

LAKE REREWHATAITU

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This lake, which is undergoing enrichment (eutrophication), has been selected for treatment in an effort to see whether the eutrophication process can be arrested or even reversed. This is to be achieved by control of the watershed and control of the immediate lake shore.

In order to have a base line to which future changes could be related a survey was made of the beach and submerged vegetation early this year. The submerged vegetation did not yield any very new feature, essentially consisting of a characean meadow and plants of Potamogeton ochreatus. The principal components of the characean meadow were Chara fibrosa in shallower waters and Chara australis with Nitella hookeri in deeper waters.

The most interesting results came from the beach vegetation of aquatics which were still surviving after a substantial drop in water level. Under these conditions the plants become dwarfed and identification can be very difficult. Much of the beach appeared very brown to the eye and this was caused by the dried remains of an algal deposit. Most of the submerged plants were covered by this algal growth, which had also been washed up on to the shore. Growth of such algae is symptomatic of eutrophication. The principal species involved were Tolypothrix penicillata and Lyngbya martensiana.

The uppermost zone of exposed vegetation consisted usually of very small Tillaea sinclairii with tiny white flowers and the little dwarf Eleocharis pusilla. In other places there was a very dwarfed form of what has tentatively been identified as Myriophyllum pedunculatum with entire leaves. Plants of this species grow progressively larger the nearer one approached the lake level, and the largest formed a zone in the shallow lake edge down to a depth of about one foot. Near the existing water level the Myriophyllum was associated with clumps of Lilaeopsis lacustris and Eleocharis gracilis. Both species continued into the shallow water zone where they could have mixed with them mats of Glossostigma submersum with its narrow leaves, and Elatine gratioloides. Plants of Myriophyllum propinquum were scattered around and descended into the characean meadow.

Another extreme form of aquatic plant reduction was observed in a small lagoon where Potamogeton cheesemanii had adopted a prostrate habit and the leaves were reduced to 1 cm or less in length. The plants otherwise appeared quite healthy.