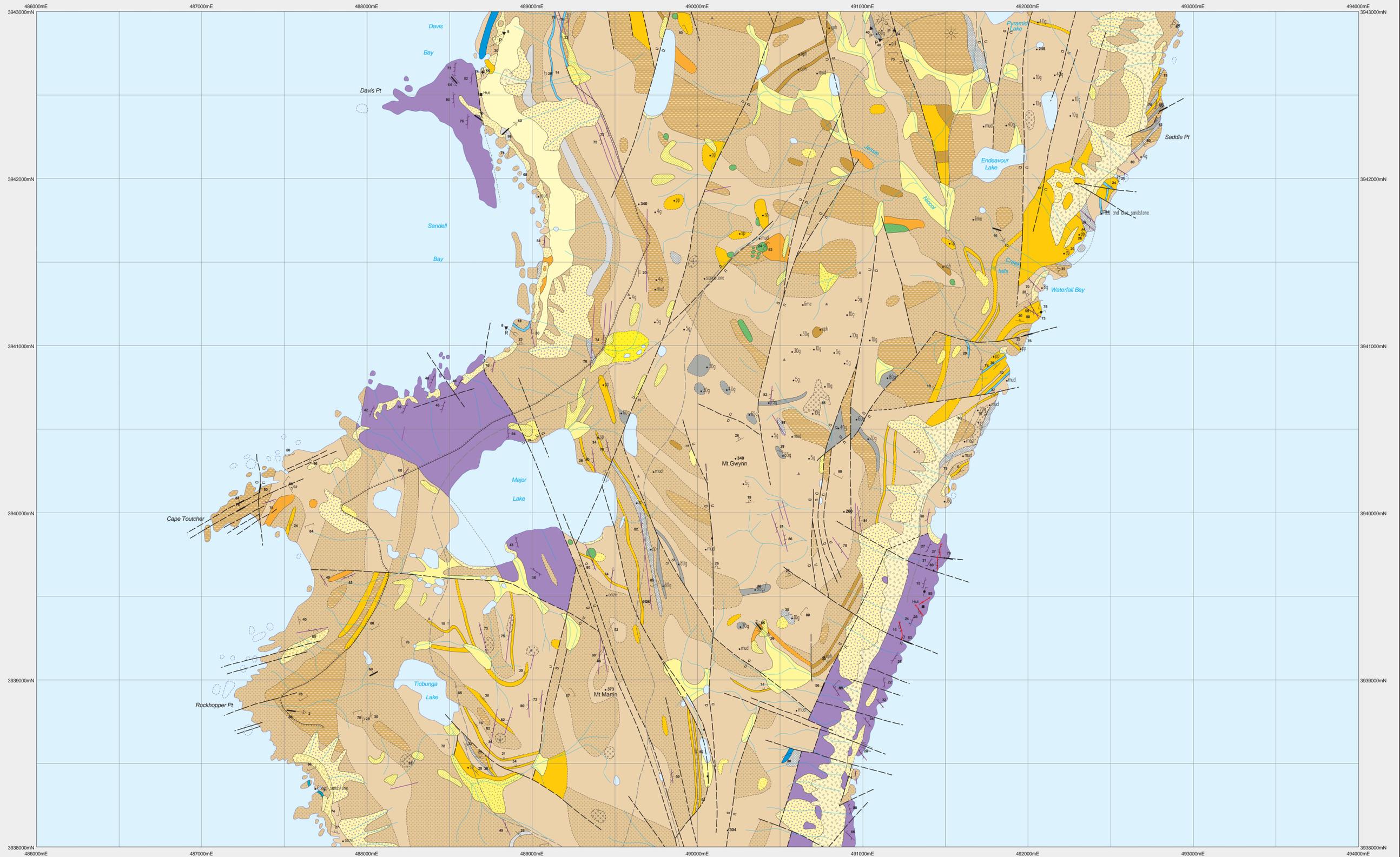


GEOLOGY OF MACQUARIE ISLAND - SHEET 5



Geology by B.D. Goscombe, BSc (Hons), PhD and J.L. Everett, BSc (Hons), December 1994 - May 1995; 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 multiresolution 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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- ALLUVIAL, LACUSTRINE AND SWAMP DEPOSITS**
Alluvium, including deposits at the margin of lakes.
Colluvium of wash slopes.
Bogs, swamps and "leatherbed" (includes significant areas of peat without bedrock outcrop; on the north-west coast these deposits cover palaeo-beach deposits on an elevated wave-cut platform 5-8m above sea level).
Palaeo-lake deposits of laminated mud, silt and organic material, often inferred, usually concealed beneath younger alluvium (not shown). Exposed palaeo-lake deposits indicated (large dots).
- 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.
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.

- SEDIMENTARY ROCKS**
Mudstone and siltstone, usually laminated and red.
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.
Sedimentary rock matrix between pillows in lavas or blocks of breccia indicated.
ooze - pale grey to green siliceous ooze.
lime - tan to pale pink limestone.
mud - red to grey mudstone.
- VOLCANICLASTIC ROCKS**
Hyaloclastite breccia consisting of angular to sub-rounded blocks of usually aphyric basalt in a glass matrix.
Plagioclase-phyric blocks indicated (sp); % proportion of glass indicated (20g).
Volcaniclastic breccia, matrix-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
Volcaniclastic breccia, clast-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
Breccia containing isolated pillows or lenticular zones of pillows indicated (pl).
- 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).
Hyaloclastite (glass and basalt fragments) matrix of pillows indicated; % proportion of glass (20g); with hyaloclastite matrix containing plagioclase phenocrysts (20g-sp).
Disaggregated pillows indicated by overprint.
Tabular basalt flows, medium- to fine-grained, usually aphyric, rarely sparsely plagioclase-phyric (sp) or densely plagioclase-phyric (sp). Rarely with zones of pillows (pl).
Tabular basalt flows, medium- to coarse-grained with mesoscopically visible plagioclase laths, usually aphyric; rarely sparsely plagioclase-phyric (sp). Rarely with zones of pillows (pl). Autobrecciation indicated (bre).
Nonlenticular-phyric massive tabular basalt flows, medium-grained. Rarely sparsely plagioclase-phyric (sp). Rarely with mesoscopically visible plagioclase laths (oph).
Small plugs of picrite.
- INTRUSIVE ROCKS**
Sheeted dolerite dykes; on east coast with screens of massive, coarse-grained gabbro absent, minor (<5%) or abundant (5-30%); % proportion of gabbro screens (30g) and individual gabbro screens indicated; on west coast, gabbro screens absent; screens of pillow basalt rare.
Gabbro screens within sheeted dolerite dykes; orientation known, trace.

- Geological boundary - position approximate.
Geological boundary - position inferred.
Fault - position approximate.
Fault - inferred.
Dolerite dykes, trace or trend.
Gabbro screen.
Approximate top of escarpment.
Track.
Topographic high point.

- Bedding in sedimentary rock - right way up.
Bedding defined by orientation of massive tabular lava units.
Bedding defined by lithological layering of distinct rock units.
"Bedding" defined by plane of pronounced flattening of pillows.
Trend and plunge of flow of lava; indicated by long axes of pillows (P) or rocky lava (R).
Possible eruptive centre.
Compositional layering in picrite plug.
Strike and dip of dyke or vein.
Strike and dip of screen or screen-like tabular zone within intrusive rock.
Cleavage, fracture-cleavage or fractures - dipping.
Strong penetrative cleavage with possible grain-refinement.
Strike and dip of outcrop scale fault.
Trend and plunge of slickenside, within indicated fault plane.
Sense of movement on fault or ductile shear zone - dextral, sinistral (note for scraps on the plateau, the most recent, but not necessarily the most important, sense of movement is indicated).

Scale: 1:10 000
0 200 400 600 800 1000m

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

