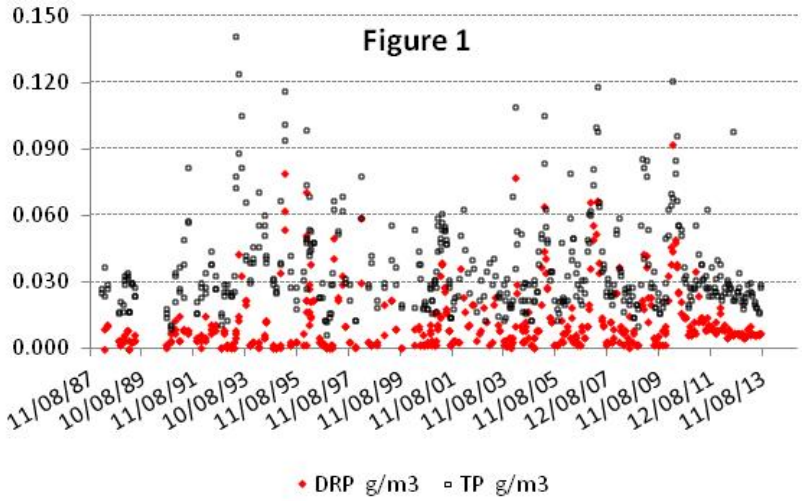
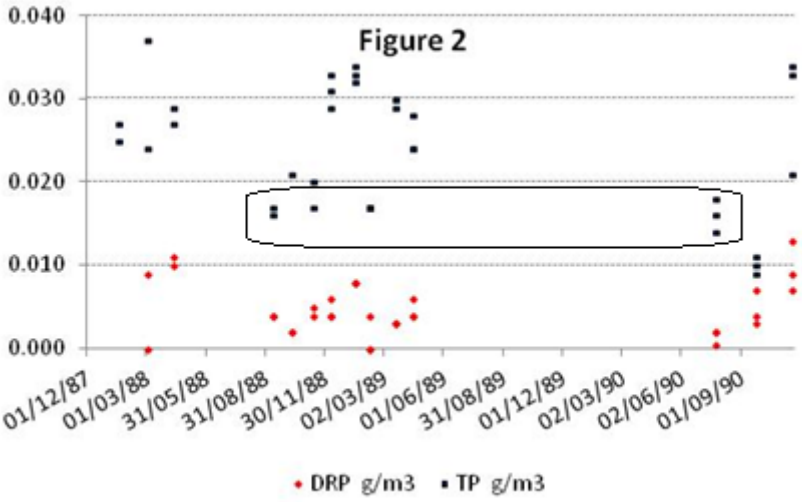
An Alum Trigger for Lake Rotoehu

A small amount of lake sampling was carried out on Lake Rotoehu prior to the severe algal blooms of 1993, which marked the beginning of a period where the trophic state of Rotoehu became eutrophic. Figure 1 shows the BOP Regional Council phosphorus monitoring data for Lake Rotoehu.



Before the 1993 blooms the lowest range of total phosphorus concentrations in Lake Rotoehu, where the dissolved reactive phosphorus concentration is close to the level of detection (Figure 2), were 0.014 – 0.017 g/m^3.



Recent data indicates that phosphorus concentration in Lake Rotoehu is decreasing as a result of a number of remediation actions such as; weed harvesting, riparian retirement, land use management change, land use change and alum dosing. Figure 3 shows total phosphorus recently measured below 0.017 g/m^3.

It is proposed that alum dosing be managed to control total phosphorus within a range of 0.014 – 0.017 g/m^3 as shown in Figures 4 & 5. Continue dosing alum, as supplied by Orica, at 20 L/hr, reducing by 5 L/hr when the average TP drops below the lower control of 0.014 g/m^3, and by another 5 L/hr when the 2 monthly average drops below lower control and a

further 5 L/hr if the 3 monthly average drops below the lower control. Increase the dose by 5 L/hr as each statistic exceeds the upper control.