9
	8	1386	146	98.4	437	950	562	808	306	226	235	222	65.0
	9	847	144	110	289	949	432	869	331	284	165	115	38.9
	10	345	218	114	212	955	372	426	311	300	176	146	59.2
	11	417	187	200	358	981	1424	349	395	298	9.80	214	107
	12	358	288	329	4717	1026	1089	418	209	314	19.3	1523	104
	13	441	212	219	10988	879	629	435	393	264	89.5	2305	77.5
	14	408	180	190	4494	612	5937	450	555	176	117	1772	66.1
	15	483	248	278	2923	491	2431	335	711	419	91.4	662	86.3
	16	373	179	245	1565	602	1015	458	922	2895	81.0	417	81.4
	17	376	175	355	1050	468	694	413	464	1110	68.6	445	77.3
	18	186	140	337	923	762	1092	246	205	786	36.0	341	30.9
	19	436	100	342	3286	807	710	469	423	545	106	163	32.8
	20	303	73.2	290	2528	912	908	712	758	402	128	148	64.9
	21	218	68.9	262	990	1301	604	631	578	283	97.3	140	59.1
	22	338	140	345	821	799	3119	2431	528	175	154	138	39.0
	23	302	118	223	635	783	1547	938	552	278	122	192	42.9
	24	349	170	182	621	806	883	581	932	259	155	148	53.7
	25	249	346	272	730	840	675	346	1095	300	71.6	94.9	34.1
	26	184	291	243	511	900	595	443	1272	376	1022	117	23.1
	27	236	295	338	661	946	644	317	1372	220	533	113	40.1
	28	230	359	547	739	829	618	331	676	269	1179	102	52.3
	29	200		171	587	479	795	256	544	241	746	134	49.2
	30	147		230	458	424	1077	255	481	523	1379	77.7	27.8
	31	194		476		635		325	640		1335		1108
	dan	30.	21.	7.	10.	30.	10.	18.	2.	22.	11.	30.	26.
	np	147	68.9	83.0	212	424	372	246	186	175	9.80	77.7	23.1
1994	sp	561	198	241	1518	862	1128	566	526	506	326	407	105
	vp	2794	359	547	10988	1675	5937	2431	1372	2895	1379	2305	1108
	dan	6.	28.	28.	13.	3.	14.	22.	27.	16.	30.	13.	31.
	suma	17395	5552	7466	45527	26726	33849	17559	16316	15195	10120	12210	3256

	np	datum	snp	sp	svp	vp	datum	suma
1994	9.80	11.10.	169	579	2816	10988	13. 4.	211170

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5008

Pocetak rada 1873.
kota "0" 122.25 mnm
P.S. 31038.00 km2

Stanica: BOTOVO
Vodotok: DRAVA
Pocetak mjerenja nanosa 1966.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	1542	225	3439	445	856	688	1529	1036	855	767	16.7	4.56
	2	1488	219	1298	191	913	1118	1516	1093	1539	610	55.3	17.1
	3	1084	155	1331	132	1379	1107	2089	1669	719	396	43.9	10.8
	4	690	158	10184	275	1255	908	1988	616	410	359	46.9	10.9
	5	210	96.8	7410	343	864	894	1741	1378	451	325	38.7	34.6
	6	89.0	63.5	9317	605	851	7616	1963	1047	1416	442	29.9	47.1
	7	143	26.7	3202	684	687	7431	2500	1020	480	186	22.6	42.5
	8	147	85.0	1421	941	646	6376	2959	1330	334	223	26.8	32.6
	9	91.2	86.3	748	1083	803	3012	2160	788	614	280	12.3	23.8
	10	92.6	84.9	492	1153	934	2738	1950	987	850	176	19.9	25.7
	11	70.7	75.2	535	196	972	2215	1721	1980	894	279	22.1	17.1
	12	73.5	61.1	377	487	639	2719	1628	1433	595	289	18.6	27.6
	13	78.7	82.4	305	489	682	3240	1352	929	855	338	15.9	180
	14	80.7	42.0	325	469	844	3940	1223	762	349	182	14.5	158
	15	70.5	43.2	255	345	1043	2880	1103	1194	1705	229	15.7	56.4
	16	60.4	91.3	249	293	650	2536	1350	707	9270	247	17.3	42.7
	17	70.0	104	214	176	547	2836	1851	539	4333	179	33.0	29.7
	18	63.9	259	252	204	462	2376	1440	1055	1745	182	34.5	14.7
	19	114	1996	185	223	474	2108	1339	601	1850	215	38.7	27.2
	20	50.2	1354	248	265	459	1597	1421	612	1235	180	74.8	59.4
	21	60.6	381	532	220	348	1805	739	1033	2034	171	42.1	59.7
	22	39.2	187	742	302	426	1960	874	1293	2054	207	33.5	73.1
	23	31.8	162	421	318	474	2214	845	1268	1277	217	28.5	137
	24	66.2	96.6	442	525	400	2142	768	575	955	173	18.6	2441
	25	1092	270	203	1120	310	2311	1117	1107	830	906	13.7	1703
	26	1050	381	261	5597	349	2342	1492	934	504	90.9	9.29	1044
	27	786	2780	228	3779	514	1682	1668	813	432	38.4	4.90	328
	28	4855	6870	260	2711	474	2181	1185	564	810	57.2	13.5	410
	29	2670		551	1427	469	2962	1513	2450	645	30.4	4.78	230
	30	668		422	930	458	2122	1415	4105	997	17.1	11.8	144
	31	304		348		542		1281	1367		28.0		86.1
	dan	23.	7.	19.	3.	25.	1.	21.	17.	8.	30.	29.	1.
	np	31.8	26.7	185	132	310	688	739	539	334	17.1	4.78	4.56
1995	sp	578	587	1490	864	668	2668	1539	1170	1368	259	26.0	243
	vp	4855	6870	10184	5597	1379	7616	2959	4105	9270	906	74.8	2441
	dan	28.	28.	4.	26.	3.	6.	8.	30.	16.	25.	20.	24.
	suma	17932	16437	46198	25931	20721	80054	47721	36284	41039	8020	779	7518

	np	datum	snp	sp	svp	vp	datum	suma
1995	4.56	1.12.	251	955	4688	10184	4. 3.	348633

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5008

Pocetak rada 1873.
kota "0" 122.25 mnm
P.S. 31038.00 km2

Stanica: BOTOVO
Vodotok: DRAVA
Pocetak mjerenja nanosa 1966.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1996. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	120	78.2	101	470	1445	988	1770	263	550	320	438	564
2	88.8	111	121	388	1870	728	2208	344	827	292	321	255
3	72.5	68.5	104	514	1904	664	2899	378	1153	413	281	283
4	94.5	69.0	116	3196	1649	597	6809	306	1104	1563	323	192
5	61.7	81.0	111	4604	1230	515	3477	292	2477	667	258	211
6	79.1	76.9	116	7793	946	554	1873	392	2046	792	198	189
7	95.7	96.8	108	10762	874	892	1153	255	1167	1004	173	182
8	90.5	99.2	93.8	3644	779	584	928	276	669	2434	188	140
9	144	103	106	1954	534	459	1132	502	603	1100	42.1	98.2
10	1705	171	96.0	2161	2488	408	990	370	511	669	51.8	135
11	1311	135	104	1822	2288	720	1028	372	1053	2487	63.3	92.6
12	1336	98.8	71.3	1330	2123	469	838	291	502	1060	93.7	138
13	2099	90.8	147	1078	1422	413	683	359	482	943	50.5	182
14	1452	58.6	90.4	1146	5033	543	427	943	342	542	80.5	144
15	820	66.4	141	946	3511	427	548	1354	381	457	222	182
16	424	91.4	111	865	2046	295	528	771	473	332	2076	272
17	261	59.8	94.6	792	1293	280	443	1637	416	384	2959	160
18	195	53.1	86.5	485	2919	399	467	778	415	3490	1488	62.0
19	132	51.0	249	591	1681	190	392	495	416	1697	1131	57.0
20	154	54.5	313	495	1460	225	313	261	259	1195	2244	45.1
21	104	658	534	481	1321	266	415	220	275	751	3748	55.8
22	95.2	440	499	659	2512	359	718	218	200	751	3386	65.9
23	121	163	624	1041	1698	1460	273	208	273	3556	2283	72.8
24	117	109	593	1898	1226	2642	232	249	1690	4901	1926	93.1
25	116	76.4	997	2298	864	1565	194	216	3142	2121	1356	76.0
26	84.5	85.6	1096	2396	878	903	349	223	2411	1690	1151	74.1
27	45.2	25.4	2093	2430	732	845	299	220	1940	778	1003	215
28	48.0	55.7	2278	1996	3181	1204	163	306	1159	700	839	110
29	87.9	43.5	2120	1933	4753	547	293	246	525	601	488	69.5
30	108		853	1509	1891	962	220	370	427	488	596	61.9
31	158		491		1240		227	390		474		63.9

		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	dan	27.	27.	12.	2.	9.	19.	28.	23.	22.	2.	9.	20.
	np	45.2	25.4	71.3	388	534	190	163	208	200	292	42.1	45.1
1996	sp	381	116	473	2056	1864	703	1042	436	930	1247	982	146
	vp	2099	658	2278	10762	5033	2642	6809	1637	3142	4901	3748	564
	dan	13.	21.	28.	7.	14.	24.	4.	17.	25.	24.	21.	1.
	suma	11819	3370	14658	61675	57791	21103	32291	13505	27886	38653	29457	4540

	np	datum	snp	sp	svp	vp	datum	suma
1996	25.4	27. 2.	184	865	3689	10762	7. 4.	316748

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Stanica: TEREZINO POLJE
Vodotok: DRAVA
Pocetak mjerenja nanosa 1990.

Sifra stanice 5063

Pocetak rada 1872.
kota "0" 100.67 mnm
P.S. 33916.00 km2

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	129	67.5	418	321	91.4	337	354	203	137	617	77.8	239
	2	636	120	353	314	193	391	276	56.4	27.3	174	110	92.5
	3	229	143	434	386	414	614	554	178	44.4	155	151	58.0
	4	1272	90.7	441	436	311	271	236	558	48.1	133	398	155
	5	133	51.6	303	883	491	355	474	225	45.7	48.0	36.5	176
	6	864	111	326	353	448	1653	302	49.9	44.6	46.9	31.6	35.2
	7	230	62.5	223	307	639	1826	268	83.8	53.0	68.4	52.8	150
	8	297	52.9	123	1278	389	249	442	220	40.5	104	57.7	26.9
	9	1272	51.9	240	82.7	424	709	447	116	181	36.5	72.8	92.4
	10	372	102	226	98.3	498	563	294	53.5	37.5	52.3	45.2	141
	11	541	109	394	481	392	298	186	69.1	54.6	72.3	61.2	37.8
	12	100	81.2	322	147	534	362	496	41.5	68.0	48.9	420	95.5
	13	203	115	471	519	347	320	169	74.4	76.1	32.8	120	150
	14	240	80.5	248	1849	240	393	340	166	35.4	49.7	147	40.4
	15	185	63.9	539	620	207	560	166	198	61.8	82.7	127	151
	16	437	137	194	315	181	470	100	78.6	206	61.1	140	41.0
	17	155	149	379	413	240	445	168	108	113	36.7	83.7	35.9
	18	231	180	256	1489	219	315	214	238	74.9	55.6	53.0	51.9
	19	86.8	173	291	351	495	224	203	129	185	196	70.7	42.2
	20	128	103	249	362	791	73.0	356	258	115	47.3	274	28.7
	21	138	314	50.8	578	361	2284	281	520	184	92.7	57.2	186
	22	209	190	234	102	250	370	271	110	69.5	122	47.2	77.2
	23	348	148	69.8	191	253	264	502	563	71.7	43.1	51.6	39.1
	24	84.7	137	122	367	244	527	287	612	373	66.9	52.5	86.2
	25	84.4	209	146	102	449	322	132	307	54.8	44.3	54.5	55.1
	26	171	126	113	728	88.8	274	120	274	132	101	148	34.0
	27	161	80.9	103	334	465	631	238	126	351	473	55.2	65.8
	28	146	79.7	203	307	1031	152	146	58.3	38.6	81.2	46.3	29.9
	29	156		145	301	434	288	99.5	72.6	331	95.3	86.4	180
	30	223		491	395	693	184	174	84.5	47.6	343	68.2	155
	31	94.1		143		241		327	390		146		160
	dan	25.	5.	21.	9.	26.	20.	29.	12.	2.	13.	6.	8.
	np	84.4	51.6	50.8	82.7	88.8	73.0	99.5	41.5	27.3	32.8	31.6	26.9
1994	sp	308	119	266	480	389	524	278	201	110	120	107	93.8
	vp	1272	314	539	1849	1031	2284	554	612	373	617	420	239
	dan	4.	21.	15.	14.	28.	21.	3.	24.	24.	1.	12.	1.
	suma	9555	3330	8252	14410	12054	15725	8621	6220	3303	3726	3197	2908

	np	datum	snp	sp	svp	vp	datum	suma
1994	26.9	8.12.	57.6	250	842	2284	21. 6.	91302

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Stanica: TEREZINO POLJE
Vodotok: DRAVA
Pocetak mjerenja nanosa 1990.

Sifra stanice 5063

Pocetak rada 1872.
kota "0" 100.67 mnm
P.S. 33916.00 km2

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1995. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	1024	155	290	111	194	704	605	44.1	76.4	94.2	72.4	137
2	3577	34.5	64.5	279	177	497	240	129	237	175	29.7	140
3	158	250	301	41.3	209	260	97.7	79.9	76.9	60.7	39.4	11.7
4	41.0	156	687	49.9	125	49.5	759	90.4	64.3	57.3	36.1	37.6
5	41.5	213	653	70.3	114	608	231	41.2	55.2	97.4	35.8	37.7
6	242	23.4	1745	82.3	179	94.5	178	28.3	86.3	309	315	40.8
7	38.7	13.8	103	88.0	38.8	90.5	83.1	65.0	86.1	76.9	24.5	33.1
8	309	93.5	102	203	635	100	185	88.1	75.2	61.2	38.6	33.2
9	77.0	46.4	191	80.8	185	87.2	72.6	48.5	69.3	83.6	79.8	61.9
10	61.3	66.4	80.2	320	311	142	79.7	127	141	15.4	85.0	71.4
11	157	155	97.3	252	385	119	80.7	37.0	104	64.1	139	139
12	66.3	40.3	210	50.2	236	97.2	132	54.5	74.9	141	225	58.8
13	226	25.7	181	87.4	228	208	75.0	52.2	87.1	50.5	40.6	39.5
14	492	40.5	245	53.0	251	25.0	199	41.2	104	89.9	38.0	39.4
15	77.7	33.1	51.6	81.9	115	47.9	76.5	55.0	126	38.1	51.5	41.0
16	118	734	80.8	116	98.6	161	24.8	31.8	217	46.0	69.6	28.7
17	57.7	277	83.6	51.1	76.3	143	220	41.7	1304	184	32.4	40.7
18	41.5	35.8	85.5	57.2	27.2	143	69.7	52.7	481	632	39.5	26.0
19	30.9	69.1	274	33.0	131	209	73.5	50.8	149	99.6	150	36.9
20	31.6	60.4	60.2	71.4	60.0	216	98.1	43.4	138	84.2	38.9	36.8
21	155	35.6	70.5	100	191	945	75.4	68.2	90.4	51.3	37.0	245
22	19.9	111	87.4	91.5	132	188	77.1	77.7	841	58.8	44.4	54.8
23	24.7	42.1	90.4	170	180	214	63.9	127	172	50.5	41.9	50.7
24	30.4	120	140	106	118	254	50.4	84.3	183	272	34.0	93.5
25	50.9	49.9	290	128	220	183	35.0	60.2	95.2	58.4	33.4	104
26	72.7	222	11.0	96.0	55.2	130	220	54.1	83.1	50.4	48.0	224
27	85.8	131	362	344	85.0	157	88.6	49.4	62.9	34.1	158	364
28	765	267	37.0	158	142	91.6	89.8	59.7	90.8	35.5	31.2	99.8
29	514		209	90.5	133	49.5	81.3	50.5	73.2	62.6	33.4	61.8
30	390		87.4	113	135	403	87.8	73.6	107	36.9	116	385
31	348		64.9		651		98.1	91.8		75.8		189
dan	22.	7.	26.	19.	18.	14.	16.	6.	5.	10.	7.	3.
np	19.9	13.8	11.0	33.0	27.2	25.0	24.8	28.3	55.2	15.4	24.5	11.7
1995 sp	301	125	227	119	188	221	147	64.5	185	105	71.9	95.6
vp	3577	734	1745	344	651	945	759	129	1304	632	315	385
dan	2.	16.	6.	27.	31.	21.	4.	2.	17.	18.	6.	30.
suma	9325	3501	7037	3576	5815	6619	4546	1999	5550	3246	2158	2962

	np	datum	snp	sp	svp	vp	datum	suma
1995	11.0	26. 3.	24.1	154	960	3577	2. 1.	56334

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5063

Pocetak rada 1872.
kota "0" 100.67 mnm
P.S. 33916.00 km2

Stanica: TEREZINO POLJE
Vodotok: DRAVA
Pocetak mjerenja nanosa 1990.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1996. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	282	230	127	198	1022	227	558	129	99.1	252	138	85.6
	2	696	89.9	152	156	686	172	334	437	93.1	81.3	65.7	69.5
	3	413	60.2	105	117	279	277	375	171	55.2	88.5	75.1	63.6
	4	299	55.9	72.8	228	293	782	706	44.7	118	94.9	173	379
	5	108	42.8	188	341	137	629	871	116	129	87.5	546	79.8
	6	25.1	91.2	118	1583	192	1164	608	59.4	73.3	83.6	36.6	67.2
	7	50.6	25.9	121	1010	229	233	665	86.5	60.6	102	54.7	66.6
	8	51.3	162	78.2	455	302	153	165	111	61.6	149	60.2	877
	9	114	248	94.1	728	179	440	395	59.3	50.6	111	110	58.5
	10	101	213	84.1	376	385	280	356	382	41.0	63.8	61.4	91.0
	11	215	178	79.8	351	433	387	516	104	64.0	107	40.1	50.2
	12	426	81.1	55.5	695	281	417	981	46.3	51.0	84.5	55.1	48.8
	13	551	79.3	76.0	1360	601	152	210	65.9	47.2	107	51.1	65.1
	14	570	92.9	82.4	234	953	118	160	260	79.0	74.2	56.5	67.4
	15	308	82.2	107	277	196	243	193	42.6	60.2	183	69.5	212
	16	472	102	77.5	294	369	179	137	45.3	49.3	88.5	76.6	120
	17	94.2	320	141	310	220	493	295	60.2	60.8	281	104	51.1
	18	98.0	157	61.5	141	151	442	164	71.9	257	130	110	127
	19	128	211	23.0	169	697	503	272	57.5	65.8	162	85.8	32.1
	20	139	501	213	185	613	338	217	37.8	62.7	175	130	60.5
	21	116	301	295	289	690	471	361	42.0	41.2	165	116	71.5
	22	107	132	221	548	1281	141	118	77.3	66.3	74.4	184	67.6
	23	206	143	141	1026	64.3	520	102	148	43.0	96.1	136	223
	24	274	143	118	178	26.6	317	73.4	45.0	89.1	124	1148	504
	25	130	131	200	246	2.33	443	133	40.4	94.9	396	127	324
	26	87.1	121	122	253	38.1	618	55.4	39.6	253	121	143	35.5
	27	109	37.0	117	374	68.4	598	117	233	76.0	75.4	83.5	41.8
	28	81.3	143	222	706	521	684	60.5	174	76.3	44.3	49.8	43.0
	29	54.1	180	320	267	782	1309	12.3	200	89.2	74.5	80.3	38.2
	30	71.9		381	735	73.1	263	38.9	60.6	50.9	84.6	90.9	43.3
	31	103		272		172		18.7	94.6		73.3		35.9
	dan	6.	7.	19.	3.	25.	14.	29.	20.	10.	28.	6.	19.
	np	25.1	25.9	23.0	117	2.33	118	12.3	37.8	41.0	44.3	36.6	32.1
1996	sp	209	150	144	461	385	433	299	114	81.9	124	142	132
	vp	696	501	381	1583	1281	1309	981	437	257	396	1148	877
	dan	2.	20.	30.	6.	22.	29.	12.	2.	18.	25.	24.	8.
	suma	6481	4357	4466	13830	11935	12993	9270	3543	2458	3835	4257	4099

	np	datum	snp	sp	svp	vp	datum	suma
1996	2.33	25. 5.	43.0	223	821	1583	6. 4.	81524

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Stanica: D.MIHOLJAC c.s.
Vodotok: DRAVA
Pocetak mjerenja nanosa 1993.

Sifra stanice 5150

Pocetak rada 1988.
kota "0" 88.57 mnm
P.S. 37142.00 km2

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1994. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	516	505	297	337	501	995	914	324	886	164	613	60.6
2	425	928	383	392	728	806	1212	425	201	321	232	66.8
3	318	969	284	458	370	874	972	297	163	191	728	74.2
4	919	935	363	822	681	980	1059	201	219	325	437	298
5	555	1243	415	407	742	1027	995	153	287	125	331	433
6	456	1089	216	385	893	805	964	207	237	706	294	487
7	857	2079	167	472	531	882	637	148	325	925	63.0	776
8	1582	1116	258	672	726	869	530	293	100	283	149	58.5
9	864	1372	231	567	932	849	981	326	174	160	177	112
10	818	1347	359	589	549	691	1067	383	127	122	94.5	198
11	854	728	181	106	466	713	1012	285	88.2	112	77.7	404
12	768	754	134	384	406	892	1124	390	138	253	200	161
13	243	666	236	440	834	755	749	382	178	198	366	162
14	578	865	243	818	592	837	976	434	88.8	112	1092	117
15	721	2137	280	1316	511	930	1143	603	114	74.2	2884	45.9
16	666	1089	153	1475	604	1119	1174	603	155	150	2132	82.2
17	168	721	274	2427	653	581	1185	230	157	57.7	1906	178
18	53.3	787	143	2236	418	1063	1010	464	412	65.6	1404	367
19	306	1538	274	2538	606	1139	751	343	719	69.3	95.2	96.0
20	830	277	158	3012	610	1156	435	459	138	57.5	95.4	141
21	866	204	339	3051	732	465	666	302	279	153	118	46.2
22	649	293	216	2620	603	492	662	494	375	113	171	171
23	2637	230	325	1334	571	537	847	489	372	281	74.9	372
24	4302	236	379	1349	544	1247	1330	557	331	94.6	110	192
25	4128	263	285	1650	673	825	551	303	499	75.4	91.8	190
26	1481	415	297	799	609	1059	494	172	615	130	97.3	124
27	2669	293	296	888	995	1003	381	188	852	184	163	137
28	2577	426	347	921	791	972	447	214	1185	199	123	255
29	957		489	709	1252	1346	594	134	1234	191	86.7	119
30	3250		653	335	866	1135	624	307	1229	106	64.5	247
31	528		613		695		667	87.2		624		193
dan	18.	21.	12.	11.	3.	21.	27.	31.	11.	20.	7.	15.
np	53.3	204	134	106	370	465	381	87.2	88.2	57.5	63.0	45.9
1994 sp	1179	839	300	1117	667	901	844	329	396	214	482	205
vp	4302	2137	653	3051	1252	1346	1330	603	1234	925	2884	776
dan	24.	15.	30.	21.	29.	29.	24.	15.	29.	7.	15.	7.
suma	36540	23504	9288	33511	20687	27043	26152	10200	11878	6623	14473	6365

	np	datum	snp	sp	svp	vp	datum	suma
1994	45.9	15.12.	171	620	1708	4302	24. 1.	226262

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5150

Pocetak rada 1988.
kota "0" 88.57 mnm
P.S. 37142.00 km2

Stanica: D.MIHOLJAC c.s.
Vodotok: DRAVA
Pocetak mjerenja nanosa 1993.

PRONOS SUSPENDIRANOG NANOSA (t) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	385	509	803	121	740	288	1245	287	159	128	80.4	120
	2	482	298	1078	139	563	327	1829	22.3	150	194	1206	239
	3	1027	302	1204	320	546	474	279	94.0	139	168	487	226
	4	454	342	2132	294	412	670	264	813	121	218	38.3	315
	5	1264	566	2165	302	349	326	493	192	108	78.0	399	376
	6	1099	128	2134	231	493	243	843	213	225	88.6	46.2	60.2
	7	899	49.2	3007	253	464	438	341	174	213	114	57.6	75.3
	8	493	86.6	2282	447	367	1112	337	308	235	115	47.1	163
	9	550	47.6	2088	301	480	1207	349	175	30.7	127	175	226
	10	752	452	2025	356	424	1523	476	132	95.3	115	36.2	111
	11	847	403	2020	344	1357	1829	566	107	107	86.9	34.8	225
	12	248	534	572	509	160	1847	674	154	198	90.1	20.9	51.9
	13	261	149	743	360	191	480	708	442	105	105	36.9	63.6
	14	348	90.6	958	325	318	609	993	288	110	131	38.6	111
	15	61.3	152	1201	239	491	975	386	232	50.7	67.4	34.8	156
	16	62.5	36.4	375	350	1860	1212	343	235	95.8	209	46.0	48.1
	17	163	38.4	370	181	248	768	330	255	182	74.6	71.4	66.4
	18	274	57.0	420	203	742	818	530	70.5	230	76.9	144	53.8
	19	112	70.0	401	219	817	861	172	84.9	245	76.7	184	43.8
	20	234	68.7	135	388	313	1096	198	91.2	1256	86.2	161	52.8
	21	293	61.6	86.9	156	178	716	315	94.2	680	138	190	71.7
	22	236	50.8	129	94.9	270	462	503	623	1004	88.7	833	93.8
	23	199	140	212	177	468	720	201	124	1001	133	69.9	67.9
	24	107	76.9	78.5	286	288	723	169	230	219	192	45.3	85.4
	25	197	55.6	73.8	279	290	560	243	233	184	68.7	57.2	107
	26	360	99.8	255	367	405	635	244	295	134	86.2	76.3	110
	27	57.8	129	470	446	328	660	174	200	231	61.9	170	131
	28	133	459	119	1071	148	1163	149	85.2	196	85.9	33.6	498
	29	949		197	576	172	1140	141	197	162	137	105	379
	30	618		357	157	181	1219	196	137	357	96.9	174	434
	31	244		714		460		289	349		67.2		419
	dan	27.	16.	25.	22.	28.	6.	29.	2.	9.	27.	12.	19.
	np	57.8	36.4	73.8	94.9	148	243	141	22.3	30.7	61.9	20.9	43.8
1995	sp	433	195	929	316	469	837	451	224	274	113	170	167
	vp	1264	566	3007	1071	1860	1847	1829	813	1256	218	1206	498
	dan	5.	5.	7.	28.	16.	12.	2.	4.	20.	4.	2.	28.
	suma		5452		9495		25102		6936		3506		5181
		13410		28805		14526		13980		8225		5099	

	np	datum	snp	sp	svp	vp	datum	suma
1995	20.9	12.11.	81.3	383	1286	3007	7. 3.	139716

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5150

Pocetak rada 1988.
kota "0" 88.57 mnm
P.S. 37142.00 km2

Stanica: D.MIHOLJAC c.s.
Vodotok: DRAVA
Pocetak mjerenja nanosa 1993.

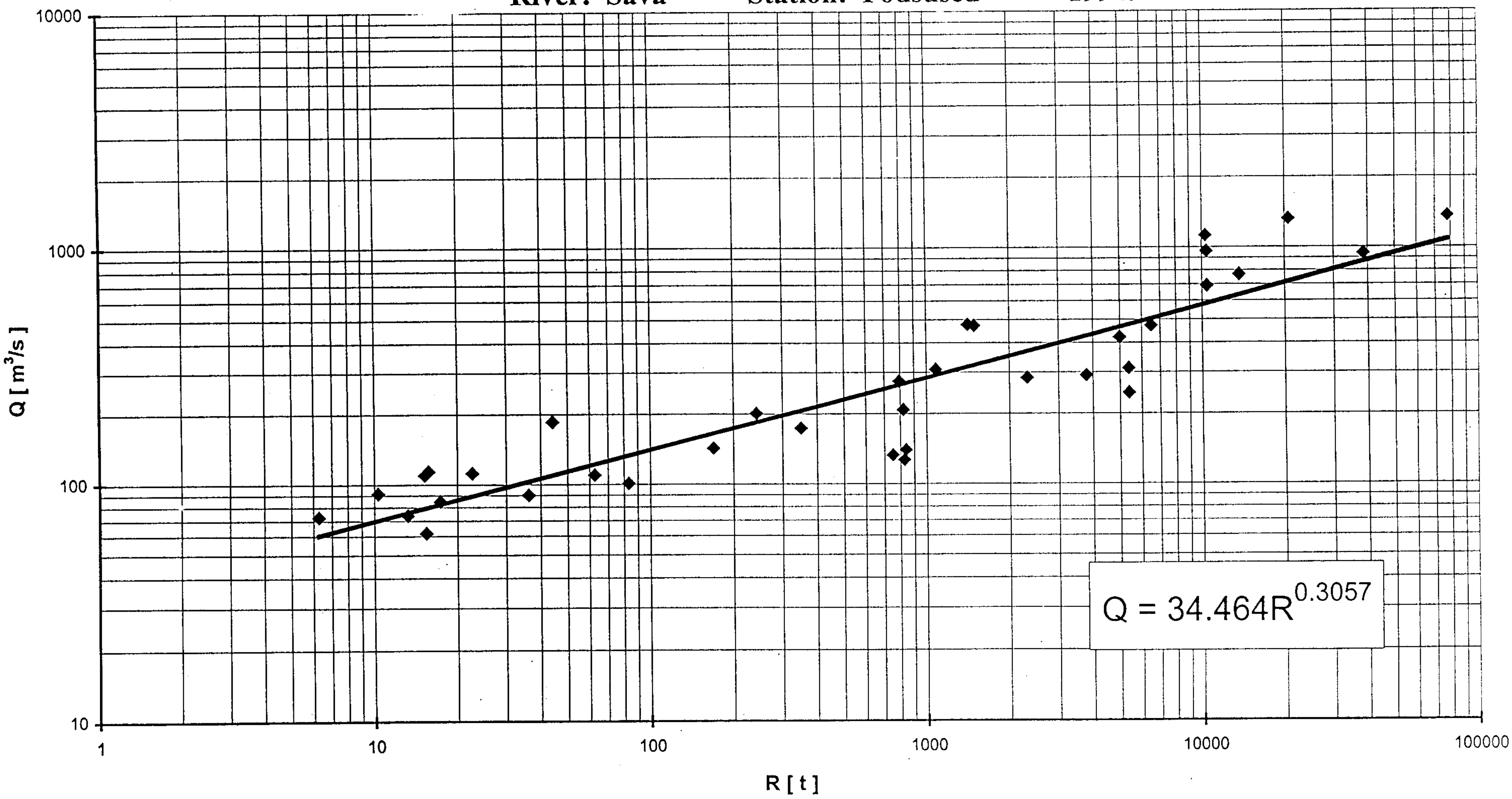
PRONOS SUSPENDIRANOG NANOSA (t) ZA 1996. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	177	203	158	423	763	603	377	123	694	185	616	2414
	2	82.5	205	170	384	2202	765	347	100	263	138	1183	1331
	3	126	74.5	108	1138	548	961	341	118	1729	84.2	1355	392
	4	101	155	98.0	364	543	874	608	84.5	1618	293	1166	463
	5	156	98.4	128	547	476	939	635	83.4	2064	321	1251	452
	6	229	99.6	125	641	431	507	2038	56.6	2951	602	141	623
	7	259	152	144	1265	558	619	2046	182	2236	661	213	483
	8	254	114	143	3020	566	529	2134	291	2501	775	211	483
	9	552	174	261	2863	545	512	1451	111	2177	1073	209	357
	10	142	181	174	2640	574	614	1219	196	1678	927	540	969
	11	227	735	803	1588	321	303	1476	124	657	1341	872	1726
	12	267	77.5	160	2387	260	306	1566	179	643	846	130	1453
	13	238	111	190	2252	497	321	1264	225	501	660	85.4	2561
	14	697	128	188	1812	479	308	1246	225	874	679	215	372
	15	862	127	184	2291	645	420	368	263	634	218	254	424
	16	675	205	152	647	586	213	473	326	386	158	727	140
	17	776	299	113	543	747	389	405	930	319	295	1077	165
	18	269	299	119	600	963	324	600	834	378	427	1935	236
	19	215	247	183	569	895	299	656	891	400	478	477	312
	20	184	354	97.8	543	687	174	628	820	637	778	699	566
	21	181	154	1173	436	526	206	515	503	760	1313	897	470
	22	109	201	105	330	715	243	516	861	652	1122	1090	573
	23	104	226	93.0	604	768	235	773	771	479	798	1271	78.2
	24	124	177	143	525	858	360	720	588	145	977	2115	255
	25	389	196	160	876	694	486	787	193	284	1219	2234	273
	26	228	125	264	497	552	508	690	136	411	480	701	84.1
	27	216	64.4	277	518	568	519	144	146	286	811	783	181
	28	179	141	225	171	386	276	143	127	305	849	282	217
	29	155	79.6	320	614	494	266	146	257	343	599	852	405
	30	188		589	715	486	298	160	477	237	320	1579	389
	31	124		612		490		136	595		340		56.4
	dan	2.	27.	23.	28.	12.	20.	31.	6.	24.	3.	13.	31.
	np	82.5	64.4	93.0	171	260	174	136	56.6	145	84.2	85.4	56.4
1996	sp	274	186	247	1060	639	446	794	349	908	638	839	610
	vp	862	735	1173	3020	2202	961	2134	930	2951	1341	2234	2561
	dan	15.	11.	21.	8.	2.	3.	8.	17.	6.	11.	25.	13.
	suma	8487	5403	7660	31801	19820	13374	24610	10816	27242	19767	25160	18903

	np	datum	snp	sp	svp	vp	datum	suma
1996	56.4	31.12.	117	582	1759	3020	8. 4.	213043

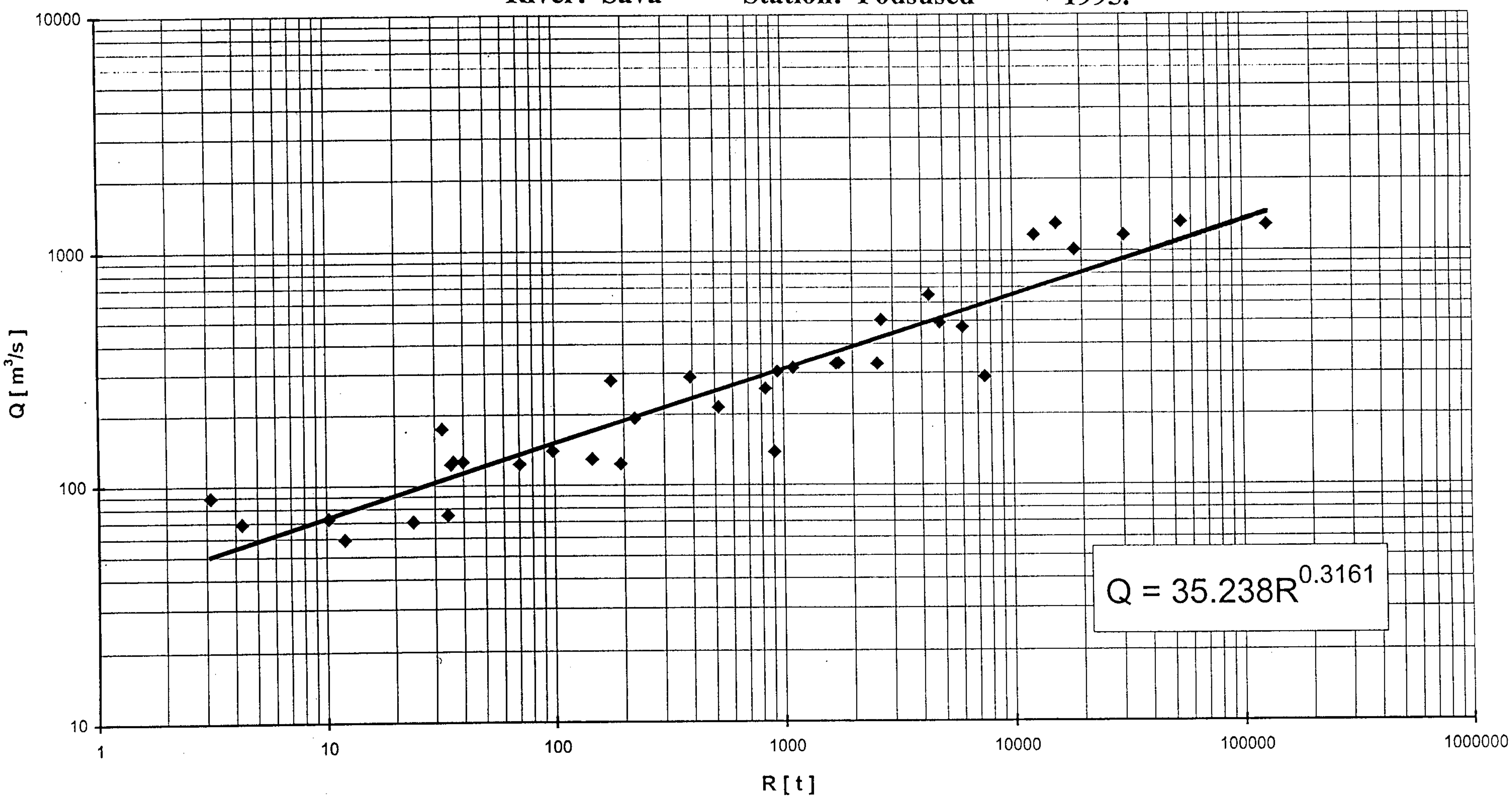
SEDIMENT RATING CURVE

River: Sava Station: Podsused 1994.



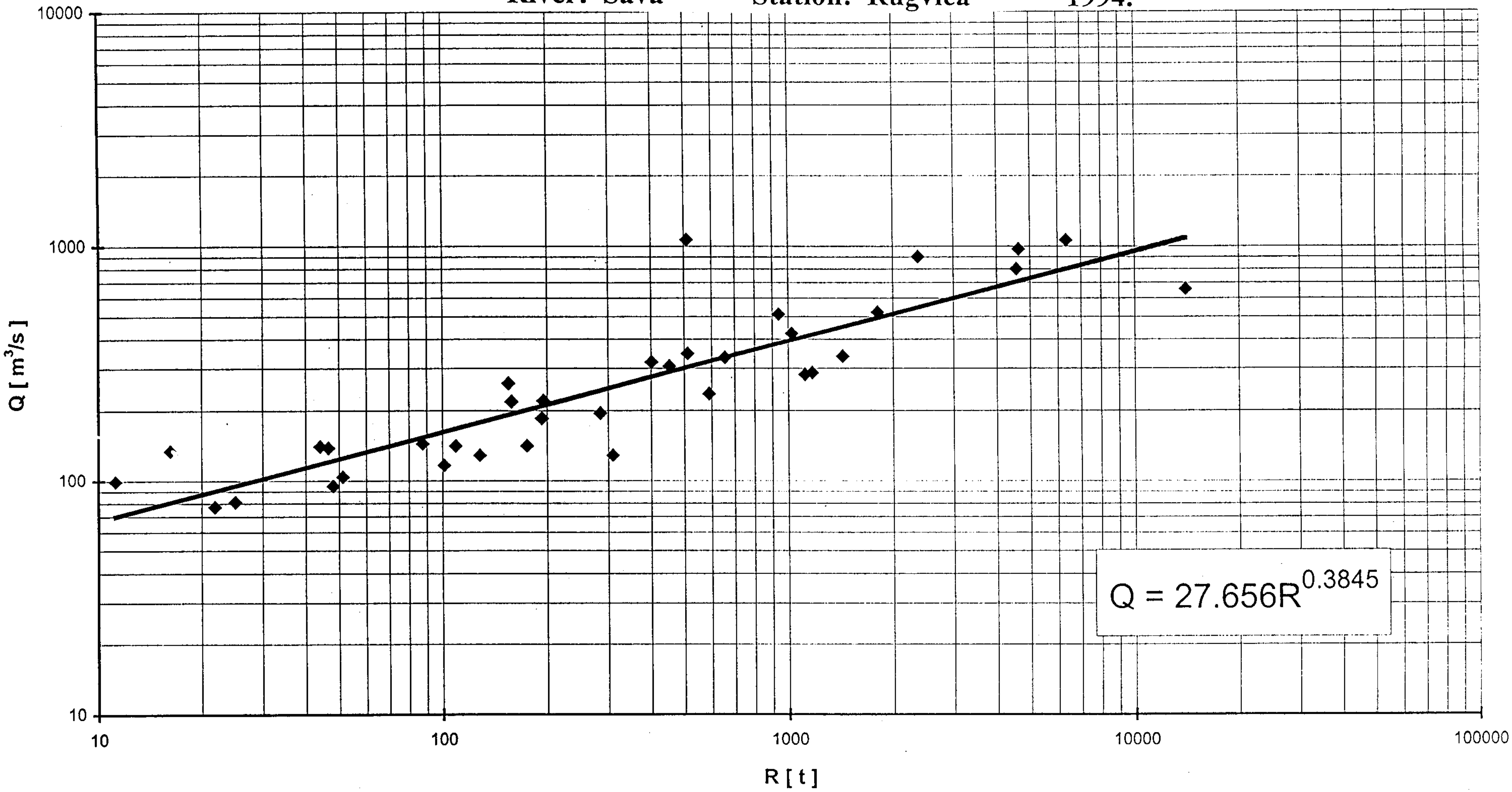
SEDIMENT RATING CURVE

River: Sava Station: Podsused 1995.



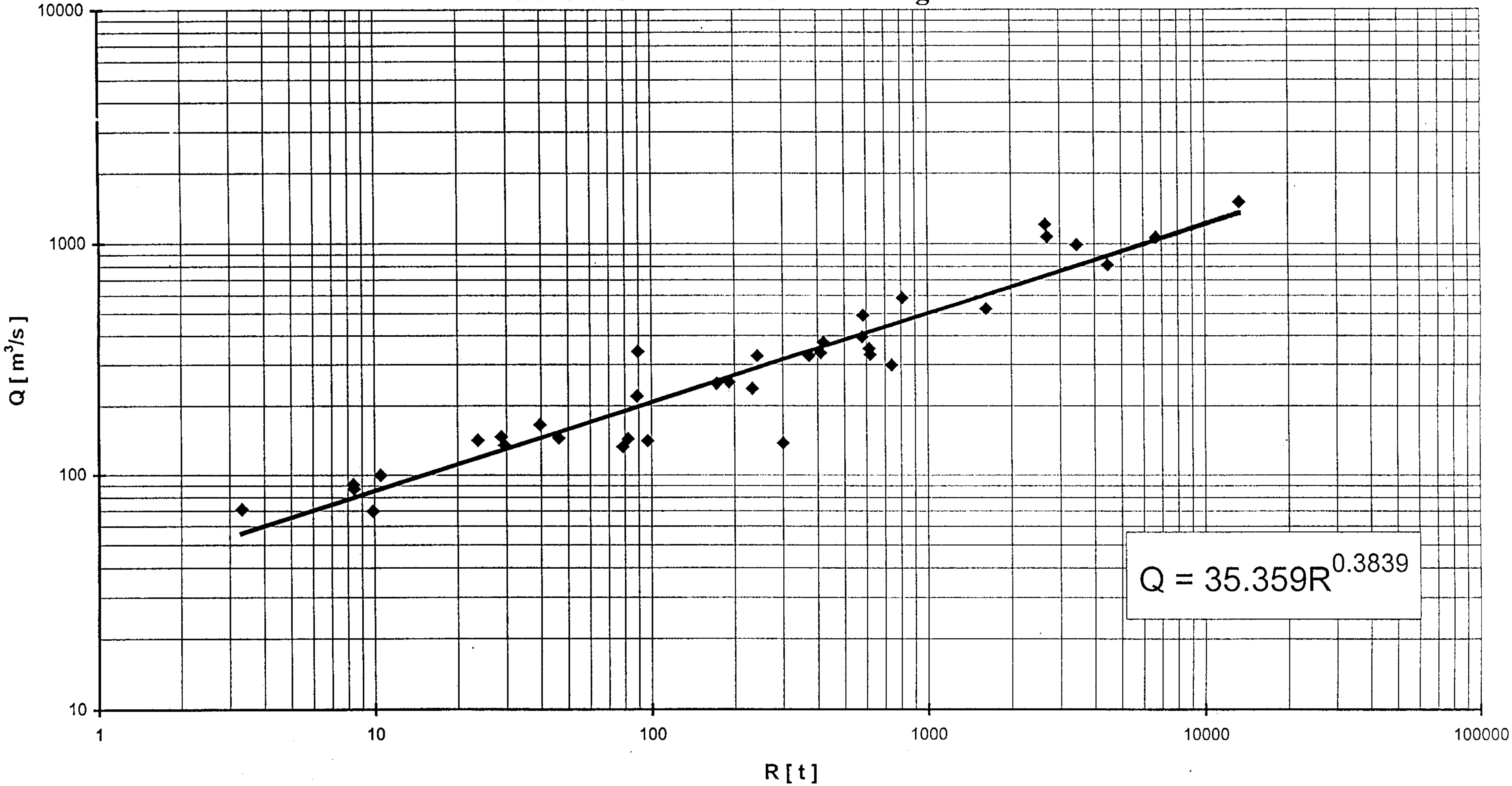
SEDIMENT RATING CURVE

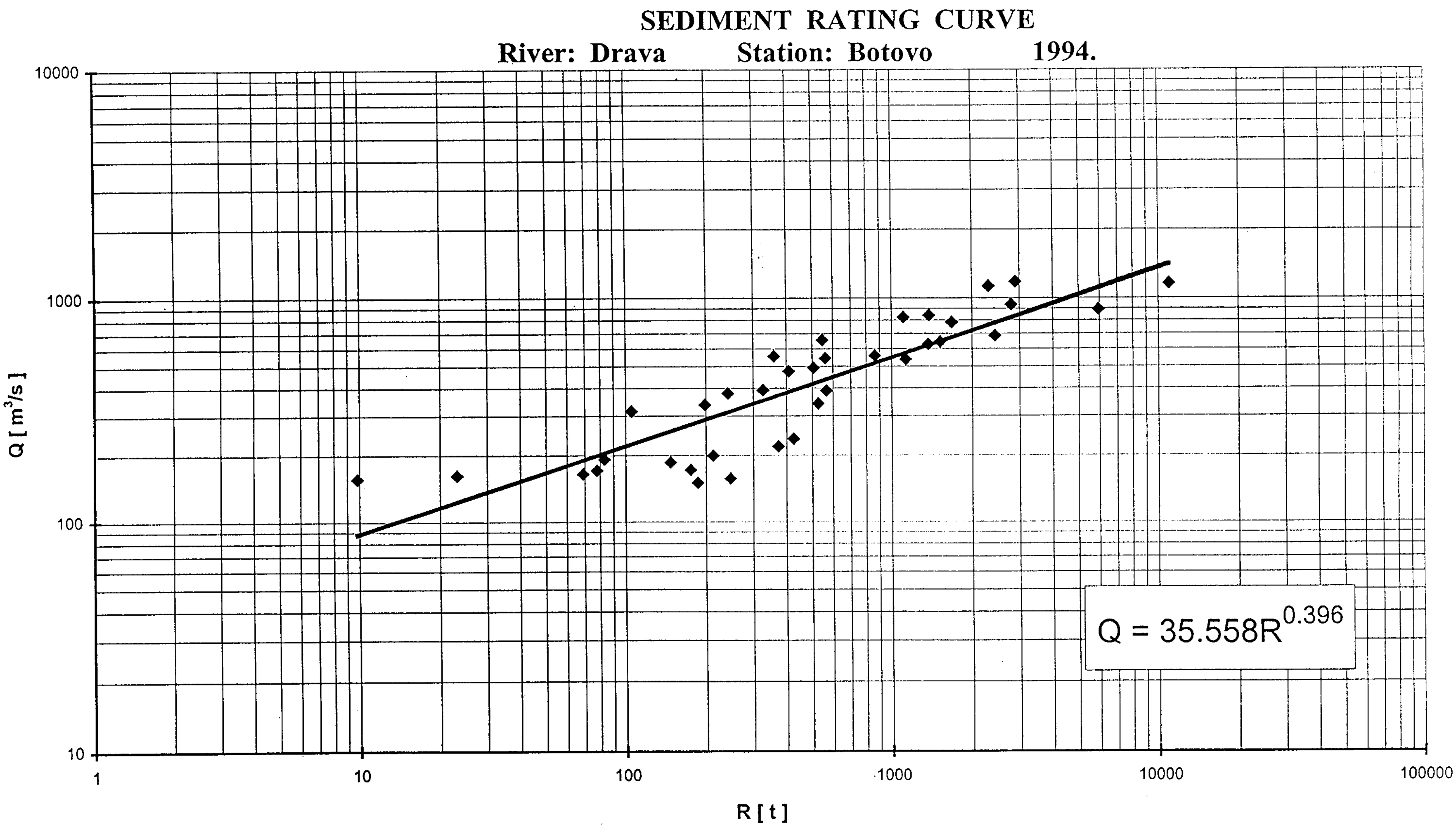
River: Sava Station: Rugvica 1994.



SEDIMENT RATING CURVE

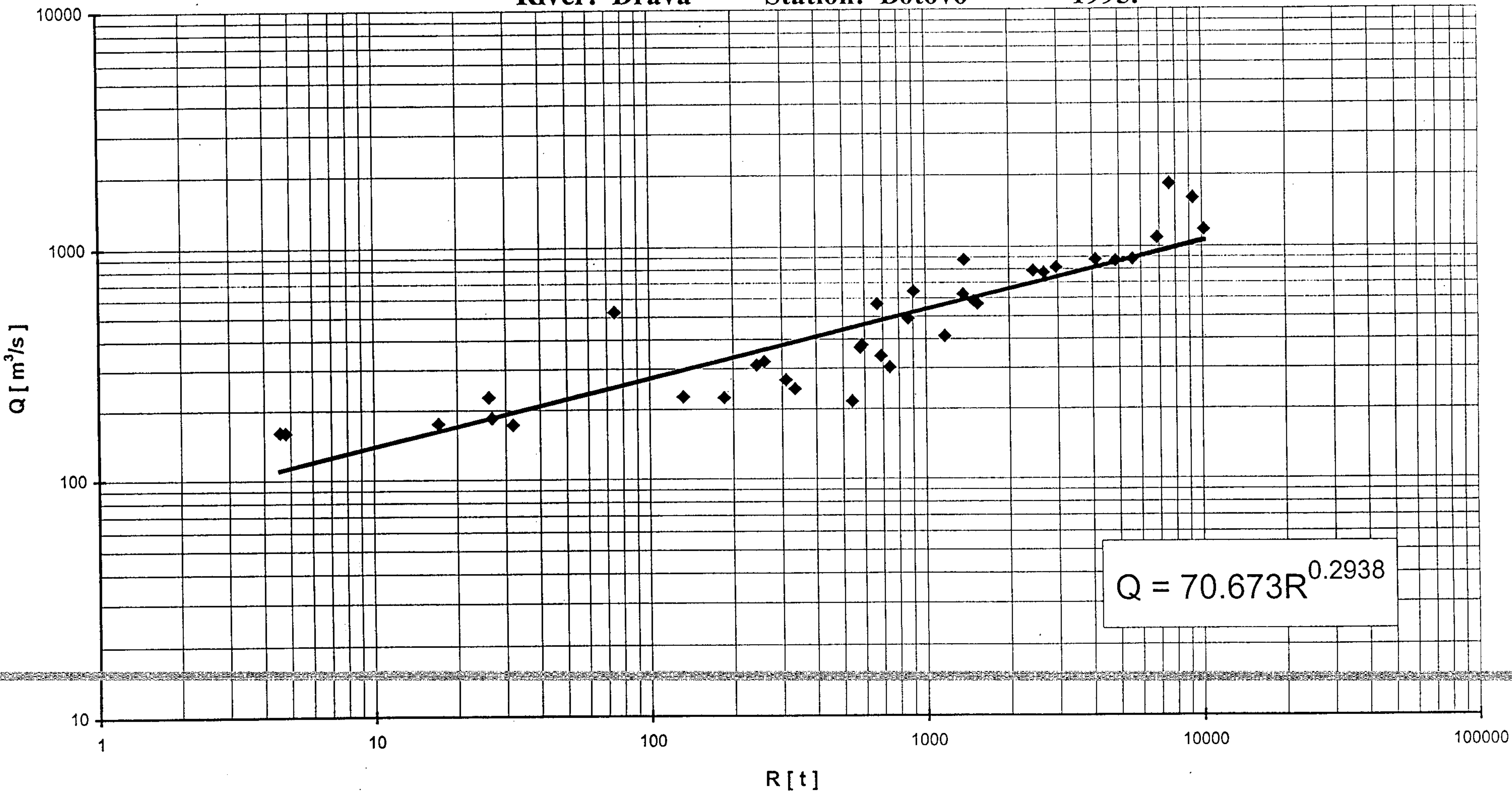
River: Sava Station: Rugvica 1995.




SEDIMENT RATING CURVE
River: Drava Station: Botovo 1994.
Q [m³/s]
10000
1000
100
10
1
10
100
1000
10000
100000
R [t]
Q = 35.558R^0.396

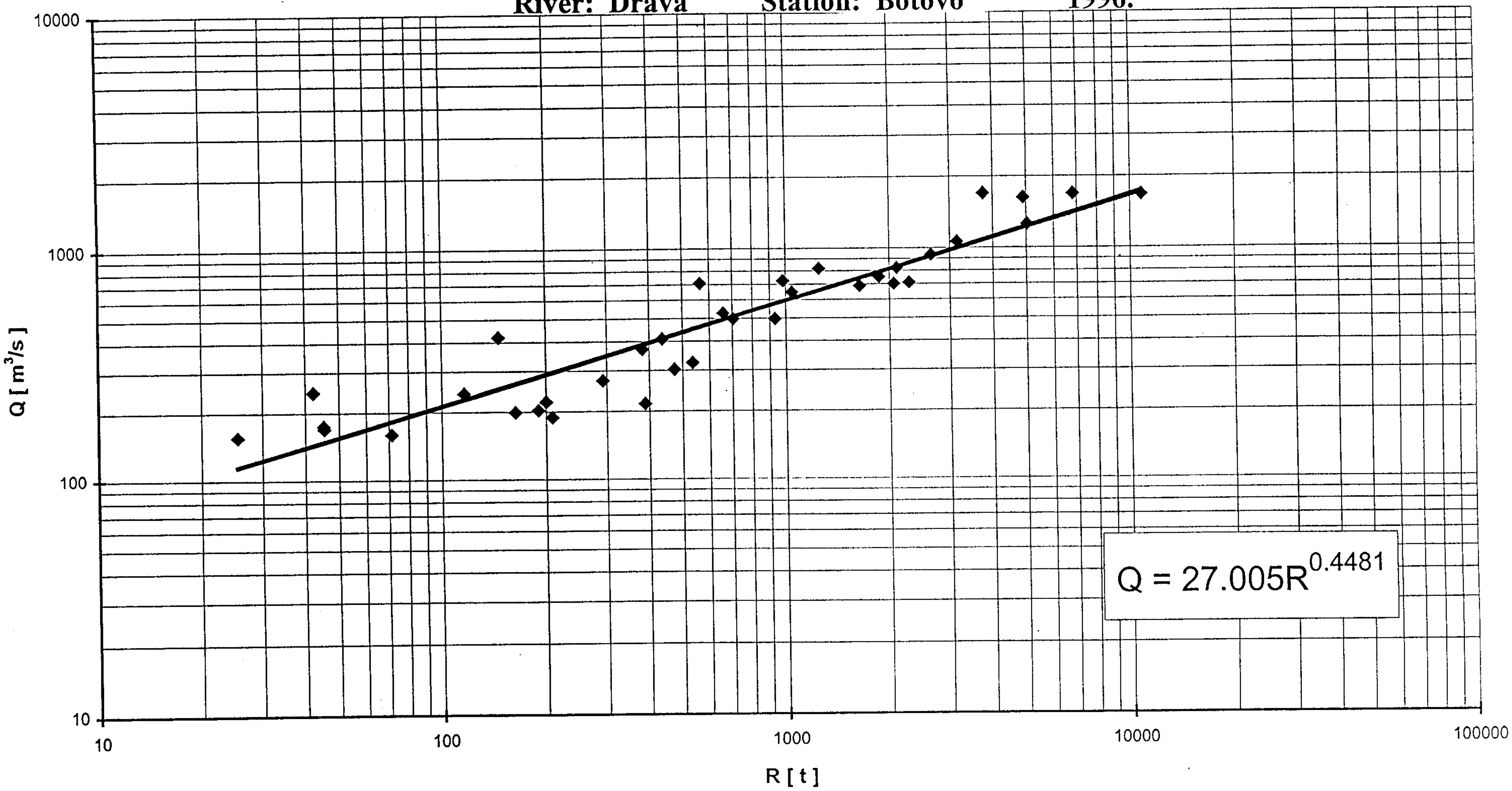
SEDIMENT RATING CURVE

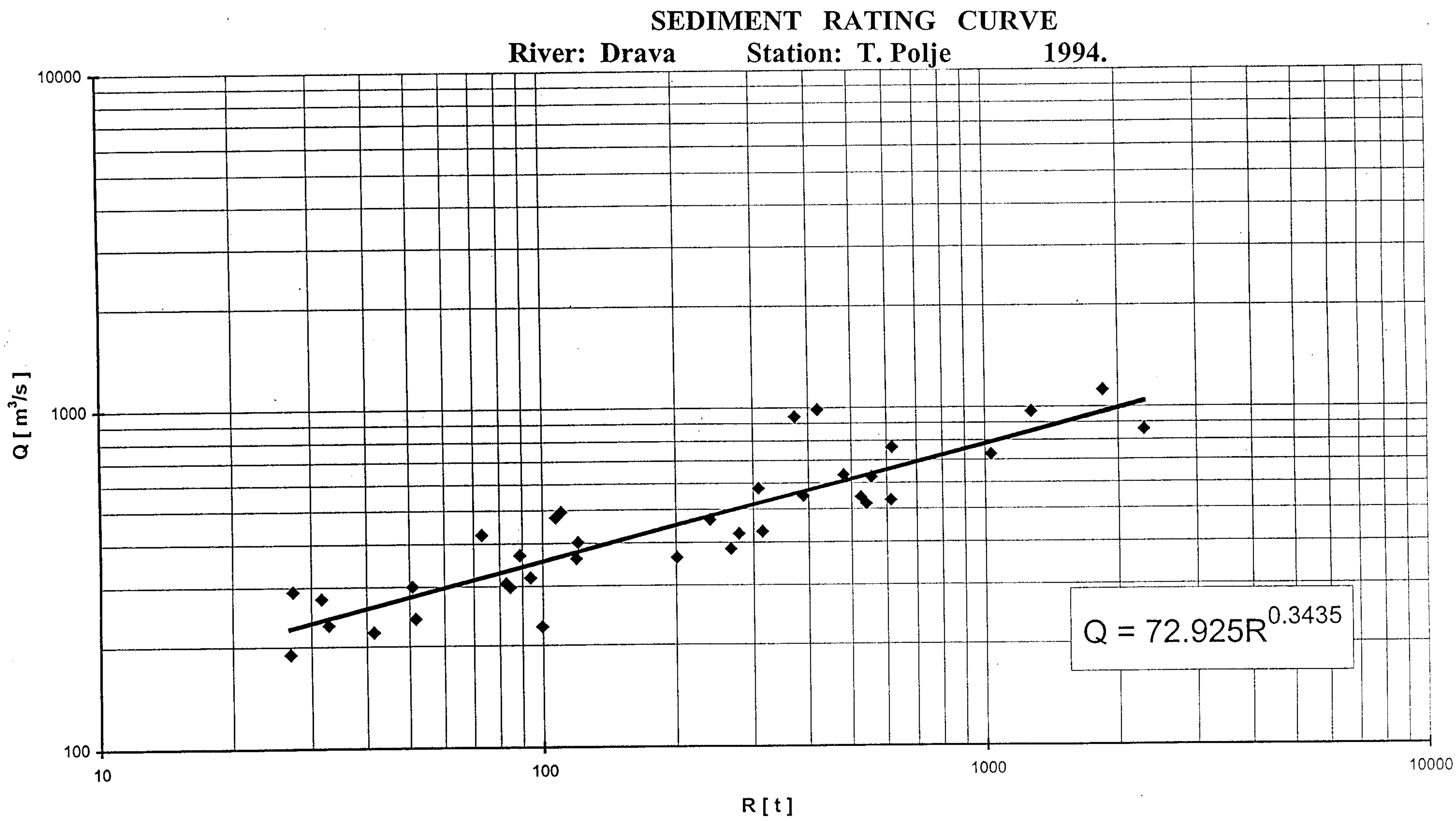
River: Drava Station: Botovo 1995.



SEDIMENT RATING CURVE

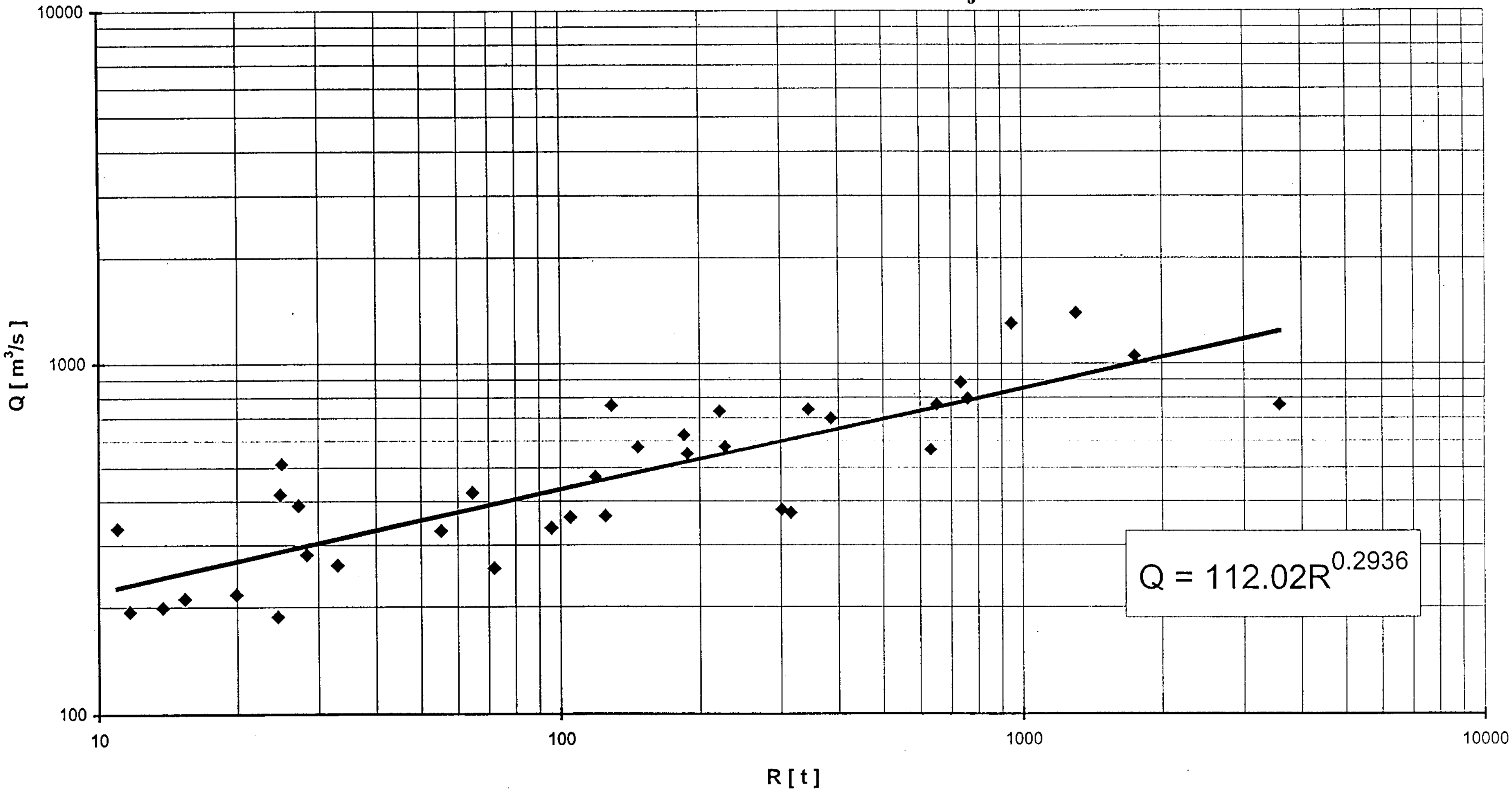
River: Drava Station: Botovo 1996.




SEDIMENT RATING CURVE
River: Drava Station: T. Polje 1994.
Q [m³/s]
10000
1000
100
10
100
1000
10000
R [t]
Q = 72.925R^0.3435

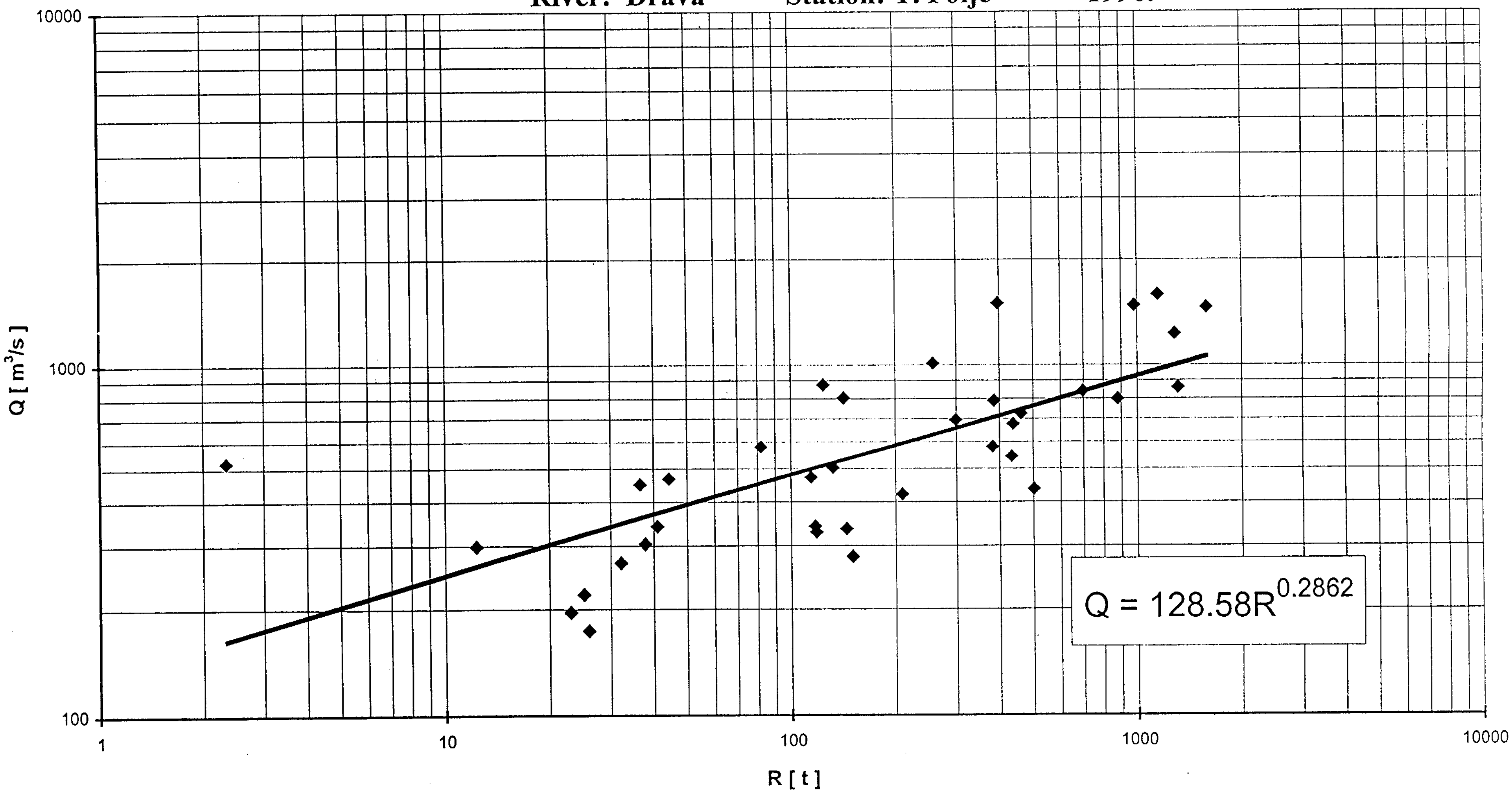
SEDIMENT RATING CURVE

River: Drava Station: T. Polje 1995.

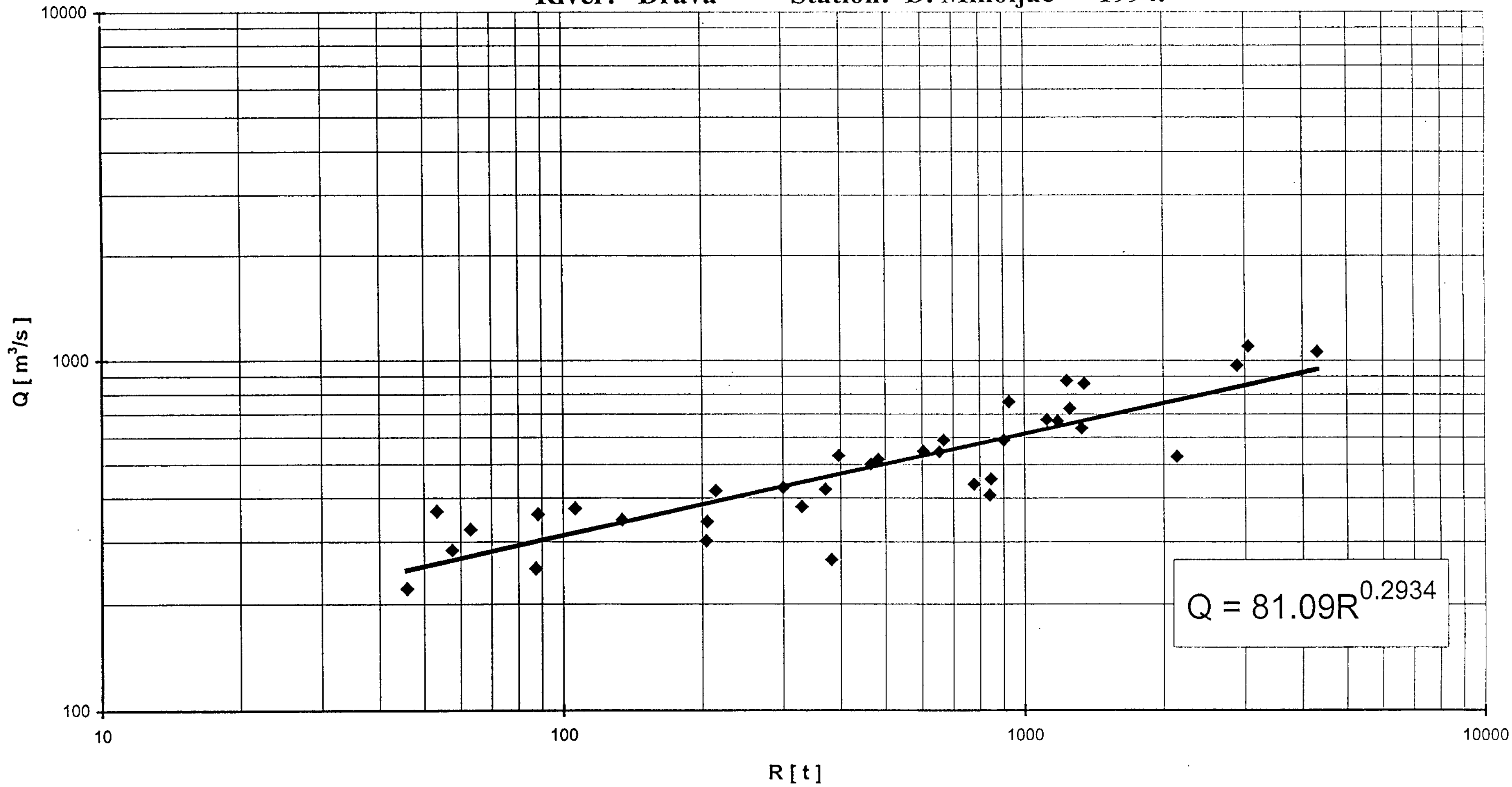


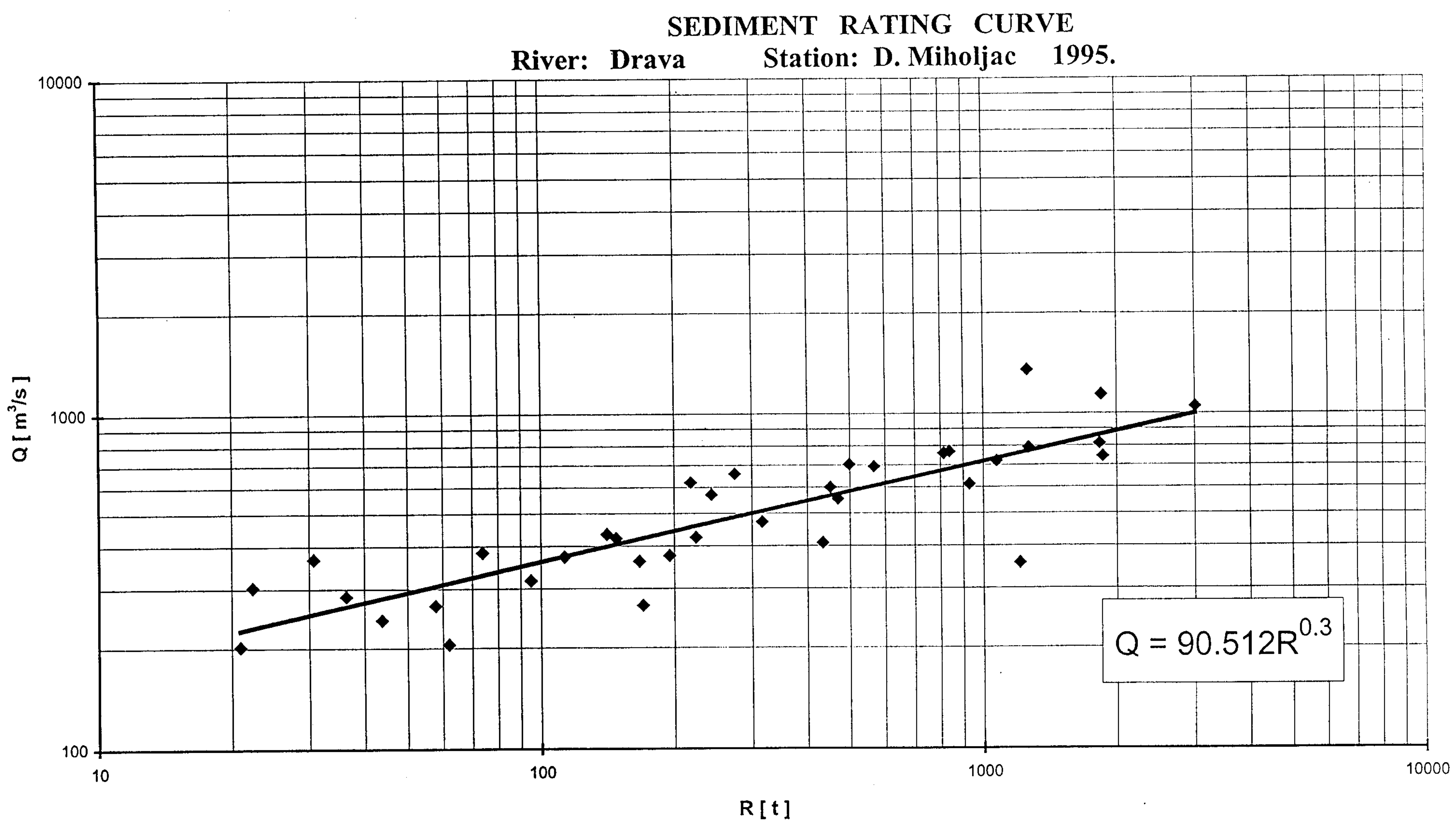
SEDIMENT RATING CURVE

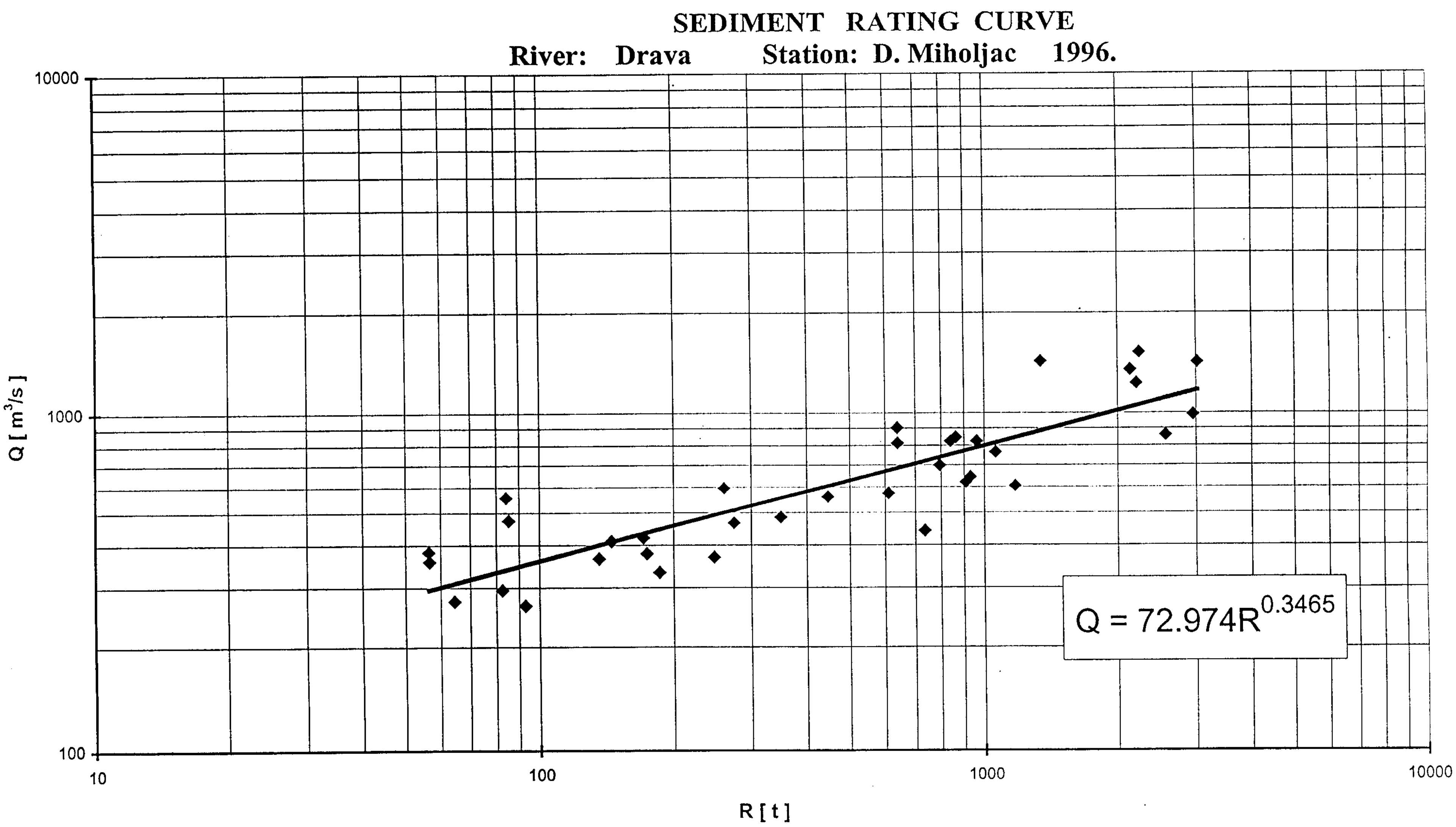
River: Drava Station: T. Polje 1996.



SEDIMENT RATING CURVE
River: Drava Station: D. Miholjac 1994.




SEDIMENT RATING CURVE
River: Drava Station: D. Miholjac 1995.
10000
1000
100
Q [m³/s]
10
100
1000
10000
R [t]
Q = 90.512R^0.3


SEDIMENT RATING CURVE
River: Drava Station: D. Miholjac 1996.
Q [m3/s]
10000
1000
100
10
100
1000
10000
R [t]
Q = 72.974R0.3465

Suspended Sediment Concentration

Table 6 Suspended sediment concentration

River	Hydrological station	Year		
		1994	1995	1996
Sava	Podsused	+	+	+
	Rugvica	+	+	+
	Jasenovac	-	-	-
	Slavonski Brod	+	+	+
Drava	Botovo	+	+	+
	Terezino Polje	+	+	+
	Donji Miholjac	+	+	+

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3087

Pocetak rada 1885.
Kota "0" 119.13 mnm
P.S. 12316.00 km2

Stanica: PODSUSED ZICARA
Vodotok: SAVA
Pocetak mjerenja nanosa 1967.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1994. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	1.48	4.62	3.10	9.30	1.94	4.58	219	9.40	6.20	8.28	133	3.36
2	35.8	3.34	11.2	124	5.00	7.20	79.7	14.5	1.58	3.28	15.8	2.22
3	184	2.70	7.62	582	.840	10.8	53.8	5.38	9.96	6.82	20.5	3.76
4	63.8	6.34	5.50	245	6.22	6.40	31.6	3.86	2.64	2.80	26.9	2.94
5	8.98	10.0	16.0	69.0	4.64	4.86	19.4	6.78	18.2	6.68	3.20	.720
6	58.5	1.64	4.12	50.0	11.1	41.2	97.9	2.72	4.86	35.5	4.68	4.60
7	105	1.76	3.65	43.1	11.4	71.0	335	5.04	4.92	79.0	14.0	3.58
8	76.4	3.74	17.0	23.4	9.14	18.0	75.2	8.22	12.4	31.7	3.50	1.46
9	11.8	8.04	2.94	13.8	12.0	11.4	199	6.32	3.74	18.2	4.10	6.18
10	64.6	4.44	4.40	14.5	6.58	7.00	69.2	5.90	9.48	2.30	3.18	16.7
11	15.7	6.58	5.88	146	6.02	8.42	35.0	6.58	2.96	2.46	58.8	5.60
12	41.2	7.44	6.86	524	4.66	4.28	34.4	9.26	25.9	12.1	128	6.10
13	3.80	4.44	2.94	323	3.28	27.3	38.1	4.60	2.50	3.84	53.5	11.4
14	27.6	7.08	20.0	155	2.98	88.7	42.1	20.6	3.04	4.14	101	8.40
15	6.64	4.28	5.24	78.7	4.20	137	25.5	61.8	12.1	1.46	13.4	19.7
16	1.54	3.36	17.0	95.0	12.9	32.0	12.1	74.0	69.3	.940	7.06	2.10
17	9.88	5.40	15.2	12.7	5.60	26.4	17.5	11.8	244	3.50	14.2	3.54
18	8.56	5.04	21.6	40.9	5.92	165	3.50	30.5	117	5.18	4.32	3.20
19	4.36	4.72	12.1	102	5.22	450	11.0	25.7	30.0	9.24	4.30	2.98
20	12.0	8.62	12.3	43.6	9.40	40.0	12.9	34.7	27.5	5.80	1.96	1.04
21	10.9	2.96	18.1	43.4	47.3	311	41.3	3.94	53.9	5.30	3.88	1.90
22	7.74	1.50	6.20	23.2	31.6	452	156	1.82	3.04	2.30	2.74	3.20
23	2.26	4.48	16.3	6.10	54.9	61.3	10.9	87.9	6.06	7.12	8.20	1.00
24	3.10	3.94	10.1	21.8	12.5	5.08	45.8	102	12.6	7.12	3.84	3.82
25	5.40	33.8	29.6	7.08	7.90	21.1	12.7	271	8.34	57.0	3.88	2.78
26	2.40	222	15.0	16.0	16.4	4.84	4.52	176	1.68	116	2.78	2.00
27	4.38	42.8	15.8	3.40	5.64	12.0	9.98	225	6.54	46.5	4.14	2.76
28	6.34	64.6	20.4	11.2	10.5	23.8	6.48	89.6	4.30	110	2.06	4.90
29	2.24		57.0	13.0	4.10	65.3	4.52	12.3	3.64	163	3.64	10.3
30	6.76		25.0	7.40	13.2	145	13.5	30.8	2.62	777	4.44	58.8
31	4.22		23.5		24.0		1.90	12.9		150		244

		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	dan	1.	22.	9.	27.	3.	12.	31.	22.	2.	16.	20.	5.
	nk	1.48	1.50	2.94	3.40	.840	4.28	1.90	1.82	1.58	.940	1.96	.720
1994	sk	25.7	17.1	13.9	94.9	11.5	75.4	55.5	43.9	23.7	54.3	21.8	14.4
	vk	184	222	57.0	582	54.9	452	335	271	244	777	133	244
	dan	3.	26.	29.	3.	23.	22.	7.	25.	17.	30.	1.	31.

	nk	datum	snk	sk	svk	vk	datum
1994	.720	5.12.	1.95	37.7	296	777	30.10.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3087
Pocetak rada 1885.
Kota "0" 119.13 mnm
P.S. 12316.00 km2

Stanica: PODSUSED ZICARA
Vodotok: SAVA
Pocetak mjerenja nanosa 1967.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	367	21.3	197	4.42	30.2	167	4.26	21.3	19.9	17.2	21.2	.280
	2	157	22.9	94.1	12.3	4.74	294	9.32	14.8	46.6	19.1	9.52	1.88
	3	28.9	33.3	104	12.2	4.78	19.6	8.18	21.9	2.04	1.82	27.4	3.60
	4	35.3	12.1	73.0	34.8	5.32	9.54	9.70	11.9	40.0	7.46	6.70	6.00
	5	96.0	13.0	145	6.62	5.90	24.5	5.20	3.28	39.9	9.74	13.7	16.7
	6	7.08	9.08	64.2	4.68	4.90	6.78	12.8	8.56	21.2	3.32	15.1	10.3
	7	14.2	9.64	86.0	5.06	7.22	37.7	24.1	7.14	37.0	5.00	4.44	15.3
	8	10.7	8.58	10.9	8.64	12.8	14.0	57.8	6.66	48.1	6.38	2.66	165
	9	17.0	25.1	13.5	44.2	10.1	4.04	4.04	18.9	943	3.08	2.28	342
	10	16.5	8.02	54.5	7.10	3.96	8.00	11.3	8.64	250	1.16	2.50	65.7
	11	2.46	23.6	4.62	6.46	12.5	16.5	15.4	19.0	25.3	3.50	10.9	123
	12	3.24	18.7	6.90	10.4	5.82	29.1	13.6	9.10	32.8	5.24	5.82	85.7
	13	4.44	7.86	33.7	10.5	101	10.5	6.76	7.78	34.3	6.06	7.22	155
	14	16.1	9.50	35.6	7.78	4.80	10.8	15.8	2.04	10.0	9.62	14.2	93.5
	15	3.06	9.76	28.4	13.4	127	7.42	12.2	7.84	411	3.82	20.8	64.7
	16	4.10	8.46	17.8	9.46	57.4	18.3	5.76	2.20	84.7	2.10	13.2	74.3
	17	5.86	10.8	17.0	39.4	16.3	9.86	6.26	19.1	35.3	6.94	14.3	41.0
	18	6.18	18.5	31.6	13.0	49.4	11.6	11.0	3.62	9.72	3.12	67.4	47.1
	19	8.18	94.9	7.00	6.50	16.7	6.06	5.86	60.0	110	1.94	52.1	129
	20	4.36	287	59.1	5.88	4.94	15.9	5.00	86.2	42.0	8.44	14.2	147
	21	8.24	53.5	77.8	7.62	53.0	2.68	8.24	20.1	13.4	2.54	30.2	120
	22	3.20	10.4	33.6	14.0	14.1	11.6	11.1	67.4	38.3	5.06	2.94	112
	23	7.60	17.7	16.2	28.6	3.02	75.6	7.80	57.0	19.4	2.94	3.90	851
	24	94.1	30.7	64.0	8.84	6.76	124	8.10	22.3	5.54	2.02	2.98	1261
	25	374	35.3	41.5	5.34	3.50	20.2	7.08	17.5	36.2	1.48	3.20	163
	26	42.5	60.2	17.6	13.0	2.94	49.6	5.84	26.4	3.48	2.04	.480	196
	27	21.2	130	19.3	26.4	5.62	13.0	3.78	67.4	1.64	3.56	12.8	171
	28	91.4	73.4	25.3	9.12	4.30	7.46	3.64	83.4	9.82	5.12	4.44	132
	29	16.9		37.5	23.0	2.82	21.6	29.8	30.0	35.5	3.54	3.52	25.3
	30	30.0		20.9	2.32	4.58	14.0	12.0	388	8.80	5.14	7.62	39.0
	31	17.9		17.8		80.1		7.58	26.8		17.8		34.6
	dan	11.	13.	11.	30.	29.	21.	28.	14.	27.	10.	26.	1.
	nk	2.46	7.86	4.62	2.32	2.82	2.68	3.64	2.04	1.64	1.16	.480	.280
1995	sk	48.9	38.0	46.9	13.4	21.5	35.4	11.3	37.0	80.5	5.69	13.3	151
	vk	374	287	197	44.2	127	294	57.8	388	943	19.1	67.4	1261
	dan	25.	20.	1.	9.	15.	2.	8.	30.	9.	2.	18.	24.

	nk	datum	snk	sk	svk	vk	datum
1995	.280	1.12.	2.67	42.0	338	1261	24.12.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3087

Pocetak rada 1885.

Stanica: PODSUSED ZICARA
Vodotok: SAVA
Pocetak mjerenja nanosa 1967.

Kota "0" 119.13 mnm
P.S. 12316.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1996. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	27.5	56.5	18.8	57.3	27.8	5.76	328	319	80.0	268	57.3	39.7
	2	33.4	49.0	14.9	20.0	6.20	6.24	2233	184	51.2	102	10.5	31.6
	3	22.6	39.7	18.2	57.0	2.72	5.52	504	100	52.7	128	12.0	39.5
	4	28.5	52.7	17.4	103	91.9	10.0	830	158	47.6	39.1	5.02	12.2
	5	18.9	32.3	39.6	343	56.9	4.42	231	79.4	76.4	125	50.9	42.3
	6	79.8	30.0	46.4	591	29.1	6.66	42.5	58.6	66.3	97.0	24.0	40.2
	7	58.7	79.4	28.4	124	37.8	10.2	26.7	112	37.7	109	60.2	42.7
	8	186	120	20.6	97.1	55.9	5.40	18.1	292	48.5	49.3	68.0	43.7
	9	177	88.5	18.7	69.8	70.0	7.64	24.8	507	45.6	37.4	21.5	28.5
	10	179	96.0	18.6	102	52.8	5.86	23.6	158	9.18	5.56	30.5	10.0
	11	175	87.8	17.8	69.6	38.4	8.22	49.6	141	57.4	16.3	22.7	37.8
	12	51.1	62.8	21.9	97.8	183	11.0	52.5	223	22.0	22.9	14.9	41.6
	13	147	86.4	21.6	51.3	320	12.9	46.1	562	42.2	20.1	35.1	32.8
	14	56.8	40.8	57.6	129	163	4.82	38.4	807	198	15.7	27.6	39.8
	15	53.0	26.8	40.7	101	62.3	3.18	42.3	101	630	81.0	47.1	151
	16	91.8	42.9	37.5	27.5	23.8	5.16	70.2	669	412	155	33.6	100
	17	114	39.4	53.2	96.1	11.9	11.5	34.4	748	359	224	57.6	46.8
	18	63.5	20.5	36.1	24.8	9.54	19.3	36.9	516	60.2	255	178	95.5
	19	50.8	23.1	38.1	21.2	14.0	38.0	20.3	188	173	23.1	670	85.0
	20	46.7	411	36.2	21.2	19.6	50.1	26.4	216	87.4	28.5	193	83.4
	21	39.2	308	46.9	14.5	26.1	52.2	22.4	251	93.6	61.7	192	50.0
	22	25.7	153	24.3	19.1	3.46	113	43.2	201	118	228	245	95.0
	23	25.6	71.0	19.5	15.5	8.24	570	64.9	294	414	83.6	99.9	77.1
	24	27.2	41.4	20.6	19.4	3.94	412	74.5	676	592	68.4	130	51.8
	25	16.9	28.5	49.8	7.82	5.28	240	77.2	179	151	31.1	37.6	72.0
	26	24.9	19.3	22.7	14.8	5.48	408	109	879	79.4	35.2	22.5	54.1
	27	16.3	22.1	74.1	12.2	6.76	88.3	147	74.0	152	1.18	32.4	12.3
	28	33.4	19.6	29.5	20.3	62.5	103	218	130	227	6.24	37.4	15.1
	29	24.5	17.6	26.3	21.2	16.1	87.9	207	267	251	57.9	27.9	7.54
	30	23.0		23.2	11.4	14.1	262	105	158	23.1	209	33.8	33.8
	31	29.8		24.8		7.54		369	201		125		16.5
	dan	27.	29.	2.	25.	3.	15.	8.	6.	10.	27.	4.	29.
	nk	16.3	17.6	14.9	7.82	2.72	3.18	18.1	58.6	9.18	1.18	5.02	7.54
1996	sk	62.8	74.7	31.1	78.7	46.3	85.6	197	305	155	87.4	82.6	49.3
	vk	186	411	74.1	591	320	570	2233	879	630	268	670	151
	dan	8.	20.	27.	6.	13.	23.	2.	26.	15.	1.	19.	15.

	nk	datum	snk	sk	svk	vk	datum
1996	1.18	27.10.	13.5	105	582	2233	2. 7.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3096

Pocetak rada 1878.
Kota "0" 95.61 mnm
P.S. 12730.00 km2

Stanica: RUGVICA
Vodotok: SAVA
Pocetak mjerenja nanosa 1978.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1994. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	58.0	4.10	11.8	10.9	7.79	13.9	21.2	5.98	10.2	148	12.3	5.45
2	63.7	3.69	9.92	40.0	15.6	6.34	10.1	2.96	15.4	158	18.6	3.42
3	24.1	2.36	13.1	68.1	7.47	51.7	19.1	13.1	6.55	27.6	12.2	5.89
4	15.3	3.81	12.0	21.8	9.35	30.1	50.5	4.54	8.16	38.8	13.3	10.5
5	21.4	5.90	9.44	16.9	3.74	10.1	31.4	7.58	8.72	42.3	4.89	8.40
6	24.7	3.05	9.82	12.3	4.59	6.57	25.2	3.99	5.74	85.5	22.4	19.4
7	9.44	4.64	10.6	13.5	4.59	7.00	22.8	4.10	37.6	52.8	15.0	12.9
8	15.0	3.15	10.7	17.8	2.37	6.74	16.4	5.20	8.28	36.1	44.1	28.6
9	21.5	6.49	11.5	27.0	3.08	4.25	9.34	4.64	23.9	45.1	6.26	2.73
10	19.5	8.84	9.19	220	20.7	5.25	6.15	6.81	12.7	14.4	8.52	9.80
11	12.2	7.80	13.8	55.4	2.61	7.27	5.56	11.1	8.60	12.6	3.59	1.64
12	14.2	5.50	9.03	23.6	6.30	6.60	14.0	12.3	39.6	10.4	16.6	1.47
13	63.8	7.80	11.2	23.2	6.76	12.4	11.6	34.8	199	11.1	21.3	1.40
14	33.0	6.09	10.5	19.1	17.1	95.8	8.84	13.4	61.2	8.15	49.1	2.70
15	42.5	7.23	9.93	21.9	5.02	36.8	6.12	17.6	19.4	8.17	23.8	2.30
16	12.4	15.8	9.63	18.0	8.61	18.6	28.0	7.87	21.7	8.25	4.20	2.50
17	7.70	11.3	10.4	12.0	37.9	23.0	40.2	3.25	16.4	13.1	14.6	3.35
18	10.6	13.2	10.7	25.0	37.8	49.7	17.9	78.9	18.0	4.59	4.79	3.22
19	9.23	5.64	11.7	50.0	26.3	30.6	9.76	127	7.91	17.3	4.58	1.26
20	13.6	9.19	8.07	30.0	8.15	15.9	7.72	104	6.92	6.86	7.39	15.5
21	7.32	8.95	8.91	25.0	9.56	504	6.53	19.5	4.31	12.5	9.30	5.87
22	6.98	7.70	14.6	20.0	6.69	39.5	4.52	18.8	4.79	48.8	3.59	9.27
23	6.69	6.76	10.6	18.0	9.37	13.6	3.65	30.1	7.37	43.0	2.81	8.00
24	10.0	5.83	13.7	17.0	11.3	10.2	4.76	81.3	7.75	30.6	5.90	10.2
25	8.40	30.1	13.0	16.0	8.81	56.4	5.86	96.7	4.61	26.3	1.71	6.17
26	10.1	24.9	13.1	17.0	9.71	117	4.45	21.2	7.20	53.0	2.16	17.1
27	12.7	5.27	28.0	27.6	12.6	33.1	10.8	14.2	9.81	272	1.20	28.9
28	6.91	6.35	13.2	11.5	18.0	22.8	13.4	18.6	5.83	122	4.04	20.9
29	7.99		18.9	8.05	7.66	31.1	8.02	10.8	34.0	31.0	4.80	11.1
30	10.4		7.40	6.97	6.41	11.5	3.25	21.8	4.00	6.22	8.44	10.5
31	12.3		17.3		8.82		6.42	8.15		29.3		8.45
dan	23.	3.	30.	30.	8.	9.	30.	2.	30.	18.	27.	19.
nk	6.69	2.36	7.40	6.97	2.37	4.25	3.25	2.96	4.00	4.59	1.20	1.26
1994 sk	19.1	8.27	12.0	29.8	11.1	42.6	14.0	26.1	20.9	45.9	11.7	9.00
vk	63.8	30.1	28.0	220	37.9	504	50.5	127	199	272	49.1	28.9
dan	13.	25.	27.	10.	17.	21.	4.	19.	13.	27.	14.	27.

	nk	datum	snk	sk	svk	vk	datum
1994	1.20	27.11.	3.94	20.9	134	504	21. 6.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3096

Pocetak rada 1878.

Stanica: RUGVICA
Vodotok: SAVA
Pocetak mjerenja nanosa 1978.

Kota "0" 95.61 mnm
P.S. 12730.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	15.3	50.6	51.9	10.9	6.24	1.30	3.88	3.21	6.31	9.12	2.02	5.76
	2	21.3	16.4	84.9	11.2	5.70	7.96	8.81	3.75	6.84	5.45	5.50	6.35
	3	34.0	10.5	37.2	8.86	17.8	2.30	5.77	6.68	22.6	8.49	7.00	6.22
	4	10.3	38.1	15.9	8.14	5.22	12.2	5.17	7.46	16.4	2.28	2.78	7.12
	5	6.29	52.6	106	5.57	8.40	8.08	9.72	2.26	10.3	1.25	3.63	7.35
	6	18.6	7.72	83.7	3.62	6.31	4.81	17.6	2.82	19.0	3.61	4.56	2.64
	7	9.83	5.10	13.4	7.76	7.85	12.8	10.9	5.74	7.43	2.50	3.10	1.30
	8	15.1	2.20	34.9	12.1	10.2	4.20	6.50	3.73	24.9	1.19	5.75	4.05
	9	3.68	6.10	19.6	9.01	7.50	7.99	4.30	2.90	6.29	1.97	1.02	4.28
	10	4.62	6.37	9.08	7.51	10.5	24.0	7.50	6.30	14.6	4.06	5.52	5.22
	11	19.4	4.71	60.5	5.57	25.7	7.92	2.49	2.32	30.6	2.37	2.96	2.65
	12	5.84	4.18	39.2	3.93	54.1	11.2	33.4	3.47	75.4	2.52	2.55	3.15
	13	6.34	7.29	52.0	3.05	13.3	8.50	3.23	2.97	131	2.00	1.40	1.00
	14	4.40	9.57	14.0	4.44	16.2	8.80	6.65	1.49	6.09	2.08	34.2	51.6
	15	4.33	5.90	20.7	3.77	7.65	6.34	3.07	2.33	9.00	1.49	16.2	28.2
	16	2.16	14.0	25.7	3.05	8.35	3.98	11.8	7.27	5.01	1.69	10.1	3.71
	17	6.51	2.57	8.88	14.9	7.28	4.81	3.42	17.3	4.97	1.36	3.54	19.4
	18	4.59	9.62	4.46	11.1	11.4	3.08	3.89	45.8	5.57	3.48	4.57	110
	19	7.17	3.84	16.9	12.0	5.96	3.90	2.40	38.4	3.45	1.06	2.83	6.99
	20	6.87	30.1	19.1	5.61	7.83	3.62	4.83	24.7	7.49	3.33	2.73	7.89
	21	27.4	93.9	8.83	7.50	7.20	7.15	9.16	25.2	13.0	4.25	1.76	4.47
	22	23.1	14.3	9.94	5.56	9.88	20.7	3.15	13.6	14.9	1.89	6.34	.740
	23	25.8	18.4	10.8	10.7	6.83	15.4	3.12	15.0	14.3	4.60	4.01	2.84
	24	89.1	10.2	9.76	7.60	5.69	12.2	6.07	12.4	5.53	3.81	4.28	2.11
	25	12.7	36.1	18.8	7.91	4.75	6.58	29.7	13.3	12.8	5.02	1.78	36.7
	26	13.7	20.2	8.31	24.1	9.14	13.7	7.50	13.1	3.34	5.09	2.42	38.9
	27	9.85	19.0	8.06	4.60	6.29	9.71	12.1	14.8	5.02	3.84	7.82	104
	28	8.39	22.2	3.00	9.57	16.8	16.2	5.12	12.8	3.76	1.07	43.1	89.7
	29	15.3		14.3	1.54	28.1	7.46	8.47	20.7	10.4	2.61	20.5	11.3
	30	34.8		4.90	3.95	17.3	6.33	4.95	18.8	7.00	6.97	15.7	9.95
	31	14.8		6.95		13.4		.430	133		4.99		11.5
	dan	16.	8.	28.	29.	25.	1.	31.	14.	26.	19.	9.	22.
	nk	2.16	2.20	3.00	1.54	4.75	1.30	.430	1.49	3.34	1.06	1.02	.740
1995	sk	15.5	18.6	26.5	7.84	11.9	8.77	7.91	15.6	16.8	3.40	7.66	19.3
	vk	89.1	93.9	106	24.1	54.1	24.0	33.4	133	131	9.12	43.1	110
	dan	24.	21.	5.	26.	12.	10.	12.	31.	13.	1.	28.	18.

	nk	datum	snk	sk	svk	vk	datum
1995	.430	31. 7.	1.92	13.3	70.9	133	31. 8.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3096
Pocetak rada 1878.

Stanica: RUGVICA
Vodotok: SAVA
Pocetak mjerenja nanosa 1978.

Kota "0" 95.61 mnm
P.S. 12730.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1996. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	3.01	8.06	4.32	24.2	7.00	10.4	70.0	12.1	12.9	18.4	4.00	45.8
	2	6.39	6.69	3.63	88.1	7.66	5.69	208	8.58	20.4	8.72	5.06	5.64
	3	40.4	4.49	3.82	72.7	15.4	7.36	211	7.01	15.0	21.5	3.34	28.5
	4	7.32	6.82	4.19	43.9	9.11	7.12	151	4.72	9.75	34.1	2.47	1.72
	5	6.54	7.93	8.00	21.8	14.5	5.56	18.4	2.68	7.01	13.2	1.97	5.56
	6	3.95	5.91	5.83	11.7	5.52	5.18	14.1	5.53	13.1	7.66	6.55	7.31
	7	10.6	5.88	4.50	10.0	19.6	6.28	9.34	7.53	7.90	19.3	5.02	2.47
	8	12.4	5.71	5.34	11.2	11.0	10.2	8.49	29.6	4.44	61.0	4.74	2.80
	9	17.6	6.13	3.94	55.3	27.7	17.4	5.64	39.6	5.14	24.0	5.03	6.91
	10	29.2	4.62	5.15	27.3	28.6	11.5	7.81	16.0	7.18	7.60	4.59	8.65
	11	10.7	6.22	1.58	11.7	13.5	12.5	6.02	50.4	13.6	20.9	35.7	26.9
	12	26.9	6.25	6.99	13.8	16.0	8.97	10.6	50.1	11.2	22.4	9.72	8.67
	13	21.8	6.68	6.03	9.18	7.59	11.1	5.06	81.6	10.3	31.3	7.65	10.0
	14	46.3	8.69	7.99	8.12	5.62	9.97	4.40	30.1	11.9	33.3	37.4	30.5
	15	26.4	7.40	7.20	10.3	7.76	16.1	33.1	50.7	6.77	40.6	46.4	32.0
	16	11.7	6.49	7.95	7.79	4.48	13.1	10.3	15.5	11.0	16.2	30.4	45.5
	17	13.7	6.57	6.32	4.40	9.54	21.9	2.39	7.87	4.19	18.4	29.1	37.5
	18	7.62	5.46	12.8	9.65	11.9	24.8	5.75	6.64	7.22	10.7	15.8	22.0
	19	7.59	7.25	9.80	9.49	12.5	36.4	4.31	11.9	22.2	22.8	7.12	12.5
	20	4.50	34.5	8.49	6.45	5.87	32.4	7.03	8.00	30.2	50.2	10.2	8.50
	21	5.46	25.4	8.84	6.83	3.90	11.8	3.18	8.07	5.10	23.8	3.06	6.05
	22	7.94	9.93	11.5	5.64	5.34	13.2	13.4	8.01	24.6	4.88	12.5	10.0
	23	7.77	7.44	17.6	8.56	20.9	17.3	9.28	9.57	8.21	10.2	6.32	17.5
	24	9.60	7.44	11.0	9.92	20.8	17.8	10.2	16.2	57.7	6.74	27.0	14.5
	25	9.54	8.39	8.37	9.35	19.5	18.7	11.4	11.0	17.4	1.93	11.7	12.0
	26	10.5	6.09	8.44	9.23	10.3	20.7	5.60	17.1	11.7	9.21	17.2	8.55
	27	36.4	7.26	7.41	21.8	8.64	31.3	3.77	15.6	10.2	3.30	22.4	6.30
	28	12.5	6.75	9.48	12.4	6.11	32.6	6.45	19.1	20.6	3.12	21.2	4.05
	29	5.61	5.36	8.53	14.8	6.75	32.0	4.91	28.1	40.9	3.71	12.6	6.20
	30	2.71		6.89	6.10	5.01	16.3	14.9	15.7	46.2	2.80	28.8	3.55
	31	4.71		8.77		7.65		7.33	23.5		16.0		2.00
	dan	30.	3.	11.	17.	21.	6.	17.	5.	17.	25.	5.	4.
	nk	2.71	4.49	1.58	4.40	3.90	5.18	2.39	2.68	4.19	1.93	1.97	1.72
1996	sk	13.8	8.34	7.44	18.7	11.5	16.2	28.5	19.9	15.8	18.3	14.5	14.2
	vk	46.3	34.5	17.6	88.1	28.6	36.4	211	81.6	57.7	61.0	46.4	45.8
	dan	14.	20.	23.	2.	10.	19.	3.	13.	24.	8.	15.	1.

	nk	datum	snk	sk	svk	vk	datum
1996	1.58	11. 3.	3.10	15.6	62.9	211	3. 7.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3098

Pocetak rada 1855.

Stanica: SLAVONSKI BROD
Vodotok: SAVA
Pocetak mjerenja nanosa 1960.

Kota "0" 81.80 mnm
P.S. 50858.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	6.16	13.5	26.9	13.4	7.14	13.9	15.6	13.0	21.5	10.5	8.17	4.74
	2	7.54	8.97	21.0	21.2	12.4	12.4	17.0	15.3	10.5	10.9	16.4	2.66
	3	9.34	13.9	13.7	13.7	7.00	13.1	12.5	6.43	17.1	9.17	19.1	3.67
	4	13.7	7.37	15.0	12.9	8.61	13.5	20.6	16.1	12.4	8.06	14.5	4.11
	5	4.98	8.14	17.1	11.6	10.7	13.6	8.39	10.7	15.7	9.99	20.3	7.89
	6	4.01	6.14	17.6	11.5	21.6	14.8	8.85	15.0	12.4	10.3	15.1	2.36
	7	2.29	8.68	15.0	14.9	20.2	15.1	10.6	10.5	14.3	10.3	11.5	10.3
	8	5.59	7.81	17.0	17.2	12.1	10.0	11.3	12.3	13.8	13.2	12.3	2.47
	9	4.58	8.23	17.2	11.2	20.7	10.0	8.00	11.2	4.57	10.5	6.20	.730
	10	3.36	7.72	12.2	9.62	11.7	12.6	18.4	13.4	17.3	9.03	6.71	4.47
	11	4.81	5.99	9.89	9.88	6.86	11.9	15.6	8.20	11.1	16.6	6.81	2.44
	12	2.07	6.58	10.8	8.43	10.8	7.20	11.8	8.20	7.76	13.7	11.6	2.27
	13	2.68	5.61	8.28	14.2	13.6	11.0	14.7	18.7	7.00	11.9	11.1	2.59
	14	3.02	16.5	11.9	20.7	14.4	8.49	7.58	14.0	5.31	3.57	4.57	3.67
	15	3.17	12.1	9.66	17.1	13.2	18.7	10.1	14.0	12.7	8.83	14.7	3.34
	16	4.82	6.52	9.69	39.5	13.2	37.8	9.97	11.8	14.4	4.36	19.4	4.47
	17	4.29	9.06	13.1	22.3	12.8	29.6	5.66	5.94	14.2	9.14	17.5	2.40
	18	9.08	3.28	20.0	21.9	12.9	30.8	11.0	19.5	9.42	8.54	8.69	1.14
	19	4.63	7.72	10.5	19.5	15.8	30.9	9.36	14.0	17.6	5.86	11.7	1.64
	20	5.30	6.16	14.3	16.0	18.0	26.5	9.26	7.14	16.2	9.94	6.44	1.83
	21	6.91	4.78	21.1	23.3	14.5	17.3	6.36	11.9	17.1	12.7	3.99	1.57
	22	8.77	9.11	19.3	12.2	23.6	43.9	13.1	15.0	6.33	11.1	5.77	1.60
	23	4.91	30.0	13.1	13.6	16.3	91.1	14.4	8.70	8.94	6.14	2.19	2.47
	24	6.24	16.1	14.2	17.3	21.8	25.4	15.8	23.3	21.6	7.93	3.77	1.73
	25	9.31	14.2	9.44	12.3	20.2	33.7	19.1	15.3	18.1	5.76	5.59	2.29
	26	6.51	15.8	14.7	21.1	10.8	22.3	14.1	15.9	15.5	7.15	2.09	.890
	27	6.47	64.9	15.6	10.7	12.9	28.1	10.0	14.5	9.24	8.53	7.93	1.64
	28	22.6	32.3	23.9	9.36	11.9	18.5	8.46	17.6	15.1	8.46	7.50	1.93
	29	14.8		18.1	13.7	11.1	21.6	7.73	19.8	7.10	7.64	3.74	2.96
	30	16.0		13.1	10.3	16.0	17.6	4.25	22.5	11.2	19.2	8.99	1.90
	31	14.1		16.3		13.9		9.20	14.8		6.26		1.19
	dan	12.	18.	13.	12.	11.	12.	30.	17.	9.	14.	26.	9.
	nk	2.07	3.28	8.28	8.43	6.86	7.20	4.25	5.94	4.57	3.57	2.09	.730
1994	sk	7.16	12.8	15.2	15.7	14.1	22.0	11.6	13.7	12.8	9.52	9.81	2.88
	vk	22.6	64.9	26.9	39.5	23.6	91.1	20.6	23.3	21.6	19.2	20.3	10.3
	dan	28.	27.	1.	16.	22.	23.	4.	24.	24.	30.	5.	7.

	nk	datum	snk	sk	svk	vk	datum
1994	.730	9.12.	4.77	12.2	32.0	91.1	23. 6.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3098

Pocetak rada 1855.
Kota "0" 81.80 mnm
P.S. 50858.00 km2

Stanica: SLAVONSKI BROD
Vodotok: SAVA
Pocetak mjerenja nanosa 1960.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	6.69	31.1	29.8	14.4	33.4	42.3	18.6	6.64	12.3	12.1	5.47	9.50
	2	27.6	23.0	26.3	14.7	18.6	21.9	20.0	6.16	24.0	15.1	4.61	12.5
	3	66.6	19.0	50.9	8.86	12.4	18.1	23.0	4.46	15.6	16.2	4.50	10.2
	4	26.1	15.4	51.9	8.57	22.1	15.9	28.1	14.8	11.8	11.8	9.06	5.61
	5	33.7	14.1	35.6	11.5	14.2	25.1	22.4	32.2	10.8	11.6	5.09	17.2
	6	26.4	13.4	26.7	32.8	29.0	17.7	14.0	13.6	8.90	14.0	5.47	4.86
	7	25.0	11.4	22.1	29.7	17.0	15.3	16.9	16.2	7.31	9.39	15.3	6.31
	8	23.0	10.8	34.2	13.1	26.0	22.1	17.3	17.3	3.13	6.69	6.14	9.26
	9	15.3	11.2	32.8	20.4	18.3	22.0	17.0	18.4	11.9	8.77	4.23	9.76
	10	14.4	5.17	38.9	17.9	23.2	24.0	18.4	31.2	19.7	7.19	5.09	5.87
	11	12.7	7.26	24.9	23.5	19.2	21.3	37.0	17.7	23.8	7.61	3.37	5.67
	12	13.7	8.29	18.1	19.4	16.2	17.0	15.2	15.3	14.4	9.93	4.49	4.60
	13	5.97	6.06	17.5	16.0	24.9	36.4	9.31	13.7	13.7	4.06	4.19	5.41
	14	16.6	5.39	14.9	12.7	14.8	47.8	9.07	12.7	64.0	3.50	5.59	7.50
	15	11.5	7.11	14.0	13.2	15.7	28.6	11.3	12.0	26.0	5.89	7.04	5.36
	16	11.3	3.60	13.0	17.5	19.3	37.1	9.56	6.70	17.9	3.00	6.71	4.86
	17	10.4	5.14	15.6	13.2	22.7	31.3	12.0	9.63	22.3	3.66	9.00	3.71
	18	8.64	6.77	13.6	21.6	24.5	24.8	12.2	9.57	22.8	4.94	12.0	8.76
	19	24.1	6.71	13.5	19.6	17.9	17.7	9.04	7.09	42.0	3.83	11.2	4.00
	20	11.6	12.2	12.3	17.7	17.0	18.8	14.2	8.63	42.6	2.26	9.86	3.71
	21	16.8	36.5	13.5	17.3	15.3	15.8	9.01	8.24	24.7	2.87	26.2	4.70
	22	11.8	36.3	13.9	22.0	10.7	15.1	6.62	11.0	20.3	2.90	20.3	5.23
	23	11.4	21.3	14.0	14.7	15.5	13.7	11.4	11.7	31.1	3.94	17.6	7.99
	24	19.5	23.4	15.7	18.4	14.1	31.6	7.91	15.3	38.5	3.30	12.7	9.19
	25	12.2	15.2	10.6	13.9	12.6	21.4	6.19	19.4	59.5	13.2	14.7	12.3
	26	35.3	12.4	13.4	19.0	16.8	60.4	4.57	12.4	37.4	14.2	14.8	27.6
	27	41.6	10.9	12.7	16.5	14.1	67.8	5.01	15.1	20.6	4.71	66.3	34.3
	28	29.0	16.5	12.1	26.6	7.50	43.7	6.54	16.3	22.6	4.60	14.3	35.9
	29	56.6		17.2	17.2	11.2	43.0	5.46	10.8	23.8	2.77	9.07	40.0
	30	26.6		14.4	18.4	11.0	22.0	5.39	15.1	11.5	9.10	13.4	32.1
	31	21.4		18.1		21.0		4.89	17.1		3.14		19.3
	dan	13.	16.	25.	4.	28.	23.	26.	3.	8.	20.	11.	17.
	nk	5.97	3.60	10.6	8.57	7.50	13.7	4.57	4.46	3.13	2.26	3.37	3.71
1995	sk	21.7	14.1	21.4	17.7	17.9	28.0	13.1	13.8	23.5	7.30	11.6	12.0
	vk	66.6	36.5	51.9	32.8	33.4	67.8	37.0	32.2	64.0	16.2	66.3	40.0
	dan	3.	21.	4.	6.	1.	27.	11.	5.	14.	3.	27.	29.

	nk	datum	snk	sk	svk	vk	datum
1995	2.26	20.10.	5.95	16.8	45.4	67.8	27. 6.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 3098

Pocetak rada 1855.
Kota "0" 81.80 mnm
P.S. 50858.00 km2

Stanica: SLAVONSKI BROD
Vodotok: SAVA
Pocetak mjerenja nanosa 1960.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1996. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	20.2	12.5	9.30	22.8	15.9	52.6	8.63	5.16	3.63	12.5	6.90	9.46
2	20.7	9.80	17.3	21.1	14.3	25.7	8.20	8.60	4.23	19.8	10.1	7.26
3	9.81	11.1	13.3	17.3	23.7	15.3	10.0	10.5	54.9	12.1	8.57	8.07
4	7.46	9.61	8.54	26.8	17.5	12.3	42.7	7.29	46.9	6.27	5.96	14.6
5	5.53	9.29	7.33	14.1	14.0	11.4	25.2	3.84	38.3	20.4	6.81	9.54
6	7.20	28.2	8.59	39.7	20.5	17.4	54.7	5.14	26.8	17.8	7.34	5.43
7	9.57	21.9	6.51	27.5	22.0	12.9	72.0	1.96	26.3	15.2	4.76	13.5
8	8.33	15.0	9.27	24.7	14.7	8.70	54.7	6.21	24.2	18.6	7.29	8.91
9	7.30	13.4	9.96	18.2	12.5	9.93	50.5	3.94	21.4	12.1	9.29	8.76
10	9.19	9.40	6.90	20.2	11.9	8.89	18.2	2.14	11.5	17.4	5.69	8.34
11	8.04	12.3	10.9	14.1	22.7	12.1	22.6	6.86	24.7	29.7	4.09	7.36
12	9.97	16.1	19.1	16.0	38.3	13.4	32.9	9.37	9.56	18.8	6.74	6.81
13	11.5	30.6	7.67	11.7	20.2	9.74	15.1	4.74	12.1	16.6	4.77	7.99
14	14.6	9.27	9.40	14.8	50.9	9.84	18.6	4.43	18.0	9.21	6.43	4.89
15	13.2	15.5	7.31	9.29	51.5	5.90	10.2	3.01	23.1	5.01	3.91	8.90
16	12.9	11.7	9.23	8.67	39.8	10.3	10.2	4.51	28.7	3.86	8.76	67.2
17	10.1	8.09	8.47	12.2	35.4	9.03	11.5	10.9	29.2	3.91	6.61	53.7
18	13.4	8.77	8.93	8.89	26.7	9.10	6.14	13.2	26.5	5.43	5.67	31.0
19	11.7	9.40	13.7	17.1	20.7	8.30	7.66	12.7	21.1	4.73	14.6	21.4
20	11.0	7.16	6.56	11.4	14.1	8.06	10.3	11.9	15.0	7.26	14.7	13.6
21	13.6	11.1	7.40	11.4	13.7	7.89	8.29	12.4	11.6	8.46	10.4	23.3
22	9.36	21.4	9.30	11.6	9.54	6.94	9.84	2.96	11.4	41.6	19.5	10.6
23	8.01	47.4	8.73	9.50	11.7	5.70	5.59	6.17	33.5	26.4	74.9	8.10
24	9.66	35.1	7.41	10.6	17.1	5.39	5.40	6.39	143	24.7	56.2	12.3
25	9.48	25.5	7.21	12.4	15.5	7.10	7.63	5.84	102	18.2	30.7	9.64
26	10.8	17.3	7.49	10.3	14.1	10.9	6.03	5.64	52.1	12.1	31.7	16.1
27	10.2	19.2	6.80	13.6	12.2	14.3	7.00	2.74	41.6	8.67	22.6	13.7
28	12.9	11.8	66.7	19.9	186	14.7	5.40	8.39	35.7	8.77	19.4	21.4
29	6.86	9.38	70.0	14.0	157	10.7	4.10	4.70	46.3	5.97	13.2	14.7
30	10.3		88.2	17.8	78.7	17.3	9.97	4.76	22.1	4.17	18.4	12.6
31	10.5		27.9		44.9		5.74	5.96		8.50		15.2
dan	5.	20.	7.	16.	22.	24.	29.	7.	1.	16.	15.	14.
nk	5.53	7.16	6.51	8.67	9.54	5.39	4.10	1.96	3.63	3.86	3.91	4.89
1996 sk	10.8	16.1	16.3	16.3	33.8	12.4	18.2	6.53	32.2	13.7	14.9	15.3
vk	20.7	47.4	88.2	39.7	186	52.6	72.0	13.2	143	41.6	74.9	67.2
dan	2.	23.	30.	6.	28.	1.	7.	18.	24.	22.	23.	16.

	nk	datum	snk	sk	svk	vk	datum
1996	1.96	7. 8.	5.43	17.2	70.5	186	28. 5.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5008
Pocetak rada 1873.
Kota "0" 122.25 mnm
P.S. 31038.00 km2

Stanica: BOTOVO
Vodotok: DRAVA
Pocetak mjerenja nanosa 1966.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1994. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	6.00	6.29	4.27	8.76	15.0	20.7	20.2	11.3	29.6	8.12	15.6	3.16
2	10.0	9.49	5.74	10.7	21.6	15.2	19.9	9.24	21.8	6.00	9.54	5.10
3	24.0	6.12	5.73	20.0	30.3	13.5	17.0	12.4	10.4	4.82	7.35	4.78
4	16.0	6.45	5.33	31.1	24.8	19.4	16.0	10.9	12.0	3.15	7.21	4.00
5	14.1	7.45	5.78	16.5	17.8	21.0	14.7	9.86	14.9	1.29	8.37	3.24
6	44.3	7.50	4.00	11.8	17.6	22.7	14.9	11.1	15.0	21.4	8.00	4.80
7	19.7	7.99	2.81	11.9	18.4	21.3	12.0	11.5	8.23	9.40	7.52	3.92
8	19.0	5.32	3.31	11.5	20.0	13.6	17.0	12.0	8.87	6.61	7.52	2.55
9	13.0	4.61	4.05	8.14	21.8	11.2	17.1	13.0	7.76	5.00	4.12	1.43
10	5.05	6.66	3.60	8.00	22.7	9.41	13.0	11.1	7.95	4.59	5.09	2.04
11	6.46	5.84	6.82	7.61	22.0	33.5	10.9	13.6	8.00	.350	5.98	3.00
12	6.61	8.74	9.41	62.9	22.8	25.0	12.2	10.3	9.45	.690	22.4	4.07
13	8.64	7.00	7.00	117	18.0	13.5	12.6	14.3	6.75	2.65	25.0	3.01
14	8.87	5.55	5.12	47.2	17.5	82.2	12.0	20.0	5.71	4.00	21.1	2.36
15	9.32	8.07	8.17	38.4	15.0	34.1	14.0	25.4	7.93	3.78	12.6	3.35
16	8.00	6.62	7.30	23.8	14.4	20.4	14.3	23.6	35.8	3.50	7.86	3.13
17	7.87	6.44	9.15	18.0	11.4	14.3	13.0	14.4	17.1	3.02	10.9	2.64
18	4.72	5.06	8.81	14.1	14.5	21.5	12.4	10.3	12.0	1.49	9.19	2.00
19	12.7	4.40	9.19	41.2	16.9	20.0	13.5	13.3	8.61	4.15	3.72	1.37
20	8.23	3.50	9.50	32.3	14.8	18.5	18.6	17.1	7.15	5.53	4.00	2.74
21	6.14	3.03	10.5	15.4	22.3	14.3	18.4	15.0	5.98	3.51	3.94	1.97
22	8.40	5.68	11.6	16.0	19.0	71.2	45.6	13.7	4.02	6.49	3.50	1.58
23	8.50	4.53	7.08	11.7	16.9	30.0	31.3	17.0	7.60	5.50	4.86	1.93
24	8.81	6.08	6.38	13.0	18.5	19.4	20.0	29.8	7.29	5.16	3.95	2.13
25	8.64	9.73	8.12	15.5	17.2	15.5	17.9	32.4	8.00	2.58	2.92	1.50
26	4.60	8.37	6.78	10.0	16.0	14.0	14.4	29.2	9.34	22.7	3.53	1.16
27	7.48	9.00	10.0	11.9	17.1	13.4	10.3	42.8	6.36	18.2	4.00	1.59
28	6.76	10.8	14.1	14.0	15.0	13.8	11.4	25.0	6.98	21.8	3.53	2.26
29	7.03		5.18	11.8	11.0	19.5	12.1	18.9	7.35	15.7	3.92	1.99
30	6.00		6.42	8.25	8.55	22.3	10.2	14.7	13.0	20.0	2.57	.810
31	6.94		13.7		12.8		12.0	14.7		24.6		21.7
dan	26.	21.	7.	11.	30.	10.	30.	2.	22.	11.	30.	30.
nk	4.60	3.03	2.81	7.61	8.55	9.41	10.2	9.24	4.02	.350	2.57	.810
1994 sk	10.7	6.65	7.26	22.3	17.8	22.8	16.1	17.0	11.0	7.93	7.99	3.27
vk	44.3	10.8	14.1	117	30.3	82.2	45.6	42.8	35.8	24.6	25.0	21.7
dan	6.	28.	28.	13.	3.	14.	22.	27.	16.	31.	13.	31.

	nk	datum	snk	sk	svk	vk	datum
1994	.350	11.10.	5.27	12.6	41.2	117	13. 4.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5008

Pocetak rada 1873.
Kota "0" 122.25 mnm
P.S. 31038.00 km2

Stanica: BOTOVO
Vodotok: DRAVA
Pocetak mjerenja nanosa 1966.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1995. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	25.0	5.91	54.6	10.6	18.8	11.3	26.7	27.0	21.7	18.5	1.08	.190
2	28.0	7.98	24.2	6.00	18.7	16.2	30.0	37.3	38.8	15.0	2.82	.870
3	23.2	5.24	19.0	3.86	26.6	19.5	39.7	43.8	25.0	10.5	2.29	.600
4	18.1	5.48	106	6.89	23.1	17.0	33.4	21.4	12.4	9.60	2.57	.520
5	7.72	4.00	80.0	8.77	17.0	16.0	29.0	44.8	12.4	8.94	2.00	1.86
6	3.30	2.95	103	12.6	18.1	57.8	29.7	40.0	32.2	12.9	1.64	2.62
7	5.42	1.16	40.2	14.8	15.0	98.3	37.1	36.1	14.1	5.66	1.16	2.06
8	4.50	2.98	21.2	19.7	13.3	81.9	43.3	38.2	10.6	7.00	1.53	1.58
9	4.17	2.83	13.5	21.0	16.8	42.2	39.0	24.2	15.0	9.03	.580	1.23
10	3.67	3.60	11.4	24.4	16.7	41.0	36.7	25.9	19.0	5.83	.850	1.00
11	3.21	3.27	11.5	5.15	19.6	40.0	37.8	45.3	22.4	7.94	1.24	.910
12	3.50	3.50	9.50	12.7	11.7	39.0	32.2	37.1	15.8	8.12	1.00	1.35
13	3.36	3.80	8.09	10.4	11.8	45.4	25.2	31.0	22.6	9.70	.910	7.01
14	3.94	1.50	7.21	10.6	14.0	53.4	25.6	25.8	9.87	8.02	.650	5.38
15	3.50	1.75	6.31	9.15	17.7	38.8	26.0	34.8	27.6	8.50	.780	2.33
16	3.08	3.42	6.13	8.00	13.1	33.7	30.0	22.6	86.6	9.54	.910	1.91
17	3.23	3.53	7.44	7.62	9.11	43.7	35.7	18.4	33.3	7.03	1.60	1.50
18	2.64	8.72	6.47	6.59	11.2	39.0	28.2	29.2	16.6	6.76	1.38	.720
19	4.94	50.0	6.00	5.90	9.45	34.6	28.8	22.3	24.0	7.55	2.00	1.09
20	2.37	36.2	5.80	7.29	9.15	30.8	28.8	24.0	19.5	7.12	3.28	2.52
21	2.73	10.4	12.4	6.65	9.50	32.9	17.1	27.1	27.4	7.71	1.99	2.53
22	2.00	4.88	14.6	8.12	10.1	32.0	20.6	32.4	25.9	8.00	1.71	3.02
23	1.42	4.59	9.30	10.0	10.6	33.8	19.0	29.9	19.5	8.44	1.50	4.64
24	2.88	2.92	11.0	12.9	7.67	32.7	18.4	19.0	17.0	7.32	1.02	50.0
25	25.9	7.33	6.67	21.4	8.08	36.0	31.6	35.4	15.2	28.5	.760	30.9
26	24.6	10.0	6.50	98.6	8.37	41.7	38.9	28.9	11.2	5.48	.500	21.5
27	18.3	48.1	6.93	57.7	12.4	26.2	42.9	23.0	11.1	2.47	.250	8.22
28	88.5	81.8	6.78	44.7	11.5	35.6	29.5	18.5	17.9	3.78	.610	9.72
29	50.0		9.14	30.7	10.6	42.9	36.7	40.4	14.0	2.00	.270	6.28
30	15.9		7.91	20.0	9.02	32.7	35.0	62.1	21.1	1.11	.530	5.36
31	7.87		12.9		9.78		33.4	29.4		1.82		4.00
dan	23.	7.	20.	3.	24.	1.	21.	17.	14.	30.	27.	1.
nk	1.42	1.16	5.80	3.86	7.67	11.3	17.1	18.4	9.87	1.11	.250	.190
1995 sk	12.8	11.7	21.0	17.4	13.5	38.2	31.2	31.5	22.0	8.38	1.31	5.92
vk	88.5	81.8	106	98.6	26.6	98.3	43.3	62.1	86.6	28.5	3.28	50.0
dan	28.	28.	4.	26.	3.	7.	8.	30.	16.	25.	20.	24.

	nk	datum	snk	sk	svk	vk	datum
1995	.190	1.12.	6.51	17.9	64.5	106	4. 3.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5008

Pocetak rada 1873.

Stanica: BOTOVO
Vodotok: DRAVA
Pocetak mjerenja nanosa 1966.

Kota "0" 122.25 mnm
P.S. 31038.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1996. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	5.19	3.68	4.97	13.4	28.3	17.4	26.4	6.23	15.0	7.72	8.45	10.0
	2	3.57	6.01	5.34	11.5	35.9	15.0	38.9	11.8	27.1	7.26	7.44	4.96
	3	2.59	3.51	5.50	10.7	28.4	12.1	36.2	12.4	30.6	6.68	7.00	5.82
	4	4.34	3.30	6.00	54.0	28.4	12.7	54.8	9.00	24.1	21.8	6.76	4.29
	5	2.42	3.21	5.30	65.7	22.0	11.7	26.6	7.37	43.9	11.0	7.08	5.51
	6	4.67	3.65	6.21	75.1	17.4	10.9	19.5	13.9	35.4	12.5	4.74	4.52
	7	4.00	4.89	5.01	80.0	17.8	20.9	16.0	7.98	24.7	14.2	4.55	4.67
	8	3.85	4.97	4.05	30.9	16.4	12.5	13.9	8.16	18.0	28.2	5.36	3.50
	9	5.12	4.54	5.54	21.0	10.1	11.0	14.9	10.9	15.3	12.8	1.20	2.68
	10	34.2	9.61	5.70	31.9	49.9	10.1	12.9	12.6	14.8	8.68	1.50	3.15
	11	24.0	7.50	5.93	29.2	45.5	17.8	14.2	10.0	25.4	35.5	1.98	2.43
	12	21.1	5.42	3.54	22.9	35.0	12.8	12.5	8.96	12.5	18.5	2.98	3.54
	13	31.3	4.61	8.71	21.0	24.5	12.8	11.1	7.93	12.0	16.0	1.58	4.69
	14	25.0	2.86	5.34	19.0	62.3	12.8	10.0	20.6	10.2	11.6	2.33	4.15
	15	16.8	3.54	5.32	17.4	35.9	11.5	9.81	30.6	12.0	8.99	4.24	5.50
	16	9.99	4.58	5.04	16.2	19.9	10.0	11.0	16.5	14.0	5.55	23.6	7.19
	17	6.53	3.28	4.60	17.6	12.3	9.18	9.27	37.0	12.5	5.43	28.0	4.63
	18	5.47	3.00	4.37	10.2	30.8	10.4	10.5	20.0	13.6	26.7	19.4	1.68
	19	3.87	2.76	11.6	15.1	23.0	7.02	9.25	13.0	11.7	14.7	11.3	1.77
	20	5.57	2.37	13.3	13.8	19.4	8.56	9.12	7.90	8.29	12.0	16.2	1.40
	21	4.50	21.2	19.7	12.7	19.4	8.11	12.0	7.64	9.44	9.43	31.5	1.69
	22	3.60	16.1	17.4	12.4	34.2	9.60	19.6	7.54	8.00	9.38	32.5	1.80
	23	4.13	7.20	18.2	20.6	25.2	25.0	9.04	8.18	6.66	41.2	25.7	2.09
	24	4.80	4.68	19.0	36.8	20.8	37.2	7.27	8.11	25.2	56.0	22.0	2.80
	25	5.33	4.00	21.1	41.3	17.6	27.2	5.19	7.50	38.9	24.0	19.1	2.25
	26	3.76	3.93	26.0	39.5	16.0	19.0	8.74	6.92	33.3	21.1	18.0	2.84
	27	2.48	1.33	47.6	39.9	15.4	16.8	9.00	8.10	31.4	15.0	15.4	6.77
	28	2.50	2.85	50.9	35.0	47.2	26.6	6.50	8.91	21.6	12.7	13.0	3.89
	29	3.62	2.16	53.8	32.8	61.4	17.4	8.05	6.61	12.0	11.0	8.36	3.00
	30	4.58		22.8	23.6	29.3	22.0	6.52	9.79	10.3	9.47	9.46	2.55
	31	7.21		17.0		26.1		7.51	11.2		8.12		2.63
	dan	5.	27.	12.	18.	9.	19.	25.	1.	23.	17.	9.	20.
	nk	2.42	1.33	3.54	10.2	10.1	7.02	5.19	6.23	6.66	5.43	1.20	1.40
1996	sk	8.58	5.20	14.0	29.0	28.3	15.2	15.0	11.7	19.3	16.2	12.0	3.82
	vk	34.2	21.2	53.8	80.0	62.3	37.2	54.8	37.0	43.9	56.0	32.5	10.0
	dan	10.	21.	29.	7.	14.	24.	4.	17.	5.	24.	22.	1.

	nk	datum	snk	sk	svk	vk	datum
1996	1.20	9.11.	5.06	14.9	43.6	80.0	7. 4.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5063
Pocetak rada 1872.
Kota "0" 100.67 mnm
P.S. 33916.00 km2

Stanica: TEREZINO POLJE
Vodotok: DRAVA
Pocetak mjerenja nanosa 1990.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	4.10	2.06	13.1	9.06	1.72	7.48	7.04	6.92	3.28	15.5	1.70	7.78
	2	14.6	3.48	12.0	9.28	3.98	8.32	6.78	2.56	.680	4.64	2.60	2.90
	3	3.48	4.76	13.6	8.34	8.26	13.4	13.9	7.28	1.30	4.30	3.60	1.82
	4	18.9	3.00	13.6	9.72	5.88	6.36	6.02	20.3	1.14	3.76	11.6	4.86
	5	2.18	1.64	9.36	19.4	9.80	7.86	11.8	9.00	1.22	1.40	1.02	7.68
	6	15.0	3.38	9.96	8.10	8.20	36.1	7.76	2.04	1.20	1.38	.920	1.12
	7	3.02	2.02	7.34	7.68	13.2	40.1	8.26	3.02	1.42	1.78	1.62	5.14
	8	3.60	1.66	4.20	32.5	8.10	5.38	10.1	8.54	1.18	2.70	1.62	.940
	9	17.0	1.62	7.80	2.04	9.42	16.6	8.88	3.84	5.62	1.00	2.38	3.54
	10	5.62	3.08	7.48	3.16	11.9	13.8	6.78	1.76	1.00	1.38	1.56	5.12
	11	7.94	3.20	12.3	14.7	9.30	7.16	5.28	2.40	1.42	2.04	1.90	1.20
	12	1.68	2.38	10.0	2.72	11.7	8.24	14.9	1.32	1.90	1.70	8.88	2.90
	13	3.78	3.34	14.1	6.60	7.86	7.14	4.68	3.20	2.22	1.04	1.62	5.54
	14	4.64	2.42	7.34	19.8	5.48	7.10	9.28	5.36	.920	1.48	1.72	1.54
	15	3.80	1.94	14.7	6.74	5.58	7.64	4.42	6.58	1.58	2.50	1.82	5.12
	16	8.52	4.44	5.84	4.24	4.94	7.10	3.16	2.48	3.86	2.34	2.88	1.64
	17	3.30	5.24	10.3	6.48	5.76	9.06	5.00	2.92	1.48	1.46	1.82	1.14
	18	4.86	5.98	6.74	24.8	4.94	6.60	6.50	7.44	1.20	1.98	1.36	2.08
	19	2.18	6.02	7.80	4.86	10.3	4.68	7.54	4.74	2.80	7.46	1.76	2.36
	20	3.32	4.08	6.86	4.40	15.6	1.76	9.22	7.00	1.96	1.72	6.70	1.10
	21	3.40	12.5	1.68	7.56	5.94	49.7	7.08	12.7	3.56	3.60	1.50	7.30
	22	5.36	7.18	8.10	1.70	4.96	8.52	6.50	3.02	1.50	4.54	1.34	2.70
	23	8.08	5.48	2.32	3.76	5.80	5.70	10.3	13.7	1.80	1.58	1.28	1.52
	24	2.30	4.70	3.78	6.60	5.64	10.4	8.22	18.9	10.1	2.48	1.42	3.60
	25	2.12	6.60	4.68	2.34	10.3	6.96	4.90	9.10	1.40	1.50	1.48	2.14
	26	4.60	3.56	3.50	14.8	1.76	6.48	4.06	6.84	3.28	2.80	4.42	1.52
	27	4.18	2.36	2.62	6.78	8.54	14.3	7.22	3.24	8.82	12.3	1.66	2.94
	28	3.96	2.42	5.50	5.50	19.1	3.26	4.74	1.94	1.06	2.16	1.48	1.18
	29	4.46		4.12	5.98	8.64	6.64	3.04	2.32	8.82	2.02	2.94	6.98
	30	7.10		14.2	7.96	16.1	4.28	6.40	2.50	1.30	6.30	2.04	6.26
	31	3.06		4.18		4.98		11.3	11.0		2.30		4.44
	dan	12.	9.	21.	22.	1.	20.	29.	12.	2.	9.	6.	8.
	nk	1.68	1.62	1.68	1.70	1.72	1.76	3.04	1.32	.680	1.00	.920	.940
1994	sk	5.81	3.95	8.04	8.92	8.18	11.3	7.45	6.26	2.63	3.33	2.62	3.42
	vk	18.9	12.5	14.7	32.5	19.1	49.7	14.9	20.3	10.1	15.5	11.6	7.78
	dan	4.	21.	15.	8.	28.	21.	12.	4.	24.	1.	4.	1.

	nk	datum	snk	sk	svk	vk	datum
1994	.680	2. 9.	1.51	6.00	19.0	49.7	21. 6.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5063

Pocetak rada 1872.

Stanica: TEREZINO POLJE
Vodotok: DRAVA
Pocetak mjerenja nanosa 1990.

Kota "0" 100.67 mnm
P.S. 33916.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1995. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	22.5	4.22	4.10	3.94	4.44	13.2	9.94	1.08	1.78	2.16	3.58	5.98
	2	58.8	1.00	1.16	6.48	3.84	8.20	4.30	3.56	6.10	4.02	1.52	5.48
	3	3.40	8.46	5.82	1.26	4.42	4.26	2.02	2.26	2.06	1.48	1.76	.540
	4	.940	5.24	9.10	1.44	2.52	.960	13.6	2.40	2.04	1.52	1.54	1.68
	5	1.18	7.62	7.32	1.72	2.24	12.3	4.08	1.30	1.60	2.54	1.70	1.74
	6	8.40	.940	20.3	2.04	3.86	1.34	2.88	.860	2.14	8.40	16.0	2.02
	7	1.28	.580	1.22	1.88	.860	.900	1.26	2.04	2.08	2.06	1.12	1.48
	8	10.7	3.62	1.44	4.88	13.5	1.32	2.72	2.84	2.26	1.72	1.74	1.44
	9	2.28	1.60	3.24	1.70	3.94	1.20	1.12	1.38	1.90	2.54	3.74	3.06
	10	2.32	2.14	1.64	6.94	6.64	2.18	1.48	3.40	3.20	.460	3.74	2.80
	11	5.94	6.12	2.36	5.74	7.46	2.00	1.58	.880	2.44	1.84	5.30	6.24
	12	2.62	1.58	4.92	1.42	4.58	1.70	2.76	1.30	1.90	3.90	10.2	3.04
	13	9.54	1.36	4.84	2.18	4.22	3.08	1.42	1.50	2.22	1.42	2.08	1.56
	14	20.5	1.60	6.50	1.22	4.78	.360	3.88	1.24	2.70	2.62	1.78	1.42
	15	3.42	1.20	1.14	1.98	1.86	.680	1.64	1.50	3.00	1.32	2.10	1.56
	16	5.28	26.8	2.06	3.12	1.82	2.28	.580	1.04	3.00	1.74	3.30	1.08
	17	2.56	9.36	2.26	1.46	1.50	2.12	4.42	1.30	12.5	5.86	1.48	1.86
	18	1.64	1.24	2.74	2.20	.520	2.30	1.36	1.52	4.06	22.3	1.52	1.12
	19	1.24	2.10	7.14	1.04	2.98	3.60	1.52	1.46	1.48	3.14	5.60	1.60
	20	1.28	1.64	1.66	1.86	1.20	3.96	2.08	1.64	1.88	2.80	1.70	1.30
	21	6.70	.980	1.74	2.86	4.42	18.7	1.64	2.06	1.36	1.86	1.44	9.10
	22	.840	3.30	1.84	2.64	3.34	3.42	1.76	1.98	11.0	2.26	1.94	1.90
	23	1.20	1.22	2.04	4.72	3.90	3.62	1.50	3.22	2.26	1.74	1.72	1.84
	24	1.24	3.56	3.08	3.12	2.64	3.90	1.16	2.14	2.94	9.86	1.74	2.26
	25	1.64	1.50	7.98	2.98	4.66	2.82	.880	1.98	1.78	1.90	1.68	1.82
	26	1.78	6.48	.320	1.92	1.48	2.24	5.70	1.68	1.58	1.92	2.16	4.66
	27	2.16	3.38	9.30	6.08	1.94	2.70	2.26	1.38	1.42	1.82	7.76	7.44
	28	17.6	4.28	1.08	2.60	3.46	1.50	2.18	1.74	2.14	1.82	1.48	2.26
	29	10.0		4.72	1.72	3.42	.780	1.94	1.34	1.58	3.18	1.40	1.50
	30	8.24		1.64	2.52	2.68	6.24	2.14	1.20	2.22	1.84	5.22	10.5
	31	8.84		1.36		13.4		2.40	1.70		3.78		6.30
	dan	22.	7.	26.	19.	18.	14.	16.	6.	21.	10.	7.	3.
	nk	.840	.580	.320	1.04	.520	.360	.580	.860	1.36	.460	1.12	.540
1995	sk	7.29	4.04	4.07	2.86	3.95	3.80	2.85	1.77	2.95	3.41	3.27	3.12
	vk	58.8	26.8	20.3	6.94	13.5	18.7	13.6	3.56	12.5	22.3	16.0	10.5
	dan	2.	16.	6.	10.	8.	21.	4.	2.	17.	18.	6.	30.

	nk	datum	snk	sk	svk	vk	datum
1995	.320	26. 3.	.715	3.61	18.6	58.8	2. 1.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Stanica: TEREZINO POLJE
Vodotok: DRAVA
Pocetak mjerenja nanosa 1990.

Sifra stanice 5063

Pocetak rada 1872.
Kota "0" 100.67 mnm
P.S. 33916.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1996. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	10.9	9.26	5.52	5.92	16.2	4.30	10.5	3.12	2.38	5.36	2.26	1.28
2	22.7	3.64	6.24	4.22	12.5	2.90	4.96	9.80	2.16	1.68	1.22	1.18
3	12.5	2.80	4.18	2.92	4.52	5.46	5.56	4.86	1.42	1.60	1.48	1.16
4	9.68	2.28	3.18	4.26	4.58	13.8	7.96	1.22	2.46	1.34	3.46	7.32
5	3.90	1.72	8.22	4.98	2.28	13.0	7.56	2.98	2.30	1.16	10.6	1.70
6	.980	3.18	5.00	18.6	3.28	21.9	4.90	1.42	1.14	1.24	.780	1.44
7	2.12	1.08	5.24	9.62	4.12	4.90	7.00	2.70	1.00	1.42	1.14	1.42
8	1.82	7.26	3.34	3.70	5.84	3.06	2.12	2.90	1.22	1.82	1.26	19.6
9	4.00	9.20	3.62	6.40	3.48	9.20	5.40	1.30	1.10	1.20	2.46	1.32
10	2.22	9.18	4.02	4.42	6.50	6.10	4.26	8.70	.920	.720	1.40	1.94
11	3.94	9.22	4.20	5.04	8.64	9.12	6.44	2.70	1.50	1.34	.960	1.10
12	7.06	3.68	2.70	9.92	4.64	9.14	13.0	1.16	1.08	1.16	1.36	1.10
13	7.78	3.60	3.32	24.1	9.64	4.16	2.94	1.56	.980	1.64	1.26	1.46
14	8.36	3.84	4.22	4.04	13.2	2.72	2.80	5.26	1.66	1.28	1.38	1.58
15	5.42	3.82	4.56	4.58	2.22	6.24	3.64	.820	1.44	3.34	1.46	4.76
16	9.68	4.50	3.00	5.02	3.80	4.34	2.54	.880	1.26	1.42	1.12	2.82
17	2.08	15.0	5.26	5.46	2.12	14.1	5.38	1.26	1.44	4.14	1.08	1.24
18	2.32	7.18	2.58	2.78	1.48	12.0	3.28	1.48	6.62	1.50	1.10	2.70
19	3.34	10.6	1.02	3.50	7.80	13.0	5.70	1.28	1.70	1.34	.940	.820
20	4.02	21.4	8.34	4.34	7.74	10.1	4.72	.900	1.50	1.46	1.18	1.54
21	3.64	9.18	9.96	7.02	9.04	14.2	9.18	1.08	1.12	1.60	.880	1.86
22	3.98	4.08	7.20	11.6	17.8	3.90	3.00	2.30	1.78	.880	1.46	1.60
23	6.60	5.02	4.04	19.0	.860	10.1	2.66	4.00	1.24	1.10	1.26	5.30
24	8.10	5.42	3.28	3.28	.380	4.88	1.98	1.34	1.56	1.36	11.7	12.3
25	4.60	5.32	5.08	4.42	.040	6.22	3.40	1.18	1.22	4.34	1.42	7.66
26	3.18	5.20	2.68	4.00	.720	11.3	1.28	1.10	3.08	1.34	1.94	.980
27	4.28	1.58	2.66	6.08	1.26	11.3	2.62	6.48	.920	1.02	1.16	1.18
28	3.72	6.32	4.82	10.9	8.56	13.4	1.80	4.76	1.22	.760	.700	1.16
29	2.06	7.70	6.80	4.56	10.9	27.5	.360	5.16	1.50	1.28	1.16	1.20
30	2.70		9.14	11.7	.980	6.46	1.00	1.36	1.00	1.40	1.36	1.46
31	3.74		7.42		2.78		.500	2.38		1.20		1.18
dan	6.	7.	19.	18.	25.	14.	29.	15.	10.	10.	28.	19.
nk	.980	1.08	1.02	2.78	.040	2.72	.360	.820	.920	.720	.700	.820
1996 sk	5.53	6.28	4.87	7.21	5.74	9.29	4.47	2.82	1.66	1.69	2.03	3.01
vk	22.7	21.4	9.96	24.1	17.8	27.5	13.0	9.80	6.62	5.36	11.7	19.6
dan	2.	20.	21.	13.	22.	29.	12.	2.	18.	1.	24.	8.

	nk	datum	snk	sk	svk	vk	datum
1996	.040	25. 5.	1.08	4.54	15.8	27.5	29. 6.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5150

Pocetak rada 1988.

Stanica: D.MIHOLJAC c.s.
Vodotok: DRAVA
Pocetak mjerenja nanosa 1993.

Kota "0" 88.57 mnm
P.S. 37142.00 km2

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1994. GODINU

	dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
	1	9.68	14.7	7.50	9.04	9.12	19.0	19.2	11.0	22.3	4.02	9.82	1.74
	2	8.20	25.2	10.1	10.1	12.9	16.6	22.8	14.8	4.38	7.56	4.58	2.02
	3	5.20	26.2	8.22	11.7	6.90	17.3	22.4	12.7	3.84	4.78	15.4	2.18
	4	11.7	28.4	9.52	15.6	12.4	19.9	24.7	7.96	5.66	8.06	9.86	8.56
	5	7.26	36.5	10.8	7.98	13.3	21.8	23.4	5.72	6.38	3.30	9.00	14.0
	6	6.24	31.5	5.62	7.64	16.2	16.9	22.4	7.90	5.80	19.6	7.72	17.6
	7	11.6	57.7	4.46	9.52	9.36	18.1	16.5	6.12	8.24	24.5	1.72	23.2
	8	18.0	31.9	7.34	14.4	14.0	17.2	14.2	10.2	2.44	6.76	4.20	1.94
	9	9.62	40.1	6.94	12.8	18.2	17.3	20.6	12.1	4.94	3.94	4.82	3.74
	10	9.96	37.4	11.0	13.4	11.4	15.3	19.7	12.7	3.60	3.18	2.94	6.96
	11	11.3	19.2	5.48	3.08	10.4	16.3	22.4	8.74	2.20	2.72	2.54	13.4
	12	10.4	19.6	3.94	9.50	8.84	19.9	30.4	13.0	3.34	6.88	5.64	4.60
	13	3.74	17.1	6.54	6.96	17.0	15.8	20.9	12.5	4.68	6.40	6.64	4.78
	14	9.50	22.6	6.80	9.82	12.1	17.0	25.5	17.2	2.34	3.26	14.4	3.96
	15	12.5	56.6	7.46	14.1	11.4	14.7	29.2	19.4	2.82	2.12	35.1	1.62
	16	11.8	30.0	3.86	16.5	15.7	15.2	30.8	19.6	3.44	4.44	32.6	2.62
	17	2.96	21.4	7.48	32.1	16.3	8.96	35.0	6.68	2.54	2.14	34.8	6.52
	18	1.00	24.7	3.46	33.7	9.46	19.4	29.0	11.9	5.64	2.48	28.5	10.9
	19	5.90	46.0	6.32	38.6	12.4	21.3	23.0	10.6	10.9	2.40	2.24	3.86
	20	18.5	8.84	3.78	39.3	11.8	23.1	14.5	15.5	2.04	2.08	2.12	6.26
	21	19.8	7.42	8.70	36.9	12.9	9.74	16.3	7.50	4.50	5.38	2.68	1.68
	22	14.7	10.6	6.72	34.9	9.78	9.84	16.0	11.2	6.76	4.08	4.16	5.82
	23	59.5	7.80	10.3	21.5	10.9	11.4	17.8	12.1	7.34	10.3	1.90	12.4
	24	91.7	7.82	11.6	23.7	11.3	23.9	27.0	12.9	7.64	3.42	2.52	6.86
	25	97.5	7.68	8.38	28.5	14.7	15.1	14.9	8.42	12.3	2.56	2.28	7.00
	26	35.2	9.80	8.68	16.4	12.8	21.1	18.8	4.68	14.4	4.32	2.52	4.50
	27	59.3	6.54	8.16	16.4	18.0	21.9	11.8	4.24	19.0	4.54	4.48	5.62
	28	58.6	10.2	7.80	16.7	13.7	19.8	13.0	5.22	28.0	5.00	3.54	9.96
	29	22.6		11.5	12.1	21.7	26.9	19.1	4.20	30.2	4.30	2.56	4.40
	30	83.4		16.9	6.16	16.6	24.2	19.1	9.34	30.8	2.08	1.96	8.84
	31	15.5		16.1		14.6		23.1	2.42		10.2		6.58
	dan	18.	27.	18.	11.	3.	17.	27.	31.	20.	20.	7.	15.
	nk	1.00	6.54	3.46	3.08	6.90	8.96	11.8	2.42	2.04	2.08	1.72	1.62
1994	sk	24.0	23.7	8.11	17.6	13.1	17.8	21.4	10.3	8.95	5.70	8.77	6.91
	vk	97.5	57.7	16.9	39.3	21.7	26.9	35.0	19.6	30.8	24.5	35.1	23.2
	dan	25.	7.	30.	20.	29.	29.	17.	16.	30.	7.	15.	7.

	nk	datum	snk	sk	svk	vk	datum
1994	1.00	18. 1.	4.30	13.8	35.7	97.5	25. 1.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5150

Pocetak rada 1988.
Kota "0" 88.57 mnm
P.S. 37142.00 km2

Stanica: D.MIHOLJAC c.s.
Vodotok: DRAVA
Pocetak mjerenja nanosa 1993.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1995. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	9.22	12.3	11.2	2.84	16.8	5.62	18.4	7.00	2.92	2.50	4.54	5.06
2	7.78	7.66	15.0	4.38	13.3	5.78	29.0	.540	3.44	4.26	68.4	9.76
3	16.0	8.62	20.0	8.16	12.2	7.40	4.84	2.64	3.48	3.72	24.4	8.94
4	8.84	10.8	35.3	9.04	8.78	10.7	5.12	22.3	3.34	5.14	1.68	13.9
5	27.4	18.3	26.8	8.66	7.12	6.04	8.22	5.20	3.34	1.98	17.3	16.1
6	30.0	4.40	23.7	5.90	9.88	4.62	14.0	6.60	6.38	2.26	2.08	2.68
7	28.9	1.88	33.5	6.20	10.3	5.46	5.24	5.46	5.20	3.02	2.78	3.50
8	15.3	3.34	26.7	9.72	8.34	12.0	4.94	9.84	5.82	3.06	2.12	7.00
9	17.6	1.70	28.0	7.24	10.4	15.0	5.00	5.42	.880	3.52	7.78	9.50
10	23.1	14.7	32.2	7.58	9.32	20.4	7.36	3.80	2.44	3.48	1.60	5.00
11	29.6	12.7	39.7	7.46	27.9	26.3	10.1	2.82	2.28	2.62	1.44	8.50
12	8.98	19.2	12.6	11.5	3.06	29.9	13.2	3.60	4.44	2.52	.820	2.16
13	9.90	5.44	16.8	9.48	3.54	7.40	14.3	10.4	2.56	2.86	1.60	2.90
14	13.4	3.58	24.1	7.74	5.68	8.38	17.9	8.32	2.72	3.68	1.84	4.18
15	2.44	5.56	28.9	5.40	8.90	13.2	7.44	6.98	1.28	2.08	1.52	5.32
16	2.54	1.30	8.24	8.60	29.7	16.4	7.34	6.36	1.96	6.98	1.86	1.72
17	6.74	1.36	8.74	4.70	4.54	10.4	7.48	8.10	2.28	2.76	3.18	2.40
18	11.1	1.88	10.4	6.06	13.7	11.8	10.2	2.20	2.20	2.50	6.24	2.24
19	4.14	2.32	11.6	7.42	16.2	13.3	3.24	2.42	2.12	2.70	6.66	1.78
20	8.78	1.94	3.46	11.8	6.74	17.7	4.04	2.64	12.0	2.74	5.80	2.10
21	11.2	1.62	2.34	4.16	3.48	12.8	6.44	3.44	8.30	4.66	7.44	2.44
22	9.40	1.36	3.04	2.72	6.38	8.66	11.0	18.3	13.0	3.28	30.9	3.28
23	7.94	3.94	4.46	5.20	11.4	12.1	4.56	3.12	12.0	4.96	2.86	2.22
24	4.44	2.16	1.66	8.04	6.10	11.3	3.88	5.68	2.78	6.62	1.82	2.68
25	6.96	1.60	1.62	8.04	6.10	8.08	5.60	6.04	2.74	2.54	2.66	2.34
26	9.88	2.86	6.54	8.52	8.74	8.86	6.20	9.30	2.22	2.74	3.56	1.84
27	1.34	3.58	12.9	9.06	8.50	10.5	4.42	6.10	4.16	2.56	7.36	2.38
28	3.10	9.98	3.00	18.4	3.36	17.8	3.70	2.36	4.18	4.48	1.50	8.72
29	19.4		5.34	9.56	4.12	17.5	3.38	5.72	3.52	7.60	4.56	7.36
30	11.2		7.60	3.06	4.46	17.7	4.54	3.16	7.28	5.42	7.18	9.26
31	5.02		13.6		8.86		6.90	5.48		3.76		10.3
dan	27.	16.	25.	22.	12.	6.	19.	2.	9.	5.	12.	16.
nk	1.34	1.30	1.62	2.72	3.06	4.62	3.24	.540	.880	1.98	.820	1.72
1995 sk	12.0	5.93	15.5	7.55	9.61	12.4	8.32	6.17	4.38	3.65	7.78	5.41
vk	30.0	19.2	39.7	18.4	29.7	29.9	29.0	22.3	13.0	7.60	68.4	16.1
dan	6.	12.	11.	28.	16.	12.	2.	4.	22.	29.	2.	5.

	nk	datum	snk	sk	svk	vk	datum
1995	.540	2. 8.	1.99	8.24	26.9	68.4	2.11.

DRZAVNI HMZ REPUBLIKE HRVATSKE
HIDROLOSKI SEKTOR

Sifra stanice 5150

Pocetak rada 1988.
Kota "0" 88.57 mnm
P.S. 37142.00 km2

Stanica: D.MIHOLJAC c.s.
Vodotok: DRAVA
Pocetak mjerenja nanosa 1993.

KONCENTRACIJE SUSPENDIRANOG NANOSA (gr/m3) ZA 1996. GODINU

dan	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1	5.02	6.68	5.94	10.8	11.5	9.74	8.12	3.24	16.5	3.44	9.32	32.8
2	2.50	7.10	6.30	10.0	35.1	13.4	5.98	2.28	5.24	2.76	18.6	18.7
3	3.56	2.66	3.84	28.7	9.42	16.4	5.78	2.72	32.8	1.64	23.9	6.04
4	2.70	5.76	3.50	7.76	8.18	16.0	9.46	2.28	32.8	4.82	22.2	7.62
5	4.56	3.18	4.90	8.38	7.30	16.7	7.08	2.16	37.1	4.34	23.2	7.98
6	6.98	3.14	4.74	8.14	7.00	10.2	18.1	1.36	46.4	7.94	2.74	12.2
7	9.16	4.58	5.52	13.4	9.12	11.3	18.1	4.36	32.6	9.28	4.30	9.50
8	8.84	3.86	5.34	27.5	9.98	11.0	23.8	8.58	39.6	10.3	4.28	9.68
9	17.5	6.12	9.50	23.7	10.1	10.1	18.5	2.80	41.1	12.7	4.36	7.32
10	4.24	5.74	6.02	22.8	10.4	12.6	16.2	4.12	33.6	10.1	12.0	20.4
11	4.66	26.0	32.6	17.6	5.38	6.52	17.8	3.00	14.3	15.0	19.6	34.2
12	4.56	3.04	6.80	31.5	4.78	7.00	19.6	4.36	14.1	10.2	3.06	29.6
13	3.68	4.18	7.54	31.1	7.70	7.12	16.8	5.62	10.2	8.92	2.06	53.4
14	9.66	4.80	7.48	29.7	7.24	8.34	17.5	4.94	16.5	9.90	5.22	7.68
15	12.4	4.46	7.78	35.5	8.32	9.36	6.48	5.16	12.5	3.62	6.04	8.56
16	11.2	7.90	5.40	9.92	6.50	5.34	8.16	6.06	8.68	2.68	14.0	2.68
17	14.9	12.0	3.94	8.56	7.64	9.90	7.36	17.5	7.54	4.46	14.6	3.32
18	5.60	11.8	4.02	10.1	9.18	9.00	10.7	16.7	8.52	5.94	20.8	5.04
19	4.76	9.84	6.72	10.3	8.68	7.78	12.6	18.0	9.80	5.22	5.02	6.20
20	4.38	14.6	3.70	10.7	7.78	4.66	12.8	17.9	15.3	6.88	7.56	12.9
21	4.82	5.38	40.4	9.56	6.40	6.04	11.3	11.8	17.7	10.8	8.34	10.7
22	3.14	5.62	3.22	7.42	9.26	7.00	12.6	22.3	17.2	10.4	8.84	13.0
23	3.18	6.18	2.76	11.4	10.2	6.24	18.8	21.7	12.4	8.82	9.92	1.64
24	3.44	5.32	3.76	9.26	11.4	6.62	18.8	16.0	3.42	10.8	18.2	5.38
25	11.0	6.50	4.20	15.3	9.90	7.20	20.2	5.38	4.34	13.1	21.3	5.88
26	7.34	4.28	6.12	8.38	9.52	7.42	16.7	3.84	5.06	5.08	7.48	1.80
27	6.94	2.46	5.86	7.78	9.94	9.38	3.24	3.92	3.40	8.90	9.70	4.40
28	6.20	5.14	4.78	2.64	7.02	5.06	3.24	3.46	3.70	11.5	3.62	5.46
29	5.70	3.04	6.28	9.32	7.42	5.12	4.32	6.68	5.16	9.48	11.1	9.72
30	6.08		11.9	11.4	6.48	6.48	4.32	11.8	3.88	5.08	21.4	10.4
31	4.02		13.6		6.66		3.36	13.0		5.36		1.62
dan	2.	27.	23.	28.	12.	20.	27.	6.	27.	3.	13.	31.
nk	2.50	2.46	2.76	2.64	4.78	4.66	3.24	1.36	3.40	1.64	2.06	1.62
1996 sk	6.54	6.60	7.89	15.0	9.21	8.97	12.2	8.16	17.0	7.72	11.4	11.8
vk	17.5	26.0	40.4	35.5	35.1	16.7	23.8	22.3	46.4	15.0	23.9	53.4
dan	9.	11.	21.	15.	2.	5.	8.	22.	6.	11.	3.	13.

	nk	datum	snk	sk	svk	vk	datum
1996	1.36	6. 8.	2.76	10.2	29.7	53.4	13.12.

Part D

Water Environmental Engineering

Table of Contents

1. Summary ... 399
  1.1. National Targets and Instruments for Water Pollution Reduction ... 399
  1.2. Measures for Reduction of Water Pollution ... 401
  1.3. Expected Regional and Transboundary Effects of Actual and Planned Measures ... 401
2. National Targets and Instruments for Reduction of Water Pollution ... 403
  2.1. Actual State of and Foreseeable Trends in Water Management With Respect to Water Pollution Control ... 403
  2.2. National Targets for Water Pollution Reduction ... 403
  2.3. Technical Regulations and Guidelines ... 406
  2.4. Expected Impacts of EU-Directives to Water Pollution Control ... 407
  2.5. Law and Practice on Water Pollution Control ... 408
3. Actual and Planned Projects and Policy Measures for Reduction of Water Pollution ... 411
  3.1. Reduction of Water Pollution from Municipalities ... 411
  3.2. Reduction of Water Pollution from Agriculture ... 417
  3.3. Reduction of Water Pollution from Industries ... 417
  3.4. Reduction of Water Pollution from Dump Sites ... 419
  3.5. Special Policy Measures ... 419
4. Expected Effects of Current and Planned Projects and Policy Measures ... 421
  4.1. Reduction of Nutrient Emissions ... 421
  4.2. Hazardous Substances ... 421
  4.3. Microbiological Contamination ... 421
  4.4. Adverse Environmental Effects ... 422
5. Cost Estimation of Programs and Projects ... 423
6. Planning and Implementing Capacities ... 425
  6.1. Planning Capacities ... 425
  6.2. Implementing Capacities ... 425

Annexes

1. **Projects Recommended for the Reduction of Water Pollution**
2. **The Ongoing and Planned Projects**

List of Tables

Table 1.1.	**The summary of the number of recommended projects**
Table 2.1.	**The comparison between EU-Directives and corresponding Croatian’s legislative**
Table 3.1.	**The number of recommended projects for reduction of water pollution from municipalities**
Table 3.2.	**The summary of recommended projects for municipal hot spots**
Table 3.3.	**The summary of recommended projects for agricultural hot spots**
Table 3.3.	**The number of recommended projects for reduction of water pollution from industry**
Table 3.4.	**The summary of recommended projects for industrial hot spots**
Table 3.5.	**The number of recommended projects for reduction of water pollution from dumpsites**
Table 3.6.	**The summary of recommended projects for dumpsites**
Table 4.1.	**The expected effect of measures for reduction of BOD and COD on municipal hot spots**
Table 4.2.	**The expected effect of measures for reduction of BOD and COD on industrial hot spots**
Table 5.1.	**The summary of relevant investment costs of recommended projects**

List of Abbreviations
on Water Environmental Engineering

m^3/s	cubic meters per second
t/y	tones per year
p.e.	population equivalent
BOD	biochemical oxygen demand
COD	chemical oxygen demand

Glossary
on Water Environmental Engineering

Aquifers	Permeable geological formation of water-bearing rock, sand, soil or gravel which can supply water in usable quantities, for example to wells and springs
Biochemical Oxygen Demand	A measure of the quantity of oxygen used in the biochemical oxidation of carbonaceous and nitrogenous compounds in a specified time, at a specified temperature and under specified conditions
Chemical Oxygen Demand	A measure of the quantity of oxygen used in the chemical oxidation of compounds in a specified time, at a specified temperature and under specified conditions
Denitrification	The process whereby nitrate is successively reduced to nitrogen, facilitated by bacteria in the presence of a carbon source and other nutrients
Discharge	The flow rate of a fluid at a given instant expressed as volume per unit of time
Emission limit	A numerical limit set on the emissions of a substance from a source
Goals	Used as a synonym for objectives or aims
Hazardous substances	Substances which have adverse impacts on living organisms, e.g. toxic, carcinogenic, mutagenic, harmful for the environment
Hot Spot	A local land area, stretch of surface water or specific aquifers which is subject to excessive pollution and which requires specific action to prevent or reduce the degradation caused
Integrated water management	A participatory planning, decision making and implementation process that takes into account the specific water quality and quantity requirements of all users and uses
Landfill	Disposal of solid waste materials at land based sites
Penalty	A punishment (e.g. sum of money) for the violation of a law, rule of contract
Polluter Pays Principle	Principle that the polluter should carry the costs of the measures required to diminish or clean up pollution
Pollution	The discharge, directly or indirectly, of compounds from sources into the environment in such quantity as to pose risks to human health, living resources or to aquatic ecosystems, damage to amenities, or interference with other legitimate uses of water

Population equivalent	Used as a measure of water pollution load based on figures of an average ‘pollution production’ of one person in one day. Often-used figures are: 60 g per day BOD5; total nitrogen 12 g per day and total phosphorous 2,5 g per day
Primary treatment	A one-step treatment process of urban wastewater by a physical or chemical process involving settlement of suspended solids
Secondary treatment	Treatment of wastewater by a process generally involving biological treatment with a secondary settlement or other process
Sustainable development	The use of resources in a such a way that the possible needs of future generations are not seriously affected
Tributary	A river which ultimately flows into the Danube
Water quality standard	The requirements which must be fulfilled by a given water resource (surface water or groundwater)

1. Summary

1.1. National Targets and Instruments for Water Pollution Reduction

The water protection from pollution in Croatia is carried out in order to protect the environment, lives and health of people, and to provide the use of water for different purposes. The main statements about the water protection are given in Water Act (1995) which represents the main document of water management in Croatia. The water pollution control is conducted through monitoring of water quality and the sources of pollution. Furthermore, the actions such as prevention, restriction and even prohibition of activities which may have the negative impact on water quality and the state of environment also play important role to protect and improve the quality of water and environment itself.

The water protection in Croatia is conducted according to the State Plan for Water Protection from Pollution. The main aim of the State Plan for Water Protection from Pollution is to ensure the water management based on the principle of integrality of water system and on the principle of sustainable development. Other defined principles in this Plan are the principle of prevention, the principle of monitoring of pollution, the principle of use of the best suitable technologies, and the principle "polluters pay". Finally, the document emphasizes the need for constant exchange of information about the water quality with neighboring countries.

The State Plan describes the measures for water pollution control, the targets of the measures and schedule for implementation of these measures.

The targets of the measures are the following:

- preservation of the water resources which are still clean, as an upstream parts of rivers and as a groundwater. These necessary resources belong to the first category of water quality according to the existing categorization of water;
- stopping the further degradation of water quality, which can be achieved through the implementation of the measures in medium and long-term periods;
- restoration or removal of the sources of pollution are priorities as on existing or planned drinking water sources, as on other places where the water is used for different purposes (industry, agriculture, fishery, recreation, etc.). On these spots water is ranked to the second or third category according to the categorization standards.
- strengthening of the monitoring over the sources of pollution and possible accidents is prior task in short-term period. By strengthening the monitoring it will be possible to make the database for water pollution control and accidental emergency warning system.

Measures for water protection from pollution can be divided into administrative measures, and measures for conservation of water quality.

The administrative measures are:

- making the water management plans for water basins and catchment areas which consist of estimation of critical amount of pollution together with solutions for reduction of pollution;
- changing and improving the existing water management licenses for discharge of wastewater in order to achieve the defined goals;
- permanent supervision of legislation for water pollution control and putting them into accordance with the defined measures for water pollution reduction

- making the technical documentation for conduction of the measures for water protection from pollution;
- restoring the information system for the data about the state of environment.

The measures for conservation of water quality are:

- ban of building on the areas where direct threat to the quality of water exists, especially on significant places where surface water and groundwater is used for water supply;
- restriction and prohibition of building on specially protected areas and valuable aquatic ecosystems (national parks, parks of nature, etc.)
- restriction on small watercourses and carst regions where wastewater discharges can have a negative impacts on water quality even if the application of the measures for water pollution control takes place;
- ban of discharge of hazardous substances which are defined in Ordinance on maximum allowed concentrations of hazardous substances in water
- increase of the capacities of recipients by building appropriate facilities

The measures for reduction and stopping of water pollution are:

- planning, reconstruction and building the sewage systems;
- planning, reconstruction and building the wastewater treatment plants;
- reduction of pollution from different technological processes and adaptation of systems in accordance to prescribed maximum allowed concentrations;
- replacement of the technologies where hazardous substances exist with better and cleaner technologies;
- introduction of the measures for water pollution reduction from agriculture together wit acceptable use of fertilizers;
- arrangement an erosion areas and stopping an erosion processes by building the regulation facilities and by forestation;
- building of an appropriate dump sites;
- restoration of existing dump sites, specially on the places where the treat for valuable groundwater and surface water resources exist (potable water);
- restoration of sources of pollution on seacoast that cause the limited use of sea for various purposes (fishery, recreation, and tourism).

National targets and instruments for reduction of water pollution are defined by Water Act (1995) and by numerous other technical regulations.

Several documents issued by authorities serve as an instrument for water pollution reduction. These documents are water management conditions, water management approvals, water management permits and permit ordinances.

They are issued either by the Water State Directorate, or Croatian Waters (the firm responsible for carrying out water management activities), or county offices in accordance with Croatian Waters. The main aim of these water-related documents is to secure the uniform water regime and to establish water management in accordance with the Water Act. Therefore, these administrative arrangements must be realized when some facilities exist which can have an impact on water regime. More sophisticated cases require environmental impact assessment.

The recently brought Ordinance about hazardous substances in waters may also be considered as an instrument for water pollution reduction. In this document the maximum concentration of hazardous substances that can be found in waters are defined and these concentrations are in accordance with EU norms.

1.2. Measures for Reduction of Water Pollution

There are 64 projects recommended as measures for reduction of water pollution. Two of them are non-structural projects, whereas all others are structural projects. The total investment costs are estimated at cca. 664 millions US$. The summary of number of recommended projects taking into account the type of projects and main river basins in Croatia is given in table below:

Table 1.1. Summary of the number of recommended projects

River Basin	Municipal hot spots		Industrial hot spots		Agricultural hot spots		Dump sites	
	Ongoing	Planned	Ongoing	Planned	Ongoing	Planned	Ongoing	Planned
Sava	6	17	2	2	2	1	2	5
Drava	4	14	-	2	-	-	-	7
Total	10	31	2	4	2	1	2	12
	41		6		3		14	

1.3. Expected Regional and Transboundary Effects of Actual and Planned Measures

Due to the lack of data in project files it is impossible to quantify exactly the expected amount of reduction of nutrient emissions, hazardous substances, microbiological contamination and adverse environmental effects of recommended projects. Moreover, the difficulty in estimation of expected effects is also due to lack of such analysis in project documentation. Nevertheless, it is important to emphasize that all recommended projects in case of their realization will be of great importance for the improvement of water quality and environment itself.

2. National Targets and Instruments for Reduction of Water Pollution

2.1. Actual State of and Foreseeable Trends in Water Management With Respect to Water Pollution Control

Nowadays, the water management in Croatia is put into accordance with the new economic conditions such as concessions and market-oriented economy as well as with financial possibilities (war damages, privatization, recession, etc.). The plans for realization of water management activities are still prepared in old manner because numerous legal acts are still in preparation. The lack of finances causes that only minor projects for water pollution reduction are carried out without any important effects on improvement of water quality. New State plan for Water Protection should regulate the activities on water protection on rational and more effective manner. Moreover, it is necessary to improve the monitoring of waters and wastewater and arrange these actions in accordance with international agreements and with ratified international conventions.

Generally, major problems of water management concerning water pollution reduction are:

1. the financial basis does not allow the full implementation of measures for water pollution reduction although the willingness and awareness in public opinion exist;
2. there are still numerous sewerage systems and wastewater treatment plants that have to be built;
3. inappropriate functioning of existing sewerage systems and wastewater treatment plants in many causes;
4. the lack of various minor legal acts where the definitions of measures and activities for water pollution control have to take place;
5. incorrect implementation of existing laws in practice;
6. the missing of research activities and qualitative studies as a basis for design;
7. the lack of unique database for polluters, treatment facilities and water quality.

The water pollution in the Danube River basin covered by the country is caused from the municipal and industrial point sources and agriculture and dumpsites diffuse sources. The inappropriate condition of the existing wastewater treatment plants and the lack of the treatment plants for some cities cause the deterioration of water quality from municipalities. The lack of pretreatment facilities causes the pollution of watercourses from industrial sources. The agricultural activity by inappropriate use of fertilizers also contributes to the water pollution. Finally, the inadequate dumpsites also affect the quality of the groundwater resources, as well as surface water quality.

2.2. National Targets for Water Pollution Reduction

The legislation concerning water pollution control has a long tradition in Republic of Croatia. The first act was the Water Rights Act, passed by the Parliament of Croatia, Slavonia and Dalmatia on December 31, 1891. Already in this document the water protection from pollution was present together with other issues of water management.

Nowadays the main document of water management in Croatia is the Water Act passed by the Parliament in 1995. This document defines the following issues: water management, protection from harmful effect of water, water protection from pollution, water use and utilization, conditions and methods of conducting water management activities, and other issues of importance for ensuring of uniform water regime.

The basic principles mentioned in the Water Act are the following:

1. Water is irreplaceable precondition for life and activity. It is the duty of all persons to protect carefully its quality, and use it sparingly and rationally under equal conditions determined by the law;
2. The water management is based on the principle of integrity of the water system and on the principle of sustainable development which meet the needs of the present generation without threatening the right and possibilities of future generation to meet their needs;
3. The territorial water management units are the water basins and catchment areas. The borders of existing administrative-territorial units (such as counties, etc.) cannot be obstacles for integrated water management in such areas;
4. In preparing and adopting of plans which are the basis of water management, the starting point is the obligation of integrated environmental protection and achieving of general and economic development of the Republic of Croatia;
5. For water use exceeding the limits of permissible general use, as well as for any deterioration of water quality, a compensation shall be paid in proportion to the benefit gained, or to the degree and extent of the impact on water quality;
6. The regulations defining the tasks and duties for investments in improvement of the water system shall also define the sources of financing.

The water protection from pollution is carried out in order to protect the environment, lives and health of people, and to provide the use of water for different purposes. The water pollution control is conducted through monitoring of water quality and through the sources of pollution. Furthermore, the actions such as prevention, restriction and even prohibition of activities which may have the negative impact on water quality and the state of environment also play important role to protect and improve the quality of water and environment itself.

The water protection in Croatia is conducted according to the State Plan for Water Protection from Pollution. This plan is brought in order to protect water ecosystems and it defines the following issues:

- monitoring of water quality and related research;
- the categorization of water;
- the measures for water protection from pollution;
- the measures in case of accidents;
- the plan for building a wastewater treatment plants and description of financing mechanism;
- description of duties and responsibilities of authorities.

The State Plan for Water Protection from Pollution emphasizes the obligation from international agreements such as the Danube River Protection Convention, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Mediterranean Action Plan, The Environmental Program for The Danube River Basin, etc. Furthermore, the obligations from bilateral agreements with neighboring countries are also defined in this document.

The main aim of the State Plan for Water Protection from Pollution is to ensure the water management based on the principle of integrity of the water system and on the principle of sustainable development. Other defined principles in this Plan are the principle of prevention, the principle of monitoring of pollution, the principle of use of the best suitable technologies, and the principle “polluters pay”. Finally, the document emphasizes the need for constant exchange of information about the water quality with neighboring countries.

The State Plan describes the measures for water pollution control, the targets of the measures and schedule for implementation of these measures.

The targets of the measures are the following:

- preservation of the water resources which are still clean, as an upstream parts of rivers and as a groundwater. These resources necessary belong to the first category of water quality according to the existing categorization of water;
- stopping the further degradation of water quality, which can be achieved through the implementation of the measures in medium and long-term periods;
- restoration or removals of the sources of pollution are priorities as on existing or planned drinking water sources, as on other places where the water is used for different purposes (industry, agriculture, fishery, recreation, etc.). On these spots water is ranked to the second or third category according to the categorization standards.
- strengthening of the monitoring over the sources of pollution and possible accidents is prior task in short-term period. By strengthening the monitoring it will be possible to make the database for water pollution control and accidental emergency warning system.

Measures for water protection from pollution can be divided into administrative measures, and measures for conservation of water quality.

The administrative measures are:

- making the water management plans for water basins and catchment areas which consist of estimation of critical amount of pollution together with solutions for reduction of pollution;
- changing and improving the existing water management licenses for discharge of wastewater in order to achieve the defined goals;
- permanent supervision of legislation for water pollution control and putting them into accordance with the defined measures for water pollution reduction
- making the technical documentation for conduction of the measures for water protection from pollution;
- restoring the information system for the data about the state of environment.

The measures for conservation of water quality are:

- ban of building on the areas where direct treat to the quality of water exists, specially on significant places where surface water and groundwater is used for water supply;
- restriction and prohibition of building on specially protected areas and valuable aquatic ecosystems (national parks, parks of nature, etc.)
- restriction on small watercourses and carst regions where wastewater discharges can have a negative impacts on water quality even if the application of the measures for water pollution control take place;
- ban of discharge of hazardous substances which are defined in Ordinance on maximum allowed concentrations of hazardous substances in water
- increase of the capacities of recipients by building appropriate facilities

The measures for reduction and stopping of water pollution are:

- planning, reconstruction and building the sewage systems;
- planning, reconstruction and building the wastewater treatment plants;
- reduction of pollution from different technological processes and adaptation of systems in accordance to prescribed maximum allowed concentrations;

- replacement of the technologies where hazardous substances exist with better and cleaner technologies;
- introduction of the measures for water pollution reduction from agriculture together wit acceptable use of fertilizers;
- arrangement an erosion areas and stopping erosion processes by building the regulation facilities and by forestation;
- building of appropriate dump sites;
- restoration of existing dump sites, specially on the places where the treat for valuable groundwater and surface water resources exist (potable water);
- restoration of sources of pollution on seacoast that cause the limited use of sea for various purposes (fishery, recreation, and tourism).

2.3. Technical Regulations and Guidelines

National targets and instruments for reduction of water pollution are defined by Water Act (1995) and by numerous other technical regulations. For instance, these documents are the Ordinance on Water Classification, which is brought in June 1998, as well as the Ordinance about Hazardous Substances in Waters. Furthermore, the State plan for Water Protection and other regional development plans also define the instrument and targets to meet water pollution reduction on national level. All these document are based on the standards for recipient, although the Water Act foresees the definition of effluent standards. Moreover, the several important technical regulations are still being prepared in order to achieve the criterion defined in EU directives for water quality.

Several documents issued by authorities serve as an instrument for water pollution reduction. These documents are water management conditions, water management approvals, water management permits and permit ordinances.

They are issued either by the Water State Directorate or Croatian Waters (the firm responsible for carrying out water management activities) or county offices in accordance with Croatian Waters. The main aim of these water-related documents is to secure the uniform water regime and to establish water management in accordance with the Water Act. Therefore, these administrative arrangements must be realized when some facilities exist which can have an impact on water regime. More sophisticated cases require the environmental impact assessments.

The water management terms determine the conditions to be met by the documentation for construction of new and reconstruction of existing structures, and for regional and detailed geological research works, as well as other works, which are not regarded as construction, that may permanently, periodically or temporarily affect the water regime.

The legal entity or physical person which has obtained the water management terms must, before the start of construction or other works, apply for the water management approval from the relevant body. The water management approval confirms that the documentation for construction or other works is prepared in accordance with the water management terms.

The water management permit regulates the permission for water use and defines the purpose, location, method, conditions and extent of water use and discharging of treated and untreated water, hazardous and other substances that may pollute or contaminate water. The water management permit is required for water use and discharging of wastewater in connection with industrial and other activities, and with other activities involving water intake and use and discharging of wastewater. The permit ordinance is a document issued along with the water management permit in order to adjust the behavior and activities of the permit holder with the conditions and responsibilities resulting therefrom.

The contents of these water management legal acts must be in accordance as with existing legislation and existing water management plans as with other relevant documentation. Furthermore the goals of this documents are to assure rational use of water, protection of existing or future sources of drinking water, and protection of surface water as well as groundwater from different kinds of pollution. Maximum emission limits for harmful and hazardous substances represent one of the main items defined in the documentation mentioned above. Maximum concentrations are defined according to the water quality of recipients as well as the capacity of the recipients.

Between other items, special attention is given to the definition of quantity of wastewater, and its quality. Moreover, the manner and time schedule for measurement of harmful substances is defined and the measures for avoiding the diverse effects on water quality are prescribed. The policy targets may be achieved and the standards for particular water quality of recipients could be obtained by using this legal instrument.

The recently brought Ordinance about hazardous substances in waters may also be considered as an instrument for water pollution reduction. In this document the maximum concentration of hazardous substances that can be found in waters are defined and these concentrations are in accordance with EU norms.

Technical regulation related to water quality standard for drinking water is defined by the Regulation of healthy conditions for drinking water issued in 1994. This document describes the maximum allowed concentrations of numerous substances in drinking water and the manner and time schedule for monitoring of its quality. The water quality standards for surface water is defined in the Ordinance on Water Classification where maximum allowed concentrations for each category of watercourses are prescribed. The EU directives are used as a water quality standard for recreation, whereas there are no particular standard for water, which is used for irrigation, although the FAO recommendations are usually accepted.

2.4. Expected Impacts of EU-Directives to Water Pollution Control

The main difference between the EU-Directives and existing legislation in Croatia is the lack of selective approach to the solutions of particular subjects of water pollution control in the Croatia's laws. The definition of maximum allowed dangerous substances in the country's legislative is usually introduced at once for the whole spectrum of emissions, whereas this subject in the EU-Directives is introduced within step by step approach. Furthermore, the big difference exists in the clear interpretation of technical definition of problems and the clear definitions of requirements. The local practice often neglects the methodology of measurement of water quality parameters and the control of the results, but this problem is partly solved by the introduction of the ordinance concerning the work of the authorized laboratories and by the introduction of the intercalibration of the results where positive effects are already present. Finally, Croatia's laws often define the more strict maximum allowed concentrations of parameters than the European Union, where the EU-Directives define the higher number of parameters.

The comparison between the EU-Directives and the Croatian's legislative is given in the following table:

Table 2.1. The comparison between EU-Directives and corresponding Croatian legislative

	EU-Directives	Corresponding Croatian's legislative
1	Council Decision of 6 March 1986 establishing a Community information system for the control and reduction of pollution caused by the spillage of hydrocarbons and other harmful substances	The State Plan of Water Protection from Pollution (AEWS)
2	Council Directive of 12 June 1986 on limit values and quality objectives for discharges of certain dangerous substances included in list I of the Annex to Directive 76/464/EEC	The Ordinance about the dangerous substances (1998)
3	Council Directive of 17 December 1979 of the protection of groundwater against pollution cased by certain dangerous substances	Ordinance on Water Classification and Ordinance about the Hazardous Substances in Waters
4	Council Directive of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States	The ISO Standards are taken as an Croatian's Standard
5	Council decision of 12 December 1977 establishing a common procedure for the exchange of information on quality of surface fresh water in the Community	The establishing of TNMN in the frame of the Convention for the Protection of River Danube
6	Council Directive of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community	The Ordinance about the dangerous substances (1998)
7	Council Directive of 16 June 1975 concerning the quality required of surface water intended for the abstraction of drinking water in the Member States	Ordinance on Water Classification
8	Council Directive of 21 May 1991 concerning urban wastewater treatment	The ordinance is being prepared according to the EU-Directive

2.5. Law and Practice on Water Pollution Control

The main documents concerning water pollution control are the following:

- The Water Act (1995);
- The Act of Financing of Water Management (1995);
- The State Plan of Water Protection from Pollution (will be brought in 1998);
- Ordinance on Water Classification (1998);

- Ordinance about the Hazardous Substances in Waters (1998);
- Directions on keeping of the evidence on the frequency of discharging into water of hazardous and harmful substances and the method of supplying the data to water management enterprises (1990);
- Regulations on conditions to be met by laboratories performing water quality analysis (1991);
- Regulations on issuing of water management documents (1996).

In order to carry out the water pollution control activities it is important to pass another legal acts where the standard for effluent will be defined. This obligation is defined in the Article 72 of the Water Act and where the maximum concentrations of particular parameters in wastewater from municipalities will be prescribed.

Moreover, the definition of maximum allowed concentrations in industrial wastewater will also contribute to the improvement of measures for water pollution reduction. It is important to emphasize that particular cities already have their own legislation where the standards of effluent is defined, but still the major act have to be brought which will define the effluent standards for whole country.

The licensing from the water environmental point of view is already presented because the water-related documentation is considered as an instrument for water pollution reduction.

The monitoring from the water environmental point of view is carried out by the State water management inspections and County water management inspections. These legal bodies take care of conduction of the Water Act and other relevant legislation in practice. They supervise the state of watercourses and other water bodies and functionality of water management facilities. Furthermore, by the inspections the use of water according to the law is controlled and the level of water pollution is estimated, as well as the definition of measures for reduction of water pollution. For instance, a water management inspector can forbid the undertaking of actions, which are not in accordance with relevant legislation and also can forbid the discharge of hazardous substances into water. Moreover, an inspector can order the undertaking of measures for treatment of wastewater and the restoration of existing damage. If serious threat for the life of people and environment exist, the inspections may order the immediate measures to be undertaken in oral form.

3. Actual and Planned Projects and Policy Measures for Reduction of Water Pollution

3.1. Reduction of Water Pollution from Municipalities

There are totally 42 projects recommended for the reduction of water pollution from municipalities, whereas 8 projects are considered as ongoing projects and 34 projects are considered as planned projects. The number of recommended projects related to the main river basins is given in the following table:

Table 3.1. The number of recommended projects for reduction of water pollution from municipalities

River basin	The number of recommended	
	Ongoing projects for municipalities	Planned projects for municipalities
Sava	6	17
Drava	4	14
Total	10	31
	41	

The summary of recommended projects for reduction of water pollution from municipalities is presented in Table 3. 2.

Table 3.2. Summary of recommended projects for municipal hot spots

PROJECT NUMBER	LOCATION (RIVER BASIN)	NAME & TYPE OF PROJECT	PROJECT STRATEGY & TARGETS	INVESTMENT COSTS	STATUS OF PROJECT
1	2	3	4	5	6
1	Sava	Sewerage system and wastewater treatment plant of Slavonski Brod	Upgrading of existing sewerage system and construction of wastewater treatment plant (80 000 p.e.) in order to improve the water quality of Glogovnica, Mrsunja and Sava river	50 000 000 US$	Planned project
2	Sava	Sewerage system and wastewater treatment plant of @upanja	Upgrading of existing sewerage system and construction of wastewater treatment plant (60 000 p.e.); Improvement of water quality of Sava river	11 000 000 US$	Planned project
3	Sava	Sewerage system and wastewater treatment plant of Kutina	Upgrading of existing sewerage system and finishing of wastewater treatment plant with total capacity of p.e.30 000 (second and third phase of the project); Improvement of water quality of Kutinica river	12 500 000 US$	Planned project
4	Sava	Municipal wastewater treatment plant of Bjelovar	Upgrading of existing wastewater treatment plant in order to protect river Bjelovarska	6 660 000 US$	Ongoing project
5	Sava	Sewerage system and wastewater treatment plant of Vinkovci	Extension of sewerage system and construction of wastewater treatment plant (capacity of p.e. 70 000)	12 000 000 US$	Ongoing project
6	Sava	Municipal wastewater treatment plant of Velika	The building of wastewater treatment plant with capacity of 5 000 p.e. in order to reach prescribed category of Velièanka river	1 000 000 US$	Ongoing project
7	Sava	Sewerage system and wastewater treatment plant of towns Veliki Zdenci, Mali Zdenci and Grubi {no Polje and industry “Zdenka”	Reconstruction of existing wastewater treatment plant of industry “Zdenka” after which the treatment of wastewater from Veliki Zdenci, Mali Zdenci and Grubi {no Polje will be possible (capacity 14 000 p.e.)	6 213 000 US$	Planned project

1	2	3	4	5	6
8	Sava	Sewerage system and wastewater treatment plant of Daruvar	Reconstruction of sewerage system and wastewater treatment plant of Daruvar in order to finish the treatment the municipal wastewater of Daruvar and protect the Toplica river	938 000 US$	Planned project
9	Sava	Sewerage system and wastewater treatment plant of Gare {nica	Finishing the building of sewerage system and reconstruction of wastewater treatment plant (12 000 p.e.) in order to protect Ilova river	2 350 000 US$	Ongoing project
10	Sava	Sewerage system and wastewater treatment plant of Pakrac and Lipik	Upgrading of existing wastewater treatment plant (biological treatment) with capacity of 10 000 p.e. in order to improve the water quality of Pakra river and to enable the use of water for local fish ponds	1 650 000 US$	Planned project
11	Sava	Sewerage system and wastewater treatment plant of Ogulin	Upgrading of existing sewerage system and construction of wastewater treatment plant in order to protect the potable groundwater reserves in sensitive carst region	3 350 000 US$	Planned project
12	Sava	Sewerage system and wastewater treatment plant of the National Park Plitvice Lakes	The building of wastewater treatment plant (capacity 20 000 p.e.) in order to protect water resources of the National Park Plitvice Lakes, groundwater in carst and river Korana (first category of quality)	16 000 000 US$	Planned project
13	Sava	Sewerage system and wastewater treatment plant of Sisak	Upgrading of sewerage system and construction of municipal wastewater treatment plant (capacity 90 000 p.e.) with aim to improve water quality of rivers Sava, Kupa and Odra	60 000 000 US$	Planned project
14	Sava	Sewerage system and wastewater treatment plant of towns Karlovac and Duga Resa	Extension of existing sewerage systems, connection of both systems of Karlovac and Duga Resa and building of wastewater treatment plant in order to stop further degradation of water quality of rivers Kupa and Mrenica	50 000 000 US$	Ongoing project

1	2	3	4	5	6
15	Sava	Sewerage system and wastewater treatment plant of Petrinja	The construction of wastewater treatment plant (mechanical - biological treatment) with capacity of 50 000 ES in order to protect the rivers Kupa and Petrinjica	31 000 000 US$	Planned project
16	Sava	The central wastewater treatment plant for region of towns Zabok-Orosavlje-Donja Stubica-Gornja Stubica	Construction of central wastewater treatment plant of capacity of 50 000 p.e. in order to reach the appropriate category of river Krapina (second category)	27 300 000 US$	Planned project
17	Sava	Wastewater treatment plant of Samobor	Reconstruction of existing wastewater treatment plant in order to decrease the pollution of river Sava	-	Planned project
18	Sava	Wastewater treatment plant of Sesvete – east	Mechanical – biological treatment (30 000 p.e.)of municipal and industrial wastewater for a part of Sesvete	-	Planned project
19	Sava	Wastewater treatment plant of Zagreb	Construction of central wastewater treatment plant in order to improve the quality of river Sava	256 000 000 US$	Planned project
20	Sava	Wastewater treatment plant of Sesvete – south-east	Mechanical – biological treatment (30 000 p.e.)of municipal and industrial wastewater for a part of Sesvete	-	Planned project
21	Sava	Wastewater treatment plant of Zaprešić	Construction of central wastewater treatment plant	-	Planned project
22	Sava	Wastewater treatment plant of Velika Gorica	Reconstruction of equipment for mechanical treatment with capacity of 12 000 p.e.	2 200 000 US$	Ongoing project
23	Sava	Wastewater treatment plant of Krašić	The construction of wastewater treatment plant (4150 p.e.) in order to protect the river Kupčina	552 000 US$	Planned project
24	Drava	Wastewater treatment plant of Našice	The construction of the mechanical part (I phase) of the municipal wastewater treatment plant in order to protect the river Našička rijeka	1 100 000 US$	Ongoing project

1	2	3	4	5	6
25	Drava	The general solution of the sewerage system of Osijek	The solution of sewerage system by constructing the south sewerage collector which will bring municipal and industrial wastewater to the location for future wastewater treatment plant of city of Osijek	5 630 000 US$	Ongoing project
26	Drava	The treatment of wastewater of Đurđenovac	The construction of wastewater treatment plant	2 960 000 US$	Planned project
27	Drava	The sewerage system of Đurđenovac	Upgrading of existing sewerage system by enlarging the sewerage system to 11 nearby towns and villages	4 861 000 US$	Planned project
28	Drava	Sewerage system and wastewater treatment plant of Belišće	Upgrading of existing sewerage system and reconstruction of wastewater treatment plant (war damages)	4 800 000 US$	Planned project
29	Drava	Wastewater treatment plant of Donji Miholjac	Finishing of mechanical part of municipal wastewater treatment plant and building of part for biological treatment and sludge	-	Planned project
30	Drava	Wastewater treatment plant of Orahovica	Construction of municipal wastewater treatment plant in order to protect pollution of river Vučica	1 100 000 US$	Planned project
31	Drava	Sewerage system of Bizovac	The drainage of wastewater of Bizovac by sewerage network to the location of future wastewater treatment plant in order to improve tourism (Bizovac spa)	1 230 000 US$	Planned project
32	Drava	Wastewater treatment plant of Bizovac	Construction of wastewater treatment plant in order to protect pollution of river Karašica and Drava (thermal and domestic wastewater)	4 125 000 US$	Planned project
33	Drava	Sewerage system of Čepin	Construction of sewerage system (10 000 meters of sewerage collector and 40 000 meters of secondary network)	11 732 000 US$	Planned project

1	2	3	4	5	6
34	Drava	Retention basin on wastewater treatment plant of Virovitica	Acceptance of highly polluted water during intensive storms and further treatment on existing wastewater treatment plant	1 770 000 US$	Ongoing project
35	Drava	The sewerage system and wastewater treatment plant of Ilok	Upgrading the existing sewerage system and construction of wastewater treatment plant	31 130 000 US$	Planned project
36	Drava	The sewerage system and wastewater treatment plant of Slatina	Construction of main collector and wastewater treatment plant in order to stop the spilling of wastewater in one part of town Slatina	3 675 000 US$	Planned project
37	Drava	Wastewater treatment plant of Čakovec and nearby towns and villages	The construction of wastewater treatment plant in order to stop pollution of river Trnava	7 316 000 US$	Ongoing project
38	Drava	Wastewater treatment plant of Novi Marof	The construction of wastewater treatment plant in order to stop pollution of river Bednja	2 335 000 US$	Planned project
39	Drava	Wastewater treatment plant of Ivanec	The construction of wastewater treatment plant in order to stop pollution of river Bednja	950 000 US$	Planned project
40	Drava	Wastewater treatment plant of Koprivnica	The construction of wastewater treatment plant (101 000 p.e.) in order to stop pollution of river Bistra and river Drava	10 840 000 US$	Planned project
41	Drava	The sewerage system and wastewater treatment plant of Prelog	Upgrading the existing sewerage system and construction of wastewater treatment plant	7 783 000 US$	Planned project

3.2. Reduction of Water Pollution from Agriculture

There are 3 projects recommended for the reduction of water pollution from agriculture. The summary of recommended projects is given in the following table:

Table 3.3. Summary of Recommended Projects for Agricultural Hot Spots

Project Number	Location (River Basin)	Name & Type of Project	Project Strategy & Targets	Investment Costs	Status of Project
42	Sava	The sewerage system and waste water treatment of the farm "Dubravice d.d."	Reconstruction of sewerage system and stabilization of sludge	-	Planned project
43	Sava	Erosion and sustainable soil management for middle Croatia region (nonstructural project)	Definition of most appropriate manner for land use in agricultural production in order to define influence of different land uses on aquatic ecosystems and drinking water	72 000 US$	Ongoing project
44	Sava	The influence of increased quatity of mineralised nitrogen on its rinse and growth of plants (nonstructural project)	Definition of optimal use of nitrogen mineralised fertilisers in agricultural production in order to stop water pollution	32 000 US$	Ongoing project

3.3. Reduction of Water Pollution from Industries

There are totally 5 projects recommended for the reduction of water pollution from industries, whereas 1 project is considered as an ongoing project and 4 projects are considered as planned projects. The number of recommended projects related to the main river basins is given in the following table:

Table 3.4. The number of recommended projects for reduction of water pollution from industry

River basin	The number of recommended	
	Ongoing projects for industries	Planned projects for industries
Sava	2	2
Drava	-	2
Total	2	4
	6	

The summary of recommended projects for reduction of water pollution from industries is presented in table 3.5.

Table 3.5. Summary of recommended projects for industrial hot spots

PROJECT NUMBER	LOCATION (RIVER BASIN)	NAME & TYPE OF PROJECT	PROJECT STRATEGY & TARGETS	INVESTMENT COSTS	STATUS OF PROJECT
45	Sava	Treatment of waste water of meat factory PIK "Vrbovec"	Upgrading of local waste water treatment plant in order to stop heavy organic pollution of river Luka	-	Planned project
46	Sava	Treatment of waste water of meat factory "Gavrilović d.o.o." Petrinja (I phase)	Reconstruction of factory sewerage system and existing waste water treatment plant in order to reduce the pollution of river Kupa	343 000 US$	Ongoing project
47	Sava	Waste water treatment plant of "Agroproteinka d.d."	The characteristic treatment of waste water by mechanical and biological treatment in order to improve the water quality of Sava river	-	Planned project
48	Sava	The building of the system for the collection and treatment of chemical industry "Petrokemija" d.d. Kutina	The reduction of waste water quantity and the reduction of pollution	953 000 US$	Ongoing project
49	Drava	Treatment of waste water of food factory "Kvasac-Podravka d.d." Koprivnica	Reconstruction of existing waste water treatment plant in order to meet water quality standards defined in water management permit	225 000 US$	Planned project
50	Drava	Treatment of waste water of industrial area Danica of Koprivnica	The construction of waste water treatment plant in order to reduce the load on municipal waste water treatment plant of Koprivnica	4 000 000 US$	Planned project

3.4. Reduction of Water Pollution from Dumpsites

There are totally 9 projects recommended for the reduction of water pollution from dumpsites, whereas 2 projects are considered as ongoing projects and 7 projects are considered as planned projects. The number of recommended projects related to the main river basins is given in the following table:

Table 3.6. The number of recommended projects for reduction of water pollution from dumpsites

River basin	The number of recommended	
	Ongoing projects for dumpsites	Planned projects for dumpsites
Sava	2	5
Drava	-	7
Total	2	12
	14	

The summary of recommended projects for reduction of water pollution from dumpsites is presented in Table 3.7.

3.5. Special policy measures

In order to reduce the water pollution the further improvement of legislation and technical regulation have to be achieved in order to improve the reduction of water pollution. Moreover, the taxes as steering instruments to reduce emissions of nutrients in surface and ground water exist according to the principle “polluters pay”. The increase of prices for pollution have to be met, because it is still cheaper for polluters to pay the taxes than to build facilities for treatment of wastewater.

Table 3.7. Summary of recommended projects for reduction of water pollution from dumpsites

PROJECT NUMBER	LOCATION (RIVER BASIN)	NAME & TYPE OF PROJECT	PROJECT STRATEGY & TARGETS	INVESTMENT COSTS	STATUS OF PROJECT
51	Sava	Rehabilitation of municipal dumpsite of Sisak	Step by step approach up to 2002 to achieve final rehabilitation of dumpsite	6 154 000 US$	Ongoing project
52	Sava	Municipal dumpsite of Bjelovar	The building of appropriate municipal dumpsite to solve the problem of solid waste for longer period (I phase)	2 235 000 US$	Ongoing project
53	Sava	Municipal dumpsite “Grginac” of city of Bjelovar	The remedy of the dumpsite “Grginac”	935 000 US$	Planned project
54	Sava	Municipal dumpsite of Daruvar	Rehabilitation of existing dumpsite	1 200 000 US$	Planned project
55	Sava	Municipal dumpsite of Nova Gradiška	Solution of dumpsite for solid waste on organized and controlled manner	95 000 US$	Planned project
56	Sava	Municipal dumpsite of Oriovac	Construction of dumpsite with appropriated facilities	44 000 US$	Planned project
57	Sava	The dumpsite of Požeška kotlina region	Solution for deposition of solid waste for 2 towns and 6 municipalities	1 557 000 US$	Planned project
58	Drava	Municipal dumpsite “Pustošije” (Čakovec)	Construction of municipal dumpsite for whole Međimurska region	-	Planned project
59	Drava	Municipal dumpsite of Slatina	Rehabilitation of existing dumpsite and building of new site for municipal solid waste on other location	206 000 US$	Planned project
60	Drava	Municipal dumpsite of Orahovica	Rehabilitation of existing dumpsite	752 000 US$	Planned project
61	Drava	Regional landfill for Eastern Slavonia	Protection of water resources	27 000 000 US$	Planned project
62	Drava	Center for pre-processing and storage of dangerous waste for Osječko-baranjska County	Construction of facilities for pre-processing, storage and disposal of dangerous waste	1 770 000 US$	Planned project
63	Drava	Temporary landfill “Lončarica Velika”	Disposal of municipal waste of the city of Osijek	2 700 000 US$	Planned project
64	Drava	Municipal dumpsite of Osijek (lacality Sarvaš)	Improvement of sanitary condition of landfill Sarvaš	-	Planned project

4. Expected Effects of Current and Planned Projects and Policy Measures

4.1. Reduction of Nutrient Emissions

Generally, the recommended projects may have a minor effect on reduction of nutrient emissions taking into account phosphorus and nitrogen because all project mainly propose the mechanical-biological treatment (removal of suspended solids and reduction of BOD and COD) and not the removal of nutrients. As an exception may be considered the project file for industrial pretreatment of “Petrokemija d.d.” Kutina.

4.2. Hazardous Substances

An impact of proposed projects on minimization of contamination of hazardous substances might be characterized as a minor impact. The projects about the reduction of water pollution from the dumpsites could play a more important role on reduction of hazardous substances in surface and ground waters, but more detailed description of their impact does not exist. It is important to emphasize that for the most significant sources of hazardous substances in the Danube River basin some measures already took place and these sources are putted under control.

4.3. Microbiological contamination

The reduction of microbiological contamination may be achieved when the construction of the wastewater treatment plant for bigger cities (i.e. more than 50 000 p.e.) will be finished. According to the State Plan for Water Protection these facilities should be build in long term period up to 2005 (mechanical-biological treatment).

The analysis of the reduction of BOD and COD is carried out only for the hot spots due to the availability of water quality data only for these localities. The reduction of BOD and COD is calculated according to the proposed measures for the reduction of water pollution from municipal and industrial hot spots. The measures mainly include the mechanical-biological treatment of the wastewater. The expected effects on the reduction of BOD and COD on municipal and industrial hot spots are given in the following tables:

Table 4.1. The expected effects of measures on the reduction OF BOD and COD on municipal hot spots

	Level of treat.	without measures				Reduction		with measures	
		COD	BOD	N	P	COD	BOD	COD	BOD
		t/y	t/y	t/y	t/y	t/y	t/y	t/y	t/y
1	2	3	4	5	6	7	8	9	10
Sava									
Zagreb	II	38818	13048	126	257	29114	10438	9705	2610
Bjelovar	II/III	1673	930	103	16	1255	744	418	186
Karlovac	II	1570	2532	184	21	1178	2026	393	506
Sisak	II	1225	875	158	18	919	700	306	175
Slavonski	II	804	251	173	11	603	201	201	50
Total Sava		**44090**	**17636**	**744**	**323**	**33068**	**14109**	**11023**	**3527**

1	2	3	4	5	6	7	8	9	10
Drava									
Osijek	II	3562	257	237	69	2672	206	891	51
Varaždin	II	3559	1936	440	33	2669	1549	890	387
Belišće	II	3384	1728	89	8	2538	1382	846	346
Koprivnica	II	1075	755	54	9	806	604	269	151
Čakovec	II								
Total Drava		**11580**	**4676**	**820**	**119**	**8685**	**3741**	**2895**	**935**
Total (t/y)		**55670**	**22312**	**1564**	**442**	**41753**	**17850**	**13918**	**4462**

Table 4.2. The expected effects of measures on the reduction OF BOD and COD on industrial hot spots

	Level of treat.	**without measures**				**Reduction**		**with measures**	
		COD	BOD	N	P	COD	BOD	COD	BOD
		t/y	t/y	t/y	t/y	t/y	t/y	t/y	t/y
Sava									
DUBRAVICA Dubravica	II	589	212			442	170	147	42
PLIVA Savski Marof	-	1390	321			0	0	-	-
PIK Vrbovec	I	210	106			0	21	210	85
ŽELJEZARA Sisak	-	27	12	3	0,2	0	0	-	-
RAFINERIJA Sisak	-	88	91			0	0	-	-
GAVRILOVIĆ Petrinja	not def.	227	132	4	2	0	0	-	-
PETROKEMIJA Kutina	II	278	59	390		209	47	70	12
SLADORANA Županja	-	1240	560			0	0	-	-
Total Sava		**4049**	**1493**	**397**	**2**	**650**	**238**	**3399**	**1255**
Drava									
BELIŠĆE Belišće	-	5950	1586			0	0	-	-
FARMA SENKOVAC	-	4193	1675	10	4	0	0	-	-
IPK OSIJEK ŠEĆERANA	-	1328	676			0	0	-	-
IPK OSIJEK ULJARA	-	86	57			0	0	-	-
Total Drava		**11557**	**3994**	**10**	**4**	**0**	**0**	**11557**	**3994**
Total (t/y)		**15606**	**5487**	**407**	**6**	**650**	**238**	**14956**	**5249**

4.4. Adverse Environmental Effects

There are no particular adverse environmental effects of the recommended projects. The appropriate disposal of a sludge from wastewater treatment plants of municipalities represent one of the condition to be fulfilled in order to prevent adverse effect on environment.

5. Cost Estimation of Programs and Projects

The summary of relevant investment costs of recommended ongoing and planned projects and programs is presented in the table bellow:

Table 5.1. The summary of relevant investment costs of recommended projects

River basin	The investment costs (in million US$) of recommended projects for							
	Municipal hot spots		Industrial hot spots		Agricultural hot spots		Dumpsites	
	Ongoing	Planned	Ongoing	Planned	Ongoing	Planned	Ongoing	Planned
Sava	67.550	442.663*	1.296	not est.	0.104	no est.	8.389	3.831
Drava	15.816	87.521*	-	4.225	-	-	-	32.428*
Total	83.366	530.184*	1.296	4.225*	0.104	no est.	8.389	36.259*
	613.550*		5.521*		0.104*		44.648*	

Note: The investment costs for a few projects are missing.*

6. Planning and Implementing Capacities

6.1. Planning Capacities

There are numerous engineering companies and other institutions in Croatia which are capable for the preparation of project documents concerning water pollution reduction. The planning capacities of Croatian engineering companies might be considered as limited if the number of projects is taken into account. Moreover, it might be stated the cooperation with external institution on planning activities could be also taken into consideration.

6.2. Implementing Capacities

There are numerous constructing companies in Croatia which are capable for the construction of treatment plants for industrial and municipal waste water. The implementing capacities of Croatian construction companies might be considered as a limited if the number of projects is taken into account. They are mainly capable of conducting the construction works, whereas the assistance with implementation of technology for purification could be helpful.

Annexes

1. **Projects Recommended for the Reduction of Water Pollution**
2. **The Ongoing and Planned Projects**

Annex 1.

Projects Recommended for the Reduction of Water Pollution

1. Projects recommended for the reduction of water pollution from municipalities

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
1	2	3	4
1	Slavonski Brod	municipality	Planned project
2	Županja	municipality	Planned project
3	Kutina	municipality	Planned project
4	Bjelovar	municipality	Ongoing project
5	Vinkovci	municipality	Ongoing project
6	Velika	municipality	Ongoing project
7	Veliki Zdenci	municipality	Planned project
8	Daruvar	municipality	Planned project
9	Garešnica	municipality	Ongoing project
10	Pakrac	municipality	Planned project
11	Ogulin	municipality	Planned project
12	Plitvice	municipality	Planned project
13	Sisak	municipality	Planned project
14	Karlovac	municipality	Ongoing project
15	Petrinja	municipality	Planned project
16	Zabok	municipality	Planned project
17	Samobor	municipality	Planned project
18	Sesvete- istok	municipality	Planned project
19	Zagreb	municipality	Planned project
20	Sesvete- jugoistok	municipality	Planned project
21	Zaprešić	municipality	Planned project
22	Velika Gorica	municipality	Ongoing project
23	Krašić	municipality	Planned project
24	Našice	municipality	Ongoing project
25	Osiek	municipality	Ongoing project
26	Đurđenovac	municipality	Planned project
27	Đurđenovac	municipality	Planned project
28	Belišće	municipality	Planned project
29	Donji Miholjac	municipality	Planned project
30	Orahovica	municipality	Planned project
31	Bizovac	municipality	Planned project
32	Bizovac	municipality	Planned project
33	Čepin	municipality	Planned project
34	Virovitica	municipality	Ongoing project

1	2	3	4
35	Ilok	municipality	Planned project
36	Slatina	municipality	Planned project
37	Čakovec	municipality	Ongoing project
38	Novi Marof	municipality	Planned project
39	Ivanec	municipality	Planned project
40	Koprivnica	municipality	Planned project
41	Prelog	municipality	Planned project

2. Projects recommended for the reduction of water pollution from agriculture

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
42	Dubravica	agriculture	Planned project
43	Daruvar	agriculture (nonstructural project)	Ongoing project
44	Kutina	agriculture (nonstructural project)	Ongoing project

3. Projects recommended for the reduction of water pollution from industries

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
45	Vrbovec	industries	Planned project
46	Petrinja	industries	Ongoing project
47	Sesvetski Kraljevec	industries	Planned project
48	Kutina	industries	Ongoing project
49	Koprivnica	industries	Planned project
50	Koprivnica	industries	Planned project

4. Projects recommended for the reduction of water pollution from dumpsites

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
1	2	3	4
51	Sisak	dumpsites	Ongoing project
52	Bjelovar	dumpsites	Ongoing project
53	Bjelovar	dumpsites	Planned project
54	Daruvar	dumpsites	Planned project
55	Nova Gradiška	dumpsites	Planned project

1	2	3	4
56	Oriovac	dumpsites	Planned project
57	Požega	dumpsites	Planned project
58	Čakovec	dumpsites	Planned project
59	Slatina	dumpsites	Planned project
60	Orahovica	dumpsites	Planned project
61	Osijek	dumpsites	Planned project
62	Osijek	dumpsites	Planned project
63	Osijek	dumpsites	Planned project
64	Sarvaš	dumpsites	Planned project
65	Eastern Slavonia, Baranja and Western Srijem	the reconstruction project	Ongoing project

Annex 2.

The Ongoing and Planned Projects

1. Projects recommended for the reduction of water pollution from municipalities

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
1	Slavonski Brod	municipality	Planned project
2	Županja	municipality	Planned project
3	Kutina	municipality	Planned project
4	Bjelovar	municipality	Ongoing project
5	Vinkovci	municipality	Ongoing project
6	Velika	municipality	Ongoing project
7	Veliki Zdenci	municipality	Planned project
8	Daruvar	municipality	Planned project
9	Garešnica	municipality	Ongoing project
10	Pakrac	municipality	Planned project
11	Ogulin	municipality	Planned project
12	Plitvice	municipality	Planned project
13	Sisak	municipality	Planned project
14	Karlovac	municipality	Ongoing project
15	Petrinja	municipality	Planned project
16	Zabok	municipality	Planned project
17	Samobor	municipality	Planned project
18	Sesvete- istok	municipality	Planned project
19	Zagreb	municipality	Planned project
20	Sesvete- jugoistok	municipality	Planned project
21	Zaprešić	municipality	Planned project
22	Velika Gorica	municipality	Ongoing project
23	Krašić	municipality	Planned project
24	Našice	municipality	Ongoing project
25	Osiek	municipality	Ongoing project
26	Đurđenovac	municipality	Planned project
27	Đurđenovac	municipality	Planned project
28	Belišće	municipality	Planned project
29	Donji Miholjac	municipality	Planned project
30	Orahovica	municipality	Planned project
31	Bizovac	municipality	Planned project
32	Bizovac	municipality	Planned project
33	Čepin	municipality	Planned project
34	Virovitica	municipality	Ongoing project
35	Ilok	municipality	Planned project
36	Slatina	municipality	Planned project
37	Čakovec	municipality	Ongoing project
38	Novi Marof	municipality	Planned project
39	Ivanec	municipality	Planned project
40	Koprivnica	municipality	Planned project
41	Prelog	municipality	Planned project

2. Projects recommended for the reduction of water pollution from agriculture

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
42	Dubravica	agriculture	Planned project
43	Daruvar	agriculture (nonstructural project)	Ongoing project
44	Kutina	agriculture (nonstructural project)	Ongoing project

3. Projects recommended for the reduction of water pollution from industries

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
45	Vrbovec	industries	Planned project
46	Petrinja	industries	Ongoing project
47	Sesvetski Kraljevec	industries	Planned project
48	Kutina	industries	Ongoing project
49	Koprivnica	industries	Planned project
50	Koprivnica	industries	Planned project

4. Projects recommended for the reduction of water pollution from dumpsites

PROJECT NUMBER	LOCATION	PROJECT RECOMMENDED FOR THE REDUCTION OF WATER POLLUTION FROM	STATUS OF PROJECT
51	Sisak	dumpsites	Ongoing project
52	Bjelovar	dumpsites	Ongoing project
53	Bjelovar	dumpsites	Planned project
54	Daruvar	dumpsites	Planned project
55	Nova Gradiška	dumpsites	Planned project
56	Oriovac	dumpsites	Planned project
57	Požega	dumpsites	Planned project
58	Čakovec	dumpsites	Planned project
59	Slatina	dumpsites	Planned project
60	Orahovica	dumpsites	Planned project
61	Osijek	dumpsites	Planned project
62	Osijek	dumpsites	Planned project
63	Osijek	dumpsites	Planned project
64	Sarvaš	dumpsites	Planned project
65	Eastern Slavonia, Baranja and Western Srijem	the reconstruction project	Ongoing project