Natural Resources Conservation Service

NRCS Water Programsoverview, examples and the future

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Western States Water Council – Water Resources Committee
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Outline

- NRCS History and Water Management
- 2014 Farm Bill and Water Management
- Potential Future Direction and Challenges







United States Department of Agriculture



Long history of irrigation and drainage



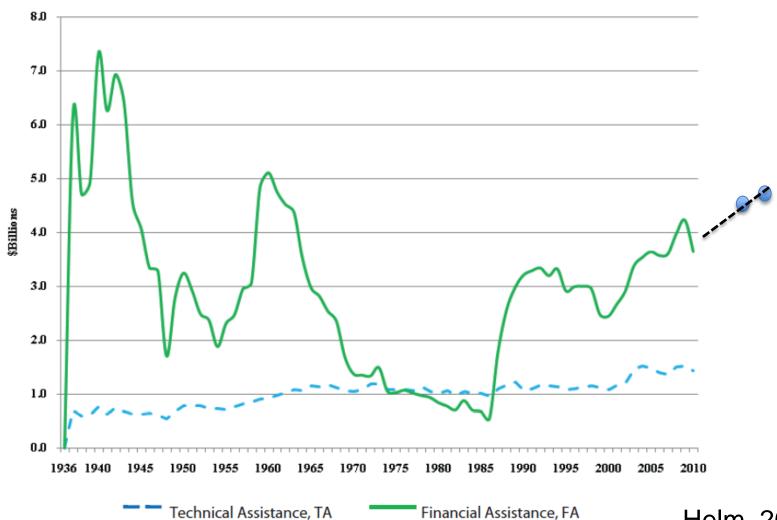


- 70% of land is privately owned,
- 88% of all surface water falls on private land,
- Water quantity and quality depends on the millions of individual decisions by private landowners, and
- Since 2009, USDA has worked with more than 500,000 private landowners to implement conservation practices.





Figure 2. USDA Soil and Water Conservation Expenditures for TA and FA, FY 1936–2010, in Year 2009 Dollars



2014 Farm Bill programs

related to water

- Environmental Quality Incentives Program (EQIP)
 - Landscape Initiatives
- Regional Conservation Partnership Program (RCPP)
- Conservation Stewardship Program (CSP)
- State Technical Committee (advisors from State agencies, universities, grower groups, and other Federal agencies) provides advice and input, and also includes flexibility to encompass any program authorized by Title XII



2014 Farm Bill

Agricultural Conservation Easement Program

Funded at \$400-500M per year







Farm and Ranch Protection

Grassland Reserve

Wetland Reserve



| AMA AWEP CBWI EQIP WHIP | 17-Nov-14 | Ī | |
|---|------------|-----------|--------------------------------|
| Financial Assistance Dollars on Approved Active/Con | pleted Con | tracts by | State and Contract Fiscal Year |
| Contract Fiscal Years 2008-2014 | | | |
| Yearly Data in Hidden Columns D through X | | | |

| | | | Number of | Planned | Obligation |
|---|-------|------|-------------|-----------|-----------------|
| Practice Name | Code | Unit | Occurrences | Amount | \$ |
| Irr. Pipeline, Low Pressure U-G Plastic | 430EE | ft. | 3,988 | 7,028,830 | \$52,259,897 |
| Irr. Pipeline, Steel | 430FF | ft. | 392 | 51,409 | \$808,865 |
| Above Ground, Multi-Outlet Pipeline | 431 | ft. | 1,142 | 1,638,665 | \$5,718,949 |
| Irrigation Reservoir | 436 | no. | 1,372 | 1,372 | \$57,998,978 |
| Irrigation System, Microirrigation | 441 | no. | 12,358 | 12,358 | \$284,432,306 |
| Irrigation System, Sprinkler | 442 | no. | 19,074 | 19,074 | \$432,258,587 |
| Irrigation System, Surface & Subsurface | 443 | no. | 2,740 | 2,740 | \$18,554,831 |
| Irrigation System, Tailwater Recovery | 447 | no. | 494 | 494 | \$8,688,764 |
| Irrigation Water Management | 449 | ac. | 38,648 | 3,869,837 | \$46,112,877 |
| Anionic Polyacrylamide(PAM) Erosion Control | 450 | ac. | 23 | 1,293 | \$28,819 |
| Irrigation Land Leveling | 464 | ac. | 8,487 | 942,396 | \$118,969,454 |
| Pumping Plant | 533 | no. | 31,113 | 31,113 | \$156,681,683 |
| Irrigation Regulating Reservoir | 552 | no. | 498 | 498 | \$5,186,722 |
| Water Well | 642 | no. | 18,783 | 18,783 | \$99,753,212 |
| | | | 1,459,256 | | \$7,106,149,813 |



Regional Conservation Partnership Program



The Regional Conservation Partnership Program (RCPP) promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.

Funded over \$350M in 2015 Funding pools for National, State, and Critical Conservation Areas, CCAs

Regional Conservation Partnership Program

RCPP is a new program that:

- Furthers the conservation, restoration, and sustainable use of soil, water, wildlife on a regional scale
- Provides assistance through:
 - Partnership agreements, irrigation districts eligible
 - Program contracts or easement agreement
 - >70 Projects from the State pool in 2015, 20 in National, 34 in CCAs

RCPP

Covered programs:

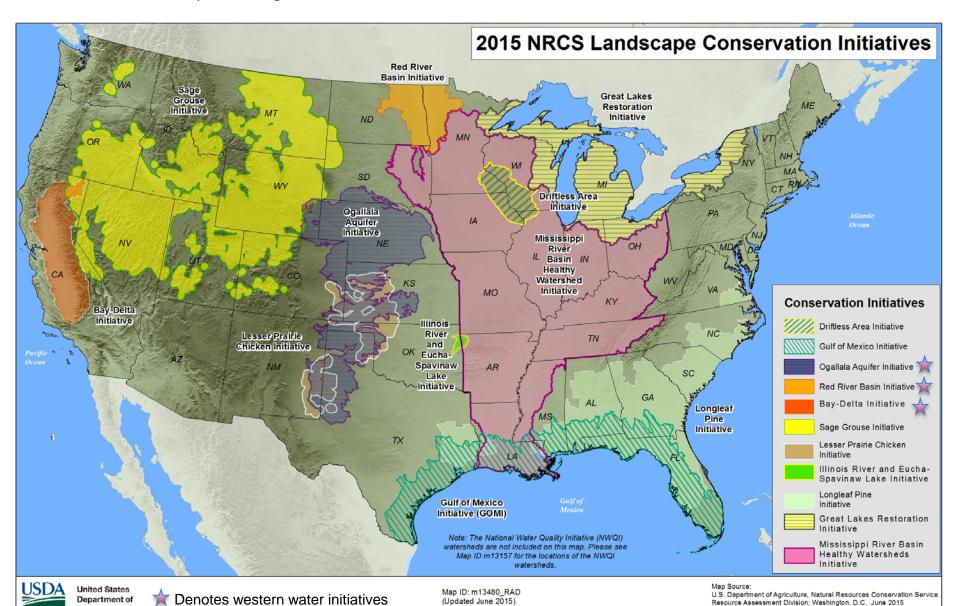
- Agricultural Conservation Easement Program (ACEP)
- Environmental Quality Incentives Program (EQIP)
- Conservation Stewardship Program (CSP)
- Healthy Forests Reserve Program (HFRP)
- PL-566 Small Watershed Program (in Critical Conservation Areas, CCAs)

Each program handles planning, funding, and implementation slightly differently



Agriculture

United States Department of Agriculture



Data Source: USDA, NRCS, USGS

NRCS Assists Producers with Planning, Design, & Construction of Water Conservation Practices







Surface Irrigation



Sprinkler Irrigation



Micro Irrigation

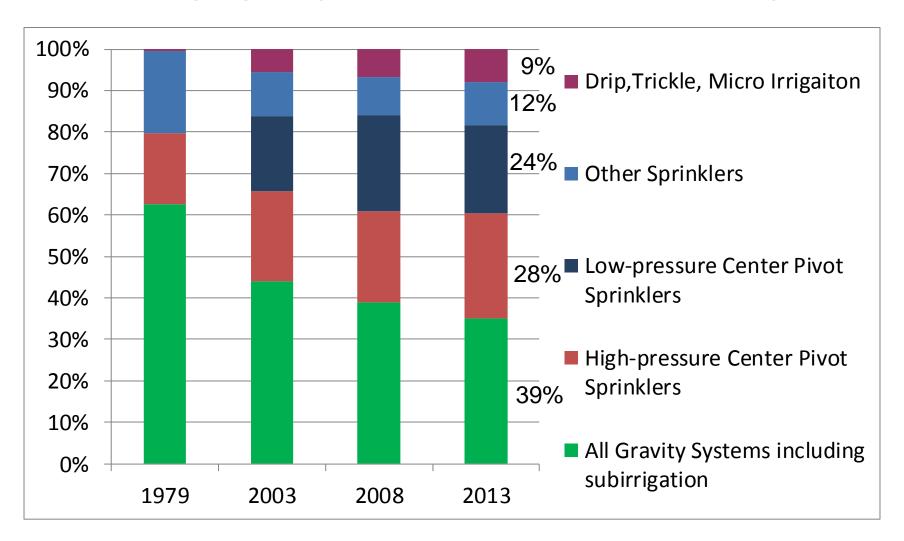




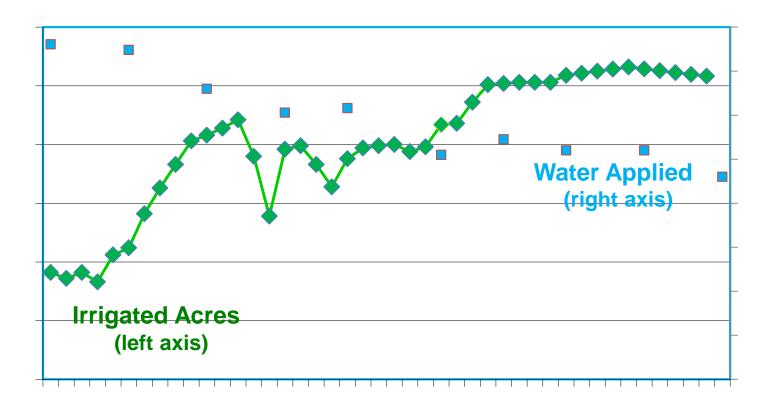




Changing Irrigation Application Technology



U.S. Irrigated Acres & Water Application







Irrigation Water Management











Other NRCS Programs:

Emergency Watershed Protection (funded through supplemental only PL-566 Small Watershed Protection (unfunded for several years)



USDA – Natural Resources Conservation Service Technical Note

Hydrologic Analyses of Post-Wildfire Conditions

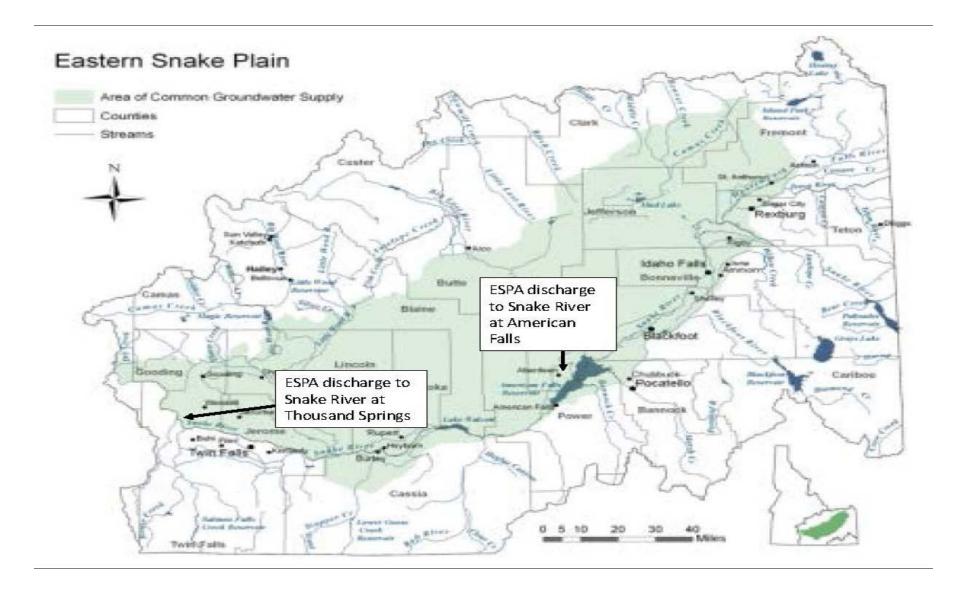
June 2013



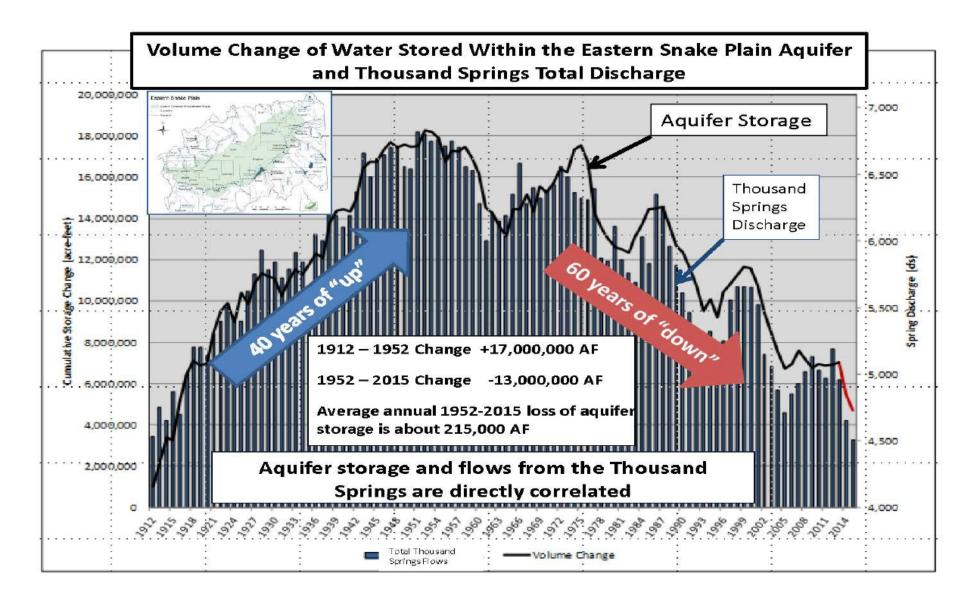
Cover photo: Nabours Mountain directly east of Glenwood NM.

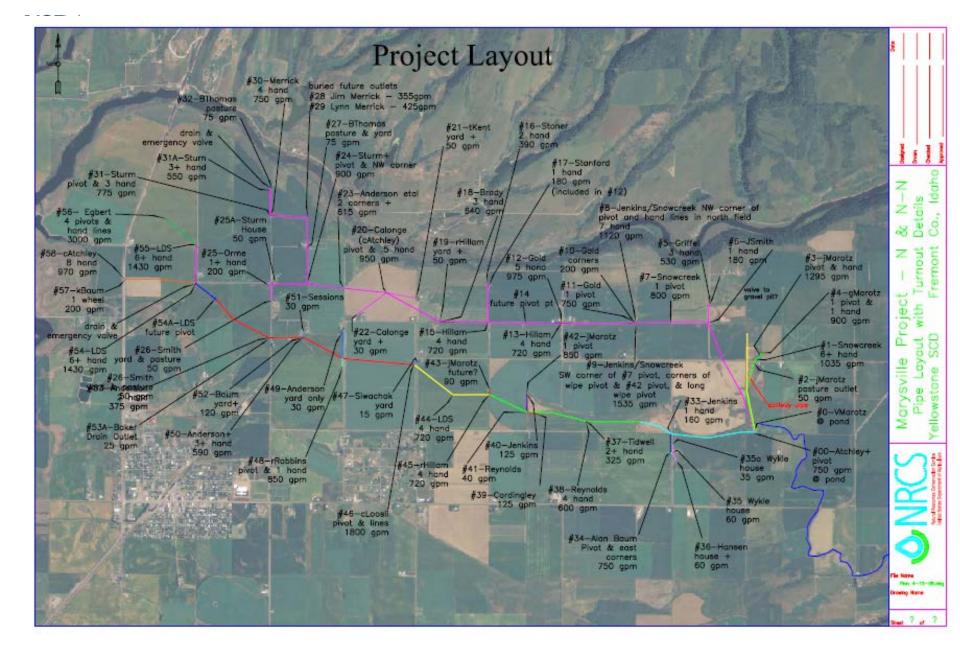
Courtesy of: USDA Forest Service, Gila National Forest, Silver City NM











NRCS Project Example - Idaho



HDPE Pipeline Diameter = 1.25 meters

Marysville / Farmers Own

rws 2/11/09

| | Project | | Project | |
|-------------|---------------|--------------|----------|---------|
| Length | 188,900 | feet | 57,591 n | neters |
| Flow | 211.5 | cfs | 6.0 | m³/s |
| Low Cost | \$ 22,200,000 | | | |
| High Cost | \$ 27,700,000 | | | |
| Outlets | 108 | each | | |
| Acres | 12,460 | approx acres | 5,040 he | ectares |
| Horsepower | 4212 | approx hp | 3,140 | kW |
| Low \$/acre | \$ 1.800 | | | |







A&B Pumping Station and Pipeline

Published: January 15, 2016 12:08PM



>7k acres 53,000 gpm ~\$11M, \$3.8M EQIP 70 turnouts, 19 miles

A & B Irrigation District said construction of an irrigation pipeline and a supplemental pumping plant are well underway.

RUPERT, Idaho — Work on a new irrigation pipeline and pumping plant to help A & B Irrigation District members cope with drying wells and a declining aquifer is underway and on pace for completion by March 31, general manager Dan Temple said.

A & B members irrigate 66,000 acres with deep wells and another 17,000 acres with Snake River surface water, Temple said.





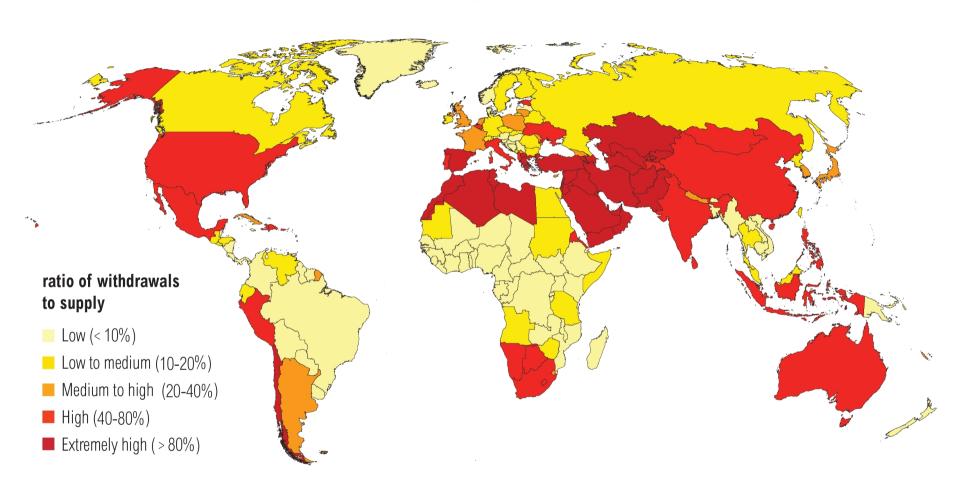








Water Stress by Country: 2040



NOTE: Projections are based on a business-as-usual scenario using SSP2 and RCP8.5.



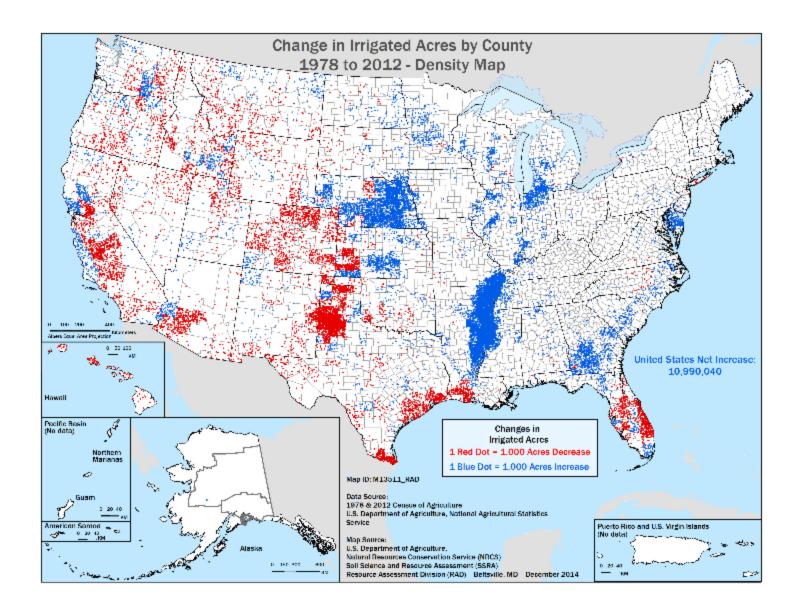
USDA Initiative: Building Blocks for Climate Smart Agriculture and Forestry

USDA Natural Resources Conservation Service Climate Change Vulnerability Assessment and Adaptation Plan

ELEMENTS:

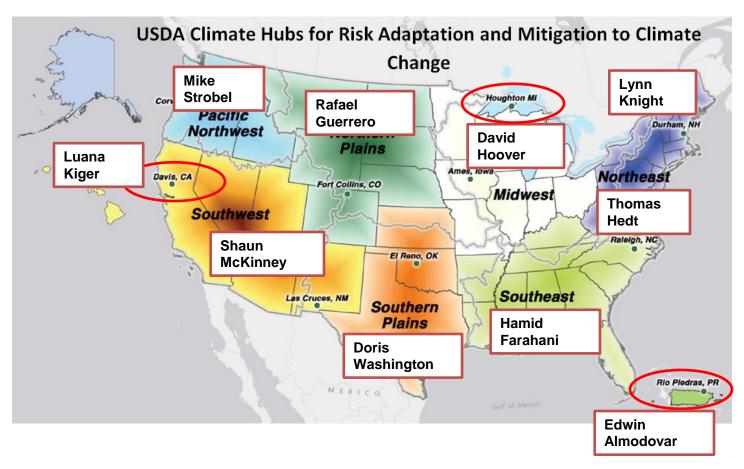
- ➤ Use existing conservation and energy authorities (~\$20M on energy conservation projects in FY15)
- ➤ Voluntary and Incentive based
- > Provide multiple economic and environmental benefits
- ➤ Be designed for working farms and production systems avoid actions that would inhibit production







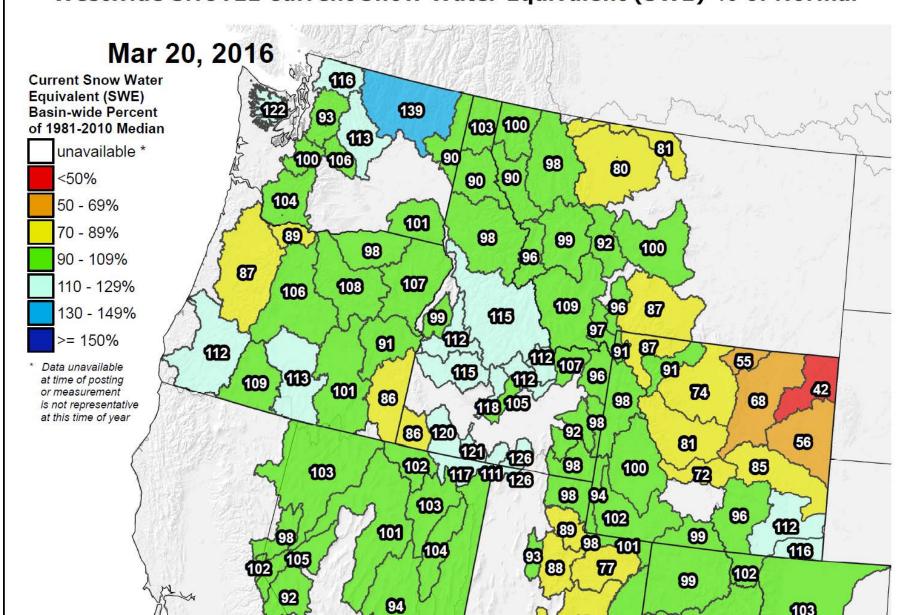
Ten USDA Hubs and Sub-hubs



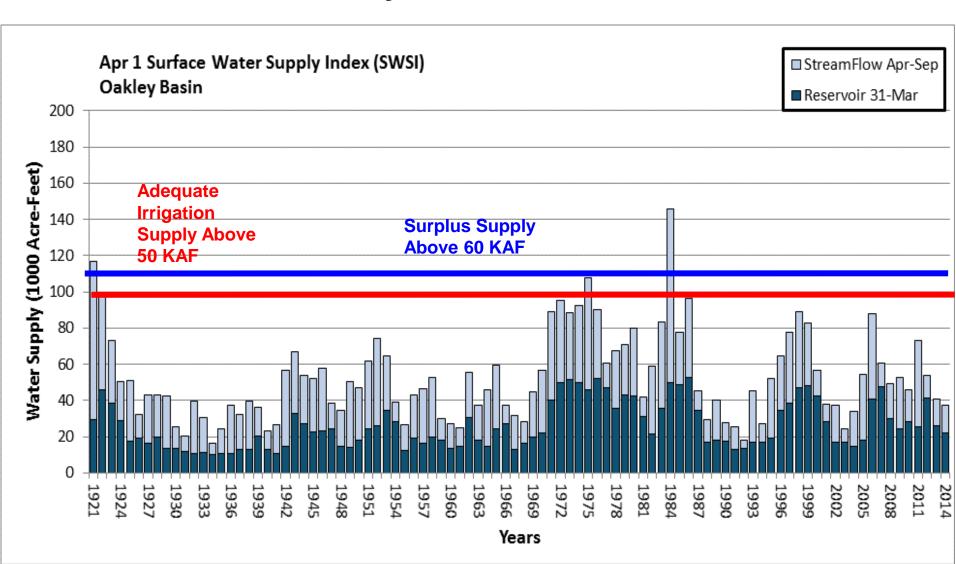
(NRCS Hub Co-Directors/POC)



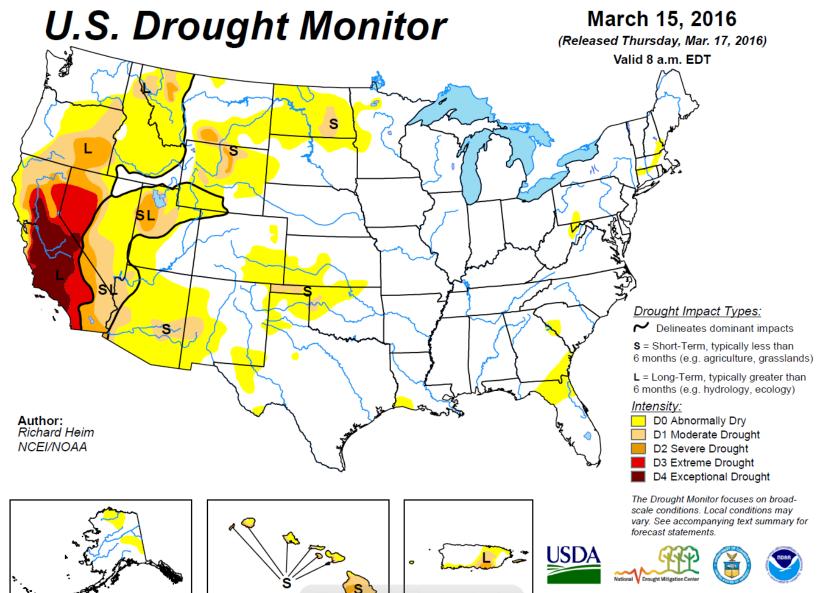
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal



Snow Survey - New Products











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Helping People Help the Land

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Available Funding

- \$100 Million of Direct RCPP funding each year
- 7% of funds from the four covered programs (ACEP, CSP, EQIP, HFRP) reserved annually through April 1st

RCPP

- RCPP will implement eligible activities on eligible land through:
 - Partnership agreements under which NRCS enters contracts and easement agreements with producers and landowners participating in a project with a selected partner; and
 - Conservation Program Contracts (CPCs) or easement agreements in—
 - Critical conservation areas; or
 - In a selected partner project area but who are seeking to implement an eligible activity independent of a partner.



United States Department of Agriculture





Water-Based Initiatives

Bay Delta Initiative

Driftless Area Landscape Conservation Initiative

Gulf of Mexico Initiative

Mississippi River Basin Healthy Watersheds Initiative

Ogallala Aquifer Initiative

Red River Basin Initiative















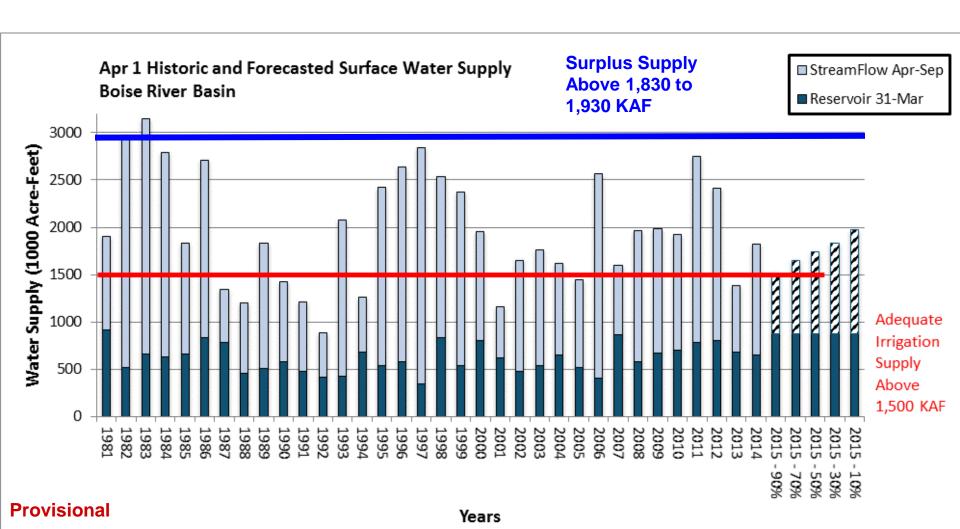








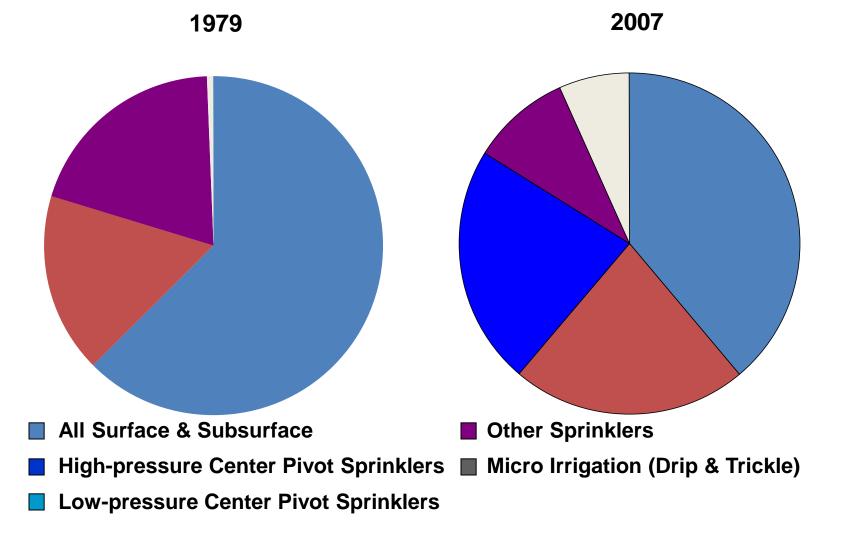
Snow Survey – New Products



Easement Programs

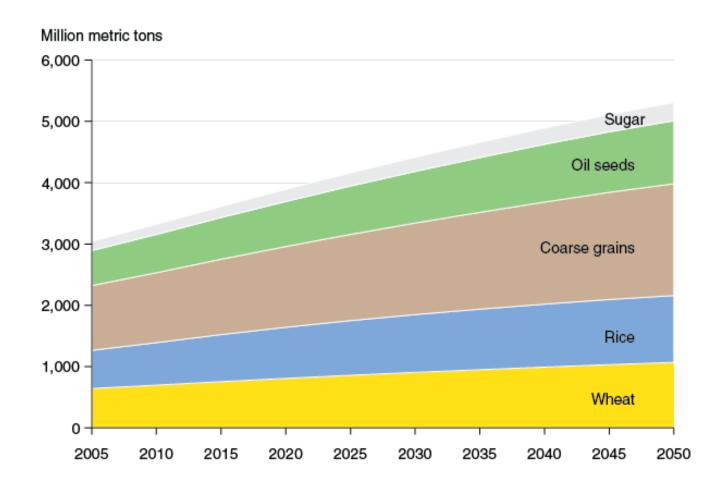
- Farm & Ranch Land Protection Program (FRPP), Grassland Reserve Program (GRP), and Wetlands Reserve Program (WRP) have been repealed
 - Consolidated into Agricultural Conservation Easement Program (ACEP)
- Also floodplain easements administered under the Emergency Watershed Protection (EWP) program

Changes In Irrigation Technology



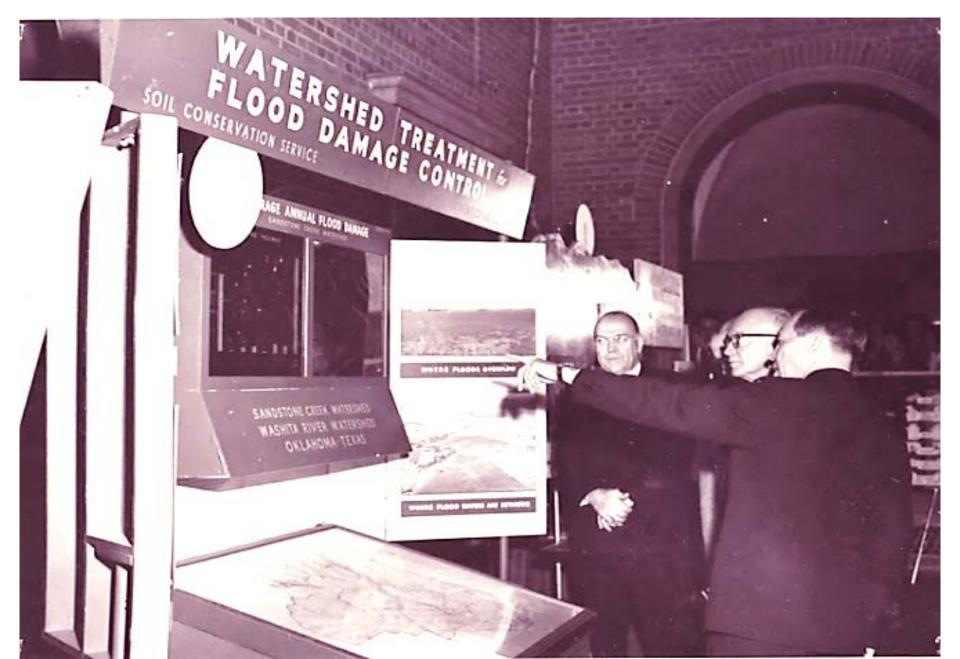


World consumption of major field crops is projected to increase through 2050



Source: USDA, Economic Research Service using Future Agricultural Resources Model reference scenario.







USDA Natural Resources Conservation Service

Climate Change Vulnerability Assessment and Adaptation Plan

Precipitation Changes and Impacts on Water-related Issues

- increased soil erosion potential due to increased precipitation intensity and amount
- water supply challenges in areas already water-stressed, including the Southern Plains and the Southwest where drought is likely to become more frequent
- > greater flood potential from increased precipitation frequency, duration, amount and intensity, especially in the East and Midwest
- water management challenges in the irrigated West—including amount and timing of water—due to changes in snowpack and snowmelt, with consequent impacts on water rights, fisheries, hydroelectricity, and others
- reater potential for water quality impairments in some areas due to increased sedimentation and nutrient loading
- increased salinization of near-coastal waters due to rises in sea level and greater storm activity

Helping People Help the Land

EPA Public Law 74-46 (1935)

http://www.legisworks.org/congress/74/publaw-46.pdf

- Established the Soil Conservation Service (later NRCS)
- Lays the groundwork for NRCS work including engineering activities

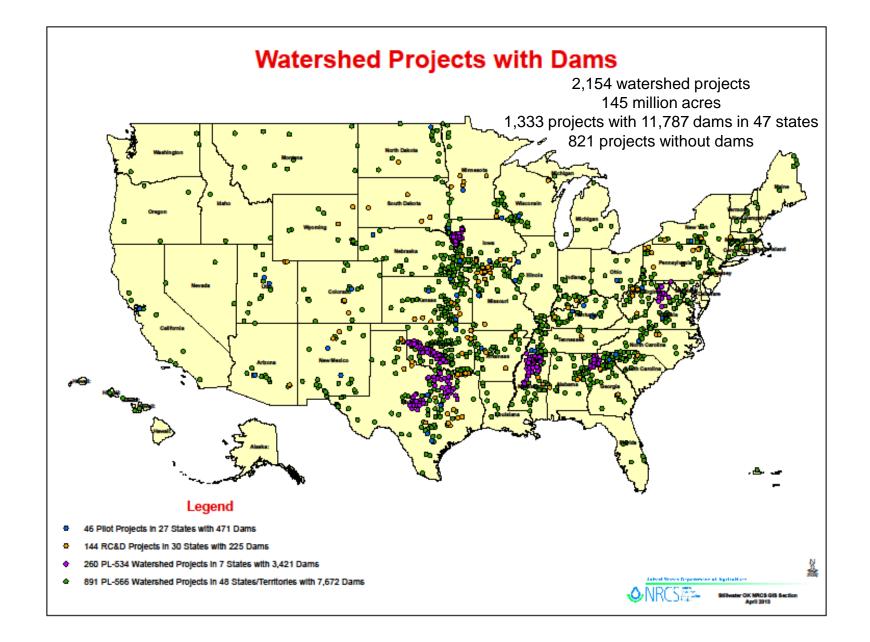
"...is it hereby recognized that the wastage of soil and moisture resources on farm, grazing, and forest lands of the Nation, resulting from soil erosion, is a menace to the national welfare and ... it is hereby declared to be the policy of Congress to provide permanently for the control and prevention of soil erosion and thereby to preserve natural resources, control floods, prevent impairment of reservoirs, and maintain the navigability of rivers and harbors, protect public health, public lands and relieve unemployment, and the Secretary of Agriculture, from now on, shall coordinate and direct all activities with relation to soil erosion... is hereby authorized, from time to time — ...

(2) To carry our preventative measures, including, but not limited to, engineering operations, methods of cultivation, the growing of vegetation, and changes in land use..."

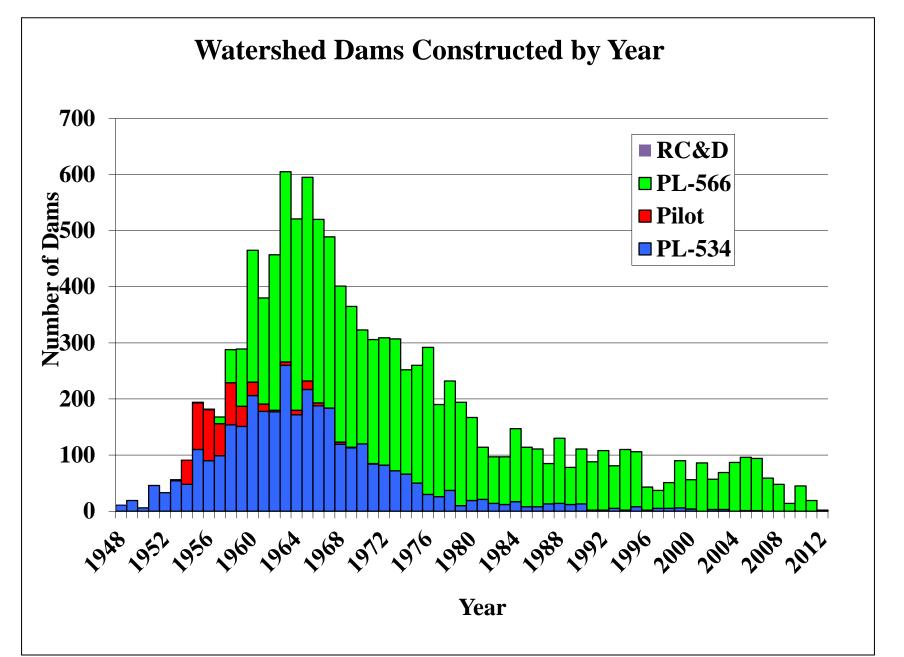














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