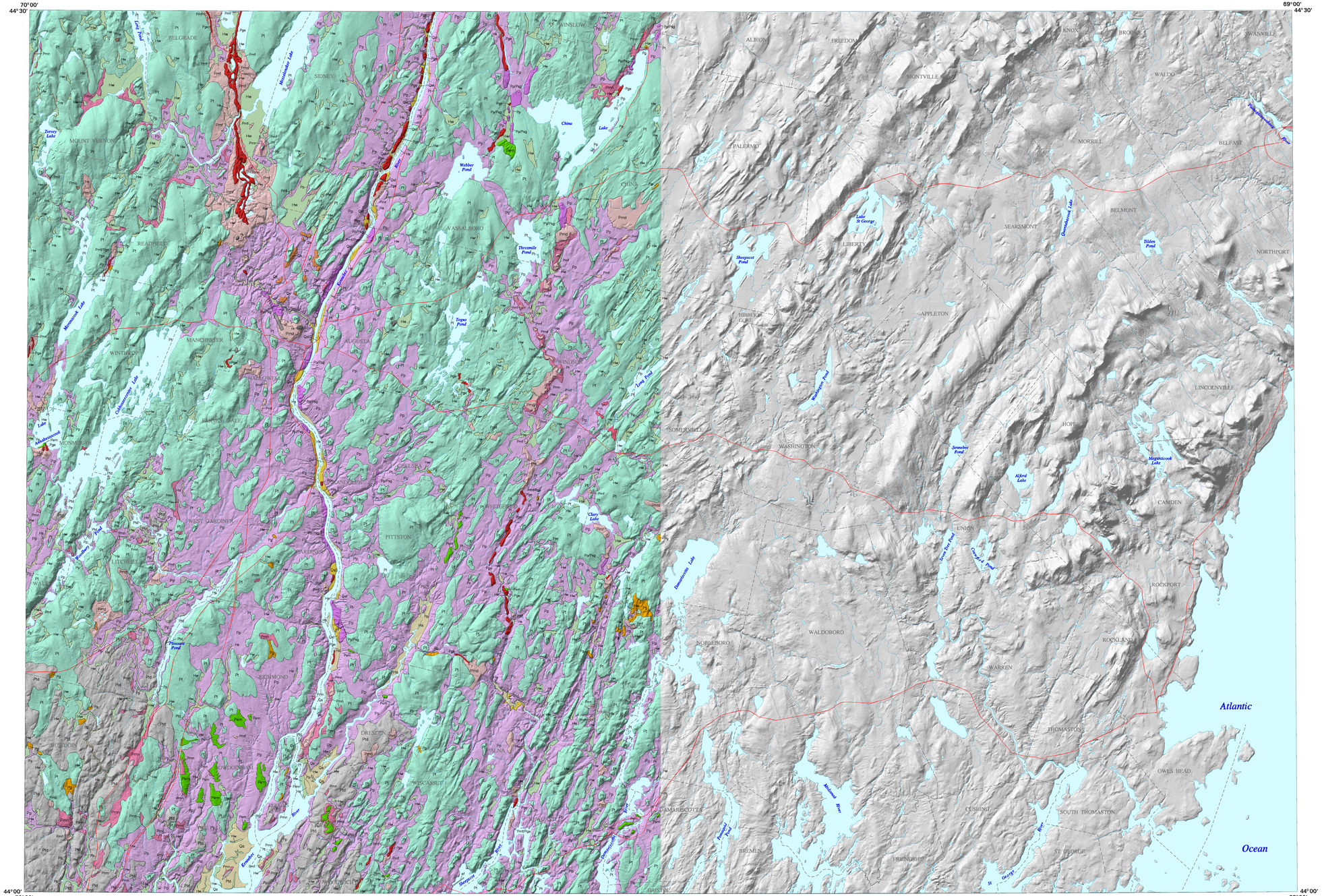
Surficial Geology of the Western Half of the Augusta 1:100,000 Quadrangle, Maine



Shaded relief base by Marc C. Loiselle using a digital elevation model with a 10-meter grid, sun angle of 315°, and sun elevation of 45°.

Miles (mi)
0 1 2 3 4 5 6 7 8 9 10 11 12

Map Scale
1:100,000

Quadrangle Location

Kilometers (km)
0 2 4 6 8 10 12 14 16 18 20

National geodetic vertical datum of 1929.

Augusta Quadrangle, Maine

Surficial geology compiled by
Susan S. Tolman

Geologic editing by
Woodrow B. Thompson
Thomas K. Weddle

Robert G. Marvinney
State Geologist

Digital carlography by:
Susan S. Tolman

Cartographic design and editing by:
Robert D. Tucker

Funding for the preparation of this map was provided in part by the U.S. Geological Survey STATEMAP Program, Cooperative Agreement No. 08HQAG0050.

Maine Geological Survey
Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 **E-mail:** mgs@maine.gov
Home page: http://www.maine.gov/doc/nrimc/nrimc.htm

Open-file Map 09-40
2009

EXPLANATION OF UNITS

Map units are labeled and grouped here by age:

H = Holocene (postglacial deposits, formed mostly during the last 10,000 years)
Q = Quaternary (age may vary from late Pleistocene to Holocene)
P = Pleistocene (formed during most recent glacial episode, between about 25,000 and 10,000 years ago)

af — **Artificial fill** - Surficial sediments, rock fragments, and/or artificial materials, transported and dumped to build up highways, waterfronts, etc.

Ha — **Stream alluvium** - Sand, silt, gravel, and organic material deposited on flood plains of modern streams.

Hw — **Wetlands** - Peat, muck, and/or fine-grained inorganic sediments in poorly drained areas. Includes both freshwater wetlands and coastal salt marshes.

Qe — **Eolian deposits** - Sand deposited by wind action in late-glacial or postglacial time. May occur as dunes or irregular blanket deposits.

Qst — **Stream terraces** - Sand, gravel, and silt deposited on former flood plains as streams cut down to their modern levels.

Qa — **Stream alluvium** – Sand, gravel, and silt deposited on former river flood plains in late-glacial to postglacial time.

Pms — **Marine shoreline deposits** - Beach and dune deposits ranging from sand to gravel. Formed during the regressive phase of late-glacial marine submergence.

Pmn — **Marine nearshore deposits** - Sand, gravel, and silt deposited by wave and current action in shoreline and shallow nearshore environments. Formed mostly during the regressive phase of late-glacial marine submergence. May be very thin in areas of bedrock-controlled topography.

Pp — **Presumpscot Formation** - Silt, clay, and sand deposited on the sea floor.

Pp/Psg — **Presumpscot Formation overlying sand and gravel** - Areas where glaciomarine silt, clay, and sand (Presumpscot Formation - Pp) overlies sand and gravel deposited by glacial meltwater (Psg). The latter deposits include esker ridges formed in subglacial tunnels and/or submarine fans built by sediment discharging into the sea at the mouths of ice tunnels during glacial retreat. The fan deposits commonly consist of well-stratified mixed sand and gravel, which in some places drapes over coarse esker gravel. The extent of these sand and gravel units is usually uncertain because they are more-or-less concealed beneath the muddy sediments of the Presumpscot Formation.

Pmf — **Submarine fans** - Sand and gravel deposited on the sea floor at the glacier margin.

Pmf/Pge — **Glaciomarine fan deposits overlying esker.** Area where glaciomarine sand, gravel, and silt is known or suspected to have been deposited on top of esker gravel.

Pmd — **Glaciomarine deltas** - Flat-topped sand and gravel deposits graded to the contemporary late-glacial sea level and formed at or near the glacier margin.

Pm — **Marine deposits, undifferentiated** - Sand and gravel of uncertain origin, but thought to have been deposited in the sea.

Pg — **Glacial stream deposits, undifferentiated** - Sand and gravel deposited by glacial meltwater streams in various environments at or near the ice margin.

Pge — **Eskers** - Ridges of sand and gravel deposited by meltwater streams in subglacial tunnels. May also include some overlying glaciomarine fan deposits.

Pem — **End moraine complexes** - Clusters of closely spaced end moraines deposited at the receding (but still active) margin of the last glacial ice sheet. Most moraines trend generally east-west, parallel to the ice margin. Composed of till and/or sand and gravel, locally including submarine fan deposits.

Pt — **Till** - Loose to very compact, poorly sorted, massive to weakly stratified mixtures of sand, silt, and gravel-size rock debris deposited directly from glacial ice. Locally contains lenses of waterlaid sediments.

Ptd — **Thin drift** - Areas with abundant bedrock outcrops and generally less than 10 ft of surficial sediments. Map unit occurs chiefly in the coastal lowland, where rock surfaces were washed by the sea during late-glacial marine regression. Till commonly remains on slopes and hilltops, while marine mud and sandy to gravelly nearshore deposits have accumulated in low areas.

rk — **Bedrock outcrops.**

EXPLANATION OF SYMBOLS

- Geologic contact
- Road
- Town boundary
- County boundary
- State boundary
- AUGUSTA Township name

RELATED MAPS

Tolman, S. S. (compiler), 2009, Deglaciation features in the Augusta 1:100,000 quadrangle, Maine: Maine Geological Survey, Open-File Map 09-41.

Tolman, S. S. (compiler), 2009, Glacial ice-flow indicators in the Augusta 1:100,000 quadrangle, Maine: Maine Geological Survey, Open-File Map 09-42.

INDEX TO SOURCES OF GEOLOGIC MAP DATA

1:24,000 Surficial geologic quadrangle maps, authors, and Maine Geological Survey Open-File numbers. In some areas the original map data have been supplemented with more recent observations.

READFIELD C. Hildreth 04-40	BELGRADE C. Hildreth 05-45	VASSALBORO C. Hildreth 05-8	CHINA LAKE K. Syverson D. Moore 97-50	PALERMO	LIBERTY	MORRILL	BELFAST
WINTHROP W. Thompson 08-75	AUGUSTA W. Thompson 09-7	TOGUS POND W. Thompson 07-101	WEEKS MILLS T. Weddle 07-79	RAZORVILLE	WASHINGTON	BEARSMONT	LINCOLNVILLE
PURGATORY C. Hildreth 05-46	GARDINER W. Thompson 09-8	EAST PITTSTON W. Thompson 09-9	NORTH WINTERFIELD W. Thompson 09-11	JEFFERSON	UNION	WEST ROCKPORT	CAMDEN
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