# History of the Watershed Program

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The first soil conservation district was organized in the Brown Creek watershed of North Carolina.

# Agenda

1. Flooding and Soil Erosion Concerns and Establishment of SCS and Soil Conservation Districts
2. Flood Control Act of 1936 and Subsequent Flood Control Acts
3. USDA Watershed Program Authorities
4. Summary of USDA Watershed Programs
5. Other Laws Impacting Dams
6. Dam Rehabilitation

# Credits, Info, Disclaimers…

- Much of this information in this presentation is included in Larry Caldwell's USDA Watershed Programs Facts and Figures, A Reservoir of Watershed Program Information, May 2020.

United States Department of Agriculture

Natural Resources Conservation Service

Conservation Engineering Division

Historical Notes
Number 9
May 2020

# USDA Watershed Programs Facts and Figures

## A Reservoir of Watershed Program Information

Larry W. Caldwell

NRCS Historical

Note No. 9

May 2020

"USDA Watershed Program Facts and Figures"

- https://www.nrcs.usda.gov/resources/data-and-reports/usda-watershed-programs-facts-figures

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- Funding for USDA Watershed Programs has been included in Flood Control Acts, Ag Appropriations, separate acts/ laws, and Farm Bills over the years. Funded 1947-Present.

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- Funding for USDA Watershed Programs have been included in Flood Control Acts, Ag Appropriations, separate acts/ laws, and Farm Bills over the years.
- Many references are made to Public Laws (PL). The first number represents the Congress designation. Each Congress lasts for two years and begins on January 3 of odd-numbered years. The second number refers to the law for that Congress. PL78-534 represents the 78th Congress, Law Number 534.

# Flooding is a National Concern during the early 1900s, Devastating Many People's Lives and Properties

# National Resource Concerns-Flooding

- Many floods during the early 1900s led to several Flood Control Acts…to address flooding across the United States. The early Flood Control Acts provide authority to US Army Corps of Engineers (USACE) for larger projects.

- Flood Control Act of 1917 was the first significant federal legislation aimed specifically at flood control, primarily addressing issues along the Mississippi, Ohio, and Sacramento Rivers. It authorized flood-control work outside the Mississippi Valley and required local communities to contribute to the costs of levee construction.

- Flood Control Act of 1928 resulted from the devastating Great Mississippi Flood of 1927. This act expanded the federal government's role in flood control. It authorized the USACE to design and construct flood-control projects and emphasized the need for local communities to maintain these structures. A key provision was that the federal government could not be held liable for flood damage.

# National Resource Concerns-Soil Erosion

- 1920s – 1930s
- Hugh Hammond Bennett became aware of the threat posed by the erosion of soils early in his career as a surveyor for the USDA Bureau of Soils.
- He observed how soil erosion by water and wind reduced the ability of the land to sustain agricultural productivity and to support rural communities who depended on it for their livelihoods.
- He launched a public crusade of writing and speaking about the soil erosion crisis. His highly influential 1928 publication "Soil Erosion: A National Menace" influenced Congress to create the first federal soil erosion experiment stations in 1929.

# Soil Erosion Service Est 1933

- 1920s – 1930s
- With the election of Franklin D. Roosevelt as President in 1932, conservation of soil and water resources became a national priority in the New Deal administration.
- The National Industrial Recovery Act (PL 73-67) passed in June 1933 included temporary funds to fight soil erosion. With this money, the Public Works Administration established the Soil Erosion Service (SES) in the Department of Interior in September 1933 with Hugh Hammond Bennett as Chief.
- SES established demonstration projects in critically eroded areas across the country to show landowners the benefits of conservation.

# 1930's Dust Bowl

# Soil Conservation Service Est 1935

Perhaps no event did more to emphasize the severity of the erosion crisis in the popular imagination than the Dust Bowl. Beginning in 1932, persistent drought conditions on the Great Plains caused widespread crop failures and exposed the region's soil to blowing wind. A large dust storm on May 11, 1934, swept fine soil particles over Washington, D.C. and far out into the Atlantic Ocean. More intense and frequent storms swept the Plains in 1935. On March 6 and again on March 21, dust clouds passed over Washington and darkened the sky just as Congress commenced hearings on a proposed soil conservation law.

Bennett seized the opportunity to explain the cause of the storms and to offer a solution. He penned editorials and testified to Congress urging for the creation of a permanent soil conservation agency. The result was the Soil Conservation Act (PL 74-46), which President Roosevelt signed on April 27, 1935, creating the Soil Conservation Service (SCS) in the USDA.

# Downstream vs Upstream Ideology

During the mid-1930s and for the next couple decades there were several debates as to how the country should address the flooding and soil erosion issues.

Funding and authority up to this point had been primarily been assigned to the USACE for projects on larger rivers.

However, the USDA under the leadership of Hugh Hammond Bennett had a more comprehensive approach to address flooding and soil erosion. The USDA vision was to address the issues at the sources and to compliment upland treatment with USACE projects, as needed, instead of relying on larger structures far downstream along larger rivers.

# SCS view on flood control and soil erosion

- “I am convinced that from now on we should tackle the problem at its source—in upland fields and pastures and on other sloping parts of watersheds, where flood waters begin to accumulate and where silt loads are picked up.”

- Hugh Hammond Bennett

# Continued flooding concerns across the country lead to …..

# National Resource Concerns-Flooding

- Flood Control Act of 1936 recognized flood control as a national priority and authorized the construction of various flood-control structures, including levees and floodwalls. It committed the federal government to protecting people and property from flood risks and established a framework for shared responsibility between federal, state, and local governments.

- Many subsequent Flood Control Acts after 1936 would identify projects and authorize funding for USACE, USDA, and other FEDERAL agencies.

# Flood Control Act of 1936

- PL 74-738 June 22, 1936

- The FCA of 1936 is significant for several reasons:

- Flood Control Acts were typically USACE authorizations identifying projects and funding. It was the first time that the impacts of agriculture in flood control was officially recognized by the Federal Government.
- Destructive flooding recognized as a national menace to public welfare.
- Federal Government should cooperate with States, their political sub-divisions, and localities.
- Provides authority to USDA to perform investigations of watersheds for runoff and waterflow retardation and soil erosion prevention. These resource concerns are consistently referenced in many early USDA authorities. This authority and subsequent USDA work would lead to many watershed reports that would eventually lead to Congress approving 11 watersheds in 12 states in the Flood Control Act of 1944 aka PL 78-534.

# Soil Conservation Districts Est in 1937

As early as 1935, USDA managers began to search for ways to extend conservation assistance to more farmers. They believed the solution was to establish democratically organized soil conservation districts to lead the conservation planning effort at the local level.

To create a framework for cooperation, USDA drafted the Standard State Soil Conservation Districts Law, which President Roosevelt sent to the governors of all the states in 1937.

The first soil conservation district was organized in the Brown Creek watershed of North Carolina on August 4, 1937. Today, there are over 3,000 conservation districts across the country.


The first soil conservation district was organized in the Brown Creek watershed of North Carolina.

# Flood Control Acts, 1938-1941

- 1938 Flood Control Act-PL 75-761 June 28, 1938, builds upon FCA of 1936 by adding USDA funding and authorizations.
- 1939 Flood Control Act-PL 76-396 August 11, 1939, continues USDA authorization to conduct preliminary examinations and surveys for run-off and water flow retardation and soil erosion prevention in watershed.
- 1941 Flood Control Act-PL 77-228 August 18, 1941, amends previous FCA re USDA authorities and continues works of improvements in FCA of 1938.

# Flood Control Act of 1944

also known as the Pick-Sloan Flood Control Act

- PL 78-534, December 22, 1944

- This Act is largely a USACE authorization; however, USDA is included in the FCA.

- Federal investigations of watersheds and measures for run-off and water-flow retardation and soil-erosion prevention on watersheds shall be under the jurisdiction of and shall be prosecuted by USDA under the direction of the Secretary of Agriculture….

# Flood Control Act of 1944

Section 13-identifies works of improvement for run-off and waterflow retardation, and soil-erosion prevention are hereby adopted and authorized in the interest of the national security and with a view toward an adequate reservoir of useful and worthy public works for the post-war construction program to be prosecuted by the USDA under the direction of the Secretary of Agriculture in accordance with the plans of the respective reports hereinafter designated and subject to the conditions set forth therein: Provided, That the necessary plans and preliminary work may be prosecuted during the war with funds from appropriations heretofore or hereafter made for such works as to be ready for rapid inauguration of post-war construction: Provided further, ….

# USDA Watersheds identified in PL78-534 include:

1. **Los Angeles River Basin (CA)** in accordance with the recommendation of the Under Secretary of Agriculture in House Document Numbered 426, 77th Congress, first session, at an estimated cost to the US of $8,380,000.
2. **Santa Ynez River Watershed (CA) i**n accordance with the recommendation of the Acting Secretary of Agriculture in House Document Numbered 518, 78th Congress, first session, at an estimated cost to the US of $434,000.
3. **Trinity River Basin (TX)** in accordance with the recommendation of the Secretary of Agriculture in House Document Numbered 708, 77th Congress, second session, at an estimated cost to the US of $32,000,000.
4. **Little Tallahatchie River Watershed (MS)** in accordance with the recommendation of the Acting Secretary of Agriculture in House Document Numbered 892, 77th Congress, second session, at an estimated cost to the US of $4,221,000.
5. **Yazoo River Watershed (MS)** in accordance with the recommendation of the Acting Secretary of Agriculture in House Document Numbered 564, 78th Congress, second session, at an estimated cost to the US of $21,700,000.

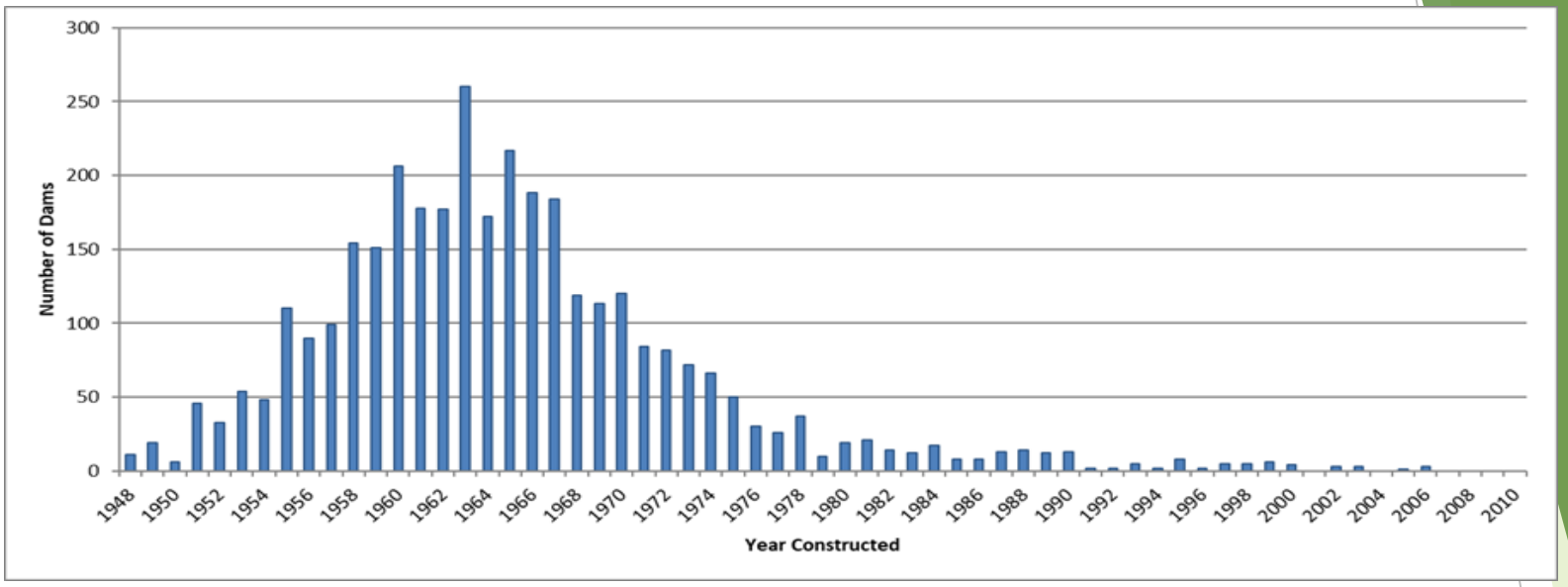
# USDA Watersheds identified in PL78-534 include:

6. **Coosa River Watershed (Above Rome, GA)** in accordance with the recommendation of the Acting Secretary of Agriculture in House Document Numbered 236, 78th Congress, first session, at an estimated cost to the US of $1,233,000.
7. **Little Sioux River Watershed (IA)** in accordance with the recommendation of the Assistant Secretary of Agriculture in House Document Numbered 268, 77th Congress, first session, at an estimated cost to the US of $8,380,000.
8. **Potomac River Watershed (PA, VA, MD, WV)** in accordance with the recommendation of the Assistant Secretary of Agriculture in House Document Numbered 269, 78th Congress, first session, at an estimated cost to the US of $859,000.

# USDA Watersheds identified in PL78-534 include:

9. **Buffalo, Cayuga, and Cazenovia Creeks (NY)** in accordance with the recommendation of the Acting Secretary of Agriculture in House Document Numbered 574, 78th Congress, second session, at an estimated cost to the US of $739,000.
10. **Colorado River Watershed (TX)** in accordance with the recommendation of the Assistant Secretary of Agriculture in House Document Numbered 270, 78th Congress, first session, at an estimated cost to the US of $2,693,000.
11. **Washita River Watershed (OK)** in accordance with the recommendation of the Under Secretary of Agriculture in House Document Numbered 274, 78th Congress, first session, at an estimated cost to the US of $11,243,000.

# Flood Control Act of 1944 (PL 78-534) Included 11 Authorized Watershed Projects



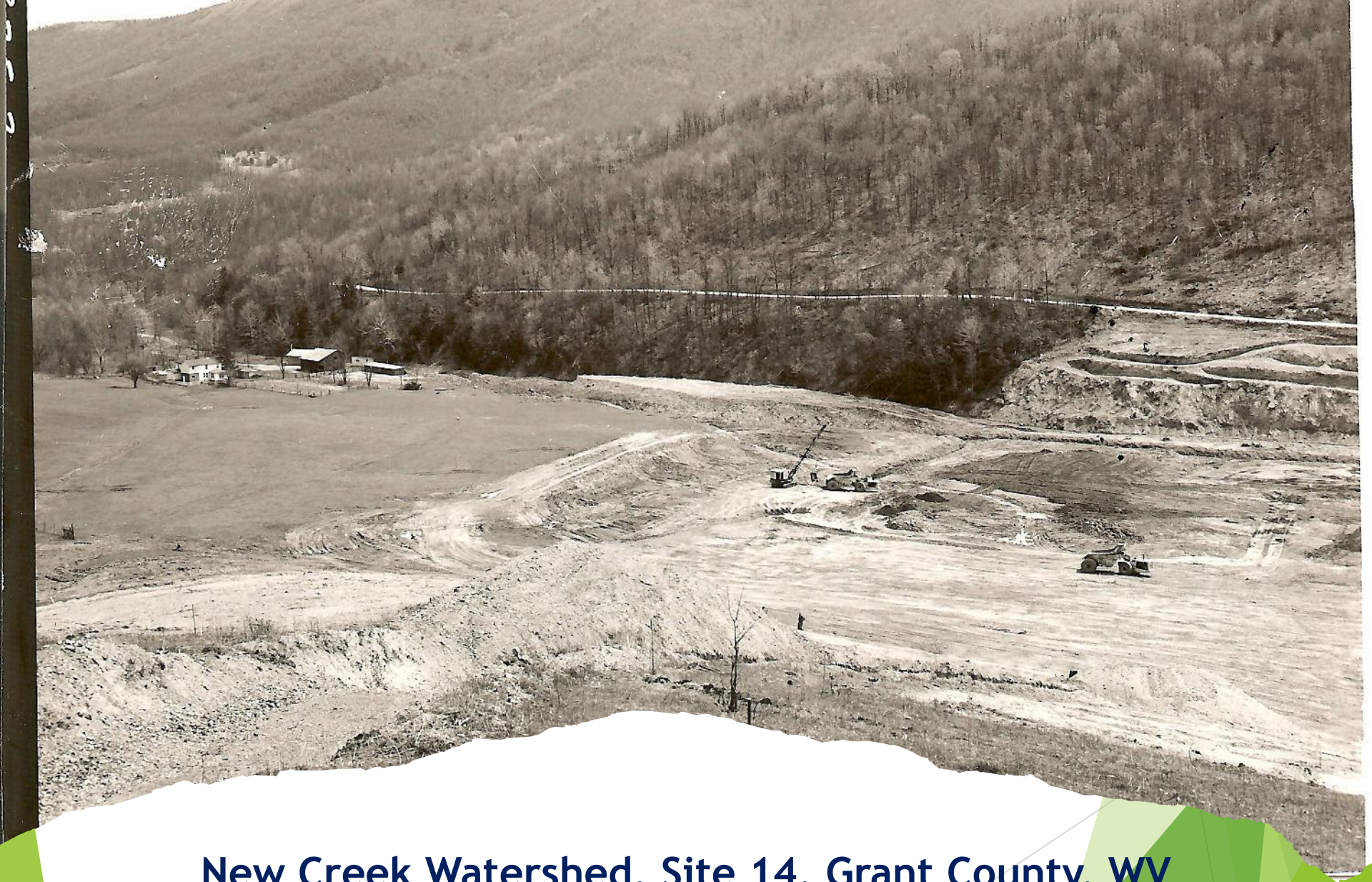

| STATE | No. of PL-534 Sub-watershed Projects | No. of PL-534 Dams |
|---|---|---|
| Georgia | 15 | 117 |
| Iowa | 90 | 487 |
| Mississippi | 43 | 367 |
| Oklahoma | 55 | 1,107 |
| Texas | 45 | 1,242 |
| Virginia | 6 | 29 |
| West Virginia | 7 | 81 |
| **7 States** | **261** | **3,430** |

# PL-534 Dams 1948-2006

1st – Cloud Creek 1 (OK)

# Cloud Creek Watershed, Site 1, Washita County, OK

Nation's First Watershed Dam
July 8, 1948



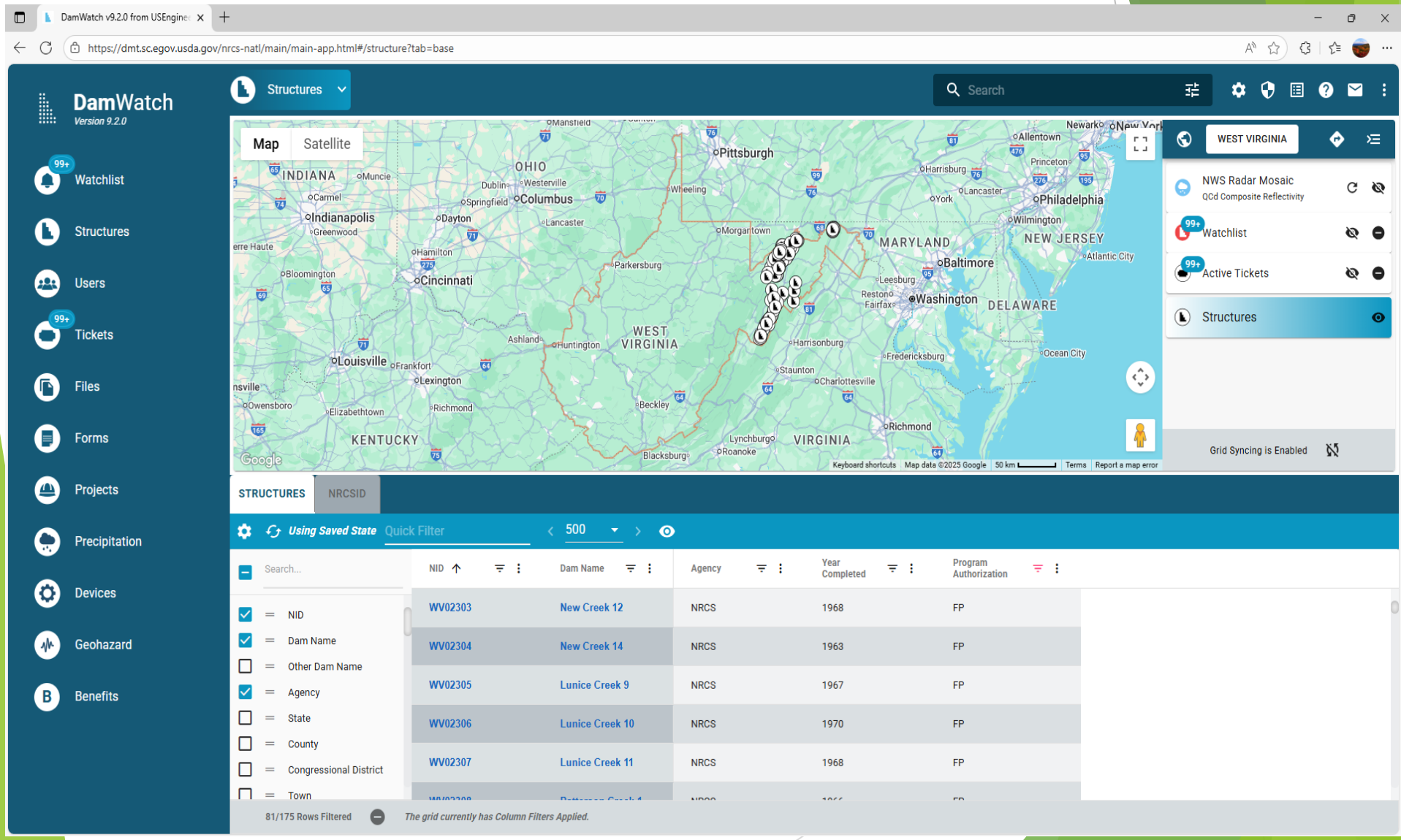
# New Creek Watershed, Site 14, Grant County, WV

- During Construction in 1962

# Lost River Watershed, Site 10, Hardy County, WV

- During Construction in mid-2000s

# PL 78-534 Projects in West Virginia



# Flood Control Acts of 1946 and 1950

- Flood Control Act of 1946,PL 79-526, July 24, 1946, provides funding to USDA for carrying out any examination or survey, adds authority to Buffalo Creek project in NY per Section 13 of FCA of 1944 aka PL78-534, and adds funding per Section 10 of FCA of 1941 for USDA for works of improvement authorized by USDA per FCA 1944.

- 1950 Flood Control Act-PL 81-516 May 17, 1950, references FCA Acts of 1936 and 1944, provides USDA authority to undertake such emergency measures for run-off retardation and soil-erosion prevention as may be needed to safeguard lives and property from floods and the products of erosion on any watershed, continues works of improvements per FCA 1944, and adds $19,000,000 to be appropriated for expenditure by the USDA for the prosecution of the works of improvement authorized by FCA 1944.

# Flood damages continued across the nation

Many states wanted federal assistance with their watersheds

# 1954 Ag Appropriations Act- Pilot Watershed Program

- PL 83-156 July 28, 1953

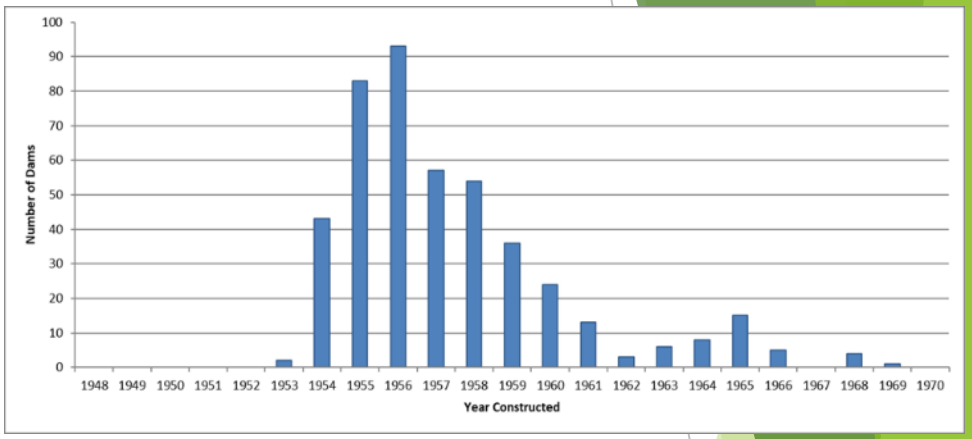
- Flood Prevention-continues authority in FCA of 1936 as amended and supplemented, to make preliminary examinations and surveys, and to perform works of improvement, and to plan the agricultural phases of the development of the several areas, adds gully control, floodwater detention, and floodway structures in areas other than those over which the Department of the Army has jurisdiction and responsibility.

- Watershed Protection-for expenses necessary to conduct surveys, investigations, and research and to carry out preventive measures, including, but not limited to, engineering operations, methods of cultivation, the growing of vegetation and changes in use of land, in accordance with the provisions of PL 74-46; authorizes $5M.

# 1954 Ag Appropriations Act- Pilot Watershed Program

- Summary of Pilot Watershed Program Measures
- 65 projects in 33 states were authorized between August 9 and December 8, 1953
- Originally planned to cost $28 million and be completed in 5 years
- Total costs were $44 million
- No funding was provided after 1974
- Included 450 dams as well as 475 grade stabilization structures, 287 miles of channels, 152 silt and debris basins, and 132 miles of floodways

| STATE | No. of Pilot Watershed Projects | No. of Pilot Watershed Dams |
|---|---|---|
| Arizona | 1 | 2 |
| Arkansas | 1 | 24 |
| California | 1 | 1 |
| Colorado | 1 | 55 |
| Georgia | 1 | 12 |
| Illinois | 2 | 11 |
| Iowa | 2 | 30 |
| Kansas | 4 | 14 |
| Kentucky | 3 | 17 |
| Minnesota | 2 | 8 |
| Missouri | 2 | 30 |
| Nebraska | 5 | 106 |
| New Mexico | 2 | 2 |
| New York | 1 | 2 |
| North Carolina | 1 | 11 |
| North Dakota | 1 | 10 |
| Ohio | 1 | 16 |
| Oklahoma | 1 | 6 |
| South Carolina | 1 | 7 |
| South Dakota | 1 | 2 |
| Tennessee | 2 | 9 |
| Texas | 4 | 60 |
| Utah | 2 | 3 |
| Virginia | 1 | 3 |
| West Virginia | 1 | 7 |
| Wisconsin | 2 | 2 |
| **26 States** | **46** | **450 dams** |




# Pilot Watershed Program Dams 1953-1969

1st – Mule Creek 1 (IA)

# Watershed Protection and Flood Prevention Act aka PL 83-566

- PL 83-566 August 4, 1954; Hope-Aiken Act named after Rep Clifford Hope (KS), chair of the House Ag Comm and Senator George Aiken (VT), chair of the Senate Ag Comm.

- To authorize the Secretary of Agriculture to cooperate with States and local agencies in the planning and carrying out of works of improvement for soil conservation, and for other purposes.

- The law authorized a permanent nationwide program that included both structural and land treatment measures and is the framework for today's watershed program.

# Watershed Protection and Flood Prevention Act aka PL 83-566

- Reiterates the language in FCA of 1936 and 1944

- That erosion, flood-water, and sediment damages in the watershed of the rivers and streams of the United States, causing loss of life and damage to property, constitute a menace to the national welfare; and that it is the sense of Congress that the Federal Government should cooperate with States and their political subdivisions, soil or water conservation districts, flood prevention or control districts, and other local public agencies for the purpose of preventing such damages and of furthering the conservation, development, utilization, and disposal of water and thereby of preserving and protecting the Nation's land and water resources.

# Watershed Protection and Flood Prevention Act aka PL83-566

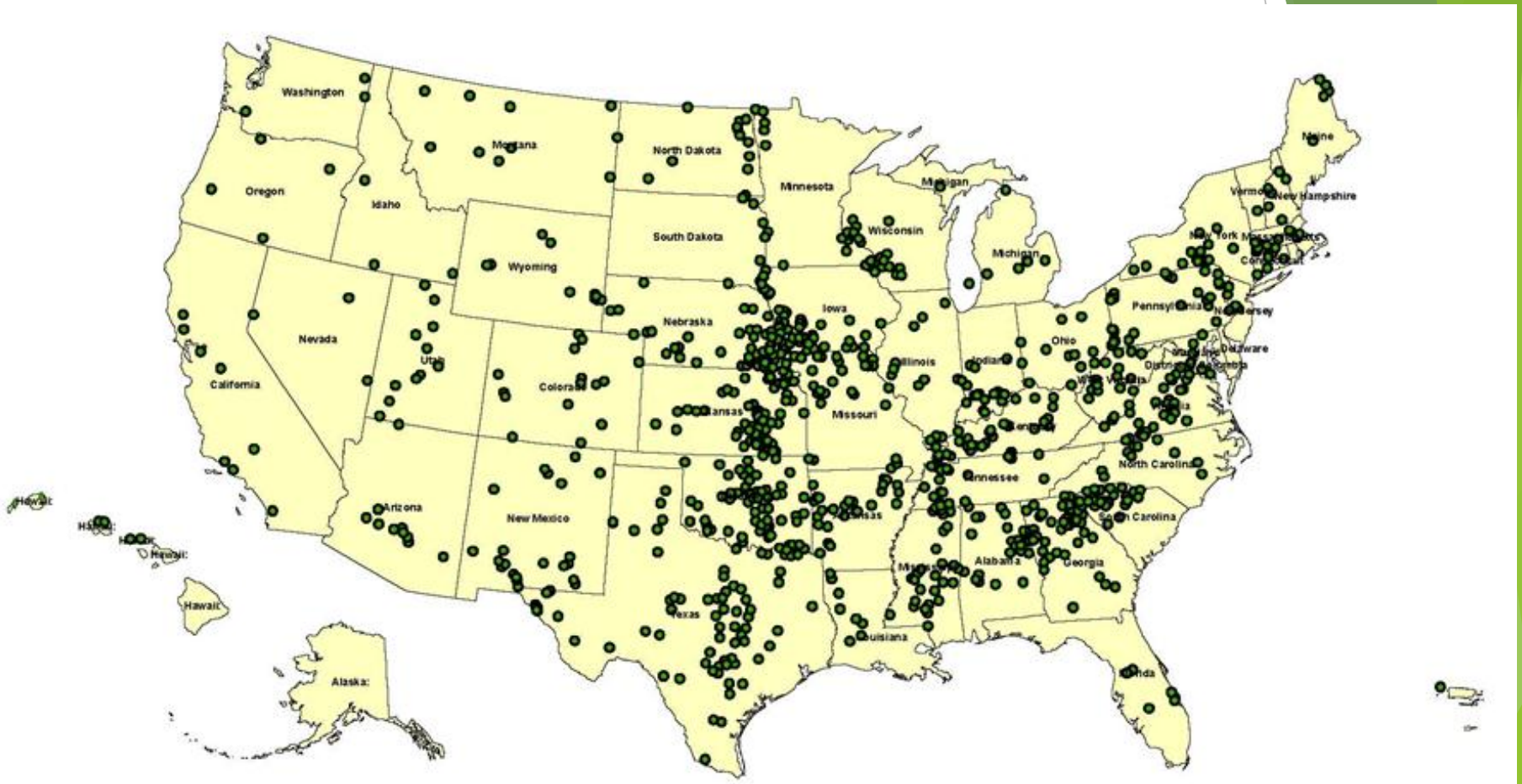
- The Act provided for technical and financial assistance to local watershed sponsors (local organization) willing to assume responsibility for:
  - **Initiate project and planning**
  - **Implement the project**
  - **Share in costs**
  - **Obtain land and water rights**
  - **Obtain agreements that conservation practices are installed on 50% of drainage areas of the dams**
  - **Be responsible for operation and maintenance**
- Resolved USACE vs. SCS debate regarding watershed projects drainage areas, limiting SCS to < 250,000 acres and max dam storage to < 25,000 acre-feet (as amended in 1956).

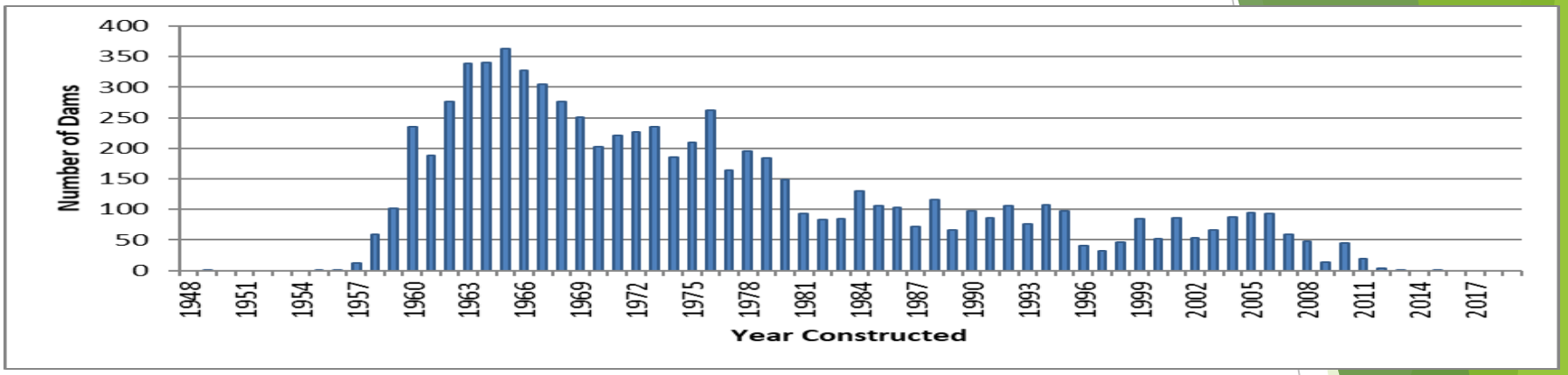
# Amendment to Watershed Protection and Flood Prevention Act, PL84-1018

- PL84-1018 August 7, 1956
- To amend the Watershed Protection and Flood Prevention Act,
- The Act was amended several times after 1956.

- Summary:
  - **Federal government shall bear 100% cost of constructing structural measures for flood prevention.**
  - **Includes municipal & industrial water supply at 100 % local expense.**
  - **Stipulates approval limits required by congressional committees for projects that exceeded specified costs or structures that exceeded specified capacities.**
  - **Permits loans to sponsors for project implementation.**
  - **Adds Hawaii, Alaska, Puerto Rico, and the Virgin Islands.**

# PL83-566 Projects with Dams in 47 States & PR






| State | No. of PL-566 Dams |
|---|---|
| Alabama | 100 |
| Arizona | 21 |
| Arkansas | 181 |
| California | 15 |
| Colorado | 87 |
| Connecticut | 29 |
| Florida | 10 |
| Georgia | 218 |
| Hawaii | 8 |
| Idaho | 3 |
| Illinois | 55 |
| Indiana | 132 |
| Iowa | 1,068 |
| Kansas | 803 |
| Kentucky | 182 |
| Louisiana | 35 |
| Maine | 16 |
| Maryland | 16 |
| Massachusetts | 29 |
| Michigan | 13 |
| Minnesota | 38 |
| Mississippi | 190 |
| Missouri | 1,152 |
| Montana | 16 |
| Nebraska | 620 |

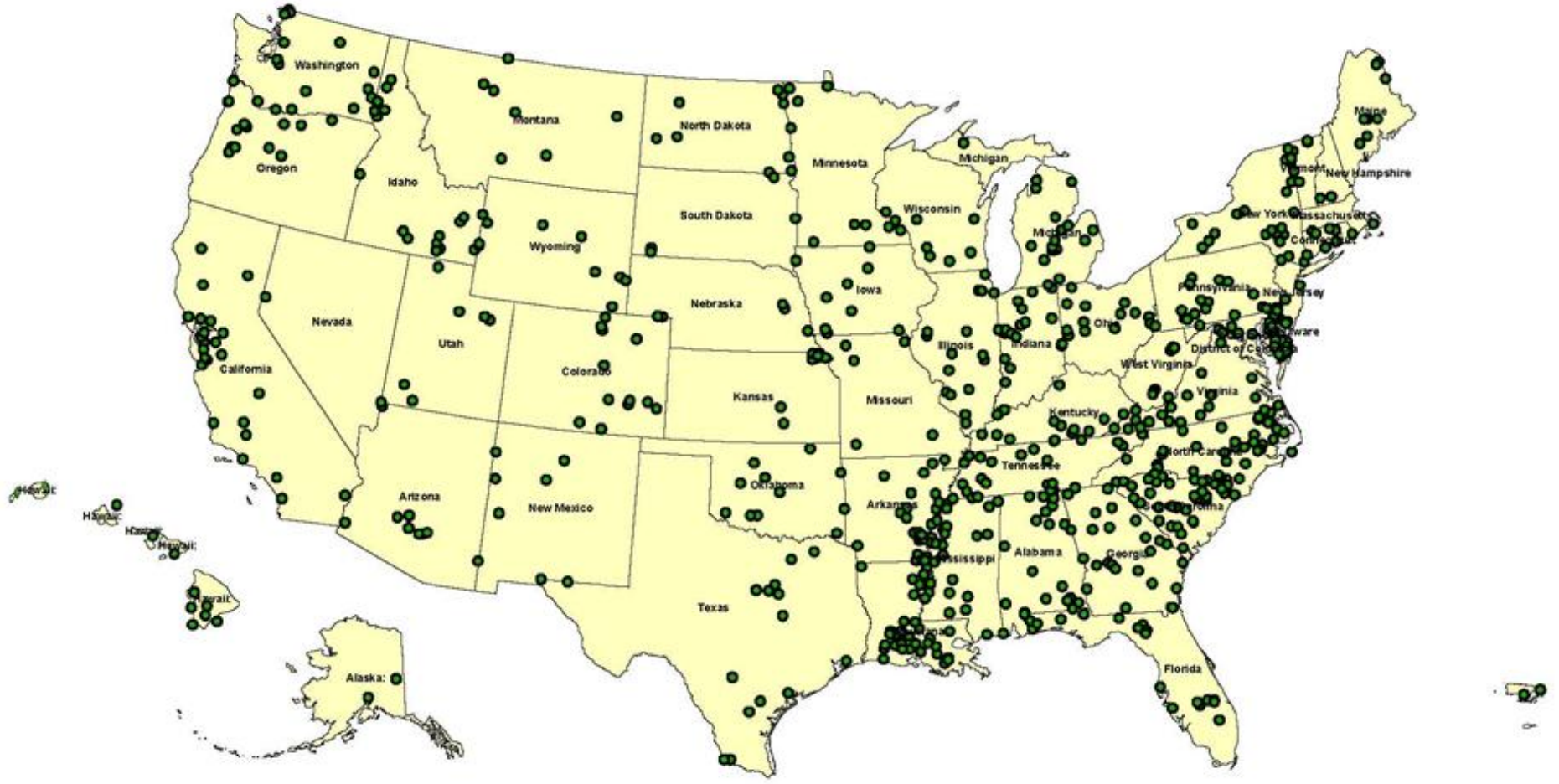
| State | No. of PL-566 Dams |
|---|---|
| Nevada | 8 |
| New Hampshire | 24 |
| New Jersey | 19 |
| New Mexico | 75 |
| New York | 52 |
| North Carolina | 101 |
| North Dakota | 39 |
| Ohio | 48 |
| Oklahoma | 987 |
| Oregon | 6 |
| Pennsylvania | 82 |
| Puerto Rico | 2 |
| South Carolina | 97 |
| South Dakota | 33 |
| Tennessee | 135 |
| Texas | 697 |
| Utah | 40 |
| Vermont | 4 |
| Virginia | 118 |
| Washington | 3 |
| West Virginia | 77 |
| Wisconsin | 85 |
| Wyoming | 12 |
| Total | 7,781 |

# PL83-566 Dams 1956 -2015

1st - Glenwood Debris Basin (UT)

# Elkwater Fork Water Supply Dam, Randolph Co., WV

# PL83-566 Projects w/o Dams in 50 States/Territories



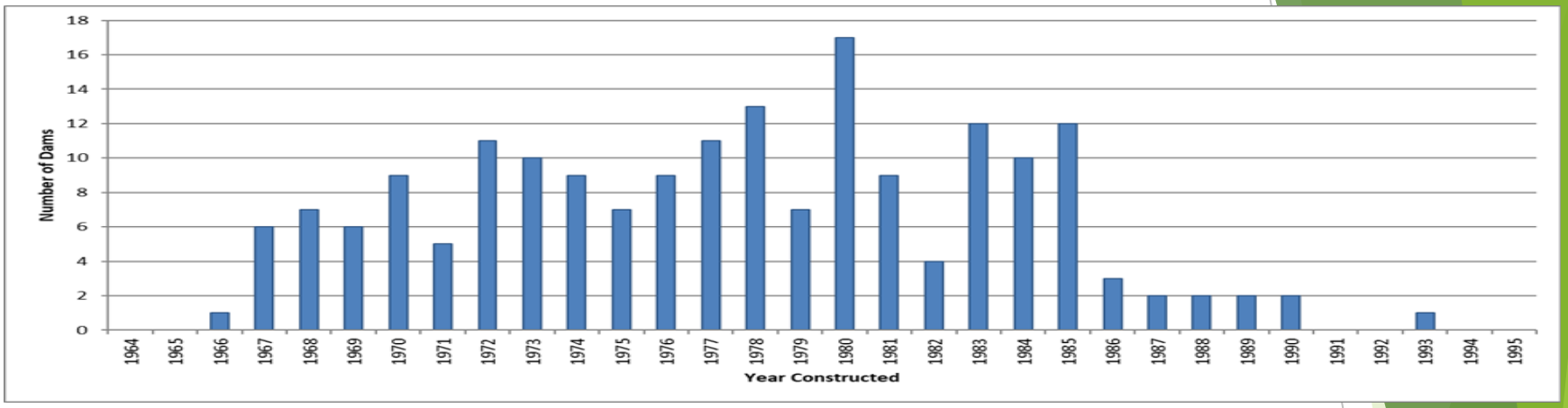
# 1962 Food and Agriculture Act- RC&D Program

- PL 87-703, September 27, 1962.

- Amends the Watershed Protection and Flood Prevention Act to include public fish and wildlife or recreational development project purposes, limits Federal share, and also limits recreational development based on project size.

- Also amends the Watershed Protection and Flood Prevention Act clarifies cost share of flood prevention and limits the Federal cost share for municipal or industrial water supply.

# RC&D Projects in 32 States




| State | No. of RC&D Dams |
|---|---|
| Alabama | 7 |
| Arizona | 2 |
| Arkansas | 3 |
| Colorado | 3 |
| Connecticut | 1 |
| Georgia | 10 |
| Hawaii | 1 |
| Indiana | 2 |
| Iowa | 35 |
| Kansas | 17 |
| Kentucky | 1 |
| Massachusetts | 1 |
| Minnesota | 6 |
| Mississippi | 5 |
| Missouri | 25 |
| Montana | 3 |
| Nebraska | 13 |

| State | No. of RC&D Dams |
|---|---|
| New Jersey | 1 |
| New Mexico | 2 |
| New York | 6 |
| North Carolina | 2 |
| North Dakota | 1 |
| Oklahoma | 7 |
| Pennsylvania | 9 |
| South Carolina | 1 |
| South Dakota | 21 |
| Tennessee | 1 |
| Texas | 5 |
| Utah | 2 |
| West Virginia | 4 |
| Wisconsin | 1 |
| Wyoming | 1 |
| **Total** | **199** |

# RC&D Dams 1966 -1993

1st – Lake Burlington (NC)

32 states

# Program Authority expands overtime

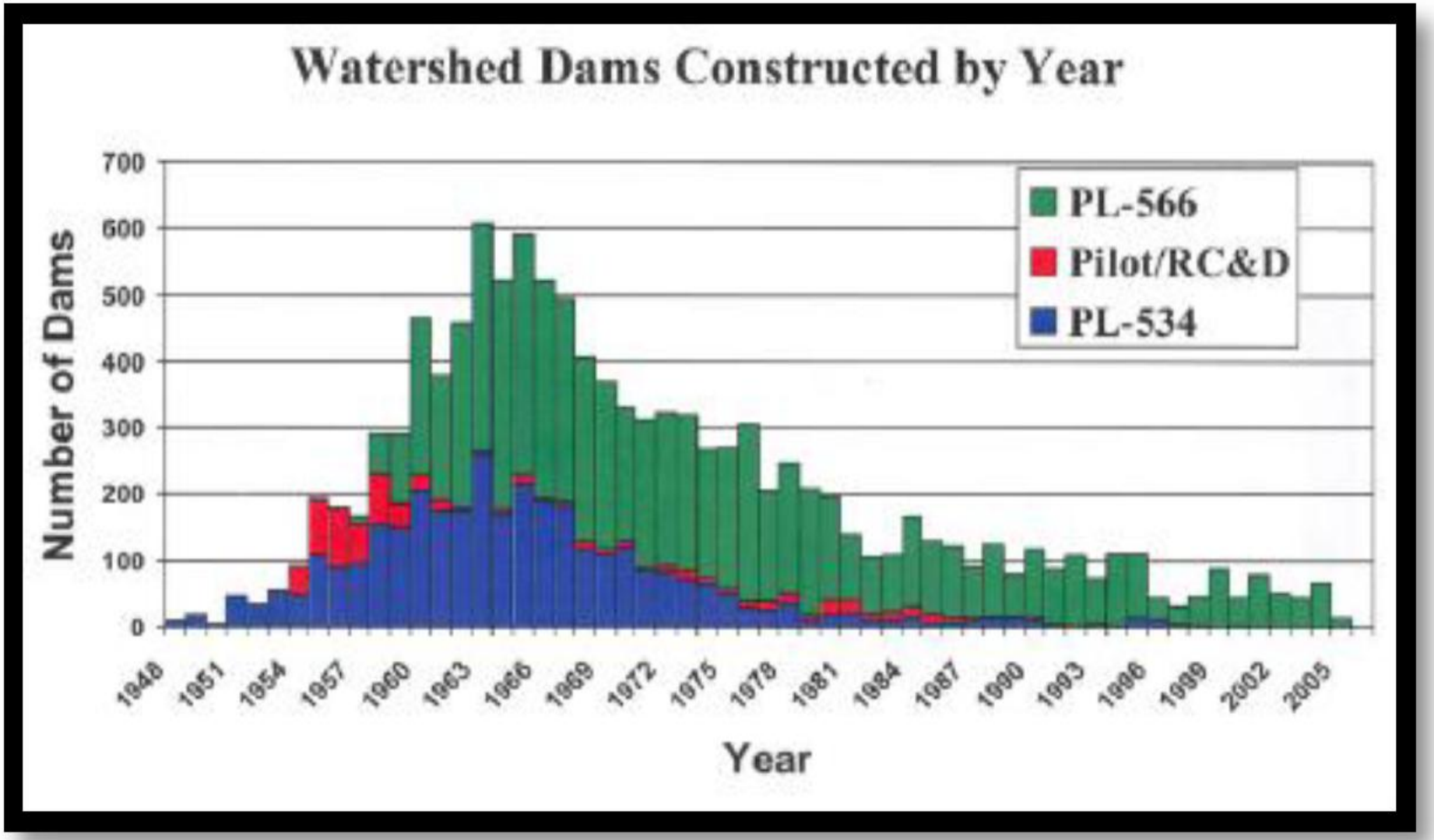
The original authority (FCA of 1936) allowed USDA to conduct examinations and surveys and that led to authorization of 11 projects in 12 states (PL78-534).

Over time that expanded to the entire United States and territories and also expanded from runoff and soil erosion concerns to many more project purposes (PL83-566 and subsequent amendments and authorities).

# Resource Concerns and Project Purposes

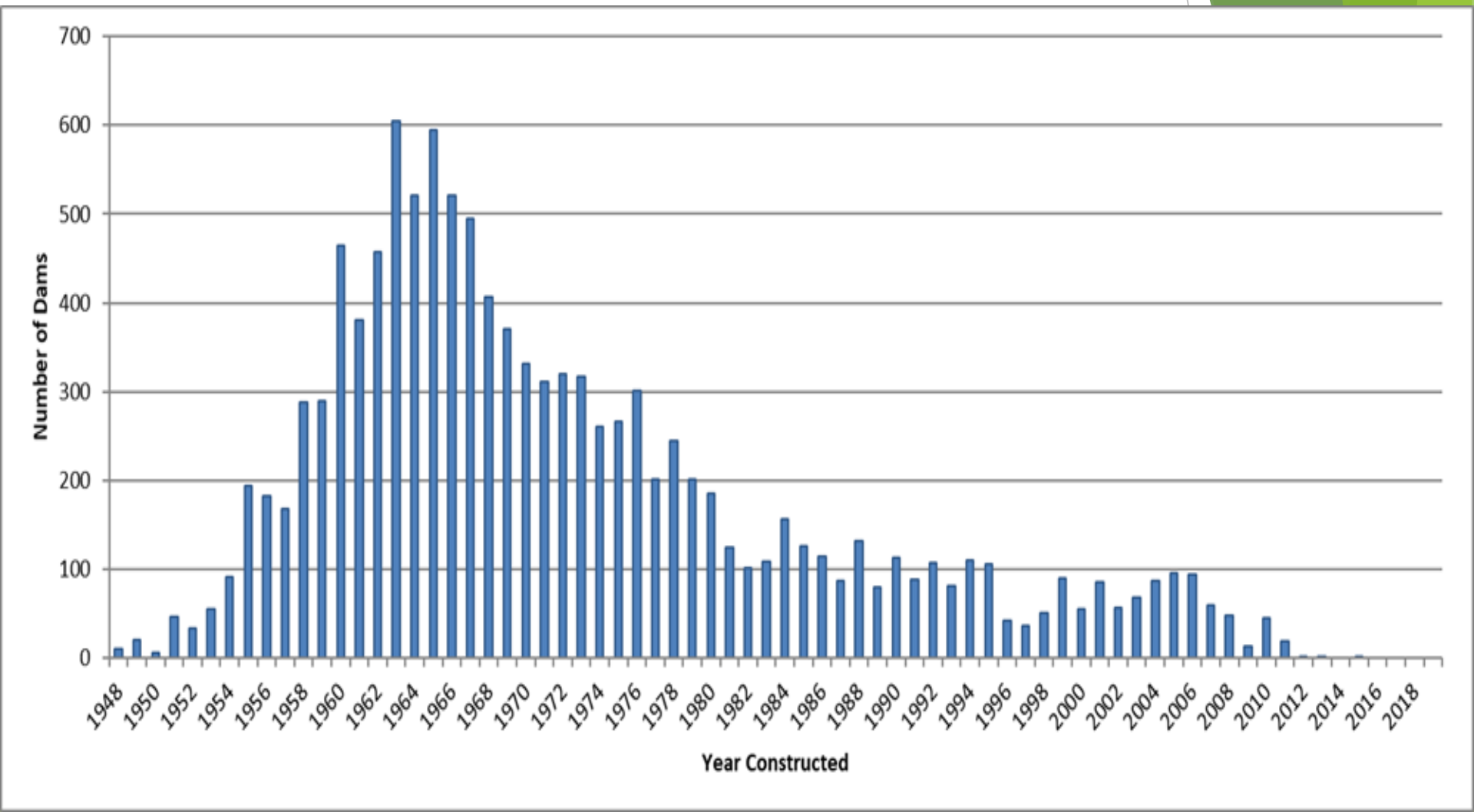
**Resource concerns and projects purposes have progressed from the Flood Control Act of 1936 and PL-534/Flood Control Act of 1944, where runoff and floodwater retardation and soil erosion were identified as national concerns to our current policy to address resources concerns through eligible project purposes, including flood prevention, watershed protection, public recreation, public fish and wildlife, agricultural water management, municipal and industrial water supply, and water quality management.**

# All Watershed Project Dams

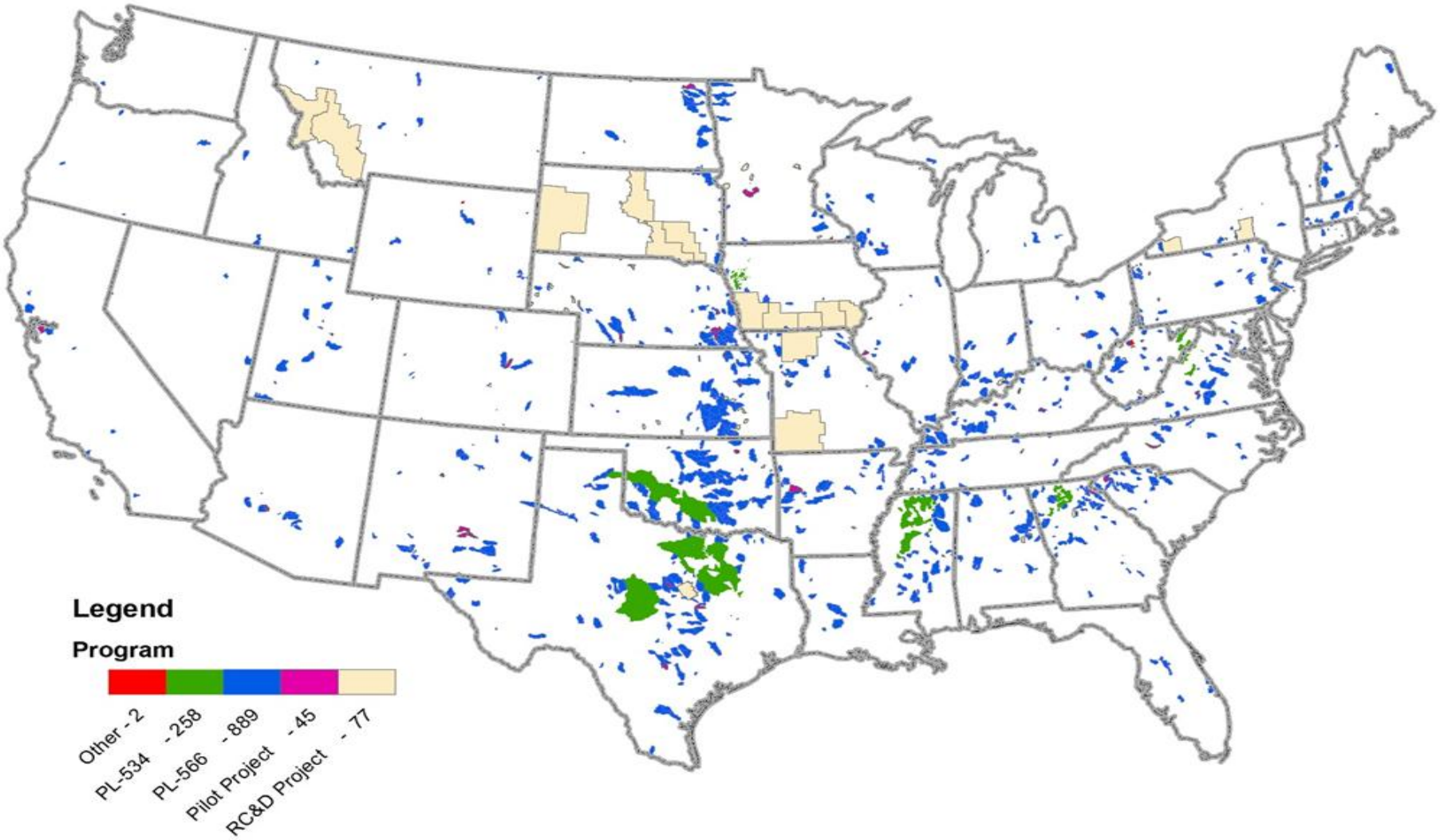


# All Watershed Dams built 1948 - 2015

## Approximately 1,270 projects with 11,860 dams



# All Watershed Projects



# All Watershed Projects

| Program | No. States/ Territories | No. of Watershed Projects | | | Total Project Area (ac.) |
|---|---|---|---|---|---|
| | | Without Dams | With Dams | Total * | |
| PL-534 | 8 | 98 | 260 | 358 | 26,017,464 |
| PL-566 | 53 | 724 | 886 | 1,610 | 115,834,650 |
| Pilot | 33 | 18 | 46 | 64 | 2,901,165 |
| RC&D | 32 | | 77 | 77 | 410,000 |
| Total | 53 | 840 | 1,269 | 2,109 | 145,163,279 |

# Dams across the USA

92,569 Dams in NID (as of 3/23/26)

Source: National Inventory of Dams (NID)

29,255 NRCS-assisted Dams

11,860 NRCS-assisted Watershed Program Dams

# Watershed Dams By State

| State | Watershed Program Authorities | | | | State Totals |
|---|---|---|---|---|---|
| | PL-566 | PL-534 | Pilot | RC&D | |
| Alabama | 100 | 0 | 0 | 7 | 107 |
| Arizona | 21 | 0 | 2 | 2 | 25 |
| Arkansas | 181 | 0 | 24 | 3 | 208 |
| California | 15 | 0 | 1 | 0 | 16 |
| Colorado | 87 | 0 | 55 | 3 | 145 |
| Connecticut | 29 | 0 | 0 | 1 | 30 |
| Florida | 10 | 0 | 0 | 0 | 10 |
| Georgia | 218 | 117 | 12 | 10 | 357 |
| Hawaii | 8 | 0 | 0 | 1 | 9 |
| Idaho | 3 | 0 | 0 | 0 | 3 |
| Illinois | 55 | 0 | 11 | 0 | 66 |
| Indiana | 132 | 0 | 0 | 2 | 134 |
| Iowa | 1,068 | 487 | 30 | 35 | 1,620 |
| Kansas | 803 | 0 | 14 | 17 | 834 |
| Kentucky | 182 | 0 | 17 | 1 | 200 |
| Louisiana | 35 | 0 | 0 | 0 | 35 |
| Maine | 16 | 0 | 0 | 0 | 16 |
| Maryland | 16 | 0 | 0 | 0 | 16 |
| Massachusetts | 29 | 0 | 0 | 1 | 30 |
| Michigan | 13 | 0 | 0 | 0 | 13 |
| Minnesota | 38 | 0 | 8 | 6 | 52 |
| Mississippi | 190 | 367 | 0 | 5 | 562 |
| Missouri | 1,152 | 0 | 30 | 25 | 1,207 |
| Montana | 16 | 0 | 0 | 3 | 19 |
| Nebraska | 620 | 0 | 106 | 13 | 739 |
| Nevada | 8 | 0 | 0 | 0 | 8 |
| New Hampshire | 24 | 0 | 0 | 0 | 24 |
| New Jersey | 19 | 0 | 0 | 1 | 20 |
| New Mexico | 75 | 0 | 2 | 2 | 79 |
| New York | 52 | 0 | 2 | 6 | 60 |
| North Carolina | 101 | 0 | 11 | 2 | 114 |
| North Dakota | 39 | 0 | 10 | 1 | 50 |
| Ohio | 48 | 0 | 16 | 0 | 64 |
| Oklahoma | 987 | 1,107 | 6 | 7 | 2,107 |
| Oregon | 6 | 0 | 0 | 0 | 6 |
| Pennsylvania | 82 | 0 | 0 | 9 | 91 |
| Puerto Rico | 2 | 0 | 0 | 0 | 2 |
| South Carolina | 97 | 0 | 7 | 1 | 105 |
| South Dakota | 33 | 0 | 2 | 21 | 56 |
| Tennessee | 135 | 0 | 9 | 1 | 145 |
| Texas | 697 | 1,242 | 60 | 5 | 2,004 |
| Utah | 40 | 0 | 3 | 2 | 45 |
| Vermont | 4 | 0 | 0 | 0 | 4 |
| Virginia | 118 | 29 | 3 | 0 | 150 |
| Washington | 3 | 0 | 0 | 0 | 3 |
| West Virginia | 77 | 81 | 7 | 4 | 169 |
| Wisconsin | 85 | 0 | 2 | 1 | 88 |
| Wyoming | 12 | 0 | 0 | 1 | 13 |
| Totals | 7,781 | 3,430 | 450 | 199 | 11,860 |

# Economic Investment in the Watershed Program

- Watershed project investments from 1947 to 2020 equal $7B or $24B (2020 dollars)
- Watershed Dam rehab investments from 2000 to 2020 equal approximately $1B (2020 dollars)

# Economic Benefits of Watershed Program Projects

- Watershed projects provide over $2.9 Billion in average annual benefits resulting from flood control, water supply, recreation, erosion control, wetland restoration, and fish and wildlife habitat; and……
- Watershed Dams provide close to $1.4 Billion of the $2.9 Billion

Based on the benefits application within DamWatch

# Other Federal Legislation Impacting Dams

- Dam Safety
- Environmental Protection

# Dam Safety

- 1972 - Buffalo Creek Dam Failure, WV; 125 deaths
- PL 92-367 – National Dam Inspection Act of 1972
- 1977 - Kelly Barnes Dam Failure, GA; 39 deaths
- 1978 - USACE begins National Dam Inspection Program
- 1979 - Federal Guidelines for Dam Safety Prepared
- 1979 - Executive Order 12148 (President Carter) creating FEMA
- 1979 - President Carter memorandum – each federal agency to implement Federal Guidelines

# Dam Safety

- 1982 - National Program of Inspection for Non-Federal Dams,
  - National Inventor of Dam (NID)

- 1985 - The Interagency Committee on Dam Safety (ICODS)

- 1986 – Water Resources Development Act
  - Passed but was never appropriated

- 1996 – National Dam Safety Program Act (PL 104-303)
  - PL 107-310 Reauthorized (2002)
  - PL 109-460 Reauthorized (2006)

# Dam Safety

2014 – Water Resources Reform and Development Act (WRRDA)

- Reauthorized the National Dam Safety Program

2025 – National Dam Safety Program Act

- PL 92-367 (Amended PL118-272)

Throughout these years states implemented their own Dam Safety Guidelines.

Interest remains, but funding is lacking.

# Environmental Laws

- 1970 - Environmental Protection Agency established
- 1970 – National Environmental Policy Act (NEPA)
- 1972 - Clean Water Act (CWA)
  - National Pollutant Discharge Elimination System (NPDES)

# Impactful Laws

- A large percentage of dams in the US were constructed before 1970.
- Any new dam and all rehabilitation projects must comply with current laws and guidelines.
- Results in:
  - Safer dams that coexist with the environment.
  - Increased focus during Planning.
  - Higher costs.

# Dams and Evaluation Periods

**Watershed plans with dams were originally planned with economic evaluation periods of 50 or 100 years. Those dams constructed in the 1950s, 1960s, and 1970s with 50 evaluation periods are beyond or nearing the end of the evaluation period.**

**Approximately 60% of the dams have reached the end of their evaluation period as of 2025.**

**Approximately 70% of the dams are older than 50 years.**

# Dam Rehabilitation Overview

In 1990s older dams were approaching the end of their evaluated period; many project sponsors were becoming concerned about the future performance of the dams and potential liability if the dams should fail.

One of the first public discussions of this emerging issue was at a conference hosted by the National Watershed Coalition in OK in 1996. Rehabilitation of the aging dams was identified as one of the highest priorities.

On November 9, 2000 the dam rehabilitation legislation was signed by President Clinton, PL106-472. This amends the authority in PL83-566.

# Dam Rehabilitation Eligibility

Dams originally constructed under the four USDA authorities are eligible for dam rehabilitation:

1. PL78-534, Flood Control Act of 1944,
2. PL83-156 Pilot Watershed Program, 1953,
3. PL83-566, Watershed Protection and Flood Prevention, 1954, and
4. PL87-703 RC&D, 1962.

# Dam Rehabilitation by the Numbers



**Number of Watershed Rehabilitation Dams**
**by Funded Operation Phase, State, & Region**

| State | Regions | In Planning | In Design | In Construction | Rehab Completed |
|---|---|---|---|---|---|
| AR | Central | | | | 1 |
| IA | Central | | | | 4 |
| KS | Central | | | | 3 |
| MO | Central | | | | 2 |
| ND | Central | 7 | | | 1 |
| NE | Central | 5 | | | 13 |
| OK | Central | 6 | 4 | 4 | 40 |
| TX | Central | 4 | 9 | 6 | 29 |
| **Central Totals** | | **22** | **13** | **10** | **93** |
| CT | Northern | 3 | | | |
| IN | Northern | 3 | 0 | | |
| MA | Northern | 1 | 5 | 1 | 2 |
| MD | Northern | | 1 | | |
| ME | Northern | 1 | | | |
| NH | Northern | 4 | 1 | | |
| NJ | Northern | 5 | | 1 | |
| NY | Northern | 4 | | | |
| OH | Northern | 7 | | | 8 |
| PA | Northern | 8 | 2 | 1 | 3 |
| VT | Northern | | 4 | | |
| WI | Northern | | | | 11 |
| WV | Northern | 11 | 3 | 2 | 2 |
| **Northern Totals** | | **47** | **16** | **5** | **26** |
| GA | Southern | 1 | 4 | 1 | 10 |
| KY | Southern | | 2 | | |
| LA | Southern | 3 | | | |
| MS | Southern | 14 | 1 | 1 | 18 |
| NC | Southern | 5 | | | |
| PR | Southern | 2 | | | |
| TN | Southern | | | | 3 |
| VA | Southern | | 3 | | 13 |
| **Southern Totals** | | **25** | **10** | **2** | **44** |
| AZ | Western | | 2 | | 4 |
| CA | Western | 1 | | | |
| CO | Western | | 1 | | 1 |
| NM | Western | 4 | 1 | | 3 |
| NV | Western | 2 | | | |
| OR | Western | 2 | | | |
| UT | Western | 6 | 5 | | 13 |
| WY | Western | | | | 1 |
| **Western Totals** | | **15** | **9** | **0** | **22** |
| **National Totals** | | **109** | **48** | **17** | **185** |
| No. of States | | 24 | 17 | 8 | 22 |

March 2026

# Dam Rehabilitation by the Numbers

**Number of Watershed Rehabilitation Dams by Funded Operation Phase & Region**

| State | Regions | In Planning | In Design | In Construction | Rehab Completed |
|---|---|---|---|---|---|
| **Central Totals** | | **22** | **13** | **10** | **93** |
| **Northern Totals** | | **47** | **16** | **5** | **26** |
| **Southern Totals** | | **25** | **10** | **2** | **44** |
| **Western Totals** | | **15** | **9** | **0** | **22** |
| **National Totals** | | **109** | **48** | **17** | **185** |
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# Economic Investment in the Watershed Program

- Watershed project investments from 1947 to 2020 equal $7B or $24B (2020 dollars)

- Watershed Dam rehab investments from 2000 to 2020 equal approximately $1B (2020 dollars)

# 1st Dam Rehabilitation

- Sergeant Major Creek Site 1, Oklahoma, 2000

# 1st Dam Rehabilitation

# 1st Dam Rehabilitation

# Typical Dam Rehabilitation

- Long process (5+ years once approved)
  - Planning
  - Design
  - Construction
- Major construction
- High cost
  - If auxiliary spillway armoring is required
  - Easily exceed $10 Million
- Requires meeting full federal dam safety criteria

# The Watershed Program is the best example of a federal, state, local, private partnership…

- **Local Project Sponsors (Conservation Districts and others)**
  - Land rights (easements)
  - Local cost-share (construction)
  - Operation and Maintenance
- **State (State Conservation Agencies and others)**
  - Funding Assistance / Technical Support
  - Local cost-share (construction)
  - Operation and Maintenance
- Federal (NRCS):
  - Technical Assistance (planning, design, construction, O&M)
  - Financial Assistance (construction)
- **Private**
  - Donated Easements

# The Watershed Partnership

Private, Local, State, Federal


*President Dwight Eisenhower (center) and Asst. Sec. of Agriculture Earl Coke (left) view a display of Okla. Sandstone Creek project*


*Figure 25: Selected photos showing President Dwight D. Eisenhower viewing watershed exhibits in the USDA Whitten Building in Washington DC. Source: "President Eisenhower Visiting Watersheds Exhibit," 1953; Photographs of USDA Exhibits, 1900-1953, Record Group 16-EX, Box 5; National Archives; College Park, MD.*


Questions

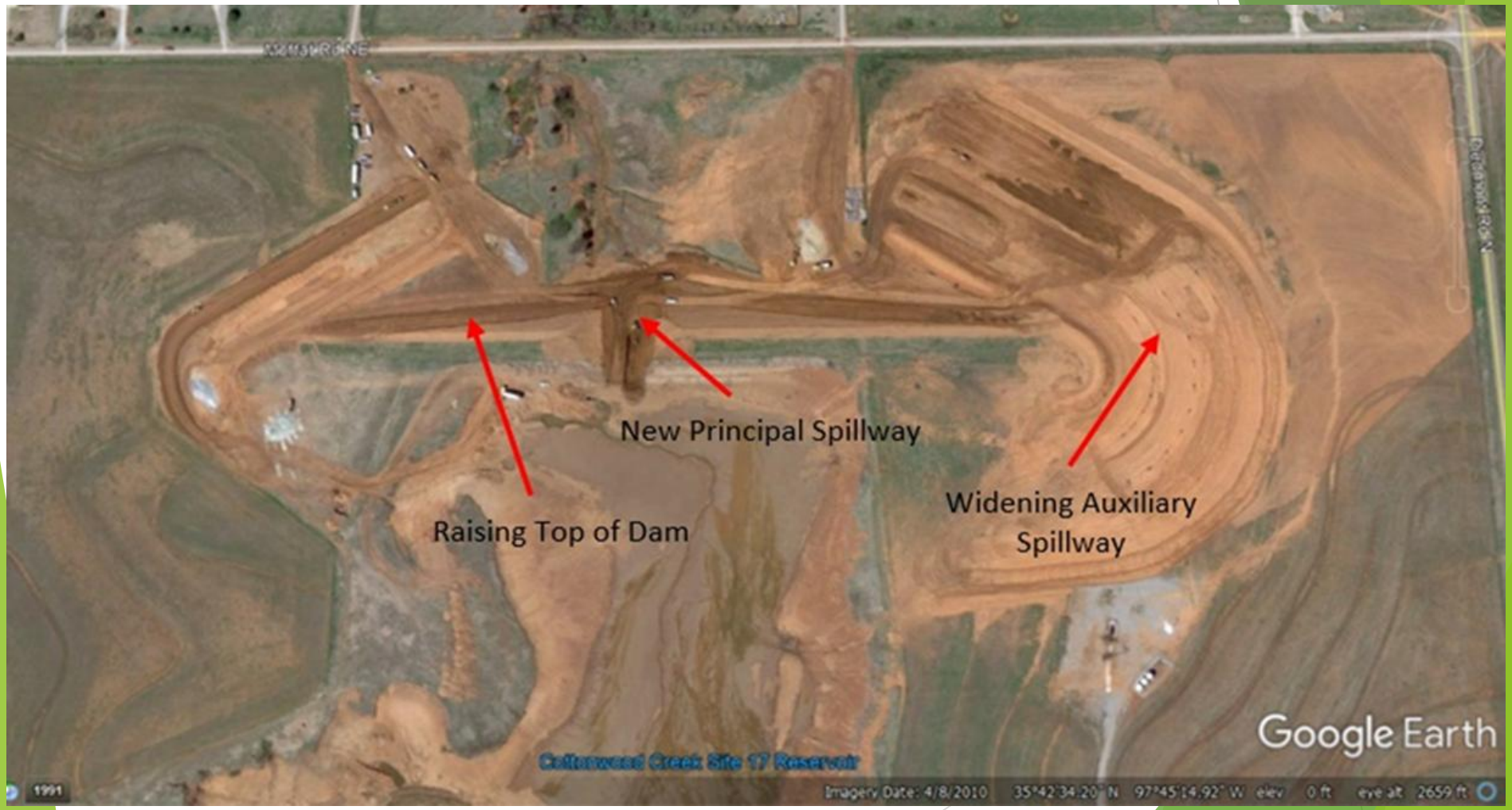
# “Typical” Dam Rehabilitation

- Address hydraulic capacity-PSW and ASW
- Address structural stability of PSW, embankment, and auxiliary spillway
- Address sediment and water storage capacity
- Extend the life

- Can address downstream hazards or decommissioning

- Does not address deferred maintenance

# “Typical” Dam Rehabilitation



# “Typical” Dam Rehabilitation


CAT
WATER
60'


CAT

# “Typical” Dam Rehabilitation


BLANKET DRAIN DETAIL

# “Typical” Dam Rehabilitation

# “Typical” Dam Rehabilitation

# “Typical” Dam Rehabilitation

# “Typical” Dam Rehabilitation

# Typical Dam Rehabilitation

- Long process (5+ years once approved)
  - Planning
  - Design
  - Construction
- Major construction
- High cost
  - If auxiliary spillway armoring is required
  - Easily exceed $10 Million
- Requires meeting full federal dam safety criteria

# How do we advance the Program? Can we do more?

- Repairs and Rehabilitation
- Streamlining Processes
- Funding Strategies
- Training

# The Next Step

- For the National Watershed Coalition, a new farm bill is extremely important as reforms to the Watershed Program need to be included.

- The House bill that passed out of Committee last year included every one of NWC's priorities, including raising the federal cost share for rehabilitation, increasing flexibility in the program's authority use of program funds to repair and replace essential structural components, reducing the regulatory and administrative barriers that adds years to project implementation timeline, and adding statutory language to provide oversight and accountability mechanisms for program funds.


Questions