



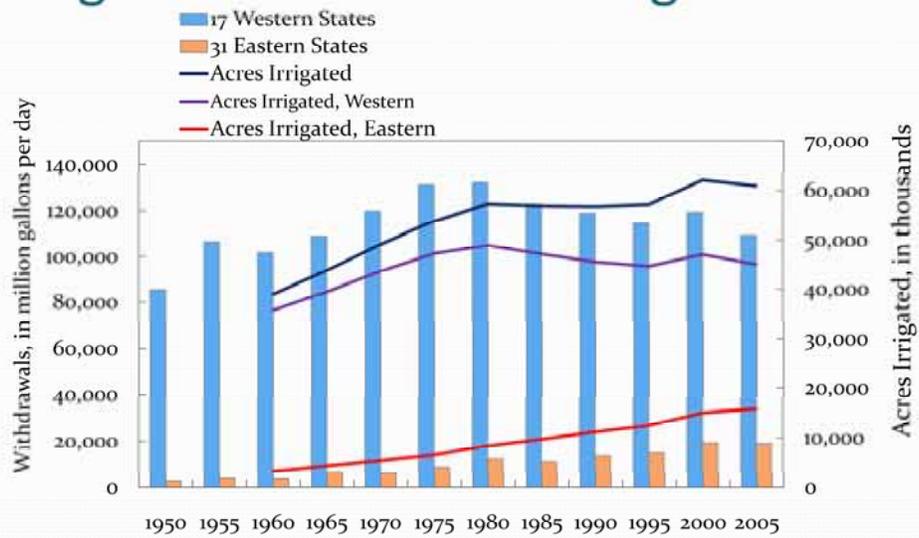
IRRIGATION

Mid-Atlantic Water Use Workshop
USGS MD-DE-DC Water Science Center
April 19-20, 2010

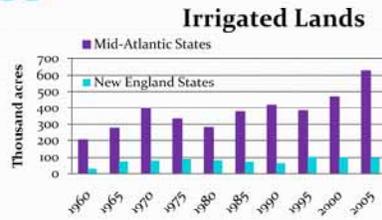
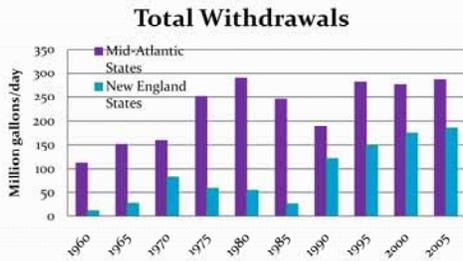
Molly Maupin, Idaho WSC



Irrigation Trends: Total Irrigation



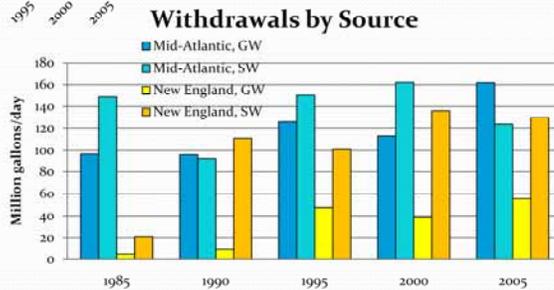
Irrigation Trends: Mid-Atlantic and New England States



Withdrawals and irrigated acres have been increasing.

GW:SW ratios in Mid-Atlantic States for 2005 flipped.

Some of these trends are driven by compilation requirements (turf farms reporting double crops, GC irrigation, harvesting methods)



Irrigation Water Use Activities FY2010-2012

- Inventory data and documentation for 2000 and 2005 compilations. (AZ WSC and staff, FY2010)
- Improve irrigation water-use estimates in Mid-Atlantic and New England States using regression equations and data for climate, crop type, and irrigation practices. (MA WSC, FY2010-2012)
- Consumptive Use (OGW Challenge Grant Project; EROS, FY2010-2012)

Inventory of 2000 and 2005 Irrigation Compilations

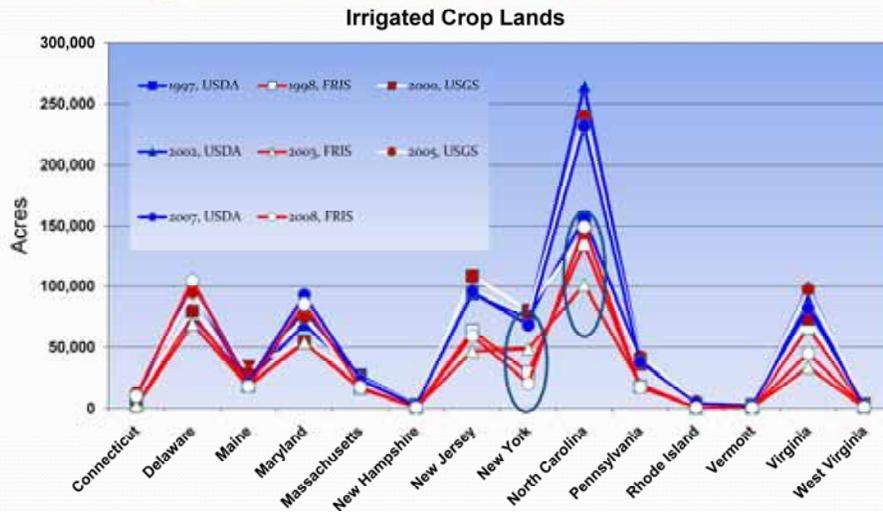
- Summarize compilation data and methods used in 2000 and 2005.
- Compare with other available data (County, State, Federal, NGO).
- Assess differences and identify gaps in data and documentation.
- Identify where improvements could be made.
- Build standards for documentation, and assess the datasets commonly used by many.

The first order of business with this work was to comb through documentation and ancillary data to summarize what was predominantly used by WSC specialists to compute withdrawals and irrigated acres. Comparisons between the USDA data sets, although offset by years, were also analyzed. Spreadsheets and documents are being compiled now and will be synthesized at the end of the project.

One major hurdle is understanding documentation for irrigation water use as they are written. There is no set standard or format and the documents vary widely in the details about what data was used and how it was used, or what has happened in the State since the last compilation. This effort will look at all the documents and propose standards for minimum levels of information and descriptions about the data.

Another product from this work will be a list of datasets that are most commonly used, and propose ways that these datasets could be reformatted if necessary, and presented to water-use specialists as a tool to assist in the compilation. This summary documents from this effort will provide listings of those State agencies that monitor and report irrigation water use, similar to the Appendix in the NRC report.

Inventory data and documentation: Making sense of the data.





2009 Cropland Data Layers



Land Cover Categories (by decreasing acreage)

Agriculture

- Pasture/Grass
- Corn
- Soybeans
- All Wheat
- Other Hays

- Fallow/Idle Cropland
- Alfalfa
- Cotton
- Other Crops
- Sorghum

- Vegetables/Fruits/Nuts
- Other Small Grains
- Rice

Non-Agriculture

- Woodland
- Shrubland
- Urban/Developed
- Wetlands
- Water
- Barren
- Perennial Ice/Snow

Improve methods for irrigation withdrawals in Mid-Atlantic and New England States

- Study area Mid-Atlantic and New England States, plus North Carolina, to encompass North Atlantic Coastal Plain aquifer system.
 - Task 1, data compilation.
 - Task 2, data stratification.
 - Task 3, logistic regression equations.
 - Task 4, alternative methods.
 - Task 5, uncertainties.
- Timeline (FY2010-2012)
- Products are reports and possibly new equations to use in 2010 compilation.

Consumptive Use (OGW Challenge Grant Project)

- Use satellite imagery and remote-sensing technology and energy-balance methods to estimate actual evapotranspiration (Eta) from irrigated lands (consumptive use) at multiple spatial and temporal scales.
- Calculate for 2000 and 2005, annual, county level.
- Comparison to 1990-1995 NWUIP irrigation consumptive use (possibly 1985 too).
- Applications to groundwater availability and use studies, and other models.
- Mostly arid western and mid-continent States with less precipitation and more irrigation.

2010 Compilation

- Nothing new will be added to the mandatory request for the National dataset. WSC are encouraged to compile other variables (HUC, Aquifer, CL, CU) if they can.
- County
 - GW, fresh
 - SW, fresh
 - Irrigated acres, by system type.

2010 Compilation

- The three projects previously discussed may provide help.
 - Better understanding about USDA/NASS or other datasets.
 - Alternative methods, using regression equations, in States that do not have good monitoring programs.
 - Consumptive use for missing years, 2000 and 2005, and potential to compute 2010 with no impact on WSC.
 - Standards for documentation.
 - National datasets or datasets applicable for regions.

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