

# Hydrogeologic framework, Treasure Valley, Idaho: update



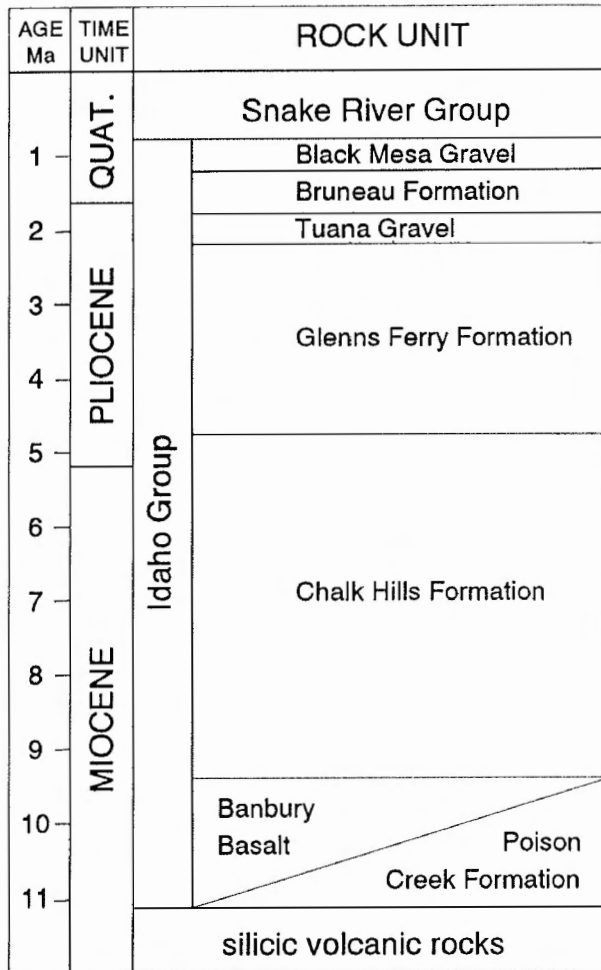
Jim Bartolino  
U.S. Geological Survey  
Idaho Water Science Center  
December 6, 2018

Deltaic sands, Chalk Hills Fm.  
Sommercamp Rd  
20Jun18

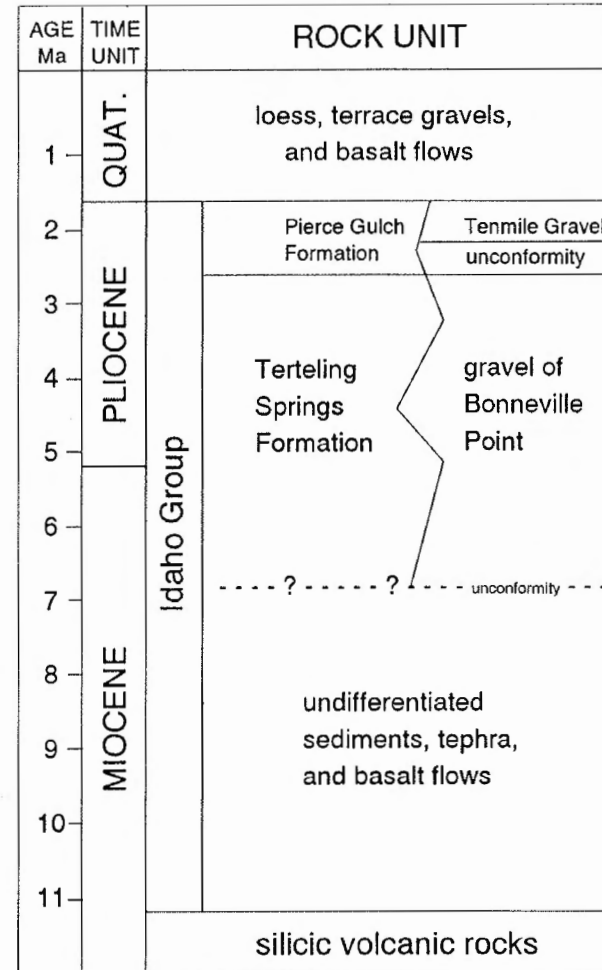
# Geologic time scale and history

Geologic time			Geologic history
Era	Period	Series	
Cenozoic (66 Ma to present)	Quaternary (2.6 Ma to Present)	Holocene (11,700 y to present)	Current landscape
		Pleistocene (2.6 Ma to 11,700 y)	Bonneville flood (15-14.5 ka) Deposition of Tenmile gravels on dry bed of Lake Idaho (1.7-1.6 Ma) Lake Idaho overflows into the Columbia drainage and begins draining (~2-1.7 Ma)
	Tertiary (66 to 2.6 Ma)	Pliocene (5.3 to 2.6 Ma)	Resumption of basalt volcanism (2.2-0.1 Ma) Lake Idaho forms (4 Ma) Unconformity
		Miocene (23 to 5.3 Ma)	Chalk Hills Lake drains (~6-5 Ma) Chalk Hills Lake forms (~10-8 Ma) Main episode of WSRP faulting (11-9 Ma)
		Oligocene (34 to 23 Ma)	Eruption of Jump Creek rhyolite (11.7-10.6 Ma) OR-ID graben and Weiser embayment form; deposition of Sucker Crk Fm (~15.5 Ma) Eruption of Lower Columbia River Basalts (16.9-15.6 Ma)
		Eocene (56 to 34 Ma)	
		Paleocene (66 to 56 Ma)	
Mesozoic (251 to 66 Ma)	Cretaceous (~145 to 66 Ma)	Upper/Late (100 to 66 Ma)	Intrusion of Idaho Batholith into older rocks (95-75 Ma)
		Lower/Early (~145 to 100 Ma)	

# Stratigraphy (Othberg, 1994)

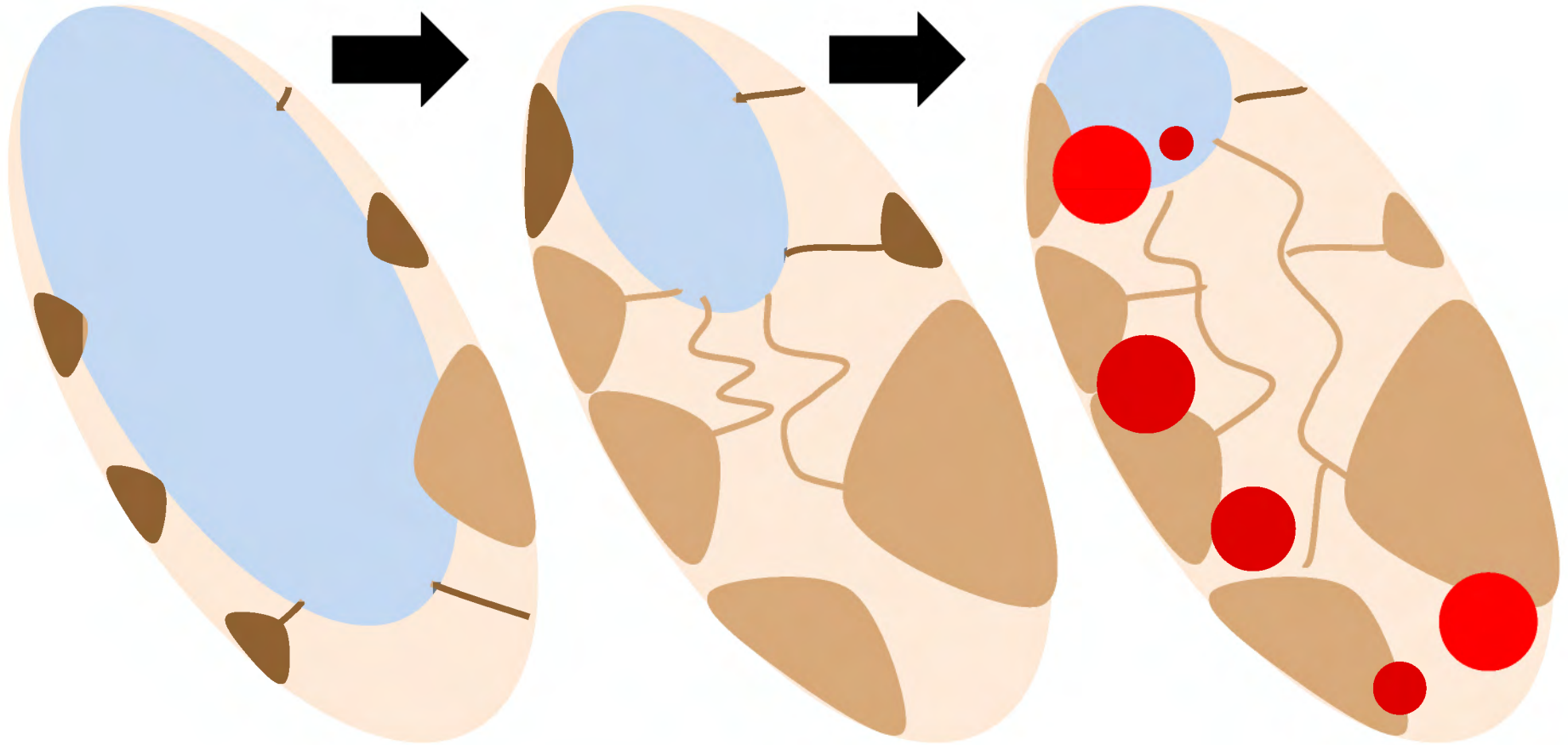


SE WSRP (Malde, 1991)



N WSRP (Othberg, 1994)

# Facies

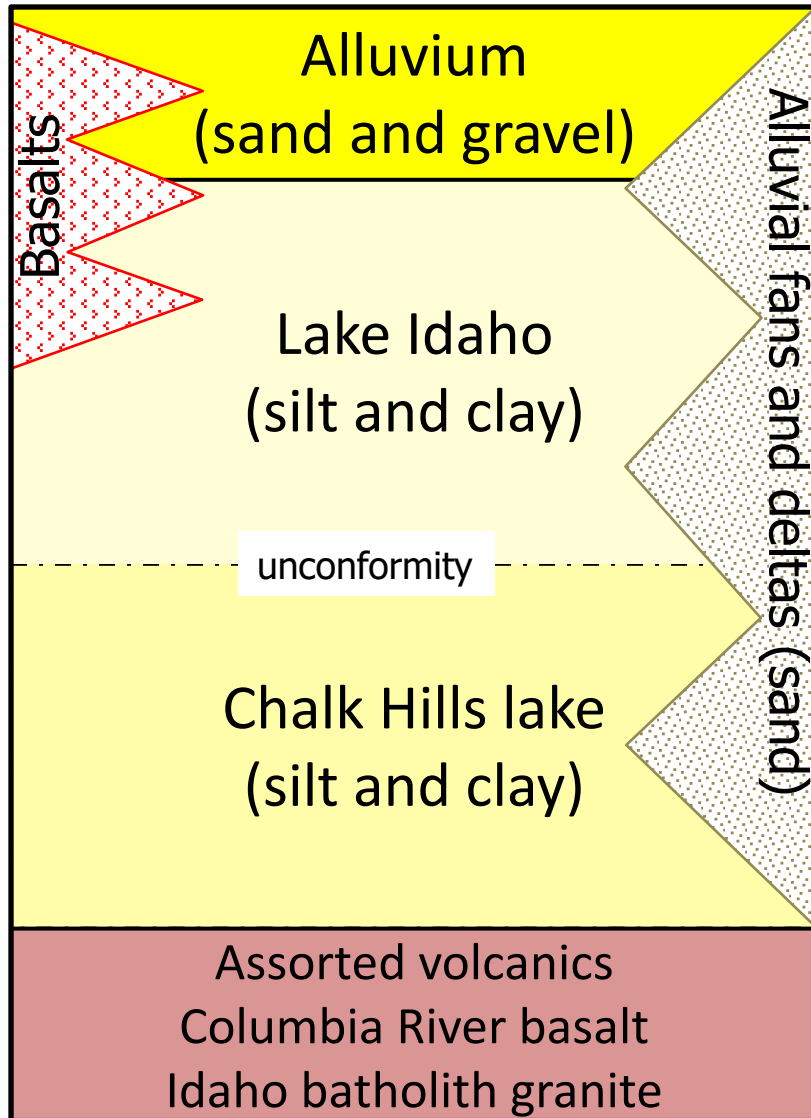


# Previous work

Rock units	
Whitehead (1986, 1992)	Newton (1991)
Younger alluvium Younger basalt	T-Q sedimentary and volcanic rocks
Older alluvium Older basalt	T-Q sedimentary and volcanic rocks
Older silicic volcanic rocks	T volcanic rocks

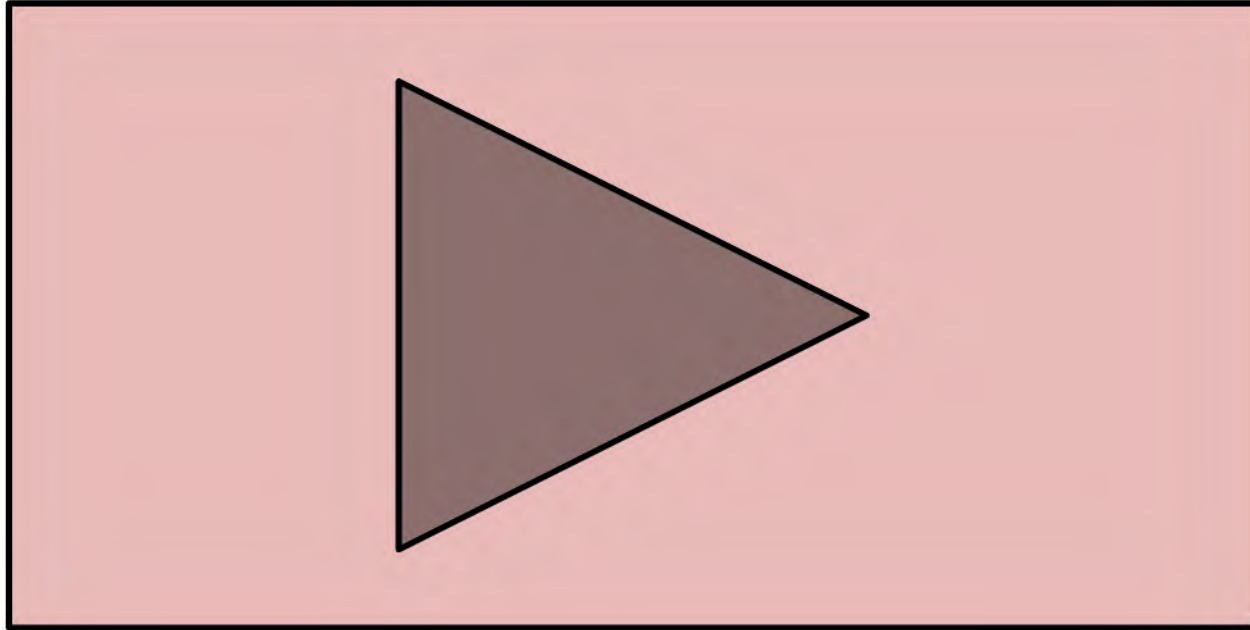
Facies units	
Squires and others (1992)	Wood (1997)
Boise fan sediments	Fluvial deltaic
Fan to lake transition sediments	
Central Boise lacustrine sediments	Mudstone facies
Deep artesian lacustrine sands and lake margin sands	
Lake margin sands of northeast Boise	

# Hydrogeologic units

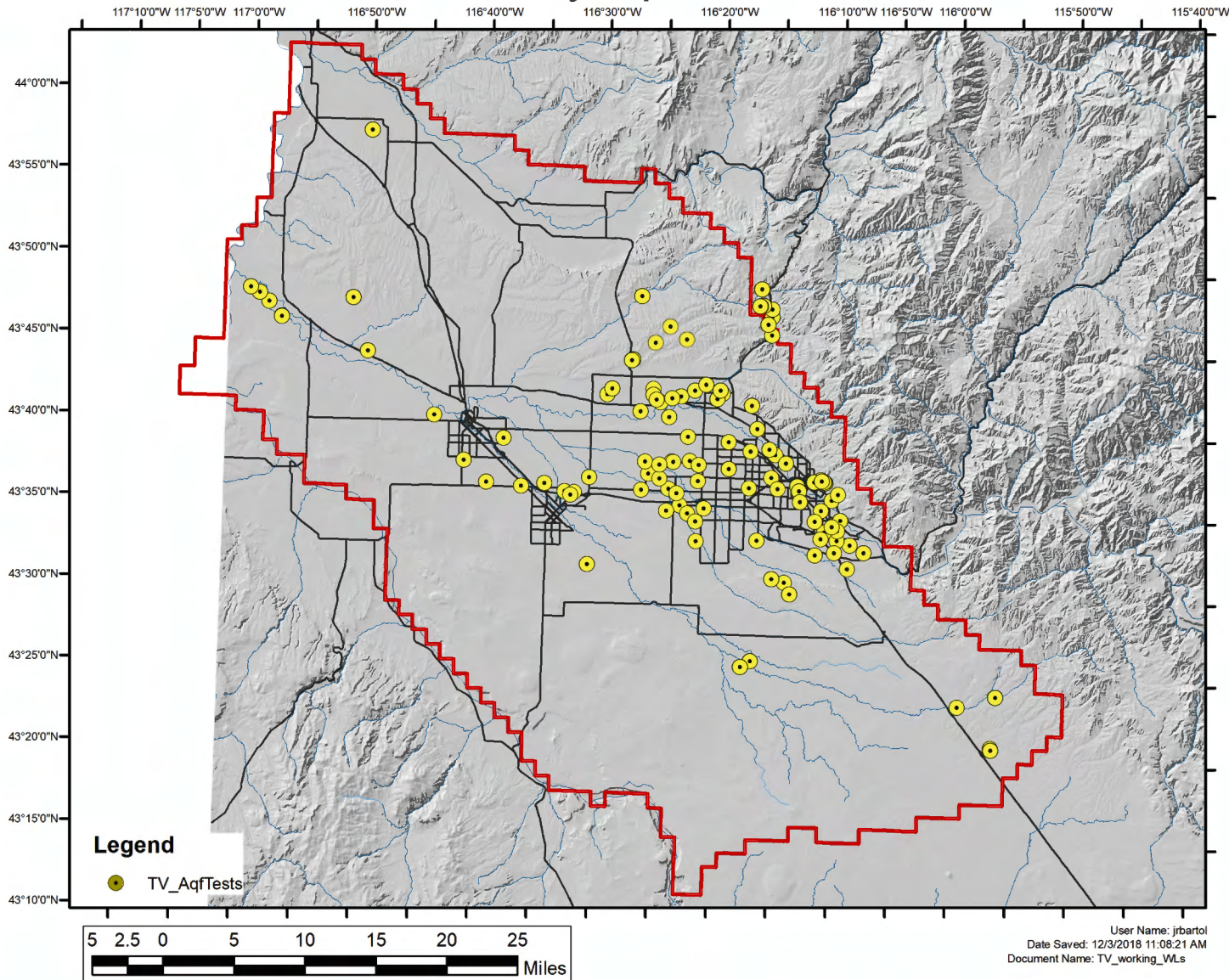


- ❖ Four units based on lithology/depositional environment
  - Lacustrine: fine-grained sediments (silt and clay)
  - Fluvial/alluvial: coarse-grained sediments (sand and gravel)
  - Pliocene/Pleistocene basalts: (basalt and scoria)
  - Bedrock: rhyolite, Columbia River Basalt, Idaho batholith granite

# Hydrogeologic unit models



# Aquifer tests



- ❖ ~ 100 wells
- ❖ ~ 400 aquifer test interpretations