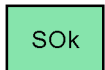


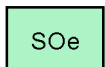
EXPLANATION OF UNITS

STRATIFIED ROCKS

Silurian-Ordovician



Kittery Formation. Variably thin-bedded to thick-bedded, buff-weathering feldspathic and calcareous metawacke. Characterized by well-developed primary sedimentary structures including graded bedding, channel cut-and-fill structure, small scale cross-bedding, flame structure, and flute casts. The rocks at locality 1 have thinner bedding and more interbedded metapelite than rocks to the southeast, in the Kittery Formation (Hussey and others, 1984).



Eliot Formation. Generally thin-bedded, medium gray, calcareous and ankeritic quartz-biotite-chloritic phyllite and metasilstone, and dark gray-biotite-chlorite-muscovite phyllite.

REFERENCES

- Fargo, T. R., and Bothner, W. A., 1995, Polydeformation in the Merrimack Group, southeastern New Hampshire and southwestern Maine, in Hussey, A. M., II, and Johnston, R. A. (editors), Guidebook to field trips in southern Maine and adjacent New Hampshire: New England Intercollegiate Geological Conference, Brunswick, Maine, p. 15-29.
- Hussey, A. M., II, 1962, The geology of southern York County, Maine: Maine Geological Survey, Bulletin 14, 67 p., map, scale 1:62,500.
- Hussey, A. M., II, Bothner, W. A., and Thompson, P. J., 2008, Bedrock geology of the Kittery 1:100,000 quadrangle, Maine and New Hampshire: Maine Geological Survey, Geologic Map 08-78, scale 1:100,000.
- Hussey, A. M., II, Rickerich, S. F., and Bothner, W. A., 1984, Sedimentology and multiple deformation of the Kittery Formation, southwestern Maine and southeastern New Hampshire, in Hanson, L. S. (editor), Geology of the coastal lowlands, Boston, MA to Kennebunk, ME: New England Intercollegiate Geological Conference, Danvers, Massachusetts, p. 47-53.
- Rickerich, S. F., 1983, Sedimentology, stratigraphy, and structure of the Kittery Formation in the Portsmouth-NH area: M.S. thesis, University of New Hampshire, Durham, 115 p.

EXPLANATION OF SYMBOLS

Note: Structural symbols are drawn parallel to strike or trend of measured structural feature. Barb or tick indicates direction of dip, if known. Annotation gives dip or plunge angle. For planar features, symbol is centered at observation point. For linear features, tail of symbol is at observation point. Multiple measurements at a site are represented by combined symbols.

- Outcrop of mapped unit
- Basalt or diabase dike (inclined, vertical)
- Bedding, tops unknown (inclined, vertical)
- Inclined bedding, tops known (upright, overturned)
- Compositional layering (inclined)
- Inclined cleavage (dominant cleavage, younger cleavage)
- Symmetrical minor fold (plunging)
- Minor left-lateral fault (inclined)

- Notable locality. 1 = Outcrop in the Kittery Formation described by Hussey and others (1984) as their field stop 5.

EXPLANATION OF LINES

- Contact between mapped units. Interpreted to be of stratigraphic origin. Location is constrained by bedrock outcrops indicated by symbols on the map, or inferred by projecting rock units from adjacent areas. (See regional map by Hussey and others, 2008.) Additional information may have been used. The location of some contacts is not well constrained.
- Projection of mapped fault into area of poor bedrock exposure (see Hussey and others, 2008). (schematic)

Bedrock Geology of the
Portsmouth Quadrangle, Maine

Bedrock geologic mapping by
Arthur M. Hussey II and Wallace A. Bothner

Digital cartography by
Susan S. Tolman

Geologic editing by
Henry N. Berry IV

Cartographic design and editing by
Robert D. Tucker

Robert G. Marvinney
State Geologist

Funding for the preparation of this map was provided in part by the U.S. Geological Survey STATEMAP Program, Cooperative Agreement No. 05HQAG0068.



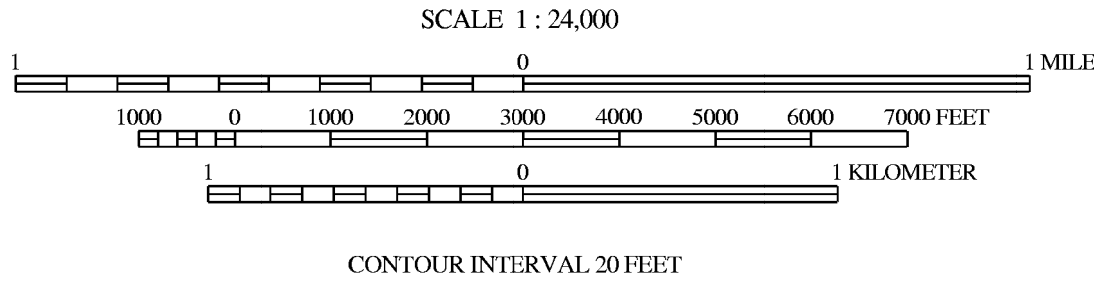
Maine Geological Survey

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>

Progress Map 12-29
2012



Quadrangle Location



SOURCES OF INFORMATION

Field work by A. M. Hussey II (1970-2003), W. A. Bothner (1969-2004), and T. J. Fargo (1990-1991). M.S. thesis by Rickerich (1983).

Topographic base from U.S. Geological Survey Portsmouth, N.H.-Maine, quadrangle, scale 1:24,000, using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not imply responsibility for any present or potential effects on the natural resources.

GEOLOGIC TIME SCALE

Geologic Age	Absolute Age*
Cenozoic Era	0-65
Mesozoic Era	65-142
Jurassic Period	142-200
Triassic Period	200-253
Paleozoic Era	253-300
Permian Period	300-360
Carboniferous Period	360-418
Devonian Period	418-443
Silurian Period	443-489
Ordovician Period	489-542
Precambrian time	Older than 542

* In millions of years before present. (Okulitch, A. V., 2004, Geological time chart, 2004: Geological Survey of Canada, Open File 3040 (National Earth Science Series, Geological Atlas)-REVISION.)