

Unit 2 Water Issues in New Mexico

Many assume that is alright since 75% of the Earth is water however 97% of that water is salt water and thus unusable. That then leaves on 3% for the rest of the world to share forever. Wait out of that 3% 2.2% of that is frozen glaciers so that means that the world really only has .8% water to share forever. OUCH!

How do we measure water

An acre foot of water is much like it sounds it represents an acre of water that is one foot deep. In total that equals 325,851 gallons of milk. The average family in New Mexico uses 81,000 gallons of water each year. It is predicted that New Mexicans will use 17,600,000 acre feet of water by 2050. Water Efficiency Could Save up to 5.7 Million Acre-Feet of Water Each Year in the Southwest

Types of Water

Water is either classified as ground water or surface water; we depend on both for our survival.

Ground Water- is water that saturates and collects underground. About 90% of NM depends on ground water for drinking water and domestic use. Ground Water is replenished by rain, snow, streams and other surface water seeping into the ground into a common collection area known as an aquifer. The top of the collection area is known as the water table and can be a few feet to hundreds of feet below the surface. This water can either make it to the surface naturally through springs or by humans using wells. Quality of Water is dependent of many natural factors as well such as location to major minerals.

- **Aquifers**

Aquifers are layers of rock that hold water down in the ground. People drill wells down to the aquifers, and pump the water to the surface. Aquifers are under large parts of New Mexico and much of the water we use comes from these resources. The water in these aquifers came from the last ice age as well as ground water yet the rate at which we use the water is not recharged enough by New Mexico's rainfall. Many early settlers believed New Mexico was so barren and unlivable that communities started to develop very closely to each other. In their view New Mexico had few rivers and no lakes.

Surface water- Water that is contained or stored above ground in the form of river, lake pond, etc..

- **Rivers/Lakes/Ponds**

The Rio Grande begins in the San Juan Mountains in Colorado and follows an 1,885 mile course before it empty's in the Gulf of Mexico. The river stretches across 2 countries, 8 states, and 20 Native American reservations. The drainage area of the Rio Grande is twice the size of California. Which makes it that much more important to the area since an area twice as large relies on the preservation of the Rio Grande.

New Mexico has a dry climate and rivers are extremely important they supply water to plants, animals, and people. Some dry up in the summer months and others flow year round. There are six major rivers: San Juan, Chama, Canadian, Rio Grande, Pecos, and the Gila.

Domestic or Drinking Water

Have you ever wondered how safe or where your drinking water comes from?

Well because of the Federal Safe Drinking Water Act your water is fairly regulated. These standards set limits for pesticides, volatile organics, radiochemical, chemical, and bacteriological containments all of which have been found in drinking water. The presences of these contaminants have made it very important to watch and regulate the quality of water in New Mexico. The majority of all drinking water in the state comes from wells, aquifers, and ground water sources however with diminishing supplies surface water is going to become more

heavily relied on. It also makes the preservation of surface water that much important because surface water can seep into the ground and cause further contamination.

Contamination /Pollution

Since the world has such a limited supply of water at .8% it is important that we recognize the factors that could lead to the further depletion or destruction of our water sources. It is important that we work to preserve the amount of water that we have by recognizing the factors that could lead to its ultimate depletion.

Natural- Pollution that is naturally by environmental factors of the area.

- Volatile Organics or Bacteria
- Chemical Reactions
- High Mineral Saturation

Man-Made- Pollution that is caused by men changing or modifying the environment negatively

- Pesticides and fertilizers
- Chemical or mineral spills
- Deforestation or destruction of ecosystem
- Development of Industry
- Sewage
- Improper trash disposal

Conservation Efforts- the preservation, management, and care of natural resources, in this case WATER! With increased conservation efforts we find the rate of water depletion slowing down. In the southwest conservation is extremely important since our water supply is much smaller. Over the past couple of decades the amounts of water conservation have doubled with the hopes of making a drastic change in water usage.

Some of the ways that states are encouraging water conservation include the following:

- Personal and Business Incentives:
 - Involve programs that work to encourage personal households and businesses to practice water saving practices. In return the government or state will reward those for meeting the requirements with either financial bonuses or tax breaks.
- Agriculture:
 - Micro-irrigation- hopes to replace traditional irrigation practices which flood fields as a means of watering. With the traditional practices the majority of water never reaches the ground and is evaporated prior to its benefit. With micro-irrigation, water is applied directly to the plants, dramatically reduces evaporation losses this technique is heavily used in the Middle East.
- Xeriscaping-
 - The decorating and landscaping of yards with the rocks and other plants that do not require a lot of water. Many cities often offer incentives to change your lawn from the traditional grass to xeriscaping. Also many cities are now limiting the amount of grass you are allowed to have as well as which days you are allowed to water.
- Reduce consumption-
 - By changing to water saving appliances
 - Shorter showers
 - Xeriscaping yards
 - Using water saving strategies

Etc...

Water Issues in New Mexico

Water is a precious commodity in the Southwest, yet the rate of water consumption outstrips natural supply. Rapid population growth, excessive water consumption, water pollution, and years of drought have depleted the Southwest's natural water reserves and put the region at greater risk of a water crisis.

Without a dramatic change from business as usual, the Southwest's water scarcity problem will only get worse. The population in Arizona, Colorado, Nevada, New Mexico, Texas, and Utah grew by 2.6 percent between 2005 and 2006. At that rate, there will be twice as many people in the region by 2035. Scientists predict that global warming will decrease rainfall and increase temperatures in the Southwest, further exacerbating the problem.

Due to or lack of water in the area people are very dependent on available water resources. People live near water for survival and for industry. In order to accommodate water needs as New Mexico has become more urban many rivers have been dammed in order to retain water for personal and industrial use.

Uses of water

Water is an important natural resource for industry, agriculture, domestic water use, recreation, and wildlife habitat. Whoever controls the water has a means of power since water is equal to profit.

NM Water Systems of Past and Present



Acequia System- refers to the historic communal irrigation systems that support the culture and livelihood of thousands of families and New Mexico communities. It involves the community goal of sharing water to further the success and crops of its shareholders. Acequia systems still exist today and play a pivotal role in many Northern New Mexican communities. The manager of the ditches is known as the mayordomo. Since it is a community owned property it is imperative that members work together to maintain the quality of the water ways.

- The tradition originated with the Morrish and has lasted since the Spanish arrival.
- With the start if these waterways we have also found conflict
 - Developers buying up water rights which threaten the water communities
 - Lack of precipitation which leads to dry years
 - People stealing more water than they are allowed

Dry Farming- Is farming crops without relying on irrigation and using the land to its best potential. This means farming near hills and mountains, which are water collection zones and help crops prosper.

How does water affect industry?

- Jobs and businesses flock and form in areas that can support their industry. Water is key to success since it not only provides drinking water but electricity, production, etc... Similar to how water determines

where people will live it also determines what people will do for a living. For example a community would not have a dairy farm if they did not have sufficient water to support their livestock and fields.

- Electricity: Electricity generation is responsible for about 2 percent of all water consumption in the six Southwestern states. Reducing electricity generation from traditional fossil fuel power plants by just 20 percent through greater use of energy efficiency and renewable energy could cut water withdrawals by 140,000 acre-feet every year.
- Business: Businesses are responsible for about 3 percent of all water consumption in the Southwest. Some cities have already found that financial incentives can spur businesses to find new ways to save water. Reducing water consumption in the industry by another 2 percent would save the Southwest 25,000 acre-feet every year.
- Agriculture is responsible for about 70 percent of all water consumption in six Southwestern states (Arizona, Colorado, Nevada, New Mexico, Texas and Utah). Better efficiency in agriculture could save up to 2.9 million acre-feet of water each year