

Anne Watkins was appointed Special Assistant to the New Mexico State Engineer by Governor Bill Richardson in January 2003. In that capacity, she is responsible for state drought planning as Director of the Governor's Drought Task Force; oversees development of comprehensive statewide conservation programs for municipal, industrial and agricultural water users; provides policy and planning support for the Water Trust Board; is the agency liaison for watershed restoration and management; and serves as the agency's legislative liaison. Prior to her appointment, Anne was Executive Director of the Rio Grande Agricultural Land Trust. She was Director of the City of Albuquerque Transit Department from January 1994 through December 2001. Anne was recycling consultant for the City of Albuquerque for several years, responsible for developing the city's collection programs and recycling facility. She also worked in Washington for several years as Executive Assistant to then-Congressman Bill Richardson.

Anne has a B.A. from New York University, an M.S. from the University of Texas at Austin, and has also completed the Program for Senior Executives in State and Local Government at Harvard University's John F. Kennedy School of Government.



PLANNING FOR DROUGHT

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Thank you very much, Karl. I really appreciate the opportunity to be here with you today. As the latest drought assessment indicates, and I'm sure most of you have seen the paper this morning – things are not looking good in New Mexico and the Southwest. Even if we started having average precipitation today, it would take years to get out of the current drought situation. I know you heard John D'Antonio talk yesterday about a number of things in the State Water Plan and about some of the active management that is going on right now to deal with drought situations all over the state. What I'm going to talk about today is the Governor's Drought Task Force, which is focused on trying to get ahead of the game instead of trying to

deal with drought as an emergency response issue. We need to develop a "preparedness" approach to avoid some of the drought crises that might otherwise happen.

I'm Special Assistant to the State Engineer and as such, one of my responsibilities is Director of the Governor's Drought Task Force. In that capacity, I have the opportunity to work with dedicated staff at local, state, and federal agencies, Indian government agencies, representatives of constituent organizations, and many others around the state who are focused on "what to do about the drought" and prevent its unpleasant impacts. So today I'm going to give you an overview of activities of the Drought Task Force and

its new focus so you may understand how the state is trying to evolve and prepare in this mode for drought.

I'm going to talk about three things today: what we know about drought, what is the impact of drought, and what can we do to reduce the impact of drought. What we know about drought is that we are in one! The Drought Task Force sponsored a drought summit in September 2003. I don't know if any of you had an opportunity to go, but it was quite interesting. What we did at the summit was focus on the science of drought, all the aspects and all the components of drought from the monitoring, to predictions, to the hydrological and ecological and economical impacts, and the message was basically that we need to prepare for dry times and focus on preparedness.

What we also know about drought is that New Mexico is not alone and that we are not in a unique situation. Colorado has predicted that it will need more water than the state can supply by 2025. California has been using more than its share of the Colorado River water for a long time and now must figure out how to correct that situation. Arizona's Governor, Janet Napolitano, set up their first drought task force in 2003, saying that they had a very long-term problem and that she expected it to occupy a lot of her time. It's not just the West or Southwest either. States like Rhode Island, Georgia, and Michigan are all facing severe water shortages in the face of drought.

We also know that this isn't the first drought that we've experienced here. I know you've all seen this famous tree-ring chart (Figure 1) so I'm not going to dwell on it much, but what you can see here is that drought is not cyclic, you cannot predict it because it does not recur regularly. What we do know is that we will have droughts, and we will have mega-droughts, and we need to figure out how to live and thrive under those conditions. Figure 2 is the latest map of drought conditions in the state. You can see how serious it is, with red (or the dark areas) being quite serious. Every area in the state is in a drought situation right now.

Just to hammer this home a little bit more, Figure 3 is a graph of the reservoir storage levels in the state. As you can see, there is a significant decline in storage in all of our reservoirs. Figure 4 depicts reservoir storage level at Heron Reservoir. You can see how

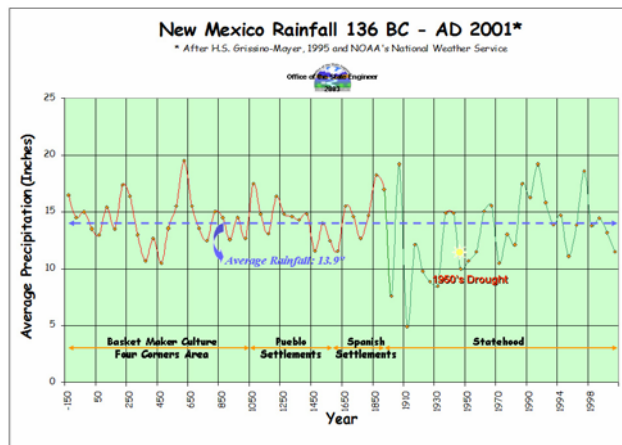


Figure 1. New Mexico Rainfall 136 BC - AD 2001

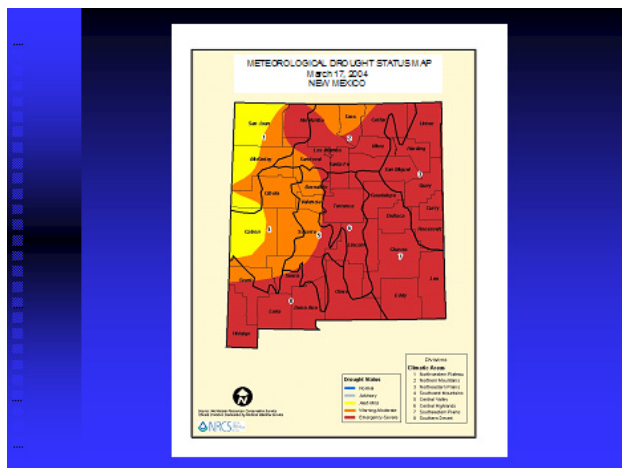


Figure 2. Meteorological Drought Status Map

significant the decline there has been. That is very important, particularly for those of us along the Rio Grande because this is where a lot of water is stored. Figure 5 is a chart addressing whether or not the recent rains have been enough to end the current drought situation. The important column to look at is the 36-month deficit. We started having a little bit of rain here and there over the past couple of months, but as you can see, we are still in a very, very serious deficit, three or four inches to nine or even 14 inches in some areas – so the rain is helping some, but the drought is not going to go away. It's not going to go away for quite some time.

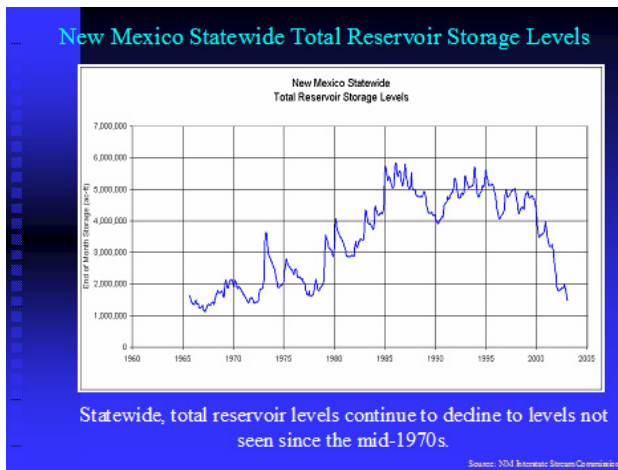


Figure 3. New Mexico Statewide Total Reservoir Storage Levels

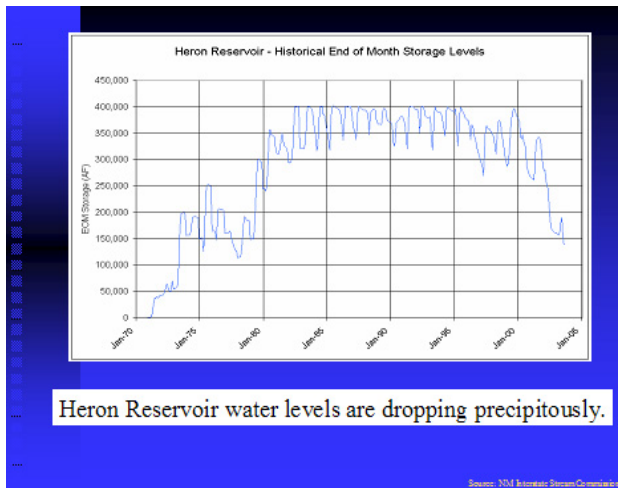


Figure 4. Heron Reservoir Storage Levels

Climate Division	30-36 Month Deficit
Northwest Plateau	3.9 inches
Northern Mountains	12.1 inches
Northeast Plains	9.4 inches
West Central Mountains	4.7 inches
Central Valley	5.3 inches
Central Highlands	10.8 inches
Southeast Plains	9.6 inches
Southern Desert	7.9 inches

Current Precipitation Deficits
March 2004

Source: National Weather Service

Figure 5. Current Precipitation Deficits

What we also know is that there are various stages of drought.

- meteorological drought, with low precipitation
- agricultural drought, when soil moisture levels start to drop
- hydrological drought, when there are decreases in reservoir levels and spring flows
- social-economic drought, when it starts to affect businesses, tourism, and recreation.

I'm sure you've all read the papers enough to know we have been feeling the effects of the drought. We've added another one recently. I know the State Engineer talked about this some yesterday. It is administrative drought. Administrative drought is trying to deal with such things as compact delivery and shortage-sharing arrangements during times of drought. This is much of what the State Engineer's staff is doing these days – trying to figure out how administratively to deal with drought conditions.

What we can't predict about drought is when it will happen. As I mentioned, it is not cyclic and it's not predictable. We can't predict how serious or how severe it will be, or how long it will last. What we do know is we live in an area where **we will have droughts**. As Casey Stengel said and this is one of my favorite quotes, "Making predictions is difficult, especially about the future." This is kind of the situation that we are in here. People are always asking me, "So is the drought over?" I have people asking me the day after a rain, "So you aren't working on the drought any more?" Well, we are going to be working on the drought for a long time! We can predict that we will have periods of drought, and that we will have another mini-drought someday, and we need to be prepared.

So what is the impact of drought? We know about the impacts of drought historically (Figure 6). We know that Chaco Canyon and Mesa Verde disappeared due to a very serious drought several centuries ago. There may not be a lot of folks who remember the 1950s drought. I wasn't living in New Mexico at the time, but I remember it from growing up in Texas where I watched the lake levels drop and drop and drop and drop. Drought impacts all facets of life in New Mexico. Water touches everything we care about and so does drought. Drought is really a human event in many ways. Natural systems tend to expand or recede based on availability of resources. We humans don't do that, so

we have a much higher vulnerability level in this state because of our population.

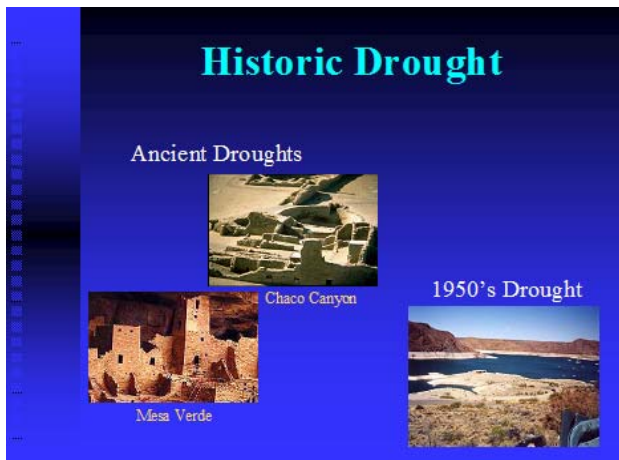


Figure 6. Historic Drought

We are at risk for drinking water emergencies. We have identified more than 75 water systems in the state that are at serious risk due to drought conditions. Farming and ranching sectors are adversely affected by drought, as are watersheds and ecosystems, endangered species, including species at risk that may become listed because of drought conditions. New Mexico's environment and quality of life, all of these things are affected by drought (Figure 7). There is no easy solution. Decreased stream flows threaten interstate compact compliance. As we know from last year at Elephant Butte, decreasing reservoir levels can adversely impact the water sport industry. There is just not an easy tradeoff. Rural county governments often rely upon agricultural industries that are adversely affected by drought. Gross receipts taxes drop when suppliers can't make sales, and this has an impact on the state budget as well. Reducing alfalfa production may save some water, but that may adversely affect our booming dairy industry. And fallowing crop land may invite thirsty non-native plants. It's just not easy to come up with solutions.

Another one of my favorite quotes is from Mark Twain: "History never repeats itself, but it does tend to rhyme." We have an idea of what the impacts of drought are from previous droughts and so we know what we can expect, and now we need to look at what we can do to reduce the impact of drought. That is where the Governor's Drought Task Force comes in.

The Task Force was established in the late spring of 2003 by Governor Richardson. It continues the work



Figure 7. Drought impacts all facets of life in New Mexico

of a previous drought task force, which did a lot of great research and work on emergency response. What the Drought Task Force is focused on now is preparedness and trying to prevent drought emergencies. The Drought Task Force is a policy level group of state agency heads, and it is chaired by the State Engineer. It is responsible for looking at policy changes, legislative and funding needs, and making recommendations to the Governor and the Legislature. The Drought Task Force also interacts with the various drought planning activities going on regionally and nationally, including the Western Governors Association, which has a strong focus on drought mitigation, and the Interim National Drought Council (INDC), and other regional and national activities.

As I've mentioned, the past focus has been primarily on emergency response. We now need to move to managing the risk of drought. We've been gearing up over the past four months to figure out how to go about this. And I want to emphasize that, although the Task Force is made up of agency heads, many of the work groups include local, state, and federal government agency staff. We also are including quite a few other constituency groups, business groups, the recreation industry, the tourism industry, the agricultural industry, that is, a really broad range of groups. We need to develop an awareness in the state of what we may be facing if we are in the early phases of a severe drought, and get all kinds of folks involved in helping think about preparedness. This cannot be just a government effort. A lot of it will be rethinking the things that we do and this is why it's very important to involve all of these realms of activities in the state.

The Drought Task Force has five work groups and one Strike Team right now. The Monitoring Work

Group (Charlie Liles is on this group as are a number of folks who may be here today) looks every month at what drought conditions exist in the state, then creates those maps that you see on the back page of your newspaper in the weather section. The Monitoring Work Group is starting to look closely at how we identify triggers as well as making information about drought conditions more available at the local level, whether to help with fire emergency response or trying to avert drinking water emergencies or whatever. This work group has been doing a great job for some time and is now focusing on how we can bring this information about drought conditions down to the local level and make it much more useful to people in figuring out action plans.

We have a Strike Team that has been in operation for a couple of years that responds to emergency requests for drinking water. We had quite a few drinking water systems in the past several years that ran out of drinking water because their wells went dry from drought conditions. The first step is to provide what we call “water buffalos” or “tankers” to relieve the immediate situation, and then we try to figure out what kind of assistance to provide to that system that will help get it back up and running.

There is also a Drinking Water Work Group. This group focuses on how we can prevent people from running out of drinking water. The bottom line is: we don’t have enough “water buffalos,” we don’t have enough “tankers” for the state. We need to come up with other ways to deal with this problem. The Drinking Water Work Group has developed a bold water conservation water plan that is really a framework to guide state water conservation program development to prolong our existing water supply.

The Drinking Water Work Group is also doing a very interesting project. They have selected three areas of the state where they are working with a number of small water systems and/or municipalities and counties, and irrigation districts and acequias in that area, trying to figure out how they can regionalize and restructure in order to better meet local needs for drinking water as well as other water needs.

The Agricultural Sector Work Group has done a great job in the past in identifying when drought trigger points are reached so that farmers and ranchers can apply for federal and state assistance for crop and livestock losses. We have a subcommittee of that group, chaired by a professor from New Mexico State University, that will address agricultural water conservation. A lot of water in the state is used for

agricultural purposes. There is this perception that if we can just figure out how to increase agricultural water conservation, we can solve many of our water needs. So they are going to focus on what really is the opportunity for agricultural water conservation. Again, it’s not as easy as putting in drip irrigation everywhere. There are places where it will work and places where it won’t. It’s much more complicated, and we are trying to figure out what the opportunities are and what incentives can be provided for additional agricultural water conservation efforts.

We also have a new subcommittee that will focus on the watershed restoration. The Office of the State Engineer would like to see where in the state we might be able to increase aquifer recharge or increase wet water in streams through watershed projects.

We also have the Wildlife and Wildfire Work Group that will continue focusing on fire response and prevention. We heard at the recent drought summit from Julio Betancourt – he is actually one who has done a lot of the tree ring research that has resulted in the 2000-year precipitation graphs – who believes we are going to go from having a “fire season” to having a year-round fire season because things are so dry. So there needs to be a continuing strong focus on fire response supervision and prevention.

We have a new subcommittee that is going to address species at risk. A UNM professor is going to help us with this. We need to tie this to watershed restoration and some other activities going on as well. What we need to look at is the species in the state that are already listed and those that are at risk of being listed, so that we can figure out what we can do to prevent those listings. We are also coordinating very closely with Butch Blazer with the State Forest Health Initiative.

The Recreation, Tourism, and Economic Development Work Group is a very important group. This is where we will be doing even more work with the Association of Commerce and Industry, the various chambers of commerce, and other entities involved in economic development as well as the recreation industry and the tourism industry. This group wants to figure out how to decrease the socio-economic impacts of drought. They will need to look at the economic impact of drought, and where water is important to the local economy, whether it be skiing, boating, or fishing. We need to determine whether or not we need to shift into other activities because water is not going to be available. For example, one state has changed its marketing focus somewhat so that there is less

emphasis on skiing and more on the opportunities for hiking and biking for longer periods of the year. New Mexico may need to look at doing this as well.

We have a new group that State Engineer John D'Antonio has asked me to put together to look at the whole issue of water development. This includes desalination, aquifer storage and recovery, and wastewater treatment. This committee, with funding from the Bureau of Reclamation, will be doing a workshop on small-scale desal opportunities. It will also try to identify all of the non-potable water in the state and figure out all the opportunities and technologies available to make that water potable. We also need a better plan for all our large water projects as well as our small water projects in the state. We also need to figure out how to improve our storage capacity for those opportunities when (we hope in the near future!) we have wet periods again. This group is still coming together. It has lots of interest from folks across the state.

To summarize: What do we know about drought? We know we will have droughts, and we WILL have another mega-drought someday, and it might just be starting today. We know we need to be prepared for the current drought. We know that drought can severely impact all sectors of New Mexico life and that we need to gear up and be prepared for it. This is why the Task Force is focused on developing "preparedness." The Drought Task Force is bringing together action-oriented work groups, lots of smart people from all sectors of New Mexico life to try to find ways to extend our water supplies and avoid drought emergencies. We will need to look at the combination of new programs and some policy revisions and obviously funding for not only the current activities of the Office of the State Engineer but some new activities that are going to be necessary to deal with shortage-sharing and other drought administrative needs.

I want to close with another one of my favorite cartoons as shown in Figure 8. This is from Don Wilhite, who is the director of the National Drought Mitigation Center. He talks about how we need to break the hydrological cycle. This is what I talked about a little bit earlier. It starts to get dry and people get nervous and start thinking about what needs to be done about the drought. Then it rains and everyone thinks it is okay and that the drought is over and we don't need to do anything else. But we live in an arid climate, we live in a place where we will have drought and will have mega-drought. So we need to break the "hydro-

illogical" cycle and develop an ongoing preparedness focus for our drought planning activities .

Thank you very much and I appreciate getting to talk with you today. If any of you are interested in working with the Drought Task Force or any of its workers, please let me know.

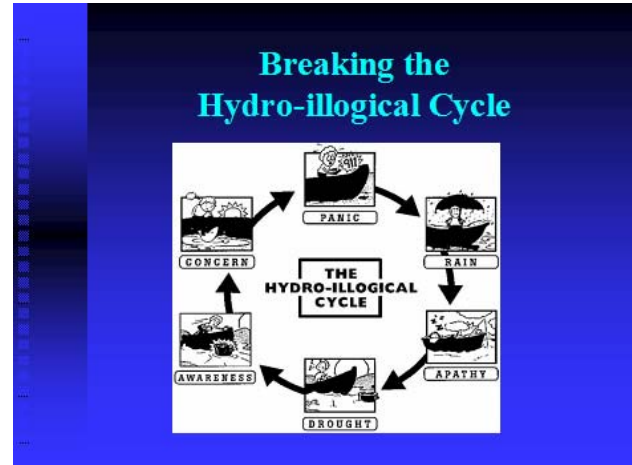


Figure 8. Breaking the Hydro-illogical Cycle

QUESTIONS

Question: Anne, you mentioned a new subcommittee on agricultural conservation that is headed up by a professor from New Mexico State. Could you tell us who that is and are they going to be coming around to see those of us in the business?

Response: Dr. Phil King is heading that subcommittee and Julie Maitland of NMDA will be working with him along with some folks from the irrigation districts. This is just now starting. So if you haven't heard about it, don't feel like you are being slighted. We have folks from the Bureau of Reclamation and various other agencies, Indian nations, tribes, and pueblos. The first thing we want to do is a survey of agricultural water use. This survey will focus on irrigation and conservancy districts and other purveyors of agricultural water, just to see where they are, what kinds of conservation measures and technologies they already have implemented, what the additional opportunities for agricultural water conservation would be, and incentives that need to be in place or statutory changes in order to move further forward with agricultural water conservation.