A Watershed Effort – The 20th Anniversary of the Watershed Rehabilitation Act

Responding to the Alarm of Aging Infrastructure: The Behind-the Scenes Story of How One Federal Agency Engaged with Partners and Congress to Enact the Watershed Rehabilitation Act of 2000

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America's professional engineers know how to get things done. From the nation's bridges and roads, to flood control and irrigation projects, they apply science on the cutting edge and put their names on the line daily to ensure that sound designs mean sound projects on the landscape. But what if that isn't enough? What happens when crumbling and aging infrastructure has met its design life? What happens when new threats to American life, property, and prosperity emerge -- threats that only engineers recognize, and that the public seems either unaware of or reticent address? Is it the responsibility of engineers to do more?

As the Watershed Rehabilitation Act of 2000 marks it's twentieth year since enactment, this paper outlines how that effort came together. The focus of this paper is on the unique role that engineers and federal bureaucrats played in extending beyond their traditional role as civil servants into the realm of public policy advocacy. It explores how executive branch resources can empower and amplify the efforts and voices of local advocacy organizations, including Conservation Districts and local watershed advocates. This paper shares the story of how a few engineers, public officials, and one junior Member of Congress stepped out of their comfort zone – to sound an alarm, build a coalition and orchestrate one of the first widespread federal efforts to rehabilitate major non-federal public works since the New Deal.

The "Old Dam Man" Goes To Washington

On a sunny and crisp February morning in 1999, a tall man in his forties with jagged, short, brown hair, wide eyes, and a dimpled smile walked toward an office on the fifth floor of the United States Department of Agriculture in Washington. As he strode from the elevator on a glossy brick tile floor of the USDA South Building, Larry Caldwell peered down a hallway nearly a quarter mile in length. The building had been constructed in 1936 and was, at the time, the largest office building in the world. A marvel in the years of the New Deal - both as the epicenter of efforts to assist the farmers and landowners of a struggling nation and an icon that represented the very might and reach of the federal government itself. It stood sentinel in the capital city as an example of the capability and large-scale endeavors of a nation between World Wars – and a testament to the tireless work of engineers.

Caldwell, a government agricultural engineer from Stillwater, Oklahoma with the USDA Natural Resources Conservation Service, or "NRCS" was stepping into the unknown that morning on the first day of a special assignment to the headquarters office. He entered Room 5121, the Legislative Affairs Division of NRCS, hung up his coat, and took a seat at a desk near the windows overlooking Independence Avenue. In the bright morning sunshine, he marveled at the view from his desk. Out the window, a large Eastern Red Cedar tree framed the edge of the USDA property. Beyond it, the National Mall, its grasses neatly cropped but partly dormant from the cold February weather. Beyond the Mall, the clock tower of the Old

Post Office glistened in the sun with the expanses of the federal city spreading for miles beyond. This was a big change from his boyhood farm in Iowa or current home in Oklahoma.

Caldwell felt both the energy and excitement for the possibilities this new assignment held as well as a tinge of trepidation and intimidation for his new surroundings and for the task ahead. The engineering manuals, designs and blueprints so familiar to his normal daily work were now a thousand miles away, back in Oklahoma. Now, lining the walls and shelves of his new office were hundreds of volumes of the *Congressional Record*, along with bound copies of laws and regulations beside binders of countless Congressional hearings and testimony. The numerous photos on the wall were fitting for the headquarters of an agency with a long history of land conservation programs focusing on land and water resources. NRCS (originally called the Soil Conservation Service "SCS") had been founded in 1935, just as workers were putting the finishing touches on the building. The agency had been born from the Dust Bowl and the need to preserve and improve the land in the future, and the need to ensure continued productivity of farming in the United States in concert with its natural resources. Larry paused for a moment to collect himself and remember why he had been asked to come to Washington and what he was setting out to accomplish.

A Nation of Waterways and Watersheds

To fully understand why Caldwell was in Washington in 1999, one must first understand the heritage of the American landscape that few people recognize today or can even imagine about our nation's past. While Americans occasionally utter phrases like, "*if the creek don't rise*, or "*stem the tide"*, few if any understand the complicated and inextricable connection between the nation and its waterways. In many respects, America was founded and exists to this day oriented entirely toward rivers, watersheds, and drainage areas. Journalist Charles Kuralt, who spent decades exploring America by RV and writing about what he found once said, "I started out thinking of America as highways and state lines. As I got to know it better, I began to think of it as rivers."

Kuralt came to know over time what every American 100 years ago knew firsthand -- the success and failure of every farm, factory and household depends upon a nearby waterway. Just a century ago, everyday life was directly linked to the will and the whim of water and the land and the unpredictable and sometimes dangerous interface that resulted. Dirt roads were frequently impassible meaning children couldn't reach schools, products couldn't get to market, and in the worst cases families were displaced from their homes. For farming and the production of the nation's food, entire planting seasons were regularly lost to wet conditions throughout entire regions of the continent. And in the worst scenarios, communities faced the loss of life and property due to flash flooding events or persistently high waters.

In order to deal with the recurring national emergencies of flooding and to help support the lives and livelihood of rural economies, Congress took action by enacting the Flood Control Act of 1944 and other Watershed Program authorities[2] to focus on improving the resilience of the nation and stem further national and community emergencies from flooding and improve natural resources. It was a massive undertaking, and over the next five decades, NRCS designed and oversaw construction of almost 12,000 flood control dams in 47 states, virtually every corner of the country. The effort was a resounding success -- with local governments and sponsors[3] taking leadership and ownership of the projects, as well as carrying out regular maintenance and upkeep of the dams.

With the exemplary track record of these nationwide programs by the 1990's, there was an air of satisfaction and success all the way around. Protected communities experienced fewer flooding events. The projects provided not only protection from intense precipitation, but also provided reliable irrigation and municipal water supplies, as well as recreation, erosion control, and enhanced wildlife habitat. By the end of seven decades of implementation experience, the watershed programs were providing annual benefits[4] totaling more than $2.4 billion, with approximately half of that amount from the 1,270 watershed projects that contain flood control dams.

Emergence of an Unseen Threat Beneath the Surface

But project sponsors, Caldwell, and others in the agency were not fully satisfied by only looking at past success of the program. Instead, they were beginning to see bothersome data in the infrastructure and some very concerning changes out in the landscape. The first and foremost concern had to do with the dams themselves. Having been constructed beginning just after World War II, the flood prevention structures were built with the very best materials and state of the art technology at the time - including components that had come directly from the iron works and foundries that helped recently win the war. While the dams were performing their functions perfectly and were largely maintained to specifications by the local sponsors, there was a clock ticking inside. That clock was the design life of the actual dams, originally targeted at 50 years at the time when construction began in the 1940's and 1950's. The upshot was that the dams had been built exactly as intended and maintained correctly over the years, but there was an emerging danger – the dams' structural components were about to reach the end of their design life and could fail if left in their current state.

A second concern that Caldwell, sponsors, and dam safety officials identified were the number of dams that were at risk. During the heyday of the watershed dam building period (1950's and 1960's), the agency conducted a dedication ceremony and "ribbon cutting" on a new dam an average of once every day for more than two decades. That astonishing pace of construction 50 years prior meant that somewhere in America, a dam would soon hit the end of its design life *every day*. As a professional engineer, Caldwell and others were stunned at the possible ramifications and the magnitude of the foundational data.

The United States had experienced more than 300 fatalities resulting from dam failures from 1960 to 2008[5]. While none of these fatalities were from NRCS-constructed dams, further statistics about the kinds of dams that caused fatalities were even more troubling. Eighty-seven percent of the fatalities were caused by the failure of dams with less than 1,000 acre-feet of water in them. Seven of the dams involved in fatalities had less than 300 acre-feet of water released during the failure. And the failure of dams less than 50 feet in height caused 88 percent of the deaths that had been recorded. The upshot was that the type of dams in the NRCS program were exactly the type that could be the most problematic as they aged. It was only a matter of time.

This concern was substantiated by new technology available by 1999, which gave engineers new insights inside the previously inaccessible components of the dam. The emergence of tiny robotic cameras and the perfection of fiber optic connections for the sensors by the mid-1990s meant that Caldwell and other engineers were having their first real-life look at the inside of concrete and metal pipes, iron valves, and submerged concrete components. What they saw from the "arthroscopy" of the dams wasn't good. Severely corroded pipes and valves with such massive corrosion that revealed leaks and the possibility of future catastrophic scenarios.

Making the outlook even worse from inside the dams were the changes that had taken place on the landscape surrounding them. In the decades following World War II, America and its population had changed greatly. What had been a largely an agrarian-focused society grew tremendously with the American population doubling with an increase of 138 million new citizens since 1944. Even more worrisome was the location where new housing was positioned. By the 1990's, farmland was being converted to housing developments at rates never before seen. From 1992–1997 the nation converted more than 6 million acres of agricultural land to development—an area the size of the state of Maryland. The rate of land conversion for 1992–1997 was 1.2 million acres per year and represented a rate 51 percent higher than 1982–1992.

This national trend meant that dams that had been originally located upstream of crop fields, rangeland, and wooded acreage, were now within plain view of housing developments, schools, and community centers. Therefore, the dams that were originally designed to "low hazard" design criteria (for landscapes populated by livestock and cropland), were now directly responsible for the safety and well-being of numerous population centers, with citizens who were unaware that the dams were even there and what their functions were. The challenge from the view of the agency was both very clear and quite daunting: the dams that were now protecting human life did not meet current safety standards, many of which were enacted after the dams were built. And the scope of the problem was staggering: 1,400 watershed dams in 40 states classified as high hazard – with over half of them not meeting safety standards. The NRCS team realized there was an emerging danger that no one in the general public recognized even though it was near their front doors.

Sounding the Alarm & Answering the Bell

During the 1990's Caldwell, Bruce Julian (the NRCS National Watershed Program Manager), and others in NRCS worked their way onto the agenda for NRCS leadership meetings, first at the state level to present some of their data and describe the trends in aging dams that they were seeing. They also coordinated with the National Watershed Coalition (NWC) as well as the Association of State Dam Safety Officials (ASDSO) to raise the profile of the issue and engage the assistance of local organizations.[6] As they worked their way up through successive meetings higher in the organizations, the outcomes of the discussions led to a consistent conclusion: something needed to be done, but the agency lacked legislative authority to do work on projects that were not on federal property and were now in the hands of local communities.

While NRCS and sponsors added the topic to the agency leadership agenda, Caldwell was grappling with the issue day and night. Following church one Sunday morning, the problem was still on his mind. He described the issues associated with aging dams with a fellow congregation member, Wes Watkins. Watkins, who was the representative for central Oklahoma, had served in Congress for eight terms. He had always been a champion of the watershed program, so he intuitively understood what was at stake and where the numbers and trends were headed. Watkins began discussing aging dams in various settings, and as his career in Congress took several turns, he later discussed aging dams with a new Member of Congress from western Oklahoma, Representative Frank Lucas.

Frank Lucas stood head and shoulders above almost any room he walked into. Elected to Congress at age 34, he was the very embodiment of a good American cowboy. For all his imposing stature, his friendly smile and engaging manner won fast friends among his Congressional colleagues. Once he saw the facts about the aging dams, he knew that it was something that needed to be dealt with, not only to help his own constituency in western Oklahoma, but also to improve the resiliency of the nation.

In July 1998, the perfect opportunity arose to nationally highlight the emerging concerns with aging dams. The very first watershed dam in the nation, Cloud Creek Dam No. 1 in SW Oklahoma, became the first watershed dam to reach the end of its 50-year design life. A public celebration was held to commemorate this historic event.[7] Representative Lucas hosted a public round table on aging watershed projects as a part of the celebration. A standing room only crowd heard from project sponsors and elected officials about the value of the watershed projects to their communities and the need for federal action to help them to rehabilitate their aging dams so that they could continue to benefit generations to come.

After discussions with several supporting organizations, the congressman decided to take up the issue of dam rehabilitation as a key priority, and went about it with the kind of focus, tenacity, and determination that were a hallmark of rural America. Representative Lucas introduced H.R. 4409 on August 5th of 1998 to provide NRCS the authority to assist sponsors to rehabilitate their aging dams. A hearing was held that fall to highlight the issue to fellow House Agriculture Committee members, but the legislation stalled in committee and Congress soon adjourned for the year.

NRCS did not typically fully engage directly in legislative proposals. That activity was generally viewed as outside the comfort zone of a traditionally focused technical agency. But since this was a subject involving public safety and protecting many small rural communities, Caldwell and Julian thought that a non-traditional approach might not only be acceptable, but possibly critical to the future of the effort. They advocated for a helicopter tour for Congressman Lucas and for the agency head, NRCS Chief Pearlie Reed to provide a bird's eye view of what the needs for dam rehabilitation looked like. From a federal funding point of view, aerial oversight of projects is a justifiable expenditure and a helicopter tour to assist decision-makers in Washington understand the real picture out in the countryside and could be deemed to be acceptable given the circumstances. Following internal agency discussions, debate, and a few raised eyebrows the helicopter tour was approved and scheduled. The itinerary included a review of the hundreds of dams along the upper Washita River Basin. Caldwell prepared a notebook with all of the facts and figures of the dams.

Once on the tour, Chief Reed politely listened to Caldwell's descriptions and Congressman Lucas asked thoughtful questions. But as the tour progressed, Reed turned very quiet and looked intently as he leaned sideways for a better view the landscape below. The beginning of the tour had been delayed about an hour, and when the helicopter finally got in the air, schools were getting out of session for the afternoon and bright, yellow buses crisscrossed the roads below, delivering children to their homes. After the tour, Mr. Reed commented that what impressed him the most was seeing the school buses traversing so many aging county bridges that were protected by the many watershed dams upstream. He said that perspective made him realize how important the dams were to protect some of the towns themselves as well as how the communities relied on the dams to support their daily lives by securing safe roadways and the many agricultural functions of the communities. He remarked that the while the agency might not have a legal obligation to ensure the dams remained safe and functioning for the next generation, the government should recognize a moral obligation to continue to help communities that had been working cooperatively with NRCS in good faith for more than 50 years. Reed concluded that the agency that had been such a partner with the local communities should not abandon them when they needed the help the most to keep their communities safe. The tour turned out to be a critical triggering point in moving NRCS into a more proactive posture on dam rehabilitation. And it would begin a path to lead Caldwell to Washington, DC to support the legislative effort that was beginning to unfold.

It Ain't Lobbying if You're Just Providing Facts

Caldwell found himself on a detail assignment in Washington overlooking the National Mall on that February morning in 1999, because he was one of the engineers and supporting organizations who had first raised alarm about the dangers the aging dams presented (both within the agency and also among partnering organizations). There were positive signs of response, but still many missing pieces. Rep. Lucas would soon reintroduce his bill (February 11, 1999) H.R. 728 and would be in a stronger position to advance it in his Committee in the new 106th Congress. But there were no members of the U.S. Senate aware of or interested in the issue. The public was generally ambivalent to the threats posed by aging dams. And this lack of mobilization was reflected in the knowledge level of staff on Capitol Hill offices and within federal agencies. As far as anyone could tell, there was no one at the White House leadership-level who was knowledgeable or in a position to help. The chances of getting legislation passed and even more importantly, funded, looked remote at best.

Just past 8:00am, Caldwell met Doug McKalip, a Legislative Specialist with NRCS who was assigned the task of helping Caldwell, Julian, sponsors, and supporting organization advance the issue before Congress. McKalip was twenty-eight and a native of rural Pennsylvania dirt road country. He had previously served in Washington as staff for both Republicans and Democrats, having worked in the U.S. Senate for Arlen Specter (R-PA) and also in the White House setting up public opinion tracking system for Americans sending electronic correspondence to President Bill Clinton. Together, they formed a small watershed partnership team at NRCS, to assess the playing pieces on the board and look at where the assets lay and where the gaps were located. They also began to integrate efforts with outside organizations to form a watershed rehabilitation partnership team, that could be mobilized to advance the effort. In order to move the status quo, they knew it was time to be disruptive and they needed a strategy. But what would the strategy be, and what assets could they gather to advance the effort?

On the positive side, there was already an identifiable champion on the Hill, who was well-liked, well-spoken and dedicated to the subject matter. In addition, there were a few professional staff members from the House Agriculture Committee who quickly understood the issue and were willing to help. Further, the NRCS agency leadership was supportive of finding a solution. But one junior Member of Congress and a handful of others weren't enough to pass a bill in the House. Few if any other Members of Congress were knowledgeable about the issue and willing to assist. Worse yet, there was no one engaged in the Senate. The NRCS watershed partnership team knew that they needed something that was attention-grabbing and compelling enough to get people to want to become part of the effort. And they needed it fast.

Julian and Caldwell initiated a "Rapid Survey" of dams in 1999. NRCS field staffs in 22 states representing most of the aging dam projects were asked to report-in to headquarters about all known information on their deteriorating state. This would require getting boots out in the field, and local staff collecting data to support the work. The local office staff were told to make it a priority. Within weeks, the data came in that began to scope out the magnitude of the rehabilitation needs. The survey concluded that 2,000 dams needed rehabilitation work. Further, more than 650 of those dams posed a threat to public health and safety. The survey summarized that a majority of the 650 dams needed to be rebuilt and upgraded at estimated cost of almost $400 million in order to protect the existing nearby populations.

Now, the watershed partnership had real numbers to point to. The data were compiled along with information about the surrounding communities, risks to the public, and estimated costs needed to

begin making repairs. Beyond the national picture and estimates, they broke the data down into specific factsheets for each Member of Congress, providing a clear picture of the names of dams, their locations, and the threats that the aging infrastructure posed. During the next few months, the NRCS team developed fifty fact sheets to highlight the impact and needs of watershed dams in specific projects in 20 states. Three series of fact sheets entitled "Dams in Danger, People at Risk", "Reinvesting in America's Watersheds", and "Keeping Dams Safe" provided case studies on specific projects across the nation. The NWC and ASDSO were able to take the data and run with it. Within a matter of weeks, those organizations were having tremendous success at raising local awareness about dam safety and gaining local support.

"Are we allowed to do this?" some agency staff asked. "Well, it ain't lobbying if we're just providing facts", McKalip replied. This became a central tenant of what the NRCS team did. While advocating on behalf of specific introduced bills pending before Congress is a violation of the Federal Anti-Lobbying Act, the NRCS team knew that if folks didn't have basic factual information, dams would get dangerous with real potential consequences for safety. They needed to get information into the right hands and hope that those leaders would do the right thing. They also made sure that every info sheet was personalized to the specific focus for each prospective Member of Congress. In the process, they often skipped featuring nationwide data in favor of dedicating more time and attention to targeting specifics on individual Congressional Districts. The team concluded, "if Members see pictures of their own community, it will have more impact than anything else they could provide in a fact sheet."

The watershed partnership team also began to find innovative ways to do Congressional briefings on the Hill. The idea was that if they couldn't take every Member of Congress out to look at an aging dam, they would bring the dam to them. McKalip had a rusted valve from a principal spillway that had suffered from extensive corrosion and the effects of being submerged for more than forty years. The rusted gate was as big as a Frisbee and weighed about 12 pounds. But he took it to every Congressional briefing and passed it around the table along with other corroded dam parts for Members and staff to hold and pass to the person next to them. The team figured that people on Capitol Hill sit in meetings day after day and listen to people talk endlessly as part of their jobs. It was important to surprise them during the course of a meeting and do something unique to ensure that they remember the issue. Having Congressional staff hold a twelve-pound hunk of rusted iron and passing it on to a colleague certainly left an impression and folks came to the end of briefings asking how they could assist with the effort.

Another key result of having the Rapid Survey data, was the ability to engage the thousands of local Conservation Districts found in every county of the U.S. along with the national watershed coalition representatives. When presented with the data, Conservation District leaders understood what they needed to do. And it wasn't long before they began having conversations that identified unique avenues into key decision-makers and ways to get the word out. Conservation District leaders like Billy Wilson, an Oklahoma rancher with a quiet, confident and well-spoken manner began appearing right alongside NRCS staff at Congressional meetings, providing facts and a picture from the local communities. The watershed partnership team also put together a VHS video that opened with the stark images of a crumbling spillway and haunting voice of the narrator stating, "when dams fail, people die". The efforts had an impact and the results were impressive. From the outreach work of local watershed leaders, Senator Paul Coverdell, of Georgia decided to serve as the primary sponsor of companion legislation in the Senate. He introduced the companion bill (S.1762) on October 21, 1999. Finally, the process of advancing dam rehabilitation legislation was off to a promising start and a coalition was beginning to form.

Help From Friends in the Field

A good measure of support for any introduced bill is the number of co-sponsors who sign their names on at the early stages of the process. Initially, the House Bill had limited co-sponsorship, and the Senate Bill had only one co-sponsor. The team went to work on a two-pronged approach. On the Hill, the Portland Cement Association (PCA) heard about the effort from ASDSO and NWC and wanted to pitch-in. Portland cement was invented in 1824 and serves as an integral part of most American construction. American inventor, Thomas Edison developed new ways to improve Portland Cement and formed his own company in 1899 just for that purpose. Shortly thereafter, PCA was formed as a non-profit dedicated toward research and advancement of cement technology. For the cement industry, the amount of product needed for dam rehabilitation was considered miniscule, and not even a blip on the ledger for the companies. However, the overall cause was a perfect opportunity to sign-on to a project that had nationwide benefits for the public. Furthermore, it would be a chance to showcase how the latest innovations in roller-compacted concrete could lend itself to projects located in remote locations where structures made from conventional concrete with reinforcing steel was more expensive and infeasible for many sites. Soon, Caldwell helped furnish rapid assessment sheets to PCA, who in turn worked with partners to ensured that many Members of Congress on both sides of the aisle saw the rapid assessment data. In a matter of months, 63 Members of the House had signed on as co-sponsors of H.R. 728.[8]

The legislation began to pick up momentum and started to work its way through serious consideration in the House, which brought both promise as well as unforeseen new complications. The Agriculture Committee was a familiar place for the coalition to work as they knew most of the Members and spoke the common language of farming and livestock. Letters were sent to every member of the House and Senate on two occasions, with 36 organizations signing on. Committee hearings were attended and testified before. But the Lucas Bill had also been referred to the House Transportation and Infrastructure Committee. There, it began to run into obstacles brought up by some who were unaccustomed and unfamiliar with agriculture issues. The first snag the bill hit in the Transportation Committee came as a complete surprise to the coalition. One Member wanted to ensure that Davis Bacon (local prevailing wages) would be paid to the crews working on future rehabilitation projects. The Transportation Committee was accustomed to handling massive highway, bridge and tunnel projects, where labor concerns were at the forefront and an integral part of project authorizations.

To meet the concerns heard in the Committee, the NRCS watershed partner team deployed in-person meetings with Committee staff to review the sizes and scale of projects and how the construction is locally competed and sourced. They were surprised to learn that some staff on the Committee thought that NRCS dams had locks and barge traffic on them. They turned to the use of photographs to better depict the small size of the dams and the surrounding landscapes, which illustrated that the dams were located in largely rural isolated areas on tiny creeks and tributaries. The team also collected information on contracting practices and showed that fair wages were already paid in construction of all projects. Within a matter of a few weeks, the concern on the issues had died down. By the close of 1999, both House Committees had approved the bill. There were roughly twelve more months left to get the legislation onto the floor of both Congressional chambers for a vote.

Unfortunately, it was slower going on the Senate side. A handful of staff in the legislative body had formed the notion that rehabilitation of dams was a cause at odds with environmental and conservation imperatives. Several members of the staff had spent years embroiled in debates over large river public works, fish passages, and projects on a totally different scale. While NRCS briefed them about

small watersheds, it became clear that the prevailing idea the staff had of the projects was similar to the impression of the House Transportation Committee. Several Committee staff mentioned projects like the TVA, or Hoover Dam situated on large navigable waters. The staff indicated that the legislation would never pass in the Senate because the environmental community would never support it.

The watershed partnership team realized that there was an information gap about the conservation aspects of the program. The staff hadn't seen that without the dams in place, rainwater would rush through the drainage area and leave no running stream in between precipitation events. They connected with the Army Corps of Engineers and established that many of the environmental mitigation and habitat features of large projects located downstream were predicated on the environmental benefits provided upstream by NRCS. If sediment stored in the reservoirs of the dams were otherwise flowing downstream, critical fish spawning locations in the bottom of riverbeds and lakes would be unviable. The comments from the Corps were unequivocal -- the NRCS-assisted dams were instead actually *providing* sustained habitat for a variety of wildlife.

The watershed partnership team had an idea of how to make some progress. "What if we take an entire group of Senate staff out to see some of these projects in person?" they asked. The coalition sent a notice out and got over a dozen interested staff to sign-up. McKalip went to the rental counter at nearby National Airport and rented a large passenger van that could fit the entire group. Again, someone in the agency asked, "are we allowed to do all this?" No one could really come up with a clear reason why not. So, off they went on a driving trip through Northern Virginia and the foothills of the Shenandoah. Instead of seeing the disruptive dams they had imagined, the Congressional staff instead saw moms pushing baby strollers along paths adjacent to Lake Braddock. Further afield, in the Virginia piedmont, they saw constructed wetlands and riparian areas that were integral parts of many NRCS watershed projects. By the end of a long day of driving, it became clear that the tour had worked and there were new converts to the cause. The NWC and ASDSO leveraged the tour by performing follow-up visits and adding local perspective. By the spring of 2000, there were 19 co-sponsors for the Senate legislation introduced by Senator Coverdell.

To help highlight the impacts on states, in February 2000, Chief Reed a made presentation on the need for rehabilitation of aging watershed dams to the National Resources Committee of National Governors' Association (NGA). Three days later the NGA unanimously passed a resolution in support of the legislation.

Pilot Projects Light the Way Forward

That spring, agency staff as well as watershed advocates traveled to Roger Mills Country, Oklahoma for two days of events, discussions, and a celebration that both exemplified the community needs and the national promise of dam rehabilitation projects could hold. Two years prior, during the Cloud Creek celebration, NRCS Chief Pearlie Reed had advocated for a "pilot project" to rehabilitate one of the oldest watershed dams in America. Reed strategically reasoned that a pilot project would help the agency gain knowledge about the technical and engineering challenges that a rehabilitation project would pose. NRCS staff could become familiar with the numerous design and construction issues and develop solutions needed to complete a project. Even more importantly, a pilot could serve as a rallying point and a positive example of the cause that dam rehabilitation advocates could point to. While full-scale action by Congress was still months away at best, language previously provided in funding bills provided the

flexibility the agency needed to feature its work. The Sergent Major Watershed Site 2 in Oklahoma was selected as the first pilot project out of nine potential candidate sites around the country.

On a sunny Friday in April, hundreds of local community members, media, visiting dignitaries, and agency staff gathered on a great expanse of Oklahoma prairie to dedicate the rehabilitated Sergent Major Dam No. 2. In less than eighteen months since work had begun, the Oklahoma NRCS staff had completed the planning process and environmental reviews, designed the rehabilitation project, and the contracted the construction to rehabilitate the dam to meet current safety standards. The contractor successfully plugged the existing principal spillway for abandonment, installed a new principal spillway and appurtenances, installed foundation drains, flattened the backslope, enlarged the emergency spillway and raised the top of dam to meet hydraulic capacity requirements. In addition, the project included new features providing local firefighters with the capability to access water in case of wildfire emergencies. Additional ecosystem features were built into the project as well. And most importantly, the dam was now updated for a 100-year design life.

The event marked a key celebration for the community of Cheyenne, Oklahoma and an example for communities nationwide of what might be possible through rehabilitation legislation. Congressman Lucas led the event, along with NRCS Chief Reed and Michael Armstrong, a FEMA official, who served as keynote speakers. The Cheyenne High School Band played music and entertained attendees. A barbecue lunch was served by the local community with 800 people in attendance. The entire town turned out. Ninety-year-old Lorena Males, the spouse of community leader Red Males, who had originally championed the dam construction project and conservation efforts in the 1940's, hosted a reception and led participants in a sing-along of American folk songs as she played the piano.

Everyone came away from the event re-energized from the pilot project dedication and seemed to feel a renewed sense of energy and enthusiasm. In addition to the media coverage and positive resulting stories, the watershed partnership team now had designs, photos and tangible examples of what a rehabilitation project would look like. NWC and ASDSO were firing on all cylinders by making local contacts, driving the message home about dam safety and gaining new supporters. The momentum seemed to be building – maybe toward eventual action and a vote in Congress. Leaving the event, McKalip turned on the radio in his pickup as he headed toward Elk City, Oklahoma. The country song by Montgomery-Gentry resonated from the speakers with the lyrics that seemed to match the community enthusiasm for the program: *"You can't roll a rock, up a hill that steep…you can't pull roots when they run that deep."* He thought it was an omen of possibly good things to come for the watershed effort. In a matter of weeks, the team would know for sure.[9]

A Huge Win and a Sad Loss on the Same Day

Back in Washington, momentum for Congressman Lucas' bill, H.R. 728 had reached a full head of steam, with leadership of several Committees assisting his push to bring the bill to the House floor for a vote. The legislation provided the needed authorization for NRCS to perform rehabilitation work by cost-sharing with local sponsoring entities at 65% of the total costs of the projects. In addition, the bill provided a system for accepting applications from sponsors, guidance on ranking and selecting those to be funded, and provisions regarding the cost-benefit assessment for the program. Most importantly, the bill provided an authorization for appropriations for the years 2000 through 2005.

As the bill progressed, there was a new concern emerging. Some Members who didn't have one of the eligible dams in their districts asked about other kinds of aging earthworks that were found in their home communities. The concern centered on what to do about deteriorating structures from the New Deal-Era Works Progress Administration (WPA). In order to get on top of the issue and ensure that it didn't sidetrack the legislation, Lucas instructed legal counsel for the Agriculture Committee to swiftly research the issue and come up with options. The Committee Staff unearthed legal foundational documents that complicated the tracking and oversight responsibility, since WPA had actually been codified in law with two separate names during the 1930's - first the Works Progress Administration and then subsequently the Works Projects Administration. From a legal standpoint, no tangible hook existed to give a single executive branch agency authority to work on these projects, since the WPA had been long since disbanded. The Committee Counsel recommended a study of aging dams be incorporated into the legislation to provide agencies such as the Army Corps of Engineers a better handle on other dam safety needs. The legislation was amended, the concerns abated, and the Bill continued its progress toward the floor of the House of Representatives.

On July 17th, 2000, H.R. 728 went to the floor of the House for consideration under expedited procedures. Caldwell and McKalip took a taxicab from the USDA building up to Capitol Hill and took seats in the gallery above the House chamber. Down below in the well of the House, Committee staff the Agriculture Committee and Transportation Committees gathered in a small scrum. As the scrum of staff gestured back and forth, a hand came up and pointed into the gallery above. The staff wanted McKalip to come down to answer some last-minute questions about the legislation. Stunned, McKalip rose from his seat in the gallery and took the stairway down to the entrance of the House Cloakroom. As with many issues in last-minute Congressional negotiations, the issue was resolved within minutes, and technical assistance from NRCS was not needed. Back on the House floor, Congressman Lucas spoke eloquently and passionately about the need for the legislation. The time, effort and attention that he had paid to his bill for months reaped benefits as there was minimal debate required, and the House quickly passed the legislation under expedited suspension of the rules. A major historic moment had come in that the U.S. Congress had now taken the first steps in history to rehabilitate aging non-federal dams. Upon returning to USDA that afternoon, the watershed partnership team celebrated with colleagues in the USDA overlooking the National Mall. There was a clear path toward achieving a law on dam rehabilitation, and things were finally going their way.

But the celebration soon ended abruptly. As they greeted friends from other offices and shared in the moment an unexpected piece of terrible news was relayed by a nearby colleague. Senator Coverdell had suffered a severe brain hemorrhage back home in Georgia and was undergoing emergency surgery. And the prognosis was not good. By the next day, he would be dead at the age of 61. At that point, the legislation didn't matter anymore. The effort to advance rehabilitation of dams had always been about working with people, for the purpose of about helping people. And a person greatly beloved by his family and the state of Georgia had been lost.

Beyond being the champion of the of the Senate's dam rehabilitation legislation, Paul Coverdell had quickly risen in the Senate's leadership and was well-liked by his colleagues. He was a trusted member of the Senate leadership and was willing to take on the most difficult tasks in the legislative body that no one else wanted to champion. Majority Leader, Trent Lott affectionately referred to Coverdell as "Mikey". While discussing a difficult job, he regularly said, "Let Mikey do it" - a reference to a 1970's cereal

commercial and a metaphor for someone who take all the difficult jobs. Now, the Senate was left without a key advocate and proponent for a whole host of legislative business.

The watershed partnership team stood down operations for a few weeks to gather itself and take stock of what had happened and turn focus internally on some activities involving ongoing pilot watershed work. Less than a month later, an encouraging call came through from the Senate Agriculture Committee with two pieces of welcome information. The first piece of news was that Chairman Dick Lugar (R-IN) would take up the mantle along with Senator Blanche Lincoln of Arkansas and ensure that Senator Coverdell's dam rehabilitation bill would move forward in his name. Secondly, Senator Coverdell's trusted staffer, Richard Gupton would work directly with the Senate Committee to get the bill over the finish line.

Resurgent Opposition and then Final Passage

Over the next 60 days, the Senate staff and watershed partnership team worked day and night to complete work on the legislation. This included the typically dormant "August Recess" period that is usually a vacation period for Senators and staff, alike. The major obstacle to progress was a resurgent push from several members of "free the rivers" organizations to derail and potentially kill the legislation altogether. Many remained steadfast that dams (no matter their size) were the enemy and wanted provisions included in the bill that would support decommissioning or removal of structures. A problem the watershed partnership team saw with this approach is that the original legislation, and any amendments that followed couldn't leave that decision up to the federal government. By the very nature of the program going back to the 1940's, USDA had "turned the keys" for the projects over to the local sponsors of the projects. These communities paid the bills and did the work on the operation and maintenance of the structures. In effect, these were not federal facilities at all, and USDA wouldn't have a justifiable angle to direct the decisions of local sponsors.

The watershed partnership team developed a potential approach to handle the conundrum and reasoned, "If local sponsors were to *ask* to remove a dam, or decommission it, the agency *could* consider that option and appraise whether it should be funded." In those instances, NRCS would need to examine the environmental impacts of removing the dam with the obvious challenge of providing adequate grade control in the drainage-way if significant sediment had deposited in the reservoir over the years. In addition, the agency concluded that in decommissioning cases, NRCS would also evaluate the ramifications of the loss of flood control and the potential impact to lives and property for those downstream.

While this proposed course of action did not squelch the concern raised by some non-governmental organizations, it seemed like a reasonable approach to most on Capitol Hill. In the rare instances where a local community might request to decommission a dam in the future, this option would be eligible for prospective funding and support under the legislation, NRCS would work in those cases to determine the feasibility and specific ways to carry it out. In order to seal the deal, Senate leaders agreed to engage in a "colloquy" on the Senate floor that served as a planned discussion to memorialize and provide clear guidance in the decommissioning issue once it became law. The watershed partnership team provided technical assistance on the exact verbiage in the colloquy to ensure that they would have the legislative history needed to implement the provisions in the future as guidance for implementation. Engineers like Caldwell smiled in amazement to learn that the conversations they saw on C-SPAN-2 between Members of Congress had been so carefully orchestrated for a specific purpose.

Within a matter of weeks, the Watershed Rehabilitation Amendments were speeding towards the Senate floor, including an authorization of appropriations for $90 million over five years. The bill had been coupled to the Grain Standards and Warehouse Improvement Act (Section 313 of HR 4788) – a routine procedure on Capitol Hill of combining key pieces of legislation together in order to build coalitions and make good use of valuable floor time in the Congressional Chambers. Congressman Lucas and several others spoke eloquently on the House floor about the need for the legislation and the risks if Congress did not pass the bill. By the third week of October the legislation was approved by both the House and the Senate. For all the years of work, effort and setbacks, the legislative process seemed to be finished in an instant. The Watershed Rehabilitation Amendments (PL-106-472) were signed into law by President Bill Clinton on November 9, 2000.

The efforts of so many organizations and people who came together with a common cause were successful in achieving an end that would benefit generations to come. This involved many meetings, congressional hearings, pilot projects, public celebrations, and personal contacts.[10] But it demonstrated that it could be done with the tenacity and can-do attitude of so many people across the country with different backgrounds, but common goals.

The Rest of the Story….

The Watershed Rehabilitation Amendments of 2000 represents one of the first actions on the part of Congress to reinvest in major waterways infrastructures since the New Deal. Prior to and immediately following the passage of the bill, NRCS provided training workshops, references, and training CDs for NRCS staff and project sponsors. As a result of the bill, by April 15, 2020, 366 rehabilitation projects had been funded in 36 states. These projects included 161 watershed dams in 23 states that were upgraded to current safety standards. In addition, another 205 dams were in the process of being planned, designed, or constructed to bring them up to current standards. More than 1,550 watershed dams in 42 states had been inspected and assessment reports prepared. These reports provide the basis for determining the priority dams to be funded for rehabilitation in the future. [11]

The costs of rehabilitation planning, design, and construction have continued to increase in recent years. Rehabilitation construction costs are now averaging more than $4 million per dam with some projects exceeding $15 million or more.

Even though the $90 million authorized by the legislation was not considered ideal at the time of passage, it served as the beginning point to get the projects rolling. The funding authorization in the legislation was expanded by provisions in each of the Farm Bills since 2002. In FY 2009 $50 million from the American Reinvestment and Recovery Act (ARRA) was authorized for Watershed Rehabilitation. Congressman Lucas consistently tried to obtain mandatory funding using Commodity Credit Corporation (CCC) funds authorized in each of the Farm Bills, but the Appropriation Committees would never allow it. Then finally in FY 2015, CCC funds were appropriated at the urging of Congressman Lucas and others. Appropriations totaling $373 million of CCC funds were provided in four of the next seven years. The funding provided for dam rehabilitation from FY2000 to FY2020 has totaled almost one billion dollars (equivalent 2020 dollars).[12]

The Future….

In 2020, as the nation marks two decades since the passage of the Watershed Rehabilitation Amendments, great progress has been made, but many needs remain unmet. During the past two

decades when 161 dams were rehabilitated, an additional 6,500 watershed dams have exceeded their design lives during that same timeframe. In the next decade, an additional 2,500 dams will reach that milestone. As of March 2020, there are 2,200 watershed dams classified as high hazard, with over half of them not meeting current safety standards. And the number of dams being reclassified to high hazard is increasing each year. During the past 13 years, approximately 500 dams were reclassified to high hazard in 30 states due to new development within the downstream areas that would be inundated if the dam should fail. That is an average of 40 dams each year. But during this same time frame, only an average of only 6 dams were rehabilitated each year. This not sustainable at current funding levels.

Other public works are aging and more rehabilitation work needs to be done in the future than has been accomplished to date. This is a huge public safety infrastructure issue that will continue to get worse without additional attention.

The needs for investment in the nation's infrastructure press far beyond flood prevention projects; they also include many aspects of transportation, infrastructure and aging public projects. Americans today find themselves whisked over the landscape on elevated roads -- crossing countless diversions, drainageways, and thousands of watersheds daily. But they remain generally unaware of the waterways those highways traverse, and they have limited knowledge of the flood prevention projects near their own homes. Americans enjoy agricultural products today from farm fields and pastures protected from frequent flooding. Yet they do not recognize the structures upstream that protect both the crops and food supply, and ultimately their entire communities.

The enactment of the Watershed Rehabilitation Amendments was due to the hard work and tireless effort of many. The description contained here likely underreports the efforts of the NWC, ASDSO and partners such as the Conservation Districts. There is a purpose behind weighing the description in this way. One of the primary mandates of associations and organizations are to perform collective advocacy on behalf of local communities; they are *supposed* to press for action on emerging needs. There are thousands of such organizations in Washington D.C. and they rarely if ever see legislation successfully enacted of the scope described here. One of the difference- makers with the watershed rehabilitation effort is that agency personnel people whose jobs are *not* to get involved in policy advocacy stepped out of their comfort zones. They found innovative ways to help form a partnership and equip advocates with the kindling of data and fuel of facts needed to get the movement ignited. Federal bureaucrats who are repeatedly trained to avoid taking risks, stepped into a gray area in order to help elected officials take action on a matter of public health and safety.

While celebrating the 20th anniversary of this legislation, it is more evident than ever that the nation's professional engineers must become engaged in ways they have not been in the past. The need for reinvestment and protection of the nation's infrastructure will not go away and will only become more urgent with every passing day. At the time of this writing, some leaders in Washington have signaled interest on both sides of the aisle in future federal investment in infrastructure. But interest does not equal action and difficult pieces of legislation do not come to fruition on their own. Citizens need to become engaged. And once engaged, they need to be equipped with understandable points of data about the state of aging works of improvement and clear information about what is at stake.

With the emergence of COVID-19 and the devastating economic ramifications left in its wake, interest in developing stimulus legislation focused on infrastructure investments and implementation is once again in focus. As in the 2008 global financial crisis, governments seem more implored to make

infrastructure investments as a response to broader economic challenges. This begs three questions. Does it take a national emergency to get legislative momentum for investments in infrastructure? If it does, do engineers, public servants, and local sponsors need to be ready at all times to provide data and a compelling case for infrastructure when those situations arise? And can infrastructure investments become a point of agreement upon which an otherwise divided society can find some level of commonality?

Recent public opinion data show that in 2020 it is difficult for Americans to reach consensus on any matter of policy. The nation's professional engineers have a unique set of skills and attributes that position them to assist the nation beyond preparing blueprints and designs. Engineers represent a respected profession in America's communities, rural and urban alike. Members of the public recognize the advancements that science bring and those who are behind the innovations. Like the "Old Dam Man" and the watershed partnership team did more than two decades ago, the nation's professional engineers need to consider stepping out of their comfort zone in the future -- to more fully utilize their respected and trusted voice in the community and to enter the policy dialogue for the benefit of future generations. There is an entirely new set of challenges and successes waiting ahead. America's professional engineers are in the best position possible to spearhead the solutions and ensure our country's future competitiveness, growth and economic potential for decades to come.

Acknowledgements and Disclaimer: The descriptions and accounts contained above, while accurate, are not intended to be all-inclusive. Although the authors believe the information provided to be a correct representation and sources are identified, they acknowledge this chronology does not capture all of the contributions of many individuals and partners who supported the passage of the legislation. The authors assume responsibility for the content and wish to thank the many reviewers who aided in fact-checking, editorial review and feedback on this piece, including Jeffrey A. Zinn, Congressional Research Service (retired). The authors also note that the content reflects their views and is not being presented on behalf of the United States Department of Agriculture in any official or unofficial capacity. Doug McKalip would like to dedicate this article in the memory of the late Dan H. Fenn at the Harvard Kennedy School, who provided the motivation and inspiration that initiated this paper in the winter of 2020.

End Notes:

[1] For authors' backgrounds, see Appendix 1.

[2] The USDA Watershed Programs were authorized by the following four statutes: Public Law 78-534 (Flood Control Act of 1944); Public Law 83-156 (Pilot Watershed Program authorized in the 1954 Department of Agriculture Appropriations Act); Public Law 83-566 (Watershed Protection and Flood Prevention Act); and Public Law 87-703 (Resource Conservation and Development (RC&D) Act authorized in the Food and Agricultural Act of 1962)

[3] Project sponsors were public entities such as local conservation districts, irrigation districts, municipalities, or state agencies. Even though federal funds were used to construct the dams, they are not "federal dams"; they are "federally assisted dams" that are the responsibility of the local project sponsors.

[4] Watershed program "flood benefits" are essentially the damages that would have occurred had the watershed dams not been built.

[5] "Estimating Loss of Life for Dam Failure Scenarios"; U.S. Department of the Interior Bureau of Reclamation; February 2010

[6] As more project sponsors and supporting organizations began talking about their concerns about their aging dams, one could sense a "movement" developing across the country. The individual conversations turned into discussion topics at state, regional, and national meetings of several organizations. The National Watershed Coalition took the lead in coordinating the discussions and efforts with other national organizations. John Peterson, Executive Director of the National Watershed Coalition, worked to raise the awareness of the many issues with aging watershed dams. Peterson's extensive background in the watershed programs throughout his career made him a natural to take on that role. Peterson worked closely with NRCS and sponsors to begin to address emerging issues with aging dams.

[7] It was only fitting to use the Cloud Creek event to highlight the aging watershed dam issue because fifty years prior there was a huge national public celebration to dedicate the first dam constructed with the new watershed program. The Oklahoma governor and senators and other dignitaries made presentations to a crowd of what newspaper accounts described as over 10,000 who came out on a hot 100+ degree July day in southwestern Oklahoma. The newspaper stories described the imposing figure of Hugh Hammond Bennett, the first SCS chief, in his white suit and wide brimmed hat as he drove up and walked to the make-shift stage to give the keynote address at the dedication. The large crowd and the dignitaries that they drew was a testament to the national interest in this new program.

[8] See Appendix 3 for a listing of the co-sponsors of the legislation.

[9] Discussion with some staff members and Members of Congress led to early action in the appropriations process. The appropriation acts for FY2000 and 2001 included $8 million each year for pilot rehabilitation projects in Ohio, Mississippi, New Mexico, and Wisconsin. The funds were redirected from funds appropriated for the NRCS Emergency Watershed Protection Program. Thirty-two dams in 20 watersheds were rehabilitated as pilot projects.

[10] See Appendix 4 for a summary of milestones along the journey to enact the rehabilitation legislation and implementation of the new program.

[11] See Appendix 5 for a summary of the status of dams being rehabilitated in each state as of April 2020

[12] See Appendix 6 for a summary of annual appropriations for the Watershed Rehabilitation Program from 2000 to 2020

Appendix 1 - About the Authors:

Doug McKalip served as the USDA Natural Resources Conservation Service Assistant Legislative Director when the Watershed Rehabilitation Amendments were being deliberated in Congress. He became the NRCS Legislative Director during the implementation of the new program after it was enacted.

McKalip is a 26-year veteran of USDA and has lectured on agriculture policy on five continents. He co-authored this article while at the Harvard Kennedy School of Government on an Executive Fellowship program in the winter of 2020.

Doug grew up in Saegertown in rural Crawford County, Pennsylvania. He earned a bachelor's degree from the University of Pittsburgh and a Master's Degree from The American University. McKalip started his career with USDA NRCS in 1994. He served in many leadership capacities for NRCS until 2008 when he served as confidential assistant to Secretary of Agriculture Tom Vilsack from 2009 to February 2011.

In 2011, McKalip was selected as the Senior Policy Advisor for Rural Affairs at the White House. He laid the framework for the formation of the White House Rural Council, helped coordinate the administration response to the drought of 2012-2013, and provided policy counsel for the 2014 Farm Bill, as well as biotechnology policy.

McKalip returned to USDA in 2015 as a Senior Advisor and Acting Chief of Staff of USDA. He currently serves as Senior Policy Advisor for Biotechnology Regulatory Services in the Animal and Plant Health Inspection Service (APHIS).

McKalip is a graduate of the Federal Executive Institute in Charlottesville, VA (2005) and a Fellow of the California Agriculture Leadership DC Exchange (2018).

He and his wife Debbie are raising two children in Northwest, Washington, D.C.

Larry Caldwell worked on a special assignment in Washington DC working with Congress during deliberations of Watershed Rehabilitation legislation for two years. Starting in 2000, he served as the NRCS National Watershed Rehabilitation Program Leader in Washington DC where he oversaw the development of policies and procedures for implementing the new program.

Caldwell grew up a farm in northwestern Iowa. He graduated from Iowa State University with a B.S. in Agricultural Engineering. He began his NRCS career as a co-op student in 1968. He worked in several engineering positions in Iowa, Missouri, Oklahoma, and Washington DC. He served as the NRCS Assistant State Engineer in Missouri for 5 years and the State Engineer in Oklahoma for 15 years.

Caldwell retired from the NRCS in 2009 after serving more than 41 years. He then worked part-time for the Oklahoma Conservation Commission as a Watershed Specialist and a NRCS Earth Team volunteer on issues concerning aging watershed dams, the national watershed benefits model, and assisting with the web-based NRCS national DamWatch system. He retired a second time in 2019. Caldwell worked with dams and the USDA watershed program throughout his entire 51-year career. His unofficial title became "The Old Dam Man".

Caldwell is a licensed Professional Engineer in Oklahoma. He and his wife Carolyn have two married daughters and four active grandchildren who also live in Oklahoma.

Appendix 2:

Coalition of Partners Engaged During the Watershed Rehabilitation Legislative Process

The following are organizations and individuals who were involved with the partnership effort to raise awareness, educate elected officials, and work to assure that the watershed rehabilitation statute was enacted by Congress. However, while this list is not complete, it shows the extensive coalition of people and organizations who worked together to make this happen. Apologies to those who should have been included in this list but were not.

National Watershed Coalition: John Peterson, Billy Wilson, Dan Sebert, Dan Lowrance, Larry Smith, Ben Rogers, Kay Whitlock, Jack Walker, Dick Terwilliger, Bill Hamm, Richard Jones, Mike Sykes, Phillip Hahn

Association of State Dam Safety Officials: Ed Fiegle, Brad Iarossi, Lori Spragens

American Portland Cement Alliance: David Hubbard, John Sullivan

American Portland Cement Association: Randy Bass

Natural Resources Conservation Service: Pearlie Reed, Doug McKalip, Bruce Julian, Larry Caldwell, Warren Lee, Bill Irwin, Ron Clark, Darrel Dominick

National Association of Conservation Districts: Rudy Rice, Dave Gagne, Reed Smith, Larry Smith, Ernest C. Shea

National Association of State Conservation Agencies: Bradley Spicer, Gale Martin

National Association of Flood and Storm Water Management Agencies: Kay Whitlock

Land Improvement Contractors of America: David Cantrell and Wayne Maresch

Oklahoma Conservation Commission: Mike Thralls, Robert Toole

American Society of Civil Engineers: Brian Pallasch, Michael Charles

American Public Works Association: James Fahey

Associated General Contractors of America: Peter Loughlin

Association of State Floodplain Managers: Lisa Holland, Larry Larson

National Governors Association: Diana Shay

Western Governors Association

Soil and Water Conservation Society: Craig Cox

Representative Frank Lucas’s staff: Mike Bertman, Nicole Scott

House Ag Committee staff: Anne Simmons

Senator Paul Coverdell's staff: Rich Gupton

Senator Blanche Lincoln's staff: Ben Noble

Senate Ag Committee staff: Bob White

Appendix 3

Summary of 63 House Co-sponsors in 26 States
June 12, 2000

H.R. 728 - "The Small Watershed Rehabilitation Amendments of 1999"
Introduced by Frank Lucas (6-OK) 2-11-99

Note: Congressional Districts shown are from 106th Congress

State	Representative	District	Date Signed On
AL	Bob Riley	3	5-25-99
	Robert Aderholt	4	5-25-99
	Earl Hilliard	7	6-9-99
AR	Marion Berry	1	11-17-99
	Asa Hutchinson	3	3-8-00
CA	John Doolittle	4	6-9-99
	Richard Pombo	11	5-25-99
CO	Scott Mcinnis	3	9-21-99
	Bob Schaffer	4	4-20-99
GA	Johnny Isakson	6	6-29-99
	Bob Barr	7	10-1-99
	Saxby Chambliss	8	6-9-99
	Nathan Deal	9	3-18-99
	Charles Norwood	10	7-1-99
	John Linder	11	8-2-99
IA	Leonard Boswell	3	6-29-99
	Tom Latham	5	11-4-99
IL	Lane Evans	17	10-21-99
KS	Jerry Moran	1	4-20-99
KY	Ed Whitfield	1	4-20-99
	Ron Lewis	2	6-9-99
	Ken Lucas	4	6-9-99
	Harold Rogers	5	3-8-00
	Ernest Fletcher	6	3-8-00
LA	Jim McCrery	4	6-9-99
	John Cooksey	5	11-4-99
MD	Wayne Gilchrest	1	6-9-99

State	Representative	District	Date Signed On
MO	Ike Skelton Pat Danner Jo Ann Emerson	4 6 8	10-5-99 7-30-99 7-1-99
MS	Roger Wicker Bennie Thompson Ronnie Shows	1 2 4	3-25-99 3-23-00 3-18-99
NC	David Price Richard Burr	4 5	6-16-99 6-9-99
NE	Doug Bereuter	1	7 - 1-99
NJ	Robert Andrews	1	3-25-99
NV	James Gibbons	2	6-9-99
NY	Amo Houghton	31	3-8-00
OH	Ted Stnckland James Traficant	6 17	3 -23-00 3-25-99
OK	Wes Watkins J. C. Watts Ernest Istook Frank Lucas	3 4 5 6	2-11-99 2-24-99 6-9-99 2-11-99
PA	Tim Holden Donald Sherwood	6 10	3-25-99 5-25-99
SD	John Thune	1	6-9-99
TN	Ed Bryant	7	6-9-99
TX	Max Sandlin Ralph Hall Chet Edwards William (Mac) Thornberry Rub'en Hinojosa Charles Gonzalez Martin Frost	1 4 11 13 15 20 24	11-17-99 6-9-99 3-23-00 6-9-99 6-9-99 4-20-99 11-4-99
VA	Virgil Goode Bob Goodlatte Tom Bliley Rick Boucher	5 6 7 9	2-24-99 9-17-99 10-18-99 7-30-99
WV	Alan Molohan Robert Wise Nick Rahall	1 2 3	5-25-99 3-25-99 6-16-99

Summary of 20 Senate Co-sponsors in 17 States
June 12, 2000

S. 1762 - "The Small Watershed Rehabilitation Act of 1999"
Introduced by Paul Coverdell (GA) 10-21-99

State	Senators	Date Signed On
AR	Blanche Lincoln Tim Hutchinson	10-21-99 4-6-00
CO	Wayne Allard	3-22-00
GA	Paul Coverdell Max Cleland	10-21-99 11-17-99
IA	Tom Harkin	3-30-00
IN	Richard Lugar	2-8-00
LA	John Breaux Mary Landrieu	3-30-00 6-7-00
MO	Christopher Bond	4-7-00
ND	Kent Conrad	2-8-00
NM	Jeff Bingaman	3-30-00
NV	Harry Reid	5-4-00
OH	Michael DeWine	5-23-00
OK	James Inhofe	11-16-99
SC	Ernest Hollings	3-30-00
UT	Orrin Hatch	4-25-00
VA	Charles Robb	2-28-00
WI	Herbert Kohl	4-25-00
WV	Robert Byrd	3-9-00

Appendix 4

Milestones in the Watershed Rehabilitation Movement

1988 – 2005

Compiled by Larry Caldwell

March 7, 1988 – SCS established a national task force to review existing SCS policy and recommend future policy concerning the repair work on completed watershed projects.

May 1990 – SCS Task Force Report on "The Federal Role in Installed and Completed Water Resource Projects of the Soil Conservation Service" was issued. It provided background of programs, brief assessment of O&M repair and rehab needs, recommendations for definitions, and recommended actions. Report was prepared in 1988, but distribution was delayed until 1991.

June 21, 1992 – Presentation by Tom Wehri (SCS Assistant Director of Watershed Projects Division) at American Society of Agricultural Engineers National Conference in Charlotte, North Carolina, entitled "Status and Needs of Dams Installed by SCS Watershed Programs."

May 16-19, 1993 – National Watershed Coalition Conference in Jackson, Mississippi. Several presentations on needs of aging watershed projects.

May 21-24, 1995 – National Watershed Coalition Conference in Charleston, WVA. Included discussions with Chief Paul Johnson and Tom Hebert, Deputy Undersecretary for Natural Resources about need for rehabilitation of existing dams. Included Congressional Relations recommendations. Recommendations included "Develop a process to education members of Congress and OMB on the merits of the PL-566 Watershed Program" and "Pursue the development of legislative funding to provide rehabilitation funds for completed PL-566 project infrastructure."

June 14-15, 1995 – Oklahoma City. Establishment of a "design policy/design criteria review team" to modernize NRCS dam safety policy, incorporate new technology, and consider issues concerning rehabilitation of aging dams. Team members were Bob Shaw, Director of Engineering; Don Woodward, National Hydrologist; Bill Irwin National Structural Engineer; Rick VanKlavern, Head Engineering Staff, WNTC; Bill Erion, Acting Head of Engineering Staff SNTC; John McEvoy State Engineer Georgia; Ray Riley, State Hydrologist Oklahoma; and Larry Caldwell, State Engineer Oklahoma.

January 22-26,1996 - Oklahoma City rehabilitation discussion session: Approximately 20 watershed leaders from NRCS, National Watershed Coalition, and project sponsors met for a three-day discussion on potential issues involved with rehabilitation. Many issues were identified that provided an outline for future discussions.

September 22-25, 1996 - National O&M Conference, Oklahoma City: Over 300 people attended this three-day session with presentations and field tour/demonstrations on O&M of watershed sites. Included field tour of aging dams.

December 1996 - Watershed Program Review, Kansas City: Four teams met to review the current watershed program and make recommendations for future needs to be addressed (backlog, infrastructure, future niche, and technical capacity).

May 1997 - National Watershed Coalition Meeting, Reno, NV: Approximately 300 people from 46 states and 3 countries attended. Several sessions dealing with O&M. Rehabilitation paper by Caldwell presented. Post meeting discussion on rehab technology transfer by Irwin.

May 1997 - 21st Century Strategy draft report entitled “The NRCS Watershed Program Role in Locally-led Conservation: The strategy for the 21st Century” presented by Warren Lee at NWC National Meeting.

December 8, 1997 - STC’s commitment to prepare case studies (pre-EWP meeting, Kansas City): Warren Lee obtained commitments from 10+ STC’s to commit staff time to develop rehab case studies.

October 29, 1997 - Congressional briefing to House Ag Appropriation Committee, congressmen, and staffers on future watershed rehabilitation needs by Warren Lee, Larry Caldwell, and Bruce Julian.

January 12-15, 1998 - Reinvest Work Group was formed. Their first meeting was in Des Moines, IA for the purpose of developing format and strategy to develop individual case studies in 14 states in short timeframe. (Note: this team met nine times thru July 2000 to provide guidance on development of four series of information sheets for specific projects in 22 states.) Team members were: Larry Caldwell- chair (OK), Lyle Assell (IA), Joe DelVecchio (NY), John McEvoy (GA), James Hailey (TX), Sheryl Paczwa (WI), Harold Klagge (NE), Wayne Kilgore (AZ), and the following advisors from NHQ: Warren Lee, Bruce Julian, and Bill Irwin (NHQ)

February 1998 - Reinvest Case Studies developed: Eighteen case studies in 14 states developed during two-week period.

April 1998 - 21st Century Watershed Strategy Report issued by Warren Lee’s memo to RC’s, STC’s.

May 12, 1998 - Larry Clark, NRCS Deputy for Programs, presented testimony to the House Subcommittee on transportation and infrastructure including notebook and discussion of rehabilitation issues.

May 13-14, 1998 - Second meeting Reinvest Work Group, Fairfax, VA: Received update on status of rehab activities plus developed strategy for future rehab actions.

July 2, 1998 – Larry Caldwell led NRCS Chief Pearlie Reed and Congressman Frank Lucas on a helicopter tour of Upper Washita River watershed projects.

July 3, 1998 - Cloud Creek, Site 1, Celebration, Cordell, OK - 50th Anniversary of Nation’s first upstream flood control dam. Congressman Frank Lucas hosted public round table on Reinvesting in Aging Watershed Projects. Chief Reed announced $750,000 for a pilot rehabilitation project in Oklahoma. Governor Frank Keating helped unveil a granite monument commemorating 50 years of watershed program.

July 14, 1998 - American Society of Agricultural Engineers Annual Meeting, Orlando, FL. John McEvoy presented paper prepared on “Rehabilitation of Aging Watershed Projects”

July 17, 1998 - Sergeant Major Creek Watershed was selected as the pilot rehab project in OK. This project was selected following a review of nine proposals submitted by sponsors.

July 20-25, 1998 – Western Pacific Geophysics Conference in Taipei, Taiwan. Approximately 1,000 people from 40 countries participated. Included several presentations on severe sedimentation problems with dams. Larry Caldwell made a presentation on rehabilitation of aging flood-control dams in the U.S. Following the conference, Caldwell and two engineers from Australia and Kenya) were invited on a two-day field tour of large earthen dams in Taiwan.

August 5-6, 1998 - Third meeting “Reinvest” work group, Washington, DC

August 5, 1998 - Congressman Frank Lucas (OK) introduced HR 4409, “Small Watershed Rehabilitation Amendments of 1998” authorizes NRCS to provide funding and technical assistance on rehabilitation of small watershed projects.

November 4-5, 1998 - Fourth meeting of “Reinvest” work group, Atlanta, GA.

November 16, 1998 – Larry Caldwell led Glenda Humiston, USDA Deputy Under Secretary for Natural Resources and Environment and Warren Lee, NRCS Director of Watershed and Wetlands Division on a helicopter tour of PL-566 & 534 watershed projects in central Oklahoma.

December 15, 1998 - Mississippi hosted a Listening Session on Rehabilitation of Aging Watershed Infrastructure in Jackson, MS. 150 people in attendance with representatives from 13 states in SE and SC Regions. 24 speakers offered comments.

January 7, 1999 - NRCS Chief Pearlie Reed, Secretary Dan Glickman, and FEMA Director James Lee Witt met to discuss potential activities NRCS and FEMA could help coordinate to support rehabilitation of aging watershed infrastructure.

January 25, 1999 - Larry Caldwell, SCE Oklahoma, started one-year special assignment to provide leadership on support of aging watershed infrastructure issues.

February 10, 1999 - Danny Sells, NRCS Associate Chief, presented testimony on the Aging Watershed Infrastructure at a hearing of the House Transportation and Infrastructure Committee (Water Resources Environment Subcommittee).

February 11, 1999 - Congressman Frank Lucas (6th District, OK), introduced HR-728, “Small Watershed Amendments of 1999”

February 17, 1999 - Bruce Julian and Larry Caldwell provided briefing to legislative staffs of the House Ag Committee members.

February 19, 1999 - Congressman Frank Lucas held press conference at Oklahoma State Capitol to announce his legislation. One hundred fifty project sponsors and conservation leaders attended.

March 1999 - Rapid Survey of known rehabilitation needs on project dams was completed by 22 states. 10,172 flood control dams are located. The survey indicated over 2,200 dams have rehab needs requiring an estimated $543 million.

March 4, 1999 - Larry Caldwell interviewed by Monte Sesker, National Farm Issues Editor, Farm Progress Companies, who prepared a series of national feature stories on the aging watershed infrastructure. Article was used in 40 farm magazines.

March 9, 1999 - Pearlie Reed, Danny Sells, and Tom Weber provided briefing to legislative staffs of the Senate Ag Committee members.

March 10, 1999 - Larry Caldwell interviewed by Randy Rusmuson, National Association of Farm Broadcasters in Kansas City which serves 2100 radio stations.

March 21-23, 1999 - NACD Spring Board Meeting, Washington, DC. Comments on rehab made by Secretary Dan Glickman, Congressman Lucas, Tom Weber, Bob White, and Ann Simmons.

March 24, 1999 - NWC Steering Committee Meeting, Washington, DC. NWC 15-minute rehab video first released.

March 24, 1999 - NRCS O&E evaluation report on O&M of project dams presented to NRCS leadership.

March 25, 1999 - NWC hosted meeting with NSPE, PCA, LICA, American Society of Consulting Engineer, ASDSO, and National League of Cities. Nicole Scott provided discussion of HR-728. Issues concerning rehabilitation of aging dams discussed.

April 1999 - "Dams in Danger/People at Risk" case studies for 20 states published by Iowa Watersheds Association.

April 7-8, 1999 - OK and TX NRCS state conservationists (Clark and Burt) and staffs met with FEMA Region 6 Director (Buddy Young) and his staff in Denton, TX. Discussion included background of FEMA and NRCS programs and field review of rehab issues.

April 14, 1999 - Caldwell made rehab presentation and discussion at East Region Leadership Meeting in Bedford, NH.

April 15, 1999 - House Ag Subcommittee (General Food Commodities, Resource Conservation and Credit) conducted hearing on HR-728. Danny Sells and Billy Wilson presented testimony,

April 26, 1999 - Briefing on aging watershed infrastructure for Senate Ag Committee LA's (Bob White) by Bruce Julian, Doug McKalip, and Larry Caldwell.

April 27-28, 1999 - Fifth Reinvesting Work Group Meeting in Washington, DC.

May 16-19, 1999 - NWC Watershed Conference, Austin, TX. Caldwell presented paper on aging watershed infrastructure. Other presentations were made for projects in Texas, Louisiana, Kansas, Missouri, and Oklahoma.

May 19-21, 1999 - NRCS Watershed Program Managers meeting, Austin, TX.

May 24-27, 1999 - Association of State Floodplain Managers Annual Conference, Portland, Oregon. Danny Sells, Associate Chief of NRCS, and Larry Caldwell made presentations and met with ASFPM Executive Committee to discuss ASFPM support for NRCS rehabilitation effort.

June 6-9, 1999 - "Keep America Growing" Conference, Philadelphia, PA. 465 Participants. Larry Caldwell presented poster paper on rehabilitation of aging dams.

July 18-19, 1999 – Sixth Reinvesting Work Group Meeting in Washington, DC

July 20, 1999 - House Ag Subcommittee Mark-up of HR-728. Unanimously passed HR-728 without amendments and with recommendation for approval by Full House Committee.

August 8-11, 1999 - SWCS Annual Meeting, Biloxi, MS. – Caldwell presented rehab presentation. Ron Clark presented poster session on Sergeant Major Creek Pilot Rehab Project.

August 25, 1999 - 50th Anniversary Celebration of the Theobald Subwatershed, Little Sioux PL-566 Project, Anthon, IA

September 24, 1999 - House Transportation and Infrastructure Subcommittee (Water Resources and Environment) conducted hearing on HR-728. Danny Sells and Brad Iarossi presented testimony.

October 12, 1999 - Association of State Dam Safety Officials (ASDSO) annual meeting, St. Louis, MO. Caldwell made a presentation entitled “Rehabilitation of Aging Watershed Infrastructure: A Growing National Concern” at a general session.

October 21, 1999 -Senator Paul Coverdell and Senator Blanche Lincoln introduced S-1762.

October 27, 1999 – Full House Ag Committee mark-up of HR-728.

November 8, 1999 – House Transportation & Infrastructure Subcommittee mark-up of HR-728.

November 10, 1999 – Full House Transportation & Infrastructure Committee mark-up of HR-728.

November 11, 1999 – National Association of Farm Broadcasters Association, Kansas City, MO. NRCS and NACD shared a booth. Larry Smith and Larry Caldwell gave approximately 30 interviews with broadcasters from 15 states. Both had TV interviews with Orin Samuelson.

November 15, 1999 – Teleconference with Tom Weber and 22 states on Rehabilitation information activities with sponsors.

November 19, 1999 – Robinsonville, MS – Caldwell made rehab presentation at Mississippi Dam Safety Conference.

November 29, 1999 – Osage Beach, MO – Dan Sebert and Larry Caldwell made rehab presentations at Missouri Watershed Association.

December 1-2, 1999 – Seventh Reinvesting Work Group Meeting in Louisville, KY. Developed procedures to be used for Pilot Rehab projects.

December 3, 1999 - Western Governors' Association passed a resolution in support of rehabilitation of aging watershed dams assisted by NRCS.

January 11, 2000 - Briefing of Senate Ag Committee staffers.

January 13, 2000 - Watershed tour in eastern Virginia for Senate Ag Committee staffers and American Rivers representatives.

January 31, 2000 - Lance Koschwar and Anne Simmons, House Ag Committee staff, talked with Matthew Ebert, Committee on Government Reform, concerning questions on Stenholm Amendment to HR-728. Concerns were resolved.

February 26, 2000 - Pearlie Reed made presentation on rehabilitation of aging watershed dams to National Resources Committee of National Governors' Association.

February 29, 2000 - National Governors' Association unanimously passed resolution in support of rehab legislation.

March 7, 2000 - Caldwell made presentation on status of rehabilitation activities at West Region State Conservation Engineers Conference in Albuquerque, NM. Following the conference there was a field review of the Hackberry Draw pilot rehabilitation project near Carlsbad, NM.

March 13, 2000 - Stateline.org included cover story on "Aging Dams Raise State, Local Concern". Bruce Julian was the primary subject of this nationwide story.

March 18-21, 2000 – NACD Spring Legislative Conference in Washington D.C. Aging Watershed Infrastructure was one of the key conservation priorities discussed with congressional staffs.

March 28-29, 2000 - Eighth Reinvesting Work Group Meeting in Washington, DC.

March 28, 2000 - USDA Radio Newsline had 2 segments on dangers of aging flood control dams.

April 4, 2000 - House Agriculture Committee filed Committee Report 106-484. House Resources Committee discharged action on HR-728.

April 14, 2000 - Sergeant Major Celebration, Cheyenne, Oklahoma. Dedicating the first rehabilitation of a watershed project in the nation. The National MOU between FEMA and NRCS was signed at this ceremony by Mike Armstrong and Pearlie Reed.

May 31, 2000 - First annual National Dam Safety Day. Presentations by FEMA Director, James Lee Witt, ASDSO, and others at the Willard Hotel, Washington, DC.

June 2000 – “A Report to Congress on Aging Watershed Infrastructure; An Analysis and Strategy for Addressing the Nation’s Aging Flood Control Dams” submitted to Congress as directed by the FY 2000 Agricultural Appropriations Bill

June 16, 2000 - Tour of White Oak Watershed, RCC spillway renovation for American Portland Cement Association with Bruce Julian, David Hubbard, John Sullivan, and VA NRCS staff.

June 20, 2000 - Senate Agriculture Committee mark-up. Passed unanimously with no changes to S. 1762 as originally filed.

June 20-24, 2000 - Ft Collins, Colorado - Caldwell made presentation on rehabilitation and Sergeant Major Pilot Rehab Project at National American Society of Civil Engineers conference.

July 17, 2000 - HR-728 passed by Suspension of Rules on House Floor. Senator Coverdell suffered a severe brain hemorrhage in Georgia and died the next day at the age of 61

July 18-20, 2000 - Ninth Reinvesting Work Group Meeting in Columbus, Ohio.

August 29-31, 2000 - Technical work group modified Bureau of Reclamation's "Risk-Based Profile System" to adapt to NRCS size and type of dam for use as the priority ranking system for evaluating proposed rehabilitation projects.

September 7-8, 2000 - Caldwell made presentation on national rehabilitation overview and Sergeant Major pilot rehab project at International Erosion Control Association/Land Improvement Contractors of America Conference in King of Prussia, PA.

September 18, 2000 - Tour of aging watershed infrastructure in NE Kansas and SE Nebraska for Royston, OBPA, and Manuel, NRCS, with Caldwell.

September 19, 2000 – First O&M workshop for 9 states hosted by National Watershed Coalition in Duncan, OK.

September 27-29, 2000 - Association of State Dam Safety Officials (ASDSO) Annual Conference in Providence, RI. Caldwell made presentation on Sergeant Major pilot project. Lucas, Coverdell, and Lincoln were honored at the banquet for their work on rehabilitation legislation.

October 2000 – Framework Team met in Stillwater, Oklahoma, to develop first draft of policies and procedures to implement rehabilitation of aging dams. Team members were: Larry Caldwell (NHQ), Roger Ford (NM), Marty Adkins (IA), Ray Riley (NWMC), Art Brate (OH), Wayne Ellis (MS), Bob Tillman (OK), Bill Irwin (NHQ)

October 5-6, 2000 - Caldwell made presentation on status of rehabilitation at the West Virginia Association of Conservation Districts in Charleston, WV.

October 17, 2000 - House amended its previously passed version of HR-728 by deleting Title 2; added to HR-632 which amended HR-4788 ". Passed under suspension of the rules.

October 24, 2000 - 6:15 p.m. (EDT) Senate passed HR 4788 "United States Grain Standards and Warehouse Improvement Act of 2000" which contained Sec. 313 "Small Watershed Rehabilitation Act of 2000". Passed by unanimous consent.

October 30, 2000 - Caldwell made presentation at Northern Plains Region Leadership meeting on Rehabilitation Information and Education Campaign. Denver, Colorado

October 31, 2000 – Rick VanKlavern, Director of Conservation Engineering Division, and Larry Caldwell met with Bureau of Reclamation staff at the Technical Service Center to discuss possible use of their staff for design of rehabilitation projects. Denver, Colorado.

November 9, 2000 - PL-106-472 signed by President Bill Clinton

November 28-30, 2000 – Nebraska City, NE. Meeting with 35 participants from 14 organizations and 3 congressional staffs. Purposes were to discuss background and scope of aging watershed issues and field review of aging dams. Discussed rehabilitation alternatives and considerations and obtained feedback/reaction from participants.

January 24, 2001 – Beltsville, MD meeting of RC's and 13 STC's to discuss next steps with implementation of rehabilitation.

February 2001 - Summary of requests reviewed from sponsors interested in pursuing rehabilitation. Requests received from 434 sponsors in 35 states for assistance on 1,434 dams. Estimated rehab cost on these dams is over $500 million.

March 8, 2001 – Beltsville, MD. ARS-NRCS meeting to discuss research needs for rehabilitation of aging dams.

April 23-26, 2001 - Rehab Workshop held in Nebraska City, NE. 65 participants were primarily state staffs from 14 states plus NWMC, NDC&SMC, NHQ.

May 20-23, 2001 - Seventh National Watershed Coalition Conference held in Richmond, VA. Pearlie Reed gave the keynote address: “Reinvesting in America’s Watersheds”. Caldwell made presentation on status of rehabilitation program. Two half-day sessions were held on Pilot Rehabilitation Case Studies. Approximately 250 attended.

May 23-24, 2001 – National NRCS Water Resources Program Leader Meeting. Discussed watershed program issues and rehabilitation project status. Meeting included participant input on how to improve watershed program effectiveness.

June 26-28, 2001 - FEMA/USDA Workshop on Dam Failure Analysis, Oklahoma City, OK. 30 participants from 7 federal agencies, 5 state dam safety agencies, 4 countries (UK, Norway, Finland, Canada), 4 consulting firms, and 3 universities. Purpose was to document techniques for dam failure analysis and identify short- and long-term research needs.

July 11, 2001 - House passed FY 2002 Ag Approps Bill, which included $5.4 million for rehabilitation of aging dams

July 30-Aug. 1, 2001 – United States Society of Dams (USSD) conference in Denver, CO. Included discussions with Dave Achterberg, Chief of Dam Safety Division of Bureau of Reclamation on risk-based analysis of dams.

September 9-12, 2001 – ASDSO Conference in Snowbird, UT. Several presentations on Pilot Rehab projects. NRCS recognized Ed Fiegle and Brad Iarossi for efforts to obtain watershed rehabilitation authorization.

October 25, 2001 - Senate passed FY 2002 Ag Appropriations Bill that included $10 million for rehabilitation.

November 13, 2001 - Circular 7, National Watershed Manual issued; Policy for Watershed Rehabilitation Implementation

November 28, 2001 - President Bush signed into law HR 2330 "The Agriculture, Rural Development, Food, Drug Administration and Related Appropriations Act". For the first time, provided $10 million to begin implementation of PL-106-472.

December 3, 2001 - 2000 training CD's entitled "Rehabilitation of Aging Watershed Dams" were distributed to all State Conservationists and partners. Included 8 modules on rehabilitation authorities, policies and procedures, and planning and implementation of rehabilitation projects.

February 4, 2002 - President Bush released the Administration FY 2003 Budget proposal which included no funds for watershed operations, planning, or rehabilitation.

February 26, 2002 - Mark Rey, Under Secretary for Natural Resources, and Pearlie Reed presented testimony on FY 2003 NRCS budget at hearing of Approps Subcommittee. Many questions relating to proposed termination of watershed operations and maintenance budgets. Considerable interest and support provided.

March 11, 2002 – Watershed sponsors meeting – Richmond, VA

March 22, 2002 – Al watershed rehabilitation activities suspended in response to President Bush’s proposed FY2002 Emergency Supplement Appropriation request to congress.

April 3, 2002 – March 22 memo rescinded; all watershed rehabilitation operations can continue.

April 15-19, 2002 – NRCS Design Engineers Workshop in Vicksburg, MS. Larry Caldwell and Bill Irwin made presentations on Rehab Program and Risk Index.

May 7-9, 2002 – NRCS Watershed Rehabilitation workshop – Kansas City, MO. Purpose was to provide guidance on watershed rehabilitation planning and implementation procedures.

May 13, 2002 – President signed 2002 Farm Bill that authorized $600 million for watershed rehabilitation over the five-year period ($275 million CCC; $325 discretionary)

June 4-6, 2002 – NRCS Watershed Rehabilitation workshop – Fort Worth, TX. Purpose was to provide guidance on watershed rehabilitation planning and implementation procedures.

July 2002 - HR 5263 FY2003, House Appropriation Comm. recommends $45 million for rehab

July 2002 – S520 FY2003 – Senate appropriation Comm. recommends $30 million for rehab.

July 22, 2002 – NACD & NASCA Farm Bill Forum – Amarillo, TX. Dan Sebert and Larry Caldwell made presentations on watershed rehabilitation.

July 31, 2002 – NWC Capacity Building Workshop for Watershed Sponsors – South Carolina

August 7, 2002 – NWC Capacity Building Worship for Watershed Sponsors – McKinney, TX.

August 20-22, 2002 – NRCS Watershed Rehabilitation workshop – St. Louis, MO. Purpose was to provide guidance on watershed rehabilitation planning and implementation procedures.

August 27-29, 2002 – NWC O&M Workshop Nebraska City, NE. 65 participants from 19 states.

September 8-11, 2002 – ASDSO Annual Conference in Tampa, FL. Caldwell made a presentation to meeting of State Dam Safety Officials on the status of dam rehabilitation projects.

Sept. 12, 2002 – OMB proposal to eliminate all FY2003 funding for watershed rehabilitation to offset proposed costs for FSA implementation of Farm Bill. The President transmitted the OMB proposal to Congress for following day.

Dec. 2-4, 2002 – Nebraska All-Employees Meeting, Kearney, NE. Caldwell made a presentation on the watershed rehabilitation program.

Feb 20, 2002 – President signed FY2003 Appropriation bill; include $30 million (minus 0.65% rescission) for watershed rehabilitation

January 28, 2003 – NWC Capacity Building Worship for Watershed Project Sponsors in Alabama and Georgia. Oxford, AL.

April 16, 2003 – Briefing with Chief Bruce Knight on watershed rehabilitation status.

May 5, 2003 – Caldwell made presentation to AFSMA Board meeting in Washington, DC

May 9, 2003 - Kathy Gugelis letter to STC's requesting data for O&E study on projected rehab workload and anticipated staffing needs, gaps in staff needs, and strategies to address gaps.

May 13, 2003 – Chief's letter to all STC's requesting them to submit a five-point action strategy on how they will implement rehab in their state. Due at regional offices by July 1, 2003.

June 7, 2003 - NWC Capacity Building Worship in Council Bluffs, IA for IA Watershed Sponsors

June 8-11, 2003 - 8th National Watershed Coalition Conference in Council Bluffs, Iowa. Chief Bruce Knight gave very positive speech in support of Watershed Rehabilitation.

June 11-12, 2003 – NRCS Program Leaders Workshop in Council Bluffs, IA.

June 25, 2003 - NWC Capacity Building workshop in Albuquerque, NM for watershed sponsors in New Mexico.

July 8, 2003 - Rick VanKlaveren and Kathy Gugelis presented O&E report on rehabilitation implementation to Chief Bruce Knight.

July 9, 2000 – House Appropriations Comm. passed FY 2004 budget including $40 mil. for rehab.

July 17, 2003 – Senate Approps Comm. passed FY 2004 budget including $29.8 mil. for rehab.

August 20, 2003 – CNN segment on national dam repair needs as a part of a series on America's infrastructure.

September 7, 2003 – ASDSO annual conference, Minneapolis, MN. Caldwell provided update on watershed rehabilitation program at ASDSO business meeting.

October 9, 2003 – State Conservation Engineers Meeting, Tunica, MS. Caldwell gave rehabilitation program update.

November 18, 2003 – National Association of Flood and Storm Water Management Agencies (NAFSMA), Chicago, IL. Caldwell gave watershed rehabilitation presentation. NAFSMA board added support for watershed rehabilitation and watershed program to their position statement.

November 25, 2003 – Conference committee passed FY 2004 Budget including $29,800,000

January 22, 2004 – State Association of Kansas Watersheds (SAKW) Annual Meeting, Topeka, KS. Governor signed Proclamation on Watershed Program's 50th anniversary. Caldwell gave watershed rehabilitation presentation.

January 23, 2004 – President Bush signed the FY 2004 Omnibus budget appropriations bill which included $29,805,000 (minus .59% rescission). It included $10 million for watershed rehabilitation and $87 million for watershed operations.

February 4, 2004 – President Bush announced the Administration's proposal for FY 2005 budget. It included $10 million for watershed rehabilitation and $40 million for watershed operations.

February 9-12, 2004 – Utah Watershed Review in Salt Lake City, UT. Reviewed Utah Watershed Program and made field review of watersheds in the St. George area.

February 26, 2004 – House T & I subcommittee hearing on FY 2005 water resources budget; Tom Weber presented testimony.

February 26, 2004 – House Ag Approps subcommittee hearing on FY 2005 NRCS budget – Under Secretary Mark Rey and Chief Bruce Knight presented testimony.

March 23-25, 2004 – ASDSO workgroup met in Cincinnati, OH to develop guidance on preparation of Emergency Action Plan. Caldwell and Irwin led the effort.

April 8, 2004 – Senate Appropriations committee held hearing on 2002 Farm Bill implementation.

May 30, 2004 – NRCS reorganization implemented. Watersheds and Wetlands Division abolished!

June 15, 2004 – House Ag subcommittee held oversight hearing of implementation of 2002 Farm Bill. Chief Knight presented testimony and responded to questions (several involving watershed rehabilitation). Three panels of witnesses presented testimony.

June 18, 2004 – STC Requests for FY 2005 Funding for Watershed Programs due; first time POINTS (web-based database) used in NRCS.

June 23, 2004 – House Appropriations Committee marked up FY 2005 Agriculture budget; includes $30,091,000 for watershed rehabilitation, $86,487,000 for watershed operations, and $11,083,000 for watershed planning.

June 30, 2004 – NACD Executive Board met in Oklahoma City, OK. Tour of watersheds and discussion of watershed O & M and rehabilitation.

July 13, 004 – Full House passed the FY 2005 Ag Appropriations Bill including $30,091,000 for watershed rehabilitation.

August 20, 2004 – Last official day for Larry Caldwell as the National Watershed Rehabilitation Leader; began new position on Oklahoma NRCS state staff (continued in transition capacity until position was filled in November). Caldwell declined directed reassignment to move to DC.

September 14, 2004 – Senate passed the FY 2005 Ag Appropriations Bill including $25,000,000 for watershed rehabilitation.

September 22, 2004 – NAFSMA Conference, Monterey, CA. Don Paulus (AZ) made presentation on status of watershed rehabilitation program and the partnership efforts with Maricopa County, AZ on the White Tanks 3 rehabilitation project.

September 26-30, 2004 – ASDSO Conference in Phoenix, AZ. Caldwell provided rehab update at the Business meeting, Chief Bruce Knight gave keynote address at the general session (700+ attendance), and press conference for the White Tanks 3 rehabilitation project. Caldwell was given a special recognition award for his work on dam rehabilitation and strong partnership with ASDSO and state dam safety officials.

November 17-19, 2004 – National Association of Farm Broadcasters in Kansas City, MO. Caldwell provided interviews to farm broadcasters from several states at the National Watershed Coalition booth.

December 6, 2004 – President George Bush signed the FY 2004 Appropriations Bill that included $27.5 million for Watershed Rehabilitation (minus 0.80% rescission).

December 12, 2004 – Russell Morgan reported to duty as the new National Watershed Rehabilitation Leader in NHQ.

January 10-15, 2005 – Larry Caldwell worked with NHQ staff for final transition of Watershed Rehabilitation Program Leader Duties.

May 22-25, 2005 – NWC Conference in Ft. Mitchell, KY. Several presentations on rehabilitation projects in Wisconsin, Ohio, Oklahoma, and Texas were made. NRCS Watershed Program Leader workshop followed.

September 1-2, 2005 – Dan Sebert and Larry Caldwell presented basic training on watershed operations and rehabilitation for watershed sponsors in Salt Lake City, UT

October 18, 2005 – House passed the conference committee report for USDA FY 2006 Appropriations Bill; included $31.561 million for rehab (Senate had $27.313 mil; House $47 mil), Wshed Ops $75 mil (Senate and House had $60 mil.; Planning $6.083 mil. (Senate $5.141 mil.; House $7.026 mil).

November 10, 2005 – President Bush signed the ag appropriations bill including the conference committee report (see above).

Appendix 5

By April 15, 2020, 366 rehabilitation projects in 36 states had been funded; 113 dams were in planning in 30 states; 92 dams in 18 states had plans authorized and were in design or construction; and 161 dams in 23 states had been rehabilitated. Assessment reports had been prepared for 1,565 dams in 42 states.

Status of Funded Rehab Projects 4-15-20					
State	No. of Dams Funded	In Planning	In Implementation	Rehab Completed	Assessments Completed
AL	1			1	26
AR	7	1	5	1	43
AZ	12	5	4	3	5
CA	1	1			13
CO	4	3		1	9
CT	4	4			28
GA	28	13	8	7	134
IA	4			4	1
ID					1
IL	1	1			2
IN					27
KS	8	1	4	3	106
KY	4		3	1	18
LA	3	3			9
MA	9	4	4	1	32
MD	1	1			5
ME					3
MN					20
MO	2			2	7
MS	27	6	4	17	92
NC	2	2			29
ND	8	7		1	14
NE	16	2	5	9	69
NH	5	5			20
NJ	1	1			12
NM	9	2	4	3	15
NV	1	1			4
NY	5	4	1		15
OH	10	2		8	13
OK	58	5	15	38	215
OR	3	3			6
PA	13	4	8	1	56
PR					2
SC					15
TN	7	3	2	2	46
TX	46	11	11	24	247
UT	24	7	7	10	28
VA	17	1	4	12	11
VT	4	4			4
WA					1
WI	11			11	
WV	9	6	2	1	160
WY	1		1		2
Totals	366	113	92	161	1,565
No. States	36	30	18	23	42

Appendix 6

Watershed Rehabilitation Appropriations
2000 to 2020

Fiscal Year	Actual Appropriations			Equivalent 2020 Dollars
	ARRA or CCC *	Discretionary	Total Appropriation	
2000		$8,000,000	$8,000,000	$12,107,224
2001		$8,000,000	$8,000,000	$11,774,236
2002		$10,000,000	$10,000,000	$14,487,881
2003		$29,848,000	$29,848,000	$42,284,342
2004		$30,273,800	$30,273,800	$41,765,984
2005		$27,280,000	$27,280,000	$36,402,387
2006		$31,561,000	$31,561,000	$40,798,855
2007		$31,245,000	$31,245,000	$39,272,195
2008		$19,860,000	$19,860,000	$24,039,028
2009	$50,000,000	$40,000,000	$90,000,000	$109,327,156
2010		$40,000,000	$40,000,000	$47,560,761
2011		$17,964,000	$17,964,000	$20,744,984
2012		$15,000,000	$15,000,000	$17,025,710
2013		$13,547,338	$13,547,338	$15,167,329
2014	$250,000,000	$12,000,000	$262,000,000	$288,419,573
2015	$73,000,000	$12,000,000	$85,000,000	$93,460,300
2016		$12,000,000	$12,000,000	$13,029,966
2017		$12,000,000	$12,000,000	$13,357,606
2018		$10,000,000	$10,000,000	$10,378,365
2019	$23,712,520	$10,000,000	$33,712,520	$34,300,185
2020	$20,012,792	$10,000,000	$30,012,792	$30,012,792
Total	**$416,725,312**	**$400,579,138**	**$817,304,450**	**$955,716,859**

Notes:
1. FY1998: $750,000 from Watershed Operations funds for Oklahoma Pilot Rehab Project
2. FY 2000 & 2001: $8 million from EWP funds for Pilot Rehab Projects in OH, MS, NM, & WI
3. FY 2009: Includes $50 million from the American Reinvestment and Recovery Act (ARRA)
4. FY 2014, 2015, 2019 & 2020: Includes funds from Commodity Credit Corporation (CCC). In FY 2019 and 2020, Congress appropriated $50 million each year that could be used for Watershed Operations and Watershed Rehabilitation with allocations to be distributed at USDA's discretion.