# STILL CREEK CATCHMENT LANDCARE WATER TEST RESULTS 2009/2019 CONCLUSIONS

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| **General conclusions** | |
| Water tests have shown that the catchment is in good condition and that water quality has being maintained over the last 11 years | |
| On exit from the catchment into Berowra Creek, most results are good | |
| Further upstream in the catchment, closer to residences, results are not as good, but are not a major problem | |
| Charltons Creek tends to be high in phosphorous, with quite notable surges after heavy rain | |
| Still Creek at Mansfield Road is high in salts, as measured by electrical conductivity tests and shows a large numerical variation, with a long flat tail, but lower since October 2018 | |
| Charltons Creek had an unexplained period of higher the normal salts from March 2018 until March 2019, but has since returned to more typical levels | |
| E coli incidence at high levels has occurred twice in 11 years and 8 times for low level incidences and was not related to rainfall | |
| Waterbug (Macroinvertebrates) observations have found Mayflies and Caddisflies at Charltons Ck and Still Ck Crosslands and Stoneflies sometimes at Crosslands | |

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| **Conclusions about compliance with ANZECC water quality guidelines** | |
| **Available Phosphate** | Fairly good on exit from the catchment, although in recent years, this has decreased to 84% within guidelines |
| | 83% of mid-catchment tests were within guidelines, similar over the years |
| **Salts (Electrical conductivity)** | 27% on exit from the catchment likely due to the geology and human disturbance of the soil and not regarded as indicating a problem |
| | 7% 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 95% within guidelines on catchment exit and 99% and 90% upstream |
| **E coli** | Very good: no traces evident for 98% of tests at 2 sites and 87% upstream on Charltons Creek |
| **Turbidity** | Very good: almost 100% within guidelines |
| **pH** | Very good:100% within guidelines |

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| **Conclusions from test means** | |
| **Available Phosphate** | Test results vary greatly: the standard deviation to mean ratio is high, partly because of the limitations of measurement accuracy below 0.05 |
| | 2013/16 show a decrease by approx 40% in the means due to fewer very high readings and to 3.4 times as many zero readings with the newer measuring device |
| | The above trend has not continued during the last 18 months, with increased levels and fewer zeros in Still Creek at both Mansfield Rd and at catchment exit |
| | Mid catchment is 1.6 x exit site 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 is 2.5 x at Charltons, 2.8 x at Still Mansfield and 1.1 x at catchment exit |
| | Charltons Ck and Still Ck at Mansfield Rd results are fairly similar after allowing for rain conditions from a 2016 study |
| | Charltons Ck without flow is 5 x normal due to build up in waterholes without flushing from 2012 studies |
| | This is affected by rain within 24 hours: medium rain is 8 x light rain, heavy rain is 19 x light rain at Charltons Ck |
| | Water treatment (3 stage for grey and black household effluent) is 1700 x exit site despite using no-phos cleaners in a brief earlier study |
| **Salts (Electrical Conductivity)** | Results are fairly consistent: the standard deviation to mean ratio is 0.3 for Charltons and Still Mansfield and 0.2 for catchment exit |
| | There is no significant trend apart from a reduction at Mansfield from August 2018 and a surge at Charltons Creek from March 2018 until March 2019 |
| | Means and medians at Still Ck Mansfield Rd are 1.4 x Charltons Ck with 99% level of confidence, significant unknown cause, presumed to be geology differences |
| | Charltons Ck without flow is 1.7 x normal due to build up in waterholes without flushing |
| | George Hall Ck was similar to Still Ck at Mansfield Rd |
| | Halls Ck was in very good condition, with a low population around it |
| | Medium or heavy rain within 24 hours of testing has a beneficial effect on EC due to dilution |
| | Water treatment (3 stage for grey and black household effluent) is 2.2 x mid-catchment test results in an earlier study |
| **Dissolved Oxygen** | Charltons Ck without flow is 0.6 x normal 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) |