



**IDAHO** Department of  
Water Resources

## Treasure Valley Aquifer System and Water Budget

Treasure Valley CAMP Advisory Committee Meeting #2  
May 20, 2010



## Overview

- Treasure Valley Aquifer Systems
  - Geologic framework
  - Hydrogeologic Conditions
  - History of ground water development
- Ground water budget
  - Recharge sources
  - Discharge sources
- Management Areas and Areas of Concern

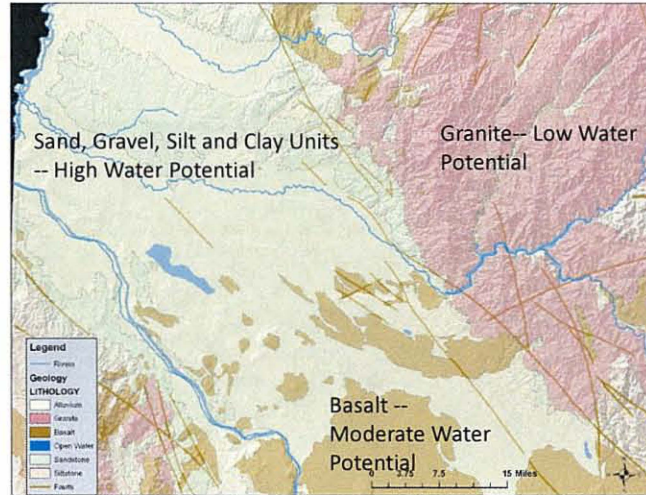
## Importance of Ground Water in the Treasure Valley

- Over 95% of the Valley's drinking water supply comes from ground water (United Water's uses 20% surface water).
- Approximately 100,000 AF of ground water pumping for irrigation supply.
- Approximately 30,000 well records within the Treasure Valley CAMP boundary.

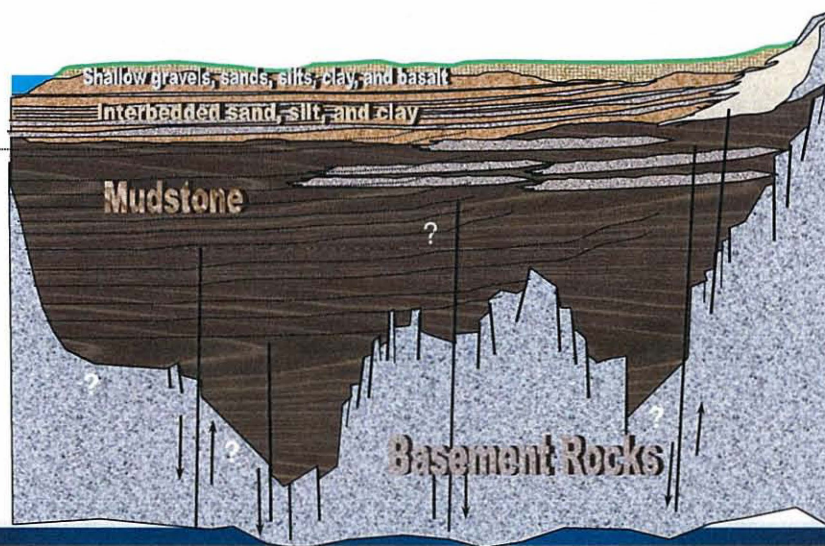
## Ground Water Occurrence

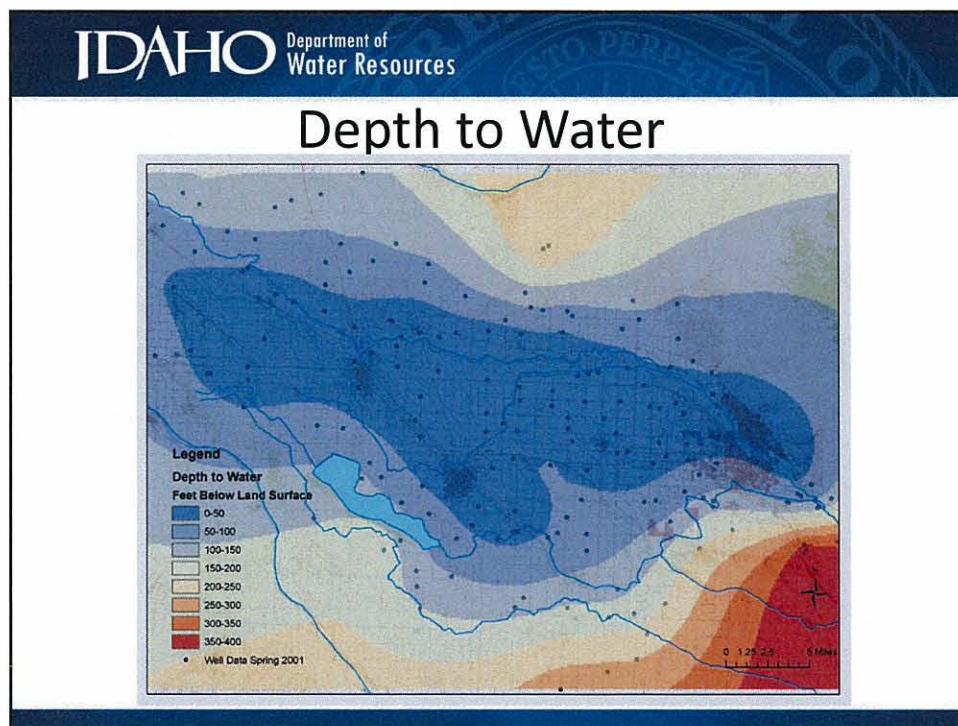
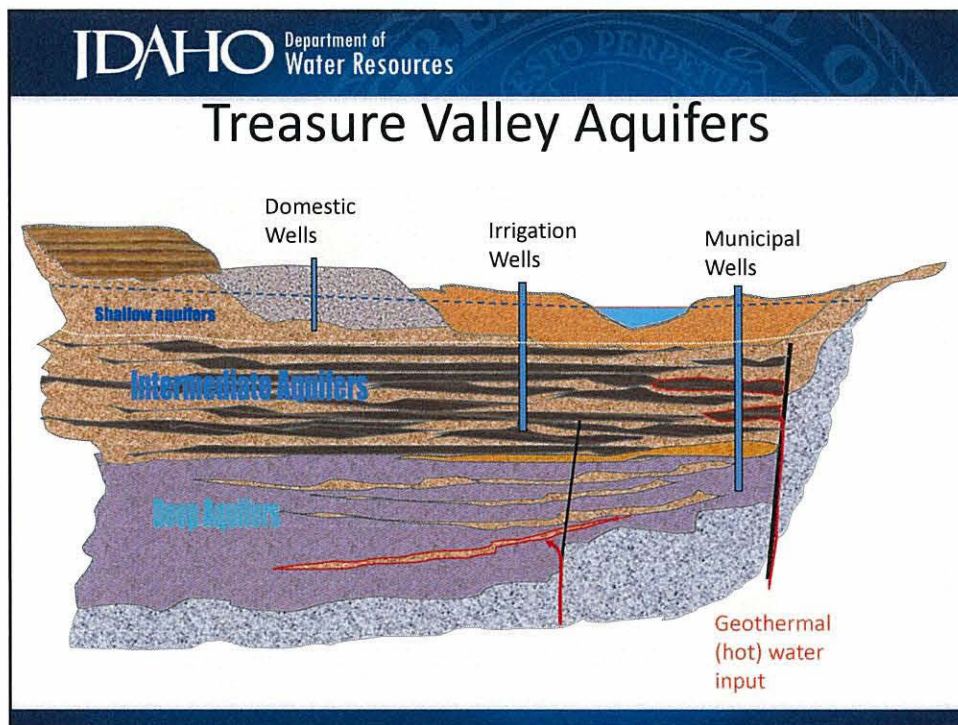
- Ground water exists at various depths throughout the valley. Four primary classifications:
  - Shallow (Sand and gravels; domestic wells)
  - Intermediate (Sands and silt units; domestic, irrigation, and municipal wells)
  - Deep (Sands, mudstones; Municipal and irrigation)
  - Geothermal (Rhyolite, Basalt, Sediments; Heat sources)

## Treasure Valley Geology

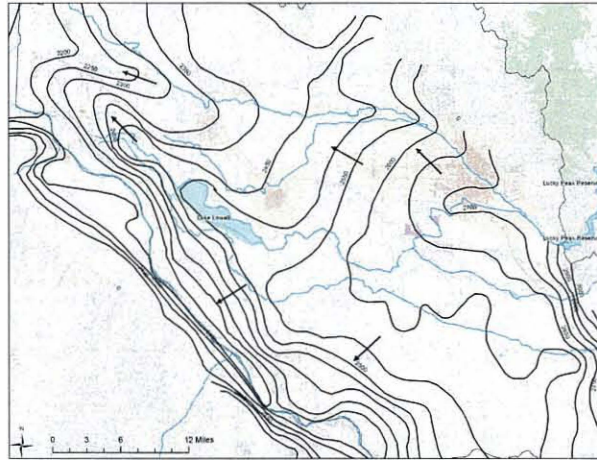


## Conceptual Cross Section

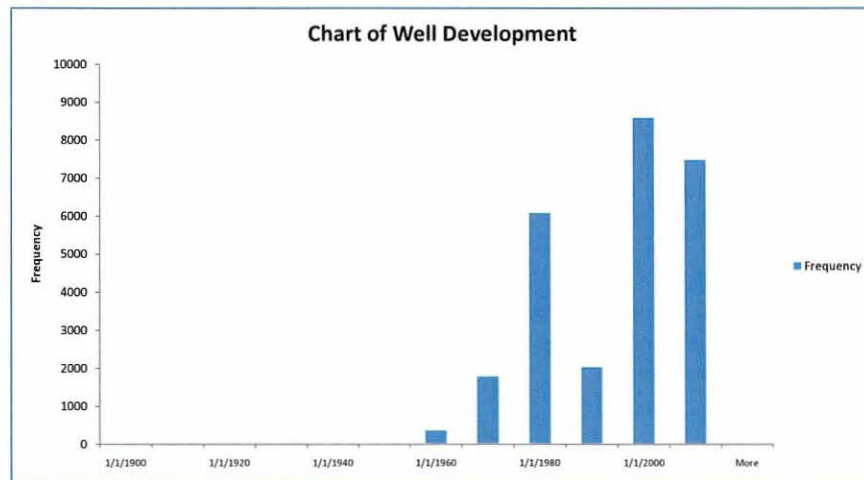


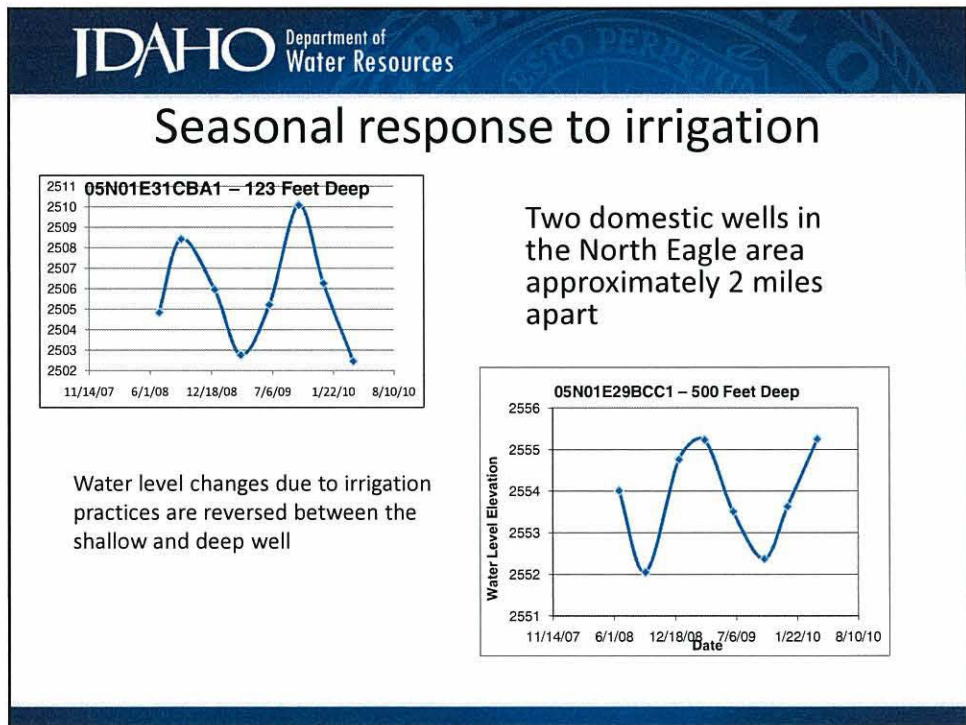
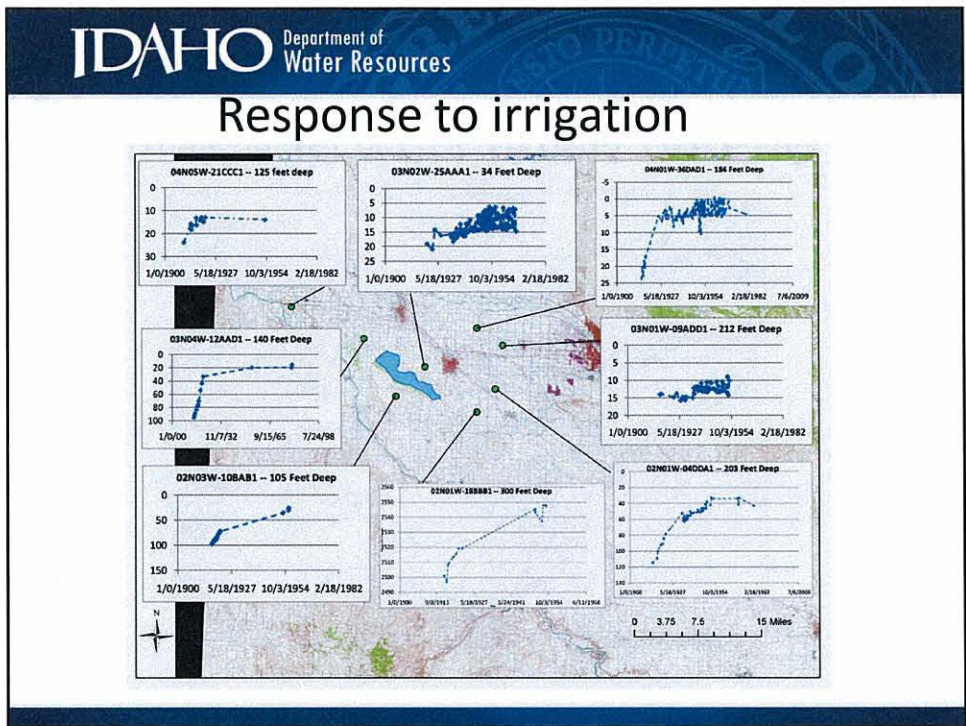


## Ground Water Flow Direction

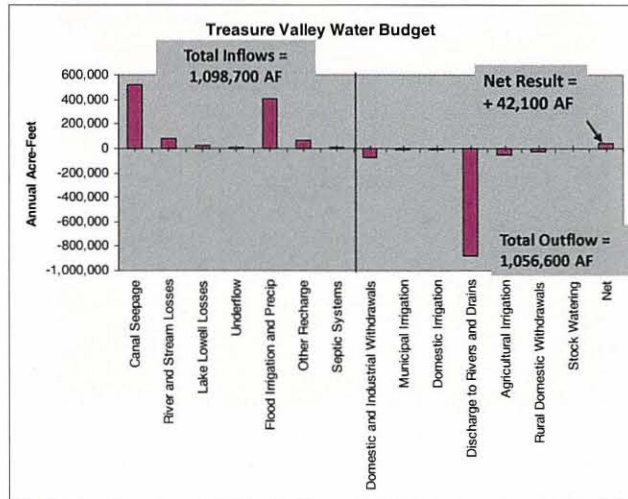


## Well Development

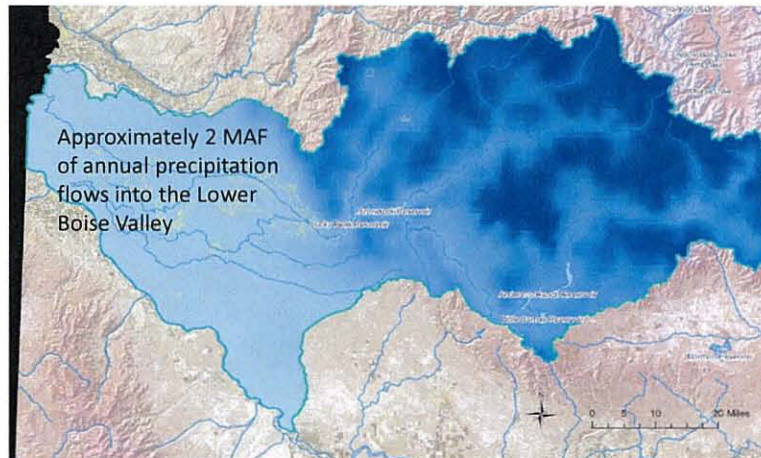




## Ground Water Budget

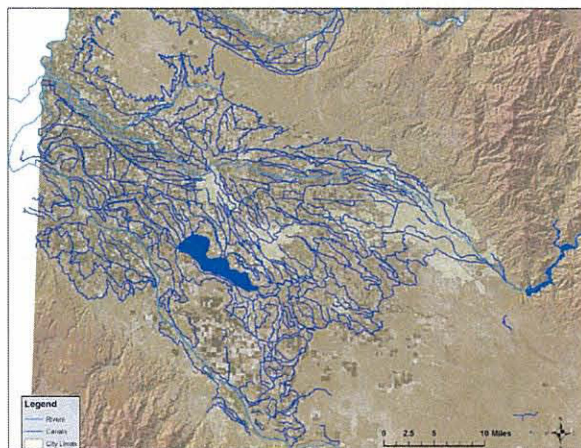


## Source of Water.....



- Approximately 5.7 MAF of precipitation falls in the Boise River watershed.
- Approximately 2 MAF of precipitation runoff flows into the Lower Boise Valley as a source of recharge to the aquifers.

## Irrigation Distribution

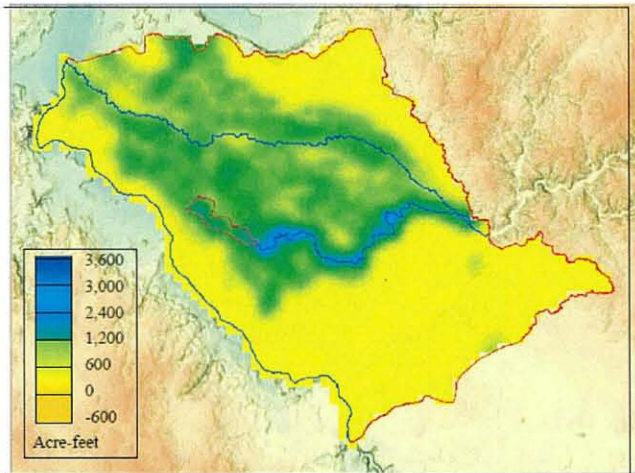


Approximately 1,170 miles of major irrigation canals  
Major source of recharge to the aquifer system (loss of 0.75 cfs/mile)  
1.7 MAF Diverted Annually

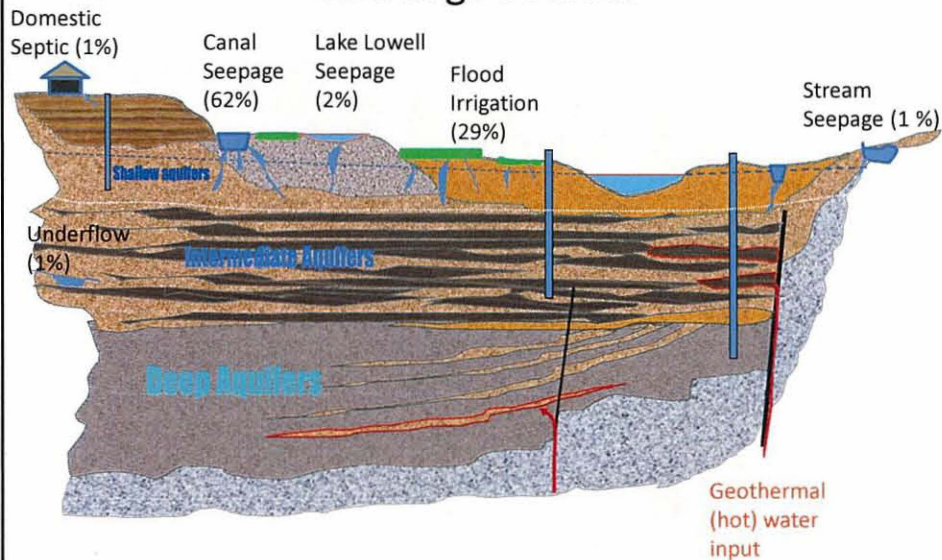




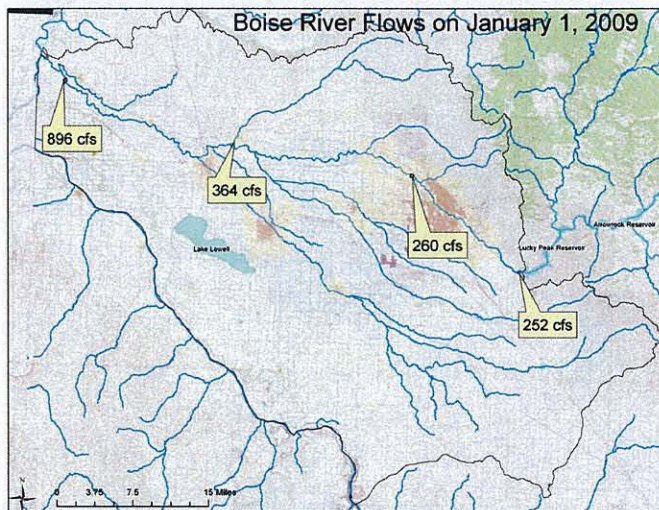
### Treasure Valley Recharge



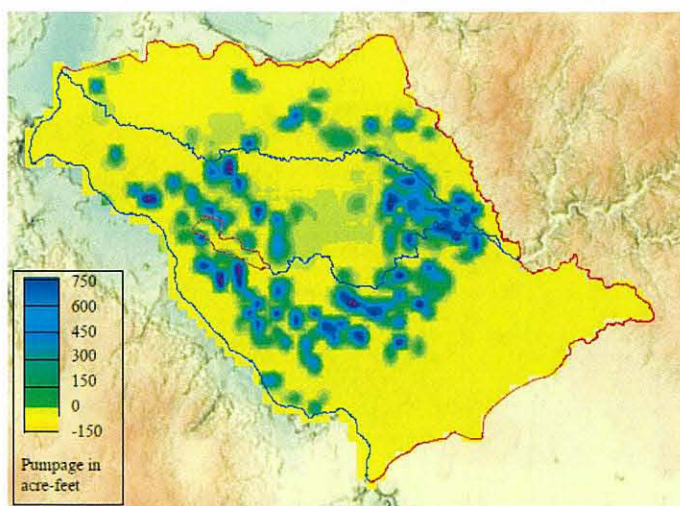
### Recharge Sources

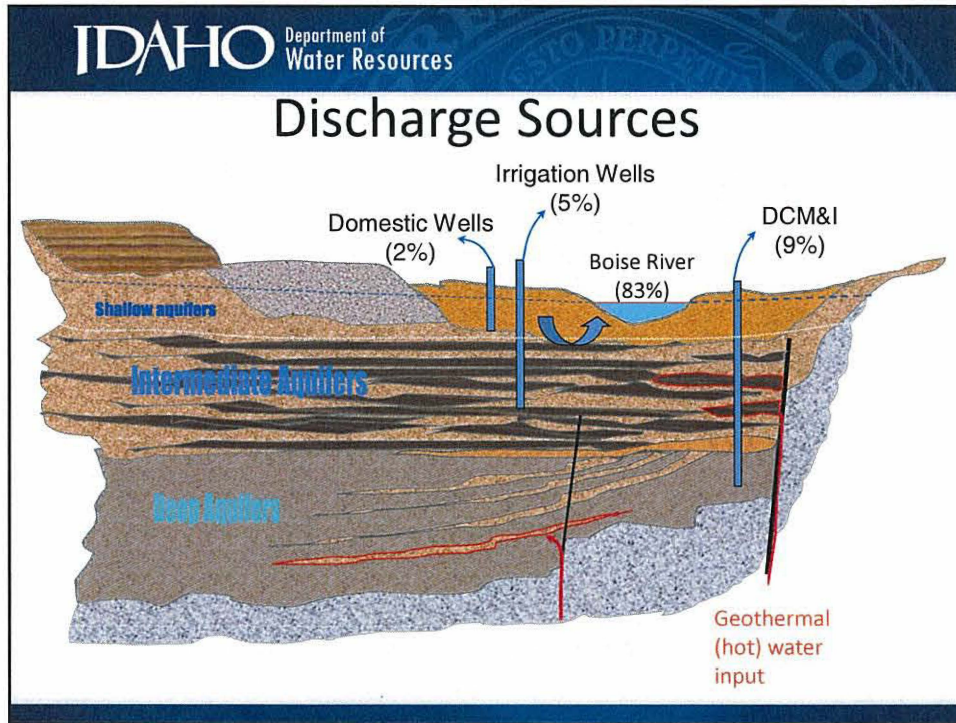


### Discharge to the Boise River



### Treasure Valley Pumping Diversions

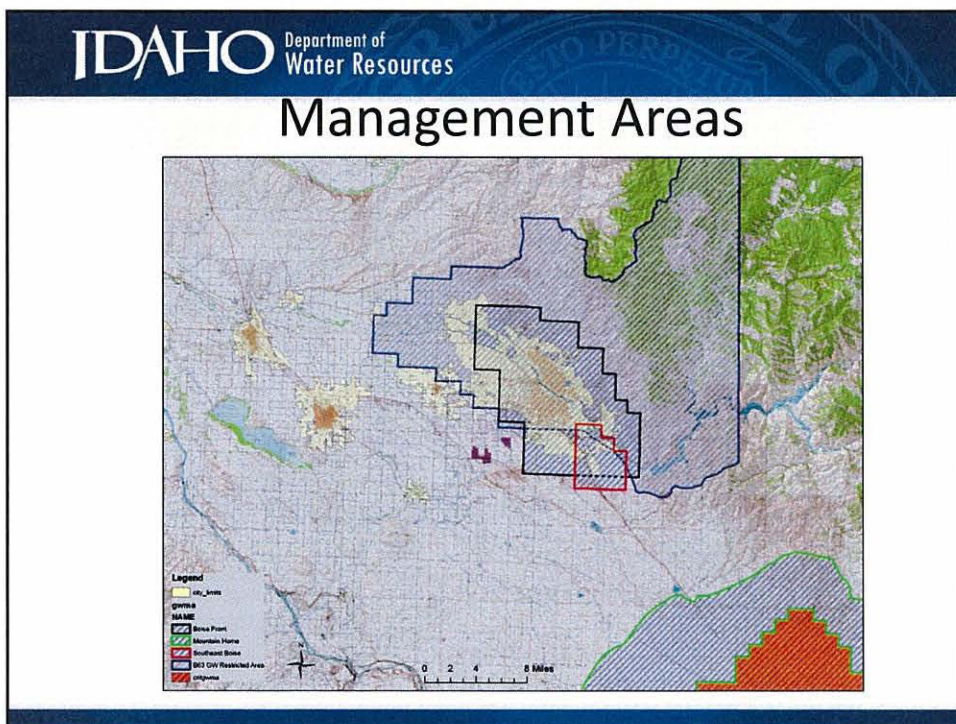
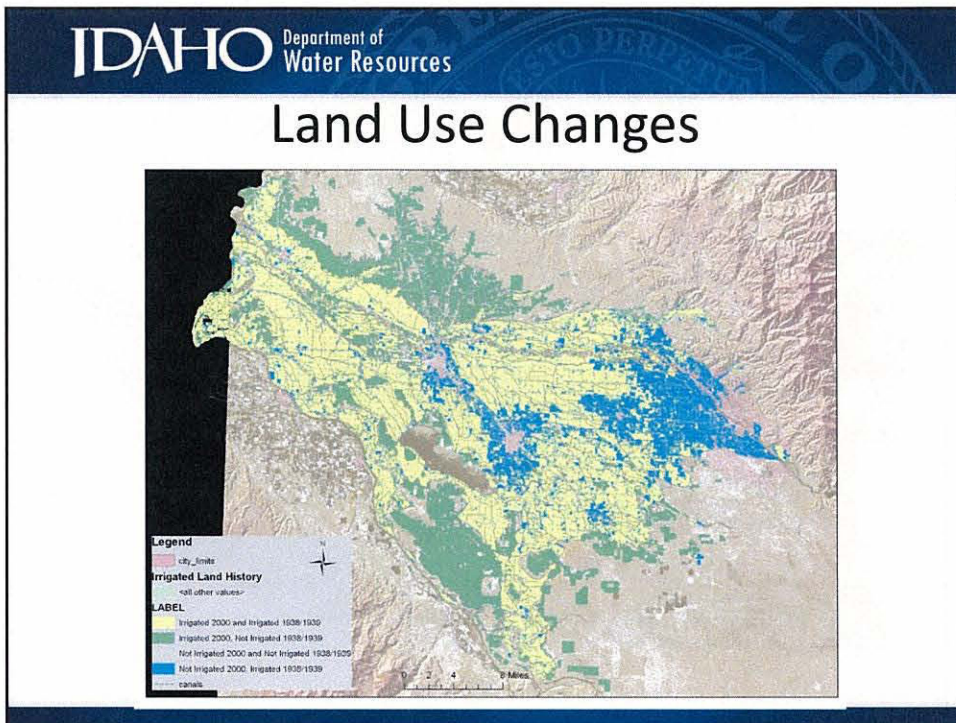




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## Ground Water Budget Details

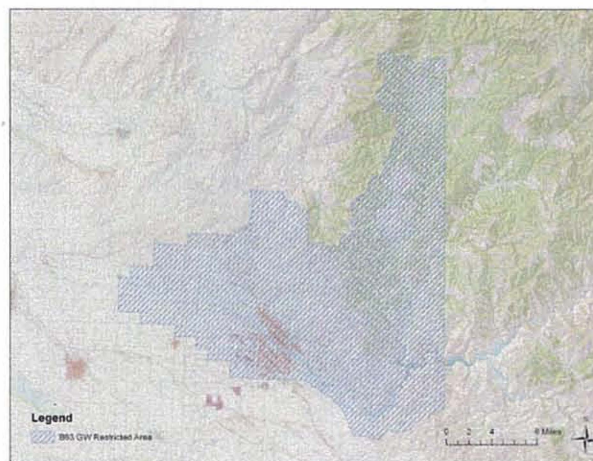
Recharge Sources	TVHP 1996	TVHP 2000	BOR 2008	Averages
Canal Seepage	626,000	521,500	492,284	
Seepage from Rivers and Streams	16,000	77,000	NA	
Seepage from Lake Lowell	19,000	21,200	NA	
Underflow	4,300	4,300	NA	
Flood Irrigation and Precipitation	302,000	404,400	453,868	
Other Uses	48,000	65,700	NA	
Rural Domestic Septic Systems	5,000	4,600	NA	
<b>Total Inflows</b>	<b>1,020,300</b>	<b>1,098,700</b>	<b>997,657</b>	<b>1,038,886</b>
<b>Discharge Sources</b>				
Domestic and Industrial Pumping	66,000	76,800	NA	
Municipal Irrigation	10,000	10,000	NA	
Self-Supplied Industrial	21,000	8,200	NA	
Agricultural Irrigation	72,000	53,000	128,962	
Rural Domestic Pumping	27,000	24,000	NA	
Stock Water Pumping	3,000	3,000	NA	
<b>Total Pumping</b>	<b>199,000</b>	<b>175,000</b>	<b>128,962</b>	<b>167,654</b>
Discharge to Snake River	276,800	352,600	362,023	
Discharge to Boise River	523,200	529,000	489,105	
<b>Total Discharge to Rivers</b>	<b>800,000</b>	<b>881,600</b>	<b>851,128</b>	<b>844,243</b>
<b>Total Outflows</b>	<b>999,000</b>	<b>1,056,600</b>	<b>980,090</b>	<b>1,011,897</b>
<b>Net Difference</b>	<b>21,300</b>	<b>42,100</b>	<b>17,567</b>	<b>26,989</b>



## Star Bridge Moratorium

- A Moratorium Order was signed on May 3, 1995 for surface water on the Boise River upstream from Star Bridge.
- All surface water in the Boise River is fully appropriated in this reach.
- Conjunctive management – Order includes non-domestic ground water rights from wells less than 200 feet deep.

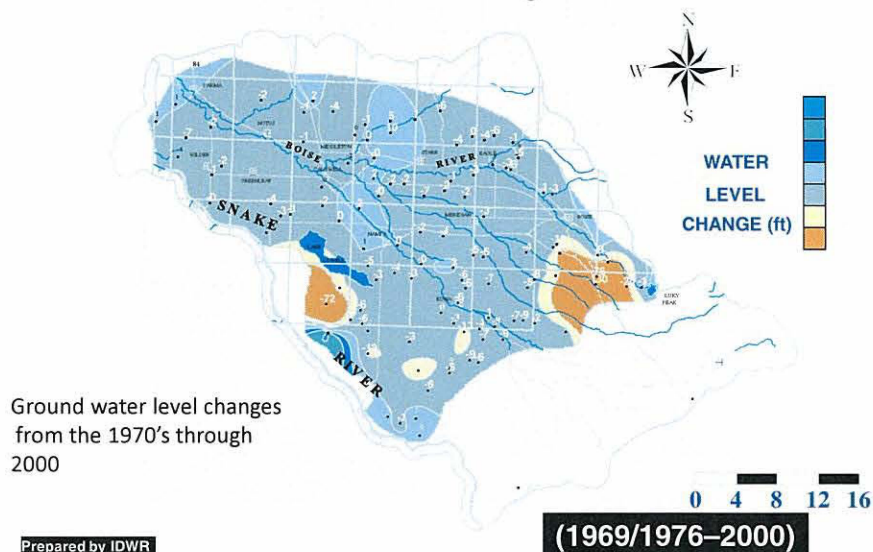
## Star Moratorium

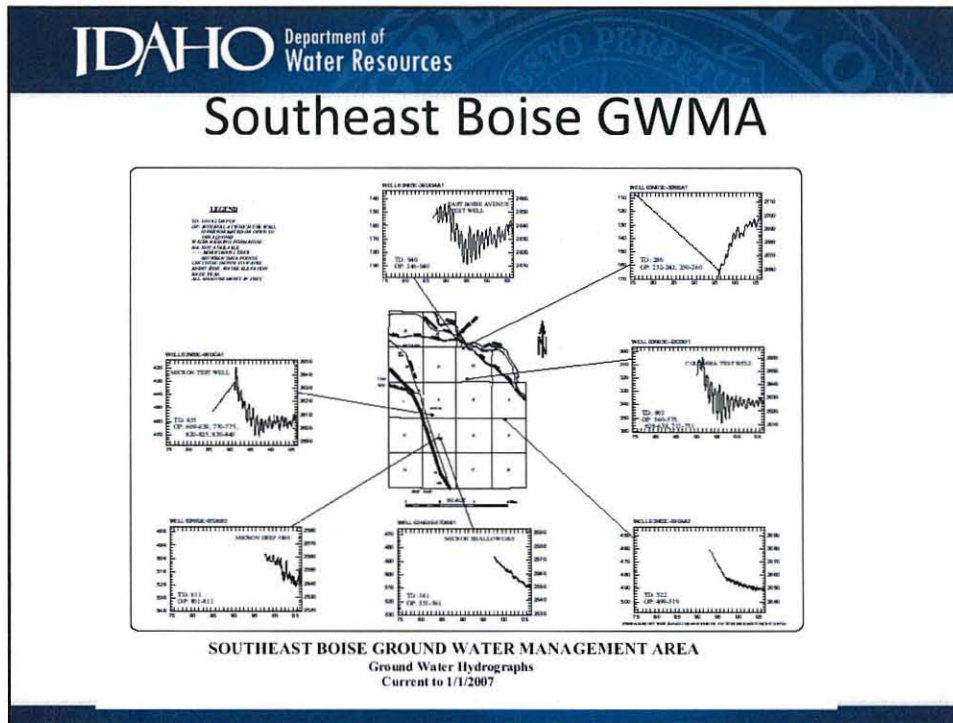


## Southeast Boise GWMA

- Declared a Ground Water Management Area on October 14, 1994 in response to significant water level declines.
- Ground Water Management Plan was approved on March 9, 2001.
- Management efforts include conversion to surface water, reduced pumping, and recharge efforts.

## SE Boise GW Management Area





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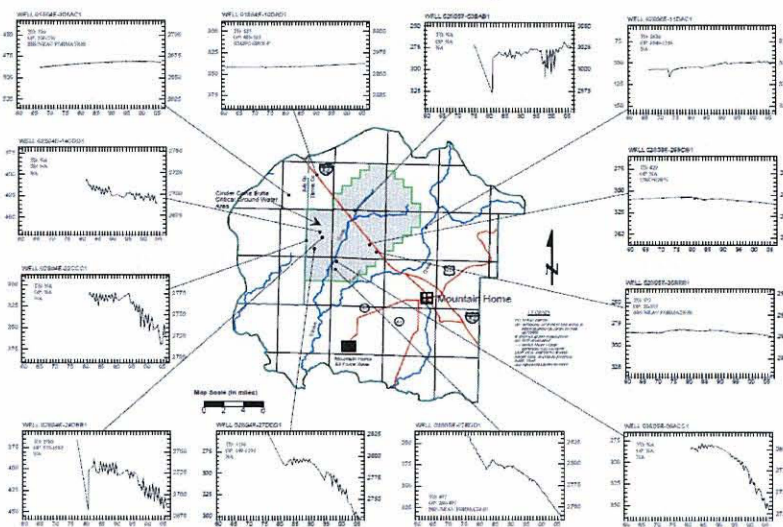
## Boise Front Geothermal GWMA

- Due to concerns of managing the geothermal resources (greater than 85 degree F) in Boise, the Boise Front Ground Water Management Area was formed on June 15, 1987.
- The management policy was finalized on June 2, 1988.
- Ken will discuss in more detail.

### Mountain Home and Cinder Cone GWMA's

- In response to declining water levels, Cinder Cone was declared a Critical Ground Water Management Area on May 7, 1981.
- Mountain Home Ground Water Management Area was established on November 9, 1982.
- An advisory committee was formed on June 6, 1996.
- A management plan for these areas has not been established.

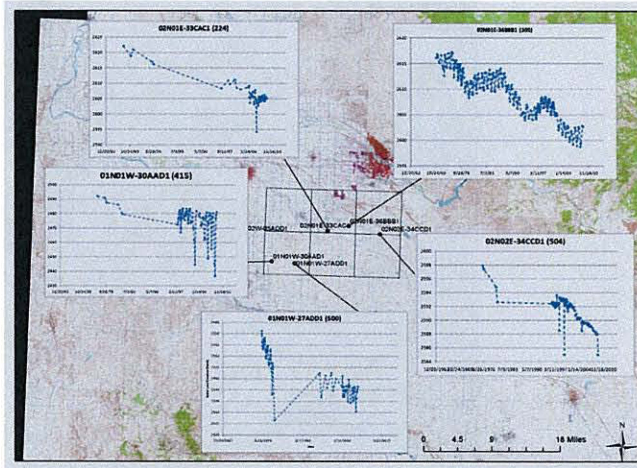
### Mountain Home/CCCGWA





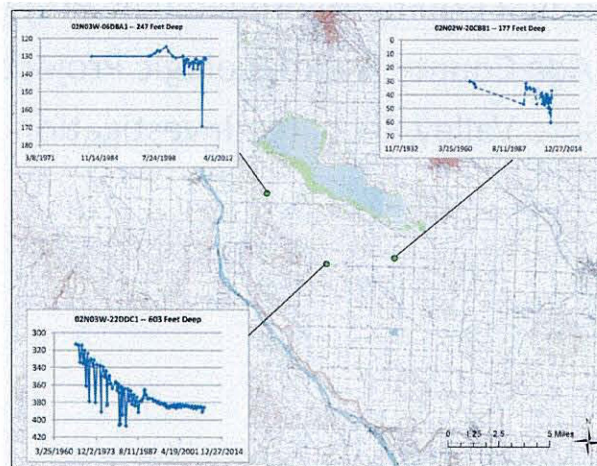
### Other areas of concern

- South of Kuna

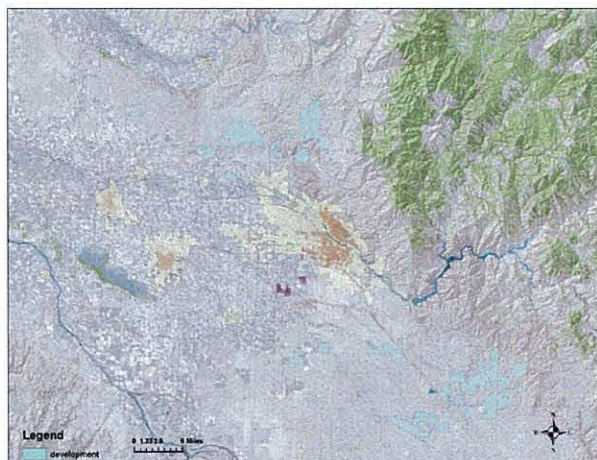


### Other areas of concern

- South of Lake Lowell



## Proposed Ground Water Development Areas



## Ongoing Research

- North Ada County Hydrogeologic Project
- East Ada County Hydrogeologic Project
- Treasure Valley Recharge Investigation

## Thank You

- Any Questions?

