

STILL CREEK CATCHMENT LANDCARE WATER TEST RESULTS 2009/2025 CONCLUSIONS

General conclusions

Water tests have shown that the catchment is in good condition and that general water quality has been maintained over the last 17 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 with 1 per year from 2009 to 2018, increasing to 7 for 2019 to 2022, then decreasing to 4 per year for 2023 to 2025. 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 reduced volunteer resources. All data is now in the Atlas of Living Australia.

Conclusions about compliance with ANZECC water quality guidelines: % within guidelines

Available Phosphate	Fairly good on exit from the catchment at 89% 80% of mid-catchment tests were within guidelines, similar over the years
Salts: Electrical Conductivity	Only 34% 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
Dissolved oxygen	Good results with 96% within guidelines on catchment exit, 90% upstream
E. coli	Good with 98% and 91% within guidelines for catchment exit and upstream respectively, but recently there has been a deterioration at Charltons Ck
Turbidity	Very good: almost 100% within guidelines
pH	Very good: 100% within guidelines

Conclusions from statistical analysis, time series and specific studies

Available Phosphate	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 17 years, with more variation higher in the catchment Catchment exit is 0.6 or 0.7 of the higher catchment Phosphate readings due to dilution plus biological clean-up within the 50% of catchment not populated The significant effect of rain within 24 hours, compared with nil for 7 days varies from 1.5 times at catchment exit and 2 or 8 times in the upper 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 over 3 times increased Phosphates at the catchment exit and Mansfield with 9 times at the upper Charltons, compared with low flows
Salts (Electrical)	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
Conductivity	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 60% to 70% lower readings throughout the catchment Charltons Ck without flow is 5 times normal due to build up in waterholes without flushing from a previous study 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 a previous study Domestic Envirocycle water treatment (3 stage for grey and black household effluent) is 2.2 times mid-catchment test results in a previous study
Dissolved Oxygen	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 There was an unexplained increase at catchment exit from about 8 to 10 and recent results have 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, this relevant to the comment above 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)
E.coli	Sources: livestock and other animal faeces, septic treatment failures or poor maintenance Incidence is low with 1 per year from 2009 to 2018, increasing to 7 for 2019 to 2022, then decreasing to 4 per year for 2023 to 2025 High flows result in increased E. coli detection of 24%, compared with 8% for medium and low flows Testing for general coliforms commenced in 2022
Turbidity	Sources: sediment from erosion, loss of topsoil and building sites: good and unchanged over the 17 years
pH	Acidity and alkalinity from human activities: good and unchanged over the 17 years
Waterbugs	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 from 2018 to 2023 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 from 2018 to 2023 Waterbug testing ceased from 2024 due to lack of sampling and assessing resources