

WARNING: THE SWAN COASTAL PLAIN— A POSSIBLE DESERT

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The growth of a city is naturally accompanied by increasing demands on natural resources required by the population such as land, water, timber, stone and clay etc. The provision of these resources also often becomes more expensive as supplies dwindle or have to be brought from more distant areas. Often these costs may include damage to or loss of significant, interesting and beautiful parts of our environment. This is well illustrated by the problems of supplying water to the rapidly increasing population of Perth.

In 1972 the demand for water in the Perth area was 223 million cubic metres and this is expected to increase to 729 million cubic metres by the year 2000. Demand for water in the past has been met by damming rivers within the Darling Plateau but these can no longer supply current demands and extraction of groundwater from shallow aquifers is now occurring in the Wanneroo and Jandakot areas of Perth. It is anticipated that, if Perth's population continues to grow at its present rate, this source will not be sufficient to meet demand by 1990 and then rivers running to the south coast such as the Warren will have to be dammed and pipelines laid to Perth. Many of these rivers are our finest beauty spots and offer tremendous tourist and recreational potential.

Damming

The damming of a river drastically alters its ecology. Reservoirs are typically large, deep bodies of water similar to true lakes and similarly are of low productivity. Moreover although the area of land drowned by a dam is relatively small, the impact is serious because of its selective nature which affects vegetative types largely restricted to valleys. The effects on fauna are probably a reduction of habitat for birds, particularly passerines that prefer dense vegetation (these include the rare Red-eared Firetail Finch), but possibly an extension of habitat for the marron, catfish, oblong turtle and the introduced trout. Effects on recreation are also considerable as most activities are prohibited in catchment areas.

Underground Supplies

The effect of extraction of water from the borefields north and south of Perth may well be a general lowering of the water table by 5 metres or more near each bore decreasing to 2 metres at 2 kilometres distance. The number of proposed bores means that a vast area of land will be affected from south of Wanneroo to the Moore River in the north.

As the lakes adjacent to the borefields are simply expressions of the water table the effects of extraction on lake levels and vegetation may be considerable. At its worst a number of lakes in the Wanneroo area may dry up and their vegetation may die. Moreover, all vegetation overlying the borefields may be seriously affected by the reduction in the availability of water. **Many trees near to operating bores are already dying in the Gnangara area.**

The effect on fauna is likely to be more rapid and drastic as the lakes likely to be affected are permanent freshwater areas which are few on the Swan Coastal Plain and thus are critical summer drought refuges for waterfowl. Two of these lakes, Jandabup and Nowergup, are fauna reserves and it has been predicted that the former may in the future be dry for eleven months of the year.

It has been suggested that lake levels could be maintained by pumping some of the extracted groundwater back into them but the costs of such schemes have not been estimated and at present no guarantees that they will be installed have been given. Moreover, it is not known whether the groundwater will fulfil the same ecological role as the present water within the lakes and whether it will maintain the same levels of productivity. There is little information available on the flora and fauna of the area and their requirements on which management plans may be based but the Department of Fisheries and Wildlife, the Department of Conservation and Environment and the Metropolitan Water Supply, are now co-operatively planning for ecological studies and fauna surveys to be undertaken.

A possible solution to the problem is offered through an analysis of the uses of water in the Perth area.

Perth has the highest per capita consumption of water of any Australian capital city and a great deal of this is wasted principally by inefficient watering of gardens. Significant reductions in water demand are possible if householders were to use efficient sprinklers for minimum periods of time and during the night time when evaporation is low rather than during the day.

Native plants also require far less water than lawns and exotics and their planting could be encouraged.

Further gains could be made if rainwater tanks were generally installed to utilise the catchment provided by every roof and even by home owners fixing all leaking taps.

These changes could be brought about by publicity campaigns emphasising the problems and solutions and by pricing policies more in line with the supply of a scarce resource which water is in Western Australia. Both of these methods are environmentally long overdue.

If Perth's population were to become more environmentally conscious in its use of natural resources many of the problems illustrated above by the example of water would not arise. However, in time this alone will not be sufficient if the city's population growth continues unchecked; the undesirable consequences will only be postponed.

Those consequences are unacceptable and it is high time to seriously apply ourselves as a community to this the most fundamental of the world's problems, overpopulation.

Hydrological Contours of the Gnarigara Mound

Scale 1:200 000

Water level contours in metres

