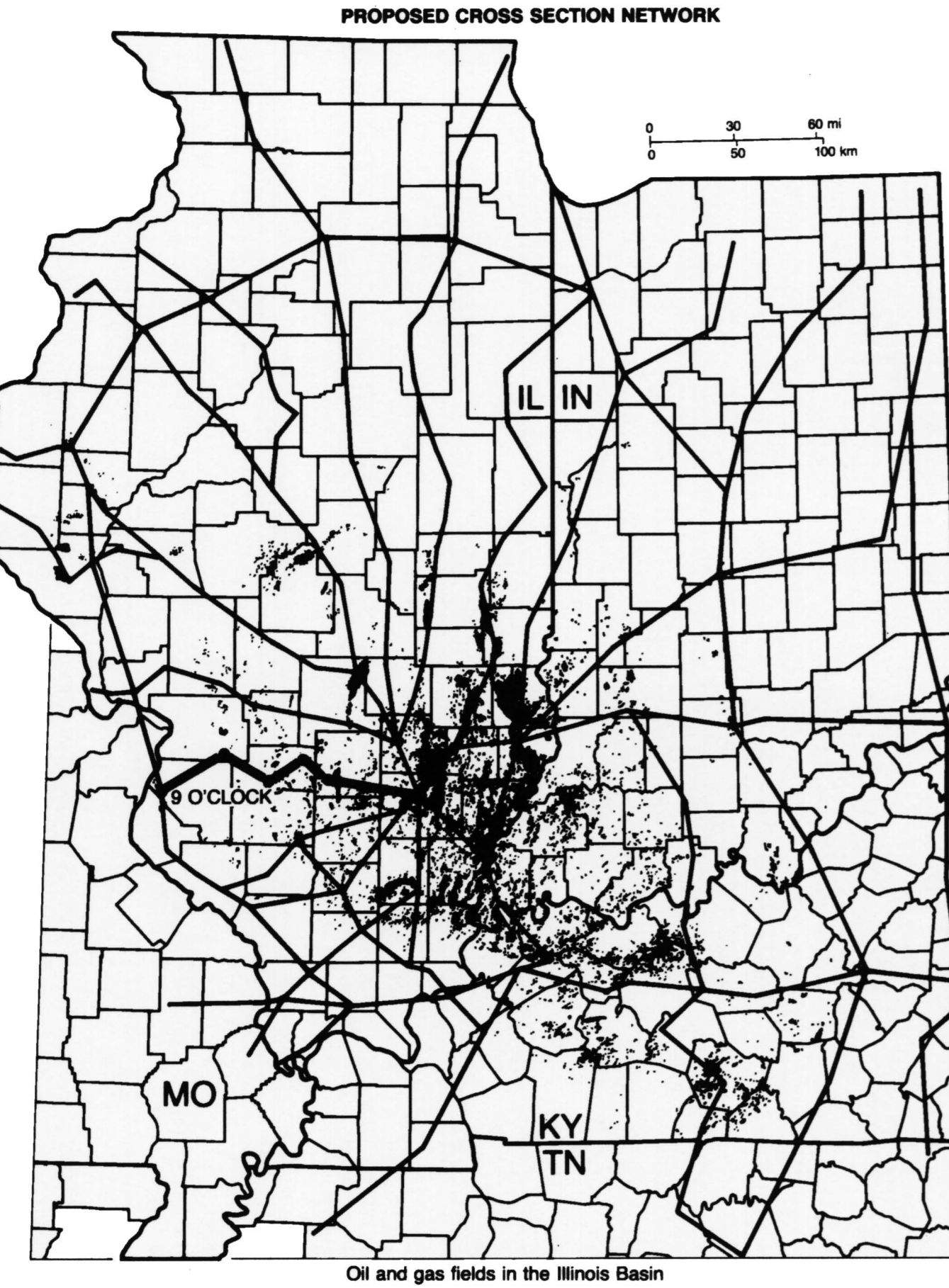


| PERMIAN   | MISSISSIPPIAN   | ORDOVICIAN  | PRECAMBRIAN   |
|---|---|---|---|
| MISSISSIPPIAN<br>KASKASKIA<br>MAMMOTH<br>OIL PRODUCIVE ZONE<br>LIVE ZONES | MISSISSIPPIAN<br>KASKASKIA<br>MAMMOTH<br>OIL PRODUCIVE ZONE<br>LIVE ZONES | MISSISSIPPIAN<br>KASKASKIA<br>MAMMOTH<br>OIL PRODUCIVE ZONE<br>LIVE ZONES | MISSISSIPPIAN<br>KASKASKIA<br>MAMMOTH<br>OIL PRODUCIVE ZONE<br>LIVE ZONES |

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**ILLINOIS BASIN CONSORTIUM  
CROSS SECTION PROJECT**

The structural and stratigraphic framework of the Illinois Basin is portrayed in a network of regional cross sections prepared by the Illinois Basin Consortium (Illinois, Indiana, and Kentucky Geological Surveys). Most of the sections radiate from the UNOCAL #1 Cline well in Wayne County, Illinois, the approximate center of the basin. Additional sections are oriented to traverse significant geological features in Indiana and Kentucky. As each cross section is completed, it will be available in open-file format from the state geological surveys.

**EXAMPLES OF POSSIBLE HYDROCARBON PLAYS**

**STRUCTURAL**

- ① Anticlinal traps caused by tectonic folding
- ② Anticlinal traps caused by draping over buried reefs
- ③ Fault entrapment
- ④ Fracturing of organic-rich shales such as the New Albany
- ⑤ Fracturing of carbonate rocks such as the Galena (Trenton)

**STRATIGRAPHIC**

- ⑥ Pinchouts of porous clastic rocks
- ⑦ Sand bars within incised paleovalley network; influence of the paleovalley network commonly results in stacked sandstones
- ⑧ Sub-Asaroka unconformity; truncation of reservoir rocks, especially by shale-filled paleovalleys; also, potential for reservoir development at or below unconformity caused by localized diagenesis
- ⑨ Isolated porous oolite or other carbonate shoals in Paleozoic rocks
- ⑩ Isolated Valmeyeran reefs
- ⑪ Isolated turbidites in Borden Siltstone
- ⑫ Onlap and pinchout of reservoir rocks on Sub-Kaskaskia unconformity
- ⑬ Sub-Kaskaskia unconformity; local enhancement of carbonate porosity at unconformity due to diagenesis; truncation of reservoir rocks
- ⑭ Isolated Niagara reefs
- ⑮ Possible local traps in Joachim Dolomite caused by updip anhydrite seals
- ⑯ Sub-Tippencandee unconformity; possible local reservoir development caused by diagenesis of Knox carbonates
- ⑰ Onlap and pinchout of reservoir rocks on paleostructures
- ⑱ Possible local traps in lower Paleozoic rocks depending on presence of suitable source rocks

**LITHOLOGIES**

- clay, silt, sand, gravel
- ss sandstone
- ls interbedded sandstone-siltstone with shale and/or carbonate
- lshts thinly interbedded siltstone-shale-sandstone-limestone; includes coal in Pennsylvanian
- slst siltstone
- sh shale
- ch calcareous shale
- ls limestone
- sdys sandy limestone
- ldol dolomitic limestone or calcareous dolomite
- dol dolomite
- sdym sandy dolomite
- reef reef
- cherty cherty
- shaly shaly
- anh anhydritic
- xna crystalline rock - acidic
- xnb crystalline rock - basic

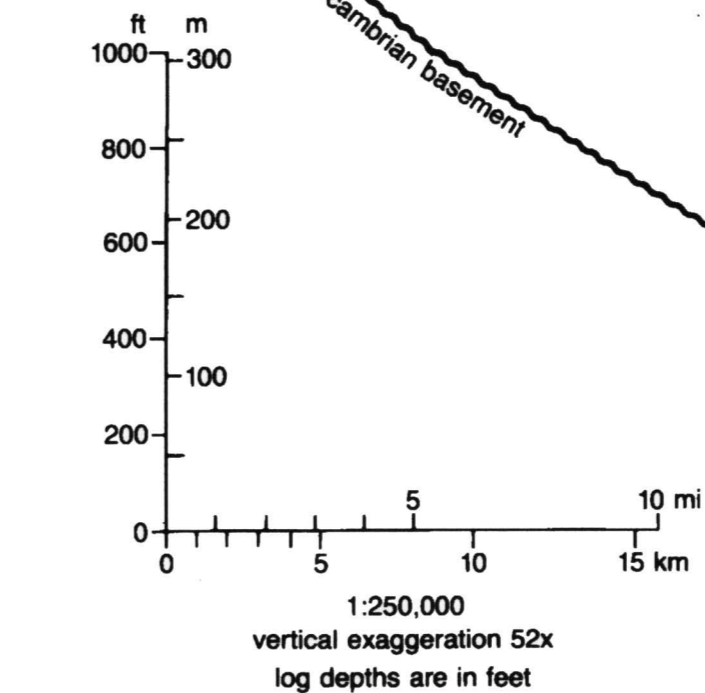
**9 O'CLOCK CROSS SECTION IN THE ILLINOIS BASIN  
WAYNE COUNTY, ILLINOIS, TO ST. CLAIR COUNTY, ILLINOIS**

Stephen T. Whitaker and Janis D. Treworgy  
Illinois State Geological Survey

**NOTES:**

- Stratigraphic nomenclature is based primarily on the COSUNA chart.
- Structural terminology in Illinois follows Nelson, W. John, in prep. Structural Features in Illinois: Illinois State Geological Survey Bulletin.
- Datum for this cross section is mean sea level. Structural control used within the cross section for the sub-Pennsylvanian strata is the base of the New Albany Group. Where the New Albany Group is absent, the top of the Galena Group/Trenton Limestone was used. Structural control for the Pennsylvanian strata included the base of the Pennsylvanian and the base of the Permian.

with contributions by  
Michael L. Sargent, Illinois State Geological Survey



Oil productive zones in the center part of the basin.  
Megagroup terminology is commonly used in the Illinois Basin, but is not accepted by the American Stratigraphic Code.