

# CEAP—Conservation Effects Assessment Project

## **Lessons Learned**

# Why CEAP?

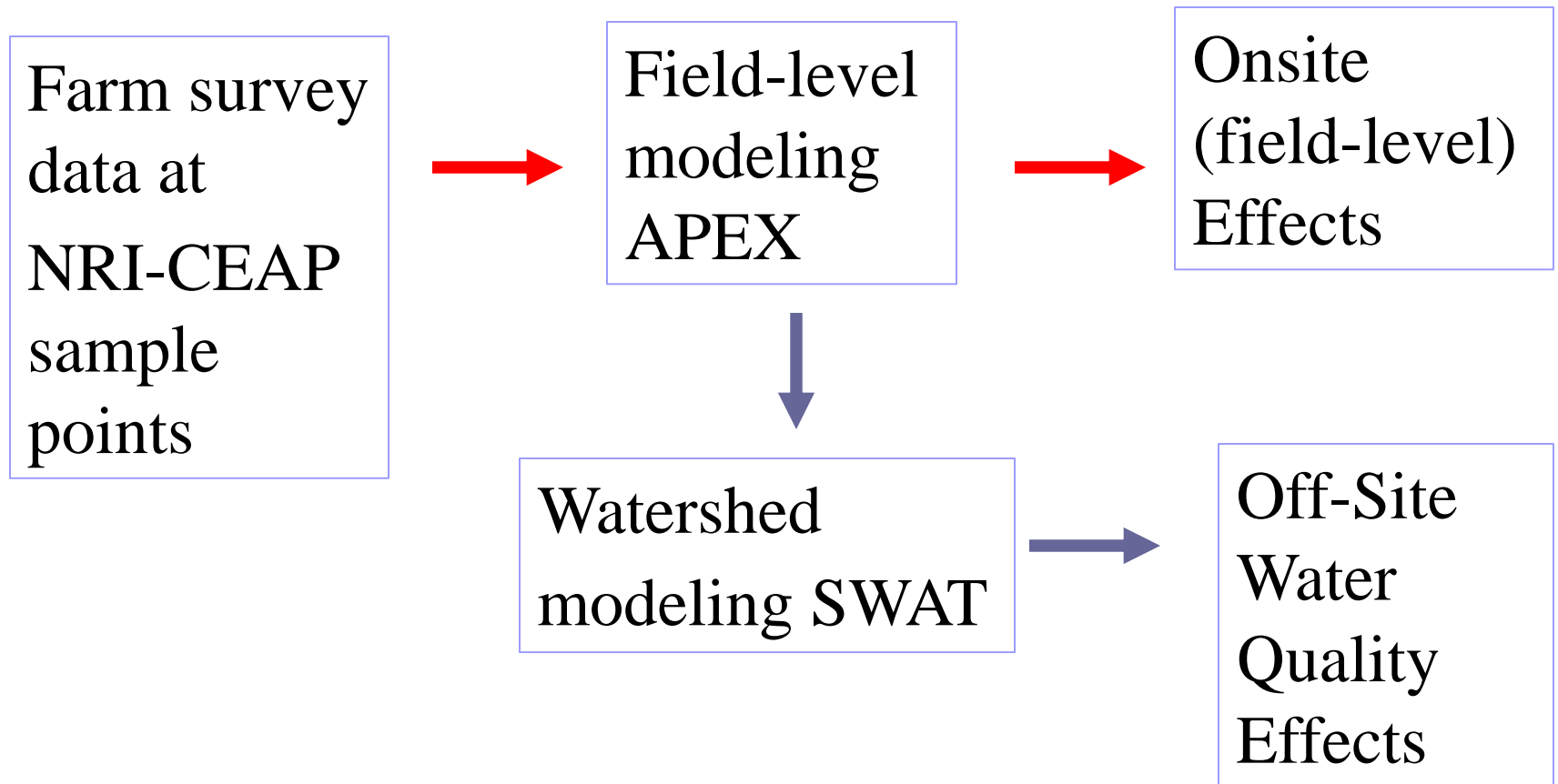
- **OMB requests for outcome-based reporting**
- **2002 Farm Bill significantly increased conservation funding → call from both inside and outside government for better accountability**
- **Assessment is needed to guide development and implementation of future conservation programs**



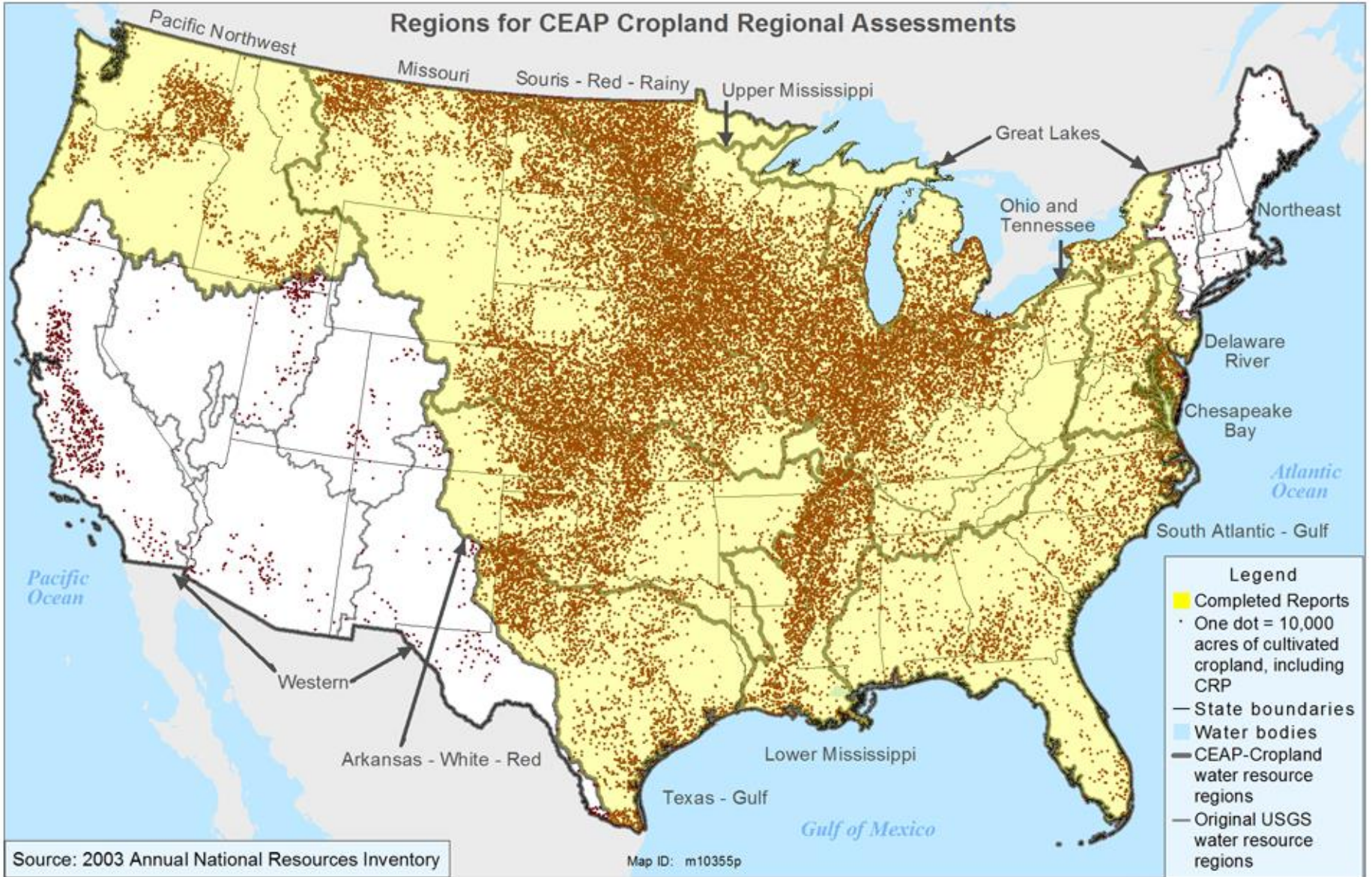
# Cropland National Assessment-- Goals

1. Estimate the benefits of conservation practices currently present on the landscape
2. Estimate the need for conservation practices and the benefits that could be realized under “full treatment”
3. Simulate alternative options for implementing conservation programs on cropland

# How We Do This



# Regions for CEAP Cropland Regional Assessments



Source: 2003 Annual National Resources Inventory

Map ID: m10355p

## The CEAP Cropland Surveys

|   |   |
|---|---|
| <b>2003-2006 National</b>   | 18,691 sample points, cultivated cropland   |
| <b>2011 Chesapeake Bay</b>  | 904 sample points, cultivated cropland<br>Some overlap with 771 sample points from 2003-2006                        |
| <b>2012 Western Lake Erie and Des Moines</b>  | 1,019 sample points in WLE (492 in 2003-2006)<br>599 sample points in DSM (318 in 2003-2006)<br>Cultivated cropland |
| <b>2013 Sacramento Bay Delta</b>  | Approximately 840 sample points (111 in 2003-2006)<br>Cultivated cropland, pastureland, and orchards/vineyards      |
| <b>2014 Lower Mississippi</b>   | Approximately 610 sample points (471 in 2003-2006)<br>Cultivated cropland, pastureland, and orchards/vineyards      |
| <b>2015-2016 National</b>   | Goal is 30,000+ useable sample points<br>Cultivated cropland, pastureland, and orchards/vineyards                   |
| * Each survey is an independently drawn subset of the overall NRI, and each sample point has an acreage expansion weight assigned for it specific to each survey. |   |



# Lessons Learned:



# Lessons Learned: Input Data

- Management Data: Farmer survey
- Crops: growth and nutrient content
- Soils: purpose of database
- Weather
- NRI: Statistics and scale





# Management Data

# NASS Farmer Survey

Project 912 OMB No.0535-0245 Approval Expires 8/31/2007

**USDA** Conservation Effects Assessment Project (CEAP) 2006

**NATIONAL AGRICULTURAL STATISTICS SERVICE**  
 U.S. Department of Agriculture,  
 Rm 5030, South Building  
 1400 Independence Ave., S.W.  
 Washington, DC 20250-2000  
 Phone: 1-800-727-6540  
 Fax: 202-696-2090  
 Email: nass@nass.usda.gov

**NRCS**

| VERSION | CEAP ID | TRACT | SUBTRACT | T-TYPE | TABLE | LINE |
|---------|---------|-------|----------|--------|-------|------|
| 1       |         | 01    | 01       | 0      | 000   | 00   |

**CONTACT RECORD**

| DATE | TIME | NOTES |
|------|------|-------|
|      |      |       |
|      |      |       |
|      |      |       |
|      |      |       |

**INTRODUCTION**  
*[Introduce yourself, and ask for the operator. Rephrase in your own words.]*

The National Agricultural Statistics Service is collecting information on land management and conservation practices that will be used by the Natural Resources Conservation Service (NRCS, formerly SCS) and the Farm Service Agency (FSA, formerly ASCS) to assess the environmental benefits associated with implementation and installation of conservation practices. The assessment will be used to report progress annually on the Farm Bill implementation to Congress and the general public. We need your help to make the information as accurate as possible. Authority for collection of information on the Conservation Effects Assessment Project Report is Title 7, Section 2204 of the U.S. Code. Response to this survey is confidential and voluntary.

*We encourage you to refer to your farm records during the interview.*

0001  
1  
H H M M

BEGINNING TIME  
[MILITARY] 0004

| Matched ARMS | ARMS II ID |
|--------------|------------|
| 0008         | 0012       |

OFFICE USE: LSF CHANGE

0009

[Name and address verified and updated if necessary.]

[Show the aerial photography to respondent and locate the sample point. Identify the field associated with the point.]

1. Do you make any of the day-to-day farming/ranching decisions for the field containing this point?  
 YES  NO

*[If YES, continue. If NO, conclude the interview and ask for the respondent's assistance in locating the correct operator.]*

- 44 pages
- Covers all aspects of crop production for 3 years.
- Tillage
- Fertilizers and manures
- Pesticides
- Irrigation
- Conservation

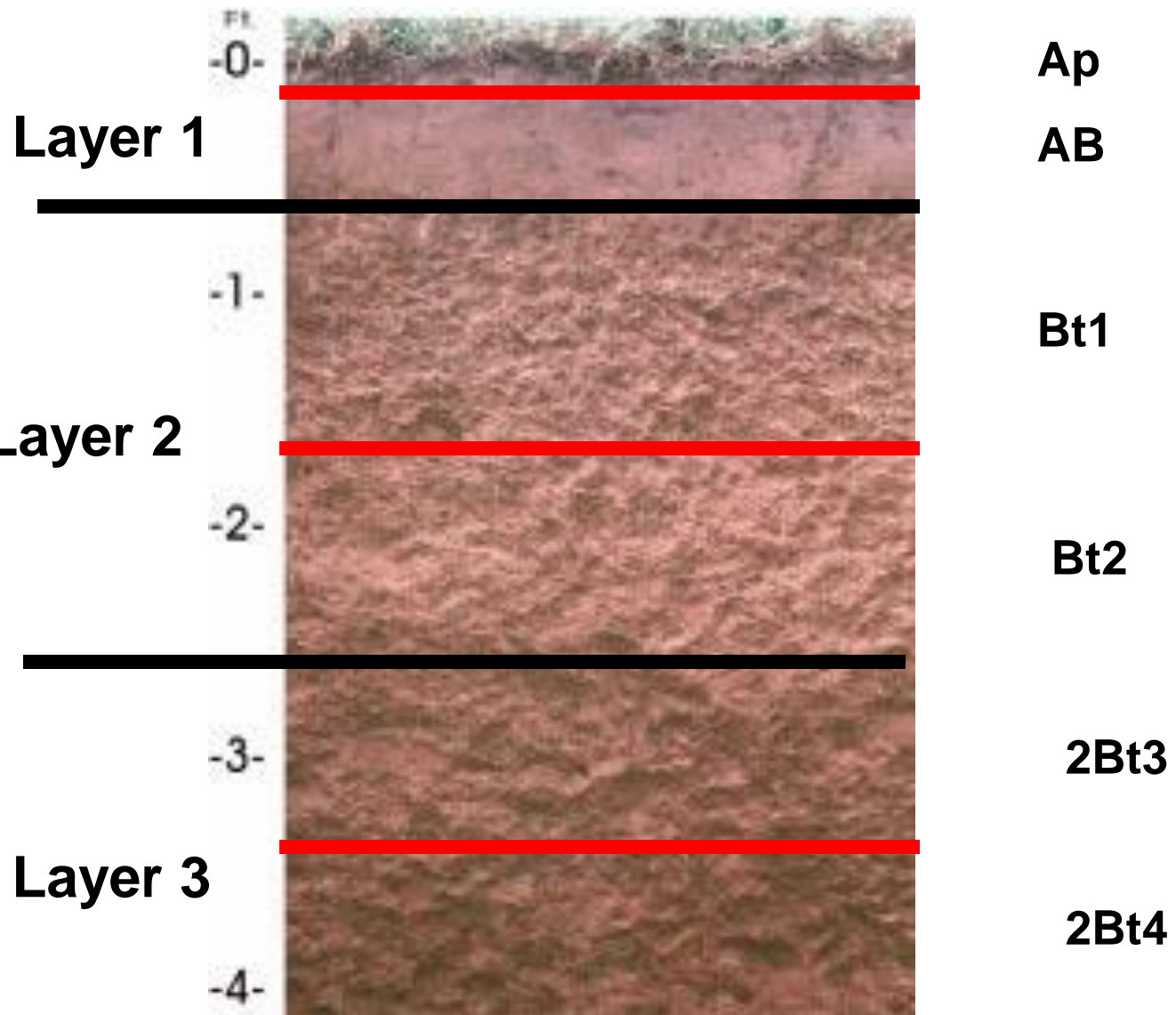


# NRCS Soils Data

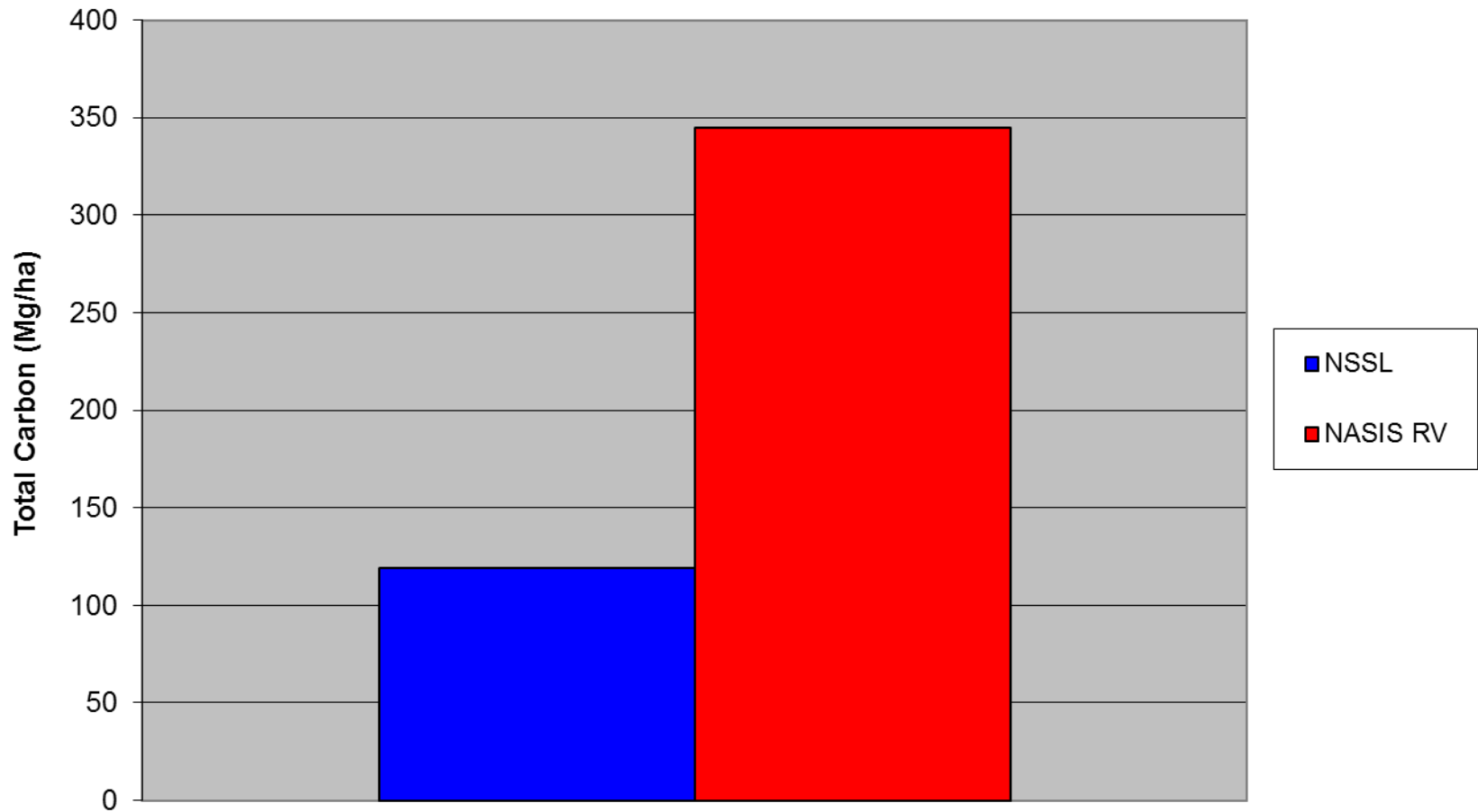


# NRCS Soil Databases

- Both NASIS and Soil Taxonomy are landuse independent.
- NASIS reports a Representative Value (RV) and a range, hi and lo.
- The RV works better for empirical models like RUSLE than a process model like EPIC or APEX



### Total Carbon Stores (Mg/ha)



# EFFECT OF NASIS RV CARBON

| <b>Kenyon<br/>Apex Output</b> | <b>NASIS<br/>C</b> | <b>Lab<br/>Crop pedon<br/>C</b> |
|-------------------------------|--------------------|---------------------------------|
| Corn Yield (bu)               | 180                | 176                             |
| Carbon Trend                  | -400               | 174                             |
| Total N Loss (lbs)            | 82                 | 28                              |
| Total P Loss (lbs)            | 4.3                | 2.6                             |
| Sediment Loss (tons)          | 1.66               | 1.5                             |



# Weather Data





# Weather Data

- Interpolated Data
  - Diminishes the peaks of events
  - Reduces runoff and erosion
- Single Station
  - One station per HUC12



# Scale

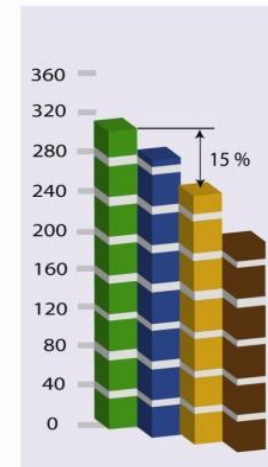
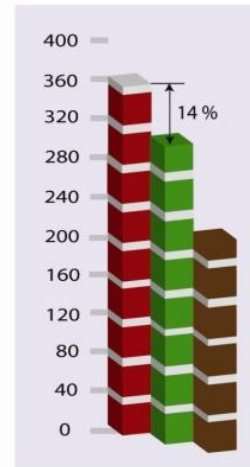
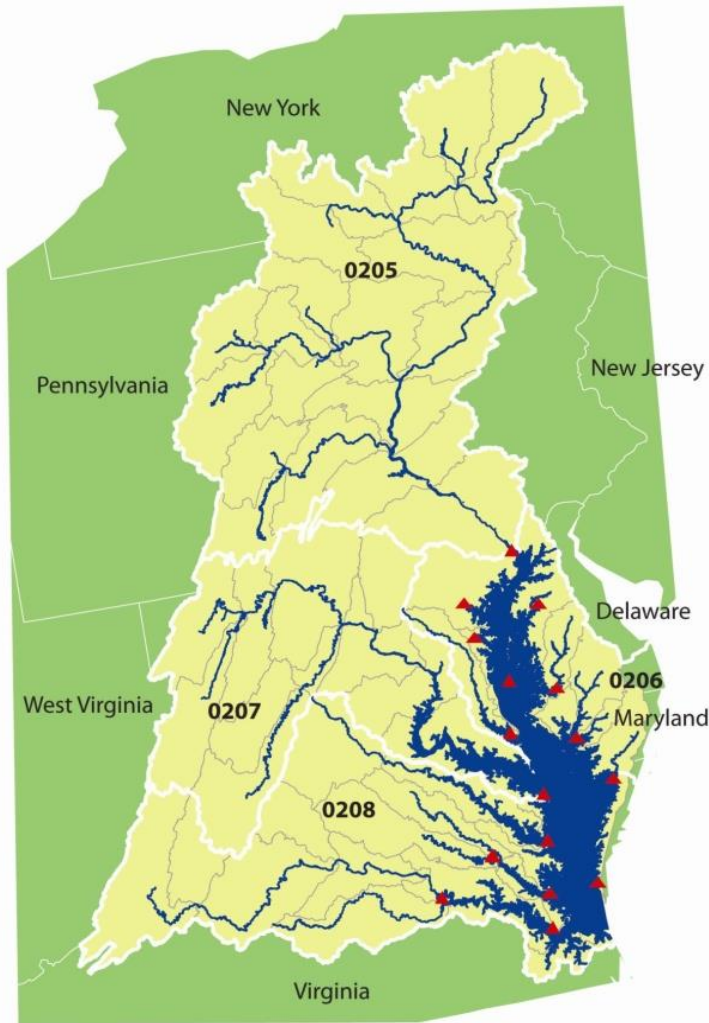
# USDA Farm Production Regions





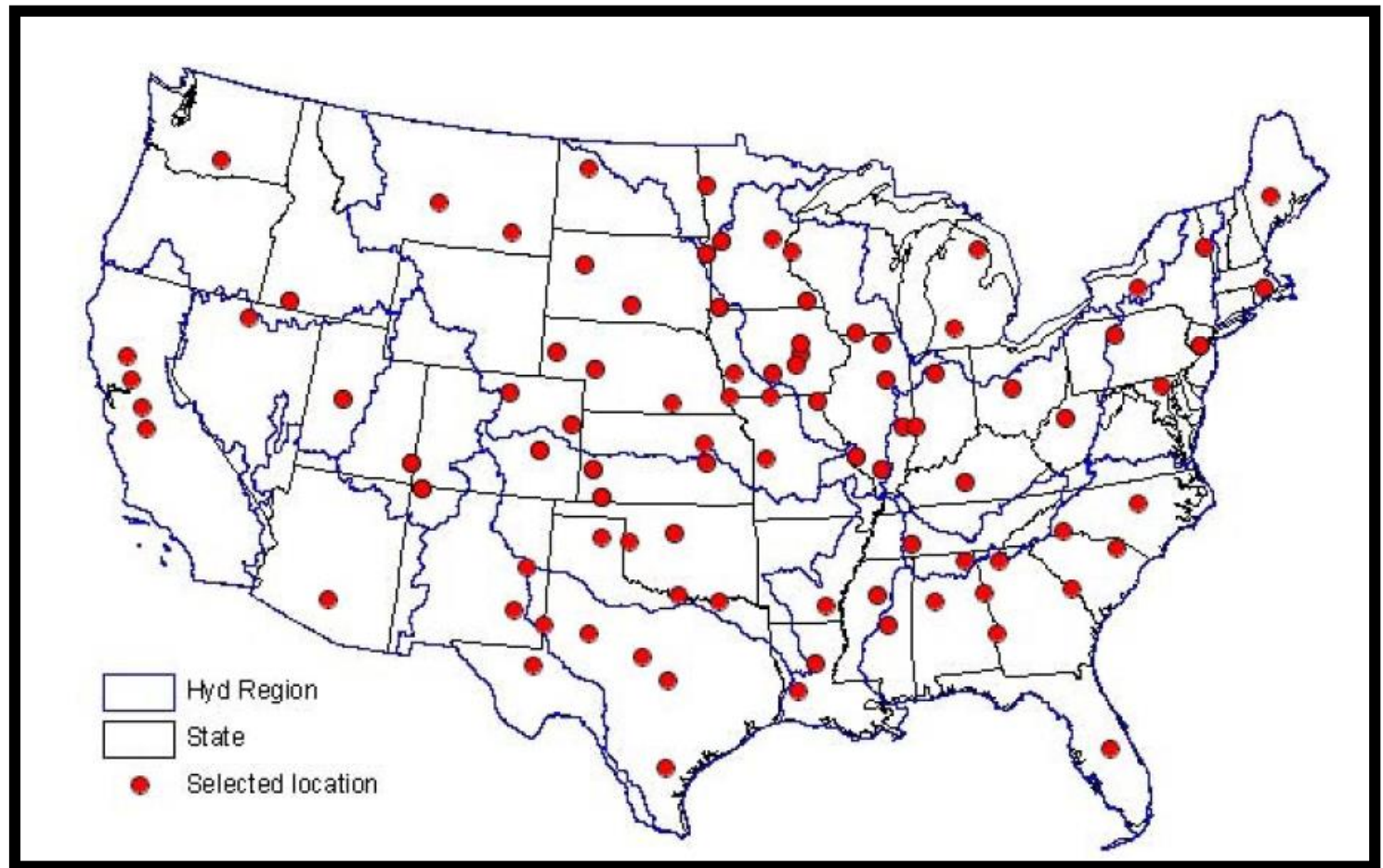
# Modeling

## Nitrogen delivered to the Chesapeake Bay (all sources-instream loads)



▲ Outlet of watersheds (8-digit hucs) delivering directly into the Bay

# APEX SENSITIVITY ANALYSIS



Distribution of APEX testing sites across the U.S. that were used in the CEAP sensitivity analysis



# Modeling and Measuring

- Comparisons with Measured Data
  - How good is my modeling?
- How good is the measured data?
  - More exposure and publication of the measured data and error



# Lessons Learned: Impact

- Publish on to next project

- Economics

- Policy

- Regulation

- ***Stress Confidence Limits***





Thank you.