Water for Nevada

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NEVADA'S WATER RESOURCES

State of Nevada

WATER PLANNING REPORT

WATER

FOR NEVADA

Prepared by the State Engineer's Office
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NEVADA'S
WATER
RESOURCES

REPORT NO.

3

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In reply refer to
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Address All Communications to
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TO THE CITIZENS OF THE STATE OF NEVADA

This Planning Report entitled "Nevada's Water Resources" is one of a series of reports being prepared as a part of the development of the State Water Plan. This report was prepared by Bruce R. Scott and Thomas J. Smales of the Division of Water Resources and F. Eugene Rush and A. S. Van Denburgh of the U. S. Geological Survey.

Most of the information presented in the report is a product of the cooperative program between the U. S. Geological Survey and the State of Nevada. Much of the data are from Water Resources Bulletins and Water Resources Reconnaissance Series reports of the Nevada Division of Water Resources, Department of Conservation and Natural Resources.

A hydrologic summary is presented for the State and average annual precipitation, average growing seasons, surface water runoff, ground water recharge, perennial yields, and system yields are given for the 232 hydrographic areas of the state. Also made a part of the report is a map of Nevada which shows estimated amounts of surface and ground water flow between hydrographic areas, both natural and manmade. The map also shows annual runoff, perennial yield and ground water storage in the top 100 feet of saturated deposits.

The larger and better known springs of Nevada are identified in the report and the surface area and capacity of the principal reservoirs and lakes of Nevada are given. Areas known to have poor quality ground water are also shown.

This report constitutes an inventory of the water resources of the State and represents the water supply presently available to Nevada.

Respectfully,

Roland D. Westergard

Roland D. Westergard
State Engineer

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INTRODUCTION

Although water is as necessary to life on earth as air, its supply is not as universally well distributed. It has therefore been the subject of a vast body of research and scientific study.

In an arid state like Nevada, where it is regarded as more valuable than the precious metals lying beneath this rugged terrain, the search for water has inspired hope, dreams — and rumor. And nearly all of these have been as recurring — and as fleeting — as mirages. For instance, someone drilling for oil in the Las Vegas Valley once reported he had "discovered" an underground river — a river so large that it would have solved all of the water problems in southern Nevada for generations. Unhappily, of course, the discovery could never be substantiated.

It is the purpose of this report, the result of 100 years of study and research, to avoid the dreams and rumors, and to lay out the facts and figures regarding Nevada's water resources. Through that method it will underscore the premise that until such time as genuine new underground sources are discovered, or weather modification is perfected, or water imported, Nevada must recognize what her resources are and how best to use them.

PART 1

History

Cultivation in Nevada began in a modern sense almost as soon as the white settlers arrived. As nearly as can be determined, the earliest priority of use of water for irrigation took place in 1848, when a pioneer took water from the Mexican and Dutch Nick Ditch near Empire, on the Carson River, presumably for the irrigation of meadow grasses. However, the first specific mention in historical records of irrigation was at Mormon Station (now Genoa). Individual settlers raised irrigated crops to support themselves, and to supply the gold seekers who passed through the area on their way to California.

Not long afterwards, a small Mormon outpost at Las Vegas was established as a way station on the road from the Utah settlements to Southern California points. As near as may be ascertained, the construction on June 18, 1855 of an irrigation diversion in Las Vegas Creek by the Las Vegas colonists — they called this diversion a sect — marked the beginning of the first organized irrigation system in the present State of Nevada. From this diversion a system of ditches was laid out to irrigate the colony's 75 acres of crop and garden area.

Nevada forester-historian, Victor Goodwin has delved into the history of this modest but successful community at Las Vegas — the first Mormon settlement to be established in Southern Nevada — and written this description, which illustrates the significance of irrigation in those early days to the growth of the arid State of Nevada:

> "On June 14, 1855, most of the 30-man colonizing group from Great Salt Lake Valley arrived in the Las Vegas Valley meadows, along the Old Spanish Trail about four miles below the two large artesian springs which formed the source of the Las Vegas Wash. (These springs are now incorporated in a large city water reservoir, which covers their site.)

Philip Hyde

"The colonists wasted no time in starting construction of their settlement. It lay about a mile north of what is now the intersection of Las Vegas Boulevard and Fremont Street in downtown Las Vegas. On June 18, 1855, they began laying out the foundations for a fort, and surveyed and partitioned the farming land into parcels, and made a beginning on an irrigation diversion structure in Las Vegas Creek.

"Below the fort area, the arable land along the stream bottom was divided into 15 five-acre pieces, giving each of the 30 settlers a garden plot of two and one-half acres. The men began clearing off and planting their garden plots that same day — June 18.

"A contemporary description of the settlement site said that a meadow about a half mile wide and two or three miles long bordered Las Vegas Creek. Above this rose the 40 to 50 foot high bench, on the slopes of which the fort was located. Las Vegas Creek (Wash) was pictured at that time as a 'pretty, clear stream of water, about the size of a common millrace' flowing through the valley.

"The last work on the system of irrigation ditches was completed on July 23, a little over a month after the diversion structure in Las Vegas Creek had been started. By early August, the colonists were beginning to harvest their first crops — corn, oats, wheat, and such garden truck as squash, peas, beans, etc. Because of the late start in getting crops planted, the harvest was described as not bountiful, but at least adequate."

Interrelated factors drastically affected the spreading and early development of irrigation in Nevada. Raw, boisterous mining camps sprang up by the score on the Nevada frontier. As western mining camp historian Duane Smith has pointed out, the mushroom growth of these booming urban areas on an otherwise raw and primitive land called for the quick, full-scale development of agriculture, logging, and various service industries near by. This growth also demanded the creation of an efficient network of railroads, stage lines, and toll and freight roads, to transport the needed people, materials and products to the camps, and ore and bullion away from them.

The thirst which these booming early mining camps had for water is illustrated in the following account of the completion of the pipeline supplying water to Virginia City and Gold Hill.[1] (See Page 13)

> August 2, 1873 — The pouring into this city of Gold Hill of a large stream of water from the Eastern Summit of the Sierra Nevada Mountains at 6:45 last evening, marked an epoch in the history of the Comstock, and was the signal for a general jollification and rejoicing of twelve or thirteen thousand people. Bonfires and rockets girdled old Mt. Davidson for hours and cannons continued to roar until a late hour in the night. A stream of 153 inches of water (about 1717 gallons per minute) poured through the flume into Bullion Ravine, between this city and Gold Hill. The water was turned into the pipe on the Sierra at noon yesterday and reached here in six hours and forty-five minutes. It had been estimated that it would take the stream eight hours to reach here, a distance of twenty miles, 134 feet.

Because of the arid nature of the land, only irrigation, in areas where it was even possible, would assure enough food for the camp populations, the freight and stage teams, and the domestic livestock. Moreover, the vast expanses of range land on which the increasing thousands of head of cattle grazed in spring, summer, and fall could not always support them in the winter. That required a home ranch with available feed in the winter — and that, in turn, demanded irrigation.

Much acreage along Carson River from Genoa to Dayton was devoted to producing potatoes, onions, and small vegetables for Virginia City and other western Nevada mining camps. Out of Paradise Valley, Lamoille Valley, and at other locations along the Humboldt River also came grains, fruit and vegetables.

Alfalfa was introduced early in Nevada and, where land and water conditions were favorable, it became the main cultivated hay crop. When the mines were worked out, alfalfa replaced the cultivated truck garden crops which the local markets had depended on in the boom days.

Pumping from wells (ground water) for irrigation became significant about 1950, after the desert land entries began to pick up momentum. Records indicate that individuals have gained private title to

Philip Hyde

approximately 200,000 acres of arable public domain land as a result of their having irrigated portions of it with ground water.

THE RIVERS

The Humboldt River is the only major river which lies entirely within Nevada. Rising in mountainous territory in eastern Nevada, it winds its way westward for 1000 miles, 4 times the airline distance, ending in the Humboldt Sink southwest of Lovelock. The river and its tributaries today furnish irrigation water to approximately 300,000 acres. Most of the early use of its waters was for the irrigation of meadowlands, whereas now it is also used for alfalfa, grain and a variety of row crops — especially in the Lovelock area.

The earliest priority for water diversion on the Humboldt is dated 1861. But the surge in water rights came in the next decade; most Humboldt River rights have priority dates between 1870 and 1880, although a few have priority dates as late as 1905. However, rights as late as that usually get water for only a short period of time in the spring, except in those years when continued stream flows run unusually high and long.

Three western rivers — the Walker, Carson and Truckee — rise in the Sierra Nevada and have their headwaters in California. They flow eastward to end in Walker Lake, Carson Sink and Pyramid Lake, respectively. These rivers discharge a combined flow of roughly 1.1 million ac. ft. annually to Nevada, and furnish irrigation water for approximately one-quarter million acres.

The many mountain ranges throughout Nevada provide watersheds which accumulate snow during the winter. Heavy runoff from streams in these watersheds occurs during the early spring, but diminishes late in the year to a flow that is usually maintained only by springs.

Irrigated fields receiving this characteristic runoff usually lie high on the alluvial fans adjacent to the mountains where they are able to intercept the streamflow before it dissipates. Brush and rock diversion dams are common methods of controlling the flooding of fields.

Stream Gaging

The Sundry Civil Appropriation Act approved by Congress on Oct. 2, 1888, contained this item:

"For the purpose of investigating the extent to which the arid region of the United States can be redeemed by irrigation and the segregation of irrigable lands in such arid region, and for the selection of sites for reservoirs and other hydraulic works necessary for the storage and utilization of water for irrigation and for ascertaining the costs thereof, and the prevention of floods and overflows . . . the work to be performed by the Geological Survey under the direction of the Secretary of the Interior."

In order to carry out this mandate, it was necessary for those responsible for it to learn what quantities of water were available for storage, diversion and utilization in irrigation. But at that time there existed no systematic records of the flow of the streams. In fact, experience was so limited that only a scant body of knowledge was available to guide anyone as to the methods that would best serve in obtaining such records. And no adequate instruments, apparatus, or equipment for collecting records of lake stages and discharge of, streams were available.

As a first and essential step in the investigation, Maj. J.W. Powell, director of the Geological Survey, established a camp at Embudo, New Mexico, on the Rio Grande in December 1888. Its explicit purpose was to teach young men how to use the instruments and apply the methods which would be part and parcel of putting the undeveloped art of stream gaging to practical use.

The first stream measurement in Nevada was made in 1889, but only sporadic measurements were made until 1913. At that time, a series of cooperative agreements made possible the development of a systematic program.

Today's cooperators in that program consist of the Nevada Division of Water Resources, Department of Conservation and Natural Resources; the Nevada Department of Highways; and the California Department of Water Resources. Assisting with funds and services are: U.S. Army Corps of Engineers; Geological Survey, Bureau of Reclamation, Fish and Wildlife Service, Department of Interior; and the Forest Service, Department of Agriculture. Organizations helping to collect data include Clark County Flood Control District, Walker River Irrigation District, Truckee-Carson Irrigation District, City of Las Vegas and Pershing County Water Conservation District.

Nevada State Highway Department

The system now consists of 135 stream gaging stations. Of these, 16 are in the Colorado River Basin, 21 in the Walker River Basin, 12 in the Carson River Basin, 22 in the Humboldt River Basin, 35 in the Truckee River Basin, 13 in the Snake River Basin and 16 on various streams within the state.

However, this does not include all streams in Nevada; it would be almost impossible to maintain a gaging station on each stream in the state. Fortunately a method of estimating the main runoff of ungaged mountain sites using streamflow records and topographic maps has been devised. The Geological Survey Professional Paper 525-D by H.C. Riggs of Washington, D.C. and D.O. Moore of the Carson City office of the Geological Survey describes the method in detail.

Both this method and the records of stream gaging stations have been used in the compilation of Table 4.

GROUND WATER

In 1911 Everett Carpenter made a study of ground water in southeastern Nevada. The results of this and additional observations of wells in the Las Vegas Artesian Basin (made in 1913 by O.E. Meinzer) were published in the Geological Survey Water Supply Paper 365 in 1915. This study was the first ground water investigation in Nevada to be published.

Late in 1905 residents of Las Vegas organized the Vegas Artesian Water Syndicate to prove by test-well drilling the existence of artesian water in Las Vegas Valley. In the spring of 1907 the group drilled the first flowing artesian well there, and reported a flow of approximately 20 gallons per minute. The syndicate drilled two more successful artesian wells in 1907 and 1908, and several individuals also drilled wells during this period. By the time Carpenter made his study in 1911, he found about 100 deep wells of which 75 were flowing, and about 25 shallow wells.

The first reported attempt to develop artesian water in Pahrump Valley came in 1910 when the Pahrump Valley Land and Irrigation Co. unsuccessfully drilled a well on the Pahrump Ranch.

More successful was F.A. Buol; of four wells he drilled in 1913 just north of the Pahrump Ranch, three encountered artesian water that flowed at the land surface. By 1916, 28 wells dotted Pahrump Valley, 15 flowing. Seven were more than 150 feet deep but were nonflowing, and six were shallow nonflowing wells.

Studies pertaining to ground water were limited to the Las Vegas Valley and Pahrump Valley for many years because residents of other areas in the state were developing their surface waters and were not too interested in ground water.

In 1944 the state engineer entered into a cooperative agreement with the U.S. Geological Survey for a complete study of ground water in Las Vegas Valley and Pahrump Valley. In 1945 the study was expanded statewide.

Success in the development of lands under the Desert Land Act in the 1950's generated interest in many valleys where development opportunities existed, but where no information as to ground water possibilities was available. The 1960 legislature authorized a special ground water reconnaissance survey to make pertinent information immediately available. Most of the valleys in the state are now the subject of the reconnaissance reports or water resources bulletins.

These reports and bulletins were used extensively in the compilation of Table 3.

THE WEATHER

It is an impressive fact that 54 million ac. ft. of water fall on Nevada every year in the form of rain and snow. Much less impressive is the fact that only 3.2 million ac. ft. run off from the mountains, and only 2.2 million ac. ft. recharge our ground water reservoirs. The rest continues in the hydrologic cycle through evaporation and transpiration.

An estimated 1,320,000 ac. ft. of water which originates in California, Oregon, Idaho and Arizona flow into Nevada. However, there are approximately 850,000 ac. ft. (surface water, plus ground water) which flow from Nevada into California, Oregon, Idaho, Utah and into Lake Mead. (This outflow will be offset somewhat when Nevada uses all of its allocation from the mainstream of the Colorado River – 300,000 ac. ft.)

Another impressive figure is the 25 million ac. ft. of surface water storage capacity in our lakes and reservoirs (excluding Nevada's portion of Lake Mead, Lake Mohave, Lake Tahoe and Topaz Lake). Of the 25 million ac. ft., Pyramid Lake contains approximately 20,500,000 ac. ft. and Walker Lake approximately 3,000,000 ac. ft. The average annual gross evaporation from these two large bodies of water at the volumes shown above is 440,000 ac. ft. and 170,000 ac. ft. respectively.

Weather Modification

On a statewide basis, Nevada is the most arid State in the nation with a mean annual precipitation rate of 9 inches. It is because of this dry environment that in Nevada there is always a greater demand for water than there is water available. It is thus understandable that some of our citizens have caused great uproars over proposals to acquire new sources.

One such incident was the filing of an application for the water of "all the clouds over Nevada that may pass over said ranch", by Richard R. Maman and Freeman E. Fairfield on Nov. 29, 1947. It caused something of a sensation because although rainmakers have plied their trade for centuries, cloud seeding, a scientific approach to weather modification, was an unknown quantity.

When the application was publicly disclosed in an editorial appearing in the Reno Evening Gazette of Dec. 1, 1947, repercussions immediately followed. The first came from the Arizona Cloud Ropers, Inc., originally organized to get even with California over the Colorado River lawsuit. Next the Salt Lake City Chamber of Commerce threatened to go to the federal court for an injunction. This was countered by Nevada's threat to tax Utah for the clouds floating over Nevada.

By Jan. 8, 1948, the issue had grown to such proportions that the London Times, editorially and gravely, advocated nationalization of moisture-bearing clouds and vesting their control in a "board of nebulous planners."

Because of the legal ramifications, the Maman-Fairfield applications became the subject of an article in the Stanford Law Review, and attorneys from New York City, Kansas City and even South Africa made serious inquiries.

Largely as a result of such reverberations, the application was returned to the applicants for additional information. But they apparently had had enough and never pursued it: It was cancelled on March 6, 1950.

Rainmaking, now called weather modification, has been tried in other areas of the state but has met with varying success.

However, the U.S. Bureau of Reclamation has been encouraged in its "Project Skywater", a weather modification program being conducted on the western slopes of the Sierra. The Desert Research Institute of Nevada is presently engaged in a similar project in an attempt to augment the water supply for Pyramid Lake.

Climate

Weather observation is one of the most important sources of information in evaluating water resources. Not surprisingly, much of it is gathered by individual Nevadans.

Among the first contributors to our knowledge of the climate of Nevada were the railroads. In the early days the railroads established many stations along the route to service their trains as they moved across the state and as bases from which to maintain the tracks. They also became locations for the collection of weather observation taken by people who lived along the right-of-way. With the advent of the diesel locomotives, it became possible to decrease the number of stations, but three still continue to compile weather data.

In February, 1887, an act was passed by the Nevada Legislature to establish a weather service in the state. Charles W. Friend, its director, acted as observer at the Carson City observatory – which was the collection point for the Nevada Weather Service – from 1880 to 1906. Except for some of the Southern Pacific Railroad stations, Carson City has the longest period of recorded weather observation in the state.

A major problem in maintaining the cooperative

Cliff Segerblom

weather records in Nevada is the sparse population. We still must rely, because of that, on dedicated individuals to a large extent. Yet a key contributor to our knowledge of Nevada weather is the State Highway Department. Of Nevada's 106 full climatological stations (as of September, 1970) 12 are maintained by this agency — most of them at comparatively remote highway maintenance stations. Although weather reporting means extra work for them, these stations willingly cooperate and are thus invaluable in maintaining continuity of records.

Over half of the full climatological stations are maintained by individuals. Many of these 58 stations are located on isolated ranches, miles from town, some without telephone. Without the excellent records these public-spirited Nevadans keep for their stations our weather knowledge would be seriously limited.

The dean of weather observers in Nevada was C.P. "Pop" Squires of Las Vegas. Born May 22, 1865, he began taking observations in 1909 for publication in his newspaper, the Las Vegas Age. He retired as editor of the paper in 1949, but continued taking observations until January, 1957. Others worked as faithfully.

One such observer was Mrs. Irene (Williams) Metzler of Tuscarora. A life-time Nevada resident, she helped run a cattle ranch, yet found time to maintain a weather station from Nov. 1, 1917, to Nov. 1, 1953.

Another was Mrs. W.H. Churchyard of Yerington, who helped her husband from Jan. 1, 1918, until he died in 1929. Then she took over sole responsibility of maintaining the station, continuing to take observations until her death in 1960.

As might be expected, many state and federal agencies participate in the program. Besides the regular U.S. Weather Bureau and Federal Aviation Agency observers, other cooperators include the Soil Conservation Service, Forest Service, Fish and Wildlife Service, University of Nevada, water conservation districts, Kennecott Copper Corp., Division of Water Resources and many others.

The records compiled by all of these weather observers combine to give us not only a clear and accurate picture of the average annual precipitation, but also such vital information as minimums and maximums, the average growing seasons and the total precipitation for most of the 254 hydrographic areas and sub-areas of the state.

This information is set out in Table 2 of this report. The weather observer's records are also used to determine recharge to ground water reservoirs listed in Table 3.

PART 2

Source of Data

Data presented in this report are a product of the cooperative program between the U.S. Geological Survey and the State of Nevada. Most of these estimates are from Water Resources Bulletins and Water Resources Reconnaissance Series reports of the Nevada Division of Water Resources — Department of Conservation and Natural Resources.

In Table 1, references are made to these and other reports.

In the following tables, data are presented for 254 subdivisions of the state, called "hydrographic areas". These are grouped into 14 hydrographic regions, or basins. Blank spaces in the tables indicate that those particular units of hydrologic information are unknown or undetermined at this time.

A map of Nevada (Fig. 5, in the pocket attached to the rear cover) shows estimated amounts of surface and ground water flow between hydrographic areas, both natural and man-made. This map also shows — for each hydrographic area where information is available — annual runoff, perennial yield and ground water storage in the top 100 feet of saturated deposits. Note that values on this map have been rounded to the nearest 1,000 ac. ft., and that the arrows shown give only the general area where the estimated flow crosses the hydrographic boundary.

The figures shown on the tables as well as the accompanying map of the state (Figure 5) are estimates. Much of the information presented is based on the results of the Division of Water Resources, Department of Conservation and Natural Resources — U.S.G.S. Cooperative Studies. These studies are at a reconnaissance level. They are useful for broad planning and general information, but these figures are not necessarily suitable as a source of information for local or detailed planning.

The word "minor" on both the map and the tables is used to indicate a quantity which is either less than 500 AF/year, or, when compared with other data in a specific hydrographic area, is small. Thus, a "minor" amount in a relatively wet valley could be many times the size of a quantity termed "minor" in a dry area.

The word "some" is used to indicate a significant quantity of water. However, sufficient information is not presently available to make an estimate of the amount.

The general term "hydrographic area" is used mostly in place of "valley". But it also applies to areas called flat, desert, basin, meadow, area, segment, playa, wash, canyon or mesa. The names of the hydrographic areas, in most cases, are the names used by people who live in and near those areas.

Most of the boundary lines of hydrographic areas are drawn along topographic ridges, as interpreted from the most detailed topographic maps available. But in some localities, the lines are drawn across nearly flat alluvial terrain.

THE HYDROGRAPHIC REGIONS

Large-scale unifying hydrographic features which were the general basis for grouping the regions and basins fall into three broad categories: (1) drainage basins of large regional streams; (2) drainage basins that have no large regional stream; and (3) groups of mostly topographically closed valleys.

Those basins in the first category are commonly linear in form, with most valleys forming segments like links of a chain. The regions included in this group are the Snake, Humboldt, Truckee, Carson, Walker and Colorado river basins.

Drainage basins which have no major regional streams (second category) are the Black Rock Desert region and the Great Salt Lake, Escalante Desert and Death Valley basins. In the Nevada parts of these regions, the drainage may enter the sink area from several directions, but carry little streamflow.

The third type of hydrographic regions and basins (closed valleys) is isolated from the other similar groups and includes the Northwest, Western, West Central and Central regions.

Herewith is a brief rundown of the regions and basins.

Northwest Region: Covers 3,073 sq. mi. of Washoe and Humboldt counties; includes 16 hydrographic areas. It is characterized by small, high-altitude valleys and includes a mixture of isolated (topographically closed) and hydrologically connected valleys. It is bounded on the west by California, on the north by Oregon, and on the southeast by the Black Rock Desert region.

Black Rock Desert Region: Covers 8,632 sq. mi. of parts of Washoe, Humboldt and Pershing counties. It includes 17 valleys, two of which are divided into two sub-areas each. It is characterized by both very large and small valleys, most of which are presently or were tributary to the Black Rock and Smoke Creek deserts (areas numbered 28 and 21).

Snake River Basin: Covers 5,230 sq. mi. in parts of Elko and Humboldt counties. The entire basin is drained by the Snake River system in Idaho, which is tributary to the Columbia River. The basin in Nevada includes eight hydrographic areas and is characterized by high tablelands and highlands. Except for Independence Valley (area 36) the basin also includes deep canyons.

Humboldt River Basin: The Humboldt River is the largest stream wholly within Nevada. Its basin includes 34 hydrographic areas, over 16,843 sq. mi. in parts of eight counties. The basin is characterized by moderate to large sized, medium to high altitude valleys that are tributary to the Humboldt River. The river flows westward, generally terminating in Lovelock Valley and White Plains (areas 73 and 74). No topographic divide exists between White Plains and the Carson Desert (area 101), a part of the Carson River Basin. Because water seldom flows between the two areas, and therefore between the two river basins, an arbitrary boundary was established.

West Central Region: Although it includes parts of Pershing, Lyon and Churchill counties, this is a small region, covering only 1,656 sq. mi. and composed of only five hydrographic areas. It is characterized by moderate and small sized, mostly medium altitude valleys and is similar to the Central Region where topographically closed valleys predominate.

Truckee River Basin: Also relatively small (2,300 sq. mi.) this basin includes parts of Washoe, Pershing, Douglas, Ormsby and Storey counties. It contains 12 valleys and river segments of the Truckee River, which ultimately discharge into Pyramid Lake (in area 81), and which at one time also discharged into Winnemucca Lake (in area 80). The basin has small, medium to high altitude valleys. The Truckee Canal now carries much of the Truckee River flow of the Tracy segment (area 83) across the Fernley area (area 76) of the West Central Region to Churchill Valley (area 102) of the Carson River Basin, where it is stored in Lahontan Reservoir for use in the Fallon area.

Western Region: Wholly within Washoe County, it consists of nine valleys, one of which, Lemmon Valley (area 92), is divided into two sub-areas by a low alluvial divide. The region covers 577 sq. mi. and is characterized by small, medium to high altitude, mostly isolated valleys, similar to those which predominate the Central Region.

Carson River Basin: This area's 3,519 sq. mi. cover parts of six counties. It consists of five valleys that ultimately discharge to the Carson Desert (sink). The basin contains moderate to large sized, medium to high altitude valleys and, as explained above, receives flow diverted from the Truckee River Basin and intermittent natural flow from the Humboldt and Walker River Basins.

Walker River Basin: Includes 3,048 sq. mi. of Mineral, Lyon and Douglas counties. The basin is composed of seven hydrographic areas featuring small to moderate sized, medium to high altitude valleys. All areas are drained by the Walker River system which ultimately discharges into Walker Lake (in area 110B). Infrequently – when the Walker River is at high flood stage – Mason Valley (area 108) drains to Churchill Valley (area 102) of the Carson River Basin through Adrian Valley.

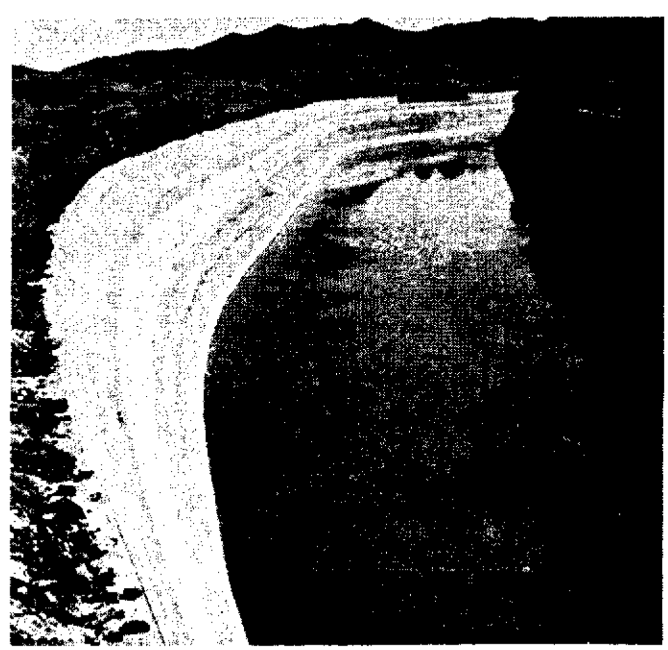
Central Region: This is by far the largest hydrographic region of Nevada; it covers about 46,783 sq. mi. in 12 counties, which is 42 percent of the state. The region includes 89 valleys that are generally large in size, medium to high in altitude, and are mostly isolated, though some have interflow of surface water.

Great Salt Lake Basin: Covers 3,807 sq. mi. of the easternmost parts of Elko, White Pine and Lincoln counties. The basin in Nevada consists of 11 high altitude hydrographic areas that drain eastward to the Great Salt Lake in Utah.

Escalante Desert Basin, also called Escalante Valley: Covers a large area in Utah, but only a very small part of the basin is in Lincoln County, Nevada. Its area in Nevada is only 106 sq. mi. The Nevada part has a high altitude and surface water flows to Utah.

Colorado River Basin: Includes parts of Clark, Lincoln, Nye and White Pine counties and is divided into 27 hydrographic areas covering 12,376 sq. mi. The basin is characterized by small to moderate sized, medium to low altitude valleys. All but three of the hydrographic areas are tributary to the Colorado River system which flows to the Gulf of California. Two of the non-contributing areas – Garnet and Hidden Valleys (areas 216 and 217) – are topographically closed but are completely surrounded by areas that drain to the Colorado River. The third non-contributing area is the southern part of the Three Lakes Valley (area 211). Lee Canyon discharges flood water on an alluvial fan; the flow may go either eastward to the Colorado River drainage or northward to the dry lake in the southern part of Three Lakes Valley, depending upon which distributary channels the flow occupies.

Death Valley Basin: The part of the basin in southern Nevada includes nine hydrographic areas and covers 2,593 sq. mi. of Nye and Esmeralda counties. The basin in Nevada is characterized by small to moderate sized, low altitude valleys that are all tributary to Death Valley in California.



Gus Bundy

Summary of Data

Data are summarized in the tables for each of the 14 hydrographic regions and basins, and a state summary is given at the end of each table. Here are the principal totals for the state:

	Acre feet per year, (except as otherwise stated)
Precipitation:	
Estimated annual average	5,000,000
Surface water:	
Estimated runoff from mountains	3,200,000
Estimated inflow crossing the state line (excluding the Colorado River)	1,300,000
Colorado River	9,700,000
★Estimated outflow crossing the state line (excluding the Colorado River)	700,000
Colorado River	9,400,000
Surface water storage capacity (excluding Nevada's portion of Lake Mead, Lake Mohave, Lake Tahoe and Topaz Lake in ac. ft.)	25,000,000
Lake Mead (Total Capacity, ac. ft.)	29,700,000
Lake Mohave (Total Capacity, ac. ft.)	1,820,000
Lake Tahoe (Total Capacity, ac. ft.)	122,000,000
Topaz Lake (Total Capacity, ac. ft.)	59,400
Ground water: (Ground water budget for valley-fill reservoirs)*	
Estimated ground water inflow	2,000,000
Estimated ground water outflow	2,000,000
Ground water recharge from precipitation	2,200,000
Perennial yield of valley-fill reservoirs	1,700,000
Ground water stored in upper 100 feet of saturated valley fill (ac. ft.	250,000,000
Estimated transitional storage reserve (ac. ft.)	84,000,000
Estimated outflow crossing the state line	150,000
Estimated inflow crossing the state line	3,000

★ Includes 1970 flow to Lake Mead from Las Vegas Wash

* Water underground in a given valley.

HYDROLOGIC SUMMARY

Explanation of Table Headings Table 1

General

As previously indicated, most of the information shown in the tables has been derived as a result of the cooperative program between the Department of Conservation and Natural Resources and the U.S. Geological Survey. The reader is directed to the Reports referenced in Table 1 for more detailed information on the individual hydrographic areas.

Water Budget

Two types of water budget have been computed for the hydrographic areas – a ground water budget for dry areas, and a water resources budget where there are relatively larger amounts of streamflow (see below for details). For a few areas, budgets have been computed identifying the average amount of inflow to and outflow from both the ground water system and the combined surface water and ground water systems.

For natural conditions and over the long term – assuming that climatic conditions remain reasonably constant – ground water inflow to and outflow from an area are about equal. Thus, a ground water budget can be used to: (1) compare the estimates of natural inflow to and outflow from each valley; (2) determine the magnitude of errors in the two estimates provided that one or more elements are not estimated by difference; and (3) select a value that represents both inflow and outflow. This value is listed in Table 1 and is identified by an "a" following the number in the "Water Budget" column in Table 1.

The water resources budget is the quantity selected to represent both inflow and outflow. It is similar to a ground water budget, except that both surface water and ground water inflow and outflow are elements of this budget. This value is identified by a "b" following the number in the "Water Budget" column in Table 1.

Water Yield

Also computed for the hydrographic areas are two types of water yield – perennial yield and system yield. The relationship between these is similar to that between the ground water budget and the water resources budget described above; however, because of the uniqueness of the various hydrologic areas scientific judgment is also a factor in interpreting the relationship between water budget and water yield.

Perennial yield of a ground water reservoir may be defined as the maximum amount of ground water that can be salvaged each year over the long term without depleting the ground water reservoir. Perennial yield is ultimately limited to the maximum amount of natural discharge that can be salvaged for beneficial use. Perennial yield cannot be more than the natural recharge to a ground water basin and in some cases is less. An example of such a condition is Pahrump Valley (162). In Pahrump the average annual recharge is estimated to be 22,000 acre feet, however, because of the difficulty in salvaging the subsurface outflow from the deep carbonate-rock reservoir, the perennial yield is only 12,000 acre feet. Perennial yield is identified by a "C" following the number under the "Yield" column in Table 1.

System yield is defined as the maximum amount of surface and ground water that can be obtained each year from sources within a system for an indefinite period of time. System yield cannot be more than the natural inflow to or outflow from a system. Generally, estimates of system yield are based on the following limitations and assumptions: (1) present beneficial uses represent salvage and are therefore included; (2) most evapotranspiration discharge can be salvaged; (3) half the surface water outflow and ground water outflow can be salvaged (up to all of the surface water if a dam is feasible); and (4) the estimated system yield is within the limits allowed by legal appropriations and decrees. This value is identified by the "d" following the number in the "Yield" column in Table 1.

Ground Water in Storage

The amount of ground water in storage in a valley reservoir is estimated to average about 10 percent of the volume of the saturated valley fill. The quantities of stored ground water listed in Table 1 are for each (one) foot of thickness. Therefore, the storage in the upper 100 feet of saturated alluvium is 100 times this quantity.

Transitional Storage Reserve

Transitional storage reserve is the quantity of water in storage in a particular ground water reservoir that is extracted during the transition period between natural equilibrium conditions and new equilibrium conditions under the perennial-yield concept of ground water development.

In the arid environment of Nevada, the transitional storage reserve of such a reservoir means the amount of stored water which is available for withdrawal by pumping during the non-equilibrium period of development, (i.e., the period of lowering water levels).

In valleys where natural discharge is partly or entirely by sub-surface outflow, the amount that can be salvaged with a dewatering (taken from storage) of 50 feet is estimated to average roughly 50 percent of the outflow. The transitional storage reserve estimates for the regions are based on an average dewatering of 30 to 40 feet of valley-fill reservoir. These values are shown for each region in Table 1-A.

Report References

References to reports, prepared by the U.S. Geological Survey, describing hydrographic areas are: "R" — Nevada Water Resources Reconnaissance Series Reports; "B" — Nevada Water Resources Bulletins; "W" — Water Supply Paper, U.S. Geological Survey; and "P" — Professional Paper, U.S. Geological Survey.

Region, Basin and State Totals

Note that the total ground water, water resources budgets, perennial yields and system yields for each basin, region or the state are not necessarily the sum of the individual areas. This is because quantities of water circulate among hydrographic areas (valleys) within regions, basins and the state, and therefore must be included in two or more area budgets. All other water quantities are generally additive.

footnote from page 3

[1] From the Virginia Evening Chronicle as quoted by Hugh A. Shamberger in the forthcoming U.S.G.S. Professional Paper 779, "The Story of the Water Supply for the Comstock". p 24.

Philip Hyde

TABLE 1 – HYDROLOGIC SUMMARY

Hydrographic Area Number	Hydrographic Area	Water Budget (Acre-Feet Per Year) a-Ground Water Budget b-Water Resources Budget	Water Yield (Acre-Feet Per Year) c-Perennial Yield d-System Yield	Groundwater in Storage (Acre-Feet Per Foot)	Report Reference
NORTHWEST REGION					
1	Pueblo V.	3,000a	2,000c	2,700	R22
2	Continental Lake V.	10,000a	11,000c	3,800	R22
3	Gridley Lake V.	3,000a	3,000c	2,300	R22
4	Virgin V.	7,000a	6,000c	420	R22
5	Sage Hen V.	< 500a	250c	Minor	R15
6	Guano V.	< 4,000a	2,000c	120	R15
7	Swan Lake V.	< 6,700a	Minor (c)	Minor	R15
8	Massacre Lake V.	3,500a	3,000c	1,400	R15
9	Long V.	12,000a	12,000c	10,000	R15
10	Macy Flat	500a	250c	300	R15
11	Coleman V.	1,000a	1,000c	350	R15
12	Mosquito V.	1,000a	1,500c	470	R15
13	Warner V.	< 1,800a	1,000c	Minor	R15
14	Surprise V.	5,000a	2,500c	520	R15
15	Boulder V.	< 2,700a	2,000c	600	R15
16	Duck Lake V.	8,000a	8,000c	5,600	R17
REGION TOTAL		60,000a	55,000c	29,000	
BLACK ROCK DESERT REGION					
17	Pilgrim Flat	500a	200c	60	R44
18	Painters Flat	1,200a	1,200c	140	R44
19	Dry V.	200a	100c	1,000	R44

BLACK ROCK DESERT REGION, continued

20	Sano V.	25a	25c	200	R44
21	Smoke Creek Desert	16,000a	16,000c	20,000	R44
22	San Emidio Desert	2,500a	2,500c	8,400	R44
23	Granite Basin	200a	200c	50	R20
24	Hualapai Flat	< 7,000a	6,700c	3,500	R11, B37
25	High Rock Lake V.	13,000a	5,000c	610	R20
26	Mud Meadow	15,000a	13,000c	8,500	R20
27	Summit Lake V.	4,200a	1,000c	630	R20, R22
28	Black Rock Desert	30,000a	30,000c	56,000	R20
29	Pine Forest V.	11,000a	11,000c	18,000	R4
30	Kings River V.	21,000a	17,000c	20,000	B31
	a) Rio King Sub-Area				
	b) Sod House Sub-Area				
31	Desert V.	9,000a	9,000c	40,000	R7
32	Silver State V.	5,900a	5,900c	16,000	B34
33	Quinn River V.	60,000a	60,000c	42,000	B34
	a) Orovada Sub-Area				B34
	b) McDermitt Sub-Area				B34
REGION TOTAL		150,000a	150,000c	240,000	

SNAKE RIVER BASIN

34	Little Owyhee River Area	2,700a 12,000b	1,400c 6,000d	Minor	R48
35	South Fork Owyhee River Area	8,000a 160,000b	8,000c 160,000d	3,600	R48
36	Independence V.	12,000a	12,000c	5,200	R8, R48
37	Owyhee River Area	7,000a 120,000b	7,000c 120,000d	2,200	R48
38	Bruneau River Area	16,000a 110,000b	10,000c 110,000d	270	R48
39	Jarbidge River Area	23,000a 95,000b	12,000c 93,000d	Minor	R48

SNAKE RIVER BASIN, continued

Hydrographic Area Number	Hydrographic Area	Water Budget (Acre-Feet Per Year) a-Ground Water Budget b-Water Resources Budget	Water Yield (Acre-Feet Per Year) c-Perennial Yield d-System Yield	Groundwater in Storage (Acre-Feet Per Foot)	Report Reference
40	Salmon Falls Creek Area	10,000a	10,000c	3,100	R48
		140,000b	130,000d		
41	Goose Creek Area	1,700a	1,700c	680	R48
		47,000b	35,000d		
BASIN TOTAL		80,000a	60,000c	15,000	
		680,000b	> 670,000d		

HUMBOLDT RIVER BASIN

Hydrographic Area Number	Hydrographic Area	Water Budget (Acre-Feet Per Year)	Water Yield (Acre-Feet Per Year)	Groundwater in Storage (Acre-Feet Per Foot)	Report Reference
42	Marys River Area				B32
43	Starr Valley Area	83,000a	83,000c		B32
			340,000d		B32
44	North Fork Area				B32
45	Lamoille V.			90,000	B32
46	South Fork Area				R35, B32
47	Huntington V.		25,000c		R35, B32
			140,000d		
48	Dixie Creek				R35, B32
	Tenmile Creek Area				
49	Elko Segment		13,000c		B32
			280,000d		
50	Susie Creek Area		6,000c		B32
			33,000d		
51	Maggie Creek Area				B32
52	Marys Creek Area		incl. in. 49c		B32
			incl. in. 49d		
53	Pine V.	45,000a	20,000c		R2, B32
			30,000d		
54	Crescent V.		16,000c		B15, B32
			25,000d		
55	Carico Lake V.				R37, B32
			4,000c		

56	Upper Reese River V.		37,000c		R31, B32
			60,000d		
57	Antelope V.		9,000c		R19, B32
58	Middle Reese River V.	14,000a	14,000c		R19, B32
59	Lower Reese River V.		20,000c		B32
			28,000d		
60	Whirlwind V.				B32
61	Boulder Flat		30,000c	130,000	B32
			300,000d		
62	Rock Creek V.		2,800c		B32
			30,000d		
63	Willow Creek V.				B32
64	Clovers Area				B32
65	Pumpernickel V.		72,000c		B32
			280,000d		
66	Kelly Creek Area				B32
67	Little Humbolt V.	26,000b	8,000d		B32
68	Hardscrabble Area	22,000b	34,000c		B32
			100d		
69	Paradise V.	70,000b	60,000d		B32, B39
70	Winnemucca Segment	18,000a	17,000c	60,000	B19, B20, B22
			200,000d		B24, B27, B32
71	Grass V.	13,000a	13,000c		B29, B32
			20,000d		
72	Imlay Area		3,000c		R5, B32
			160,000d		
73	Lovelock V.	≥ 140,000b	43,000c		R32, B32
			≥ 140,000d		
	a) Oreana Sub-Area				R32, B32
74	White Plains			4,200	R58
BASIN TOTAL		430,000a	430,000c	280,000	B32
		900,000b	900,000d		

WEST CENTRAL REGION

Table 1 — 5 of 12 Pages

Hydrographic Area Number	Hydrographic Area	Water Budget (Acre-Feet Per Year) a-Ground Water Budget b-Water Resources Budget	Water Yield (Acre-Feet Per Year) c-Perennial Yield d-System Yield	Groundwater in Storage (Acre-Feet Per Foot)	Report Reference
75	Bradys Hot Springs Area	2,500a	2,500c	3,500	R55
76	Fernley Area	235,000b	600c	4,200	B17, R57
			235,000d		
77	Fireball V.	200a	100c	1,300	R55
78	Granite Springs V.	4,500a	4,5000c	26,000	R55
79	Kumiva V.	1,000a	500c	10,000	R55
REGION TOTAL		> 8,000a	8,000c	45,000	
TRUCKEE RIVER BASIN					
80	Winnemucca Lake V.	5,000a	3,300c	9,600	B15, R57
81	Pyramid Lake V.	410,000b	< 10,000c	19,000	R57
82	Dodge Flat	255,000b	255,000d	2,600	R57
83	Tracy Segment	490,000b	490,000d	1,000	R57
84	Warm Springs Area	3,000a	3,000c	4,200	R43, R57
85	Spanish Springs V.	1,000a	1,000c	1,700	R43, R57
		15,000b	15,000d		
86	Sun V.	50a	25c	200	R43, R57
87	Truckee Meadows	580,000b	580,000d	4,500	W1779, R57
88	Pleasant V.	11,000b	11,000d	300	R57
89	Washoe V.	32,000b	25,000d	2,700	R41, R57
90	Lake Tahoe Basin	100,000b	SOME(c)	300	W1972
91	Truckee Canyon Segment	530,000b	520,000d	400	R57
BASIN TOTAL		780,000b	600,000d	47,000	
WESTERN REGION					
92	Lemmon V.	1,500a	1,500c		R43
	a) Western Part			1,100	R43
	b) Eastern Part			1,200	R43
93	Antelope V.	300a	150c	470	R43
94	Bedell Flat	700a	300c	790	R43

WESTERN REGION, continued

95	Dry V.	2,300a	1,000c	1,100	R43
96	Newcomb Lake V.	200a	200c	34	R43
97	Honey Lake V.	8,000a	8,000c	5,500	R43
98	Skedaddle	200a	Minor(c)	Minor	R44
99	Red Rock V.	1,000a	1,000c	640	R43
100	Cold Spring V.	500a	500c	450	R43
REGION TOTAL		15,000a	12,000c	11,000	

CARSON RIVER BASIN

101	Carson Desert			85,000	R58
102	Churchill V.			7,400	R58
103	Dayton V.			4,400	R58
104	Eagle V.	15,000b	7,000c 10,000d	2,000	R39, R58
105	Carson V.			7,100	P417F, R58
BASIN TOTAL				110,000	

WALKER RIVER BASIN

106	Antelope V.	190,000b	2,600c 190,000d	2,000	R53
107	Smith V.	> 160,000b		9,800	W1228
108	Mason V.	220,000b	100,000d	29,000	B38
109	East Walker Area	120,000b	5,500c 120,000d	8,000	R53
110	Walker Lake V.				R40
	a) Schurz Sub-Area	1,900a 110,000b	110,000d	15,000	R40
	b) Lake Sub-Area	600a 200,000b	700c	1,000	R40
	c) Whiskey Flat Hawthorne Sub	5,400a	5,000c	9,000	R40
BASIN TOTAL		> 300,000b	> 300,000d	74,000	

CENTRAL REGION					Table 1 — 7 of 12 Pages
Hydrographic Area Number	**Hydrographic Area**	**Water Budget (Acre-Feet Per Year)** a-Ground Water Budget b-Water Resources Budget	**Water Yield (Acre-Feet Per Year)** c-Perennial Yield d-System Yield	**Groundwater in Storage (Acre-Feet Per Foot)**	**Report Reference**
111	Alkali Valley				R52
	a) Northern Part	300a	300c	400	R52
	b) Southern Part	1,400a	700c	1,000	R52
112	Mono V.	700a	300c	200	R52
113	Huntoon V.	600a	150c	1,200	R52
114	Teels Marsh V.	1,400a	1,400c	2,600	R52
115	Adobe V.	300a	150c	20	R52
116	Queen V.	2,000a	600c	1,000	R52
117	Fish Lake V.	19,000a	19,000c	16,000	B11
118	Columbus Salt Marsh V.	4,000a	4,000c	5,300	R52
119	Rhodes Salt Marsh V.	1,000a	1,000c	3,400	R52
120	Garfield Flat	300a	150c	1,500	R52
121	Soda Springs V.				R52
	a) Eastern Part	800a	600c	4,300	R52
	b) Western Part	300a	200c	2,800	R52
122	Gabbs V.	5,000a	5,000c	16,000	R9
123	Rawhide Flats	500a	500c	600	R40
124	Fairview V.	500a	250c	7,800	R23
125	Stingaree V.	< 100a	< 100c	1,300	R23
126	Cowkick V.	< 800a	< 800c	1,700	R23
127	Eastgate Valley Area	< 4,000a	< 4,000c	1,900	R23
128	Dixie V.	15,000a	15,000c	35,000	R23
129	Buena Vista V.	11,000a	10,000c	24,000	B13
130	Pleasant V.	3,000a	2,600c	6,200	R23
131	Buffalo V.	12,000a	8,000c	17,000	R32
132	Jersey V.	500a	250c	1,600	R23
133	Edwards Creek V.	8,000a	8,000c	7,000	R26
134	Smith Creek V.	10,000a	10,000c	15,000	R28
135	Ione V.	6,000a	2,500c	13,000	R28
136	Monte Cristo V.	400a	400c	7,200	R52
137	Big Smoky				B41
	a) Tonopah Flat	14,000a	6,000c	70,000	B41
	b) Northern Part	65,000a	65,000c	50,000	B41

138	Grass V.	13,000a	13,000c	16,000	R37
139	Kobeh V.	16,000a	16,000c	27,000	R30
140	Monitor V.				R30
	a) Northern Part	8,000a	8,000c	10,000	R30
	b) Southern Part	13,000a	10,000c	10,000	R30
141	Ralston V.	8,000a	6,000c	27,000	R12, R45
142	Alkali Spring V. (Esmeralda)	5,500a	3,000c	13,000	R45
143	Clayton V.	20,000a	20,000c	13,000	R45
144	Lida V.	700a	350c	15,000	R45
145	Stonewall Flat	100a	100c	8,200	R45
146	Sarcobatus Flat	3,000a	3,000c	24,000	R10, R54
147	Gold Flat	3,800a	1,900c	16,000	R54
148	Cactus Flat	600a	300c	14,000	R54
149	Stone Cabin V.	5,000a	2,000c	22,000	R12, R45
150	Little Fish Lake V.	10,000a	10,000c	8,000	R38
151	Antelope V. (Eureka & Nye)	4,000a	4,000c	12,000	R30
152	Stevens Basin	200a	100c	500	R30
153	Diamond V.	30,000a	30,000c	28,000	R6, B35
154	Newark V.	18,000a	18,000c	15,000	R1
155	Little Smoky V.				R38
	a) Northern Part	6,000a	5,000c	15,000	R38
	b) Central Part	200a	100c	1,000	R38
	c) Southern Part	2,000a	1,000c	9,400	R38
156	Hot Creek V.	6,500a	5,500c	23,000	R38
157	Kawich V.	4,500a	2,200c	9,600	B12, R54
158	Emigrant V.				R54
	a) Groom Lake V.	3,200a	2,800c	16,000	R54
	b) Papoose Lake V.	< 10a	< 10c	Minor	R54
159	Yucca Flat	700a	350c	5,200	R54
160	Frenchman Flat	32,700a	16,000c	7,900	R54
161	Indian Springs V.	32,000a	500c	18,000	R54
162	Pahrump V.	22,000a	12,000c	23,000	W1832
163	Mesquite V. (Sandy V.)	2,200a	2,200c	7,000	R46

Hydrographic Area Number	Hydrographic Area	Water Budget (Acre-Feet Per Year) a-Ground Water Budget b-Water Resources Budget	Water Yield (Acre-Feet Per Year) c-Perennial Yield d-System Yield	Groundwater in Storage (Acre-Feet Per Foot)	Report Reference
164	Ivanpah V.				R46
	a) Northern Part	1,500a	700c	7,400	R46
	b) Southern Part	500a	250c	1,000	R46
165	Jean Lake V.	100a	50c	3,200	R46
166	Hidden Valley (South)	Minor(a)	Minor(c)	800	R46
167	Eldorado V.	1,100a	500c	14,000	R36
168	Three Lakes V. (Northern Part)	8,000a	4,000c	8,300	R54
169	Tikapoo Valley				R54
	a) Northern Part	2,600a	1,300c	14,000	R54
	b) Southern Part	6,000a	3,000c	7,500	R54
170	Penoyer V. (Sand Springs V.)	5,000a	5,000c	22,000	B12
171	Coal V.	10,000a	6,000c	15,000	R18, B33
172	Garden V.	10,000a	6,000c	15,000	R18, B33
173	Railroad V.	51,000a	50,000c		B12
	a) Southern Part			21,000	B12
	b) Northern Part			60,000	B12
174	Jakes V.	25,000a	12,000c	9,800	B33
175	Long V.	10,000a	6,000c	16,000	R3, B33
176	Ruby V.	68,000a	53,000c	33,000	B12
177	Clover V.	20,000a	20,000c	15,000	B12
178	Butte V.				R49
	a) Northern Part	6,300a	6,000c	9,800	R49
	b) Southern Part	14,000a	14,000c	22,000	R49
179	Steptoe V.	70,000a 120,000b	70,000c 120,000d	50,000	R42
180	Cave V.	14,000a	2,000c	10,000	R13, B33
181	Dry Lake V.	5,000a	2,500c	28,000	R16, B33
182	Delamar V.	6,000a	3,000c	12,000	R16, B33
183	Lake V.	12,000a	12,000c	18,000	R24
184	Spring V.	75,000a 100,000b	100,000c 100,000d	42,000	R33

CENTRAL REGION, continued					
185	Tippett V.	7,000a	3,500c	11,000	R56
186	Antelope V. (White Pine & Elko)				B12, R56
	a) Southern Part	4,500a	800c	2,800	R56
	b) Northern Part	3,500a	1,700c	7,100	B12, R56
187	Goshute V.	12,000a	11,000c	22,000	B12
188	Independence V.	9,400a	9,000c	18,000	B12
REGION TOTAL		860,000a	800,000c	1,200,000	
GREAT SALT LAKE BASIN					
189	Thousand Springs V.	30,000b	24,000d		R47
	a) Herrill Siding Brush Creek Area	8,000b	5,800d	4,600	R47
	b) Toano-Rock Spring Area	19,000b	6,400d	20,000	R47
	c) Rocky Butte Area	5,000b	2,000d	3,600	R47
	d) Montello-Crittenden Creek Area (Montello V.)	17,000b	16,000d	9,700	R47
190	Grouse Creek V.	700a	< 350c	170	R47
191	Pilot Creek V.	4,500a	4,500c	11,000	R56
192	Great Salt Lake Desert	16,000a	5,000c	10,000	R56
193	Deep Creek V.	4,200a	2,000c	2,600	R56
194	Pleasant V.	3,000a	1,500c	420	R34
195	Snake V.	> 40,000a	> 25,000c	13,000	R34
196	Hamlin V.	10,000a	5,000c	12,000	R34
BASIN TOTAL				87,000	
ESCALANTE DESERT					
197	Escalante Desert	2,300a	1,000c	1,900	R51
COLORADO RIVER BASIN					
198	Dry V.	1,300a	1,000c	3,600	R27
199	Rose V.	100a	< 100c	800	R27

COLORADO RIVER BASIN, continued — **Table 1 — 11 of 12 Pages**

Hydrographic Area Number	Hydrographic Area	Water Budget (Acre-Feet Per Year) a-Ground Water Budget b-Water Resources Budget	Water Yield (Acre-Feet Per Year) c-Perennial Yield d-System Yield	Groundwater in Storage (Acre-Feet Per Foot)	Report Reference
200	Eagle V.	1,100a	300c	1,800	R27
201	Spring V.	10,000a	> 1,000c 5,000d	8,000	R27
202	Patterson V.	9,000a	4,500c	18,000	R27
203	Panaca V.	10,000a	9,000c	14,000	R27
204	Clover V.	1,700a	1,000c	6,500	R27
205	Lower Meadow V. Wash	8,400a	5,000c	28,000	R27
206	Kane Springs V.	500a	Minor(c)	4,000	R25, B33
207	White River V.	77,000a	37,000c	49,000	B33
208	Pahroc V.	42,000a	21,000c	13,000	R21, B33
209	Pahranagat V.	60,000a	25,000c	17,000	R21, B33
210	Coyote Spring V.	37,000a	18,000c	18,000	R25, B33
211	Three Lakes V. (Southern Part)	10,700a	5,000c	8,600	R54
212	Las Vegas V.	30,000a	25,000c	34,000	W1780
213	Colorado River V.	200a	Minor(c)	11,000	R36
214	Piute V.	1,100a	600c	12,000	R36
215	Black Mountains Area	12,000b	7,000d	15,000	R50
216	Garnet V.	800a	400c	5,000	R50
217	Hidden V. (North)	400a	200c	1,500	R50
218	California Wash	43,000b	36,000d	10,000	R50
219	Muddy River Springs Area (Upper Moapa V.)	37,000a	37,000c	2,500	B33
220	Lower Moapa V.	35,000b	35,000d	8,000	R50
221	Tule Desert	2,100a	1,000c	5,300	R51
222	Virgin River V.	170,000b	100,000d	29,000	R51
223	Gold Butte Area	1,000a	500c	10,000	R50
224	Greasewood Basin	600a	300c	2,000	R50
BASIN TOTAL		> 340,000a	200,000c	340,000	

DEATH VALLEY BASIN

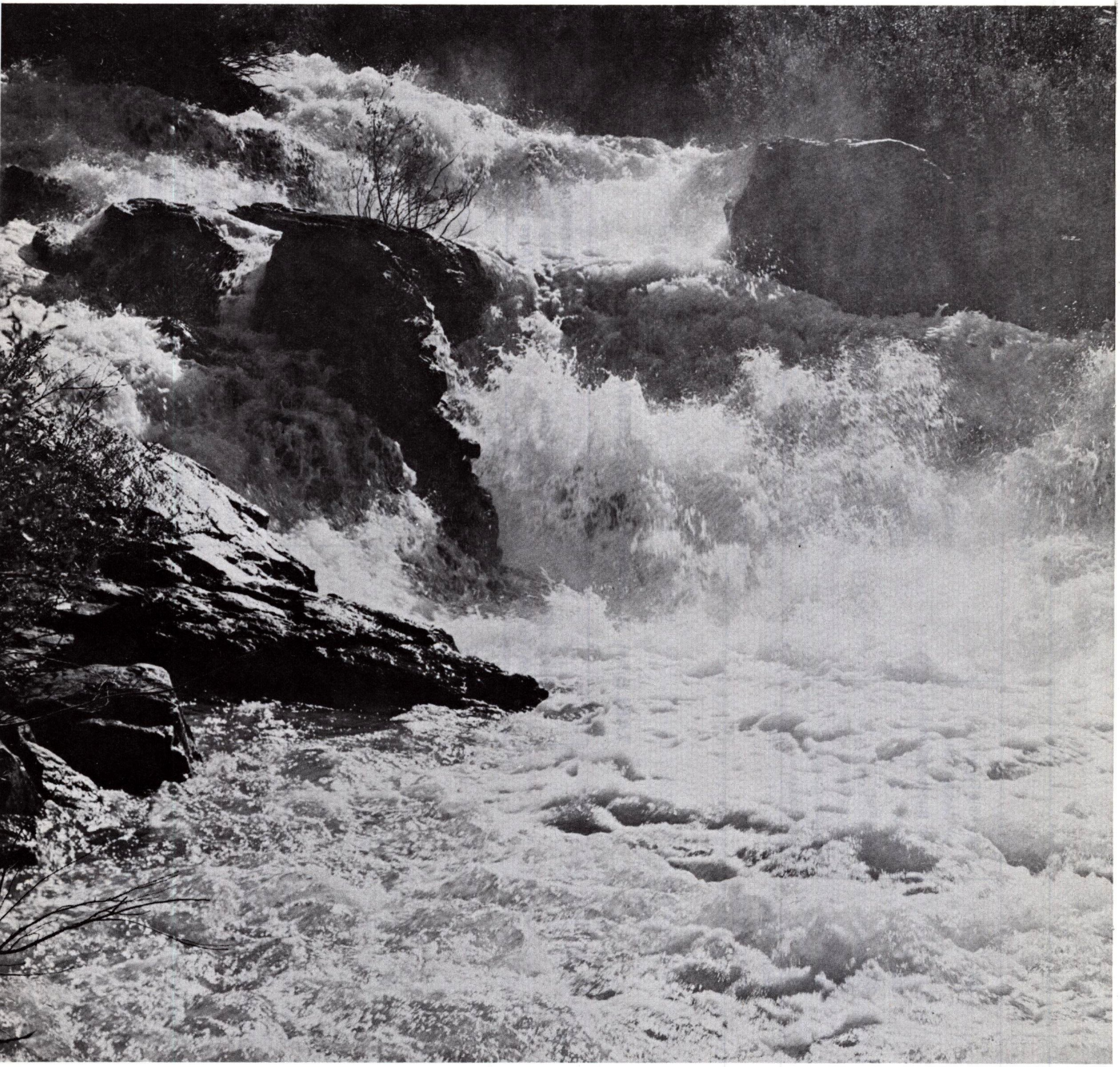
Hydrographic Area Number	Hydrographic Area	Water Budget	Water Yield	Groundwater in Storage	Report Reference
225	Mercury V.	17,000a	8,000c	Minor	R14, R54
226	Rock V.	17,000a	8,000c	1,500	R14, R54

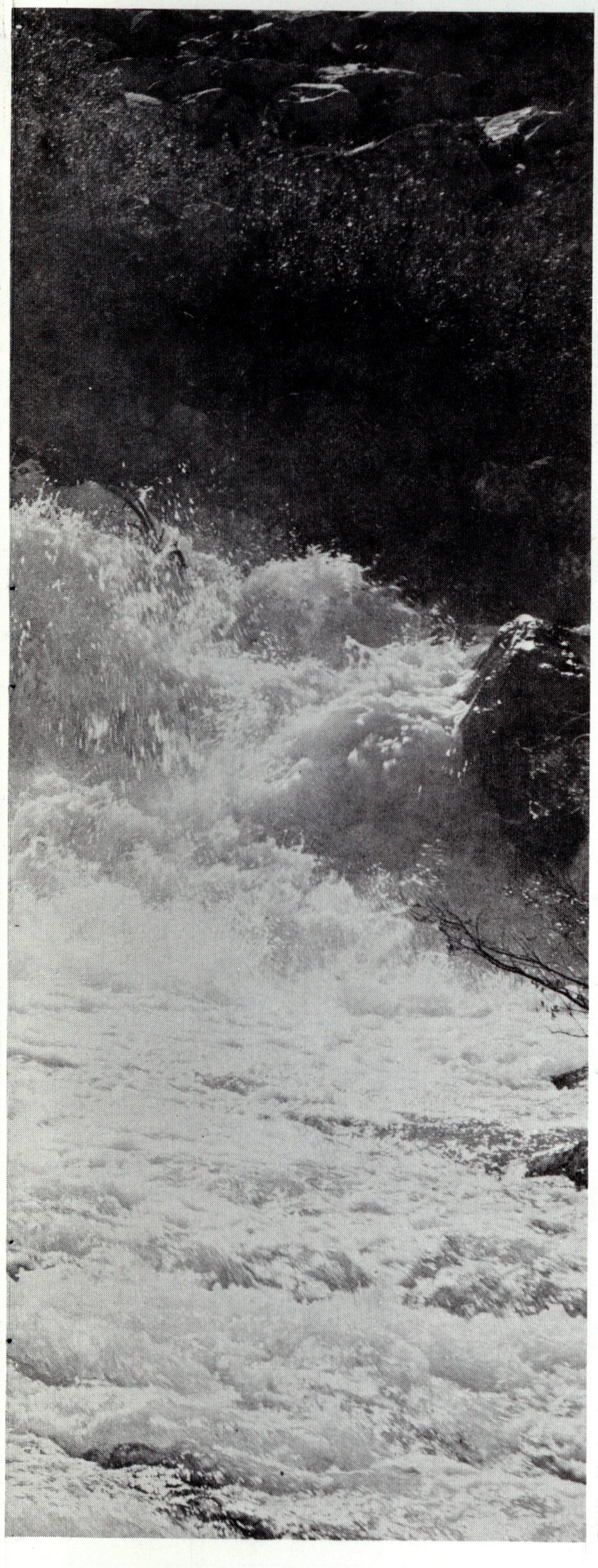
DEATH VALLEY BASIN, continued

227	Forty Mile Canyon				R14, R54
	a) Jackass Flats	8,000a	4,000c	7,400	R14, R54
	b) Buckboard Mesa	7,000a	3,600c	Minor	R14, R54
228	Oasis V.	3,500a	2,000c	4,000	R10, R54
229	Crater Flat	1,700a	900c	3,500	R14, R54
230	Amargosa Desert	43,000a	34,000c	35,000	R14, R54
231	Grapevine Canyon	400a	400c	1,600	R45
232	Oriental Wash	300a	150c	3,700	R45
BASIN TOTAL		62,000a	61,000c	57,000	
STATE TOTAL		2,000,000a	1,700,000c	2,500,000	

TABLE 1-A — TRANSITIONAL STORAGE

Hydrographic Region Number	Hydrographic Region	Transitional Storage Reserve (Acre Feet)
1	Northwest Region	1,000,000
2	Black Rock Desert Region	8,000,000
3	Snake River Basin	500,000
4	Humboldt River Basin	10,000,000
5	West Central Region	1,500,000
6	Truckee River Basin	1,600,000
7	Western Region	340,000
8	Carson River Basin	3,800,000
9	Walker River Basin	2,600,000
10	Central Region	45,000,000
11	Great Salt Lake Basin	3,000,000
12	Escalante Desert Basin	70,000
13	Colorado River Basin	5,000,000
14	Death Valley Basin	2,000,000
	TOTAL	84,000,000





Philip Hyde

CLIMATE AND PRECIPITATION DATA
Explanation of Table Headings
Table 2

Approximate Area

Each of the 254 hydrographic area units is shown on the 1:750,000 scale (1 inch = 12 miles) edition of the hydrographic area map (Figure 5). The extent of each hydrographic region and basin was computed as the sum of the hydrographic areas within each region or basin. For the computations, all digits are shown in Table 2 so that their arithmetic sum is equal to the total amount of Nevada, 110,540 sq. mi. However, because the areas were not actually surveyed, they may not agree precisely with areas listed in other reports.

Altitude of Valley Floor

The altitudes of the valley floors were taken from topographic maps; and are an approximate average of the altitude range of the valley lowlands. In general, the southern part of Nevada in and near the Colorado River and Death Valley basins contains mostly low-altitude hydrographic areas, the West Central part of the state generally contains mostly medium-altitude areas, and the East Central and northwestern parts of the state contain mostly high-altitude valleys.

Average Annual Precipitation

Precipitation is based on U.S. Weather Bureau data. The quantities listed in the table are usually estimates based on the period of record for several nearby precipitation stations. The average annual precipitation for the state as a whole is about nine inches.

Growing Season

Length of growing season is based mainly on temperature data from nearby weather stations, although some other published sources of data were also used. "Growing season" as used here refers to number of days between the last killing frost (28° F.) in the spring and the first killing frost (28° F.) in the fall.

Climate and precipitation data are shown in Table 2.

TABLE 2 — CLIMATE AND PRECIPITATION DATA

NORTHWEST REGION								Table 2 — Page 1 of 11
Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation				Average Growing Season (Days)
				Minimum (Inches)	Maximum (Inches)	Average (Feet)	Total (Acre-Feet)	
1	Pueblo V.	118	4,200	< 8	>20	1.0	73,000	
2	Continental Lake V.	214	4,200	< 8	>24	.7	100,000	
3	Gridley Lake V.	195	4,500	8	20	.9	98,000	
4	Virgin V.	494	4,800	8	12	.8	230,000	42
5	Sage Hen V.	22	5,600	8	12	.9	11,000	42
6	Guano V.	147	5,400	8	>14	.9	83,000	42
7	Swan Lake V.	226	5,700	8	15	.9	130,000	42
8	Massacre Lake V.	176	5,700	< 8	15	.8	97,000	42
9	Long V.	433	5,600	8	>14	.9	240,000	42
10	Macy Flat	27	5,800	8	<12	.9	16,000	42
11	Coleman V.	51	4,800	8	15	.9	28,000	42
12	Mosquito V.	32	5,700	< 8	15	.8	16,000	42
13	Warner V.	82	5,300	< 8	15	.8	44,000	42
14	Surprise V.	214	4,500	< 8	>14	.9	120,000	42
15	Boulder V.	88	5,700	8	>14	.9	52,000	42
16	Duck Lake V.	533	4,700	< 8	15	.8	270,000	75
		Total	Range	Minimum	Maximum		Total	Range
REGION SUMMARY		3,073	4200-5800	< 8	>24	.8	1,600,000	42-75
BLACK ROCK DESERT REGION								
17	Pilgrim Flat	12	6,400	< 8	15	1.1	7,000	
18	Painters Flat	31	5,700	< 8	15	.9	31,000	

BLACK ROCK DESERT REGION, continued

19	Dry V.	39	4,200	< 8	15	.5	14,000	
20	Sano V.	12	4,000	< 8	12	.4	3,100	160
21	Smoke Creek Desert	980	3,900	< 8	>20	.6	440,000	160
22	San Emidio Desert	305	4,000	< 8	20	.5	100,000	160
23	Granite Basin	9	5,000	8	20	1.0	6,000	
24	Hualapai Flat	315	4,100	< 8	>20	.8	170,000	150
25	High Rock Lake V.	665	5,000	< 8	12	.8	435,000	
26	Mud Meadow	495	4,000	< 8	>20	.7	220,000	
27	Summit Lake V.	60	5,900	12	20	1.2	43,000	
28	Black Rock Desert	2,179	4,000	< 8	20	.6	840,000	179
29	Pine Forest V.	528	4,000	< 8	<24	.8	260,000	77
30	Kings River V.	413	4,200	8	<24	1.0	260,000	88
	a) Rio King Sub Area	300	4,300	8				
	b) Sod House Sub Area	113	4,200	8				
31	Desert V.	1,052	4,200	< 8	20	.6	370,000	
32	Silver State V.	313	4,200	<10	>15	.7	140,000	
33	Quinn River V.	1,224	4,300	<10	>24	1.0	880,000	112
	a) Orovada Sub Area	632	4,200	<10				
	b) McDermitt Sub Area	592	4,500	<10				
		Total	Range	Minimum	Maximum	Average	Total	Range
REGION SUMMARY		8,632	3900-6400	< 8	>24	.8	4,200,000	77-179

SNAKE RIVER BASIN

34	Little Owyhee River Area	716	5,100	< 8	>24	.8	360,000	90
35	South Fork Owyhee River Area	1,310	5,000	< 8	>36	.9	720,000	90
36	Independence V.	345	5,700	< 8	>36	1.4	300,000	85
37	Owyhee River Area	533	5,300	< 8	36	1.4	460,000	90
38	Bruneau River Area	514	5,000	< 8	>36	1.5	500,000	
39	Jarbidge River Area	278	5,000	< 8	>36	1.9	330,000	
40	Salmon Falls Creek Area	1,218	5,200	< 8	>36	1.3	1,000,000	81
41	Goose Creek Area	316	5,200	< 8	>24	1.0	200,000	
		Total	Range	Minimum	Maximum	Average	Total	Range
BASIN SUMMARY		5,230	5000-5700	< 8	>36	1.2	3,900,000	81-90

HUMBOLDT RIVER BASIN

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation				Average Growing Season (Days)
				Minimum (Inches)	Maximum (Inches)	Average (Feet)	Total (Acre-Feet)	
42	Marys River Area	1,073	5,600	<10	>24	1.0	700,000	
43	Starr Valley Area	332	6,000	<10	>24	1.1	230,000	
44	North Fork Area	1,110	5,400	8	>24	1.1	750,000	
45	Lamoille V.	257	5,400	8	>24	1.1	180,000	140
46	South Fork Area	99	5,600	<12	>20	1.5	98,000	100
47	Huntington V.	787	5,500	<12	>20	1.1	550,000	90
48	Dixie Creek Tenmile Creek Area	392	5,400	<12	>20	.9	240,000	100
49	Elko Segment	314	5,100	< 8	>15	.9	170,000	103
50	Susie Creek Area	223	5,000	< 8	>20	.9	130,000	
51	Maggie Creek Area	396	5,300	< 8	< 24	.9	240,000	
52	Marys Creek Area	61	5,200	< 8	>20	.8	34,000	
53	Pine V.	1,002	5,400	8	>24	1.0	660,000	105
54	Crescent V.	752	5,000	< 8	<20	.9	430,000	110
55	Carico Lake V.	376	5,100	< 8	>20	.7	160,000	120
56	Upper Reese River V.	1,138	5,800	< 8	>20	.9	700,000	117
57	Antelope V.	452	5,000	< 8	>20	.9	260,000	120
58	Middle Reese River V.	319	4,900	< 8	>20	.8	170,000	120
59	Lower Reese River V.	588	4,700	< 8	>24	.8	280,000	120
60	Whirlwind V.	94	4,800	< 8	>15	.8	45,000	
61	Boulder Flat	544	4,700	< 8	>20	.7	240,000	
62	Rock Creek V.	444	4,900	< 8	<20	.8	240,000	
63	Willow Creek V.	405	5,100	8	<24	1.0	250,000	
64	Clovers Area	720	4,500	< 8	>20	1.0	300,000	120
65	Pumpernickel V.	299	4,500	< 8	>20	.7	130,000	
66	Kelly Creek Area	301	4,400	< 8	< 24	.7	130,000	
67	Little Humboldt V.	975	4,600	< 8	>20	.9	500,000	110
68	Hardscrabble Area	167	5,200	< 8	>20	1.1	120,000	110
69	Paradise V.	600	4,500	< 8	>20	.7	900,000	120
70	Winnemucca Segment	435	4,400	8	>24	.6	170,000	141
71	Grass V.	520	4,400	< 8	>20	.8	250,000	130
72	Imlay Area	771	4,200	< 8	>15	.6	300,000	128

	HUMBOLDT RIVER BASIN (continued)							
73	Lovelock V.	635	4,000	< 8	>20	.6	260,000	128
	a) Oreana Sub-Area	102	4,300	< 8	>20	.7		
74	White Plains	164	3,900	< 8	> 8	.5	51,000	
		Total	Range	Minimum	Maximum	Average	Total	Range
	BASIN SUMMARY	16,843	3900-6000	< 8	>24	.9	9,900,000	90-141
	WEST CENTRAL REGION							
75	Bradys Hot Springs Area	178	4,200	< 4	>12	.5	59,000	150-170
76	Fernley Area	120	4,200	5	<15	.6	43,000	
77	Fireball V.	58	4,700	< 8	>12	.6	21,000	150-160
78	Granite Springs V.	967	4,000	< 8	>15	.6	350,000	150-170
79	Kumiva V.	333	4,500	< 8	>15	.6	120,000	150-160
		Total	Range	Minimum	Maximum	Average	Total	Range
	REGION SUMMARY	1,656	4000-4700	< 4	>15	.6	590,000	150-170
	TRUCKEE RIVER BASIN							
80	Winnemucca Lake V.	371	3,800	< 5	20	.6	130,000	137
81	Pyramid Lake V.	672	3,800	5	<24	.6	270,000	137
82	Dodge Flat	92	4,200	5	>20	.7	43,000	
83	Tracy Segment	285	4,300	8	>39	2.3	110,000	
84	Warm Springs Area	247	4,300	< 8	<20	.8	130,000	140
85	Spanish Springs V.	76	4,500	< 8	>15	.6	30,000	140
86	Sun V.	10	4,700	< 8	> 8	.6	4,000	140
87	Truckee Meadows	203	4,500	5	>39	1.2	160,000	155
88	Pleasant V.	39	4,500	8	>39	2.0	46,000	
89	Washoe V.	82	5,100	12	>32	1.8	87,000	120
90	Lake Tahoe Basin	139	6,200	15	>40	2.1	180,000	
91	Truckee Canyon Segment	84	4,900	8	>39	2.3	110,000	
		Total	Range	Minimum	Maximum	Average	Total	Range
	BASIN SUMMARY	2,300	3800-6200	< 5	>40	.9	1,300,000	120-155

WESTERN REGION

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation: Minimum (Inches)	Maximum (Inches)	Average (Feet)	Total (Acre-Feet)	Average Growing Season (Days)
92	Lemmon V.	93	5,000	< 8	>15	.8	48,000	130
	(a) Western Part	53	5,000	< 8				130
	(b) Eastern Part	40	5,000	< 8				130
93	Antelope V.	18	5,200	<12	>15	.8	9,000	130
94	Bedell Flat	53	5,000	< 8	>15	.8	28,000	130
95	Dry V.	80	4,600	< 8	>15	.8	44,000	130
96	Newcomb Lake V.	9	5,200	8	>15	.9	4,500	130
97	Honey Lake V.	193	4,000	< 8	>15	.7	84,000	170
98	Skedaddle Creek V.	43	4,800	< 8	>12	.7	20,000	
99	Red Rock V.	58	4,900	< 8	>15	.8	29,000	130
100	Cold Spring V.	30	5,100	<12	>15	.9	18,000	130
		Total	Range	Minimum	Maximum	Average	Total	Range
REGION SUMMARY		577	4000-5200	< 8	>15	.8	280,000	130-170

CARSON RIVER BASIN

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Minimum (Inches)	Maximum (Inches)	Average (Feet)	Total (Acre-Feet)	Average Growing Season (Days)
101	Carson Desert	2,182	3,900	< 8	>15	.5	720,000	127
102	Churchill V.	480	4,200	< 8	>15	.5	170,000	
103	Dayton V.	369	4,400	< 8	>20	.8	180,000	
104	Eagle V.	69	4,700	8	>30	1.3	58,000	119
105	Carson V.	419	4,800	< 8	>30	1.0	270,000	114
		Total	Range	Minimum	Maximum	Average	Total	Range
BASIN SUMMARY		3,519	3900-4800	< 8	>30	.6	1,400,000	114-127

WALKER RIVER BASIN

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Minimum (Inches)	Maximum (Inches)	Average (Feet)	Total (Acre-Feet)	Average Growing Season (Days)
106	Antelope V.	115	5,000	< 8	>24	1.0	69,000	
107	Smith V.	479	4,700	< 8	24	.9	270,000	120
108	Mason V.	516	4,500	< 5	>15	.5	160,000	118
109	East Walker Area	586	6,800	< 8	>26	.7	250,000	

WALKER RIVER BASIN, continued								**Table 2 — Page 6 of 11**
110	Walker Lake V.	1,350	4,300					136
	(a) Schurz Sub Area	502	4,200	5	15	.5	160,000	136
	(b) Lake Sub Area	307	4,000	4	20			
	(c) Whiskey Flat Hawthorne Sub	541	4,800	3	>20	.6	210,000	
		Total	Range	Minimum	Maximum	Average	Total	Range
BASIN SUMMARY		3,048	4000-6800	3	>26	.6	1,200,000	118-136
CENTRAL REGION								
111	Alkali V.	83	6,900					100-150
	(a) Northern Part	18	7,050	8	>15	.8	9,500	
	(b) Southern Part	65	6,850	< 8	>15	.8	36,000	
112	Mono V.	27	7,000	8	>12	.9	16,000	100-150
113	Huntoon V.	97	5,800	< 8	>12	.6	43,000	100-150
114	Teels Marsh V.	323	5,000	< 6	>12	.6	120,000	170-200
115	Adobe V.	15	6,400	8	>12	.9	6,400	100-150
116	Queen V.	65	6,200	< 8	>20	.9	35,000	100-150
117	Fish Lake V.	706	4,800	< 5	>20	.6	270,000	96+
118	Columbus Salt Marsh V.	370	4,600	< 4	>20	.4	100,000	186
119	Rhodes Salt Marsh V.	199	4,600	5	>15	.5	59,000	170-200
120	Garfield Flat	92	5,700	< 8	>12	.6	34,000	100-150
121	Soda Springs V.	376	4,600					
	(a) Eastern Part	246	4,600	< 4	>15	< .5	72,000	188
	(b) Western Part	130	4,500	< 8	> 8	.4	35,000	170-200
122	Gabbs V.	1,277	4,300	4	15	.7	520,000	100-120
123	Rawhide Flats	227	4,000	< 8	12	.5	75,000	
124	Fairview V.	285	4,200	< 8	15	.5	100,000	
125	Stingaree V.	43	4,400	< 8	>15	.6	16,000	
126	Cowkick V.	110	4,700	< 8	>20	.6	44,000	
127	Eastgate Valley Area	216	4,800	< 8	<24	.8	100,000	
128	Dixie V.	1,303	3,600	< 5	>20	.6	460,000	220
129	Buena Vista V.	742	4,100	< 7	15	.6	310,000	110
130	Pleasant V.	285	4,400	< 8	>20	.6	110,000	
131	Buffalo V.	504	4,700	< 8	>24	.7	240,000	120
132	Jersey V.	142	4,200	< 8	20	.6	56,000	

CENTRAL REGION, continued								Table 2 – Page 7 of 11
Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation				Average Growing Season (Days)
				Minimum (Inches)	Maximum (Inches)	Average (Feet)	Total (Acre-Feet)	
133	Edwards Creek V.	416	5,200	< 8	>20	.7	190,000	120
134	Smith Creek V.	582	6,100	<12	>20	.8	280,000	
135	Ione V.	460	6,000	<12	>20	.7	230,000	
136	Monte Cristo V.	284	5,400	< 8	>12	.5	94,000	100-150
137	Big Smoky	2,926						
	(a) Tonopah Flat	1,603	4,800	< 5	>15	.6	580,000	150
	(b) Northern Part	1,323	5,500	< 6	>20	.9	740,000	130
138	Grass V.	595	5,700	< 8	>20	.8	290,000	120
139	Kobeh V.	868	6,200	<12	>20	.8	560,000	100
140	Monitor V.	1,038						
	(a) Northern Part	529	6,500	6	>18	.7	230,000	>100
	(b) Southern Part	509	7,000	< 7	>18	.8	280,000	<100
141	Ralston V.	971	5,600	< 4	>15	.6	360,000	144
142	Alkali Spring V. (Esmeralda)	313	5,000	< 6	> 8	.5	100,000	140
143	Clayton V.	555	4,400	< 8	>15	.5	180,000	150
144	Lida V.	535	5,000	< 8	>12	.5	170,000	140
145	Stonewall Flat	381	4,800	< 8	>12	.5	110,000	140
146	Sarcobatus Flat	812	4,100	< 4	>15	.4	190,000	150
147	Gold Flat	684	5,200	< 8	>15	.6	250,000	
148	Cactus Flat	403	5,400	< 8	>15	.5	130,000	
149	Stone Cabin V.	985	5,700	< 8	>15	.6	350,000	144
150	Little Fish Lake V.	434	6,600	< 8	>20	.8	230,000	75-100
151	Antelope V. (Eureka & Nye)	444	6,200	< 7	>18	.7	190,000	100
152	Stevens Basin	17	7,200	7	15	.7	8,500	<100
153	Diamond V.	752	5,900	< 8	>20	.9	400,000	100
154	Newark V.	801	5,900	< 6	>20	.8	410,000	80-100
155	Little Smoky V.	1,158						75-150
	(a) Northern Part	591	6,100	< 6	>15	.6	230,000	75-100
	(b) Central Part	57	6,500	< 8	>12	.5	20,000	75
	(c) Southern Part	510	5,900	< 8	>15	.6	200,000	150
156	Hot Creek V.	1,036	5,300	< 5	>15	.6	390,000	150
157	Kawich V.	350	5,500	< 8	>15	.7	150,000	

158	Emigrant V.	767						
	(a) Groom Lake V.	663	4,600	< 8	>20	.6	250,000	
	(b) Papoose Lake V.	104	4,600	< 8	> 8	.5	34,000	
159	Yucca Flat	305	4,000	< 8	>12	.5	100,000	
160	Frenchman Flat	463	3,200	< 8	> 8	.5	150,000	
161	Indian Springs V.	655	3,200	< 8	>20	.6	270,000	
162	Pahrump V.	789	2,800	4	>20	.7	420,000	
163	Mesquite V. (Sandy V.)	236	2,600	< 8	>20	.6	90,000	200-250
164	Ivanpah V.	326						200-250
	(a) Northern Part	235	2,700	< 8	>20	.5	81,000	
	(b) Southern Part	88	2,800	< 8	>15	.6	33,000	
165	Jean Lake V.	96	2,800	< 8	>12	.5	32,000	
166	Hidden Valley (South)	34	3,100	< 8	< 8	.5	11,000	
167	Eldorado V.	530	1,800	5	>12	.6	190,000	275
168	Three Lakes V. (North. Part)	298	3,600	< 8	>20	.6	110,000	
169	Tikapoo V.	998						
	(a) Northern Part	627	4,300	< 8	>20	.6	230,000	
	(b) Southern Part	380	3,400	< 8	>20	.6	150,000	
170	Penoyer V. (Sand Springs V.)	700	5,000	< 8	>20	.6	270,000	
171	Coal V.	460	5,000	< 8	>20	.6	170,000	150
172	Garden V.	493	5,500	< 8	>15	.7	230,000	150
173	Railroad V.	2,752	4,900					
	(a) Southern Part	603	4,900	< 8	<20	.6	250,000	
	(b) Northern Part	2,149	4,800	7	>24	.7	990,000	
174	Jakes V.	422	6,400			.9	240,000	
175	Long V.	651	6,100	< 6	>15	.6	250,000	100
176	Ruby V.	1,004	6,000	< 8	>20	1.1	720,000	107
177	Clover V.	464	5,700	5	35	.9	260,000	100
178	Butte V.	1,010						100-130
	(a) Northern Part	271	6,100	< 8	>20	.8	140,000	
	(b) Southern Part	739	6,300	<12	>20	.9	420,000	
179	Steptoe V.	1,942	5,900	6	>20	1.0	1,200,000	119
180	Cave V.	362	6,100	< 8	>20	.9	220,000	
181	Dry Lake V.	882	4,800	< 8	>20	.6	340,000	150
182	Delamar V.	383	4,600	< 8	>12	.6	140,000	150
183	Lake V.	557	6,000	< 8	>20	.8	290,000	100

CENTRAL REGION, continued

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation Minimum (Inches)	Average Annual Precipitation Maximum (Inches)	Average Annual Precipitation Average (Feet)	Average Annual Precipitation Total (Acre-Feet)	Average Growing Season (Days)
184	Spring V.	1,661	5,700	< 8	>20	.9	960,000	100
185	Tippett V.	345	5,700	< 8	>20	.7	160,000	110
186	Antelope V. (White Pine & Elko)	395						
	(a) Southern Part	125	5,900	< 8	>15	.7	52,000	110
	(b) Northern Part	270	5,600	< 8	>20	.7	120,000	110
187	Goshute V.	954	5,600	< 8	>15	.7	440,000	100
188	Independence V. (Pequop V.)	562	5,600	5	>15	.8	250,000	100
		Total	Range	Minimum	Maximum	Average	Total	Range
	REGION SUMMARY	46,783	1800-7200	< 4	>24	.7	22,000,000	75-275

GREAT SALT LAKE BASIN

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation Minimum (Inches)	Average Annual Precipitation Maximum (Inches)	Average Annual Precipitation Average (Feet)	Average Annual Precipitation Total (Acre-Feet)	Average Growing Season (Days)
189	Thousand Springs V.	1,446						
	(a) Herrill Siding — Brush Creek Area	163	5,900	< 8	>15	.7	72,000	100
	(b) Toano—Rock Spring Area	618	5,600	< 8	>15	.6	250,000	100
	(c) Rocky Butte Area	183	5,200	< 8	>12	.6	75,000	100
	(d) Montello—Crittenden Creek Area (Montello V.)	482	4,900	< 6	>15	.6	190,000	110
190	Grouse Creek V.	55	5,000	< 8	>12	.7	24,000	140
191	Pilot Creek V.	326	4,600	< 8	>20	.6	130,000	110
192	Great Salt Lake Desert	507	4,300	< 5	>20	.6	200,000	200
193	Deep Creek V.	208	5,200	< 8	>20	.6	86,000	110
194	Pleasant V.	75	6,200	<13	>16	1.2	54,000	
195	Snake V.	777	5,200	8	24	1.2	580,000	150
196	Hamlin V.	413	5,800	10	>24	1.0	260,000	
		Total	Range	Minimum	Maximum	Average	Total	Range
	BASIN SUMMARY	3,807	4300-6200	< 5	>20	.8	1,900,000	100-200

ESCALANTE DESERT

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation Minimum (Inches)	Average Annual Precipitation Maximum (Inches)	Average Annual Precipitation Average (Feet)	Average Annual Precipitation Total (Acre-Feet)	Average Growing Season (Days)
197	Escalante Desert	106	5,800	<12	>15	1.1	76,000	120

COLORADO RIVER BASIN

198	Dry V.	113	5,400	< 8	>15	.7	50,000	
199	Rose V.	12	5,500	< 8	>12	.6	5,100	
200	Eagle V.	52	5,600	< 8	>15	.8	28,000	
201	Spring V.	287	6,000	< 8	>20	1.0	180,000	
202	Patterson V.	418	5,600	< 8	>20	.7	190,000	160
203	Panaca V.	334	4,800	< 8	20	.8	180,000	160
204	Clover V.	364	5,000	< 8	<15	.6	140,000	
205	Lower Meadow Valley Wash	979	2,600	5	>12	.5	320,000	180
206	Kane Springs V.	234	3,300	< 8	<15	.5	80,000	
207	White River V.	1,607	5,400	< 8	>24	.7	750,000	
208	Pahroc V.	508	5,000	< 8	>15	.6	190,000	
209	Pahranagat V.	768	3,700	< 6	>15	.5	270,000	180
210	Coyote Spring V.	657	2,500	< 8	>20	.5	220,000	
211	Three Lakes V. (South. Part)	311	3,100	< 8	>20	.7	130,000	
212	Las Vegas V.	1,564	2,000	4	>24	.7	660,000	275
213	Colorado River V.	563	800	< 4	<15	.4	150,000	330
214	Piute V.	338	2,800	< 5	>12	.5	110,000	275-330
215	Black Mountains Area	630	1,200	< 5	> 8	.5	200,000	
216	Garnet V.	156	2,000	< 5	>12	.5	58,000	
217	Hidden V. (North)	80	2,700	< 5	>12	.6	28,000	
218	California Wash	318	1,800	< 5	>12	.5	100,000	250
219	Muddy River Springs Area (Upper Moapa V.)	91	1,800	< 5	> 8	.5	33,000	250
220	Lower Moapa V.	252	1,400	4	>12	.5	76,000	255
221	Tule Desert	192	3,200	< 8	>15	.7	110,000	
222	Virgin River V.	907	1,500	6	>15	.6	320,000	260
223	Gold Butte Area	533	1,200	< 5	>12	.5	180,000	
224	Grease Wood Basin	108	2,200	< 5	>12	.6	43,000	
		Total	Range	Minimum	Maximum	Average	Total	Range
BASIN SUMMARY		12,376	800-6000	< 4	>24	.6	4,800,000	160-330

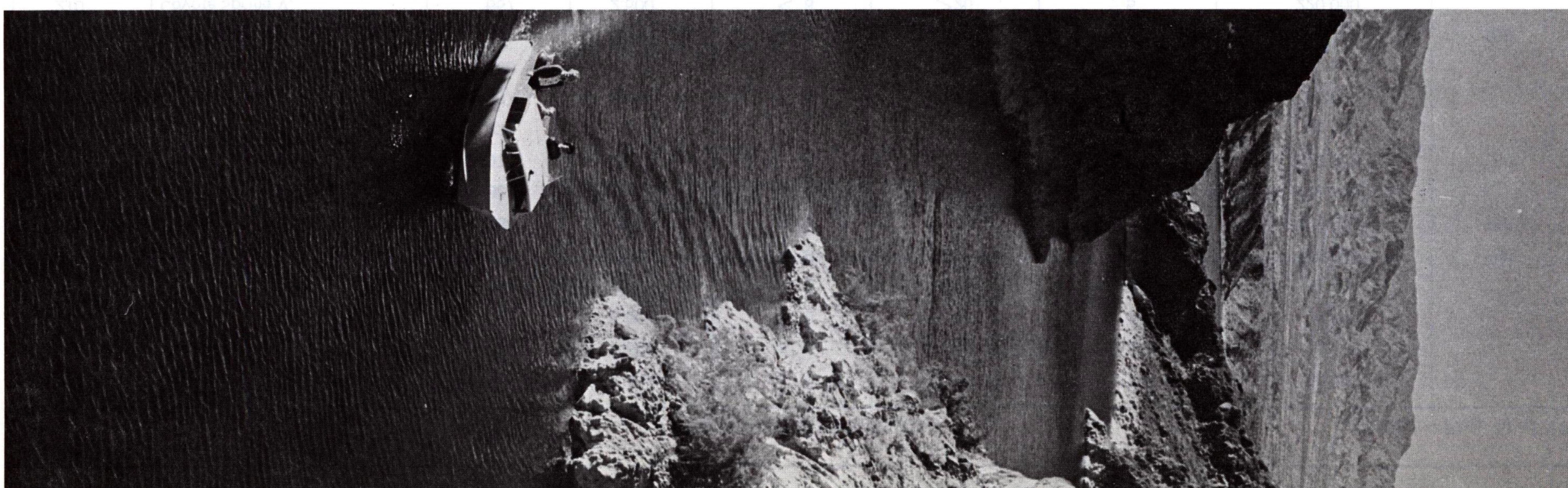
DEATH VALLEY BASIN

225	Mercury V.	110	3,200	< 8	>15	.5	38,000	
226	Rock V.	82	3,300	< 8	> 8	.5	26,000	

DEATH VALLEY BASIN, continued

Table 2 – Page 11 of 11

Hydrographic Area Number	Hydrographic Area	Approximate Area (Square Miles)	Approximate Altitude of Valley Floor	Average Annual Precipitation: Minimum (Inches)	Average Annual Precipitation: Maximum (Inches)	Average Annual Precipitation: Average (Feet)	Average Annual Precipitation: Total (Acre-Feet)	Average Growing Season (Days)
227	Forty Mile Canyon	519						
	(a) Jackass Flats	279	3,500	< 8	>15	.5	97,000	
	(b) Buckboard Mesa	240	5,000	< 8	>12	.6	91,000	
228	Oasis V.	460	3,800	< 5	>12	.5	150,000	184
229	Crater Flat	182	3,200	< 8	>12	.5	61,000	
230	Amargosa Desert	896	2,600	< 4	>15	.4	240,000	180-200
231	Grapevine Canyon	162	4,200	< 8	>12	.5	49,000	150
232	Oriental Wash	182	4,000	< 8	>12	.5	58,000	140
		Total	Range	Minimum	Maximum	Average	Total	Range
BASIN SUMMARY		2,593	2600-5000	< 5	>15	.5	810,000	<140-200
		Total	Range	Minimum	Maximum	Average	Total	Range
STATE SUMMARY		110,540	800-7200	3	>40	.8	54,000,000	42-330



Cliff Segerblom

GROUND WATER DATA

Explanation of Table Headings

Table 3

Ground Water Recharge from Precipitation

Precipitation is so scarce on the valley floors that very little ever reaches ground water reservoirs; most of the valley recharge comes from precipitation in the adjacent mountains. Water reaches the ground water reservoir by seepage from streams on the alluvial apron and by underground flow from consolidated rocks. Yet even most of this precipitation evaporates before infiltration, while some adds to soil moisture, leaving only a small percentage to recharge the ground water reservoir.

A method* used to estimate recharge assumes that a percentage of the average annual precipitation will recharge the ground water reservoirs. But in some hydrographic areas, because of uncommonly large precipitation, some of this recharge (computed and listed in Table 3) may be rejected by the ground water system. This excess water remains in the streams and either flows out of the hydrographic area or accumulates on playas, where most of it evaporates. Recharge quantities preceded by an "a" in Table 3 probably are in part rejected; therefore the actual ground water recharge is somewhat less than computed.

The ground water budgets for some of the areas shown in the table do not balance and additional information will be required before the imbalances can be completely resolved. An example of such an imbalance is Honey Lake Valley (97). The ground water recharge from precipitation is estimated to be 1400 acre feet per year and the ground water subsurface inflow is nearly 600 acre feet for a total inflow of approximately 2000 acre feet (Table 3). The ground water evapotranspiration is estimated to be 7000 acre feet, thus an imbalance of approximately 5000 acre feet per year exists. The imbalance is probably due to a larger proportion of precipitation becoming recharge or, there is an unaccounted for routing of subsurface flow through the consolidated rocks to the valley-fill reservoir.

Sub-surface Inflow

Sub-surface flow of ground water between hydrographic areas of Nevada is common. Ground water flow through alluvium and consolidated rocks was computed by means of a form of Darcy's law:

$$Q = 0.00112\ TIW$$

in which "Q" is the quantity of flow, in ac. ft. per year; "T" is the coefficient of transmissibility, in gallons per day per foot; "I" is the hydraulic gradient, in feet per mile; "W" is the width of the flow section in miles; and factor 0.00112 converts gallons per day to ac. ft. per year. The estimated quantity of inflow, as well as the source area, is listed in Table 3 and shown in Figure 5.

Evaporation-Transpiration

In areas where ground water is close to the surface discharge occurs by evaporation from soil and by transpiration of plants that have roots to the water table. These plants which tap ground water are called "phreatophytes".

Ground water evaporates in some areas where the depth to water is as great as 15 feet. And some phreatophytes discharge ground water where the depth to water is as deep as 50 feet.

Sub-surface Outflow

Ground water outflow is evaluated and estimated similar to sub-surface inflow, as discussed above. The estimated quantity of outflow, as well as the area receiving the flow, is listed in Table 3 and shown in Figure 5.

Region, Basin and State Totals

Region, basin, and state totals for sub-surface inflow and outflow are not the sum of the individual areas because quantities of water circulate among hydrographic areas within regions, basins and within the state. All other water quantities in Table 3 generally are additive.

Water Quality

Although ground water resources in Nevada are large, many factors reduce the amount of water which could economically be withdrawn. Some aquifers are very deep, may yield only small amounts of water to wells and are widely distributed, not concentrated as are the demands on them. Water quality is another important facet of water supply. In many cases, ground water quality is not adequate for drinking or other uses. Figure 3 shows some of the known areas of poor quality water. The information shown is largely based on analyses of waters from wells and springs.

*Described by T.E. Eakin in Nevada Water Resources Bulletin 12.

TABLE 3 — GROUND WATER DATA

Hydrographic Area Number	Hydrographic Area	Ground Water Recharge From Precipitation (ac. ft./yr.)	Ground Water Inflow: Acre Feet Per Year	Ground Water Inflow: From Hydrographic Area	Ground Water Evapotranspiration (ac. ft./yr.)	Ground Water Outflow: Acre Feet Per Year	Ground Water Outflow: To Hydrographic Area
			NORTHWEST REGION				
1	Pueblo V.	3,200			1,200	1,000	Oregon
2	Continental Lake V.	4,000	?	?	10,500	0	
3	Gridley Lake V.	a 4,500			2,000	0	
4	Virgin V.	7,000			6,000	0	
5	Sage Hen V.	a 500	Minor	Oregon	0	< 500	4
6	Guano V.	a 4,000	0		Minor	< 4,000	Oregon
7	Swan Lake V.	a 6,700	0		0	0	
8	Massacre Lake V.	3,500	0		2,500	2,000	9
9	Long V.	a 10,000	5,000	8,15,10	11,000	0	
10	Macy Flat	a 500	0		0	500	9
11	Coleman V.	a 1,000	0		Minor	1,000	Oregon
12	Mosquito V.	700	0		1,600	0	
13	Warner V.	1,800	0		Minor	< 1,800	Oregon
14	Surprise V.	a 5,000	0		0	5,000	Calif.
15	Boulder V.	a 2,700	0		< 2,700	2,000	9
16	Duck Lake V.	9,000	0		7,000	0	
REGION TOTAL		a 64,000	Minor	Oregon	45,000	13,000	Oregon, Calif.
			BLACK ROCK DESERT REGION				
17	Pilgrim Flat	a 500	0		< 10	500	Calif.
18	Painters Flat	a 1,300	0		1,200	0	
19	Dry V.	200	0		20	180	21
20	Sano V.	< 10	0		30	0	
21	Smoke Creek Desert	13,000	380	19,22	19,000	0	

	BLACK ROCK DESERT REGION, continued						**Table 3 — Page 2 of 10**
22	San Emidio Desert	2,100	0		3,000	< 300	21,28
23	Granite Basin	a 400	0		0	Minor	28
24	Hualapai Flat	7,000	0		6,300	400	28
25	High Rock Lake V.	13,000	0		750	9,000	26
26	Mud Meadow	8,000	9,000	25	11,000	1,500	28
27	Summit Lake V.	a 4,200	0		Minor	Some	26
28	Black Rock Desert	20,000	4,700	22,23,24,26,29	35,000	Minor	22
29	Pine Forest V.	10,000	250	30,31	11,000	2,700	28
30	Kings River V.	a 15,000			16,000	100	29
	a) Rio King Sub Area		300	32,33			
	b) Sod House Sub Area						
31	Desert V.	5,000			10,000	150	29
32	Silver State V.	1,400	4,500	33	5,800	100	30
33	Quinn River V.	a 62,000	Minor	Oregon	51,000	4,700	31,32
	a) Orovada Sub Area						
	b) McDermitt Sub Area						
REGION TOTAL		a 160,000	Minor	Oregon	170,000	500	Calif.
	SNAKE RIVER BASIN						
34	Little Owyhee River Area	2,700	0		Minor	Minor	Idaho
35	South Fork Owyhee River Area	a 12,000	Minor	36, Idaho	8,000	Minor	Idaho
36	Independence V.	a 16,000	0		12,000	Minor	35
37	Owyhee River Area	a 17,000	0		7,100	Minor	Idaho
38	Bruneau River Area	a 26,000	0		3,200	Some	Idaho
39	Jarbidge River Area	a 32,000	0		Minor	Some	Idaho
40	Salmon Falls Creek Area	a 44,000	0		10,000	Minor	Idaho
41	Goose Creek Area	a 6,700	Some	Idaho	1,700	Minor	Utah
BASIN TOTAL		a 160,000	Some	Idaho	42,000	Some	Idaho, Utah
	HUMBOLDT RIVER BASIN						
42	Marys River Area	a 54,000					
43	Starr Valley Area	a 26,000			83,000	Minor	45,49
44	North Fork Area	a 58,000	Minor	42,43			

HUMBOLDT RIVER BASIN, continued							Table 3 – Page 3 of 10
Hydrographic Area Number	Hydrographic Area	Ground Water Recharge From Precipitation (ac. ft./yr.)	Ground Water Inflow: Acre Feet Per Year	Ground Water Inflow: From Hydrographic Area	Ground Water Evapotranspiration (ac. ft./yr.)	Ground Water Outflow: Acre Feet Per Year	Ground Water Outflow: To Hydrographic Area
45	Lamoille V.	a 36,000	0				
46	South Fork Area	a 4,000	0		3,000	600	48
47	Huntington V.	a 14,000	0		14,000	10,400	48,176
48	Dixie Creek Tenmile Creek Area	a 13,000	1,000	46,47	4,000	9,000	49
49	Elko Segment	a 7,400			13,000		
50	Susie Creek Area	a 8,000			6,100	Minor	?
51	Maggie Creek Area	a 16,000					
52	Marys Creek Area	1,500					
53	Pine V.	a 50,000	0		15,000	9,300	54,61,153
54	Crescent V.	a 13,000	> 300	53,55	12,000	Minor	60,61
55	Carico Lake V.	a 4,300	0		3,800	300	54
56	Upper Reese River V.	a 37,000	0		37,000	500	58
57	Antelope V.	a 11,000			500	6,000	58
58	Middle Reese River V.	7,000	6,500	56,57	3,000	9,000	59
59	Lower Reese River V.	14,000	17,000	58,131	22,000	3,000	61
60	Whirlwind V.	1,700					
61	Boulder Flat	17,000	Minor	53,54	30,000	2,000	
62	Rock Creek V.	9,000			2,800		
63	Willow Creek V.	a 15,000					
64	Clovers Area	a 9,000					
65	Pumpernickel V.	3,400			72,000	1,000	70
66	Kelly Creek Area	4,000					
67	Little Humbolt V.	a 21,000	0		4,000	300	69
68	Hardscrabble Area	a 9,000	0		Minor	Minor	69
69	Paradise V.	10,000	300	67,68	40,000	3,500	70
70	Winnemucca Segment	4,400	9,000	65,66,69,71	16,000	3,000	72
71	Grass V.	12,000			13,000	4,000	70
72	Imlay Area	7,000	3,000	70	7,400	1,000	73
73	Lovelock V.	3,200	1,000	72	31,000	Some	73
	a) Oreana Sub Area	2,000					
74	White Plains	Minor	Some	73		Some	101
BASIN TOTAL		a 500,000	0		> 430,000	> 9,000	

			WEST CENTRAL REGION			**Table 3 – Page 4 of 10**	
75	Bradys Hot Springs Area	160	1,200	76,77	3,000	0	
76	Fernley Area	600	0			5,800	75,82,83
77	Fireball V.	200			0	200	75
78	Granite Springs V.	3,500	1,000	79	4,400	0	
79	Kumiva V.	1,000			0	1,000	78
REGION TOTAL		5,500	0		7,400	4,800	
			TRUCKEE RIVER BASIN				
80	Winnemucca Lake V.	8,000	400	81	> 5,000	0	
81	Pyramid Lake V.	6,600	350	82,84		350	80
82	Dodge Flat	1,400	2,800	76,83		150	81
83	Tracy Segment	6,000	2,100	76,87		700	82
84	Warm Springs V.	6,000	0		1,500	≥ 200	81,97
85	Spanish Springs V.	600	0		900	100	87
86	Sun V.	50	0		2	25	87
87	Truckee Meadows	a 27,000	1,100	85,86,88,91		Minor	83
88	Pleasant V.	a 10,000	50	89		300	87
89	Washoe V.	a 15,000	0		8,500	50	88
90	Lake Tahoe Basin	a 45,000	0		Minor	0	
91	Truckee Canyon Segment	a 27,000	400	Calif.		700	87
BASIN TOTAL		a 150,000	> 4,600		> 16,000	Some ?	
			WESTERN REGION				
92	Lemmon V.	2,100			1,200		
	a) Western Part						
	b) Eastern Part						
93	Antelope V.	300	0		0	Some	94
94	Bedell Flat	1,100	Some	93	30	≥ 200	99
95	Dry V.	2,400	0		80	2,200	Calif.
96	Newcomb Lake V.	a 300	0		130	0	
97	Honey Lake V.	1,400	≥ 600	84, Calif.	7,000	0	
98	Skeedaddle Creek V.	600	0		< 10	600	Calif.

WESTERN REGION, continued							Table 3 – Page 5 of 10
Hydrographic Area Number	Hydrographic Area	Ground Water Recharge From Precipitation (ac. ft./yr.)	Ground Water Inflow		Ground Water Evapotranspiration (ac. ft./yr.)	Ground Water Outflow	
			Acre Feet Per Year	From Hydrographic Area		Acre Feet Per Year	To Hydrographic Area
99	Red Rock V.	1,600	$\geq$ 200	94	630	Minor	Calif.
100	Cold Springs V.	a 900	0		130	Minor	Calif.
REGION TOTAL		a 11,000	$\geq$ 600		9,000	> 2,800	
CARSON RIVER BASIN[1]							
101	Carson Desert	2,000	Minor ?	74,102		Minor ?	123
102	Churchill V.	1,300	Minor ?	103,108		Minor ?	101
103	Dayton V.	7,900	Minor ?	104,105		Minor ?	102
104	Eagle V.	a 8,700	0		4,000	Minor	103
105	Carson V.	a 25,000	3,000	Calif.		Minor	103
BASIN TOTAL		a 45,000					
WALKER RIVER BASIN							
106	Antelope V.	a 5,000	Some	Calif.	5,700	200	107
107	Smith V.	a 21,000	200	106		500	108
108	Mason V.	2,000	500	107,109	57,000	1,500	102,110
109	East Walker Area	12,000	Some	Calif.	6,500	150	108
110	Walker Lake V.						
	a) Schurz Sub Area	500	1,400	108	17,000	Some	110B
	b) Lake Sub Area	600	Some	110A, 110C	800	0	
	c) Whiskey Flat Hawthorne Sub Area	5,400	300	121B	4,600	Some	110B
BASIN TOTAL		a 46,000	Some		> 92,000	150	
CENTRAL REGION							
111	Alkali Valley						
	a) Northern Part	400	0		300	0	
	b) Southern Part	1,400	0		0	1,400	Calif.

[1] These figures are preliminary and subject to revision.

112	Mono V.	a 700	0		0	700	Calif.
113	Huntoon V.	800	0		300	300	114 or 110C
114	Teels Marsh V.	1,300	< 300	113	1,400	0	
115	Adobe V.	a 300	0		40	< 260	Calif.
116	Queen V.	a 2,000	0		0	≥ 1,100	Calif.
117	Fish Lake V.	7,300	Some	Calif.	22,000	> 200	118
118	Columbus Salt Marsh V.	700	> 200	117,137A	4,000	0	
119	Rhodes Salt Marsh V.	500	400	120,121A	1,000	0	
120	Garfield Flat	300	0		0	300	119,121A
121	Soda Springs V.						
	a) Eastern Part	600	200	120	300	600	119,121B
	b) Western Part	100	300	121A	30	300	110C
122	Gabbs V.	5,000	0		> 3,700	0	
123	Rawhide Flats	150	350	101	800	0	
124	Fairview V.	500	0		0	500	128
125	Stingaree V.	110	Minor	126		Minor	128
126	Cowkick V.	800	Minor	127	400	Minor	125
127	Eastgate Valley Area	a 4,000	0			Minor	126
128	Dixie V.	6,000	1,800	124,125,130,132	16,500	0	
129	Buena Vista V.	10,000	0		12,500	0	
130	Pleasant V.	3,000	0		2,200	800	128
131	Buffalo V.	12,000	0		4,000	8,000	59
132	Jersey V.	800	0		0	500	128
133	Edwards Creek V.	8,000	0		7,300	0	
134	Smith Creek V.	12,000	0		6,600	0	
135	Ione V.	8,000	0		1,300	2,000	137A
136	Monte Cristo V.	500	0		400	0	
137	Big Smoky V.						
	a) Tonopah Flat	12,000	2,000	135	6,000	8,000	143
	b) Northern Part	a 65,000	0		64,000	0	
138	Grass V.	13,000	0		12,000	0	
139	Kobeh V.	11,000	6,000	140A,151	15,000	Minor	153
140	Monitor V.						
	a) Northern Part	6,300	2,000	140B	2,000	6,000	139
	b) Southern Part	15,000	0		9,200	2,000	140A

		CENTRAL REGION, continued					**Table 3 – Page 7 of 10**
Hydrographic Area Number	**Hydrographic Area**	**Ground Water Recharge From Precipitation (ac. ft./yr.)**	**Ground Water Inflow**		**Ground Water Evapotranspiration (ac. ft./yr.)**	**Ground Water Outflow**	
			Acre Feet Per Year	**From Hydrographic Area**		**Acre Feet Per Year**	**To Hydrographic Area**
141	Ralston V.	5,000	3,000	149	2,500	5,500	142
142	Alkali Spring V. (Esmeralda)	100	5,500	141	400	5,000	143
143	Clayton V.	1,500	13,000	137A,142	24,000	0	
144	Lida V.	500	200	145	0	700	146
145	Stonewall Flat	100	Some ?	148	0	200	144
146	Sarcobatus Flat	1,200	1,300	144,148	3,000	500	231
147	Gold Flat	3,800	0		0	3,800	227A,228
148	Cactus Flat	600	0		0	600	146
149	Stone Cabin V.	5,000	0		2,000	3,000	141
150	Little Fish Lake V.	11,000	0		10,000	> 200	156
151	Antelope V. (Eureka & Nye)	4,100	0		4,200	Some	139,155A
152	Stevens Basin	200	0		0	200	151,153 or 155A
153	Diamond V.	a 21,000	9,000	53,139	30,000	0	
154	Newark V.	17,500	1,000	155A	18,500	0	
155	Little Smoky V.						
	a) Northern Part	4,000	Some	151,155A,155B	1,900	1,000	154
	b) Central Part	200	0		0	200	155A
	c) Southern Part	1,400	Some	156	0	Some	173B
156	Hot Creek V.	7,000	> 200	150	4,600	Some	173B,155C
157	Kawich V.	3,500	1,000	173A	0	4,500	227B
158	Emigrant V.						
	a) Groom Lake V.	3,200	0		0	3,200	161
	b) Papoose Lake V.	< 10	0		0	< 10	160
159	Yucca Flat	700	0		0	700	160
160	Frenchman Flat	100	33,000	158B,159,161	0	33,000	225,226
161	Indian Springs V.	10,000	22,000	158A,168,211	Minor	32,000	160
162	Pahrump V.	22,000	0		10,000	13,000	162, Calif.
163	Mesquite V. (Sandy V.)	1,400	700	162 ?	2,200	Minor	Calif.
164	Ivanpah V.						
	a) Northern Part	700	800	Calif.	0	1,500	165,212
	b) Southern Part	500	0		0	500	Calif.
165	Jean Lake V.	100	1,500	164	0	> 100	212,166 ?

166	Hidden Valley (South)	Minor	Minor	165	0	Minor	167,212
167	Eldorado V.	1,100	Minor	166	0	1,100	213
168	Three Lakes V. (Northern Part)	2,000	6,000	169B	0	8,000	161
169	Tikapoo Valley						
	a) Northern Part	2,600	0		0	2,600	169B
	b) Southern Part	3,400	2,600	169A	0	6,000	168
170	Penoyer V. (Sand Springs V.)	4,300	0		6,400	0	
171	Coal V.	2,000	8,000	172	Minor	10,000	209
172	Garden V.	10,000	0		2,000	8,000	171
173	Railroad V.				50,000		
	a) Southern Part	6,000				1,000	157
	b) Northern Part	46,000	Some	155C,156		0	
174	Jakes V.	17,000	8,000	175	0	25,000	207
175	Long V.	10,000	0		2,200	8,000	174
176	Ruby V.	a 68,000	10,800	47, 178A	53,000	0	
177	Clover V.	a 21,000	0 ?		19,000	Minor	188
178	Butte V.						
	a) Northern Part	3,900	0		6,900	800	176
	b) Southern Part	a 15,000	0		11,000	?	?
179	Steptoe V.	a 85,000	0		70,000	Some	187
180	Cave V.	a 14,000	0		200	14,000	207
181	Dry Lake V.	5,000	0		Minor	5,000	182
182	Delamar V.	1,000	5,000	181	Minor	6,000	209
183	Lake V.	13,000	0		8,500	3,000	202
184	Spring V.	a 75,000	2,000	185	70,000	4,000	196
185	Tippett V.	6,900	0		0	7,000	184,186A,193
186	Antelope V. (White Pine & Elko)						
	a) Southern Part	1,500	3,000	185	0	4,500	192
	b) Northern Part	3,200	300	187	100	3,400	192
187	Goshute V.	11,000	Some	179	10,000	2,300	186B,191,192
188	Independence V. (Pequop V.)	9,300	Minor	177	9,500	0	
REGION TOTAL		a 770,000	21,000		630,000	140,000	

GREAT SALT LAKE BASIN

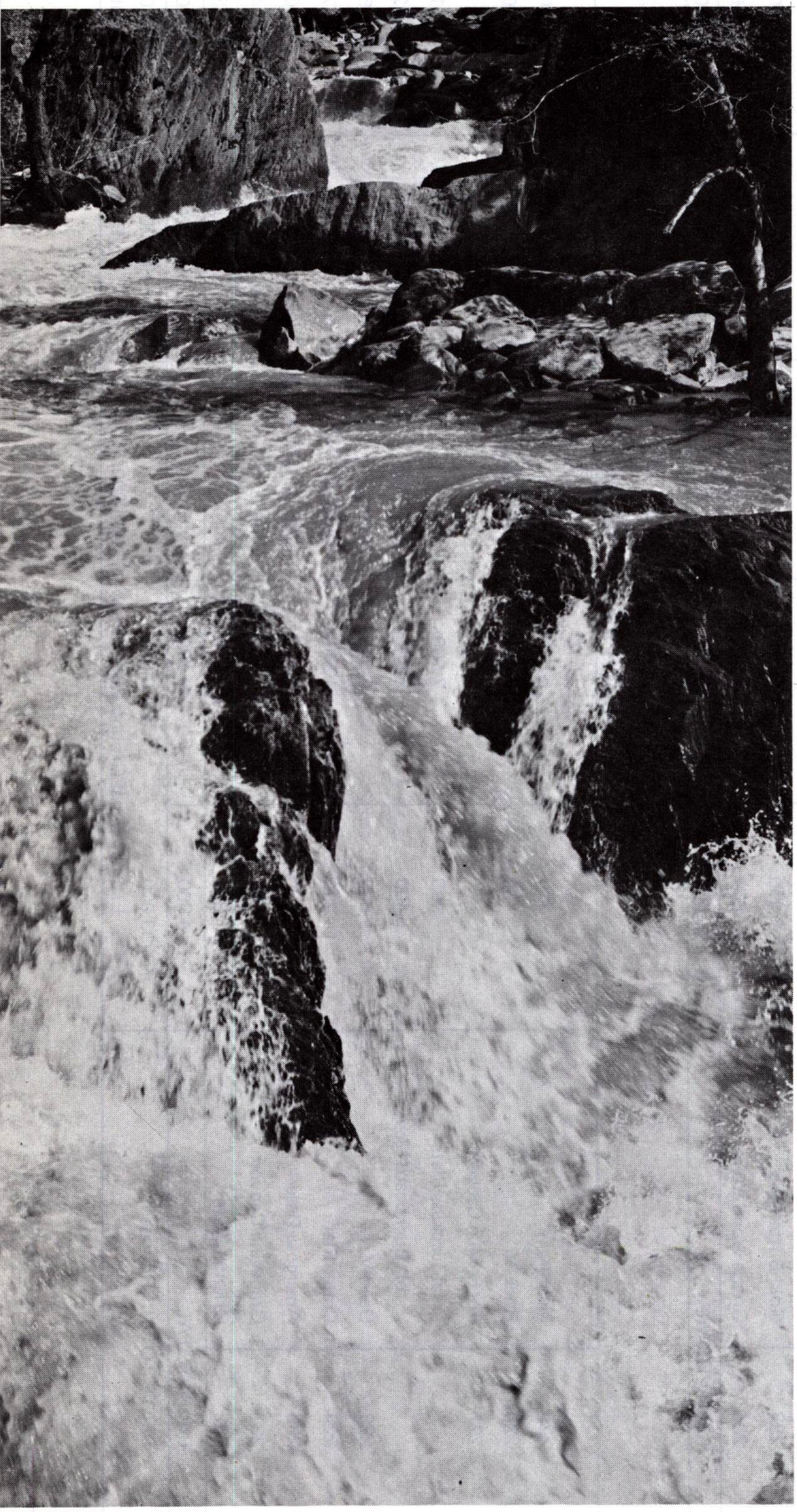
Table 3 — Page 9 of 10

Hydrographic Area Number	Hydrographic Area	Ground Water Recharge From Precipitation (ac. ft./yr.)	Ground Water Inflow: Acre Feet Per Year	Ground Water Inflow: From Hydrographic Area	Ground Water Evapotranspiration (ac. ft./yr.)	Ground Water Outflow: Acre Feet Per Year	Ground Water Outflow: To Hydrographic Area
189	Thousand Springs V.						
	a) Herrill Siding Brush Creek Area	2,000	0		> 700	700	189B
	b) Toano—Rock Spring Area	5,000	700	189A	> 600	> 9,000	189C
	c) Rocky Butte Area	1,300	> 9,000	189B	> 400	> 9,000	189D
	d) Montello — Crittenden Creek Area (Montello V.)	4,000	> 9,000	189C	4,000	1,800	Utah
190	Grouse Creek V.	700	0		0	< 700	Utah
191	Pilot Creek V.	2,400	1,000	187	4,600	300	192
192	Great Salt Lake Desert	4,800	11,000	186A,186B,187, 191,193	4,700	11,400	Utah
193	Deep Creek V.	2,200	2,000	185	1,500	2,700	192, Utah
194	Pleasant V.	4,800	0		Minor	3,000	Utah
195	Snake V.	56,000	0		11,000	30,000	Utah
196	Hamlin V.	10,000	4,000	184	400	10,000	195, Utah
BASIN TOTAL		93,000	16,000		28,000	> 70,000	
ESCALANTE DESERT							
197	Escalante Desert	a 2,300	0		Minor	< 2,300	Utah
COLORADO RIVER BASIN							
198	Dry V.	1,300	0		10	0	
199	Rose V.	< 100	0		10	0	
200	Eagle V.	1,100	0		290	0	
201	Spring V.	a 10,000	0		1,000	Minor	200
202	Patterson V.	6,000	3,000	183	80	9,000	203
203	Panaca V.	1,500	9,000	202	530	Minor	205
204	Clover V.	1,700	0		210	0	
205	Lower Meadow Valley Wash	1,300	Minor	203	1,400	7,000	218
206	Kane Springs V.	500	Some	209	Minor	Minor	210

207	White River V.	38,000	39,000	174,180	37,000	40,000	208
208	Pahroc V.	2,200	40,000	207	0	42,000	209
209	Pahranagat V.	1,800	58,000	171,182,208	20,000	35,000	210
210	Coyote Spring V.	1,900	>35,000	206,209	Minor	37,000	219
211	Three Lakes V. (Southern Part)	6,000	4,700	212	0	10,700	161
212	Las Vegas V.	25,000	Minor	105,166	24,000	5,100	211,215
213	Colorado River V.	200	1,300	167,214	Large	200	Colorado River
214	Piute V.	1,100	0		0	1,100	Calif.
215	Black Mountains Area	< 100	400	212,218	1,200	< 100	Lake Mead
216	Garnet V.	400	400	217	0	800	218
217	Hidden V. (North)	400	0		0	400	216
218	California Wash	< 100	7,800	205,216,219	1,700	Minor	218,220
219	Muddy River Springs Area (Upper Moapa V.)	< 100	37,000	210	Some	Minor	218
220	Lower Moapa V.	< 50	Minor	218	11,000	1,100	Lake Mead
221	Tule Desert	2,100	0		Minor	2,100	222
222	Virgin River V.	3,600	3,000	221, Ariz.	30,000	40,000	Lake Mead
223	Gold Butte Area	1,000	0		Minor	1,000	Lake Mead
224	Grease Wood Basin	600	0		Minor	600	Arizona
BASIN TOTAL		a 110,000	50,000		> 130,000	55,000	

DEATH VALLEY BASIN

225	Mercury V.	250	16,000	160	0	17,000	230
226	Rock V.	30	17,000	160,227A	0	17,000	230
227	Forty Mile Canyon						
	a) Jackass Flats	900	7,200	227B	0	8,100	230
	b) Buckboard Mesa	1,400	5,800	147,157	0	7,200	227A
228	Oasis V.	1,000	2,500	147	2,000	1,500	229
229	Crater Flat	220	1,500	228	0	1,700	230
230	Amargosa Desert	600	44,000	225,226,227A,229	24,000	19,000	Death Valley
231	Grapevine Canyon	50	500 ?	146	Minor	400	Death Valley
232	Oriental Wash	300	0		0	300	Death Valley
BASIN TOTAL		4,800	40,000		26,000	20,000	
STATE TOTAL (Rounded)		a2,200,000	> 3,000		>1,600,000	>150,000	
		Estimated Net Groundwater Inflow – 2,000,000			Estimated Net Groundwater Outflow – 2,000,000		


Philip Hyde

SURFACE WATER DATA

Explanation of Table Headings

Table 4

Runoff from Mountains

Streamflow is measured on most of the principal and some of the smaller streams in Nevada. But runoff from many thousands of small streams, which are locally and collectively important, is not measured. The term "surface water runoff" is subject to some variation in definition. Its use here refers to runoff from the mountains to the alluvial fan estimated where the two meet which represents the approximate point of maximum flow. Estimated runoff is also shown in Figure 5.

Inflow and Outflow

"Surface water inflow" is the flow of surface water in channels into a hydrographic area from another hydrographic area.

"Surface water outflow" is similar to surface water inflow, except that it is the quantity of water flowing from one hydrographic area to another. Surface water inflow and outflow is also shown in Figure 5.

"Surface water evaporation" applies to water lost by evaporation from streams as well as from lakes and reservoirs.

Surface water flows are based on varying periods of record.

Region, Basin and State Totals

Surface water inflow and outflow for each basin, region and the state are not the sum of the individual areas, because quantities of water circulate between hydrographic areas within regions, basins and the state and therefore are included for more than one area. All other water quantities in Table 4 are additive.

VARIATIONS IN STREAMFLOW

The water we use has its origin in precipitation, which is part of the hydrologic cycle. In simplest terms, the cycle may be considered to start with the water in the oceans which evaporates from the ocean surface. The vapor is carried inland where some of it condenses and falls as precipitation. A part of the precipitation is retained temporarily on vegatation, in surface depressions or in the soil, and eventually returns to the atmosphere by evaporation and transpiration. The rest flows overland and down the channel of surface streams or infiltrates into the soil.

Some of the water that goes into the soil percolates downward to recharge the ground water, but much of it moves laterally to springs, rivers and lakes. This water is subject to evaporation and transpiration throughout its travels.

It's important to note that the foregoing is an oversimplification. All phases of the hydrologic cycle occur simultaneously. And even though the sea is a primary source some vapor in the air can originate in inland water sources. Also, note that surface water runoff can be flood runoff from snowmelt or thundershowers, or baseflow from springs and seepage from areas of high water table. Finally it should be stressed that the quantities in any part of the cycle vary through wide limits throughout time and space. Streamflow, for instance, is extremely variable in terms of time, changing from minute to minute and from year to year.

Large variations in average streamflow can be shown merely by changing the period of record used to compute the average. For this reason one should be careful in comparing figures shown in this report with other values. This is particularly true for the major rivers such as the Colorado, Truckee, Carson, Humboldt, Virgin and Walker.

This discussion concerns itself mainly with the long-term, or year to year variations.

The average seasonal pattern of streamflow for various streams and in different areas is shown in Figure 1. But keep in mind that because the pattern varies so widely, this average provides only a rough indication of the amount of flow or precipitation to be expected in any given year.

Figure 2 shows the variations in streamflow from year to year for ten selected streams for the period of continuous flow record. The flow may be above or below average in any given year or in several successive years; long-term trends in streamflow commonly are hard to establish because of man-made changes in the environment.

However, Figure 2 shows the past trends as a cumulative departure from average stream flow. An upward slope on the line over a period of years indicates a wet period; conversely, a downward slope indicates a dry period.

Springs

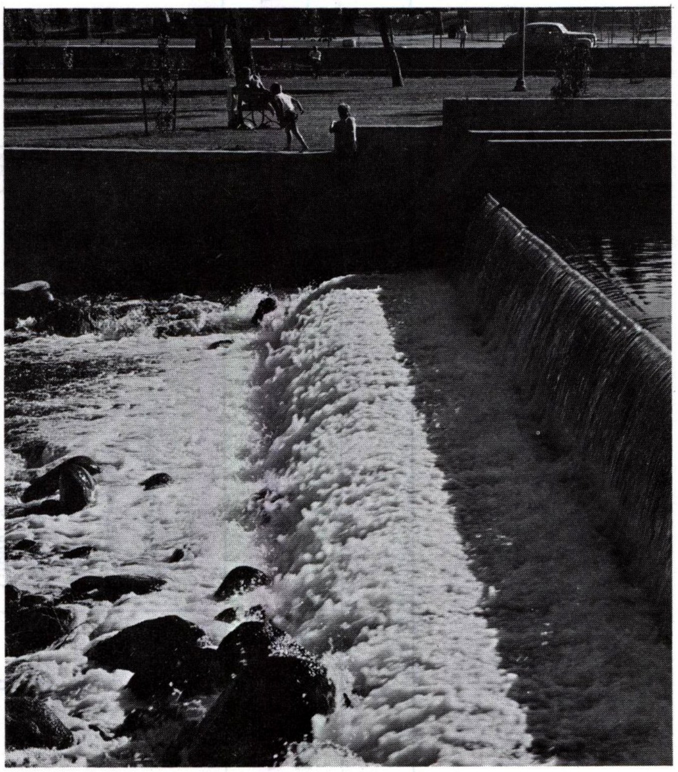
Table 5 is a list of 85 of the larger and better known spring of Nevada. Their locations are shown in Figure 4.

Reservoirs and Lakes

Table 6 contains data on the surface area and capacity of the principal reservoirs and lakes of Nevada.

Major Man-made Diversions Across Hydrographic Boundaries

Table 7 shows major man-made diversion across hydrographic boundaries. The type of source, the hydrographic areas involved, the estimated amount diverted in 1970 and the primary use are delineated. This information is also incorporated in Figure 5.



Philip Hyde

TABLE 4 — SURFACE-WATER DATA

NORTHWEST REGION

Hydrographic Area Number	Hydrographic Area	Runoff From Mountains (ac. ft./yr.)	Surface-water Inflow		Surface-water Evaporation (ac. ft./yr.)	Surface-water Outflow	
			Acre Feet Per Year	From Hydrographic Area		Acre Feet Per Year	To Hydrographic Area
1	Pueblo V.	8,000	Some	2	Minor	0	
2	Continental Lake V.	4,400	Some	Oregon, 3,4	750	Some	1
3	Gridley Lake V.	8,000	0		300	Some	2
4	Virgin V.	20,000	0		Some	Some	2
5	Sage Hen V.	750	Minor	Oregon	Some	Some	Oregon
6	Guano V.	7,200	0		Some	Some	Oregon
7	Swan Lake V.	11,000	0		Large	0	
8	Massacre Lake V.	7,600	0		Some	0	
9	Long V.	17,000	0		Some	0	
10	Macy Flat	1,000	Minor	Oregon	Minor	0	
11	Coleman V.	1,800	0		Some	Some	Oregon
12	Mosquito V.	1,200	0		Some	0	
13	Warner V.	3,100	Some	Oregon		Some	Calif., Oregon
14	Surprise V.	8,400	Some	16	Some	Some	Calif.
15	Boulder V.	4,600	0		Some	0	
16	Duck Lake V.	18,000	Some	Calif.		Some	14
REGION TOTAL		140,000	Some	Oregon, Calif.	Some	Some	

BLACK ROCK DESERT REGION

17	Pilgrim Flat	700	0			0	
18	Painters Flat	1,900	0			Some	Calif.
19	Dry V.	300	0			0	
20	Sano V.	80	0			0	

BLACK ROCK DESERT REGION, continued

21	Smoke Creek Desert	20,000	Some	22, Calif.		0	
22	San Emidio Desert	2,900	0			Some	21,28
23	Granite Basin	1,100	0		0	Minor	28
24	Hualapai Flat	5,300	0			0	
25	High Rock Lake V.	28,000	0		3,000	0	
26	Mud Meadow	24,000	0		Minor	Some	28
27	Summit Lake V.	4,500	0		1,800	0	
28	Black Rock Desert	28,000	Some	22,23,26,29	Some	0	
29	Pine Forest V.	18,000	1,000	30,31		200	28
30	Kings River V.						
	a) Rio King Sub Area	16,000	5,000	33		1,000	29
	b) Sod House Sub Area	100					
31	Desert V.	7,000			Some		
32	Silver State V.	2,600	0			Minor	30,31
33	Quinn River V.		1,000	Oregon		5,000	30,31
	a) Orovada Sub Area	33,000	17,000	33b			
	b) McDermitt Sub Area	51,000				17,000	33a
REGION TOTAL		250,000	1,000	Oregon, Calif.	> 5,000	Minor	Calif.

SNAKE RIVER BASIN

34	Little Owyhee River Area	17,000	0		Some	6,000	Idaho
35	South Fork Owyhee River Area	140,000	Some	36	Some	100,000	Idaho
36	Independence V.		0			Some	35
37	Owyhee River Area	120,000	Some	Idaho	Some	90,000	Idaho
38	Bruneau River Area	110,000	0		Some	96,000	Idaho
39	Jarbidge River Area	98,000	0		Some	93,000	Idaho
40	Salmon Falls Creek Area	140,000	10,000	Idaho	Some	98,000	Idaho
41	Goose Creek Area	52,000	7,000	Idaho	Some	30,000	Utah
BASIN TOTAL		680,000	> 17,000	Idaho	Some	510,000	Idaho, Utah

HUMBOLDT RIVER BASIN

42	Marys River Area		0		Some		

HUMBOLDT RIVER BASIN, continued							Table 4 — Page 3 of 11
Hydrographic Area Number	Hydrographic Area	Runoff From Mountains (ac. ft./yr.)	Surface-water Inflow		Surface-water Evaporation (ac. ft./yr.)	Surface-water Outflow	
			Acre Feet Per Year	From Hydrographic Area		Acre Feet Per Year	To Hydrographic Area
43	Starr Valley Area	300,000	?	42	Some	141,000	45,49
44	North Fork Area		50,000	42,43	Some		
45	Lamoille V.		?	42,43,44	Some		
46	South Fork Area		0		Some	43,000	48
47	Huntington V.	150,000	0		Some	25,000	48
48	Dixie Creek Tenmile Creek Area		68,000	46,47	Some	78,000	49
49	Elko Segment		218,000	42,43,44,48,50,51	Some		
50	Susie Creek Area	28,000			Some	20,000	49,53,54,61
51	Maggie Creek Area				Some		
52	Marys Creek Area				Some		
53	Pine V.	31,000	0		Minor	9,400	54,61
54	Crescent V.	10,000	9,250	53,55	Minor		
55	Carico Lake V.	3,500	0		Minor	250	54
56	Upper Reese River V.	36,000	0		Minor	3,000	58
57	Antelope V.		0		Minor	1,000	58,59
58	Middle Reese River V.	15,000	3,000	56	Minor		
59	Lower Reese River V.	8,000	1,000	57,58	Minor	5,000	61,64
60	Whirlwind V.	1,000			Minor		
61	Boulder Flat	11,000	21,000	62,63	Minor	208,000	64
62	Rock Creek V.	50,000	Some	63	Some	21,000	61
63	Willow Creek V.		0		Some		
64	Clovers Area		208,000	61	Some		
65	Pumpernickel V.	22,000			Some	175,000	70
66	Kelly Creek Area				Minor		
67	Little Humbolt V.	25,000	0		Minor	17,000	69
68	Hardscrabble Area	24,000	0		Minor	22,000	69
69	Paradise V.	30,000	39,000	67,68	1,000	2,000	70
70	Winnemucca Segment	8,500	175,000	65,66,71	5,000	155,000	72
71	Grass V.	12,000			Minor	Minor	70
72	Imlay Area	3,200	155,000	70	32,000	124,000	73

73	Lovelock V.		124,000	72	Large	Some	74
	a) Oreana Sub Area	3,000					
74	White Plains		Some	73	Minor	Minor	101
BASIN TOTAL		770,000	0		Large	Minor	101

WEST CENTRAL REGION

75	Bradys Hot Springs Area	110	> 3,800	76,77	4,000	Some	76
76	Fernley Area[1]	200	235,000[1]	83	6,800	184,000[1]	75,101
77	Fireball V.	160	0		Minor	Some	75
78	Granite Springs V.	1,800	0		Minor	0	
79	Kumiva V.	610	0		Minor	0	
REGION TOTAL[1]		2,700	235,000[1]	83	11,000	180,000[1]	101

TRUCKEE RIVER BASIN

80	Winnemucca Lake V.	2,900	Minor	81	Minor	0	
81	Pyramid Lake V.	6,400	250,000	82,84	470,000	Minor	80
82	Dodge Flat	200	245,000	83	Minor	250,000	81
83	Tracy Segment	1,800	480,000	87	Minor	480,000[1]	76,82
84	Warm Springs V.	14,000	0		Minor	70	81
85	Spanish Springs V.	1,500	16,000[1]	87	Minor	9,000	87
86	Sun V.	100	0		0	20	87
87	Truckee Meadows	22,000	547,000[1]	85,86,88,91	Minor	497,000[1]	83,85,86,92
88	Pleasant V.	9,000	1,000	89	Minor	10,000[1]	87,89
89	Washoe V.	23,000	4,000[1]	88,90	14,000	2,300[1]	88,103,104
90	Lake Tahoe Basin[2]	35,000	10,000	Calif.	100,000	3,300[1]	89,105
91	Truckee Canyon Segment	31,000	520,000	Calif.	Minor	530,000[1]	87
BASIN TOTAL		140,000	520,000	Calif.	580,000	235,000[1]	

[1]Includes exports and imports by man-made diversions

[2]These figures are preliminary and subject to revision

WESTERN REGION

Hydrographic Area Number	Hydrographic Area	Runoff From Mountains (ac. ft./yr.)	Surface-water Inflow		Surface-water Evaporation (ac. ft./yr.)	Surface-water Outflow	
			Acre Feet Per Year	From Hydrographic Area		Acre Feet Per Year	To Hydrographic Area
92	Lemmon V.	5,400	0		Minor	0	
	a) Western Part		0			0	
	b) Eastern Part		0			0	
93	Antelope V.	600	0		Some	0	
94	Bedell Flat	3,000	0		0	70	99
95	Dry V.	7,500	0		0	4,000	Calif.
96	Newcomb Lake V.	400	0		Large	0	
97	Honey Lake V.	3,700	Minor	Calif.	Minor	0	
98	Skedaddle Creek V.	860	0		0	860	Calif.
99	Red Rock V.	2,600	70	94	Minor	1,000	Calif.
100	Cold Spring V.	1,400	0		Large	0	
REGION TOTAL		25,000	Minor	Calif.	Some	6,000	Calif.
	CARSON RIVER BASIN[2]						
101	Carson Desert	3,300	> 370,000	102,74,76	Large	170,000[1]	102
102	Churchill V.	900	422,000[1]	101,103,108	Large	370,000[1]	101
103	Dayton V.	1,400	274,500	104,105	Some	251,000	102
104	Eagle V.	13,000	0		Some	6,500	103
105	Carson V.	24,000	> 320,000	Calif., 90	Large	268,000	103
BASIN TOTAL		43,000	> 320,000	Calif., 74	Large	0	
	WALKER RIVER BASIN						
106	Antelope V.	750	> 190,000	Calif.	970	150,000	107
107	Smith V.	8,600	150,000	106		119,000	108
108	Mason V.	5,900	216,000	107,109	Some	108,000	101,110
109	East Walker Area	9,700	> 100,000	Calif.	Some	97,000	108

[1]Includes exports and imports by man-made diversions

[2]These figures are preliminary and subject to revision

WALKER RIVER BASIN, continued

110	Walker Lake V.					0	
	a) Schurz Sub Area		107,000	108	4,000	85,000	110B
	b) Lake Sub Area	4,700	85,000	110A, 110C	220,000	0	
	c) Whiskey Flat Hawthorne Sub Area	10,000	0			Minor	110B
BASIN TOTAL		60,000	> 290,000	Calif.	> 225,000	1,000	101

CENTRAL REGION

111	Alkali V.				Minor		
	a) Northern Part	700	0			0	
	b) Southern Part	3,200	0			Some	Calif.
112	Mono V.	1,400	0		0	Minor	Calif.
113	Huntoon V.	1,600	Some	Calif.	Minor	0	
114	Teels Marsh V.	3,200	0		Some	0	
115	Adobe V.	500	0		Minor	< 500	Calif.
116	Queen V.	4,200	0		Minor	< 900	Calif.
117	Fish Lake V.	10,000	> 12,000	Calif.	Some	Some	118
118	Columbus Salt Marsh V.	2,000	Some	117	Some	0	
119	Rhodes Salt Marsh V.	1,300	0		Some	0	
120	Garfield Flat	800	0		Some	0	
121	Soda Springs V.						
	a) Eastern Part	1,600	0		Some	0	
	b) Western Part	400	0		Some	0	
122	Gabbs V.	1,000	0		Some	0	
123	Rawhide Flats	Minor	0		Minor	0	
124	Fairview V.	100	0		Minor	0	
125	Stingaree V.	30	Some	126	Minor	> 5,600	128
126	Cowkick V.	200	Some	127	Minor	Some	125
127	East Gate Valley Area	2,200	0		Minor	Some	126
128	Dixie V.	2,300	> 5,600	125,130,132	Some	0	
129	Buena Vista V.	10,000	0			0	
130	Pleasant V.	1,400	0		Minor	Some	128
131	Buffalo V.	9,000	0		Some	0	
132	Jersey V.	200	0		Minor	Some	128
133	Edwards Creek V.	4,700	0			0	

CENTRAL REGION, continued

Hydrographic Area Number	Hydrographic Area	Runoff From Mountains (ac. ft./yr.)	Surface-water Inflow		Surface-water Evaporation (ac. ft./yr.)	Surface-water Outflow	
			Acre Feet Per Year	From Hydrographic Area		Acre Feet Per Year	To Hydrographic Area
134	Smith Creek V.	8,800	0			0	
135	Ione V.	5,200	0			300	137A
136	Monte Cristo V.	1,700	0		0	0	
137	Big Smoky V.						
	a) Tonopah Flat	5,000	300	135		0	
	b) Northern Part	38,000	0		Minor	0	
138	Grass V.	9,000	0		0	0	
139	Kobeh V.	8,000	Some	140A,151		Minor	153
140	Monitor V.						
	a) Northern Part	23,000	Some	140B		Some	139
	b) Southern Part	44,000	0			Some	140A
141	Ralston V.	10,000	Some	149	Minor	0	
142	Alkali Spring V. (Esmeralda)	400	0		Some	0	
143	Clayton V.	3,500	0		Large	0	
144	Lida V.	1,600	Some	145	0	Some	146
145	Stonewall Flat	400	0		Minor	Some	144
146	Sarcobatus Flat	1,100	Some	144	Minor	0	
147	Gold Flat	1,100	0		Minor	0	
148	Cactus Flat	1,200	0		Minor	0	
149	Stone Cabin V.	9,700	0			Some	141
150	Little Fish Lake V.	18,000	0		Some	0	
151	Antelope V. (Eureka & Nye)	14,000	0			Some	139
152	Stevens Basin	500	0		Minor	0	
153	Diamond V.	5,800	100	139	Minor	0	
154	Newark V.	8,000	500	155A	Minor	0	
155	Little Smoky V.						
	a) Northern Part	4,000	0		0	500	154
	b) Central Part	Minor	0		Minor	0	
	c) Southern Part	1,500	0		Minor	0	
156	Hot Creek V.	8,000	0			1,000	173B
157	Kawich V.	800	0		Minor	0	

CENTRAL REGION, continued

158	Emigrant V.						
	a) Groom Lake V.	1,000	0		Minor	0	
	b) Papoose Lake V.	< 10	0		Minor	0	
159	Yucca Flat	150	0		Minor	0	
160	Frenchman Flat	< 50	0		Minor	0	
161	Indian Springs V.	2,200	0		Minor	0	
162	Pahrump V.	13,000	0		Minor	Some	Calif.
163	Mesquite V. (Sandy V.)	1,700	0		Minor	Minor	Calif.
164	Ivanpah V.		0			0	
	a) Northern Part	1,200	0		0	0	Calif.
	b) Southern Part	Minor	0		Minor	Minor	Calif.
165	Jean Lake V.	250	0		Minor	0	
166	Hidden Valley (South)	50	0		Minor	0	
167	Eldorado V.	< 100	0		Minor	0	
168	Three Lakes V. (Northern Part)	250	0		Minor	0	
169	Tikapoo V.	1,800					
	a) Northern Part		0		Some	Some	169B
	b) Southern Part		Some	169A	Minor	0	
170	Penoyer V. (Sand Springs V.)	1,700	0		Minor	0	
171	Coal V.	400	Some	172	Minor	0	
172	Garden V.	8,300	0		0	Some	171
173	Railroad V.						
	a) Southern Part	8,500	0		Minor	0	
	b) Northern Part	26,000	1,000	156	Minor	0	
174	Jakes V.	7,200	0		Minor	0	
175	Long V.	4,400	0		2,200	0	
176	Ruby V.	180,000	0		15,000	0	
177	Clover V.	45,000	0		2,000	Some	188
178	Butte V.						
	a) Northern Part	2,700	0		35	0	
	b) Southern Part	9,400	0		35	0	
179	Steptoe V.	78,000	0		Some	1,000	187
180	Cave V.	10,000	0		Minor	0	
181	Dry Lake V.	9,000	0		Minor	0	
182	Delamar V.		0		Minor	0	

Hydrographic Area Number	Hydrographic Area	Runoff From Mountains (ac. ft./yr.)	Surface-water Inflow		Surface-water Evaporation (ac. ft./yr.)	Surface-water Outflow	
			Acre Feet Per Year	From Hydrographic Area		Acre Feet Per Year	To Hydrographic Area
CENTRAL REGION, continued							**Table 4 – Page 9 of 11**
183	Lake V.	8,000	0		Minor	0	
184	Spring V.	90,000	0		Some	0	
185	Tippett V.	560	0		Minor	0	
186	Antelope V. (White Pine & Elko)						
	a) Southern Part	40	0			0	
	b) Northern Part	190	0			0	
187	Goshute V.	50,000	1,000	179		0	
188	Independence V. (Pequop V.)	35,000	Some	177	Minor	0	
REGION TOTAL		900,000	> 12,000	Calif.	Minor	> 1,400	Calif.
GREAT SALT LAKE BASIN							
189	Thousand Springs V.	35,000	0		Minor		
	a) Herrill Siding Brush Creek Area	8,000	0			5,000	189B
	b) Toano–Rock Spring Area	13,000	5,000	189A		3,500	189C
	c) Rocky Butte Area	4,000	3,500	189B		1,200	189D
	d) Montello–Crittenden Creek Area (Montello V.)	10,000	1,200	189C		800	Utah
190	Grouse Creek V.	3,100	0			Some	Utah
191	Pilot Creek V.	740	0			Some	192
192	Great Salt Lake Desert	1,300	Some	191	Minor	Some	Utah
193	Deep Creek V.	5,000	0			Some	Utah
194	Pleasant V.	38,000 (194–196)	0			< 38,000 (194–195)	Utah (194–195)
195	Snake V.		Some	196	Some		
196	Hamlin V.		0		Minor	Minor	195
BASIN TOTAL		78,000	0		Minor	Some	Utah
ESCALANTE DESERT							
197	Escalante Desert	3,200	0		Minor	400	Utah

COLORADO RIVER BASIN							Table 4 — Page 10 of 11
198	Dry V.	400	Some	199		3,400	203
199	Rose V.	< 100	Some	200		Some	198
200	Eagle V.	400	4,000	201	Minor	Some	199
201	Spring V.	5,700	0		Minor	4,000	200
202	Patterson V.	3,300	0			Minor	203
203	Panaca V.	400	Some	198,202	Minor	Some	205
204	Clover V.	40	0		Some	Some	205
205	Lower Meadow Valley Wash	300	Some	203,204	Minor	400	218
206	Kane Springs V.	150	0			Minor	210
207	White River V.	26,000	0		Some	Some	208
208	Pahroc V.	1,800	Some	207		Some	209
209	Pahranagat V.		Some	208	5,000	Some	210
210	Coyote Spring V.	1,800	Some	209		Some	219
211	Three Lakes V. (Southern Part)	1,500	0		Minor	0	
212	Las Vegas V.	19,000	0		Minor	(1970) 32,000	215
213	Colorado River V.	Minor	9,940,000	215	Large	9,400,000	Calif., Ariz.
214	Piute V.	< 100	0			Some	Calif.
215	Black Mountains Area	< 50	(1970) 32,000	212	Large	(1970) 36,000	Lake Mead
216	Garnet V.	300	0		Minor	0	
217	Hidden V. (North)	500	0		Minor	0	
218	California Wash	< 50	33,000	205,219	70	34,000	220
219	Muddy River Springs Area (Upper Moapa V.)	< 50	Some	210	Some	33,000	218
220	Lower Moapa V.	< 50	34,000	218	1,200	10,000	Lake Mead
221	Tule Desert	1,400	0			1,200	222
222	Virgin River V.	6,300	160,000	Arizona	1,500	80,000	Lake Mead
223	Gold Butte Area	900	10,000,000	Arizona	Large	Minor	Lake Mead
224	Grease Wood Basin	500	0		Minor	Minor	Arizona
BASIN TOTAL		70,000	>10,000,000	Arizona	>1,000,000	9,400,000	Calif., Ariz.
DEATH VALLEY BASIN							
225	Mercury V.	< 10	0			Some	230
226	Rock V.	< 10	0			Some	230

DEATH VALLEY BASIN, continued							Table 4 — Page 11 of 11
Hydrographic Area Number	Hydrographic Area	Runoff From Mountains (ac. ft./yr.)	Surface-water Inflow: Acre Feet Per Year	Surface-water Inflow: To Hydrographic Area	Surface-water Evaporation (ac. ft./yr.)	Surface-water Outflow: Acre Feet Per Year	Surface-water Outflow: To Hydrographic Area
227	Forty Mile Canyon	< 100					
	a) Jackass Flats		Some	227B		Some	230
	b) Buckboard Mesa		0			Some	227A
228	Oasis V.	15	0		Minor	Some	230
229	Crater Flat	< 50	0			Some	230
230	Amargosa Desert	< 50	Some	225,226,227A, 228,229	Minor	Some	Calif.
231	Grape Vine Canyon	500	0		Minor	20	Calif.
232	Oriental Wash	1,000	0			30	Calif.
BASIN TOTAL		1,700	0		Minor	> 50	Calif.
STATE TOTAL		3,200,000	>11,000,000		>1,800,000	>10,000,000	

Philip Hyde

TABLE 5 – LARGER AND BETTER-KNOWN SPRINGS OF NEVADA

Map No.	Name	Location	Discharge (gallons per minute)	Date Measured	Reference	Remarks
			CLARK COUNTY			**Table 5 – Page 1 of 6**
1	Cold Creek	SE¼ sec. 1, T.18 S., R.54 E., 15 miles southwest of Indian Springs.	690	11-09-44	WRB 5, p. 76	
2	Indian Springs	NW¼ sec.16, T.16 S., R.56 E., at south edge of Indian Springs.	400 est.	3-18-46	do.	
3	Las Vegas Springs	SE¼SE¼ sec.30 and NE¼NE¼ sec.31, T.20 S., R.61 E., at west edge of Las Vegas	1,400	For period 1924-46	WRB 5, p. 79	Combined flow in Little, Open and Big Springs
			dry	1963	USGS files	
4	Muddy River Springs	SE¼ sec.15, T.14 S., R.65 E., 5 miles northwest of Moapa.	22,300	For period 1913-63	Rec. 25, p. 1	Several springs measured at gaging station 9-4160 Muddy River near Moapa. Some Thermal
5	Rogers Spring	SE¼SE¼ sec.12, T.18 S., R.67 E., 12 miles south of Overton.	880	10-25-63	USGS files	
6	Tule Springs	SW¼ sec.9, T.19 S., R.60 E., 12 miles northwest of Las Vegas.	300	For period 1922-46	WRB 5, p. 80	
			dry	1963	USGS files	
			DOUGLAS COUNTY			
7	Walley's Hot Springs	SE¼SE¼ sec.21, T.14 N., R.20 E., 7 miles southeast of Carson City	600 est.	For period 1961-64	USGS files	Thermal
			ELKO COUNTY			
8	Carlin Springs	Sec.33, T.33 N., R.52 E., 1½ miles southwest of Carlin.	2,700 est.		Division of Water Resources	Carlin water supply.
9	Elko Hot Spring	SE¼ sec.21, T.34 N., R.55 E., 1 mile southwest of Elko.	450 est.		do.	Thermal

More detailed information on these springs is available in the reference listed.
The abbreviations listed under references refer to:

- WRB – Nevada Water Resources Bulletin.
- Rec. – Nevada reconnaissance series report.
- WSP – U.S. Geological Survey Water-Supply Paper.

The word "Thermal" designates springs whose temperature is 90° or greater.

ELKO COUNTY, continued

10	Gamble Ranch Springs	Sec.5, T.40 N., R.69 E., 7 miles north of Montello.	900 est.		do.	
11	Holland Springs	NE¼ sec.20, T.33 N., R.58 E., 1½ miles northeast of Lamoille.	900 est.		do.	Several springs.
12	Hot Creek Springs	Sec.32, T.43 N., R.60 E., 35 miles north of Deeth.	450 est.		do.	
13	Hot Springs	Sec.15, T.39 N., R.59 E., 14 miles north of Deeth.	350		do.	Thermal
14	Johnson Springs	SE¼ sec.29, T.36 N., R.66 E., 4 miles south of Oasis.	1,500 est	1949	WRB 12, p. 28	Several springs.
15	Ralphs Warm Springs	NE¼ sec.30, T.36 N., R.62 E., 8 miles south of Wells.	450 est.	1948	WRB 12, p. 108	
16	Spring	NW¼ sec.22, T.47 N., R.68 E., 23 miles east of Jackpot.	850 est.	Prior to 1923	WSP 679B, p. 156	One spring on west side of Goose Creek.
17	Spring Creek	Sec.8, T.37 N., R.57 E., 22 miles northeast of Elko.	2,000 est.		Division of Water Resources	
18	Warm Spring	SE¼ sec.12, T.33 N., R.61 E., 24 miles south of Wells.	2,000 est.	1948	WRB 12, p. 108	
19	Willow Creek Springs	Sec.31, T.31 N., R.57 E., 5 miles northeast of Jiggs.	600 est.		Division of Water Resources	

ESMERALDA COUNTY

20	Fish Lake Spring	SW¼ sec.25, T.2 S., R.35 E., 3 miles east of Dyer.	1,300 est.	12-01-49	WRB 11, p. 25	
21	Waterworks Springs	NE¼ sec.22, T.2 S., R.39 E., at Silver Peak.	500 est	1917	WSP 423, p. 153	Eleven springs. Some Thermal.

EUREKA COUNTY

22	Fish Creek Springs (Sara Ranch Springs)	Sec.8, T.16 N., R.53 E., 17 miles south of Eureka.	4,000	Prior to 1935	WSP 679B, p. 162	
23	Hot Springs	Sec.12, T.28 N., R.52 E., 27 miles south of Carlin.	2,000 est.	1960	Rec. 2, p. 26	Six springs.
24	Shipley Hot Springs (Sadler Springs)	NE¼SE¼ sec.23, T.24 N., R.52 E., 31 miles north of Eureka.	5,000	1960	USGS files	Thermal
25	Thompson Ranch Springs (Jacobson Ranch Springs)	SW¼ sec.3, T.23 N., R.54 E., 28 miles north of Eureka.	900 est.	Prior to 1935	WSP 679B, p. 162	
52	Klobe Spring	Sec.28, T.18 N., R.50 E.	450 est.	4-15-64	USGS files	Two springs. Thermal.

HUMBOLDT COUNTY

26	Bog Hot Springs	Sec.18, T.46 N., R.28 E., 10 miles southwest of Denio.	1,000 est.	1963	Rec. 22, p. 13	Thermal

HUMBOLDT COUNTY, continued

Map No.	Name	Location	Discharge (gallons per minute)	Date Measured	Reference	Remarks
27	Continental Hot Springs	Sec.13, T.46 N., R.28 E., 6 miles southwest of Denio.	200 est.	1963	Rec. 22, p. 13	Thermal
28	Double Hot Springs	NW¼ sec.4, T.36 N., R.26 E., 19 miles northwest of Sulphur.	250 est.	Prior to 1963	Rec. 20, p. 24	Thermal
29	Golconda Hot Springs	SE¼ sec.29, T. 36 N., R.40 E., at Golconda.	200 est.	1962	WRB 24, p. 73	Total flow of thermal springs.
30	Hot Springs	Sec.35, T.37 N., R.43 E., 33 miles northeast of Winnemucca.	2,000 est.		Division of Water Resources	Thermal
31	Nine Mile Springs	Sec.10, T.44 N., R.33 E., 25 miles northwest of Orovada.	450 est.	1961	WRB 16, p. 19	Several springs.

LANDER COUNTY

Map No.	Name	Location	Discharge (gallons per minute)	Date Measured	Reference	Remarks
32	Hot Springs	NE¼ sec.23, T.27 N., R.43 E., 34 miles south of Battle Mountain.	450 est.	1918	WSP 679B, p. 161	Several springs. Thermal.
33	Izzenhood Ranch Springs	T.35 N., R.45 E., 20 miles north of Battle Mountain.	1,000 est.	1917	WSP 679B, p. 160	
34	New Pass Spring	Sec.14, T.20 N., R.40 E., 25 miles west of Austin.	450 est.		Division of Water Resources	

LINCOLN COUNTY

Map No.	Name	Location	Discharge (gallons per minute)	Date Measured	Reference	Remarks
35	Geyser Ranch Spring complex	Secs.1 and 12, T.9 N., R.65 E., 25 miles southeast of Lund.	1,400	8-06-63	Rec. 24, p. 24	Several springs.
36	Panaca Spring	Sec.4, T.2 S., R.68 E., 2 miles north of Panaca.	4,900	1963	USGS files	
	Pahranagat Valley Springs					
37	Ash Springs	Sec.6, T.6 S., R.61 E., 6½ miles north of Alamo.	8,000	6-17-63	Rec. 21, p. 20	Six main springs. Thermal.
38	Crystal Springs	SE¼ sec.10, T.5 S., R.60 E., 5 miles south of Hiko.	5,000	6-17-63	do.	Thermal
39	Hiko Spring	Sec.14, T.4 S., R.60 E., at Hiko	3,000	6-17-63	do.	Thermal

LYON COUNTY

Map No.	Name	Location	Discharge (gallons per minute)	Date Measured	Reference	Remarks
40	Nevada Hot Spring (Hinds Hot Springs)	Sec.16, T.12 N., R.23 E., 8 miles northwest of Smith.	550	10-21-49	WSP 1228, p. 48	Several springs. Some Thermal.

NYE COUNTY

	Ash Meadows Springs					
41	Big Spring (Deep Spring and Ash Meadows Spring)	NE¼ sec.19, T.18 S., R.51 E., 9 miles northeast of Death Valley Junction, Calif.	1,000	7-26-62	Rec. 14, p. 27	
42	Crystal Pool	NE¼ sec.3, T.18 S., R.50 E., 10 miles northeast of Death Valley Junction, Calif.	2,800	7-29-62	Rec. 14, p. 26	Thermal
43	Fairbanks Spring	NE¼ sec.9, T.17 S., R.50 E., 11 miles south of Lathrop Wells.	1,700	7-23-62	Rec. 14, p. 25	
44	Jack-Rabbit Spring (Roger's Spring)	NW¼ sec.18, T.18 S., R.51 E., 10 miles northeast of Death Valley Junction, Calif.	590	7-27-62	Rec. 14, p. 26	
45	Longstreet Spring	NE¼ sec.22, T.17 S., R.50 E., 13 miles northeast of Death Valley Junction, Calif.	1,000	7-29-62	Rec. 14, p. 25	
46	Point of Rocks Springs (King Springs)	SE¼ sec.7, T.18 S., R.51 E., 11 miles northeast of Death Valley Junction, Calif.	1,100	7-25-62	Rec. 14, p. 26	Thermal
47	Rogers Spring	NE¼ sec.15, T.17 S., R.50 E., 12 miles southeast of Lathrop Wells.	740	7-29-62	Rec. 14, p. 25	
48	Charnock Springs	Sec.28, T.13 N., R.44 E., 8½ miles southeast of Millet.	450 est.	1913	WSP 423, p. 91	Main spring.
49	Darroughs Hot Springs	NW¼ sec.17, T.11 N., R.43 E., 14 miles south of Millet.	450 est.		Division of Water Resources	Several springs. Thermal.
50	Diana's Punch Bowl Spring	Sec.22, T.14 N., R.47 E., 38 miles southeast of Austin.	900 est.	4-15-64	USGS files	Located near Diana's Punch Bowl. Thermal.
51	Hot Creek Spring	T.8 N., R.50 E., 56 miles northeast of Tonopah.	4,000 est.		Division of Water Resources	Thermal
	Pahrump Valley Springs					
53	Pahrump Springs (Bennetts Springs)	SW¼SE¼ sec.14, T.20 S., R.53 E., at Pahrump.	2,500 dry	7-18-43 1963	WRB 5, p. 48 USGS files	Two large springs. Increased pumping.
54	Manse Springs	Sec.3, T.21 S., R.54 E., 7 miles southeast of Pahrump.	500 est 360	1959 3-10-71	USGS files Division of Water Resources	Two springs. Flow declining.
55	Potts Ranch Spring	Sec.2, T.14 N., R.47 E., 36 miles southeast of Austin.	450 est.	4-15-64	do.	Several springs.
	Railroad Valley Springs					
56	Big Warm Spring (Duckwater Springs)	Sec.21, T.12 N., R.56 E., 1 mile south of Duckwater.	6,200	Average for 1916	WRB 12, p. 145	
57	Blue Eagle Springs	SE¼ sec.11, T.8 N., R.57 E., 12 miles south of Currant.	2,270	2-13-48	WRB 12, p. 148	Two main springs.
58	Lockes Springs	SW¼ sec.15, T.8 N., R.55 E., 20 miles southwest of Currant.	2,000	2-07-34	do.	Big Spring (900 gpm), Hot Spring (200 gpm), Reynolds Spring (300 gpm), Stockyard Spring (600 gpm). Thermal.
	White River Valley Springs					
59	Butterfield Springs	NW¼ sec.28, T.7 N., R.62 E., 30 miles south of Lund.	1,100 est.	1948	WRB 8, p. 37	Two orifices.

NYE COUNTY, continued						Table 5 — Page 5 of 6
Map No.	Name	Location	Discharge (gallons per minute)	Date Measured	Reference	Remarks
60	Emigrant Springs	SE¼ sec.19, T.9 N., R.62 E., 16 miles south of Lund.	1,400 est.	1948	WRB 8, p.37	Several springs.
61	Flag Springs	SE¼ sec.32, T.7 N., R.62 E., 30 miles south of Lund.	1,100 est.	1948	do.	Several springs.
62	Hot Creek Spring	NE¼ sec.18, T.6 N., R.61 E., 34 miles south of Lund.	6,900 est.	4-06-35	do.	Thermal
63	Moon River Spring	NW¼ sec.25, T.6 N., R.60 E., 37 miles south of Lund.	900 est.	1935	do.	Thermal
64	Mormon Springs	SE¼ sec.32, T.9 N., R.61 E., 20 miles southwest of Lund.	2,000 est.	1948	do.	Thermal
PERSHING COUNTY						
65	McCoy Springs	SW¼ sec.35, T.26 N., R.39 E., 62 miles south of Winnemucca.	670 est.	6-07-59	Rec. 23, p. 31	Several springs. Thermal.
66	Springs	SW¼ sec.11, T.27 N., R.38 E., 52 miles south of Winnemucca.	500 est.	7-31-59	do.	Several springs.
WASHOE COUNTY						
67	Boiling Springs	NW¼ sec.15, T.34 N., R.23 E., 1 mile northwest of Gerlach.	200 est	Prior to 1963	Rec. 20, p. 24	Thermal
68	Hot Springs	SW¼ sec.1, T.34 N., R.23 E., 15 miles north of Gerlach.	500 est.	1961	Rec. 11, table 2	Many spring pools. Thermal.
69	Lawton Hot Springs	Sec.13, T.19 N., R.18 E., 5½ miles west of Reno.	250	2-11-58	USGS files	Several springs. Thermal.
70	Steamboat Springs	Sec.33, T.18 N., R.20 E., south of Reno.	825	6-13-45	do.	Total flow from springs in general area. Thermal.
WHITE PINE COUNTY						
71	Big Spring	T.10 N., R.70 E., 17 miles south of Garrison, Utah.	10,000 est.	1927	WSP 679B, p. 163	Probably base flow in Big Spring Creek.
72	Green Spring	SW¼ sec.33, T.15 N., R.57 E., 33 miles southeast of Eureka.	680	4-29-48	WRB 12, p. 148	
73	North Creek Spring	SW¼ sec.19, T.10 N., R.65 E., 40 miles south of Ely.	700	8-04-63	Rec. 24, p. 24	
74	Simonsen Warm Springs	T.22 N., R.56 E., 25 miles northeast of Eureka.	1,000 est.	1960	Rec. 1, p. 12	Several springs.

	Steptoe Valley Springs					
75	Borchert John Spring	Sec.16, T.22 N., R.63 E., 26 miles north of McGill.	800	5-22-18	WSP 467, p. 49	
76	Campbell Ranch Springs	Sec.5, T.19 N., R.63 E., 12 miles northwest of McGill.	1,200	9-06-17	WSP 467, p. 47	Outflow from two largest spring groups, over 500 small springs in seep area.
77	Comins Springs (Commings Springs)	Secs.20 and 21, T.15 N., R.64 E., 8 miles southeast of Ely	3,000 est.	Prior to 1918	WSP 467, p. 49	Several springs.
78	McGill Warm Springs	SE¼NW¼ sec.21, T.18 N., R.64 E., at northwest corner of McGill.	4,500 est	1918	WSP 467, p. 46	Main spring only.
79	Monte Neva Hot Springs (Melvin Hot Springs)	SW¼ sec.24, T.21 N., R.63 E., 19 miles north of McGill.	620	8-21-17	WSP 467, p. 47	Main spring only. Thermal.
80	Murry Springs (Murray Springs)	SE¼SE¼ sec.20, T.16 N., R.63 E., 1 mile south of Ely.	3,300	Average for 1906-51	USGS Files	Several springs, water supply for Ely.
	White River Valley Springs					
81	Arnoldson Spring	SE¼SE¼ sec.12, T.12 N., R.61 E., in Preston.	1,500	Average for 1910-47	WRB 8, p. 38, 39	
82	Cold Spring	NW¼ sec.12, T.12 N., R.61 E., at northwest corner of Preston.	630	Average for 1910-47	do.	
83	Lund Spring	NE¼ sec.4, T.11 N., R.62 E., at southwest corner of Lund.	2,860	3-06-36	WRB 8, p. 37	
84	Nicolas Spring	SW¼SE¼ sec.12, T.12 N., R.61 E., in Preston.	1,200	Average for 1910-47	WRB 8, p. 38, 39	
85	Preston Big Spring	NE¼ sec.2, T.12 N., R.61 E., 1½ mile northwest of Preston.	3,800	Average for 1910-47	do.	

TABLE 6 – LAKE & RESERVOIR INVENTORY[3]

NORTHWEST REGION					Table 6 – Page 1 of 9
Name of Reservoir	**Stream Name**	**Map Number** [1]	**Surface Area (Ac.)** [2]	**Capacity (Ac. Ft.)**[2]	**Remarks**
Humoldt County					
Alkali Reservoir	Virgin Creek	1	97	1,233	Irrigation
Big Spring Reservoir	Big Spring	2	480	1,680	Irrigation
Blue Lakes	Natural Lakes	3	20	(120)	Recreation
Bog Hot Reservoir	Bog Hot Springs	4	38	154	Irrigation
Continental Lake	Craine, Alder & Thousand Creeks	5	500	(4,250)	Terminal Lake
Dufurrena Ponds	Thousand and Virgin Creeks	6	25	150	Recreation and Irrigation
Gooch Lake	Unnamed Drainage	7	154	(154)	Terminal Lake
Gridley Lake	Craine Creek	8	320	(320)	Terminal Lake
Knott Creek Reservoir	Knott Creek	9	98	1,620	Irrigation and Recreation
Little Onion Reservoir	Alder Creek	10	30	325	Irrigation
Onion Lake	Unnamed Drainage	11	774	(774)	Terminal Lake
Onion Valley Reservoir	Alder Creek	12	101	1,500	Irrigation & Recreation
Rock Springs Table Reservoir	Rock Springs Table Drainage	13	40	500	Stock
Smith Lake	Natural Lake	14	(5)	(10)	Stock
Virgin Valley Reservoir	Virgin Creek	15	20	50	Irrigation and Recreation
Washoe County					
Alkali Lake		16	3,750	(3,750)	Terminal Lake
Bald Mountain Lake		17	216	(216)	Terminal Lake
Big Holy Lake		18	500	(1,000)	Terminal Lake
Broyles Reservoir		19	78	(510)	Irrigation

1 This number refers to a map of Lakes and reservoirs which will be published as a part of the forthcoming Hydrologic Atlas.

2 Values in parentheses are estimates.

3 Reservoirs under 10 surface areas and diverson dams are not included.

NORTHWEST REGION, continued					Table 6 — Page 2 of 9
Washoe County, continued					
Boulder Lake	Home Camp & Boulder Creeks Drainage	20	15	(78)	Terminal Lake
Boulder Reservoir	Boulder Creek	21	10	40	Irrigation
Cap Johnson Reservoir	Denio Creek	22	160	1,500	Irrigation
Carter Reservoir	Sand Creek	23	222	935	Irrigation
Catnip Reservoir	Catnip Creek	24	55	220	Irrigation
Central Lake		25	321	(150)	Terminal Lake
Coleman Reservoir	Coleman Creek	26	40	500	Irrigation
Duck Lake		27	3,000	(3,000)	Terminal Lake
Forty-nine Lake		28	352	(200)	Terminal Lake
Frog Pond Dam	New Years Lake Drainage	29	92	395	Irrigation
Hill Dam	Mosquito Creek	30	77	396	Irrigation
Little Valley Reservoir	Glenco Spring	31	80	400	Irrigation
Little Holy Lake		32	30	(30)	Terminal Lake
Lost Creek Reservoir	Lost Creek	33	12	98	Irrigation
Massacre Lake		34	2,532	(3,000)	Terminal Lake
Middle Lake		35	1,198	(900)	Terminal Lake
Mosquito Lake		36	935	(400)	Terminal Lake
New Years Lake	New Years Lake Drainage	37	1,500	6,000	Irrigation
Racetrack Reservoir	Guano Valley Drainage	38	32	75	Stock
Rye Grass Reservoir	Rye Grass Creek	39	200	498	Irrigation
Mud Lake	Long Valley Drainage	40	900	(1,200)	Stock, Terminal Lake
Swan Lake	Badger Creek	41	130	(300)	Stock, Terminal Lake
Swan Lake Reservoir	Fish and Badger Creeks	42	500	1,000	Irrigation
Toney Reservoir	Headwaters of Long Valley	43	15	(85)	Irrigation
Wimer Reservoir		44	70	(350)	Irrigation
Wall Creek Dam	Wall Creek	45	182	400	Irrigation
Wall Creek Dam No. 2	Wall Creek	46	133	2,200	Irrigation
West Lake		47	1,248	(900)	Terminal Lake
BLACK ROCK DESERT REGION					
Humboldt County					
Bilk Creek Reservoir	Bilk Creek	48	(110)	800	Irrigation
Delong Reservoir	Quinn River	49	500	2,275	Irrigation
High Rock Lake	High Rock Creek	50	650	(500)	Stock

BLACK ROCK DESERT REGION, continued

Name of Reservoir	Stream Name	Map Number	Surface Area (Ac.)	Capacity (Ac. Ft.)	Remarks
Humboldt County, continued					
Jungo Flat Lake	Low elevation snowmelt	51	10	25	Terminal Lake
Mud Meadows Reservoir	Mud Meadows Creek	52	80	215	Irrigation
Summit Lake	Mahogany and Snow Creeks	53	560	(5,000)	Fish propagation
Van Vleck Reservoir	Soldier Creek	54	250	2,750	Irrigation
Weiss & Vogel Reservoir	Donnley Creek	55	150	450	Irrigation
Wheeler Reservoir (Donnley Creek)	Mud Meadows Creek	56	154	1,100	Irrigation
Washoe County					
Denio Reservoir	Weimer Spring Creek	57	30	110	Irrigation
Dewey Parker Reservoirs	Buffalo Slough	58	156	428	Irrigation
Fly Reservoir	Cottonwood Creek and Hotsprings	59	40	350	Irrigation
Grass Valley Reservoir	Grass Valley Creek	60	10	50	Irrigation
Negro Creek Dam	Negro Creek	61	50	497	Irrigation
Smoke Creek Reservoir	Smoke Creek	62	90	1,200	Irrigation (90% of reservoir in California)
Squaw Valley Reservoir	Squaw Valley Creek	63	47	1,200	Irrigation
Woodruff Reservoir	Little High Rock Creek	64	128	(500)	Irrigation

SNAKE RIVER BASIN

Name of Reservoir	Stream Name	Map Number	Surface Area (Ac.)	Capacity (Ac. Ft.)	Remarks
Elko County					
Bull Run Reservoir	Bull Run Creek	65	106	1,246	Irrigation
Charleston Reservoir	Mason Creek	66	40	200	Irrigation
Chimney Creek Reservoir	Chino and Wolf Creeks	67	928	9,950	Irrigation
Coyote Hole Reservoir	Drainage Water	68	18	(36)	Stock
Coyote Lake	Natural Lake	69	25	(50)	Stock
Deep Creek Reservoir	Deep Creek	70	136	1,410	Irrigation
Dry Creek Reservoir	Dry Creek	71	110	1,910	Irrigation
Emerald Lake	Natural Lake	72	1	(4)	Stock
Groundhog Reservoir	Drainage Lake	73	16	(32)	Stock
Jakes Creek Reservoir	Jakes Creek	74	62	472	Irrigation
Josephine Reservoir	Drainage Waters	75	250	1,250	Stock
Rawhide Reservoir	Indian and Bull Run Creeks	76	147	1,540	Irrigation

SNAKE RIVER BASIN, continued

Elko County, continued					
Sheep Creek Reservoir	Sheep Creek	77	850	7,500	Recreation
Sunflower Reservoir	Corey's Dam Springs	78	60	(120)	Stock
Wildhorse Reservoir	Owyhee River	79	3,000	72,000	Irrigation
Wilson Reservoir	Bull Run and Wilson Creeks	80	828	10,469	Irrigation

HUMBOLDT RIVER BASIN

Elko County					
Ackler Lake	Natural Lake	81	10	(54)	Recreation
Angel Lake	Natural Lake	82	13	(70)	Irrigation and Recreation
Bishop Creek Reservoir	Bishop Creek	83	782	30,000	Irrigation
Boulder Lake	Natural Lake	84	6	(30)	Recreation
Boyd Reservoir	Rabbit Creek	85	(120)	830	Irrigation
Castle Lake	Natural Lake	86	9	(48)	Recreation
Cold Lake	Natural Lake	87	6	(30)	Recreation
Dorsey Creek Reservoir	Dorsey Creek	88	14	150	Irrigation
Echo Lake	Natural Lake	89	29	(175)	Recreation
Eight Mile Creek Reservoir	Eight Mile Creek	90	45	944	Flood Control
Favre Lake	Natural Lake	91	19	(110)	Recreation
Fifth St. Wash Reservoir	Fifth St. Wash	92	10	94	Flood Control
Greys Lake	Natural Lake	93	5	(25)	Recreation
Griswold Lake	Butterfield Creek	94	15	(85)	Irrigation
Hidden Lake	Natural Lake	95	9	(48)	Recreation
Island Lake	Natural Lake	96	7	(35)	Recreation
John Day Reservoir	Warm Spring, Cold Creek & Lamoille Ck.	97	127	561	Irrigation
Lamoille Lake	Natural Lake	98	13	(70)	Recreation
Liberty Lake	Natural Lake	99	21	(125)	Recreation
Lost Lake	Natural Lake	100	3	(14)	Recreation
North Furlong Lake	Natural Lake	101	8	(40)	Recreation
Pearl Lake	Natural Lake	102	5	(25)	Recreation
Seitz Lake	Natural Lake	103	3	(14)	Recreation
Sleeman Ponds	Drainage Water	104	12	20	Stock
Smith Lake	Natural Lake	105	3	(14)	Recreation
Soldier Lake	Natural Lake	106	6	(30)	Recreation

HUMBOLDT RIVER BASIN, continued

Table 6 — Page 5 of 9

Name of Reservoir	Stream Name	Map Number	Surface Area (Ac.)	Capacity (Ac. Ft.)	Remarks
Elko County, continued					
Verdi Lake	Natural Lake	107	5	(25)	Recreation
Willow Creek Reservoir	Willow Creek	108	761	18,064	Irrigation
Zunino Reservoir	Smith and Cottonwood Creeks	109	30	(180)	Irrigation
Saval Reservoir	Ganz Creek	110	10	15	Irrigation
Lander County					
Carico Lake	Carico Lake Creek	111	1,032	1,550	Irrigation
Iowa Canyon Reservoir	Iowa Creek	112	28	437	Irrigation
Izzenhood Ranch Reservoir	Sheep Creek	113	10	50	Irrigation
Nelson Reservoir	Rock Creek	114	13	100	Irrigation
Pershing County					
Big Five Dam	Humboldt River	115	787	1,720	Irrigation
Graveyard Slough	Humboldt River	116	80	100	Irrigation
Humboldt Lake	Drainage water	117	4,200	(46,000)	Recreation
Mud Springs Dam	Mud Springs	118	70	(490)	Irrigation
Upper Pitt-Taylor[1]	Humboldt River	119	(1,900)	29,570	Irrigation
Lower Pitt-Taylor[1]	Humboldt River	120	(1,700)	20,200	Irrigation
Pumpernickel Reservoir	Springs	121	37	236	Irrigation
Rye Patch[2]	Humboldt River	122	10,800	179,000	Irrigation and Recreation
Toulon Lake	Drainage Water	123	3,500	(38,000)	Recreation
WEST CENTRAL REGION					
Lyon County					
Fernley Dam No. 1	Drainage Water	124	276	910	Wildlife Management
Fernley Dam No. 3	Drainage Water	125	95	476	Wildlife Management

[1]Effective capacity of both of the Pitt-Taylor Reservoirs is 36,000 acre feet.

[2]When the flash boards are in place the capacity of Rye Patch Reservoir is increased to 191,000 feet.

TRUCKEE RIVER BASIN

Douglas County					
Spooner Lake	North Canyon Creek	126	69	(400)	Irrigation
Lake Tahoe	Headwaters	127	36,400[1]	745,000[2]	Multiple Purpose
Washoe County					
Lake Alexander		128	58	(250)	Irrigation
Gasperi	Truckee River	129	30	90	Irrigation
Highland	Truckee River	130	10	(54)	Municipal
Hobart Creek Reservoir	Franktown and Hobart Creek	131	10	110	Municipal
Incline Lake	Third Creek	132	30	157	Recreation
Marlette Lake	Marlette Lake Basin	133	350	10,400	Municipal and Recreation
Milk Ranch Reservoir	Dry Valley Creek	134	23	252	Irrigation
Price Lake	Ophir Creek	135	10	(54)	Irrigation
Pyramid Lake	Truckee River	136	108,000[3]	20,510,000[3]	Recreation, Terminal Lake
Rock Lake	Snowmelt	137	20	(105)	Irrigation
Spanish Flat Reservoir	Dry Valley Creek	138	236	1,000	Irrigation
Spanish Springs	Truckee River and Artesian Wells	139	30	(185)	Irrigation
Tamarack Lake	Snowmelt	140	10	(54)	Recreation
Virginia Lake	Truckee River	141	24	140	Recreation
Washoe Lakes	Franktown Creek	142	5,800	31,000	Irrigation, Recreation and Wildlife Management
Wheeler Reservoir	Truckee River and Evans Creek	143	46	948	Irrigation
Winnemucca Ranch Reservoir	Sugar Cane Springs	144	22	60	Irrigation

CARSON RIVER BASIN

Churchill County					
Carson Lake	Drainage Waters	145	2,000	(4,000)	Recreation
Desert Gun Club Reservoirs	Hazen Slough	146	100	500	Recreation
Harmon	Drainage Waters	147	200	400	Recreation
Hazen Reservoir	Truckee River	148	10	20	Irrigation
Indian Lakes	Drainage Water	149	400	(3,500)	Recreation

[1] Nevada's portion of area — remainder (85,600 ac.) in California.

[2] The quantity of water subject to regulation between the levels of 6,223 and 6,229 feet. Total capacity = 122,000,000 acre feet.

[3] Area and capacity at a lake level of 3,789 feet above sea level (1968).

CARSON RIVER BASIN

Table 6 – Page 7 of 9

Name of Reservoir	Stream Name	Map Number	Surface Area (Ac.)	Capacity (Ac. Ft.)	Remarks
Churchill County, continued					
Lahontan Reservoir	Carson and Truckee Rivers	150	10,000	273,600[1]	Irrigation and Recreation
Old River Reservoir	Drainage Water	151	270	500	Recreation
Ollies Pond "S"	Drainage Water	152	350	700	Recreation
Soda Lake	Natural Lake	153	385	35,000	Recreation
Stillwater Point Reservoir	Drainage Waters	154	1,900	19,000	Recreation
Douglas County					
Bose Reservoir	Carson River	155	30	90	Irrigation
Dangberg Reservoir No. 1 and 2	East Fork Carson River	156	45	375	Irrigation
Dangberg Reservoir No. 3	East Fork Carson River	157	80	500	Irrigation
Dangberg Reservoir No. 4	East Fork Carson River	158	150	1,000	Irrigation
Mud Lake	Indian Creek	159	300	1,800	Irrigation
WALKER RIVER BASIN					
Douglas County					
Topaz Lake	West Walker River	160	1,250[2]	59,400[3]	Irrigation and Recreation
Lyon County					
Artesia Lake	Drainage Waters	161	1,000	(1,000)	Terminal Lake
Beaman Lake	Drainage Waters	162	80	480	Irrigation and Recreation
Nuti Reservoir	Waste Water	163	10	(54)	Irrigation
Mineral County					
Cat Creek Reservoir	Cat Creek	164	25	1,155	Municipal
Rose Creek Reservoir	Rose Creek	165	32	656	Municipal
Walker Lake	Walker River	166	38,000[4]	2,990,000[4]	Recreation, Terminal Lake
Weber Reservoir	Walker River	167	950	(13,000)	Irrigation

[1] With 20-inch flashboards, capacity is 290,000 acre feet.

[2] Nevada's portion of area – remainder (1,050 ac.) in Calfornia.

[3] Total capacity.

[4] Area and capacity at a lake level of 3,970 feet above sea level (1968).

CENTRAL REGION

Elko County					
Steele Lake/Gibbs Lake	Natural Lake	168	6	(30)	Recreation
Overland Lake	Natural Lake	169	20	(120)	Recreation
Robinson Lake	Natural Lake	170	17	(95)	Recreation
Winchell Lake	Natural Lake	171	2	(9)	Recreation
Ruby Lake	Natural Lake	172	9,000	(30,000)	Recreation
Eureka County					
Roberts Creek Reservoir	Roberts Creek	173	10	117	Irrigation
Lander County					
Grove Lake	Kingston Creek	174	17	190	Recreation
Smith Creek Reservoir	Smith Creek	175	25	350	Irrigation
Nye County					
Fish Lake	Drainage Water	176	80	(160)	Terminal Lake
Manzonie Reservoir	Currant Creek	177	40	250	Irrigation
White Pine County					
Bassett Lake	Steptoe Slough	178	120	(1,300)	Recreation and Irrigation
Cave Creek	Steptoe Slough	179	32	784	Recreation
Comins Lake	Steptoe Valley Creek	180	40	290	Irrigation
Bull Creek No. 2	Bull Creek	181	10	51	Irrigation
Spring Valley Wash Dam	Spring Valley Wash	182	64	121	Irrigation

GREAT SALT LAKE BASIN

Elko County					
Crittenden Reservoir	Crittenden Creek	183	230	4,300	Irrigation
Daek Reservoir	Thousand Springs Creek	184	2,909	5,340	Irrigation
23 Mile Reservoir	Thousand Springs Creek	185	652	7,457	Irrigation
White Pine County					
Baker Lake	Natural Lake	186	10	(50)	Recreation
Dead Lake	Natural Lake	187	3	(10)	Recreation
Goshute Reservoir	Chokecherry and Weaver Canyons	188	200	300	Irrigation
Johnson Lake	Natural Lake	189	5	(25)	Recreation
Silver Creek Reservoir	Silver Creek	190	13	200	Irrigation
Stella Lakes	Natural Lakes	191	5	(25)	Recreation

COLORADO RIVER BASIN

Name of Reservoir	Stream Name	Map Number	Surface Area (Ac.)	Capacity (Ac. Ft.)	Remarks
Clark County					
Bowman Reservoir	Muddy River	192	165	4,000	Irrigation
Glassand Pond	Underground	193	16	(53)	Mining
Honey Bee Pond	Muddy River	194	32	(100)	Recreation
Lake Mead[1]	Colorado River	195	164,000	29,700,000	Multiple Purpose
Lake Mohave[1]	Colorado River	196	28,200	1,820,000	Multiple Purpose
Lincoln County					
Eagle Valley Reservoir	Spring Valley Creek	197	59	640	Recreation
Echo Reservoir	Spring Valley Creek	198	64	1,400	Recreation
Frenchy Lake	Hiko Spring	199	74	(150)	Recreation
Hiko Lake	Hiko Spring	200	246	(500)	Recreation
Hollinger Debris Basin	Upper Meadow Valley Wash	201	90	640	Flood Control
Lower Pahranagat Lake	Crystal and Ash Springs	202	583	(1,000)	Recreation
Mathews Canyon Reservoir	Mathews Canyon	203	420	12,420	Flood Control
Pine Canyon Reservoir	Pine Canyon	204	354	12,470	Flood Control
Upper Pahranagat Lake	Crystal and Ash Springs	205	370	3,580	Irrigation and Recreation
Nye County					
Dacey Reservoir	Moorman Springs	206	215	784	Recreation
Hay Meadow Reservoir	White River	207	203	1,120	Recreation
Sunnyside Reservoir	Springs and White River	208	791	3,330	Recreation
Tule Field Reservoir	White River	209	218	507	Recreation
White Pine County					
Preston Reservoir	Jakes Valley Wash	210	109	1,271	Stockwater

DEATH VALLEY BASIN

Name of Reservoir	Stream Name	Map Number	Surface Area (Ac.)	Capacity (Ac. Ft.)	Remarks
Nye County					
Lake No. 1	Carson Slough	211	69	243	
Lake "C"	Springs	212	70	618	

[1]Total area and capacity.

TABLE 7 – MAJOR MANMADE DIVERSIONS ACROSS HYDROGRAPHIC BOUNDARIES

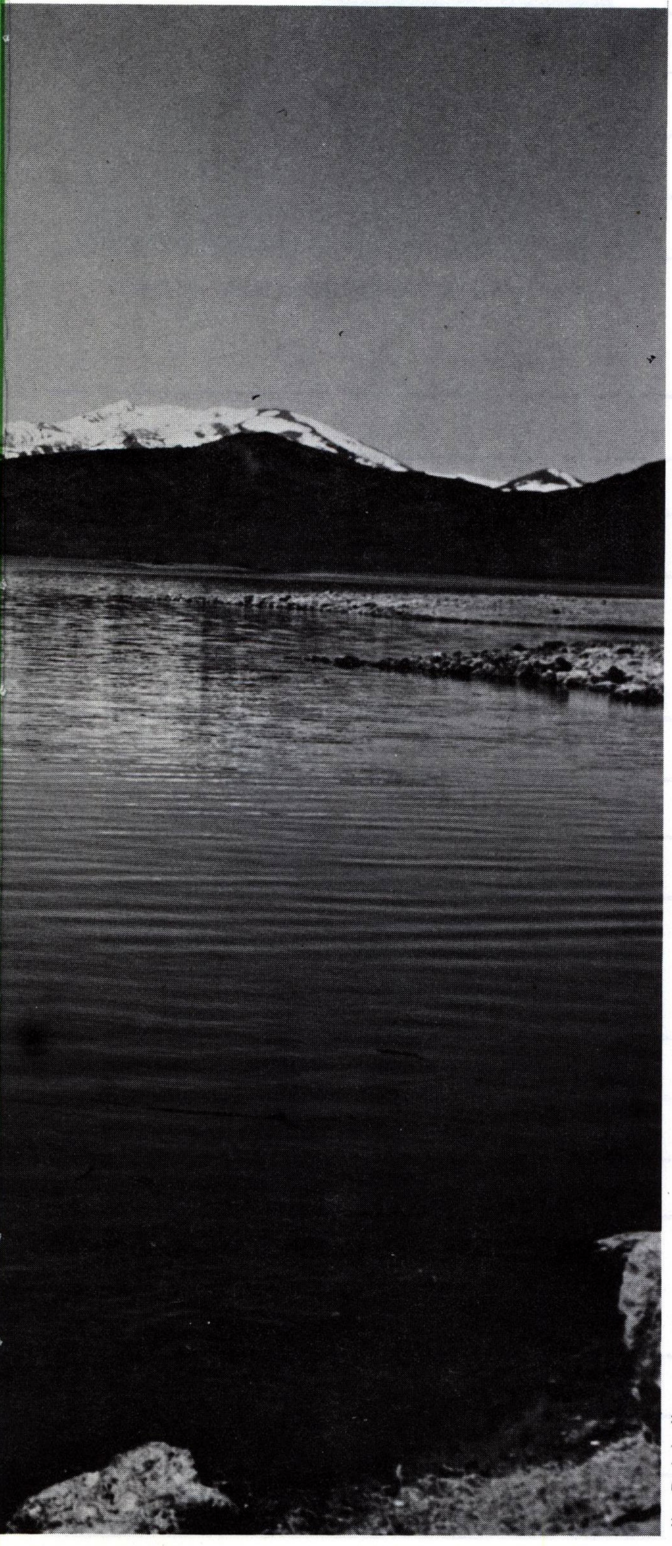
Location	From Area	To Area	1970 Estimated Amount	Primary Use
Surface Source				
BMI, Henderson and LVVWD	Lake Mead	212	34,000 A.F.	Industrial and Municipal
Boulder City	Lake Mead	167,212,213	3,000 A.F.	Municipal
Carson City*	89, 90	104	380 A.F.	Municipal
Incline Village**	90	105	560 A.F.	Sewage Effluent
Las Vegas***	Lake Mead	212	132,000 A.F.	Municipal
Lemmon Valley	87	92	970 A.F.	Municipal
Round Hill Village	90	105	620 A.F.	Sewage Effluent
Spanish Springs V.	87	85	16,000 A.F.	Irrigation
Sun Valley	87	86	350 A.F.	Municipal
Truckee Canal****	83	76,101,102	235,000 A.F.	Irrigation
Virginia City	89, 90	103	190 A.F.	Municipal
Washoe Valley	90	89	2,000 A.F.	Irrigation
Washoe Valley	88	89	2,000 A.F.	Irrigation
Spring Source				
Candelaria Pipeline	117	114	40 A.F.	Industrial
Gerlach	21	22	170 A.F.	Municipal
Montello	191	189	40 A.F.	Municipal
Wendover	192	Utah	260 A.F.	Municipal
Wendover A.F.B.	187	192 & Utah	1,400 A.F.	Municipal and Military
Ground Water Source				
Tonopah	141	137A	330 A.F.	Municipal

*Includes only that portion which comes from Marlette system.

**Estimated amount for 1971.

***Denotes first stage level of Southern Nevada Project.

****Estimated average annual amount flowing into area 101, Carson Desert.

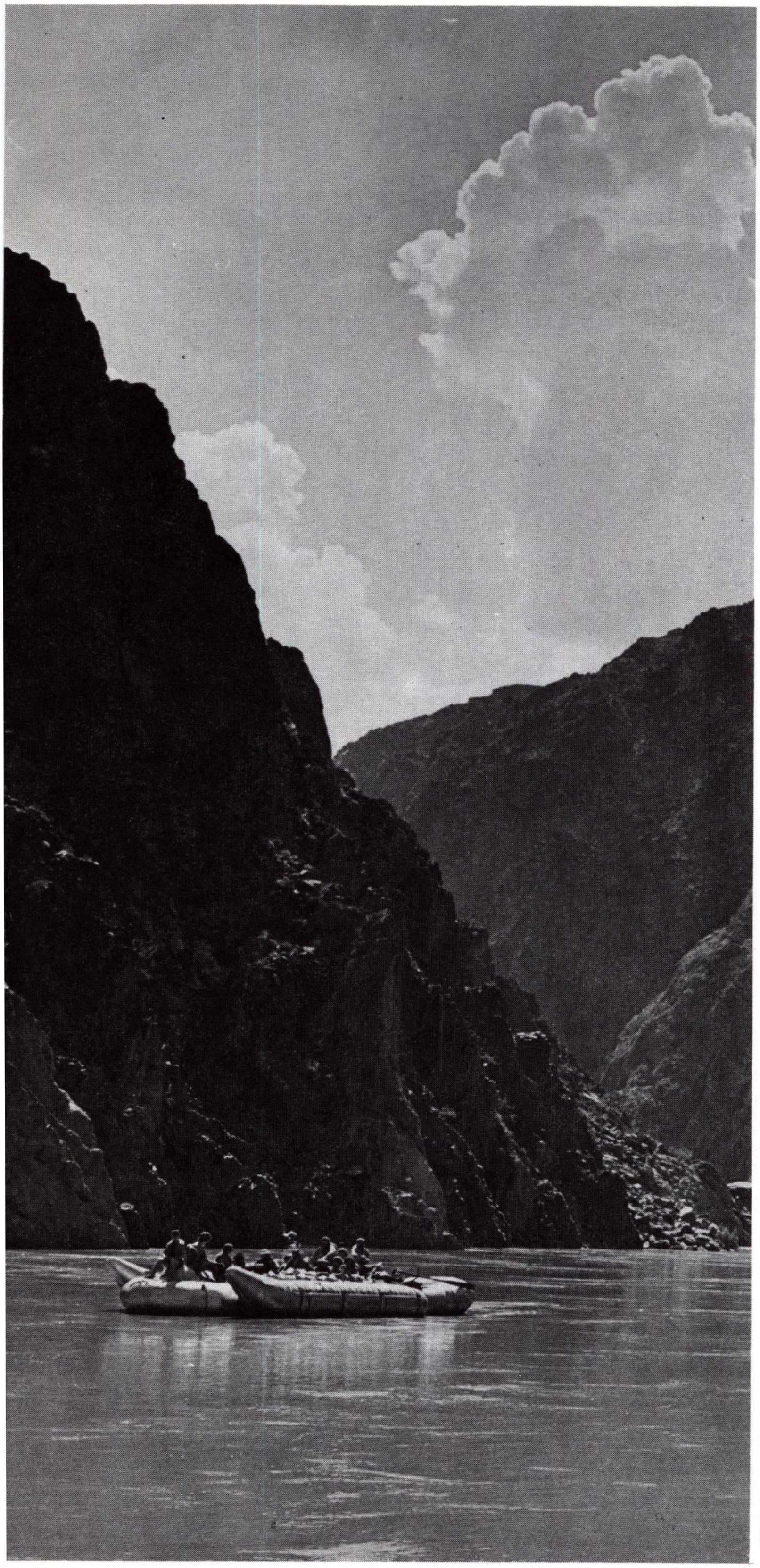


Jim Reinheller

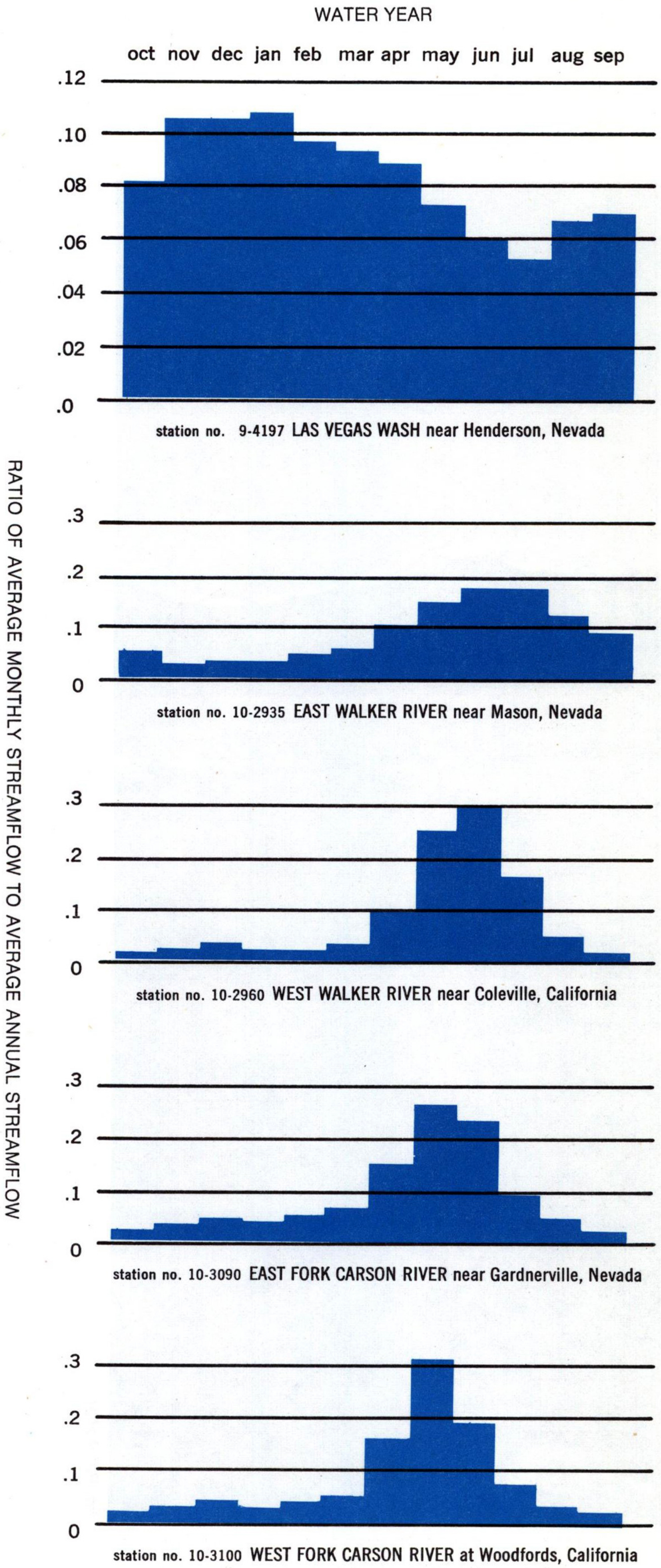
FIGURES

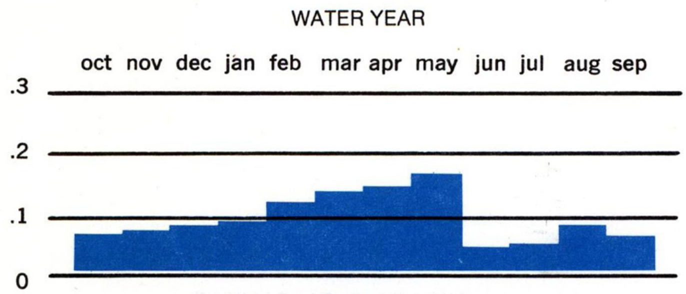
1 THROUGH 5

Figure 1 GRAPHS SHOWING AVERAGE SEASONAL PATTERN OF STREAMFLOW

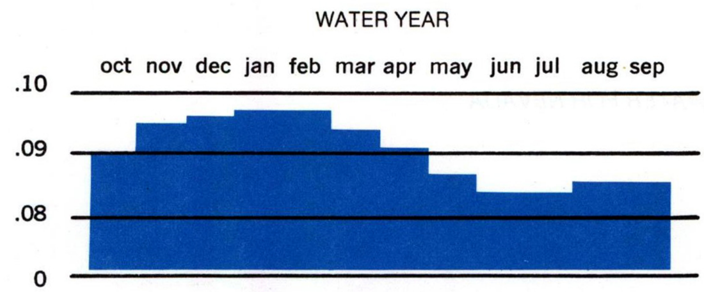


Cliff Segerblom

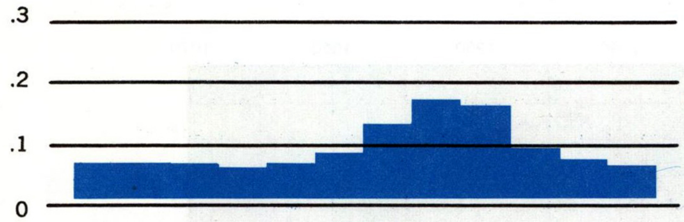




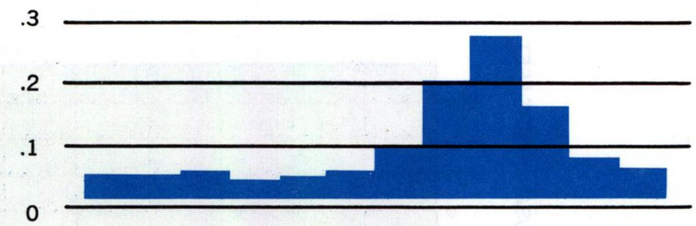
station no. 9-4150 VIRGIN RIVER at Littlefield, Arizona



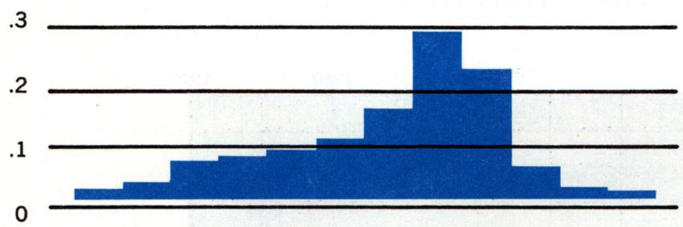
station no. 9-4160 MUDDY RIVER near Moapa, Nevada



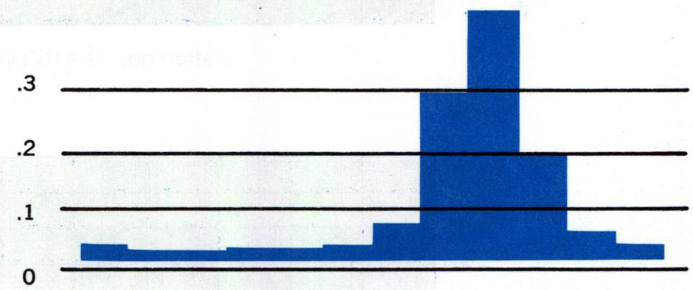
station no. 10-2437 CLEVE CREEK near Ely, Nevada



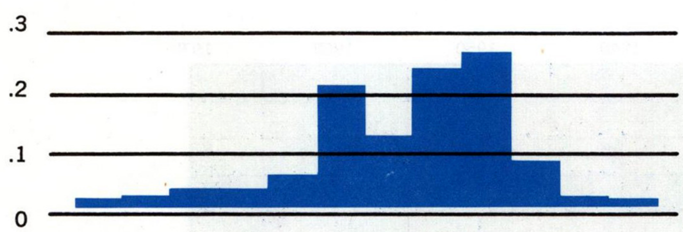
station no. 10-3000 WEST WALKER RIVER near Hudson, Nevada



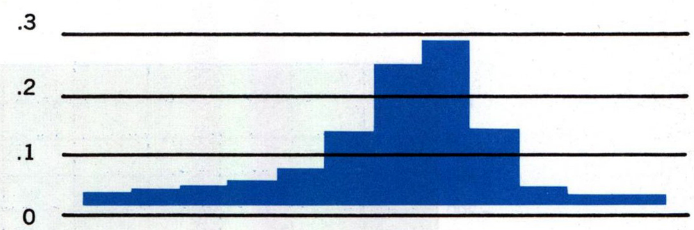
station no. 10-3120 CARSON RIVER near Fort Churchill, Nevada



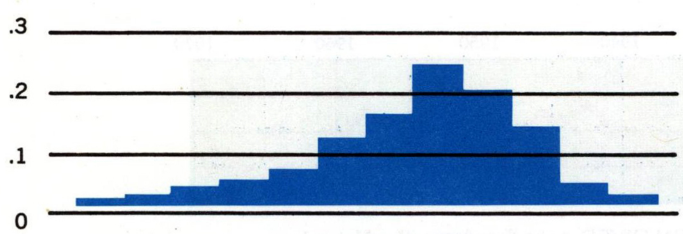
station no. 10-3165 LAMOILLE CREEK near Lamoille, Nevada



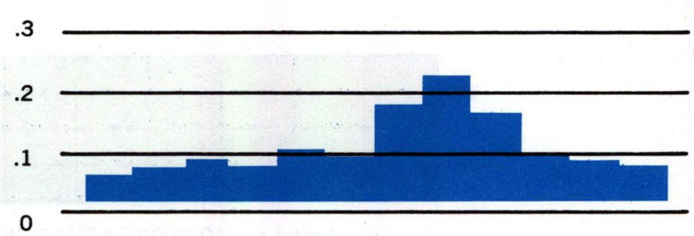
station no. 10-3225 HUMBOLDT RIVER at Palisade, Nevada



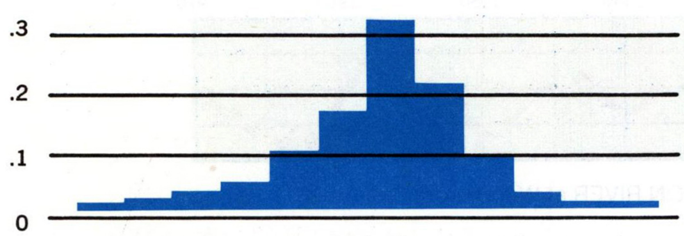
station no. 10-3295 MARTIN CREEK near Paradise Valley, Nevada



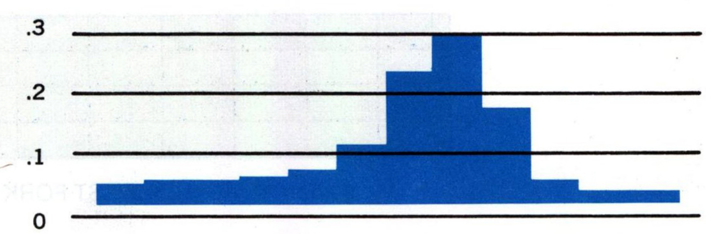
station no. 10-3330 HUMBOLDT RIVER near Imlay, Nevada



station no. 10-3460 TRUCKEE RIVER at Farad, California

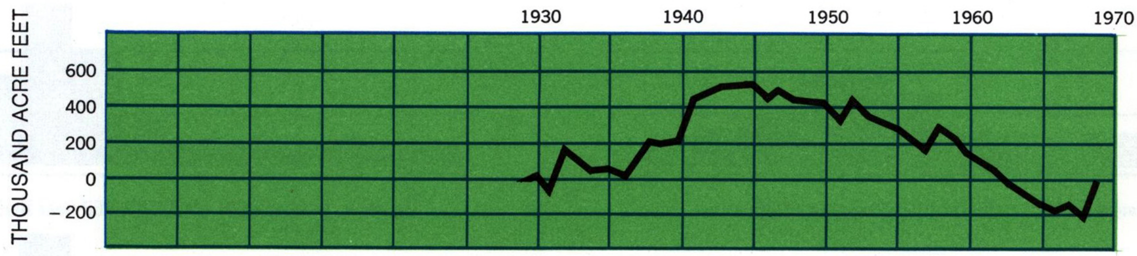


station no. 10-3525 McDERMITT CREEK near McDermitt, Nevada

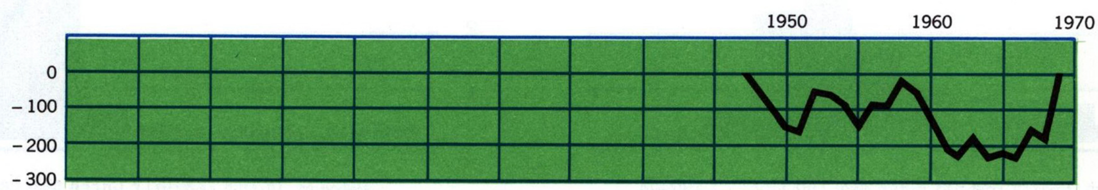


station no. 13-1050 SALMON FALLS CREEK near San Jacinto, Nevada

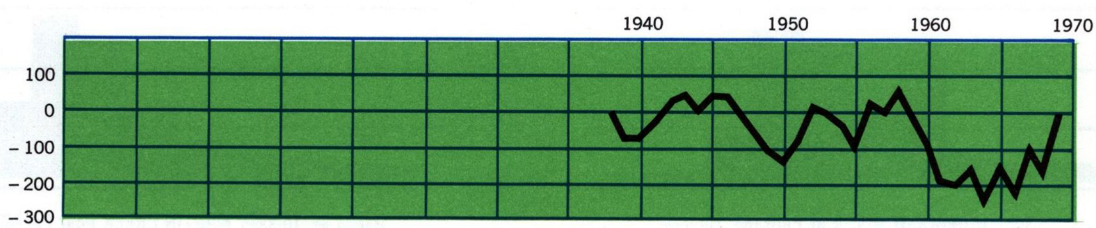
Figure 2 GRAPHS SHOWING CUMULATIVE DEPARTURE FROM AVERAGE ANNUAL STREAMFLOW



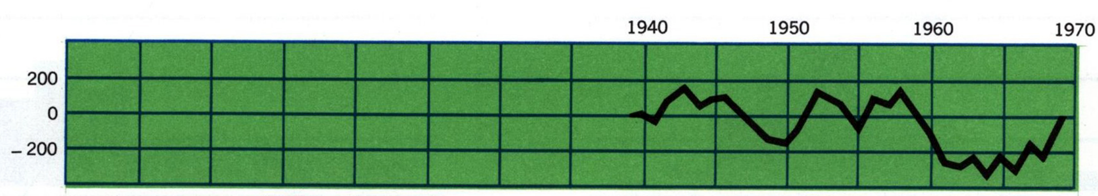
station no. 9-4150 VIRGIN RIVER at Littlefield, Arizona



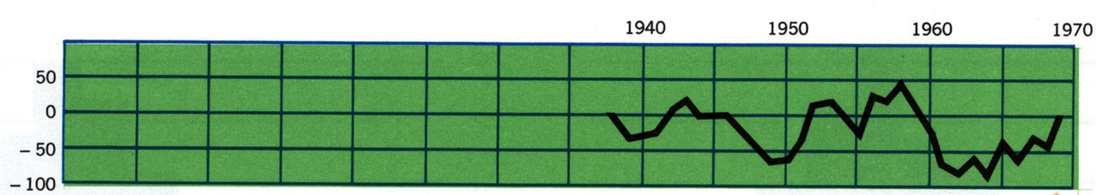
station no. 10-2935 EAST WALKER RIVER near Mason, Nevada



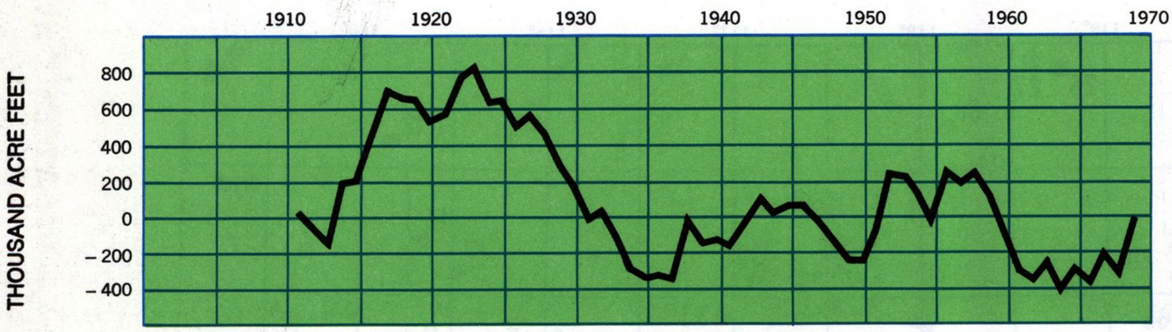
station no. 10-2960 WEST WALKER RIVER near Coleville, California



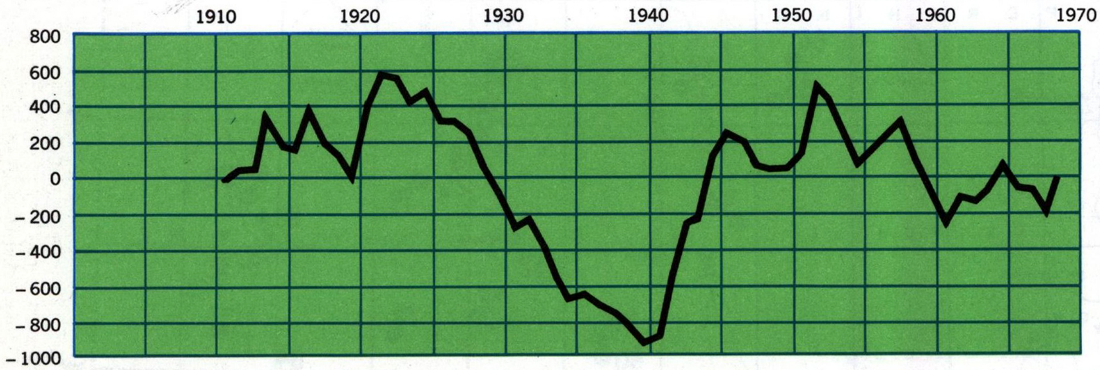
station no. 10-3090 EAST FORK CARSON RIVER near Gardnerville, Nevada



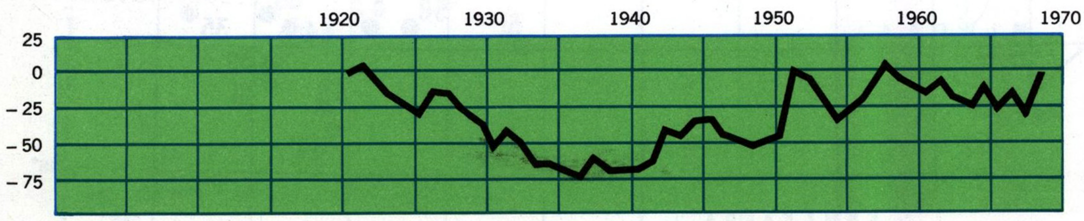
station no. 10-3100 WEST FORK CARSON RIVER at Woodfords, California



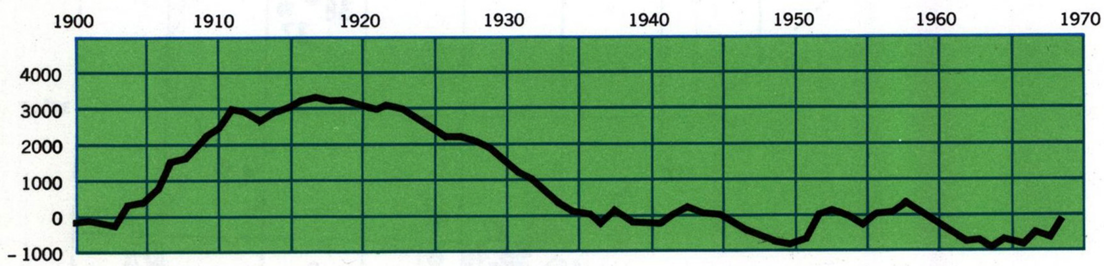
station no. 10-3120 CARSON RIVER near Fort Churchill, Nevada



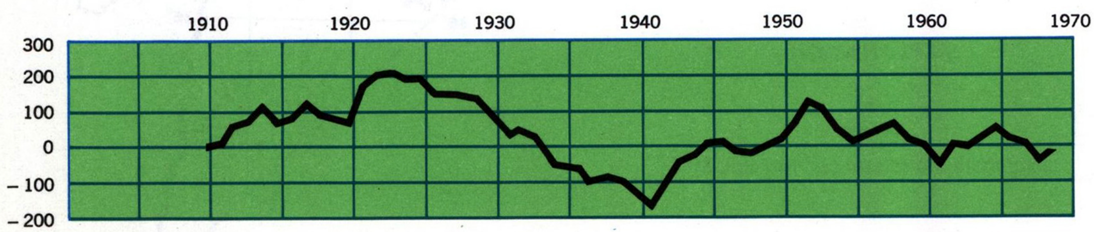
station no. 10-3225 HUMBOLDT RIVER at Palisade, Nevada



station no. 10-3295 MARTIN CREEK near Paradise Valley, Nevada

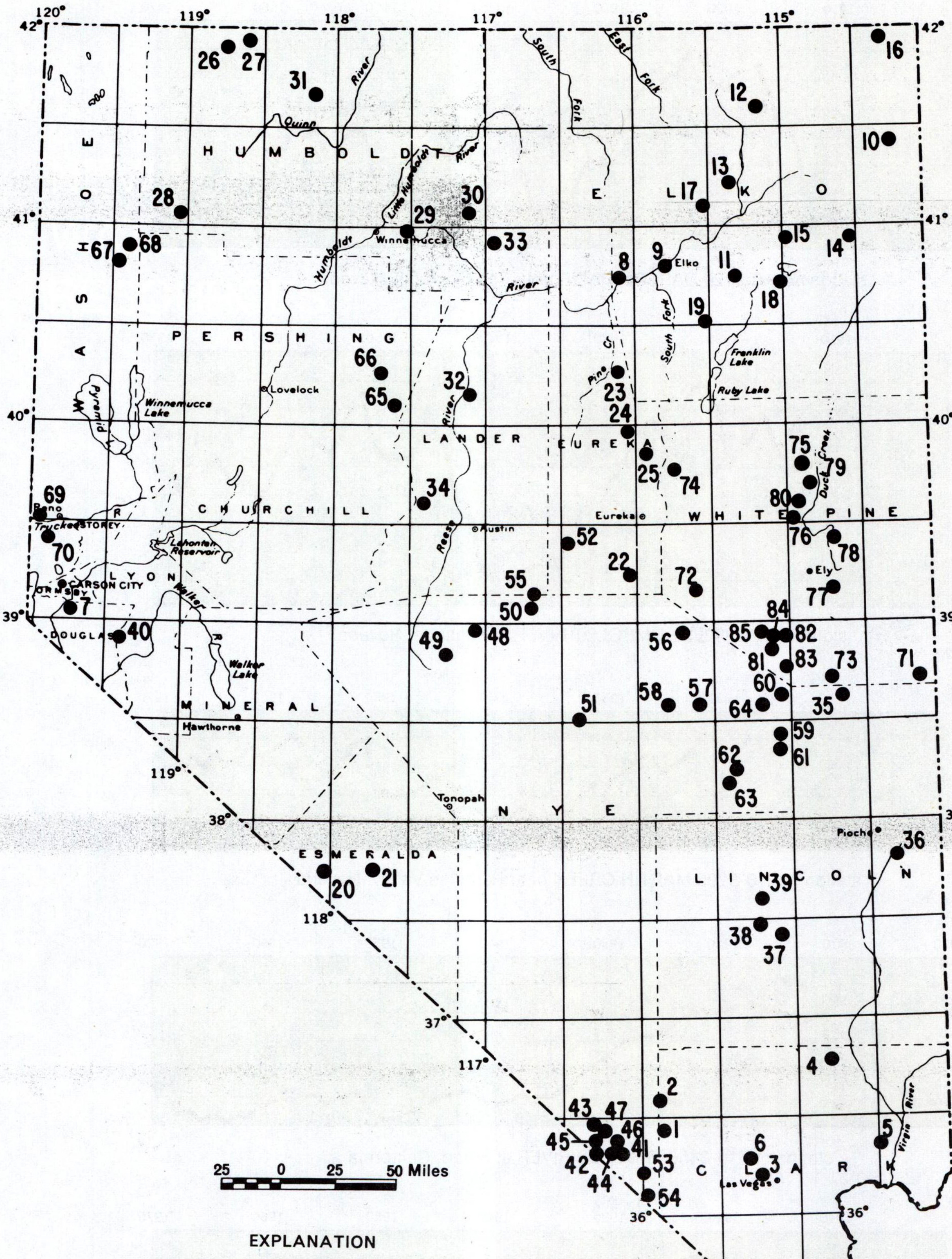


station no. 10-3460 TRUCKEE RIVER at Farad, California



station no. 13-1050 SALMON FALLS CREEK near San Jacinto, Nevada

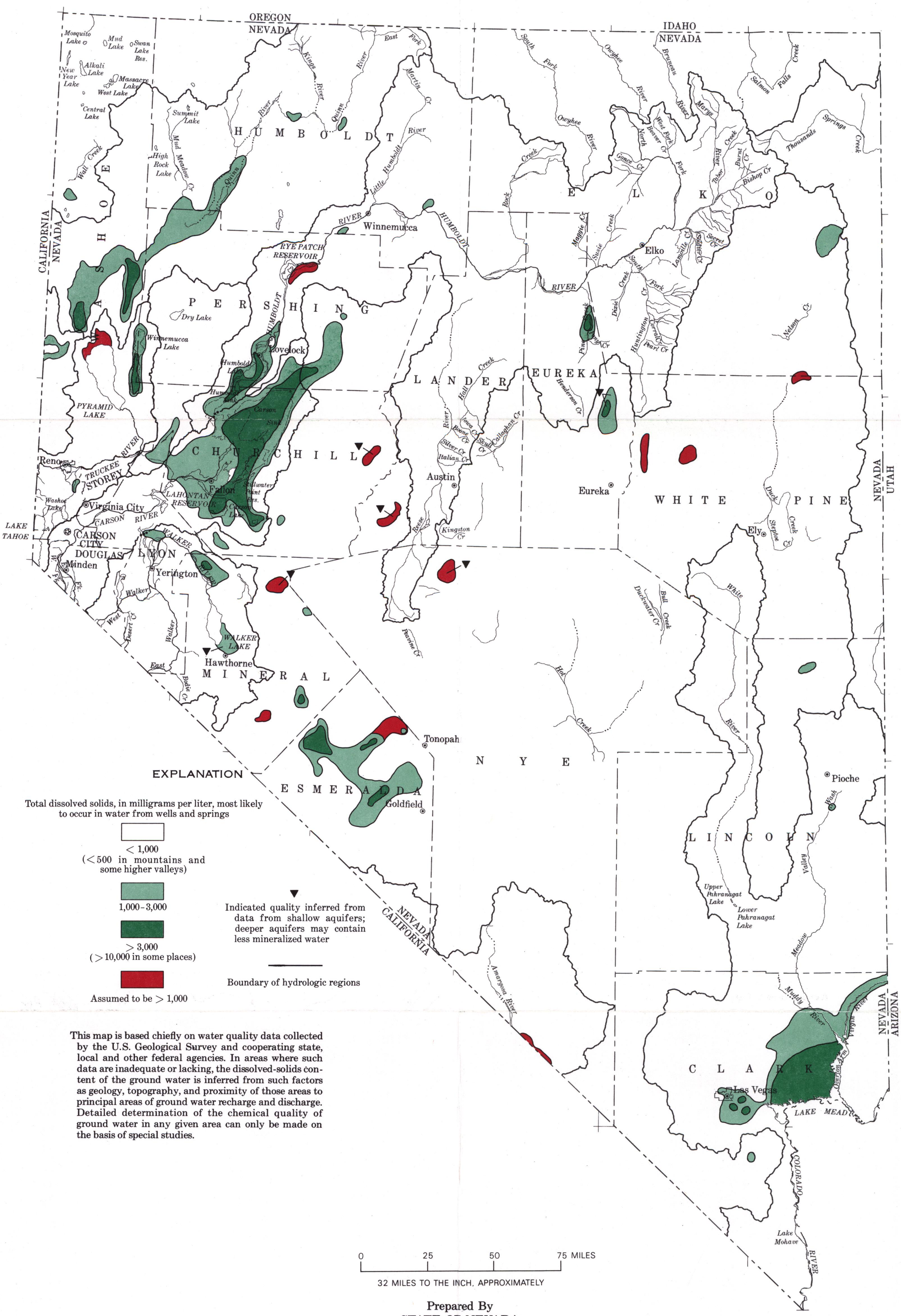
Figure 4. BETTER KNOWN SPRINGS OF NEVADA



EXPLANATION

● 2 Spring

(Numbers are referenced to Table 5)



This map is based chiefly on water quality data collected by the U.S. Geological Survey and cooperating state, local and other federal agencies. In areas where such data are inadequate or lacking, the dissolved-solids content of the ground water is inferred from such factors as geology, topography, and proximity of those areas to principal areas of ground water recharge and discharge. Detailed determination of the chemical quality of ground water in any given area can only be made on the basis of special studies.

Prepared By
STATE OF NEVADA
DIVISION OF WATER RESOURCES
STATE ENGINEER'S OFFICE
1971

TOTAL DISSOLVED SOLIDS IN GROUND WATER

Edited by B. R. Scott

Cartography by L. M. Roach, Jr.
with cooperation of
Branch of Technical Illustrations
U.S.G.S., Menlo Park, California.

BASED ON STATE-FEDERAL COMPREHENSIVE FRAMEWORK STUDIES


EXPLANATION
This map shows estimated annual surface and groundwater flows between hydrologic areas and across state lines. Also shown for each area where data are available are estimates of annual runoff, perennial yield and water stored in the upper 100 feet of the groundwater reservoir. The term runoff refers to the estimated annual amount of surface water which flows from the mountains to the alluvial fan measured where the two meet. Perennial yield is the amount of groundwater which can be removed from a hydrographic area each year without depleting the groundwater reservoir. Where perennial yield was not available system yield is shown followed by the letter Y. System yield is the maximum amount of surface and groundwater which can be removed from a hydrographic area each year for an indefinite period of time.
STATE OF NEVADA
WATER RESOURCES
AND
INTER-BASIN FLOWS
PREPARED BY
DIVISION OF WATER RESOURCES
STATE ENGINEERS OFFICE
SCALE 1:750,000
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 KILOMETERS
CONTOUR INTERVAL 500 FEET
DATUM IS MEAN SEA LEVEL
LEGEND
(All figures are in thousands of acre feet)
2 Estimated annual surface water flow.
2 Estimated annual groundwater flow.
2 Man made diversion. Surface water source-estimated annual amount.
2 Man made diversion. Groundwater source-estimated annual amount.
2 Man made diversion. Spring source-estimated annual amount.
M M M M M M Minor quantity. An amount which is either less than 500 acre feet per year, or small in comparison to other quantities in the particular hydrologic area.
S S S Significant size. However, sufficient information is not currently available to make an estimate.
Quantity uncertain. Figure shown represents annual discharge of springs which this flow is known to supply, at least in part.
12 Estimated annual runoff.
12 Estimated perennial yield.
1,200 Estimated storage.
LEGEND
BOUNDARY OF HYDROGRAPHIC REGIONS
BOUNDARY OF HYDROGRAPHIC AREAS (DOTTED WHERE ARBITRARY)
Compiled by:
F.E. RUSH
B.R. SCOTT
A.S. VAN DENBURGH
B.J. VASEY
Drawn by:
L.M. ROACH JR.
SEPTEMBER 1971
NOTE
Surface water flows are based on varying periods of record. Man made diversions are estimated 1970 figures except those on the Truckee Canal which are estimates based on historic diversion. Southern Nevada Project is shown at projected first stage level. Inflow from Arizona computed from gaged flow at Hoover Dam (Period of record 1934 to 1969). Outflow from Nevada based on Davis Dam gage (Period of record 1949-1969). Incline Village diversion estimated for 1971.
PREPARED WITH THE COOPERATION OF THE GEOLOGICAL SURVEY, U.S. DEPARTMENT OF INTERIOR.
BASE: U.S.G.S TOPOGRAPHIC MAP OF NEVADA, EDITION OF 1965.

Figure 5