Water

In respect to Alcoa's Proposed mining expansion

Alcoa uses about 2 gigalitres (GL)=2 billion litres **for every 1 million tonnes of ore they refine. For every 1 tonne of ore refined** 2 ,000 litres of water is needed. The water is used to make a highly caustic slurry from which the alumina is extracted.

OUR CONCERNS

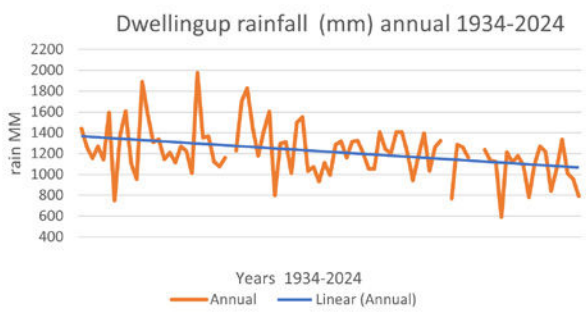
1. **Alcoa's water use**

    1. **Alcoa uses** around **45- 50 GL (45- 50 billion litres) per year** for the **mine sites and for the refinery** (about the same volume of the Serpentine Dam). Alcoa takes surface water from Oakley Dam and South Dandalup Dam (with a capacity of 70 billion litres) and from the underground Cattamurra Aquifer through their bores. The Alcoa **refinery is licensed to take 10.9GL / 10.9 billion litres of water a year.**
    2. Alcoa's mining surrounds the South Dandalup. With the proposed expansion, **40% of the length of the South Dandalup river will be mined.**
    3. **South Dandalup Dam catchment area is a drinking water source for Perth's water supply.** The priority 1 protected catchment area will be hugely affected by clearing in the catchment area.

2. **Spills and Leaks**

    1. Spills and or leaks from storage and handling of hazardous materials such as PFAS, diesel and waste have occurred. Alcoa acknowledges that there has been PFAS contamination at Wagerup. Alcoa says they have reduced "Drainage events" by 80% between March 2022-2023. They do not tell us how many events have occurred or when they happened. Spills can result in irreversible impacts to flora, fauna and their habitat.
    2. Oil leaks do not need to be reported to the Department if they are Low volume and within Drinking Water Catchments such as the South Dandalup Dam.

Dwellingup Rainfall (mm) 1934 – 2024



3. Water flow

1. Since 1975 rainfall has decreased by 20% in the South West including Dwellingup and streamflow is only 20 % of what it was in 1975. Lots of small creeks such as Davis Brook no longer flow except after heavy downpours. The graph above shows the overall declining trend in rainfall from 1934 to 2024.
2. Increased use by Alcoa of environmental water and decreased rainfall has affected both groundwater and streamflow. (Evidence from 3 water monitors at Pindalup and Yarragil Brook.)
3. **Water in the bauxite layer is needed for Jarrah trees to grow well.** The deep roots of the Jarrah trees need the water stored in the bauxite. Jarrah is a slow growing tree after the first few years. The bauxite layer is the sponge that enable the trees to grow and reach full maturity.
4. Less streamflow affects the vegetation around streams and changes habitat for animals that rely on it.
5. Impact on the 3 Rivers (Murray, Serpentine and Harvey) that feed into the Peel Harvey Estuary. **The Murray river is now salty for much of the year** from the Pinjarra Weir to the Estuary.

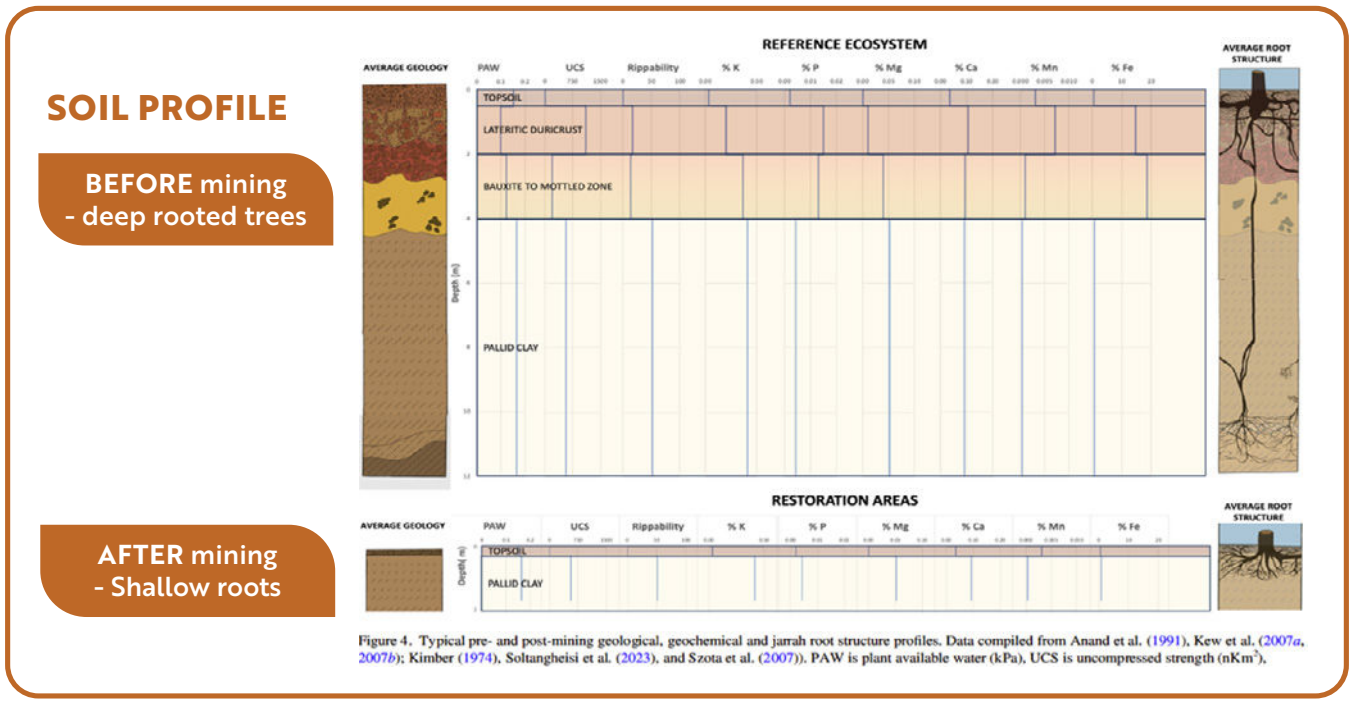


Figure 4. Typical pre- and post-mining geological, geochemical and jarrah root structure profiles. Data compiled from Anand et al. (1991), Kew et al. (2007*a*, 2007*b*); Kimber (1974), Soltangheisi et al. (2023), and Szota et al. (2007)). PAW is plant available water (kPa), UCS is uncompressed strength (nKm^2),

For these reasons the DDFD believes that Alcoa's mining proposal for expansion of mine sites (Holyoake, Myara and O'Neil) and Pinjarra refinery should be rejected by the EPA.

Have your say by signing on to WA Forest Alliance's submission with a quick and simple form or find out more about writing your own at endforestmining.org.au/alcoa. The comment period is now open and closes on 21 August 2025.