



NEWS & VIEWS

RED RIVER WATERSHED MANAGEMENT BOARD

OVERVIEW OF THE STREAM-GAGING PROGRAM

The stream-gaging program of the U.S. Geological Survey (USGS) does not represent a single “network” of stations, but is an aggregation of networks and individual streamflow stations that originally were established for various purposes. Because the data from about 4,200 of the 7,292 stations are telemetered by an earth-satellite-based communications system, those data are available in realtime for many agencies to conduct water-resources projects and for the National Weather Service (NWS) to forecast floods.

Data from the active stations, as well as from discontinued stations, are stored in a computer data base that currently holds mean daily-discharge data for about 18,500 locations and more than 400,000 station-years of record, or more than 146 million individual mean daily-discharge values. Additional data are added to the data base each year. The stream-discharge data base is an ever-growing resource for water-resources planning and design, hydrologic research, and operation of water-resources projects.

Increasing the length of individual station records is valuable for at least two

reasons. Additional years of record provide ever-improving accuracy of estimates of streamflow characteristics, such as the magnitude of extreme infrequent floods or low flows, and an opportunity to determine how streamflow characteristics are changing over time due to such causes as agricultural practices, urbanization, ground-water development, or climate change.

FUNDING THE PROGRAM

Just as the network of stations represents an aggregation, so does the program funding. Operating funds for individual stations in the program may come from a blend of Federal funds appropriated to the USGS, funds from State and local agencies, and funds appropriated to other Federal agencies.

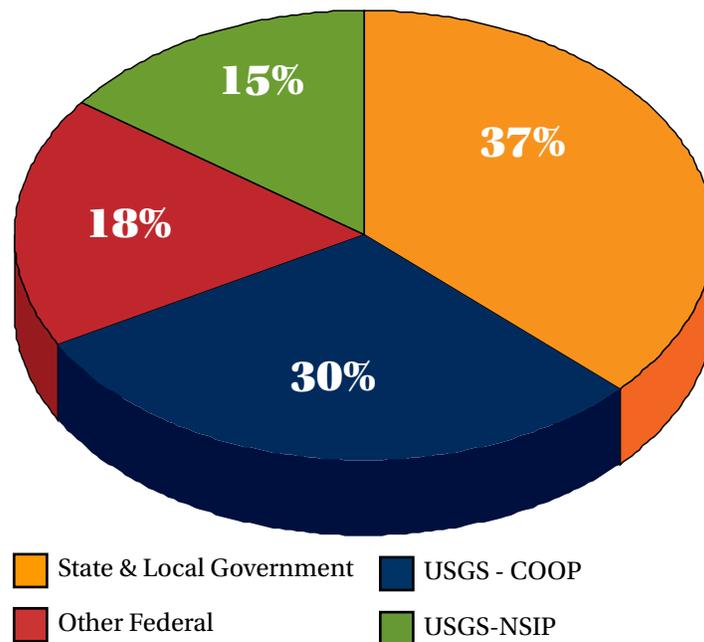
Federal funds used for

hydrologic data-collection activities of the USGS come from the following primary sources: funds made available by Congress to the USGS for matching State or local agency offerings under the USGS Federal--State Cooperative Program (herein referred to as the “Cooperative Program”), transfer of funds from other Federal agencies to meet their water-resources-data needs, and funds appropriated by Congress and designated specifically for use by the USGS for collection of streamflow and water-quality data.

More than 50 percent of the 7,292 stations operated by the USGS are funded through the Cooperative Program. Under that program, the USGS provides up to 50 percent of the funds, and the State or local agency provides the remainder. Currently, more than 600 State and local agencies participate in the stream-gaging program. The Red River Watershed Management Board (RRWMB) participates with USGS through the Cooperative Program and provides funding assistance for fifteen gages in the Minnesota portion of the Red River Basin.

Other stations in the

FUNDING FOR COOPERATIVE STREAM-GAGING NETWORK IN THE RED RIVER VALLEY FY 2007



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program are operated by the USGS and funded by other Federal agencies, such as the U.S. Army Corps of Engineers (USACE) and the Bureau of Reclamation (BOR), to provide those agencies with the hydrologic data needed for planning and operating water-resources projects.

Additionally, some of the stations are funded by the USGS to support national programs of water-resources investigations; to collect data required by court decree, treaty, or compact; and to conduct hydrologic research.

The USGS provides full support for fewer than 10 percent of the stations that it operates. Many of the stations funded primarily by State or local funds are critically important to USGS-funded programs, such as the National Water Quality Assessment (NAWQA) Program. Continuous streamflow data are essential to water-quality studies. The NAWQA Program could not be conducted without the stations funded by the Cooperative Program or other Federal agencies

Because many of the stations are funded from multiple sources (Federal, State, and local agencies), each agency that participates in funding the stream-gaging program has a proprietary interest in the activity. State agencies, for example, view the data-collection activities in the Cooperative Program as a shared governmental responsibility in which they have a large, long-term financial investment and vested interest. The investment and the vested interest are carefully guarded, and changes

in data-collection activities must be negotiated to mutual satisfaction. As a result of the strong vested interest, changes in the way the program is carried out require sensitivity to user reactions, thereby inhibiting unilateral action by the USGS.

USES OF STREAMFLOW DATA

The USGS stream-gaging program provides hydrologic information needed to help define, use, and manage the Nation's water resources. The program provides a continuous, well-documented, well-archived, unbiased, and broad-based source of reliable and consistent water data. Because of the nationally consistent, prescribed standards by which the data are collected and processed, the data from individual stations are commonly used for purposes beyond the original purpose for an individual station. Those possible uses include the following:

- Enhancing the public safety by providing data for

forecasting and managing floods

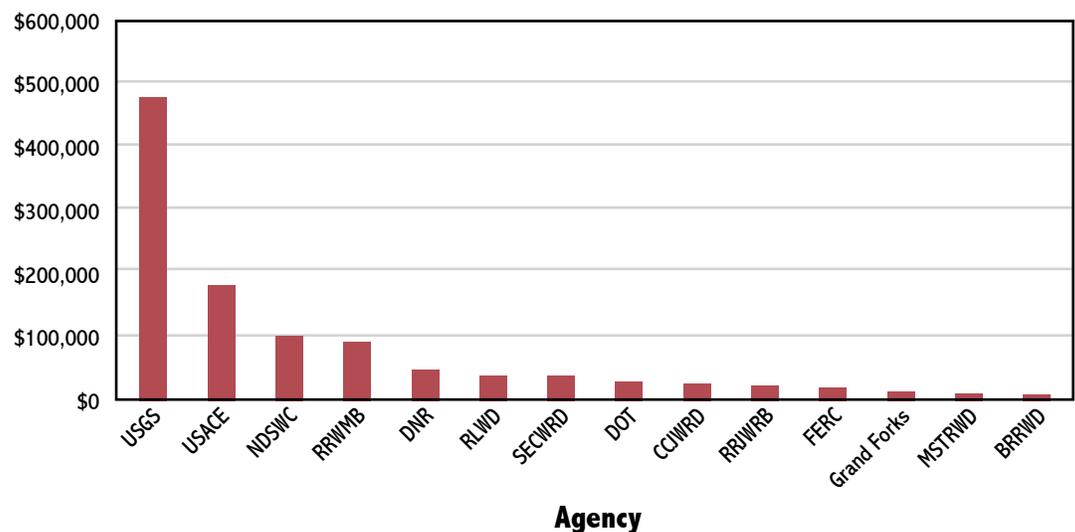
- Characterizing current water-quality conditions
- Determining input rates of various pollutants into lakes, reservoirs, or estuaries
- Computing the loads of sediment and chemical constituents
- Understanding the biological effects of contamination
- Delineating and managing flood plains
- Operating and designing multipurpose reservoirs
- Setting permit requirements for discharge of treated wastewater
- Designing highway bridges and culverts
- Setting minimum flow requirements for meeting aquatic life goals
- Monitoring compliance with minimum flow requirements
- Developing or operating recreation facilities
- Scheduling power production
- Designing, operating, and maintaining navigation

facilities

- Allocating water for municipal, industrial, and irrigation uses
- Administering compacts or resolving conflicts on interstate rivers
- Defining and apportioning the water resources at our international borders
- Evaluating surface and ground-water interaction
- Undertaking scientific studies of long-term changes in the hydrologic cycle

Data for one or more of these purposes are needed at some point in time on virtually every stream in the country, and a data-collection system must be in place to provide the required information. The general objective of the stream-gaging program is to provide information on or to develop estimates of flow characteristics at any point on any stream. Streamflow data are needed for immediate decision-making and future planning and project design. Data, such as that needed to issue and update flood forecasts, are

Funding for Gaging Stations in the Red River Basin



referred to as “data for current needs.” Other data, such as that needed for the design of a future, but currently unplanned, bridge or reservoir or development of basinwide pollution control plans, are referred to as “data for future or long-term needs.” Some data, of course, fit into both classifications; for example, a station that supplies data for flood forecasting and also provides data to define long-term trends.

DATA FOR CURRENT NEEDS

Streamflow data are needed at many sites on a daily basis for forecasting flow extremes, making water-management decisions, assessing current water availability, managing water quality, and meeting legal requirements. These activities require streamflow information at a given location for a specified time. These needs generally are best satisfied by operating a station to produce a continuous record of flow. The locations of the stations

and the periods of operation are dictated by the uses to be made of the data.

More than one-half of the USGS stations provide current information (mostly by way of satellite telemetry) to agencies that operate water-resource systems and forecast floods. The NWS is charged by law with the responsibility of issuing forecasts and warnings of floods to the Nation to help save lives and to help mitigate property damage. The NWS uses data from USGS stations to forecast river stages and flow conditions on large rivers and their associated tributaries. Flood forecasts are issued at about 4,000 locations strategically located throughout the Nation. The reliability of flood forecasts depends on having reliable current data for precipitation and streamflow. The USGS collects the streamflow data, and the NWS collects the precipitation data and combines both types of data when making the flood forecasts. The NWS does not fund sta-

tions, but relies on the data from stations operated by the USGS for other agencies.

DATA FOR FUTURE OR LONG-TERM NEEDS

The collection of data to meet future needs often represents a larger challenge than does collection of data for current needs because the future needs are seldom known precisely and, in fact, may be impossible to anticipate. Because operating stations at all points on all streams is physically and economically impossible, mechanisms must be available to transfer streamflow information from stations to points where there are no streamflow data (ungaged sites).

HISTORY AND GROWTH OF THE STREAM-GAGING PROGRAM

The growth and evolution of the USGS stream-gaging program was related to increased concern about floods and droughts, the increased use of water for irrigation and hydroelectric power, and specific legislative acts. The Federal Power Act was passed in 1920; during the next 20 to 30 years, planning for hydroelectric power development caused increased need for data. Congress passed legislation in 1929 that officially recognized the Cooperative Program in which costs are shared with State and local agencies, and in the ensuing years, cooperative stream-gaging programs were established with many State and local agencies. Also, the severe mid-continent

drought in the early 1930's and the floods in 1936-37 in the Ohio and the Potomac River Basins increased the awareness among Federal, State, and local agencies that management of the water resources requires comprehensive, reliable streamflow data.

Passage of the Watershed Protection and Flood Prevention Act of 1954 and construction of the interstate highway system in the 1960's increased the need for streamflow data for small watersheds. Some of this need was provided by partial-record stations that recorded data only for flood peaks, but the numbers of continuous-record stations also increased. The need for data at the thousands of points where the highway systems crossed streams created an immediate need for methods to estimate flood magnitudes at ungaged sites. This need was satisfied by streamflow data to calibrate the regional equations used to make those estimates. The National Flood Insurance Act of 1968 increased emphasis on flood-plain mapping and emphasized the need for reliable flood-frequency data.

The USGS currently operates over 100 continuous streamflow, 7 river stage, 12 lake stage, and 83 crest-stage gaging stations in Minnesota through cooperative agreements with State, Federal, local agencies.

For more information on the Stream-Gaging Program, please visit the U.S. Geological Survey's website at: www.usgs.gov.

RRWMB MEETING HIGHLIGHTS

At its regularly scheduled November meeting, the RRWMB:

- Received a report from Ron Harnack, Project Coordinator.
- Adopted the Human Resources Committee recommendation to increase the monthly cafeteria plan provided by the board.
- Received a Water Quality Project Monitoring report from Wayne Goeken, Monitoring Coordinator.
- Received a report from Dan Thul, Red River Coordinator.
- Received a report from Naomi Erickson, Administrator.
- Authorized the Step I submittal for the Bois de Sioux WD's Eldorado 7 Impoundment Project.

WATERSHED DISTRICT DEVELOPMENTS

ROSEAU RIVER WD

Hay Creek / Norland – The Board of Managers have received the Preliminary Engineer's Report for the project from HDR Engineering, Inc. A public hearing has been scheduled for December 11, 2007 regarding the establishment of the proposed project as required under Chapter 103D. The District will begin land acquisition following the hearing in December.

Farmstead Ring Dikes – One ring dike was completed this fall. A grant of \$50,000 was received from the State of Minnesota for the 2008 construction season. The Board of Managers have retained Houston Engineering, Inc. to complete this ring dike.

Palmville / Roseau River Wildlife Management Area – The Board of Managers awarded the construction contract to Holte Construction for the Palmville Project. The bid came in under 50% of the Engineer's estimate. The District is currently awaiting replies from the Joint Notification Form that was forwarded on

August 3, 2007.

The Board of Managers have scheduled a Project Team meeting for December 19th to discuss the Roseau River Wildlife Management Area Project. The Minnesota Department of Natural Resources has been invited to attend to discuss the various options of the project.

RED LAKE WD

The Red Lake WD reported on the Brandt & Euclid East Impoundment Projects. The final payment hearing for R.J. Zavoral & Sons, Inc. for the construction of Euclid East (Project No. 60 C) and Brandt Impoundment (Project No. 60 D) was conducted on September 27, 2007. Total construction costs for the Euclid East Impoundment was \$1,625,090.36), and total construction costs for the Brandt Impoundment was \$2,043,389.26. A final cost breakdown including any cost overruns will be available following the completion of the wetland mitigation seeding by Prairie Restoration next spring.

The next scheduled meeting of the RRWMB will be held at the Sand Hill River Watershed District, 219 North Mill Street, Fertile, MN, on December 18th, starting at 9:30 a.m.



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