Biography

Kirstie’s research focuses on fluvial geomorphology, in particular river evolution, sediment budgets and landscape (dis)connectivity, and human disturbance to rivers. She has also developed frameworks for assessing the physical condition and recovery potential of river systems. She is co-developer of the River Styles Framework and and a portfolio of professional development short courses (see www.riverstyles.com). Her research also focuses on how geomorphology provides a physical template for ecosystem function and how science can be better used in environmental management. She has also undertaken research on heavy metal contamination at Casey and Wilkes stations in Antarctica. She has co-written and/or edited three books titled “Geomorphology and River Management” (Blackwell, 2005), “River Futures” (Island Press, 2008) and “Geomorphic Analysis of River Systems: An Approach to Reading the landscape” (Wiley, 2013). Kirstie is on the Editorial Board of the journal Geomorphology and a winner of the Gordon Warwick medal for excellence in research.

Authored Books
1. Geomorphic analysis of river systems: an approach to reading the landscape
2. The River Styles® short course: workbook and field guide
4. Practical Applications of the River Styles Framework as a Tool for Catchment-wide River Management: A Case Study from Bega Catchment, NSW, Australia

Edited Books
1. River Futures: An Integrative Scientific Approach to River Repair

Journal articles
1. Mapping valley bottom confinement at the network scale
2. The impact of urbanisation on community structure, gene abundance and transcription rates of microbes in upland swamps of Eastern Australia
3. Single-grain OSL dating of fluvial terraces in the upper Hunter catchment, southeastern Australia
4. Water sources of upland swamps in Eastern Australia: implications for system integrity with aquifer interference and a changing climate
5. Connectivity as an emergent property of geomorphic systems
6. Understanding the spatial distribution and physical attributes of upland swamps in the Sydney Basin as a template for their conservation and management
7. **Palaeohydrology of lowland rivers in the Murray-Darling Basin, Australia**  

8. **Simulating the effect of environmental flow duration on seedling emergence from riparian seed banks of the Upper Hunter River, New South Wales**  

9. **What’s in a name? A naming convention for geomorphic river types using the River Styles Framework**  

10. **Tracking geomorphic recovery in process-based river management**  

11. **Dramatic reduction in size of the lowland Macquarie River in response to Late Quaternary climate-driven hydrologic change**  

12. **The hydrological function of upland swamps in eastern Australia: the role of geomorphic condition in regulating water storage and discharge**  

13. **A nested hierarchical perspective to enhance interpretations and communication in fluvial geomorphology for use in water resources management: lessons from the Okavango Delta, Botswana**  

14. **Contextualising the trajectory of geomorphic river recovery with environmental history to support river management**  

15. **Geomorphic controls on fluvial carbon exports and emissions from upland swamps in eastern Australia**  

16. **Geomorphic effectiveness: a linear concept in a non-linear world**  

17. **Practicing sociogeomorphology: relationships and dialog in river research and management**  

18. **Different depths, different fauna: habitat influences on the distribution of groundwater invertebrates**  

19. **‘Out with the Old?’ Why coarse spatial datasets are still useful for catchment-scale investigations of sediment (dis)connectivity**  

20. **Sedimentologically significant tributaries: catchment-scale controls on sediment (dis)connectivity in the Lockyer Valley, SEQ, Australia**  

21. **Prioritising the placement of riparian vegetation to reduce flood risk and end-of-catchment sediment yields: important considerations in hydrologically-variable regions**  

22. **Interactive effects of waterlogging and atmospheric CO₂ concentration on gas exchange, growth and functional traits of Australian riparian tree seedlings**  

23. **The Holocene evolution and geomorphology of a chain of ponds, southeast Australia: establishing a physical template for river management**  

24. **River sensitivity: a lost foundation concept in fluvial geomorphology**  

25. **A geomorphic assessment to inform strategic stream restoration planning in the Middle Fork John Day Watershed, Oregon, USA**  

26. **Identifying key sedimentary indicators of geomorphic structure and function of upland swamps in the Blue Mountains for use in condition assessment and monitoring**  
27. Defining the floodplain in hydrologically-variable settings: implications for flood risk management

28. The Use of Evolutionary Trajectories to Guide ‘Moving Targets’ in the Management of River Futures

29. The Disconnected sediment conveyor belt: patterns of longitudinal and lateral erosion and deposition during a catastrophic flood in the Lockyer Valley, South East Queensland, Australia

30. A framework and toolbox for monitoring and assessing the swamp condition and ecosystem health

31. Catchment- and reach-scale controls on the distribution and expectation of geomorphic channel adjustment

32. The spatial distribution and physical characteristics of Temperate Highland Peat Swamps on Sandstone (THPSS)

33. An approach for measuring confinement and assessing the influence of valley setting on river forms and processes

34. A channel evolution model for subtropical macrochannel systems

35. The Blurred line between form and process: a comparison of stream channel classification frameworks

36. Intrinsically and extrinsically controls on the geomorphic condition of upland swamps in Eastern NSW

37. Seed banks as a source of vegetation regeneration to support the recovery of degraded rivers: A comparison of river reaches of varying condition

38. How seed traits predict floating times: A biophysical process model for hydrochorous seed transport behaviour in fluvial systems

39. Heterogeneous flows foster heterogeneous assemblages: Relationships between functional diversity and hydrological heterogeneity in riparian plant communities

40. Geomorphic mapping and taxonomy of fluvial landforms

41. Quantifying fluvial (dis)connectivity in an agricultural catchment using a geomorphic approach and sediment source tracing

42. Can the sedimentological and morphological structure of rivers be used to predict characteristics of riparian seed banks?

43. Can the Regeneration of Vegetation from Riparian Seed Banks Support Biogeomorphic Succession and the Geomorphic Recovery of Degraded River Channels?

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49. **Prospects for, and Challenges of, Research Design and Training in Cross-Disciplinary Environmental Management Research**

50. **Developing and using geomorphic condition assessments for river rehabilitation planning, implementation and monitoring**

51. **Remediation of metal-contaminated soil in polar environments: Phosphate fixation at Casey Station, East Antarctica**

52. **Peatlands in eastern Australia? Sedimentology and age structure of Temperate Highland Peat Swamps on Sandstone (THPSS) in the Southern Highlands and Blue Mountains of NSW, Australia**

53. **Groundwater depth and topography correlate with vegetation structure of an upland peat swamp, Budderoo Plateau, NSW, Australia**

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67. **Geomorphology in action: Linking policy with on-the-ground actions through applications of the River Styles framework**
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Preston, N., Brierley, G. & Fryirs, K., Jan 2011, In : Geography Compass. 5, 1, p. 21-34 14 p.

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mechanisms to set targets for process-based restoration
P., Fryirs, K., Leishman, M., Sanders, M., Arthington, A., Creese, R., Dahm, M., Miller, C., Pusey, B. & Spink, A.,

70. Climatic and vegetation control on sediment dynamics during the last glacial cycle

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72. Antecedent controls on river character and behaviour in partly confined valley settings: Upper Hunter catchment,
NSW, Australia

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Brierley, G., Reid, H., Fryirs, K. & Trahan, N., 1 Apr 2010, In : Science of the Total Environment. 408, 9, p. 2025-
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9. Working with change: the importance of evolutionary perspectives in framing the trajectory of river adjustment

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2. A toolbox of sedimentary indicators for assessing the geomorphic structure, function and condition of endangered Temperate Highland Peat Swamps on Sandstone (THPSS), Blue Mountains, NSW
3. **The use and usefulness of geomorphology in river management**

4. **Sedimentologically significant tributaries: characterizing sediment connectivity in the Lockyer Valley, SEQ**

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