

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

PROPERTY OF  
GEOSCIENCE DEPT.

WATER RESOURCES INVESTIGATIONS  
in  
IOWA



Conducted by the  
UNITED STATES GEOLOGICAL SURVEY  
largely in cooperation with  
State, municipal, and Federal agencies

January 1962

INQUIRIES MAY BE ADDRESSED TO

*Chairman, Water Resources Division Council  
U.S. Geological Survey  
Geological Survey Building  
Iowa City, Iowa*

or to  
*Chief Hydraulic Engineer  
Water Resources Division  
U.S. Geological Survey  
Washington 25, D. C.*



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# WATER RESOURCES INVESTIGATIONS IN IOWA

## *Streamflow-Station Network\**

The number and classification of streamflow stations are as follows:

<u>Classification</u>	<u>Number</u>
Primary (long-term hydrologic) -----	70
Secondary (short-term hydrologic) -----	32
Water management (specific purpose)-----	10
Total -----	<u>112</u>

## *Observation-Well Network*

The number and classification of observation wells are as follows:

<u>Classification</u>	<u>Number</u>
Measured quarterly -----	105
Measured bimonthly -----	10
Measured monthly -----	7
Measured continuously (recording gages) -----	24
Total -----	<u>146</u>

## *Quality-of-Water Data Program*

Sediment and temperature data are collected at 9 sites.

### *Active Areal Projects Shown on Map*

- |  |   |
|--|---|
| <p>A. Mechanics of bank seepage.</p> <p>B. Origin of base flow for small drainage basins.</p> <p>C. Geology and ground-water resources of Linn County.</p> <p>D. Geology and ground-water resources of Cerro Gordo County.</p> | <p>E. Water possibilities in glacial drift of southern Iowa.</p> <p>F. Utilization and availability of ground water in central Iowa.</p> <p>G. Flood profiles and frequency on Indian Creek.</p> <p>H. Ground-water reservoirs of Iowa - The Mississippian aquifer.</p> |
|--|---|

### *Active Statewide Projects Not Shown on Map*

- Statewide collection of geologic, geophysical, and hydrologic data.
- Floodflow characteristics of small drainage areas.
- Flood profiles on all major streams.
- Low-flow characteristics.
- Project on channel geometry and bridge constriction verification.
- Water availability studies for small drainage areas.

### *Other Active Investigations*

- Hydrologic and channel-hydraulic analyses at bridge sites--six formal and numerous informal bridge-site reports have been prepared since program begin in 1959.
- Peak floodflow characteristics of small streams--data being obtained at 55 crest-stage stations.
- Low-flow areal measurements--data being obtained at 435 partial-record stations.



# WATER RESOURCES INVESTIGATIONS IN IOWA

## REPORTS OF INVESTIGATIONS

Selected references on water in Iowa are given below; many of them are available for reference at one of the offices shown on the title page and at the larger public and university libraries. A more complete listing of Geological Survey reports and their availability is given in a pamphlet "Geologic and Water-Supply Reports and Maps--Iowa." Summary statements about the current water situation are included in the "Water Resources Review," which is issued monthly. The pamphlet and the Review may be obtained free on application to the U.S. Geological Survey, Washington 25, D.C. The reports given below under "Other Publications" were prepared by or in cooperation with the U.S. Geological Survey.

### SELECTED REFERENCES

#### *Publications of the U. S. Geological Survey*

##### Water-Supply Papers

293. Underground water resources of Iowa, by W. H. Norton and others. 1912.
1300. The industrial utility of public water supplies in the United States, 1952, part 2, States west of the Mississippi River, by E. W. Lohr and S. K. Love. 1954.
1308. Compilation of records of surface waters of the United States through September 1950, part 5, Hudson Bay and upper Mississippi River basins. 1959.
1309. Compilations of records of surface waters of the United States through

September 1950, part 6-A, Missouri River basin above Sioux City, Iowa. 1959.

1310. Compilations of records of surface waters of the United States through September 1950, part 6-B, Missouri River basin below Sioux City, Iowa. 1958

Circular 456. Estimated use of water in the United States, 1960, by K. A. MacKichan and J. C. Kammerer. 1961.

Hydrologic Investigations Atlas, HA-53. Floods at Des Moines, Iowa, by R. E. Myers. 1962. (In press.)

Detailed records of streamflow, ground-water levels, and quality of water are published in Geological Survey Water-Supply Papers. Streamflow data are given in a series "Surface Water Supply of the United States." Before 1961 this was an annual series but beginning with 1961-65 a 5-year series will be used. Records for Iowa are in Parts 5, 6-A, and 6-B. Notable floods are summarized annually in a report "Floods of 19-." Ground-water levels and artesian pressures in observation wells in Iowa are given in a 5-year series "Ground-Water Levels in the United States, North-Central States." Quality-of-water data are given in an annual series "Quality of Surface Waters of the United States"; data for Iowa are in Part 5 and 6. Reports in these series are sold by the Superintendent of Documents, Washington 25, D.C.

#### *Open-file reports of the U. S. Geological Survey*

U.S. Geological Survey, Surface-water records of Iowa--1961: 1962.

#### *Other publications*

Bennion, V. R., 1956, Surface water resources of Iowa, October 1, 1950, to September 30, 1955: Iowa Geol. Survey Water-Supply Bull. 6.

Crawford, L. C., 1942, Summaries of yearly and floodflow relating to Iowa streams, 1873-1940: Iowa Geol. Survey Water-Supply Bull. 1.

1944, Surface water resources of Iowa for the period October 1, 1940, to September 30, 1942: Iowa Geol. Survey Water-Supply Bull. 2.

Hale, W. E., 1955, Geology and ground-water resources of Webster County, Iowa: Iowa Geol. Survey Water-Supply Bull. 4.

Iowa Geological Survey, 1955, Quality of surface waters of Iowa, 1886-1954: Iowa Geol. Survey Water-Supply Bull. 5.

Kasel, R. G., 1935, Streamflow records of

Larimer, O. J., 1957, Drainage areas of Iowa streams: Iowa Highway Research Board Bull. 7.

Mummey, Samuel, Jr., 1953, Surface water resources of Iowa, October 1, 1942, to September 30, 1950: Iowa Geol. Survey Water-Supply Bull. 3.

Schwob, H. H., 1953, Iowa floods, magnitude and frequency: Iowa Highway Research Board Bull. 1.

1958, Low-flow characteristics of Iowa streams: Iowa Natural Resources Council Bull. 9.

Steinilber, W. L., Van Eck, O. J., and Feulner, A. J., 1961, Geology and ground-water resources of Clayton County, Iowa: Iowa Geol. Survey Water-Supply Bull. 7.

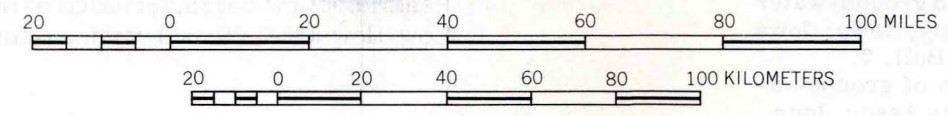
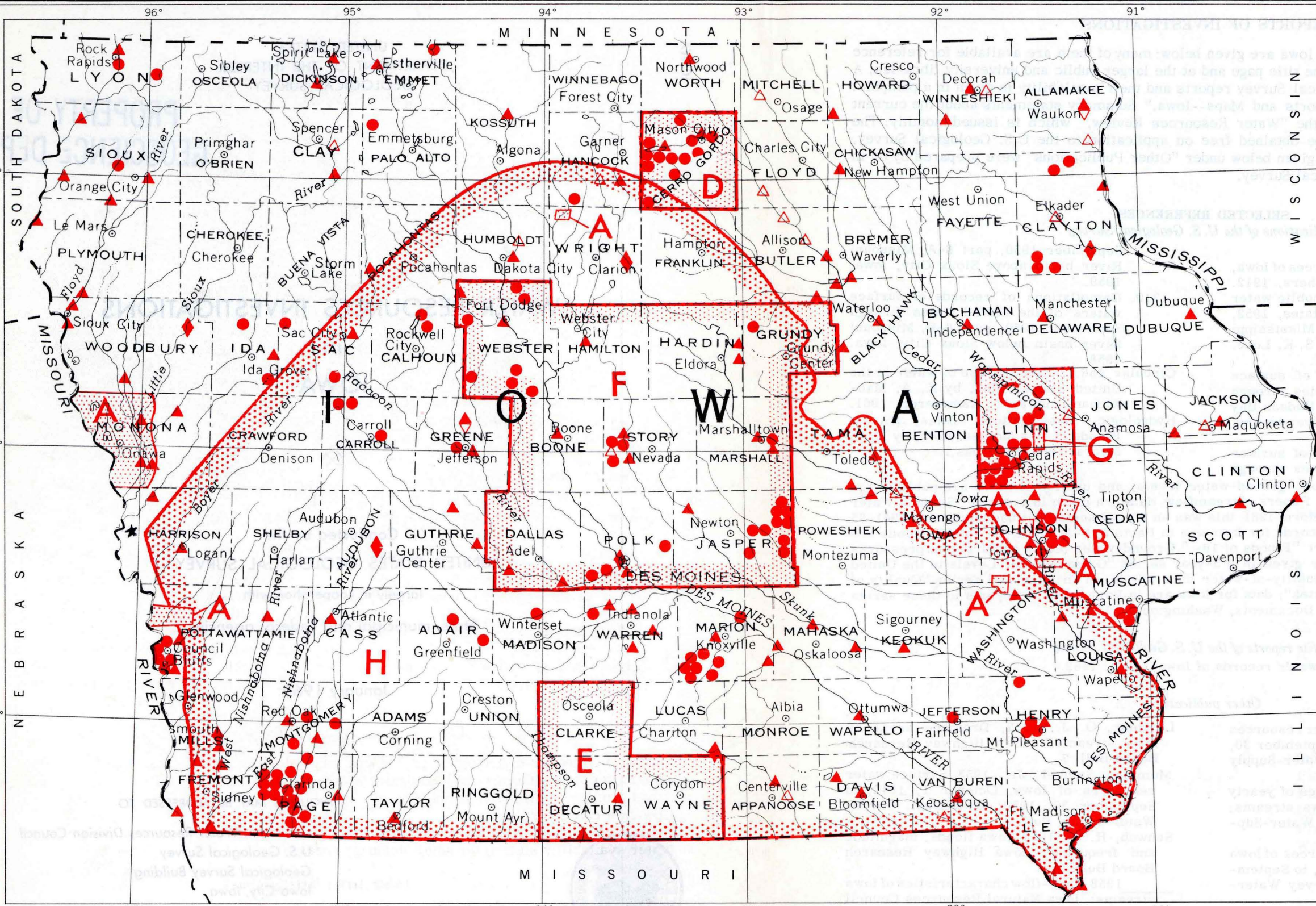
→ Walker, E. H., 1956, Reserves of ground water in Iowa: Am. Water Works Assoc. Jour., v. 48, p. 499-510.



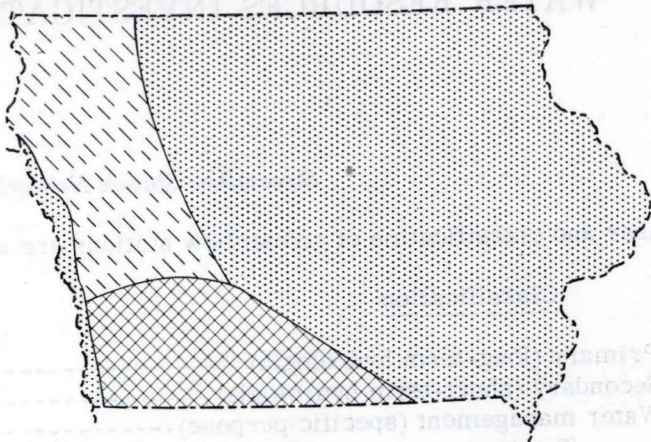
# WATER RESOURCES INVESTIGATIONS IN IOWA

STREAMFLOW STATIONS, OBSERVATION WELLS, QUALITY OF WATER (SEDIMENT) COLLECTION SITES, AND ACTIVE AREAL PROJECTS—1962

- ▲ Active streamflow or stage station
- △ Discontinued secondary streamflow station
- Active observation well
- ▼ Active quality-of-water data collection site
- ▽ Discontinued quality-of-water data collection site
- ▨ Boundary of active areal project





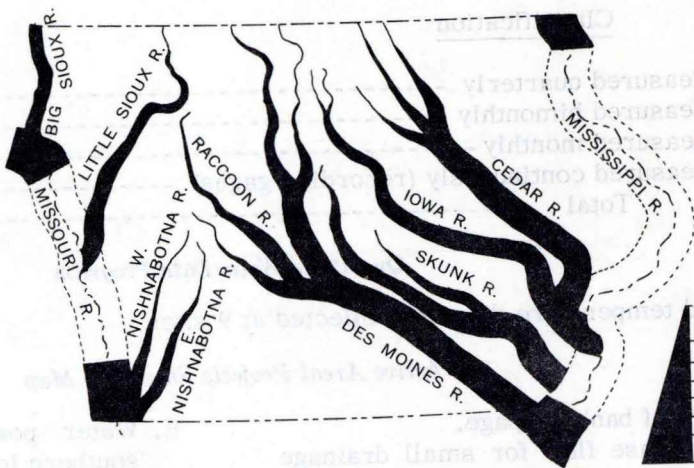


Large quantities generally available

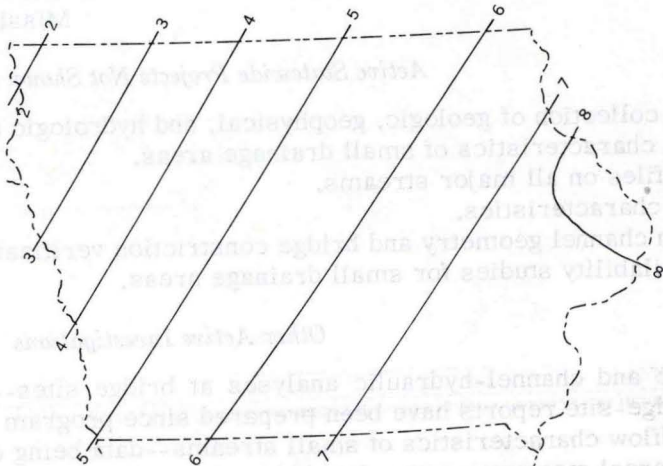
Modest quantities; large quantities available locally

Small quantities only, except in alluvial fill

AVAILABILITY OF GROUND WATER



AVERAGE DISCHARGE, IN CUBIC FEET PER SECOND, OF THE PRINCIPAL RIVERS  
(WIDTH OF RIVER LINE INDICATES AVERAGE DISCHARGE, SEE UPPER SCALE)



AVERAGE ANNUAL RUNOFF, IN INCHES