

**ATTACHMENT 6**  
**WATER RESOURCES BIBLIOGRAPHY**

***LITERATURE REVIEW SUMMARY***

Increased demands on water resources in White Pine County have sparked an increase in the demand for related water-resource data. This demand is being met, in part, through studies that range across the full gambit of surface and groundwater issues. Science based studies typically target specific factors such as water budgets and water use, albeit for large, regional or basin-wide areas. Still, this information is applicable to the more site-specific or local management challenges that may also include water quality, groundwater availability, instream flows, various recreational and environmental needs and in general, the increasing demand on the water resource.

White Pine County information regarding groundwater basins has also evolved with improved science. Advancements in communications, computational capabilities and particularly the ability to utilize large data sets all help in the analysis of resource trends. Trend analysis requires the establishment of appropriate baseline data. Successful research groups typically anticipate these needs and work to make information as useful as possible through the use of appropriate software. An example is the ongoing research presently underway through the U. S. Geological Survey's Basin and Range Carbonate Aquifer System Study (BARCASS). This study is expected to provide valuable baseline data upon its release in 2007. The study is the result of Federal legislation enacted in December 2004 (Section 131 of the Lincoln County Conservation, Recreation, and Development Act of 2004; short title, Lincoln County Land Act).

Although less information is available for other categories, such as water conservation, in that conservation planning typically requires the incorporation of local infrastructure details; several models are available as guides. Also, the greatest success and potential for water conservation can usually be seen at the agricultural production level. The Natural Resources Conservation Service (NRCS) is an excellent resource for agricultural water conservation assistance.

Although federal and state assistance is valuable, by far the greatest leverage for success is found at the local level. Empowering local jurisdictions and providing guidance for voluntary action has long been recognized as the most effective means to guarantee sustained programs. The White Pine Water Resource bibliography found in the Appendix is intended to streamline those efforts. Even though the bibliography cannot list the total of available literature, each entry has its own references that offer a direct path to related topics and studies.

**BIBLIOGRAPHY**  
**WHITE PINE COUNTY WATER RESOURCES PLAN**

This bibliography contains water resource information, supplemental to the *Water Resource Plan* up-date for White Pine County. References have been selected and listed under the following four general categories: (1) Water Supply, Use and Quality (2) Environmental (3) Water Conservation and (4) History and Cultural. These are further broken down into those “Specific to White Pine County” and those “Of Regional Significance”. A brief commentary on the literature is included with an abstract from that document when available.

Related internet websites (links) have also been included to facilitate further research of referenced literature and as a separate resource list (5) at the end of the bibliography. These links are accessible when this section is viewed as a Word™ document, on a computer linked to the internet. If when double-clicking on a selected web link, the reader is unable to pull up the website, simply copy and paste the entire link into the address bar of the browser to go directly to the site. The reader may also search the entire appendix for a specific category by using the “Ctrl+F” keys and entering a keyword, example, enter “*Steptoe*” to research all references with the word Steptoe in the title. The library systems at the two major Nevada Universities are major resources for most of the studies identified in the bibliography and may be searched at: <http://www.library.unlv.edu/> for the library in Las Vegas and <http://www.library.unr.edu/> for the Reno library system.

Finally, a glossary (6) is included at the end of the Appendix that is specifically intended to assist scientist and researches involved with water use projects. The glossary was taken from Chapter 11 of the *National Handbook of Recommended Methods for Water Data Acquisition*, a USGS handbook, also available on-line.

## *1. Water Supply Use and Quality:*

### Specific to White Pine County:

- The Baker & Great Basin National Park Business Plan, September 1998  
<http://www.nps.gov/grba/>
- Frick, E. A., 1985, *Quantitative analysis of groundwater flow in valley-fill deposits in Steptoe Valley, Nevada*, Thesis (M.S.)--University of Nevada, Reno. Thesis paper number 2031 v, 192 leaves : maps ; 29 cm
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- Katzer, T., and Donovan, D. J., 2003, *Surface-water resources and basin water budget for Spring Valley, White Pine and Lincoln counties, Nevada for the Las Vegas Valley Water District, Las Vegas, Nevada*, Public information, Las Vegas, Nev.: Las Vegas Valley Water District, 71 p., maps.

Cambridge Scientific Abstracts - Published Literature Citations - Includes one foldout map and bibliographical references.

- Las Vegas Valley Water District, 2001, *Water Resources and Ground-Water Modeling in the White River and Meadow Valley Flow Systems: Clark, Lincoln, Nye and White Pine Counties, Nevada*. 2001, 1 v. (loose-leaf) : ill., maps. (some col.) ; 30 cm, **UNR DeLaMare Library**: TD224.N2 L384 2001.

A report... “prepared in support of the Las Vegas Valley Water District’s ground-water applications (54055 through 54059 inclusive) in Coyote Spring Valley, applications have a total combined duty of 27,512 acre-feet per year.”

- Maxey, G. B., and Eakin, T. E., 1949, *Ground-Water in White River Valley, White Pine, Nye, and Lincoln Counties, Nevada*, Carson City (Nev.) : Nevada State Engineer, 1949 59 p. : ill. ; 28 cm  
multi: TD224.N2 A27 no.8
- 
- Prudic, D.E., 2003, *Development of numerical models to assess ground-water flow patterns in the Great Basin of Southern Nevada*: Geological Society of America, Abstracts with Programs, v. 35, no. 6, September 2003, p. 616  
[Entire Document](#)

Development of numerical models to assess ground-water flow patterns in the Great Basin of Southern Nevada began in the 1970’s. Most of these models were used to assess basic patterns of ground-water flow and effects of pumping in individual basins such as Las Vegas and Pahrump Valleys (or) and to assess and quantify interbasin flow between sub-basins over large regions such as the Nevada Test Site and the carbonate-rock province in Utah and Nevada. This paper focuses mostly on “The regional-scale models... being used to supply boundaries for extremely detailed models of contaminant migration at the Nevada Test Site.

Of Regional Significance:

- Crompton, E.J., and Frick, E.A., 1996, *Estimated use of water in Nevada, 1985*: U.S. Geological Survey Open-File Report 96-106, 168 p.
- Crompton, E.J., Frick, E.A., and Thiel, C.A., 1989, *How Nevada dealt its water in 1985* [abs.], in Foglesong, M.T., Bunch, R.L., and Myers, C.W., *Water resources for expanding State needs: Annual Conference*, Nevada Water Resources Association, Carson City, Nev., March 1989, Program Information and Selected Abstracts, unnumbered.
- Crompton, E.J., and Swartwood, J.R., 1990, *Trends in Nevada's public-supply water use* [abs.], in *Nevada Decision Point---Which Water Course to the Future?*, Annual Conference, Nevada Water Resources Association, February 1990: Las Vegas, Nev., Program Information and Abstracts, unnumbered.
- Frick, E.A., and Carman, R.L., 1990, *Nevada water supply and use in National Water Summary 1987-Hydrologic events and water supply and use*: U.S. Geological Survey Water-Supply Paper 2350, p. 353-360.
- Maurer, D.K., Plume, R.W., Thomas, J.M., and Johnson, A.K., 1996, *Water resources and effects of changes in ground-water use along the Carlin Trend, north-central Nevada*: U.S. Geological Survey Water- Resources Investigations Report 96-4134, 146 p.
- Nichols, W. D., 2000, *Determining Groundwater ET from Phreatophyte Shrubs and Grasses as a Function of Plant Cover or Depth-to-groundwater, Great Basin, Nevada and Eastern California*, USGS Professional Paper 1628, A, B, and C.
- Plume, R.W., 2003, *Ground-water use, locations of production wells, and areas irrigated using ground water in 1998, middle Humboldt River basin, north-central Nevada*: U.S. Geological Survey Water-Resources Investigations Report 03-4227, 16 p.  
[Abstract](#) or [Entire Document](#)

In 1998, ground water was being pumped from about 420 production wells in the middle Humboldt River Basin for a variety of uses. Principal uses were for agriculture, industry, mining, municipal, and power plant purposes. This report presents a compilation of the number and types of production wells, areas irrigated by ground water, and ground-water use in 14 hydrographic areas of the middle Humboldt River Basin in 1998.

- WC Haneberg, RL Friesen, 1993, *Tilting of Surficial Strata and Groundwater Level Fluctuations in the Subsiding Mimbres Basin, New Mexico*, New Mexico Water Resources Research Institute, Las Cruces, Technical Completion Report No. 274, U. S. Geological Survey Contract No. 14-08-0001-G2108., State Project No. 1423954. 85 p.

A regional example of monitoring techniques employed to study water level fluctuations, overdrafting, and potential land subsidence. Tilts and water levels near an earth fissure in the Mimbres Basin of southern New Mexico were monitored between January and September 1992, using a network of borehole tiltmeters and piezometers fitted with water level transducers. Available from the National Technical Information Service, Springfield, VA 22161 as PB93-190593. <http://www.nbi.gov/>

## 2. Environmental:

### Specific to White Pine County:

- Berger, D.L., Johnson, M.J., Tumbusch, M.L., and Mackay, Jeffrey, 2003, *Estimates of evapotranspiration from the Ruby Lake National Wildlife Refuge area, Ruby Valley, northeastern Nevada May 1999-October 2002* [abs.]: Nevada Water Resources Association Annual Conference, Sparks, Nev., February 26-28, 2003, Abstracts of Technical Presentations, p. 30

This report is an extension of the U. S. Geological Survey and U. S. Fish and Wildlife study, Water-Resources Investigations Report 10-4234, completed in 2001. Use of evapotranspiration information is used to help understand the water budget in the Ruby Valley area.

- Berris, S.N., Crompton, E.J., Joyner, J.D., and Ryan, Roslyn, 2003, *Water resources data, Nevada, Water Year 2002*: U.S. Geological Survey Water-Data Report NV-02-1, 600 p.

[Entire Document](#)

Water-resources data for the 2002 water year for Nevada consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; precipitation; and water levels in wells. This report contains discharge records for 175 streamflow-gaging stations on streams, canals and drains; Discharge data for 95 partial record stations and miscellaneous sites, and 16 springs; stage and contents records for 20 ponds, lakes and reservoirs; Water levels for 128 primary observation wells, and 818 secondary observation wells; Water-quality data for 120 streams, canal, spring and drain sites and 174 wells; precipitation totals for 38 stations; and water withdrawals for 11 wells.

- Brothers, K., Bernholtz, A. J., Buqo, T. S., and Tracy, J. V., 1994, *Hydrology and Steady State Ground-Water Model of Spring Valley, White Pine and Lincoln and Counties*: Las Vegas Valley Water District, Cooperative Water Project, Report No. 13, 69 p.
- Brothers, K., Buqo, T. S., Tracy, J. V., Stock, M., Bentley, C., Zdon, A., and Kepper, J., 1993c, *Hydrology and Steady State Groundwater Model of Cave Valley, Lincoln and White Pine Counties, Nevada*: Las Vegas Valley Water District, Cooperative Water Project, Report No. 11, 48 p.
- Eakin, T. E., 1962, *Groundwater Appraisal of Cave Valley in Lincoln and White Pine Counties, Nevada*, Groundwater Resources – Reconnaissance Series Report 13, U.S. Geological Survey in cooperation with the State of Nevada Department of Conservation and Natural Resources, 19 p.

- Eakin, T. E., 1961, *Groundwater Appraisal of Long Valley, White Pine and Elko Counties, Nevada*, Groundwater Resources – Reconnaissance Series Report 3, U.S. Geological Survey in cooperation with the State of Nevada Department of Conservation and Natural Resources, 35 p.
- Eakin, T. E., Hughes, J. L., and Moore, D. O., 1967, *Water-Resources Appraisal of Steptoe Valley, White Pine and Elko Counties, Nevada*, Groundwater Resources – 6/22/2005 Reconnaissance Series Report 42, U.S. Geological Survey in cooperation with the State of Nevada Department of Conservation and Natural Resources, 48 p.
- Glancy, P. A., 1968, *Water-Resources Appraisal of Butte Valley, Elko and White Pine Counties, Nevada*, Groundwater Resources – Reconnaissance Series Report 49, U.S. Geological Survey in cooperation with the State of Nevada Department of Conservation and Natural Resources, 50 p.
- Katzer, T., and Donovan, D. J., 2003, *Surface-Water Resources and Basin Water Budget for Spring Valley, White Pine and Lincoln Counties, Nevada*, Report for the Las Vegas Valley Water District, 70 p.
- Maxey, G. B., and Eakin, T. E., 1949, *Groundwater in White River Valley, White Pine, Nye, and Lincoln Counties, Nevada*, Nevada State Engineer Water Resources Bulletin No. 8, 59 p.
- Rush, E. F., and Eakin, T. E., 1963, *Groundwater Appraisal of the Lake Valley in Lincoln and White Pine Counties, Nevada*, Groundwater Resources – Reconnaissance Series Report 24, U.S. Geological Survey in cooperation with the State of Nevada Department of Conservation and Natural Resources, 29 p.
- Rush, E. F., and Kazmi, S. A. T., 1965, *Water Resources Appraisal of Spring Valley, White Pine and Lincoln Counties, Nevada*, Groundwater Resources – Reconnaissance Series Report 33, U.S. Geological Survey in cooperation with the State of Nevada Department of Conservation and Natural Resources, 36 p.
- White Pine County Elk Management Plan, March 1999 (Nevada Board of Wildlife Commissioners)
- USFS - Humboldt National Forest Land and Resource Management Plan 1986 BLM - Draft Schell  
Grazing Environmental Impact Statement, undated
- BLM - Proposed Egan Resource Management Plan and Final Environmental Impact Statement,  
1984 BLM - Egan Resource Area Record of Decision, 1987

- BLM - White Pine Power Project Final Environmental Impact Statement, 1984
- NPS - Final General Management Plan Development Concepts Plans Environment Statement  
Great Basin National Park, 1992

Of Regional Significance:

- DeMeo, G.A., 2004, *Estimating natural ground-water discharge in the lower Colorado regional ground-water flow system, Nevada*: Nevada Water Resources Association Annual Conference, Mesquite, Nev., February 24-26, 2004, Abstracts of Technical Presentations, p. 38
- Maurer, D.K., Lopes, T.J., Medina, R.L., and Smith, J.L., 2004, *Hydrogeology and hydrologic landscape regions of Nevada*: U.S. Geological Survey Scientific Investigations Report 2004-5131, 36 p.  
[Entire Document](#)

In 1999, the U.S. Environmental Protection Agency initiated a rule to protect ground water in areas other than source-water protection areas. These other sensitive ground water areas (OSGWAs) are aquifers that are not currently but could eventually be used as a source of drinking water. The OSGWA program specifically addresses existing wells that are used for underground injection of motor vehicle waste. If the injection well is in a ground-water protection area or an OSGWA, well owners must either close the well or apply for a permit. The Nevada Division of Environmental Protection will evaluate site-specific information and determine if the aquifer associated with a permit application is susceptible to contamination. A basic part of evaluating OSGWAs is characterizing the hydrogeology of aquifer systems including the lithology, hydrologic properties, soil permeability, and faulting, which partly control the susceptibility of ground water to contamination. Detailed studies that evaluate ground-water susceptibility are not practical in a largely unpopulated State like Nevada. However, existing and new information could be extrapolated to other areas of the State if there is an objective framework to transfer the information. The concept of hydrologic landscape regions, which identify areas with similar hydrologic characteristics, provides this framework. This report describes the hydrogeology and hydrologic landscape regions of Nevada.

- Seiler, R.L., Skorupa, J.P., Naftz, D.L., and Nolan, B.T., 2003, *Irrigation-induced contamination of water, sediment, and biota in the Western United States--Synthesis of data from the National Irrigation Water Quality Program*: U.S. Geological Survey Professional Paper 1655, 123 p.  
[Entire Document](#)

In October 1985 the U.S. Department of the Interior (DOI), through the National Irrigation Water Quality Program (NIWQP), began a series of field investigations at 26 areas in the Western United States to determine whether irrigation drainage has had harmful effects on fish, wildlife, and humans or has reduced beneficial uses of water. In

1992 NIWQP initiated the Data Synthesis Project to evaluate data collected during the field investigations. Geologic, climatologic, and hydrologic data were evaluated and water, sediment, and biota from the 26 areas were analyzed to identify commonalities and dominant factors that result in irrigation-induced contamination of water and biota.

- *State of Nevada Wellhead Protection Program*, February 1994, Nevada Division of Environmental Protection, Bureau of Water Quality Planning, Department of Conservation and Natural Resources, State of Nevada.

This technical manual presents information that can be used to guide Drinking Water utilities through the development and implementation of Wellhead Protection Programs.

- *Riparian Area Management: Grazing Management in Riparian Areas*, 1989, Bureau of Land Management Service Center, SC-658C, P.O. Box 25047, Denver, Colorado 80225-0047,

This technical manual presents information that can be used to guide livestock management in riparian areas. Reference No. 1737-3 (free). 45-page

### **3. Water Conservation:**

#### Specific to White Pine County:

- State of Nevada Water Conservation Planning Guide

#### Of Regional Significance:

- Morris R. L., Devitt D. A., Crites A. M., Borden, G., Allen, L. N., 1997, *Urbanization and water conservation in Las Vegas Valley, Nevada*, Journal of Water Resources Planning and Management [J. WATER RESOUR. PLANN. MANAGE.], vol. 123, no. 3, pp. 189-196, Jun 1997.

**Abstract:** By the year 2010 southern Nevada, which is one of the fastest-growing urban centers in the West, will have committed nearly 100% of its water resources. Early in its history, Las Vegas developed a reputation for high per capita water use compared to other major cities in the arid West. This arose from a belief by its residents that the valley was situated on an inexhaustible supply of water, enticements by the state to drill wells for urban development, the attraction of tourists, and a lack of enforcement of passed or existing laws. The first water crisis in the 1940s was averted by allowing the principal aquifer to be overdrafted. Overdrafting of the aquifer has led to geologic problems for the valley and its residents. The second major water crisis was averted in the 1970s by the increasing availability of Colorado River water to area residents. Metering, local ordinances, research, and educational programming are impacting water use by addressing the problems of overdrafting and conservation.

[http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(1997\)123:3\(189\)](http://dx.doi.org/10.1061/(ASCE)0733-9496(1997)123:3(189))

- Foster, k. E., DeCook K. J., 1986, *Impacts of residential water reuse in the Tucson area*, Water Resources Bulletin [WATER RESOUR. BULL.], vol. 22, no. 5, pp. 753-758

Groundwater pumping constitutes approximately 100 percent of the water supply in the Tucson Active Management Area (AMA), Arizona. The current annual overdraft approaches 250,000 acre-feet, but the goal of the AMA is to eliminate the overdraft by the... <http://www.nbii.gov/>

- Cory, D. C., Evans, M. E., Leones, J. P., Wade, J. C., 1992, *Role of Agricultural Groundwater Conservation in Achieving Zero Overdraft in Arizona*, Water Resources Bulletin WARBAQ, Vol. 28, No. 5, p 889-901, September/October 1992. 4 fig, 3 tab, 16 ref.

The elimination of groundwater overdraft was a key feature of the 1980 Arizona Groundwater Management Act. To achieve this goal, the Arizona Department of Water Resources identified several Active Management Areas and developed urban, industrial, and... <http://www.nbii.gov/>

- National Management Measures to Control Nonpoint Pollution from Agriculture (PDF, 746KB), 314 pages, 2003, (EPA 841-B-03-004)

U.S. Environmental Protection Agency  
Office of Water (4503T)  
1200 Pennsylvania Avenue, NW  
Washington, D.C. 20460  
EPA-841-B-03-004

<http://www.epa.gov/agriculture/asur.html>

#### ***4. History and Cultural***

##### Specific to White Pine County:

- White Pine County 2002 Strategy for Tourism Development and Community Improvement, 1996-  
97 White Pine County Economic Recovery Program Action Plan, 1992

##### Of Regional Significance:

- Nevada Petroleum Society, 2002 Field Trip Guidebook, *Detachment and Attenuation in Eastern Nevada and its Application to Petroleum Exploration*, editors: Ehni, William; Faulds, James; 2002, 163 pages with illustrations.

The NPS provides this forum as a mechanism for researchers to publish their work related to the exploration and development of oil and gas in Nevada. The guidebook is a series of papers that include abstracts and and references.

## ***5. Websites***

### **DRI – Arid-Land Spring Research in Nevada**

Under sponsorship of the National Park Service, the Desert Research Institute's Don Sada, aquatic ecologist, has developed a series of investigative protocols aimed at surveying and monitoring desert springs scattered throughout the national parks and historic sites comprising the Mojave Network.

[http://www.dri.edu/Home/Features/text/0705\\_springs.htm](http://www.dri.edu/Home/Features/text/0705_springs.htm)

### **The Goshute Tribe of Skull Valley**

The Goshutes have inhabited the Southwestern part of the United States for thousands of years. They were here before the Mormons, the Mexicans, and even the Spaniards. At their peak the Goshutes numbered about 20,000. Today there are less than 500 Goshutes, of which 124 belong to the Skull Valley Band.

<http://www.skullvalleygoshutes.org/>

### **Humboldt-Toiyabe National Forest**

<http://www.fs.fed.us/r4/htnf/>

The Humboldt-Toiyabe's spectacular 6.3 million acres makes it the largest forest in the lower 48 states. Located in Nevada and a small portion of Eastern California, the H-T offers year-round recreation of all types.

### **Nevada Division of Environmental Protection**

<http://ndep.nv.gov/index.htm>

This website contains information designed to help individuals, companies, and governmental entities comply with environmental laws and regulations contained in the Nevada Revised Statutes (NRS) and the Nevada Administrative Code (NAC). Beyond regulatory information, the site contains a wealth of information about the quality of the human and natural environment in Nevada.

### **Nevada Division of Environmental Protection – Bureau of Safe Drinking Water**

<http://ndep.nv.gov/bsdw/index.htm>

As the primacy agency to enforce the Safe Drinking Water Act in Nevada the Bureau's mission is to protect the public health by assuring safe community and non-community drinking water supplies. For the past 40 years, Nevada has had an active Safe Drinking Water Program to protect the citizens of the state and its numerous visitors and tourists. The program has been established in response to concerns of the citizens as to state and federal laws and regulations. Contact: (775-687 - 9515).

### **Nevada Source Water Protection**

<http://www.unce.unr.edu/swp/>

This page was created by the Source Water Protection Team of the University of Nevada in Reno, Cooperative Extension and the College of Agriculture, Biotechnology and Natural Resources & Environmental Science. Information includes such tools as the Water Test Interpreter. This program will help you interpret the results of routine domestic water analysis, performed by a certified drinking water analysis laboratory. The routine domestic water analysis tests for characteristics that could affect health and uses of water

### **Progressive Leadership Alliance of Nevada (Great Basin Water Network)**

The Great Basin Water Network was created by organizations and individuals dedicated to insuring that decisions being made regarding current and future water development proposals are done cautiously and are based on the best available scientific information.

[http://www.planevada.org/water\\_issues06.htm](http://www.planevada.org/water_issues06.htm)

### **Public Utilities Commission of Nevada – Water Home Page**

Contains open and archived water/sewer dockets, as a calendar of the cases awaiting court action. Also contains annual reports, assessment forms and application information for water and wastewater rates.

<http://puc.state.nv.us/water.htm>

### **U. S. Environmental Protection Agency's Envirofacts Data Warehouse**

<http://www.epa.gov/enviro/html/qmr.html>

Envirofacts provides tools to retrieve environmental information from several government agencies using preformatted query forms and mapping applications. The query forms allow you to type in search criteria (e.g., White Pine county) to retrieve facility and chemical information from federal government databases, regarding everything from water discharge permits to toxic release reports. Once you submit the query, a report containing environmental information is returned that matches the criteria you submitted.

U. S. Geological Survey Sites:

## **USGS - Water Resources of the United States**

This is the USGS home page for their water resources information. Although national in scope, the useful search engine helps to narrow general research for Nevada of maps, publications and software etc.

<http://water.usgs.gov/index.html>

## **USGS – Earth Resources Observation and Science (EROS)**

The Earth Resources Observation Systems (EROS) Data Center (EDC) is a data management, systems development, and research field center for the U.S. Geological Survey's National Mapping Division. The site allows access to scientific datasets or files that are use in geographical information systems (GIS) for analysis and integration with other geospatial data. Though not directly viewable using WWW browser or image viewing tools, the county does or will have software for viewing some digital cartographic products, including DLG-O, DEM, DLG/SDTS and DRG data.

<http://edc.usgs.gov/geodata/>

## **The National Park Service – GIS**

This is the National Park Service's GIS data home page. Here too is a very good search engine for researching the parks information, available for GIS work. No current information is available for Great Basin National Park at this time, but this could change in the future.

[http://www.nps.gov/gis/data\\_info/](http://www.nps.gov/gis/data_info/)

## **USGS – The National Map**

The National Map is the USGS's online, interactive map service. You can view high-quality, geospatial data and information from multiple partners. These maps can help support decision making by resource managers and the public at large by using your Web browser (no special software or download required).

<http://nationalmap.gov/>

## **USGS - Water Use**

### **Chapter 11 of National Handbook of Recommended Methods for Water Data Acquisition**

<http://pubs.usgs.gov/chapter11/>

The purpose of Chapter 11 of the National Handbook of Recommended Methods for Water Data Acquisition is to provide standards and guidance in measuring, estimating, collecting, compiling, and analyzing water-use data. This chapter includes a brief description of (1) water-use activities and commonly used water-use terminology, (2) approaches and methods used in measuring and estimating water use, (3) water-use-data-management systems, and (4) methods for determining water use for specific water-use categories. Where appropriate, descriptions include accuracy, quality assurance procedures, and water-use data collection instrumentation.

### **The National Atlas**

This is the water page for the [nationalatlas.gov](http://nationalatlas.gov)'s website that "shows us where we are". It allows you to use your imagination and, by probing and questioning, to choose the facts that fit your needs, including developing your own maps. This site is also in support of the general public for water resource information including arsenic in groundwater and hydrologic units.

<http://nationalatlas.gov/water.html>

### **The Utah Division of Water Rights**

GIS data and related tables and downloadable shapefiles for statewide (Utah) Water Rights GIS data sets as executable files (.EXE extension). These files when executed uncompress into multiple files which make up a shapefile dataset. Static shapefiles are updated as major revisions are made. Other shapefiles are updated daily from Division tabular datasets.

<http://waterrights.utah.gov/gisinfo/wrcover.asp>