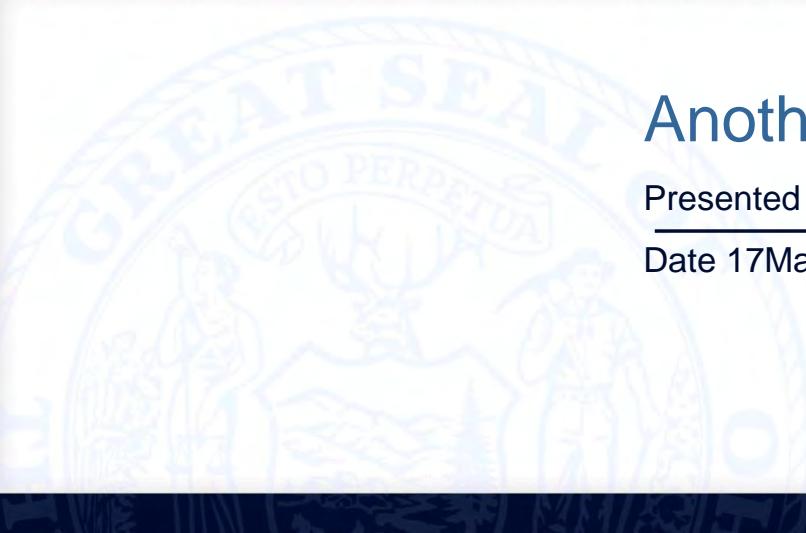




Another look at Wood River Dry Bed

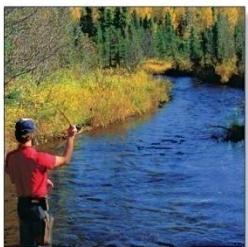
Presented by Allan Wylie, IDWR

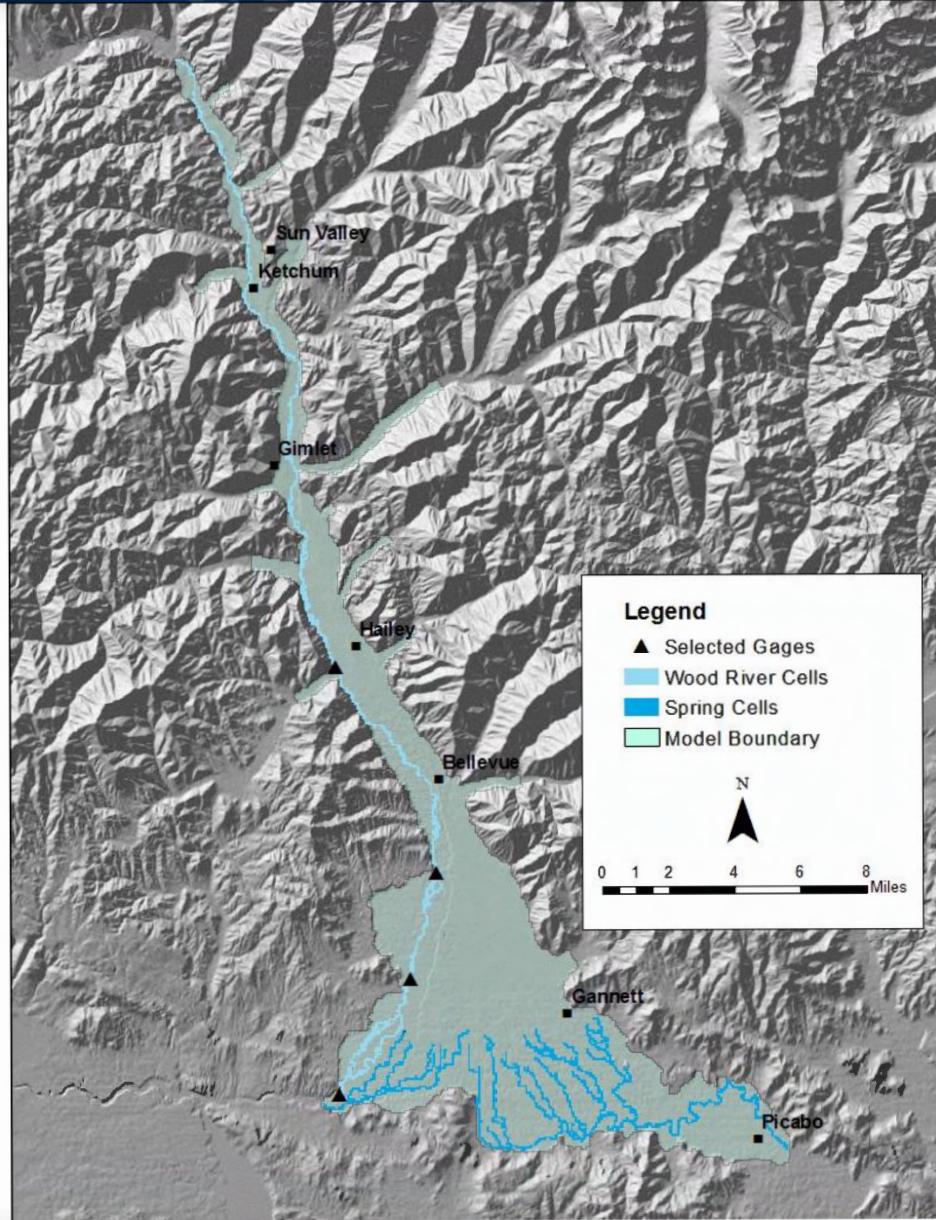
Date 17May2018

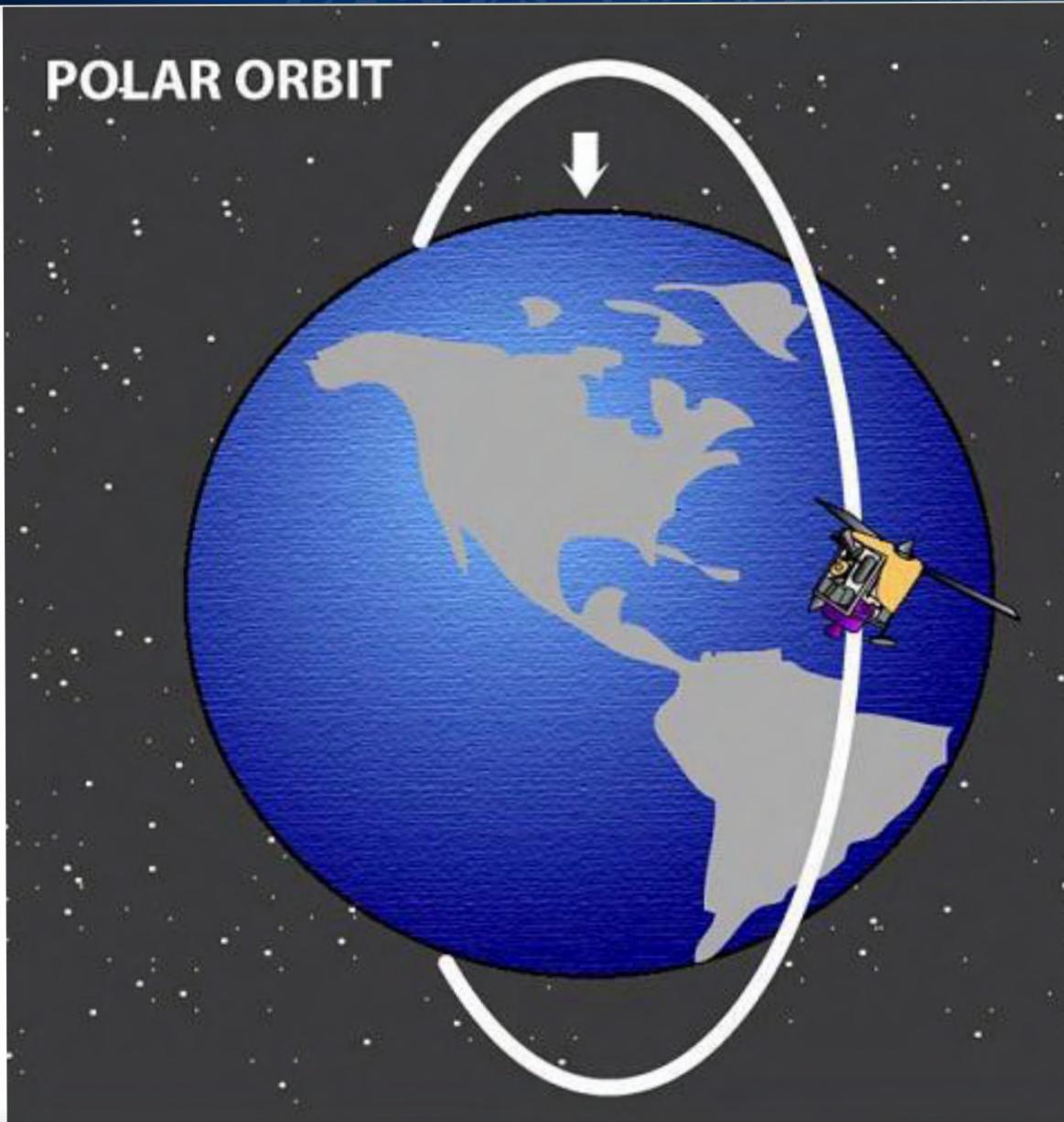


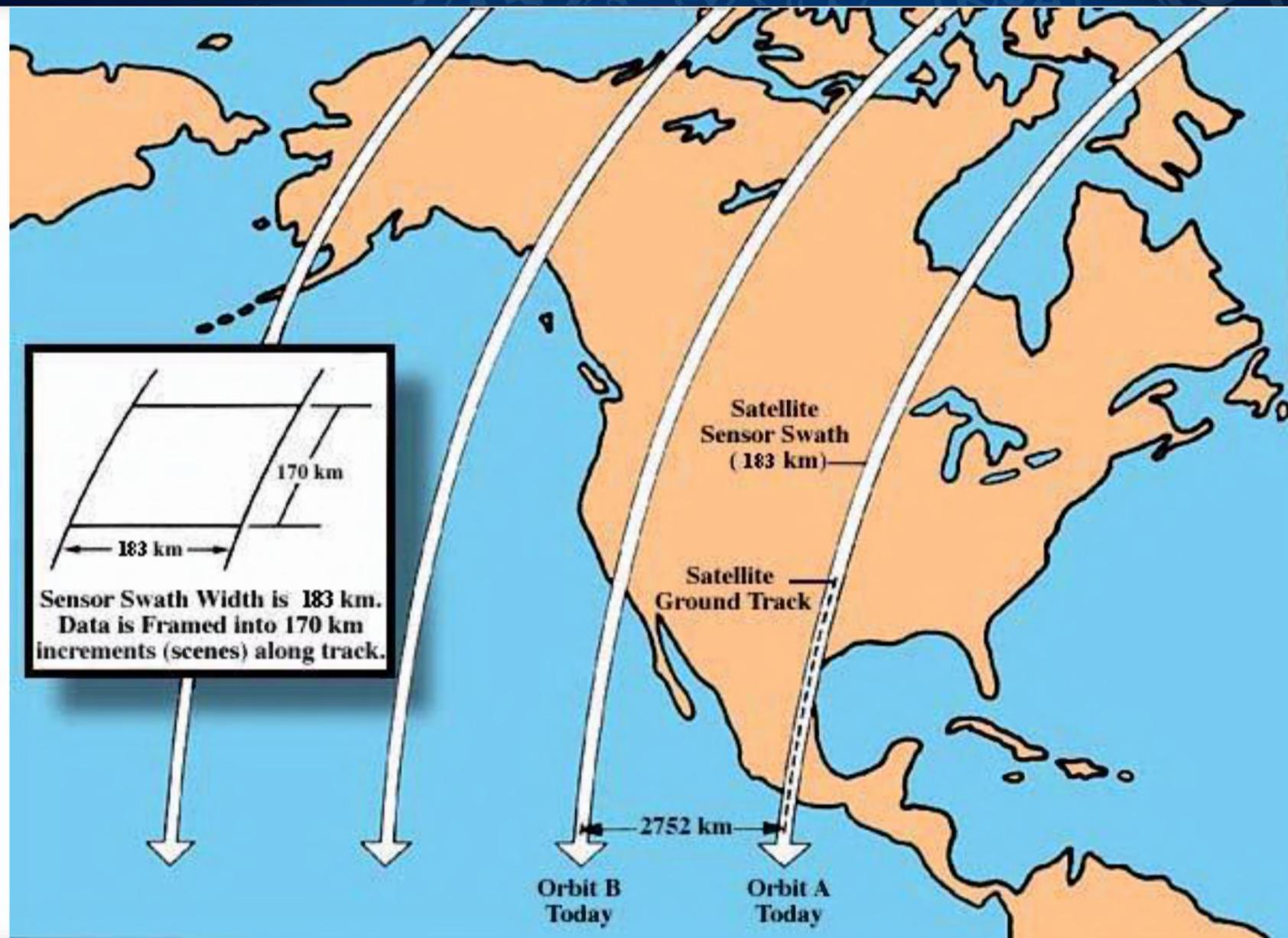
Outline

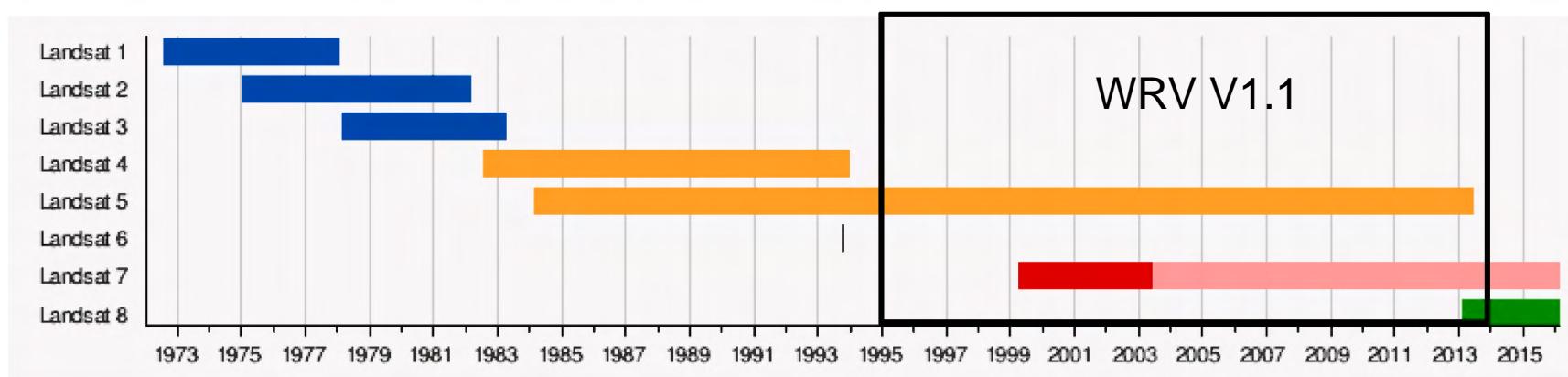
- Dry bed behavior
 - Landsat images
 - WRV V1 model simulation of dry bed
 - Proposed update
- Wood River Ranch-Stanton Crossing
 - Landsat images
 - WRV V1 model simulation
 - Proposed update



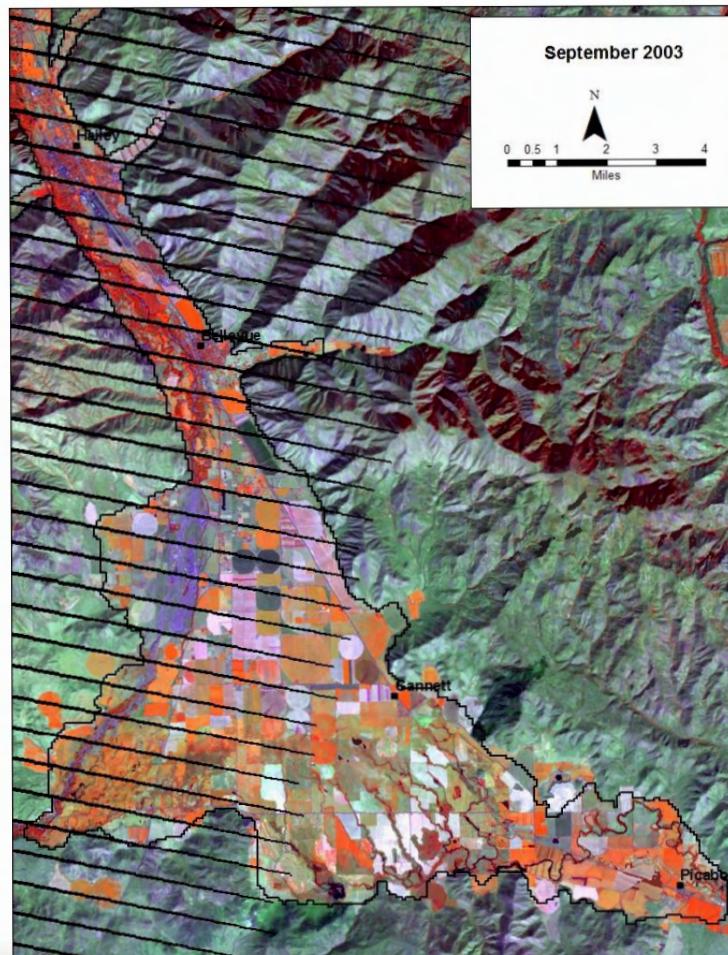








Landsat 7 Scan Line Corrector Failure



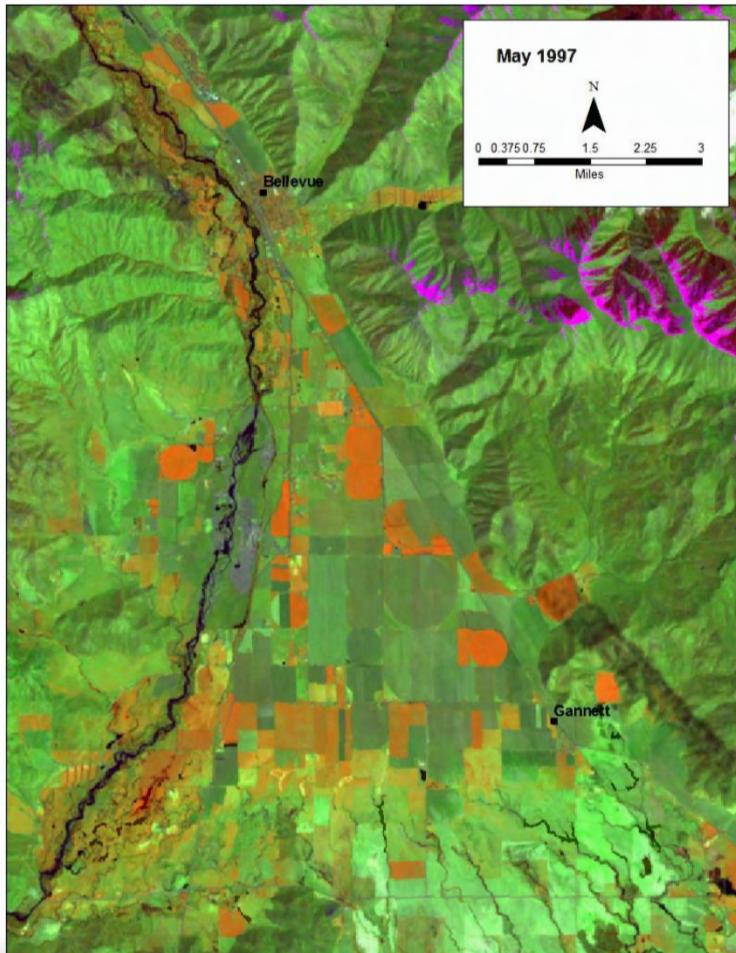


Department of
Water Resources

Water Year	Galena Summit		
	Snow Water	Snow Water	Snow Water
	Equivalent	Equivalent	Equivalent
	Collection Date	(in)	% of Normal
	Start of Month Values	Start of Month Values	(1981- 2010)
1995	1-Apr	28.2	151
1996	1-Apr	22.2	119
1997	1-Apr	32.4	173
1998	1-Apr	18.1	97
1999	1-Apr	24.4	130
2000	1-Apr	18.8	101
2001	1-Apr	12	64
2002	1-Apr	16.7	89
2003	1-Apr	20.5	110
2004	1-Apr	15.8	84
2005	1-Apr	17.3	93
2006	1-Apr	31.6	169
2007	1-Apr	15.4	82
2008	1-Apr	22.5	120
2009	1-Apr	19.2	103
2010	1-Apr	16.5	88
2011	1-Apr	22.3	119
2012	1-Apr	22.5	120
2013	1-Apr	17.9	96
2014	1-Apr	19.2	103

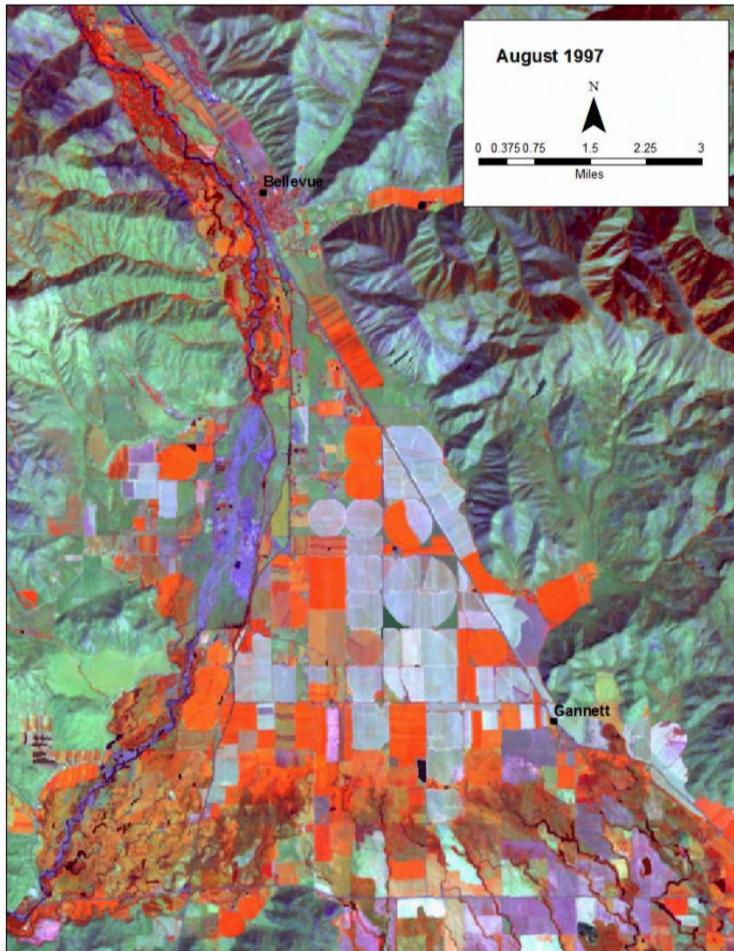


Landsat Image



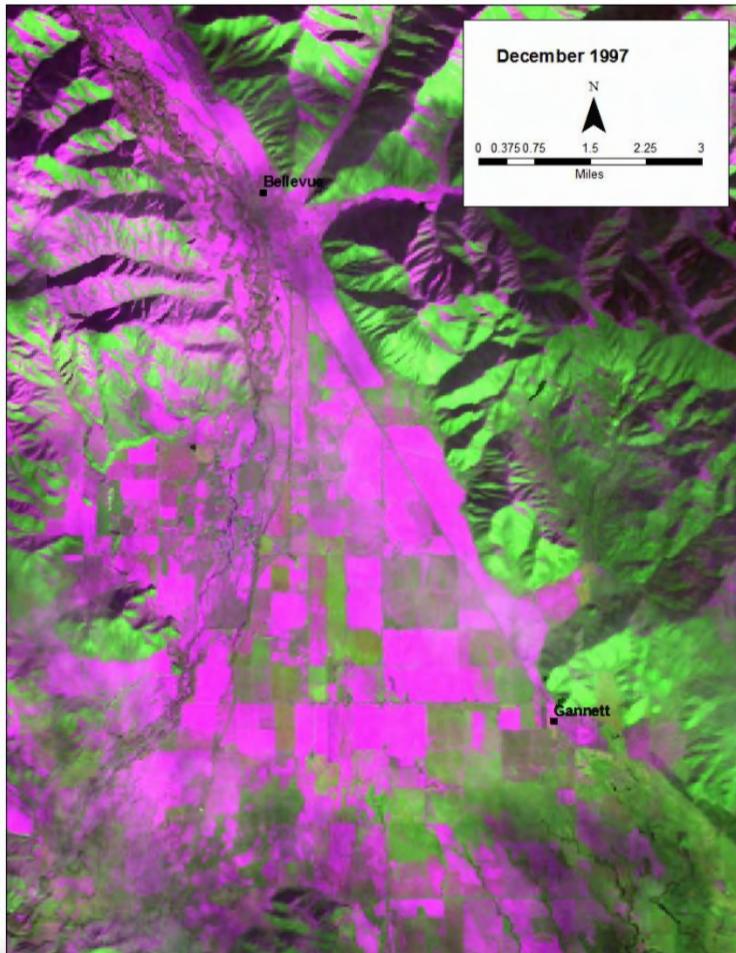
- May 1997
 - Bellevue
 - Gannett
 - Stanton Crossing
- Can see water in the dry bed

Landsat Image



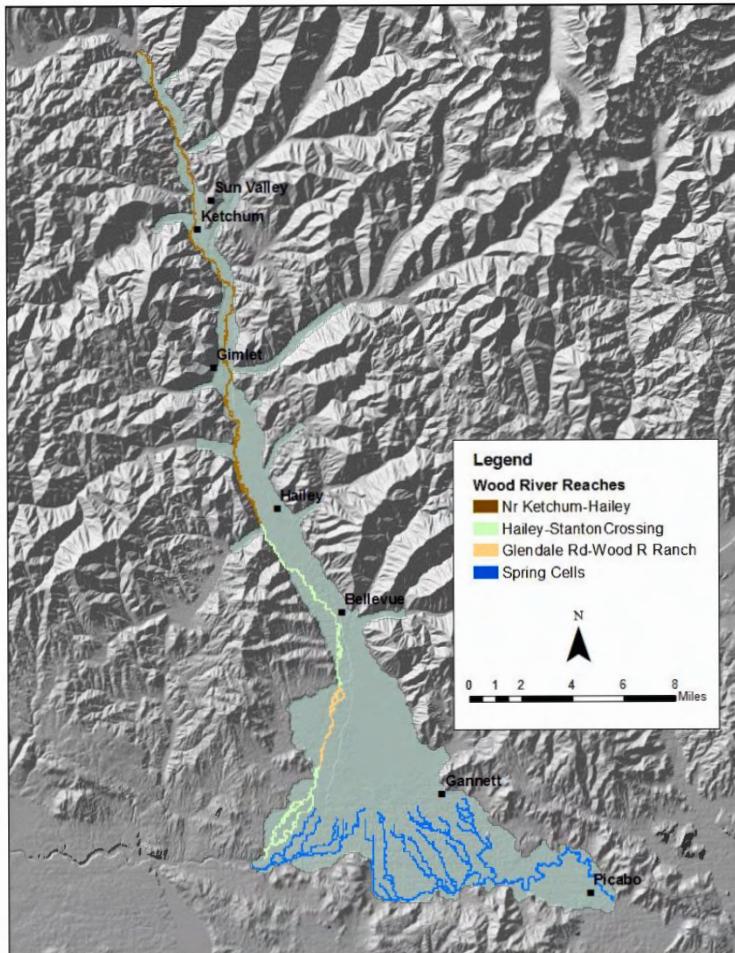
- August 1997
 - Bellevue
 - Gannett
 - Stanton Crossing
- Water above and below dry bed

Landsat Satellite Data



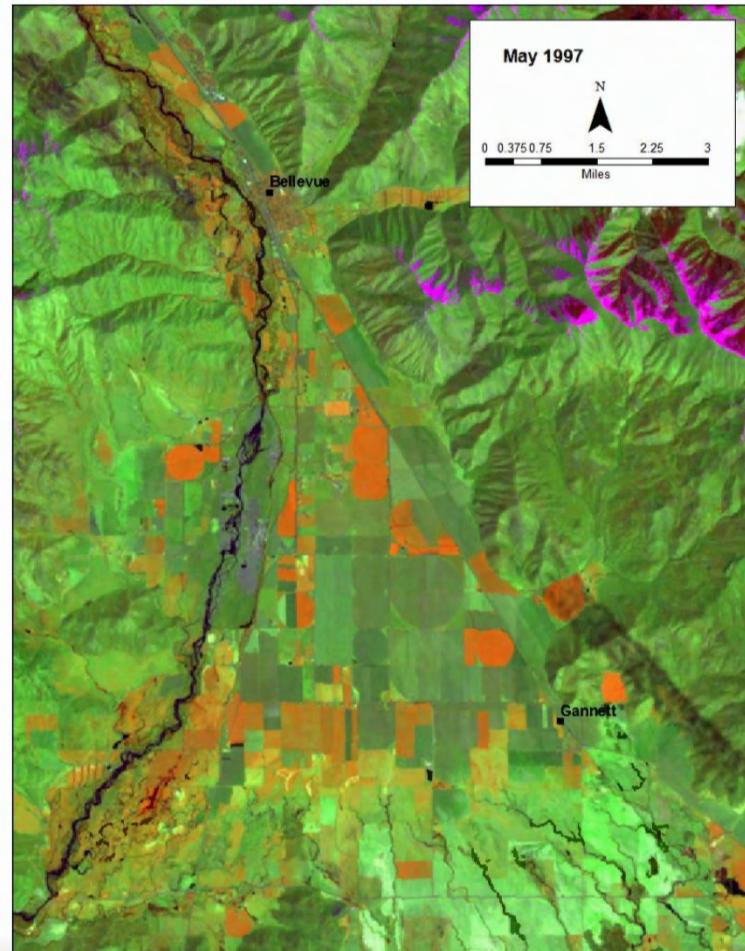
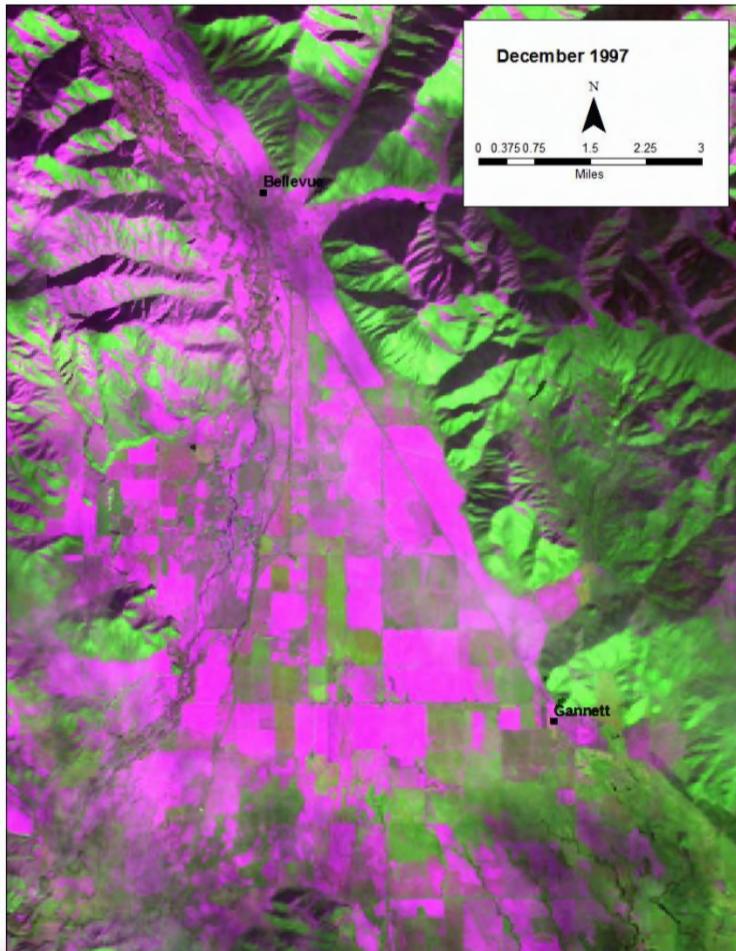
- December 1997
 - Bellevue
 - Gannett
 - Stanton Crossing
- Can see water in the river

V1.0 Simulation



- Glendale Rd to Wood River Ranch
 - Use DEM elevation for stage when river is not dry
 - Use Water Master records to tell when dry bed is dry
 - Stage = river bottom when dry
 - In November go back to DEM elevation for river stage

In V1.0 Dec and May have same Riverbed Cond and Stage

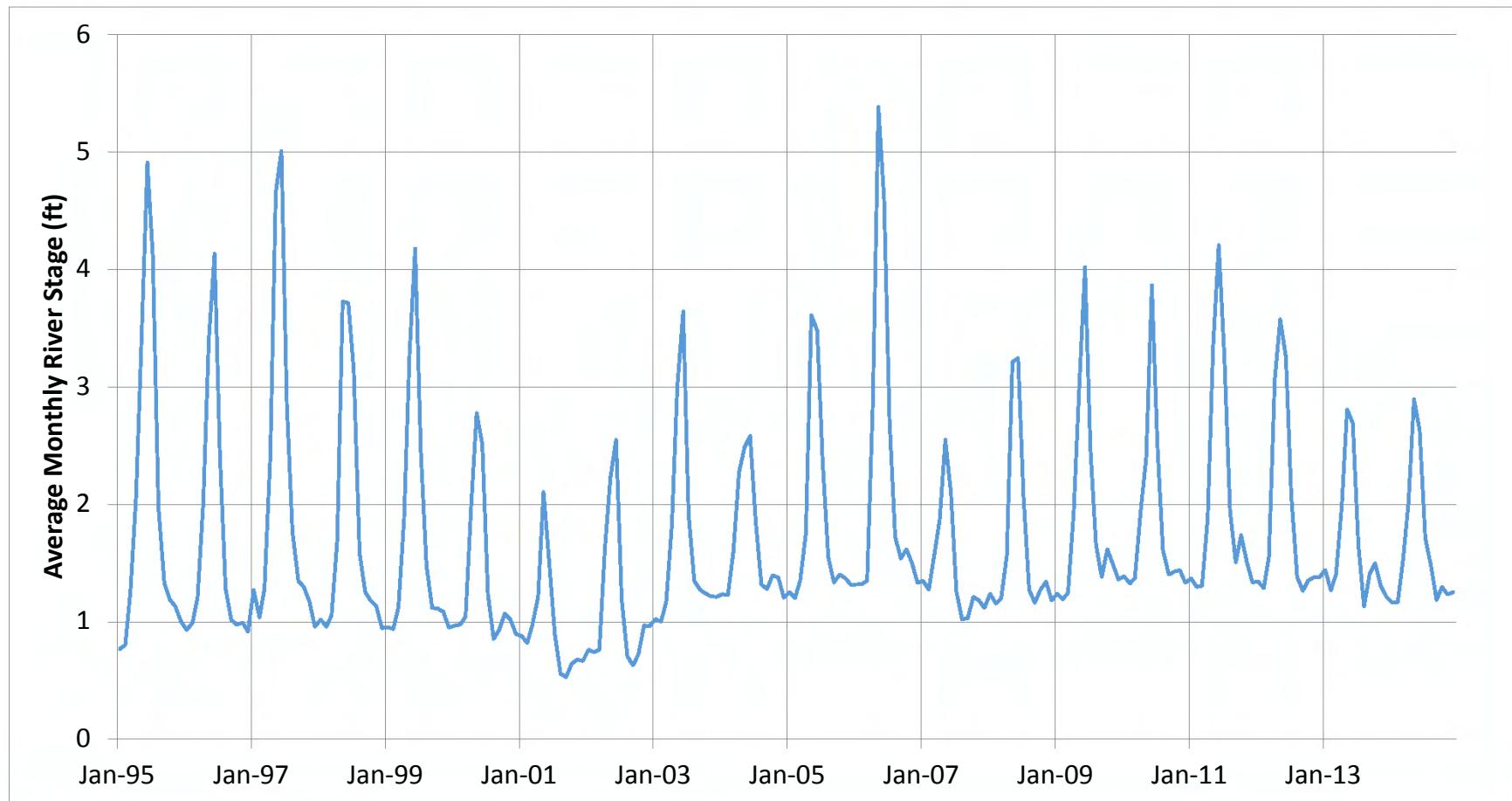


MODFLOW Riverbed Conductance

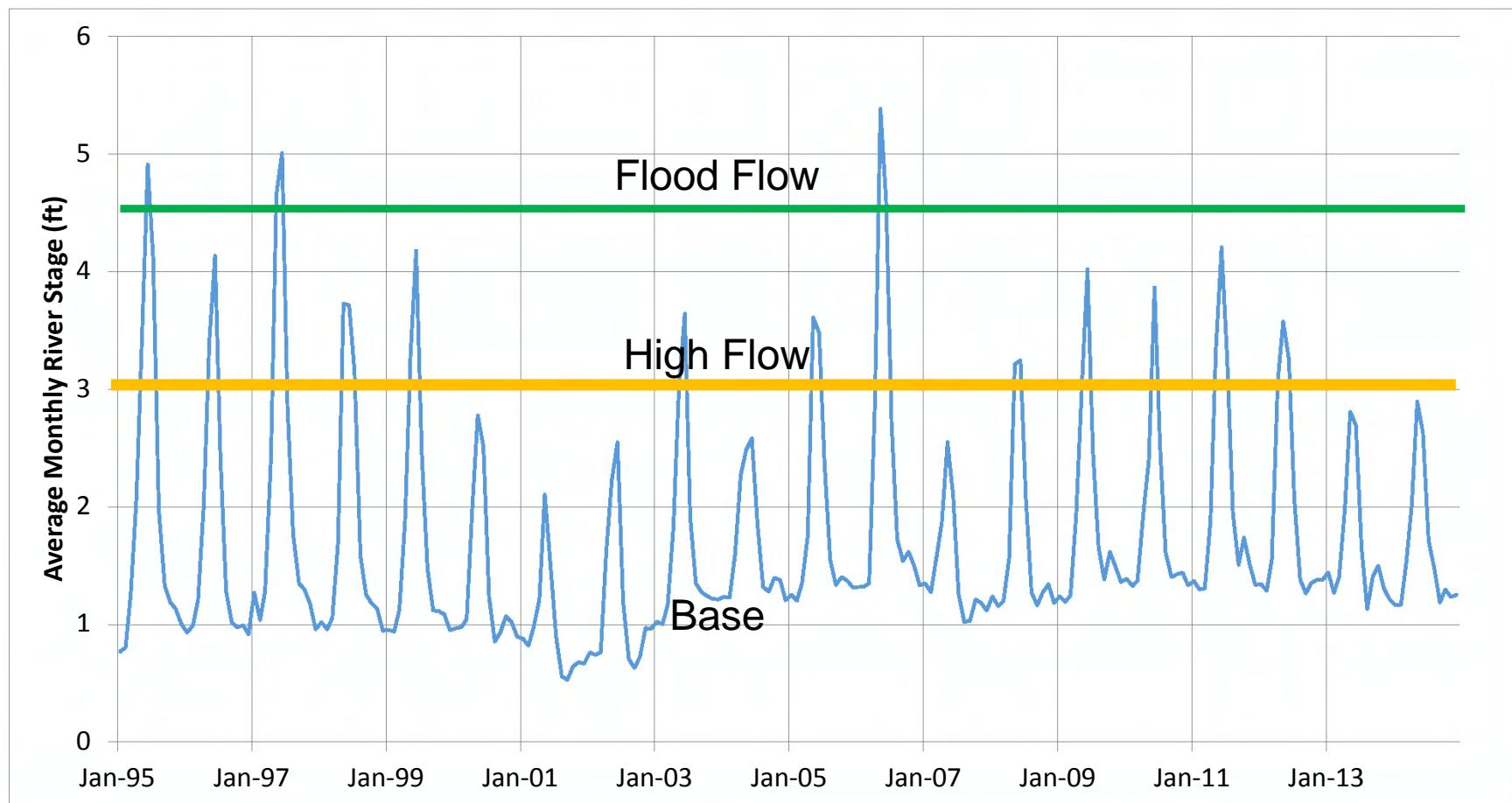
- MODFLOW Riverbed Conductance is a lumped parameter
 - $(\text{Hydraulic conductivity} \times \text{River Length} \times \text{River Width}) / \text{Riverbed Thickness}$
 - KLW/M
 - Increasing riverbed width increases the riverbed conductance parameter

Wood River at Hailey

More flow at Hailey=more flow at Glendale Rd



Three Riverbed Conductance Parameters Between Glendale Rd and Wood River Ranch



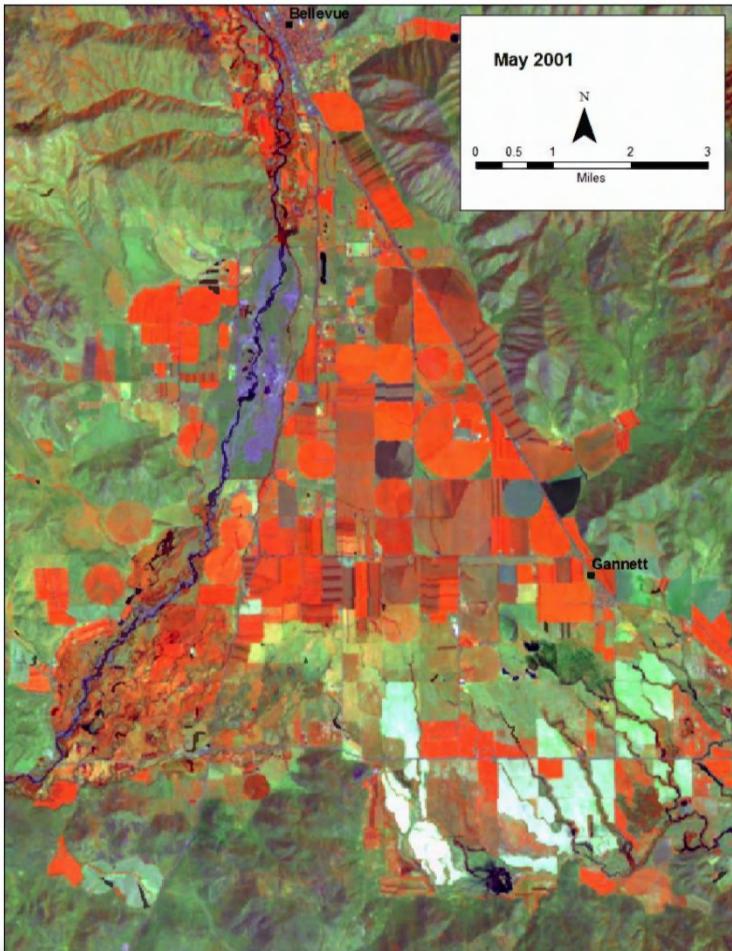
Moving on to a different but related topic

- Discussion before we move on?
- Glendale Rd to Stanton Crossing

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	Snow Water Equivalent	Snow Water Equivalent	Snow Water Equivalent
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2013	1-Apr	17.9	96
2014	1-Apr	19.2	103

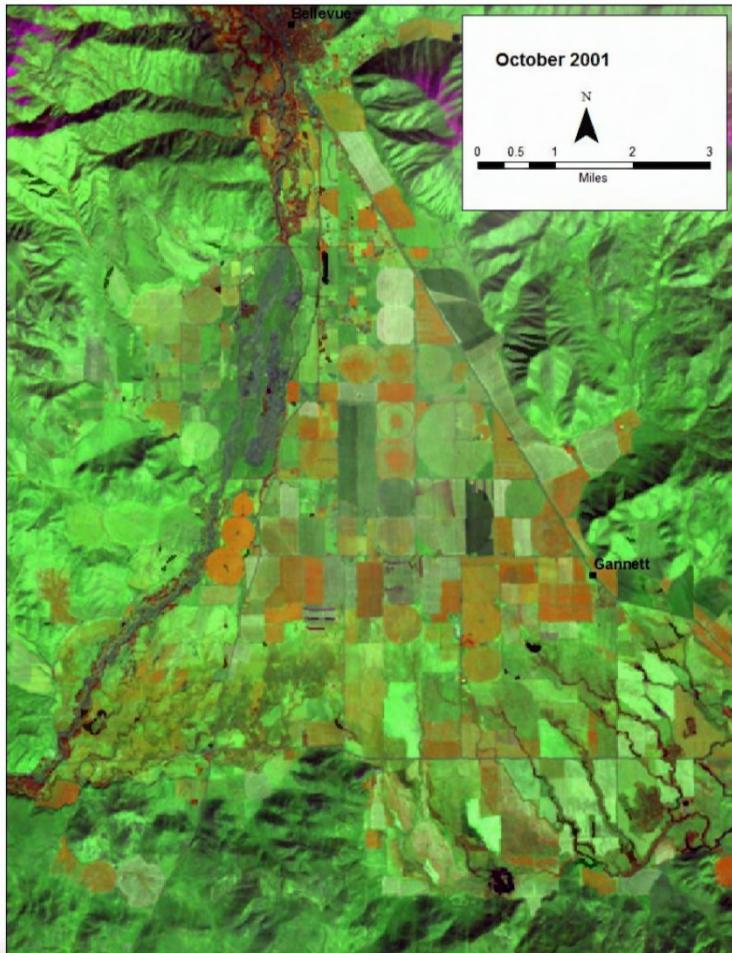


Landsat Satellite Data



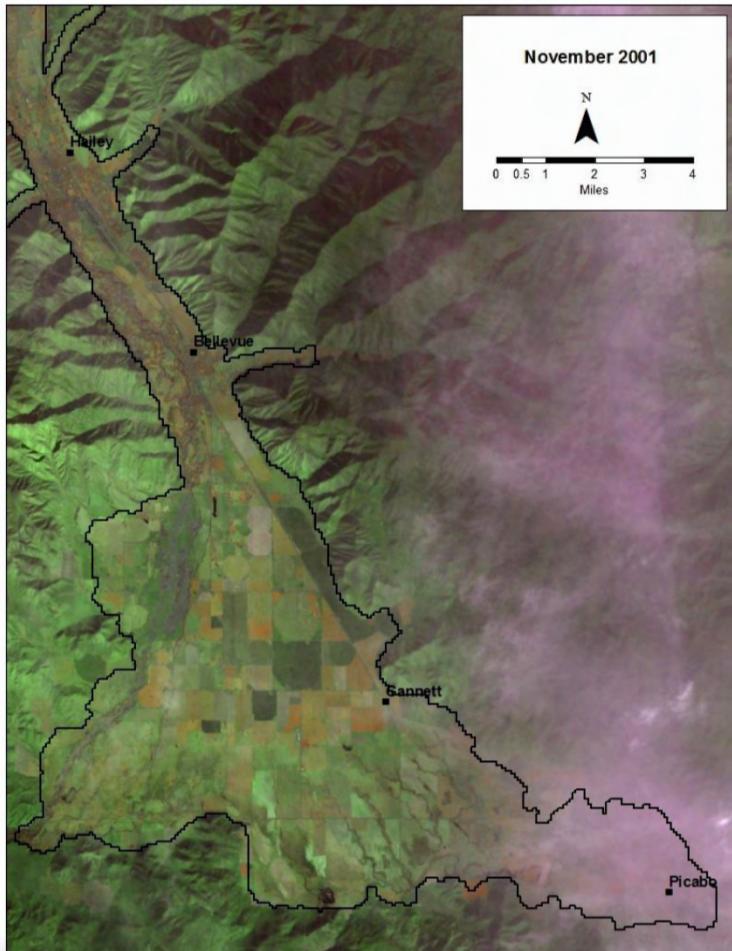
- May 2001
 - Bellevue
 - Gannett
 - Stanton Crossing
- Can see water in the dry bed
- Water in Wood River Ranch-Stanton Crossing

Landsat Satellite Data



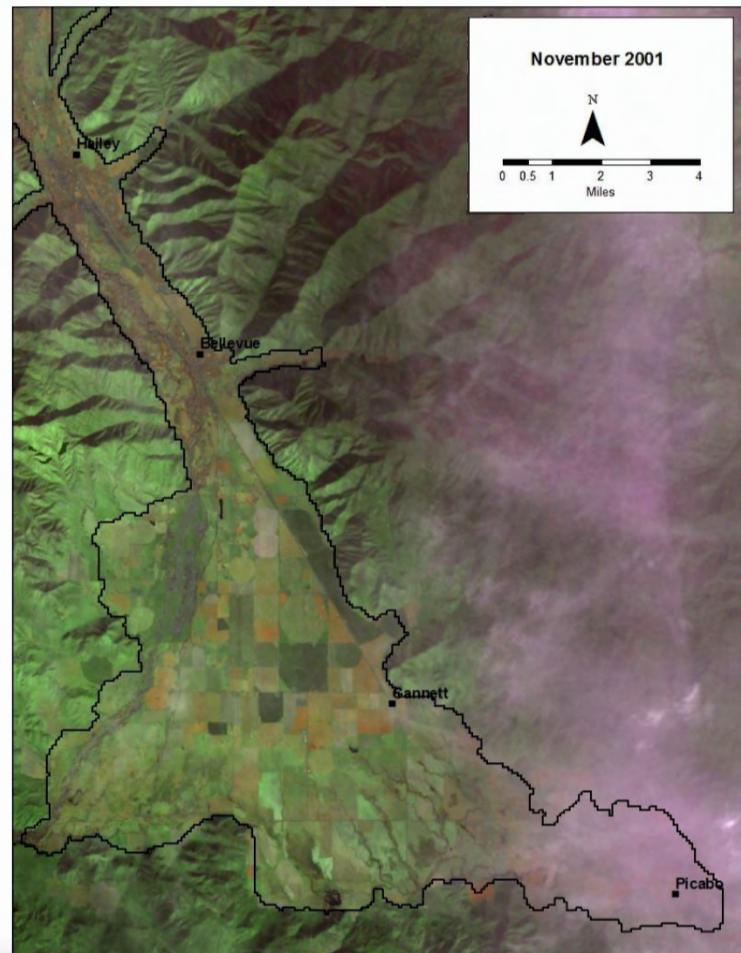
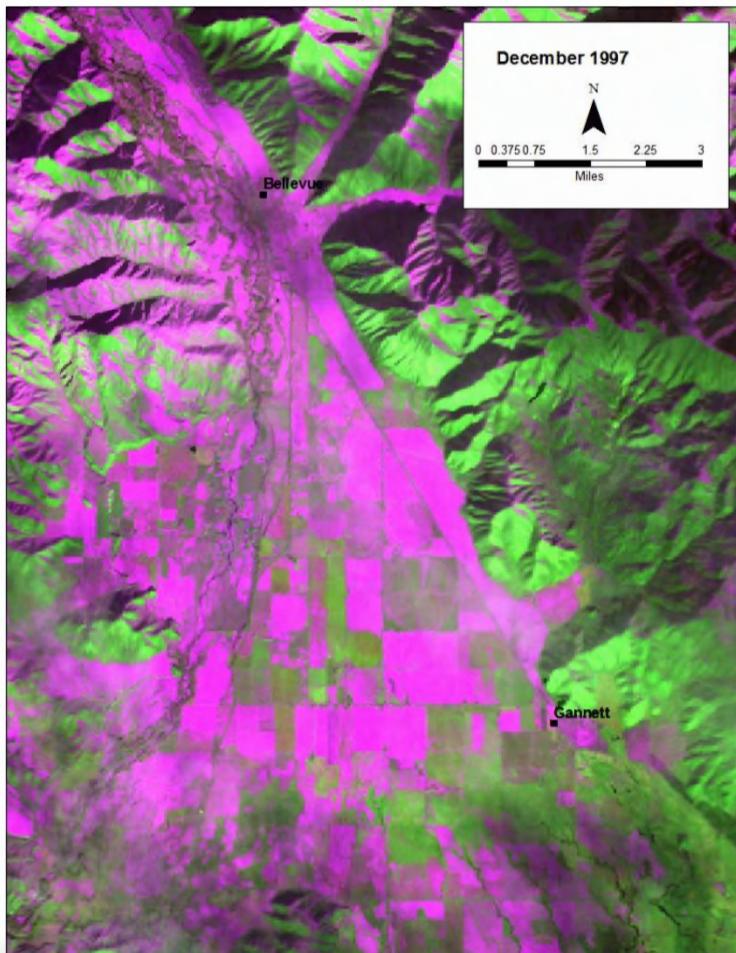
- October 2001
 - Bellevue
 - Gannett
 - Stanton Crossing
- Can not see water in dry bed
- Little water in Wood River Ranch – Stanton Crossing reach

Landsat Satellite Data



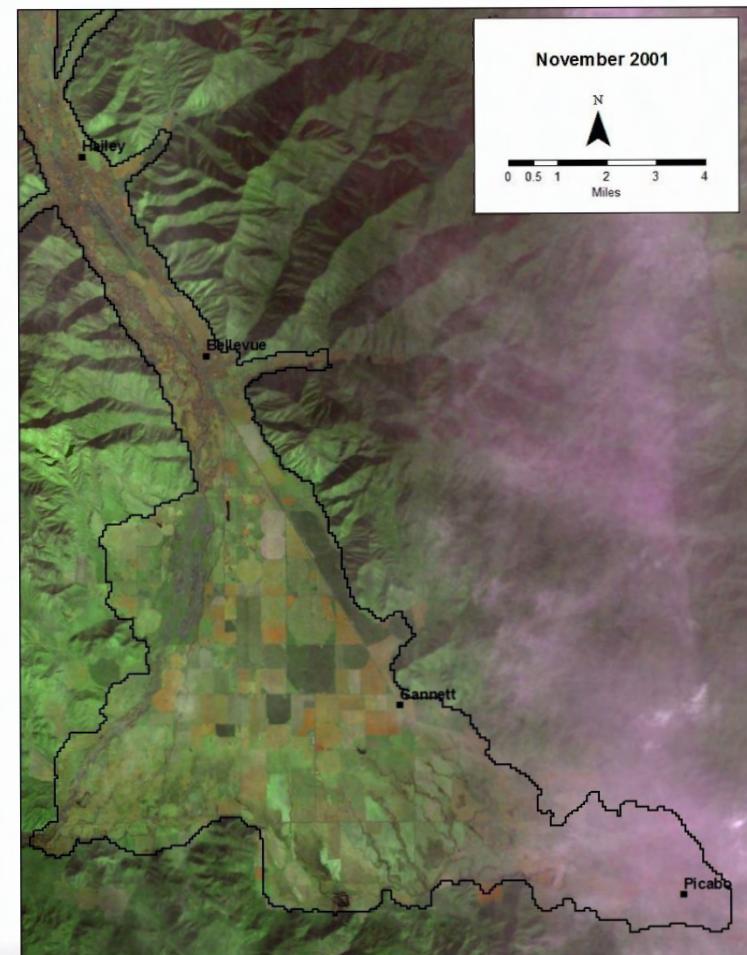
- November 2001
 - Bellevue
 - Gannett
 - Stanton Crossing
- Can not see water in dry bed
- Perhaps there is water in Wood River Ranch – Stanton Crossing reach

Modeled the same in V1.0



V1.0 Simulation

- Cary stage at Hailey down to Glendale Rd
- November restore water in Dry bed
- Cary stage at Stanton Crossing upstream to Wood River Ranch
- Not appropriate if river is dry



New Proposal

- Use Landsat images to tell when the river is dry below Glendale Rd in non-irrigation months
- When flow is high at Hailey use two riverbed conductance parameter(s)
 - Based on stage at Hailey
- Dry bed and Wood River Ranch-Stanton Crossing reach
 - Set stage = river bottom for months when river is dry
 - Only Interpolate stage between Stanton Crossing and Wood River Ranch when it has water



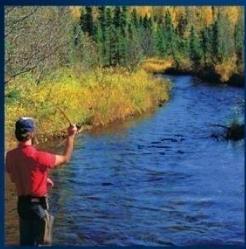
Department of
Water Resources

Discussion?

IDAH

O

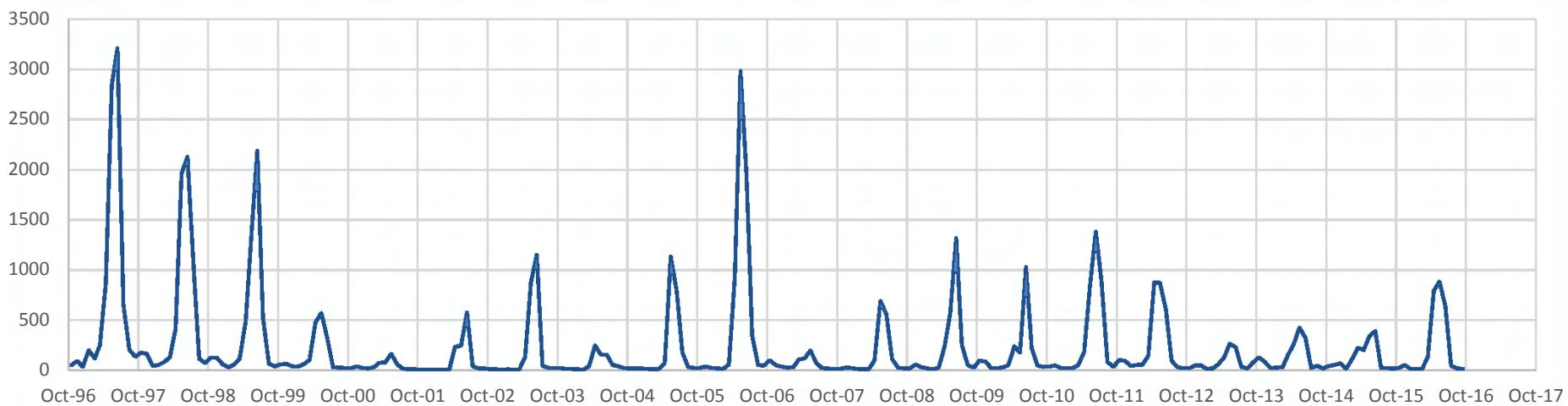
Department of
Water Resources



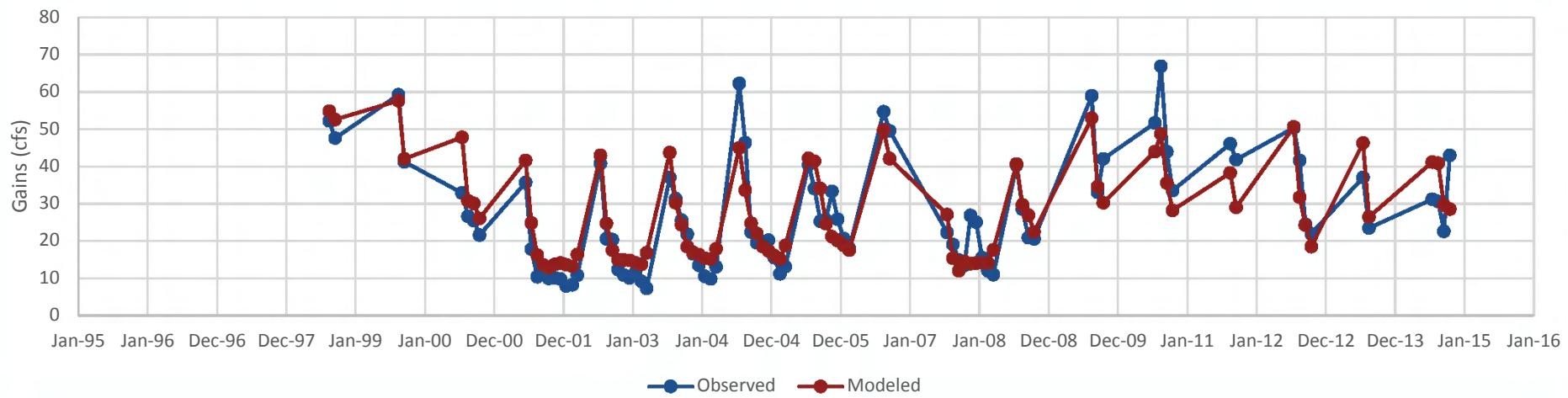
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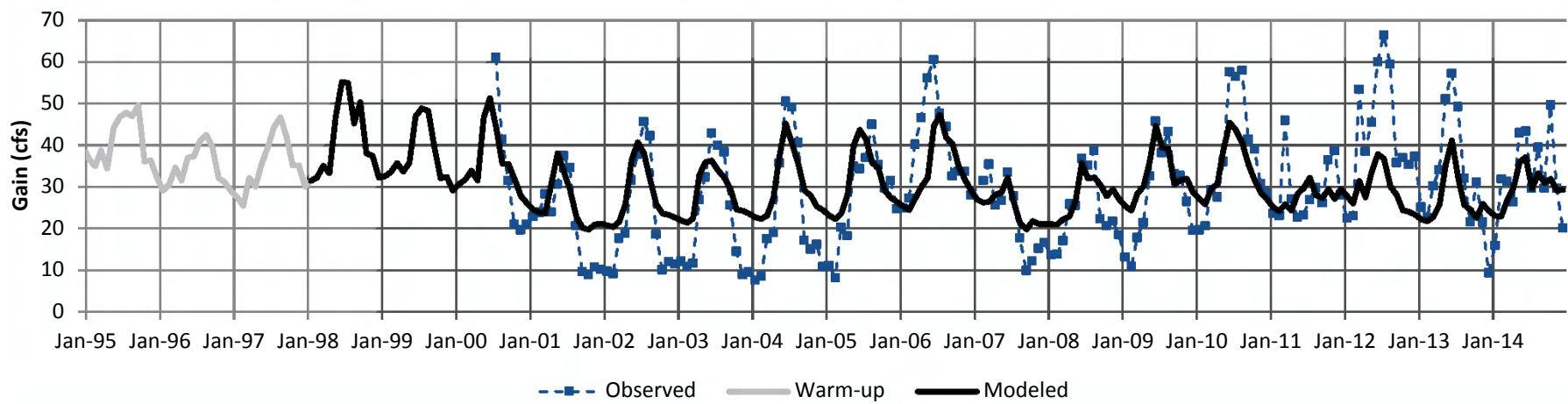
Stanton Crossing



Heart Rock Ranch to Stanton Crossing Gains



Willow Creek



Willow Creek

