

**Student 1:                    Effects of water quality on users.**

People need water to survive. Approximately 50% of New Zealand's population relies on ground water as a source of drinking water. Therefore the concern for water quality affects every single one of us. Water has many uses to human activities; personal consumption, production of produce, industrial use, hygiene, spiritual use and not to mention recreational use particularly in the summer. However, pollution and degradation of water quality is affecting users and its use. **Polluted water poses many health risks and any exposure to this can result in sickness / ill health. Polluted water by effluent whether human or animal (dairy cows) results in the release and multiplying of bacteria** (2). Bacteria such as E. coli are detrimental to people's health and can hospitalise people. If the water is polluted by this bacteria would you be happy to catch and eat fish in this environment. **Also with the high concentrations of nitrogen from effluent or fertiliser application health concerns for people, animals and aquatic life are at risk** (2). **Cows return a lot of organic matter through effluent which encourage worms and dairy pastures are long lasting, frequently limed which in term assists useful soil bacteria** (1). However, too much effluent, can prevent recreational activities from happening. **The resulting explosion from Eutrophication** (2) is disrupting recreational activities such as water skiing, fishing, and general summer swimming. Property owners, recreational and other users of the Rotorua Lakes are to be affected by the use of the herbicide diquat which will be used to control lake weed. Users are not to take drinking or irrigation water from the lakes until 24 hours after treatment<sup>8</sup>. The weeds make water activities difficult and often requires the cleaning of all gear in contact with the water to avoid the passing onto other lakes. Also swimmers come out of algae infested lakes smelling and requiring showers. The high levels of nitrogen is health risks to other users. Nine cattle died after drinking water from Lake Rotongaro. Also the health risks are similar to humans. Blue baby syndrome occurs to high N levels in drinking water. Levels exceeding 11.3mg/l is considered too high in NZ and poses serious risks to babies in the womb and infants under 6 months of age. Blue baby syndrome causes the infants to appear blue around the mouth and extremities and can result in difficulty breathing and possible death.

**Conclusion:** The primary production sector contributes significantly to New Zealand's economy. Over 40% of New Zealand's overseas income is sourced from agricultural and horticultural products (excludes forestry)<sup>1</sup>. New Zealand has created a "100% Pure" image overseas, which is relied on hugely by exporters to sell their products; and it is working. But when we face the facts our waterways are far from clean. 57% of our waterways are considered clean enough to swim in for most of the year<sup>6</sup>. This is a worrying concern for the public and a lot off their blame is put on farmers in particular "dirty dairying". This is because of their extensive nitrogen use and effluent disposal. For NZ to tidy up its act and truly have a 100% pure image the waterways need to be cleaned up. Local councils and industries are setting standards for management practices to limit the loss of nitrogen into waterways and therefore revert the waterways back to their natural healthy state and be home to many native species and enjoyable and safe environments for people to interact in.