WYOMING STATE GEOLOGICAL SURVEY
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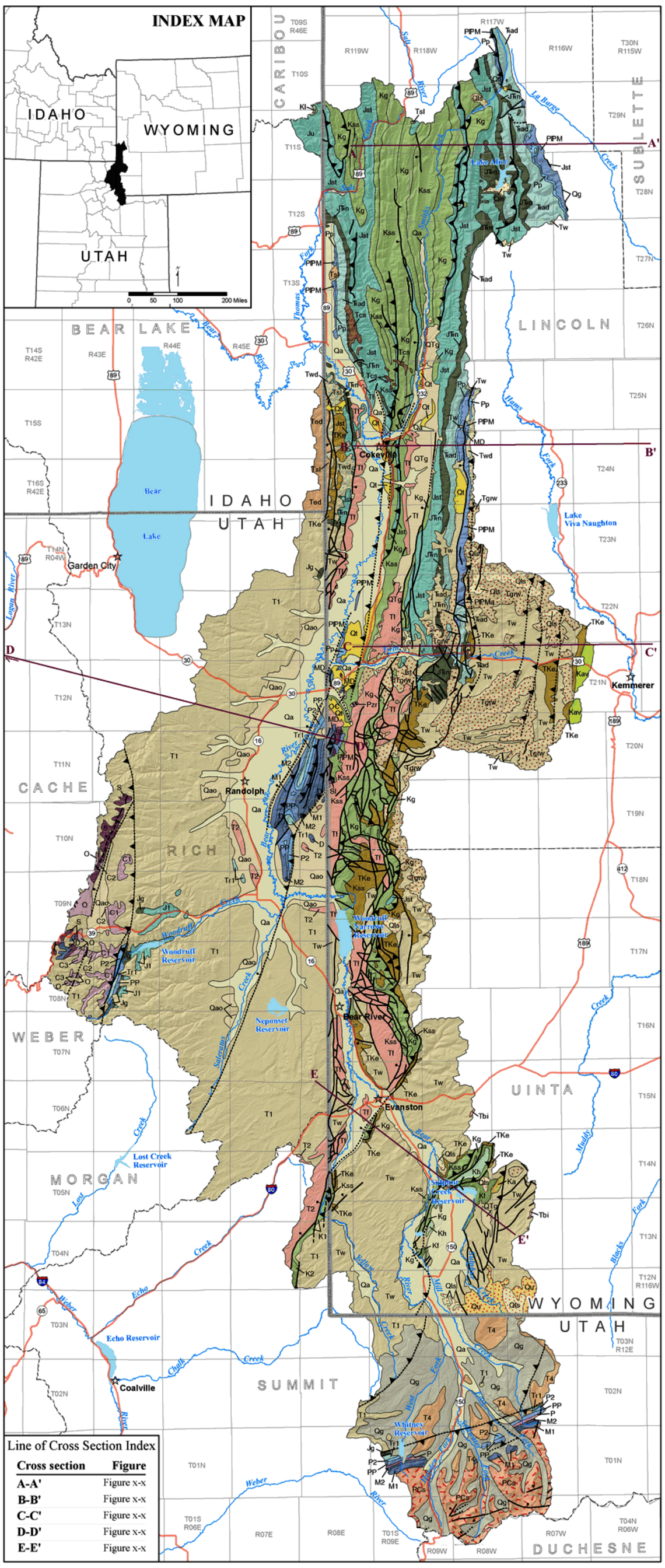
Laramie, Wyoming

Geology - Interpreting the past - providing for the future

Bear River Basin Plan II - Available Groundwater Determination Technical Memorandum

Plate I

Bedrock Geology - Bear River Basin



Bedrock Geology
Bear River Basin
Wyoming, Utah, and Idaho

compiled by
Seth J. Wittke, James E. Stafford, and Tomas Gracias

Magnetic Declination = 9° 47' E
at center of map
(August 1, 2012)

0 5 10 15 20 25 30 Miles

Scale 1:400,000

Explanation

- Interstate highway
- U.S. highway
- State highway
- A—A' Line of cross section
- Normal fault—dotted where concealed; ball & bar on downthrown block
- Thrust fault—dotted where concealed; sawteeth on upper (tectonically higher) plate
- City or town
- Township boundary
- County boundary
- State boundary
- Lake or reservoir
- River or creek

Bedrock Geology

(Geology enlarged from 1:500,000 scale to improve readability)

Wyoming Geologic Units

CENOZOIC

Quaternary

- Qa Alluvium and colluvium — may include some glacial deposits and Tertiary gravels
- Qt Gravel, pediment, and fan deposits
- Qg Glacial deposits
- Qls Landslide deposits
- Qu Undivided surficial deposits

Quaternary and Tertiary

- QTg Terrace gravels (Pleistocene and/or Pliocene)

Tertiary

- Tsl Salt Lake Formation
- Tbi Bishop Conglomerate
- Tf Fowkes Formation
- Tgrw Green River and Wasatch Formations
- Twd Diamictite and sandstone
- Tw Wasatch Formation
- Tcs Conglomerate of Sublette Range (Eocene and Paleocene)

CENOZOIC AND MESOZOIC

Tertiary and Cretaceous

- TKe Evanston Formation

MESOZOIC

Cretaceous

- Kav Adaville Formation
- Kh Hilliard Shale
- Kf Frontier Formation
- Kss Sage Junction, Quealy, Cokeville, Thomas Fork, and Smiths Formations
- Ka Aspen Shale
- Kg Gannett Group

Jurassic

- Jst Stump Formation, Preuss Sandstone or Redbeds, and Twin Creek Limestone

Jurassic and Triassic

- JTrn Nugget Sandstone

Triassic

- Trad Ankareh Formation, Thaynes Limestone, Woodside Shale, and Dinwoody Formation

PALEOZOIC

Permian

- Pp Phosphoria Formation

Permian, Pennsylvanian, and Mississippian

- PPMa Phosphoria, Wells, and Amsden Formations
- PPM Wells and Amsden Formations

Mississippian and Devonian

- MD Madison Group and Darby Formation

Silurian

- Sl Laketown Dolomite

Ordovician

- Pzr Bighorn Dolomite

Ordovician and Cambrian

- OC Bighorn Dolomite, Gallatin Limestone, and Gros Ventre Formation

Utah Geologic Units

CENOZOIC

Quaternary and Tertiary

- Qao Older alluvial deposits

Tertiary

- T4 Salt Lake Formation
- T2 Fowkes Formation
- T1 Wasatch Formation

MESOZOIC

Cretaceous

- K2 Frontier Formation
- K1 Kelvin Formation and Aspen Shale

Jurassic

- J1 Stump and Preuss Sandstones, and Twin Creek Limestone

Jurassic and Triassic

- Jg Nugget Sandstone

Triassic

- Tr1 Thaynes Formation, Woodside Shale, and Dinwoody Formation

PALEOZOIC

Permian

- P2 Phosphoria and Park City Formations

Permian and Pennsylvanian

- PP Weber Quartzite

Pennsylvanian

- P Morgan Formation and Round Valley Limestone

Mississippian and Devonian

- M2 Humbug and Deseret Formations
- M1 Gardison/Lodgepole Limestone
- D Beirdneau Sandstone, Hyrum Dolomite, and Water Canyon Formation

Silurian

- S Laketown Dolomite

Ordovician and Cambrian

- O Fish Haven Dolomite and Garden City Limestone
- C3 St. Charles Formation, Nounan Dolomite, and Bloomington Formation
- C2 Maxfield Limestone and Ophir Formation
- C1 Tintic Quartzite

PROTEROZOIC

Precambrian

- PCs Mutual Formation, Mineral Fork Tillite, and Big Cottonwood Formation

Idaho Geologic Units

CENOZOIC

Quaternary

- Qa Quaternary alluvium; may contain some glacial deposits and colluvium in upland

Tertiary

- Ted Eocene stream, lake, and air-fall deposits; generally associated with nearby volcanism

MESOZOIC

Cretaceous

- Kl Lower Cretaceous shale, siltstone, red-bed sandstone and fresh-water limestone

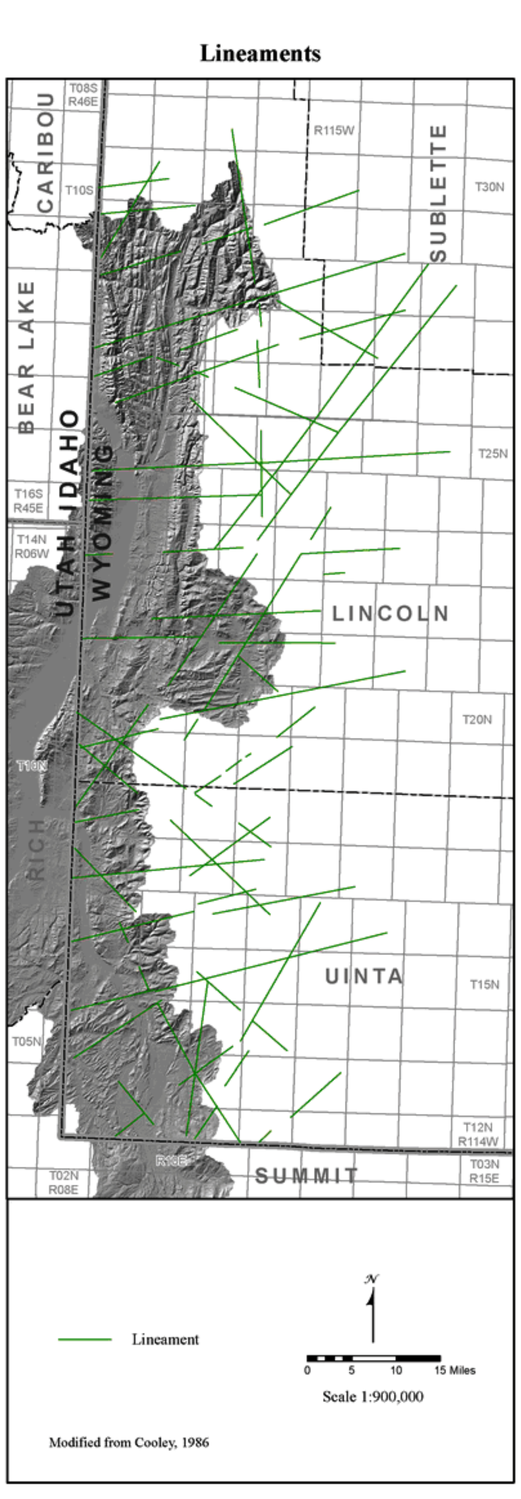
Jurassic

- Ju Upper Jurassic glauconitic and variegated sandstone, siltstone, and oolitic limestone

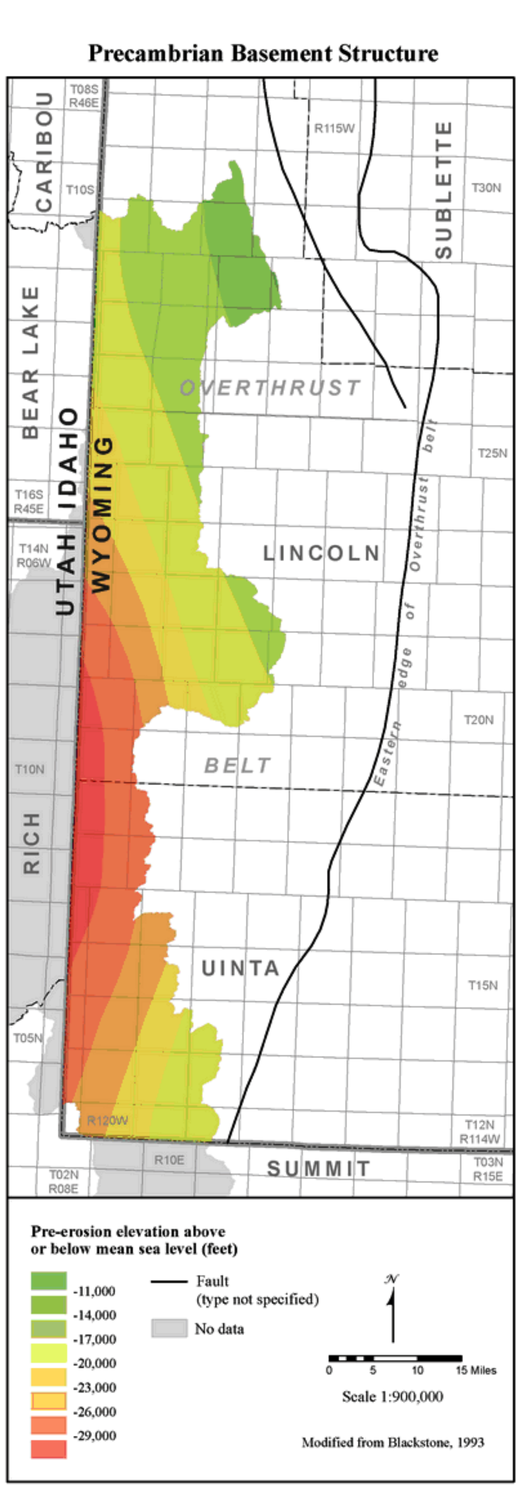
Map Projection: Universal Transverse Mercator (UTM), zone 12
False Easting: 500000, False Northing: 0
Central Meridian: -110.0 degrees West
Linear Unit: Meter
Horizontal Datum: North American Datum of 1983 (NAD 83)

Map layout by Tomas Gracias
Map edited by Suzanne C. Luhr

Lineaments



Precambrian Basement Structure



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