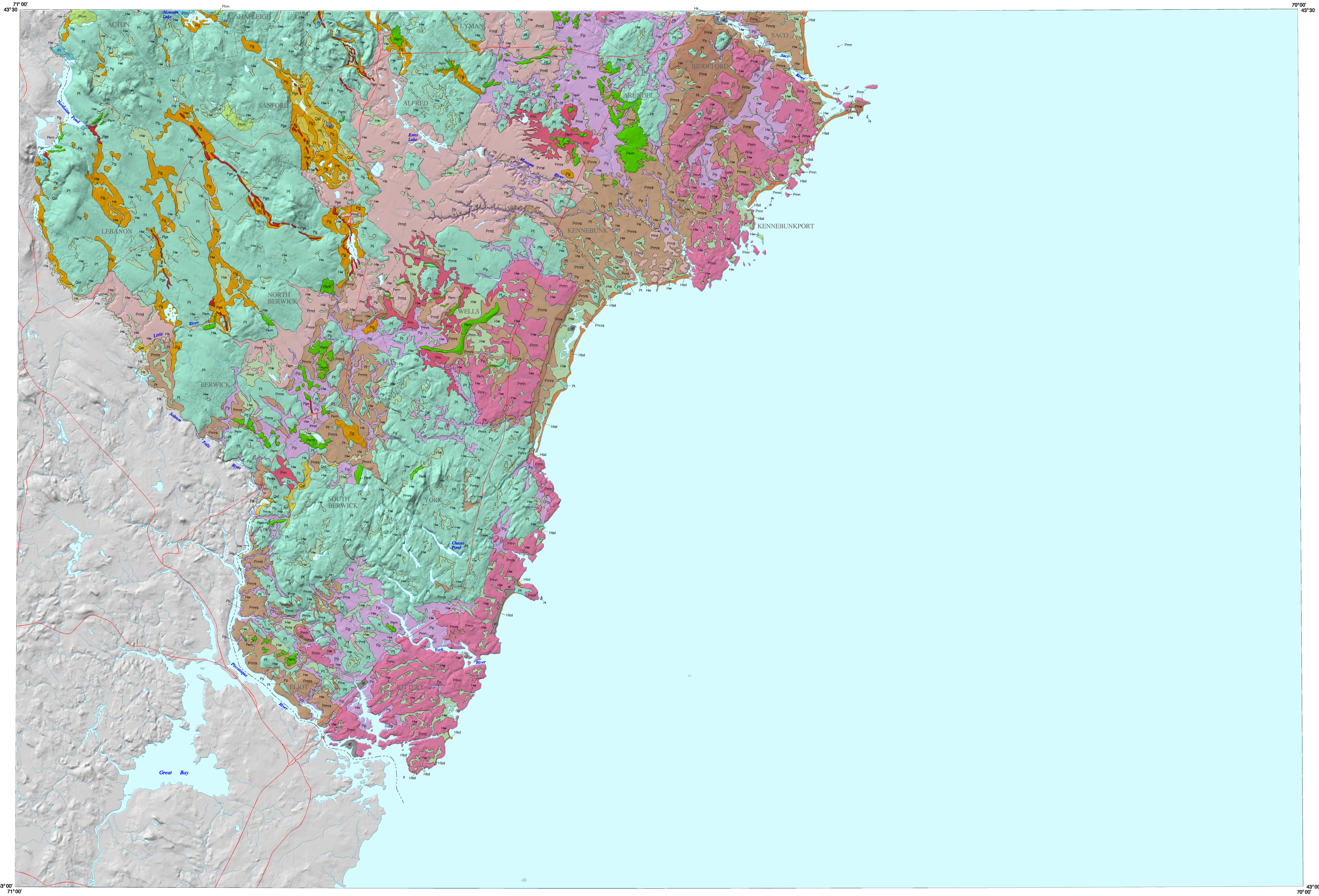
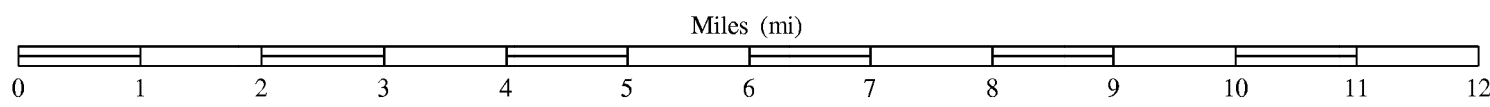


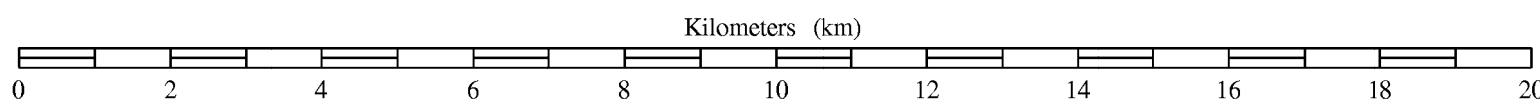
Surficial Geology of the Kittery 1:100,000 Quadrangle, Maine



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°.



Map Scale
1:100,000



National geodetic vertical datum of 1929.

Kittery Quadrangle, Maine

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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)

- a'** 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.

Hbd 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.

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

Pl Glaciolacustrine deposits - Sediments deposited in temporary ice-dammed or sediment-dammed glacial lakes. Includes deltas and lacustrine fans consisting of sand and gravel, and lake-bottom sand, silt, and clay. Named glacial lakes are listed below.

Pm Glacial Lake Mousam (southern part overlaps divide between Little Ossipee and Mousam Riverbasins)

Pmns 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.

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.

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

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

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 - 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.

Pga Eskers - Ridges of sand and gravel deposited by meltwater streams in subglacial tunnels. May also include some fan deposits formed where tunnel streams ended in glacial lakes.

Phm 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 disintegration of debris-rich ice in the marginal zone of the last glacial ice sheet.

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 individual moraines within these clusters 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.

rk Bedrock outcrops
- EXPLANATION OF SYMBOLS**

Geologic contact County boundary
Road State boundary
Town boundary PORTLAND Township name
- RELATED MAPS**

Tolman, S. S. (compiler), 2007, Deglaciation features in the Kittery 1:100,000 quadrangle, Maine: Maine Geological Survey, Open-File Map 07-54.

Tolman, S. S. (compiler), 2007, Glacial ice-flow indicators in the Kittery 1:100,000 quadrangle, Maine: Maine Geological Survey, Open-File Map 07-53.

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.

HILTON	SANFORD	ALFRED	KENNEBUNK	BIDDEFORD	BIDDEFORD POOL		
A. Magilloli 99-81	C. Neil 97-55	C. Neil 99-78	G. Smith 99-86	C. Hildreth 99-78	C. Hildreth 99-79		
ROCHESTER	SOMERS- WORTH	NORTH BERWICK	WELLS	KENNEBUNK- PORT			
G. Smith 99-86	G. Smith 99-99	G. Smith 99-92	G. Smith 99-104	G. Smith 99-87			
DOVER EAST	YORK HARBOR	YORK BEACH					
G. Smith C. Cameron 99-82	P. O'Toole J.M. Clinch C. Cameron 99-107	P. O'Toole J.M. Clinch C. Cameron 99-108					
PORTSMOUTH	KITTERY						
G. Smith C. Cameron 99-96	P. O'Toole J.M. Clinch C. Cameron 99-88						