

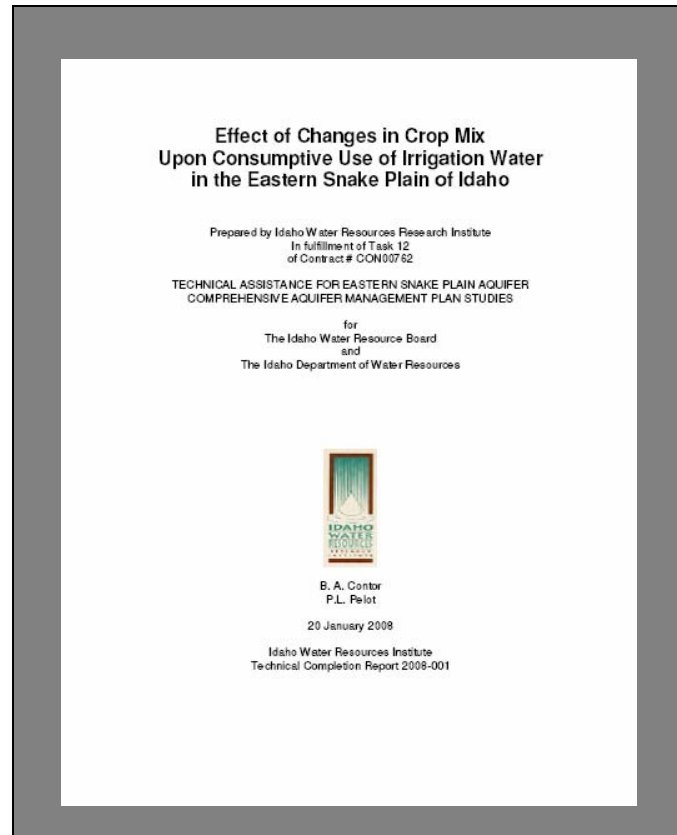
# Changes in Crop Mix

Presentation to the  
Comprehensive Aquifer Management  
Plan Committee  
Idaho Falls, February 2008



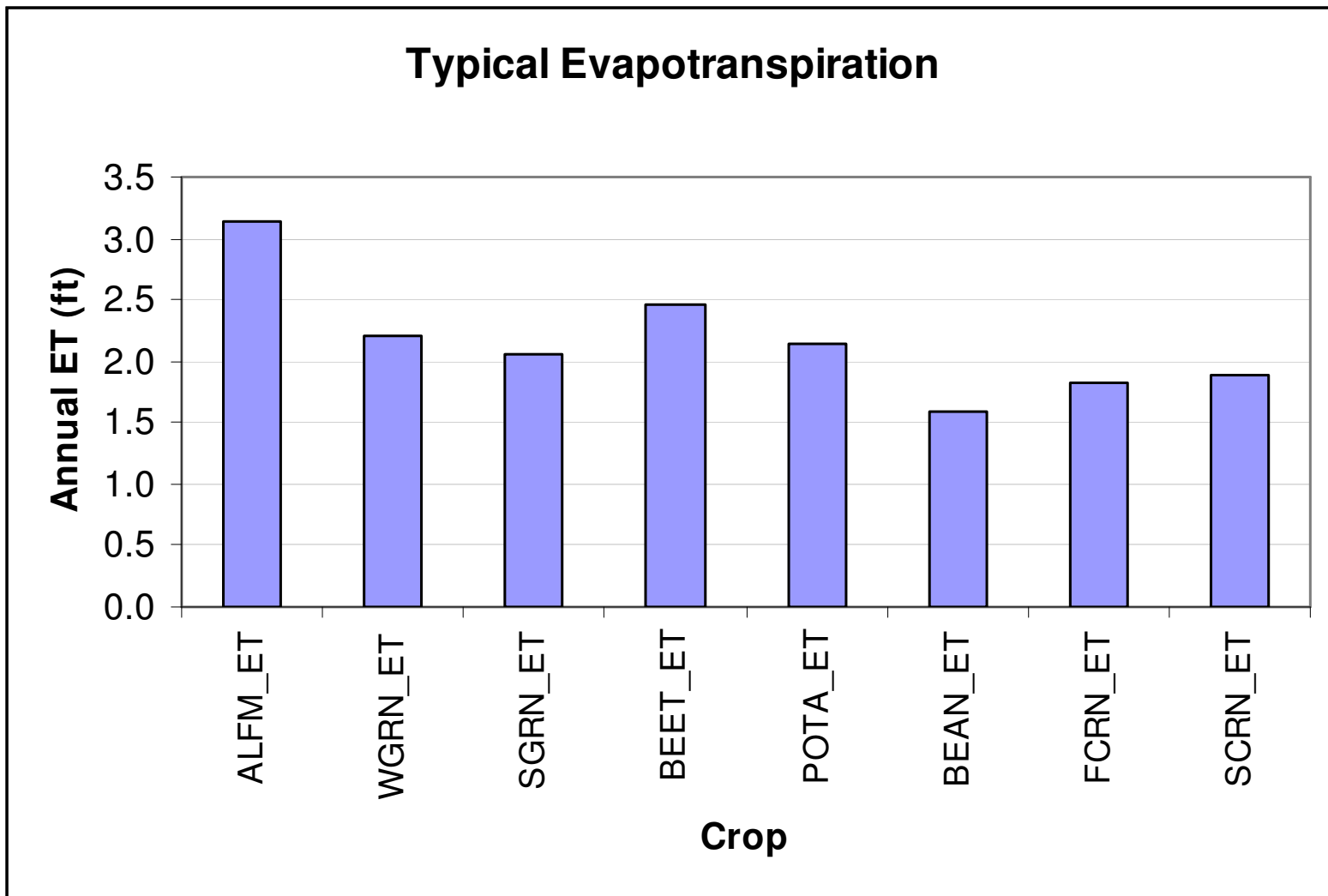
B. Contor

# Summary of Written Report



- Assessment of changes that have occurred
- Assessment of potential to affect water budget by adjusting crop mix

# Why do we care?





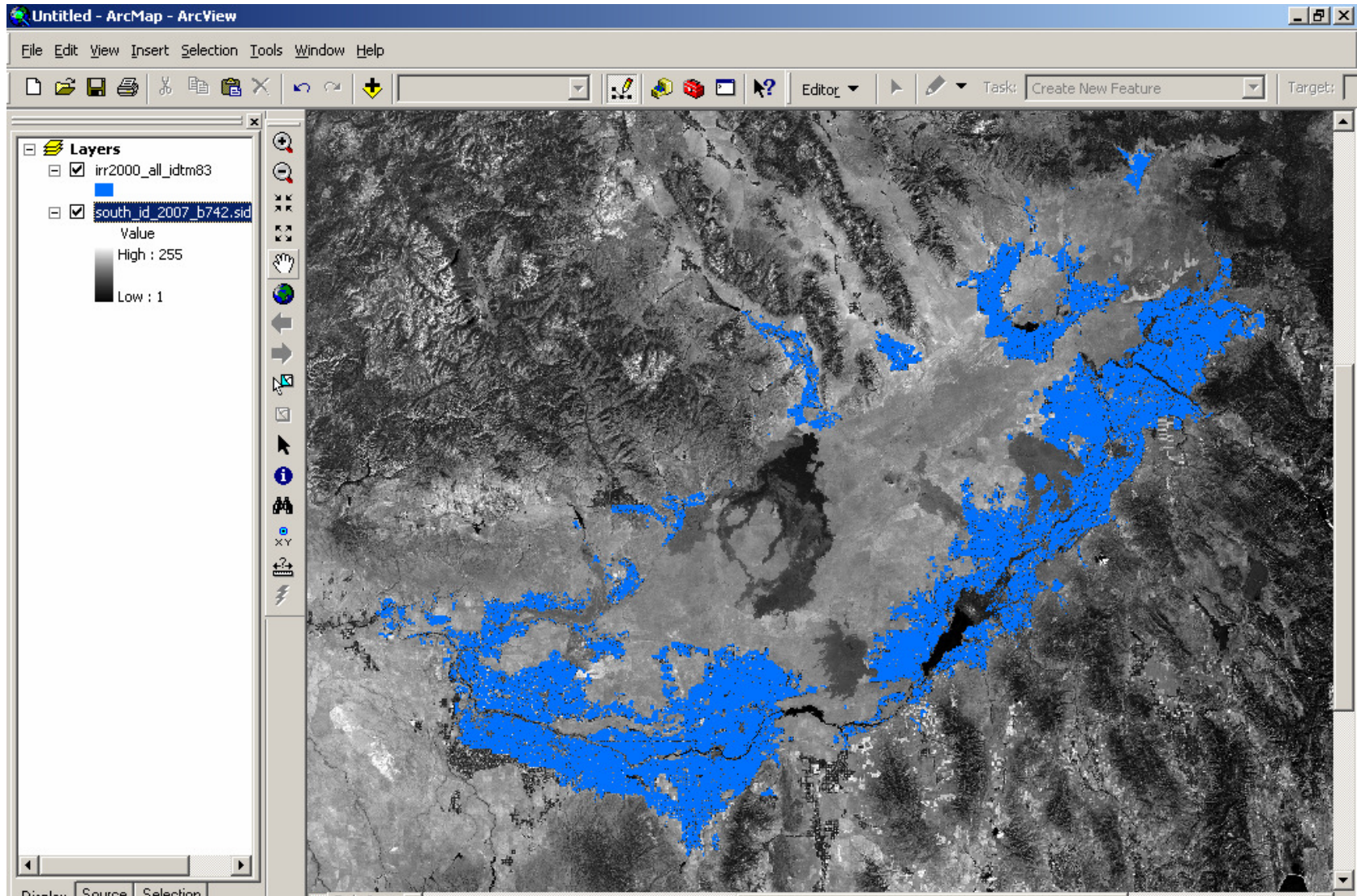
# 1: Assessment of changes

- Crop *percentage* by county 1980 - 2006
- Other effects held *constant*
  - Use *same acreage map* for all years
  - Use *same ET values* for all years
- What would have been each year's consumptive water use with the *sample acreage* and *sample ET*?
  - This *isolates* the effect of crop-mix changes

# Crop data from Ag Statistics Service



# Irrigated lands from IDWR analysis of LANDSAT





# Evapotranspiration from BOR/ NRCS AGRIMET

AgriMet - The Pacific Northwest Cooperative Agricultural Network, Bureau of Reclamation - Windows Internet Explorer

http://www.usbr.gov/pn/agrimet/

Google agrimet

AgriMet - The Pacific Northwest Cooperative Agricultu...

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**AgriMet**

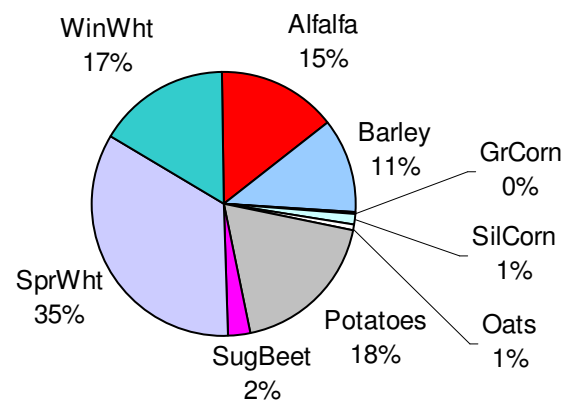
The Pacific Northwest Cooperative Agricultural Weather Network

AgriMet, a conjunction of the words "agricultural" and "meteorology", is a satellite-based network of automated agricultural weather stations operated and maintained by the Bureau of Reclamation. The stations are located in irrigated agricultural areas throughout the Pacific Northwest and are dedicated to regional crop water use modeling, agricultural research, frost monitoring and integrated pest and fertilizer management.

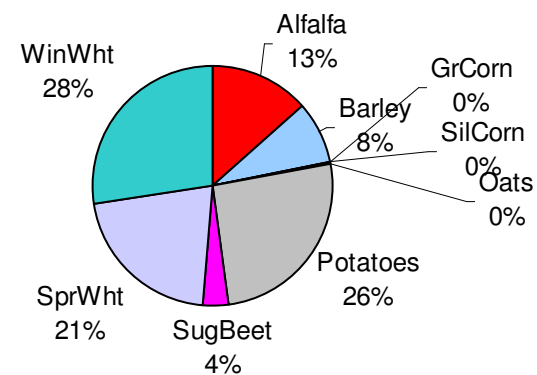
Results:



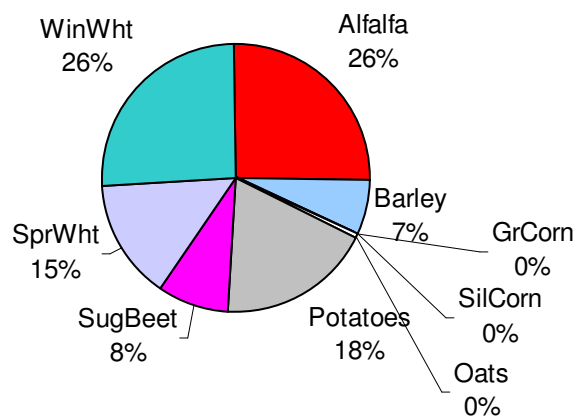
### Bingham County Crop Mix 1980



### Bingham County Crop Mix 1990



### Bingham County Crop Mix 2006



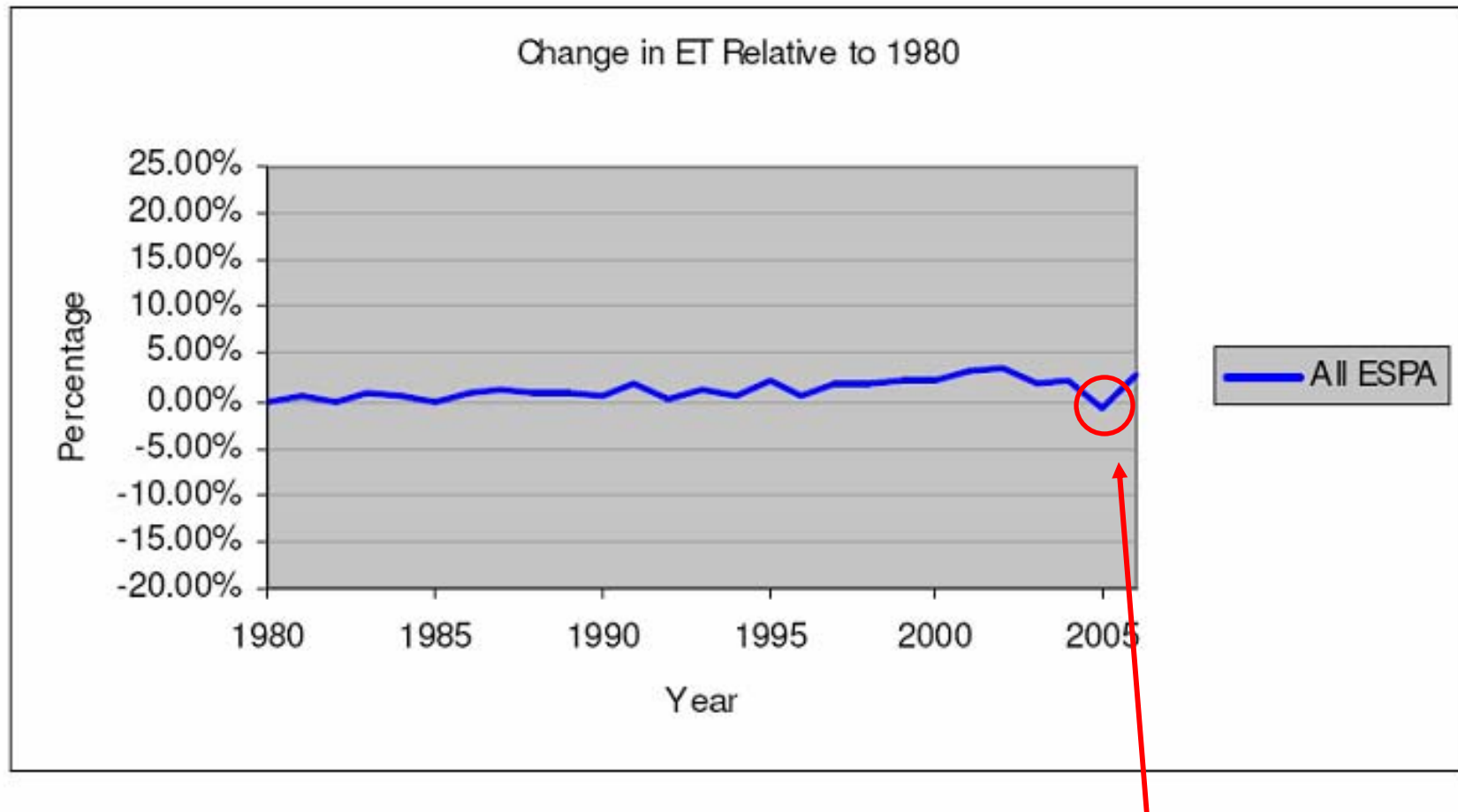


Figure 10

***Danger, Will Robinson!***

# Bottom Line:

- Upward trend in total Consumptive Use
  - statistically significant even considering auto-correlation
  - very small percentage-wise; 0.04 to 0.14% per year
  - small percentages of big numbers can still add up



## Bottom Line:

- Total consumptive use of 2006 crop mix is about **120,000** acre feet per year more than 1980 crop mix

## 2: Potential adjustments



## 2: Potential adjustments

- Start with 2006 crop mix
  - not an "unusual" year
- Switch to lower-consumptive crops
  - 10% of alfalfa ---> convert to barley
  - 10% of silage corn ---> convert to barley
  - *why not sugar beets?*



## 2: Potential adjustments

- Use fallow in rotation with cash crops
  - assume 3-year potato rotation  
(2 yrs out/ 1 yr in)
  - if we influence 1/4 of the rotation acres then the potential is 50% of total potato acreage
  - on those acres assume barley ---> fallow
- Calculate difference in consumptive use

# Bottom Line

- 300,000 acre feet/year from fallow rotation with potatoes
- 50,000 acre feet/year from replacing some alfalfa & silage with barley
- Potential aquifer benefit **350,000** acre feet per year

# Summary

- Historic changes equivalent to **120,000** acre feet/year
- Fallow rotation could benefit the aquifer **300,000** acre feet per year
- Replacing 10% of alfalfa & silage corn with barley could benefit the aquifer **50,000** acre feet per year



# Next Steps?

- What would it cost to implement?
- What kind of participation rate is feasible?
  - we assumed 10% of alfalfa/silage acres
  - we assumed 25% of potato rotation acres
- What would be possible if barley returned to historically “normal” prices?



# Discussion

