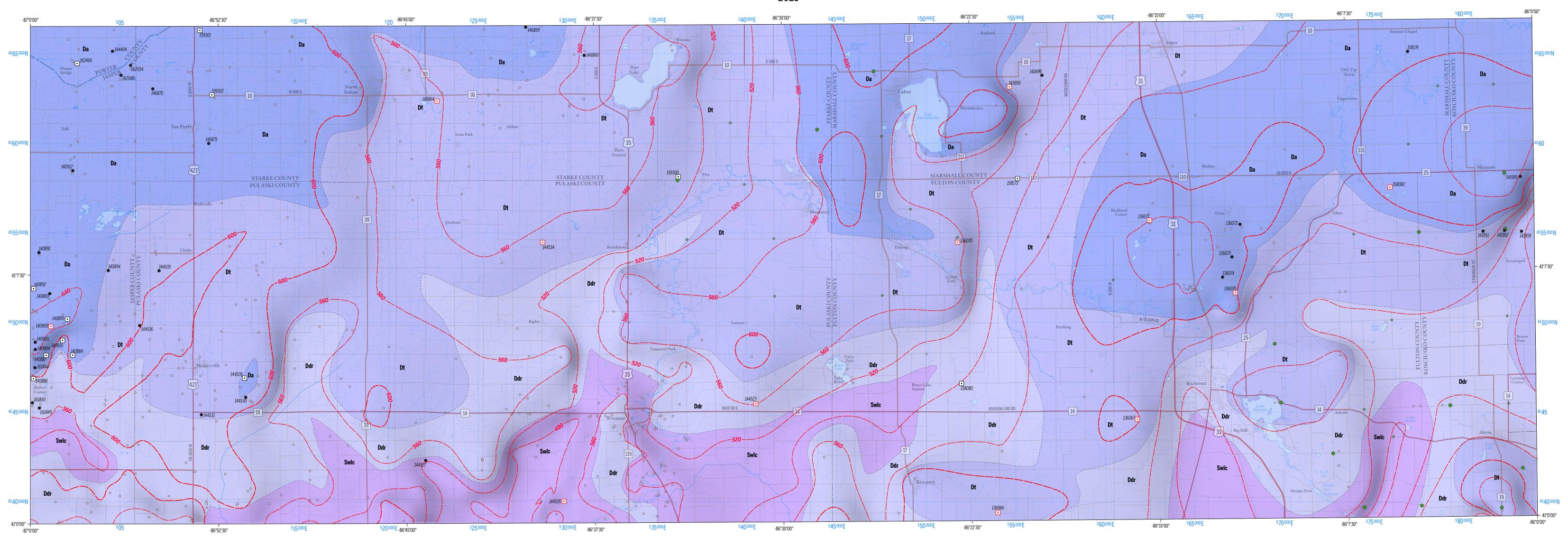


Bedrock Geology of the Southern Half of the Knox 30- X 60-Minute Quadrangle, Indiana

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INTRODUCTION

The Knox 1:100,000-scale quadrangle is located in the northwestern portion of Indiana (see index map) where bedrock units that dip northward at an average of 8 ft per mile over the Kankakee Arch are buried by up to 400 ft of glacially derived Quaternary sediments. High-purity carbonate from reefs in the Liston Creek Member of the Wabash Formation provide raw materials for construction and manufacturing just south of the map area. The Traverse Formation, Detroit River Formation, and Liston Creek Limestone Member of the Wabash Formation, present at the bedrock surface in the southern half of the map area, compose the upper portion of the Silurian-Devonian bedrock aquifer. Beyond standard documentation of general lithologies and textures from archived cores in the map area, the composition of these units was also quantified using a portable X-ray fluorescence analyzer. Correlations of map units between these cores was further informed by a combination of conodont biostratigraphy and carbon isotope chemostratigraphy.

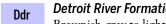
REFERENCES

Indiana Geological Survey (IGS), 2013a, BEDROCK_SURFACE_250K_IGS_IN.SHP--Bedrock surface contours of Indiana: 1:250,000, line shapefile. Indiana Geological Survey (IGS), 2013b, Petroleum Database Management System [Microsoft SQL server database].

DESCRIPTION OF MAP UNITS

Dark-gray to dark-brown shale with occasional carbonate and pyrite laminae. Ranges from 0 to 70 ft. Famennian in age.

A variety of light-gray, bluish-gray, and brownish-gray skeletal limestone with grainstone to mudstone textures. Some intervals highly fossiliferous, notably containing corals and stromatoporoids. Also contains minor intervals of dolomitized limestone and thin shales. Ranges from 0 to 80 ft. Givetian in age.



rownish-gray to light-gray skeletal limestone and dolostone with mudstone to packstone textures. Ranges from 0 to 40 ft. Emsian to Eifelian

Swlc Liston Creek Limestone Member of the Wabash Formation

Light- to dark-gray, fine- to coarse-grained limestone and dolostone (mudstone to grainstone textures), often cherty, typically 20 to 120 ft. Fossil reefs in the subsurface locally can be up to 200 ft thick, primarily originating near the base of the unit. Ludfordian in age.

UTM GRID AND 2020 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Contact—Identity and existence certain, location concealed.

— Index (interval 100 ft, modified from contours in IGS, 2013a)

— Intermediate (interval 40 ft, modified from contours in IGS, 2013a)

Used for interpretation of bedrock surface. These data include gamma logs, petroleum wells (IGS, 2013b), seismic

Bedrock stratigraphy data point (with IGWS Petroleum Database Management System ID)

Inferred bedrock surface contour

Abnormal results, rejected

Drill core

Geophysical log

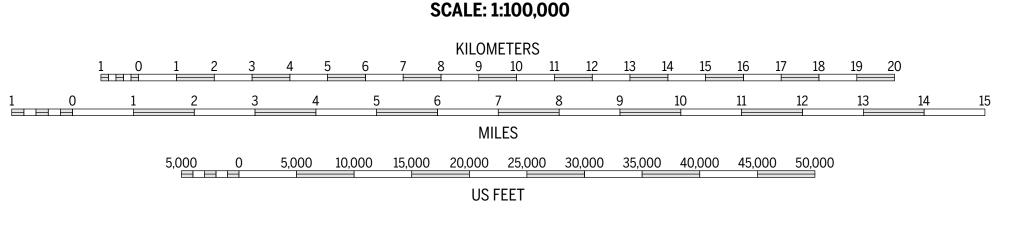
Additional bedrock data points

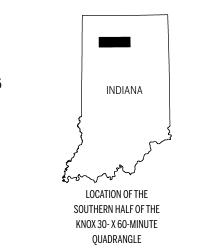
Drill cuttings

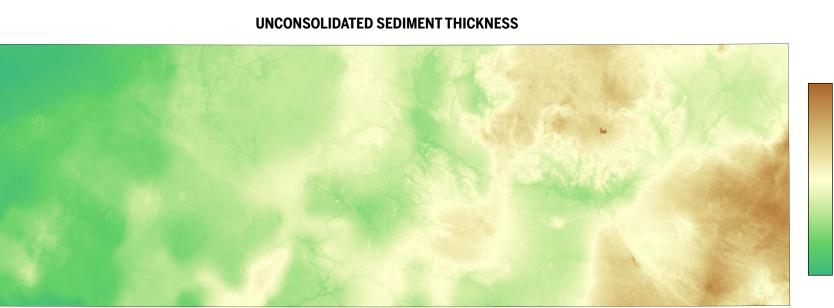
Horizontal to vertical spectral ratio seismic data

Used for bedrock surface interpretation

refraction wells, and water wells.







ACKNOWLEDGMENTS AND DISCLAIMER

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MAP INFORMATION

Digital cartography and GeMS database compilation by Matthew R. Johnson.

 $Transportation\ network\ from\ OpenStreetMap.org\ (@\ OpenStreetMap\ contributors).$

Hydrography from U.S. Geological Survey National Hydrography Dataset (local resolution).

Projection: Universal Transverse Mercator (UTM), Zone 16N.

Horizontal Datum: North American Datum of 1983 (NAD83).

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