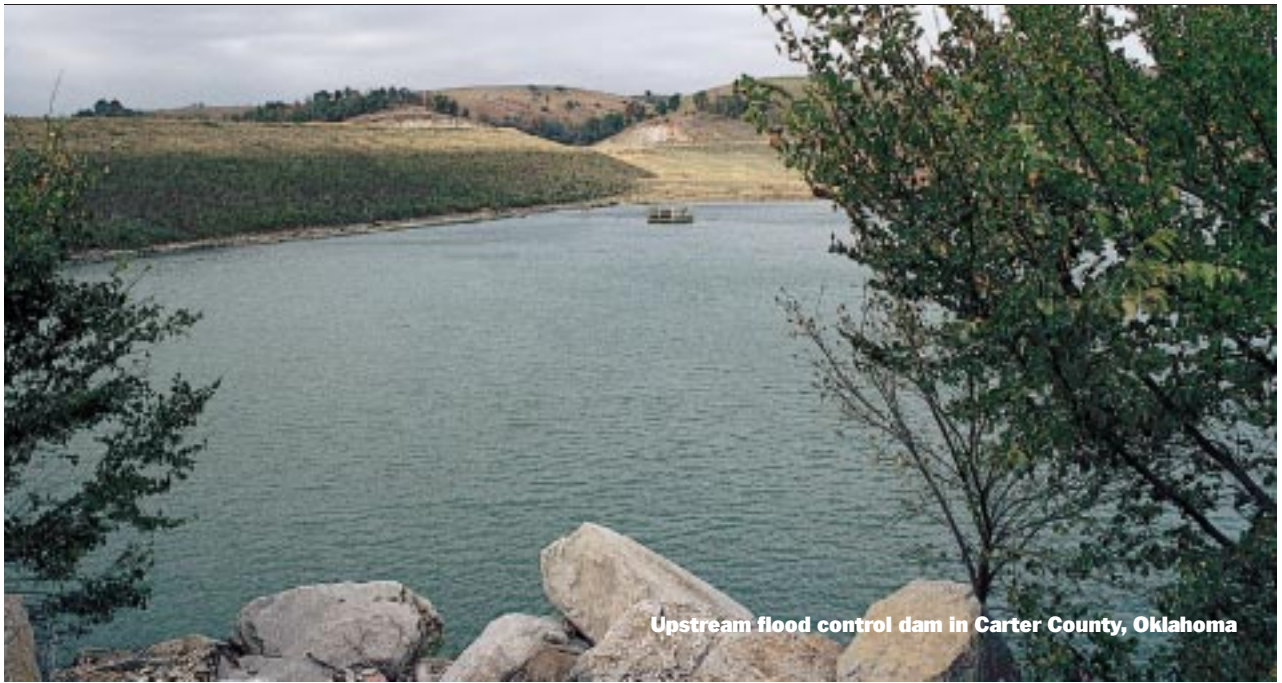


Aging watershed projects: A growing national concern

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**Cover photo: Bob Price,
NRCS, Little Rock, Arkansas**





Upstream flood control dam in Carter County, Oklahoma

Aging watershed projects: A growing national concern

Robert G. Buckley, J. Randy Young, and Mike Thralls

The 50th anniversary of Cloud Creek Site One in Oklahoma brings us to the realization that many of the earlier constructed upstream flood control dams were designed for a 50-year life expectancy, and for many dams that 50th year is near.

There are over 10,000 small watershed dams in America. Some of these are already coming to the end of their designed life. Rehabilitation of these dams is quickly becoming a major issue for local sponsors and those people whose lives are affected by the projects.

On July 3, 1998, a celebration was held in Cordell, Oklahoma, to celebrate the 50th anniversary of the first upstream flood control dam built in the nation. While this was a milestone that highlighted the tremendous accomplishments of local watershed sponsors and various agencies and groups, it

also was an occasion to look to the future of these projects. Over 10,000 upstream flood control dams have been built in over 2,000 watershed projects located in 46 states, and covering 160 million acres. Forty-three percent of these dams are in Texas, Oklahoma and Arkansas.

The 50th anniversary of Cloud Creek Site One brings us to the realization that many of these early constructed dams were designed for a 50-year life expectancy and for many dams that 50th year is near. Many of these dams either need or will soon need major rehabilitation. So the question faces America—what is the future of these dams that have provided multiple benefits for many years? Can we afford to lose an \$8.5 billion national infrastructure that provides flood control, wildlife habitat, recreation, irrigation and livestock water, and municipal and rural water supplies? Can we risk the safety and health consequences of not properly maintaining this infrastructure?

Changing conditions

In the 1960s and 1970s, four small upstream flood control dams were built on the Muddy Fork of the Illinois River in northwest Arkansas. These dams provide flood protection, recreation, wildlife habitat, and municipal and industrial water supplies for the cities of Prairie Grove and Lincoln. The project provides over \$500,000 of annual benefits to local citizens.

But now the dams are over 30 years old and they will soon need major rehabilitation to continue to function properly and to ensure the safety of those living in the

watershed. One dam in the Muddy Fork Watershed was built as a low-hazard structure to protect rural agricultural land, but now has homes built directly downstream from the lake. Failure of the dam could be catastrophic. This watershed project is an example of hundreds of projects in the nation that are providing multiple benefits to communities, but where local sponsors are beginning to face serious problems.

Background

The small watershed concept was first tested in 11 large river basins authorized by Congress under the Flood Control Act of 1944 (PL78-534). Upstream flood control dams were built on small tributaries to major streams to hold back water during heavy rains and slowly release it through pipes in the dams. Congress, convinced of the effectiveness of the program, passed the Watershed Protection and Flood Control Act of 1953 (PL83-566), expanding the watershed program.

Local sponsors provide leadership in the program and secure land rights and easements needed for construction. The Natural Resources Conservation Service (formerly the Soil Conservation Service) provides technical assistance and cost-sharing for the construction. Local sponsors assume responsibility for the operation and maintenance of the structures once they are completed.

Current situation

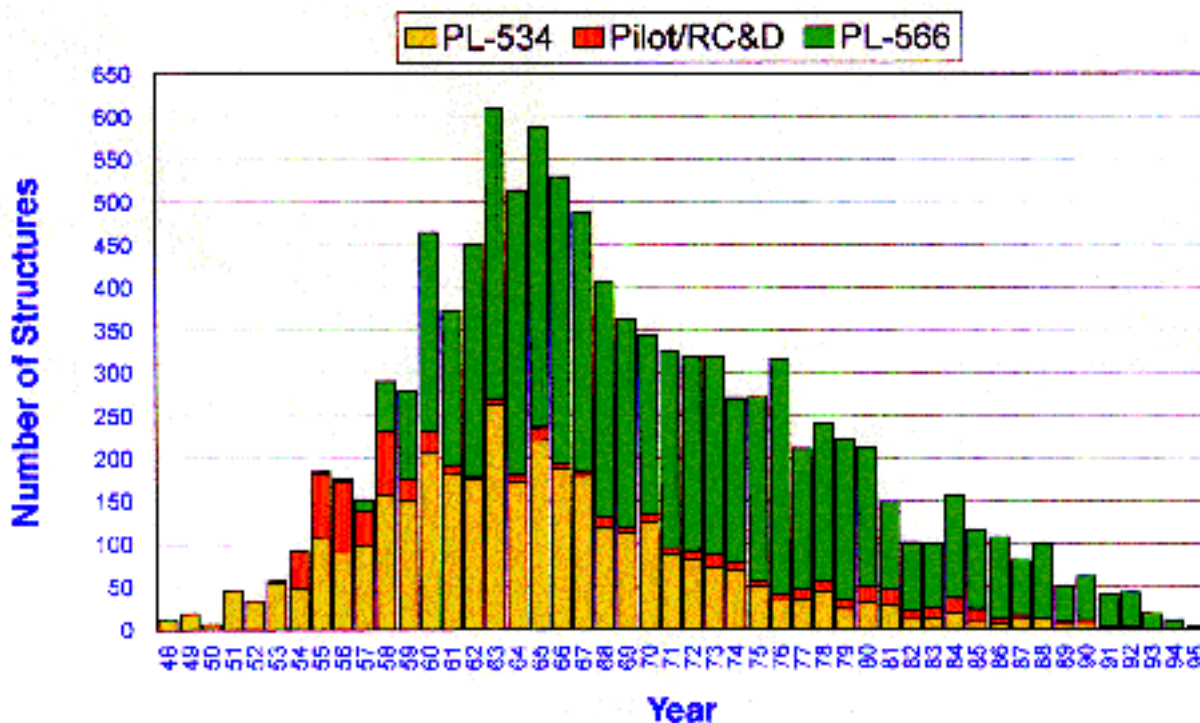
In the next ten years over 1,000 dams nationwide will reach the end of their 50-year life expectancy. And one-half of the 10,000 dams are already more than 30 years old. Along with other structural repair, concrete principal spillways and concrete and metal pipes need to be



Location of upstream flood control dams that are 30+ years old.



There are watershed projects in every state, Puerto Rico, and the Pacific Basin covering 160 million acres. Dams have been construction in 46 states.



Nationwide project structures construction 1948-1995 (PL-566, Pilot/RC&D, & PL-534).

replaced in many of the dams. Homes and other structures have been built below some dams that were only designed to protect rural lands and many sediment basins are becoming filled, eliminating water storage capacity and reducing flood control.

In most cases sponsors have diligently maintained the structures, but they don't have the funds and other resources needed for major renovation of the dams that have reached their planned life span, but with needed rehabilitation could continue to provide benefits indefinitely. In many cases rehabilitation would cost more than the original cost of the dam. NRCS does not currently have the authority to expend funds on rehabilitation efforts and state funding is very limited. Removing the dams could be an option in some cases, but brings up questions such as the loss of flood control, loss of fish and wildlife habitat, downstream movement of sediment collected over the years, and the issue of chemicals, metals, etc., that might be in that sediment.

Other issues:

- Some of the dams do not meet current state dam regulatory requirements. Many of these requirements were written or significantly rewritten in the 1970s with over 70 percent of the small watershed dams already constructed. Laws regarding this were often retroactive and conflicted with the original design of the existing dams.
- Early projects did not always consider resource needs such as water quality, riparian corridors, wetland restoration and wildlife habitat.
- Many of the dams are in rural areas and the public doesn't even know they exist. And although there are dams in urban areas, the public usually doesn't understand how the dams function or the benefits that they provide.

What is being done?

There are some positive things occurring related to this issue. Oklahoma Congressman Frank Lucas has introduced H.R. 4409 in the House of Representatives that would authorize NRCS to provide funding and technical assistance with these aging projects.

- NRCS has authorized a pilot project on Sergeant Major Creek Watershed in western Oklahoma to serve as a model on rehabilitation of an aging watershed project.
- States are working to help local sponsors. The Oklahoma Conservation Commission has purchased equipment such as a special video camera that is used to film the interior of pipes in dams to identify cracks or other problems. Other equipment such as pumping equipment is available to sponsors to lower water levels when working on the dams.
- The National Watershed Coalition has adopted rehabilitation as a high priority and has held national meetings to help identify future rehabilitation needs and begin to look at ways to meet those needs. They have also been working with watershed project sponsors, state and federal officials and home owners associations that have concerns where urban de-



Concrete principal spillways and pipes on many of the older upstream flood control dams are beginning to deteriorate and will need replacing to ensure safety of the dam.

velopment has changed the nature of what was once a rural dam.

The future of the watershed projects rests with the people

While there are certainly some challenges ahead, there also are many opportunities to reinvest in aging watershed projects. The structural repair of dams, ways to extend the life of the structures, and safety and health issues have to be addressed. This is also a good time to take a new look at the resource needs in watersheds. There may be opportunities to enhance wildlife habitat, wetland areas, add water for municipal or rural water supplies, or add recreational facilities as rehabilitation is performed.

This a growing national concern. We are just now beginning to realize the enormous challenges ahead in these projects. Local people and state and federal agencies have worked together for over 50 years to build these dams and put conservation on the land to protect the watersheds. Now is the time to look at the next 50 years and beyond and start planning how to deal with these aging watersheds to insure they continue to provide the benefits they have in the past.

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