

Supplementary material

Making management decisions in the face of uncertainty: a case study using the Burdekin catchment in the Great Barrier Reef

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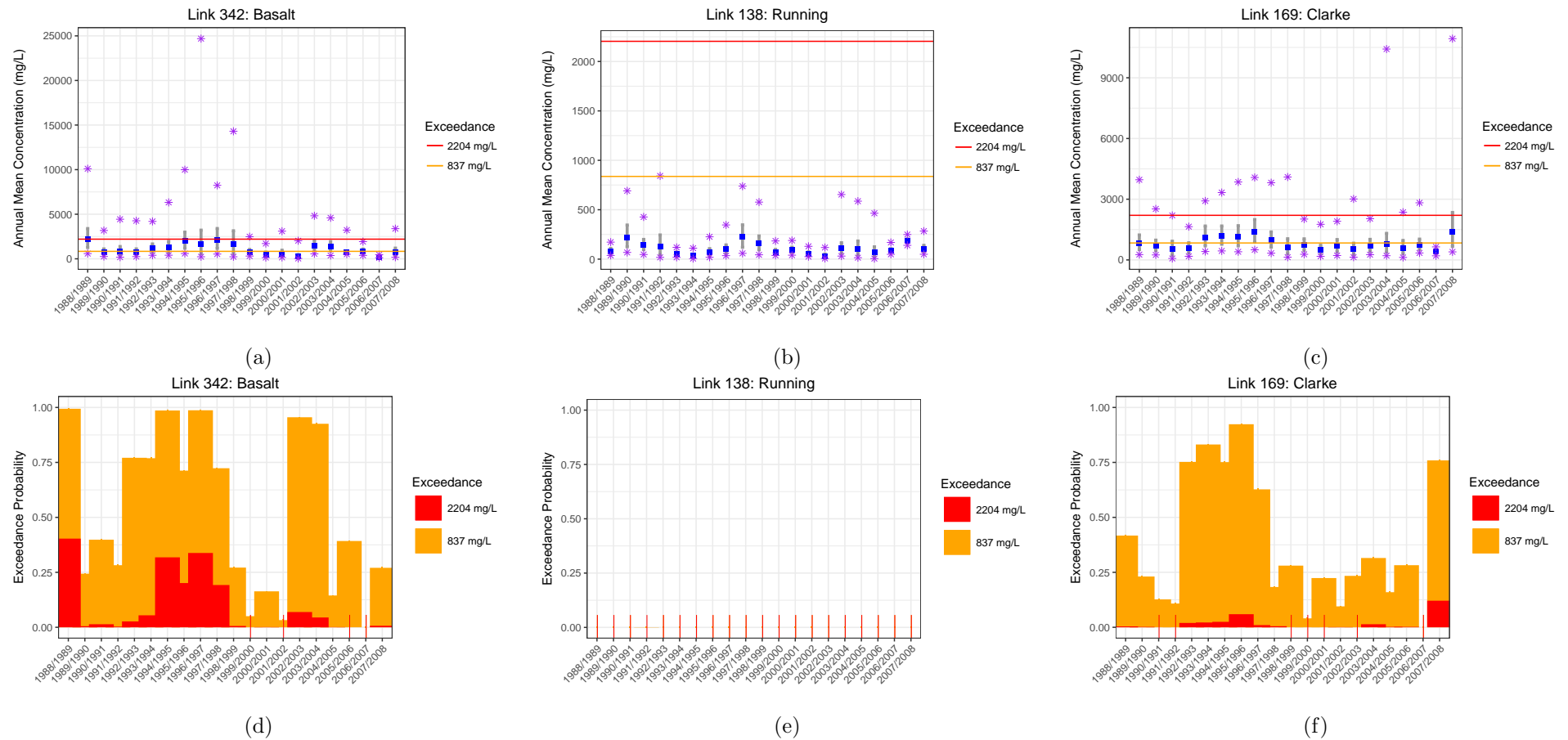


Fig. S1. Exceedance probability plots showing the annual mean concentrations (mg L^{-1}) (blue square) with 80% credible intervals (grey lines) across the 20 year period with the two levels of exceedance thresholds (837 mg L^{-1} , yellow; 2204 mg L^{-1} , red) overlaid (top figures) and the probability of exceedance, where orange represents a threshold of 837 mg L^{-1} and red represents an exceedance threshold of 2204 mg L^{-1} (bottom figures) for the Basalt River (a, d), Running River (b, e) and Clarke River (c, f). Note, the y-axis for each of the top figures vary for each site to ensure the level of detail is not lost. For easier comparison between sites, the bottom figures can be viewed.

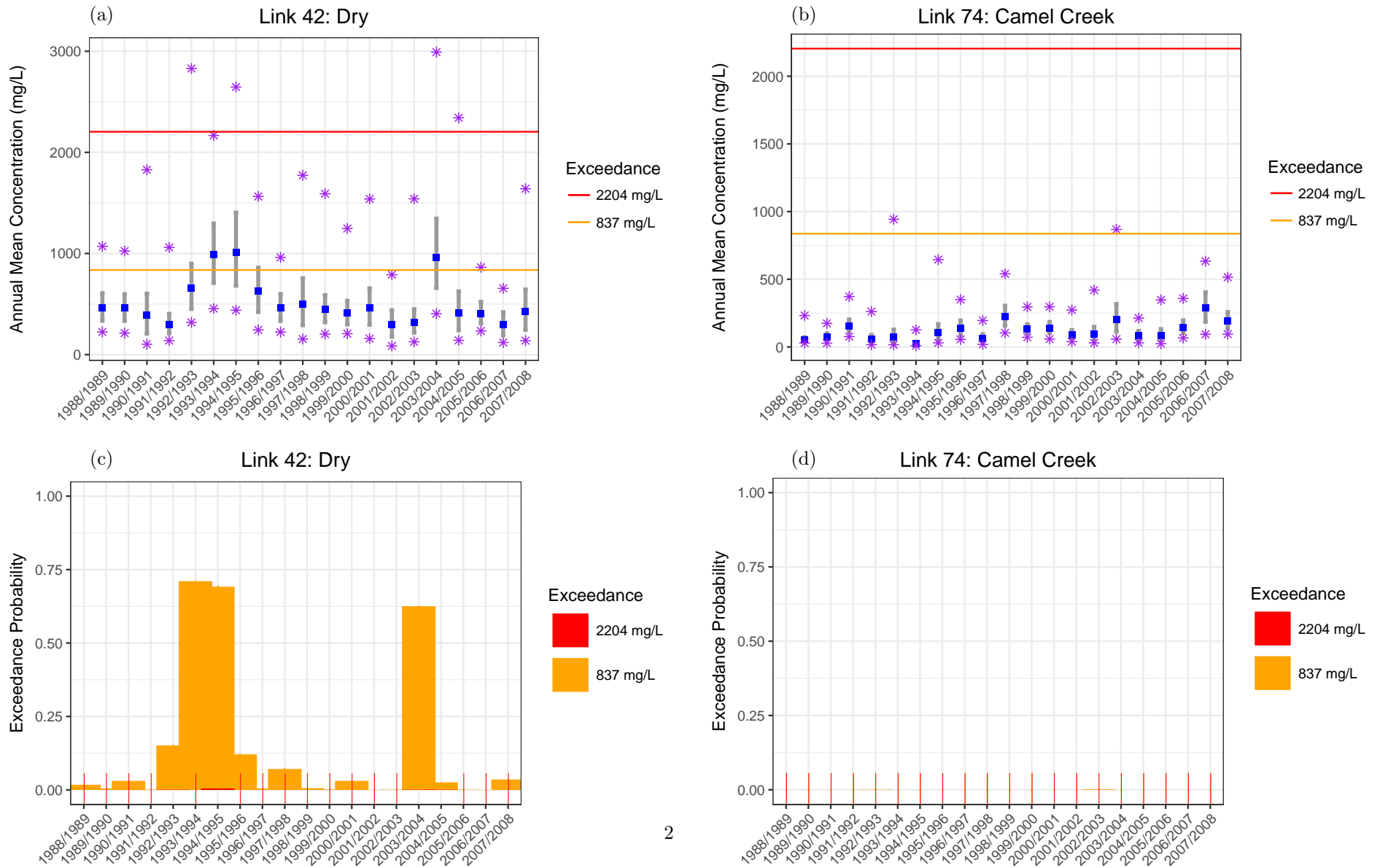


Fig. S2. Exceedance probability plots showing the annual mean concentrations (mg L^{-1}) (blue square) with 80% credible intervals (grey lines) across the 20-year period with the two levels of exceedance thresholds (837 mg L^{-1} , yellow; 2204 mg L^{-1} , red) overlaid (top panels) and the probability of exceedance, where orange represents a threshold of 837 mg L^{-1} and red represents an exceedance threshold of 2204 mg L^{-1} (bottom panels) for the Dry River (a, c) and Camel Creek (b, d).

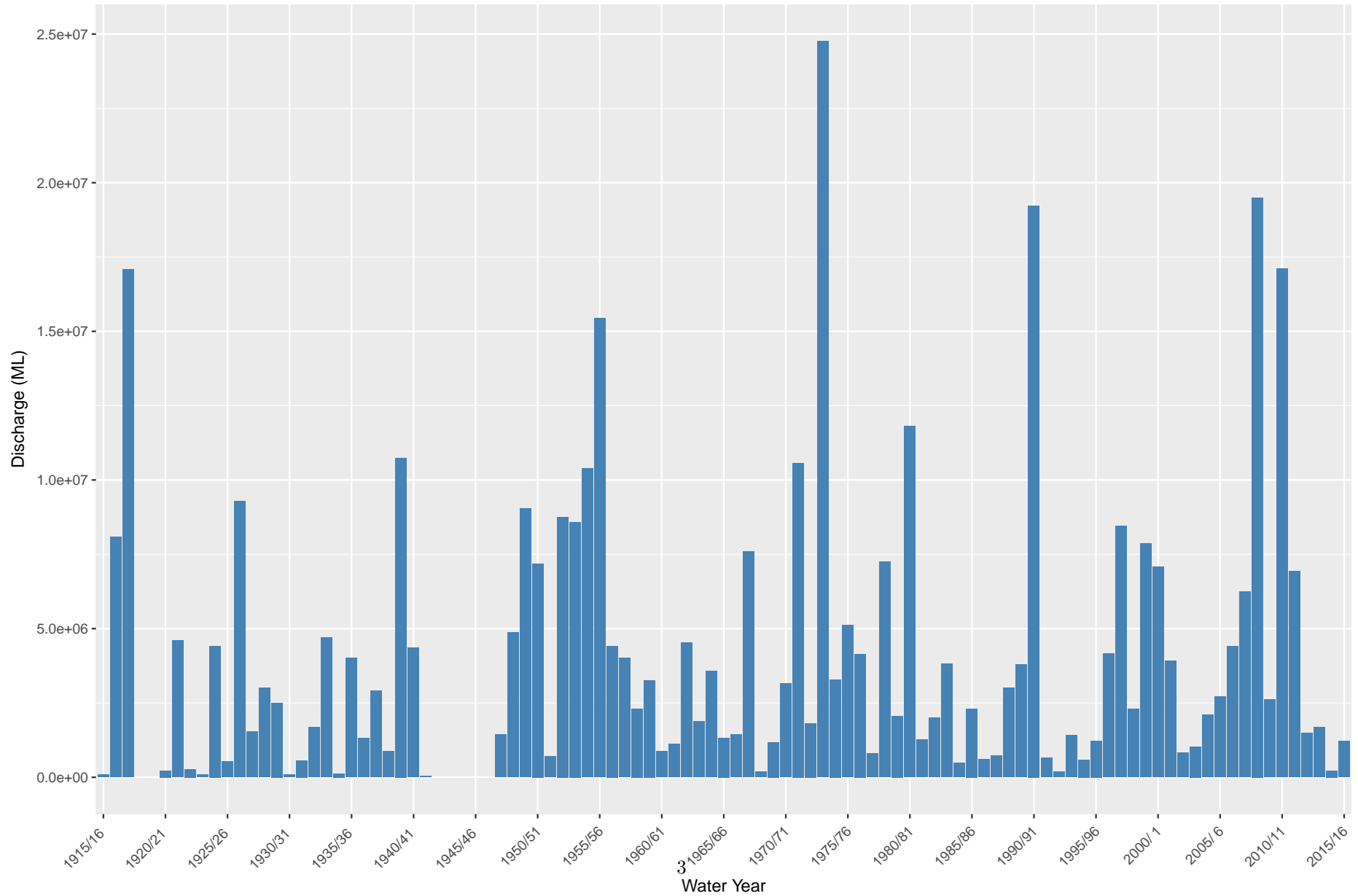


Fig. S3. Historical record of total flow (ML) calculated at the Sellheim gauge for each water year (October–September).

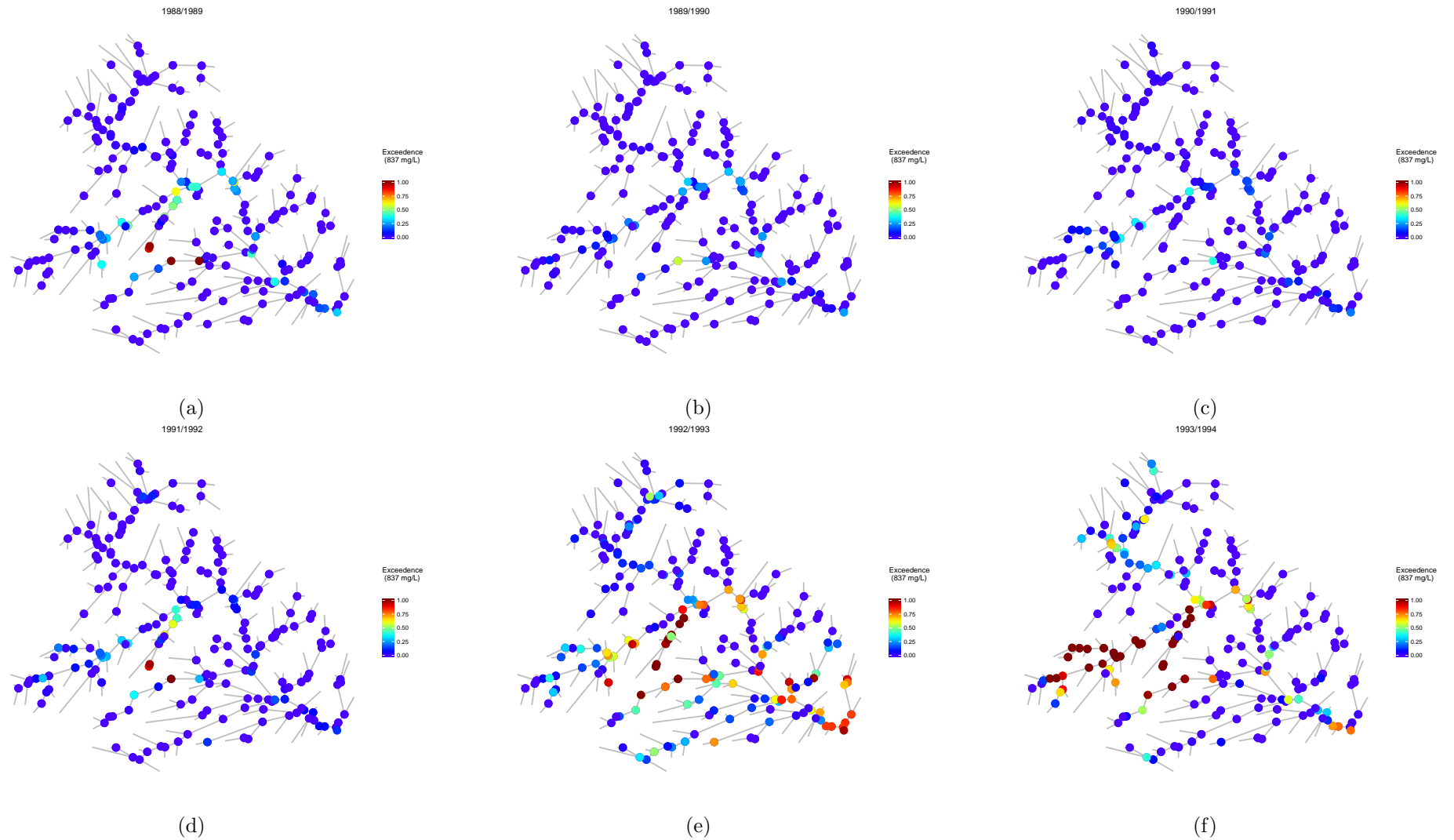


Fig. S4. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 837 mg L⁻¹ for (a) 1988–1989 wet season, (b) 1989–1990 wet season, (c) 1990–1991 wet season, (d) 1991–1992 wet season, (e) 1992–1993 wet season and (f) 1993–1994 wet season.

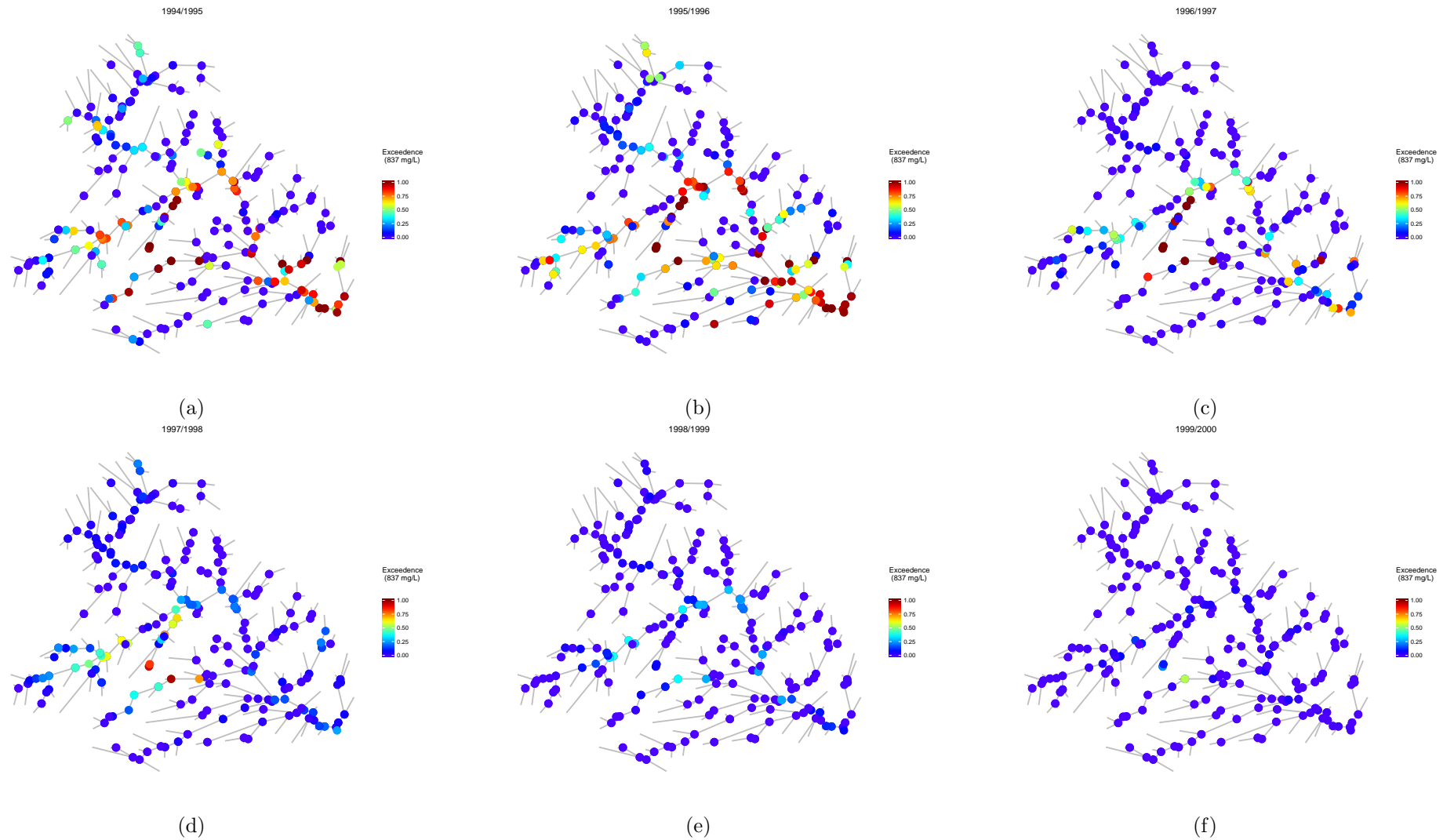


Fig. S5. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 837 mg L^{-1} for (a) 1994–1995 wet season, (b) 1995–1996 wet season, (c) 1996–1997 wet season, (d) 1997–1998 wet season, (e) 1998–1999 wet season and (f) 1999–2000 wet season.

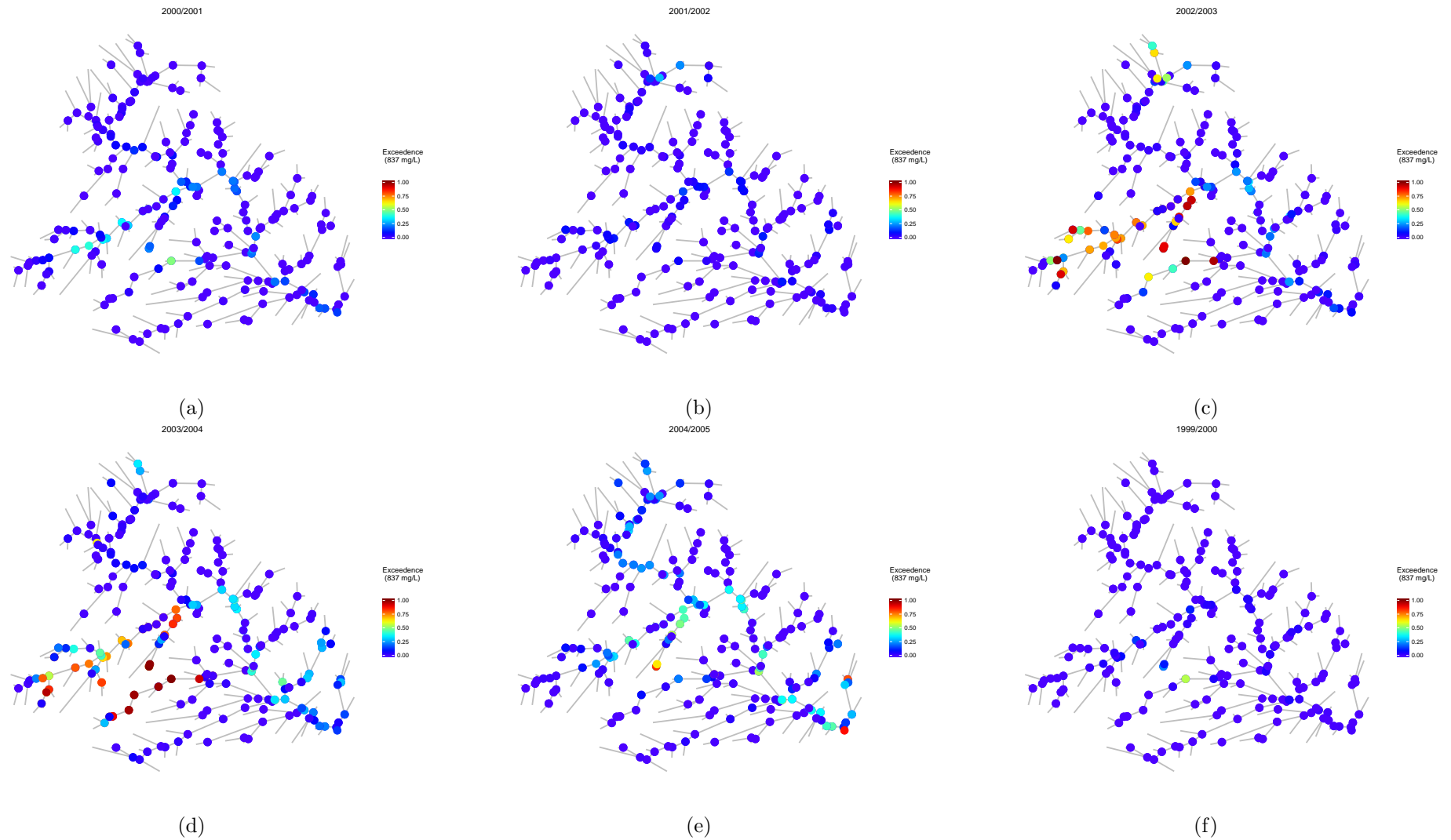


Fig. S6. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 837 mg L⁻¹ for (a) 2000–2001 wet season, (b) 2001–2002 wet season, (c) 2002–2003 wet season, (d) 2003–2004 wet season, (e) 2004–2005 wet season and (f) 2005–2006 wet season.

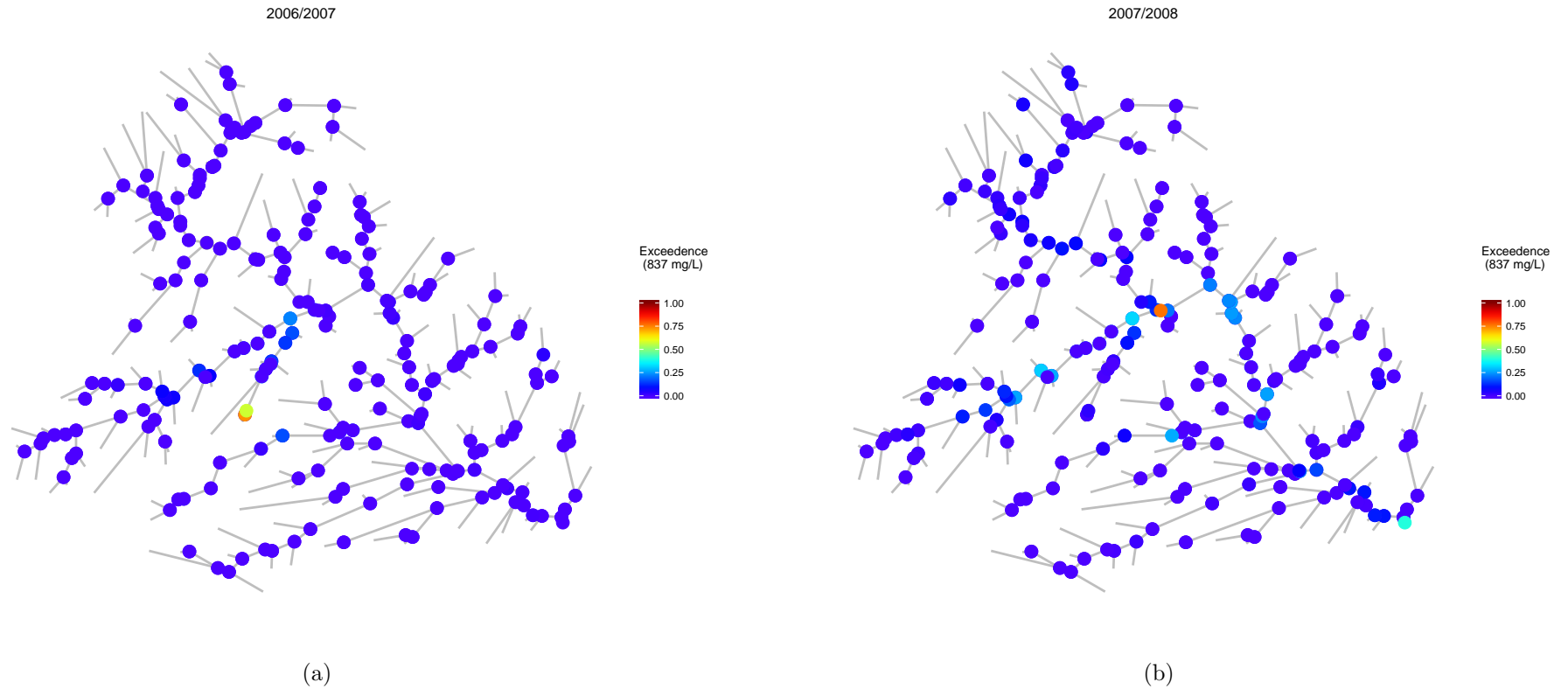


Fig. S7. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 837 mg L^{-1} for (a) 2006–2007 wet season and (b) 2007–2008 wet season.

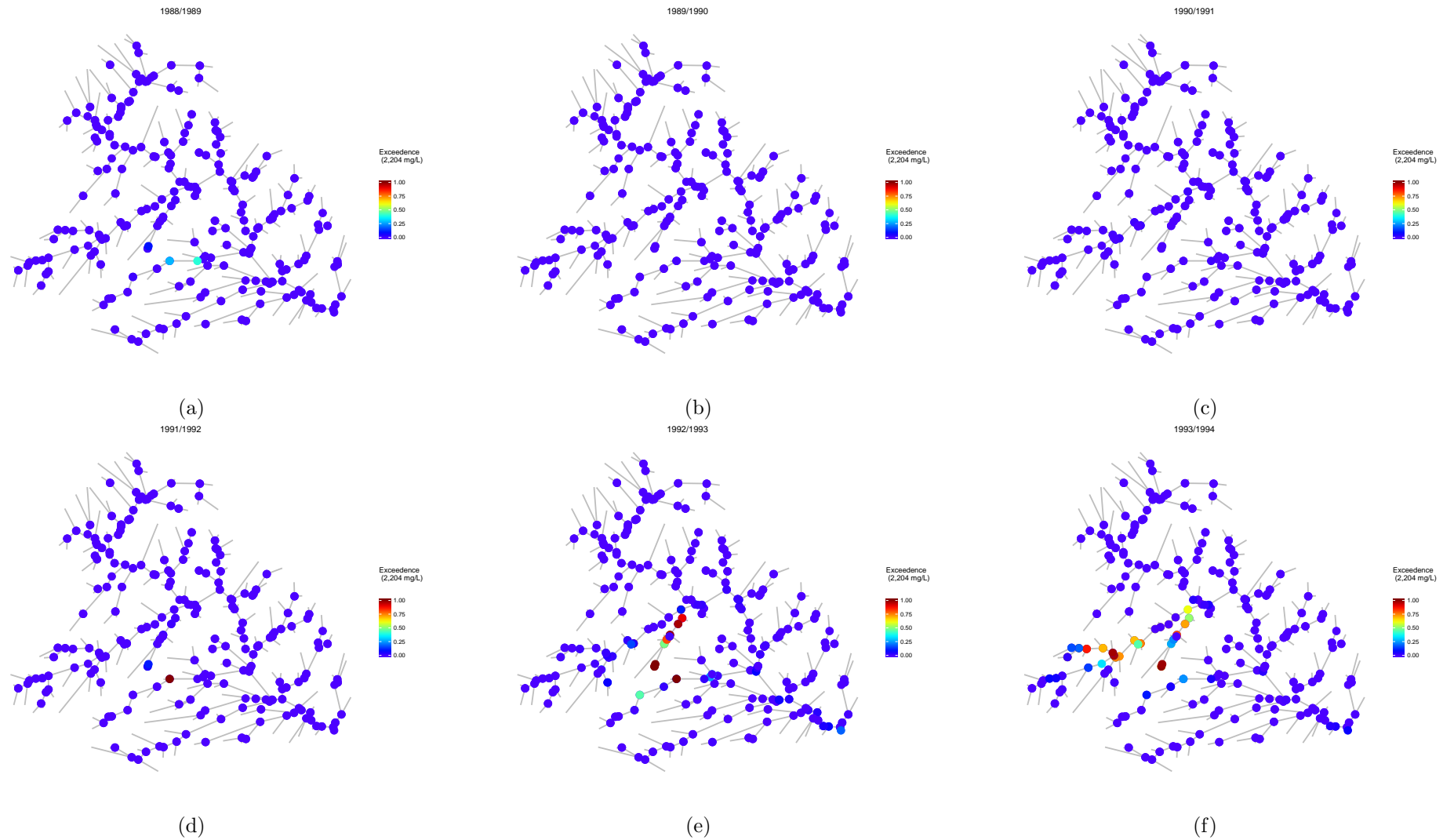


Fig. S8. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 2204 mg L^{-1} for (a) 1988–1989 wet season, (b) 1989–1990 wet season, (c) 1990–1991 wet season, (d) 1991–1992 wet season, (e) 1992–1993 wet season and (f) 1993–1994 wet season.

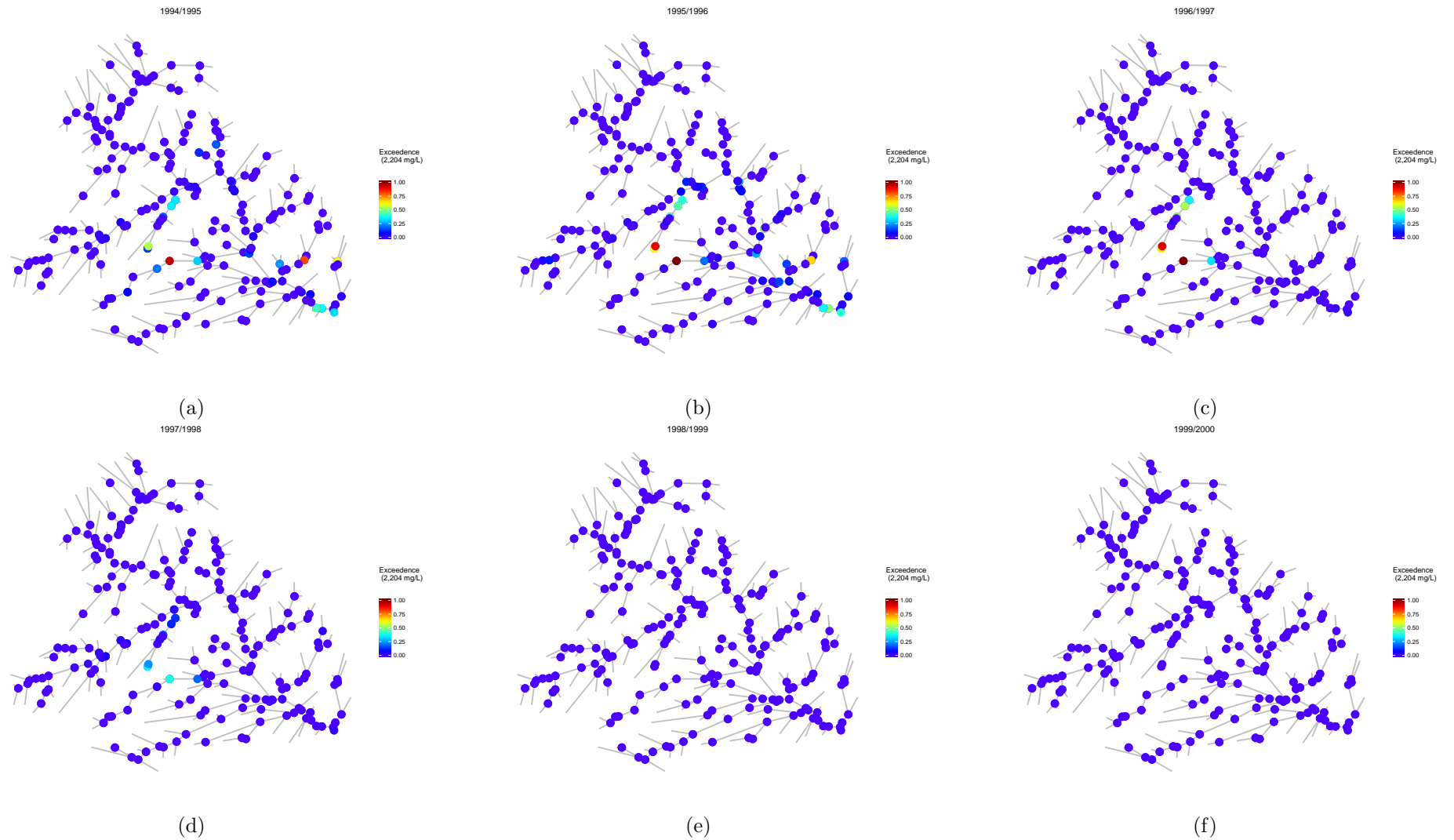


Fig. S9. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 2204 mg L^{-1} for (a) 1994–1995 wet season, (b) 1995–1996 wet season, (c) 1996–1997 wet season, (d) 1997–1998 wet season, (e) 1998–1999 wet season and (f) 1999–2000 wet season.

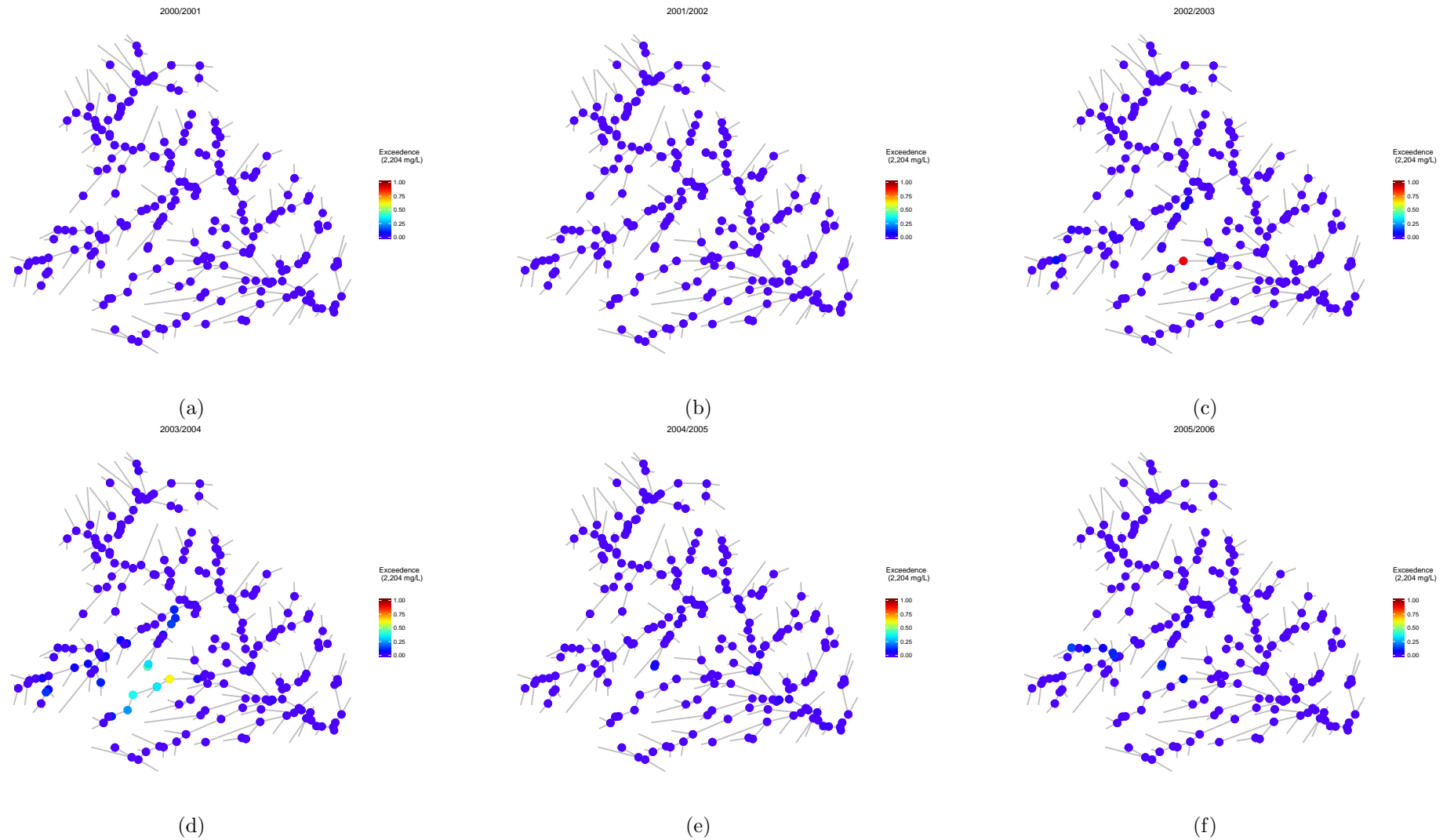


Fig. S10. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 2204 mg L^{-1} for (a) 2000–2001 wet season, (b) 2001–2002 wet season, (c) 2002–2003 wet season, (d) 2003–2004 wet season, (e) 2004–2005 wet season and (f) 2005–2006 wet season.

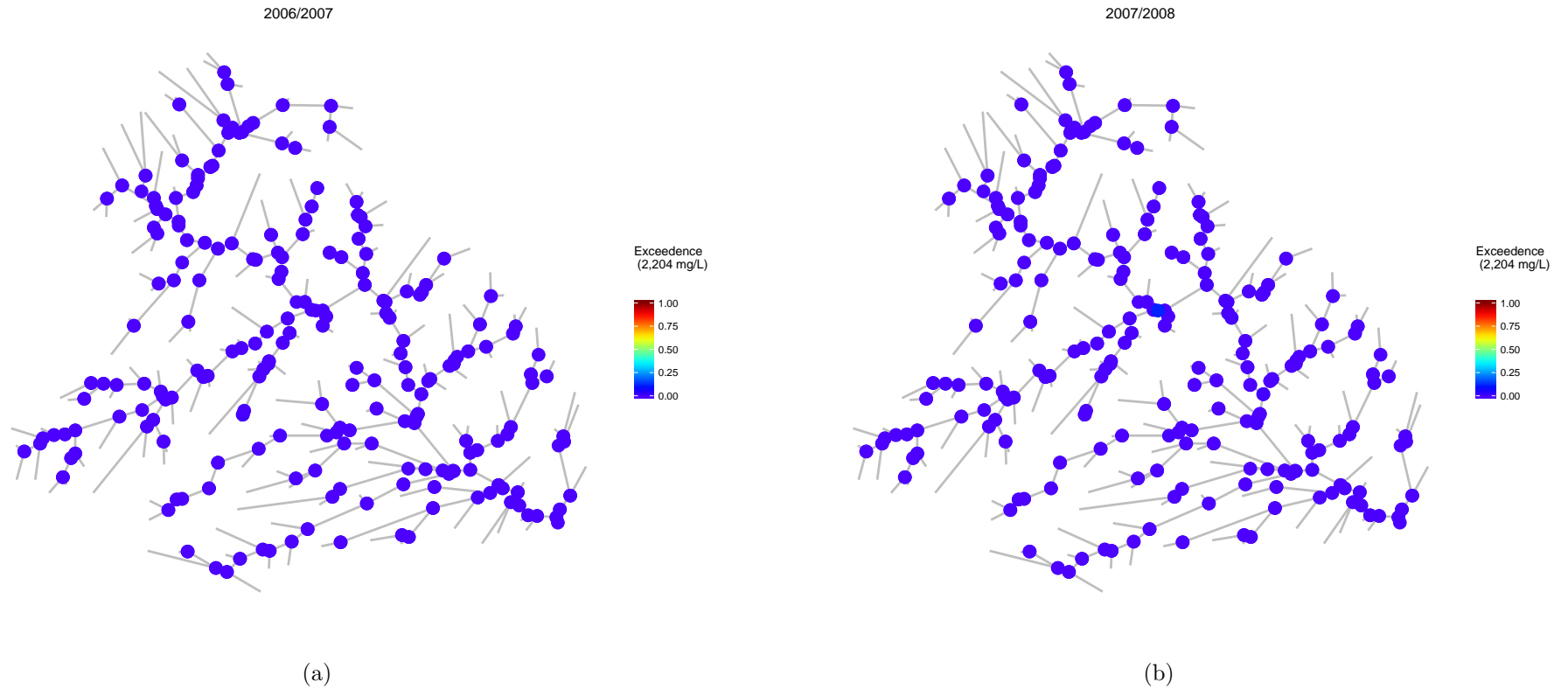


Fig. S11. Exceedance probabilities of sediment concentrations for the upper Burdekin catchment from a threshold of 2204 mg L^{-1} for (a) 2006–2007 wet season and (b) 2007–2008 wet season.

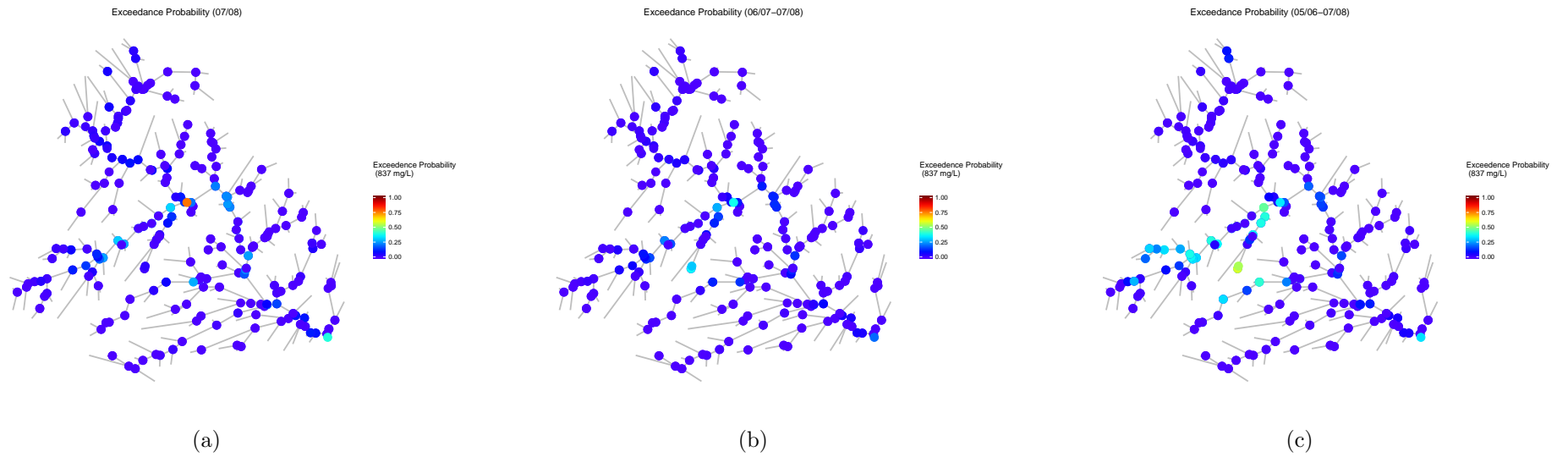


Fig. S12. Exceedance probability maps showing the exceedance probability calculated for (a) 2008 (last year), (b) 2007–2008 (last 2 years) and (c) 2006–2008 (last 3 years) for a threshold of 837 mg L⁻¹.