

NORTHEAST TASMANIA GROUNDWATER QUALITY MAP

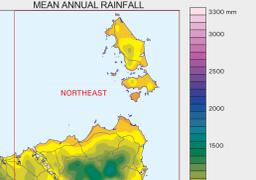
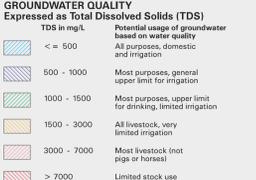
SCALE 1:250000



This map is complementary to the main 1:250 000 NE groundwater map. There is usually a degree of vertical stratification in the groundwater quality within the aquifers and results presented represent a composite value of salinity from drill holes at a particular time. Natural groundwater quality is influenced by annual rainfall and the evaporation (e.g. high rainfall, low evaporation areas tend to have better quality groundwater than low rainfall, high evaporation areas). The composition of the rock types through which the groundwater passes and is stored in and by physical properties of the rocks such as permeability and porosity. Human activities such as extensive groundwater pumping, pollution from various waste disposal activities and use of chemicals (agriculture, forestry, industry etc.) also may have negative effects on groundwater quality.

AQUIFER TYPE	PROSPECTIVITY (Index of Tasmania)	ROCK GROUPS	NUMBER OF BORES	SALINITY RANGE (mg/L)	GROUNDWATER QUALITY COMMENTS	VULNERABILITY TO POLLUTION
POREUS (INTERGRANULAR)	HIGH	Quaternary alluvial deposits marginal to the coast consisting of fine to medium grain size sand.	5	57 - 2050	Quality is often good enough for the waters to be used for a wide range of purposes.	High.
POREUS (INTERGRANULAR)	MODERATE-HIGH	Quaternary coastal plain deposits consisting of sand, clayey sand, and gravel, occurring on low lying areas near the coast. Moderate marine origin.	101	57 - 2050	Quality is variable but the groundwater can often be used for a wide range of purposes. Most analyses are towards the lower part of the salinity range (average of analyses about 600 mg/L). A small area of extreme salinity of up to 27 145 mg/L occurs at Cape Portland in a low lying area with low permeability material. A few water occurs at some locations for example Lady Searon or Hobbs Island.	Moderate to high. Depending on whether low permeability material overlies the aquifer.
POREUS (INTERGRANULAR)	LOW - MODERATE	Quaternary alluvium and mass deposits. The alluvium usually consists of clay, silt and gravel deposits with varying clay content. The mass deposits consist of sandstone and usually has a moderate to high clay content. Minor sandstone sand on sloping bedrock. Tertiary origin.	25	2150	Water quality in the coarse grained alluvial sediments is often good as the deposits are usually near to surface streams and may be directly recharged by them. The fine grained sandstone in the upper range of salinity for the coast or a Salsolite base.	Low to high. Low permeability clay layers cover aquifers (e.g. Longford area). High where gravel aquifers reach or almost reach the surface (e.g. Westport).
POREUS (INTERGRANULAR)	LOW - HIGH	Tertiary sedimentary consisting of clay, sand and gravel of non-marine origin (glaciated and unglaciated) ranging from small bedrock to several hundred metres.	452	38 - 2100	Quality is variable but the water is often suitable for a wide range of uses including domestic and irrigation. Quality is usually poor in the Tamar area and in areas where water table aquifers in low rainfall areas. In the north-west part of the study area low pH values and the water is potentially corrosive to metals.	Low to high. Low permeability clay layers cover aquifers (e.g. Longford area). High where gravel aquifers reach or almost reach the surface (e.g. Westport).
RACTURED ROCK (intergranular or some fractures)	HIGH	Tasmanian sandstone (fine and quartz), muscovite, minor coal, lamellar origin. From the Devonian, Silurian, Ordovician (late to early), minor Permian and Carboniferous. Permian is mainly of marine origin with small zones of intertidal origin.	20	250 - 4500	Quality is variable but the water is usually suitable for a wide range of uses. The higher salinity values are often present in low rainfall areas or in an aquifer with low permeability and limited recharge.	High. A thick layer of low permeability material at the surface will offer some protection and vulnerability may be reduced to low to moderate.
RACTURED ROCK (intergranular or some fractures)	MODERATE-HIGH	Ordovician to Devonian turbidite sequence of sandstone and mudstone (Muller's Supergroup).	300	44 - 2220	Salinity is commonly low which allows the water to be used for a wide range of purposes. The Muller's Supergroup rocks around Enford and some other near-coastal regions contain more saline water.	High. A thick layer of low permeability material covering the aquifer will reduce vulnerability.
RACTURED ROCK (intergranular or some fractures)	MODERATE	Ordovician, Cambrian and Precambrian (metasediments, siltstone, slate, sandstone, quartzite and conglomerate).	44	64 - 2300	Quality of groundwater is usually good and a wide range of uses is usually possible. In lower rainfall areas salinity may increase and use becomes more restricted. Occasional bore waters have low pH (i.e. acid water).	High. Only not developed on the basis of clay interbeds of Tertiary age (e.g. Westport area) would offer some protection.
RACTURED ROCK (intergranular or some fractures)	HIGH	Tertiary basalt.	507	45 - 2700	Quality of groundwater is usually good and a wide range of uses is usually possible. In lower rainfall areas salinity may increase and use becomes more restricted. Occasional bore waters have low pH (i.e. acid water).	High. Only not developed on the basis of clay interbeds of Tertiary age (e.g. Westport area) would offer some protection.
RACTURED ROCK (intergranular or some fractures)	MODERATE	Jurassic dolomite. Tertiary basalt - in Muree. Tertiary basalt - Scottsdale, Ringarooma, Tamar.	146	85 - 1470	Quality is variable but is seldom saline enough in this region to limit use markedly.	Moderate. Can be high if highly fractured zones are not covered by low permeability material.
RACTURED ROCK (intergranular or some fractures)	LOW - MODERATE	Devonian granite and porphyry. Cambrian argonite and dolomite.	80	200 - 1900	Quality is variable and sometimes the water is a little saline for many uses. Groundwater associated with the granitic rocks tends to have low pH values which could be corrosive to metals.	Low to moderate. Can be higher if localized highly fractured zones are not covered by a layer of low permeability material.

1 Statistics provided in the legend are based on data recorded in the MRF groundwater database (BORIS) by February 2003. Boreholes shown in the map are those locations mainly supplied by bores and formation data in the field by MRF staff.
 2 * There are many boreholes installed for investigation and production purposes in coastal deposits in Tasmania. Salinity ranges for some of the Quaternary aquifers have been obtained from these boreholes records and included in the legend (marked with a star).
 3 Small diameter boreholes of any depth and any salinity have been included because of their range and high density.
 4 In areas where there is little or no coastal bore data, the groundwater quality has been assumed to be similar to that in areas where data are widely available.
 5 The northeast part of Tasmania covered by this map includes some areas that have low rainfall/high evaporation rates. As a result it contains portions of the table that are subject to salt salinity problems. Low rainfall/high evaporation is also probably the cause of the relatively poor quality groundwater at some locations in the region.



The data for this map were derived from the Tasmanian Geological Atlas 1:250,000 digital series and Mineral Resources Tasmania Groundwater data base (BORIS) and are based upon the potential for groundwater within broad rock groups.

Other groundwater and hydrogeology maps and reports are available from Mineral Resources Tasmania. Borehole data is available from the Mineral Resources Tasmania website - www.mrt.tas.gov.au

This map is not the result of a concise survey therefore groundwater potential and salinity areas are indicative only. This map does not remove the need for site specific investigations.

Groundwater potential data compiled by: M.L. Matthews BSc and M.L. Matthews BSc(Hons)

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 Base data from the LIST - State of Tasmania

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