

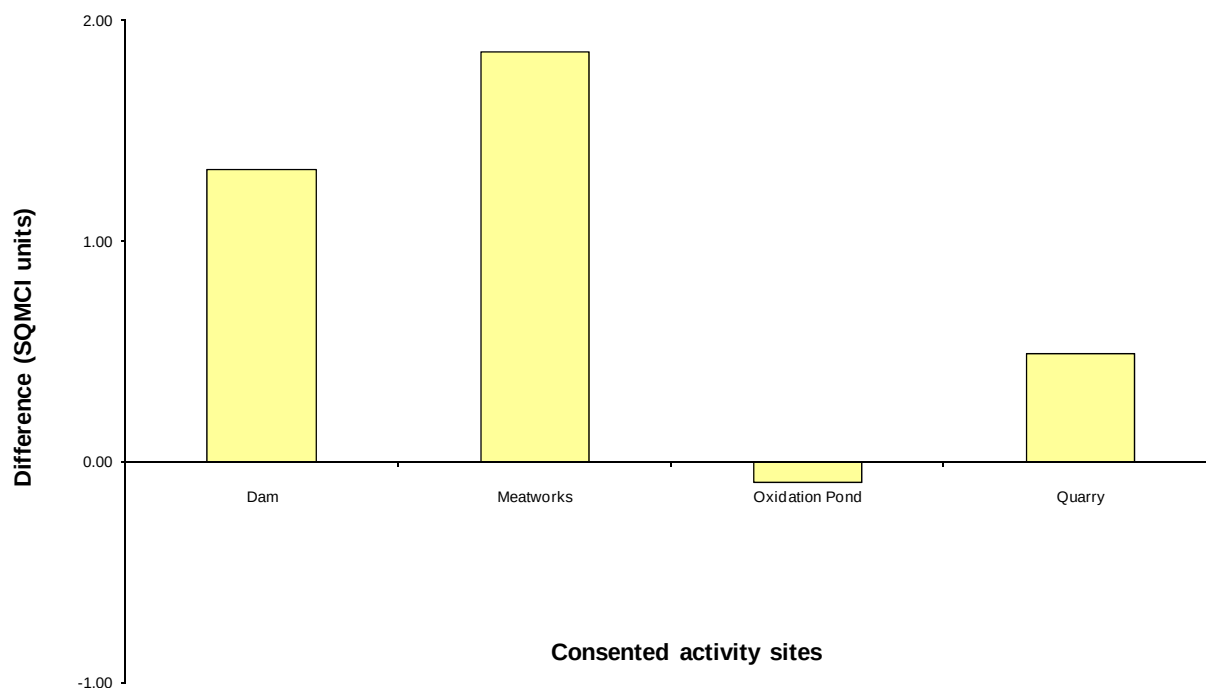


Figure 15. Resource Consent sites showing the difference between upstream and downstream SQMCI values for February 2012.

3.3 Trend analysis

Analysis of 32 (of 38) SoE sites and eight (of eight) Resource Consent activity sites was carried out, looking at the MCI and SQMCI results over time (Figs 16, 17). Six (of 38) other SoE sites have been established over the last five years, but were considered inadequate to produce reliable trends, thus were excluded from analysis. Collier & Kelly (2006) considered that a minimum time series of eight occasions were sufficient to detect meaningful ecological (but not statistical) trends in invertebrate data, thus caution should be taken for several of the reported analyses e.g., Kaeo @ Dip Road, Ruakaka @ Flyger Road, Utakura @ Okaka Rd Bridge (and others on that page).

A 'shotgun' inspection of collective MCI and SQMCI index trends overtime, for SoE sites, indicated that 19 of the 32 sites (59.4%) showed little ecological change. A further nine sites (28.1%) indicated a reduction in their biotic index over time and four sites (12.5%) indicated an increase in their biotic index over time.

When looking at the trend results of MCI and SQMCI collectively (and again very much a 'shotgun' inspection), and loosely fitting them into the water quality classes presented in Boothroyd & Stark (2000), 65.6% of sites can be interpreted as 'probable moderate' or 'probable severe pollution', 28.1% as 'mild pollution' and 6.3% as 'clean water'.

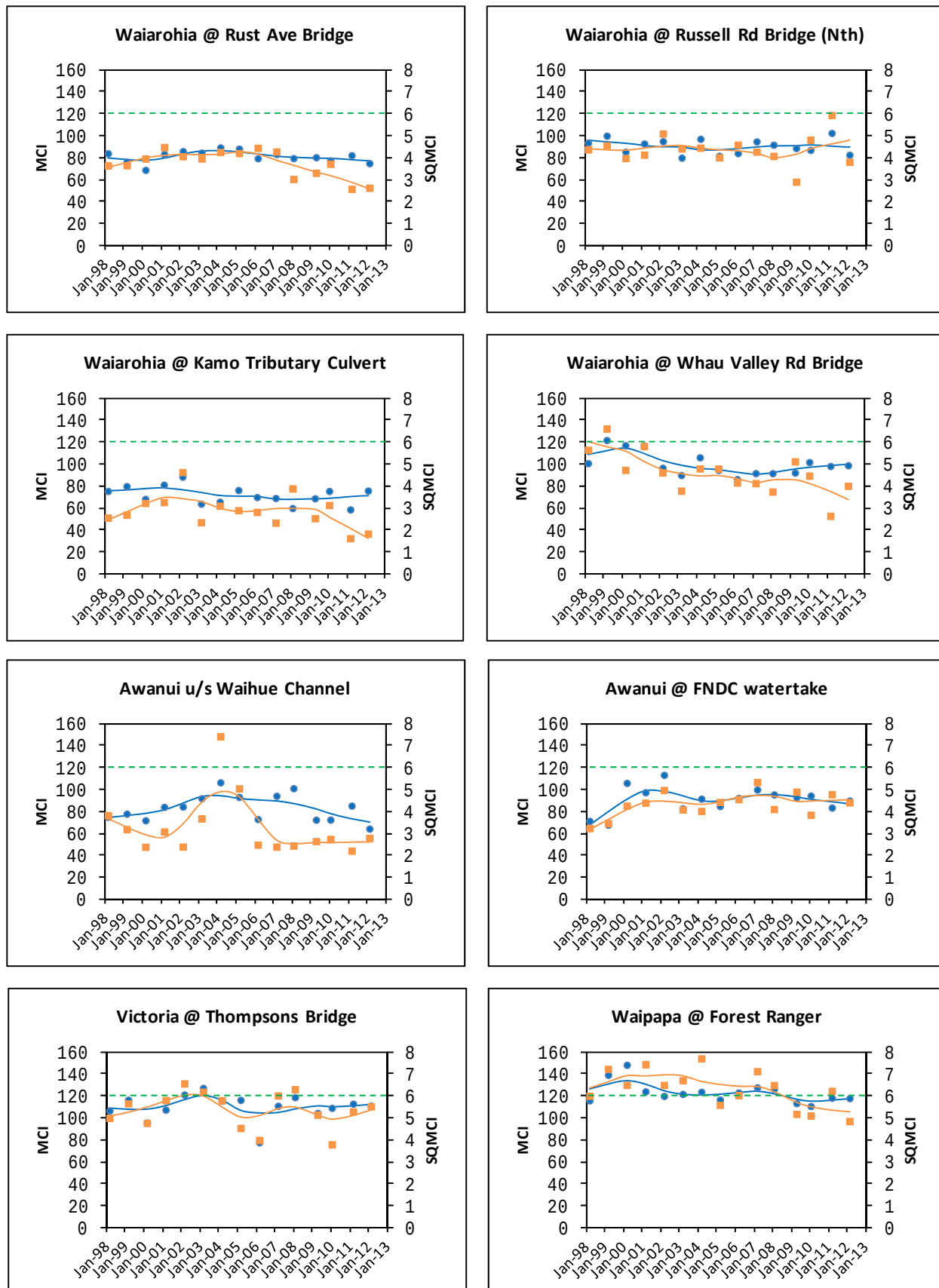


Figure 16. MCI (blue) and SQMCI (orange) data over time with LOWESS fitted lines (tension = 0.4) for the SoE monitoring sites. Green dashed lines represent lower 'clean water' limit.

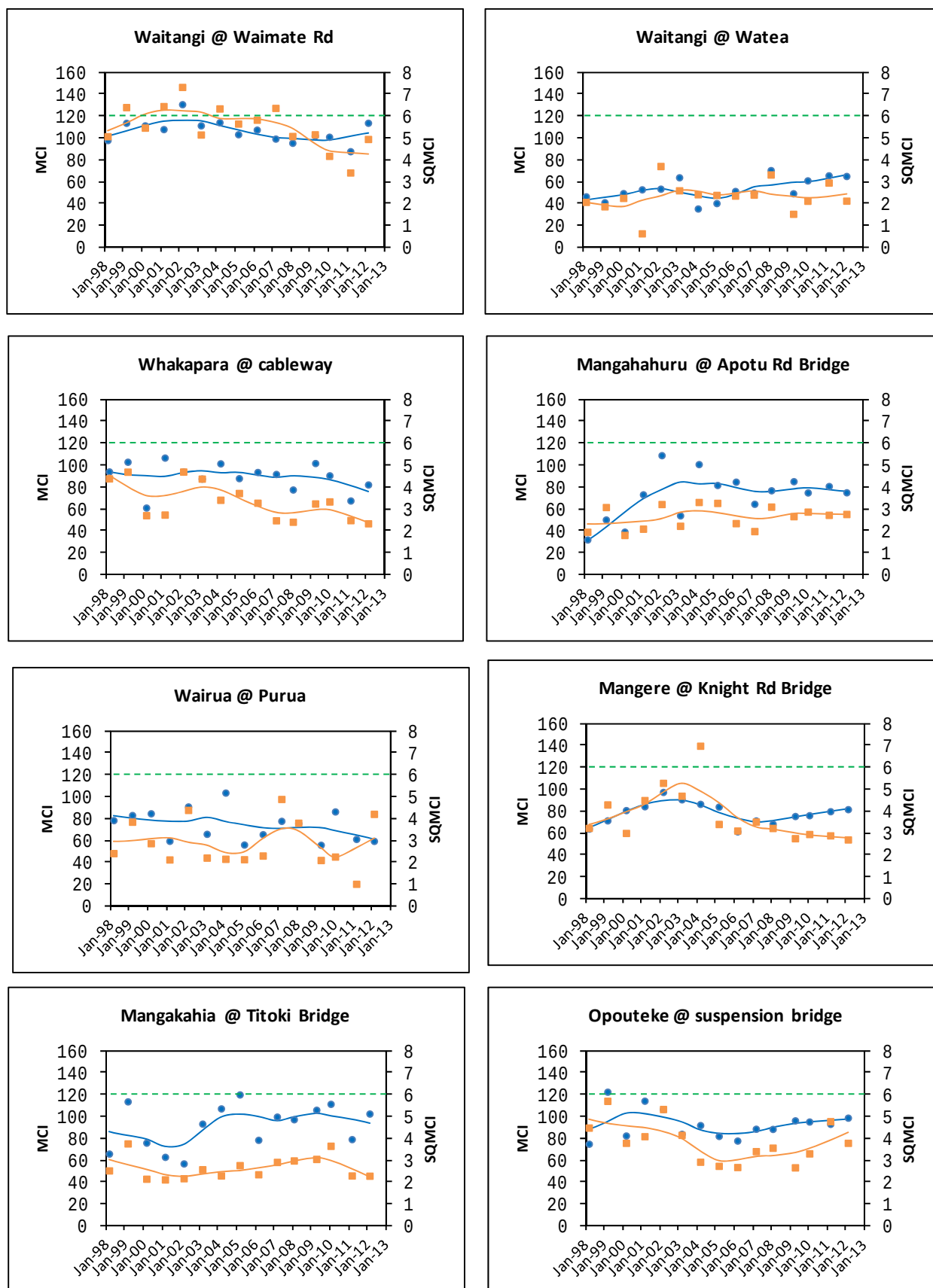


Figure 16 continued. MCI (blue) and SQMCI (orange) data over time with LOWESS fitted lines (tension = 0.4) for the SoE monitoring sites. Green dashed lines represent lower 'clean water' limit.

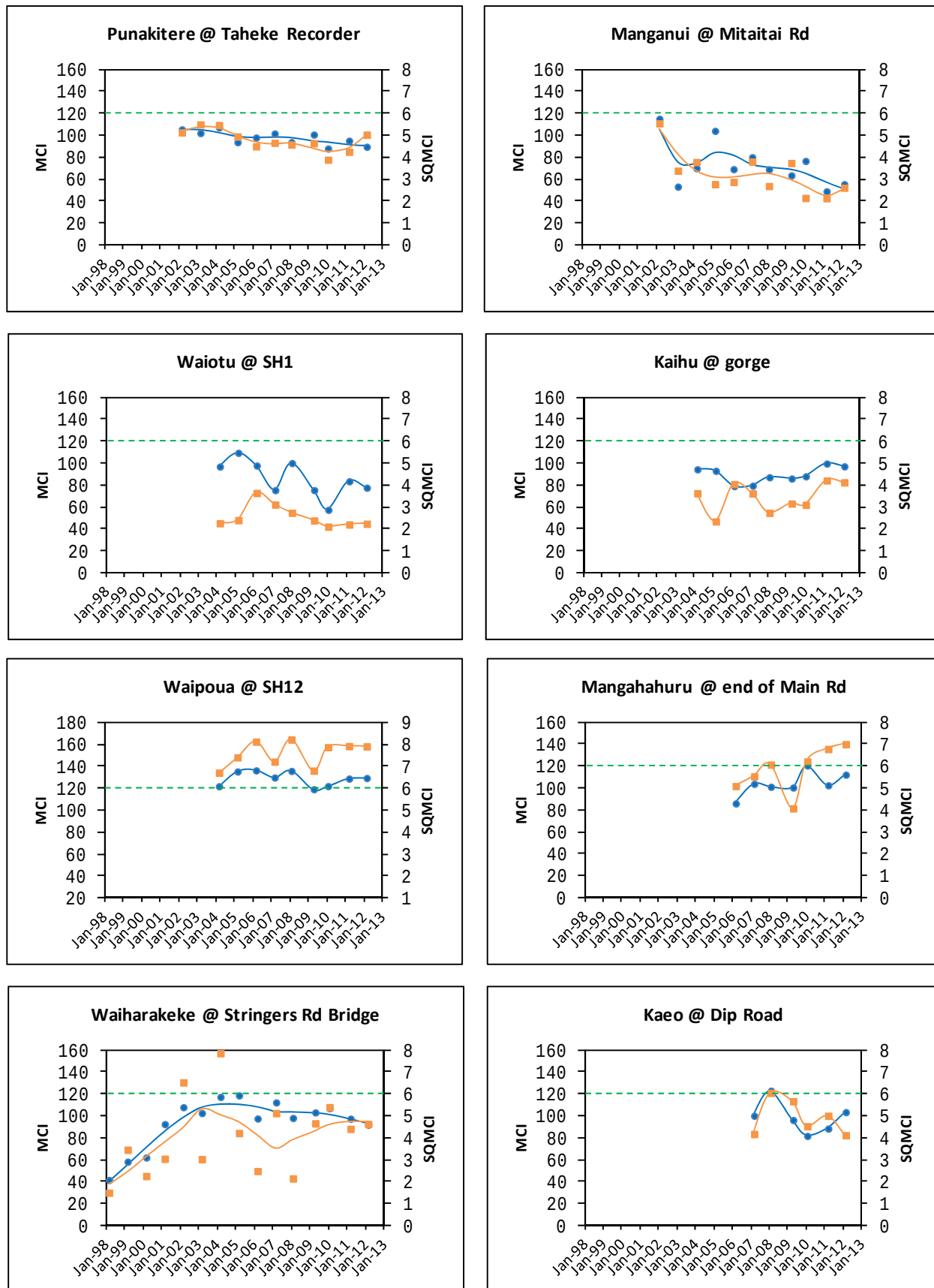


Figure 16 continued. MCI (blue) and SQMCI (orange) data over time with LOWESS fitted lines (tension = 0.4) for the SoE monitoring sites. Green dashed lines represent lower 'clean water' limit.

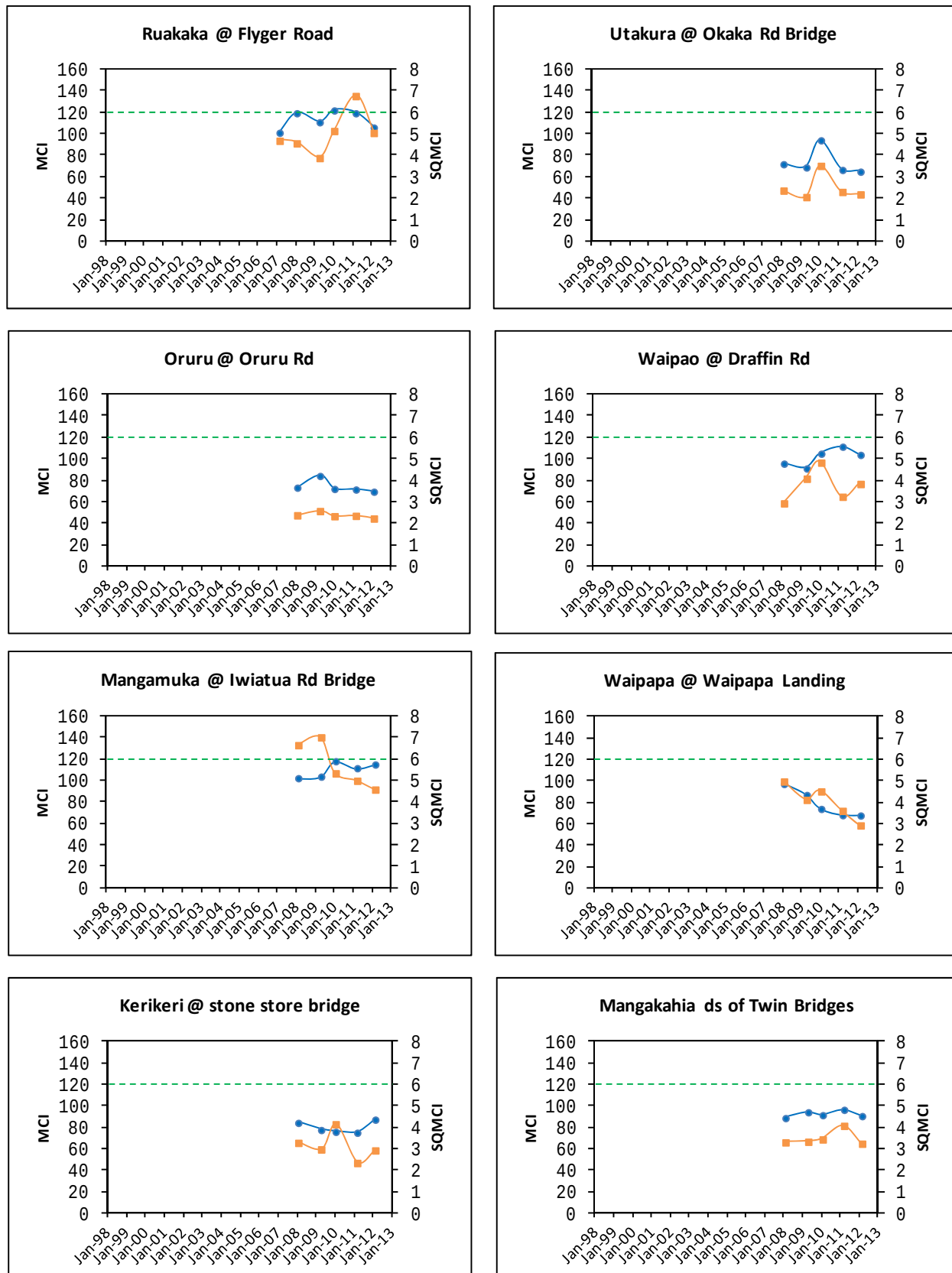


Figure 16 continued. MCI (blue) and SQMCI (orange) data over time with LOWESS fitted lines (tension = 0.4) for the SoE monitoring sites. Green dashed lines represent lower 'clean water' limit.

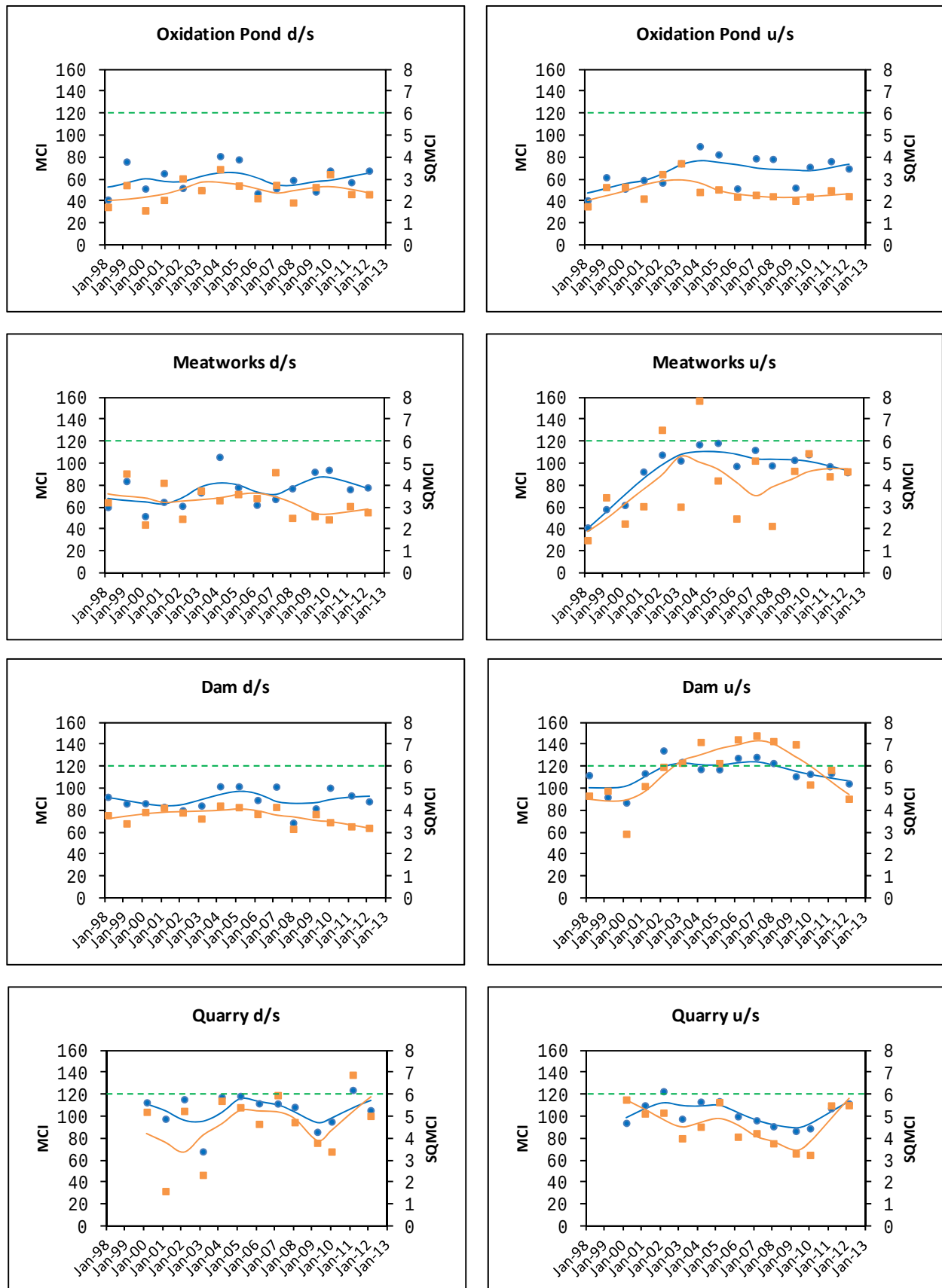


Figure 17. MCI (blue) and SQMCI (orange) data over time with LOWESS fitted lines (tension = 0.4) for the Resource Consent activity sites. Green dashed lines represent lower 'clean water' limit.