Key messages

- Groundwater quality is variable
- Vulnerable to bacteria impacts
- Some wells with elevated nitrate
- Note upward nitrate trends in the Culverden Basin (Amuri Plains)
- Useful to compare to data from other organisations
Groundwater uses in the catchment

Primary use is irrigation and drinking water supply

Long-term groundwater quality monitoring wells

- Good spatial coverage
- Variable length records (<3 to >20 years)
Positive E. coli detections

Groundwater is vulnerable to bacteria impacts

Maximum Nitrate-Nitrogen concentrations

- Generally, maximum nitrate concentrations are lower than NZ drinking-water standards
- A few wells have sufficient long-term records to determine trends

- Amuri Plains – upwards nitrate trends in groundwater in >50% of sites
- Balmoral forest wells don’t have long enough record to see trends

Amuri Plains well (N33/0212 – 5 m deep)

- MAV (11.3 mg/l)
- Increasing nitrate trend, possibly landuse intensification
Amuri Plains well (N33/0219 – 18 m deep)

Increasing nitrate trend since 2007, possibly landuse intensification

 MAV (11.3 mg/l)

Amuri Plains well (N33/0194 – 18 m deep)

Increasing nitrate trend since 2008, possibly landuse intensification

 MAV (11.3 mg/l)
Amuri Plains well (N33/0206 – 9 m deep)

Decreasing nitrate trend (2006-2016), Increasing trend (2012-2015) possibly landuse intensification

MAV (11.3 mg/l)

Phosphorus concentrations (2016)

Generally low, elevated concentrations possibly related to landuse

Dissolved Reactive Phosphorus
2016 DRP concentration (mg/l)

- <0.009
- 0.009 - 0.020
- 0.027 - 0.050
- 0.051 - 1.00

Groundwater allocation zones
Community drinking water supplies – protozoa test results

- Protozoa (giardia and cryptosporidium) are not removed by most drinking water treatments (such as MIOX).
- Tests for protozoa are done regularly for HDC on:
  - Amuri community drinking water scheme (Well 6.7m deep connected to Waiau River);
  - Cheviot community drinking water scheme (Well 13m deep connected to Waiau River).
- No protozoa have been detected.
Key messages - recap

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Questions