LOAN COPY

Water Resources Data for Hawaii and other Pacific Areas

Volume 2. Trust Territory of the Pacific Islands, Guam, American Samoa, and Northern Mariana Islands

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-78-2

WATER YEAR 1978

Prepared in cooperation with the Trust Territory of the Pacific Islands, the Governments of Guam, American Samoa, and Northern Mariana Islands, and with other agencies

Water Resources Data for Hawaii and other Pacific Areas

Volume 2. Trust Territory of the Pacific Islands, Guam, American Samoa, and Northern Mariana Islands

U.S.GEOLOGICAL SURVEY WATER-DATA REPORT HI-78-2

WATER YEAR 1978

Prepared in cooperation with the Trust Territory of the Pacific Islands, the Governments of Guam, American Samoa, and Northern Mariana Islands, and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

For information on the water program in Hawaii
and other Pacific Areas write to
District Chief, Water Resources Division
U.S. Geological Survey
6th Floor, Room 6110
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

1979

PREFACE

This report was prepared by personnel of the Hawaii district of the Water Resources Division of the U.S. Geological Survey under the supervision of Benjamin L. Jones, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Hawaii and with other agencies.

This report is one of a series issued by State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, U.S. Geological Survey, and Philip Cohen, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Hawaii and other Pacific Areas are in two volumes as follows:

Volume 1. State of Hawaii

Volume 2. Trust Territory of the Pacific Islands, Guam, Mariana Islands, Tutuila, American Samoa, and Saipan, Northern Mariana Islands

BIBLIOGRAPHIC DATA SHEET	1. Report No. USGS/WRD/HD-79/022	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for Hawaii and other Pacific Areas, 1978			5. Report Date June 1979 6.
7. Author(s)			8. Performing Organization Rept. No. USGS-WDR-HI-78-02
9. Performing Organization Name and Address U.S. Geological Survey, Water Resources Division 6th Floor, Room 6110, 300 Ala Moana Blvd. Honolulu, Hawaii 96850			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division 6th Floor, Room 6110, 300 Ala Moana Blvd. Honolulu, Hawaii 96850			13. Type of Report & Period Covered Annual - Oct. 1, 1977 to Sept. 30, 1978 14.

15. Supplementary Notes

Prepared in cooperation with the Trust Territory of the Pacific Islands, the Governments of American Samoa, Guam, Northern Mariana Islands, and with other agencies.

16. Abstracts

Volume 2 of water resources data for the 1978 water year for other Pacific areas consist of records of stage, discharge, and water quality of streams; stage of a reservoir; and water levels in wells and springs. This report contains discharge records for 44 gaging stations; stage only record for 1 gaging station; water quality for 1 gaging station, 5 partial-record stations; water temperature for 35 gaging stations; and water levels for 6 observation wells. Also included are 37 low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Governments and Federal agencies in other Pacific areas.

17. Key Words and Document Analysis. 17a. Descriptors

*Pacific area, *Hydrologic data, *Surface water, *Ground water, Flow rate, Gaging stations, Reservoirs, Water temperatures, Sampling sites, Water levels.

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161	UNCLASSIFIED	118
	20. Security Class (This Page) UNCLASSIFIED	22. Price

WATER RESOURCES DIVISION

Hawaii District

Benjamin L. Jones, District Chief

This report prepared by:

Reuben Lee, Assistant District Chief, Hydrologic Inventory Section
Santos Valenciano, Chief, Hydrologic Information Unit
Iwao Matsuoka, Hydrologist
Otto van der Brug, Chief, Guam Subdistrict
Charles J. Huxel, Hydrologist (Geologist)
Rose M. Maruoka, Hydrologic Technician
Akiko K. Tanaka, Hydrologic Technician (Typist)

Assisted by:

Isao Yamashiro, Hydrologic Technician
Jose S. Quinata, Hydrologic Technician
David A. Beck, Hydrologic Technician
Rosalie A. Gibson, Clerk Typist
Patricia Shade, Hydrologic Technician (PT)

CONTENTS

	Page
Preface	III
List of gaging stations, in downstream order, for which records are published	IX
List of ground-water stations for which water-level records are published	X
Introduction	1
Cooperation	1
Hydrologic conditions	2
Definition of terms	2
Downstream order and station number	11
Numbering system for wells and miscellaneous sites	11
Special networks and programs	12
Explanation of stage and water-discharge records	12
Collection and computation of data	12
Accuracy of field data and computed results	15
Records of discharge collected by agencies other than the Geological Survey	15
Other data available	15
Publications	15
Explanation of water-quality records	16
Collection and examination of data	16
Water analysis	16
Water temperature	17
Sediment	17
Publications	17
Explanation of ground-water level records	18
Collection of the data	18
Publications of techniques of water-resources investigations	19
Gaging-station records	37
Discharge at partial-record stations and miscellaneous sites	87
Low-flow partial-record stations	87
Measurements at miscellaneous sites	91
Analyses of samples collected at water-quality partial-record stations	92
Periodic determinations of water temperature at gaging stations	95
Ground-water records	101
Ground-water level records	101
Index	107

CONTENTS

ILLUSTRATIONS

Page

Figure 1. Discharge during 1978 water year compared with median discharge for selected periods of two representative gaging stations..... 21
2. Discharge at selected gaging stations, floods of August 12 and September 27..... 23
3. Map showing locations of the Trust Territory Pacific Islands... 24
4. Map of Saipan, Mariana Islands, showing locations of gaging and water-quality stations..... 25
5. Map of Guam, Mariana Islands, showing locations of gaging, water-quality, and partial-record stations..... 26
6. Map of Guam, Mariana Islands, showing locations of observation wells..... 27
7. Map of Babelthuap, Palau Islands, showing locations of gaging, water-quality, and partial-record stations..... 28
8. Map of Arakabesan, Malakal, Palau Islands, showing locations of partial-record stations..... 29
9. Map of Yap Islands, showing locations of gaging, water-quality, and partial-record stations..... 30
10. Map of Moen, Truk Islands, showing locations of gaging and water-quality stations..... 31
11. Map of Dublon Island, Truk Islands, showing locations of gaging and water-quality stations..... 32
12. Map of Ponape, showing locations of gaging, water-quality, and partial-record stations..... 33
13. Map of Kosrae, showing locations of gaging and water-quality stations..... 34
14. Map of Tutuila, Samoa Islands, showing locations of gaging, water-quality, and partial-record stations..... 35
15. Sketch showing system for numbering wells and miscellaneous sites..... 36
16. Sketch showing local well numbering system..... 36

TABLES

Table 1. Peak discharges at selected station sites..... 22

(Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment)

	Page
MARIANA ISLANDS	
ISLAND OF SAIPAN	
Denni Spring (head of Denni Stream) (d)	37
South Fork Talofofo Stream (dt)	38
Middle Fork Talofofo Stream (dt)	39
ISLAND OF GUAM	
Finile Creek at Agat (d)	40
La Sa Fua River near Umatac (dt)	41
Inarajan River near Inarajan (dt)	42
Tinaga River near Inarajan (dt)	43
Tolaeyuus River (head of Talofofo River):	
Imong River (head of Fena River) near Agat (dt)	44
Almagosa River near Agat (dt)	45
Maulap River near Agat (dt)	46
Fena Dam spillway near Agat	47
Ugum River above Talofofo Falls near Talofofo (dt)	48
Ylig River near Yona (dct)	50
Pago River near Ordot (dcmbts)	51
CAROLINE ISLANDS	
PALAU ISLANDS	
Adeiddo River, Babelthuap (d)	56
Tabagaten River, Babelthuap (dt)	57
Gihmel River, Babelthuap (d)	58
Gaden River (head of Geriiki River), Babelthuap (dt)	59
Ngardok River:	
South Fork Ngardok River, Babelthuap (dt)	60
YAP ISLANDS	
Aringel Stream, Yap (dt)	61
Dalolab Stream, Yap (dt)	62
Pemgoy Stream, Yap (dt)	63
Talagu Stream, Yap (dt)	64
Burong Stream, Yap (dt)	65
Mukong Stream, Gagil-Tomil (dt)	66
TRUK ISLANDS	
Wichen River at altitude 55 m, Moen (dt)	67
Wichen River at altitude 18 m, Moen (dt)	68
Chun Stream, Dublon Island (dt)	69
Tumunu Stream, Dublon Island (dt)	70
ISLAND OF PONAPE	
Tawenjokola River:	
Nanepil River (dct)	71
Lui River (dct)	72
Lui River at mouth (dct)	73
Lupwor River (dct)	74
ISLAND OF KOSRAE	
Mutunte River (dt)	75
Okat River (head of Wukat River) (d)	76
Melo River (d)	77
Malem River (d)	78
Tofol River (d)	79
SAMOA ISLANDS	
ISLAND OF TUTUILA	
Pago Stream at Afono (dt)	80
Aasu Stream at Aasu (dt)	81
Atauloma Stream at Afao (dt)	82
Asili Stream at altitude 330 ft (100 m) near Asili (dt)	83
Leafu Stream at altitude 370 ft (113 m) near Leone (dt)	84
Afuelo Stream at Matuu (dt)	85
Leafu Stream near Auasi (dt)	86

HYDROLOGIC CONDITIONS

Based on available periods of record at selected streams, runoff during the 1978 water year in the area covered by this volume indicated a deficient to normal trend throughout the year. Annual mean runoff was variable and ranged between 69 and 110 percent of median. Streamflow at the Middle Fork Talofofo Stream, Saipan, Mariana Islands, was deficient (flow in lower 25 percent of record) from December to June and excessive (flow in upper 75 percent of record) in August and September. Annual mean runoff was in the normal range and was 96 percent of the median.

At selected streams on the islands of Babelthuap and Yap, Caroline Islands, streamflow was variable throughout the year. The annual mean runoff at Gaden River, Babelthuap and Pemgoy Stream, Yap, was 83 percent of the median at both sites. In Truk, Caroline Islands, streamflow at the Wichen River at altitude 55 meters was in the normal range for 9 out of 12 months and the annual mean runoff was 78 percent of the median. At the Nanepil River, Ponape, streamflow was mostly below normal and was deficient from May to September. Annual mean discharge was 69 percent of median.

Streamflow at the Ylig River near Yona, Guam, was deficient from January to May and September and annual mean flow was 89 percent of the median. At Aasu Stream, Tutuila, streamflow was in the normal range for 7 of the 12 months and the annual mean flow was 110 percent of the median.

Rapid runoff from intense rains for four days (August 9-13) associated with typhoon Carmen caused flooding and extensive property and crop damage on the island of Saipan, Mariana Islands. Estimated damages on private, public, and agricultural crops including livestock was 1.2 million dollars. On August 18, the President declared the island of Saipan a major disaster area. The estimated total rainfall of 40 inches (102 cm) that fell during the storm period caused the peak flow at the Middle Fork Talofofo Stream to exceed the previous peak flow by almost 300 ft^3/s (8.5 m^3/s).

The total rainfall of 10.81 inches (276 mm) that fell during September 26 and 27 recorded at the Naval Air Station on the island of Guam resulted in new peaks of record at five gaging sites in southern Guam. Recurrence intervals (the average period in years, in which a flood of a given magnitude will be equaled or exceeded as an annual maximum) exceeded 200 years at station 16847000 Imong River near Agat, Guam. Flood runoff that drained into Fena Lake during the storm period from Almagosa, Maulap and Imong Rivers caused a maximum turbidity reading made by the Navy laboratory of 11.5 NTU on September 28. This was far in excess of the 5 NTU allowable standard set by the Environmental Protection Agency. As a result, drinking water supplied from Fena Lake exceeded contaminant levels from September 28 to October 1.

In Yap, Caroline Islands, flood runoff occurred on September 14. There were no reports of flooding but the high flows resulted in new peak flows at four gaging sites on the island.

Monthly and annual mean discharge is compared with medians at two representative gaging stations on the islands of Guam and Tutuila in figure 1. Flood hydrographs at two selected stations on the islands of Saipan and Guam are shown in figure 2. Table 1 is a summary of flood stages and discharges at 12 selected sites.

DEFINITION TERMS

Definition of terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined as follows:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water levels stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endomedium (nutrient medium for bacterial growth). Their concentrations are expressed number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on m-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warmblooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biomass is the amount of living matter present at any time, expressed as the weight per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in g/m^3 (grams per cubic meter), and periphyton and benthic organisms in g/m^2 (grams per square meter).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash, and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually mililiters (mL) of liters (L).

CFS-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, or 646,317 gallons or 2,447 cubic meters.

Chlorophyll refers to the green pigments of plants. Chlorphyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate or delayed incubation membrane filter method.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuing record station is a specified site which meets one or all conditions listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.

2. When water temperature records include observations taken one or more times daily.

3. When sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic average of individual daily mean discharges during a specified period.

Instantaneous discharge is the discharge at a particular instant of time. If this discharge is reported instead of the daily mean, the heading of the discharge column in the table is "DISCHARGE (CFS)."

Dissolved is that material in a representative water sample which passes through a 0.45 um membrane filer. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate. It is recognized that certain kinds of samples cannot be filtered; to provide for this, procedures that are considered equivalent to filtering through a 0.45 um membrane filter will be identified and announced at a later date.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodolgy used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge

of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total". (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material".

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = \sum_{i=i}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic Unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Micrograms per gram (μg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, μg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The Classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analylsis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Pesticides are chemical compounds used to control the growth of undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (Pc,pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in additon to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are grazers in the aquatic environment, the zooplankton are a vital part of the aquatic feed web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2·time) for periphyton and macrophytes and mg C/(m^3·time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2/(m^2 ·time) for periphyton and macrophytes and mg O_2/(m^3·time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times milligrams per liter times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weight concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

To distinguish wells within a minute grid, two grids are added following the 4-digit minute-grid numbers with a dash separator. These two-digit numbers are assigned with the oldest well dug within the grid as 01 and increase chronologically, with few exceptions, to the latest dug.

SPECIAL NETWORKS AND PROGRAMS

National stream-quality accounting network is an accounting network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on the river-basin accounting units designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in stream quality.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the bases of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations, in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figures was first published is given.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition,

the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va 22092, maintains an index of water-data sites not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Publications

In each water-supply paper entitled, "Surface Water Supply of the United States" there is a list of numbers of preceding water-supply papers containing streamflow information for the area covered by that report. In addition, there is a list of numbers of water-supply papers containing detailed information on major floods in the area. Records for stations in Hawaii and other Pacific areas for the period October 1959 to September 1965, are in Water-Supply Paper 1937.

Two series of summary reports entitled, "Compilation of Records of Surface Waters of the United States" have been published; the first series covers the entire period of record through September 1950 (June 1950, for Hawaii), and the second series covers the period October 1950 to September 1960 (July 1950 to June 1960, for Hawaii and other Pacific areas). These reports contain summaries of monthly and annual discharge and monthend storage for all previously

published records, as well as some records not contained in the annual series of water-supply papers. All records were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical. The yearly summary table for each gaging station lists the numbers of the water-supply papers in which daily records were published for that station. Records for stations in Hawaii and other Pacific areas are compiled in Water-Supply Paper 1319 through June 1950, in 1739 and 1751 for July 1950 to June 1960, in 1937 for October 1959 to September 1965, and in 2137 for October 1966 to September 1970.

Special reports on major floods or droughts or of other hydrologic studies for the area have been issued in publications other than water-supply papers. Information relative to these reports may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The water-quality records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives periods of record for the various types of water-quality data (chemical, specific conductance, biological determination, water temperatures, sediment discharge), period of record, and extremes of pertinent data, and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water-quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Publications

The annual series of water-supply papers that contain information on quality of surface waters in Hawaii and other Pacific areas are listed below.

Water year	WSP No.	Water year	WSP No.	Water year	WSP No.
1964	1966	1967	2016	1970	2160
1965	1966	1968	2016	1971	A2170
1966	1996	1969	2150		

A In preparation.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figures 15 and 16.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported either for every fifth day and the end of each month (eom) or for each day. To show the intraday variation in the ground-water levels caused by local pumping and tidal fluctuations, instantaneous maximum and minimum water levels are given with the mean water levels for the day.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective October 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2 1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $2.50.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $1.20

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. $0.65.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

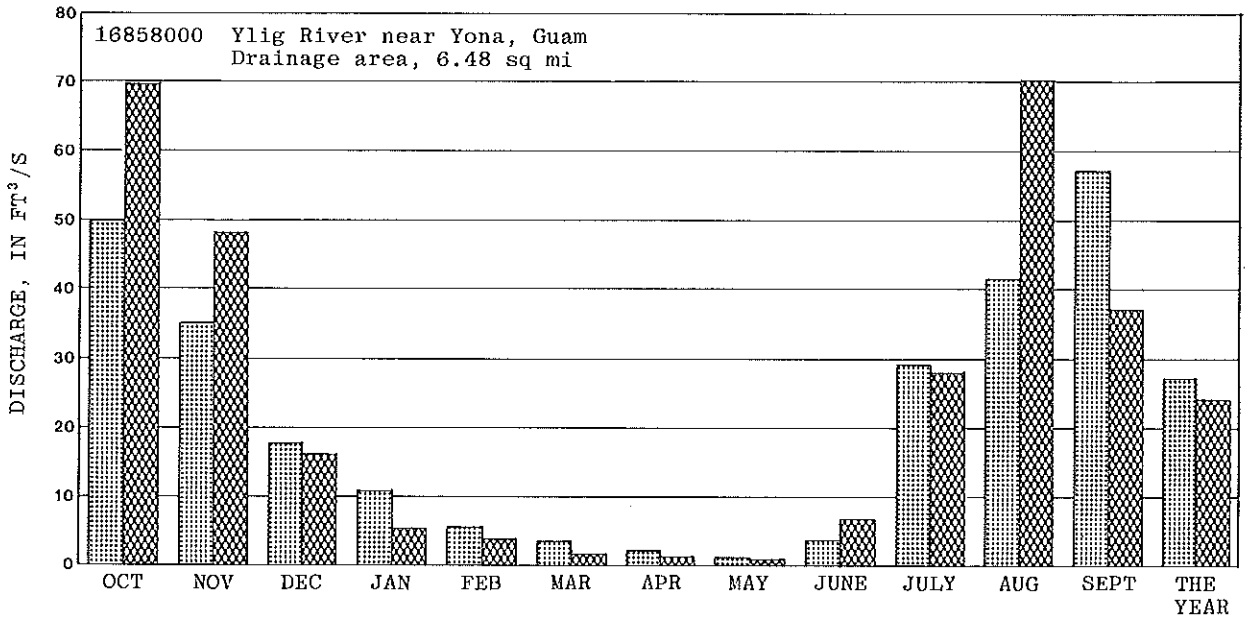
5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

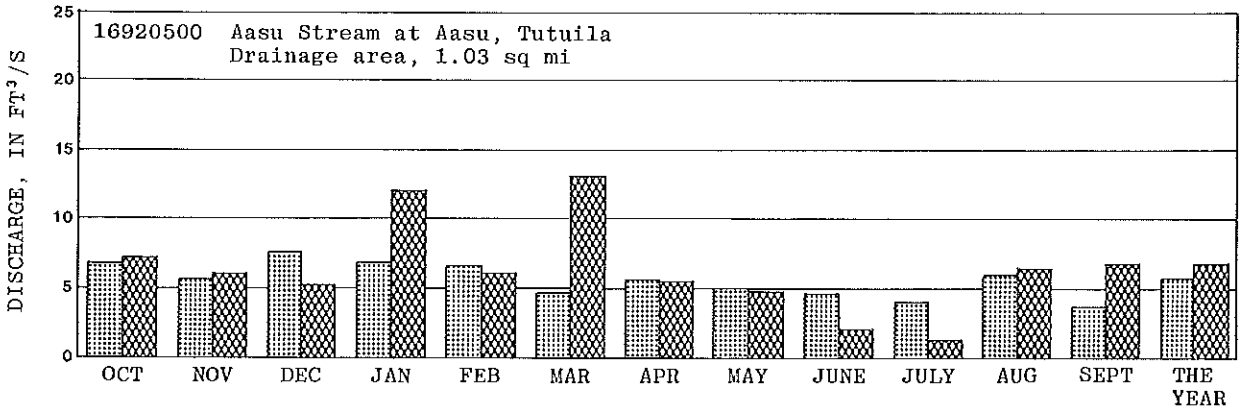
8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.



Median of monthly and yearly mean discharge for period 1953-76.

Monthly and yearly mean discharge during 1978 water year.



Median of monthly and yearly mean discharge for period 1960-76.

Monthly and yearly mean discharge during 1978 water year.

FIGURE 1.--DISCHARGE DURING 1978 WATER YEAR COMPARED WITH MEDIAN DISCHARGE FOR SELECTED PERIODS FOR TWO REPRESENTATIVE GAGING STATIONS.

SUMMARY OF FLOOD STAGE AND DISCHARGE

The following table contains the record of peak flows at selected sites for floods which occurred during August 12, September 14, and 27, 1978. The sites are gaging stations where new peak discharges for the period of record occurred. Four indirect discharge measurements were made to determine peaks of the flood. Other peaks were determined from established or extended rating tables.

Table 1.--Peak discharges at selected station sites

Station number	Station name	Drainage area (sq mi)	Period of record	Maximum previously known			Maximum		
				Date	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)
	Mariana Islands, Island of Saipan								
16801000	South Fork Talofofo Stream	0.69	1968-78	8- 4-76	8.15	4100	8-12-78	5.90	2720
16801500	Middle Fork Talofofo Stream	.35	1968-78	9-24-76	5.67	541	8-12-78	6.58	840
	Mariana Islands, Island of Guam								
16809600	La Sa Fua River near Umatac	1.06	1953-60 1976-78	10-15-53	5.47	1030	9-27-78	6.05	1440
16847000	Imong River near Agat	1.95	1960-71 1971-78	10-19-60	10.06	3370	9-27-78	11.3	6100
16848100	Almagosa River near Agat	1.32	1972-78	5-21-76	7.32	2200	9-27-78	7.78	2650
16848500	Maulap River near Agat	1.15	1972-78	5-21-76	8.21	1800	9-27-78	9.2	2420
16854500	Ugum River above Talofofo Falls, near Talofofo	5.76	1977-78	9-16-77	8.41	1690	9-27-78	12.31	4020
	Caroline Islands, Yap Islands								
16892400	Aringel Stream, Yap	.24	1968-70	9-15-73	6.68	457	9-14-78	7.05	520
16892900	Pemgoy Stream, Yap	.17	1968-78	9-15-73	4.72	240	9-14-78	5.26	314
16893000	Talagu Stream, Yap	.07	1968-78	9-15-73	3.98	213	9-14-78	3.98	330
16893100	Burong Stream, Yap	.29	1968-78	9-15-73	5.09	303	9-14-78	5.10	305
	Caroline Islands, Truk Islands								
16893700	Wichen River at altitude 55 m, Moen	.23	1968-78	11-25-69	4.08	193	9-27-78	4.25	338

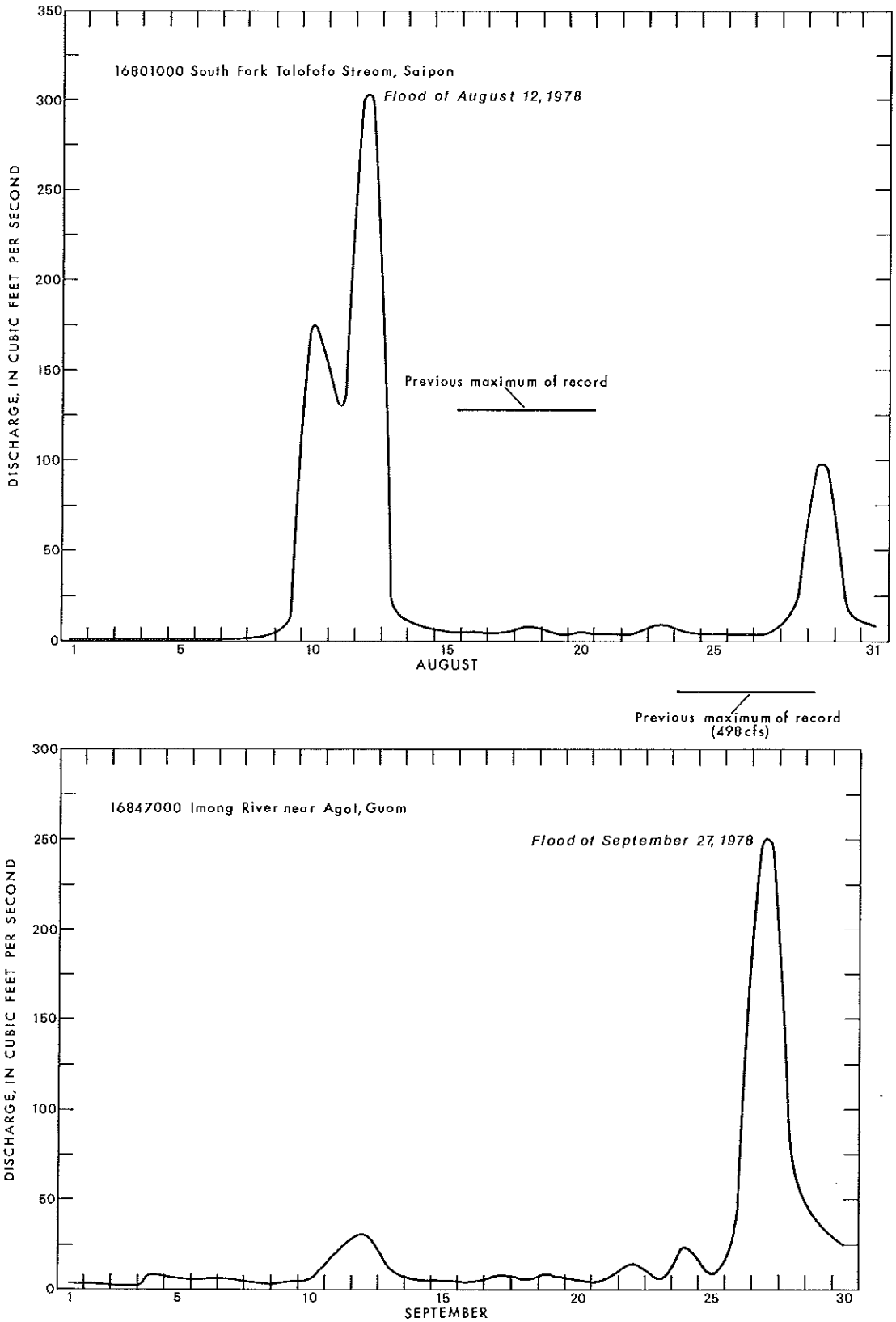


FIGURE 2.--DISCHARGE AT SELECTED GAGING STATIONS, FLOODS OF AUGUST 12 AND SEPTEMBER 27.

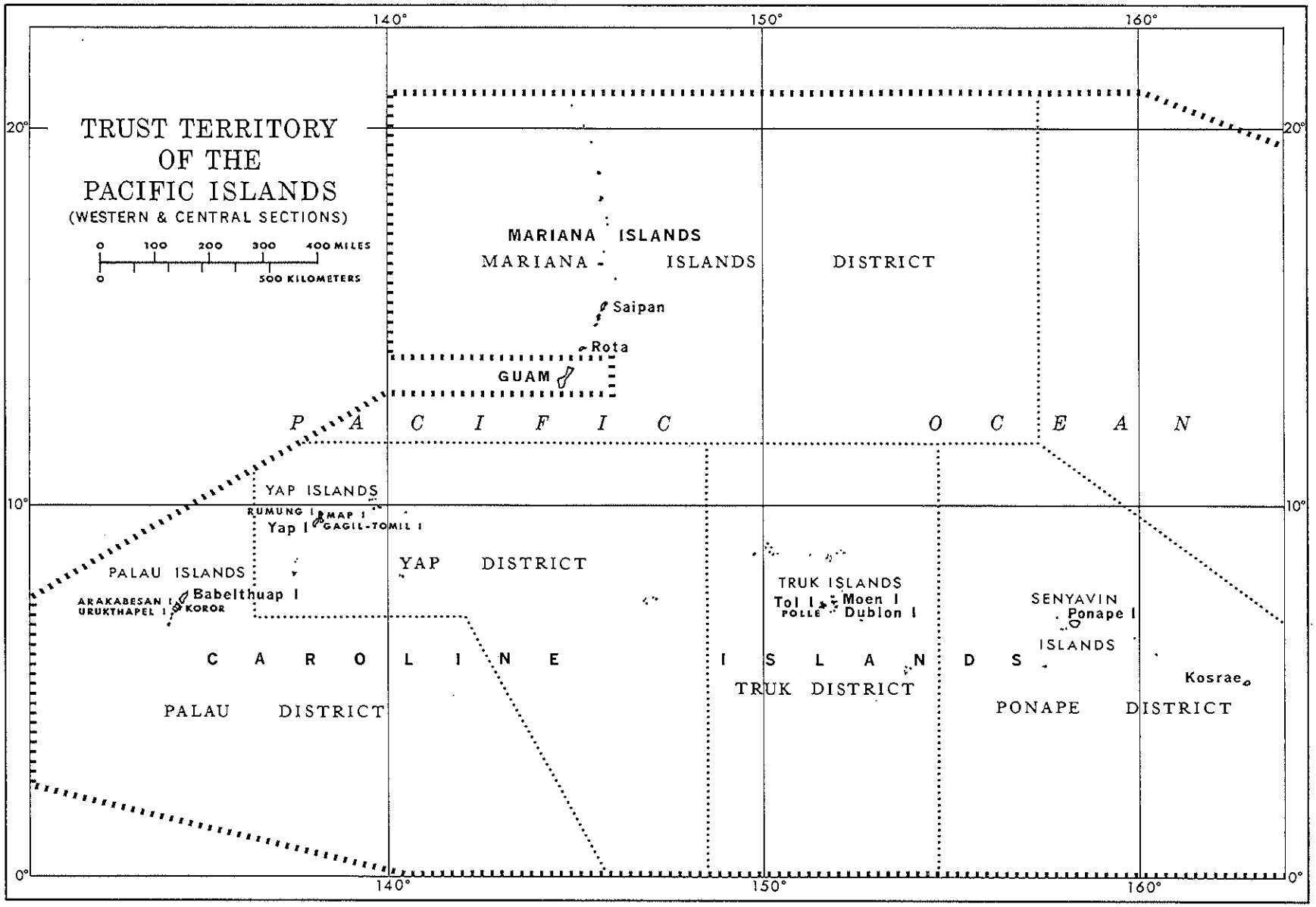


FIGURE 3. MAP SHOWING LOCATIONS OF THE TRUST TERRITORY PACIFIC ISLANDS

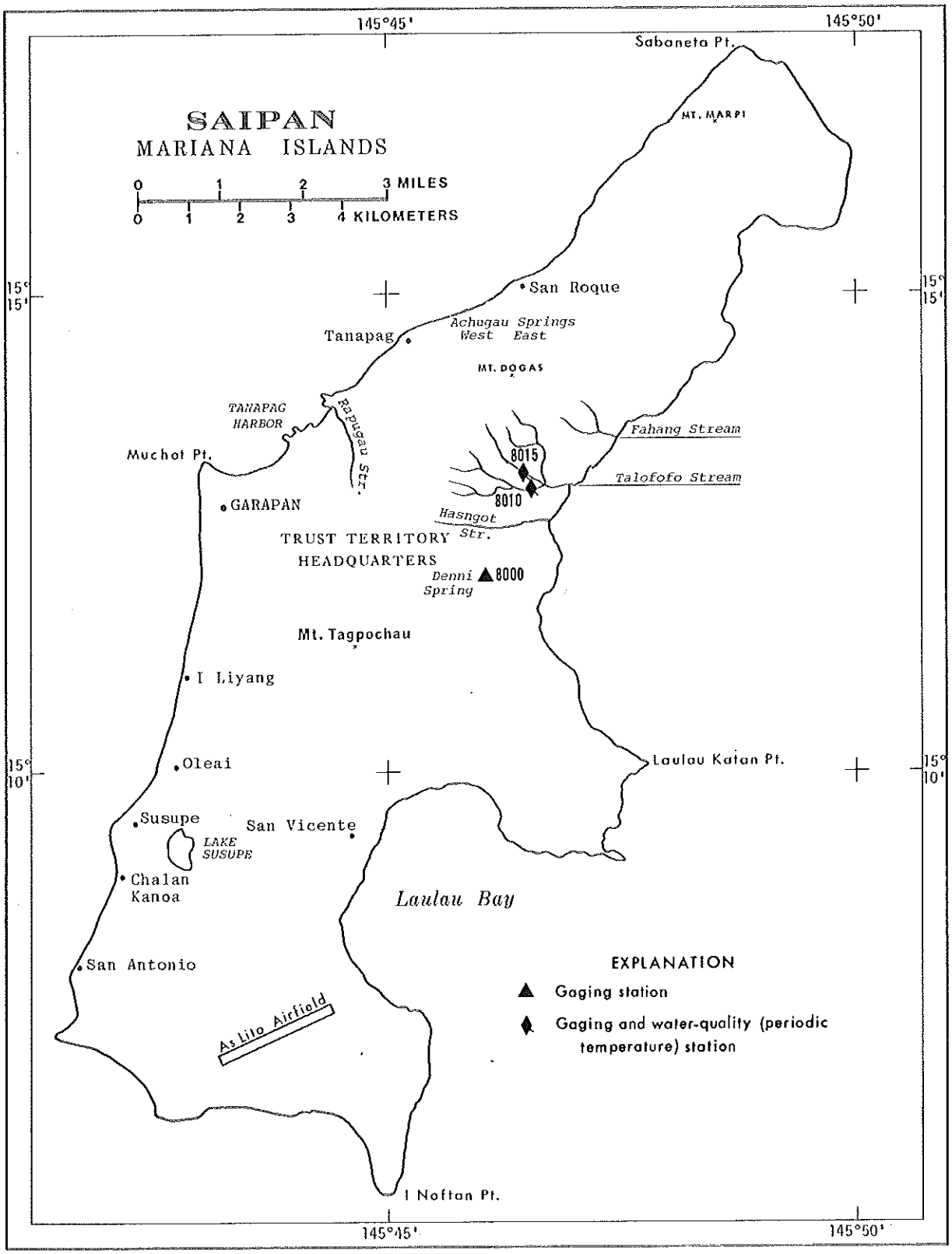


FIGURE 4.--MAP OF SAIPAN, MARIANA ISLANDS, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

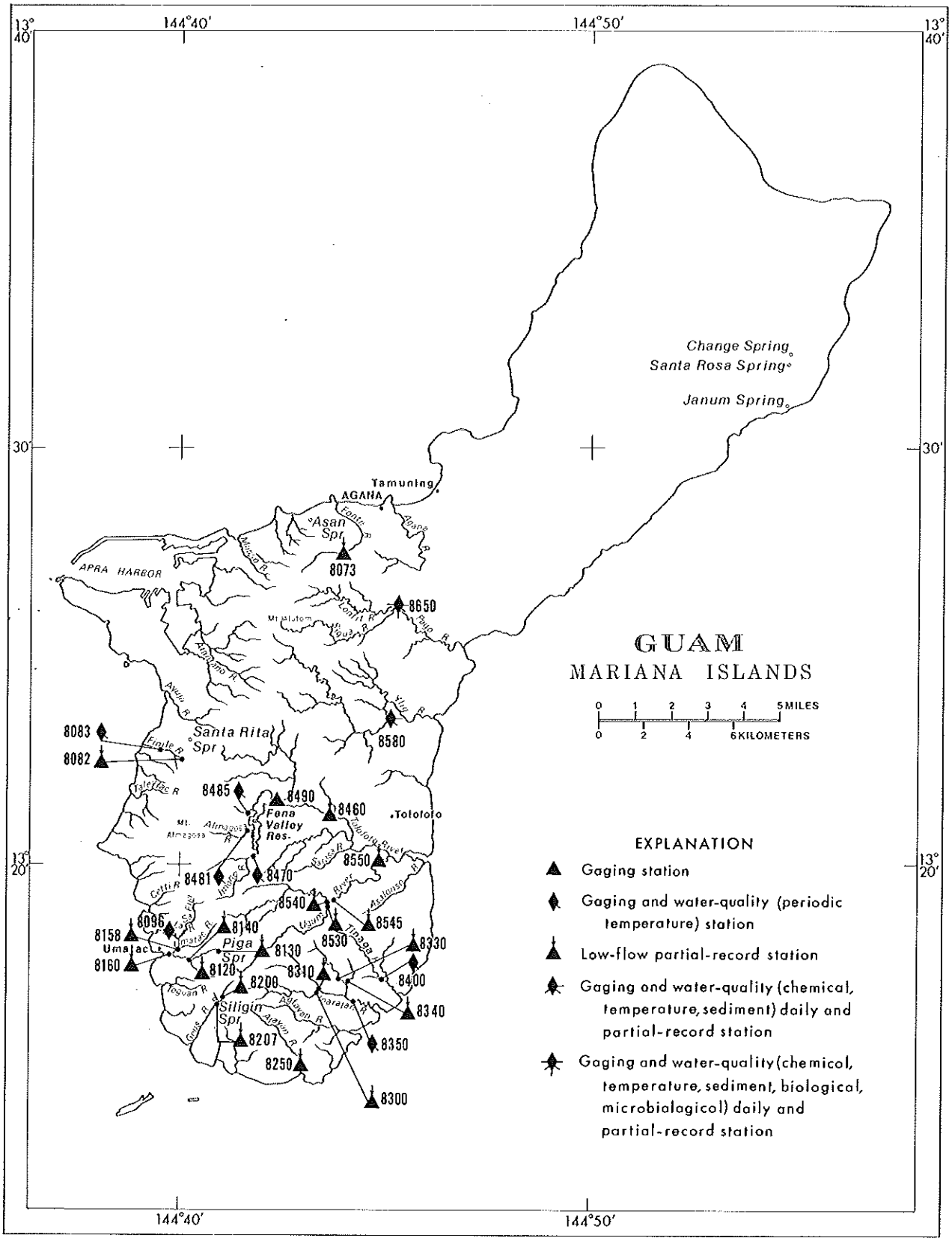


FIGURE 5.--MAP OF GUAM, MARIANA ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

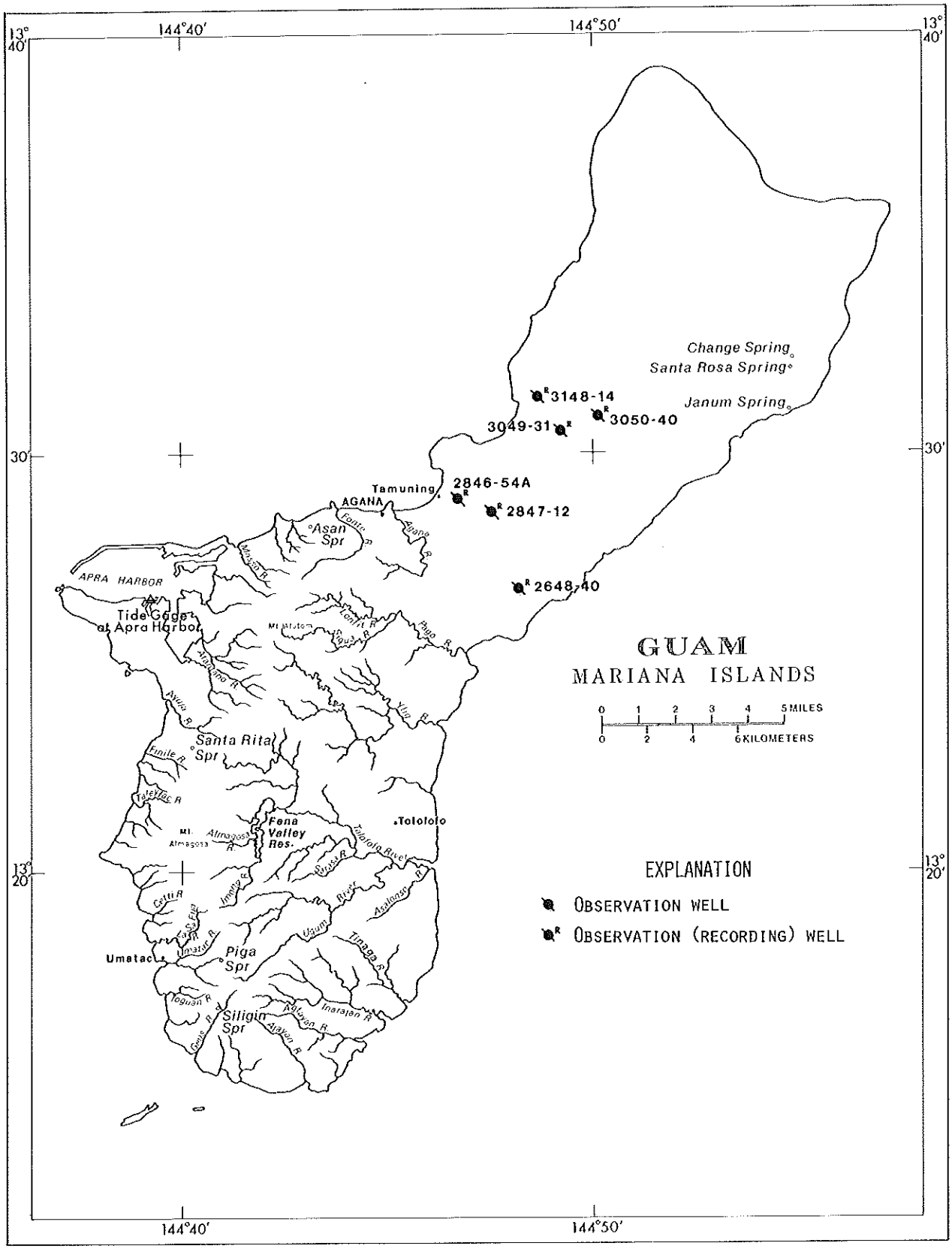


FIGURE 6.--MAP OF GUAM, MARIANA ISLANDS, SHOWING LOCATIONS OF OBSERVATION WELLS.

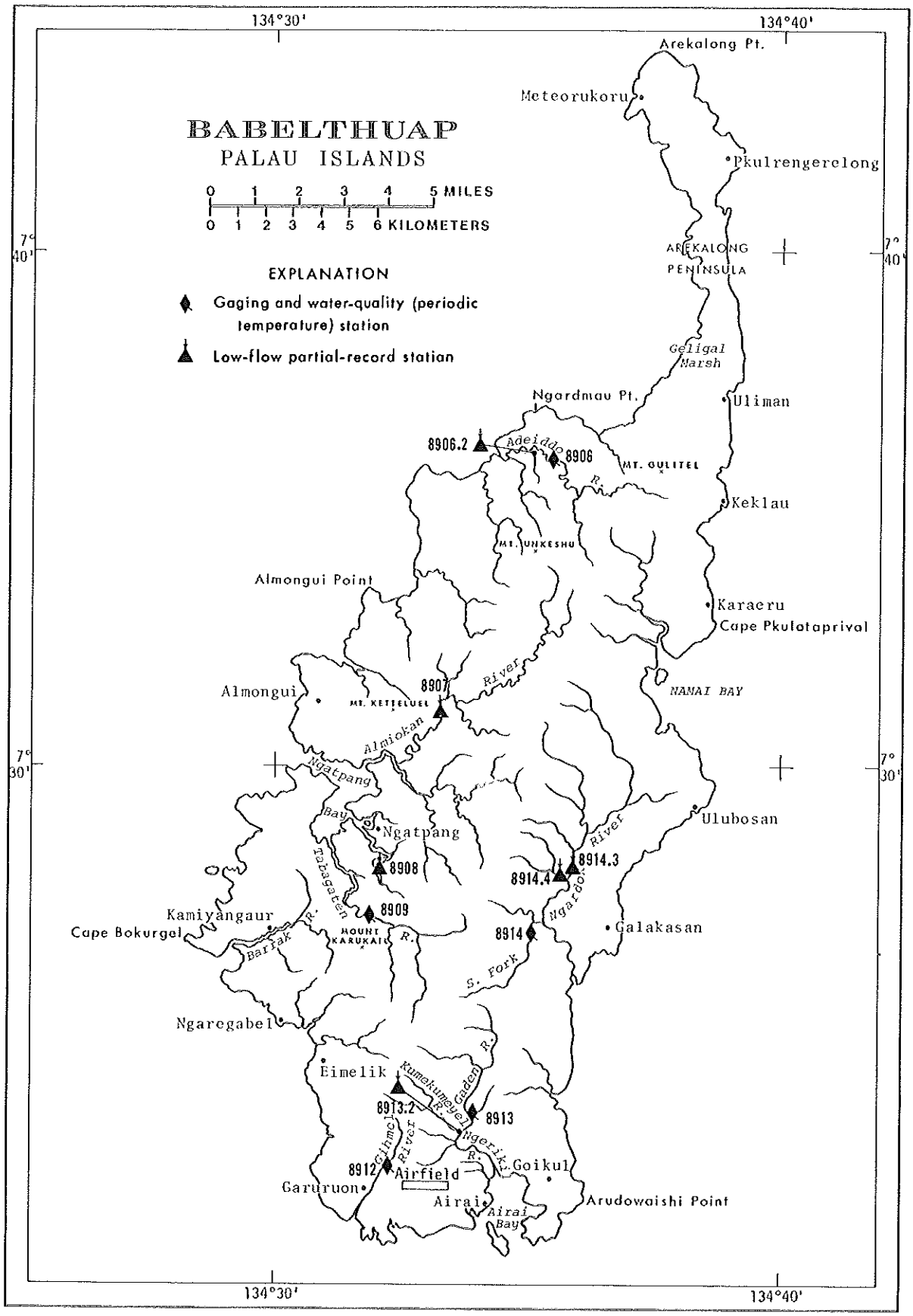


FIGURE 7.--MAP OF BABELTHUAP, PALAU ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

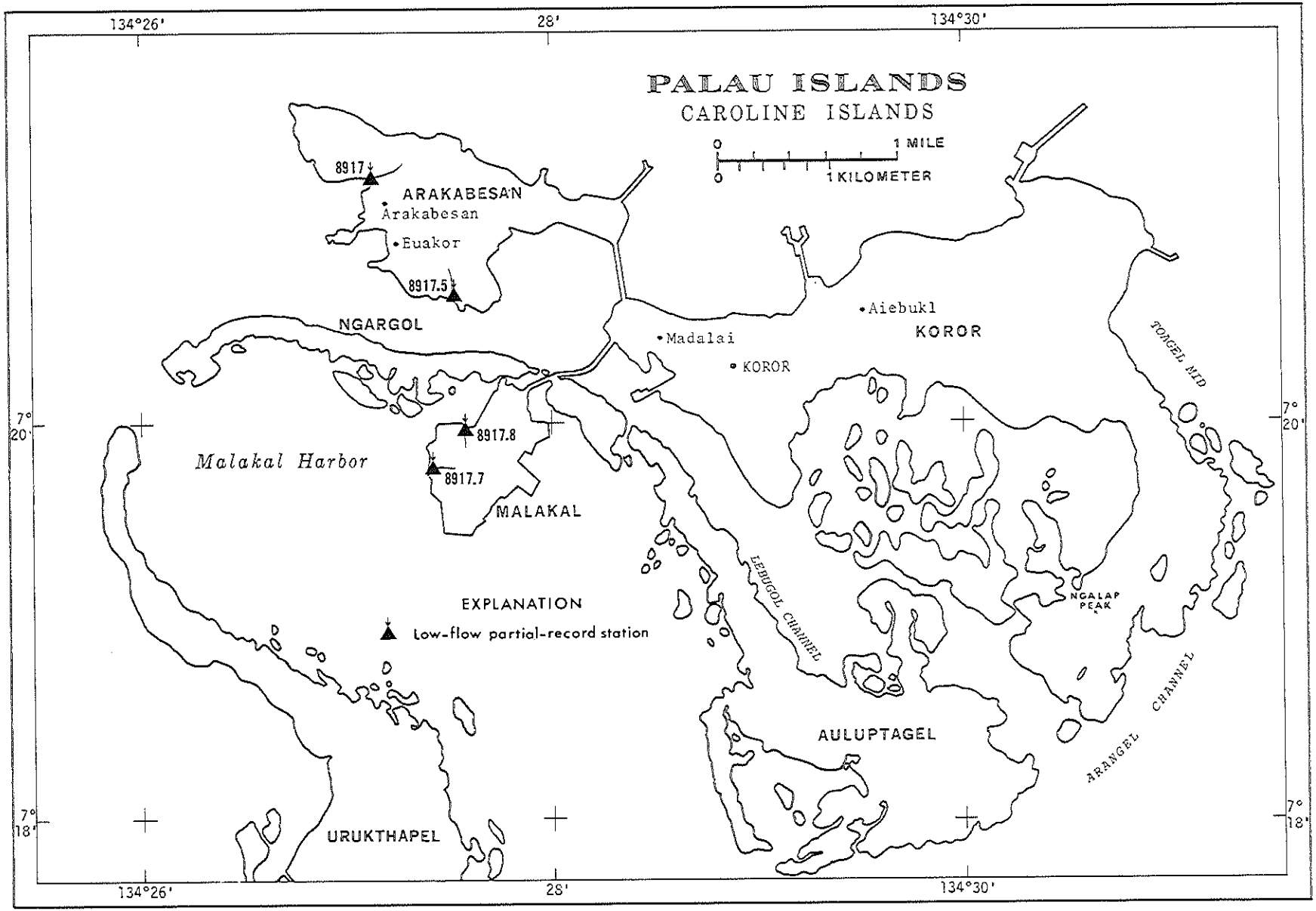


FIGURE 8.--MAP OF ARAKABESAN, MALAKAL, PALAU ISLANDS, SHOWING LOCATIONS OF PARTIAL-RECORD STATIONS.

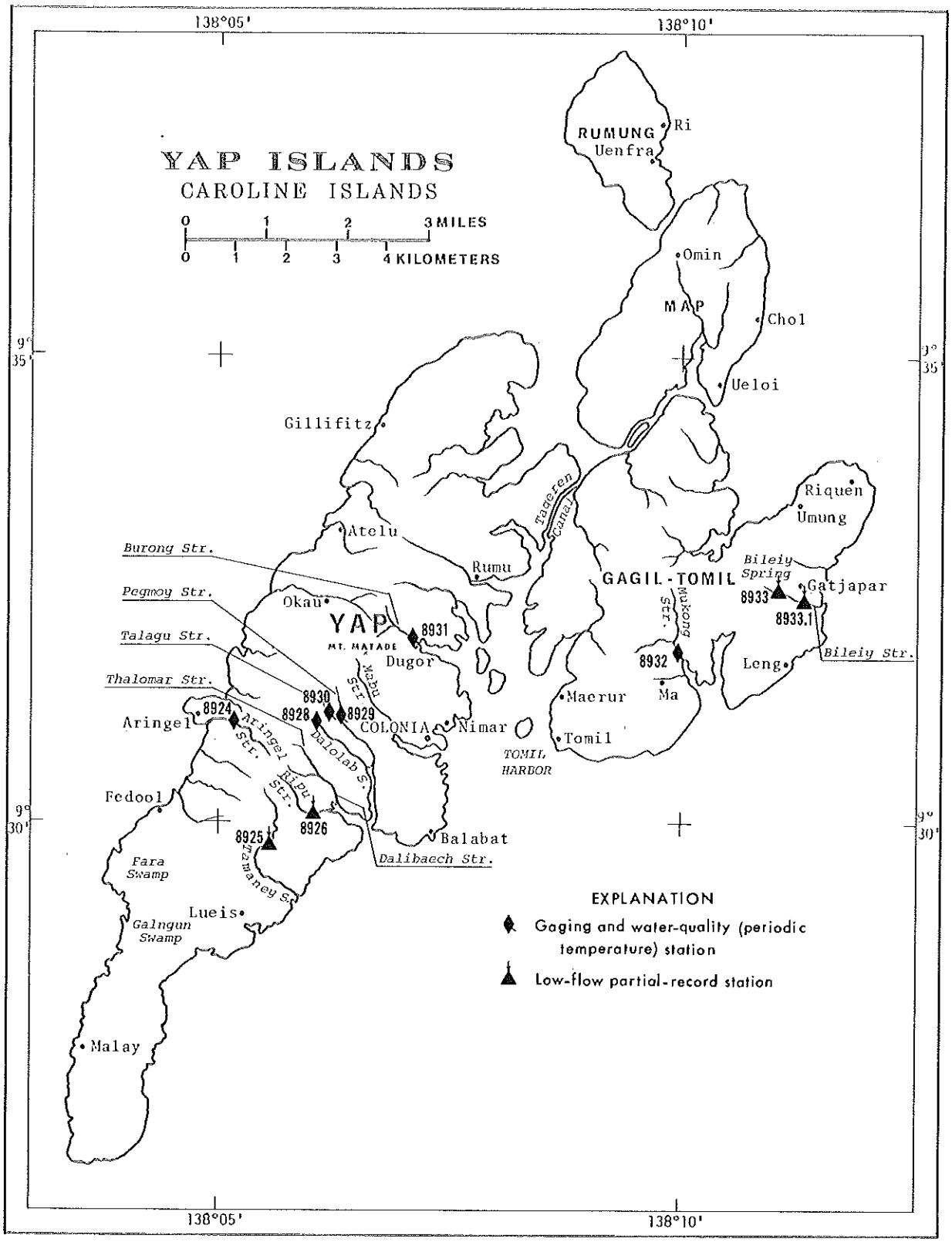


FIGURE 9. --MAP OF YAP ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

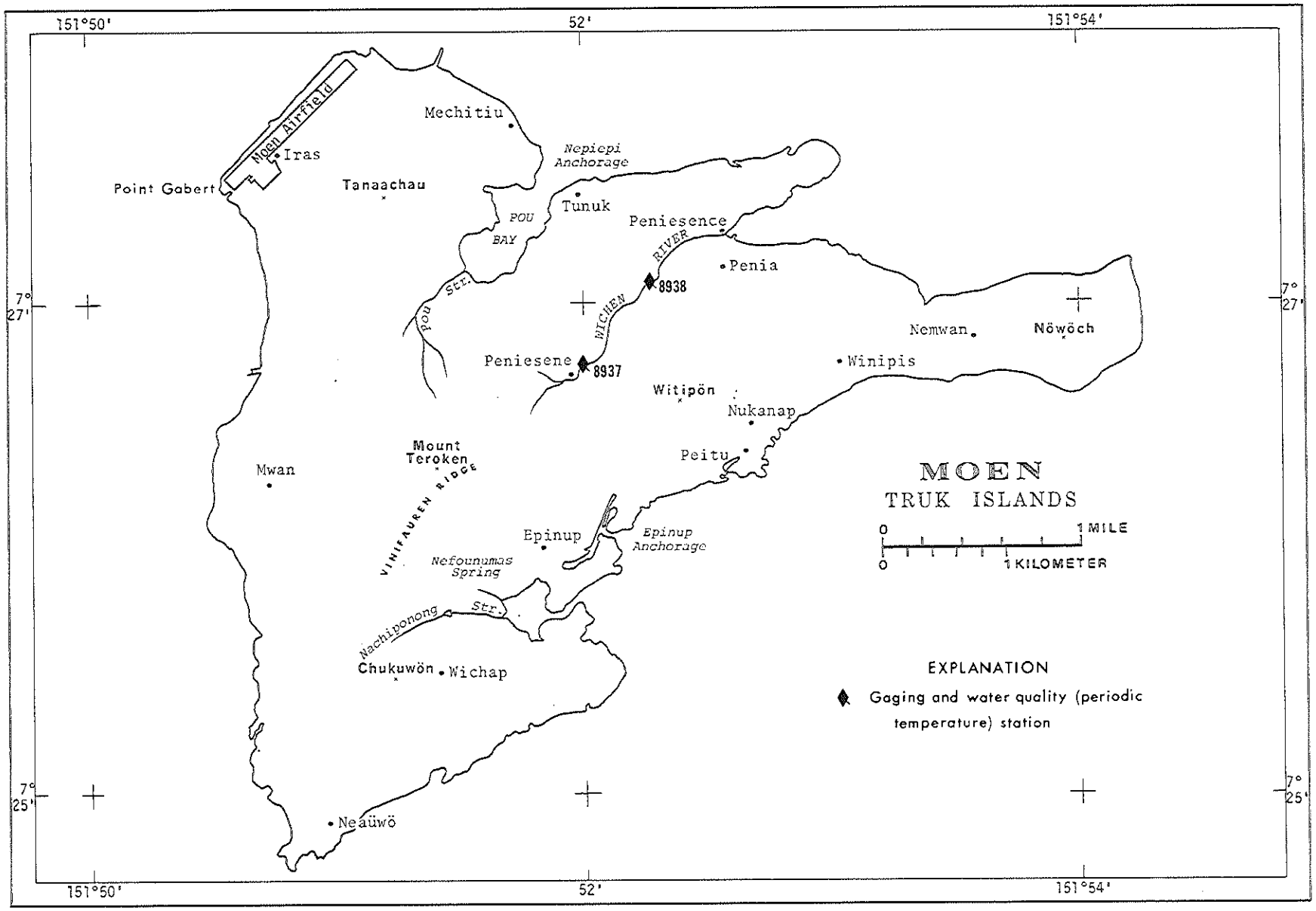


FIGURE 10.--MAP OF MOEN, TRUK ISLANDS, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

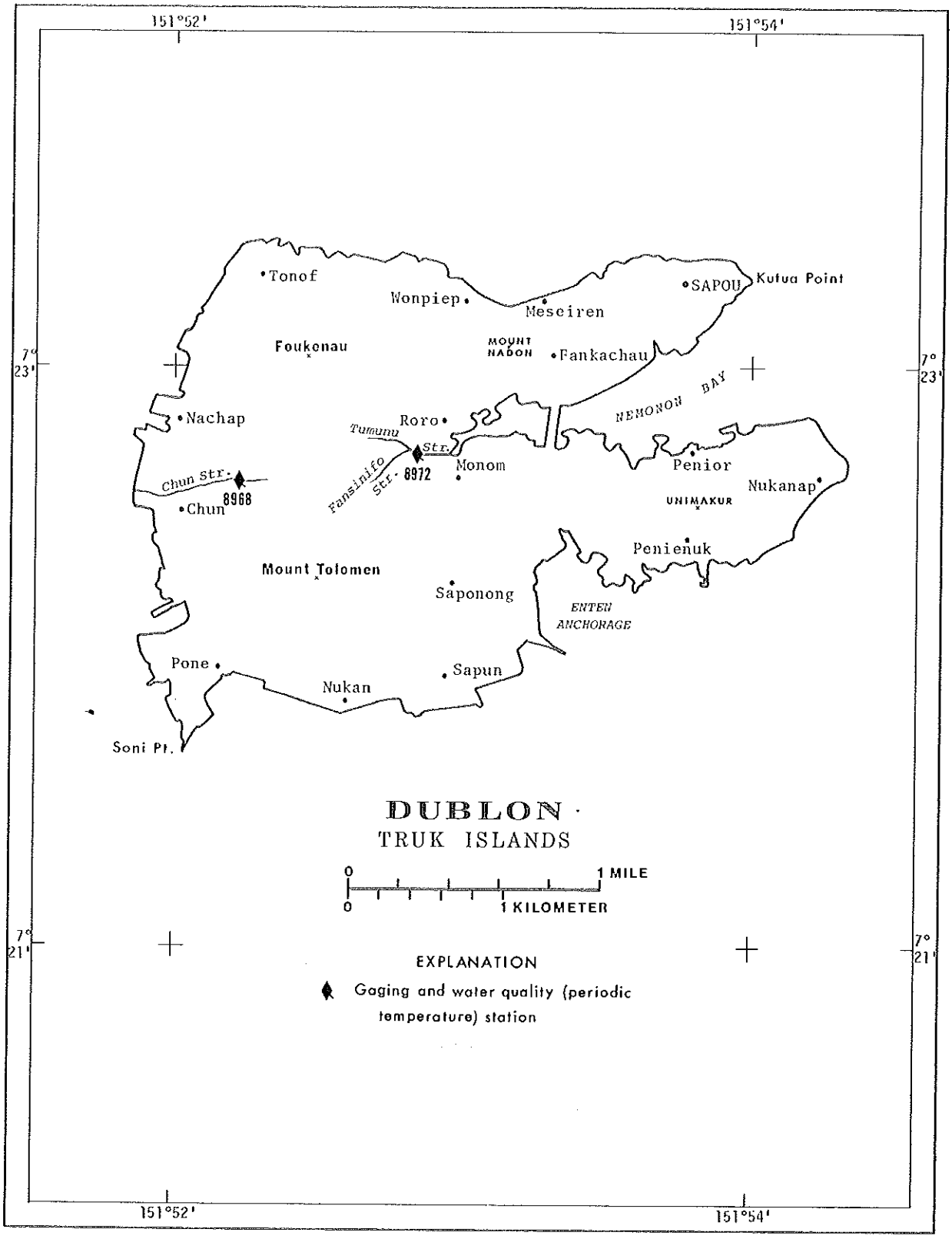


FIGURE 11.--MAP OF DUBLON ISLAND, TRUK ISLANDS, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

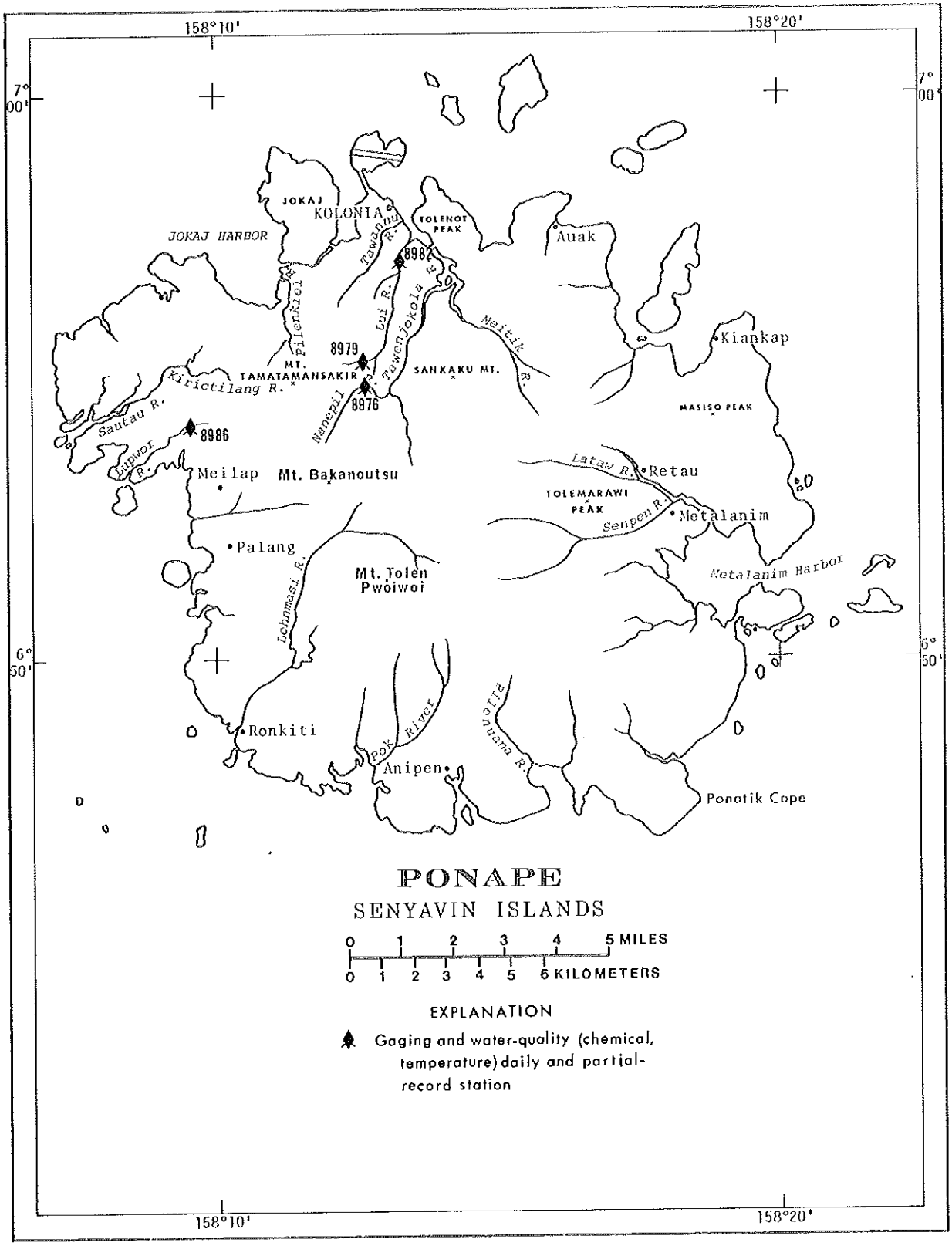


FIGURE 12.--MAP OF PONAPE, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

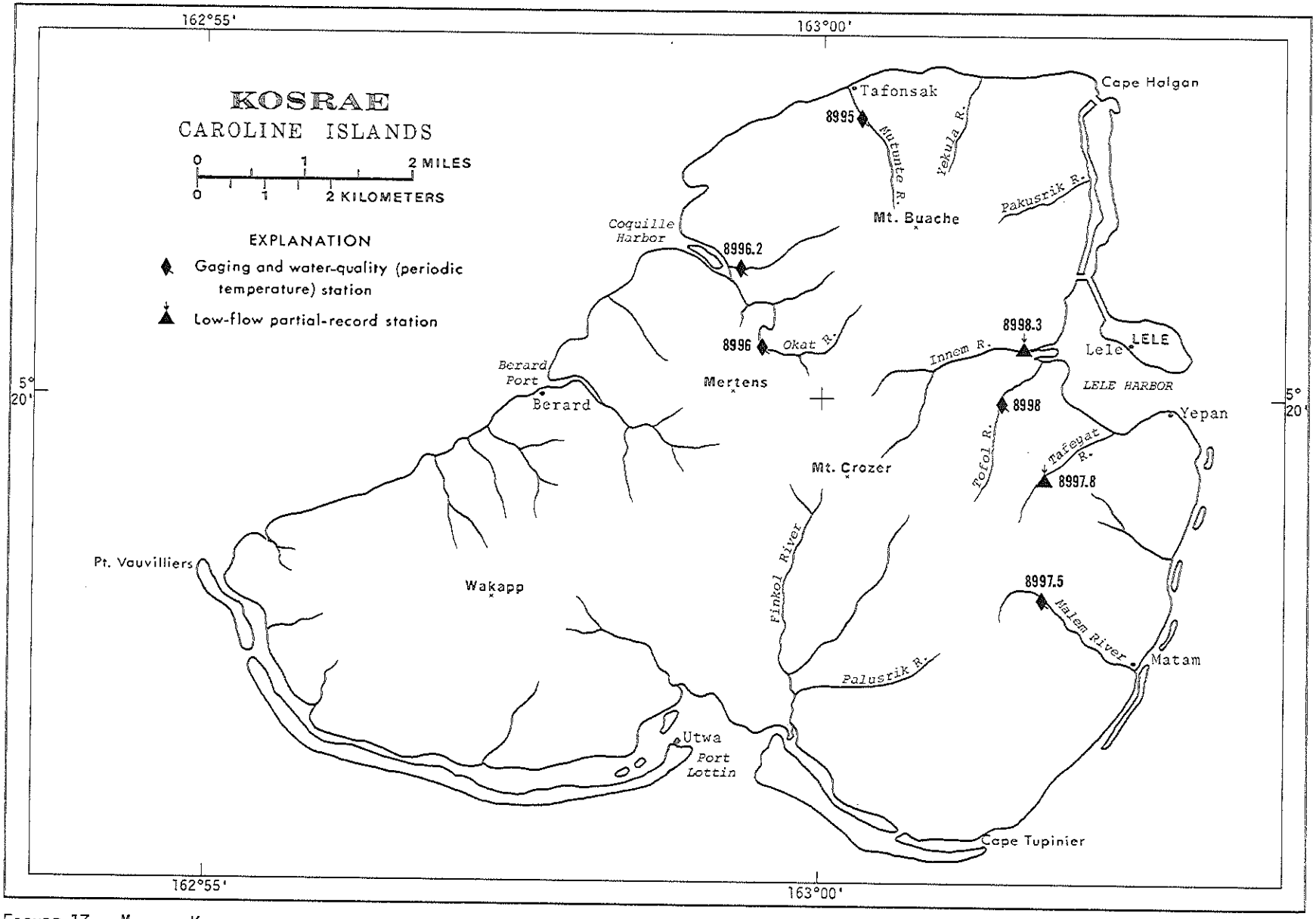


FIGURE 13.--MAP OF KOSRAE, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

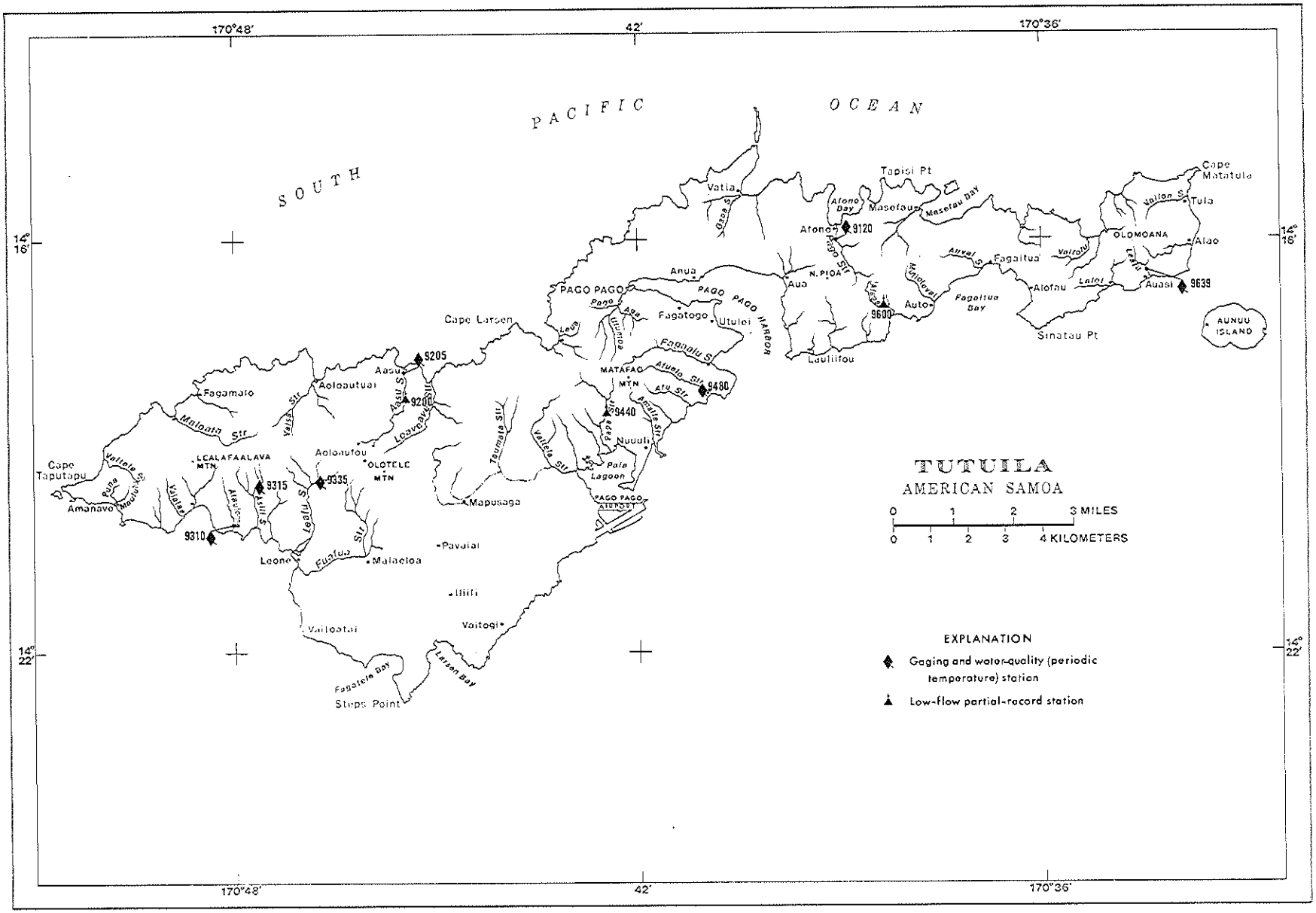


FIGURE 14.--MAP OF TUTUILA, SAMOA ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

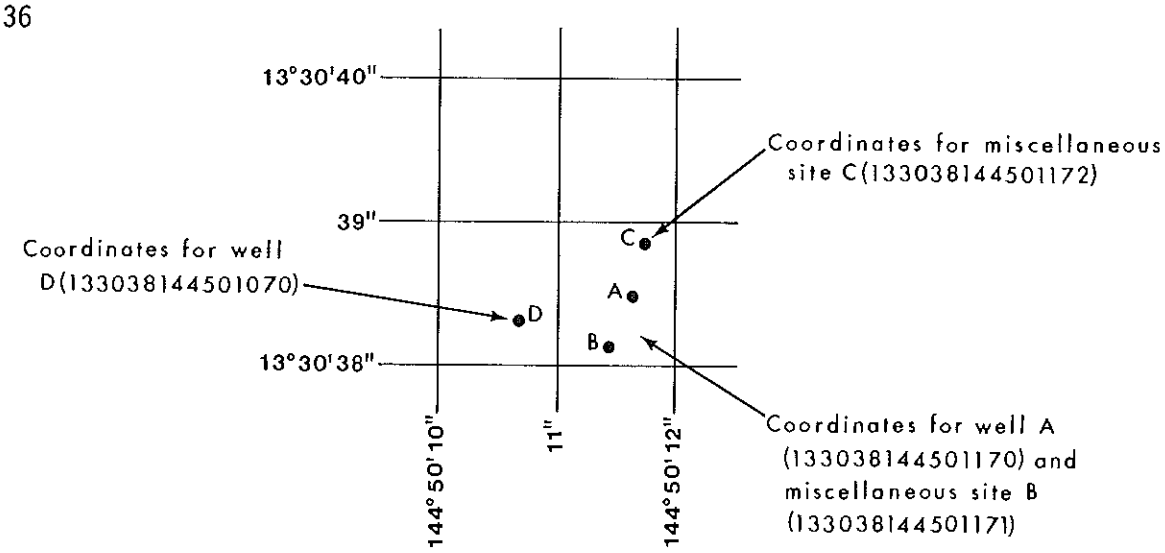


Figure 15. Sketch showing system for numbering wells and miscellaneous sites.

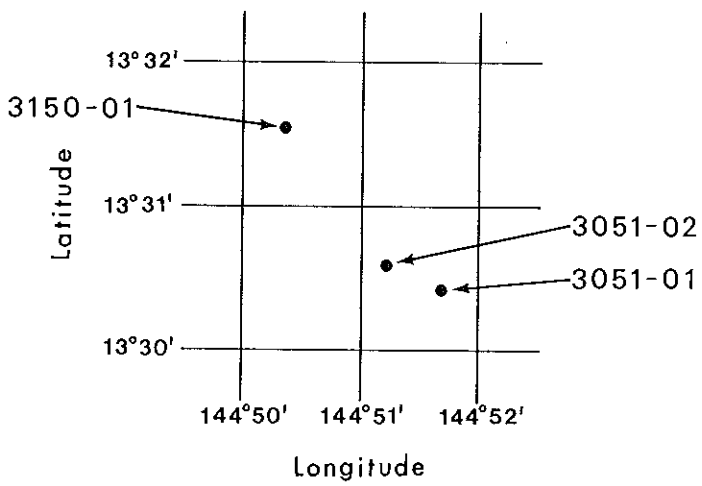


Figure 16. Sketch showing local well numbering system.

MARIANA ISLANDS, ISLAND OF SAIPAN

16800000 DENNI SPRING

LOCATION.--Lat 15°11'57" N., long 145°46'05" E., 2.8 mi (4.5 km) southeast of Tanapag, 3.1 mi (5.0 km) east of Garapan, and 5.6 mi (9.0 km) northeast of Chalan Kanoa.

PERIOD OF RECORD.--August 1952 to June 1954 (published as Donni Spring near Garapan), March 1968, January 1969 to current year.

GAGE.--Water-stage recorder and metal plus concrete control. Altitude of gage is 261 ft (79.6 m) from U.S. Navy.

REMARKS.--Records good except those above 2 ft^3/s (0.057 m^3/s), which are poor.

AVERAGE DISCHARGE.--10 years (water years, 1953, 1970-78), 0.591 ft^3/s (0.017 m^3/s), 428 acre-ft/yr (528,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 8.5 ft^3/s (0.24 m^3/s) Aug. 13, 1978; minimum daily, 0.02 ft^3/s (0.001 m^3/s) Sept. 16, 17, 1969.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.77	1.4	1.0	.61	.53	.41	.33	.29	.23	.23	.73	7.0
2	.77	1.4	1.0	.61	.53	.41	.33	.29	.23	.23	.73	5.5
3	.73	1.4	.96	.61	.53	.41	.33	.29	.23	.20	.73	5.5
4	.69	1.5	.96	.61	.53	.41	.33	.26	.23	.20	.69	5.5
5	.69	1.4	.90	.61	.49	.41	.33	.26	.23	.20	.69	4.5
6	.65	1.4	.90	.61	.49	.41	.33	.26	.26	.20	.65	4.5
7	.65	1.4	.85	.61	.49	.41	.33	.26	.26	.20	.65	4.5
8	.61	1.4	.85	.61	.49	.41	.33	.26	.26	.23	.61	3.5
9	.61	1.4	.81	.61	.45	.37	.33	.26	.26	.23	.69	3.5
10	.57	1.5	.81	.61	.45	.37	.33	.26	.26	.23	1.2	2.0
11	.57	1.5	.81	.61	.45	.37	.33	.26	.26	.23	3.5	1.8
12	.53	1.5	.81	.61	.45	.37	.33	.26	.26	.23	7.0	1.6
13	.49	1.5	.81	.61	.45	.37	.33	.26	.26	.23	8.5	1.6
14	.49	1.5	.81	.61	.45	.37	.33	.23	.23	.20	7.0	1.5
15	.49	1.6	.77	.61	.45	.37	.29	.23	.23	.23	7.0	1.4
16	.49	2.5	.77	.61	.45	.33	.29	.23	.23	.53	7.0	1.4
17	.53	2.5	.77	.61	.45	.33	.29	.23	.23	.81	7.0	1.3
18	.53	2.5	.81	.57	.45	.33	.29	.23	.23	.90	7.0	1.2
19	.53	2.5	.81	.57	.45	.33	.29	.23	.23	.96	7.0	1.2
20	.73	2.5	.81	.57	.45	.33	.29	.23	.23	.96	7.0	1.1
21	.90	2.5	.77	.57	.45	.33	.29	.23	.23	1.0	5.5	1.1
22	1.2	1.8	.77	.57	.45	.33	.29	.23	.23	1.1	4.5	1.1
23	1.6	1.6	.73	.57	.45	.33	.29	.23	.23	1.2	3.5	1.1
24	4.5	1.5	.73	.57	.45	.33	.29	.23	.23	1.2	3.5	1.1
25	4.5	1.4	.73	.53	.45	.33	.29	.23	.23	1.1	3.5	1.1
26	4.5	1.4	.69	.53	.41	.33	.26	.23	.23	.96	3.5	1.1
27	4.5	1.3	.69	.53	.41	.33	.26	.23	.23	.90	3.5	1.3
28	2.5	1.2	.69	.53	.41	.33	.29	.23	.23	.85	3.5	1.8
29	1.8	1.1	.69	.53	---	.33	.29	.23	.23	.81	4.5	2.0
30	1.6	1.1	.69	.53	---	.33	.29	.23	.23	.77	7.0	2.0
31	1.5	---	.65	.53	---	.33	---	.23	---	.73	7.0	---
TOTAL	41.22	49.2	24.85	18.07	12.96	11.15	9.20	7.61	7.14	18.05	124.87	73.8
MEAN	1.33	1.64	.80	.58	.46	.36	.31	.25	.24	.58	4.03	2.46
MAX	4.5	2.5	1.0	.61	.53	.41	.33	.29	.26	1.2	8.5	7.0
MIN	.49	1.1	.65	.53	.41	.33	.26	.23	.23	.20	.61	1.1
AC-FT	82	98	49	36	26	22	18	15	14	36	248	146

CAL YR 1977 TOTAL 215.93 MEAN .59 MAX 4.5 MIN .20 AC-FT 428
WTR YR 1978 TOTAL 398.12 MEAN 1.09 MAX 8.5 MIN .20 AC-FT 790

16801000 SOUTH FORK TALOFOFO STREAM

LOCATION.--Lat 15°12'58" N., long 145°46'31" E., on left bank 0.3 mi (0.5 km) upstream from confluence with Middle and North Forks, 1.4 mi (2.3 km) south of Ogso Dogas, and 2.2 mi (3.5 km) southeast of Tanapag.

DRAINAGE AREA.--0.69 mi^2 (1.79 km^2). Area at site used prior to Mar. 31, 1971, 0.73 mi^2 (1.89 km^2).

PERIOD OF RECORD.--October 1968 to current year. Low-flow records not equivalent prior to Mar. 31, 1971, due to undetermined amount of underflow between sites.

GAGE.--Water-stage recorder. Concrete control since Mar. 31, 1971. Altitude of gage is 30 ft (9.1 m), from topographic map. Prior to Mar. 31, 1971, at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--7 years, 1.39 ft^3/s (0.039 m^3/s), 1,010 acre-ft/yr (1.25 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,100 ft^3/s (116 m^3/s), revised, Aug. 4, 1976, gage height, 8.15 ft (2.484 m), from rating curve extended above 59 ft^3/s (1.67 m^3/s) on basis of slope-area measurements at gage heights 7.30 and 8.15 ft (2.225 and 2.484 m); no flow at times prior to Mar. 31, 1971, at site then in use, and at present site, July 16, 17, 19, 20, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s (11.3 m^3/s) and maximum (*), from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Aug. 10	1230	1640	46.4	6.37	1.942
Aug. 12	1130	*2720	77.0	7.30	2.225
Aug. 29	0130	1220	34.6	5.90	1.798

Minimum discharge, 0.01 ft^3/s (<0.001 m^3/s) May 18, 19.

REVISIONS.--The maximum discharge for the water year 1976 has been revised to 4,100 ft^3/s (116 m^3/s) Aug. 4, 1976, gage height, 8.15 ft (2.484 m) superseding figure published in the reports for 1976, 1977.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	1.3	.66	.27	.14	.08	.05	.05	.04	.07	.76	5.3
2	.30	7.0	.66	.24	.14	.08	.06	.04	.04	.07	.62	4.2
3	.30	2.4	.62	.24	.14	.08	.05	.05	.06	.05	.54	3.4
4	.27	1.8	.66	.24	.16	.08	.05	.04	.04	.20	.46	3.2
5	.24	1.5	.62	.22	.14	.10	.48	.04	.04	.15	.46	2.8
6	.24	1.3	.58	.22	.12	.14	.08	.04	.07	.10	.58	2.6
7	.30	1.2	.58	.20	.14	.11	.07	.04	.10	.09	1.3	2.2
8	.24	2.4	.70	.20	.12	.08	.05	.04	.12	.07	4.9	2.0
9	.22	6.5	.58	.20	.12	.07	.07	.04	.05	.06	9.5	1.8
10	.94	3.0	.54	.18	.12	.07	.08	.04	.03	.39	175	1.8
11	.76	2.3	.50	.18	.12	.07	.06	.04	.14	.11	130	1.8
12	.54	2.0	.46	.18	.11	.07	.05	.05	.10	.07	303	1.7
13	1.1	1.8	.46	.16	.11	.06	.05	.04	.08	.07	18	1.5
14	.76	1.8	.46	.16	.10	.06	.05	.04	.07	8.3	9.0	1.3
15	.70	13	.46	.18	.10	.07	.05	.03	.06	4.8	6.0	1.4
16	1.0	3.6	.42	.18	.11	.07	.04	.02	.06	20	4.0	1.2
17	1.0	2.6	.42	.20	.12	.07	.04	.02	.05	2.2	3.0	1.2
18	.94	1.9	.38	.20	.11	.08	.05	.02	.04	2.1	7.0	1.3
19	3.5	1.7	.38	.18	.10	.06	.05	.03	.08	1.6	3.0	1.5
20	4.9	1.6	.38	.18	.10	.06	.04	.04	.06	2.1	4.0	1.3
21	9.3	1.4	.34	.18	.11	.05	.06	.04	.04	19	2.8	1.2
22	15	1.2	.34	.18	.11	.05	.08	.03	.08	2.8	2.7	1.1
23	59	1.1	.34	.18	.20	.05	.05	.02	.20	1.8	8.8	1.2
24	8.4	1.1	.38	.16	.12	.05	.04	.02	.15	1.3	3.9	1.1
25	4.2	1.0	.34	.16	.11	.04	.04	.06	.10	1.1	3.3	5.0
26	3.3	.94	.30	.16	.10	.04	.04	.03	.08	.82	3.2	5.9
27	2.6	.88	.30	.16	.11	.05	.04	.03	.07	.70	2.7	38
28	2.0	.82	.27	.16	.10	.04	.05	.05	.06	.94	18	8.4
29	1.8	.76	.30	.16	---	.04	.04	.04	.05	1.1	98	4.2
30	1.5	.70	.30	.18	---	.04	.05	.07	.04	1.8	15	3.0
31	1.4	---	.27	.16	---	.05	---	.04	---	1.1	7.8	---
TOTAL	127.09	70.60	14.00	5.85	3.38	2.06	2.01	1.18	2.20	75.06	847.32	112.6
MEAN	4.10	2.35	.45	.19	.12	.066	.067	.038	.073	2.42	27.3	3.75
MAX	59	13	.70	.27	.20	.14	.48	.07	.20	20	303	38
MIN	.22	.70	.27	.16	.10	.04	.04	.02	.03	.05	.46	1.1
AC-FT	252	140	28	12	6.7	4.1	4.0	2.3	4.4	149	1680	223

CAL YR 1977 TOTAL 355.75 MEAN .97 MAX 59 MIN .00 AC-FT 706
WTR YR 1978 TOTAL 1263.35 MEAN 3.46 MAX 303 MIN .02 AC-FT 2510

16801500 MIDDLE FORK TALOFOFO STREAM

LOCATION.--Lat 15°13'05" N., long 145°46'36" E., on left bank 700 ft (213 m) upstream from confluence with South and North Forks, 2.2 mi (3.5 km) southeast of Tanapag, and 3.7 mi (6.0 km) east of Garapan.

DRAINAGE AREA.--0.35 mi^2 (0.91 km^2).

PERIOD OF RECORD.--March 1968 to current year.

REVISED RECORDS.--WDR HI-76-1: 1968-69(P), 1970-71(M), 1972(P), 1973-75(M).

GAGE.--Water-stage recorder. Concrete control since Feb. 28, 1971. Altitude of gage is 25 ft (7.6 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Perlodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 0.651 ft^3/s (0.018 m^3/s), 472 acre-ft/yr (582,000 m^3/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 840 ft^3/s (23.8 m^3/s) Aug. 12, 1978, gage height, 6.58 ft (2.006 m), from rating curve extended above 5.3 ft^3/s (0.150 m^3/s) on basis of slope-area measurements at gage heights 5.38 ft (1.640 m) and 6.58 ft (2.006 m); minimum, 0.05 ft^3/s (0.001 m^3/s) July 5, 6, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*) from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 23	0530	107	3.03	3.61	1.100	Aug. 29	0200	440	12.5	5.32	1.622
Aug. 10	1230	360	10.2	5.00	1.524	Sept. 27	1200	168	4.76	4.05	1.234
Aug. 12	1100	*840	23.8	6.58	2.006						

Minimum discharge, 0.09 ft^3/s (0.003 m^3/s) May 22, June 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.60	.41	.33	.24	.24	.18	.16	.14	.18	.24	2.0
2	.18	1.8	.37	.33	.21	.24	.18	.16	.13	.18	.22	1.5
3	.18	.66	.37	.33	.21	.24	.18	.14	.14	.16	.21	1.2
4	.18	.55	.41	.33	.24	.24	.18	.14	.18	.50	.21	1.1
5	.18	.50	.41	.30	.21	.21	.87	.16	.14	.20	.24	.96
6	.18	.45	.41	.30	.18	.30	.18	.16	.16	.16	.41	1.1
7	.24	.45	.37	.30	.21	.24	.16	.18	.16	.16	1.0	.84
8	.21	.90	.45	.30	.16	.21	.16	.18	.18	.14	2.2	.73
9	.18	2.3	.41	.27	.16	.21	.16	.18	.14	.14	3.0	.63
10	.60	1.1	.37	.24	.16	.21	.16	.16	.13	.27	41	.60
11	.30	.84	.37	.24	.14	.21	.16	.16	.30	.16	36	.66
12	.30	.78	.37	.24	.16	.21	.16	.18	.21	.18	84	.60
13	.45	.72	.33	.24	.16	.18	.18	.16	.18	.18	5.0	.50
14	.27	.72	.33	.24	.18	.21	.18	.16	.17	2.7	3.0	.50
15	.30	3.4	.33	.27	.18	.21	.18	.18	.16	1.9	2.5	.50
16	.37	.96	.33	.27	.21	.27	.18	.16	.16	5.8	2.0	.50
17	.30	.78	.33	.30	.18	.30	.18	.18	.15	.72	1.5	.50
18	.30	.66	.33	.27	.16	.27	.21	.16	.14	.72	3.0	.55
19	1.0	.60	.33	.27	.18	.21	.24	.21	.20	.93	1.3	.50
20	1.3	.60	.33	.25	.18	.24	.24	.18	.16	.96	1.5	.50
21	2.4	.55	.30	.24	.18	.24	.18	.14	.14	4.6	1.3	.50
22	3.6	.55	.30	.24	.21	.21	.16	.13	.20	.72	1.2	.45
23	16	.55	.27	.24	.27	.21	.16	.14	.50	.45	2.2	.60
24	2.1	.50	.30	.24	.27	.24	.16	.14	.25	.37	1.2	.45
25	1.2	.45	.30	.24	.24	.21	.16	.14	.18	.33	1.1	1.7
26	1.0	.45	.30	.24	.24	.21	.16	.14	.17	.30	1.1	2.2
27	.78	.45	.30	.24	.21	.18	.14	.16	.16	.27	.96	15
28	.72	.41	.30	.24	.24	.18	.14	.18	.16	.50	4.1	4.1
29	.60	.41	.30	.24	---	.18	.14	.14	.15	.44	34	1.5
30	.55	.41	.30	.27	---	.18	.16	.16	.15	.55	6.6	1.2
31	.55	---	.33	.24	---	.18	---	.14	---	.33	3.7	---
TOTAL	36.73	24.10	10.66	8.29	5.57	6.87	5.88	4.96	5.39	25.20	245.99	43.67
MEAN	1.18	.80	.34	.27	.20	.22	.20	.16	.18	.81	7.94	1.46
MAX	16	3.4	.45	.33	.27	.30	.87	.21	.50	5.8	84	15
MIN	.18	.41	.27	.24	.14	.18	.14	.13	.13	.14	.21	.45
AC-FT	73	48	21	16	11	14	12	9.8	11	50	488	87

CAL YR 1977 TOTAL 151.81 MEAN .42 MAX 16 MIN .06 AC-FT 301
WTR YR 1978 TOTAL 423.31 MEAN 1.16 MAX 84 MIN .13 AC-FT 840

16808300 FINILE CREEK AT AGAT

LOCATION.--Lat 13°22'39" N., long 144°39'26" E., on right bank 0.4 mi (0.6 km) upstream from estuary and 0.4 mi (0.6 km) south of Agat School.

DRAINAGE AREA.--0.28 mi² (0.73 km²).

PERIOD OF RECORD.--April 1960 to current year. Prior to October 1969, published as Finile River at Agat.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--18 years, 1.41 ft³/s (0.040 m³/s), 1,020 acre-ft/yr (1.26 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 326 ft³/s (9.23 m³/s) May 21, 1976, gage height, 3.88 ft (1.183 m), from rating curve extended above 80 ft³/s (2.27 m³/s) on basis of slope-area measurement at gage height 3.66 ft (1.116 m); minimum, 0.04 ft³/s (0.001 m³/s) July 2-4, 6, 8, 9, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 196 ft³/s (5.55 m³/s) Sept. 27, gage height, 2.66 ft (0.811 m), from rating curve extended as explained above, no other peak above base of 170 ft³/s (4.81 m³/s); minimum, 0.09 ft³/s (0.003 m³/s) May 28 to June 2, June 4-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	1.5	6.0	.88	.60	.43	.21	.18	.12	.32	.40	1.3
2	7.0	1.3	5.0	.88	.60	.39	.19	.18	.12	.18	.40	1.2
3	1.5	2.5	1.8	.89	.70	.38	.19	.18	.27	.22	.44	1.1
4	1.2	3.1	1.6	.92	.60	.37	.21	.18	.15	1.3	.42	1.2
5	1.0	1.4	2.0	.88	.60	.36	.22	.32	.12	.37	.38	1.1
6	.90	1.6	1.4	.81	.60	.36	.22	.18	.12	.27	.96	1.6
7	.80	1.4	1.4	.71	.60	.35	.43	.18	.12	.27	3.3	1.1
8	.70	22	1.3	.70	.60	.35	.22	.18	.15	.32	2.2	1.9
9	3.0	11	1.3	.72	.51	.35	.25	.18	.15	.22	1.7	1.2
10	1.5	3.6	1.3	.68	.51	.34	.24	.18	.18	.22	8.8	1.1
11	1.0	4.0	1.2	.69	.51	.33	.23	.18	.18	.70	9.0	9.5
12	3.0	2.0	1.2	.75	.46	.31	.21	.15	.15	.43	13	7.4
13	2.0	4.0	1.1	.69	.55	.30	.22	.15	.22	.37	6.2	2.5
14	1.8	3.0	1.1	.68	.47	.30	.23	.15	.32	.37	3.2	1.9
15	7.0	5.0	1.1	.70	.51	.32	.20	.15	.15	.80	8.8	1.7
16	5.0	2.0	1.1	.68	.51	.27	.20	.18	.15	2.2	3.7	1.9
17	2.0	1.8	1.0	.68	.51	.26	.19	.18	.27	.88	2.9	2.0
18	1.5	1.7	1.0	.70	.51	.25	.19	.15	.51	.46	4.2	2.0
19	5.0	1.6	.99	.68	.51	.25	.22	.15	.60	.35	2.9	1.9
20	4.0	1.5	.96	.67	.43	.26	.27	.18	.22	.39	2.3	1.9
21	3.0	1.4	.94	.67	.43	.25	.22	.15	.18	.35	2.1	2.3
22	3.5	1.3	.89	.66	.43	.25	.22	.15	.43	2.3	2.2	4.7
23	2.0	1.7	.87	.61	.43	.27	.27	.15	1.0	1.1	2.3	2.1
24	3.0	1.3	.87	.71	.51	.26	.22	.18	.37	1.2	1.9	2.3
25	2.0	1.2	.92	.71	.51	.24	.18	.18	.22	.70	1.7	2.2
26	1.8	1.2	.95	.57	.43	.22	.18	.15	.18	5.0	1.6	7.4
27	1.6	1.1	.91	.69	.51	.21	.22	.15	.15	1.0	1.5	13
28	1.7	1.0	.88	.65	.51	.20	.32	.14	.15	.70	1.5	3.7
29	1.5	1.4	.92	.60	---	.20	.22	.12	.22	.60	1.5	2.9
30	2.0	1.0	1.1	.60	---	.20	.22	.12	.18	.50	2.0	3.0
31	1.6	---	.91	.60	---	.20	---	.12	---	.45	1.4	---
TOTAL	74.30	88.6	44.01	22.06	14.65	9.03	6.81	5.17	7.35	24.54	94.90	89.1
MEAN	2.40	2.95	1.42	.71	.52	.29	.23	.17	.25	.79	3.06	2.97
MAX	7.0	22	6.0	.92	.70	.43	.43	.32	1.0	5.0	13	13
MIN	.70	1.0	.87	.57	.43	.20	.18	.12	.12	.18	.38	1.1
AC-FT	147	176	87	44	29	18	14	10	15	49	188	177

CAL YR 1977 TOTAL 373.09 MEAN 1.02 MAX 30 MIN .10 AC-FT 740
WTR YR 1978 TOTAL 480.52 MEAN 1.32 MAX 22 MIN .12 AC-FT 953

16809600 LA SA FUA RIVER NEAR UMATAC

LOCATION.--Lat 13°18'23" N., long 144°39'45" E., on left bank 0.6 mi (1.0 km) north of Sanchez School in Umatac and 0.8 mi (1.3 km) upstream from mouth.

DRAINAGE AREA.--1.06 mi² (2.75 km²).

PERIOD OF RECORD.--April 1953 to July 1960, October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (36.6 m), from topographic map.

REMARKS.--Records fair. Water is diverted through 2-in (5.1-cm) pipe at coast highway above station for consumption in nearby homes. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years (water years 1954-59, 1977-78), 3.97 ft³/s (0.112 m³/s), 2,880 acre-ft/yr (3.55 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft³/s (40.8 m³/s) Sept. 27, 1978, gage height, 6.05 ft (1.844 m), from rating curve extended above 109 ft³/s (3.09 m³/s) by test on model of station site; minimum, 0.17 ft³/s (0.005 m³/s) June 11, 12, 13, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 15	1815	502	14.2	4.29	1.308
Nov. 8	2130	670	19.0	4.75	1.448
Sept. 27	1300	*1440	40.8	6.05	1.844

Minimum discharge, about 0.2 ft³/s (0.006 m³/s) at the end of June.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	3.2	7.5	1.1	.79	.49	.47	.46	.26	1.9	.89	1.7
2	27	1.9	12	1.0	.73	.49	.41	.37	.28	1.2	1.2	1.5
3	5.9	1.7	3.5	.97	1.4	.52	.43	.35	.83	.79	.86	2.2
4	4.1	2.4	2.5	1.1	1.7	.45	.45	.35	.26	5.0	.76	4.0
5	3.4	1.6	4.0	.93	1.1	.47	.49	.37	.27	2.4	.67	3.0
6	2.5	1.5	2.4	.79	.85	.47	.45	.46	.25	1.3	.61	2.2
7	2.0	1.5	2.1	.85	.79	.47	1.4	.42	.30	.89	4.9	2.4
8	1.8	173	2.0	.85	.85	.45	.58	.40	.25	.76	8.1	3.0
9	13	36	2.4	.89	.73	.47	.76	.42	.25	1.1	7.5	2.3
10	7.2	6.7	1.7	.82	.76	.45	.53	.35	.40	.83	56	3.4
11	2.8	8.5	1.5	.82	.70	.44	.48	.34	1.5	.76	41	33
12	5.1	5.2	1.5	.79	.64	.42	.48	.32	.50	.54	29	25
13	6.2	14	1.4	.76	.79	.42	.48	.30	.30	.42	38	7.2
14	8.1	11	1.4	.73	.67	.41	.46	.30	.50	.49	11	3.2
15	23	13	1.2	.79	.64	.44	.44	.30	.30	4.0	7.0	2.6
16	15	6.4	1.1	.79	.70	.44	.42	.34	.25	18	4.7	2.2
17	6.7	4.1	1.0	.73	.67	.44	.37	.44	.35	15	8.8	4.7
18	4.3	3.3	1.0	.73	.70	.46	.40	.32	.70	3.7	12	10
19	16	2.9	1.0	.67	.58	.42	.40	.32	4.1	2.4	11	9.5
20	14	2.8	1.0	.67	.55	.44	.46	.34	.79	2.1	6.2	3.5
21	9.1	2.4	1.3	.67	.52	.44	.42	.36	.30	1.7	5.0	2.9
22	15	2.1	1.0	.70	.61	.44	.42	.38	4.0	1.4	4.7	11
23	7.5	3.0	.97	.64	.55	.61	.53	.34	3.2	1.2	9.1	3.2
24	5.9	2.3	.97	.82	.67	.59	.42	.34	2.7	1.5	4.3	16
25	4.6	1.9	.93	1.1	1.1	.46	.37	.42	.97	1.5	3.2	7.2
26	3.4	1.9	1.0	.79	.61	.44	.35	.38	.52	1.0	2.8	37
27	2.8	1.7	.93	1.5	.61	.39	.35	.30	.27	.83	2.2	133
28	2.6	1.6	.86	1.3	.61	.39	.44	.28	.25	.93	2.3	14
29	2.2	2.1	.89	.89	---	.39	.40	.26	.22	.73	3.3	6.8
30	2.0	1.6	1.7	1.1	---	.37	.53	.24	.20	2.2	2.4	4.5
31	2.4	---	1.2	.76	---	.58	---	.30	---	1.1	2.0	---
TOTAL	227.6	321.3	63.95	27.05	21.62	14.16	14.59	10.87	25.27	77.67	291.49	362.2
MEAN	7.34	10.7	2.06	.87	.77	.46	.49	.35	.84	2.51	9.40	12.1
MAX	27	173	12	1.5	1.7	.61	1.4	.46	4.1	18	56	133
MIN	1.8	1.5	.86	.64	.52	.37	.35	.24	.20	.42	.61	1.5
AC-FT	451	637	127	54	43	28	29	22	50	154	578	718

CAL YR 1977 TOTAL 1142.03 MEAN 3.13 MAX 173 MIN .25 AC-FT 2270
WTR YR 1978 TOTAL 1457.77 MEAN 3.99 MAX 173 MIN .20 AC-FT 2890

16835000 INARAJAN RIVER NEAR INARAJAN

LOCATION.--Lat 13°16'41" N., long 144°44'15" E., on right bank 0.6 mi (1.0 km) northwest of Inarajan and 4.9 mi (7.9 km) east of Merizo.

DRAINAGE AREA.--4.42 mi² (11.45 km²).

PERIOD OF RECORD.--September 1952 to current year.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records fair. Stage-discharge relation not determined above gage height 11.0 ft (3.35 m) owing to ungaged overbank flow. Village of Inarajan diverted about 40,000 gallons (151 m³) a day above station for domestic use until October 1973, and during dry periods about 250,000 gallons (946 m³) a day for irrigation. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--26 years, 17.2 ft³/s (0.487 m³/s), 12,460 acre-ft/yr (15.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 12.90 ft (3.932 m) Oct. 11, 1963 (discharge not determined); minimum discharge, 0.42 ft³/s (0.012 m³/s) June 21, 22, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 12.17 ft (3.709 m) Nov. 8 (2230) discharge not determined, no other peak above base of 1,700 ft³/s (48.1 m³/s); minimum daily discharge, about 1.4 ft³/s (0.040 m³/s) May 31, June 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	29	30	5.3	4.0	2.9	2.0	2.0	1.4	3.8	2.8	9.1
2	28	11	28	5.1	3.8	2.8	1.9	1.9	1.5	2.6	2.8	8.1
3	12	11	14	5.1	5.8	2.7	1.8	2.2	4.0	2.2	2.6	7.8
4	9.2	16	11	6.2	5.1	2.7	1.9	1.9	2.0	17	2.7	28
5	13	9.7	11	5.1	8.1	2.6	2.0	1.9	1.8	3.5	2.6	13
6	9.0	9.3	9.7	4.8	4.6	2.6	1.9	2.5	2.0	2.5	2.6	10
7	7.3	9.4	12	4.3	4.2	2.6	4.7	2.3	1.8	2.3	7.5	9.4
8	6.5	343	9.6	4.1	4.4	2.6	2.5	2.1	1.8	2.6	14	8.4
9	20	137	10	4.1	3.8	2.5	2.3	2.1	1.6	3.7	31	8.4
10	17	28	8.6	4.0	3.8	2.5	2.1	1.9	1.9	2.5	151	13
11	9.8	33	7.8	4.0	3.7	2.5	2.0	1.9	3.7	2.1	155	8.7
12	8.5	27	7.4	3.8	3.5	2.5	2.1	1.8	2.1	2.0	220	27
13	7.8	49	7.2	3.7	3.7	2.5	2.0	1.8	1.8	1.9	123	12
14	35	35	7.0	3.6	3.5	2.3	2.0	1.8	2.0	3.1	39	9.1
15	82	48	6.6	3.8	3.3	2.3	2.0	1.7	1.8	19	24	11
16	75	26	6.3	4.0	3.5	2.3	1.9	1.9	1.7	33	31	9.0
17	21	19	6.0	3.7	3.5	2.3	1.9	2.0	2.6	18	28	10
18	14	17	6.0	3.4	3.5	2.3	1.9	1.8	2.8	5.6	32	12
19	183	16	6.1	3.4	3.3	2.2	2.0	1.7	8.7	3.8	49	15
20	52	15	5.9	3.5	3.2	2.3	2.5	1.6	2.7	3.7	27	15
21	28	14	7.3	3.3	3.1	2.2	1.9	1.7	2.1	3.5	20	12
22	43	13	5.9	3.4	3.1	2.2	1.9	1.6	3.5	2.9	17	15
23	25	14	5.7	3.3	2.9	2.6	2.0	1.6	3.8	2.7	30	12
24	22	12	5.9	4.2	3.3	2.6	1.9	1.7	2.9	3.8	17	25
25	17	11	5.4	4.7	3.7	2.2	1.9	1.8	2.1	3.2	14	15
26	16	11	5.8	3.8	3.2	2.1	1.9	1.7	2.0	2.8	13	125
27	13	9.9	5.5	5.0	3.1	2.0	1.9	1.8	1.9	2.8	11	40
28	12	9.6	5.2	5.3	3.2	2.0	2.6	1.9	1.9	3.3	10	30
29	11	10	5.5	4.6	---	2.0	1.9	1.6	2.5	3.3	12	20
30	10	9.3	7.6	4.7	---	2.0	2.0	1.4	2.1	3.2	11	15
31	28	---	6.1	4.0	---	2.1	---	1.4	---	3.5	9.7	---
TOTAL	849.1	1002.2	276.1	131.3	107.9	74.0	63.3	57.0	74.5	169.9	1112.3	553.0
MEAN	27.4	33.4	8.91	4.24	3.85	2.39	2.11	1.84	2.48	5.48	35.9	18.4
MAX	183	343	30	6.2	8.1	2.9	4.7	2.5	8.7	33	220	125
MIN	6.5	9.3	5.2	3.3	2.9	2.0	1.8	1.4	1.4	1.9	2.6	7.8
AC-FT	1680	1990	548	260	214	147	126	113	148	337	2210	1100

CAL YR 1977 TOTAL 4096.8 MEAN 11.2 MAX 475 MIN 1.3 AC-FT 8130
WTR YR 1978 TOTAL 4470.6 MEAN 12.2 MAX 343 MIN 1.4 AC-FT 8870

16840000 TINAGA RIVER NEAR INARAJAN

LOCATION.--Lat 13°17'10" N., long 144°45'04" E., on right bank 0.3 mi (0.5 km) upstream from mouth, 0.9 mi (1.4 km) northeast of Inarajan, and 4.5 mi (7.2 km) south of Talofofo.

DRAINAGE AREA.--1.89 mi^2 (4.90 km^2).

PERIOD OF RECORD.--October 1952 to current year. Prior to October 1969, published as Pauliluc River near Inarajan.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--26 years, 5.72 ft^3/s (0.162 m^3/s), 4,140 acre-ft/yr (5.10 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,980 ft^3/s (84.4 m^3/s) Oct. 15, 1953, gage height, 13.11 ft (3.996 m), from rating curve extended above 210 ft^3/s (5.95 m^3/s); minimum, 0.15 ft^3/s (0.004 m^3/s) May 16, 21-23, 29, 1966, June 13, 29, 30, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s (11.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	1730	454	12.9	4.46	1.359
Nov. 8	2230	*566	16.0	5.11	1.558

Minimum discharge, 0.22 ft^3/s (0.006 m^3/s) May 31, June 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	8.2	18	2.1	1.5	.93	.44	.34	.26	.71	1.4	3.9
2	8.7	5.0	16	2.1	1.4	.93	.41	.30	.26	.94	1.1	3.6
3	5.5	5.0	6.9	2.1	1.6	.87	.41	.32	.41	.87	1.1	3.2
4	4.5	5.2	5.0	2.0	1.6	.81	.41	.30	.28	7.1	1.0	23
5	3.8	4.7	4.7	1.8	2.1	.81	.41	.30	.28	3.2	.87	7.1
6	3.6	4.0	4.7	2.1	1.6	.76	.39	.36	.28	1.6	.81	4.8
7	3.6	4.0	4.7	2.1	1.6	.76	.87	.39	.28	1.0	1.7	4.3
8	2.9	84	4.5	1.8	1.8	.71	.81	.34	.30	.87	3.2	4.1
9	5.0	75	4.3	1.6	1.7	.66	.81	.36	.28	.76	9.4	3.9
10	4.7	12	4.0	1.6	1.6	.66	.67	.34	.30	.67	45	3.7
11	4.7	10	3.5	1.5	1.5	.62	.54	.32	.71	.62	49	3.6
12	4.1	8.2	3.1	1.4	1.3	.62	.47	.32	.44	.54	63	3.2
13	3.5	17	2.8	1.3	1.2	.58	.44	.32	.39	.47	49	3.1
14	5.2	16	2.7	1.3	1.1	.54	.41	.30	.39	.71	16	2.8
15	6.3	11	2.6	1.3	1.0	.54	.41	.30	.34	2.5	9.0	2.5
16	12	9.0	2.5	1.3	1.0	.51	.41	.32	.34	7.1	11	2.5
17	6.9	7.2	2.3	1.2	1.1	.54	.39	.36	.44	6.8	12	2.8
18	5.1	6.6	2.1	1.2	1.1	.51	.36	.32	.54	2.9	8.2	3.1
19	83	5.9	2.2	1.3	1.1	.51	.36	.32	1.6	1.8	9.8	5.0
20	42	5.6	2.2	1.2	1.1	.51	.41	.30	1.4	1.4	11	5.6
21	15	5.3	2.4	1.2	1.0	.47	.36	.30	.94	1.4	6.2	3.7
22	37	4.7	2.3	1.2	1.0	.47	.36	.30	.81	1.3	6.2	5.6
23	13	4.5	2.4	1.1	.93	.51	.36	.30	1.1	1.2	12	4.3
24	8.2	4.5	2.3	1.3	.93	.51	.36	.30	1.2	1.1	6.5	9.0
25	7.6	4.2	2.0	1.4	.93	.47	.34	.32	1.0	1.1	5.0	5.6
26	6.7	3.8	1.8	1.4	.93	.44	.34	.32	.76	1.0	4.5	59
27	6.1	3.8	1.6	1.6	.93	.44	.34	.32	.67	.94	4.1	20
28	5.5	3.6	1.7	1.8	.93	.44	.41	.36	.54	.94	3.7	12
29	5.0	3.4	1.9	1.8	---	.44	.39	.30	.81	1.2	4.1	6.8
30	4.7	3.3	2.1	1.6	---	.44	.36	.28	.58	1.1	4.1	5.6
31	4.7	---	2.1	1.6	---	.44	---	.26	---	1.3	4.1	---
TOTAL	334.9	344.7	121.4	48.3	35.58	18.45	13.45	9.89	17.93	55.14	364.08	227.4
MEAN	10.8	11.5	3.92	1.56	1.27	.60	.45	.32	.60	1.78	11.7	7.58
MAX	83	84	18	2.1	2.1	.93	.87	.39	1.6	7.1	63	59
MIN	2.9	3.3	1.6	1.1	.93	.44	.34	.26	.26	.47	.81	2.5
AC-FT	664	684	241	96	71	37	27	20	36	109	722	451

CAL YR 1977 TOTAL 1365.02 MEAN 3.74 MAX 118 MIN .31 AC-FT 2710
WTR YR 1978 TOTAL 1591.22 MEAN 4.36 MAX 84 MIN .26 AC-FT 3160

16847000 IMONG RIVER NEAR AGAT

LOCATION.--Lat 13°20'17" N., long 144°41'55" E., on left bank 500 ft (152 m) upstream from Fena Valley Reservoir, 1.4 mi (2.3 km) south of Fena Dam spillway, and 4.1 mi (6.6 km) southeast of Agat School.

DRAINAGE AREA.--1.95 mi² (5.05 km²).

PERIOD OF RECORD.--March 1960 to March 1971. October 1971 to current year.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 120 ft (37 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--17 years (water years, 1961-70, 1972-78), 10.1 ft³/s (0.286 m³/s), 7,320 acre-ft/yr (9.02 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft³/s (173 m³/s) Sept. 27, 1978, gage height, 11.3 ft (3.444 m), from outside floodmarks, and from rating curve extended above 110 ft³/s (3.12 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.37 ft³/s (0.010 m³/s) May 21, 22, 26, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (39.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 8	2115	1650	46.7	6.51	1.984
Sept. 27	1300	*6100	173	11.3	3.444

Minimum discharge, 1.2 ft³/s (0.034 m³/s) May 27 to June 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	11	39	4.0	3.3	2.5	1.8	1.5	1.2	2.6	2.0	4.5
2	42	6.8	32	3.8	3.1	2.5	1.8	1.5	1.3	3.3	2.0	4.1
3	13	6.5	11	3.8	4.0	2.5	1.8	1.5	2.8	2.1	1.7	4.0
4	8.0	11	8.5	4.0	4.0	2.2	1.8	1.4	1.3	10	1.7	9.4
5	6.8	6.5	14	3.8	3.6	2.2	2.0	1.5	1.3	3.2	1.6	5.5
6	5.8	6.5	7.5	3.6	3.1	2.2	1.9	1.5	1.4	2.4	2.4	5.8
7	5.4	6.5	8.0	3.6	3.1	2.2	4.1	1.5	1.5	2.0	14	5.2
8	5.1	162	6.5	3.6	3.1	2.2	1.9	1.5	1.4	2.0	33	4.8
9	18	53	8.0	3.6	2.9	2.2	2.1	1.5	1.4	1.8	13	4.9
10	12	15	6.1	3.6	2.9	2.2	1.7	1.5	1.7	1.8	88	5.1
11	6.8	20	5.8	3.6	2.9	2.0	1.6	1.4	2.4	1.9	59	22
12	12	14	5.4	3.3	2.7	2.0	1.7	1.3	1.5	1.6	46	31
13	12	23	5.4	3.3	2.7	2.0	1.6	1.3	1.3	1.5	42	11
14	12	18	5.4	3.3	2.7	2.0	1.6	1.3	1.4	1.7	16	6.2
15	49	28	5.1	3.3	2.7	2.0	1.6	1.3	1.3	4.7	9.1	5.2
16	29	13	5.1	3.3	2.9	2.0	1.6	1.5	1.4	14	6.9	4.7
17	13	10	4.7	3.1	2.7	2.0	1.5	1.4	1.7	12	11	7.9
18	9.6	10	4.7	3.3	2.9	2.0	1.5	1.3	1.9	4.4	12	6.3
19	30	8.5	4.7	3.1	2.7	2.0	1.6	1.3	5.0	3.0	11	8.0
20	25	8.0	4.7	3.1	2.7	2.0	1.7	1.3	1.7	2.5	7.5	5.2
21	22	7.5	5.1	3.1	2.5	2.0	1.6	1.4	1.4	2.2	8.3	5.1
22	30	7.2	4.4	3.1	2.7	2.0	1.5	1.4	2.3	2.0	10	15
23	15	9.1	4.4	3.1	2.5	2.2	1.8	1.4	5.6	1.9	13	5.9
24	18	7.2	4.4	3.6	2.7	2.2	1.6	1.5	3.4	2.1	7.6	24
25	12	6.8	4.4	4.0	3.3	2.0	1.5	1.5	1.9	1.9	5.9	8.9
26	9.6	6.8	4.4	3.3	2.7	1.8	1.5	1.4	1.6	2.1	5.4	48
27	8.0	6.5	4.0	4.4	2.5	1.8	1.5	1.3	1.5	1.7	4.8	250
28	8.5	6.1	4.0	3.8	2.5	1.8	1.8	1.3	1.4	1.7	5.0	70
29	7.2	7.5	4.0	3.6	---	1.8	1.6	1.2	1.4	1.8	8.7	35
30	6.8	6.1	5.1	4.0	---	1.8	1.7	1.3	1.6	2.1	5.8	25
31	7.2	---	4.4	3.3	---	2.0	---	1.2	---	2.0	5.0	---
TOTAL	464.2	508.1	240.2	109.4	82.1	64.3	53.0	43.2	57.0	100.0	459.4	647.3
MEAN	15.0	16.9	7.75	3.53	2.93	2.07	1.77	1.39	1.90	3.23	14.8	21.6
MAX	49	162	39	4.4	4.0	2.5	4.1	1.5	5.6	14	88	250
MIN	5.1	6.1	4.0	3.1	2.5	1.8	1.5	1.2	1.2	1.5	1.6	4.0
AC-FT	921	1010	476	217	163	128	105	86	113	198	911	1280

CAL YR 1977 TOTAL 2399.6 MEAN 6.57 MAX 162 MIN 1.3 AC-FT 4760
WTR YR 1978 TOTAL 2828.2 MEAN 7.75 MAX 250 MIN 1.2 AC-FT 5610

16848100 ALMAGOSA RIVER NEAR AGAT

LOCATION.--Lat 13°20'43" N., long 144°41'36" E., on right bank 400 ft (122 m) upstream from Fena Valley Reservoir and 3.5 mi (5.6 km) southeast of Agat.

DRAINAGE AREA.--1.32 mi^2 (3.42 km^2).

PERIOD OF RECORD.--April 1972 to current year.

REVISED RECORD.--WDR HI-75-1: Drainage area. WDR HI-76-1: 1972(P), 1973(M), 1974-75(P).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 155 ft (47 m), from topographic map.

REMARKS.--Records good. Up to 3.9 ft^3/s (0.11 m^3/s) diverted above upstream station for domestic use. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--6 years, 6.30 ft^3/s (0.178 m^3/s), 4,560 acre-ft/yr (5.62 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,650 ft^3/s (75.0 m^3/s) Sept. 27, 1978, gage height, 7.78 ft (2.371 m), from rating curve extended above 81 ft^3/s (2.29 m^3/s) on basis of slope-area measurement at gage height 7.32 ft (2.231 m); minimum, 0.19 ft^3/s (0.005 m^3/s) June 4, 5, 1972.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s) and maximum (*), from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 8	2100	1080	30.6	5.80	1.768
Sept. 27	1230	*2650	75.0	7.78	2.371

Minimum discharge, 0.21 ft^3/s (0.006 m^3/s) for many days in May and June.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	7.1	21	1.6	1.1	.84	.63	.31	.24	.84	.74	2.2
2	28	3.9	29	1.5	1.0	.79	.63	.35	.27	.74	.74	2.0
3	8.1	3.6	11	1.4	1.5	.79	.63	.31	.74	.52	.63	1.7
4	4.8	8.0	10	1.5	1.5	.79	.47	.27	.31	5.7	.74	4.3
5	3.6	3.6	13	1.3	1.1	.79	.47	.39	.31	1.0	.63	2.2
6	2.8	3.3	6.8	1.2	1.0	.79	.43	.35	.35	.79	4.3	4.8
7	2.3	3.2	5.9	1.2	1.0	.79	1.2	.35	.31	.58	10	3.0
8	2.1	104	4.7	1.2	1.0	.74	.47	.31	.31	.63	14	3.6
9	5.4	87	5.2	1.2	1.0	.74	.52	.31	.31	.47	10	3.1
10	4.1	26	3.7	1.1	.95	.74	.43	.35	.43	.63	78	3.2
11	2.5	21	3.2	1.1	.95	.74	.39	.27	.58	.89	64	20
12	25	14	2.9	1.0	.89	.74	.39	.24	.31	.74	54	29
13	21	18	2.6	1.0	.95	.74	.39	.24	.27	.52	50	18
14	12	16	2.4	1.0	.89	.74	.39	.24	.35	.47	28	8.9
15	38	22	2.2	1.1	.89	.68	.35	.24	.26	1.1	15	5.8
16	37	14	2.0	1.1	.95	.68	.35	.31	.24	9.7	9.9	4.7
17	18	9.8	1.9	1.1	.89	.68	.35	.27	.39	12	9.2	4.9
18	11	8.5	1.8	1.1	.95	.68	.31	.24	.43	4.8	11	4.9
19	28	6.7	1.8	1.1	.89	.68	.35	.21	1.0	2.6	14	5.5
20	28	5.4	1.9	1.5	.89	.68	.39	.24	.39	1.5	9.4	4.5
21	19	4.7	2.0	1.1	.84	.68	.27	.27	.31	.89	7.2	5.4
22	26	4.2	1.9	1.1	.89	.68	.35	.24	.68	.74	6.6	13
23	16	4.4	1.9	1.0	.84	.79	.39	.27	2.4	.63	8.0	5.6
24	14	3.7	1.8	1.2	.89	.79	.35	.35	1.9	1.2	5.9	13
25	9.6	3.3	1.8	1.5	1.2	.68	.31	.35	.58	1.0	4.8	8.4
26	7.0	3.2	1.9	1.1	.89	.63	.31	.27	.43	2.1	4.2	33
27	5.6	2.8	1.8	1.4	.89	.63	.31	.27	.35	1.6	3.5	167
28	5.7	2.6	1.7	1.3	.84	.63	.43	.27	.35	1.0	3.4	49
29	4.4	3.7	1.7	1.1	---	.63	.35	.27	.39	.79	3.3	24
30	3.8	2.6	2.0	1.2	---	.63	.35	.24	.47	1.1	2.9	16
31	5.2	---	1.8	.99	---	.63	---	.27	---	.89	2.5	---
TOTAL	400.7	420.3	153.3	37.29	27.57	22.24	12.96	8.87	15.66	58.16	436.58	470.7
MEAN	12.9	14.0	4.95	1.20	.98	.72	.43	.29	.52	1.88	14.1	15.7
MAX	38	104	29	1.6	1.5	.84	1.2	.39	2.4	12	78	167
MIN	2.1	2.6	1.7	.99	.84	.63	.27	.21	.24	.47	.63	1.7
AC-FT	795	834	304	74	55	44	26	18	31	115	866	934

CAL YR 1977 TOTAL 1709.38 MEAN 4.68 MAX 146 MIN .40 AC-FT 3390
WTR YR 1978 TOTAL 2064.33 MEAN 5.66 MAX 167 MIN .21 AC-FT 4090

16848500 MAULAP RIVER NEAR AGAT

LOCATION.--Lat 13°21'14" N., long 144°41'44" E., on right bank 100 ft (30 m), upstream from Fena Valley Reservoir and 3.2 mi (5.1 km) southeast of Agat.

DRAINAGE AREA.--1.15 mi^2 (2.98 km^2).

PERIOD OF RECORD.--January 1972 to current year.

REVISED RECORDS.--WRD Hawaii 1973: 1972. WRD HI-75-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 130 ft (40 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--6 years, 5.13 ft^3/s (0.145 m^3/s), 3,720 acre-ft/yr (4.59 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,420 ft^3/s (68.5 m^3/s) Sept. 27, 1978, gage height, 9.2 ft (2.804 m), from rating curve extended above 23 ft^3/s (0.65 m^3/s), on basis of slope-area measurements at gage heights 8.21 ft (2.502 m) and 9.2 ft (2.804 m); minimum, 0.33 ft^3/s (0.009 m^3/s) June 10-12, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft^3/s (17.0 m^3/s) and maximum (*), from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 8	2100	1010	28.6	6.45	1.966
Aug. 10	0530	759	21.5	5.81	1.771
Sept. 27	1230	*2420	68.5	9.2	2.804

Minimum discharge, 0.30 ft^3/s (0.011 m^3/s) May 28 to June 2, June 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	7.3	23	2.0	1.6	.99	.60	.54	.43	1.8	1.9	3.1
2	28	3.6	22	2.0	1.5	.99	.60	.60	.48	1.1	2.8	2.9
3	3.9	3.8	4.7	1.9	2.2	.99	.60	.67	1.3	.99	2.0	2.8
4	3.2	13	7.3	1.9	1.9	.91	.60	.54	.48	11	1.8	8.7
5	2.8	3.4	12	1.9	1.6	.91	.91	.83	.43	1.9	2.2	3.5
6	2.6	3.6	3.9	1.8	1.4	.91	.67	.54	.43	1.5	13	13
7	2.5	3.6	3.9	1.8	1.4	.83	1.8	.48	.43	1.4	15	3.9
8	2.3	122	3.6	1.8	1.5	.83	.75	.48	.48	1.4	9.0	8.0
9	17	41	4.3	1.7	1.4	.83	.83	.48	.48	1.1	5.8	4.0
10	5.0	9.8	3.1	1.6	1.3	.83	.67	.60	.67	1.6	77	5.1
11	3.1	12	2.9	1.6	1.3	.83	.67	.48	.83	5.2	57	22
12	58	7.3	2.8	1.6	1.3	.83	.60	.43	.54	2.3	47	23
13	16	9.0	2.8	1.5	1.4	.83	.60	.43	.48	1.6	32	7.0
14	7.6	7.3	2.8	1.5	1.3	.75	.67	.43	.75	1.5	13	6.0
15	40	13	2.6	1.6	1.2	.75	.67	.43	.48	2.8	9.2	5.0
16	23	5.2	2.6	1.6	1.3	.75	.75	.54	.48	13	7.0	4.0
17	8.3	4.5	2.6	1.4	1.3	.75	.75	.48	.60	6.9	7.4	4.5
18	6.3	4.3	2.6	1.5	1.4	.75	.60	.48	.83	3.2	13	4.5
19	32	4.3	2.6	1.5	1.3	.75	.60	.43	2.2	2.5	7.7	5.0
20	29	3.9	2.6	1.5	1.2	.75	.75	.48	.75	1.9	5.7	4.0
21	11	3.8	2.8	1.4	1.2	.75	.60	.54	.75	1.7	5.5	5.0
22	12	3.6	2.2	1.5	1.2	.67	.60	.48	2.0	4.1	6.6	10
23	6.3	4.1	2.0	1.5	1.1	.83	.75	.54	3.6	2.5	7.6	5.0
24	9.8	3.4	2.0	1.7	1.3	.83	.60	.60	1.7	14	4.6	10
25	5.8	3.1	2.0	2.0	1.5	.67	.54	.67	.99	3.8	4.0	8.0
26	4.7	3.2	2.3	1.6	1.2	.67	.54	.48	.75	11	3.8	25
27	4.1	3.1	2.0	2.0	1.2	.67	.54	.48	.67	3.6	3.4	150
28	5.8	2.9	1.9	1.9	1.2	.67	.60	.43	.60	3.1	3.7	50
29	3.8	10	2.0	1.6	---	.60	.67	.43	.83	2.6	3.6	20
30	3.8	3.1	2.8	1.8	---	.60	.60	.43	.91	3.1	5.5	15
31	6.6	---	2.3	1.5	---	.60	---	.43	---	2.3	3.4	---
TOTAL	367.1	322.2	139.0	52.2	38.7	24.32	20.73	15.88	26.35	116.49	381.2	438.0
MEAN	11.8	10.7	4.48	1.68	1.38	.78	.69	.51	.88	3.76	12.3	14.6
MAX	58	122	23	2.0	2.2	.99	1.8	.83	3.6	14	77	150
MIN	2.3	2.9	1.9	1.4	1.1	.60	.54	.43	.43	.99	1.8	2.8
AC-FT	728	639	276	104	77	48	41	31	52	231	756	869

CAL YR 1977 TOTAL 1500.97 MEAN 4.11 MAX 131 MIN .48 AC-FT 2980
WTR YR 1978 TOTAL 1942.17 MEAN 5.32 MAX 150 MIN .43 AC-FT 3850

NOTE.--No gage-height record Sept. 13-30.

16849000 FENA DAM SPILLWAY NEAR AGAT

LOCATION.--Lat 13°21'28" N., long 144°42'12" E., on left bank 3.5 mi (5.6 km) southeast of Agat and 5.8 mi (9.3 km) southwest of Yona.

DRAINAGE AREA.--5.88 mi^2 (15.23 km^2).

PERIOD OF RECORD.--September 1951 to July 1952, November 1952 to current year. Daily mean gage heights published since October 1973.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete-dam control. Datum of gage is 111.35 ft (33.939 m) above mean sea level (from U.S. Navy construction plans).

REMARKS.--Gage-height records good. About 10 ft^3/s (0.28 m^3/s) is diverted from Fena Valley Reservoir and tributary springs for military and civilian use. Discharge records represent flow over spillway only.

AVERAGE DISCHARGE.--20 years (1953-73), 17.9 ft^3/s (0.507 m^3/s), 12,970 acre-ft/yr (16.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, occurred Oct. 15, 1953 (gage height, at least 4.5 ft or 1.37 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 3.05 ft (0.930 m), Sept. 27; minimum, -15.47 ft (-4.715 m) July 15.

REVISIONS.--The maximum and minimum gage heights for the water year 1977 have been revised to 0.67 ft (0.204 m) Dec. 24, 1970, and -21.36 ft (-6.511 m) Aug. 15, 1971, superseding figures published in the report for 1977.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-2.72	.10	.29	-.11	-1.50	-3.01	-6.07	-9.15	-12.68	-15.02	-14.42	.02
2	-1.78	.06	.40	-.13	-1.55	-3.08	-6.19	-9.26	-12.81	-15.08	-14.45	.01
3	-1.38	.05	.19	-.16	-1.58	-3.15	-6.31	-9.36	-12.81	-15.15	-14.53	.00
4	-1.26	.15	.16	-.17	-1.55	-3.23	-6.43	-9.49	-12.91	-14.83	-14.61	.11
5	-1.21	.05	.21	-.20	-1.58	-3.32	-6.51	-9.58	-13.04	-14.77	-14.67	.08
6	-1.18	.04	.13	-.25	-1.64	-3.40	-6.61	-9.66	-13.15	-14.82	-14.52	.13
7	-1.16	.04	.10	-.31	-1.70	-3.49	-6.69	-9.76	-13.27	-14.89	-14.12	.08
8	-1.15	.66	.09	-.36	-1.74	-3.58	-6.64	-9.87	-13.39	-14.96	-13.69	.08
9	-.86	.73	.09	-.37	-1.80	-3.68	-6.71	-9.99	-13.50	-15.06	-12.91	.07
10	-.54	.26	.08	-.40	-1.86	-3.76	-6.81	-10.08	-13.60	-15.16	-10.75	.07
11	-.41	.23	.05	-.47	-1.92	-3.86	-6.90	-10.20	-13.65	-15.20	-7.96	.18
12	.03	.19	.04	-.54	-2.01	-3.94	-6.95	-10.33	-13.76	-15.24	-5.87	.30
13	.23	.21	.03	-.59	-2.08	-4.04	-7.16	-10.45	-13.88	-15.32	-3.95	.24
14	.14	.23	.02	-.65	-2.15	-4.13	-7.27	-10.58	-13.96	-15.41	-2.93	.13
15	.34	.26	.01	-.70	-2.20	-4.23	-7.40	-10.70	-14.07	-15.43	-2.55	.04
16	.43	.20	.00	-.74	-2.26	-4.33	-7.52	-10.81	-14.17	-15.19	-2.31	.03
17	.20	.15	.00	-.81	-2.33	-4.43	-7.63	-10.91	-14.29	-14.70	-2.09	.07
18	.13	.13	-.01	-.87	-2.35	-4.52	-7.76	-11.04	-14.37	-14.51	-1.78	.09
19	.31	.13	-.01	-.92	-2.43	-4.62	-7.87	-11.15	-14.33	-14.51	-1.36	.14
20	.35	.11	-.01	-1.01	-2.49	-4.76	-7.95	-11.29	-14.40	-14.53	-1.11	.09
21	.23	.10	.01	-1.10	-2.55	-4.86	-8.07	-11.38	-14.53	-14.58	-.93	.09
22	.27	.09	-.01	-1.18	-2.61	-4.96	-8.18	-11.49	-14.58	-14.63	-.72	.28
23	.17	.11	-.04	-1.27	-2.67	-5.06	-8.28	-11.60	-14.55	-14.67	-.44	.14
24	.17	.10	-.06	-1.33	-2.73	-5.15	-8.38	-11.71	-14.42	-14.58	-.27	.27
25	.14	.08	-.07	-1.30	-2.76	-5.25	-8.49	-11.80	-14.49	-14.43	-.17	.18
26	.09	.08	-.07	-1.32	-2.81	-5.36	-8.60	-11.92	-14.57	-14.37	-.11	.48
27	.07	.06	-.08	-1.32	-2.87	-5.48	-8.71	-12.06	-14.68	-14.27	-.07	.94
28	.07	.05	-.11	-1.33	-2.92	-5.59	-8.83	-12.18	-14.81	-14.31	-.02	.44
29	.06	.11	-.16	-1.36	---	-5.71	-8.93	-12.31	-14.91	-14.33	.03	.24
30	.04	.09	-.12	-1.39	---	-5.83	-9.04	-12.44	-15.01	-14.33	.06	.18
31	.07	---	-.09	-1.45	---	-5.95	---	-12.56	---	-14.34	.04	---
MEAN	-.33	.16	.03	-.78	-2.17	-4.38	-7.50	-10.81	-13.95	-14.79	-5.59	.17
MAX	.43	.73	.40	-.11	-1.50	-3.01	-6.07	-9.15	-12.68	-14.27	.06	.94
MIN	-2.72	.04	-.16	-1.45	-2.92	-5.95	-9.04	-12.56	-15.01	-15.43	-14.67	.00

WTR YR 1978 MEAN -5.01 MAX .94 MIN -15.43

16854500 UGUM RIVER ABOVE TALOFOFO FALLS, NEAR TALOFOFO, GUAM

LOCATION.--Lat 13°19'16" N., long 144°44'01" E., about 300 ft (91 m) upstream from Talofofo Falls, 0.9 mi (1.4 km) north of NASA Tracking Station, and 3.5 mi (5.6 km) southwest of main intersection in Talofofo village.

DRAINAGE AREA.--5.76 mi² (14.92 km²).

PERIOD OF RECORD.--June 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 130 ft (40 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

EXTREMES FOR CURRENT PERIOD.--June to September 1977: Peak discharges during period above base of 850 ft³/s (24.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 17, 1977	1515	1290	36.5	7.45	2.271
Sept. 16, 1977	1100	*1690	47.9	8.41	2.563
Sept. 18, 1977	1945	1040	29.5	6.80	2.073

Minimum discharge, 3.9 ft³/s (0.11 m³/s) July 13.

Water year 1978: Peak discharges above base of 850 ft³/s (24.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 2, 1977	0200	874	24.8	6.28	1.914	Sept. 26, 1978	0800	925	26.2	6.45	1.966
Oct. 15, 1977	1915	850	24.1	6.20	1.890	Sept. 27, 1978	1400	*4020	114	12.31	3.752
Nov. 8, 1977	2215	2520	71.4	10.03	3.057						

Minimum discharge, 3.4 ft³/s (0.10 m³/s), June 27.

DISCHARGE, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									4.2	4.6	4.8	4.8
2									4.2	4.4	4.4	5.0
3									4.2	4.2	5.7	5.0
4									4.2	4.2	6.1	4.8
5									5.0	4.8	5.0	4.8
6									4.7	4.6	4.8	6.1
7									6.0	4.4	4.4	4.4
8									4.6	4.8	4.2	4.4
9									4.5	4.4	4.2	5.3
10									4.4	4.8	4.0	13
11									4.4	4.4	6.3	8.2
12									4.4	4.0	5.5	8.2
13									4.6	3.9	4.6	32
14									4.6	4.0	4.6	132
15									5.9	4.2	8.7	151
16									5.0	5.2	7.7	324
17									4.8	9.0	36	58
18									4.6	5.2	16	70
19									4.6	7.9	8.5	72
20									4.4	8.2	6.3	36
21									4.4	5.7	5.5	25
22									4.6	5.0	5.3	29
23									4.8	5.2	5.3	20
24									5.7	4.8	4.8	18
25									6.6	5.0	5.5	16
26									5.5	5.0	9.6	17
27									4.8	7.1	6.3	16
28									4.8	6.3	5.3	30
29									5.5	15	5.0	20
30									6.3	7.4	5.0	16
31									---	5.5	5.0	---
TOTAL									146.3	173.2	214.4	1156.0
MEAN									4.88	5.59	6.92	38.5
MAX									6.6	15	36	324
MIN									4.2	3.9	4.0	4.4
AC-FT									290	344	425	2290

16854500 UGUM RIVER ABOVE TALOFOFO FALLS, NEAR TALOFOFO, GUAM--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	30	100	13	9.6	10	5.7	5.3	3.7	9.0	5.0	15
2	83	21	65	13	9.3	9.3	5.7	4.6	3.9	6.6	5.5	14
3	24	20	35	12	12	7.9	5.5	4.8	6.8	5.0	4.6	17
4	19	24	25	14	12	7.4	5.5	4.8	4.2	22	4.4	31
5	20	20	35	13	12	7.1	5.7	4.6	4.0	7.9	4.4	20
6	17	20	22	12	9.9	6.8	5.9	5.3	4.0	5.7	4.6	17
7	15	20	23	12	9.3	6.8	11	5.0	4.0	5.3	13	16
8	14	198	20	11	9.6	6.8	6.6	4.8	4.4	5.5	27	18
9	64	138	21	11	9.0	6.6	6.8	4.8	4.0	4.8	34	16
10	35	50	18	11	8.7	6.6	5.7	4.8	4.2	4.6	150	16
11	21	60	17	11	8.7	6.3	5.5	4.6	6.8	4.6	142	18
12	20	45	17	11	8.5	6.3	5.5	4.4	4.8	4.4	120	23
13	18	75	17	10	8.7	6.3	5.5	4.2	4.0	4.2	123	18
14	23	60	16	10	8.5	6.3	5.3	4.2	4.0	4.8	53	15
15	64	55	16	10	8.2	6.3	5.3	4.0	3.9	17	33	15
16	85	40	16	10	8.7	6.3	5.0	4.0	3.7	37	29	14
17	35	30	15	10	8.2	6.1	4.8	4.2	4.4	27	33	19
18	25	25	15	9.9	8.2	6.1	4.8	4.2	5.9	10	33	16
19	63	22	15	9.9	7.9	5.9	4.8	4.0	13	7.4	43	26
20	77	20	15	9.9	9.9	5.9	5.5	4.0	5.9	6.6	30	17
21	56	19	17	9.9	11	5.9	5.0	4.0	4.4	6.1	27	6.3
22	83	18	14	9.6	11	5.9	5.0	4.0	6.6	5.7	24	32
23	46	25	14	9.6	11	6.3	5.0	4.0	7.4	5.3	37	16
24	41	20	14	10	12	6.3	5.0	4.0	6.6	5.9	23	53
25	33	19	13	12	13	5.9	4.8	4.2	4.8	5.3	18	22
26	28	19	13	10	11	5.7	4.8	4.2	4.4	5.0	19	150
27	25	18	13	13	10	5.7	4.8	4.6	3.7	4.8	16	306
28	24	17	13	12	10	5.7	5.3	4.4	4.4	4.6	16	50
29	23	20	13	10	---	5.7	4.8	3.9	4.4	4.8	22	30
30	21	16	16	11	---	5.7	5.3	3.9	4.4	5.3	18	25
31	22	---	14	9.9	---	5.9	---	3.7	---	4.8	16	---
TOTAL	1139	1164	677	340.7	275.9	201.8	165.9	135.5	150.7	257.0	1127.5	1051.3
MEAN	36.7	38.8	21.8	11.0	9.85	6.51	5.53	4.37	5.02	8.29	36.4	35.0
MAX	85	198	100	14	13	10	11	5.3	13	37	150	306
MIN	14	16	13	9.6	7.9	5.7	4.8	3.7	3.7	4.2	4.4	6.3
AC-FT	2260	2310	1340	676	547	400	329	269	299	510	2240	2090

WTR YR 1978 TOTAL 6686.3 MEAN 18.3 MAX 306 MIN 3.7 AC-FT 13260

1685800 YLIG RIVER NEAR YONA

LOCATION.--Lat 13°23'28" N., long 144°45'06" E., on right bank 2.2 mi (3.5 km) upstream from mouth, 1.9 mi (3.1 km) southwest of Yona, and 5.6 mi (9.0 km) south of Agana.

DRAINAGE AREA.--6.48 mi² (16.78 km²).

PERIOD OF RECORD.--June 1952 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1937: 1957-58. WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records good. No diversion above station. Water-quality analysis for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--26 years, 28.7 ft³/s (0.813 m³/s), 20,790 acre-ft/yr (25.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,900 ft³/s (139 m³/s) Sept. 9, 1963, gage height, 19.77 ft (6.026 m), from floodmarks, from rating curve extended above 620 ft³/s (17.6 m³/s) on basis of slope-area measurements at gage heights 11.24 ft (3.426 m) and 15.87 ft (4.837 m), maximum gage height, 20.63 ft (6.288 m) May 21, 1976; minimum, 0.07 ft³/s (0.002 m³/s) May 20, 1973, but may have been less during period of diversion from gage pool May 15 to June 20, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,820 ft³/s (51.5 m³/s) Aug. 10, gage height, 12.60 ft (3.840 m), from rating curve extended above 160 ft³/s (4.53 m³/s), no peak above base of 2,000 ft³/s (56.6 m³/s); minimum, 0.35 ft³/s (0.010 m³/s) May 14, 19, June 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	37	85	7.1	3.8	2.8	.94	1.1	.52	17	21	16
2	206	28	59	6.8	3.8	2.4	.94	.94	.40	9.1	22	14
3	33	21	23	6.3	5.7	2.2	.78	.94	2.5	7.3	20	21
4	23	41	19	6.6	7.6	2.1	.78	.78	1.5	78	16	45
5	19	20	31	6.3	5.3	2.0	.86	1.1	.78	15	14	19
6	18	21	19	5.9	4.5	1.9	1.5	1.3	.58	11	33	24
7	47	20	17	5.5	4.0	1.9	8.1	1.1	.46	9.1	96	16
8	20	417	16	5.5	5.3	1.9	3.1	1.0	.52	8.6	88	16
9	115	214	18	5.3	4.3	1.8	2.4	.94	.71	7.3	41	15
10	39	50	14	5.1	3.8	1.8	2.0	.86	1.5	6.1	367	15
11	25	40	13	4.9	3.6	1.6	1.6	.71	14	44	250	19
12	82	55	12	4.7	3.3	1.6	1.3	.58	5.5	14	386	26
13	74	47	11	4.7	5.3	1.6	1.2	.52	2.2	9.7	177	15
14	67	39	11	4.5	4.0	1.5	1.1	.46	5.9	12	62	12
15	64	58	11	4.5	3.3	1.5	1.0	.58	3.6	44	96	11
16	151	32	11	4.5	3.5	1.4	1.0	.58	2.0	90	44	14
17	42	28	10	4.3	3.3	1.3	.86	.52	5.3	13	37	12
18	41	27	9.7	4.1	3.3	1.4	.78	.46	15	13	64	12
19	303	26	9.7	4.1	3.1	1.4	.78	.40	29	17	40	47
20	294	23	8.8	4.0	2.9	1.5	1.0	.46	14	14	32	19
21	64	22	9.7	3.8	2.8	1.5	.94	1.1	13	12	29	20
22	65	20	8.8	3.8	2.6	1.4	.86	.86	11	77	32	44
23	43	33	8.3	3.8	2.5	1.4	.94	.71	14	21	43	22
24	63	21	8.1	4.3	2.8	1.6	1.5	.71	14	18	28	89
25	35	18	7.8	6.8	3.6	1.4	1.2	.64	8.6	34	24	31
26	39	17	8.3	4.9	3.1	1.1	.86	.78	6.3	86	22	231
27	29	15	8.1	6.3	2.8	.86	.78	4.3	5.3	23	20	168
28	26	14	7.3	6.3	3.8	.86	.94	2.2	5.5	19	20	45
29	24	18	7.1	4.7	---	.86	.71	.94	9.1	20	24	35
30	59	14	9.4	4.3	---	.86	1.2	.71	5.7	103	20	30
31	28	---	8.6	4.0	---	.86	---	.58	---	28	17	---
TOTAL	2157	1436	499.7	157.7	107.7	48.30	41.95	28.86	198.47	880.2	2185	1103
MEAN	69.6	47.9	16.1	5.09	3.85	1.56	1.40	.93	6.62	28.4	70.5	36.8
MAX	303	417	85	7.1	7.6	2.8	8.1	4.3	29	103	386	231
MIN	18	14	7.1	3.8	2.5	.86	.71	.40	.40	6.1	14	11
AC-FT	4280	2850	991	313	214	96	83	57	394	1750	4330	2190

CAL YR 1977 TOTAL 7474.76 MEAN 20.5 MAX 737 MIN .58 AC-FT 14830
WTR YR 1978 TOTAL 8843.88 MEAN 24.2 MAX 417 MIN .40 AC-FT 17540

16865000 PAGO RIVER NEAR ORDOT
(National stream-quality accounting network station)

LOCATION.--Lat 13°26'08" N., long 144°45'14" E., on left bank 0.8 mi (1.3 km) south of Ordot, 2.6 mi (4.2 km) south of Agana, and 3.6 mi (5.8 km) southeast of Asan.

DRAINAGE AREA.--5.67 mi² (14.69 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1951 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1937: 1954(M), 1958(M). WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 25 ft (7.6 m), from topographic map. Prior to Apr. 10, 1972, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--27 years, 25.7 ft³/s (0.728 m³/s), 18,620 acre-ft/yr (23.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,090 ft³/s (286 m³/s) May 21, 1976, gage height, 20.15 ft (6.142 m), from floodmarks, from rating curve extended above 320 ft³/s (9.06 m³/s) on basis of slope-area measurements at gage heights 13.22 ft (4.029 m), 15.07 ft (4.593 m), and 18.87 ft (5.752 m); no flow for many days in 1959 and 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,700 ft³/s (76.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 19	1730	*2880	81.6	12.00	3.658
Aug. 10	0630	2790	79.0	11.75	3.581
Aug. 12	1100	2500	79.3	11.78	3.591

Minimum discharge, 0.19 ft³/s (0.005 m³/s) June 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	27	29	3.7	2.5	1.8	.61	.79	.40	12	20	12
2	169	23	40	3.5	2.5	1.8	.53	.53	.28	8.3	19	10
3	29	13	19	3.5	3.9	1.5	.53	.53	2.7	6.8	16	9.9
4	20	28	14	3.7	4.3	1.3	.53	.46	1.2	73	14	18
5	16	12	22	3.7	3.1	1.2	1.2	.34	.79	22	12	10
6	16	12	13	3.5	2.7	1.2	1.5	.53	.53	13	33	37
7	104	14	12	3.3	2.7	1.2	3.5	.61	.28	23	183	18
8	24	453	11	3.3	5.0	1.2	1.9	.70	1.1	14	37	14
9	206	223	10	3.1	3.3	1.1	2.1	.61	1.5	9.9	47	12
10	41	46	9.4	3.1	2.5	1.1	1.9	.53	1.6	7.8	512	12
11	27	32	8.8	2.9	2.3	1.1	1.5	.45	17	59	328	13
12	25	38	8.3	2.7	2.1	1.1	1.1	.40	4.6	17	635	41
13	65	69	7.8	2.7	1.9	1.1	.98	.35	3.5	11	219	15
14	51	38	7.4	2.7	1.9	.98	.98	.30	5.0	52	87	11
15	40	54	7.1	2.5	1.8	.98	.98	.40	3.9	106	140	9.9
16	112	28	6.8	2.5	2.1	.98	.88	.40	2.9	102	61	12
17	34	23	6.4	2.5	1.8	.88	.79	.40	5.9	51	49	9.4
18	29	20	6.0	2.5	1.9	.88	.70	.35	17	26	127	20
19	369	18	5.7	2.5	1.8	.88	.70	.30	40	19	51	140
20	251	16	5.4	2.5	1.6	.79	1.1	.35	25	16	37	27
21	59	15	5.0	2.3	1.5	.79	1.1	.80	23	14	31	30
22	95	13	4.6	2.3	1.6	.79	.79	.70	11	125	26	102
23	45	58	4.6	2.3	1.8	.88	.88	.60	14	29	34	27
24	32	22	4.3	2.5	1.8	.98	1.1	.70	14	19	24	76
25	26	14	4.1	3.3	2.5	.88	.88	.88	9.4	72	20	28
26	26	12	4.6	2.9	2.1	.70	.61	.79	6.8	150	17	304
27	21	11	4.1	2.9	1.9	.61	.46	2.8	5.7	33	16	155
28	19	11	3.9	2.9	2.3	.61	.40	1.9	5.0	26	17	51
29	19	18	3.9	2.7	---	.61	.79	1.1	6.8	20	17	34
30	19	11	5.0	2.5	---	.61	.88	.88	5.0	58	16	27
31	38	---	4.3	2.5	---	.61	---	.53	---	29	14	---
TOTAL	2043	1372	297.5	89.5	67.2	31.14	31.90	21.01	235.88	1223.8	2859	1285.2
MEAN	65.9	45.7	9.60	2.89	2.40	1.00	1.06	.68	7.86	39.5	92.2	42.8
MAX	369	453	40	3.7	5.0	1.8	3.5	2.8	40	150	635	304
MIN	16	11	3.9	2.3	1.5	.61	.40	.30	.28	6.8	12	9.4
AC-FT	4050	2720	590	178	133	62	63	42	468	2430	5670	2550

CAL YR 1977 TOTAL 7165.09 MEAN 19.6 MAX 890 MIN .55 AC-FT 14210
WTR YR 1978 TOTAL 9557.13 MEAN 26.2 MAX 635 MIN .28 AC-FT 18960

16865000 PAGO RIVER NEAR ORDOT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
MAY										
03...	1130	.50	355	8.1	28.5	0	--	7.6	43	4600
JUN										
13...	1200	2.5	285	7.8	27.0	--	4.0	--	240	4000
JUL										
11...	1100	7.5	330	8.1	27.0	--	.40	7.2	160	960
25...	1000	14	310	8.0	27.0	--	.70	8.0	190	890
25...	1045	14	--	--	27.0	--	--	--	--	--
AUG										
08...	1030	33	275	7.9	27.0	--	4.6	8.0	1200	3900
08...	1200	33	--	--	26.0	--	--	--	--	--
SEP										
12...	1230	30	345	7.8	28.0	--	1.6	--	130	450
27...	1530	272	92	7.6	26.0	--	50	7.8	1500	18000

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
MAY										
03...	140	0	45	7.3	17	20	.6	1.7	200	0
JUN										
13...	120	0	36	6.4	15	22	.6	1.6	--	--
JUL										
11...	140	0	41	8.0	17	21	.6	1.5	--	--
25...	120	0	37	7.4	15	21	.6	1.6	--	--
25...	--	--	--	--	--	--	--	--	--	--
AUG										
08...	110	0	32	6.4	12	19	.5	1.5	--	--
08...	--	--	--	--	--	--	--	--	--	--
SEP										
12...	140	0	44	8.2	15	18	.5	1.7	--	--
27...	39	1	12	2.1	5.0	21	.4	1.0	--	--

DATE	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)
MAY										
03...	160	2.5	2.3	15	.1	37	219	224	.30	.30
JUN										
13...	120	--	5.0	16	.1	31	179	183	.24	1.21
JUL										
11...	140	--	5.7	14	.1	36	203	208	.28	4.11
25...	130	--	6.7	13	.1	34	179	193	.24	6.91
25...	--	--	--	--	--	--	--	--	--	--
AUG										
08...	120	--	4.3	13	.1	33	173	174	.24	15.4
08...	--	--	--	--	--	--	--	--	--	--
SEP										
12...	150	--	4.0	18	.1	38	206	219	.28	16.7
27...	38	--	2.6	4.5	.0	13	76	63	.10	55.8

16865000 PAGO RIVER NEAR ORDOT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)
MAY										
03...	.05	.00	.26	.26	.07	.19	.31	1.4	.00	.00
JUN										
13...	.03	.01	.25	.26	.00	.26	.29	1.3	.01	.00
JUL										
11...	.00	.03	.10	.13	.00	.13	.13	.58	.01	.00
25...	.02	.15	2.2	2.3	2.1	.16	2.3	10	.00	.00
25...	--	--	--	--	--	--	--	--	--	--
AUG										
08...	.11	.00	.29	.29	.07	.22	.40	1.8	.00	.00
08...	--	--	--	--	--	--	--	--	--	--
SEP										
12...	--	--	--	--	--	.18	--	--	.01	.01
27...	.02	.02	.52	.54	.34	.20	.56	2.5	.05	.01

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
JUL										
11...	1100	2	1	1	300	100	--	1	0	1
SEP										
12...	1230	5	5	0	0	0	0	3	2	1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
JUL										
11...	10	0	10	2	2	0	3	2	1	60
SEP										
12...	10	10	0	0	0	0	4	4	0	240

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
JUL										
11...	40	20	18	16	2	20	0	20	.0	.0
SEP										
12...	220	20	42	27	15	40	0	40	.0	.0

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
JUL										
11...	.0	0	0	0	0	0	0	10	10	0
SEP										
12...	.0	0	0	0	0	0	0	10	0	10

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
MAY				
03...	1130	.9	--	--
JUN				
13...	1200	4.7	--	--
JUL				
11...	1100	--	1.5	.0
25...	1000	1.1	--	--
AUG				
08...	1030	2.4	--	--
SEP				
12...	1230	--	1.9	.0
27...	1530	11	--	--

DATE	TIME	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)
MAY		
03...	1130	830
JUN		
13...	1200	430
JUL		
11...	1100	67
25...	1000	680

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY					
03...	1130	.50	17	.02	100
JUN					
13...	1200	2.5	7	.05	100
JUL					
11...	1100	7.5	5	.10	100
25...	1000	14	2	.08	100
AUG					
08...	1030	33	11	.98	--
SEP					
12...	1230	30	4	.32	100
27...	1530	272	226	166	100

16865000 PAGO RIVER NEAR ORDOT--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	MAY 3,78	JUN 13,78	JUL 11,78	JUL 25,78
TIME	1130	1200	1100	1000
TOTAL CELLS/ML	830	430	67	680
DIVERSITY: DIVISION	0.6	1.4	0.0	1.1
.CLASS	0.6	1.4	0.0	1.1
..ORDER	0.7	1.9	0.0	1.1
...FAMILY	0.7	3.4	0.9	1.2
....GENUS	1.3	3.6	0.9	1.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	57	7	29	7	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	59	14	--	-	--	-
..CLADOPHORALES								
...CLADOPHORACEAE								
....RHIZOCLONIUM	--	-	--	-	--	-	120#	18
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	29	7	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	14	2	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	15	3	--	-	--	-
...ZYGNEMATACEAE								
....MOUGEOTIA	--	-	15	3	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..PENNALES								
...ACHNANTHACEAE								
....COCCONEIS	--	-	15	3	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	15	3	--	-	--	-
....RHOPALODIA	--	-	--	-	44#	67	14	2
...DIATOMACEAE								
....DIATOMA	--	-	15	3	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	29	3	59	14	22#	33	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	15	3	--	-	14	2
...NAVICULACEAE								
....NAVICULA	--	-	44	10	--	-	28	4
....PINNULARIA	--	-	29	7	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	29	7	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	130#	16	--	-	--	-	--	-
....OSCILLATORIA	600#	72	59	14	--	-	500#	73

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

16891200 GIHMEL RIVER, BABELTHUAP

LOCATION.--Lat 07°21'59" N., long 134°32'06" E., on right bank at Garuruon, 400 ft (122 m) downstream from dam, and 0.5 mi (0.8 km) upstream from coast road.

DRAINAGE AREA.--1.09 mi² (2.82 km²).

PERIOD OF RECORD.--October 1969 to April 1978 (discontinued).

REVISED RECORDS.--WDR HI-76-1: 1973-75.

GAGE.--Water-stage recorder. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records fair. An 8-inch (20 cm) pipeline diverts an average of about 0.75 ft³/s (0.021 m³/s) from above the dam, 400 ft (122 m) upstream from the gage, for consumption on the island of Koror.

AVERAGE DISCHARGE.--8 years, 3.18 ft³/s (0.090 m³/s), 2,300 acre-ft/yr (2.84 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 534 ft³/s (15.1 m³/s) revised, Jan. 22, 1975, gage height, 7.34 ft (2.237 m), from rating curve extended above 52 ft³/s (1.47 m³/s); no flow for many days during 1973-74.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1977 to April 1978, 137 ft³/s (3.88 m³/s) Mar. 2, gage height, 4.63 ft (1.411 m) caused by release from reservoir, no peak above base of 150 ft³/s (4.25 m³/s); minimum, 0.06 ft³/s (0.002 m³/s) Mar. 10-12, Apr. 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1977 TO APRIL 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.48	1.7	.11	1.0	4.8	.07					
2	.98	.25	.91	.09	1.2	6.2	.07					
3	.77	2.0	.77	.11	.77	.48	.12					
4	2.3	.84	1.7	.09	59	.91	2.6					
5	14	10	.56	.09	20	1.6	1.4					
6	4.5	2.4	.84	.09	8.6	5.3	1.4					
7	5.8	1.3	.56	.09	5.5	.10	.43					
8	3.4	1.1	.43	.11	4.0	.07	1.0					
9	3.5	.77	3.0	.12	2.8	.07	.18					
10	8.6	.56	.84	.25	6.3	.06	.08					
11	3.5	.84	.56	.25	15	.06	.06					
12	2.5	.70	.66	.18	12	.06	.06					
13	2.5	.48	.52	.30	5.5	.07	.06					
14	3.0	.25	.48	3.1	4.2	.09	.06					
15	13	.66	.66	.48	15	.08	.08					
16	6.2	.34	.66	.18	16	.08	.08					
17	4.5	.11	.34	.18	11	.08	1.3					
18	3.0	.34	5.5	.25	6.6	.07	.77					
19	2.5	.18	1.3	.21	5.5	.07	.70					
20	3.2	.12	.70	.21	4.0	.07	.38					
21	1.7	4.1	.48	.25	3.2	.07	.12					
22	1.3	.07	.34	.18	2.8	.11	.07					
23	1.3	.07	2.1	.18	2.4	.08	.11					
24	3.6	.08	.30	.18	1.7	.07	.09					
25	1.9	.09	.12	.21	1.3	.07	.08					
26	2.0	.08	.11	.21	2.4	.07	.09					
27	1.1	.09	.09	.30	4.8	.07	.08					
28	.84	.14	.09	.21	19	.07	.09					
29	.84	6.4	.11	.34	---	.07	.08					
30	.52	2.5	.09	.46	---	.14	.09					
31	.56	---	.09	.34	---	.07	---					
TOTAL	104.81	37.34	26.61	9.35	241.57	21.21	11.80					
MEAN	3.38	1.24	.86	.30	8.63	.68	.39					
MAX	14	10	5.5	3.1	59	6.2	2.6					
MIN	.52	.07	.09	.09	.77	.06	.06					
AC-FT	208	74	53	19	479	42	23					

CAL YR 1977 TOTAL 1152.60 MEAN 3.16 MAX 57 MIN .01 AC-FT 2290

16891300 GADEN RIVER, BABELTHUAP

LOCATION.--Lat 07°22'56" N., long 134°33'42" E., on left bank 1,000 ft (305 m) upstream from confluence with Kumekumeyel River, 1.0 mi (1.6 km) southwest of Mount Kabekobekushi, and 1.8 mi (2.9 km) north of Airai.

DRAINAGE AREA.--4.23 mi² (10.96 km²).

PERIOD OF RECORD.--October 1969 to current year.

REVISED RECORDS.--WDR HI-75-1: 1970-72(P), 1973(M), 1974(P).

GAGE.--Water-stage recorder. Altitude of gage is 7 ft (2.1 m), from topographic map. Prior to Dec. 9, 1974, at site 300 ft (91 m) downstream at datum 0.30 ft (0.09 m) lower.

REMARKS.--Records good. No diversion above gage. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 32.2 ft³/s (0.912 m³/s), 23,330 acre-ft/yr (28.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,520 ft³/s (99.7 m³/s) Jan. 22, 1975, gage height, 17.24 ft (5.255 m), from rating curve extended above 118 ft³/s (3.34 m³/s) on basis of field estimate of peak flow; minimum, 1.6 ft³/s (0.045 m³/s) Mar. 23, 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s), and maximum (*), from rating curve extended as explained above:

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 3	0530	1200	34.0	10.93	3.331
Aug. 22	0330	*1620	45.9	12.35	3.764

Minimum discharge, 7.2 ft³/s (0.20 m³/s) Apr. 2,3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	23	12	15	31	8.3	11	16	28	17	25
2	21	16	20	11	16	25	7.8	9.4	16	26	12	32
3	19	35	17	13	15	24	12	12	16	25	167	23
4	21	22	19	12	350	21	57	12	66	23	82	22
5	54	60	31	9.4	155	19	24	14	22	20	36	21
6	25	33	34	9.6	64	18	24	36	35	19	112	48
7	20	35	25	9.2	44	17	15	15	26	18	49	25
8	20	28	21	16	34	16	19	24	21	16	31	20
9	20	23	20	20	31	15	13	29	23	16	179	18
10	70	21	18	41	27	14	12	38	20	19	48	19
11	24	22	17	16	124	13	11	40	71	18	45	17
12	21	21	17	12	61	13	10	72	53	18	109	16
13	21	18	18	12	42	14	10	45	29	20	84	18
14	19	17	16	35	36	21	9.8	29	24	15	54	36
15	53	19	26	15	66	14	14	27	22	26	46	19
16	32	16	18	13	77	13	15	126	28	18	118	18
17	26	15	15	12	51	11	26	54	35	15	69	20
18	22	19	29	13	42	11	17	80	22	14	67	46
19	20	15	20	11	36	11	17	62	20	14	51	67
20	31	15	15	11	32	11	12	39	19	12	108	43
21	20	26	14	10	30	10	12	35	18	12	54	29
22	19	15	13	10	27	14	11	31	23	15	380	28
23	18	14	24	9.8	25	14	15	27	55	12	93	41
24	34	13	14	8.7	23	10	10	25	30	10	70	28
25	25	13	12	8.3	21	10	10	22	31	12	68	33
26	35	12	11	8.3	25	9.8	14	21	23	13	76	26
27	24	15	11	12	20	11	11	21	21	11	60	23
28	21	16	11	10	116	9.8	12	24	27	11	42	22
29	19	57	10	13	---	8.9	10	19	21	12	36	22
30	18	28	10	12	---	18	10	17	65	13	32	72
31	18	---	10	40	---	9.6	---	17	---	11	28	---
TOTAL	809	677	559	445.3	1605	457.1	448.9	1033.4	898	512	2423	877
MEAN	26.1	22.6	18.0	14.4	57.3	14.7	15.0	33.3	29.9	16.5	78.2	29.2
MAX	70	60	34	41	350	31	57	126	71	28	380	72
MIN	18	12	10	8.3	15	8.9	7.8	9.4	16	10	12	16
AC-FT	1600	1340	1110	883	3180	907	890	2050	1780	1020	4810	1740

CAL YR 1977 TOTAL 9286.5 MEAN 25.4 MAX 324 MIN 3.2 AC-FT 18420
WTR YR 1978 TOTAL 10744.7 MEAN 29.4 MAX 380 MIN 7.8 AC-FT 21310

16891400 SOUTH FORK NGARDOK RIVER, BABELTHUAP

LOCATION.--Lat 07°26'15" N., long 134°35'03" E., on right bank 0.3 mi (0.5 km) from left-bank tributary, 0.6 mi (1.0 km) northwest of Garasho Mountain, and 1.3 mi (2.1 km) west of village of Ngarsul.

DRAINAGE AREA.--2.26 mi^2 (5.85 km^2).

PERIOD OF RECORD.--March 1971 to current year.

REVISED RECORDS.--WDR HI-75-1: 1971(M), 1972, 1973(P), 1974.

GAGE.-- Water-stage recorder. Altitude of gage is 65 ft (20 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--7 years, 19.0 ft^3/s (0.538 m^3/s), 13,770 acre-ft/yr (17.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,750 ft^3/s (163 m^3/s), Dec. 13, 1974, gage height, 9.19 ft (2.801 m), from rating curve extended above 41 ft^3/s (1.16 m^3/s) on basis of field estimate at gage height 7.57 ft (2.307 m); minimum, 0.55 ft^3/s (0.016 m^3/s) Mar. 8, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 840 ft^3/s (23.8 m^3/s) Aug. 3, gage height, 4.13 ft (1.259 m), no peak above base of 1,000 ft^3/s (28.3 m^3/s); minimum, 2.6 ft^3/s (0.074 m^3/s) Apr. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	6.8	9.3	5.2	7.4	16	2.9	4.8	6.8	9.3	4.8	12
2	8.0	6.2	9.3	4.4	8.7	13	2.9	4.4	6.2	12	4.8	20
3	6.8	13	8.0	7.4	8.7	12	5.2	5.2	5.7	12	71	11
4	6.2	8.0	9.3	5.2	306	10	32	5.2	41	12	10	9.9
5	14	26	21	4.0	103	9.3	12	11	12	10	9.9	9.9
6	8.7	20	18	4.0	34	8.0	13	31	26	8.7	50	17
7	7.4	14	13	4.0	22	7.4	7.4	10	14	8.0	18	12
8	6.8	11	11	9.3	18	6.8	12	13	11	7.4	12	9.3
9	7.4	9.3	9.9	12	14	6.2	6.2	18	11	7.4	85	8.0
10	26	8.0	8.7	14	13	5.7	5.2	32	15	8.0	19	9.3
11	12	9.9	8.0	6.8	110	5.7	4.8	28	24	8.0	15	8.0
12	9.3	9.3	9.3	5.2	36	5.7	4.8	52	24	8.0	91	7.4
13	9.9	7.4	10	7.7	21	6.2	4.8	28	14	8.7	54	9.3
14	8.0	6.8	8.7	25	18	13	4.4	18	12	6.8	30	19
15	39	6.8	9.9	7.4	31	6.2	6.8	17	11	15	20	9.9
16	18	5.7	8.0	6.5	40	5.2	6.8	75	13	9.3	101	11
17	14	5.2	6.8	6.2	27	4.8	10	30	14	7.4	41	12
18	12	6.8	12	6.2	21	4.4	9.3	57	10	6.8	47	26
19	9.9	5.2	9.9	5.7	18	4.4	9.3	34	9.9	6.8	30	40
20	14	5.7	6.8	5.7	14	4.4	6.8	22	9.3	6.2	68	25
21	9.9	9.7	6.2	5.2	13	4.4	5.7	18	9.9	5.7	30	18
22	9.9	7.4	5.7	5.2	12	7.4	5.2	16	8.7	6.8	107	19
23	10	5.2	8.7	4.8	11	5.7	7.4	14	15	5.7	40	23
24	12	4.8	5.2	4.0	9.3	4.0	5.7	12	13	5.2	29	17
25	9.9	4.8	4.8	3.6	8.7	3.6	4.8	11	20	5.2	32	23
26	11	4.4	4.8	3.6	11	3.6	9.9	10	12	5.7	37	16
27	9.3	4.8	4.4	5.7	8.0	4.0	5.2	18	9.3	5.2	21	14
28	7.4	4.8	4.8	4.8	67	3.6	5.2	14	15	4.8	18	12
29	7.4	17	4.4	5.7	---	3.2	4.8	10	10	4.8	16	13
30	6.8	37	4.8	5.7	---	4.8	4.8	8.0	11	5.7	14	73
31	7.4	---	4.4	16	---	3.6	---	7.4	---	5.2	12	---
TOTAL	346.4	291.0	265.1	216.2	1010.8	202.3	225.3	634.0	413.8	237.8	1137.5	514.0
MEAN	11.2	9.70	8.55	6.97	36.1	6.53	7.51	20.5	13.8	7.67	36.7	17.1
MAX	39	37	21	25	306	16	32	75	41	15	107	73
MIN	6.2	4.4	4.4	3.6	7.4	3.2	2.9	4.4	5.7	4.8	4.8	7.4
AC-FT	687	577	526	429	2000	401	447	1260	821	472	2260	1020

CAL YR 1977 TOTAL 5270.0 MEAN 14.4 MAX 180 MIN 1.2 AC-FT 10450
WTR YR 1978 TOTAL 5494.2 MEAN 15.1 MAX 306 MIN 2.9 AC-FT 10900

16892400 ARINGEL STREAM, YAP

LOCATION.--Lat 09°31'01" N., long 138°05'11" E., on right bank at Aringel and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.24 mi² (0.62 km²).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 35 ft (10.7 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 1.08 ft³/s (0.031 m³/s), 782 acre-ft/yr (965,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 520 ft³/s (14.7 m³/s) Sept. 14, 1978, gage height, 7.05 ft (2.149 m), from floodmark in well, from rating curve extended above 20 ft³/s (0.57 m³/s); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*), from rating curve extended above 20 ft³/s (0.57 m³/s):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 19	a1730	203	5.75	†4.94	1.506
Sept. 14	a0300	*520	14.7	†7.05	2.149
Sept. 17	a1230	Unknown	--	Unknown	--

No flow for several months.

a About.
† From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.01	5.5	5.0	.03	.00	.00	.00	.00	.42	.13	.07
2	.03	.01	6.1	3.5	.02	.00	.00	.00	.00	.39	3.9	.06
3	.03	.01	.61	.50	.03	.01	.00	.00	.00	1.3	14	.05
4	.04	.01	.35	.15	8.3	.00	.00	.00	.00	.61	1.4	.05
5	.06	.01	.25	.08	5.2	.00	.00	.00	.00	.98	.44	.05
6	.05	.01	.16	.05	2.7	.01	.00	.00	.00	.65	1.4	.04
7	.04	.01	2.4	.04	.39	.00	.00	.00	.00	.86	4.3	.06
8	.07	.04	2.8	.03	.17	.00	.00	.00	.00	15	1.9	.05
9	.05	.02	.77	.02	.07	.00	.00	.00	.00	4.2	3.0	.05
10	.12	.01	4.3	.01	.05	.00	.00	.00	.00	1.1	.30	.07
11	.56	.01	3.3	.01	.05	.00	.00	.00	.00	.47	.20	.05
12	.25	.01	15	.00	.03	.00	.00	.00	10	1.3	8.0	.04
13	.13	.01	.53	.00	.01	.00	.00	.00	1.0	.85	2.5	2.0
14	.11	.00	2.2	.00	.01	.00	.00	.00	.10	.50	.50	40
15	.10	.01	1.8	.00	.02	.00	.00	.00	.06	.57	.25	2.0
16	.08	.00	.50	.00	.01	.00	.00	.00	.07	.50	12	.30
17	.04	.00	.20	.00	.01	.00	.00	.00	.07	.20	4.0	20
18	.02	.00	.15	.01	.01	.00	.00	.00	.13	.10	1.0	2.0
19	.02	.00	.10	.02	.00	.00	.00	.00	.16	.07	5.0	.30
20	.02	.01	.08	.01	.00	.00	.00	.00	.33	.05	10	2.7
21	.02	.01	.07	.00	.00	.00	.00	.00	13	.03	6.0	.61
22	.02	.16	.06	.00	.00	.00	.00	.00	1.6	.03	10	.29
23	.01	.07	.05	.01	.00	.00	.00	.00	.85	.04	2.0	.17
24	.01	.06	.04	.01	.00	.00	.00	.00	1.3	.04	.30	4.2
25	.01	.06	.03	.00	.00	.00	.00	.00	1.2	.03	8.0	.93
26	.01	.04	.02	.00	.00	.00	.00	.00	.50	.03	4.0	.35
27	.00	4.6	.02	.01	.00	.00	.00	.00	.20	.03	2.5	.23
28	.01	.35	.01	.01	.00	.00	.00	.00	.05	.02	.30	.25
29	.01	.13	.01	.01	---	.00	.00	.00	.04	.03	.15	.26
30	.01	.08	.01	.08	---	.00	.00	.00	.03	.08	.07	.23
31	.01	---	2.5	.06	---	.00	---	.00	---	.13	.07	---
TOTAL	1.97	5.75	49.92	9.62	17.11	.02	.00	.00	30.69	30.61	107.61	77.46
MEAN	.064	.19	1.61	.31	.61	.001	.000	.000	1.02	.99	3.47	2.58
MAX	.56	4.6	15	5.0	8.3	.01	.00	.00	13	15	14	40
MIN	.00	.00	.01	.00	.00	.00	.00	.00	.00	.02	.07	.04
AC-FT	3.9	11	99	19	34	.04	.00	.00	61	61	213	154

CAL YR 1977 TOTAL 339.18 MEAN .93 MAX 52 MIN .00 AC-FT 673
WTR YR 1978 TOTAL 330.76 MEAN .91 MAX 40 MIN .00 AC-FT 656

NOTE.--No gage-height record Sept. 2-19.

16892800 DALOLAB STREAM, YAP

LOCATION.--Lat 09°31'04" N., long 138°06'04" E., on left bank at Talagu and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--0.09 mi^2 (0.23 km^2).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 150 ft (46 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 0.361 ft^3/s (0.010 m^3/s), 262 acre-ft/yr (323,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180 ft^3/s (5.10 m^3/s) Sept. 15, 1973, gage height, 4.80 ft (1.463 m), from floodmark in well, from rating curve extended above 17 ft^3/s (0.48 m^3/s); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 75 ft^3/s (2.12 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 12	0230	76	2.15	3.54	1.079	Aug. 19	1730	76	2.15	3.53	1.076
June 21	1900	94	2.66	3.80	1.158	Sept. 14	0300	*152	4.30	4.52	1.378
Aug. 3	1300	90	2.55	3.75	1.143	Sept. 17	1230	146	4.13	4.45	1.356

No flow for many months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	1.8	2.7	.00	.00	.00	.00	.00	.58	.01	.00
2	.00	.00	1.3	.72	.00	.00	.00	.00	.00	.22	.94	.00
3	.00	.00	.06	.08	.00	.00	.00	.00	.00	1.0	5.1	.00
4	.01	.00	.02	.02	2.0	.00	.00	.00	.00	.33	.24	.00
5	.02	.00	.01	.01	1.5	.00	.00	.00	.00	1.5	.06	.00
6	.01	.04	.01	.00	.59	.00	.00	.00	.00	.44	.08	.00
7	.02	.01	.56	.00	.05	.00	.00	.00	.00	.55	1.0	.00
8	.01	.01	.36	.00	.01	.00	.00	.00	.00	4.9	.88	.00
9	.01	.01	.10	.00	.00	.00	.00	.00	.00	2.2	.77	.00
10	.01	.00	2.4	.00	.00	.00	.00	.00	.00	.40	.06	.01
11	.45	.00	.30	.00	.00	.00	.00	.00	.00	.14	.19	.00
12	.05	.00	5.4	.00	.00	.00	.00	.00	2.9	.65	3.8	.00
13	.02	.00	.12	.00	.00	.00	.00	.00	.14	.44	.40	1.1
14	.01	.00	.80	.00	.00	.00	.00	.00	.01	.12	.14	12
15	.01	.00	.49	.00	.00	.00	.00	.00	.00	.24	.05	.27
16	.01	.00	.10	.00	.00	.00	.00	.00	.01	.14	4.0	.05
17	.01	.00	.02	.00	.00	.00	.00	.00	.01	.03	1.1	8.7
18	.00	.00	.01	.00	.00	.00	.00	.00	.08	.02	.14	.27
19	.00	.00	.01	.00	.00	.00	.00	.00	.05	.00	2.5	.06
20	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	3.2	1.1
21	.00	.00	.00	.00	.00	.00	.00	.00	5.5	.00	1.9	.14
22	.00	.12	.00	.00	.00	.00	.00	.00	.44	.00	3.5	.05
23	.00	.01	.00	.00	.00	.00	.00	.00	.14	.01	.24	.02
24	.00	.01	.00	.00	.00	.00	.00	.00	.61	.00	.04	1.9
25	.00	.03	.00	.00	.00	.00	.00	.00	.30	.00	2.7	.22
26	.00	.01	.00	.00	.00	.00	.00	.00	.05	.00	1.0	.08
27	.00	1.5	.00	.00	.00	.00	.00	.00	.01	.00	.48	.05
28	.00	.04	.00	.00	.00	.00	.00	.00	.01	.00	.04	.06
29	.00	.01	.00	.00	---	.00	.00	.00	.01	.00	.01	.05
30	.00	.01	.00	.00	---	.00	.00	.00	.01	.01	.01	.10
31	.00	---	.00	.00	---	.00	---	.00	---	.01	.00	---
TOTAL	.65	1.81	13.87	3.53	4.15	.00	.00	.00	10.32	13.93	34.58	26.23
MEAN	.021	.060	.45	.11	.15	.000	.000	.000	.34	.45	1.12	.87
MAX	.45	1.5	5.4	2.7	2.0	.00	.00	.00	5.5	4.9	5.1	12
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1.3	3.6	28	7.0	8.2	.00	.00	.00	20	28	69	52

CAL YR 1977 TOTAL 102.98 MEAN .28 MAX 15 MIN .00 AC-FT 204
WTR YR 1978 TOTAL 109.07 MEAN .30 MAX 12 MIN .00 AC-FT 216

16892900 PEMGOY STREAM, YAP

LOCATION.--Lat 09°31'07" N., long 138°06'18" E., on right bank at Talagu, 100 ft (30 m) upstream from Talagu Stream, and 0.8 mi (1.3 km) upstream from mouth.

DRAINAGE AREA.--0.17 mi^2 (0.44 km^2).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder. Concrete control since Mar. 30, 1974. Altitude of gage is 100 ft (30 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 0.575 ft^3/s (0.016 m^3/s), 417 acre-ft/yr (514,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 314 ft^3/s (8.89 m^3/s) Sept. 14, 1978, gage height, 5.26 ft (1.603 m), from floodmarks, from rating curve extended above 15 ft^3/s (0.42 m^3/s); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s (1.98 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 21	1900	75	2.12	3.07	0.936	Sept. 14	0230	*314	8.89	†5.26	1.603
Aug. 3	1300	72	2.04	3.03	.924	Sept. 17	1230	192	5.44	†4.34	1.323

No flow for several days.

† From floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	1.3	3.6	.03	.02	.00	.02	.04	1.2	.07	.04
2	.02	.01	2.4	2.2	.02	.02	.00	.01	.02	.42	1.8	.05
3	.03	.01	.09	.22	.03	.03	.01	.01	.01	1.8	7.1	.04
4	.04	.01	.05	.08	3.2	.01	.01	.01	.01	.58	.95	.04
5	.05	.01	.02	.05	2.7	.01	.01	.01	.01	2.8	.14	.05
6	.03	.05	.01	.05	1.7	.03	.01	.01	.01	.47	.10	.03
7	.02	.05	.22	.05	.18	.02	.01	.01	.01	.77	1.6	.06
8	.02	.09	.38	.05	.09	.02	.01	.01	.01	5.5	.63	.04
9	.01	.04	.09	.05	.05	.01	.01	.01	.01	3.1	1.5	.04
10	.02	.02	2.4	.04	.05	.01	.01	.01	.03	.47	.16	.07
11	.15	.01	.96	.04	.04	.01	.01	.01	.02	.22	.12	.05
12	.06	.01	6.8	.03	.03	.01	.01	.01	4.2	.58	4.9	.04
13	.03	.02	.22	.03	.03	.01	.01	.02	.52	1.1	1.3	.99
14	.02	.01	.58	.02	.03	.01	.01	.01	.04	.42	.28	22
15	.02	.01	.87	.01	.05	.01	.01	.02	.03	.50	.14	1.0
16	.04	.01	.13	.01	.04	.01	.01	.02	.04	.50	6.0	.14
17	.02	.01	.06	.01	.03	.01	.04	.01	.18	.25	2.1	12
18	.01	.01	.05	.02	.02	.01	.03	.01	.54	.10	.47	1.1
19	.01	.01	.03	.05	.02	.01	.01	.01	.18	.07	2.6	.17
20	.02	.03	.02	.07	.02	.01	.01	.01	.08	.05	5.3	1.9
21	.01	.04	.01	.05	.02	.01	.00	.01	5.4	.04	3.0	.38
22	.01	.16	.01	.04	.02	.01	.00	.00	1.5	.03	5.3	.12
23	.01	.05	.01	.03	.01	.01	.01	.01	.20	.03	.93	.08
24	.01	.04	.01	.02	.01	.01	.01	.02	1.5	.02	.14	2.2
25	.01	.16	.01	.02	.01	.01	.01	.06	.81	.01	4.1	.71
26	.01	.04	.01	.03	.01	.01	.01	.12	.13	.01	2.3	.11
27	.01	1.7	.01	.03	.04	.01	.01	.34	.05	.01	1.5	.10
28	.01	.12	.01	.02	.04	.01	.01	.06	.04	.01	.18	.15
29	.01	.04	.01	.07	---	.00	.01	.04	.02	.01	.09	.16
30	.01	.02	.02	.08	---	.00	.01	1.0	.02	.07	.06	.17
31	.01	---	1.5	.05	---	.00	---	.08	---	.08	.05	---
TOTAL	.74	2.80	18.29	7.12	8.52	.36	.31	1.98	15.66	21.22	54.91	44.03
MEAN	.024	.093	.59	.23	.30	.012	.010	.064	.52	.68	1.77	1.47
MAX	.15	1.7	6.8	3.6	3.2	.03	.04	1.0	5.4	5.5	7.1	22
MIN	.01	.01	.01	.01	.01	.00	.00	.00	.01	.01	.05	.03
AC-FT	1.5	5.6	36	14	17	.7	.6	3.9	31	42	109	87

CAL YR 1977 TOTAL 185.04 MEAN .51 MAX 35 MIN .00 AC-FT 367
WTR YR 1978 TOTAL 175.94 MEAN .48 MAX 22 MIN .00 AC-FT 349

16893000 TALAGU STREAM, YAP

LOCATION.--Lat 09°31'08" N., long 138°06'13" E., on left bank at Talagu, 300 ft (91 m) upstream from mouth, and 0.9 mi (1.4 km) upstream from mouth of Pemgoy Stream.

DRAINAGE AREA.--0.07 mi^2 (0.18 km^2).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control since Apr. 3, 1975. Altitude of gage is 130 ft (40 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 0.341 ft^3/s (0.010 m^3/s), 247 acre-ft/yr (305,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 330 ft^3/s (9.35 m^3/s) Sept. 14, 1978, gage height, 3.98 ft (1.213 m), from rating curve extended above 9.0 ft^3/s (0.25 m^3/s); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 27	0800	56	1.59	2.28	0.695	Aug. 3	1300	61	1.73	2.33	0.710
Dec. 12	0200	54	1.53	2.26	.689	Sept. 14	0300	*330	9.35	3.98	1.213
June 21	1930	65	1.84	2.38	.725	Sept. 17	1230	255	7.22	3.65	1.113

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	.89	2.2	.01	.00	.00	.00	.01	.43	.01	.02
2	.03	.01	1.4	.98	.01	.00	.00	.00	.00	.21	.54	.02
3	.03	.01	.10	.24	.00	.00	.00	.00	.00	.85	2.1	.02
4	.04	.01	.05	.07	2.0	.00	.00	.00	.00	.26	.40	.03
5	.05	.00	.04	.05	1.5	.00	.00	.00	.00	1.0	.09	.02
6	.03	.01	.03	.04	.50	.00	.00	.00	.00	.29	.08	.02
7	.04	.06	.50	.03	.05	.00	.00	.00	.00	.37	.76	.04
8	.04	.06	.30	.02	.03	.00	.00	.00	.00	3.1	.49	.02
9	.03	.05	.10	.02	.02	.00	.00	.00	.00	1.5	.72	.02
10	.03	.04	1.5	.01	.01	.00	.00	.00	.00	.29	.10	.03
11	.17	.03	.30	.01	.01	.00	.00	.00	.00	.12	.09	.02
12	.06	.02	4.0	.01	.01	.00	.00	.00	2.2	.37	2.7	.01
13	.03	.03	.15	.00	.00	.00	.00	.00	.19	.47	.61	.66
14	.03	.03	.70	.00	.00	.00	.00	.00	.01	.21	.19	16
15	.02	.02	.40	.00	.00	.00	.00	.00	.00	.26	.09	.61
16	.04	.02	.13	.00	.00	.00	.00	.00	.00	.24	3.7	.09
17	.03	.01	.06	.00	.00	.00	.00	.00	.04	.10	.85	10
18	.02	.01	.05	.00	.00	.00	.00	.00	.16	.05	.29	.60
19	.02	.01	.03	.00	.00	.00	.00	.00	.10	.02	1.8	.12
20	.02	.01	.02	.00	.00	.00	.00	.00	.07	.02	2.9	.75
21	.02	.02	.02	.00	.00	.00	.00	.00	4.6	.01	1.8	.19
22	.03	.09	.02	.00	.00	.00	.00	.00	.83	.01	3.0	.07
23	.03	.04	.01	.00	.00	.00	.00	.00	.14	.02	.42	.04
24	.03	.06	.01	.00	.00	.00	.00	.00	.52	.01	.09	1.3
25	.03	.09	.01	.00	.00	.00	.00	.02	.37	.01	2.4	.32
26	.03	.05	.01	.00	.00	.00	.00	.07	.08	.01	1.1	.09
27	.03	1.2	.01	.00	.00	.00	.00	.07	.02	.01	.63	.07
28	.02	.10	.00	.00	.00	.00	.00	.01	.01	.01	.09	.08
29	.02	.04	.00	.00	---	.00	.00	.00	.01	.01	.03	.07
30	.01	.02	.00	.01	---	.00	.00	.07	.01	.01	.02	.08
31	.01	---	.53	.01	---	.00	---	.02	---	.01	.01	---
TOTAL	1.04	2.15	11.37	3.70	4.15	.00	.00	.26	9.37	10.28	28.10	31.41
MEAN	.034	.072	.37	.12	.15	.000	.000	.008	.31	.33	.91	1.05
MAX	.17	1.2	4.0	2.2	2.0	.00	.00	.07	4.6	3.1	3.7	16
MIN	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01
AC-FT	2.1	4.3	23	7.3	8.2	.00	.00	.5	19	20	56	62

CAL YR 1977 TOTAL 95.71 MEAN .26 MAX 16 MIN .00 AC-FT 190
WTR YR 1978 TOTAL 101.83 MEAN .28 MAX 16 MIN .00 AC-FT 202

NOTE.--No gage-height record Jan. 20 to Feb. 23.

16893100 BURONG STREM, YAP

LOCATION.--Lat 09°31'59" N., long 138°07'05" E., on left bank at Dugor and 0.1 mi (0.2 km) upstream from mouth.

DRAINAGE AREA.--0.29 mi² (0.75 km²).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 0.909 ft³/s (0.026 m³/s), 659 acre-ft/yr (813,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 305 ft³/s (8.64 m³/s) Sept. 14, 1978, gage height, 5.10 ft (1.554 m), from rating curve extended above 15 ft³/s (0.42 m³/s); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 75 ft³/s (2.12 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 21	1900	120	3.40	3.80	1.158
Sept. 14	0300	*305	8.64	5.10	1.554
Sept. 17	1230	150	4.25	4.08	1.244

No flow for several months.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.41	2.9	3.6	.02	.00	.00	.00	.00	4.0	.20	.04
2	.13	.20	5.0	3.5	.01	.00	.00	.00	.00	.80	3.4	.04
3	.13	1.5	.50	.53	.02	.00	.00	.00	.00	3.8	9.0	.03
4	.13	.37	2.4	.16	6.2	.00	.00	.00	.00	.80	1.5	.02
5	.13	.13	.50	.08	3.6	.00	.00	.00	.00	.80	.34	.01
6	.11	1.6	.24	.05	2.9	.00	.00	.00	.00	.44	.27	.01
7	.08	.53	1.0	.04	.47	.00	.00	.00	.00	.13	1.9	.01
8	.05	1.0	1.4	.03	.18	.00	.00	.00	.00	5.3	.80	.02
9	.03	.20	.40	.02	.11	.00	.00	.00	.00	5.1	2.2	.10
10	.04	.11	4.6	.01	.09	.00	.00	.00	.00	.60	.37	.06
11	.10	.07	1.8	.01	.07	.00	.00	.00	.00	.22	.18	.02
12	.09	.05	13	.01	.05	.00	.00	.00	6.8	.13	7.5	.01
13	.05	.06	.70	.00	.03	.00	.00	.00	.75	2.2	1.7	3.3
14	.05	.05	1.4	.00	.03	.00	.00	.00	.05	.70	.40	31
15	.06	.02	1.4	.00	.03	.00	.00	.00	.01	.95	.27	1.6
16	.10	.02	.57	.00	.02	.00	.00	.00	.53	.80	7.8	.44
17	.07	.02	.22	.00	.02	.00	.00	.00	.22	.30	3.0	17
18	.03	.02	.14	.00	.01	.00	.00	.00	1.3	.13	.80	2.0
19	.02	.02	.10	.29	.01	.00	.00	.00	.40	.07	3.9	.60
20	.04	.02	.07	.16	.00	.00	.00	.00	.24	.03	7.6	1.1
21	.05	.22	.05	.05	.00	.00	.00	.00	8.3	.01	3.2	.57
22	.06	.90	.04	.03	.00	.00	.00	.00	2.1	.00	8.8	.24
23	.04	.18	.03	.02	.00	.00	.00	.00	3.5	.00	1.6	.16
24	.02	.11	.02	.01	.00	.00	.00	.00	2.0	.00	.34	3.7
25	.01	.37	.02	.01	.00	.00	.00	.00	.85	.00	5.6	1.3
26	.01	.20	.02	.01	.00	.00	.00	.00	.30	.00	4.1	.37
27	.00	2.1	.01	.01	.00	.00	.00	.03	.10	.03	2.1	.24
28	.00	.37	.01	.01	.00	.00	.00	.00	.06	.14	.30	.16
29	.00	.16	.01	.02	---	.00	.00	.00	.01	.04	.16	.16
30	.00	.10	.00	.06	---	.00	.00	.42	.93	1.1	.09	.10
31	.00	---	3.5	.04	---	.00	---	.01	---	.20	.06	---
TOTAL	1.74	11.11	42.05	8.76	13.87	.00	.00	.46	28.45	28.82	79.48	64.41
MEAN	.056	.37	1.36	.28	.50	.000	.000	.015	.95	.93	2.56	2.15
MAX	.13	2.1	13	3.6	6.2	.00	.00	.42	8.3	5.3	9.0	31
MIN	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.06	.01
AC-FT	3.5	22	83	17	28	.00	.00	.9	56	57	158	128

CAL YR 1977 TOTAL 267.67 MEAN .73 MAX 39 MIN .00 AC-FT 531
WTR YR 1978 TOTAL 279.15 MEAN .76 MAX 31 MIN .00 AC-FT 554

16893200 MUKONG STREAM, GAGIL-TOMIL

LOCATION.--Lat 09°32'06" N., long 138°09'59" E., on right bank 0.2 mi (0.3 km) upstream from mouth and 1.6 mi (2.6 km) southwest of Gatjapar.

DRAINAGE AREA.--0.36 mi^2 (0.93 km^2).

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1972-75, December 1974 to June 1978, July to September 1978, stage-discharge relation indefinite due to blocked control.

GAGE.--Water-stage recorder. Altitude of gage is 5 ft (1.5 m), from topographic map.

REMARKS.--Records poor. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39 ft^3/s (1.10 m^3/s) Jan. 22, 1975, gage height, 2.69 ft (0.820 m), from rating curve extended above 11 ft^3/s (0.31 m^3/s); maximum gage height, 3.40 ft (1.036 m), from floodmark, Sept. 14, 1978; minimum daily discharge, 0.09 ft^3/s (0.003 m^3/s) for several days in April, May, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1977 to June 1978, 28 ft^3/s (0.79 m^3/s) Dec. 12, gage height, 2.62 ft (0.799 m), from rating curve extended above 11 ft^3/s (0.31 m^3/s), no other peak above base of 25 ft^3/s (0.71 m^3/s), during period July to September 1978, peak discharges above same base and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Sept. 14	0500	*38	1.08	a3.40	1.036
Sept. 17	1500	27	.76	a2.83	.863

Minimum daily discharge, 0.09 ft^3/s (0.003 m^3/s) on several days in April, May.

a From floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1977 TO JUNE 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.60	2.0	4.8	.65	.45	.17	.11	.50	---	---	---
2	1.3	.50	8.4	9.0	.65	.45	.17	.11	.29	---	---	---
3	1.4	2.5	2.4	2.8	.77	.50	.17	.11	.20	---	---	---
4	1.7	1.5	4.8	1.8	8.3	.55	.17	.11	.17	---	---	---
5	4.2	1.0	2.3	1.5	7.1	.50	.17	.11	.17	---	---	---
6	2.5	3.0	1.5	1.3	6.3	.50	.15	.11	.17	---	---	---
7	2.1	1.5	1.8	1.1	3.2	.50	.15	.13	.17	---	---	---
8	1.7	2.0	3.2	.96	2.3	.45	.15	.13	.15	---	---	---
9	1.8	1.4	2.4	.83	1.7	.40	.15	.11	.13	---	---	---
10	5.1	1.2	2.5	.77	1.7	.36	.13	.13	.17	---	---	---
11	2.7	1.1	2.8	.71	1.7	.32	.11	.11	.26	---	---	---
12	2.5	.90	13	.65	1.5	.29	.09	.09	3.3	---	---	---
13	2.7	1.0	3.6	.60	1.3	.29	.09	.09	.45	---	---	---
14	2.8	.89	3.5	.55	1.2	.32	.11	.09	.50	---	---	---
15	2.7	.77	3.3	.50	.96	.32	.11	.09	.41	---	---	/6.1
16	2.4	.71	2.0	.45	.83	.29	.09	.09	1.5	---	---	---
17	2.1	.65	1.2	.40	.77	.23	.23	.13	1.3	---	---	---
18	2.0	1.1	1.2	.65	.65	.20	.60	.15	1.9	---	---	---
19	1.7	1.3	1.1	3.1	.60	.20	.50	.15	1.4	---	---	---
20	1.8	1.3	1.0	2.0	.55	.20	.36	.13	1.1	---	---	---
21	1.8	2.4	1.0	1.0	.50	.20	.29	.11	4.6	/.86	---	---
22	1.6	2.4	.96	.83	.50	.17	.26	.09	5.6	---	---	---
23	1.4	1.9	.89	.71	.44	.17	.22	.13	2.8	---	---	---
24	1.2	1.8	.83	.60	.40	.17	.17	.17	2.5	---	---	---
25	1.0	2.7	.77	.60	.36	.15	.13	.20	1.8	---	---	---
26	.90	1.2	.71	.77	.32	.15	.13	.29	1.0	---	---	---
27	.80	1.4	.65	1.3	.40	.15	.13	3.4	1.0	---	---	---
28	.70	1.0	.65	.96	.65	.17	.15	1.2	.80	---	---	---
29	.60	.77	.60	1.0	---	.17	.11	.60	.40	---	---	/1.6
30	.50	.71	.55	1.3	---	.17	.09	.45	1.0	---	/2.4	---
31	.45	---	6.2	.77	---	.15	---	.50	---	---	---	---
TOTAL	57.25	41.20	77.81	44.31	46.30	9.14	5.55	9.42	35.74	---	---	---
MEAN	1.85	1.37	2.51	1.43	1.65	.29	.19	.30	1.19	---	---	---
MAX	5.1	3.0	13	9.0	8.3	.55	.60	3.4	5.6	---	---	---
MIN	.45	.50	.55	.40	.32	.15	.09	.09	.13	---	---	---
AC-FT	114	82	154	88	92	18	11	19	71	---	---	---

CAL YR 1977 TOTAL 713.03 MEAN 1.95 MAX 30 MIN .13 AC-FT 1410

/ Result of discharge measurement.

16893700 WICHEN RIVER AT ALTITUDE 55 M, MOEN

LOCATION.--Lat 07°26'45" N., long 151°52'02" E., on left bank at Peniesence, 1.0 mi (1.6 km) upstream from mouth, and 1.6 mi (2.6 km) west of Saint Xaviers Academy.

DRAINAGE AREA.--0.23 mi² (0.60 km²).

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR HI-77-2: 1974-76(P).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 180 ft (55 m), from topographic map.

REMARKS.--Records poor. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 1.03 ft³/s (0.029 m³/s), 746 acre-ft/yr (920,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 338 ft³/s (9.57 m³/s) Sept. 27, 1978, gage height, 4.25 ft (1.295 m), from floodmark, from rating curve extended above 4.6 ft³/s (0.13 m³/s); minimum, 0.01 ft³/s (<0.001 m³/s) Mar. 29-31, 1969, for severals days in March and April 1973, for many days in February and March 1975, in February, March, April 1977, Jan. 14, 15, and Mar. 27 to Apr. 10, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft³/s (1.98 m³/s) and maximum (*), from rating curve extended above 4.6 ft³/s (0.13 m³/s):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 27	1000	71	2.01	2.58	0.786
Sept. 27	a2100	*338	9.57	†4.25	1.295

Minimum discharge, 0.01 ft³/s (<0.001 m³/s) Jan. 14, 15, and Mar. 27 to Apr. 10.

† From floodmarks.
a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	7.0	1.8	.05	.07	.02	.01	.83	.29	1.2	1.2	.25
2	2.8	2.6	1.1	.07	.05	.02	.01	.34	.25	.83	1.0	.15
3	.83	1.8	.83	.05	.04	.02	.01	.21	.21	.67	3.5	.10
4	.59	1.3	.67	.05	.04	.02	.01	.52	.52	.46	3.5	3.0
5	.46	1.0	.75	.05	.05	.02	.01	.29	.67	.40	2.5	1.8
6	.34	1.2	.40	.05	.04	.02	.01	.25	.34	.34	2.0	.80
7	.29	1.1	.21	.07	.03	.02	.01	.21	.29	.25	4.0	1.5
8	.92	.75	.13	.05	.02	.03	.01	.78	.25	.21	3.0	2.0
9	1.7	.59	.10	.05	.05	2.8	.01	2.6	.40	.17	1.7	1.0
10	6.1	.52	.07	.07	.03	.83	.01	1.3	.40	.15	1.1	.75
11	1.8	.46	.07	.04	.03	.34	.30	1.2	.29	.12	5.0	.75
12	1.2	.52	.06	.03	.03	.29	.07	1.1	.17	.12	9.0	.50
13	3.6	.40	.06	.02	.02	.13	.09	.67	.21	.80	2.5	.35
14	4.5	.29	.05	.01	.02	.10	.40	.52	.13	.35	2.7	.35
15	2.0	.25	.04	.01	.02	.07	.20	.34	.13	.20	2.0	.40
16	1.6	.29	.05	.33	.02	.05	.10	.34	.75	.15	2.7	1.2
17	1.5	.25	.05	.10	2.0	.04	.07	.46	4.1	.15	1.8	1.7
18	1.2	.21	.04	.04	.46	.04	.05	.75	7.2	.60	1.3	1.1
19	1.0	.29	.04	.05	.17	.04	.02	2.6	3.4	.65	.90	1.1
20	.80	2.7	.03	.04	.05	.04	.05	1.7	2.0	.50	.85	.75
21	.70	1.8	.02	.02	.04	.03	.40	1.0	1.3	.85	.70	.50
22	1.0	1.1	.03	.02	.03	.03	.40	1.0	1.3	.85	.50	.40
23	1.0	1.1	.04	.02	.02	.02	.50	1.1	2.0	.55	.40	.35
24	1.5	.83	.05	.02	.02	.02	.40	2.1	2.3	.35	.40	1.0
25	1.5	.83	.40	.04	.02	.02	.29	3.1	1.8	.28	.35	.50
26	1.0	1.2	.15	2.0	.02	.02	.10	1.7	1.3	.27	.35	.40
27	7.8	.75	.08	.67	.02	.01	.07	1.2	.92	.25	.30	15
28	4.0	.59	.10	.29	.02	.01	.05	.83	1.2	.20	.20	6.0
29	4.0	.92	.07	.17	---	.01	.04	.67	1.1	.15	.15	2.5
30	2.5	4.7	.07	.10	---	.01	.17	.52	3.5	.12	.15	3.5
31	2.0	---	.05	.07	---	.01	---	.40	---	.30	.35	---
TOTAL	60.57	37.34	7.61	4.65	3.43	5.13	3.87	30.63	38.72	12.49	56.10	49.70
MEAN	1.95	1.24	.25	.15	.12	.17	.13	.99	1.29	.40	1.81	1.66
MAX	7.8	7.0	1.8	2.0	2.0	2.8	.50	3.1	7.2	1.2	9.0	15
MIN	.29	.21	.02	.01	.02	.01	.01	.21	.13	.12	.15	.10
AC-FT	120	74	15	9.2	6.8	10	7.7	61	77	25	111	99

CAL YR 1977 TOTAL 307.03 MEAN .84 MAX 9.7 MIN .01 AC-FT 609
WTR YR 1978 TOTAL 310.24 MEAN .85 MAX 15 MIN .01 AC-FT 615

NOTE.--No gage-height record Mar. 17 to Apr. 24, July 10 to Sept. 30.

16893800 WICHEN RIVER AT ALTITUDE 18 M, MOEN

LOCATION.--Lat 07°27'05" N., long 151°52'18" E., on left bank at Peniesence and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--0.60 mi^2 (1.55 km^2).

PERIOD OF RECORD.--April 1955 to March 1956 (published as "at Peniesence"), June 1968 to current year. All figures of discharge above 3 ft^3/s (0.085 m^3/s) prior to April 1956, published in WSP 1751, are unreliable and should not be used.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control since Mar. 29, 1973. Altitude of gage is 60 ft (18 m), from topographic map. Prior to Apr. 1, 1956, nonrecording gage at site 100 ft (30 m) downstream at different datum.

REMARKS.--Records fair to poor. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years, 2.88 ft^3/s (0.082 m^3/s), 2,090 acre-ft/yr (2.58 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 910 ft^3/s (25.8 m^3/s) June 4, 1972, gage height, 6.80 ft (2.073 m), from rating curve extended above 20 ft^3/s (0.57 m^3/s); minimum, 0.01 ft^3/s (<0.001 m^3/s) Apr. 16-19, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.66 m^3/s) and maximum (*), from rating curve extended above 20 ft^3/s (0.57 m^3/s):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 27	1030	297	8.41	3.88	1.183
Sept. 27	2100	*720	20.4	6.30	1.920

Minimum discharge, 0.02 ft^3/s (0.001 m^3/s) Mar. 27-30, Apr. 1-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	21	5.0	.19	.24	.05	.02	2.6	.65	2.6	2.8	.55
2	6.0	7.7	3.5	.19	.19	.05	.02	1.5	.45	2.1	2.4	.30
3	2.0	5.0	3.0	.15	.15	.05	.02	.88	.30	1.6	9.1	.24
4	1.5	3.6	2.0	.15	.11	.05	.02	2.1	2.1	1.2	8.8	10
5	1.0	2.6	2.0	.15	.08	.05	.02	1.5	2.0	.88	5.6	4.5
6	.80	2.8	1.0	.15	.05	.05	.02	1.2	1.2	.88	5.3	2.0
7	.70	3.1	.60	.20	.05	.03	.02	.88	.88	.65	9.4	4.0
8	2.0	2.1	.40	.15	.05	.05	.02	2.3	.55	.55	8.0	5.3
9	4.0	1.6	.30	.15	.05	9.2	.02	8.8	.88	.45	4.3	2.6
10	15	1.5	.25	.20	.05	2.6	.02	4.5	.65	.37	2.8	1.8
11	4.0	1.3	.20	.11	.05	1.2	.72	4.0	.55	.30	12	1.8
12	3.0	1.3	.20	.11	.05	.76	.15	3.6	.45	.30	23	1.2
13	8.0	.88	.15	.11	.05	.30	.19	2.1	.30	1.8	5.9	.76
14	10	.65	.15	.08	.03	.24	1.0	1.3	.24	.76	7.1	.76
15	5.0	.65	.10	.08	.03	.15	.45	1.0	.24	.37	5.0	1.0
16	3.5	.76	.15	1.4	.03	.11	.19	.76	1.5	.30	7.1	3.0
17	3.0	.55	.15	.50	7.7	.08	.15	1.0	8.1	.37	4.5	4.3
18	2.5	.45	.12	.30	2.3	.08	.11	2.0	21	1.5	3.3	2.8
19	2.0	.65	.10	.25	.88	.08	.03	7.1	8.4	1.6	2.4	2.8
20	1.8	5.9	.09	.20	.30	.08	.11	4.3	4.5	1.2	2.1	1.8
21	1.5	4.3	.08	.19	.19	.08	1.0	2.4	3.1	2.0	1.6	1.3
22	2.0	2.4	.09	.15	.15	.05	1.0	2.4	3.1	2.0	1.2	.88
23	2.0	2.6	.10	.11	.11	.03	1.3	2.6	5.3	1.3	1.0	.76
24	3.0	1.8	.15	.10	.08	.03	1.0	6.0	5.6	.88	1.0	2.6
25	3.0	1.8	1.0	.10	.08	.03	.65	8.8	4.5	.65	.88	1.3
26	1.8	2.6	.40	5.0	.05	.03	.24	4.3	2.8	.65	.88	1.0
27	30	2.0	.25	2.0	.08	.02	.19	2.6	2.1	.55	.65	41
28	10	1.8	.30	1.0	.05	.02	.15	2.0	2.3	.45	.45	16
29	10	2.5	.24	.50	---	.02	.15	1.5	2.7	.37	.30	6.2
30	6.2	15	.19	.45	---	.02	.45	1.2	7.1	.30	.30	8.9
31	4.0	---	.19	.37	---	.03	---	.88	---	.65	.76	---
TOTAL	150.10	100.89	22.45	14.79	13.23	15.62	9.43	88.10	93.54	29.58	139.92	131.45
MEAN	4.84	3.36	.72	.48	.47	.50	.31	2.84	3.12	.95	4.51	4.38
MAX	30	21	5.0	5.0	7.7	9.2	1.3	8.8	21	2.6	23	41
MIN	.70	.45	.08	.08	.03	.02	.02	.76	.24	.30	.30	.24
AC-FT	298	200	45	29	26	31	19	175	186	59	278	261

CAL YR 1977 TOTAL 1011.94 MEAN 2.77 MAX 46 MIN .01 AC-FT 2010
WTR YR 1978 TOTAL 809.10 MEAN 2.22 MAX 41 MIN .02 AC-FT 1600

NOTE.--No gage-height record Nov. 27 to Dec. 27.

16896800 CHUN STREAM, DUBLON ISLAND

LOCATION.--Lat 07°22'36" N., long 151°52'13" E., on right bank at Chun, 0.4 mi (0.6 km) upstream from mouth, and 1.8 mi (2.9 km) west of Penienuk.

DRAINAGE AREA.--0.09 mi^2 (0.23 km^2).

PERIOD OF RECORD.--June 1968 to February 1978 (discontinued).

GAGE.--Water-stage recorder. Concrete control since Sept. 10, 1971. Altitude of gage is 50 ft (15 m), from topographic map.

REMARKS.--Records poor. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 0.494 ft^3/s (0.014 m^3/s), 358 acre-ft/yr (441,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42 ft^3/s (1.19 m^3/s) Sept. 6, 1977, gage height, 3.25 ft (0.991 m), from rating curve extended above 1.9 ft^3/s (0.054 m^3/s); minimum, 0.01 ft^3/s (<0.001 m^3/s) many days February to April 1969, March and April 1973, Mar. 23, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1977 to February 1978, 16 ft^3/s (0.45 m^3/s) Nov. 20, gage height, 2.63 ft (0.802 m), from rating curve extended above 1.9 ft^3/s (0.054 m^3/s), no other peak above base of 16 ft^3/s (0.45 m^3/s); minimum daily discharge during period October 1977 to February 1978, 0.04 ft^3/s (0.001 m^3/s) Feb. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1977 TO FEBRUARY 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	1.8	.75	.11	.11				---	---	---	---
2	.33	1.0	.50	.11	.11				---	---	---	---
3	.26	.75	.45	.11	.11				---	---	---	---
4	.20	.65	.40	.11	.11				---	---	/.27	---
5	.18	.56	.35	.11	.11				/.62	---	---	---
6	.18	.68	.30	.11	.09				---	---	---	---
7	.18	.61	.20	.11	.09				---	---	---	---
8	.20	.47	.26	.11	.09				---	---	---	---
9	.52	.37	.26	.09	.09				---	---	---	---
10	1.6	.65	.29	.09	.08				---	/.16	---	---
11	.70	.42	.26	.08	.08				---	---	---	---
12	.50	.42	.23	.07	.08				---	---	---	---
13	.80	.35	.20	.08	.08				---	---	---	---
14	1.0	.30	.18	.09	.08				---	---	---	---
15	.70	.25	.18	.11	.06				---	---	---	---
16	.60	.20	.15	.23	.06				---	---	---	---
17	.60	.20	.15	.13	.13				---	/.16	---	---
18	.50	.20	.15	.11	.05				---	---	---	---
19	.40	.20	.13	.11	.05				---	---	---	---
20	.30	1.7	.13	.11	.05				---	---	---	/.22
21	.25	1.2	.13	.09	.05				---	---	---	---
22	.50	.90	.11	.09	.05				---	---	---	---
23	.50	.60	.11	.09	.05				---	---	---	---
24	.35	.70	.15	.09	.05				---	---	---	---
25	.40	.55	.37	.09	.05				---	---	---	---
26	.35	.70	.18	.61	.05				---	---	---	---
27	2.6	.50	.13	.23	.04				---	---	---	---
28	1.5	.30	.11	.11	.04				---	---	---	---
29	1.8	.30	.11	.11	---				---	---	---	---
30	1.0	1.0	.11	.11	---				---	---	---	---
31	.75	---	.11	.11	---				---	---	---	---
TOTAL	19.98	18.53	7.14	3.91	2.09				---	---	---	---
MEAN	.64	.62	.23	.13	.075				---	---	---	---
MAX	2.6	1.8	.75	.61	.13				---	---	---	---
MIN	.18	.20	.11	.07	.04				---	---	---	---
AC-FT	40	37	14	7.8	4.1				---	---	---	---

CAL YR 1977 TOTAL 139.41 MEAN .38 MAX 3.7 MIN .05 AC-FT 277

/ Result of discharge measurement.
NOTE.--No gage-height record Nov. 13 to Dec. 7.

16897200 TUMUNU STREAM, DUBLON ISLAND

LOCATION.--Lat 07°22'42" N., long 151°52'51" E., on left bank at Roro, 0.1 mi (0.2 km) upstream from mouth, and 1.1 mi (1.8 km) west of Penienuk.

DRAINAGE AREA.--0.26 mi^2 (0.67 km^2).

PERIOD OF RECORD.--June 1968 to January 1978 (discontinued).

GAGE.--Water-stage recorder. Concrete control since Aug. 13, 1971. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records fair. At times part of flow is diverted from spring basin above station for domestic use. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 1.12 ft^3/s (0.032 m^3/s), 811 acre-ft/yr (1.00 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168 ft^3/s (4.76 m^3/s) Feb. 18, 1970, gage height, 5.08 ft (1.548 m), from rating curve extended above 5.4 ft^3/s (0.15 m^3/s); no flow part or all of each day Mar. 9-13, Apr. 6-11, 13, 1975, part of Mar. 28-30, 1977, during testing of upstream diversion under construction.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1977 to January 1978, 29 ft^3/s (0.82 m^3/s) Nov. 20, gage height, 2.46 ft (0.750 m), from rating curve extended above 2.9 ft^3/s (0.082 m^3/s), no peak above base of 30 ft^3/s (0.85 m^3/s); minimum during period October 1977 to January 1978, 0.01 ft^3/s (<0.001 m^3/s) Jan. 20, during diversion of flow.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1977 TO JANUARY 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	4.7	1.9	.18	---				---	---		
2	.64	3.0	1.3	.12	---				---	---		
3	.41	2.2	1.2	.12	---				---	---		
4	.37	1.7	1.1	.15	---				---	---		
5	.37	1.6	.97	.18	---				/1.2	---		
6	.33	1.9	.58	.10	---				---	---		
7	.33	1.5	.33	.10	---				---	---		
8	.37	1.2	.45	.12	---				---	---		
9	1.1	1.1	.45	.24	/.05				---	---		
10	3.2	1.0	.37	.24	---				---	/.14		
11	1.6	.97	.33	.18	---				---	---		
12	1.2	.90	.30	.08	---				---	---		
13	2.1	.84	.30	.06	---				---	---		
14	2.8	.78	.27	.08	---				---	---		
15	1.7	.71	.24	.08	---				---	---		
16	1.4	.64	.27	.21	/.04				---	---		
17	1.5	.58	.27	.24	---				---	/.13		
18	1.3	.58	.24	.15	---				---	---		
19	1.1	.58	.24	.24	---				---	---		
20	.90	4.7	.12	.12	---				---	---		
21	.78	3.3	.04	.15	---				---	---		
22	1.2	2.2	.12	.15	---				---	---		
23	1.2	1.6	.18	.12	---				---	---		
24	.90	1.7	.21	.10	---				---	---		
25	1.0	1.4	.58	.12	---				---	---		
26	.90	1.8	.24	.90	---				---	---		
27	6.0	1.2	.18	.58	---				/1.5	---		
28	4.3	.90	.24	.33	---				---	---		
29	5.3	.97	.24	.24	---				---	---		
30	3.3	3.1	.24	.15	---				---	---		
31	2.9	---	.21	.10	---				---	---		
TOTAL	51.08	49.35	13.71	5.93	---				---	---		
MEAN	1.65	1.65	.44	.19	---				---	---		
MAX	6.0	4.7	1.9	.90	---				---	---		
MIN	.33	.58	.04	.06	---				---	---		
AC-FT	101	98	27	12	---				---	---		

CAL YR 1977 TOTAL 305.76 MEAN .84 MAX 8.9 MIN .01 AC-FT 606

/ Result of discharge measurement.

16897600 NANEPIL RIVER

LOCATION.--Lat 06°55'11" N., long 158°12'36" E., on left bank 1.4 mi (2.3 km) northeast of Mount Tamatamansakir and 1.4 mi (2.3 km) southeast of Rekisau.

DRAINAGE AREA.--2.93 mi² (7.59 km²).

PERIOD OF RECORD.--March 1970 to current year.

REVISED RECORDS.--WDR HI-76-1: 1970(M), 1971-72(P), 1973(M), 1974(P), 1975(M).

GAGE.--Water-stage recorder. Altitude of gage is 390 ft (119 m), from topographic map.

REMARKS.--Records good. No diversion above station. Water-quality analyses for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 49.9 ft³/s (1.413 m³/s), 36,150 acre-ft/yr (44.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,820 ft³/s (250 m³/s) Aug. 4, 1976, gage height, 9.68 ft (2.950 m), from rating curve extended above 168 ft³/s (4.76 m³/s) on basis of slope-area measurement at gage height 9.68 ft (2.950 m); minimum, 1.6 ft³/s (0.045 m³/s) Nov. 17-23, 1972, Feb. 6, Oct. 21, 22, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft³/s (86.1 m³/s) Jan. 24, gage height, 7.67 ft (2.338 m), no peak above base of 3,200 ft³/s (90.6 m³/s); minimum, 2.9 ft³/s (0.082 m³/s) Mar. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	37	36	11	14	26	113	22	11	17	11	80
2	19	64	64	19	10	12	43	18	143	30	11	32
3	36	90	31	10	15	8.7	23	21	87	15	7.5	23
4	20	45	18	8.6	13	6.5	13	71	62	10	52	17
5	22	92	17	17	83	5.6	8.3	47	32	19	85	25
6	16	29	19	14	134	4.4	6.5	51	49	14	24	31
7	159	16	16	18	54	3.8	5.3	28	25	8.7	13	19
8	92	16	10	11	39	105	4.4	45	20	24	9.4	13
9	54	50	8.3	14	117	42	76	92	17	97	30	10
10	30	55	7.5	114	49	27	138	33	50	27	17	15
11	24	24	11	28	78	27	64	22	26	46	165	20
12	17	28	9.0	23	32	14	76	17	15	23	30	38
13	58	85	14	25	19	9.0	45	24	10	17	60	19
14	46	23	9.4	24	12	7.2	30	20	23	40	37	23
15	27	188	7.5	67	9.4	10	28	22	15	19	40	52
16	40	42	6.8	71	24	12	48	14	10	14	18	17
17	87	21	6.5	125	80	8.3	26	15	24	18	12	11
18	244	23	24	31	25	5.9	23	11	24	136	11	8.7
19	105	30	9.4	18	13	4.7	109	61	152	40	11	8.3
20	77	35	6.2	11	9.4	4.4	34	102	36	20	117	7.5
21	81	57	5.6	9.0	7.9	4.4	83	21	27	57	31	47
22	31	29	5.0	6.5	7.5	3.8	30	21	34	27	16	45
23	44	17	4.1	6.5	17	3.4	51	14	209	26	15	23
24	18	11	5.0	174	8.7	7.2	61	10	112	36	10	69
25	11	15	5.9	85	7.2	11	25	45	50	15	126	23
26	9.0	20	3.8	333	17	5.0	22	57	29	16	64	30
27	9.0	40	3.6	38	9.8	3.6	120	77	18	11	33	35
28	8.3	240	39	23	27	10	50	38	19	14	22	24
29	28	99	7.9	15	---	11	45	21	15	8.7	14	27
30	22	38	5.9	11	---	5.9	43	14	16	7.5	34	30
31	48	---	5.3	28	---	107	---	11	---	11	93	---
TOTAL	1491.7	1559	421.7	1388.6	931.9	515.8	1443.5	1065	1360	863.9	1218.9	822.5
MEAN	48.1	52.0	13.6	44.8	33.3	16.6	48.1	34.4	45.3	27.9	39.3	27.4
MAX	244	240	64	333	134	107	138	102	209	136	165	80
MIN	8.3	11	3.6	6.5	7.2	3.4	4.4	10	10	7.5	7.5	7.5
AC-FT	2960	3090	836	2750	1850	1020	2860	2110	2700	1710	2420	1630

CAL YR 1977 TOTAL 12218.7 MEAN 33.5 MAX 433 MIN 2.2 AC-FT 24240
WTR YR 1978 TOTAL 13082.5 MEAN 35.8 MAX 333 MIN 3.4 AC-FT 25950

16897900 LUI RIVER

LOCATION.--Lat 06°55'36" N., long 158°12'55" E., on right bank 300 ft (91 m) upstream from right-bank tributary and 1.3 mi (2.1 km) southeast of Rekisau.

DRAINAGE AREA.--0.47 mi² (1.22 km²).

PERIOD OF RECORD.--March 1970 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 270 ft (82 m), from topographic map.

REMARKS.--Records good. No diversion above station. Water-quality analysis for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 5.48 ft³/s (0.155 m³/s), 3,970 acre-ft/yr (4.90 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft³/s (33.7 m³/s) Aug. 4, 1976, gage height, 5.92 ft (1.804 m), from rating curve extended above 37 ft³/s (1.05 m³/s), on basis of slope-area measurement at gage height 5.92 ft (1.804 m); minimum, 0.13 ft³/s (0.004 m³/s) Feb. 2-4, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 654 ft³/s (18.5 m³/s) Jan. 24, gage height, 4.61 ft (1.405 m), no other peak above base of 500 ft³/s (14.2 m³/s); minimum, 0.34 ft³/s (0.010 m³/s) Mar. 6, 7, 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.66	2.2	2.5	.60	1.4	2.2	22	3.1	1.6	2.0	1.1	6.4
2	2.4	10	13	.60	1.2	.89	6.5	2.2	17	4.1	1.0	3.6
3	3.5	14	5.0	.43	1.1	.66	4.2	1.8	7.8	1.9	.89	4.2
4	1.8	5.7	2.5	.48	.97	.54	1.8	4.5	11	1.2	3.9	2.4
5	1.0	16	2.0	1.3	6.1	.43	.98	4.6	5.9	3.1	8.1	2.2
6	.73	4.0	2.0	.84	14	.38	.66	4.0	9.3	2.1	3.0	3.2
7	30	2.2	1.4	1.4	6.9	.38	.51	2.4	3.8	1.1	1.4	2.3
8	14	1.5	1.1	.72	4.2	8.4	.42	3.4	3.4	8.6	.89	1.3
9	8.1	2.3	.97	1.1	14	5.2	11	20	2.8	9.3	3.3	.97
10	3.4	3.4	.81	15	6.4	5.2	23	4.6	6.4	4.2	8.4	.81
11	2.1	2.5	1.0	3.7	7.2	4.0	9.3	2.5	3.6	9.9	22	1.0
12	1.5	2.9	.89	3.1	4.0	1.5	16	2.0	2.1	4.4	4.8	2.1
13	5.7	11	1.6	1.7	2.1	.81	7.6	2.9	1.4	2.4	5.7	1.3
14	2.8	3.6	.89	1.1	1.3	.60	3.5	2.3	4.0	2.5	4.2	1.6
15	2.0	29	.66	4.0	1.0	1.0	2.8	2.3	2.2	1.8	3.2	3.9
16	4.0	7.0	.60	4.9	2.3	1.0	3.9	1.4	1.4	1.3	1.8	1.3
17	12	3.4	.60	13	6.9	.66	2.5	1.3	2.4	1.2	1.3	.78
18	35	3.7	.97	3.4	2.7	.54	2.3	1.0	4.6	10	1.0	.58
19	14	4.6	.60	1.6	1.3	.48	10	9.5	25	5.0	.97	1.6
20	10	5.0	.48	1.1	.97	.60	3.6	16	6.4	2.3	7.8	.90
21	13	7.8	.54	.81	.81	.48	8.2	3.1	5.1	21	3.8	4.5
22	4.4	3.7	.54	.60	.81	.43	3.7	2.1	4.0	5.3	1.7	3.0
23	3.8	2.4	.48	.61	1.4	.97	15	1.5	46	2.4	1.6	1.8
24	2.2	1.7	.48	36	.73	.54	15	1.1	15	3.0	1.2	7.3
25	1.5	2.5	.48	9.7	.66	.89	4.3	4.7	8.4	1.7	15	2.7
26	1.3	3.2	.48	75	1.3	.43	3.0	6.9	4.7	3.7	8.7	1.5
27	1.4	7.7	.82	5.7	.73	.43	16	12	2.6	2.1	4.4	1.5
28	1.1	28	3.6	3.1	2.5	.81	7.6	7.0	2.2	2.4	2.8	1.7
29	3.6	14	.60	2.1	---	.60	5.5	4.8	1.7	1.2	1.6	1.3
30	3.3	3.8	.43	1.5	---	.38	7.8	2.6	2.1	.97	1.6	.90
31	8.5	---	.38	2.6	---	11	---	1.7	---	1.0	7.8	---
TOTAL	198.79	208.8	48.40	197.79	94.98	52.43	218.67	139.3	213.9	123.17	134.95	68.64
MEAN	6.41	6.96	1.56	6.38	3.39	1.69	7.29	4.49	7.13	3.97	4.35	2.29
MAX	35	29	13	75	14	11	23	20	46	21	22	7.3
MIN	.66	1.5	.38	.43	.66	.38	.42	1.0	1.4	.97	.89	.58
AC-FT	394	414	96	392	188	104	434	276	424	244	268	136

CAL YR 1977 TOTAL 1548.45 MEAN 4.24 MAX 87 MIN .21 AC-FT 3070
WTR YR 1978 TOTAL 1699.82 MEAN 4.66 MAX 75 MIN .38 AC-FT 3370

16898200 LUI RIVER AT MOUTH

LOCATION.--Lat 06°57'07" N., long 158°13'16" E., on right bank 0.4 mi (0.6 km) upstream from mouth and 1.3 mi (2.1 km) west of Tolenot Peak.

DRAINAGE AREA.--2.06 mi² (5.34 km²).

PERIOD OF RECORD.--March 1970 to current year.

REVISED RECORDS.--WDR HI-76-1: 1970(P), 1971-75.

GAGE.--Water-stage recorder. Altitude of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records good. During dry periods, water is diverted from dam, 500 ft (152 m) upstream, to Tawannu River pump-station pool for domestic use in Kolonia. Water-quality analyses for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--8 years, 25.7 ft³/s (0.728 m³/s), 18,620 acre-ft/yr (23.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,360 ft³/s (180 m³/s) Aug. 4, 1976, gage height, 8.91 ft (2.716 m), from rating curve extended above 288 ft³/s (8.16 m³/s) on basis of slope-area measurement at gage height 8.91 ft (2.716 m); minimum, 0.26 ft³/s (0.007 m³/s) Jan. 20, 1973, during short regulation of flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,670 ft³/s (47.3 m³/s) Jan. 24, gage height, 5.30 ft (1.615 m), no peak above base of 2,000 ft³/s (56.6 m³/s); minimum, 1.6 ft³/s (0.045 m³/s) Mar. 10, during short regulation of flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	12	18	3.5	8.6	7.5	100	19	10	10	7.3	23
2	7.0	32	58	3.6	7.3	5.1	30	14	55	14	6.8	16
3	11	50	25	3.2	7.0	4.5	20	13	33	9.7	6.8	16
4	7.5	28	18	3.1	6.3	3.7	10	14	52	7.7	12	12
5	6.0	74	13	5.0	14	3.4	5.0	19	31	13	27	12
6	5.2	25	12	4.7	36	3.4	4.0	16	36	10	15	23
7	136	17	9.7	5.7	25	3.2	3.7	14	23	7.3	9.2	16
8	57	13	8.1	4.5	15	18	3.4	16	20	23	7.3	11
9	32	14	7.3	4.4	38	16	50	56	17	33	11	8.6
10	20	15	6.8	43	25	13	100	25	26	20	30	7.5
11	13	16	7.1	14	23	10	45	17	19	55	86	7.7
12	11	16	6.3	12	16	6.5	70	13	14	24	23	9.7
13	20	52	7.1	7.9	11	5.1	40	12	11	14	29	7.7
14	12	22	5.9	6.3	8.6	4.2	19	12	14	12	22	7.9
15	10	117	5.3	10	7.3	4.6	16	10	10	11	18	13
16	12	34	5.0	14	10	5.2	16	8.1	8.1	9.2	13	7.5
17	31	20	4.8	33	17	4.4	12	7.3	8.8	7.5	11	6.2
18	159	18	4.6	15	9.9	3.6	11	6.7	12	32	9.0	5.6
19	45	18	4.5	9.2	7.1	3.4	32	15	71	21	8.6	12
20	39	18	4.1	7.1	6.2	3.4	18	49	28	12	24	7.9
21	43	26	3.9	6.2	5.6	3.1	26	14	20	57	20	19
22	23	18	3.8	5.4	5.7	2.8	19	11	16	25	10	17
23	20	13	3.6	5.3	6.7	3.9	42	8.8	149	13	10	12
24	14	11	3.5	114	5.1	3.4	58	7.5	63	13	8.8	28
25	11	14	3.4	36	5.0	3.9	25	15	38	12	36	16
26	10	16	3.2	360	5.6	2.9	18	24	24	39	39	12
27	9.7	21	3.5	30	4.8	2.7	60	30	17	16	17	10
28	8.8	84	11	17	7.1	3.2	37	22	15	14	13	11
29	13	10	4.4	12	---	3.8	26	17	12	10	9.4	9.9
30	9.9	22	3.6	9.4	---	2.8	34	13	11	8.6	9.0	8.8
31	29	---	3.2	12	---	50	---	10	---	7.9	19	---
TOTAL	830.2	846	277.7	816.5	343.9	210.7	950.1	528.4	863.9	560.9	567.2	374.0
MEAN	26.8	28.2	8.96	26.3	12.3	6.80	31.7	17.0	28.8	18.1	18.3	12.5
MAX	159	117	58	360	38	50	100	56	149	57	86	28
MIN	5.1	10	3.2	3.1	4.8	2.7	3.4	6.7	8.1	7.3	6.8	5.6
AC-FT	1650	1680	551	1620	682	418	1880	1050	1710	1110	1130	742

CAL YR 1977 TOTAL 6780.6 MEAN 18.6 MAX 349 MIN 1.1 AC-FT 13450
WTR YR 1978 TOTAL 7169.5 MEAN 19.6 MAX 360 MIN 2.7 AC-FT 14220

16898600 LUPWOR RIVER

LOCATION.--Lat 06°54'15" N., long 158°09'45" E., on left bank about 300 ft (91 m) upstream from 50-ft (15-m) waterfall, 1.8 mi (2.9 km) above mouth, and 2.1 mi (3.4 km) west of Mount Tamatamansakir.

DRAINAGE AREA.--1.12 mi^2 (2.90 km^2).

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 100 ft (30 m), from topographic map.

REMARKS.--Records good except those above 100 ft^3/s (2.83 m^3/s), which are fair. Water-quality analyses for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--6 years, 8.74 ft^3/s (0.248 m^3/s), 6,330 acre-ft/yr (7.80 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft^3/s (87.5 m^3/s) Aug. 4, 1976, gage height, 8.26 ft (2.518 m), from rating curve extended above 26 ft^3/s (0.74 m^3/s), on basis of estimate of peak flow; minimum, 0.40 ft^3/s (0.011 m^3/s) Feb. 18, 19, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft^3/s (21.2 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	2000	755	21.4	5.63	1.716	June 23	1515	978	27.7	6.03	1.838
Nov. 28	2200	1200	34.0	6.38	1.945	Aug. 11	0630	*1200	34.0	6.39	1.948
Jan. 24	1745	815	23.1	5.75	1.753						

Minimum discharge, 0.92 ft^3/s (0.026 m^3/s) Mar. 26-28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	4.8	6.5	1.3	2.8	2.8	23	5.7	1.7	3.2	3.2	10
2	2.5	13	10	1.6	2.4	1.8	9.1	5.7	23	4.3	3.0	5.6
3	2.6	15	6.9	1.2	2.4	1.6	5.4	4.1	18	2.9	2.4	3.8
4	2.0	9.3	5.1	1.2	2.1	1.5	2.9	9.4	10	2.5	7.5	3.3
5	1.9	28	4.6	1.6	9.6	1.5	2.1	8.1	6.5	3.0	8.5	3.8
6	1.6	8.2	4.1	1.5	16	1.4	1.8	5.8	9.4	2.7	4.2	5.4
7	35	5.8	3.5	1.6	9.1	1.4	1.6	4.5	6.4	2.3	3.0	5.3
8	19	6.8	2.9	1.3	5.5	19	1.3	5.1	4.2	3.1	2.6	3.9
9	13	6.7	2.6	1.5	19	5.7	11	18	3.8	28	5.2	3.0
10	9.7	14	2.8	16	10	3.8	36	6.2	10	5.7	9.8	2.6
11	8.0	9.0	3.0	3.9	15	3.9	14	4.0	5.7	20	62	10
12	6.0	8.9	2.4	3.6	6.9	2.6	15	3.0	3.6	6.7	7.2	7.4
13	13	32	3.2	2.5	4.4	2.0	10	3.6	2.9	11	10	4.1
14	7.5	11	2.3	2.1	3.3	1.7	7.2	2.7	3.3	5.8	15	5.5
15	5.8	49	1.9	5.7	2.9	1.7	4.8	3.7	2.6	4.1	13	7.9
16	6.2	9.5	1.8	8.2	4.1	1.7	4.5	2.2	2.3	3.4	5.6	3.8
17	16	6.0	1.7	21	12	1.5	3.3	2.1	3.2	3.0	4.0	3.0
18	89	6.0	3.7	6.4	4.5	1.2	3.0	1.8	3.1	27	3.0	2.6
19	40	6.0	2.0	3.8	2.9	1.2	16	9.7	42	7.7	3.0	2.6
20	35	7.2	1.7	3.0	2.6	1.2	5.4	24	8.6	4.7	13	2.4
21	31	8.2	1.6	2.5	2.3	1.1	12	3.7	6.4	28	5.3	6.3
22	11	5.5	1.4	2.1	2.1	1.1	4.9	2.8	7.0	11	3.5	5.7
23	7.2	4.1	1.4	2.0	2.6	1.3	9.4	2.1	75	10	3.2	4.5
24	5.2	3.6	1.5	35	1.9	1.1	9.4	1.7	40	8.5	2.6	8.5
25	4.2	3.8	1.4	16	1.8	1.3	5.9	5.9	11	9.6	22	4.7
26	3.8	3.9	1.3	119	2.3	1.0	4.1	8.7	7.0	8.6	11	6.8
27	3.4	5.7	1.2	9.6	1.7	.92	14	11	5.3	5.7	16	8.1
28	2.9	52	7.4	5.8	2.9	1.5	8.7	4.7	4.9	5.0	4.8	5.8
29	4.7	20	1.6	4.1	---	1.3	8.2	2.7	3.7	3.6	3.8	4.6
30	3.8	7.7	1.2	3.3	---	.96	6.5	2.1	3.6	3.5	3.9	10
31	7.5	---	1.2	4.1	---	6.9	---	1.8	---	3.3	18	---
TOTAL	401.7	370.7	93.9	292.5	155.1	77.68	260.5	176.6	334.2	247.9	279.3	161.0
MEAN	13.0	12.4	3.03	9.44	5.54	2.51	8.68	5.70	11.1	8.00	9.01	5.37
MAX	89	52	10	119	19	19	36	24	75	28	62	10
MIN	1.6	3.6	1.2	1.2	1.7	.92	1.3	1.7	1.7	2.3	2.4	2.4
AC-FT	797	735	186	580	308	154	517	350	663	492	554	319

CAL YR 1977 TOTAL 3140.98 MEAN 8.61 MAX 89 MIN .66 AC-FT 6230
WTR YR 1978 TOTAL 2851.08 MEAN 7.81 MAX 119 MIN .92 AC-FT 5660

16899500 MUTUNTE RIVER

LOCATION.--Lat 05°22'25" N., long 163°00'24" E., on left bank at dam, 0.3 mi (0.5 km) upstream from mouth, and 1.1 mi (1.8 km) northwest of Mount Buache.

DRAINAGE AREA.--0.60 mi² (1.55 km²).

PERIOD OF RECORD.--May 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 46 ft (14.0 m) from stadia survey.

REMARKS.--Records fair. Water is diverted from diversion dam above station through a 4-in (0.10-m) pipe for domestic use in Tafunsak.

AVERAGE DISCHARGE.--7 years, 5.85 ft³/s (0.166 m³/s), 4,240 acre-ft/yr (5.23 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,430 ft³/s (40.5 m³/s) July 16, 1976, gage height, 2.94 ft (0.896 m), from rating curve extended above 140 ft³/s (3.96 m³/s); minimum, 0.60 ft³/s (0.017 m³/s) Mar. 17, 1976, during short regulation of flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 594 ft³/s (16.8 m³/s) Dec. 16, gage height, 2.48 ft (0.756 m), no peak above base of 600 ft³/s (17.0 m³/s); minimum, 0.68 ft³/s (0.019 m³/s) July 10, during short regulation of flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.0	1.3	1.4	1.8	1.5	1.9	1.9	2.3	6.7	1.2	1.7
2	1.2	.98	1.7	1.3	1.7	1.5	1.8	16	2.3	20	1.2	1.3
3	1.2	1.0	1.2	2.3	1.5	1.5	1.8	6.4	2.4	3.0	1.2	3.2
4	1.2	3.4	1.9	1.8	1.9	1.5	2.7	2.6	2.2	14	1.2	3.5
5	1.7	12	1.3	22	1.8	10	2.3	2.2	6.8	3.2	1.4	2.1
6	1.2	15	1.4	21	1.9	2.3	1.8	1.9	2.4	2.4	5.8	1.7
7	1.1	1.9	1.2	21	1.5	22	8.8	2.6	2.2	2.6	1.3	1.4
8	1.1	1.2	1.1	4.8	1.5	16	35	2.1	2.2	3.0	1.2	1.4
9	1.4	1.2	1.1	2.3	1.5	4.3	13	1.9	2.4	2.3	2.2	1.8
10	1.1	1.2	1.0	1.9	12	3.0	5.3	2.3	8.8	1.7	1.3	15
11	1.2	1.2	1.0	11	12	2.2	9.2	2.2	4.5	1.5	1.2	2.2
12	1.1	17	1.0	2.7	2.6	1.9	4.3	2.4	2.6	1.3	1.4	1.7
13	1.0	2.7	1.0	2.6	2.1	1.8	4.8	5.0	2.2	1.3	10	2.1
14	.98	1.9	2.2	6.7	1.7	1.8	3.0	16	9.0	1.4	2.7	34
15	.98	2.4	14	6.0	1.5	1.7	2.3	3.5	3.2	1.3	1.7	3.7
16	5.9	2.7	57	5.0	1.7	1.5	2.2	4.8	2.3	1.2	1.3	2.1
17	14	2.6	5.6	4.2	8.5	1.7	2.0	3.0	2.2	1.1	1.2	1.5
18	1.5	2.4	5.7	2.6	2.3	1.5	2.0	2.4	3.0	1.3	1.2	1.3
19	1.2	1.8	4.5	2.1	1.9	1.5	2.3	22	3.7	5.0	1.2	1.4
20	1.7	2.2	3.0	1.8	1.7	1.4	2.0	4.0	5.7	1.8	1.2	5.3
21	2.6	1.9	2.4	1.7	1.7	1.3	9.9	2.4	2.7	1.3	1.8	29
22	2.6	1.9	2.3	1.7	1.7	1.3	2.7	2.2	2.3	1.2	1.2	4.3
23	1.9	1.5	2.0	1.9	4.3	1.3	2.3	1.9	3.0	1.2	1.2	2.7
24	1.7	1.4	1.8	9.6	2.1	1.3	2.4	2.2	6.0	1.1	1.9	1.7
25	2.2	1.5	1.7	5.0	1.8	1.4	2.1	11	2.1	1.5	2.0	1.2
26	1.5	1.4	1.4	3.0	1.7	1.7	3.5	4.5	2.3	1.3	1.2	1.9
27	1.4	1.4	1.3	2.6	1.5	2.1	4.3	2.7	4.8	1.3	1.2	2.4
28	1.3	1.4	1.4	2.6	1.5	2.3	2.3	2.3	3.0	1.4	1.2	1.5
29	1.3	1.3	1.4	8.8	---	5.0	1.9	6.0	2.6	1.2	1.1	1.3
30	1.2	1.3	1.4	2.4	---	2.6	2.2	5.6	2.4	1.9	2.7	1.2
31	1.2	---	1.3	2.2	---	2.1	---	2.6	---	1.7	7.8	---
TOTAL	60.86	90.78	126.6	166.0	79.4	103.0	142.1	148.6	103.6	91.2	64.4	135.6
MEAN	1.96	3.03	4.08	5.35	2.84	3.32	4.74	4.79	3.45	2.94	2.08	4.52
MAX	14	17	57	22	12	22	35	22	9.0	20	10	34
MIN	.98	.98	1.0	1.3	1.5	1.3	1.8	1.9	2.1	1.1	1.1	1.2
AC-FT	121	180	251	329	157	204	282	295	205	181	128	269

CAL YR 1977 TOTAL 1544.04 MEAN 4.23 MAX 65 MIN .98 AC-FT 3060
WTR YR 1978 TOTAL 1312.14 MEAN 3.59 MAX 57 MIN .98 AC-FT 2600

16899600 OKAT RIVER

LOCATION.--Lat 05°20'32" N., long 162°59'30" E., on left bank 1.6 mi (2.6 km) upstream from mouth and 1.9 mi (3.1 km) northwest of Mount Crozer.

DRAINAGE AREA.--1.60 mi² (4.14 km²).

PERIOD OF RECORD.--July 1971 to current year.

REVISED RECORDS.--WDR Hawaii 1974: 1971-72(P), 1973(M).

GAGE.--Water-stage recorder. Altitude of gage is 10 ft (3.0 m), from topographic map.

REMARKS..--Records fair. No diversion above station.

AVERAGE DISCHARGE.--7 years, 20.2 ft³/s (0.572 m³/s), 14,630 acre-ft/yr (18.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft³/s (30.0 m³/s) Aug. 2, 1976, gage height, 8.22 ft (2.505 m), from rating curve extended above 230 ft³/s (6.51 m³/s); minimum, 1.4 ft³/s (0.040 m³/s) Mar. 11, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
July 4	1530	*768	21.7	6.29	1.917
Sept. 10	0230	754	21.4	6.22	1.896
Sept. 21	0300	742	21.0	6.16	1.878

Minimum discharge, 3.0 ft³/s (0.085 m³/s) Dec. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	8.8	5.6	4.6	11	6.8	5.1	10	14	18	8.4	12
2	6.1	8.2	7.3	4.3	10	5.5	4.6	35	13	64	7.6	8.4
3	5.6	7.6	4.8	7.0	8.7	6.0	3.9	24	12	17	6.8	17
4	11	18	4.6	4.8	10	6.8	5.3	14	13	85	7.2	16
5	9.2	53	4.6	45	8.4	25	5.7	11	24	31	29	10
6	9.5	53	4.8	41	8.2	12	3.7	9.6	11	21	24	8.8
7	7.3	18	4.1	57	7.0	47	18	9.6	9.2	19	10	7.6
8	9.2	14	3.8	35	6.8	47	55	8.0	8.8	17	8.4	7.2
9	18	11	3.6	25	6.2	23	24	8.0	10	14	12	8.8
10	8.5	11	3.3	24	25	18	21	9.2	27	13	8.4	94
11	8.2	11	3.8	40	33	13	50	8.4	22	11	6.8	16
12	10	31	4.6	25	14	11	20	9.6	12	11	8.4	12
13	7.6	11	3.3	35	10	11	20	17	10	16	35	13
14	6.7	9.9	9.9	37	8.4	10	16	83	43	14	12	65
15	7.6	8.5	17	24	7.6	8.7	11	24	18	11	8.8	24
16	21	8.2	120	19	8.2	8.4	9.2	30	13	9.2	7.6	15
17	44	9.2	22	18	59	7.6	8.0	19	13	8.4	6.8	13
18	22	10	13	14	15	7.0	7.6	14	13	13	6.4	17
19	15	9.5	12	11	10	6.2	9.2	72	14	49	8.0	23
20	11	8.5	9.9	10	8.7	6.0	6.4	33	23	19	8.0	59
21	12	7.3	8.2	9.0	7.9	5.5	35	19	13	12	18	100
22	9.9	6.7	7.6	8.2	7.9	5.1	20	16	11	10	8.0	29
23	8.2	6.1	7.0	8.7	15	4.6	14	14	13	9.2	6.8	21
24	7.6	6.1	6.4	21	9.4	4.1	13	17	24	8.4	9.2	16
25	7.9	5.6	5.8	18	8.2	3.9	10	50	12	11	11	16
26	7.3	5.3	5.6	17	7.3	4.1	14	22	10	12	6.8	17
27	7.0	6.7	5.3	16	6.2	4.8	17	15	29	9.6	6.0	29
28	6.4	6.1	5.3	17	6.0	11	13	13	14	9.6	5.7	14
29	5.8	4.8	5.3	26	---	11	9.6	48	10	9.2	6.0	12
30	6.4	4.6	4.8	15	---	7.3	11	34	8.8	13	11	12
31	8.5	---	4.6	14	---	5.7	---	17	---	12	48	---
TOTAL	330.9	378.7	327.9	650.6	343.1	353.1	460.3	713.4	467.8	576.6	366.1	712.8
MEAN	10.7	12.6	10.6	21.0	12.3	11.4	15.3	23.0	15.6	18.6	11.8	23.8
MAX	44	53	120	57	59	47	55	83	43	85	48	100
MIN	5.6	4.6	3.3	4.3	6.0	3.9	3.7	8.0	8.8	8.4	5.7	7.2
AC-FT	656	751	650	1290	681	700	913	1420	928	1140	726	1410

CAL YR 1977 TOTAL 5298.1 MEAN 14.5 MAX 152 MIN 1.7 AC-FT 10510
WTR YR 1978 TOTAL 5681.3 MEAN 15.6 MAX 120 MIN 3.3 AC-FT 11270

16899620 MELO RIVER

LOCATION.--Lat 05°21'06" N., long 162°59'29" E., on left bank 0.35 mi (0.56 km) upstream from mouth and 1.7 mi (2.7 km) southwest of Mount Buache.

DRAINAGE AREA.--0.48 mi^2 (1.24 km^2).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 784 ft^3/s (22.2 m^3/s) Mar. 22, 1976, gage height, 5.78 ft (1.762 m), from rating curve extended above 17 ft^3/s (0.48 m^3/s); minimum, 0.65 ft^3/s (0.018 m^3/s) about Mar. 10, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s (8.50 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Sept. 14	1700	315	8.92	3.65	1.113
Sept. 21	0330	*323	9.15	3.69	1.125

Minimum discharge, 0.90 ft^3/s (0.025 m^3/s) Jan. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.4	2.1	1.2	3.1	1.9	1.4	3.3	4.2	6.0	1.8	3.0
2	1.6	2.1	2.8	1.1	2.8	1.5	1.3	9.3	3.8	20	1.5	2.2
3	1.5	3.2	1.8	2.8	2.5	1.6	1.2	7.9	4.2	5.0	1.3	4.7
4	3.5	5.1	1.8	1.4	2.6	1.9	3.0	4.6	4.2	20	1.3	4.5
5	3.6	21	1.8	13	2.4	9.1	2.4	3.8	10	8.0	3.4	2.5
6	2.6	14	1.6	16	2.2	3.5	1.4	3.3	4.0	6.5	5.9	2.2
7	2.1	4.9	1.5	16	1.9	13	8.6	4.2	3.1	6.0	2.0	1.9
8	2.4	3.9	1.4	9.0	1.9	16	21	3.0	2.8	5.0	1.6	1.5
9	4.5	3.1	1.4	5.3	1.6	8.6	10	3.3	4.6	4.5	5.3	1.6
10	2.4	2.8	1.4	3.3	8.7	6.9	7.6	4.2	10	4.0	2.5	12
11	2.5	2.6	1.8	9.7	11	4.6	12	3.8	6.6	3.5	1.8	3.1
12	3.2	7.7	1.6	5.1	4.4	3.8	8.6	4.4	4.4	3.0	3.1	2.4
13	2.2	3.1	1.5	3.8	3.3	3.8	8.3	7.6	3.8	4.5	10	3.0
14	1.9	2.8	4.1	7.2	2.6	3.1	5.8	18	9.0	4.0	4.6	20
15	2.4	2.5	8.4	8.3	2.5	2.6	4.4	6.9	5.3	3.0	3.0	7.6
16	7.0	2.6	27	6.3	2.4	2.6	3.8	7.6	4.0	2.5	2.4	4.6
17	12	3.2	6.3	5.7	14	2.4	3.3	5.3	4.4	2.0	2.0	3.5
18	5.3	4.1	4.6	4.4	4.2	2.0	2.8	4.2	4.0	2.8	1.8	3.3
19	3.6	3.2	3.8	3.5	3.3	1.9	3.5	17	5.8	8.0	2.2	4.0
20	2.8	3.1	2.8	3.1	2.6	1.8	2.8	9.3	9.1	3.8	2.2	11
21	3.6	2.6	2.5	2.8	2.5	1.6	13	5.8	4.9	2.5	3.8	18
22	2.8	2.5	2.2	2.6	2.5	1.5	6.1	4.6	3.5	2.2	2.0	7.1
23	2.1	2.1	2.0	3.3	7.4	1.4	4.2	3.8	4.0	2.0	1.6	6.3
24	2.1	2.1	1.8	7.9	3.3	1.3	4.6	4.6	7.0	1.9	2.9	4.4
25	2.8	1.9	1.5	9.7	2.5	1.2	3.5	8.5	4.0	3.8	3.1	4.2
26	2.2	1.9	1.4	6.3	2.2	1.2	4.2	6.9	3.5	2.8	1.8	4.6
27	2.6	2.1	1.4	6.1	1.8	1.4	6.2	4.6	9.0	2.0	1.5	7.6
28	2.0	2.0	1.3	5.3	1.8	2.6	3.8	3.5	4.5	2.4	1.4	3.8
29	1.8	1.6	1.6	9.5	---	4.7	3.0	11	3.5	1.9	2.0	3.0
30	2.0	1.5	1.3	5.1	---	2.5	3.8	10	3.0	3.4	6.1	3.0
31	2.6	---	1.2	4.2	---	1.6	---	5.6	---	2.6	9.2	---
TOTAL	95.5	117.7	97.7	189.0	104.0	113.6	165.6	199.9	154.2	149.6	95.1	160.6
MEAN	3.08	3.92	3.15	6.10	3.71	3.66	5.52	6.45	5.14	4.83	3.07	5.35
MAX	12	21	27	16	14	16	21	18	10	20	10	20
MIN	1.5	1.5	1.2	1.1	1.6	1.2	1.2	3.0	2.8	1.9	1.3	1.5
AC-FT	189	233	194	375	206	225	328	397	306	297	189	319

CAL YR 1977 TOTAL 1752.35 MEAN 4.80 MAX 50 MIN .70 AC-FT 3480
WTR YR 1978 TOTAL 1642.50 MEAN 4.50 MAX 27 MIN 1.1 AC-FT 3260

16899750 MALEM RIVER

LOCATION.--Lat 05°18'21" N., long 163°01'46" E., on left bank 1.2 mi (1.9 km) upstream from mouth and 1.8 mi (2.9 km) southeast of Mount Crozer.

DRAINAGE AREA.--0.48 mi² (1.24 km²).

PERIOD OF RECORD.--July 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 95 ft (29 m) from stadia survey.

REMARKS.--Records fair. Water is diverted through 6-in (0.2-m) pipe from dam above station for domestic use in village of Malem.

AVERAGE DISCHARGE.--7 years, 7.18 ft³/s (0.203 m³/s), 5,200 acre-ft/yr (6.41 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft³/s (43.9 m³/s) Mar. 22, 1976, gage height, 6.20 ft (1.890 m), from rating curve extended above 110 ft³/s (3.12 m³/s); minimum, 0.14 ft³/s (0.004 m³/s) Nov. 20, 1974, during flushing at dam upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 304 ft³/s (8.61 m³/s) Dec. 16, gage height, 4.46 ft (1.359 m), no peak above base of 500 ft³/s (14.2 m³/s); minimum, 0.21 ft³/s (0.006 m³/s) Jan. 4, during short regulation of flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.4	1.3	1.0	2.6	1.7	1.4	2.1	2.6	7.2	1.7	2.7
2	1.4	1.3	1.5	.88	2.2	1.5	1.1	8.0	2.3	30	1.5	1.8
3	1.3	1.2	1.1	3.9	1.9	2.2	.94	7.5	3.6	5.4	1.4	2.1
4	1.5	5.0	1.0	1.2	4.1	2.1	1.9	3.3	4.6	17	1.6	2.4
5	1.2	15	1.0	25	2.1	13	2.2	2.5	7.8	6.8	15	1.6
6	1.1	13	.88	25	1.7	4.1	1.1	1.7	5.8	4.5	14	1.4
7	1.1	3.5	.68	29	1.5	22	13	2.0	2.5	4.0	3.8	1.2
8	1.5	3.0	.56	9.5	1.5	20	31	1.5	2.1	3.3	2.6	1.2
9	3.7	2.5	.51	5.6	1.5	10	6.0	1.4	3.3	2.8	2.2	1.2
10	1.4	2.5	.41	4.1	3.9	6.6	13	1.7	14	2.4	1.7	5.7
11	2.4	2.0	.62	19	6.5	4.8	25	1.5	4.8	2.3	1.5	3.1
12	2.4	10	.62	7.3	2.8	3.6	6.8	2.1	3.3	2.2	3.3	1.5
13	1.5	3.5	.62	28	1.9	3.1	6.4	5.0	3.1	2.1	11	3.1
14	1.3	3.5	1.3	12	1.6	2.8	4.5	30	22	1.7	4.8	15
15	1.4	2.5	2.5	11	1.5	2.5	3.4	7.8	6.8	7.2	2.7	6.6
16	4.8	2.2	39	6.8	1.5	2.6	2.8	16	4.3	2.8	2.1	3.0
17	15	2.4	5.4	5.8	54	2.1	2.5	7.3	4.1	1.7	1.8	2.4
18	3.4	2.6	3.6	5.0	6.8	1.8	2.2	4.5	3.6	6.8	1.6	1.8
19	1.9	2.3	4.6	4.1	4.3	1.7	2.3	16	3.0	7.3	1.6	3.6
20	1.6	2.0	3.6	3.3	3.4	1.6	1.9	8.0	3.0	4.8	1.5	14
21	2.1	2.2	2.4	3.0	2.8	1.3	12	4.6	2.3	2.6	10	13
22	1.8	2.6	1.7	2.7	2.6	1.3	4.5	3.8	2.2	2.1	2.4	5.0
23	1.5	2.1	1.5	2.4	4.1	1.3	4.0	3.4	6.6	1.7	1.7	3.4
24	1.3	1.7	1.4	6.8	2.7	1.2	2.7	7.3	9.2	1.6	4.7	2.7
25	1.5	1.4	1.2	11	2.2	1.1	2.3	7.5	3.4	3.1	5.4	2.3
26	3.0	1.4	1.4	5.8	2.1	1.3	3.1	5.6	2.6	4.3	2.2	3.3
27	1.7	1.9	1.5	6.0	1.6	3.1	7.8	3.6	4.9	2.7	1.9	4.4
28	1.5	1.5	1.0	5.8	1.6	5.8	3.4	3.0	4.1	2.1	1.6	2.2
29	1.3	1.2	1.0	14	---	5.2	2.5	4.5	2.3	1.7	1.3	1.7
30	1.3	1.1	.88	5.0	---	2.5	2.5	4.6	1.9	2.7	3.6	1.9
31	1.3	---	.81	3.4	---	1.6	---	3.0	---	2.7	6.1	---
TOTAL	69.6	98.5	85.59	273.38	127.0	135.5	174.24	180.8	146.1	149.6	120.3	115.3
MEAN	2.25	3.28	2.76	8.82	4.54	4.37	5.81	5.83	4.87	4.83	3.88	3.84
MAX	15	15	39	29	54	22	31	30	22	30	15	15
MIN	1.1	1.1	.41	.88	1.5	1.1	.94	1.4	1.9	1.6	1.3	1.2
AC-FT	138	195	170	542	252	269	346	359	290	297	239	229

CAL YR 1977	TOTAL	1760.79	MEAN 4.82	MAX 80	MIN .35	AC-FT 3490
WTR YR 1978	TOTAL	1675.91	MEAN 4.59	MAX 54	MIN .41	AC-FT 3320

16899800 TOFOL RIVER

LOCATION.--Lat 05°19'53" N., long 163°01'25" E., on left bank 25 ft (7.6 m) downstream from right-bank tributary, 0.7 mi (1.1 km) upstream from mouth, and 1.2 mi (1.9 km) northeast of Mount Crozer.

DRAINAGE AREA.--0.44 mi^2 (1.14 km^2).

PERIOD OF RECORD.--June 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 98 ft (29.9 m) from stadia survey.

REMARKS.--Records good. Water is diverted through 8-in (20-cm) pipe from dam above station for domestic use.

AVERAGE DISCHARGE.--7 years, 5.81 ft^3/s (0.164 m^3/s), 4,210 acre-ft/yr (5.19 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft^3/s (36.0 m^3/s) Mar. 22, 1976, gage height, 5.56 ft (1.695 m), from rating curve extended above 79 ft^3/s (2.24 m^3/s); minimum, 0.70 ft^3/s (0.020 m^3/s) Aug. 21, 22, Dec. 12, 1977, during short regulation of flow at dam upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 390 ft^3/s (11.0 m^3/s) Dec. 16, gage height, 3.92 ft (1.195 m), no peak above base of 450 ft^3/s (12.7 m^3/s); minimum, 0.70 ft^3/s (0.020 m^3/s) Dec. 12, during short regulation of flow at dam upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.2	1.4	1.2	3.3	1.9	1.5	2.3	2.6	6.2	2.0	2.0
2	2.2	2.0	1.8	1.2	3.1	1.9	1.4	9.7	2.3	18	1.8	1.6
3	2.1	2.0	1.5	3.5	2.8	2.6	1.3	6.6	2.3	4.7	1.6	2.1
4	2.1	6.7	1.5	1.6	4.6	2.6	1.9	3.5	2.7	15	1.6	2.3
5	2.3	14	1.4	14	2.8	12	1.9	2.8	5.9	5.2	7.1	1.6
6	2.1	12	1.2	16	2.7	4.2	1.3	2.5	2.7	3.8	10	1.5
7	2.1	4.3	1.1	20	2.3	16	7.6	2.5	2.1	4.3	2.7	1.4
8	2.3	3.3	1.0	9.7	2.2	18	19	2.2	1.9	3.2	2.2	1.9
9	3.2	2.7	1.0	5.5	2.1	8.7	4.2	2.1	2.8	2.8	1.9	2.0
10	2.7	2.8	1.0	4.2	6.5	6.2	4.8	2.5	10	2.6	1.8	8.7
11	4.2	2.3	1.1	16	10	4.7	15	2.3	5.9	2.3	1.7	2.7
12	4.3	9.7	1.1	7.1	3.6	4.0	4.7	2.5	3.1	2.3	2.5	1.9
13	2.3	4.7	1.1	16	2.7	3.6	4.8	4.0	3.1	2.3	8.3	2.2
14	1.9	4.3	2.0	11	2.1	3.2	3.6	20	16	2.0	2.3	12
15	2.0	2.9	4.0	10	2.0	2.8	2.9	6.2	5.7	4.3	1.8	4.5
16	8.1	2.3	30	6.8	1.9	2.7	2.5	11	4.0	2.2	1.6	2.6
17	14	2.7	5.5	5.7	20	2.5	2.3	5.5	3.8	1.9	1.6	2.1
18	4.7	2.8	3.5	4.7	4.5	2.2	2.1	4.2	3.6	5.5	1.4	1.9
19	3.2	2.5	3.8	4.0	3.5	2.1	2.5	16	3.6	6.6	1.6	3.3
20	2.5	2.0	3.5	3.6	2.8	2.0	1.9	7.8	5.5	4.0	1.5	13
21	2.9	1.9	2.3	3.3	2.6	1.9	7.2	5.0	3.3	2.5	5.7	14
22	2.6	2.2	1.9	2.9	2.7	1.8	4.3	4.3	2.9	2.2	1.9	4.8
23	2.0	2.2	1.8	2.8	5.6	1.7	3.2	4.0	4.2	1.9	1.5	4.0
24	1.9	1.9	1.6	5.9	3.1	1.7	2.9	5.0	7.1	1.9	2.7	3.2
25	2.2	1.5	1.5	7.1	2.6	1.7	2.3	7.6	3.6	3.2	2.6	2.9
26	4.3	1.8	1.5	4.7	2.1	1.5	3.2	5.2	3.8	2.7	1.5	3.5
27	2.1	2.3	1.4	5.5	1.9	1.9	4.8	3.6	4.8	2.1	1.4	4.1
28	1.9	1.9	1.4	5.0	1.8	2.6	2.8	3.1	3.2	1.9	1.3	2.8
29	1.8	1.5	1.6	11	---	2.9	2.2	4.5	2.6	2.2	1.2	2.5
30	1.9	1.5	1.3	4.3	---	1.9	2.2	4.2	2.2	3.3	2.5	2.3
31	1.8	---	1.2	3.6	---	1.5	---	2.9	---	2.8	6.6	---
TOTAL	95.9	106.9	86.0	217.9	107.9	125.0	122.3	165.6	127.3	125.9	85.9	115.4
MEAN	3.09	3.56	2.77	7.03	3.85	4.03	4.08	5.34	4.24	4.06	2.77	3.85
MAX	14	14	30	20	20	18	19	20	16	18	10	14
MIN	1.8	1.5	1.0	1.2	1.8	1.5	1.3	2.1	1.9	1.9	1.2	1.4
AC-FT	190	212	171	432	214	248	243	328	252	250	170	229

CAL YR 1977 TOTAL 1614.15 MEAN 4.42 MAX 49 MIN .75 AC-FT 3200
WTR YR 1978 TOTAL 1482.00 MEAN 4.06 MAX 30 MIN 1.0 AC-FT 2940

16912000 PAGO STREAM AT AFONO

LOCATION.--Lat 14°16'03" S., long 170°39'02" W., on left bank 0.2 mi (0.3 km) south of Afono and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.60 mi² (1.55 km²).

PERIOD OF RECORD.--October 1958 to current year. Prior to July 1960, published as Afono Stream at Afono.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 30 ft (9 m), from topographic map.

REMARKS.--Records fair. About 0.06 ft³/s (0.002 m³/s) is diverted above station for domestic use in Afono. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--19 years (water years 1960-78), 3.29 ft³/s (0.093 m³/s), 2,380 acre-ft/yr (2.93 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 ft³/s (38.2 m³/s) July 5, 1969, gage height, 5.49 ft (1.673 m), from rating curve extended above 52 ft³/s (1.47 m³/s); minimum, 0.15 ft³/s (0.004 m³/s) Oct. 25, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 210 ft³/s (5.95 m³/s), from rating curve extended above 52 ft³/s (1.47 m³/s), and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 5	0200	252	7.14	3.44	1.049	Mar. 18	0900	210	5.95	3.28	1.000
Jan. 8	1800	*598	16.9	4.37	1.332	Apr. 30	2400	222	6.29	3.33	1.015
Jan. 22	2200	486	13.8	4.09	1.247	Aug. 12	0830	418	11.8	3.92	1.195

Minimum discharge, 0.31 ft³/s (0.009 m³/s) Nov. 8, 9, 11-14, Mar. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	.58	1.5	2.6	9.9	.58	9.9	42	1.0	.85	.52	6.5
2	.38	.47	1.2	7.4	5.7	.52	7.2	16	1.1	1.8	.47	3.1
3	.34	.42	1.1	4.0	3.6	.52	4.6	14	1.0	1.0	.42	1.8
4	9.3	.38	1.0	3.4	2.3	.47	3.4	5.4	.93	.85	.42	1.1
5	42	.34	.85	3.0	1.8	.42	2.6	3.4	.93	.78	.47	.85
6	3.0	.47	.85	2.6	1.3	.42	2.3	10	19	.71	.38	1.1
7	1.3	.42	.78	3.0	1.8	.52	2.2	7.2	6.6	.71	.42	5.6
8	.91	.34	.71	66	20	.47	2.0	3.0	3.4	.64	.64	3.2
9	.78	.34	.58	12	6.2	.38	1.6	2.6	2.3	.64	.52	1.9
10	5.2	.38	.64	18	4.3	.34	6.5	1.9	1.3	.64	26	1.4
11	3.4	.34	.52	9.1	6.8	.34	7.5	2.8	1.2	.64	15	1.4
12	1.5	.34	.52	3.8	5.1	.38	6.2	10	1.3	.58	64	1.1
13	4.0	.34	.58	3.4	15	.38	11	5.4	3.6	.69	12	1.0
14	17	.34	.52	2.5	7.2	.71	4.3	2.6	1.8	1.0	4.3	1.1
15	13	.50	.47	2.3	3.6	4.6	2.6	1.8	1.2	1.0	2.5	16
16	3.4	.64	.47	16	4.0	16	2.8	1.9	1.1	1.0	2.2	5.1
17	16	.52	.47	7.4	2.3	34	1.5	1.5	.85	1.0	1.9	3.2
18	5.7	.42	.47	4.7	1.8	80	1.4	1.4	.78	1.0	1.3	3.0
19	4.0	.38	.72	6.2	1.4	22	1.5	1.3	1.1	1.0	1.0	2.0
20	2.3	.42	21	4.3	1.1	17	1.5	1.4	.93	1.1	1.0	1.4
21	1.8	2.0	8.5	3.0	1.0	13	1.1	1.5	.78	1.6	1.0	1.1
22	1.5	21	7.6	33	.93	43	.93	1.3	.78	2.7	.92	1.1
23	1.2	4.8	9.8	43	.85	25	.93	1.1	.71	12	.93	1.0
24	.85	4.8	7.6	29	.78	9.5	.93	1.1	.71	1.8	.71	.93
25	.78	2.5	4.6	36	.64	7.2	.93	1.1	.71	.91	.76	.85
26	.64	15	3.4	16	.58	5.1	1.3	2.4	.71	.85	.85	.93
27	.58	28	3.0	19	.58	17	4.0	1.8	.90	.64	1.0	1.0
28	.52	4.6	3.0	9.1	.52	6.8	1.5	1.4	.78	.58	.71	.93
29	.58	2.6	2.8	5.1	---	6.8	1.4	1.1	.85	.52	22	.93
30	.52	1.8	2.6	41	---	15	6.4	1.0	.85	.58	4.9	1.0
31	.47	---	3.0	26	---	9.5	---	1.0	---	.52	7.4	---
TOTAL	143.53	95.48	90.85	441.9	111.08	337.95	102.02	150.4	59.20	40.33	176.64	71.62
MEAN	4.63	3.18	2.93	14.3	3.97	10.9	3.40	4.85	1.97	1.30	5.70	2.39
MAX	42	28	21	66	20	80	11	42	19	12	64	16
MIN	.34	.34	.47	2.3	.52	.34	.93	1.0	.71	.52	.38	.85
AC-FT	285	189	180	877	220	670	202	298	117	80	350	142

CAL YR 1977 TOTAL 1106.89 MEAN 3.03 MAX 101 MIN .26 AC-FT 2200
WTR YR 1978 TOTAL 1821.00 MEAN 4.99 MAX 80 MIN .34 AC-FT 3610

16920500 AASU STREAM AT AASU

LOCATION.--Lat 14°17'51" S., long 170°45'30" W., on right bank at Aasu and 200 ft (61 m) upstream from mouth.

DRAINAGE AREA.--1.03 mi^2 (2.67 km^2).

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area. (FISCAL YEARS).--WSP 2137: 1959-60(P). (WATER YEARS).--1960(P), 1961(M), 1962-65(P).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5 ft (1.5 m) by hand levels from high-tide mark.

REMARKS.--Records good. Small diversion above station for domestic use. Recording rain gage located at station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--19 years (water years 1960-78), 5.99 ft^3/s (0.170 m^3/s), 4,340 acre-ft/yr (5.35 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 498 ft^3/s (14.1 m^3/s) Sept. 7, 1972, gage height, 5.16 ft (1.573 m), from rating curve extended above 20 ft^3/s (0.57 m^3/s) on basis of slope-area measurement at gage height 4.57 ft (1.393 m); minimum, 0.12 ft^3/s (0.003 m^3/s) Oct. 21, 23, 24, 27, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 294 ft^3/s (8.33 m^3/s) Sept. 1, gage height, 4.22 ft (1.286 m), no other peak above base of 180 ft^3/s (5.10 m^3/s); minimum, 0.68 ft^3/s (0.019 m^3/s) July 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	3.4	6.4	3.2	14	3.4	14	20	2.5	1.1	1.5	43
2	1.4	3.0	5.8	7.2	12	2.5	11	9.2	2.2	2.9	1.2	22
3	1.2	2.7	5.2	4.0	10	2.2	8.4	6.7	2.1	1.6	1.0	16
4	4.9	2.5	4.6	3.6	8.8	1.9	7.4	6.4	2.1	1.4	.95	13
5	11	2.4	3.8	3.0	7.8	1.9	6.4	6.1	1.9	1.1	.87	10
6	3.6	9.3	3.6	3.0	6.7	1.8	6.1	6.1	5.6	1.0	.81	9.2
7	2.7	5.5	3.2	8.7	6.1	1.8	5.8	5.2	3.0	1.0	.81	8.4
8	2.4	3.4	2.8	23	8.6	1.7	5.2	4.9	2.4	1.0	1.5	7.4
9	2.4	2.7	2.5	18	6.1	1.6	4.9	4.6	2.2	.95	.95	5.8
10	15	2.5	2.4	12	5.5	2.1	5.2	4.2	2.1	.95	26	4.9
11	8.1	2.4	2.4	11	4.9	2.4	8.2	4.9	1.9	.87	16	4.3
12	5.2	2.5	2.2	9.8	6.3	2.8	7.0	6.4	2.1	.87	21	3.8
13	5.5	2.2	2.1	8.8	8.1	2.7	8.5	5.2	3.5	.81	14	3.8
14	14	2.2	2.1	7.8	6.4	4.3	5.5	3.8	2.1	.87	11	3.8
15	12	2.8	1.9	6.7	6.4	3.8	4.6	3.6	1.9	.95	9.5	6.7
16	8.8	6.4	1.9	8.7	7.0	12	6.9	3.4	1.8	.81	8.4	4.0
17	16	2.8	1.7	8.1	5.8	29	5.8	3.0	1.7	.87	7.2	4.3
18	12	2.5	1.8	7.4	4.9	57	4.3	2.8	1.6	.81	6.0	3.6
19	11	2.2	8.9	9.9	4.9	32	3.6	3.0	1.8	.74	5.0	3.0
20	9.5	2.2	22	9.8	4.0	34	3.2	3.6	2.4	.87	3.9	3.4
21	8.4	5.0	11	8.4	3.6	27	3.0	6.4	1.7	1.0	3.6	2.8
22	14	27	13	8.0	3.4	32	2.8	4.4	1.6	1.1	3.2	2.7
23	9.5	13	8.4	12	3.2	26	2.7	3.4	1.6	5.3	2.8	2.5
24	7.4	9.8	6.7	14	3.2	18	2.4	3.0	1.5	1.9	2.7	2.4
25	6.4	9.2	6.1	24	3.0	15	2.4	2.8	1.4	1.3	2.4	2.2
26	5.5	9.9	5.8	18	2.7	13	2.8	3.7	1.4	1.2	2.2	2.1
27	4.9	15	6.4	35	2.5	22	2.8	3.0	1.3	1.5	3.4	2.1
28	5.5	11	4.9	21	2.4	15	1.9	2.8	1.2	1.2	2.2	2.1
29	5.2	8.4	4.3	16	---	12	4.3	2.7	1.2	1.1	5.0	1.9
30	4.6	7.4	3.8	22	---	13	8.4	2.4	1.2	1.2	15	1.8
31	3.4	---	3.6	19	---	11	---	2.5	---	1.0	21	---
TOTAL	223.4	181.3	161.3	371.1	168.3	404.9	165.5	150.2	61.0	39.27	201.09	203.0
MEAN	7.21	6.04	5.20	12.0	6.01	13.1	5.52	4.85	2.03	1.27	6.49	6.77
MAX	16	27	22	35	14	57	14	20	5.6	5.3	26	43
MIN	1.2	2.2	1.7	3.0	2.4	1.6	1.9	2.4	1.2	.74	.81	1.8
AC-FT	443	360	320	736	334	803	328	298	121	78	399	403

CAL YR 1977 TOTAL 1894.78 MEAN 5.19 MAX 72 MIN .63 AC-FT 3760
WTR YR 1978 TOTAL 2330.36 MEAN 6.38 MAX 57 MIN .74 AC-FT 4620

16931000 ATAULOMA STREAM AT AFAO

LOCATION.--Lat 14°20'10" S., long 170°48'02" W., on left bank at Afao, 100 ft (30 m) upstream from highway bridge, and 300 ft (91 m) upstream from mouth.

DRAINAGE AREA.--0.24 mi^2 (0.62 km^2).

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (6 m) by hand levels from high-tide mark.

REMARKS.--Records fair. No diversion above station. Recording rain gage located at station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--19 years (water years 1960-78), 1.42 ft^3/s (0.040 m^3/s), 1,030 acre-ft/yr (1.27 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 605 ft^3/s (17.1 m^3/s) Aug. 10, 1967, gage height, 3.99 ft (1.216 m), from rating curve extended 30 ft^3/s (0.85 m^3/s); minimum, 0.04 ft^3/s (0.001 m^3/s) Oct. 24-26, Oct. 28-31, Nov. 1, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 160 ft^3/s (4.53 m^3/s), from rating curve extended above 30 ft^3/s (0.85 m^3/s), and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 27	1100	171	4.84	2.57	0.783
Aug. 10	0630	*376	10.6	3.39	1.033
Sept. 1	0430	342	9.69	3.29	1.003

Minimum discharge, 0.12 ft^3/s (0.003 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	.35	.57	.35	2.8	.60	2.6	7.7	.48	.32	1.2	21
2	.23	.26	.48	1.3	1.8	.40	2.4	1.8	.35	.44	.35	3.5
3	.16	.20	.43	.57	1.4	.35	1.3	1.0	.35	.29	.29	1.8
4	.98	.16	.39	.43	1.2	.30	1.1	.80	.32	.23	.26	1.2
5	3.8	.16	.35	.39	1.0	.28	.93	.62	.29	.20	.23	1.0
6	.52	1.2	.39	.48	.87	.27	.74	.57	2.1	.20	.20	.93
7	.32	.39	.35	.68	.74	.26	.68	.52	.74	.23	.20	.74
8	.23	.23	.32	6.4	2.6	.26	.80	.48	.48	.26	.32	.57
9	.20	.20	.29	4.2	1.2	.26	.74	.57	.39	.20	.26	.48
10	13	.20	.29	2.1	2.1	.50	1.1	.87	.35	.18	36	.43
11	1.9	.20	.26	1.8	.93	.85	.74	.68	.35	.20	15	.35
12	1.0	.23	.26	1.3	.80	.60	.68	1.2	.35	.20	20	.35
13	1.5	.20	.26	1.0	.87	.80	1.5	.93	.35	.20	4.8	.49
14	5.8	.23	.29	.93	1.5	.60	.68	.68	.29	.26	2.3	.35
15	2.1	.29	.23	1.0	1.3	.90	.57	.68	.29	.23	1.4	.58
16	1.3	.35	.20	1.2	1.8	4.0	.52	.62	.29	.18	1.1	.29
17	2.1	.23	.23	1.1	.87	16	.48	.45	.29	.23	1.2	.35
18	1.3	.18	.26	1.0	1.5	31	.43	.39	.29	.20	.74	.26
19	1.0	.18	4.4	3.0	1.6	8.2	.48	.63	.35	.18	.62	.23
20	.74	.20	5.6	2.6	1.0	14	.48	.62	.42	.20	.52	.29
21	.62	.88	2.2	1.6	.70	5.7	.48	1.5	.29	.30	.43	.20
22	.93	8.2	2.9	1.7	.60	12	.43	.87	.29	.46	.39	.20
23	.62	2.2	1.3	3.8	.50	5.7	.43	.57	.26	1.1	.35	.20
24	.52	1.3	.93	5.6	.48	2.6	.43	.48	.26	.32	.32	.16
25	.43	.87	.68	9.6	.45	1.9	.39	.39	.26	.26	.32	.16
26	.39	.93	.57	3.7	.40	2.1	.77	.48	.29	.32	.32	.16
27	.39	2.9	.57	16	.38	18	.57	.39	.26	.32	.48	.16
28	.35	1.3	.48	3.2	.36	4.3	.39	.39	.23	.32	.29	.16
29	.35	.87	.39	2.1	---	2.3	1.7	.43	.23	.32	3.4	.14
30	.32	.68	.39	5.6	---	1.9	4.4	.35	.29	.39	22	.12
31	.29	---	.43	3.5	---	1.7	---	.71	---	.32	23	---
TOTAL	43.78	25.77	26.69	88.23	31.75	138.63	28.94	28.37	11.78	9.06	138.29	36.85
MEAN	1.41	.86	.86	2.85	1.13	4.47	.96	.92	.39	.29	4.46	1.23
MAX	13	8.2	5.6	16	2.8	31	4.4	7.7	2.1	1.1	36	21
MIN	.16	.16	.20	.35	.36	.26	.39	.35	.23	.18	.20	.12
AC-FT	87	51	53	175	63	275	57	56	23	18	274	73

CAL YR 1977 TOTAL 396.97 MEAN 1.09 MAX 44 MIN .08 AC-FT 787
WTR YR 1978 TOTAL 608.14 MEAN 1.67 MAX 36 MIN .12 AC-FT 1210

16931500 ASILI STREAM AT ALTITUDE 330 FT (100 M) NEAR ASILI

LOCATION.--Lat 14°19'34" S., long 170°47'38" W., on right bank 1.3 mi (2.1 km) northwest of Leone, 1.5 mi (2.4 km) southwest of Aoloaufou and 0.8 mi (1.2 km) upstream from mouth.

DRAINAGE AREA.--0.32 mi^2 (0.83 km^2).

PERIOD OF RECORD.--Current year.

GAGE.--Water-stage recorder. Altitude of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair. Periodic determinations of water temperature for the current year are published elsewhere in this report.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 110 ft^3/s (3.11 m/s), and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Aug. 10	0600	114	3.23	3.03	0.924
Sept. 1	0500	*311	8.81	3.92	1.195

Minimum discharge, 0.48 ft^3s (0.014 m^3/s) July 19, 20, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.3	2.5	1.4	7.1	2.2	5.2	8.3	1.6	.75	1.1	28
2	.92	.98	2.1	4.0	5.2	1.2	4.4	3.7	1.2	1.0	.64	8.1
3	.84	.95	1.8	2.0	3.8	1.1	3.4	2.6	1.2	.88	.61	5.6
4	1.5	.91	1.7	1.7	3.0	.98	2.8	2.2	1.1	.67	.58	3.0
5	4.5	.88	1.4	1.6	2.5	.95	2.4	1.9	1.0	.64	.56	3.2
6	2.3	2.8	1.4	1.8	2.2	.91	2.2	1.7	6.4	.61	.53	2.8
7	1.3	1.2	1.2	2.5	1.9	.91	1.9	1.5	3.5	.58	.51	2.1
8	.90	.98	1.1	8.5	3.4	.84	1.9	1.4	2.5	.58	.71	2.1
9	.86	.91	1.0	6.5	1.9	.88	2.0	1.6	2.1	.58	.58	1.6
10	13	.88	.98	4.7	2.4	1.5	2.2	1.6	1.8	.58	20	1.4
11	5.0	.88	.91	6.7	1.8	3.2	1.7	2.0	1.6	.58	11	1.3
12	2.7	1.1	.88	5.0	1.9	1.8	2.1	3.0	1.8	.56	15	1.2
13	3.5	.84	.88	3.6	1.8	2.8	2.9	2.1	1.5	.56	7.9	1.6
14	8.0	.88	.88	3.4	2.5	1.6	1.8	1.7	1.3	.60	5.4	1.3
15	6.0	1.2	.81	2.9	2.5	2.3	1.6	1.8	1.2	.58	3.8	1.9
16	4.5	1.8	.78	3.0	2.9	7.4	1.4	1.6	1.1	.56	3.1	1.2
17	5.0	1.0	.78	2.6	2.2	18	1.3	1.4	.98	.53	2.8	1.3
18	3.5	.91	.81	2.6	2.6	30	1.2	1.3	.91	.51	2.0	1.1
19	3.0	.88	5.1	4.9	2.8	15	1.2	1.4	.71	.51	1.7	.98
20	2.5	.91	8.2	4.6	2.1	16	1.1	1.6	1.4	.53	1.6	1.1
21	1.9	3.0	5.1	4.0	1.8	11	1.0	3.7	.94	.71	1.4	.95
22	2.8	12	5.6	3.8	1.8	14	.98	2.0	.91	.78	1.3	.95
23	2.2	6.7	4.6	6.0	1.6	10	.95	1.6	.88	2.7	1.2	.91
24	1.9	5.2	3.0	8.0	1.6	6.9	.95	1.4	.81	.78	1.1	.88
25	1.7	3.9	2.6	12	1.4	5.0	.98	1.4	.81	.64	1.0	.84
26	1.6	4.0	2.3	9.2	1.3	4.4	1.4	1.6	.91	.74	1.0	.81
27	1.4	6.9	2.2	15	1.3	11	1.4	1.3	.78	.74	1.7	.84
28	1.3	5.5	1.8	9.1	1.2	8.0	.91	1.4	.74	.64	1.4	.88
29	1.4	4.0	1.4	6.7	---	5.7	1.9	1.4	.81	.58	5.1	.78
30	1.2	3.0	1.3	9.4	---	5.3	4.0	1.2	.74	.64	14	.74
31	1.1	---	1.5	8.6	---	4.3	---	1.3	---	.58	14	---
TOTAL	89.82	76.39	66.61	165.8	68.5	195.17	59.17	62.7	43.23	21.92	123.32	80.46
MEAN	2.90	2.55	2.15	5.35	2.45	6.30	1.97	2.02	1.44	.71	3.98	2.68
MAX	13	12	8.2	15	7.1	30	5.2	8.3	6.4	2.7	20	28
MIN	.84	.84	.78	1.4	1.2	.84	.91	1.2	.71	.51	.51	.74
AC-FT	178	152	132	329	136	387	117	124	86	43	245	160

WTR YR 1978 TOTAL 1053.09 MEAN 2.89 MAX 30 MIN .51 AC-FT 2090

16933500 LEAFU STREAM AT ALTITUDE 370 FT (113 M) NEAR LEONE

LOCATION.--Lat 14°19'31" S., long 170°46'50" W., on left bank 900 ft (274 m) upstream from village stream intake, 1.1 mi (1.8 km) north of Leone, and 1.0 mi (1.6 km) southwest of Aoloaufou.

DRAINAGE AREA.--0.31 mi² (0.80 km²).

PERIOD OF RECORD.--Current year.

GAGE.--Water-stage recorder. Altitude of gage is 370 ft (113 m), from topographic map.

REMARKS.--Records fair. Periodic determinations of water temperature for the current year are published elsewhere in this report.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft³/s (1.98 m³/s), and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 8	1600	86	2.44	3.82	1.164	Aug. 30	2100	129	3.65	4.48	1.366
Aug. 10	0630	86	2.44	3.82	1.164	Sept. 1	0430	*136	3.85	4.58	1.396

Minimum discharge, 0.71 ft³/s (0.020 m³/s) July 18-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.1	3.8	2.0	9.1	2.4	6.0	13	2.1	1.1	1.2	31
2	1.4	1.6	3.2	5.2	7.1	1.6	4.9	6.3	1.7	1.8	.99	15
3	1.0	1.5	2.8	2.8	5.5	1.4	4.1	4.8	1.6	1.2	.99	9.6
4	4.0	1.3	2.5	2.3	4.3	1.3	3.6	3.9	1.5	1.0	.92	6.5
5	10	1.3	2.3	2.1	3.6	1.2	3.1	3.3	1.4	.96	.88	5.0
6	3.0	3.8	2.1	2.2	3.0	1.2	2.8	2.9	5.0	.92	.85	4.2
7	2.6	2.0	1.9	5.5	2.7	1.2	2.6	2.5	2.2	.88	.85	3.6
8	2.4	1.6	1.7	13	4.7	1.1	2.6	2.3	1.8	.88	1.2	3.1
9	2.3	1.5	1.6	12	2.8	1.1	2.9	2.4	1.6	.82	1.0	2.6
10	13	1.4	1.5	8.4	2.8	1.9	2.9	2.8	1.5	.82	23	2.3
11	6.8	1.3	1.4	7.4	2.4	1.5	2.7	3.6	1.4	.78	14	2.1
12	4.9	1.5	1.3	5.6	2.4	2.1	2.7	4.1	1.3	.78	20	2.0
13	7.9	1.3	1.2	4.4	2.4	2.4	3.6	3.4	1.3	.78	12	2.2
14	12	1.4	1.2	4.1	3.3	2.0	2.4	2.7	1.2	.90	8.1	2.0
15	9.6	1.7	1.1	3.6	3.4	2.4	2.1	2.8	1.2	.82	5.8	2.9
16	7.2	2.4	1.1	3.7	3.9	7.7	2.0	2.6	1.1	.82	4.7	1.9
17	10	1.5	1.1	3.2	3.1	21	1.8	2.3	1.1	.74	3.9	2.8
18	7.4	1.3	1.1	3.1	3.2	37	1.8	2.1	1.1	.71	3.0	2.0
19	6.5	1.2	7.4	5.2	3.3	24	1.7	2.4	1.3	.71	2.6	1.8
20	4.9	1.3	10	4.9	2.7	22	1.6	2.9	1.6	.78	2.3	1.9
21	4.7	3.5	6.8	4.4	2.4	16	1.5	4.2	1.2	.96	2.1	1.7
22	4.8	17	9.1	4.6	2.3	20	1.5	2.9	1.1	1.0	1.9	1.6
23	3.7	10	6.0	8.0	2.1	16	1.5	2.3	1.0	5.2	1.7	1.5
24	3.2	8.2	4.7	12	2.0	11	1.5	2.1	.96	1.3	1.6	1.4
25	2.9	6.3	3.8	19	1.8	7.7	1.4	2.0	.94	1.1	1.6	1.3
26	2.6	6.0	3.2	14	1.7	6.1	1.8	2.2	1.0	1.2	1.6	1.2
27	2.3	9.6	4.2	22	1.6	13	1.8	1.9	.96	1.3	3.0	1.2
28	2.1	7.4	3.0	15	1.6	9.4	1.3	1.8	.92	1.0	1.7	1.3
29	2.3	5.8	2.7	10	---	7.2	3.2	1.8	.99	.99	5.7	1.2
30	1.8	4.6	2.4	13	---	6.2	5.4	1.8	.98	1.0	21	1.1
31	1.7	---	2.4	11	---	5.1	---	1.9	---	.96	24	---
TOTAL	151.0	111.4	98.6	233.7	91.2	254.2	78.8	98.0	43.05	34.21	174.18	118.0
MEAN	4.87	3.71	3.18	7.54	3.26	8.20	2.63	3.16	1.44	1.10	5.62	3.93
MAX	13	17	10	22	9.1	37	6.0	13	5.0	5.2	24	31
MIN	1.0	1.2	1.1	2.0	1.6	1.1	1.3	1.8	.92	.71	.85	1.1
AC-FT	300	221	196	464	181	504	156	194	85	68	345	234

WTR YR 1978 TOTAL 1486.34 MEAN 4.07 MAX 37 MIN .71 AC-FT 2950

16948000 AFUELO STREAM AT MATUU

LOCATION.--Lat 14°18'07" S., long 170°41'07" W., on left bank 0.2 mi (0.3 km) northwest of Matuu and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.25 mi^2 (0.65 km^2).

PERIOD OF RECORD.--March 1958 to current year. Prior to July 1960, published as Matuu Stream at Matuu.

REVISED RECORDS.--WSP 1937: Drainage area. WSP 2137: (FISCAL YEARS) 1958-60, (WATER YEARS) 1960-65.

GAGE.--Water-stage recorder. Altitude of gage is 80 ft (24.4 m), from topographic map.

REMARKS.--Records good. Small diversion above station for domestic use since September 1972. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--20 years, 1.44 ft^3/s (0.041 m^3/s), 1,040 acre-ft/yr (1.28 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 502 ft^3/s (14.2 m^3/s) Apr. 29, 1975, gage height, 4.59 ft (1.399 m), from rating curve extended above 26 ft^3/s (0.74 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.01 ft^3/s (<0.001 m^3/s) Sept. 16, 17, 20-26, 28, 29, 1975, Apr. 5-7, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 272 ft^3/s (7.70 m^3/s) Jan. 8, gage height, 3.55 ft (1.082 m), from rating curve extended as explained above, no other peak above base of 160 ft^3/s (4.53 m^3/s); minimum, 0.03 ft^3/s (0.001 m^3/s) Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	.71	.30	.11	1.6	.33	3.0	12	.25	.10	.16	15
2	.18	.28	.25	2.5	.98	.20	2.0	8.0	.28	.84	.09	6.2
3	.13	.20	.20	.53	.72	.17	.78	2.8	.20	.15	.07	.84
4	7.4	.15	.15	.30	.63	.15	.67	1.1	.13	.10	.06	.49
5	15	.12	.11	.25	.45	.13	.58	.67	.13	.11	.06	.30
6	1.2	4.5	.11	.17	.53	.13	.63	.58	6.6	.10	.07	.49
7	.53	.91	.10	.20	.45	.13	.58	.49	1.4	.09	.07	.84
8	.36	.30	.09	25	5.9	.13	.42	.39	.49	.08	.18	.30
9	.33	.18	.08	4.6	1.7	.12	.42	.39	.45	.08	.13	.17
10	4.4	.13	.08	6.7	1.1	.15	1.5	.45	.30	.08	15	.11
11	2.2	.13	.08	8.3	1.2	1.1	2.1	1.1	.25	.08	6.4	.10
12	.72	.11	.07	2.4	1.8	1.7	1.6	2.9	.78	.09	18	.09
13	1.7	.09	.07	1.7	8.1	.58	3.6	1.2	2.2	.09	1.7	.32
14	6.6	.10	.07	1.1	2.8	1.2	1.0	.58	.53	.12	.72	.18
15	4.9	.15	.07	.84	1.4	2.5	.86	.39	.36	.11	.45	3.3
16	1.1	.17	.07	2.2	.98	6.0	.70	.36	.22	.09	.39	.49
17	6.8	.10	.07	1.6	.67	10	.40	.44	.17	.12	.33	.33
18	2.2	.07	.08	.84	.45	32	.35	.33	.17	.11	.25	.22
19	1.8	.06	.47	5.1	.49	7.0	.40	.42	.25	.11	.18	.17
20	1.1	.07	6.3	2.8	.39	4.0	.45	.63	.53	.10	.15	.25
21	.63	.58	1.5	1.4	.33	5.0	.30	1.4	.18	.07	.13	.17
22	1.6	16	4.1	7.9	.28	13	.23	.58	.15	.17	.12	.18
23	.78	2.0	1.4	11	.25	8.0	.20	.33	.15	2.9	.12	.20
24	.42	1.9	.90	7.4	.22	4.0	.20	.22	.13	.33	.12	.15
25	.30	.91	.30	12	.22	2.0	.23	.20	.15	.15	.12	.13
26	.25	7.7	.18	4.4	.30	1.5	.30	.25	.13	.13	.13	.13
27	.18	8.5	.47	15	.20	3.7	.60	.20	.10	.12	.15	.13
28	.17	1.9	.23	3.3	.18	2.0	.40	.17	.09	.10	.13	.12
29	.17	.84	.17	1.3	---	2.5	.35	.15	.09	.08	5.4	.13
30	.15	.45	.15	11	---	6.0	2.5	.13	.10	.09	2.8	.11
31	.13	---	.20	4.6	---	3.5	---	.42	---	.08	3.7	---
TOTAL	63.86	49.31	18.42	146.54	34.32	118.92	27.35	39.27	16.96	6.97	57.38	31.64
MEAN	2.06	1.64	.59	4.73	1.23	3.84	.91	1.27	.57	.22	1.85	1.05
MAX	15	16	6.3	25	8.1	32	3.6	12	6.6	2.9	18	15
MIN	.13	.06	.07	.11	.18	.12	.20	.13	.09	.07	.06	.09
AC-FT	127	98	37	291	68	236	54	78	34	14	114	63

CAL YR 1977 TOTAL 486.82 MEAN 1.33 MAX 46 MIN .05 AC-FT 966
WTR YR 1978 TOTAL 610.94 MEAN 1.67 MAX 32 MIN .06 AC-FT 1210

SAMOA ISLANDS, ISLAND OF TUTUILA

16963900 LEAFU STREAM NEAR AUASI

LOCATION.--Lat 14°16'27" S., long 170°34'26" W., on right bank 35 ft (11 m) upstream from upper village intake, 0.1 mi (0.2 km) north of Auasi, and 0.2 mi (0.3 km) upstream from mouth.

DRAINAGE AREA.--0.11 mi^2 (0.28 km^2).

PERIOD OF RECORD.--February 1972 to current year.

REVISED RECORDS.--WDR HI-75-1: 1972(P), 1973-74.

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (37 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--6 years, 0.29 ft^3/s (0.008 m^3/s), 210 acre-ft/yr (259,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39 ft^3/s (1.10 m^3/s) July 29, 1973, gage height, 2.56 ft (0.780 m), from recorded range in stage, from rating curve extended 19 ft^3/s (0.54 m^3/s); minimum, 0.02 ft^3/s (0.001 m^3/s) Sept. 17-19, 26-30, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft^3/s (0.71 m^3/s), from rating curve extended above 19 ft^3/s (0.54 m^3/s), and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 27	1200	26	0.74	2.16	0.658
Mar. 18	0100	26	.74	2.16	.658
Aug. 31	0500	*35	.99	2.35	.716

Minimum discharge, 0.05 ft^3/s (0.001 m^3/s) on Nov. 16-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	.10	.14	.09	.70	.09	.90	2.4	.12	.10	.14	.90
2	.30	.09	.10	.22	.40	.09	.57	1.4	.12	.14	.12	.57
3	.35	.09	.09	.10	.26	.09	.35	.97	.12	.12	.14	.30
4	.22	.06	.08	.08	.16	.09	.26	.57	.12	.12	.14	.22
5	1.1	.06	.08	.08	.14	.09	.22	.35	.12	.10	.14	.18
6	.30	.08	.08	.09	.12	.08	.18	.96	.99	.10	.14	.16
7	.13	.08	.07	.10	.10	.09	.16	.70	.45	.10	.14	.83
8	.10	.07	.07	1.3	1.4	.08	.14	.45	.22	.10	.16	.30
9	.09	.07	.07	.97	.51	.08	.14	.35	.18	.10	.14	.18
10	.20	.07	.07	.55	.81	.08	1.4	.26	.16	.10	1.7	.14
11	.15	.07	.07	.51	.97	.08	.63	.49	.14	.10	2.8	.14
12	.09	.07	.07	.22	.51	.08	.35	.90	.16	.10	5.8	.14
13	.40	.07	.07	.14	1.5	.08	1.3	.57	.71	.10	.90	.14
14	2.0	.07	.07	.10	.97	.10	1.1	.40	.22	.10	.35	.12
15	1.0	.07	.07	.09	.63	.12	.51	.35	.16	.12	.22	.12
16	.40	.06	.07	.38	.35	.91	.35	.26	.14	.10	.16	.12
17	1.5	.05	.07	.35	.18	1.7	.26	.22	.12	.12	.14	.12
18	.30	.06	.08	.22	.16	10	.22	.18	.12	.10	.12	.10
19	.15	.06	.09	.14	.14	3.4	.18	.18	.14	.10	.10	.10
20	.10	.06	.24	.14	.12	2.7	.16	.18	.14	.12	.10	.12
21	.08	.15	.13	.10	.12	2.0	.16	.18	.12	.12	.09	.10
22	.09	3.1	.14	.64	.12	4.3	.14	.16	.12	.12	.09	.10
23	.09	.63	.10	1.8	.10	2.4	.12	.16	.12	.31	.09	.10
24	.08	.63	.09	2.2	.10	1.3	.12	.16	.12	.10	.09	.09
25	.07	.30	.10	3.0	.10	.90	.12	.14	.10	.10	.09	.09
26	.07	.77	.09	2.2	.09	.70	.14	.18	.10	.10	.14	.09
27	.07	3.6	.12	3.2	.09	1.6	.26	.16	.10	.10	.10	.09
28	.06	.76	.09	1.4	.09	.90	.14	.14	.10	.10	.10	.09
29	.08	.30	.08	.97	---	.63	.16	.12	.10	.10	.58	.09
30	.09	.16	.08	5.2	---	1.2	.53	.12	.10	.12	.63	.09
31	.09	---	.10	2.1	---	.70	---	.10	---	.12	3.2	---
TOTAL	10.01	11.81	2.87	28.68	10.94	36.66	14.27	13.76	5.73	3.53	18.85	5.93
MEAN	.32	.39	.093	.93	.39	1.18	.38	.44	.19	.11	.61	.20
MAX	2.0	3.6	.24	5.2	1.5	10	1.4	2.4	.99	.31	5.8	.90
MIN	.06	.05	.07	.08	.09	.08	.12	.10	.10	.10	.09	.09
AC-FT	20	23	5.7	57	22	73	22	27	11	7.0	37	12

CAL YR 1977 TOTAL 105.33 MEAN .29 MAX 7.4 MIN .03 AC-FT 209
WTR YR 1978 TOTAL 160.04 MEAN .44 MAX 10 MIN .05 AC-FT 317

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collectod at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1978

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Mariana Islands, Island of Guam				
16807300	Fonte River at dam, near Nimitz Hill	Lat 13°27'26" N., long 144°43'37" E., at old diversion dam, 0.4 mi (0.6 km) south of Navy Headquarters building on Nimitz Hill, and 1.3 mi (2.1 km) south of Coontz Junction at Adelup.	0.69 (1.79)	1961-73, 1975-78	3-31-78	0.08
16808200	Faata Springs at Agat	Lat 13°22'35" N., long 144°39'47" E., 0.7 mi (1.1 km) south of Agat Junior High School and 0.8 mi (1.3 km) southwest of Santa Rita Catholic Church.		1963-73, 1975-78	3-31-78	.10
16812000	Madog River near Umatac	Lat 13°17'24" N., long 144°40'30" E., 50 ft (15 m) downstream from right-bank tributary and 1.1 mi (1.8 km) southeast of Sanchez School in Umatac.	.36 (.93)	1960-78	3-30-78	.07
16813000	Piga Spring near Umatac	Lat 13°17'56" N., long 144°40'49" E., on left bank of Astaban River right-bank tributary, 0.3 mi (0.5 km) west of Mount Bolanos, and 1.3 mi (2.1 km) east of Sanchez School in Umatac.		1955, 1961-65, 1967-78	3-30-78	.14
16814000	Astaban River at Umatac	Lat 13°17'41" N., long 144°40'15" E., 200 ft (61 m) upstream from mouth and 0.7 mi (1.1 km) southeast of Sanchez School in Umatac.	.38 (.98)	1960-78	3-30-78	.04
16815800	Laelae River at Umatac	Lat 13°17'50" N., long 144°39'51" E., 100 ft (30 m) upstream from mouth and 0.2 mi (0.3 km) east of Sanchez School in Umatac.	.96 (2.49)	1960-78	3-30-78	.18
16816000	Umatac River at Umatac	Lat 13°17'48" N., long 144°39'46" E., on left bank 0.2 mi (0.3 km) upstream from mouth, 0.3 mi (0.5 km) southeast of Umatac, and 5.8 mi (9.3 km) northwest of Inarajan.	2.11 (5.46)	1952-76≠, 1977-78	3-14-78 3-30-78	.64 .29
16820000	Geus River above Siligin Spring tributary, near Merizo	Lat 13°16'38" N., long 144°40'56" E., 100 ft (30 m) upstream from Siligin Spring tributary, 0.1 mi (0.2 km) upstream from dam, and 1.5 mi (2.4 km) northeast of Merizo School.	0.51 (1.32)	1960-78	3-30-78	.07

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1978--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Mariana Islands, Island of Guam--Continued				
16820700	Geus River below Siligin Spring tributary, near Merizo	Lat 13°16'35" N., long 144°40'53" E., 100 ft (30 m) upstream from diversion dam, 300 ft (91 m) downstream from Siligin Spring tributary, and 1.4 mi (2.3 km) northeast of Merizo School.	0.68 (1.76)	1962-78	3-30-78	0.12
16825000	Ajayan River near Inarajan	Lat 13°15'16" N., long 144°42'56" E., 0.4 mi (0.6 km) upstream from mouth and 2.4 mi (3.9 km) southwest of Inarajan Catholic Church.	1.16 (3.00)	1962-73, 1975-78	4-11-78	.11
16830000	Pasamano River near Inarajan	Lat 13°16'59" N., long 144°43'26" E., 25 ft (7.6 m) upstream from confluence with Yledigao River and 1.7 mi (2.7 km) northwest of Inarajan Catholic Church.	1.42 (3.68)	1960-73, 1975-78	4-11-78	.54
16831000	Yledigao River near Inarajan	Lat 13°17'00" N., long 144°43'26" E., 75 ft (23 m) upstream from confluence with Pasamano River and 1.7 mi (2.7 km) northwest of Inarajan Catholic Church.	1.08 (2.80)	1960-73, 1975-78	4-11-78	.70
16833000	Fintasa River near Inarajan	Lat 13°17'18" N., long 144°43'54" E., 100 ft (30 m) upstream from falls, 0.4 mi (0.6 km) upstream from confluence with Fensol River, and 1.5 mi (2.4 km) northwest of Inarajan Catholic Church.	.80 (2.07)	1960-73, 1975-78	4-11-78	.20
16834000	Fensol River near Inarajan	Lat 13°17'09" N., long 144°44'08" E., 300 ft (91 m) upstream from confluence with Fintasa River and 1.1 mi (1.8 km) northwest of Inarajan Catholic Church.	.40 (1.04)	1960-73, 1975-78	4-11-78	.07
16846000	Tolaeyuus River at mouth, near Agat	Lat 13°21'30" N., long 144°42'31" E., just above confluence with Fena River, 0.4 mi (0.6 km) downstream from Fena Dam spillway and 3.0 mi (4.8 km) west of Talofofo village.	7.42 (19.2)	1962-68, 1977-78	12-14-77 1-18-78 2-14-78 3-21-78 4-21-78 5-19-78 6-16-78 7-18-78 9-14-78	11.6 3.7 3.6 1.8 1.2 .91 1.1 16 17
16853000	Ugum River above Bubulao River, near Talofofo	Lat 13°19'08" N., long 144°43'46" E., 50 ft (15 m) upstream from Bubulao River, 0.8 mi (1.3 km) northwest of NASA Tracking Station, and 2.8 mi (4.5 km) southwest of Talofofo.	2.66 (6.89)	1961-70, 1973, 1975-78	4- 6-78 5- 9-78	1.7 1.7
16854000	Bubulao River near Talofofo	Lat 13°19'08" N., long 144°43'45" E., 50 ft (15 m) upstream from mouth, 0.8 mi (1.3 km) northwest of NASA Tracking Station, and 2.8 mi (4.5 km) southwest of Talofofo.	2.93 (7.59)	1961-70, 1973, 1975-78	4- 6-78 5- 9-78	3.1 2.6
16855000	Ugum River near Talofofo	Lat 13°20'02" N., long 144°44'55" E., 0.4 mi (0.6 km) upstream from confluence with Talofofo River, 1.3 mi (2.1 km) south of Talofofo, and 4.2 mi (6.8 km) north of Inarajan.	7.13 (18.47)	1952-71≠, 1973, 1975-78	10- 7-77 11- 4-77 12- 5-77 1- 4-78 2- 8-78 4- 6-78 5- 9-78 8- 4-78 9-21-78	19 22 38 20 12 5.6 6.1 5.0 19

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1978--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Caroline Islands, Palau Islands				
16890620	Ngechutrong River, Babelthuap	Lat 7°36'08" N., long 134°35'25" E., 300 ft (91 m) upstream from Adeiddo River and 0.9 mi (1.4 km) northwest of Mount Megilon.	0.24 (.62)	1974-78	10-18-77	2.5
					11-25-77	.71
					1- 2-78	.78
					2-27-78	2.1
					4-25-78	.67
					6-27-78	1.3
					9-20-78	2.8
16890700	Almiokan River, Babelthuap	Lat 7°31'12" N., long 134°33'51" E., 0.5 mi (0.8 km) upstream from unnamed tributary and 4.6 mi (7.4 km) northeast of Ngatpang village.	7.05 (18.26)	1973-78	11-15-77	28
					12-22-77	18
					1-26-78	12
					5- 3-78	23
16890800	Ngatpang River, Babelthuap	Lat 7°27'40" N., long 134°32'15" E., 0.2 mi (0.3 km) upstream from unnamed tributary and 0.4 mi (0.6 km) southeast of Ngatpang village.	.35 (.91)	1973-78	11-15-77	1.7
					12-22-77	.66
					1-26-78	.40
					5- 3-78	.45
16891320	Kumekumeyel River, Babelthuap	Lat 7°23'01" N., long 134°33'34" E., 100 ft (30 m) upstream from confluence with Gaden River, 1.1 mi (1.8 km) west of Mount Kabekobekushi, and 1.9 mi (3.1 km) north of Airai.	1.55 (4.02)	1970-78	10-14-77	7.0
					10-17-77	9.2
					10-21-77	8.5
					11- 8-77	8.3
					1-11-78	5.1
					2- 9-78	11
					6-20-78	8.4
					8-15-78	13
16891430	North Fork Ngardok River, Babelthuap	Lat 7°27'50" N., long 134°35'49" E., 500 ft (152 m) upstream from right-bank tributary, 1.4 mi (2.3 km) upstream from confluence with South Fork Ngardok River, and 2.5 mi (4.0 km) upstream from mouth.	9.37 (24.27)	1975-78	11-11-77	69
					12-21-77	31
					1-30-78	17
16891440	North Fork Ngardok River tributary, Babelthuap	Lat 7°27'49" N., long 134°35'47" E., 5 ft (1.5 m) upstream of North Fork Ngardok River and 2.4 mi (3.9 km) north of Ngarsol mountain.	1.73 (4.48)	1975-78	11-11-77	8.5
					12-21-77	7.8
					1-30-78	4.2
16891700	Unnamed west coast stream, Arakabesan	Lat 7°21'14" N., long 134°27'10" E., 0.1 mi (0.2 km) upstream from mouth and 0.15 mi (0.24 km) north of village of Arakabesan.	.03 (.08)	1970-78	10- 4-77	.12
					11-17-77	.02
					1- 6-78	.01
					2-10-78	.02
					5-11-78	.06
					9-28-78	.09
16891750	Unnamed south coast stream, Arakabesan	Lat 7°20'41" N., long 134°27'29" E., 0.1 mi (0.2 km) upstream from mouth and 0.6 mi (1.0 km) southeast of village of Arakabesan.	.03 (.08)	1970-78	10- 4-77	.15
					11-17-77	.04
					1- 6-78	.02
					2-10-78	.07
					5-11-78	.04
					9-28-78	.05
16891770	Unnamed west coast stream, Malakal	Lat 7°19'44" N., long 134°27'25" E., 200 ft (61 m) upstream from mouth and and 1.5 mi (2.4 km) southwest of Madalai.	.01 (.03)	1971-78	10- 4-77	.04
					11-18-77	e.01
					1- 6-78	e.01
					2-17-78	.04
					9-29-78	.01
16891780	Unnamed north coast stream, Malakal	Lat 7°19'51" N., long 134°27'33" E., 0.2 mi (0.3 km) upstream from mouth and 1.3 mi (2.1 km) southwest of Madalai.	.02 (.05)	1971-78	10- 4-77	.02
					11-18-77	e.01
					1- 6-78	.01
					2-17-78	.06
					5-12-78	.03
					9-29-78	.04

e Estimated.

Discharge measurements made at low-flow partial-record stations during water year 1978--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Caroline Islands, Yap Islands				
16892500	Tamaney Stream, Yap	Lat 9°29'45" N., long 138°05'34" E., at abandoned German dam, 0.5 mi (0.8 km) northwest of Inuf, and 2.3 mi (3.7 km) southwest of Colonia.	0.21 (.54)	1968-78	11-30-77	0.07
					12-30-77	No Flow
					2- 1-78	.05
					6-29-78	.09
					7-25-78	No Flow
					8-31-78	.07
16892600	Ripu Stream, Yap	Lat 9°30'05" N., long 138°06'02" E., 1,000 ft (305 m) upstream from mouth and 1.6 mi (2.6 km) southwest of Colonia.	.24 (.62)	1968-78	11-30-77	.08
					12-30-77	No Flow
					2- 1-78	.01
					6-29-78	.09
					7-25-78	No Flow
					8-31-78	.13
16893300	Bileiy Spring, Gagil-Tomil	Lat 9°32'19" N., long 138°10'59" E., on right bank at Binau, 200 ft (61 m) downstream from main spring, and 0.6 mi (1.0 km) upstream from mouth.	-	1968-74≠, 1975-78	11-29-77	.01
					12-29-77	.03
					2- 1-78	.03
					3-15-78	.02
					4-12-78	.01
					7-21-78	.03
					8-30-78	.02
16893310	Bileiy Stream, Gagil-Tomil	Lat 9°32'15" N., long 138°11'11" E., 0.3 mi (0.5 km) downstream from Bileiy Spring, 0.4 mi (0.6 km) upstream from mouth, and 0.4 mi (0.6 km) south of Gatjapar.	.15 (.39)	1968-78	11-29-77	.13
					12-29-77	.13
					2- 1-78	.07
					3-15-78	.06
					4-12-78	.02
					6-28-78	.05
					7-21-78	.13
					8-30-78	.11
		Caroline Islands, Island of Kosrae				
16899780	Tafeyat River	Lat 5°19'20" N., long 163°01'45" E., 100 ft (30 m) downstream from former Japanese dam, 1.0 mi (1.6 km) upstream from mouth, and 1.4 mi (2.2 km) east of Mount Crozer.	.47 (1.22)	1974-75, 1977-78	3- 1-78	1.0
					3-28-78	1.3
					4-11-78	6.3
					6-22-78	1.1
16899830	Innem River	Lat 5°20'25" N., long 163°01'43" E., at concrete road bridge, 0.3 mi (0.48 km) upstream from mouth, and 1.9 mi (3.1 km) northeast of Mount Crozer.	2.51 (6.50)	1971-74, 1978	10-29-77	4.1
					1-18-78	12
					3- 1-78	6.3
					4-12-78	16
					6- 9-78	12
					7-18-78	5.3
					8- 4-78	4.5
					8-31-78	12
		Samoa Islands, Island of Tutila				
16920000	Aasu Stream near Aasu	Lat 14°18'16" S., long 170°45'29" W., 300 ft (91 m) downstream from 100 ft (30 m) waterfall, 0.5 mi (0.8 km) south of Aasu, and 0.5 mi (0.8 km) upstream from mouth.	.82 (2.12)	1959-63, 1968, 1974-76, 1978	8-21-78	2.4
16944000	Papa Stream near Nuuuli	Lat 14°18'31" S., long 170°42'29" W., 0.3 mi (0.5 km) upstream from Tauese Stream and 0.9 mi (1.4 km) northwest of Nuuuli.	.57 (1.48)	1959-61, 1963-64, 1967-68, 1974-78	8- 7-78	.31
16960000	Alega Stream at Alega	Lat 14°16'58" S., long 170°38'19" W., on left bank 300 ft (91 m) upstream from left-bank tributary, 0.2 mi (0.3 km) northwest of Alega, and 0.3 mi (0.5 km) upstream from mouth.	.19 (.49)	1958-76≠, 1977-78	8- 7-78	.49

≠ Operated as a continuous-record gaging station.

DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1978

Stream	Tributary to	Location	Drainage area mi^2 (km^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Mariana Islands, Island of Saipan				
Rapugau Stream	Philippine Sea	Lat 15°13'30" N., long 145°44'46" E., 50 ft (15.2 m) upstream from Cross Island Highway, 0.8 mi (1.3 km) south of Tanapag, and 2 mi (3.2 km) northeast of Garapan.	1.34		8-12-78	666
San Roque drainage ditch	Philippine Sea	Lat 15°14'55" N., long 145°46'31" E., in the village of San Roque at altitude 49 ft (15 m).	.21		8-12-78	300
Susupe Lake tributary	Susupe Lake	Lat 15°08'59" N., long 145°43'03" E., a gully at altitude 65 ft (20 m) draining the western hillside into Lake Susupe.	.06		8-12-78	285
		Mariana Islands, Island of Guam				
Maagas River	Talofofo River	Lat 13°21'30" N., long 144°42'31" E., just below confluence of Fena River and Tolaeyuus River, 0.4 mi (0.6 km) downstream from Fena Dam Spillway and 3.0 mi (4.8 km) west of Talofofo Village.			1-18-78 2-14-78 3-21-78 4-21-78 6-16-78	4.1 4.0 1.8 1.2 1.1
Talofofo River	Pacific Ocean	Lat 13°21'05" N., long 144°43'50" E., on left bank 1.5 mi (2.4 km) southwest of Talofofo and 5.3 mi (8.5 km) north of Inarajan.		1951-62≠, 1972-73	2-28-78	5.6
Madog River	Umatac River	Lat 13°17'50" N., long 144°39'51" E., at confluence with Laelae River, and 0.2 mi (0.3 km) east of Sanchez School in Umatac.			3-20-78	.08

≠ Operated as a continuous-record gaging station.

Water-quality partial-record stations are particular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrologic analyses. The data are collected usually less than quarterly.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

MARIANA ISLANDS, ISLAND OF GUAM

16858000 YLIG RIVER NEAR YONA (LAT 13°23'28" LONG 144°45'06")

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	PH (UNITS)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
MAY										
16...	1030	.52	7.7	7.2	170	850	160	0	50	9.2

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAY										
16...	17	18	.6	1.8	220	0	180	7.0	3.6	16

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY									
16...	.1	25	231	.31	.32	20	30	6	.01

CAROLINE ISLANDS, ISLAND OF PONAPE

16897600 NANEPIL RIVER (LAT 06°55'11" LONG 158°12'36")

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY										
24...	1400	9.3	26	7.0	8.0	11	5	1.5	1.7	2.5

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAY									
24...	34	.3	.0	7	0	6	1.1	2.6	4.2

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY									
24...	.0	6.5	23	.03	.58	50	0	2	.05

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

CAROLINE ISLANDS, ISLAND OF PONAPE--Continued

16897900 LUI RIVER (LAT 06°55'36" LONG 158°12'55")

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY 24...	1100	1.2	40	6.8	7.6	16	4	2.4	2.5	2.5

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAY 24...	25	.3	.0	15	0	12	3.8	2.2	3.8

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY 24...	.0	11	32	.04	.10	80	0	2	.01

16898200 LUI RIVER AT MOUTH (LAT 06°57'07" LONG 158°13'16")

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY 25...	1530	14	46	7.5	7.6	21	5	3.6	3.0	2.5

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAY 25...	20	.2	.1	20	0	16	1.0	2.4	6.9

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY 25...	.0	11	39	.05	1.47	110	0	4	.15

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

CAROLINE ISLANDS, ISLAND OF PONAPE--Continued

16898600 LUPWOR RIVER (LAT 06°54'13" LONG 158°09'45")

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY										
25...	0930	2.3	52	7.2	8.2	24	6	4.9	2.9	2.9

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAY									
25...	21	.3	.1	22	0	18	2.2	3.1	4.6

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
MAY									
25...	.0	13	42	.06	.27	80	0	3	.02

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

MARIANA ISLANDS, ISLAND OF SAIPAN

16801000 - SF TALOFOFO STREAM SAIPAN (LAT 15 12 58 LONG 145 46 31.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
06...	0930	1.3	--	25.0
DEC				
03...	1430	.56	--	26.0
FEB , 1978				
14...	1100	.10	--	25.0
APR , 1978				
11...	1435	.05	--	25.0
AUG				
21...	1810	2.7	--	26.0

16801500 - MF TALOFOFO STREAM SAIPAN (LAT 15 13 05 LONG 145 46 36.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
19...	0900	.29	28.0	26.0
NOV				
21...	0850	.94	--	25.0
DEC				
03...	1330	.73	--	25.0
JAN , 1978				
20...	0830	.28	23.0	23.0
MAR				
22...	1440	.16	--	25.0
AUG				
21...	1430	1.1	29.0	28.0

MARIANA ISLANDS, ISLAND OF GUAM

16809600 - LA SA FUA RIVER NEAR UMATAC GUAM (LAT 13 18 23 LONG 144 39 45.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
11...	1620	3.0	29.0	27.0
DEC				
07...	1430	1.9	29.0	26.0
JAN , 1978				
06...	1545	.84	29.0	27.0
MAR				
14...	1310	.43	29.0	27.0
APR , 1978				
05...	1350	.48	29.0	27.5
JUN				
05...	1420	.25	30.0	29.0
JUL				
05...	1435	1.6	29.5	28.0

16835000 - INARAJAN RIVER NR INARAJAN GUAM (LAT 13 16 41 LONG 144 44 15.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
07...	1430	13	29.0	26.0
DEC				
06...	1450	9.8	29.0	26.0
12...	1330	7.6	29.0	27.0
JAN , 1978				
05...	1400	4.8	29.0	26.0
FEB				
07...	1600	4.2	29.0	27.0
MAR , 1978				
13...	1300	2.4	29.0	27.0
APR				
03...	1530	2.0	29.0	27.0
MAY				
08...	1300	2.2	29.0	27.0

16840000 - IINAGA RIVER NR INARAJAN GUAM (LAT 13 17 10 LONG 144 45 04.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
12...	1140	3.6	29.0	27.0
NOV				
07...	1230	4.2	29.0	26.0
DEC				
06...	1250	4.6	29.0	27.0
JAN , 1978				
05...	1200	1.2	29.0	26.0
FEB				
07...	1430	1.5	29.0	27.0
MAR , 1978				
13...	1130	.57	29.0	27.0
APR				
03...	1340	.40	29.5	27.0
MAY				
08...	1145	.37	29.0	27.5
JUL				
06...	1115	1.5	29.0	28.0

16847000 - IMONG RIVER NR AGAT GUAM (LAT 13 20 17 LONG 144 41 55.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
04...	1400	7.7	31.5	30.0
NOV				
11...	1315	14	30.5	28.5
JAN , 1978				
17...	1345	3.1	27.5	29.0
FEB				
14...	1310	2.7	29.0	26.0
APR , 1978				
21...	1340	1.4	29.0	27.0
MAY				
19...	1500	1.2	33.0	30.0
JUL				
18...	1540	3.9	29.0	28.0

16848100 - ALMAGOSA RIVER NEAR AGAT GUAM (LAT 13 20 43 LONG 144 41 36.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
04...	1220	5.0	32.0	28.0
NOV				
11...	1200	18	30.0	27.5
DEC				
13...	1300	2.6	29.0	26.0
JAN , 1978				
17...	1250	1.1	29.0	26.0
FEB , 1978				
14...	1210	1.1	29.0	26.0
MAR				
20...	1320	.72	29.0	27.0
APR				
21...	1130	.38	29.0	27.0
SEP				
13...	1415	14	29.0	27.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

MARIANA ISLANDS, ISLAND OF GUAM--Continued

16848500 - MAULAP RIVER NEAR AGAT GUAM (LAT 13 21 14 LONG 144 41 44.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
04...	1105	3.2	30.5	27.5
NOV				
11...	1040	10	29.5	27.0
DEC				
13...	1110	2.8	29.0	27.0
JAN , 1978				
17...	1105	1.5	28.5	26.0
FEB				
14...	1040	1.2	29.0	26.5
MAR , 1978				
20...	1230	.83	29.0	27.0
APR				
21...	1030	.65	29.0	27.0
MAY				
19...	1250	.45	32.0	30.0
JUL				
18...	1140	3.2	29.0	28.0
SEP				
13...	1235	6.5	29.0	27.5

16854500 - UGUM RIVER AB TALOFOFO FALLS,NR TALOFOFO, GUAM (LAT 13 19 16 LONG 144 44 01.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
04...	1345	22	29.0	26.0
JAN , 1978				
04...	1350	1.3	28.5	26.0
FEB , 1978				
08...	1420	11	29.0	27.0
APR				
06...	1410	4.3	29.0	27.0

16858000 - YLIG RIVER NR YONA GUAM (LAT 13 23 28 LONG 144 45 06.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
06...	1630	.97	29.0	26.0
NOV				
22...	1530	19	29.0	27.0
DEC				
27...	1130	.67	29.0	27.0
JAN , 1978				
24...	1500	.50	29.5	26.0
FEB				
22...	1110	.39	28.0	27.0
MAR				
28...	1100	.92	29.0	27.5
APR , 1978				
24...	1130	1.7	29.0	27.0
MAY				
16...	1030	.52	--	30.0
22...	1200	.83	31.0	29.0
AUG				
28...	1000	19	28.0	27.0
SEP				
25...	1240	23	30.0	28.0

16865000 - PAGO RIVER NR ORDOT GUAM (LAT 13 26 08 LONG 144 45 14.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
06...	1400	37	29.0	26.0
NOV				
01...	1430	16	29.0	26.0
JAN , 1978				
03...	1220	3.2	29.0	26.0
MAR				
10...	1205	1.1	29.0	26.5
APR				
04...	1245	.53	29.0	27.0
MAY				
03...	1130	.50	--	28.5
JUN , 1978				
13...	1200	2.5	--	27.0
JUL				
11...	1100	7.5	--	27.0
25...	1000	14	--	27.0
25...	1045	14	32.0	27.0
AUG				
08...	1030	33	--	27.0
08...	1200	33	27.0	26.0
SEP				
12...	1230	30	33.0	28.0
27...	1530	272	--	26.0

CAROLINE ISLANDS, PALAU ISLANDS

16890900 - TABAGATEN RIVER, BABELTHUAP, PALAU ISLANDS (LAT 07 27 00 LONG 134 32 05.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
13...	1030	45	27.5	26.0
NOV				
17...	1100	19	28.5	25.5
DEC				
08...	1225	25	27.5	26.0
JAN , 1978				
18...	1200	18	27.0	26.5
FEB				
22...	1005	39	27.0	26.0
AUG				
30...	1050	38	24.0	22.0

16891300 - GADEN RIVER, BABELTHUAP, PALAU ISLANDS (LAT 07 22 56 LONG 134 33 42.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
11...	1400	24	29.0	26.5
NOV				
01...	1250	18	28.5	26.0
JAN , 1978				
11...	1140	16	28.0	26.0
FEB , 1978				
09...	1050	32	28.5	25.0
JUN				
20...	1220	20	28.0	25.0

16891400 - SOUTH FORK NGARDOK RIVER, BABELTHUAP,PALAU IS (LAT 07 26 15 LONG 134 35 03.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
20...	1155	12	30.5	27.5
DEC				
01...	1200	8.4	29.0	26.0
JAN , 1978				
16...	1325	6.2	30.0	27.0
MAR , 1978				
01...	1200	16	29.0	26.0
JUL				
14...	1010	7.0	29.0	24.5
AUG				
31...	1240	1.3	28.0	22.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

CAROLINE ISLANDS, YAP ISLANDS

16892400 - ARINGEL STREAM, YAP, YAP ISLANDS (LAT 09 31 01 LONG 138 05 11.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
01...	1350	.01	32.5	26.0
DEC				
30...	0930	.01	27.0	25.0
JUN , 1978				
15...	1415	.06	30.0	26.5
JUL , 1978				
21...	1355	.03	30.5	27.0
AUG				
30...	1515	.07	30.0	28.0
SEP				
19...	0935	.31	28.0	25.5

16892800 - DALOLAB STREAM, YAP, YAP ISLANDS (LAT 09 31 04 LONG 138 06 04.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
29...	1440	.01	29.0	26.0
DEC				
16...	1205	.10	28.0	26.5
SEP , 1978				
19...	1030	.09	27.0	25.5
29...	1010	.08	29.0	27.0

16892900 - PEMGOY STREAM, YAP, YAP ISLANDS (LAT 09 31 07 LONG 138 06 18.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
03...	0915	.01	28.0	25.0
DEC				
16...	0935	.29	29.0	26.0
JAN , 1978				
18...	1250	.01	29.0	26.0
FEB				
03...	0920	.02	26.5	24.5
23...	1455	.01	30.0	28.0
MAR				
16...	0955	.01	27.5	25.0
APR , 1978				
12...	1335	.01	32.0	29.5
MAY				
26...	0920	1.5	27.0	25.5
JUN				
16...	0900	.02	26.0	25.0
AUG				
30...	1335	.02	31.0	27.0
SEP				
29...	1050	.16	28.0	25.5

16893000 - TALAGU STREAM, YAP, YAP ISLANDS (LAT 09 31 08 LONG 138 06 13.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
03...	1030	.01	28.0	25.5
30...	1550	.01	29.5	26.0
DEC				
16...	1020	.13	27.0	26.0
MAY , 1978				
26...	0950	.11	26.0	25.5
SEP				
19...	1515	.09	26.0	25.5
29...	1130	.06	27.5	25.5

16893100 - BURONG STREAM, YAP, YAP ISLANDS (LAT 09 31 59 LONG 138 07 05.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
16...	1515	.01	31.5	27.5
DEC				
14...	1330	2.1	30.0	27.0
JAN , 1978				
12...	1020	.01	28.5	26.0
FEB				
01...	1130	.03	29.0	27.0
JUN , 1978				
28...	1055	.14	28.5	25.5
AUG				
30...	1110	.08	31.0	26.5
SEP				
29...	1440	.17	30.5	28.5

16893200 - MUKONG STREAM, GAGIL-TOMIL, YAP ISLANDS (LAT 09 32 06 LONG 138 09 59.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
01...	0930	.59	29.5	26.0
DEC				
15...	0940	3.9	28.5	26.0
JAN , 1978				
12...	0915	.65	27.0	25.0
FEB				
23...	0945	.46	29.0	27.0
MAR				
15...	1500	.32	31.0	28.0
APR				
18...	1640	.58	32.0	28.0
MAY , 1978				
25...	1355	.19	31.0	27.5
JUN				
15...	0940	.32	28.5	26.5
JUL				
21...	1000	.86	29.0	26.0
AUG				
30...	1000	2.4	28.5	26.5
SEP				
15...	1005	6.1	26.5	26.0

PERIODIC DETERMINATIONS OF WATER TEMPERATURE

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

CAROLINE ISLANDS, TRUK ISLANDS

16893700 - WICHEN R AT ALTITUDE 55M, MOEN, TRUK ISLANDS (LAT 07 26 45 LONG 151 52 02.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
25...	1025	.58	28.0	26.0
JAN , 1978				
30...	1105	.08	28.0	26.0
FEB				
17...	1155	.23	28.0	25.5
MAR , 1978				
06...	1020	.07	28.0	26.0
JUN				
06...	0905	.48	27.0	26.5
JUL				
06...	0955	.20	28.0	26.0

16893800 - WICHEN RIVER AT ALT 18M, MOEN, TRUK ISLANDS (LAT 07 27 05 LONG 151 52 18.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
25...	1135	1.3	28.0	26.0
JAN , 1978				
11...	1340	.11	28.0	25.0
FEB				
17...	1250	.27	28.0	26.0
MAR				
06...	1140	.06	28.0	26.0
APR , 1978				
24...	1100	.96	28.0	26.5
JUN				
06...	1005	1.2	28.0	27.0
JUL				
18...	1020	1.1	28.0	26.5
SEP				
14...	0935	1.2	28.0	26.0

16896800 - CHUN STREAM, DUBLON ISLAND, TRUK ISLANDS (LAT 07 22 36 LONG 151 52 13.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
26...	1320	.39	28.0	26.0
DEC				
07...	0920	.30	28.0	26.0
JAN , 1978				
12...	1035	.06	28.5	25.0
FEB				
09...	1025	.08	28.0	26.0
16...	0945	.06	28.0	26.0
JUN , 1978				
05...	1215	.62	28.0	27.0
JUL				
10...	1300	.16	28.0	26.0
17...	1325	.16	28.0	26.5
AUG				
04...	1245	.27	28.0	26.5
SEP				
20...	1150	.22	28.0	26.0

16897200 - TUMUNU STREAM, DUBLON ISLAND, TRUK ISLANDS (LAT 07 22 42 LONG 151 52 51.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
26...	1055	.91	28.0	25.5
DEC				
07...	1050	.22	28.0	26.0
JAN , 1978				
12...	1340	.04	28.0	26.0
FEB , 1978				
09...	1145	.05	28.0	25.5
JUN				
05...	1030	1.2	27.0	26.5
JUL				
10...	1035	.14	28.0	26.0

CAROLINE ISLANDS, ISLAND OF PONAPE

16897600 - NANEPIL RIVER, PONAPE (LAT 06 55 11 LONG 158 12 36.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
12...	1125	16	28.0	24.0
NOV				
10...	1230	16	27.0	25.0
DEC				
08...	1220	11	27.0	24.0
JAN , 1978				
04...	1230	8.4	28.0	26.0
FEB				
02...	1300	9.8	26.0	24.0
MAR				
02...	1310	12	28.0	24.5
APR				
12...	1155	23	29.5	24.0
MAY , 1978				
11...	1255	25	28.5	26.0
24...	1400	9.3	--	26.0
JUN				
15...	1245	14	29.0	25.5
JUL				
13...	1220	12	28.0	24.5
AUG				
10...	1220	13	28.0	24.5
SEP				
07...	1300	18	27.5	24.5

16897900 - LUI RIVER, PONAPE (LAT 06 55 36 LONG 158 12 55.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
12...	0945	1.5	28.0	25.0
NOV				
10...	1015	2.0	27.0	25.0
DEC				
08...	1045	1.2	27.0	24.0
JAN , 1978				
04...	1050	39	26.0	25.0
FEB				
02...	1100	1.1	26.5	24.0
MAR				
02...	1125	.96	28.0	>.2
APR				
12...	1005	2.9	28.0	26.0
MAY , 1978				
11...	1015	2.7	29.0	26.0
24...	1100	1.2	--	26.0
JUN				
15...	1015	2.3	28.0	25.5
JUL				
13...	1010	2.2	28.0	24.5
AUG				
10...	0955	1.5	28.0	26.0
SEP				
07...	1045	2.3	27.5	24.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

CAROLINE ISLANDS, ISLAND OF PONAPE--Continued

16898200 - LUI RIVER AT MOUTH, PONAPE (LAT 06 57 07 LONG 158 13 16.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
14...	1340	10	28.0	25.0
NOV				
11...	1020	12	27.5	25.0
DEC				
09...	1035	7.5	28.0	26.0
JAN , 1978				
06...	1040	4.5	28.0	26.0
FEB				
14...	1355	8.6	30.0	28.0
MAR				
03...	1100	4.5	27.5	25.0
APR				
14...	1035	18	28.0	26.0
MAY , 1978				
03...	1410	12	28.0	26.5
25...	1530	14	--	27.0
JUN				
13...	1430	11	29.5	28.0
JUL				
14...	0910	12	27.5	25.0
AUG				
09...	1355	14	27.0	26.0
SEP				
11...	1430	6.7	30.0	27.0

16898600 - LUPWOR RIVER, PONAPE (LAT 06 54 15 LONG 158 09 45.70)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
11...	1200	6.3	29.5	27.0
NOV				
09...	1100	4.5	29.0	26.0
DEC				
20...	1125	1.6	29.0	26.0
JAN , 1978				
03...	1150	1.3	28.0	26.0
FEB				
01...	1230	2.7	27.0	25.5
MAR				
14...	1120	1.7	30.0	26.0
APR				
11...	1140	9.7	29.0	26.0
MAY , 1978				
02...	1035	4.3	28.0	26.0
25...	0930	2.3	--	26.0
JUN				
27...	1440	5.2	28.0	27.0
JUL				
11...	1145	3.4	29.0	26.0
AUG				
08...	1255	2.6	31.0	27.0
SEP				
06...	1300	3.6	27.0	24.0

SAMOA ISLANDS, ISLAND OF TUTUILA

16912000 - PAGO STREAM AT AFONO, TUTUILA (LAT 14 16 03 LONG 170 39 02.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
08...	1000	.96	26.0	26.0
NOV				
15...	0915	.53	27.5	25.5
DEC				
16...	0945	.55	29.0	26.0
JAN , 1978				
17...	0925	7.0	26.0	24.0
FEB				
22...	0930	.89	30.0	26.0
MAR , 1978				
27...	1030	4.9	25.0	23.0
MAY				
24...	1005	1.1	28.0	26.0
JUL				
25...	0950	1.1	27.0	25.0
AUG				
22...	1015	1.0	27.0	25.0
SEP				
22...	1030	.97	27.0	25.0

16920500 - AASU STREAM AT AASU, TUTUILA (LAT 14 17 51 LONG 170 45 30.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
05...	1120	11	29.5	25.0
DEC				
09...	1110	2.6	28.5	26.0
JAN , 1978				
23...	1130	12	28.0	24.0
MAR , 1978				
14...	1050	3.6	29.0	24.0
MAY				
22...	1020	4.2	27.0	25.0
AUG				
21...	0915	3.5	26.0	24.0

16931000 - ATAULOMA STREAM AT AFAO, TUTUILA (LAT 14 20 10 LONG 170 48 02.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
17...	1015	4.0	25.0	25.0
NOV				
18...	0930	.20	28.0	25.5
DEC				
19...	0910	.63	26.0	25.0
MAR , 1978				
28...	1040	4.1	27.0	25.0
MAY				
17...	1105	.55	27.0	25.0
JUN , 1978				
16...	1010	.26	27.0	25.0
JUL				
17...	1020	.14	26.5	25.0
AUG				
16...	1045	1.0	26.0	25.0
SEP				
15...	1005	3.7	27.0	25.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

SAMOA ISLANDS, ISLAND OF TUTUILA--Continued

16931500 - ASILI STREAM AT ALT 330 FT (100M) NR ASILI TU (LAT 14 19 34 LONG 170 47 38.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
NOV , 1977				
21...	1000	.38	27.0	25.0
DEC				
20...	0945	3.2	25.0	23.0
JAN , 1978				
09...	0945	2.6	27.0	25.0
FEB				
07...	0945	1.0	29.0	26.0
MAR				
01...	0905	1.4	25.0	24.5
APR				
25...	0945	.36	26.0	25.0
MAY , 1978				
02...	0930	1.3	25.0	24.0
JUN				
21...	0935	.36	25.0	24.5
JUL				
18...	1010	.16	24.0	23.0
AUG				
02...	0955	.20	25.0	24.0
SEP				
12...	1115	.95	26.0	24.0

16933500 - LEAFU STREAM AT ALT 370FT (113M) NR LEONE TU (LAT 14 19 31 LONG 170 46 50.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
25...	0915	2.2	26.0	24.5
NOV				
25...	0845	8.9	25.0	24.0
DEC				
05...	0935	1.4	24.0	24.0
JAN , 1978				
11...	0855	6.1	24.0	24.0
MAR				
07...	0945	1.2	27.0	25.0
APR				
26...	1015	.59	26.0	24.5
MAY , 1978				
10...	0920	1.0	25.0	24.0
JUN				
26...	0940	.34	24.0	24.0
JUL				
12...	0950	.28	23.0	23.0
AUG				
14...	0915	5.9	24.0	24.0
SEP				
26...	0945	1.2	25.0	24.0

16948000 - AFUELO STREAM AT MATUU, TUTUILA (LAT 14 18 07 LONG 170 41 07.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
17...	1240	12	25.0	25.0
NOV				
21...	1215	.30	27.0	25.0
DEC				
28...	0900	.23	29.0	27.0
JAN , 1978				
30...	0920	1.3	26.5	25.0
FEB				
06...	1020	.42	30.0	27.5
MAR , 1978				
07...	1200	.10	30.0	27.0
APR				
03...	1420	.78	27.0	26.0
MAY				
01...	1400	14	26.0	25.0
JUL				
05...	0950	.09	25.0	24.0
SEP				
13...	0945	2.0	26.0	24.0

16963900 - LEAFU STREAM NEAR AUASI, TUTUILA (LAT 14 16 27 LONG 170 34 26.90)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)
OCT , 1977				
19...	0920	1.0	26.5	26.0
DEC				
02...	0935	.08	30.0	26.0
JAN , 1978				
24...	0920	1.1	29.0	25.0
MAR				
22...	1045	1.2	26.0	24.0
APR				
24...	1120	.15	28.0	26.0
MAY , 1978				
30...	0905	.10	28.0	26.0
JUN				
28...	1030	.11	26.0	25.5
JUL				
26...	0945	.94	26.5	26.0
AUG				
28...	1015	.12	27.0	25.0

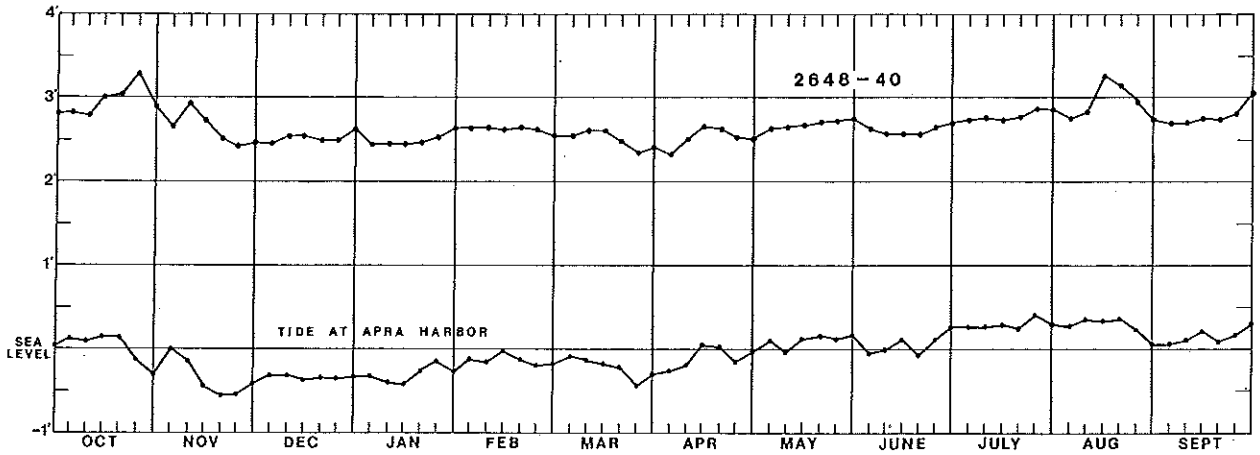
MARIANA ISLANDS, ISLAND OF GUAM

132644144480871 (Formerly 132644144480870). Local number, 2648-40 (BPM Well 1).
LOCATION.--Lat 13°26'44" N., long 144°48'08" E., on lot number 2287, 0.2 mi (0.3 km) southeast of junction of Routes 15 and 10, Mangilao, Guam. Owner: Ana P. Diaz.
AQUIFER.--Coralline Limestone, probably Miocene age.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 12 in (0.30 m), depth reported 235 ft (71.6 m).
DATUM.--Altitude of land-surface datum is 210 ft (64.0 m). Measuring point: Top edge of shelter floor, 209.90 ft (63.978 m) above mean sea level.
REMARKS.--Recording gage installed January 1974.
PERIOD OF RECORD.--February 1972 to September 1977 records available in files of district office; October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.45 ft (1.356 m) above mean sea level, May 22, 1976; lowest measured, 2.30 ft (0.701 m) above mean sea level, Apr. 4, 1973.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.82	2.81	2.50	2.59	2.63	2.58	2.42	2.57	2.71	2.70	2.85	2.72
2	2.82	2.76	2.51	2.54	2.62	2.55	2.40	2.59	2.68	2.70	2.83	2.72
3	2.82	2.71	2.47	2.50	2.64	2.56	2.38	2.61	2.67	2.71	2.80	2.71
4	2.85	2.69	2.46	2.46	2.65	2.57	2.37	2.63	2.65	2.72	2.78	2.70
5	2.83	2.67	2.47	2.47	2.63	2.57	2.36	2.64	2.63	2.73	2.76	2.69
6	2.82	2.67	2.52	2.47	2.63	2.58	2.37	2.64	2.59	2.73	2.76	2.69
7	2.81	2.69	2.53	2.49	2.65	2.59	2.41	2.63	2.58	2.72	2.79	2.69
8	2.82	2.77	2.56	2.48	2.64	2.60	2.45	2.63	2.58	2.73	2.82	2.68
9	2.81	2.94	2.57	2.47	2.63	2.61	2.50	2.64	2.59	2.74	2.83	2.70
10	2.80	2.94	2.57	2.47	2.63	2.62	2.52	2.65	2.59	2.77	2.83	2.72
11	2.84	2.95	2.56	2.47	2.66	2.61	2.56	2.65	2.58	2.77	2.88	2.74
12	2.87	2.90	2.55	2.46	2.63	2.61	2.60	2.65	2.57	2.78	2.99	2.74
13	2.91	2.88	2.55	2.45	2.61	2.62	2.63	2.66	2.57	2.78	3.14	2.74
14	2.94	2.81	2.56	2.45	2.62	2.62	2.65	2.67	2.58	2.74	3.24	2.76
15	3.00	2.75	2.56	2.45	2.62	2.61	2.67	2.69	2.58	2.73	3.26	2.76
16	3.03	2.71	2.57	2.44	2.67	2.56	2.68	2.70	2.58	2.73	3.28	2.76
17	3.03	2.67	2.55	2.46	2.67	2.54	2.68	2.70	2.58	2.75	3.26	2.78
18	3.01	2.63	2.54	2.49	2.68	2.52	2.67	2.72	2.59	2.77	3.23	2.76
19	3.02	2.57	2.53	2.49	2.67	2.51	2.65	2.73	2.58	2.78	3.20	2.75
20	3.06	2.53	2.51	2.49	2.65	2.50	2.63	2.72	2.58	2.79	3.16	2.74
21	3.16	2.49	2.50	2.49	2.62	2.48	2.62	2.71	2.58	2.82	3.14	2.75
22	3.28	2.48	2.49	2.49	2.61	2.46	2.60	2.70	2.59	2.84	3.09	2.76
23	3.34	2.46	2.50	2.49	2.61	2.43	2.57	2.71	2.61	2.86	3.06	2.78
24	3.36	2.43	2.50	2.52	2.63	2.41	2.56	2.71	2.64	2.87	3.02	2.79
25	3.31	2.43	2.51	2.55	2.62	2.38	2.55	2.73	2.65	2.88	2.97	2.81
26	3.22	2.44	2.49	2.59	2.59	2.37	2.53	2.75	2.66	2.89	2.93	2.84
27	3.15	2.45	2.47	2.62	2.58	2.39	2.51	2.75	2.67	2.92	2.89	2.89
28	3.06	2.44	2.46	2.64	2.58	2.40	2.51	2.76	2.68	2.92	2.87	2.97
29	3.00	2.45	2.49	2.65	---	2.41	2.53	2.76	2.68	2.90	2.84	3.02
30	2.95	2.47	2.60	2.66	---	2.42	2.55	2.78	2.70	2.88	2.79	3.04
31	2.90	---	2.61	2.65	---	2.42	---	2.75	---	2.86	2.75	---
MEAN	2.99	2.65	2.52	2.51	2.63	2.52	2.54	2.68	2.62	2.79	2.97	2.77
MAX	3.36	2.95	2.61	2.66	2.68	2.62	2.68	2.78	2.71	2.92	3.28	3.04
MIN	2.80	2.43	2.46	2.44	2.58	2.37	2.36	2.57	2.57	2.70	2.75	2.68

WTR YR 1978 MEAN 2.68 MAX 3.36 MIN 2.36



NOTE.--Tide data furnished by National Oceanic and Atmospheric Administration.

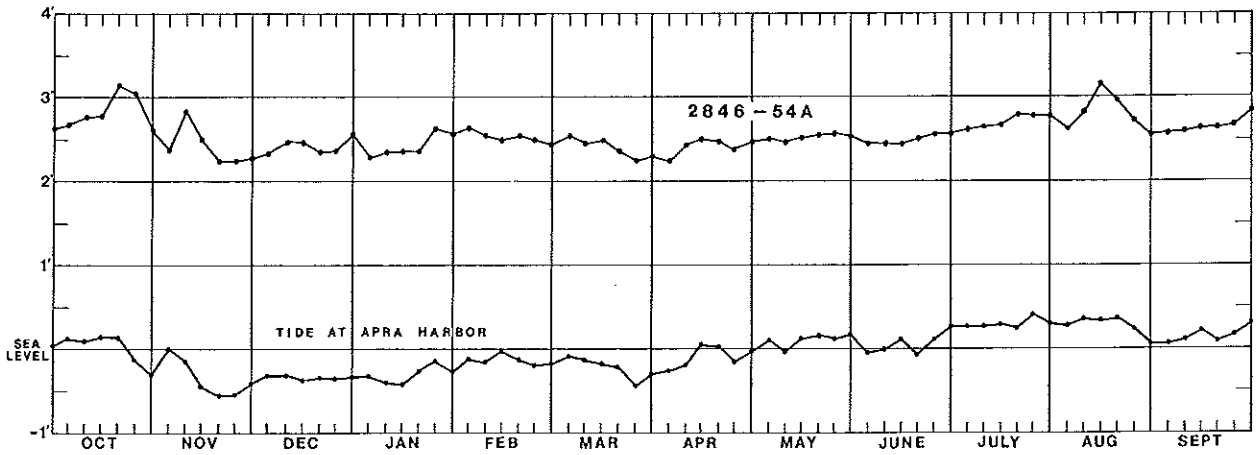
MARIANA ISLANDS, ISLAND OF GUAM

132824144464271 (Formerly 132824144464270). Local number, 2846-54A (ACEORP Tunnel).
LOCATION.--Lat 13°28'24" N., long 144°46'42" E., behind Navy Telephone Exchange, 0.35 mi (0.56 km) southwest of junction of Routes 1 and 14, Tamuning, Guam. Owner: U. S. Navy, Public Works Department.
AQUIFER.--Mariana Limestone.
WELL CHARACTERISTICS.--Dug basal water-table well consisting of an inclined shaft, three skimming tunnels, and a large pump room. Tunnels 1 and 2 are 150 ft (45.7 m) each and tunnel 3 is 700 ft (213 m) in length.
REMARKS.--Recording gage installed October 1954.
PERIOD OF RECORD.--October 1954 to December 1959, September 1960 to May 1965, March 1973 to September 1977 records available in files of district office; October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.95 ft (1.509 m) above mean sea level, May 22, 1976; lowest, 2.14 ft (0.655 m) above mean sea level, Dec. 2, 1974.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.61	2.57	2.32	2.43	2.52	2.46	2.28	2.48	2.50	2.56	2.73	2.61
2	2.62	2.49	2.30	2.40	2.49	2.42	2.27	2.48	2.47	2.56	2.70	2.64
3	2.66	2.45	2.27	2.30	2.48	2.42	2.24	2.49	2.47	2.57	2.67	2.62
4	2.68	2.46	2.25	2.27	2.55	2.51	2.22	2.49	2.46	2.60	2.63	2.59
5	2.66	2.39	2.32	2.28	2.62	2.54	2.23	2.49	2.43	2.60	2.61	2.57
6	2.65	2.42	2.35	2.36	2.63	2.54	2.29	2.47	2.42	2.60	2.60	2.57
7	2.65	2.50	2.44	2.38	2.64	2.49	2.39	2.46	2.41	2.59	2.65	2.54
8	2.67	2.65	2.55	2.39	2.62	2.46	2.41	2.47	2.44	2.59	2.71	2.54
9	2.73	2.85	2.52	2.40	2.57	2.47	2.40	2.47	2.45	2.62	2.73	2.57
10	2.74	2.81	2.46	2.37	2.54	2.46	2.42	2.47	2.44	2.62	2.81	2.59
11	2.72	2.69	2.42	2.37	2.52	2.48	2.44	2.48	2.43	2.62	2.93	2.60
12	2.72	2.64	2.42	2.42	2.50	2.49	2.47	2.49	2.43	2.62	3.24	2.58
13	2.74	2.58	2.43	2.51	2.49	2.50	2.48	2.50	2.42	2.61	3.34	2.58
14	2.75	2.53	2.45	2.45	2.50	2.53	2.48	2.51	2.44	2.60	3.24	2.60
15	2.77	2.51	2.46	2.38	2.53	2.48	2.50	2.52	2.43	2.65	3.13	2.61
16	2.77	2.46	2.41	2.35	2.53	2.44	2.52	2.54	2.43	2.70	3.06	2.63
17	2.75	2.40	2.42	2.38	2.52	2.42	2.51	2.53	2.45	2.72	3.01	2.66
18	2.73	2.35	2.43	2.38	2.55	2.38	2.50	2.56	2.45	2.77	3.02	2.63
19	2.79	2.28	2.39	2.38	2.54	2.37	2.50	2.56	2.49	2.77	2.98	2.63
20	3.13	2.23	2.35	2.37	2.54	2.38	2.47	2.55	2.50	2.79	2.94	2.62
21	3.22	2.20	2.32	2.39	2.56	2.33	2.44	2.52	2.49	2.75	2.92	2.63
22	3.25	2.23	2.34	2.38	2.52	2.31	2.41	2.51	2.50	2.75	2.87	2.68
23	3.30	2.23	2.33	2.40	2.51	2.32	2.39	2.52	2.52	2.76	2.83	2.69
24	3.22	2.23	2.33	2.54	2.51	2.30	2.39	2.52	2.55	2.77	2.77	2.68
25	3.05	2.23	2.37	2.61	2.49	2.24	2.39	2.56	2.55	2.78	2.71	2.67
26	2.89	2.25	2.35	2.62	2.48	2.28	2.40	2.57	2.55	2.81	2.69	2.72
27	2.81	2.24	2.31	2.60	2.45	2.30	2.39	2.58	2.57	2.88	2.67	2.83
28	2.75	2.24	2.31	2.64	2.45	2.30	2.40	2.60	2.56	2.92	2.66	2.87
29	2.71	2.24	2.43	2.63	---	2.29	2.45	2.61	2.56	2.88	2.63	2.87
30	2.66	2.27	2.49	2.60	---	2.30	2.47	2.59	2.57	2.85	2.57	2.83
31	2.60	---	2.54	2.56	---	2.28	---	2.54	---	2.78	2.57	---
MEAN	2.81	2.42	2.39	2.44	2.53	2.40	2.41	2.52	2.48	2.70	2.83	2.65
MAX	3.30	2.85	2.55	2.64	2.64	2.54	2.52	2.61	2.57	2.92	3.34	2.87
MIN	2.60	2.20	2.25	2.27	2.45	2.24	2.22	2.46	2.41	2.56	2.57	2.54

WTR YR 1978 MEAN 2.55 MAX 3.34 MIN 2.20



NOTE.--Tide data furnished by National Oceanic and Atmospheric Administration.

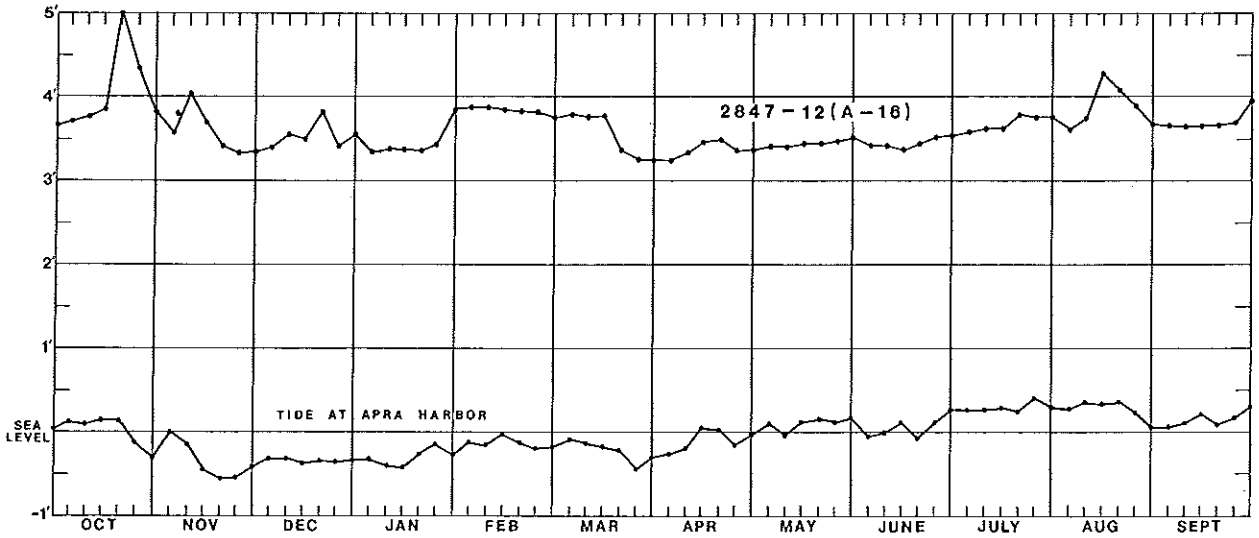
MARIANA ISLANDS, ISLAND OF GUAM

132813144472771 (Formerly 132813144472770). Local number, 2847-12 (A-16).
LOCATION.--Lat 13°28'13" N., long 144°47'27" E., at Carbullido School, 0.60 mi (0.97 km) west of junction of Routes 8 and 10, Barrigada, Guam. Owner: Public Utility Agency of Guam.
AQUIFER.--Mariana Limestone, probably Pliocene age.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 12 in (0.30 m), depth reported 215 ft (65.5 m).
DATUM.--Altitude of land-surface datum is 207 ft (63.1 m). Measuring point: Top of casing, 208.00 ft (63.398 m) above mean sea level.
REMARKS.--Recording gage installed June 1974.
PERIOD OF RECORD.--June 1974 to September 1977 records available in files of district office; October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.71 ft (2.045 m) May 22, 1976; lowest, 3.09 ft (0.942 m) above mean sea level, Dec. 7-8, 1974.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.66	3.76	3.41	3.51	3.85	3.77	3.25	3.39	3.50	3.56	3.71	3.66
2	3.67	3.70	3.40	3.46	3.85	3.77	3.24	3.39	3.47	3.56	3.70	3.67
3	3.68	3.65	3.38	3.39	3.84	3.75	3.23	3.40	3.45	3.56	3.69	3.66
4	3.70	3.60	3.36	3.36	3.84	3.77	3.23	3.40	3.44	3.58	3.65	3.66
5	3.69	3.58	3.40	3.36	3.87	3.79	3.23	3.41	3.42	3.59	3.61	3.66
6	3.69	3.58	3.43	3.39	3.90	3.79	3.23	3.42	3.40	3.59	3.60	3.65
7	3.68	3.63	3.49	3.41	3.90	3.78	3.28	3.41	3.39	3.58	3.60	3.64
8	3.70	3.73	3.57	3.40	3.91	3.76	3.33	3.41	3.41	3.58	3.63	3.63
9	3.73	3.99	3.58	3.41	3.88	3.76	3.34	3.41	3.42	3.60	3.69	3.63
10	3.78	4.05	3.55	3.39	3.86	3.76	3.36	3.41	3.42	3.61	3.76	3.63
11	3.79	3.96	3.50	3.38	3.84	3.76	3.38	3.42	3.41	3.60	3.88	3.65
12	3.78	3.87	3.48	3.40	3.83	3.77	3.40	3.42	3.41	3.61	4.13	3.65
13	3.80	3.80	3.47	3.46	3.83	3.78	3.42	3.43	3.41	3.62	4.51	3.65
14	3.82	3.74	3.49	3.44	3.83	3.79	3.42	3.43	3.41	3.62	4.47	3.65
15	3.84	3.69	3.49	3.39	3.84	3.77	3.45	3.44	3.39	3.62	4.28	3.65
16	3.84	3.65	3.48	3.36	3.84	3.44	3.47	3.44	3.40	3.65	4.22	3.66
17	3.85	3.61	3.46	3.37	3.84	3.43	3.47	3.44	3.40	3.71	4.15	3.68
18	3.84	3.54	3.46	3.38	3.84	3.41	3.46	3.45	3.41	3.77	4.12	3.68
19	3.98	3.47	3.44	3.37	3.84	3.38	3.45	3.45	3.43	3.77	4.12	3.67
20	5.00	3.41	3.81	3.37	3.83	3.38	3.44	3.45	3.45	3.78	4.09	3.67
21	4.91	3.37	3.39	3.38	3.84	3.35	3.42	3.45	3.46	3.75	4.05	3.67
22	4.68	3.37	3.40	3.38	3.83	3.32	3.41	3.46	3.46	3.74	4.01	3.67
23	4.61	3.37	3.40	3.38	3.83	3.30	3.41	3.46	3.48	3.74	3.98	3.69
24	4.52	3.36	3.41	3.43	3.83	3.30	3.39	3.46	3.50	3.74	3.94	3.70
25	4.35	3.36	3.42	---	3.81	3.26	3.38	3.48	3.52	3.75	3.89	3.69
26	4.18	3.36	3.41	---	3.80	3.24	3.36	3.50	3.51	3.78	3.84	3.74
27	4.08	3.36	3.39	---	3.78	3.24	3.34	3.52	3.52	3.82	3.81	3.91
28	3.99	3.36	3.38	---	3.77	3.24	3.34	3.53	3.53	3.84	3.80	4.01
29	3.94	3.35	3.44	---	---	3.25	3.37	3.55	3.54	3.83	3.77	4.01
30	3.88	3.37	3.53	---	---	3.25	3.38	3.55	3.55	3.81	3.71	3.98
31	3.81	---	3.57	---	---	3.25	---	3.53	---	3.75	3.67	---
MEAN	3.98	3.59	3.46	---	3.84	3.54	3.36	3.45	3.45	3.68	3.91	3.71
MAX	5.00	4.05	3.81	---	3.91	3.79	3.47	3.55	3.55	3.84	4.51	4.01
MIN	3.66	3.35	3.36	---	3.77	3.24	3.23	3.39	3.39	3.56	3.60	3.63

WTR YR 1978 MAX RECORDED 5.00 MIN RECORDED 3.23
NOTE.--No water-level record Jan. 25-31.



NOTE.--Tide data furnished by National Oceanic and Atmospheric Administration.

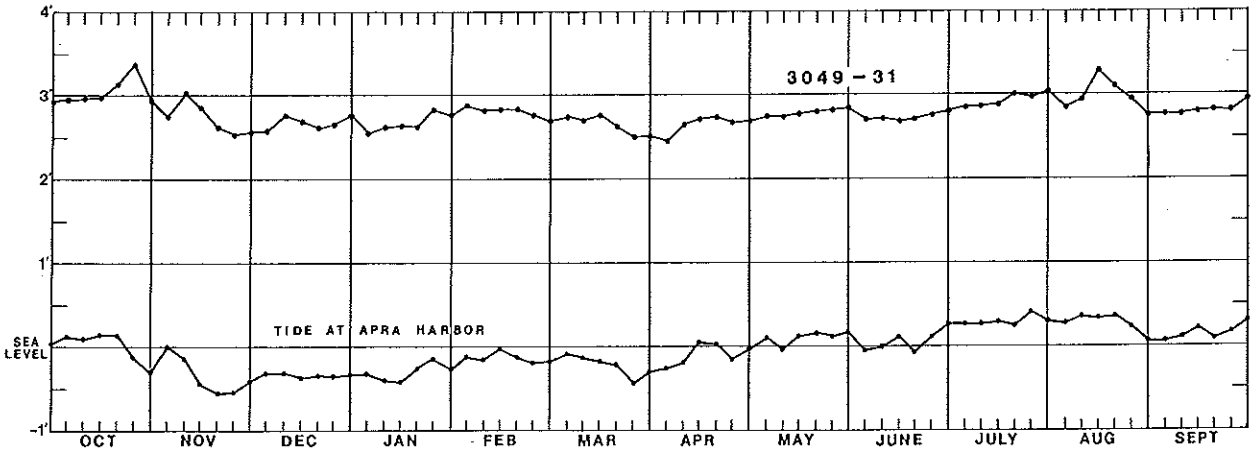
MARIANA ISLANDS, ISLAND OF GUAM

133032144491871 (Formerly 133032144491870). Local number, 3049-31 (M-10A).
LOCATION.--Lat 13°30'32" N., long 144°49'18" E., at Harmon Loop School, Dededo, Guam. Owner: Public Utility Agency of Guam.
AQUIFER.--Mariana or Barrigada Limestone of Miocene or Pliocene age.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 8 in (0.2 m), depth reported 288 ft (87.8 m).
DATUM.--Altitude of land-surface datum is 227 ft (69.2 m). Measuring point: Top edge of shelter floor, 228.70 ft (69.708 m) above mean sea level.
REMARKS.--Well was abandoned in 1975 because of oil taste and high iron content. Recording gage installed January 1974.
PERIOD OF RECORD.--January 1974 to September 1977 records available in files of district office; October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.61 ft (1.405 m) above mean sea level, May 23, 1976; lowest, 2.42 ft (0.738 m) above mean sea level, Dec. 7, 1974.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.94	2.90	2.60	2.69	2.65	2.69	2.52	2.69	2.79	2.80	2.98	2.79
2	2.94	2.84	2.59	2.66	2.80	2.67	2.50	2.70	2.77	2.81	2.96	2.82
3	2.96	2.81	2.56	2.61	2.78	2.66	2.47	2.71	2.75	2.81	2.92	2.81
4	2.96	2.77	2.54	2.58	2.81	2.71	2.46	2.73	2.74	2.83	2.88	2.78
5	2.96	2.75	2.59	2.57	2.86	2.73	2.46	2.73	2.72	2.83	2.85	2.78
6	2.96	2.75	2.62	2.61	2.88	2.73	2.49	2.72	2.70	2.84	2.83	2.77
7	2.96	2.81	2.70	2.63	2.88	2.71	2.57	2.70	2.69	2.83	2.86	2.75
8	2.98	2.88	2.83	2.64	2.88	2.69	2.61	2.70	2.71	2.83	2.90	2.74
9	2.98	3.02	2.81	2.64	2.85	2.70	2.62	2.73	2.72	2.84	2.93	2.75
10	2.98	3.02	2.75	2.62	2.82	2.70	2.63	2.72	2.71	2.85	2.95	2.77
11	2.98	2.98	2.70	2.61	2.80	2.70	2.65	2.72	2.70	2.85	3.02	2.79
12	2.99	2.95	2.68	2.65	2.78	2.72	2.67	2.73	2.69	2.84	3.21	2.79
13	3.00	2.91	2.68	2.74	2.77	2.72	2.69	2.73	2.68	2.83	3.37	2.78
14	2.98	2.87	2.69	2.70	2.78	2.75	2.69	2.75	2.69	2.84	3.36	2.80
15	2.99	2.85	2.69	2.64	2.81	2.73	2.71	2.76	2.69	2.86	3.29	2.80
16	2.98	2.80	2.68	2.62	2.81	2.71	2.74	2.78	2.69	2.89	3.18	2.82
17	3.00	2.75	2.67	2.62	2.80	2.67	2.74	2.78	2.70	2.92	3.16	2.85
18	3.02	2.70	2.68	2.62	2.82	2.64	2.72	2.79	2.70	2.97	3.15	2.84
19	3.06	2.65	2.66	2.62	2.82	2.63	2.74	2.80	2.70	3.00	3.13	2.81
20	3.15	2.62	2.61	2.62	2.81	2.62	2.73	2.80	2.70	3.00	3.10	2.81
21	3.27	2.57	2.60	2.62	2.83	2.60	2.71	2.79	2.70	2.98	3.08	2.81
22	3.39	2.56	2.61	2.62	2.81	2.56	2.69	2.78	2.72	2.97	3.06	2.81
23	3.51	2.55	2.61	2.64	2.79	2.55	2.67	2.79	2.73	2.98	3.02	2.81
24	3.51	2.54	2.62	2.75	2.79	2.54	2.66	2.79	2.75	2.98	2.98	2.81
25	3.38	2.53	2.63	2.82	2.78	2.51	2.66	2.81	2.76	2.99	2.95	2.81
26	3.24	2.54	2.61	2.82	2.77	2.51	2.65	2.82	2.76	3.01	2.91	2.82
27	3.14	2.54	2.59	2.81	2.74	2.53	2.64	2.83	2.78	3.08	2.88	2.88
28	3.07	2.54	2.57	2.84	2.70	2.53	2.65	2.84	2.78	3.15	2.86	2.93
29	3.03	2.54	2.66	2.85	---	2.52	2.69	2.85	2.79	3.13	2.84	2.95
30	2.99	2.56	2.71	2.82	---	2.53	2.69	2.85	2.80	3.09	2.79	2.95
31	2.94	---	2.75	2.79	---	2.52	---	2.83	---	3.03	2.78	---
MEAN	3.07	2.74	2.65	2.68	2.80	2.64	2.64	2.77	2.73	2.92	3.01	2.81
MAX	3.51	3.02	2.83	2.85	2.88	2.75	2.74	2.85	2.80	3.15	3.37	2.95
MIN	2.94	2.53	2.54	2.57	2.65	2.51	2.46	2.69	2.68	2.80	2.78	2.74

WTR YR 1978 MEAN 2.79 MAX 3.51 MIN 2.46



NOTE.--Tide data furnished by National Oceanic and Atmospheric Administration.

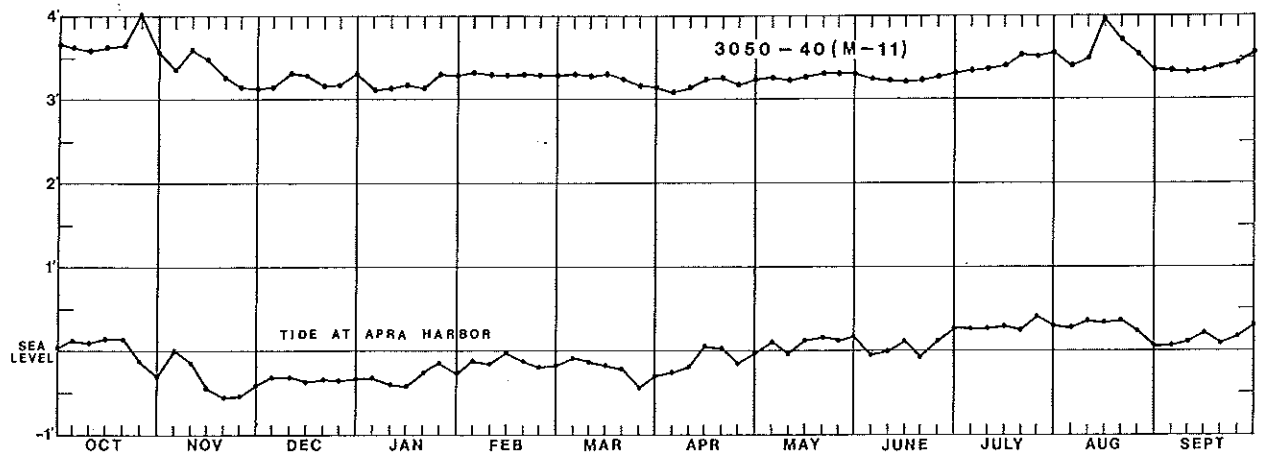
MARIANA ISLANDS, ISLAND OF GUAM

133047144500171 (Formerly 133047144500170). Local number, 3050-40 (M-11).
LOCATION.--Lat 13°30'47" N., long 144°50'01" E., at intersection of Harmon Loop School Road and Route 1 at Dededo, Guam. Owner: Public Utility Agency of Guam.
AQUIFER.--Barrigada Limestone.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 8 in (0.2 m), depth reported 325 ft (99.1 m).
DATUM.--Altitude of land-surface datum is 294 ft (89.6 m). Measuring point: Top of casing, 295.82 ft (90.166 m) above mean sea level.
REMARKS.--Recording gage installed July 1977.
PERIOD OF RECORD.--July 1977 to September 1977 records available in files of district office; October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.40 ft (1.341 m) above mean sea level, Sept. 17, 1977; lowest, 3.08 ft (0.939 m) above mean sea level, Apr. 4 to 6, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.66	3.53	3.17	3.27	3.31	3.31	3.16	3.23	3.31	3.33	3.51	3.38
2	3.63	3.49	3.16	3.23	3.31	3.29	3.16	3.24	3.29	3.33	3.50	3.40
3	3.63	3.44	3.15	3.17	3.30	3.27	3.11	3.24	3.27	3.34	3.48	3.39
4	3.63	3.39	3.12	3.14	3.30	3.29	3.08	3.25	3.26	3.35	3.45	3.37
5	3.63	3.37	3.16	3.13	3.33	3.31	3.08	3.25	3.24	3.36	3.41	3.36
6	3.63	3.36	3.19	3.15	3.34	3.31	3.08	3.25	3.22	3.37	3.39	3.34
7	3.62	3.37	3.26	3.18	3.35	3.30	3.09	3.23	3.21	3.36	3.42	3.33
8	3.61	3.45	3.36	3.18	3.36	3.28	3.12	3.23	3.22	3.36	3.45	3.33
9	3.61	3.54	3.36	3.20	3.34	3.28	3.13	3.24	3.23	3.37	3.47	3.33
10	3.60	3.60	3.32	3.17	3.32	3.28	3.15	3.22	3.22	3.38	3.50	3.34
11	3.60	3.68	3.29	3.16	3.31	3.29	3.17	3.21	3.21	3.38	3.59	3.34
12	3.61	3.65	3.27	3.17	3.30	3.29	3.19	3.22	3.20	3.37	3.82	3.34
13	3.63	3.60	3.26	3.27	3.30	3.30	3.22	3.23	3.20	3.36	4.18	3.34
14	3.63	3.53	3.27	3.25	3.30	3.31	3.22	3.24	3.20	3.37	4.12	3.35
15	3.63	3.49	3.28	3.19	3.31	3.31	3.23	3.26	3.21	3.40	3.99	3.36
16	3.62	3.44	3.26	3.24	3.32	3.26	3.26	3.27	3.21	3.42	3.87	3.37
17	3.61	3.38	3.24	3.15	3.31	3.25	3.28	3.27	3.22	3.44	3.82	3.40
18	3.62	3.36	3.24	3.15	3.33	3.24	3.28	3.28	3.22	3.49	3.79	3.40
19	3.64	3.33	3.22	3.15	3.33	3.24	3.27	3.30	3.22	3.53	3.75	3.38
20	3.66	3.27	3.19	3.15	3.32	3.24	3.26	3.31	3.22	3.53	3.72	3.40
21	3.82	3.20	3.17	3.15	3.33	3.19	3.25	3.30	3.22	3.51	3.72	3.46
22	3.98	3.18	3.16	3.16	3.32	3.18	3.23	3.29	3.23	3.50	3.69	3.47
23	4.06	3.18	3.17	3.16	3.31	3.18	3.21	3.29	3.24	3.50	3.66	3.45
24	4.08	3.17	3.17	3.24	3.31	3.18	3.19	3.30	3.26	3.51	3.61	3.44
25	4.01	3.16	3.19	3.32	3.31	3.18	3.19	3.32	3.27	3.52	3.56	3.44
26	3.88	3.16	3.18	3.33	3.31	3.18	3.18	3.33	3.28	3.53	3.52	3.45
27	3.77	3.15	3.16	3.33	3.30	3.18	3.17	3.34	3.29	3.58	3.50	3.48
28	3.69	3.15	3.14	3.35	3.30	3.16	3.18	3.35	3.30	3.63	3.47	3.54
29	3.64	3.14	3.20	3.36	---	3.16	3.22	3.36	3.31	3.63	3.45	3.57
30	3.61	3.15	3.27	3.35	---	3.16	3.23	3.36	3.32	3.61	3.40	3.58
31	3.58	---	3.31	3.32	---	3.16	---	3.33	---	3.57	3.38	---
MEAN	3.70	3.36	3.22	3.22	3.32	3.24	3.19	3.28	3.24	3.45	3.62	3.40
MAX	4.08	3.68	3.36	3.36	3.36	3.31	3.28	3.36	3.32	3.63	4.18	3.58
MIN	3.58	3.14	3.12	3.13	3.30	3.16	3.08	3.21	3.20	3.33	3.38	3.33

WTR YR 1978 MEAN 3.35 MAX 4.18 MIN 3.08



NOTE.--Tide data furnished by National Oceanic and Atmospheric Administration.

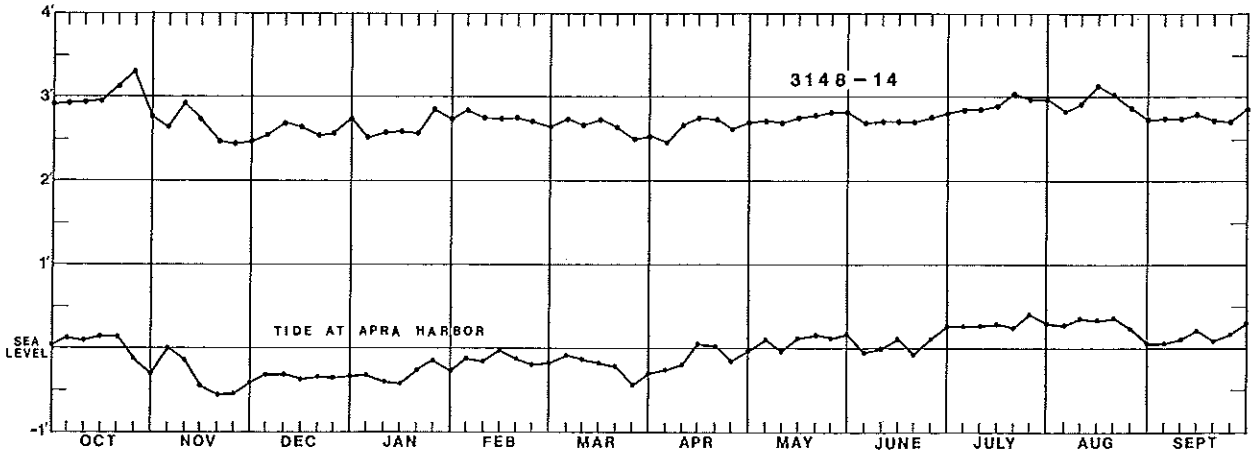
MARIANA ISLANDS, ISLAND OF GUAM

133115144484971 (Formerly 133115144484970). Local number, 3148-14 (Harmon New Well 1).
LOCATION.--Lat 13°31'15" N., long 144°48'49" E., 500 ft (150 m) north of junction of Routes 1 and 16, Dededo, Guam. Owner: Government of Guam.
AQUIFER.--Mariana Limestone.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 10 in (0.25 m), depth measured 289 ft (88.1 m).
DATUM.--Altitude of land-surface datum is 268 ft (81.7 m). Measuring point: Top of casing, 267.96 ft (81.674 m) above mean sea level.
REMARKS.--Recording gage installed March 1973.
PERIOD OF RECORD.--March 1973 to September 1977 records available in files of district office; October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.34 ft (1.323 m) above mean sea level, May 22, 1976; lowest, 2.32 ft (0.707 m) above mean sea level, Mar. 28, 1973.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.91	2.77	2.53	2.64	2.72	2.67	2.52	2.69	2.77	2.80	2.94	2.77
2	2.91	2.70	2.50	2.62	2.72	2.62	2.50	2.70	2.73	2.80	2.92	2.81
3	2.91	2.68	2.48	2.54	2.71	2.63	2.47	2.71	2.71	2.81	2.88	2.77
4	2.93	2.64	2.47	2.52	2.77	2.74	2.47	2.71	2.72	2.82	2.84	2.75
5	2.93	2.64	2.56	2.53	2.83	2.74	2.47	2.71	2.68	2.83	2.82	2.74
6	2.93	2.69	2.58	2.62	2.84	2.73	2.54	2.69	2.66	2.82	2.81	2.75
7	2.94	2.76	2.74	2.61	2.84	2.68	2.62	2.67	2.67	2.81	2.86	2.71
8	2.95	2.89	2.85	2.63	2.81	2.66	2.63	2.68	2.71	2.81	2.89	2.71
9	2.94	2.96	2.75	2.62	2.77	2.69	2.63	2.69	2.71	2.85	2.89	2.73
10	2.94	2.93	2.68	2.58	2.75	2.67	2.66	2.69	2.69	2.84	2.92	2.75
11	2.93	2.86	2.64	2.56	2.74	2.69	2.66	2.68	2.68	2.84	2.99	2.77
12	2.95	2.85	2.61	2.66	2.72	2.71	2.69	2.69	2.68	2.83	3.21	2.75
13	2.98	2.81	2.62	2.78	2.71	2.73	2.70	2.70	2.68	2.83	3.22	2.76
14	2.96	2.77	2.64	2.67	2.74	2.77	2.71	2.73	2.67	2.85	3.20	2.78
15	2.97	2.74	2.65	2.59	2.76	2.73	2.75	2.74	2.69	2.88	3.13	2.79
16	2.96	2.67	2.61	2.56	2.74	2.72	2.78	2.76	2.70	2.90	3.08	2.83
17	2.94	2.59	2.63	2.59	2.74	2.68	2.78	2.76	2.70	2.92	3.04	2.86
18	2.95	2.55	2.63	2.58	2.77	2.64	2.78	2.79	2.69	3.00	3.05	2.83
19	2.98	2.50	2.60	2.57	2.76	2.63	2.78	2.79	2.69	3.01	3.03	2.76
20	3.14	2.46	2.56	2.58	2.76	2.63	2.73	2.78	2.69	3.02	3.02	2.72
21	3.42	2.44	2.54	2.59	2.80	2.59	2.67	2.76	2.69	2.99	3.00	2.77
22	3.48	2.46	2.55	2.59	2.75	2.57	2.64	2.76	2.72	2.94	2.98	2.74
23	3.50	2.45	2.55	2.61	2.73	2.58	2.63	2.76	2.73	2.96	2.94	2.73
24	3.46	2.44	2.56	2.79	2.73	2.54	2.62	2.78	2.75	2.97	2.91	2.68
25	3.30	2.44	2.58	2.84	2.71	2.51	2.62	2.81	2.75	2.99	2.86	2.71
26	3.10	2.45	2.56	2.82	2.70	2.54	2.61	2.83	2.77	3.01	2.83	2.70
27	2.97	2.45	2.52	2.78	2.67	2.55	2.60	2.83	2.80	3.10	2.81	2.74
28	2.91	2.45	2.53	2.83	2.67	2.54	2.64	2.84	2.80	3.16	2.80	2.83
29	2.89	2.45	2.67	2.82	---	2.54	2.69	2.85	2.80	3.11	2.79	2.83
30	2.84	2.48	2.70	2.78	---	2.55	2.68	2.84	2.80	3.06	2.73	2.85
31	2.79	---	2.75	2.74	---	2.54	---	2.81	---	2.98	2.73	---
MEAN	3.02	2.63	2.61	2.65	2.75	2.64	2.64	2.75	2.72	2.92	2.94	2.76
MAX	3.50	2.96	2.85	2.84	2.84	2.77	2.78	2.85	2.80	3.16	3.22	2.86
MIN	2.79	2.44	2.47	2.52	2.67	2.51	2.47	2.67	2.66	2.80	2.73	2.68

WTR YR 1978 MEAN 2.75 MAX 3.50 MIN 2.44



NOTE.--Tide data furnished by National Oceanic and Atmospheric Administration.

INDEX

Page

Aasu, Tutuila, Aasu Stream at..... 81
Aasu Stream at Aasu, Tutuila..... 81,99
  near Aasu..... 90
Accuracy of field data and computed results..... 15
Acre-foot, definition of..... 2
Adeiddo River, Babelthuap, Palau Islands..... 56
Afao, Tutuila, Atauloma Stream at..... 82
Afono, Tutuila, Pago Stream at..... 80
Afuelo Stream at Matuu, Tutuila.....85,100
Agat, Guam, Almagosa River near..... 45
  Fena Dam spillway near..... 47
  Finile Creek at..... 40
  Imong River near..... 44
  Maulap River near..... 46
Ajayan River near Inarajan, Guam..... 88
Alega Stream at Alega, Tutuila..... 90
Algae, definition of..... 3
Almagosa River near Agat, Guam..... 45,95
Almiokan River, Babelthuap, Palau Islands..... 89
Aquifer, definition of..... 3
Aringel Stream, Yap, Yap Islands..... 61,97
Artesian, definition of..... 3
Artificial substrate, definition of..... 10
Ash mass, definition of..... 3
Asili stream, at altitude 330 ft. (100m)
    near Asili, Tutuila.....83,100
Astaban River at Umatac, Guam..... 87
Atauloma Stream at Afao, Tutuila..... 82,99
Auasi, Tutuila, Leafu Stream near..... 86

Bacteria, definition of..... 3
Bed material, definition of..... 3
Bileiy Spring, Gagil-Tomil, Yap Islands..... 90
Biomass, definition of..... 3
Bileiy Stream, Gagil-Tomil, Yap Islands..... 90
Blue-green algae, definition of..... 8
Bubulao River near Talofofo, Guam..... 88
Burong Stream, Yap, Yap Islands..... 65,97

Cells/volume, definition of..... 4
Cfs-day, definition of..... 4
Chun Stream, Dublon Island, Truk Islands..... 69,98
Chlorophyll, definition of..... 4
Coliform organisms, definition of..... 4
Collection and computation of data..... 12-14
Collection and examination of data..... 16
Collection of the data..... 18
Color unit, definition of..... 4
Contents, definition of..... 4
Continuing record station, definition of..... 4
Control, definition of..... 4
Control structure, definition of..... 4
Cooperation..... 1
Cubic foot per second, definition of..... 4

Dalolab Stream, Yap, Yap Islands..... 62,97
Definition of terms..... 2-11
Denni Spring, Saipan..... 37
Diatoms, definition of..... 8
Discharge, definition of..... 4
Dissolved, definition of..... 5
Diversity index, definition of..... 6
Downstream order and station number..... 11
Drainage area, definition of..... 6
Drainage basin, definition of..... 6
Dry mass, definition of..... 3

Explanation of ground-water level records..... 18
Explanation of stage and water-discharge
    records..... 12
Explanation of water-quality records..... 16-17

Fecal coliform bacteria, definition of..... 3
Fecal streptococcal bacteria, definition of..... 3
Faata Springs at Agat, Guam..... 87
Fena Dam spillway near Agat, Guam..... 47
Fensol River near Inarajan, Guam..... 88
Finile Creek at Agat, Guam..... 40
Fintasa River near Inarajan, Guam..... 88
Fonte River at dam, near Nimitz Hill, Guam..... 87

Page

Gadan River, Babelthuap, Palau Islands..... 59,96
Gage height, definition of..... 6
Gaging station, definition of..... 6
Geus River, above Siligin Spring tributary,
    near Merizo, Guam..... 87
  below Siligin Spring tributary, near
    Merizo Guam..... 88
Gihmel River, Babelthuap, Palau Islands..... 58
Green algae, definition of..... 8
Ground-water records.....101-106
Guam, island of, discharge measurements at
    miscellaneous sites in..... 91
  gaging station records in..... 40-55
  ground-water records in.....101-106
  low-flow partial-record stations in..... 87-88
  map of..... 26-27
  water-quality records at partial-record
    stations..... 92
  water-temperature records in..... 95-96

Hardness, definition of..... 6
Hydrologic conditions..... 2
Hydrologic unit, definition of..... 7

Illustrations.....21,23-36
Imong River near Agat, Guam..... 44,95
Inarajan, Guam, Inarajan River near..... 42
  Tinaga River near..... 43
Inarajan River near Inarajan, Guam..... 42,95
Innem River, Kosrae..... 90
Instantaneous discharge, definition of..... 5
Introduction..... 1

Kosrae, island of, gaging-station records in.. 75-79
  low-flow partial-record station in..... 90
  map of..... 34
Kumekumeyel River, Babelthuap, Palau Islands.. 89

Laelae River at Umatac, Guam..... 87
La Sa Fua River near Umatac, Guam..... 41,95
Leafu Stream, Tutuila, near Auasi..... 86,100
  at altitude 370 ft. (274m), near Leone..... 84,100
Leone, Tutuila, Leafu Stream at
    altitude 370 ft. (274m), near..... 84
Lui River, Ponape..... 72,98
  at mouth, Ponape..... 73,99
Lupwor River, Ponape..... 74,99

Madog River near Umatac, Guam..... 87
Malem River, Kosrae..... 78
Matuu, Tutuila, Afuelo Stream at..... 85
Maulap River near Agat, Guam..... 46,96
Mean concentration, definition of..... 9
Mean discharge, definition of..... 5
Melo River, Kosrae..... 77
Metamorphic stage, definition of..... 7
Micrograms per gram, definition of..... 7
Micrograms per liter, definition of..... 7
Milligrams of carbon per area, definition of.. 9
Milligrams of oxygen per area, definition of.. 9
Milligrams per liter, definition of..... 7
Mukong Stream, Gagil-Tomil, Yap..... 66,97
Mutunte River, Kosrae..... 75

Nanepil River, Ponape..... 71,98
National Stream-quality accounting network.... 12
Natural substrate, definition of..... 10
Ngardok River, North Fork, Babelthuap,
    Palau Islands..... 89
  South Fork, Babelthuap, Palau Islands..... 60,96
Ngatpang River, Babelthuap, Palau Islands..... 89
Ngechutrong River, Babelthuap, Palau Islands.. 89
North Fork Ngardok River tributary,
    Babelthuap, Palau Islands..... 89
Numbering system for wells and miscellaneous
    sites..... 11

Okat River, Kosrae..... 76
Ordot, Guam, Pago River near..... 51
Organic mass, definition of..... 4

Page
Organism count/area, definition of..... 7
Organism count/volume, definition of 7
Organism, definition of..... 7
Other data available..... 15

Pago River near Ordot, Guam..... 51,96
Pago Stream at Afono, Tutuila..... 80,99
Palau Islands, gaging station records in..... 56-60
low-flow partial-record stations in..... 89
map of..... 28-29
water-temperature records in..... 96
Papa Stream near Nuuuli, Tutuila..... 90
Partial-record station, definition of..... 7
Partial-size, definition of..... 7
Partial-size, classification, definition of.... 7
Pasamano River near Inarajan, Guam..... 88
Pemgoy Stream, Yap, Yap Islands..... 63,97
Percent composition, definition of..... 8
Pesticides, definition of..... 8
Phytoplankton, definition of..... 8
Picocurie, definition of..... 8
Piga Spring near Umatac, Guam..... 87
Plankton, definition of..... 8
Polychlorinated biphenyls, definition of..... 8
Ponape, island of, gaging-station records in... 71-74
map of..... 33
water-quality records at partial-record stations in..... 92-94
water-temperature records in..... 98-99
Primary productivity, definition of..... 8
Publications..... 15,17
Publications of techniques of water-resources investigations..... 19

Records of discharge collected by agencies other than the Geological Survey..... 15
Recoverable from bottom material, definition of..... 6
Ripu Stream, Yap, Yap Islands..... 90

Saipan, island of, discharge measurements at miscellaneous site in..... 91
gaging station records in..... 37-39
map of..... 25
water-temperature records in..... 95
Sediment..... 17
Sediment, definition of..... 9
Solute, definition of..... 9
Special networks and programs..... 12
Specific conductance, definition of..... 9
Stage-discharge relation, definition of..... 9
Streamflow, definition of..... 10
Substrate, definition of..... 10
Suspended, definition of..... 10
Suspended, recoverable, definition of..... 5
Suspended-sediment concentration, definition of..... 9
Suspended sediment, definition of..... 9
Suspended-sediment discharge, definition of..... 9
Suspended-sediment load, definition of..... 9
Suspended, total, definition of..... 5

Tabagaten River, Babelthuap, Palau Islands..... 57,96
Tafeyat River, Kosrae..... 90
Talagu Stream, Yap, Yap Islands..... 64,97

Page
Talofofo Stream, Middle Fork, Saipan..... 39,95
South Fork, Saipan..... 38,95
Tamaney Stream, Yap, Yap Islands..... 90
Taxonamy, definition of..... 10
Time-weighted average, definition of..... 10
Tinaga River near Inarajan, Guam..... 43,95
Tofol River, Kosrae..... 79
Tolaeyuus River at mouth, near Agat, Guam... 88
Tons per acre-foot, definition of..... 10
Tons per day, definition of..... 10
Total, coliform bacteria, definition of..... 3
Total, definition of..... 5
Total in bottom material, definition of..... 6
Total load, definition of..... 10
Total organism count, definition of..... 7
Total, recoverable, definition of..... 5
Total-sediment discharge, definition of..... 9
Turbidity, definition of..... 10
Truk Islands, gaging-station records in..... 67-70
map of..... 31-32
water-temperature records in..... 98
Trust Territory, map of..... 24
Tumunu Stream, Dublon Island, Truk Islands.. 69,98
Tutuila, island of, gaging-station records in..... 80-86
low-flow partial-record stations in..... 90
map of..... 35
water-temperature records in..... 99-100

Ugum River, above Bubulao River near Talofofo, Guam..... 88
above Talofofo Falls, near Talofofo, Guam..48-49,96
near Talofofo, Guam..... 88
Umatac, Guam, La Sa Fua River near..... 41
Umatac River at..... 87
Unnamed north coast stream, Malakal, Palau Islands..... 89
Unnamed south coast stream, Arakabesan, Palau Islands..... 89
Unnamed west coast stream, Arakabesan, Palau Islands..... 89
Unnamed west coast stream, Malakal, Palau Islands..... 89

Water analysis..... 16
Water temperature..... 17
Water temperature, periodic determination of 100
WDR, definition of..... 10
Weighted average, definition of..... 11
Wet mass, definition of..... 4
Wichen River, at altitude 18 m, Moen, Truk Islands..... 68,98
at altitude 55 m, Moen, Truk Islands..... 67,98
WRD, definition of..... 11
WSP, definition of..... 11

Yap Islands, gaging-station records in..... 61-66
low-flow partial-record stations in..... 90
map of..... 30
water-temperature records in..... 97
Yledigao River near Inarajan, Guam..... 88
Ylig River near Yona, Guam..... 50,96
Yona, Guam, Ylig River near..... 50

Zooplankton, definition of..... 8

October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT 413

U.S. MAIL

U.S. DEPARTMENT OF THE INTERIOR
Geological Survey
P.O. Box 50166
Honolulu, HI 96850

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

SPECIAL 4TH CLASS BOOK RATE