

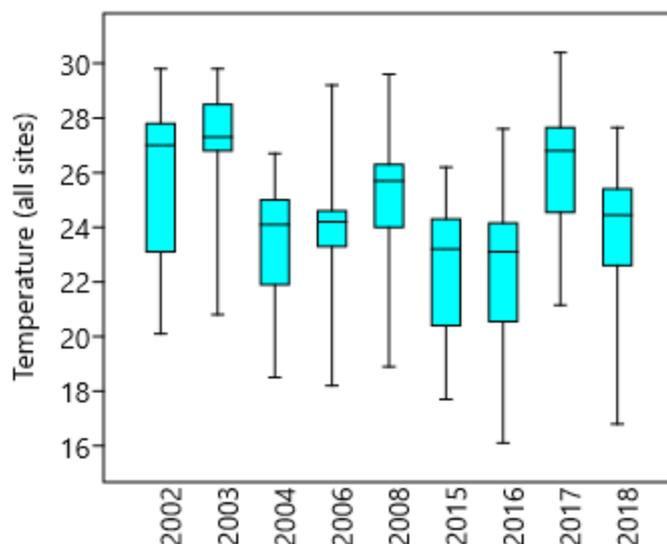
Catchment Crawl 2018

The MRCCC's annual catchment crawl was held in October 2018. This activity is designed to provide a snapshot of water quality along the Mary River and tributaries at the same time each year. Water quality parameters are measured to gain insight into trends associated with cumulative effects and any other changes throughout the catchment. As with previous years, the 2017 catchment crawl covered the length of the catchment from the headwaters in the Conondale ranges downstream to the mouth of the Mary River at River Heads.

Between 2017 and 2018 the number of sites sampled was increased from 19 to 22 along the main trunk of the Mary River and from 13 to 14 sites in the tributaries. Water quality physical parameters including pH, electrical conductivity (salinity), dissolved oxygen, temperature and turbidity were measured at each site. In addition, samples were collected to enable nutrient and total suspended solid analysis by the Water Quality Investigation team involved with the Great Barrier Reef Catchment Loads Program from the Department of Environment and Science. *E. coli* (faecal coliforms) were also sampled at most sampling sites. The MRCCC also performed nitrite, phosphate testing and bacteria test strips were used at selected sites.

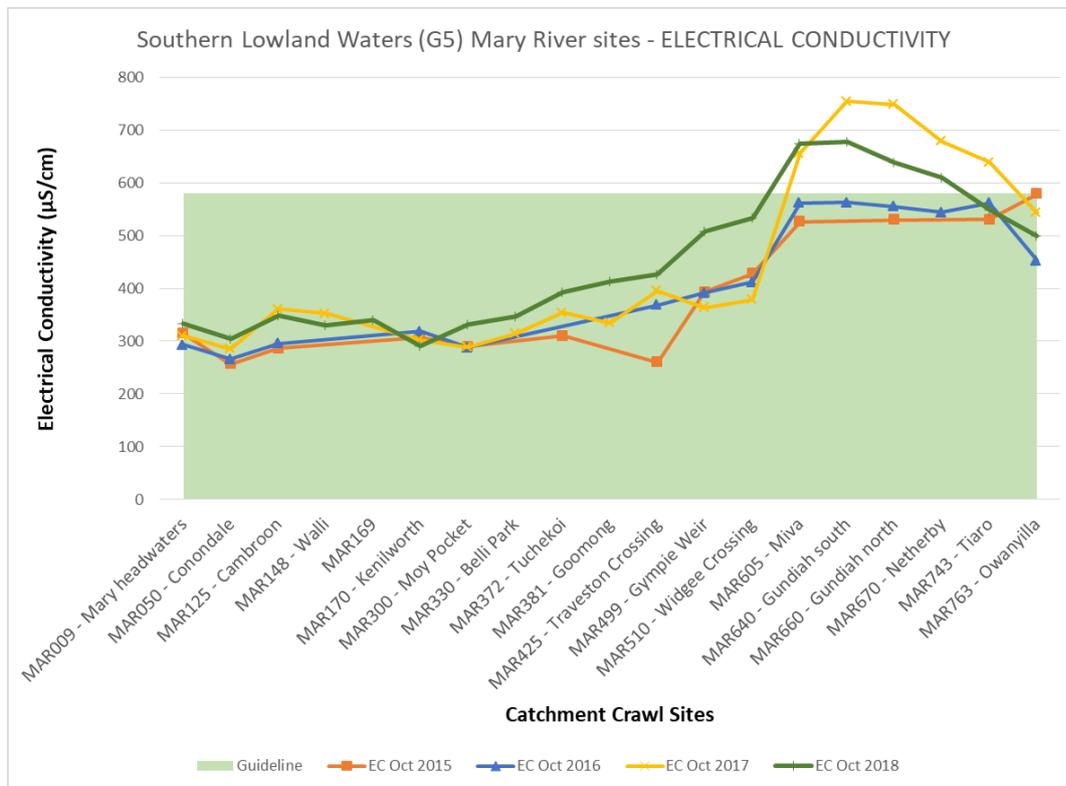
During the 2017 Catchment Crawl higher temperatures were observed compared to previous years. However in 2018 the temperatures were lower and were quite similar to most of the results from past October Catchment Crawls. Water temperature rising to 21°C is the trigger for Mary River cod spawning. Importantly four sites sampled in 2018 had temperatures below 21°C. Three of these were in Six Mile Creek and the fourth was in the Mary River headwaters. In 2017 there were no sites below 21°C so it is relief to see find the 2018 water temperatures more appropriate for Mary River cod breeding.

The figure shows how the temperature at all sites measured for the years since 2002 for which there is sufficient data. It gives an indication of the general water temperature throughout the catchment. The line in the centre of the blue box is the median (i.e. middle) temperature of all sites. The whiskers above and below the box show the maximum and minimum results in each year. The Figure shows that 2017 was a particularly warm year as were 2002 and 2003. Continuing to complete the Annual Catchment Crawl will enable an improved picture of long term trends in temperature. This is important not only for the Cod, but for understanding the impact of riparian restoration work undertaken by MRCCC and other organisations in the catchment.



Another interesting result in 2018 was a change in the Electrical conductivity profile along the river. In 2017 there was a significant rise in conductivity downstream of Gympie with all sites being well above the guideline. In 2018 this rise also occurred but it was much less pronounced. However the

result is still higher than in the 2015 or 2016 Catchment Crawls when all sites along the freshwater portion of the Mary complied with the guideline of 580 $\mu\text{S}/\text{cm}$. The figure below provides a summary of these results. The lower electrical conductivity in 2015 and 2016 is due to the higher flows in the lower Mary than in 2017 and 2018.



In both 2017 and 2018 the river had reached cease to flow conditions in late September prior to the Catchment Crawl occurring in the second week of October. This explains the high electrical conductivity results downstream where the infiltration of saltier base flow into the river becomes more dominant. The cease to flow was more prolonged in 2017, hence the higher electrical conductivity downstream. It is interesting that these cease to flow conditions did not have as strong an effect on the water temperatures in 2018 as they did in 2017. In addition to there being a little more flow in 2018, the ambient air temperature in the lead up to the 2018 Catchment Crawl was cooler than 2017. In the week prior to the 2017 Crawl, the average daily maximum air temperature was 28.2°C and the average daily minimum was 18.5°C. In 2018 the average daily minimum and maximum for the week prior to the Crawl were quite a bit cooler at 12.4°C and 26.2°C respectively.

Once all of the laboratory results are available a full 2018 Catchment Crawl report will be completed. The report will be available to download from the Waterwatch page on the MRCCC's website.

The MRCCC acknowledges all the landholders and volunteers who visited us or helped us with the crawl, particularly Antoinette Augustinus, Halena Scanlon, Glenda Pickersgill, Stan Chandler, Darren Manderson, Garth Jacobson, Kim Warne, Bob and Lorraine Hood, Ian Mackay, Robyn, Kevin and Mel Jackson, Kath Nash, Maria Zann.

Thanks also to Seqwater for supporting this year's Catchment Crawl and the Queensland Government Department of Environment and Science for supporting all of the nutrient and total suspended solids analyses.