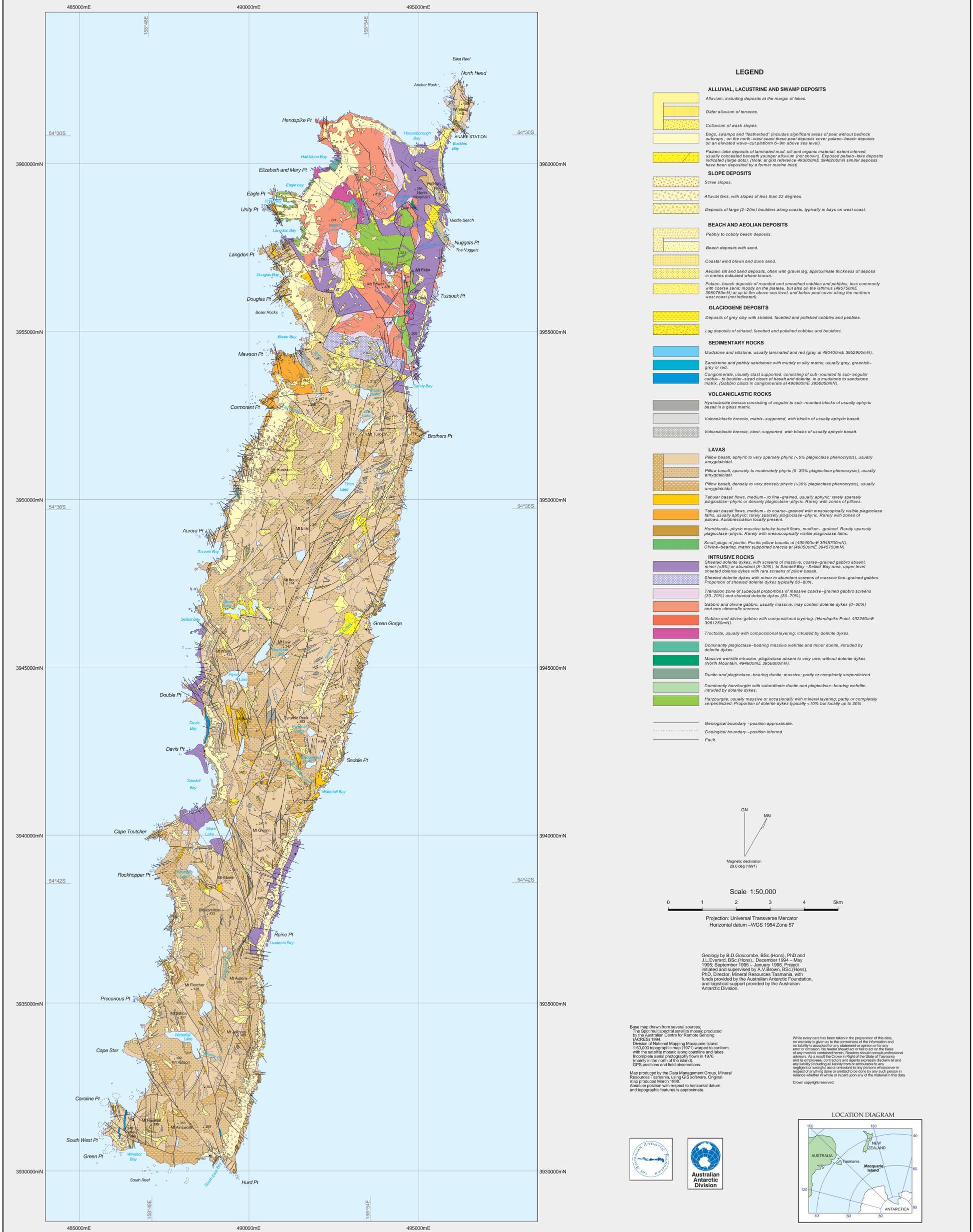


GEOLOGY OF MACQUARIE ISLAND

TASMANIAN GEOLOGICAL SURVEY



LEGEND

ALLUVIAL, LACUSTRINE AND SWAMP DEPOSITS

- Alluvium, including deposits at the margin of lakes.
- Older alluvium of terraces.
- Colluvium of wash slopes.
- Bogs, swamps and "featherbed" (includes significant areas of peat without bedrock outcrops: on the north-west coast these peat deposits cover palaeo-beach deposits on an elevated wave-cut platform 6-9m above sea level).
- Palaeo-lake deposits of laminated mud, silt and organic material, extent inferred, usually concealed beneath younger alluvium (not shown). Exposed palaeo-lake deposits indicated (large dots). (Note: at grid reference 493000mE 3946200mN similar deposits have been deposited by a former marine inlet).

SLOPE DEPOSITS

- Scree slopes.
- Alluvial fans, with slopes of less than 22 degrees.
- Deposits of large (2-20m) boulders along coasts, typically in bays on west coast.

BEACH AND AEOLIAN DEPOSITS

- Pebbly to cobbly beach deposits.
- Beach deposits with sand.
- Coastal wind blown and dune sand.
- Aeolian silt and sand deposits, often with gravel lag; approximate thickness of deposit in metres indicated where known.
- Palaeo-beach deposits of rounded and smoothed cobbles and pebbles, less commonly with coarse sand; mostly on the plateau, but also on the isthmus (495750mE 3967500mN) at up to 9m above sea level, and below peat cover along the northern west coast (not indicated).

GLACIOGENE DEPOSITS

- Deposits of grey clay with striated, faceted and polished cobbles and pebbles.
- Lag deposits of striated, faceted and polished cobbles and boulders.

SEDIMENTARY ROCKS

- Mudstone and siltstone, usually laminated and red (grey at 490400mE 3952900mN).
- Sandstone and pebbly sandstone with muddy to silty matrix; usually grey, greenish-grey or red.
- Conglomerate, usually clast supported, consisting of sub-rounded to sub-angular cobble- to boulder-sized clasts of basalt and dolerite, in a mudstone to sandstone matrix. (Gabbro clasts in conglomerate at 490900mE 3956500mN).

VOLCANICLASTIC ROCKS

- Hyaloclastite breccia consisting of angular to sub-rounded blocks of usually aphyric basalt in a glass matrix.
- Volcaniclastic breccia, matrix-supported, with blocks of usually aphyric basalt.
- Volcaniclastic breccia, clast-supported, with blocks of usually aphyric basalt.

LAVAS

- Pillow basalt, aphyric to very sparsely phytic (<5% plagioclase phenocrysts), usually amygdaloidal.
- Pillow basalt, sparsely to moderately phytic (5-30% plagioclase phenocrysts), usually amygdaloidal.
- Pillow basalt, densely to very densely phytic (>30% plagioclase phenocrysts), usually amygdaloidal.
- Tabular basalt flows, medium- to fine-grained, usually aphyric; rarely sparsely plagioclase-phyric or densely plagioclase-phyric. Rarely with zones of pillows.
- Tabular basalt flows, medium- to coarse-grained with macroscopically visible plagioclase laths, usually aphyric; rarely sparsely plagioclase-phyric. Rarely with zones of pillows. Autobrecciation locally present.
- Hornblende-phyric massive tabular basalt flows, medium-grained. Rarely sparsely plagioclase-phyric. Rarely with macroscopically visible plagioclase laths.
- Small plugs of picritic pillow basalts at (490400mE 3945700mN).
- Olivine-bearing, matrix supported breccia at (490500mE 3945700mN).

INTRUSIVE ROCKS

- Sheeted dolerite dykes, with screens of massive, coarse-grained gabbro absent, minor (<5%) or abundant (5-30%) in Sarsfield Bay - Sellick Bay area, upper level sheeted dolerite dykes with rare screens of pillow basalt.
- Sheeted dolerite dykes with minor to abundant screens of massive fine-grained gabbro. Proportion of sheeted dolerite dykes typically 50-80%.
- Transition zone of subequal proportions of massive coarse-grained gabbro screens (30-70%) and sheeted dolerite dykes (30-70%).
- Gabbro and olivine gabbro, usually massive; may contain dolerite dykes (0-30%) and rare ultramafic screens.
- Gabbro and olivine gabbro with compositional layering, (Handspike Point, 492250mE 3961250mN).
- Troctolite, usually with compositional layering; intruded by dolerite dykes.
- Dominantly plagioclase-bearing massive wehrlite and minor dunite, intruded by dolerite dykes.
- Massive wehrlite intrusion; plagioclase absent to very rare; without dolerite dykes (North Mountain, 494800mE 3958800mN).
- Dunite and plagioclase-bearing dunite; massive, partly or completely serpentinized.
- Dominantly harzburgite with subordinate dunite and plagioclase-bearing wehrlite, intruded by dolerite dykes.
- Harzburgite, usually massive or occasionally with mineral layering; partly or completely serpentinized. Proportion of dolerite dykes typically <10% but locally up to 30%.

- Geological boundary - position approximate.
- Geological boundary - position inferred.
- Fault.

GN
MN

Magnetic declination
29.6 deg (1991)

Scale 1:50,000

0 1 2 3 4 5km

Projection: Universal Transverse Mercator
Horizontal datum - WGS 1984 Zone 57

Geology by B.D. Goscombe, BSc (Hons), PhD and J.L. Everard, BSc (Hons), December 1994 - May 1996; September 1995 - January 1996. Project initiated and supervised by A.V. Brown, BSc (Hons), PhD, Director, Mineral Resources, Tasmania, with funds provided by the Australian Antarctic Foundation, and logistical support provided by the Australian Antarctic Division.

Base map drawn from several sources:
The Spot multispectral satellite mosaic produced by the Australian Centre for Remote Sensing (ACRES) 1994.
Division of National Mapping Macquarie Island 1:50,000 topographic map (1971) warped to conform with the satellite mosaic along coastline and lakes.
Incomplete aerial photography flown in 1976 (mainly in the north of the island).
GPS positions and field observations.
Map produced by the Data Management Group, Mineral Resources Tasmania, using GIS Software. Original map produced March 1998.
Absolute position with respect to horizontal datum and topographic features is approximate.

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LOCATION DIAGRAM

