



Aratu Forests Ltd Monitoring Summary 2021





Monitoring Programmes

Aratu Forests Ltd (AFL) have a range of monitoring processes that are undertaken at various stages of the radiata pine growth cycle including but not limited to environmental, health and safety and operational monitoring. This report provides a summary of active AFL monitoring programmes throughout the estate.

Native Flora and Fauna Monitoring

Long-term monitoring of high-value conservation areas (PMAs) in AFLs estate occurs on an annual basis. Plant and animal pest control is undertaken when and where required following these surveys, or when necessary.

Rare, Threatened and Endangered species (RTE's): The AFL estate is home to New Zealand Falcon, Long-tailed bats, and rare plant species including Hebe Tairawhiti and kakabeak. A management plan, including pest control and ongoing monitoring, has been put in place for long-tailed bats in one of AFLs Forest, while NZ falcon are monitored on an annual basis during their breeding season.

Weather Data

This data collected from eleven sites, with one station destroyed by cattle during the Covid-19 lockdown period, this weather station was at Waipare quarry but has been moved to Laverda Dam in Te Marunga for its own safety and ensuring rain and weather data continues to be collected unabated.

During Covid-19 Lockdown many stations continued to collect data with some flattening batteries before we could return for data collection. How-ever all data possible has been captured with the odd station still collecting until 3-4 days before Data could be collected again in June.

A typical example of data that is collected includes hourly temperature, Humidity, Dew Point, Wind Direction, Wind Speed, Wind Chill, Rain volume and Rate, Air Pressure, Air density, an example of the type of data gathered is in the graph below.

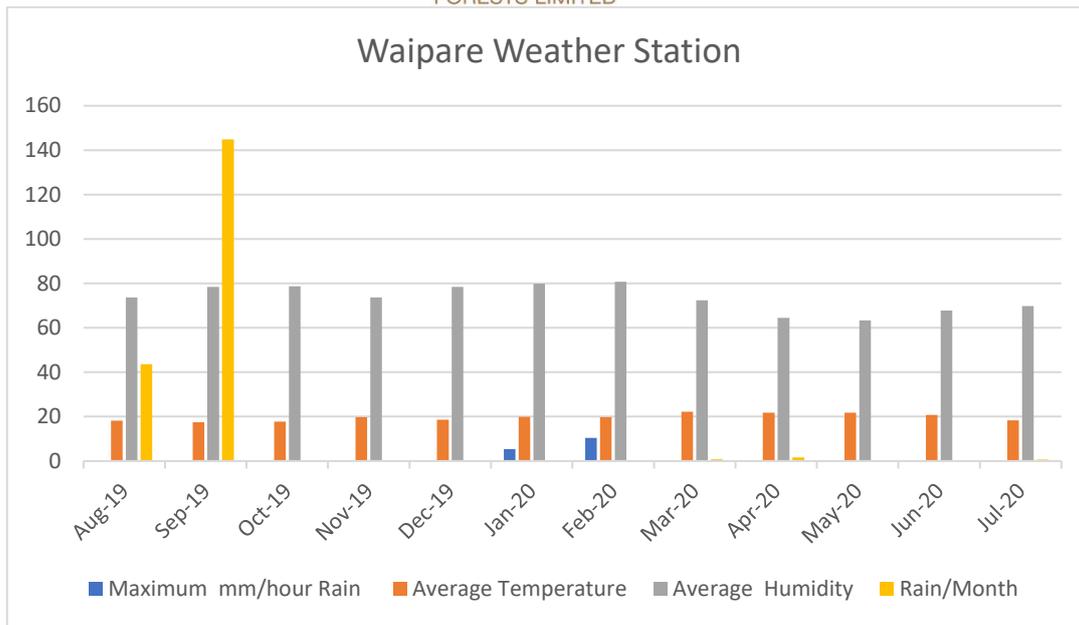


Figure 1 Weather station data Waipare

Water Monitoring

Aratu Forests continues to Monitor stream turbidity throughout the estate at eleven locations

The data collected is in the form of water samples that are analysed for sediment load. Sediment load is related to rainfall and exposure of soils to this rainfall.

Over the past year continued capture of this data was completed by Forestech Ltd.

The data was analysed in house using a calibrated Hach Turbidity meter.

Updates of the calibration are performed as and when required and validated monthly before the samples are analysed.

During Covid-19 lock down there was a period where no samples could be collected for analysis, as such there is a gap in our data, however it goes back to collection since 2005 in some sites.

AFL occasionally engages a Freshwater Ecologist and/or professional laboratory testing of water samples in several of our forests across the estate. Some water monitoring traits include:

- Macroinvertebrate Index
- Conductivity
- Turbidity
- Nitrate-N
- Nitrite-N
- Phosphate
- Dissolved Reactive Phosphorous

Laboratory testing allows further testing of water aggregate properties and nutrients that are not as easy to identify and interpret with more simplified water monitoring techniques. The most recent laboratory testing was done in March 2021 (Figure 3).

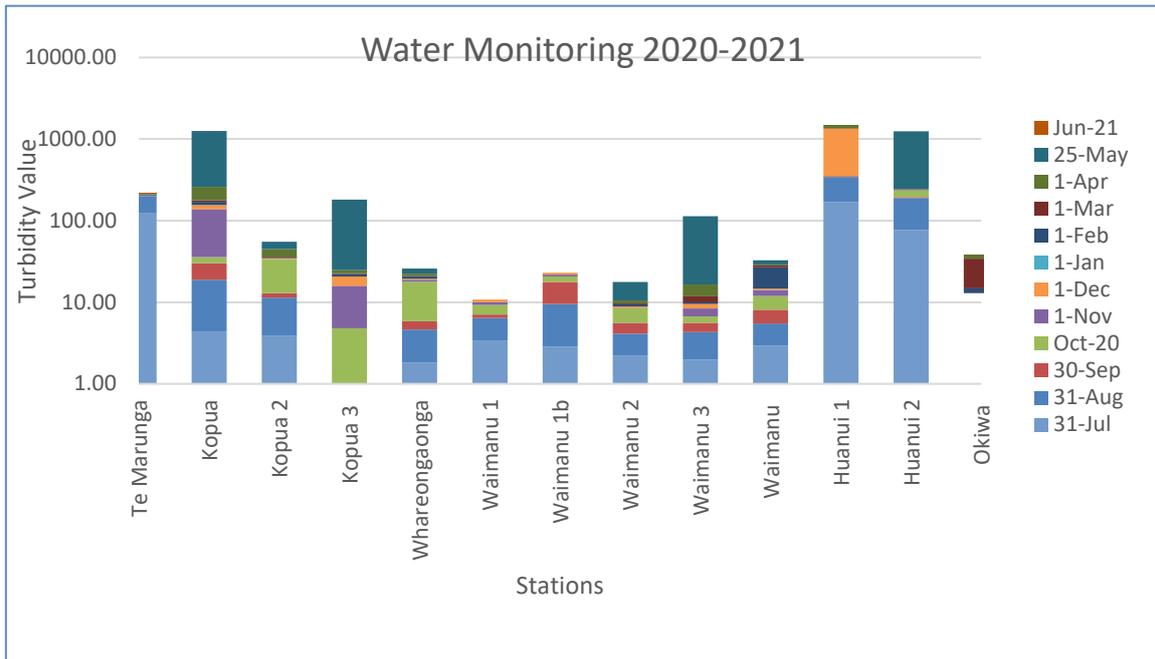


Figure 2 AFL water monitoring June 2021 - July 2021

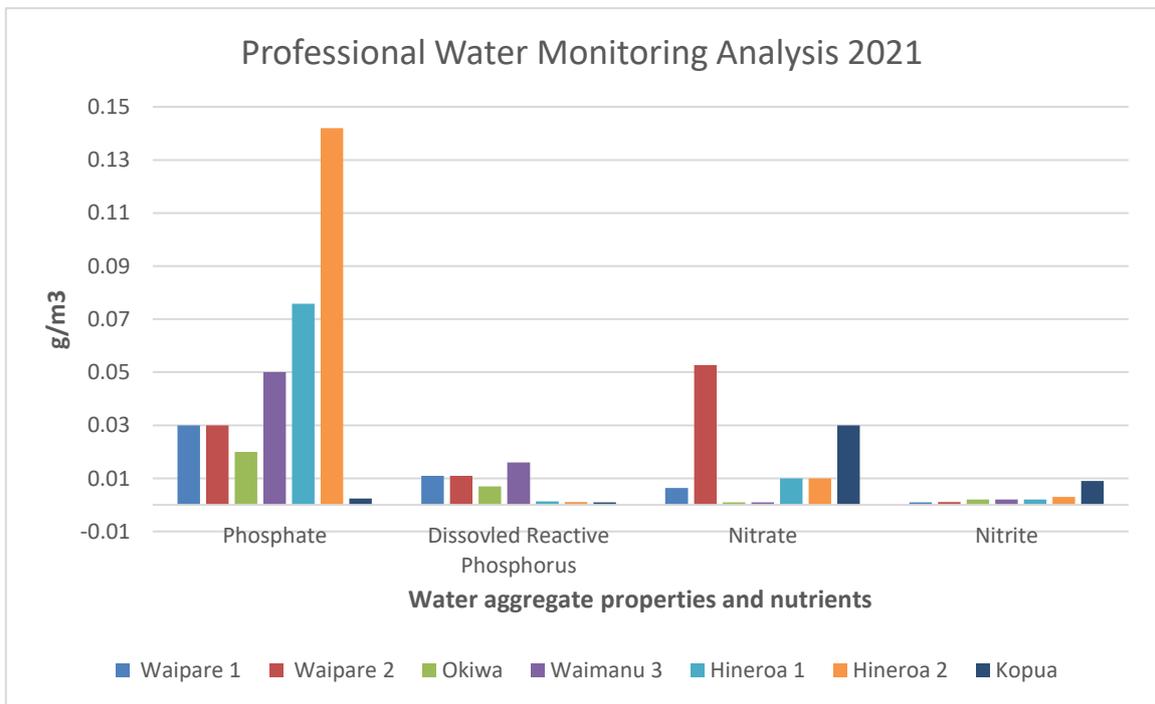


Figure 3 Professional laboratory analysis at 7 locations in the AFL estate

Health and Safety

AFL uses the IRIS (Incident Recording Information System) through FOA (Forest Owners Association) to record all accident and incident data in a central system, which includes.

- Hours Worked and hours lost due to injuries
- Near Hits (Commonly referred to as “Near Miss”)
- Minor injuries (Also referred to as first aid injuries)
- Medical Treatment Injuries
- Lost Time Injuries

The system is used to monitor improvements in our Health and Safety performance, we also use this to benchmark ourselves to industry standards. This system helps us to monitor and review and align and goal of “Zero Harm”. At AFL we believe that all accidents are preventable.

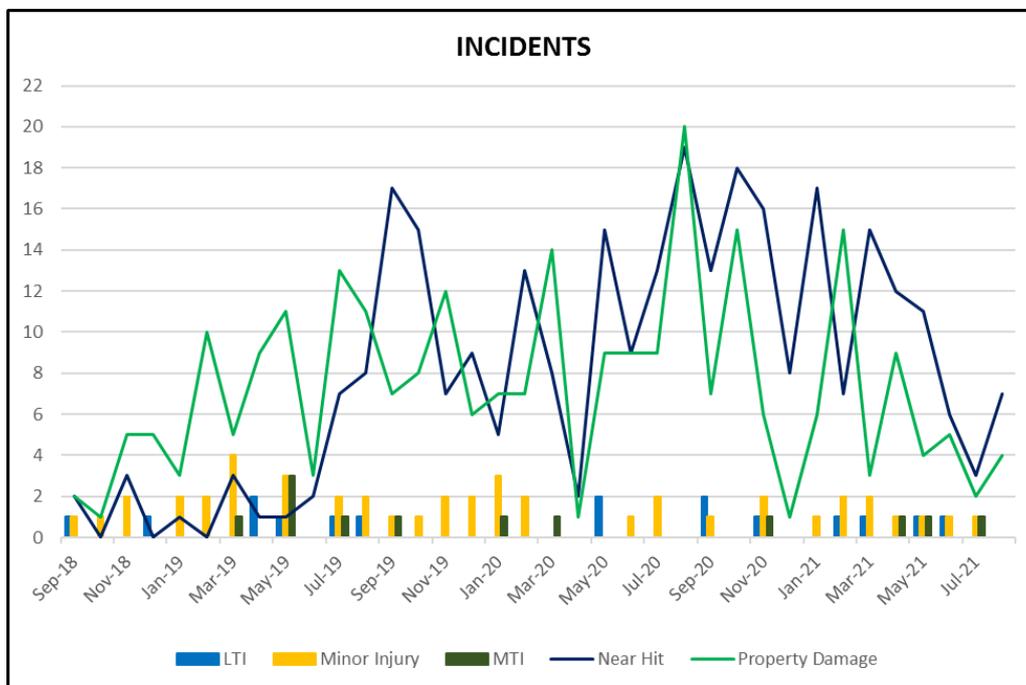


Figure 4: Health and safety statistics – AFL 2020-2021.

Figure 3 shows AFL’s health and safety rolling frequency rates for all incidents and injuries for the period Sep 18 to July 2021.

The business is recording relatively low numbers of incidents with most reporting in the Near hit and Property damage categories. Any incident however does impact the statistics significantly given the relatively small scale of the operations and labour hours per year.

Forest Health Monitoring

Forest health monitoring is carried out annually by external contractors, SPS Biosecurity Ltd. Last forest health surveillance was done in October 2020. AFL staff also carry out fine-level forest health assessments during the year.

AFL conducts annual foliage sampling. Foliage samples have picked up some areas with marginal nutrient deficiency that we are continuing to monitor closely. Sampling will be undertaken on 50 sites of the forest estates, management by AFL. If marginal or deficient nutrient levels are detected, then further investigation into fertiliser applications will continue. AFL continuously monitors nutrient levels in a sample of stands aged four years and above, to determine any severe deficiencies before they have a detrimental effect on annual growth rates.



Monitoring of Red Needle Cast and Dothistroma Needle Blight is also carried out on a regular basis by AFL staff members. Six stands in Huanui and Te Marunga were identified as having minor Dothistroma and had been treated in November 2019. Such work will continue, as necessary.

High Conservation Value – Cultural Sites

Aratu have over 80 confirmed historic sites primarily made up of pits, terraces and pa sites. Cultural sites are also classified as High Conservation Value. Any operations involving site disturbances in or around a historic site is only done in consultation with both the local Iwi and the Heritage New Zealand Pouhere Taonga, and an approval must be granted from the HNZPT. On occasion a site is blessed prior to any operations within the area, or an Iwi representative visits the site post-harvest.



Once operations have finished, the site is given a buffer and cordoned off to prevent future damage to the site. Sites are monitored for weeds such as wildling pines. Some Iwi have opted to contribute towards management of Historic sites into the future. The harvesting department are currently consulting with stakeholders regarding harvest activities near historic sites south of Gisborne. Following consultation, site-specific felling plans will be developed, agreed on and signed off by AFL and the contractor prior to work commencing. Tree jacks, as can be seen in the photo, will be used to directionally fell leaning trees away from the historic sites, to further reduce the risk of damage.