



**Overview of Water Resources of the Little Colorado River
Basin with an emphasis on the C aquifer in the Holbrook
area**

**Donald Bills
U.S. Geological Survey
Arizona Water Science Center
Flagstaff Office.**

C aquifer in the Little Colorado River Basin

N AZ Regional Model area



Figure 1. The Northern Arizona Regional Groundwater Flow Model (NARGFM) study area.

Land Ownership: Little Colorado River Basin

NAZ Regional
Model area

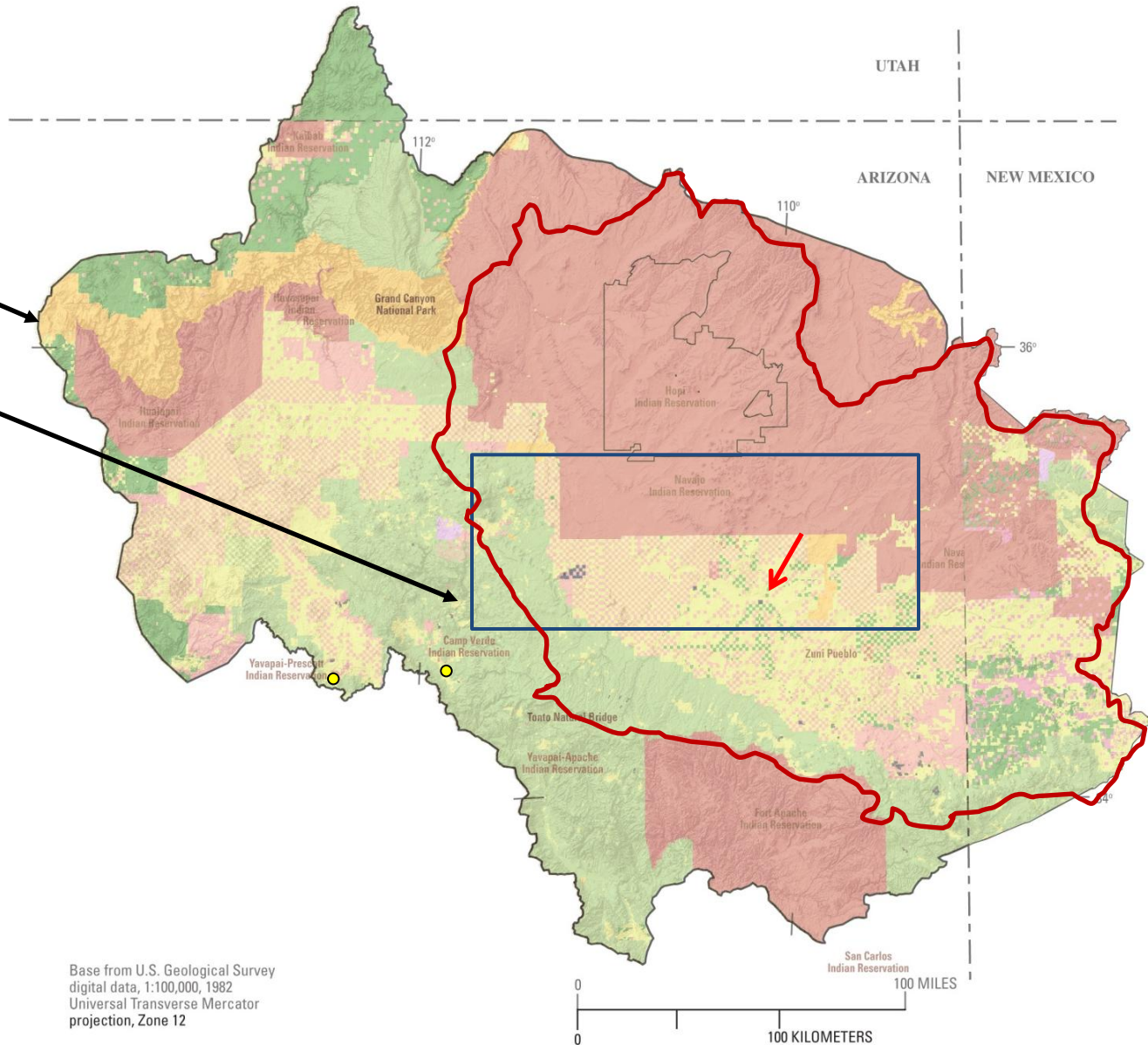
C aquifer
monitoring area

Past programs that
helped develop
hydrogeology of the C
aquifer:

- Navajo and Hopi/USGS Coop
- ADWR/USGS Coop
- AZSLD/USGS Coop
- NPS/USGS
- BIA/USGS
- BOR/USGS and
- Flagstaff and Coconino
Co./USGS Coop

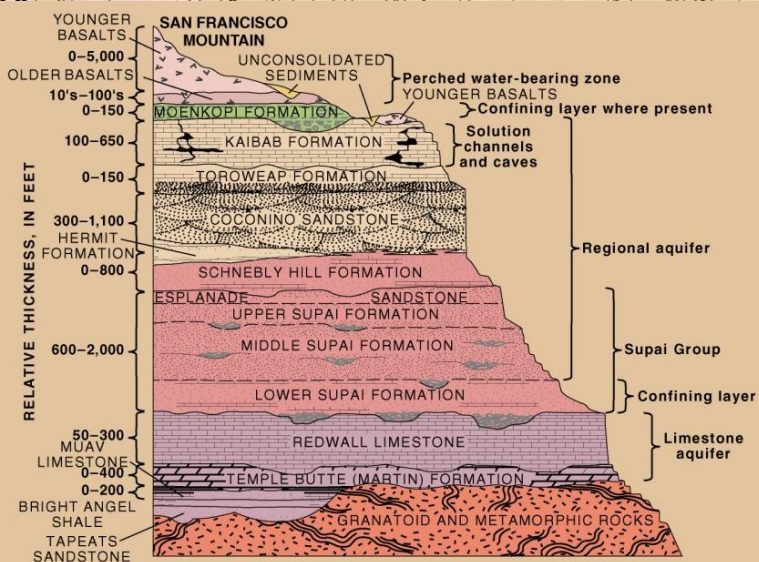
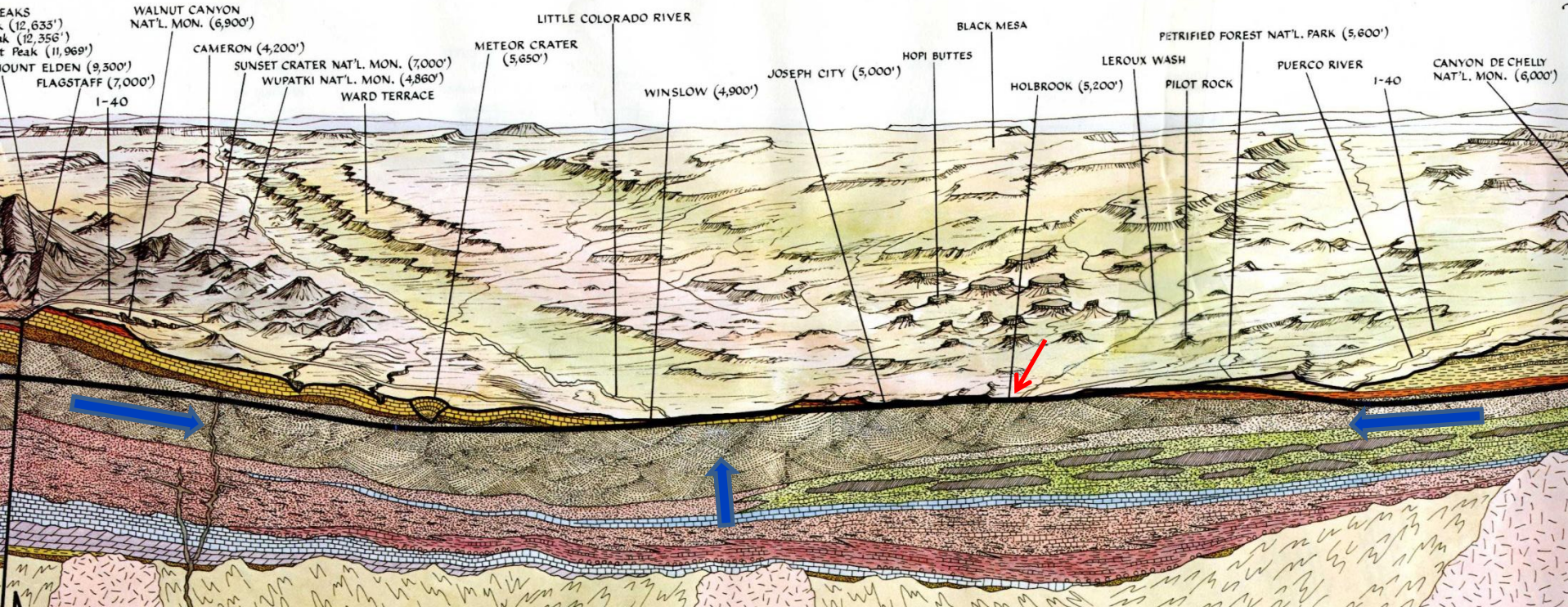


EXPLANATION	
 INDIAN RESERVATION 64%	 NATIONAL PARK 1.4%
 FOREST SERVICE 10.5%	 PRIVATE 14%
 BUREAU OF LAND MANAGEMENT 1.2%	 OTHER 0.1% (BOR, County, AZGF, etc.)
 STATE 8%	 DEPARTMENT OF DEFENSE --

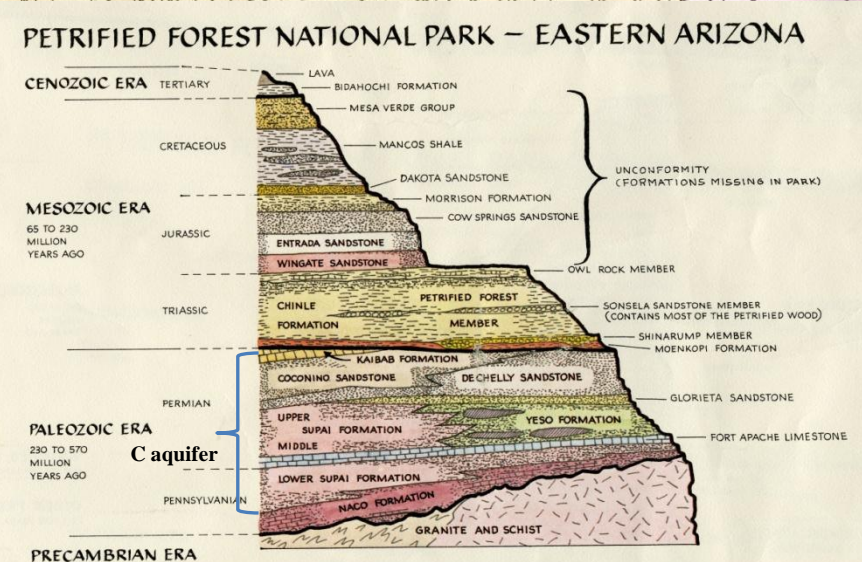


Base from U.S. Geological Survey
digital data, 1:100,000, 1982
Universal Transverse Mercator
projection, Zone 12

CROSS SECTION ALONG INTERSTATE 40 — FLAGSTAFF TO N.M. — ARIZ.

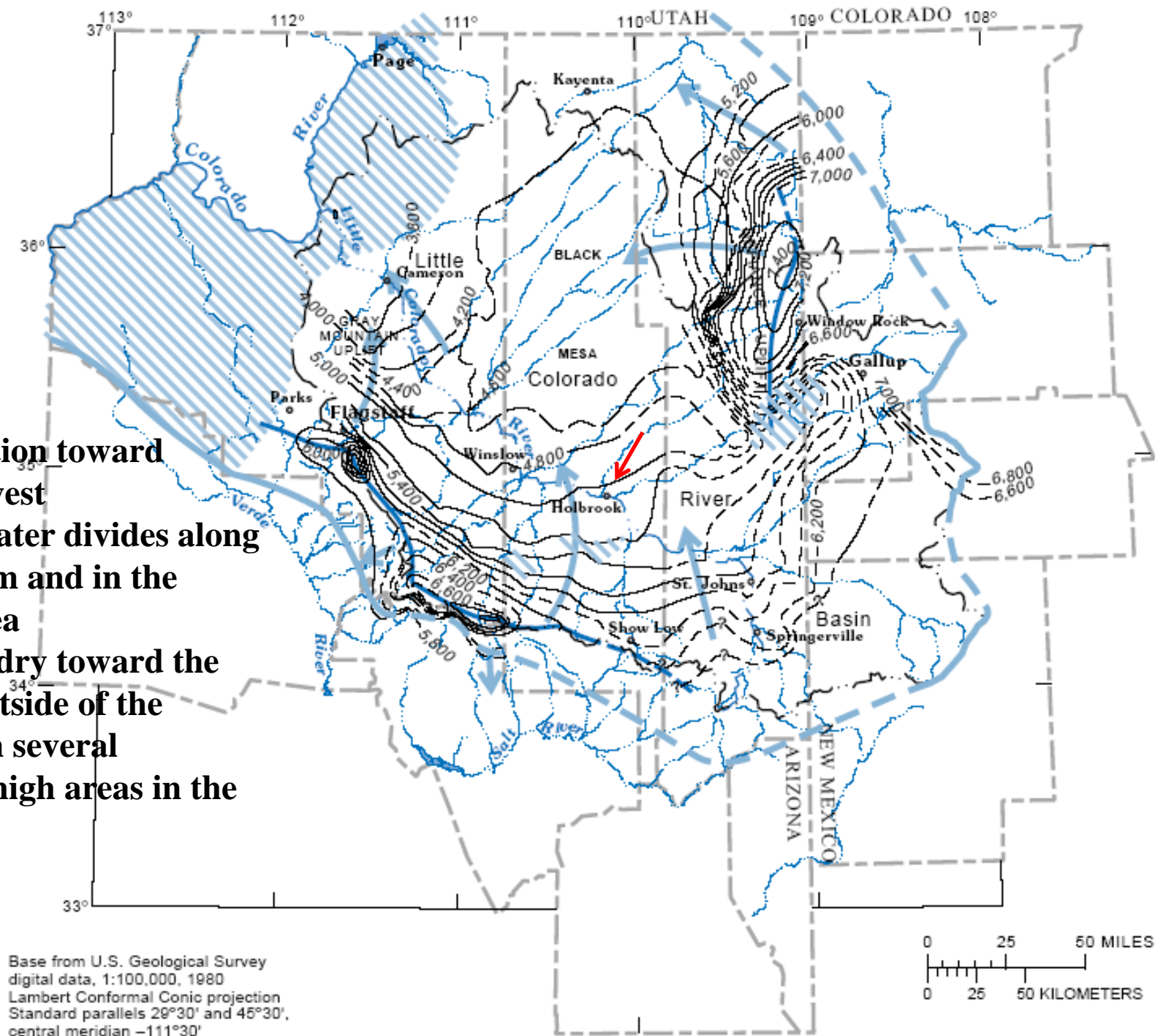


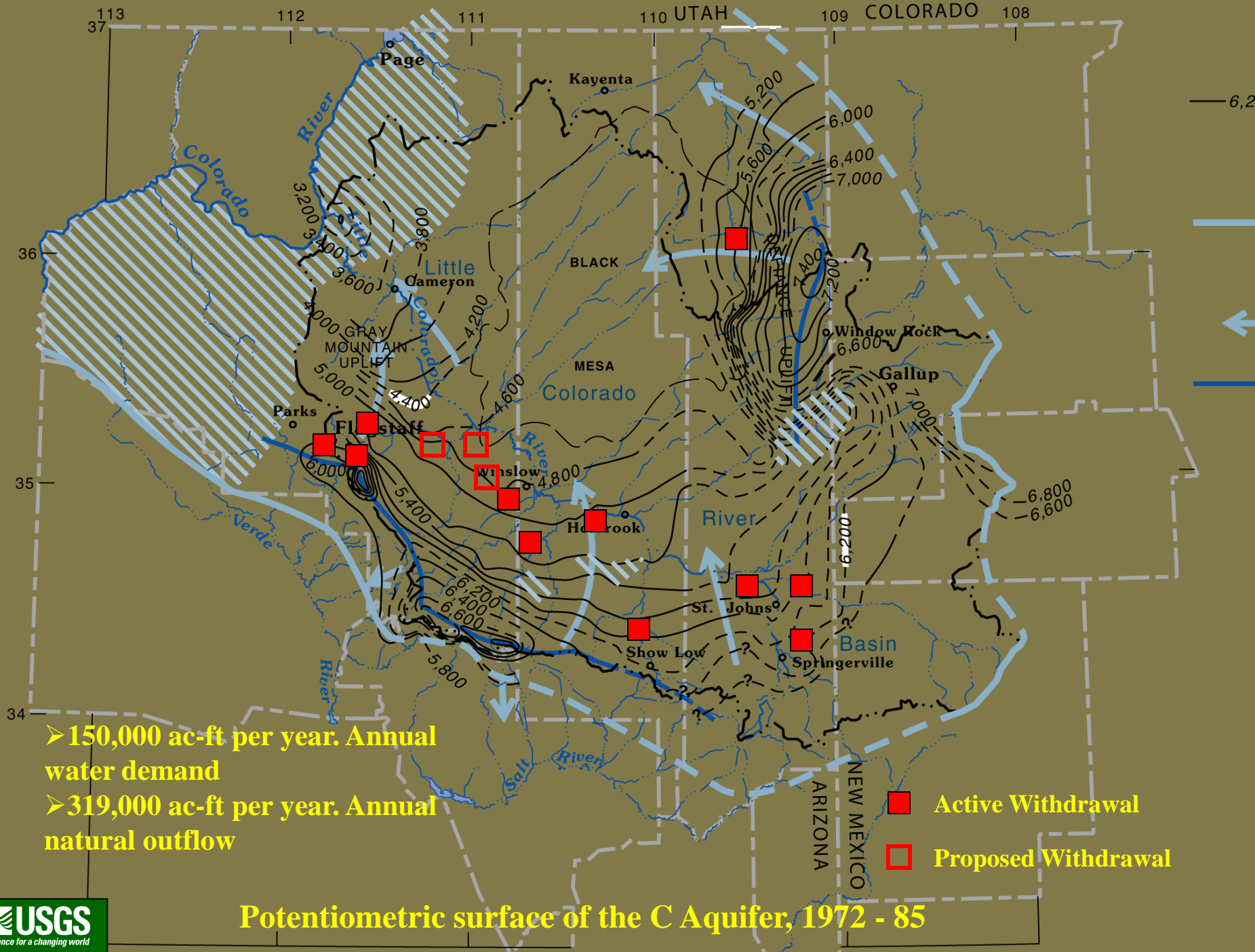
Cross sections of the C aquifer in the Little Colorado River Basin



- Flow direction toward
- the northwest
- Ground-water divides along Mogollon Rim and in the northeast area
- Aquifer is dry toward the northwest outside of the LCRB and in several structurally high areas in the LCRB

Geologic Structure?



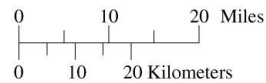
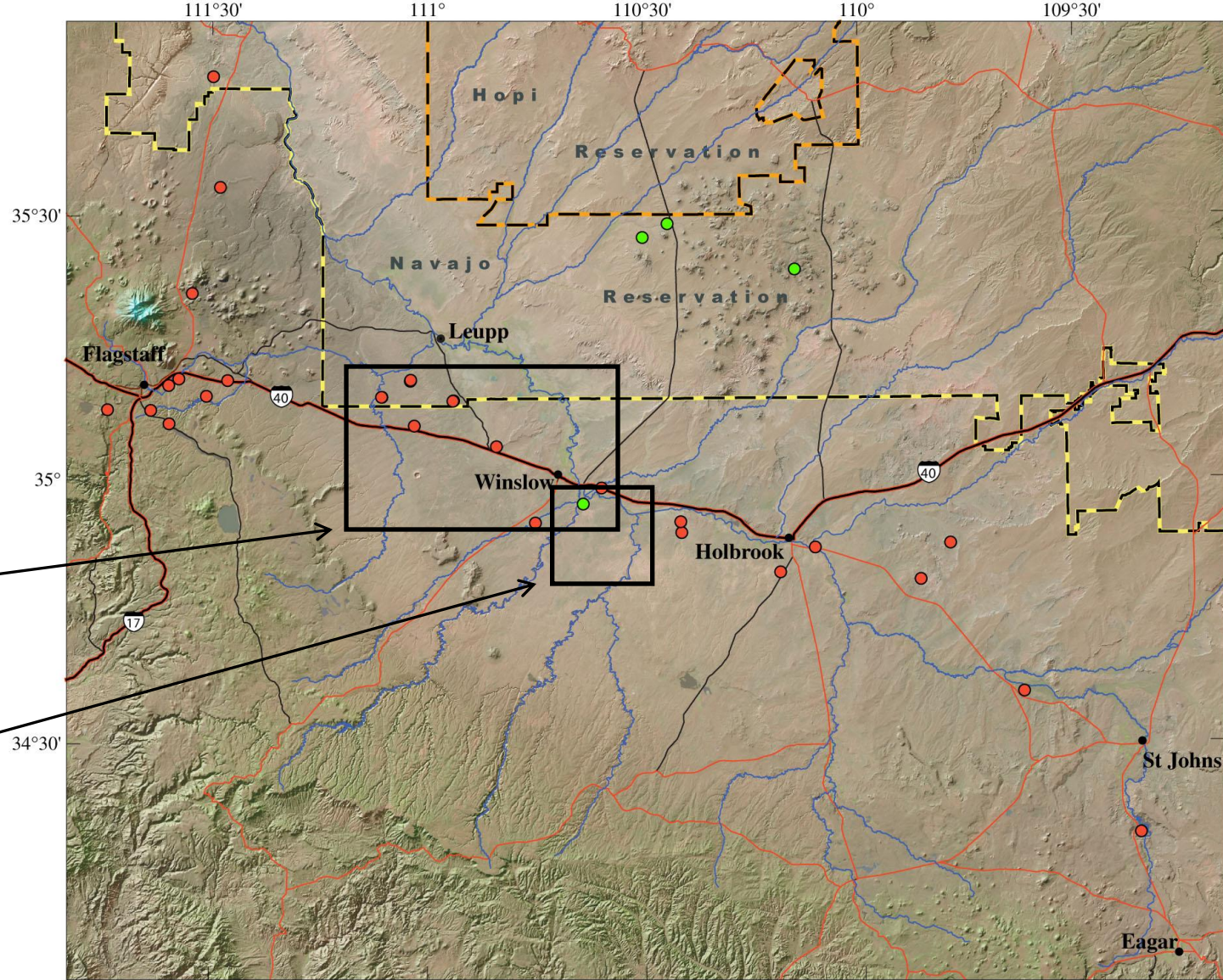


C aquifer monitoring program components

- C aquifer quarterly well and spring network

- Continuous observation wells

- Base-flow evaluation



 Potential wellfield(s) development area

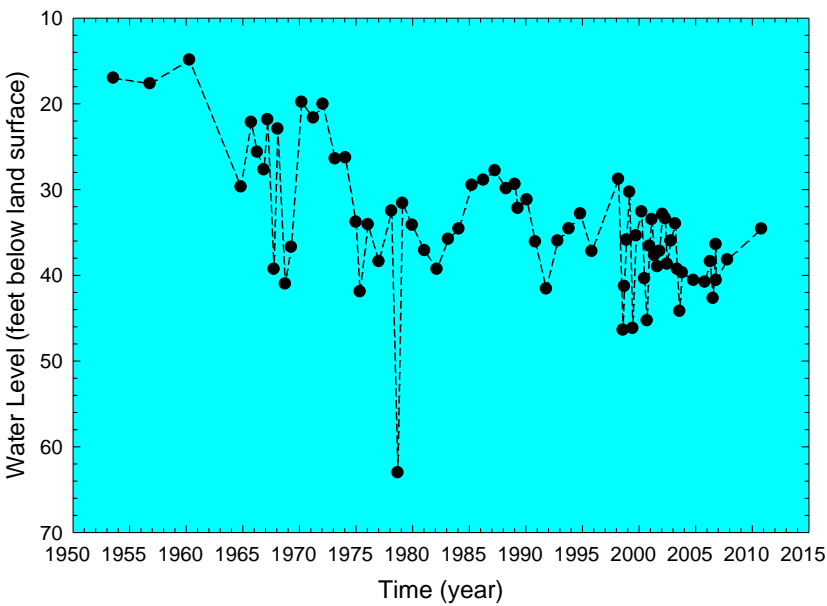
EXPLANATION

Quarterly Monitoring Sites

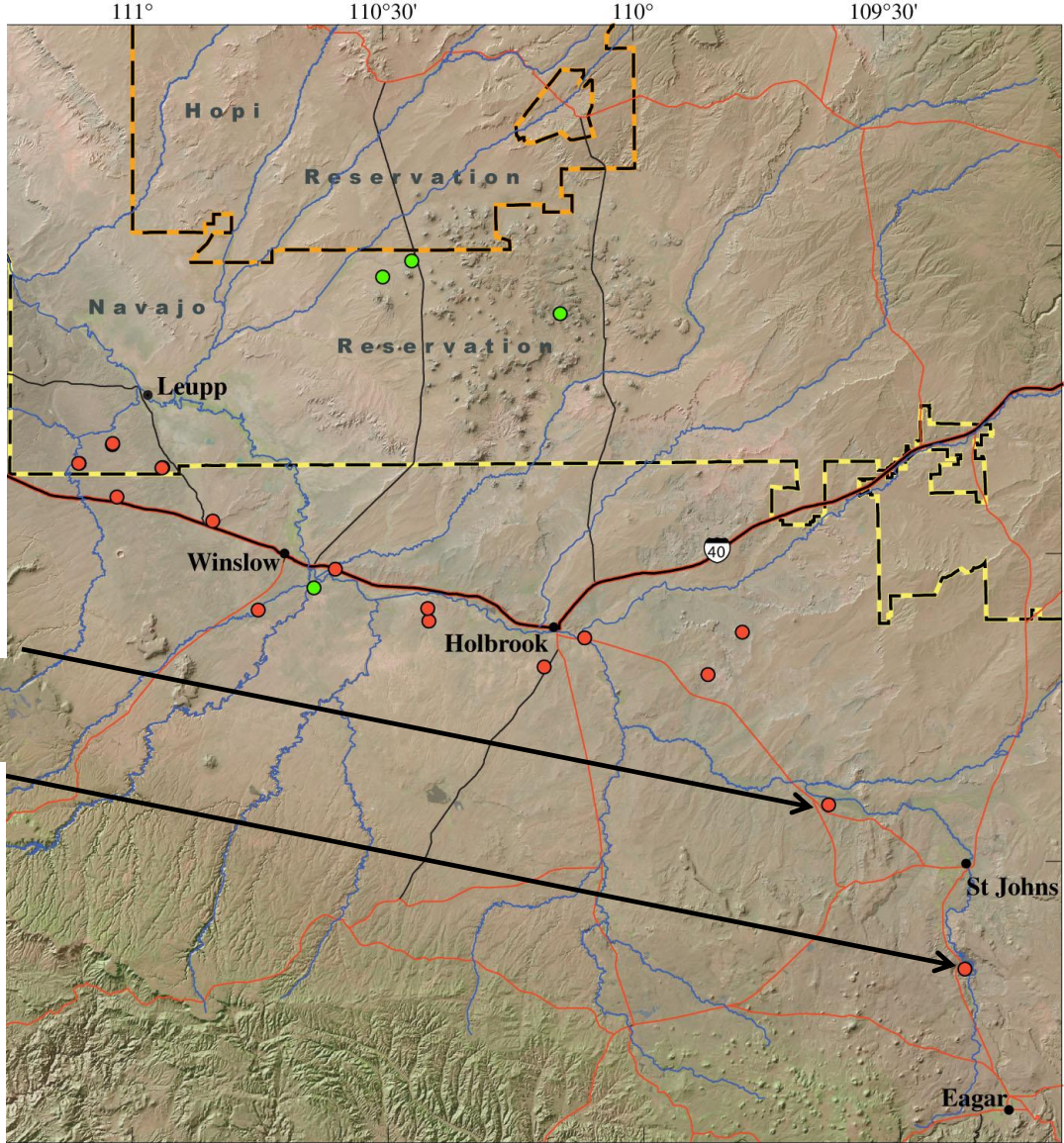
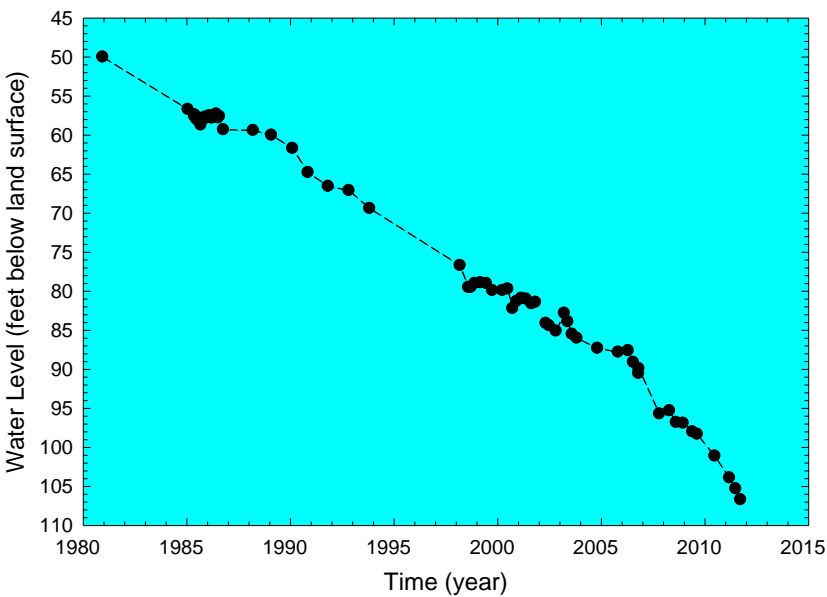
 Well

 Spring

Hunt Valley Well (A-14-26) W18DBC



TEP-M-6, Lyman Lake (A-11-28) 22BDA2

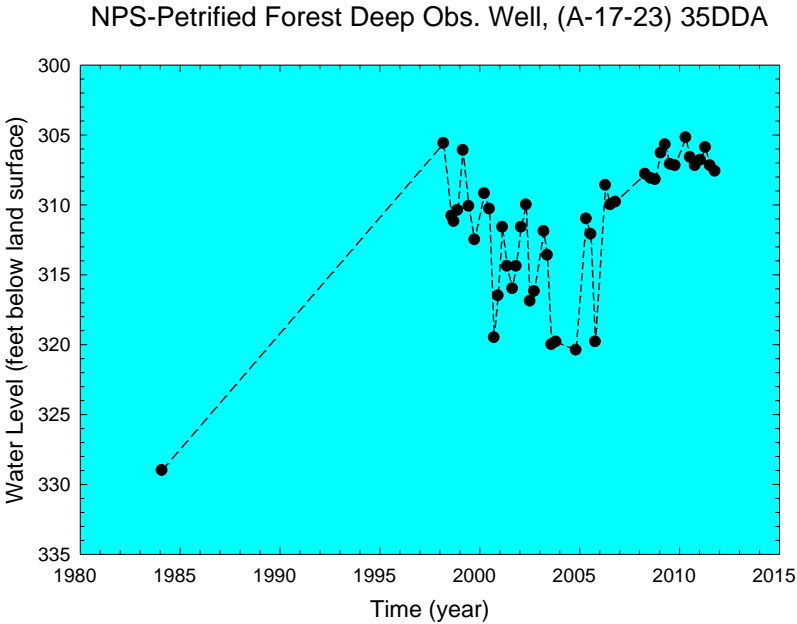
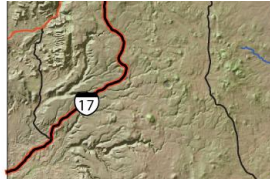
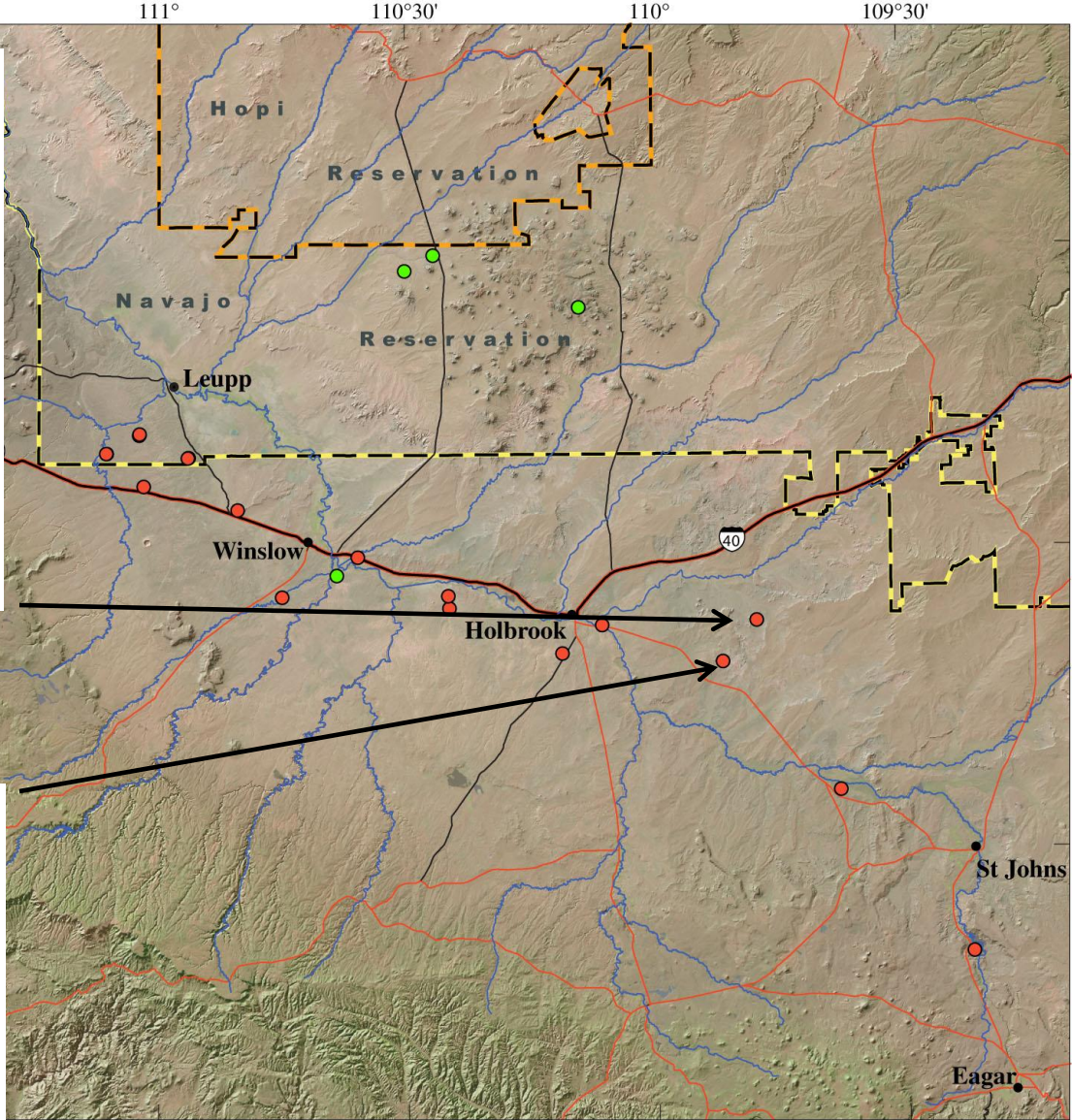
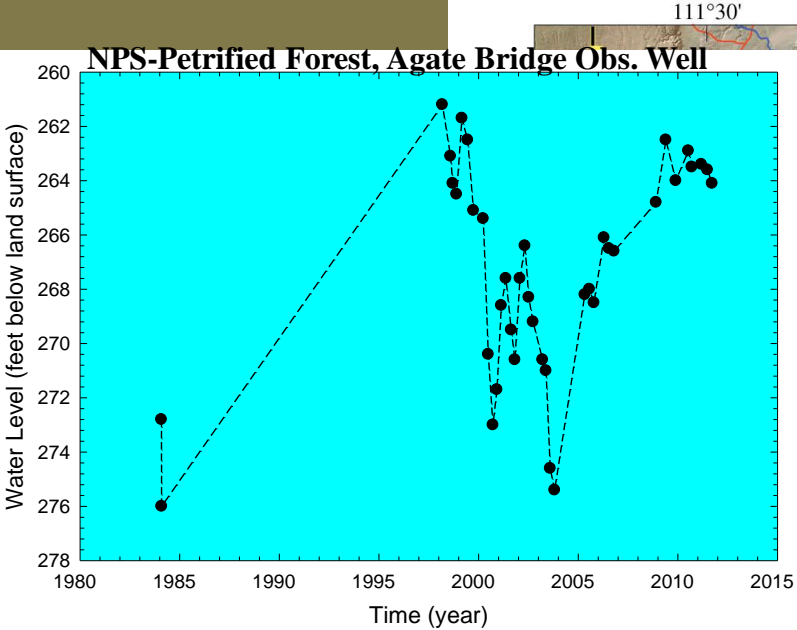


EXPLANATION

Quarterly Monitoring Sites

● Well

● Spring



- EXPLANATION**
- Quaterly Monitoring Sites
 - Well
 - Spring

Figure 2. Winslow I-40 Observation Well (A-19-16) 36DBB

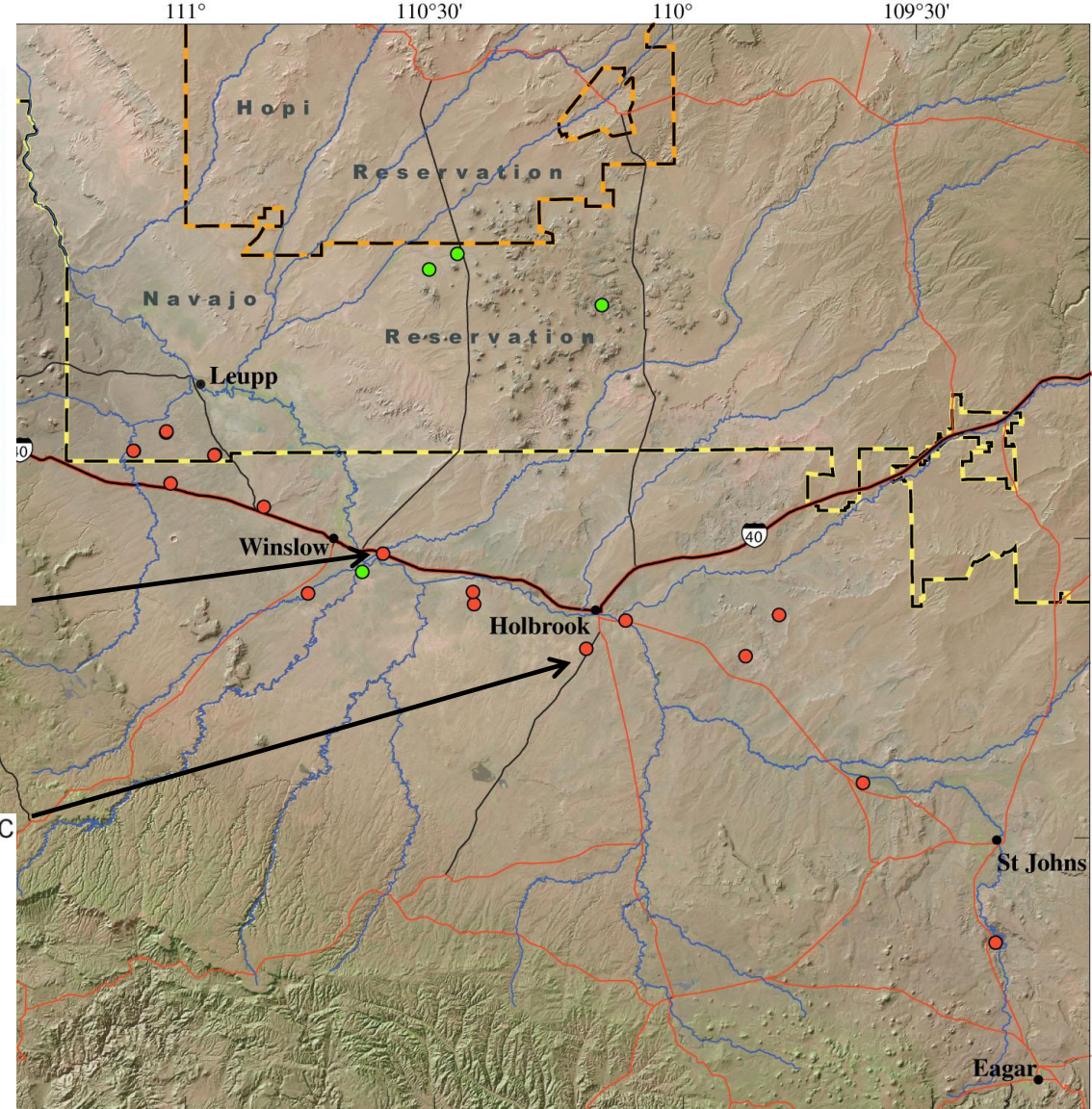
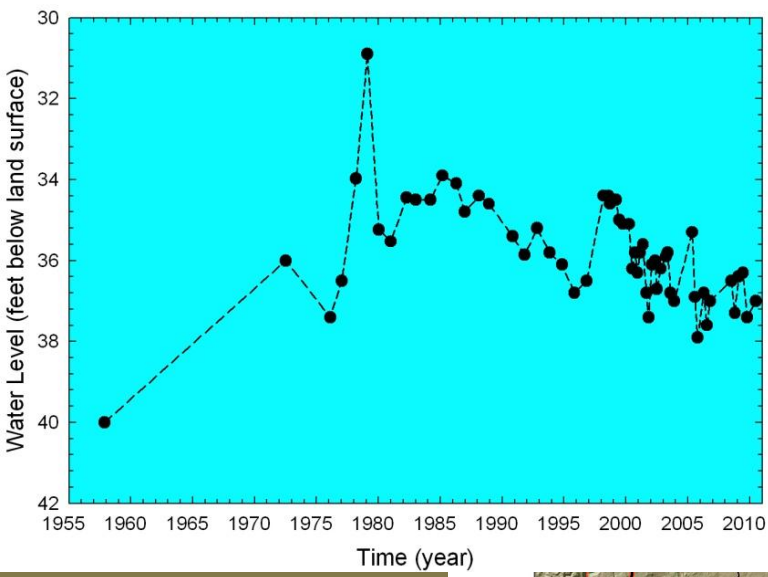
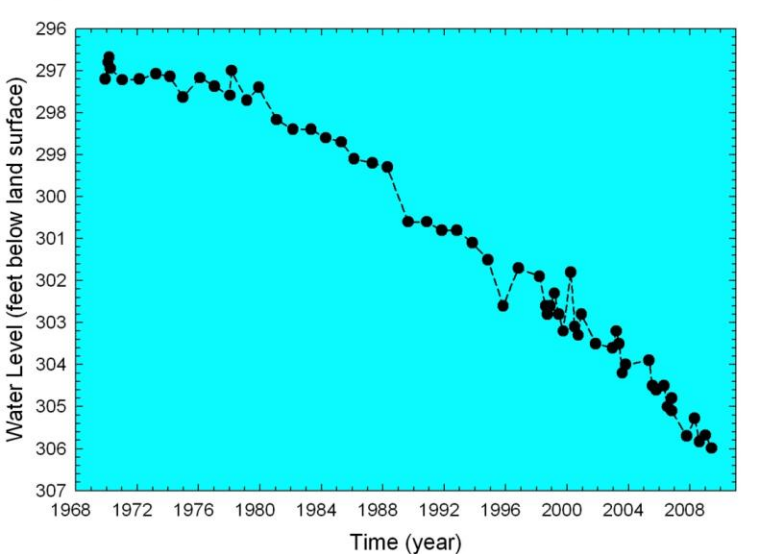
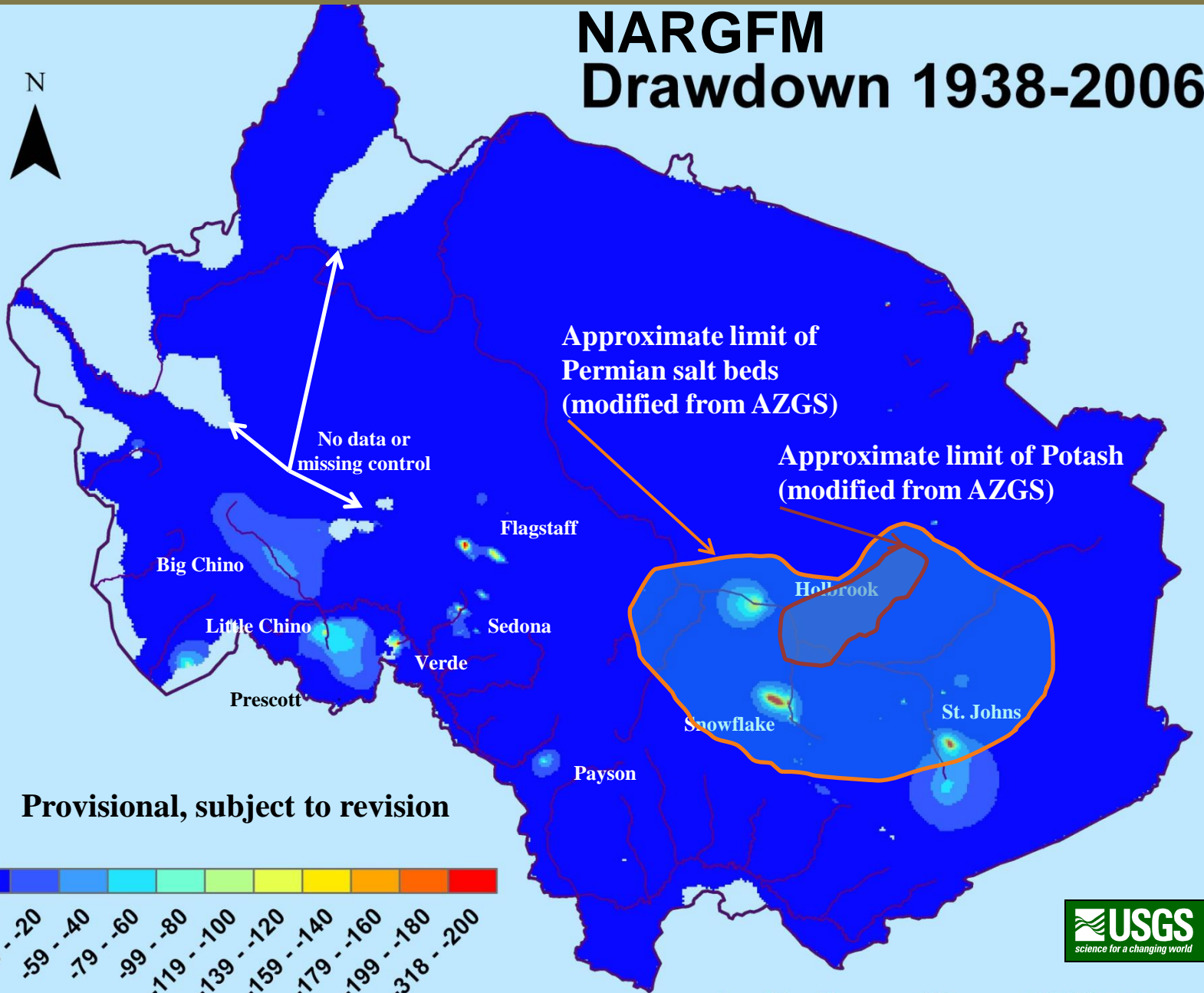


Figure 4. Holbrook Bureau of Reclamation Well (A-17-20) 26DBC



- EXPLANATION**
- Quaterly Monitoring Sites
 - Well
 - Spring

NARGFM Drawdown 1938-2006



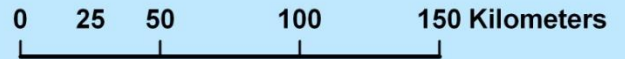
Approximate limit of
Permian salt beds
(modified from AZGS)

Approximate limit of Potash
(modified from AZGS)

No data or
missing control

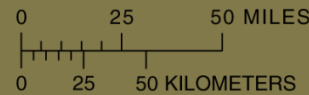
Provisional, subject to revision

Feet





Base from U.S. Geological Survey digital data, 1:100,000, 1980
 Lambert Conformal Conic projection
 Standard parallels 2930' and 4530',
 central meridian -11130'



EXPLANATION

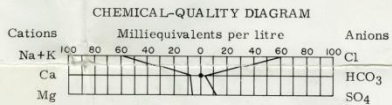
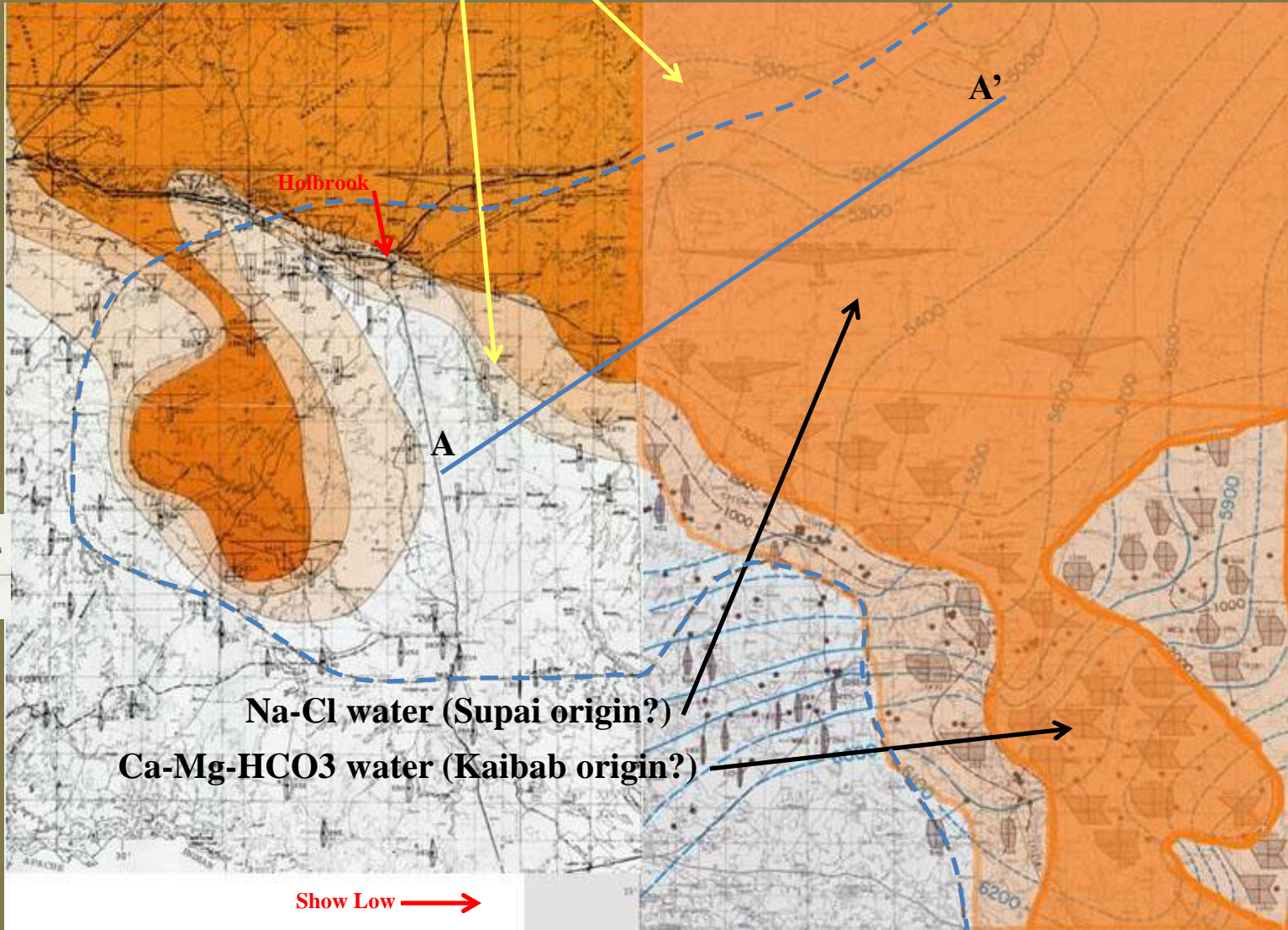
- SPRING IN THE C AQUIFER
- PERENNIAL OR REGULATED REACH



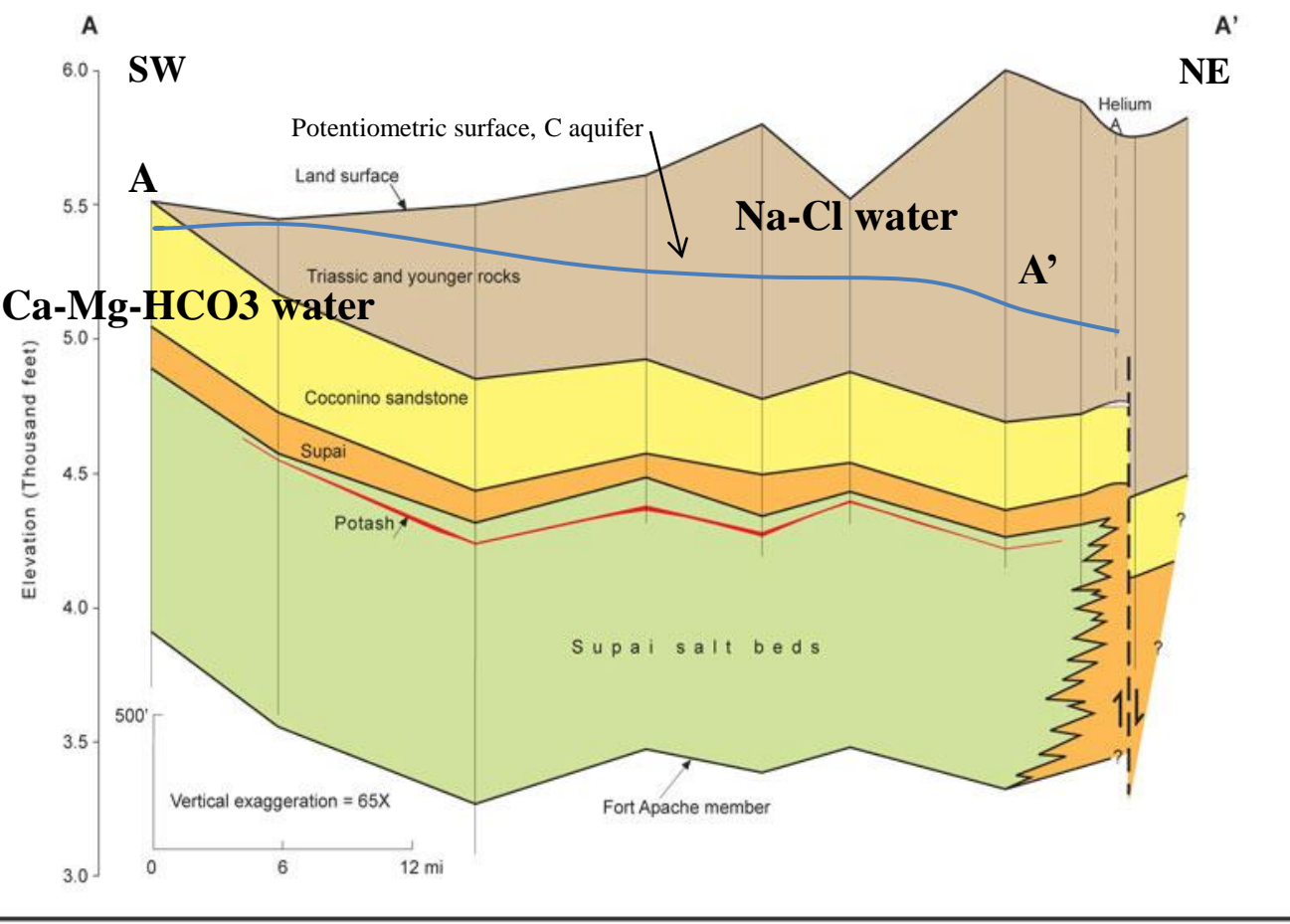
Greater than 2,000 mg/L TDS

Greater than 500 mg/L TDS

Geologic Structure?



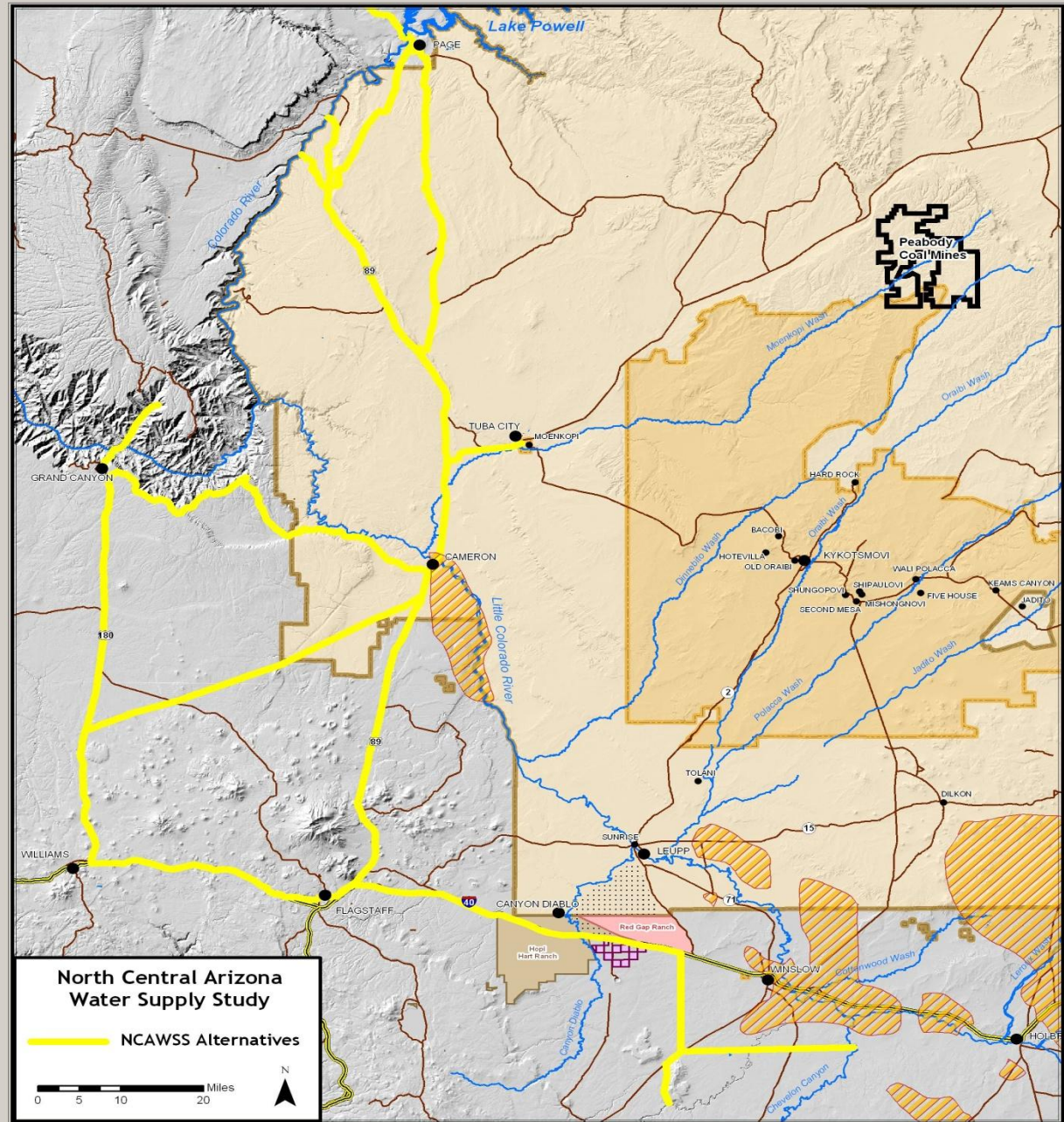
- Approximate extent of salt deposits
- Potentiometric surface (water level), in feet above sea level

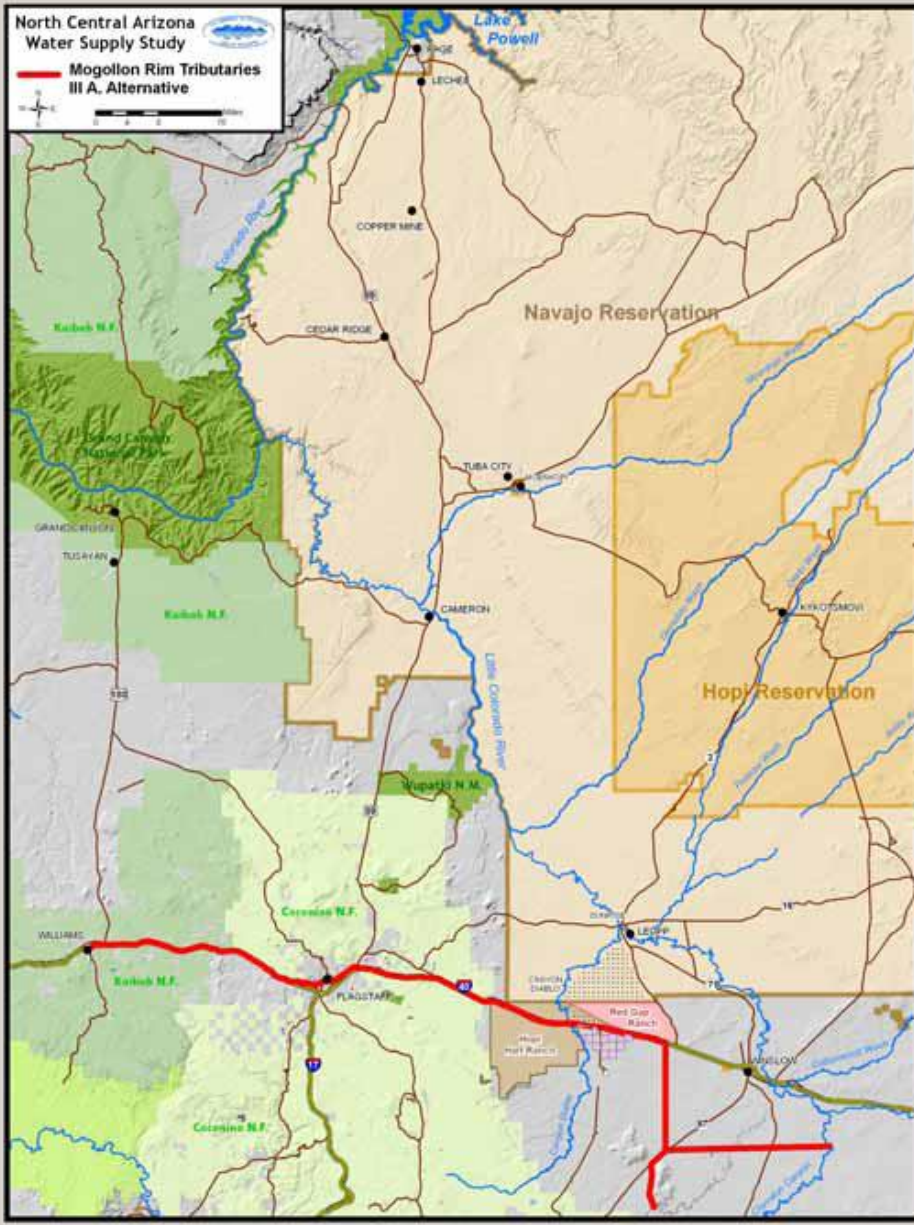
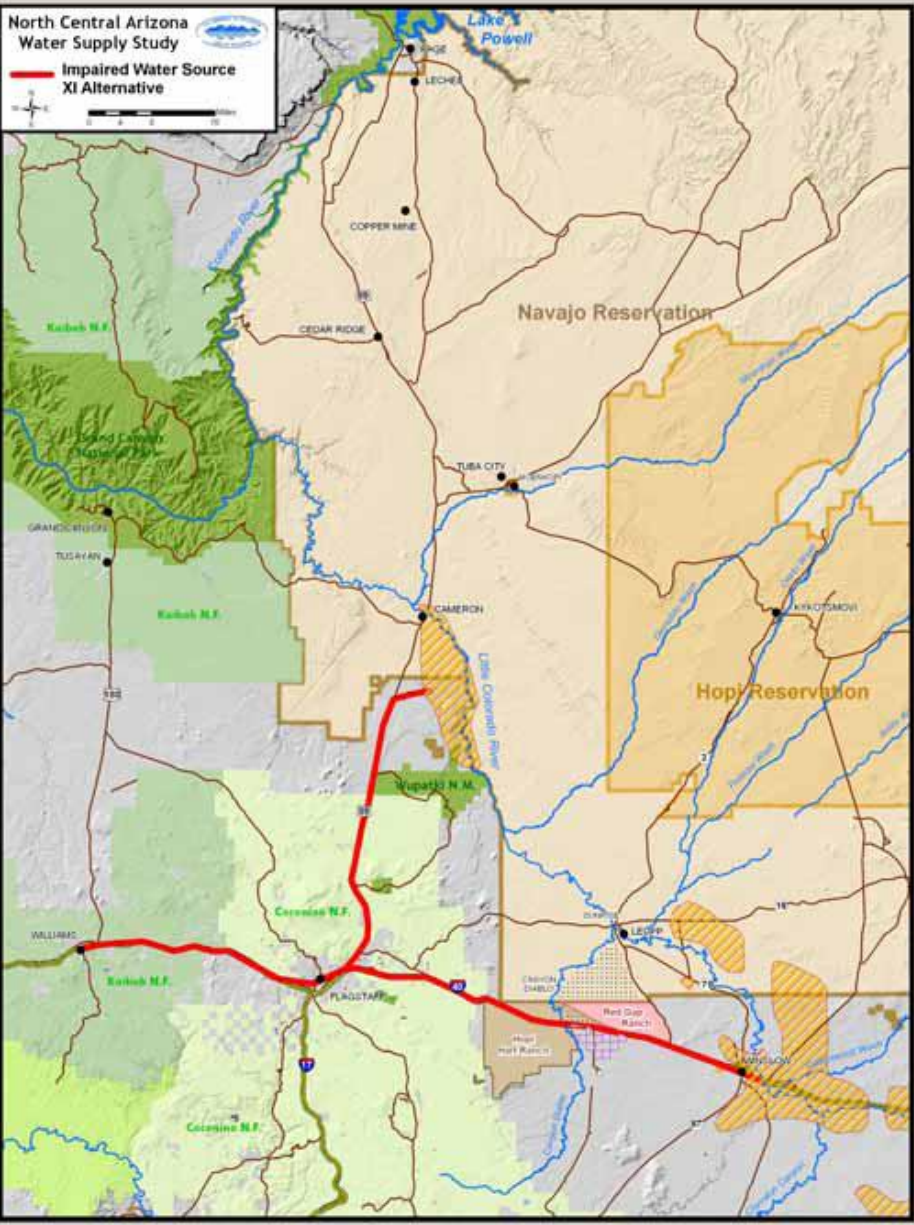


**Modified from Rauzi, S/L., 2008,
 Potash and related resources of the
 Hollbrook Basin, Arizona: AZGS OFR
 08-07, 24 p.**

Future Water Demand Scenarios

- North Central Arizona regional Water Supply
- Navajo and Hopi water supply
- Continuing Community development
- Agriculture
- Industrial
- Other?





Future Water Demand Scenarios





Questions?

Donald Bills, USGS
Ph: 928-556-7142
E-mail: djbills@usgs.gov



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34°47'20.61" N 110°17'28.44" W elev 5512 ft

