

# CALIDAD DE AGUA

LOS DATOS..., ¿ DONDE ESTAN?

Y

¿COMO SE EVALUAN?



ROBERTO AYALA PRADO

SUB-GERENTE

AREA DE EVALUACION Y PLANIFICACION ESTRATEGICA

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RIO CIBUCO

## ¿PORQUE ES IMPORTANTE LA CALIDAD DEL AGUA?

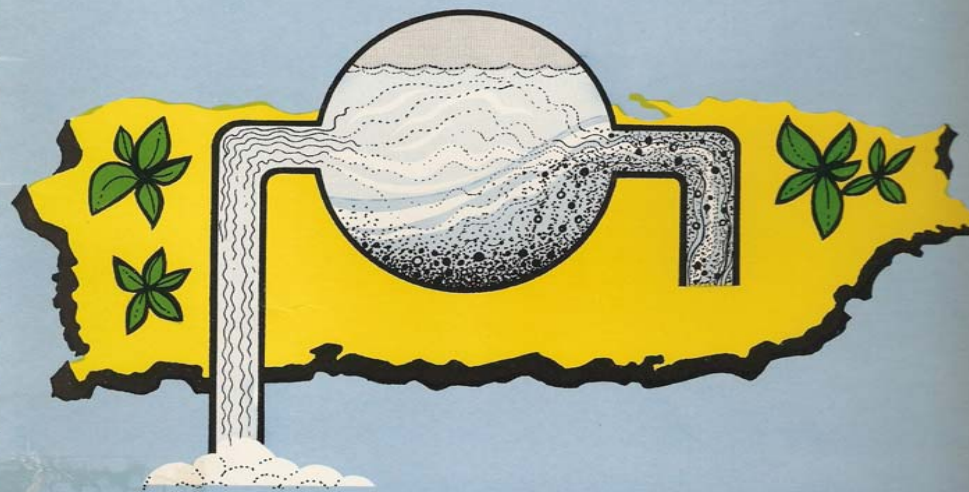
Ambiente natural físico y ecológico

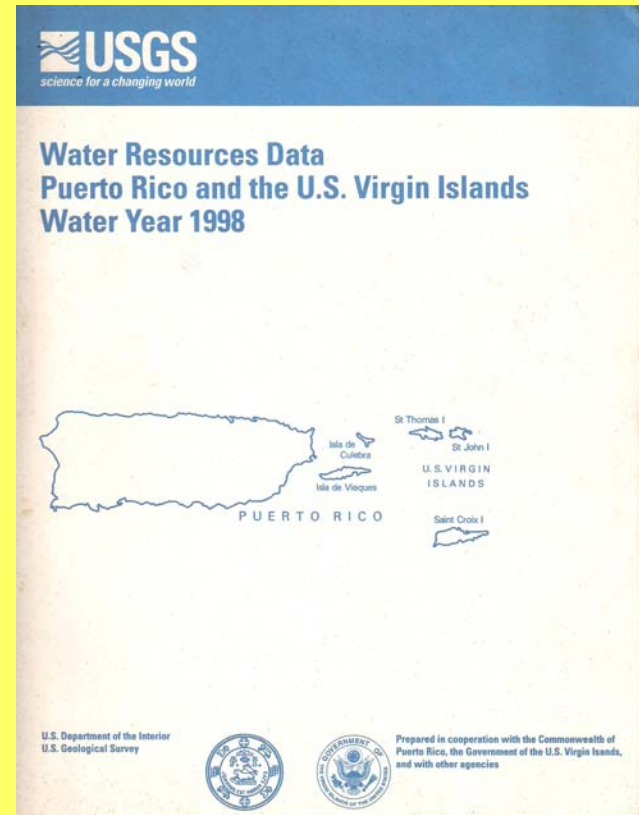
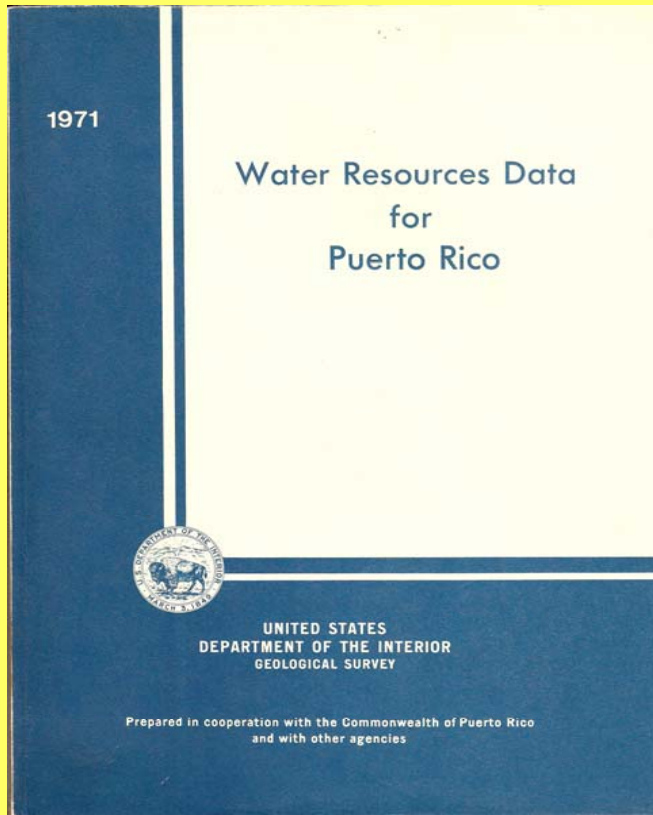
**SOBREVIVENCIA**

Ambiente social, económico y político humano

**SOBREVIVENCIA**

# The Comprehensive Water Quality Management Plan for Puerto Rico 1970 - 2020





**PUBLICACIONES DE “USGS WATER  
RESOURCES DATA” ANTES DEL 2000**

1971  
**Water Resources Data  
for  
Puerto Rico**

**Part I. Surface Water Records**



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Prepared in cooperation with the Commonwealth of Puerto Rico  
and with other agencies

Prepared in cooperation with  
Puerto Rico Environmental Quality Board  
Puerto Rico Aqueduct and Sewer Authority  
Puerto Rico Water Resources Authority  
Puerto Rico Industrial Development Company  
Puerto Rico Department of Public Works  
Puerto Rico Mining Commission  
Corps of Engineers, U.S. Army

Water resources records, 1971, for Puerto Rico are in the following reports of the U.S. Geological Survey:

1. Water Resources Data for Puerto Rico  
Part 1: Surface Water Records
2. Water Resources Data for Puerto Rico  
Part 2: Water Quality Records, 1968-72
3. Water Resources Data for Puerto Rico  
Part 3 : Ground Water Records, 1968-72

Copies of this report may be obtained from  
District Chief, Water Resources Division  
U.S. Geological Survey  
Building 652  
Fort Buchanan, Puerto Rico 00934

## WATER RESOURCES DATA FOR PUERTO RICO, 1971

### PART 1. SURFACE-WATER RECORDS

#### INTRODUCTION

Surface-water records for the 1971 calendar year for Puerto Rico, including records of streamflow at gaging stations and partial-record stations are given in this report and their locations shown in figures 1 to 14. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey under the direction of D.G. Jordan, district chief. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating Commonwealth and Federal agencies in Puerto Rico.

Prior to the 1968 calendar year, water resources data for Puerto Rico have been released in a series of reports entitled "Water Records of Puerto Rico," and covered the period 1958-67. Included were records for streamflow stations, ground-water wells, and the chemical and physical characteristics of surface and ground water.

Beginning with the 1968 calendar year, surface-water records are being released separately on an annual basis. Ground-water records, and data on chemical and physical characteristics of surface and ground water are being released in companion reports covering periods of several years.

#### COOPERATION

The U.S. Geological Survey and organizations of the Commonwealth of Puerto Rico have had cooperative agreements for the systematic collection of surface-water records since 1958. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

##### PRIMER AÑO DE LA JCA

→ Puerto Rico Environmental Quality Board  
Puerto Rico Aqueduct and Sewer Authority  
Puerto Rico Water Resources Authority  
Puerto Rico Industrial Development Company  
Puerto Rico Department of Public Works  
Puerto Rico Mining Commission

**WATER RECORDS OF PUERTO RICO  
1958-63**

**By  
Frank P. Kipple and others  
U.S. Geological Survey**

**In cooperation with  
P.R. Water Resources Authority  
P.R. Aqueduct & Sewer Authority  
P.R. Industrial Development Company**

**1968**



WATER RECORDS OF PUERTO RICO

1964-67

Volume 1 - NORTH AND NORTHEAST SLOPES

by

James G. Rickher and others  
U.S. Geological Survey



U.S. DEPARTMENT OF THE INTERIOR  
Geological Survey

in cooperation with

P.R. Aqueduct & Sewer Authority  
P.R. Water Resources Authority  
P.R. Industrial Development Company

1970

WATER RECORDS OF PUERTO RICO

1964-67

Volume 2 - SOUTH AND WEST SLOPES

by

James G. Rickher and others  
U.S. Geological Survey

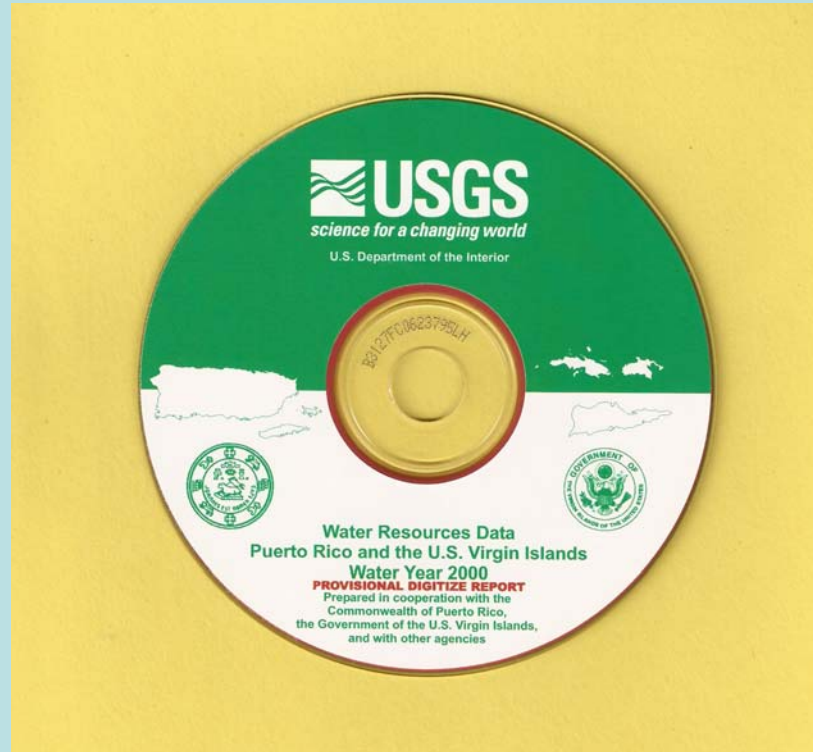


U.S. DEPARTMENT OF THE INTERIOR  
Geological Survey

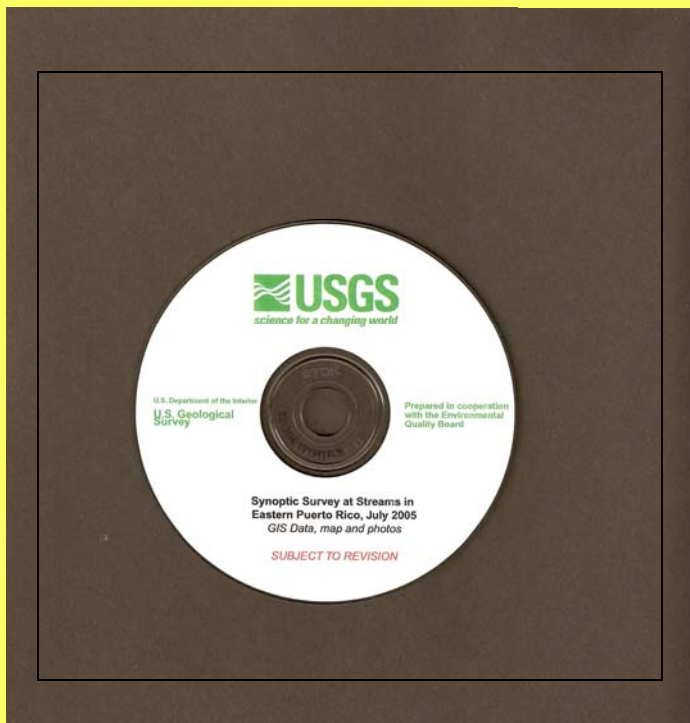
In cooperation with

P.R. Aqueduct & Sewer Authority  
P.R. Water Resources Authority  
P.R. Industrial Development Company

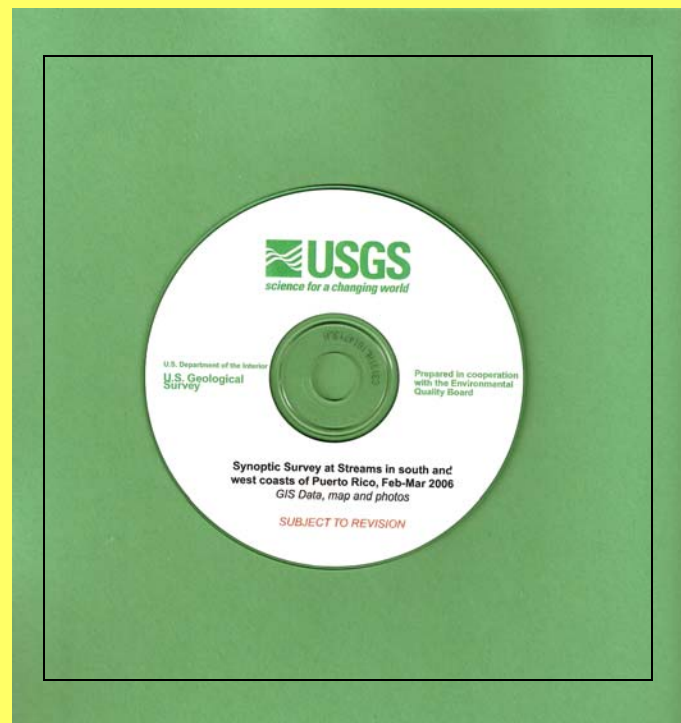
1970



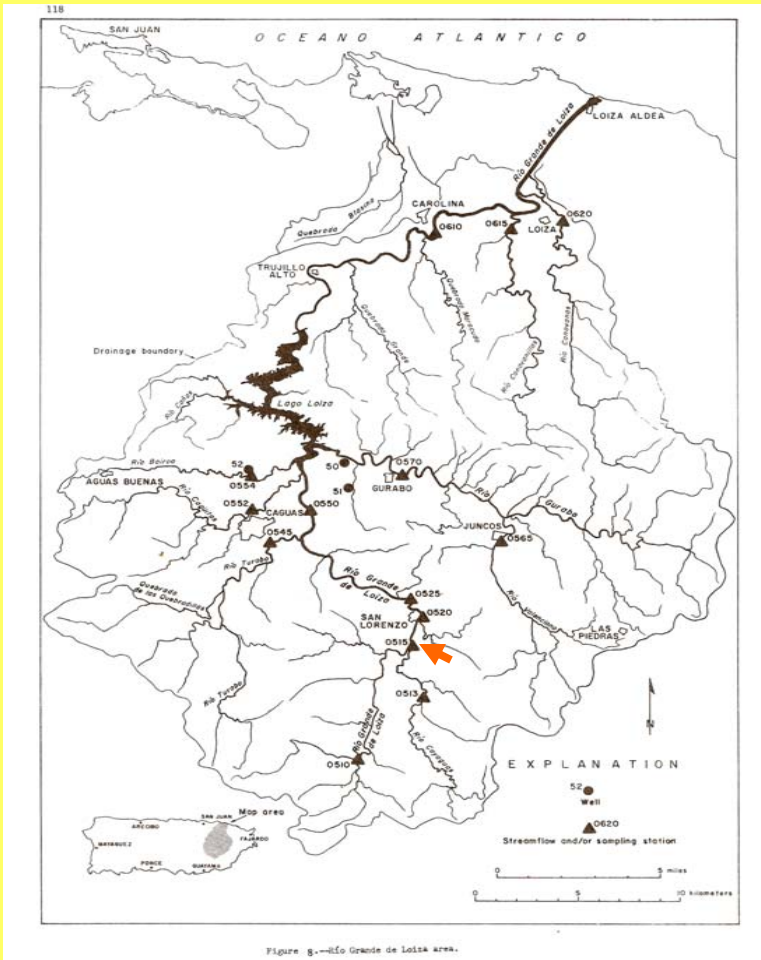
**PUBLICACIONES DE 2000 EN ADELANTE**



**SINOPTICO DE CUENCAS NO MUESTREADAS  
EN EL ESTE  
(JULIO 2005)**



**SINOPTICO DE CUENCAS NO MUESTREADAS  
EN EL SUR Y OESTE  
(FEB. / MAR. 2006)**



## WATER RECORDS 1958- 63



## WATER RECORDS 1964- 67

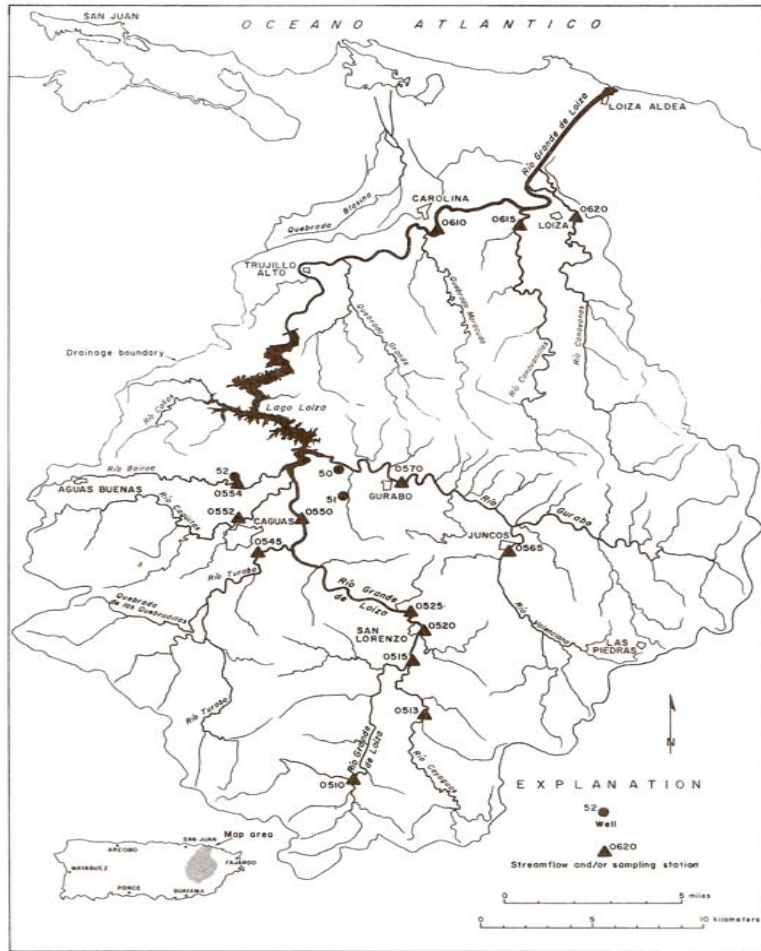
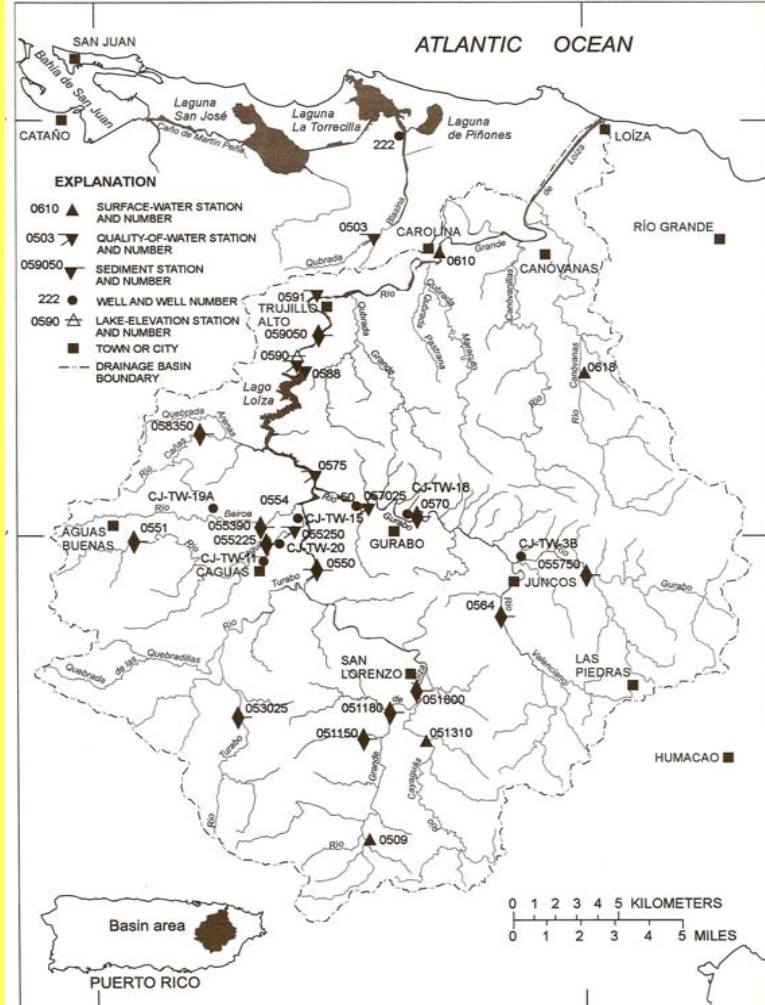
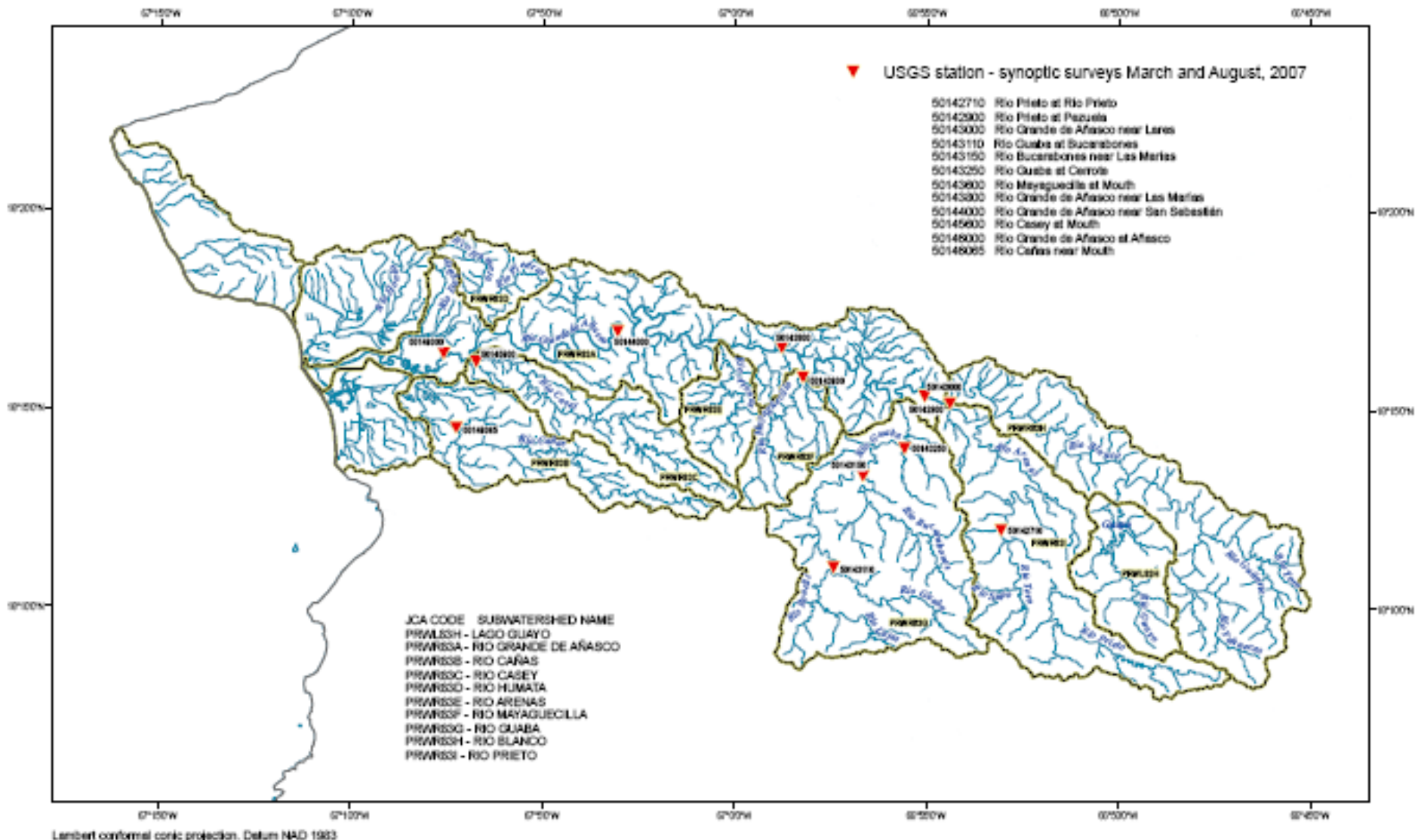


Figure 8.—Río Grande de Loiza area.

**WATER RECORDS 1958- 63**

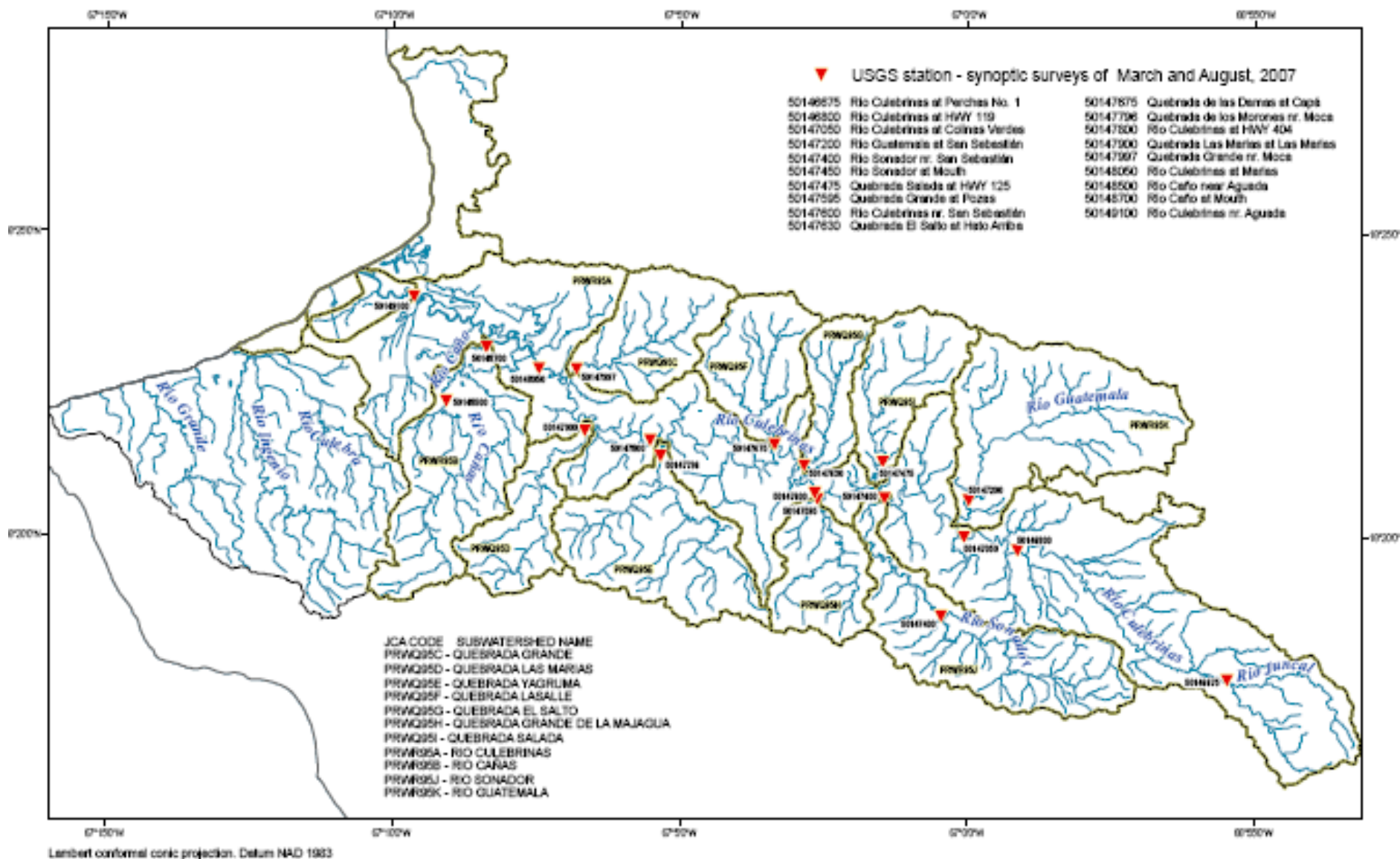


**WATER RECORDS 1998**



USGS stations for synoptic surveys of March and August, 2007 in the Rio Grande de Añasco Watershed

## SINOPTICO RIO GRANDE DE AÑASCO (MARZO Y AGOSTO 2007)



USGS stations for synoptic surveys of March and August, 2007 in the Rio Culebrinas Watershed

## SINOPTICO RIO CULEBRINAS (MARZO Y AGOSTO 2007)





U.S. ENVIRONMENTAL PROTECTION AGENCY

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## Welcome to STORET, EPA's largest computerized environmental data system.

STORET (short for STORage and RETrieval) is a repository for water quality, biological, and physical data and is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others. Take a minute to browse around our site or click on the water drop to retrieve monitoring data!

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[www.epa.gov/storet](http://www.epa.gov/storet)



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Comments? If you have a question or comments on this website or on the STORET system, please call STORET User Assistance at 1-800-424-9067, or send us an email at [STORET@epa.gov](mailto:STORET@epa.gov).



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## STORET Database Access

STORET data available on the Internet is divided into two separate databases, according to when it was originally supplied to EPA, and to which of our two STORET databases it was originally archived. We call the older of these two databases the **STORET Legacy Data Center (LDC for short)**, and the more current **Modernized STORET**.

### STORET Legacy Data Center

Data supplied to EPA before 1999 were all placed in Legacy STORET. This system, designed in the 1980s, was a pioneer in the long term archival of field water monitoring results.

The Legacy Data Center contains data of undocumented quality. Further, these data are static. The Legacy Data Center does not permit updates, and data here will not change over time. All new data are being entered into Modernized STORET. Because the data do not change over time, it is never necessary to repeat a specific download.

[Browse or Download Legacy STORET Data](#)

### Modernized STORET

All data supplied to EPA since January 1, 1999 have been placed in the Modernized STORET System. A full description of the design of this system can be examined on our [ABOUT STORET](#) page.

Modernized STORET is currently receiving new data on a regular basis, and will continue to do so for the foreseeable future. Downloads performed for the same sites may differ over time as a result of the addition of new data by their owners.

[Browse or Download Modernized STORET Data](#)

#### NOTE:

All data owned by STORET Agency "112WRD" (the United States Geological Survey) have been removed from the STORET Legacy Data Center (LDC). In the future, STORET will no longer maintain the "112WRD" USGS data on the STORET Legacy Data Center (LDC).

Water quality data owned by the USGS remains available for both browse and download from their web site. Please visit the USGS Water web site at <http://water.usgs.gov/nwis> EXIT Disclaimer for further information about data available from USGS.



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## STORET Data Warehouse

Data refreshed as of January 23, 2008

### Query Options

#### STORET Warehouse Watershed Summary

[Summary of Results by Watershed](#)

#### STORET Station Descriptions

[Stations by Geographic Location](#)  
[Stations by Organization and Station ID](#)

#### STORET Regular Results

(Non-Biological Physical and Chemical Result Data)

[Regular Results by Geographic Location](#)  
[Regular Results by Station](#)  
[Regular Results by Project](#)

#### STORET Biological Results

[Biological Results by Geographic Location](#)  
[Biological Results by Station](#)  
[Biological Results by Project](#)

#### STORET Habitat Results

[Habitat Results by Geographic Location](#)  
[Habitat Results by Station](#)  
[Habitat Results by Project](#)

### Tell Us What You Think!

#### What's New with the STORET Data Warehouse?

This page offers information about the recent changes made to STORET Warehouse.

#### How to Query and Download Data

This exercise gives step by step instructions on how to generate, download, export (to Microsoft Excel or Access), and analyze a data query from the STORET Data Warehouse as well as the new Watershed Summary.  
\* Adobe Acrobat® Reader required.

#### Make a Map

Create a map of monitoring locations from STORET using either [EnviroMapper for Water](#) or [Window to My Environment](#).

#### Data Logger Results

Download a delimited text file of results reported to STORET from Automated Data Loggers. These results, which cannot yet be downloaded via the query options at the left, will be in the form of a self-extracting compressed file (450K) which may be saved on disk and will expand when executed. In its uncompressed form, this file requires 14.8 MB of disk space.

#### Data Quality Documentation

Select from among available reports which document the standards, methods, practices, and other metadata supplied by data owners to document the quality of the monitoring results found in the National STORET Data Warehouse.

\* Adobe Acrobat® Reader required.

**ESTADO LIBRE ASOCIADO DE PUERTO RICO  
OFICINA DEL GOBERNADOR  
JUNTA DE CALIDAD AMBIENTAL**



Conforme a la Ley de Política Pública Ambiental  
(Ley No. 9 del 18 de junio de 1970, según enmendada), este

**REGLAMENTO DE ESTANDARES DE CALIDAD DE AGUA  
DE PUERTO RICO,**

**SEGUN ENMENDADO EN MARZO 2003**

Ha sido promulgado mediante la Resolución Número R-03-5 para mejorar,  
mantener y preservar la calidad de las aguas de Puerto Rico  
compatible con las necesidades sociales y económicas de Puerto Rico.

Fechado Marzo 28, 2003

\_\_\_\_\_  
Miembro Asociado

\_\_\_\_\_  
Vice-Presidente

\_\_\_\_\_  
Presidente



GOALS AND PROGRESS OF STATEWIDE  
WATER QUALITY MANAGEMENT PLANNING  
PUERTO RICO 1978-1979

**INFORME 305(b) MAS ANTIGUO  
QUE AUN TENEMOS EN ARCHIVO**



**Puerto Rico Environmental Quality Board**



**WATER QUALITY ASSESSMENT  
AND  
LIST OF IMPAIRED WATERS  
2006 303(d)/305(b) INTEGRATED REPORT**

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**Part VI: Estuaries Assessment**

**Part VII: San Juan Bay Estuary Assessment**

**Part VIII: Coastal Shoreline Assessment**

**Part IX: Groundwater Assessment**

**Part X: Cost Benefit Assessment**

**APPENDIX I: 2006 CYCLE 303(d) LIST OF IMPAIRED WATERS**

**EL INFORME 303(d) / 305(b) PARA CICLO 2006**

**DISPONIBLE EN LA BIBLIOTECA PISO 4**