

Treasure Valley Comprehensive Aquifer Management Planning

"Considerations for the Future of Water
Management in the Treasure Valley"



Dave Tuthill, PhD, PE

July 30, 2010





Prediction...

Relative to water delivery in the Treasure Valley...

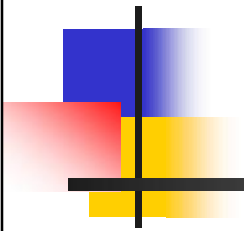
Change

is coming
between now and 2020



Outline

- Water administration basics
- Evolution of surface water management in the Treasure Valley
- Evolution of ground water management in the Treasure Valley
- Implementation of conjunctive administration
- Rapid advances in technology
- How we can deal with change



In Idaho the *appropriation doctrine*
is used for the delivery both
surface water rights and ground
water rights—

“first in time is first in right”

Administered by a State of Idaho
Water District
which hires a *Watermaster*

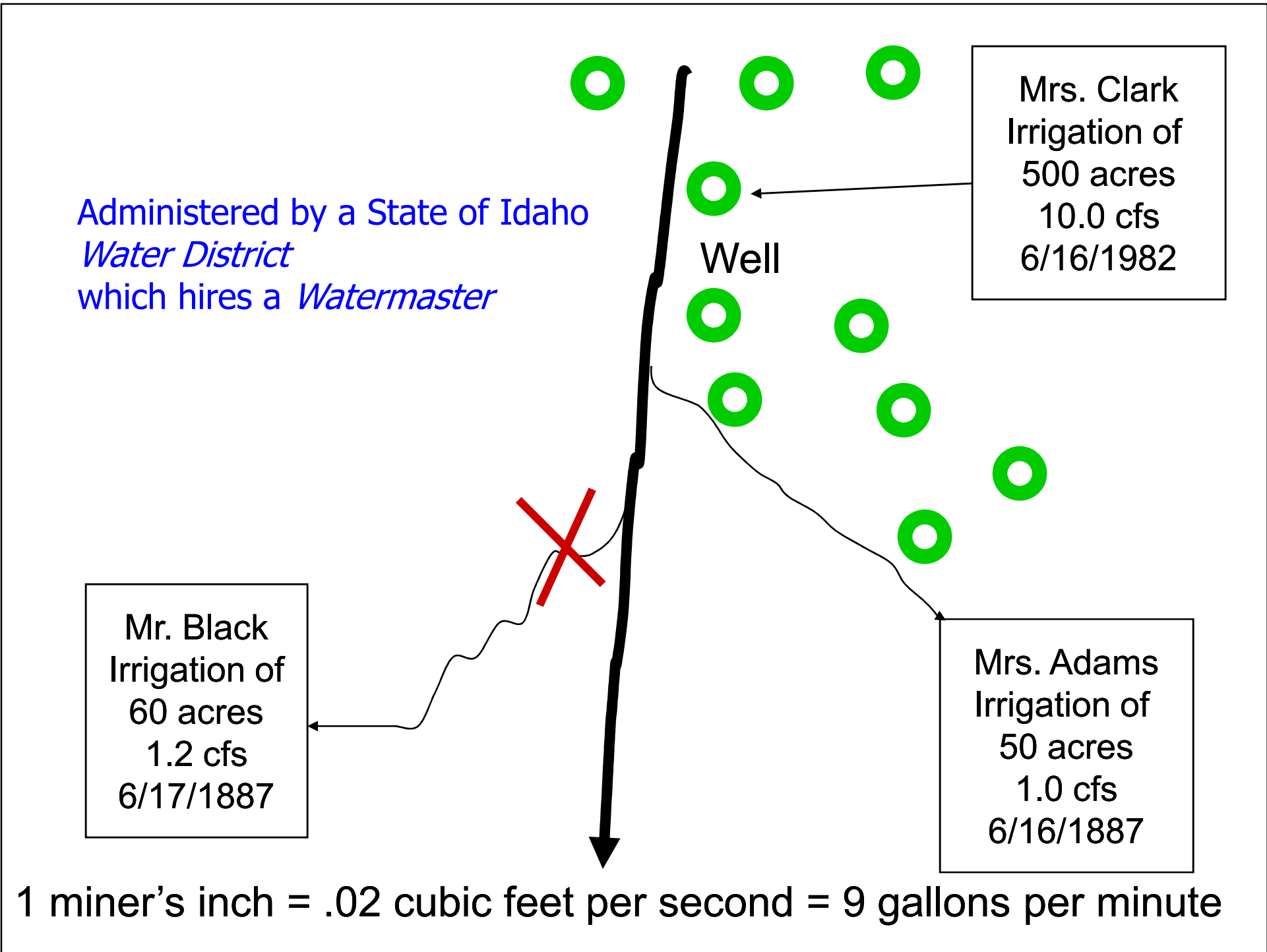
Mrs. Clark
Irrigation of
500 acres
10.0 cfs
6/16/1982

Well

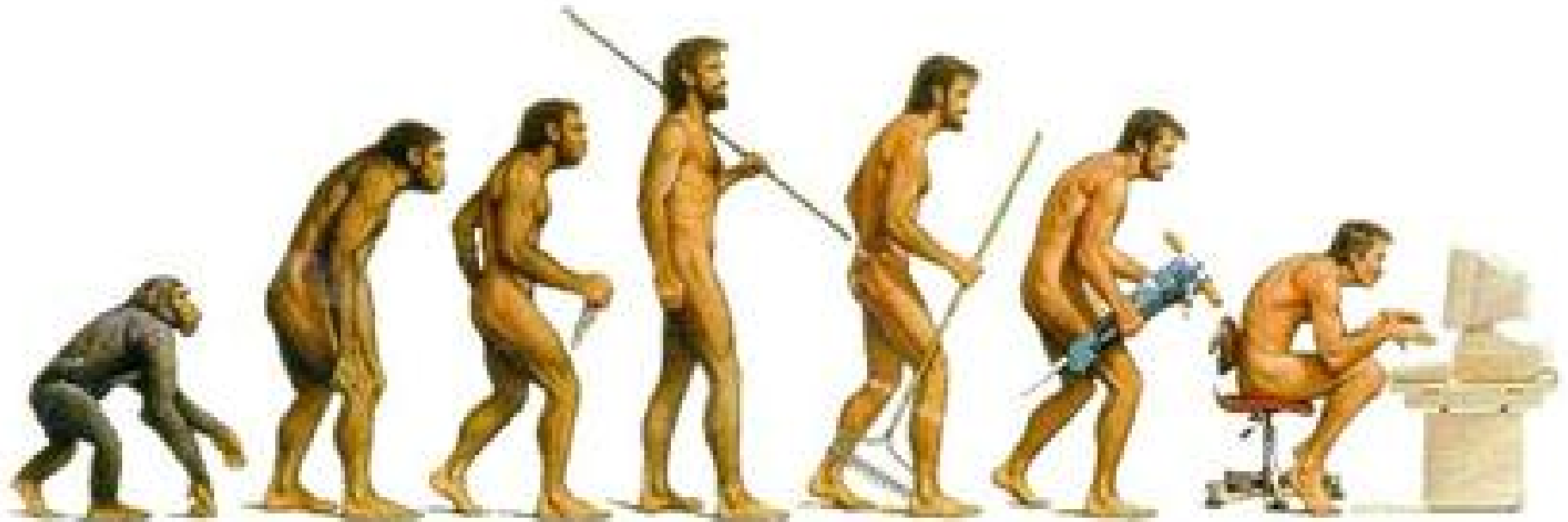
Mr. Black
Irrigation of
60 acres
1.2 cfs
6/17/1887

Mrs. Adams
Irrigation of
50 acres
1.0 cfs
6/16/1887

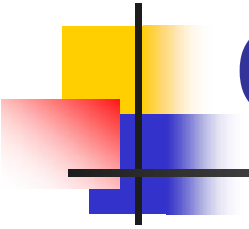
1 miner's inch = .02 cubic feet per second = 9 gallons per minute



Darwin's Evolutionary Cycle



Surface Water Evolutionary Cycle – Boise River



Addition of Storage – 1900's – 1960's

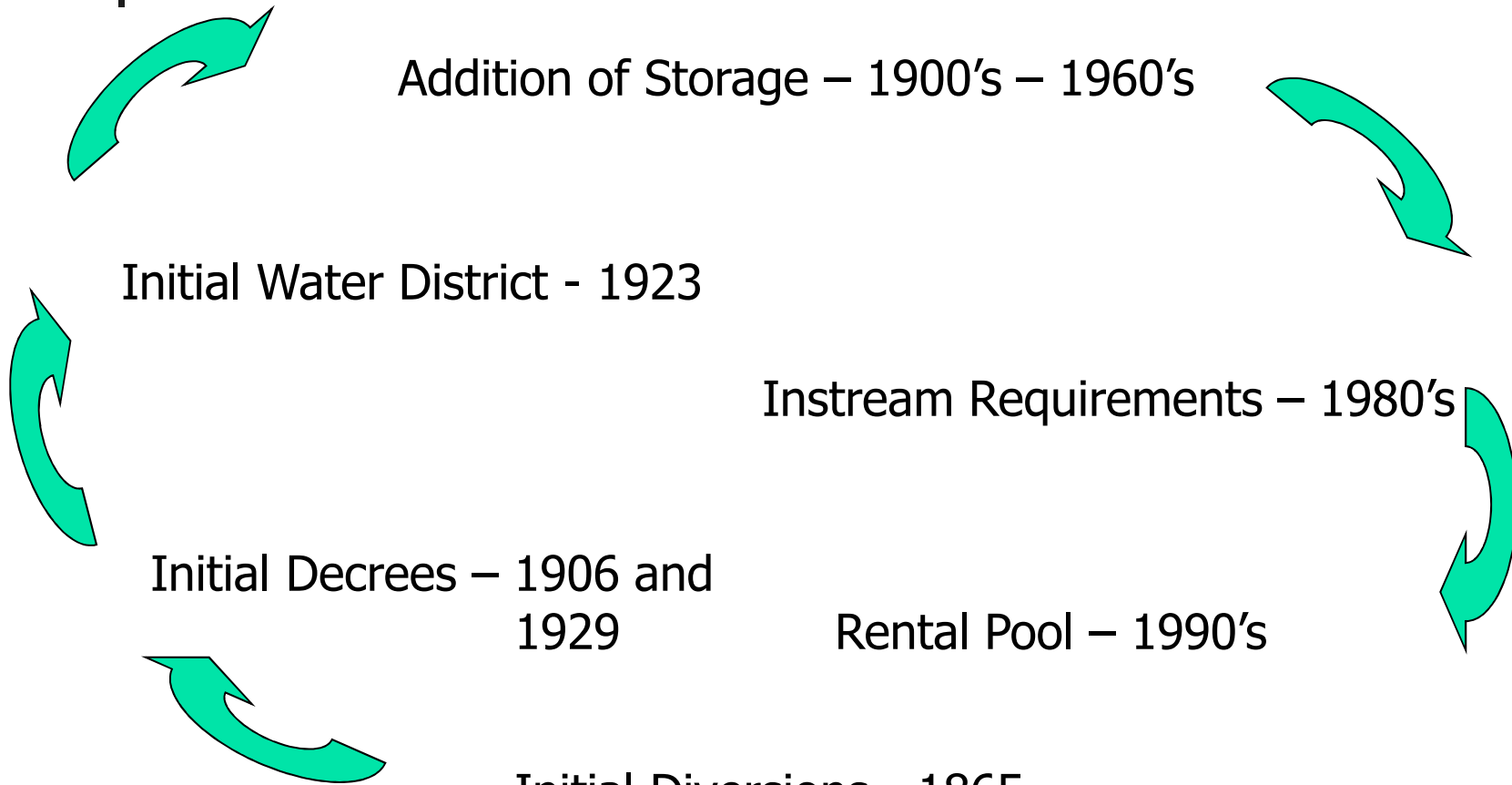
Initial Water District - 1923

Instream Requirements – 1980's

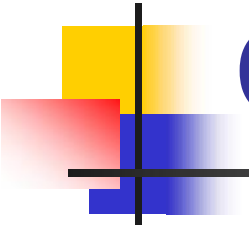
Initial Decrees – 1906 and
1929

Rental Pool – 1990's

Initial Diversions - 1865



Ground Water Evolutionary Cycle – Boise River Basin

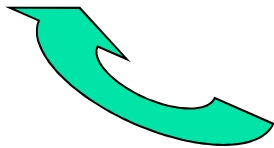
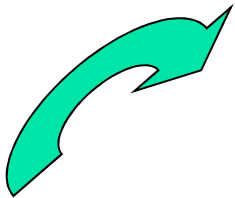


Surge of Supplemental Wells – 1977

Initial Irrigation Wells – 1940's

Initial Municipal Wells – 1890's

Initial Domestic Wells – 1860's



Implementation of Conjunctive Administration



Problem

Water deliveries must consider connections
between ground water and surface water
(conjunctive administration)

if fair delivery is to be achieved





Additional Drivers of Change

- Increased efficiencies of irrigation have led to reduced deep percolation
- Increasing urbanization
- Increased recognition of instream values
- Water needs for energy production
- Impacts of climate change?
- A need to coordinate land use planning with water use planning



Implementation of Conjunctive Administration



All but 100 recommendations resolved
April 22, 2010



Recommended water rights in Basin 63:
13,000+ domestics
6,000+ non-domestics

Basin poised for
Implementation of
Conjunctive
Administration

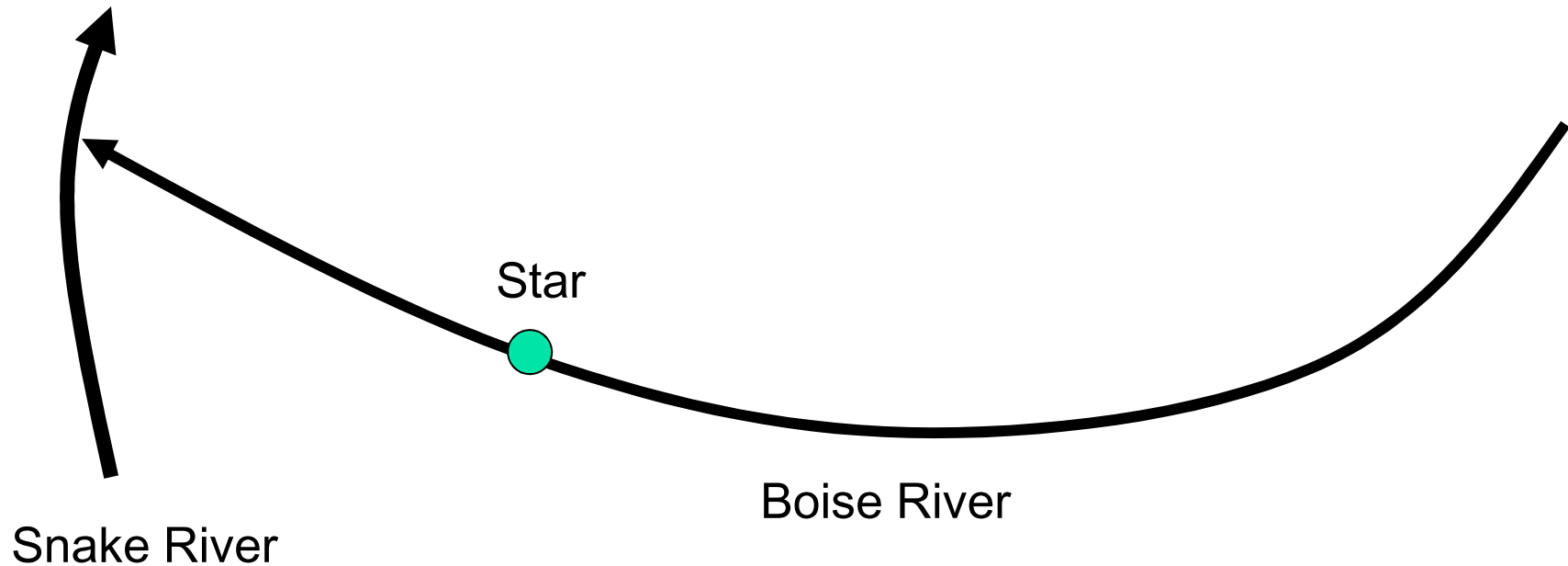
Snake River Basin Adjudication initiated in 1987



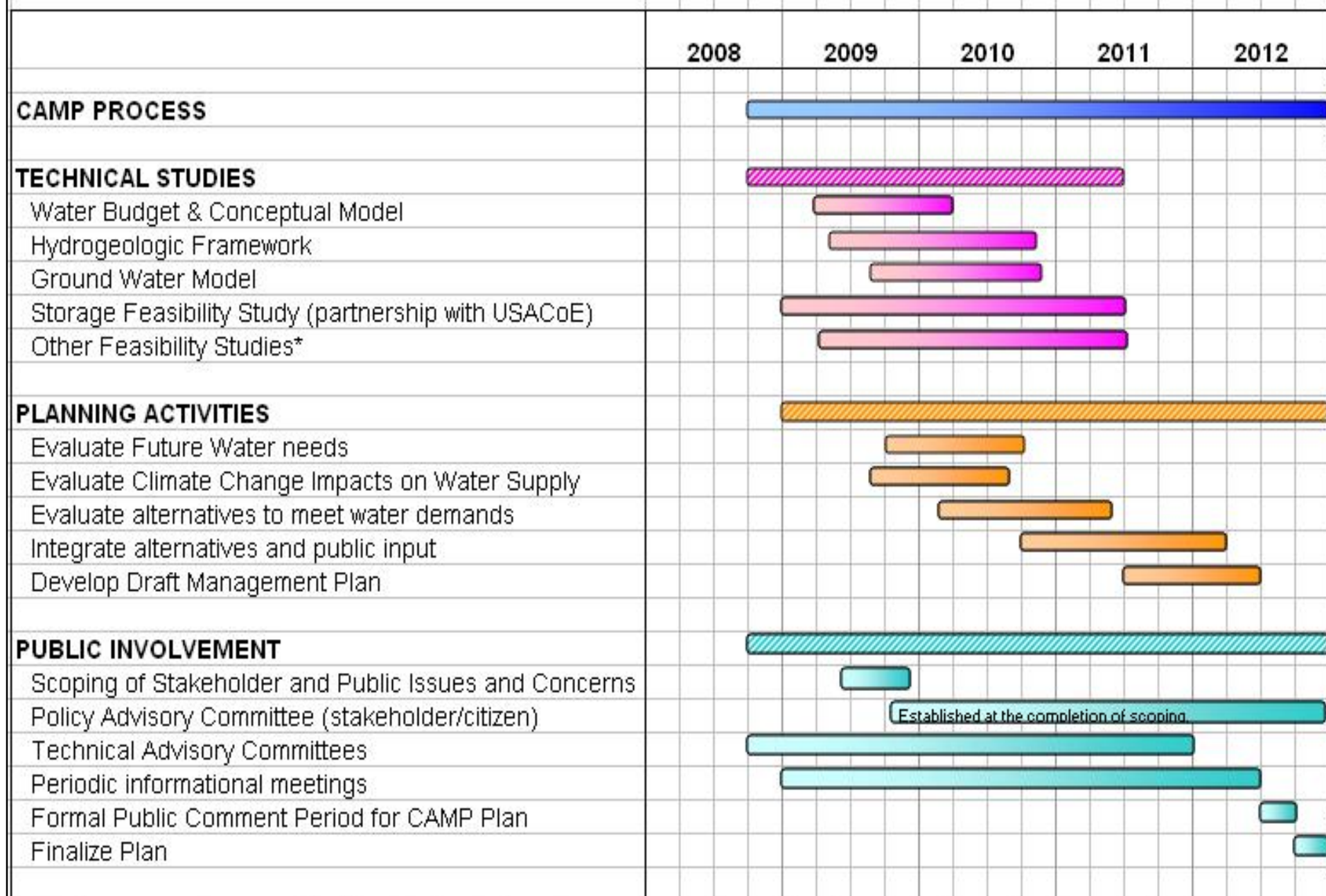
Creation of water rights from surface water
and ground water

Impact of Implementation of Conjunctive Administration

Ground water diversions are administered with surface water diversions



Treasure Valley Comprehensive Aquifer Management & Planning Process



*Recharge, weather modification, interbasin transfers, conservation and other alternatives identified during process

Members	Affiliation
Abramovich, Ron	NRCS
Atkinson, Michelle	Micron Technology, Inc.
Barrie, Rex	Boise River Watermaster WD #63
Batt, Gayle	Wilder Irrigation District
Bowling, Jon	Idaho Power Company
Burnell, Barry	Idaho Department of Environmental Quality
Dane, Russ	Keller Williams Realty
Deveau, Paul	Boise Project Board of Control
Dixon, Dave	Greenleaf Farms Inc. - Owner
Duspiva, Gary	Canyon County P&Z Commission
Fraser, Rob	Idaho Wildlife Federation - President
Fuss, Michael	Nampa Public Works Director
Goodson, Stephen	Governor's Office
Howard, Matt	Bureau of Reclamation
Jones, Chris	Trout Unlimited - VP Ted Trueblood Chapter
Larson, Bill	Treasure Valley Partnership

Treasure Valley

Comprehensive Aquifer Management Plan

Advisory Committee

Established
March 26, 2010

Slide 1 of 2

McKee, Lynn	Ada Cty. SWCD - Vice Chair
Nelson, Greg	
Patton, Brian	Idaho Department of Water Resources
Peter, Kathy	Unaffiliated, former Director of USGS Idaho Water Science Program
Pline, Clinton	Nampa/Meridian Irrigation District - Board
Prigge, John	Sorrento Lactalis - Wastewater Treatment Manager
Rhead, Scott	United Water - Director Engineer
Ronk, Jayson	VP of Idaho Assn of Commerce & Industry
Scott, Jeff	Pioneer Irrigation District Water Superintendent
Shoemaker, Gary	City of Caldwell Water Department
Stewart, Lon	Sierra Club
Stewart, Warren	City of Meridian Pub Works Dept - Engineer Manager
Thornton, John	N. Ada Cty. GW users; N. Ada Co Foothills Assoc; Member of N. Ada Cty. Tech. Working Group
Ward, Rick	Idaho Department of Fish and Game
Woods, Paul	Boise City Public Works Department
Yerton, Janice	Water System Operator, Kuna

Treasure Valley

Comprehensive Aquifer Management Plan

Advisory Committee

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March 26, 2010



Slide 2 of 2

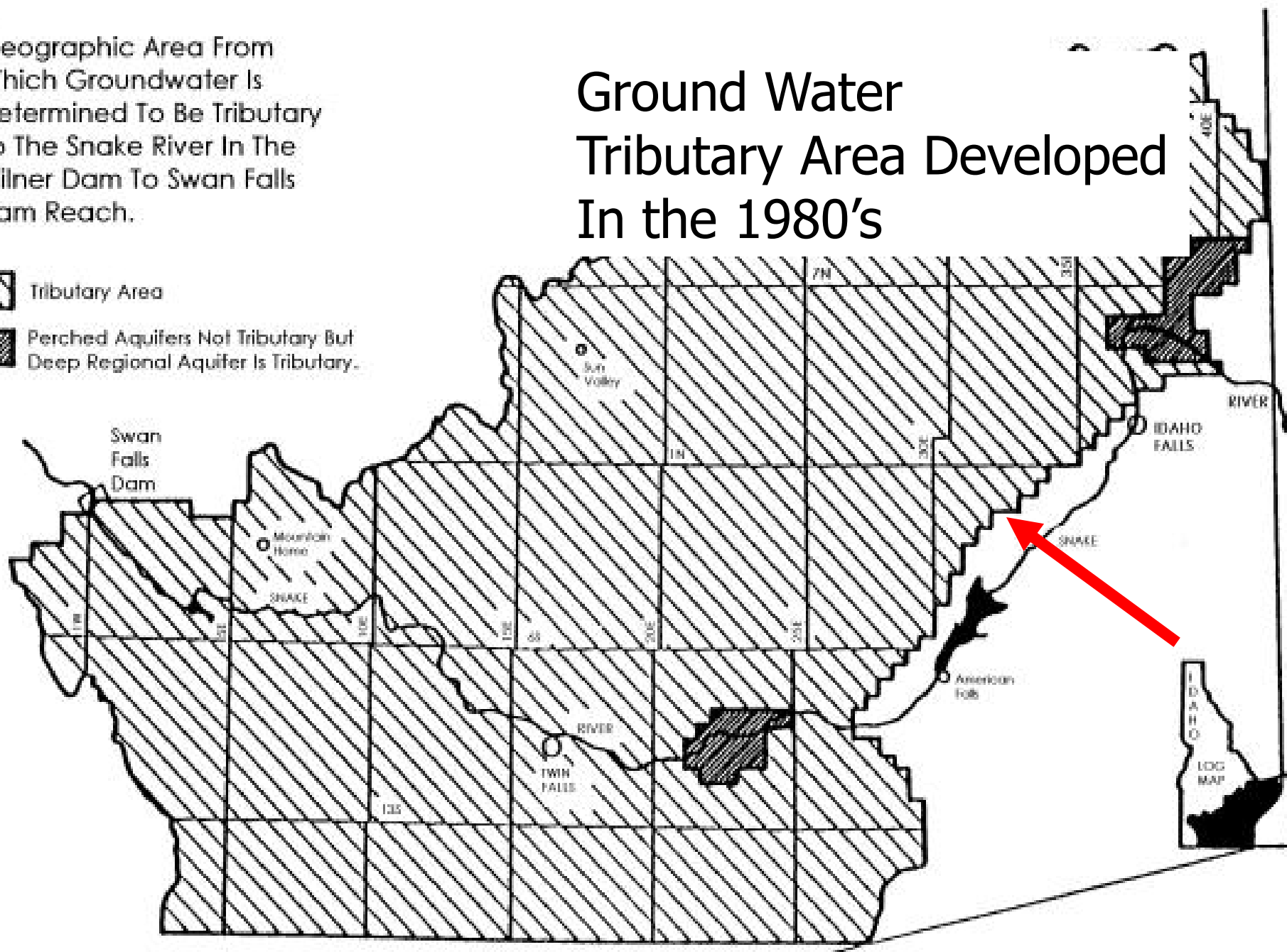


Which Wells are Likely to be Regulated?

Geographic Area From Which Groundwater Is Determined To Be Tributary To The Snake River In The Milner Dam To Swan Falls Dam Reach.

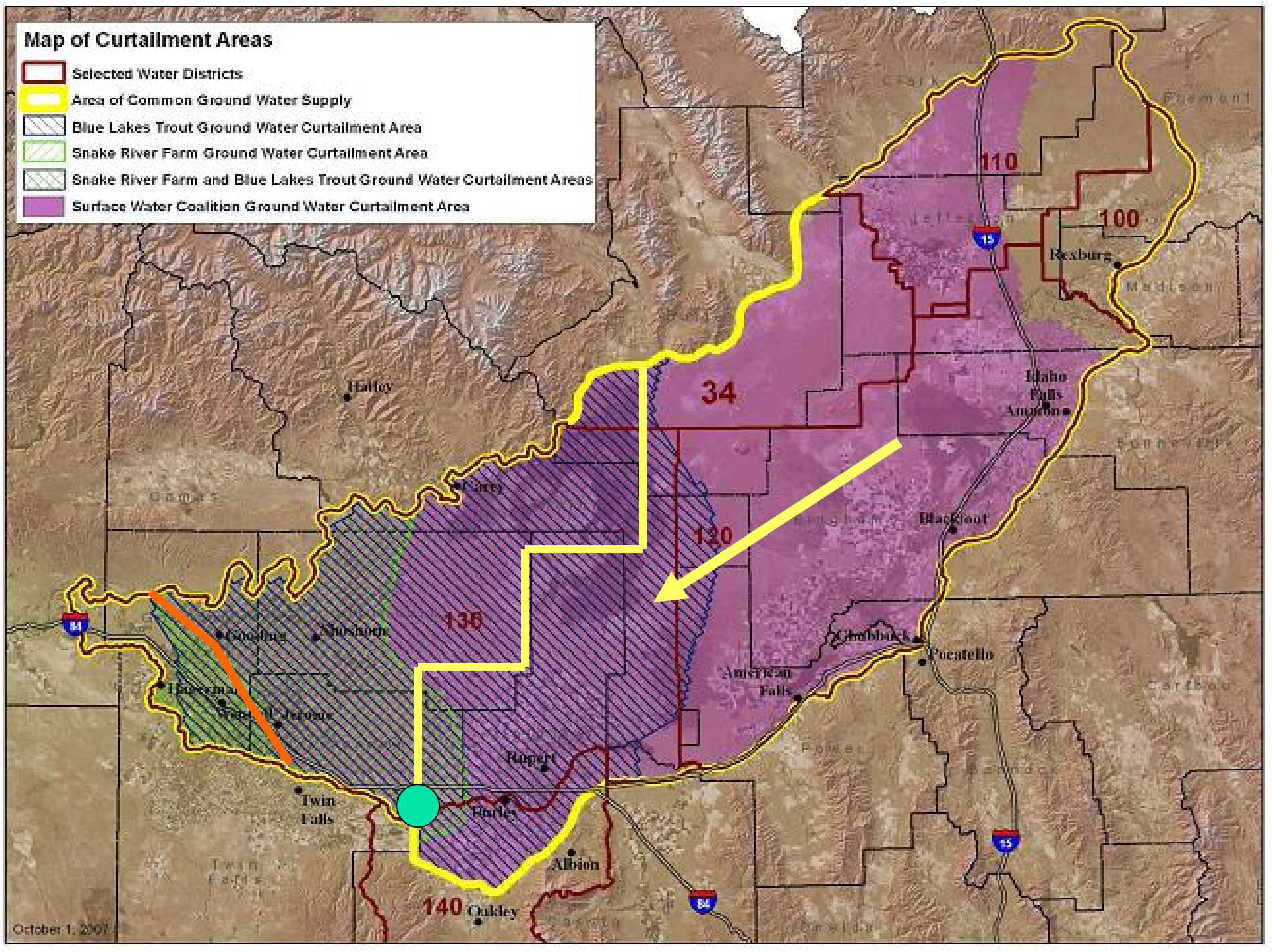
Ground Water Tributary Area Developed In the 1980's

-  Tributary Area
-  Perched Aquifers Not Tributary But Deep Regional Aquifer Is Tributary.




Map of Curtailment Areas

- Selected Water Districts
- Area of Common Ground Water Supply
- Blue Lakes Trout Ground Water Curtailment Area
- Snake River Farm Ground Water Curtailment Area
- Snake River Farm and Blue Lakes Trout Ground Water Curtailment Areas
- Surface Water Coalition Ground Water Curtailment Area



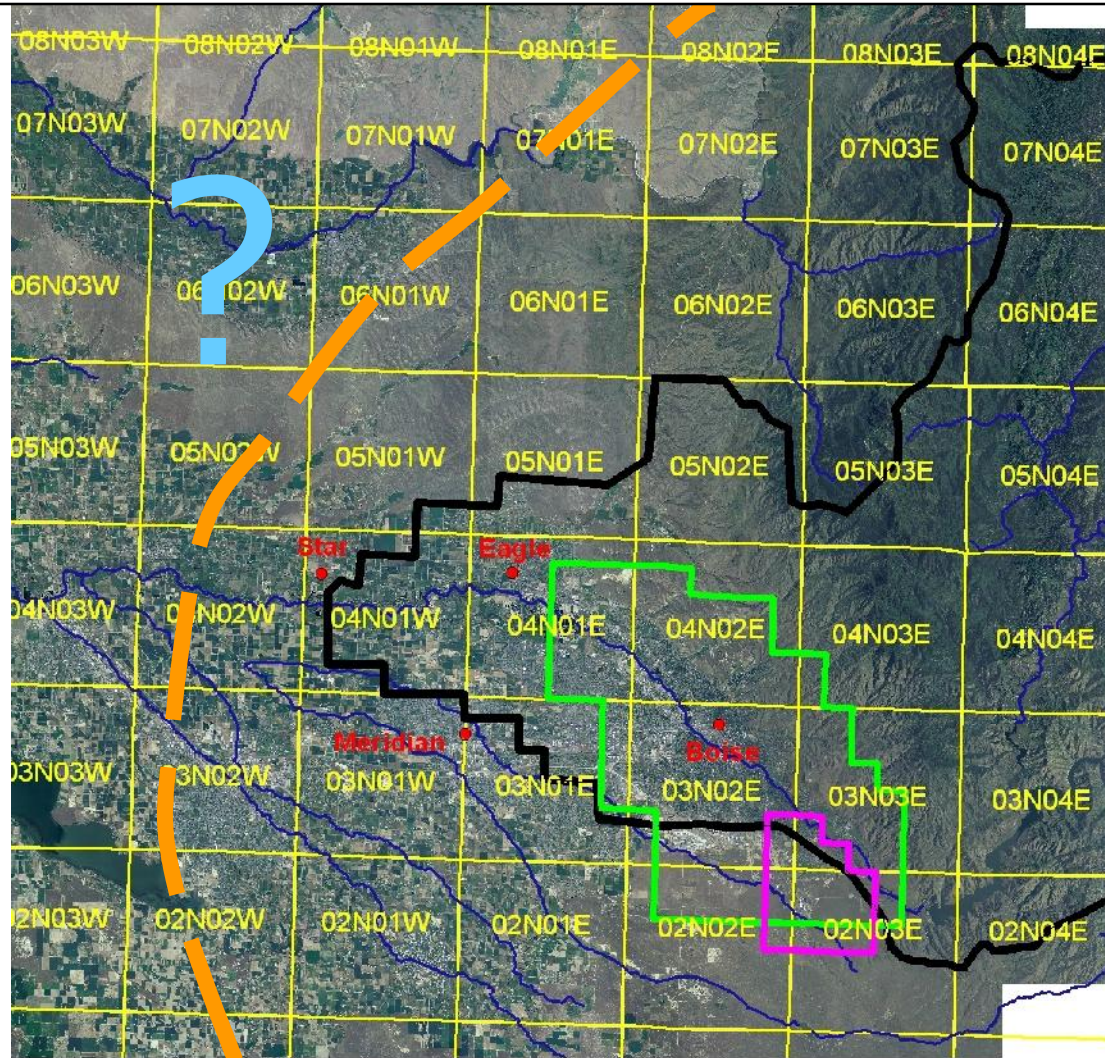
MEMORANDUM

DATE: February 22, 2008 Amended Application Processing No. 59
TO: Water Management Division
FROM: Gary Spackman 
RE: Processing of Applications to Appropriate Water in the Lower Boise River Basin

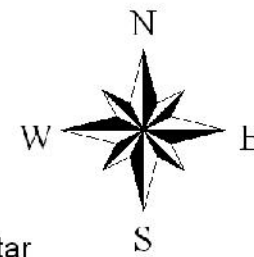
This memorandum replaces the original Application Processing Memorandum No. 59 issued in 1996.

Until further instructions are given, the following provisions apply to the processing of applications to appropriate water in the Boise River Basin (Administrative Basin 63) downstream from Lucky Peak dam.¹

1. Surface water in the Boise River or tributary to the Boise River upstream from Star Bridge is fully appropriated during the irrigation season and during much of the rest of the year. As stated in the May 3, 1995, Amended Moratorium Order for the Boise River drainage:



- Cities
- ▭ Boise Front GWMA
- ~ Streams
- ▭ SE Boise GWMA
- ▭ Townships
- Groundwater Tributary above Star





How water management change impacts water professionals

Value of a Water Right as a Percent of Property Value

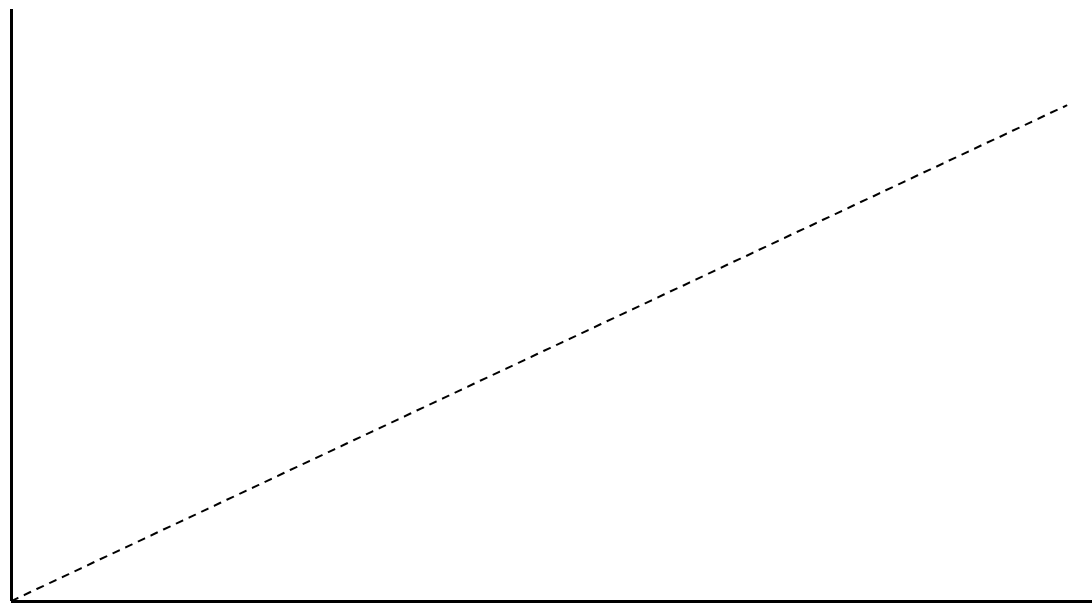
100%

0%

**Home in
A Municipal
System**

**Home with
Significant
Landscaping
With a Private
Water Right**

**Irrigated
Land**





Inhibitors to Discussing Water Rights in Property Transactions

Historic

- Lack of buyer awareness
- Lack of determination of water rights
- Lack of regulation
- Lack of measurement
- Lack of enforcement
- Lack of economic incentive

Emerging

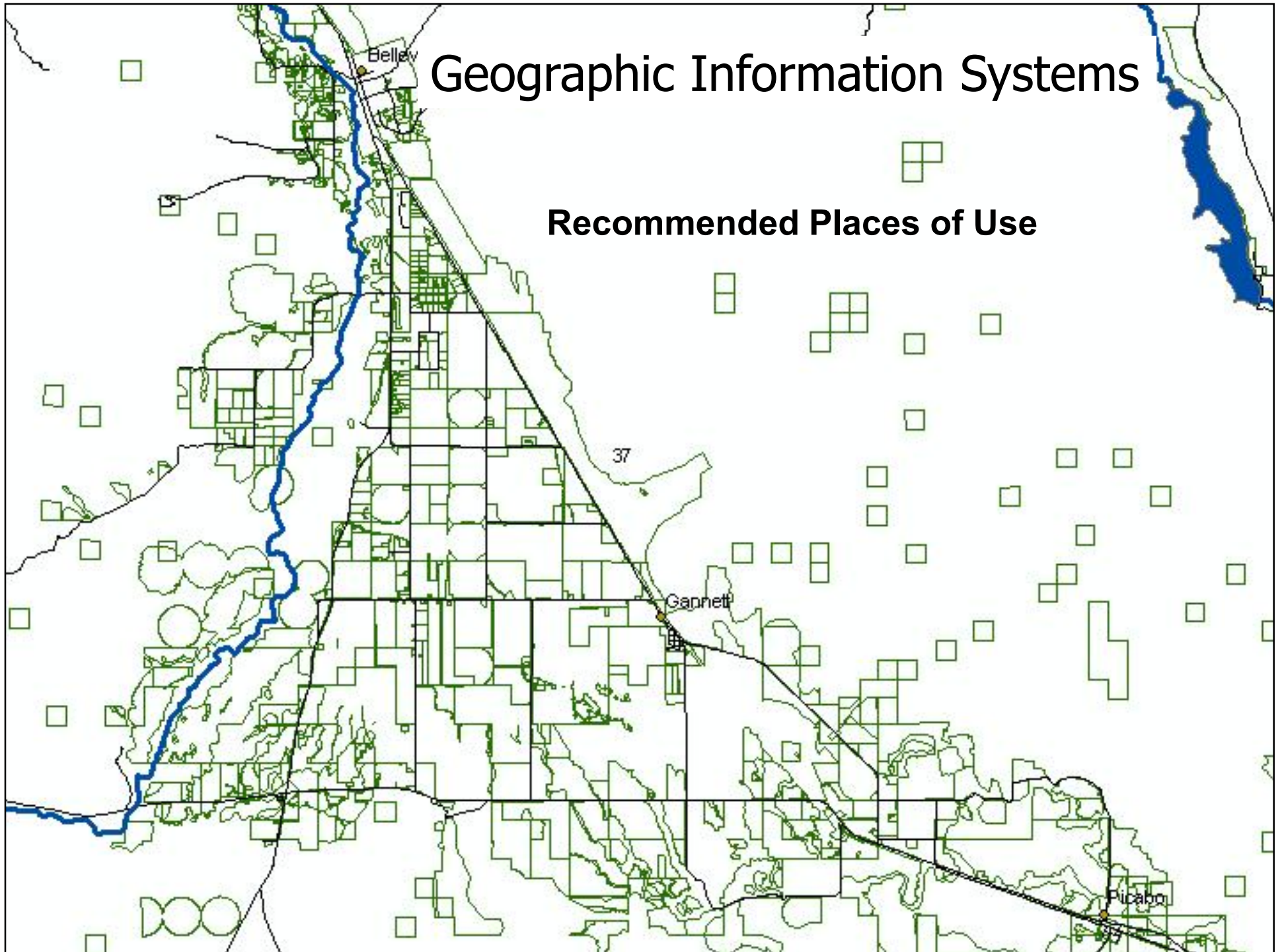
- Increasing awareness
- Snake River Basin Adj.
- Northern Idaho Adj.
- Adjudication enables
- Increased gaging
- Remote sensing
- Increasing water value

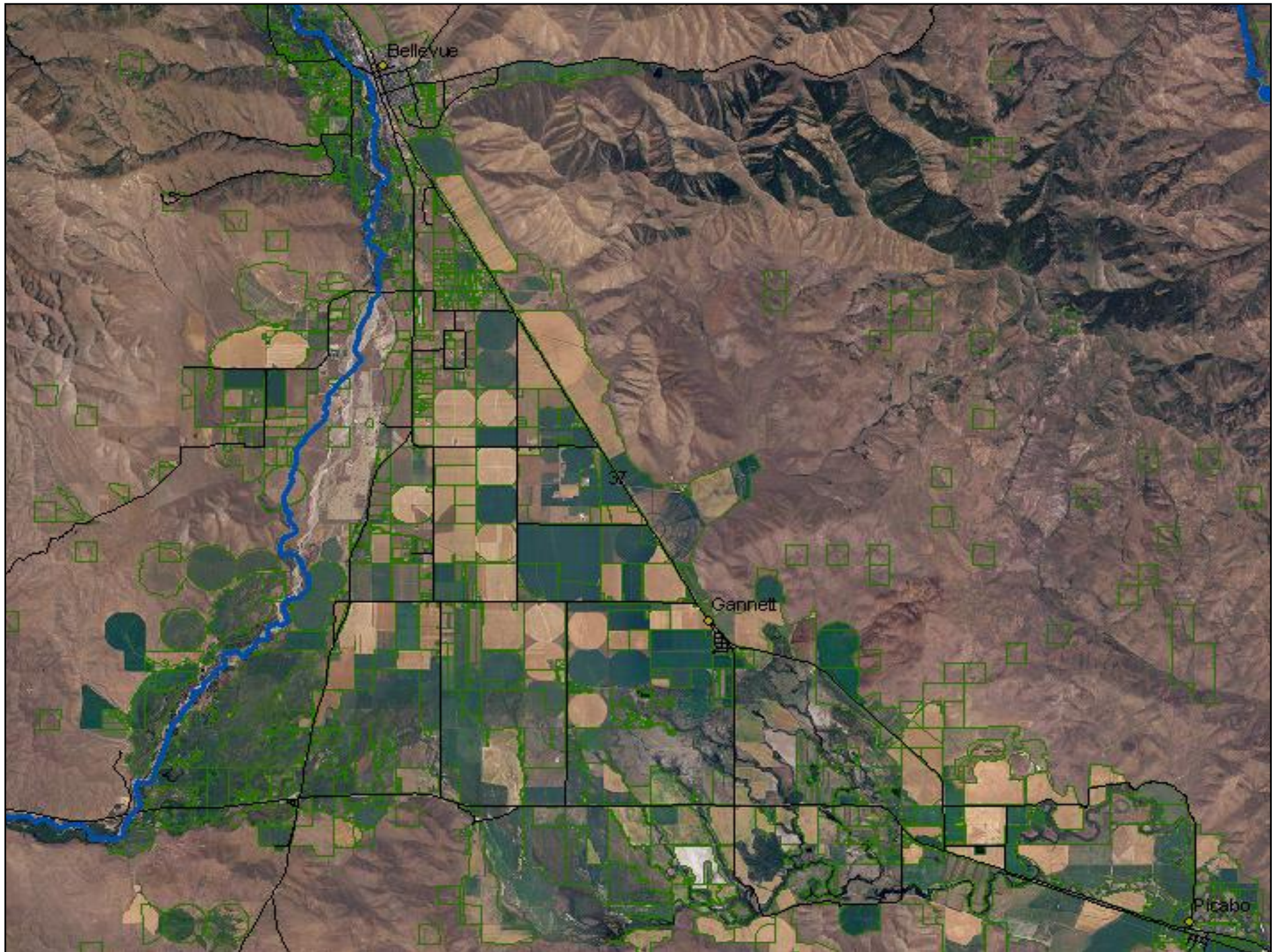


Advances in Technology

Geographic Information Systems

Recommended Places of Use







Modeling

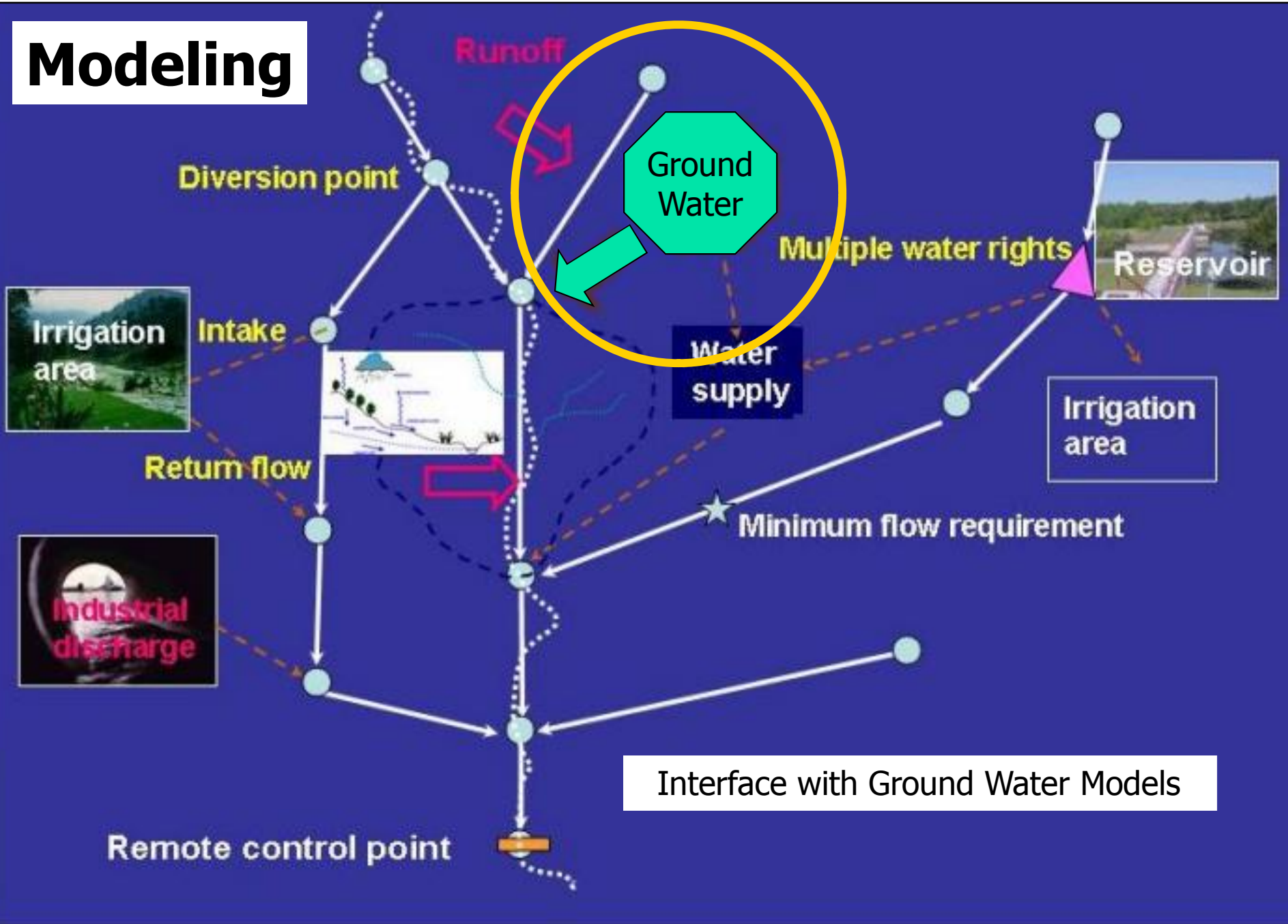
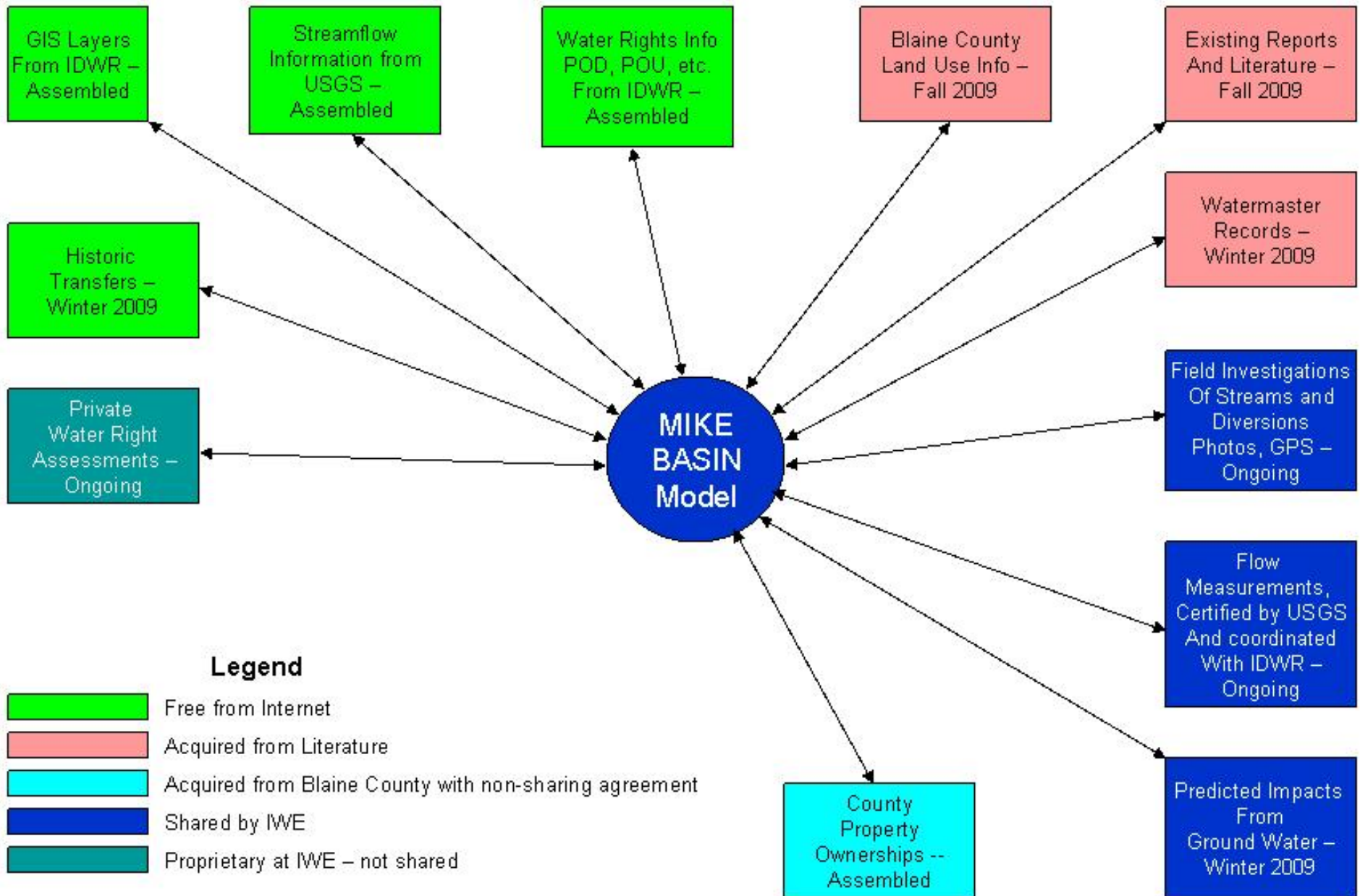
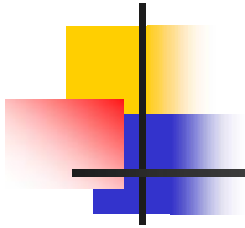


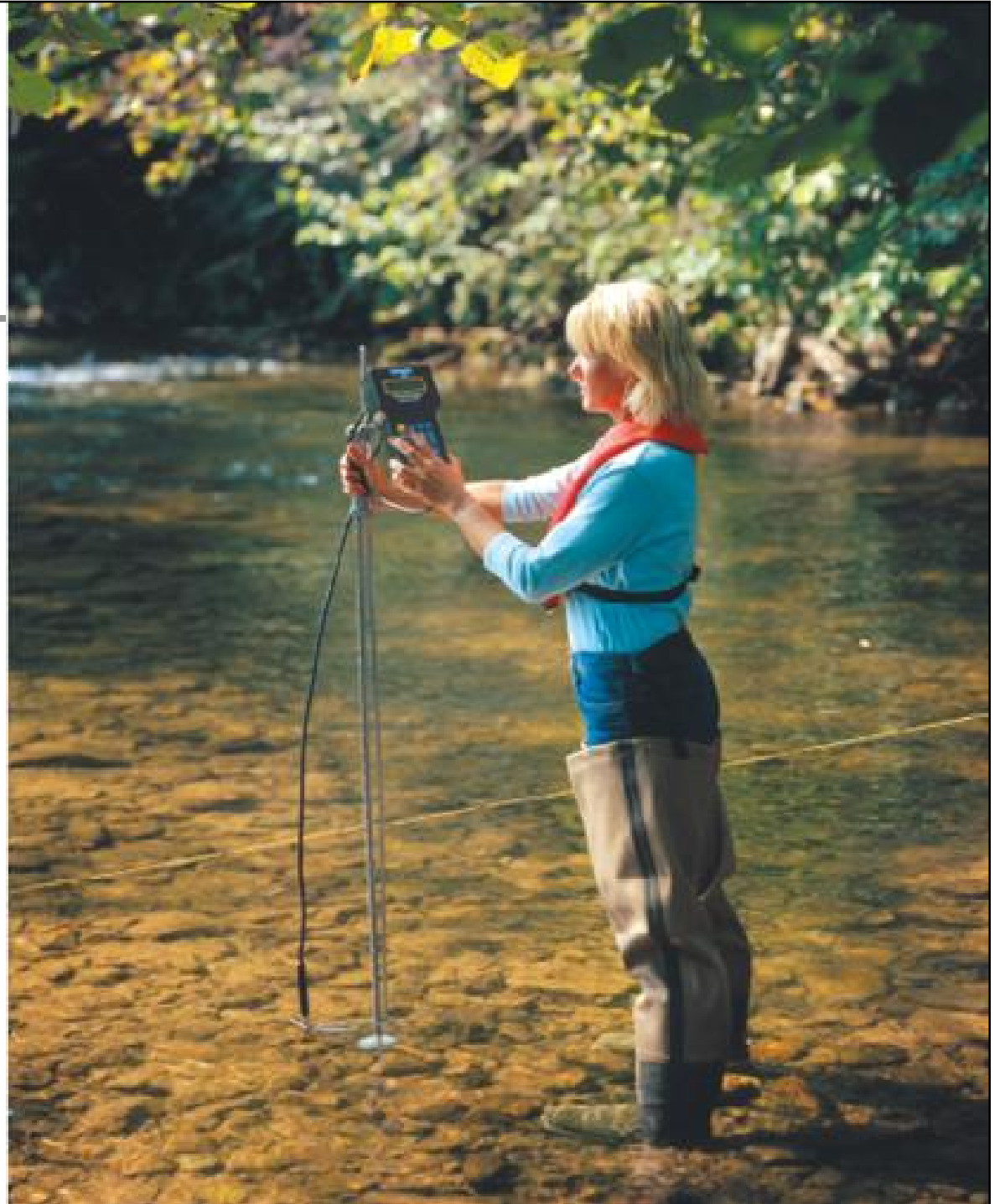
Figure 1.1 Simplified schematization of the MIKE BASIN model network

Idaho Water Engineering, LLC MIKE BASIN Model Data Sets





Streamflow Measurement



allgageusgs

Location: 2,466,390.286 1,387,005.587 Meters

Field	Value
FID	438
Shape	Point
AGENCY_CD	USGS
SITE_NO	13136400
STATION_NM	WARM SPRINGS CREEK NR KETCHUM ID
LAT_VA	434100
LONG_VA	1142500
DEC_LAT_VA	43.68323970
DEC_LONG_V	-114.41755280
COORD_METH	M
COORD_ACY_	F
COORD_DATU	NAD27
DEC_COORD_	NAD83
DISTRICT_C	16
STATE_CD	16
COUNTY_CD	013
COUNTRY_CD	US
LAND_NET_D	
MAP_NM	
MAP_SCALE_	
ALT_VA	
ALT_METH_C	
ALT_ACY_VA	
ALT_DATUM_	
HUC_CD	17040219
BASIN_CD	
TOPO_CD	
STATION_TY	YNNNNNNNNNNNNNNNNNNN
AGENCY_USE	I
DATA_TYPES	
INSTRUMENT	
CONSTRUCTI	
INVENTORY_	
DRAIN_AREA	
CONTRIB_DR	
TZ_CD	MST
LOCAL TIME	V

MIKE BASIN

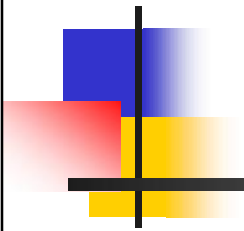
Gaging Stations



How Water Professionals can Deal with Water Management Change

1. Recognize that conjunctive administration is coming
 2. Stay abreast of technology
 3. Collaborate with specialty expertise
 4. Collaborate between government and private capabilities
- and...

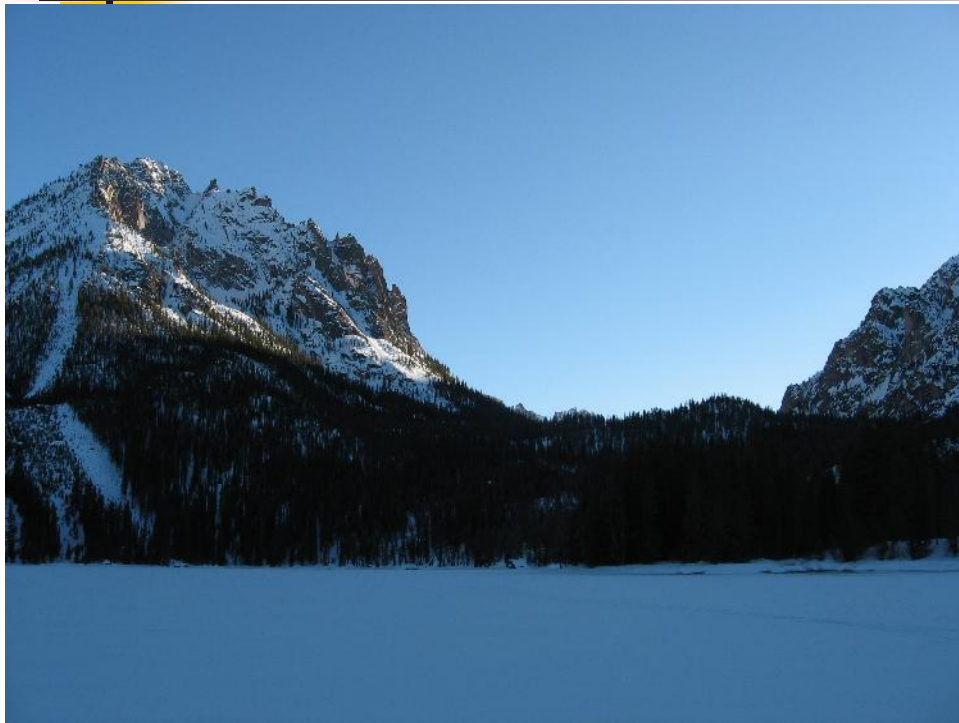
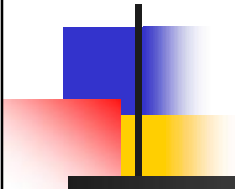
THINK AHEAD_{AD}





Additional Thoughts...

- Water Management in the Treasure Valley is evolving toward Conjunctive Administration
- An orderly transition can be achieved if steps are taken prior to critical moments
- The Treasure Valley can become a model for this transition
- Water professionals should inform clients of this evolution in their interactions



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