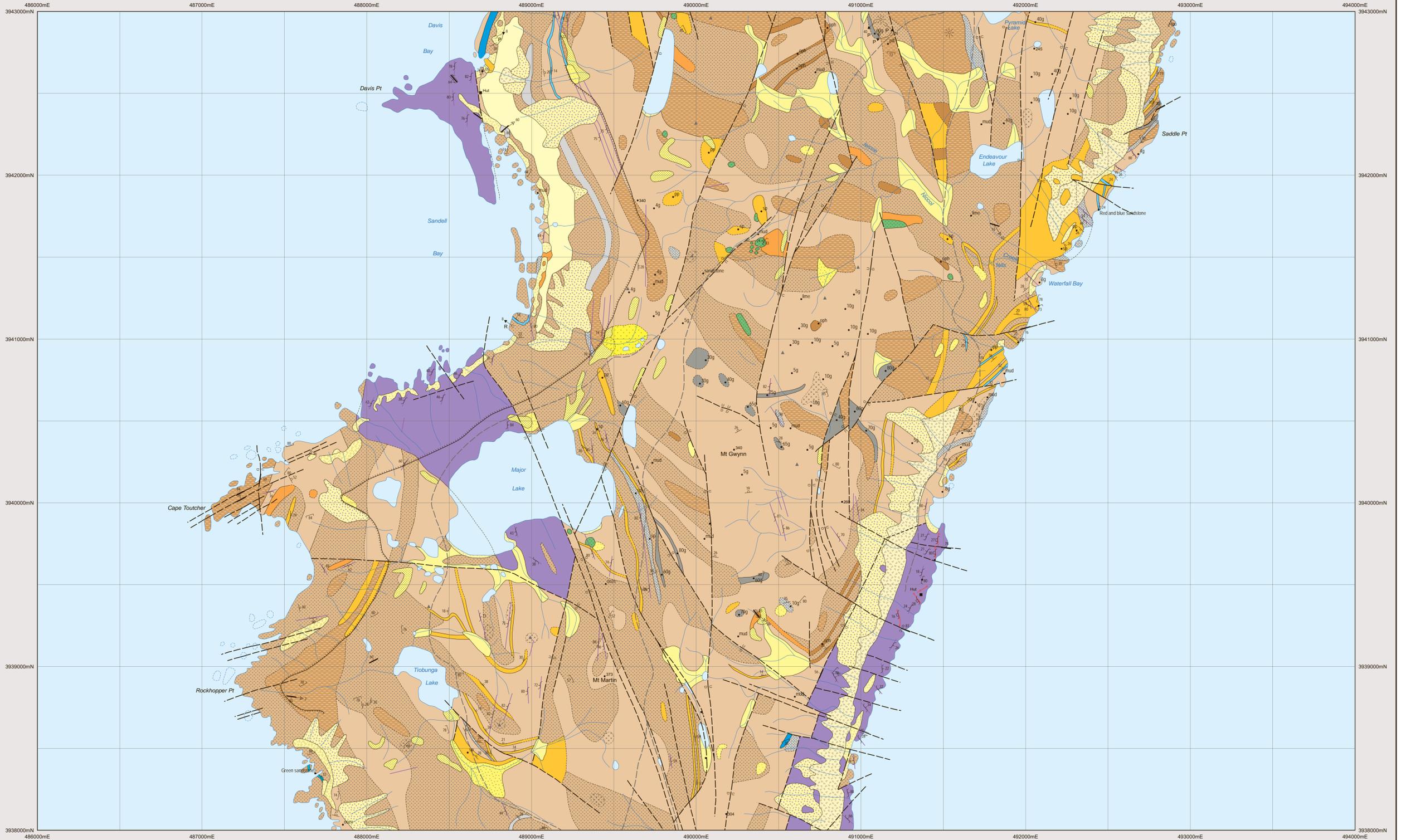


GEOLOGY OF MACQUARIE ISLAND - SHEET 5



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.

Beds mapped 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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- ALLUVIAL, LACUSTRINE AND SWAMP DEPOSITS**
- Alluvium, including deposits at the margin of lakes.
 - Colluvium of wash deposits.
 - Bogs, swamps and "featherbeds" (includes significant areas of peat without bedrock outcrop - on the north-west coast these peat deposits cover extensive beach deposits on an elevated wave-cut platform 6-8m above sea level).
 - Palaeo-lake deposits of unconsolidated mud, silt and organic material, extent inferred, usually concave 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 clay supported, consisting of sub-rounded to sub-angular cobbles to boulder-sized clasts of basalt and gabbro, in a mudstone to sandstone matrix.
 - Sedimentary rock matrix between pillows in bays or blocks in breccia indicated.
 - ooze - pale grey to green siliceous ooze.
 - lima - lime to pale grey limonite.
 - mud - red to grey mudstone.
- VOLCANIClastic ROCKS**
- Hyaloclastic breccia consisting of angular to sub-rounded blocks of usually aphyric basalt in a glass matrix. Plagioclase phenocrysts indicated (pp); % proportion of glass indicated (20g).
 - Volcaniclastic breccia, matrix-supported, with blocks of usually aphyric basalt, plagioclase phenocrysts indicated (pp).
 - Volcaniclastic breccia, clast-supported, with blocks of usually aphyric basalt; plagioclase phenocrysts indicated (pp).
 - Breccia containing isolated pillows or lenticular zones of pillows indicated (pp).

- INTRUSIVE ROCKS**
- 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.
 - Hyaloclastic (glass and basalt fragments) matrix of pillows indicated (% proportion of glass (20g)); with hyaloclastic matrix containing plagioclase phenocrysts (20g pp).
 - Disaggregated pillows indicated by overprint.
 - Tabular basalt flows, medium to fine-grained, usually aphyric; rarely sparsely plagioclase-phyric (pp) or densely plagioclase-phyric (pp). Rarely with zones of pillows (pp).
 - Tabular basalt flows, medium to coarse-grained with mesocrystically visible plagioclase laths, usually aphyric; rarely sparsely plagioclase-phyric (pp). Rarely with zones of pillows (pp). Autobrecciation indicated (bnc).
 - Hornblende-phyric massive tabular basalt flows, medium-grained. Rarely sparsely plagioclase-phyric (pp). Rarely with mesocrystically visible plagioclase laths (pp).
 - Small plugs of picrite.

- LAVAS**
- Pillow basalt, aphyric to very sparsely phytic (<5% plagioclase phenocrysts), usually amygdaloidal.

- Geological boundary - position approximate.
- Geological boundary - position inferred.
- Fault - position approximate.
- Fault - inferred.
- Dolerite dykes, race 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 rapeseed lava (R).
- Possible angular cones.
- 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 double shear zone - dextral, sinistral (note: for scarps on the plateau, the most recent, but not necessarily the most important, sense of movement is indicated).

