

<b>STILL CREEK CATCHMENT LANDCARE WATER TEST RESULTS 2009/2023 CONCLUSIONS</b>	
<b>General conclusions</b>	
Water tests have shown that the catchment is in good condition and that general water quality has been maintained over the last 15 years	
On exit from the catchment into Berowra Creek at Crosslands most results are good with the areas of bush and the dilution effect improving the water as it flows through the catchment	
Further upstream in the catchment, closer to residences, results are not as good, but are not a major problem	
Charltons Creek, high in the catchment, tends to be high in phosphorous, with quite notable surges after heavy rain	
Still Creek in mid-catchment at Mansfield Road is high in salts, as measured by electrical conductivity tests and shows a large variation, with a long flat tail	
E. coli incidence is low but has increased 7 times over the last 5 years, this is unexplained	
Waterbug (Macroinvertebrates) observations have found Mayflies, Caddisflies at sometimes Stoneflies at both Charltons Ck and Still Ck Crosslands	
Reduced rate of testing occurred in 2023 due to the continued absence of the database and reduced volunteers. The data is now in the Atlas of Living Australia	
<b>Conclusions about compliance with ANZECC water quality guidelines: % within guidelines</b>	
<b>Available</b>	Fairly good on exit from the catchment at 89%
<b>Phosphate</b>	80% of mid-catchment tests were within guidelines, similar over the years
<b>Salts: Electrical Conductivity</b>	Only 33% on exit from the catchment likely due to the geology rather than human disturbance of the soil and not regarded as indicating a problem Only 10% of mid-catchment results were within guidelines due to geology rather than human disturbance of the soil and not regarded as indicating a problem
<b>Dissolved oxygen</b>	Good results with 97% within guidelines on catchment exit, 90% upstream
<b>E. coli</b>	Previously good with over 95% within guidelines, but in last 4 years the incidence is 7 times the previous rate
<b>Turbidity</b>	Very good: almost 100% within guidelines
<b>pH</b>	Very good: 100% within guidelines
<b>Conclusions from statistical analysis, time series and specific studies</b>	
<b>Available Phosphate</b>	Negative impact sources: nutrients via run off from fertilisers, livestock/animal wastes, septic treatment of waste water Test results vary greatly, the testing method for values of 0.06 and below are inaccurate which is still a good result Result means have not varied significantly during the last 15 years, slightly up for some sites Catchment exit is 0.6 of the mid catchment Phosphate readings due to dilution plus biological clean-up within the 50% of catchment not populated Some increase in higher results has been noted in recent years at catchment exit The significant effect of rain within 24 hours, compared with nil for 7 days varies from 1.4 times at catchment exit and 2 or 3 times higher in the catchment For rain within 24 hours, heavy rain compared with light rain results in 3 times higher Phos at catchment exit and mid catchment and even higher at Charltons Ck High flows result in 3, 4 and 8 times increased Phosphates at the catchment exit, Mansfield and Charltons, compared with low flows
<b>Salts (Electrical Conductivity)</b>	Negative impact sources: human activity involving waste water, and run off Still Ck at Mansfield Rd is consistently 50% above the other two sites, presumed due to local geology Slight decreases have occurred at catchment exit and Still Mansfield, apart from a surge in mid 20 in the her catchment The effect of rain within 24 hours, compared with nil for 7 days is 10% less at catchment exit and Charltons and 20% less at Still Mansfield For rain within 24 hours, heavy rain compared with light rain results in 50% to 70% lower readings throughout the catchment Charltons Ck without flow is 5 times normal due to build up in waterholes without flushing from 2012 studies High flows result in 30% decreased salts at the three sites, compared with low flows Charltons Ck without flow is 1.7 x normal due to build up in waterholes without flushing from 2012 studies Water treatment (3 stage for grey and black household effluent) is 2.2 times mid-catchment test results in a 2012 study
<b>Dissolved Oxygen</b>	Higher DO results in increased ability to sustain aquatic life: aim of minimum of 6.0 Results are fairly consistent with the standard deviation being about 23% of the means for all three sites All three sites showed an increase over the 15 years from about 8 to 10, effect is unexplained and results have recently returned to more typical levels As results above 10 are unlikely with this test, results from December 2021 have mainly been capped at 10.5 Charltons Ck without flow is 60% of normal dissolved Oxygen due to reduced oxygenating movement in waterholes A brief diurnal trial on a flowing creek showed no significant variation during the day (single day trial of 3 readings)
<b>E.coli</b>	Sources: livestock and other animal faeces, septic treatment failures or poor maintenance Overall not often at very bad levels but has deteriorated in last 5 years at >99% confidence level, now 2.8 incidents per site-year, previously 0.28 High flows result in increased E. coli detection, 20%, compared with 5% for medium and low flows Testing for coliforms commenced in 2022
<b>Turbidity</b>	Sources: sediment from erosion, loss of topsoil and building sites: good and unchanged over the 15 years
<b>pH</b>	Acidity and alkalinity from human activities: good and unchanged over the 15 years
<b>Waterbugs</b>	Macroinvertebrate presence is an indicator of good conditions for life, in particular Stoneflies present in 50% of checks at Charltons Ck and 33% at catchment exit Stoneflies present in 50% of checks at Charltons Ck and 33% at catchment exit in the last 8 years Mayflies and Caddisflies are at a high level indicators and were present 100% and 100% at Charltons Ck and 85% and 100% at catchment exit, last 8 years