

Surficial Geology of the Portland 1:100,000 Quadrangle, Maine

Portland Quadrangle, Maine

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Funding for the preparation of this map was provided in part by the U.S. Geological Survey STATEMAP Program, Cooperative Agreement No. 03HQAG0068.



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Open-File No. 06-1
2006

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)

- Artificial fill** - Surficial sediments, rock fragments, and/or artificial materials, transported and dumped to build up highways, waterfronts, etc.
- Stream alluvium** - Sand, silt, gravel, and organic material deposited on floodplains of modern streams.
- Wetlands** - Peat, muck, and/or fine-grained inorganic sediments deposited in poorly drained areas. Formed during freshwater wetlands and coastal salt marshes.
- Coastal beaches and sand dunes** - Modern ocean beaches are generally too narrow to distinguish at the scale of this map and thus are grouped with adjacent dune deposits.
- Beach deposits on modern lake shores** - Composed of sand and gravel in varying proportions.
- Landslide deposit** - Poorly sorted sediments in relictic landscape resulting from failure of a till slope on the Maine-New Hampshire border.
- Eolian deposits** - Sand deposited by wind action in late-glacial or postglacial time. May occur as dunes or irregular blanket deposits.
- Stream terraces** - Sand, gravel, and silt deposited on former floodplains as streams cut down to their modern levels.
- Glaciolacustrine deposits** - Sediments deposited in temporary ice-dammed or sediment-dammed glacial lakes. Includes deltas consisting of sand and gravel, and lake-bottom sand, silt, and clay. Named glacial lakes are grouped below according to the valley or river basin in which they formed, starting with the most southerly (oldest) lakes. Some of these glacial lakes have the same name as their modern counterparts (e.g. Panther Pond).
- Marine regressive deposits** - Sand, gravel, and silt deposited in (or graded to) shallow marine waters during late-glacial regression of the sea. Includes large sand plains that commonly overlie marine mud of the Presumpscot Formation. Formed by a variety of fluvial and nearshore processes.
- Marine shoreline deposits** - Beach and dune deposits ranging from sand to gravel. Formed during the regressive phase of late-glacial marine submergence.
- Marine nearshore deposits** - Sand, gravel, and silt deposited by waves 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.
- Presumpscot Formation** - Silt, clay, and sand deposited on the sea floor.
- Submarine fans** - Sand and gravel deposited on the sea floor at the glacier margin.
- Glaciomarine deltas** - Flat-topped sand and gravel deposits graded to the contemporary late-glacial sea level and formed at or near the glacier margin.
- Marine deposits, undifferentiated** - Sand and gravel of uncertain origin, but thought to have been deposited in the shallow sea.
- Glacial stream deposits** - Sand and gravel deposited by glacial meltwater streams at or near the ice margin. Map unit includes ice-contact and outwash sediments, as well as minor glaciolacustrine deposits.
- Eskers** - Ridges of sand and gravel deposited by meltwater streams in subglacial tunnels. May also include some fan deposits where tunnel streams ended in glacial lakes.
- Hummocky moraine** - Glacial till with hummocky topography. Usually occurs in valley bottoms. Contains many boulders, and lenses of sand, gravel, and silt are locally abundant. Formed by melting and destintegration of debris-rich ice in the marginal zone of the last glacial ice sheet.
- Ribbed moraine** - Clusters of bouldery till ridges deposited on valley floors oriented parallel to glacial flow. May have formed in a subglacial environment.
- 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.
- 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 waterlain sediments.
- 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 hillslopes, while marine mud and sandy to gravelly nearshore deposits have accumulated in low areas.

Little Osipee River basin - Mousam Lake valley:

- Glacial Lake Arrowhead** (southeastern part overlaps divide between Little Osipee and Saco River basins)
- Glacial Lake Newfield**
- Glacial Lake Mousam** (southern part overlaps divide between Little Osipee and Mousam River basins)

Osipee River basin:

- Glacial Lake Cornish**
- Glacial Lake Effingham**
- Glacial Lake Wedgwood**
- Glacial Lake Cedar Mountain**
- Glacial Lake Champion**

Saco River basin:

- Glacial Lake Pigwacket**
- Glacial Lake Marston**
- Glacial Lake Hancock**
- Glacial Lake Tennesse**
- Glacial Lake Brownfield**
- Glacial Lake Town Farm**

Crooked River valley - Sebago Lake basin:

- Glacial Lake Sebago**

Crescent Lake - Panther Pond valley:

- Glacial Lake Crescent**
- Glacial Lake Panther**

Little Sebago Lake basin:

- Glacial Little Sebago Lake**

EXPLANATION OF SYMBOLS

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

RELATED MAPS

Tolman, S. S. (compiler), 2006, Deglaciation features in the Portland 1:100,000 quadrangle, Maine: Maine Geological Survey, Open-File Map 06-5.

Tolman, S. S. (compiler), 2006, Glacial ice-flow indicators in the Portland 1:100,000 quadrangle, Maine: Maine Geological Survey, Open-File Map 06-4.

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.

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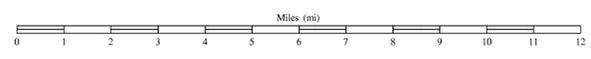
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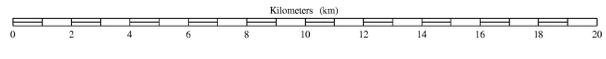
Shaded relief base by Marc C. Loisele using a digital elevation model with a 10-meter grid, sun angle of 315°, and sun elevation of 45°.



Map Scale
1:100,000



Quadrangle Location



National geodetic vertical datum of 1929.