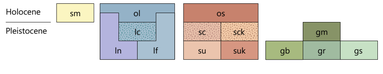
Quaternary Geology of Jefferson County, Wisconsin

Libby R.W. Ives and J. Elmo Rawling III

Cartography by Caroline Rose and Nick Rompa

BULLETIN 118
PLATE 1
2022

Correlation of Map Units



Scale 1:100,000

MILES 1 0 1 2 3 4 5

KILOMETERS 1 0 1 2 3 4 5 6 7 8

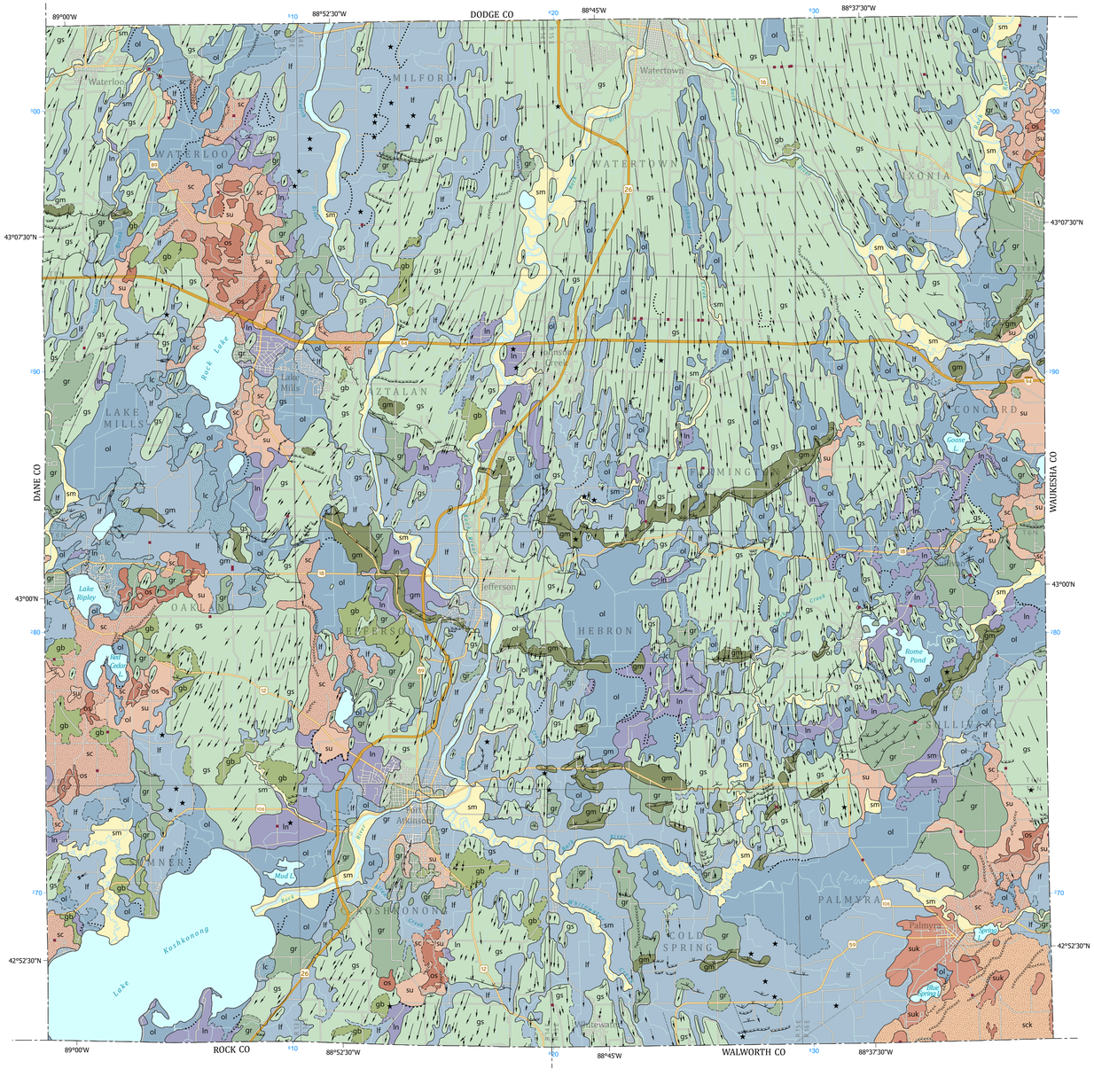
Wisconsin Transverse Mercator Projection, 1991 adjustment to the North American Datum of 1983 (NAD 83/91); EPSG 3071

The base map was constructed from U.S. Census Bureau TIGER/Line data (2015 release) and modified by the Wisconsin Geological and Natural History Survey (2022). Hydrography from U.S. Geological Survey National Hydrography Dataset (local resolution, 2016).

This map is an interpretation of the data available at the time of preparation. Every reasonable effort has been made to ensure that this interpretation conforms to sound scientific and cartographic principles; however, the map should not be used to guide site-specific decisions without verification. Proper use of the map is the sole responsibility of the user.

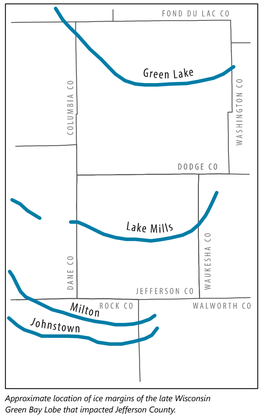
Wisconsin Geological
and Natural History Survey
DIVISION OF EXTENSION
UNIVERSITY OF WISCONSIN–MADISON

Kenneth R. Bradbury, Director and State Geologist
3817 Mineral Point Road • Madison, Wisconsin 53705-5100
608.262.1705 • wgnhs.wisc.edu



Symbols

- **Geologic contact**. Solid where location confidence is within 60 m; dashed where location confidence is as much as 240 m.
- **Beach ridge or wave-cut scarp**.
- **Delta-foreset face**.
- **Drumlin**. Dashed where eroded or where draped or buried by younger sediment. Length of arrow is proportional to length of axis; arrow points in the direction of flow.
- **Crest of medium moraine**. Width ranges from 50 to 200 m.
- **Crest of minor moraine**. Width is less than 50 m.
- **Channel scar or spillway**. V points in the direction of water flow.
- **Esker**. V points in direction of water flow.
- **Ice-wedge polygon**.
- **Striation**. Dot represents site location.
- **Sediment core sample**.



Approximate location of ice margins of the late Wisconsin Green Bay Lobe that impacted Jefferson County.

Acknowledgments

Funding for this map was provided by the Great Lakes Geologic Mapping Coalition, a part of the National Cooperative Geologic Mapping Program of the U.S. Geological Survey, under Cooperative Agreement G19AC00300, and the Wisconsin Geological and Natural History Survey. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

Interpretation

For additional information about the Quaternary geology of Jefferson County, Wisconsin, please refer to the report that accompanies this map at: https://doi.org/10.54915/mlnc7835.

Explanation

Nonglacial sediment

sm — *Modern stream sediment.* Sand, gravel, and silt deposited by postglacial (mostly Holocene) streams. Landforms include the active channels, inactive channels, terraces, and floodplains of modern rivers and streams. Holocene organic sediment overlies stream sediment in some areas.

ol — *Organic sediment overlying lake sediment.* Organic sediment two or more meters thick occupying low-lying, flat to low-relief areas that are typically wetlands. Many areas have been drained to increase arability. Probable locations of lakes during the late Pleistocene and early to middle Holocene.

os — *Organic sediment overlying meltwater-stream sediment.* Organic sediment two or more meters thick occupying low-lying, flat to low-relief areas that are typically wetlands.

Holy Hill Formation

Horicon Member

lf, ln, lc — **Lake sediment.** Laminated, thinly bedded, or massive fine sand, silt, and clay. Contains occasional medium sand, organic-rich laminae, and rare outsized clasts. **Unit lf:** *Offshore lake sediment.* Flat to low-relief lake plains. Thickest and most extensive in areas that overlie bedrock valleys, but also occurs as terraces (elevated lake plains) adjacent to outwash. **Unit ln:** *Nearshore lake sediment.* Medium to fine sand deposited in nearshore or shallow areas of former lake beds, commonly overlying laminated silt and clay. Occasionally merges with (or is clearly sourced from) colluvium or small deltas where stream paths intersect ancestral lake surfaces. Forms spits and beach ridges. **Unit lc:** *Collapsed lake sediment.* Moderate-relief hummocky and pitted topography. Landscape morphology suggests collapse of the land surface into depressions created by the melting of stagnant or buried glacial ice. Typically occurs along the edges of lake terraces (elevated lake plains) adjacent to outwash plains.

su, sc — **Meltwater stream sediment.** Stratified sand and gravelly sand deposited by meltwater-streams. **Unit su:** *Uncollapsed meltwater stream sediment.* Flat to low-relief topography with original depositional surface of outwash plains, outwash terraces, and outwash channels recognizable in most areas. **Unit sc:** *Collapsed meltwater stream sediment.* Collapsed with moderate- to high-relief hummocky and pitted topography. Landscape morphology (for example, outwash plains, outwash terraces, and outwash channels) suggests collapse of the land surface into depressions created by the melting of stagnant and buried glacial ice.

gr, gs, gb, gm — **Glacial sediment.** Massive, poorly sorted, clast-rich, sandy, matrix-supported, and consolidated sediment interpreted as till of the Green Bay Lobe. Till is yellowish brown where oxidized and gray where reduced. Sediment is rich in local carbonate cobbles and boulders. Thickness is variable and may be as much as 20 m. **Unit gr:** *Rolling glacial sediment.* Topography is most often rolling to flat but includes minor hummocky, pitted, or streamlined areas. **Unit gs:** *Streamlined glacial sediment.* Topography is streamlined with drumlin height ranging from 1 to 20 m, length ranging from 100 to 2,900 m, and width ranging from 35 to 300 m. Low areas between drumlins may contain accumulated fine-grained and organic material deposited as colluvium or in standing water. **Unit gb:** *Thin glacial sediment over bedrock.* Thin layer of till overlying bedrock with a high surface elevation. Bedrock is most often dolomite or limestone of the Sinnipee Group. Occurs adjacent to map units gr and gs. **Unit gm:** *Glacial sediment of moraines.* Less consolidated, unstratified, poorly sorted, gravelly, loamy sand deposited in hummocky areas of the moraines deposited during the Lake Mills phase. Moraine areas range in width from 200 to 850 m. Hummocky areas may or may not contain a distinct moraine ridge.

Undifferentiated

suk, sck — **Kettle Moraine sediment.** Stratified sand, gravelly sand, and gravel deposited by meltwater streams in the Kettle Moraine. **Unit suk:** *Uncollapsed meltwater-stream sediment in the Kettle Moraine.* Flat to low-relief topography. Landforms include outwash plains, outwash terraces, or outwash channels. **Unit sck:** *Collapsed meltwater-stream sediment in the Kettle Moraine.* Collapsed with moderate- to high-relief surfaces. Landscape morphology (for example, outwash plains, outwash terraces, and outwash channels) suggests collapse of land surface into depressions created by the melting of stagnant and buried glacial ice. Includes eskers and ice-walled lake plains.