1971

ANNUAL REPORT

OF

GLEN E. BREES

CHIEF HYDROGRAPHER
Mr. C. J. Kuiper  
101 Columbine Building  
Denver, Colorado

Dear Mr. Kuiper:

Herewith is submitted my annual report covering the general activities of the Hydrographic Section for the water year ending September 30, 1971.

Personnel:

As of September 30, 1971, there were 16 full time employees in the Hydrographic Section. Listed below are these employees and their location:

Chief Hydrographer  
Glen E. Brees – Denver

Acting Assistant  
R. D. Walcher – Denver

Division No. 1  
Orlyn Bell – Denver  
David Ferrin – Denver  
J. A. Blum – Denver  
Ahmad Andesha – Denver  
Dean E. Thompson – Greeley  
Ted Bell – Greeley  
Darshan Walia – Greeley
Division No. 2
D. C. Lile - Pueblo
James Kasic - Pueblo
Raymond Leisman - Pueblo

Division No. 3
L. A. Waddington - Alamosa
Ray D. Walker - Alamosa
Donald Kammerzell - Alamosa

Divisions No. 5 & 6
Kent Holt - Steamboat Springs

In addition to these fulltime employees, there were five parttime students that were employed during the summer months.

Gaging Stations:

In cooperation with the U. S. Geological Survey, the State Hydrographic Section and the Survey have operated approximately 500 gaging stations in the State of Colorado during the past year.

About 195 of these stations were operated by the state. Under the Cooperative Agreement with the U. S. Geological Survey, 73 stations on streams and 31 trans-mountain and trans-basin ditches were operated by the state. In addition to these, the state operated about 60 stations on streams and about 30 stations on ditches and canals.

This does not include the miscellaneous spot measurements that were made at various points on streams and spot measurements made on ditches and canals to check the rating.

Under the Cooperative Agreement the U. S. Geological Survey operates 44 gaging stations funded under the agreement with our office. In addition, they operate approximately 250 to 260 stations that are funded under cooperative agreement with other State and Federal Agencies and companies. The U. S. Geological Survey estimates that it costs
about $1650 per year to operate a gaging station on a stream.

The data of 104 stations on streams and trans-mountain and trans-basin diversions is worked up by the state. These records are then reviewed and published by the U. S. Geological Survey.

Cooperative Agreement:

The cooperative agreement between the Colorado Division of Water Resources and the U. S. Geological Survey for the fiscal year July 1, 1971 to June 30, 1972 is for the amount of $80,200. This represents an increase of $5,900 over the amount for the fiscal year July 1, 1970 to June 30, 1971. This increase is in evaluated services and is mainly due to the increased cost of operating a gaging station from $1500.00 for the past fiscal year to $1650.00 for the present fiscal year.

The cost of the cooperative agreement is broken down as follows:

<table>
<thead>
<tr>
<th>Cash Contributions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation of streamflow stations</td>
<td>$4,300</td>
</tr>
<tr>
<td>Colorado River near Kremmling</td>
<td>1000</td>
</tr>
<tr>
<td>Eagle River at Red Cliff</td>
<td>825</td>
</tr>
<tr>
<td>Frying Pan River near Ruedi</td>
<td>825</td>
</tr>
<tr>
<td>Gunnison River below Tunnel</td>
<td>825</td>
</tr>
<tr>
<td>Pot Creek near Vernal, Utah</td>
<td>825</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment and travel</td>
<td>3,900</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cash contributions</td>
<td>8,200</td>
</tr>
<tr>
<td>Evaluated Services, stream gaging program</td>
<td>72,000</td>
</tr>
<tr>
<td>Total Contributions</td>
<td>$80,200</td>
</tr>
</tbody>
</table>
Run-off:

Spring snow surveys indicated an above normal snowpack in the northern mountains of the state. This pack decreased to the south which showed a below normal condition. At the time of this writing only a few stream gaging record computations have been completed for the water year ending September 30, 1971, but records for the few stations that have been worked up indicate an above normal run-off in the streams in the northern part of the state to a below normal in the southern part. There was no excessive run-off on any of the streams to cause more than minor damage to any of the gaging stations that are operated by the state.

Snow Survey:

The Division of Water Resources' budget for snow survey program for the fiscal year 1971-72 is $3500. This is the same amount as 1970-71. Most of this $3500 is paid for equipment and computer work for the cooperative snow survey program with the U. S. Soil Conservation Service.

Repairs to gaging stations:

With the appreciated parttime summer help, a good bit of minor repairs were made to existing stations. Need for repair work seems to increase from year to year. Part of the increase is to deterioration of the wood shelters and wells, many of which were constructed in the
W.P.A. days of the 1930's. Another and perhaps the primary reason for increased repair need is the increasing amount of vandalism to gaging stations and equipment. We are at a loss as to what to do to stop this vandalism as many of the stations are in isolated areas. I am sure that some of the damage is done by people who are just curious as to what the building houses. Sometimes only locks and hasps are broken to gain entrance. The recorder may or may not be disturbed but no real damage done. On the other hand, extensive damage may be and has been done to the shelter, instruments, and cable equipment.

In some cases of vandalism, local authorities have been notified and asked to be on the lookout for anyone attempting to do damage. They have been very cooperative, but have not been able to catch anyone in the act.

**New Gaging Stations:**

Due to lack of funds only three new gaging stations were installed during the past water year. The three were installed in Division No. 7 to help with the administration of the San Juan-Chama Diversion. A request was made for seven stations in the budget for fiscal year 1971-72 but no money was approved. Consequently we were forced to make repairs as we could to existing stations. The state hydrographic section has taken over the operation of six gaging stations that were discontinued by the U. S. Geological Survey.
Special Comments:

Some adjustments have had to be made in the Hydrographic Section during the past year following the transfer of day to day supervision of hydrographers from the Chief of the Hydrographic Section to the Division Engineers. For the most part the cooperation of the Division Engineers and myself has been satisfactory as far as I am concerned. We have agreed that it would be best that I work directly with the various hydrographers regarding hydrographic work of measurements, record work, etc. Most of the hydrographers have been very cooperative in this matter, but some have told me that they were not now under my supervision. Of course this is true, but it is not very practical to have to go through the Division Engineer to accomplish something, especially regarding the working up of a record to meet U. S. Geological Survey Standards.

Another problem is the purchasing of supplies and other equipment. Many of the hydrographers continue to contact me for needed equipment and my budget does not allow me to purchase the same. I believe that for some items, it is more practical for me to purchase them here in quantities, but I hesitate to purchase the items without the approval of the Division Engineer.

Recommendations:

I would recommend that more frequent inspections and equipment servicing be made of trans-mountain and trans-basin diversion
stations by Water Commissioners and Hydrographers. Also more frequent measurements should be made.

I also recommend that more spot measurements be made at ditch and canal diversions.

I recommend that more purchasing in quantity be made by the Denver office for hydrographic needs and the charge can be made to the various divisions when the item is delivered to the hydrographer following a request approved by the Division Engineer.

Respectfully submitted,

[Signature]

Glen E. Brees
Chief Hydrographer

GEB:yrj