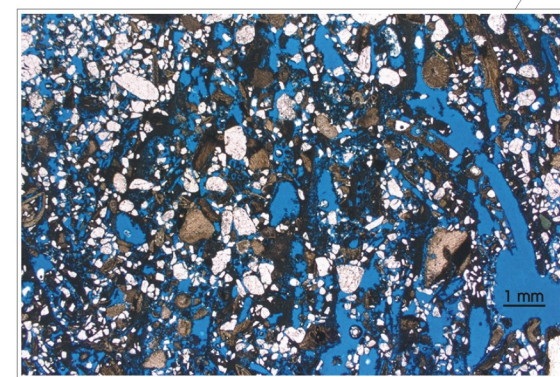
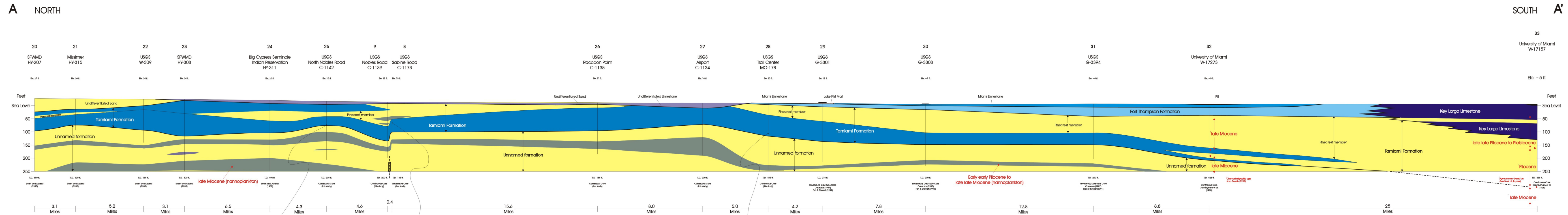
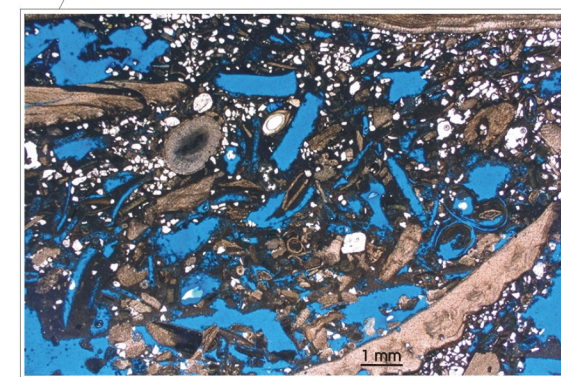


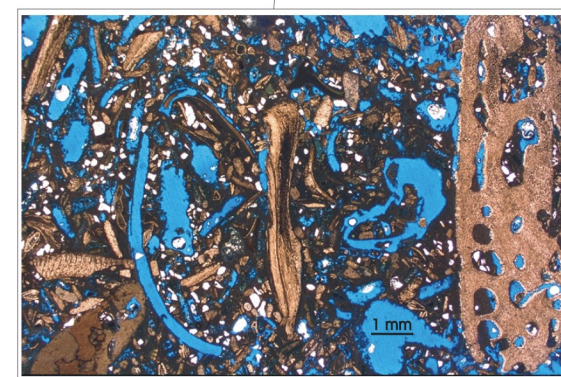
Regional Stratigraphic Correlation of a Pliocene Mixed Siliciclastic-Carbonate Ramp (Tamiami Formation)



C-1142-85
Pelecypod lime floatstone with mud-dominated and grain-dominated lime packstone matrix. Among the constituents are pelecypod fragments, quartz grains, echinoids, and benthic foraminifera, a helteron carbonate-particle association. The main pore type is antral (<2 mm size) and large-scale (>2 mm size) moldic. The large-scale moldic porosity contributes to high diffuse fluid flow.

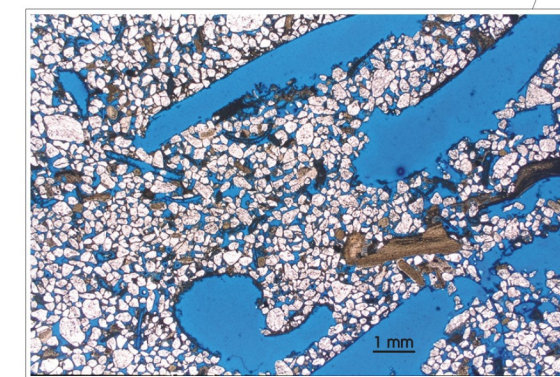
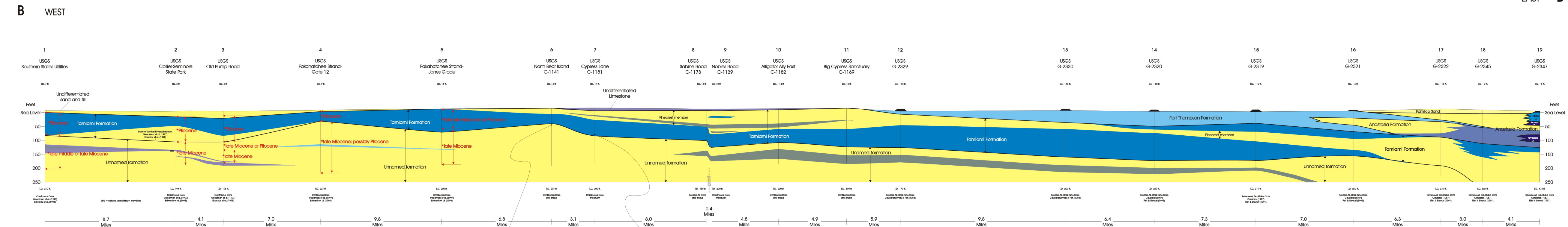


C-1173-77-5
Pelecypod lime floatstone with mud-dominated lime packstone matrix. Among the constituents are pelecypods, quartz grains, benthic foraminifera, and echinoids, a helteron carbonate-particle association. Large-scale (>2 mm size) touching-wag moldic porosity contributes to high diffuse fluid flow.

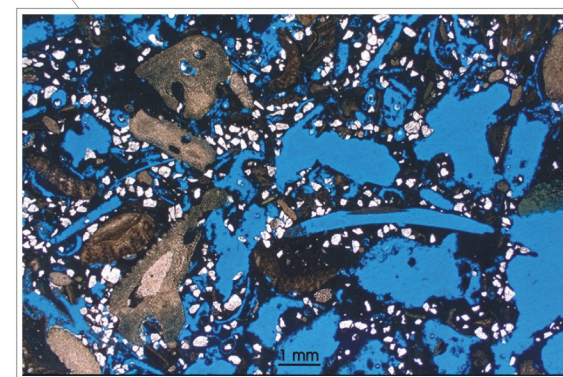


MO-186-115-5
Pelecypod lime floatstone with mud-dominated lime packstone matrix. Among the constituents are pelecypods, quartz grains, echinoids, benthic foraminifera, and ooloids, a helteron carbonate-particle association. Large-scale (>2 mm size) touching-wag moldic porosity contributes to high diffuse fluid flow.

Pelecypod lime floatstone or floatstone facies of the lower limestone of the Tamiami Formation were deposited in a mixed siliciclastic-carbonate ramp depositional system. The lower limestone of the Tamiami Formation is a regional aquifer (gray limestone aquifer) that is sandwiched between semiconfining siliciclastics. The main pore type in the lower limestone is skeletal moldic and intergrain in the siliciclastics. Large-scale (> 2 mm size) skeletal moldic porosity contributes to high diffuse-fluid flow with measured hydraulic conductivity greater than 100 feet/day, minor intergrain porosity contributes to low diffuse flow. Intergrain porosity of the siliciclastics contribute to a low diffuse-flow system with relatively low hydraulic conductivity that creates semi-confinement above and below the lower limestone of the Tamiami (gray limestone aquifer). The southern limit of the lower limestone (gray limestone aquifer) is near the southern end of the Florida peninsula.



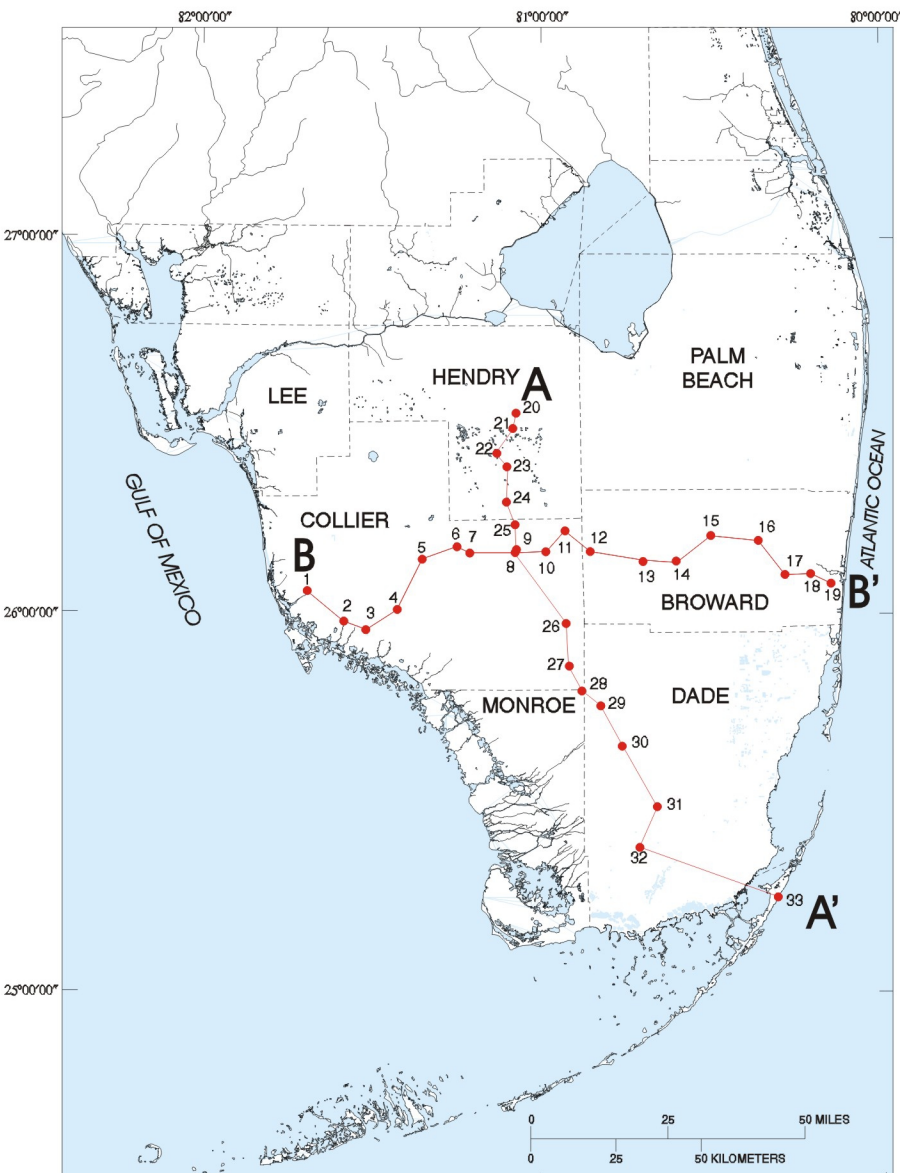
C-1141-60-7
Pelecypod quartz sandstone from near the top of the unnamed formation. Among constituents are quartz grains and pelecypods. Moldic porosity contributes to high diffuse fluid flow. The moldic porosity is connected by intergrain porosity.



C-1181-96-7
Pelecypod lime floatstone with mud-dominated lime packstone matrix from the Tamiami Formation. Among the constituents are pelecypods, quartz grains, bryozoans, and echinoids, a helteron carbonate-particle association. Large-scale (> 2 mm size) touching-wag moldic porosity contributes to high diffuse fluid flow.

The eastern limit of lower limestones of the Tamiami Formation, which were deposited on a mixed siliciclastic-carbonate ramp, is near the southern edge of the Florida peninsula.

- Lithology**
- Quartz sand and sandstone
 - Terigenous mudstone
 - Ramp carbonates
 - Platform carbonates
 - Oolitic carbonates
 - Undifferentiated limestones
 - Reefal and marine carbonates



Location map of core holes used to construct cross-sections A-A' and B-B'.

| Series | Stratigraphic and Hydrologic Units | Depositional Systems | Ground-Water Flow Systems |
|-------------|------------------------------------|--|--|
| Holocene | Organic soils | Mixed carbonate-siliciclastic platform depositional system | Low Diffuse Fluid Flow |
| | Lake Flirt Marl | | |
| | Pamlico Sand | | |
| | Miami Limestone | | |
| Pleistocene | Fort Thompson Formation | Mixed carbonate-siliciclastic ramp depositional system | Conduit and Low to High Diffuse Fluid Flow |
| | Anastasia Formation | | |
| | Key Largo Limestone | | |
| | Calosahatchee Marl | | |
| Pliocene | Pinecrest member | Mixed carbonate-siliciclastic ramp depositional system | Low diffuse Fluid Flow |
| | Tamiami Formation | | |
| Miocene | Lower Tamiami Limestone | Terigenous-siliciclastic shelf depositional system | Low to High Diffuse Fluid Flow |
| | Unnamed formation | | |

Correlation of lithostratigraphic and hydrologic units, depositional systems and ground-water flow systems in the Surficial Aquifer System of southern Florida. Ground-water flow in the biscayne aquifer is characterized by dual conduit- and low to high diffuse-flow systems. In the gray limestone aquifer by low to high diffuse-flow, and in the in semiconfining units by low diffuse flow only.

Presented at the 1998 Annual Meeting of the Geological Society of America, October 26-29, Toronto, Canada

For more information:
Kevin J. Cunningham
U.S. Geological Survey
Miami
(305) 717-5813
kcunning@usgs.gov