Bedrock Geology of the Northeastern Portion of the Swans Island Quadrangle, Maine

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This map supersedes a portion of the B-38 Bedrock Geology map.

EXPLANATION OF UNITS

INTRUSIVE ROCKS

Silurian [S]

Diabase dike or sill. Dark gray to greenish gray, fine-grained to medium-grained diabase with ophitic texture, commonly with secondary chlorite and epidote. Line dashed where continuity is uncertain.

Felsite dike. Pinkish gray to light gray to tan, very fine-grained felsite to fine-grained homogeneous granite, with few visible mafic grains.

Stf — **Tremont Felsite.** Pinkish gray to light gray, very homogeneous, very fine-grained felsite to fine-grained biotite granite, with few visible mafic grains. Intrusive contact with the Cranberry Island Volcanic Series with blocks of ignimbrite and volcanic breccia surrounded by felsite near the contact. Was previously considered to be the upper part of the Cranberry Island Volcanic Series.

Ssw — **Southwest Harbor Granite.** Pink to light gray, fine-grained to medium-grained biotite-hornblende granite. Mafic enclaves and irregular concentrations of hornblende and plagioclase 1 to 10 centimeters across are sparsely but widely distributed throughout the granite.

STRATIFIED ROCKS

Silurian [S]

Cranberry Island Volcanic Series. Extrusive equivalent of the Southwest Harbor Granite and early part of the Cadillac Granite (Seaman and others, 1999; Wiebe, 1994).

Scf1 — **Rhyolitic ignimbrite and breccia.** Light to medium gray, very fine-grained, lithic-rich rhyolitic ignimbrite interbedded with clast-supported volcanic breccia. The very fine-grained ignimbrite is characterized by broken, euhedral, pink potassium feldspar phenocrysts (~2 millimeters [mm]) in a matrix of 60-65% interlocking quartz and sanidine crystals (0.01 to 0.02 mm), secondary muscovite (10-15%), biotite and hornblende (10%), and blocky opaque minerals (10%). Abundant lithic fragments as large as a few centimeters across consist of brown siltstone, pink rhyolite, gray or pink granite, and basalt. Dark gray, rounded to lobate basaltic enclaves a few centimeters across are locally common. In places breccia layers grade into clast-free material 100 meters (m) or so along strike of the layering.

Cadillac Mountain Plutonic-Volcanic Complex

Cambrian [Є]

Єe — **Ellsworth Schist.** Gray to greenish gray chlorite schist interlayered with thin (1 to 10 mm), white, quartz- and feldspar-rich layers and grayish green, muscovite- and chlorite-rich layers, often highly contorted; intercalated with 0.1- to 3.0-m-wide layers of light gray metarhyolite tuff and medium gray to grayish green metabasalt tuff (greenstone). Some such layers have a bimodal alternation of metarhyolite and metabasalt.

EXPLANATION OF LINES

Contact between rock units, of stratigraphic or intrusive origin (well located, approximately located, poorly located).

D / U

High-angle fault, interpreted from truncation of units on the map or from disruption of stratigraphic sequence. D (down) and U (up) indicate sense of dip-slip motion (well located, approximately located, poorly located).

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, if known. For most planar features, symbol is centered at observation point; for joints, observation point is at end of strike line opposite dip tick. For linear features, tail of symbol is at observation point. Multiple measurements at a site are represented by combined symbols. Symbols on the map are graphical representations of information stored in a bedrock database at the Maine Geological Survey. The database contains additional information that is not displayed on this map.

- Outcrop of mapped unit.
- \+ Outcrop of non-foliated plutonic rock.
- 20 Dike, mafic (inclined, vertical).
- 20 Dike, felsic (inclined, vertical).
- 20 Bedding in volcanic rocks (inclined, vertical).

NOTE

Extensive bedrock mapping and petrographic, whole-rock geochemical, and geochronological analysis have been conducted on the islands in the Swans Island quadrangle (as well as the adjacent Bass Harbor, Frenchboro, Johns Island, and Isle au Haut East quadrangles) by David G. Bailey and several students at Hamilton College (see Bailey, 2006). The Maine Geological Survey will reissue an updated Swans Island bedrock map with this data as soon as possible.

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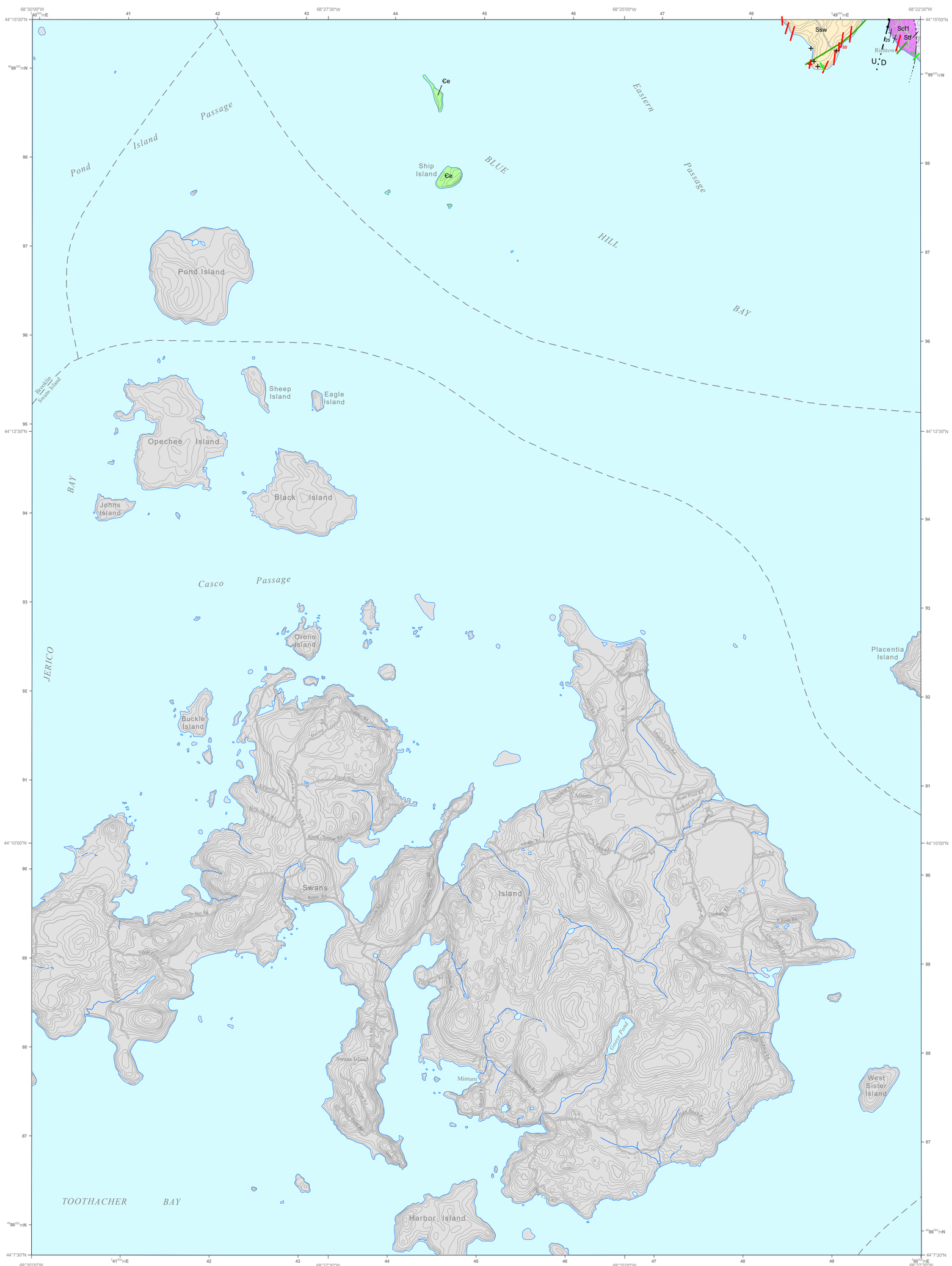
GEOLOGIC TIME SCALE

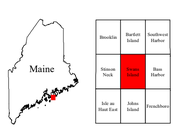
Geologic Age	Absolute Age*
Cenozoic Era (Cz)	0-66
Mesozoic Era (Mz)	
Cretaceous Period (K)	66-145
Jurassic Period (J)	145-201
Triassic Period (Ŧ)	201-252
Paleozoic Era (Pz)	
Permian Period (P)	252-299
Carboniferous Period (C)	299-359
Devonian Period (D)	359-419
Silurian Period (S)	419-444
Ordovician Period (O)	444-485
Cambrian Period (Є)	485-541
Precambrian time (pЄ)	Older than 541

* In millions of years before present. (Walker, J.D., Geissman, J.W., Bowring, S.A., and Babcock, L.E., compilers, 2012 Geologic Time Scale v. 4.0: Geological Society of America, doi: 10.1130/2012.CTS004R3C.)



SOURCES OF GEOLOGIC INFORMATION

Field work on Mount Desert Island
by Duane D. Braun, 2013.
Published work on Mount Desert Island,
Gilman and Chapman, 1988.
Published work in Blue Hill Bay
by Stewart and Tucker, 1998.



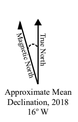
SCALE 1:24,000

1 Mile 0.5 0

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

1 0.5 0 1 Kilometer

CONTOUR INTERVAL 10 FEET



Approximate Mean Declination, 2018
16° W

Base map features from Maine Office of GIS - 1:24,000 USGS contour lines, E911 roads, 1:24,000 National Hydrography Dataset, USGS GNIS placenames and 1:24,000 political boundaries. Map projection Universal Transverse Mercator, North American Datum, 1927.

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