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Surface Water Supply of the United States, 1966-70

Part 5. Hudson Bay and Upper Mississippi River Basins

Volume 1. Hudson Bay Basin

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 2113

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with other agencies*



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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 are given at the end of this report. Data for 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. 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 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.

PUBLICATIONS

Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes and reservoirs were published in an annual series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Prior to 1951, there were 14 volumes in the series; one for each of the 14 parts whose boundaries coincided with certain natural drainage lines within the conterminous United States. From 1951 to 1960, there were 20 volumes in the series, including one each for the States of Alaska (Part 15) and Hawaii (Part 16).

This report is one of the second series of water-supply papers to be published on a 5-year basis. The first series covered the 5-year period October 1, 1960, to September 30, 1965. This series covers the period October 1, 1965, to September 30,

1970. To meet interim requirements, streamflow and related data have been released by the Geological Survey in annual reports, beginning with the 1961 water year, by State. These reports are entitled, "Water Resources Data for (state), Part 1. Surface Water Records." Distribution of these reports is limited and primarily for local needs. Any revision or corrections found necessary to the records published in these annual State reports have been made and published herein without reference.

These two series of 5-year water supply papers consist of 37 volumes each. The boundaries of the various parts and volumes within the parts are indicated in the following list and on the map in Figure 1.

- Part 1. North Atlantic slope basins, in three volumes:
 - Vol. 1: Basins from Maine to Connecticut
 - Vol. 2: Basins from New York to Delaware
 - Vol. 3: Basins from Maryland to York River
- Part 2. South Atlantic slope and eastern Gulf of Mexico basins, in three volumes:
 - Vol. 1: Basins from James River to Savannah River
 - Vol. 2: Basins from Ogeechee River to Carrabelle River
 - Vol. 3: Basins from Apalachicola River to Pearl River
- Part 3. Ohio River basin, in four volumes:
 - Vol. 1: Ohio River basin above Kanawha River
 - Vol. 2: Ohio River basin from Kanawha River to Louisville, Kentucky
 - Vol. 3: Ohio River basin from Louisville, Kentucky, to Wabash River
 - Vol. 4: Ohio River basin below Wabash River
- Part 4. St. Lawrence River basin, in two volumes:
 - Vol. 1: Basins of streams tributary to Lakes Superior, Michigan, and Huron
 - Vol. 2: St. Lawrence River basin below Lake Huron
- Part 5. Hudson Bay and Upper Mississippi River basins, in three volumes:
 - Vol. 1: Hudson Bay basin
 - Vol. 2: Upper Mississippi River basin above Keokuk, Iowa
 - Vol. 3: Upper Mississippi River basin below Keokuk, Iowa
- Part 6. Missouri River basin, in four volumes:
 - Vol. 1: Missouri River basin above Williston, North Dakota
 - Vol. 2: Missouri River basin from Williston, North Dakota, to Sioux City, Iowa
 - Vol. 3: Missouri River basin from Sioux City, Iowa, to Nebraska City, Nebraska
 - Vol. 4: Missouri River basin below Nebraska City, Nebraska
- Part 7. Lower Mississippi River basin, in two volumes:
 - Vol. 1: Lower Mississippi River basin except Arkansas River basin
 - Vol. 2: Arkansas River basin
- Part 8. Western Gulf of Mexico basins, in two volumes:
 - Vol. 1: Basins from Mermentau River to Colorado River
 - Vol. 2: Basins from Lavaca River to Rio Grande
- Part 9. Colorado River basin in three volumes:
 - Vol. 1: Colorado River basin above Green River
 - Vol. 2: Colorado River basin from Green River to Compact Point
 - Vol. 3: Lower Colorado River basin
- Part 10. The Great Basin
- Part 11. Pacific slope basins in California, in four volumes:
 - Vol. 1: Basins from Tijuana River to Santa Maria River
 - Vol. 2: Basins from Arroyo Grande to Oregon State line except Central Valley
 - Vol. 3: Southern Central Valley basins
 - Vol. 4: Northern Central Valley basins
- Part 12. Pacific slope basins in Washington, in two volumes:
 - Vol. 1: Pacific slope basins in Washington except Columbia River basin
 - Vol. 2: Upper Columbia River basin
- Part 13. Snake River basin
- Part 14. Pacific slope basins in Oregon and Lower Columbia River basin

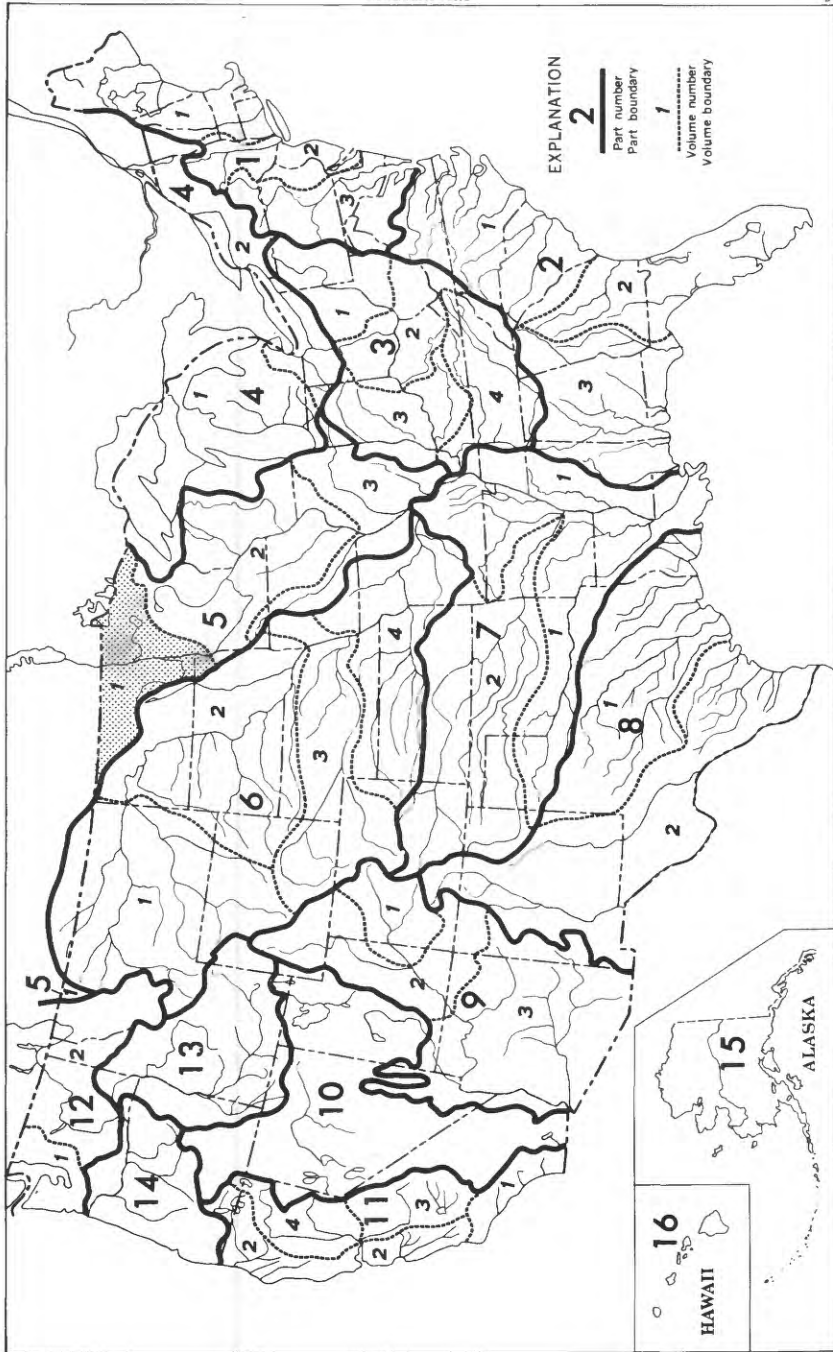


Figure 1.--Map of the United States showing area covered by the volumes in the series on surface-water supply. The area covered by this report is shaded.

Part 15. Alaska

Part 16. Hawaii and other Pacific areas

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be purchased or consulted as follows:

1. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402, who will, on application, furnish lists giving prices. A list of Geological Survey publications may also be obtained by applying to the Director, Geological Survey, National Center, Reston, Va. 22092.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the offices of the Water Resources Division of the Geological Survey. Addresses of the offices in the area covered by this report are given on page 2.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams. Most of these reports are out of print, but may be available for consultation in the district offices and in public libraries.

Streamflow data for the years 1884-1901, in reports of the Geological Survey
(A - Annual Report; B - Bulletin)

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884-90.
12th A, pt. 2	do	1884-91.
13th A, pt. 3	do	1884-92.
14th A, pt. 2	Monthly discharge.	1888-93.
B 131 . . .	Descriptions, measurements, gage heights, and ratings	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140 . . .	Descriptions, measurements, gage heights, ratings and monthly discharge.	1895.
WSP 11 . . .	Gage heights.	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge	1895-96.
WSP 15 . . .	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
WSP 16 . . .	Descriptions, measurements, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings and monthly discharge .	1897.
WSP 27 . . .	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
WSP 28 . . .	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tribu- taries.	1898.
20th A, pt. 4	Monthly discharge.	1898.
WSP 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge.	1899.
WSP 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22nd A, pt. 4	Monthly discharge.	1900.
WSP 65, 66.	Descriptions, measurements, gage heights, and ratings	1901.
WSP 75. . .	Monthly discharge.	1901.

