Estimating Economic Impacts of the 2014-2015 California Drought

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Sacramento
November 20, 2014

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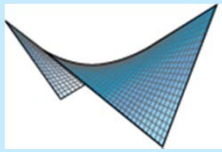

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2014 Estimated Drought Impacts

Drought impact	Loss Quantity
Water supply impacts, 2014 drought	
Surface water reduction	6.6 million acre-feet
Groundwater pumping increase	5 million acre-feet
Net water shortage	1.6 million acre-feet
Statewide agricultural impacts, 2014 drought	
Crop revenue loss	$810 million
Additional pumping cost	$454 million
Livestock and dairy revenue loss	$203 million
Total direct losses	1.5 billion
Total economic cost	$2.2 billion
Total job losses	17,100

Mid-season Economic Cross Checks

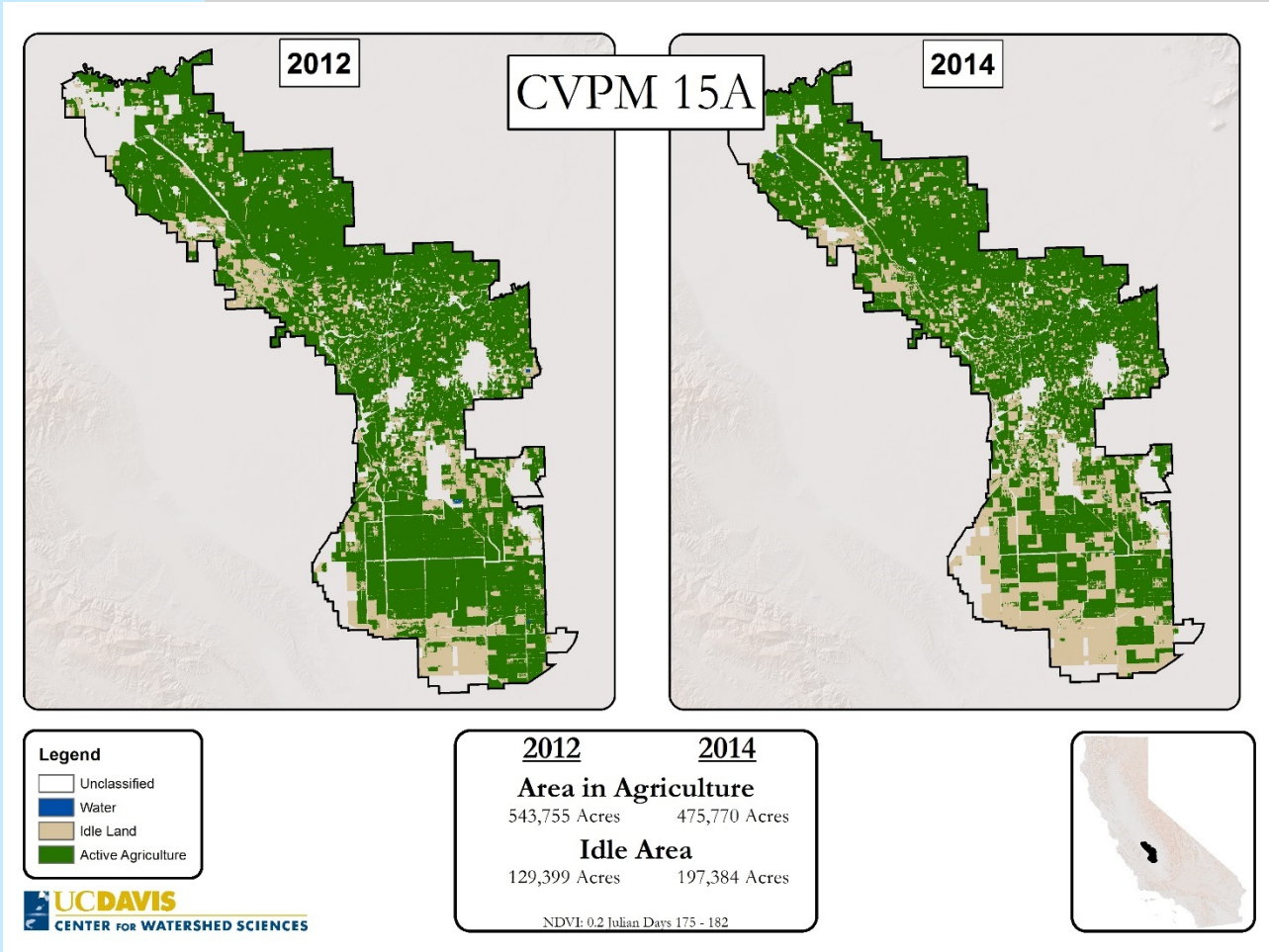
- Price changes for California specialty crops
- Satellite measures of fallowed acres
- Socio-economic impact indicators

Food Price Index Projections

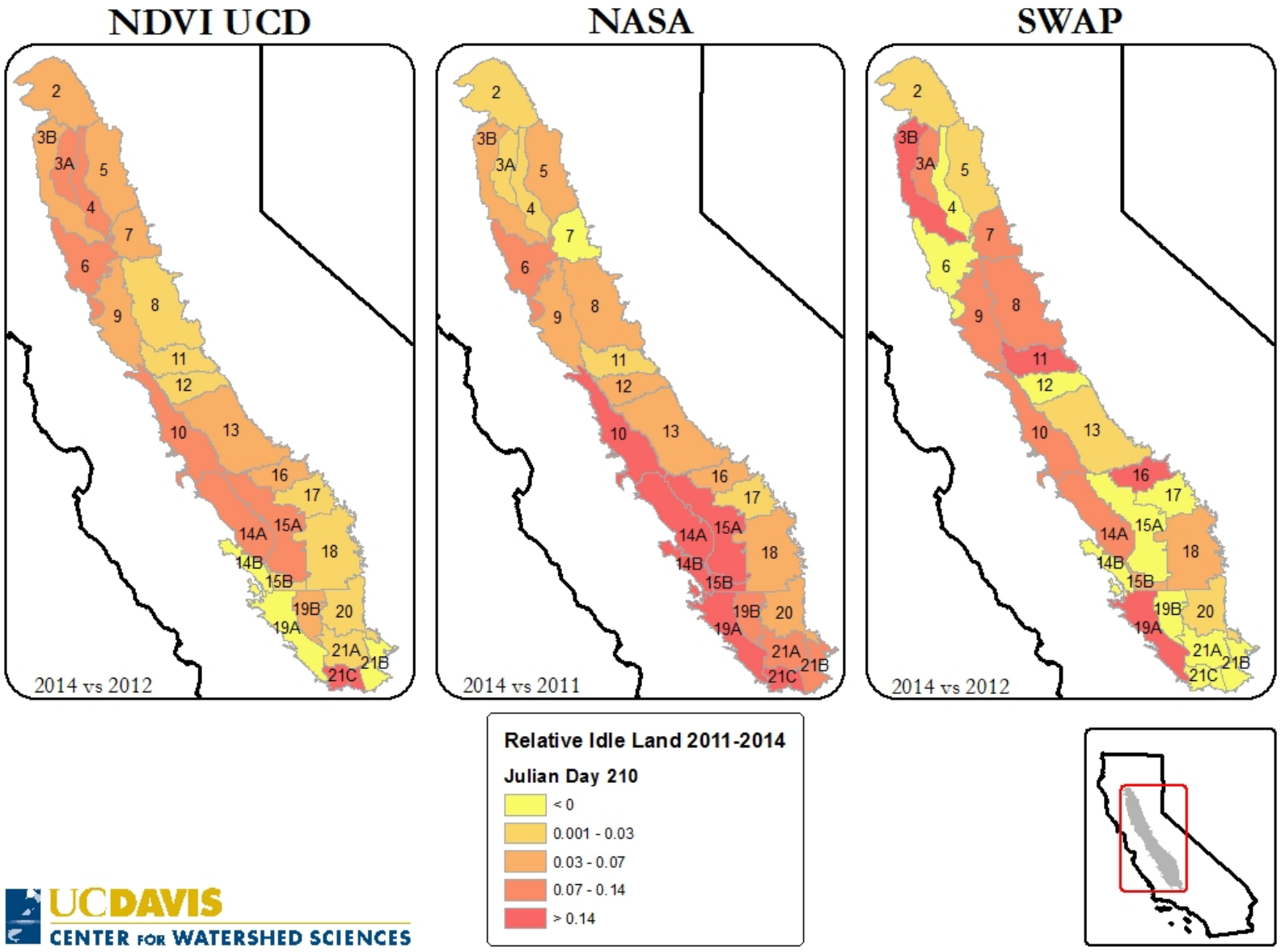
Consumer Price Indexes	***Trend***	***% change 2014***
All food		2.7
Food away from home		2.5
Food at home		2.9
Meats, poultry, and fish		8.8
Meats		11.8
Poultry		1.7
Eggs		9.7
Dairy products		4.4
Fats and oils		1.1
Fruits and vegetables		0.1
Fresh fruits & vegetables		0.3
Processed fruits & vegetables		-0.4

Source: http://www.ers.usda.gov/data-products/food-price-outlook.aspx#.VCuPIhawWSo (September 2014)

Middle of Tulare Lake Basin

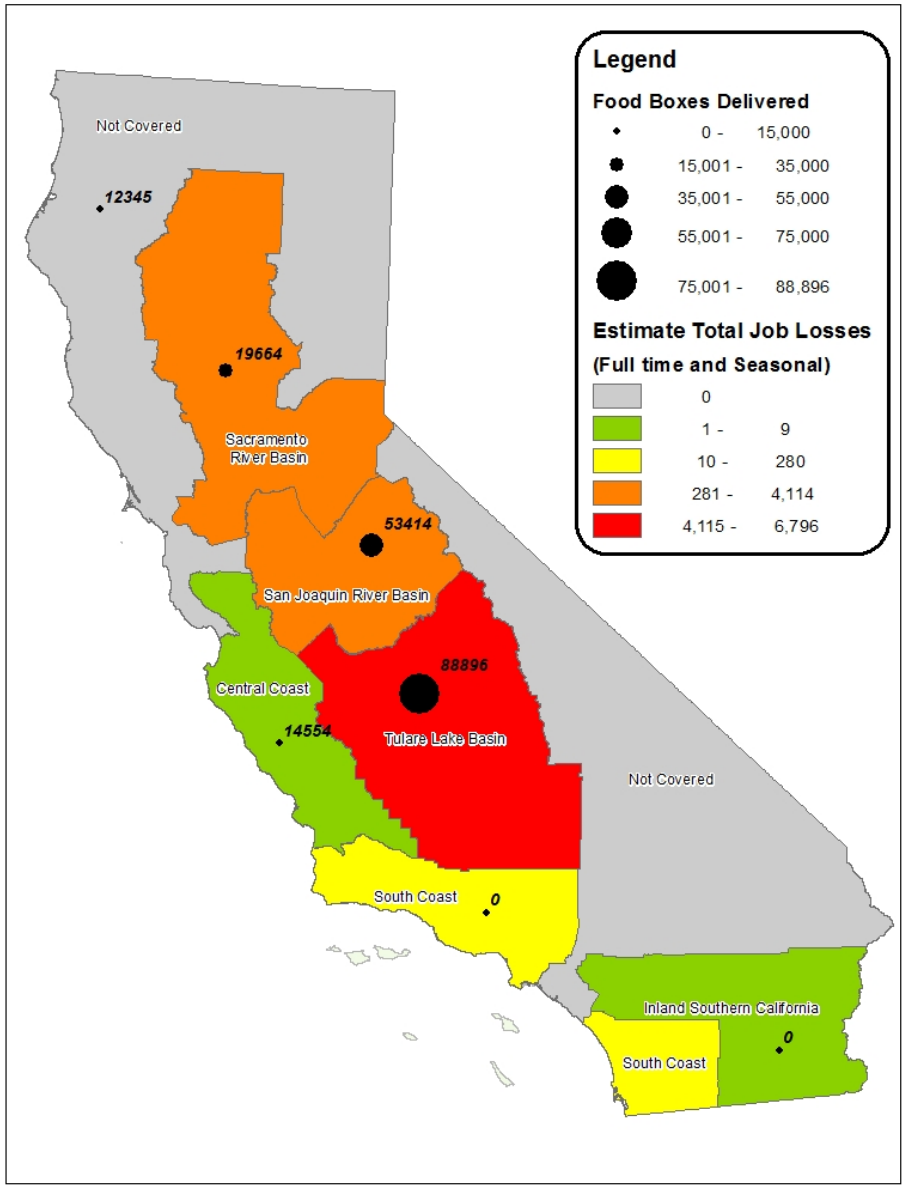


Comparison of Idle Land July/August



Overlay of Estimated Job Losses and Assistance

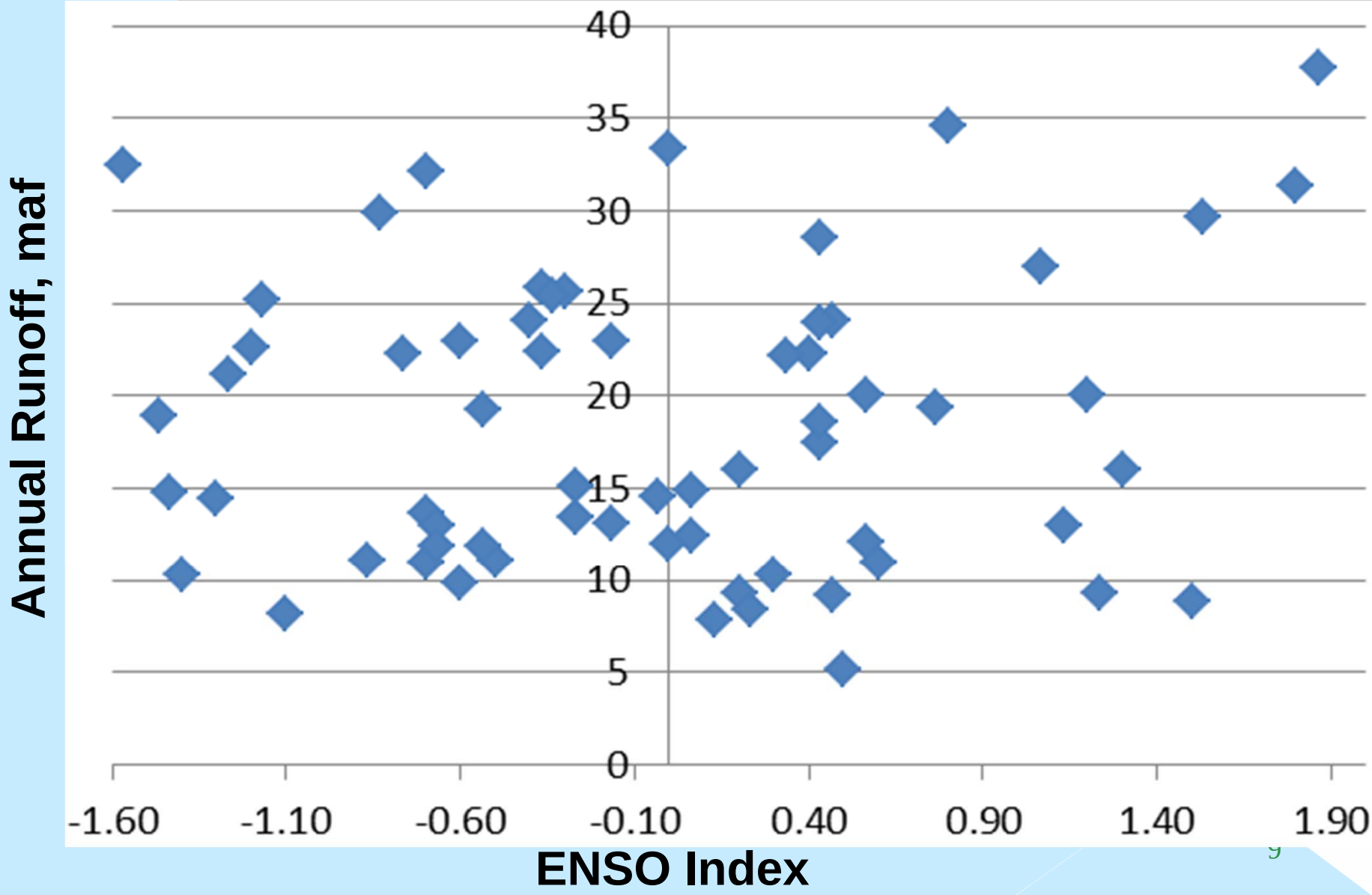
- Number of boxes by IMPLAN region
- Job losses by region in 4 brackets
- Food boxes were delivered to regions with job losses
- Tulare Lake Basin is the most seriously affected



Will next year be dry? (from historical data, 1906-2013)

	Probability next year			
	Sacramento Valley		San Joaquin Valley	
Next Year	Historical	Critical now	Historical	Critical now
Critical	0.13	0.29	0.18	0.55
Dry	0.21	0.35	0.14	0
Below Normal	0.18	0.07	0.16	0.15
C,D	0.34	0.64	0.32	0.55
C,D, BN	0.52	0.71	0.48	0.7
AN, W	0.48	0.29	0.52	0.3

Streamflow and El Nino (maf)



Lessons for water policy

- Droughts are inevitable
- Portfolio approach
- Groundwater
- Water markets
- Need for state agencies to work better together
- Information
  - Better water and water use data, made more available with better modeling
  - Potential of remote sensing estimates
  - Retrospective assessment of drought