**Biography**

Kirstie’s work focuses on fluvial geomorphology and river management. Her research focusses on how rivers work, how they have evolved, how they have been impacted by anthropogenic disturbance, how catchment sediment budgets and (dis)connectivity work, and how to best use geomorphology in river management practice. She is probably best known as the co-developer of the River Styles Framework and portfolio of professional development short courses (see www.riverstyles.com). The River Styles Framework is a geomorphic approach for the analysis of rivers that includes assessment of river type and behaviour, physical condition and recovery potential. These analyses are used to develop prioritisation and decision support systems in river management practice. Uptake of the River Styles Framework has now occurred in many places on six continents. Kirstie has strong domestic and international collaborations in both academia and industry. She has worked for many years on various river science and management projects as part of multi-disciplinary, collaborative teams that include ecologists, hydrologists, social scientists, practitioners and citizens. Kirstie has also been lucky enough to work in Antarctica for two summer seasons, undertaking research on heavy metal contamination at Casey and Wilkes stations. Kirstie has co-written and co-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). She holds several research, teaching and postgraduate supervision awards including the international Gordon Warwick medal for excellence in research. Kirstie is also a Certified Environmental Practitioner in geomorphology, CEnvP(geomorphology), www.cenvp.org.

**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. Soil carbon dynamics and aquatic metabolism of a wet-dry tropics wetland system  

2. The dark art of interpretation in geomorphology  

3. The re-greening of east coast Australian rivers: an unprecedented riparian transformation  

4. Assemblages of geomorphic units: a building block approach to analysis and interpretation of river character, behaviour, condition and recovery  

5. Extent and effect of the 2019-20 Australian bushfires on upland peat swamps in the Blue Mountains, NSW  
6. How far have management practices come in 'working with the river'? 

7. Things we can do now that we could not do before: developing and using a cross-scalar, state-wide database to support geomorphologically-informed river management

8. Geomorphic controls on the diversity and patterns of fluvial forms along longitudinal profiles

9. Modelling sediment (dis)connectivity across a river network to understand locational-transmission-filter sensitivity for identifying hotspots of potential geomorphic adjustment

10. Semi-automating the calculation of catchment scale geomorphic controls on river diversity using publically available datasets

11. Relationships, social networks and the emergence of recovery-based river management: implications for practice and policy

12. Microbial communities of upland peat swamps were no different 1 year after a hazard reduction burn

13. Forgotten peatlands of eastern Australia: an unaccounted carbon capture and storage system

14. Upland peatlands of eastern Australia as important water storage reservoirs

15. An approach for assessing geomorphic river sensitivity across a catchment based on analysis of historical capacity for adjustment

16. Application of globally available, coarse resolution digital elevation models for delineating valley bottom segments of varying length across a catchment

17. Identifying threshold responses of Australian dryland rivers to future hydroclimatic change

18. River sensitivity and sediment connectivity as tools for assessing future geomorphic channel behavior

19. Supporting champions in river management

20. The importance of relational values in river management: understanding enablers and barriers for effective participation

21. Managing sediment (dis)connectivity in fluvial systems

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

23. The hydrological function of a large chain-of-ponds: a wetland system with intermittent surface flows

24. The morphology and geomorphic evolution of a large chain-of-ponds river system

25. The use of the River Styles Framework as a tool to ‘work with nature’ in managing rivers in Brazil: examples from the Macaé Catchment

26. The impact of urbanisation on community structure, gene abundance and transcription rates of microbes in upland swamps of Eastern Australia
Water sources of upland swamps in Eastern Australia: implications for system integrity with aquifer interference and a changing climate

Engaging with research impact assessment for an environmental science case study

Learning, doing and professional development – the River Styles Framework as a tool to support the development of coherent and strategic approaches for land and water management in Brazil

To plug-in or not to plug-in? Geomorphic analysis of rivers using the River Styles Framework in an era of big data acquisition and automation

Understanding the spatial distribution and physical attributes of upland swamps in the Sydney Basin as a template for their conservation and management

Single-grain OSL dating of fluvial terraces in the upper Hunter catchment, southeastern Australia

Mapping valley bottom confinement at the network scale

Connectivity as an emergent property of geomorphic systems

Palaeohydrology of lowland rivers in the Murray-Darling Basin, Australia

What's in a name? A naming convention for geomorphic river types using the River Styles Framework

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

Practicing sociogeomorphology: relationships and dialog in river research and management

Geomorphic effectiveness: a linear concept in a non-linear world

Plio-Pleistocene cooling and warming events in the Murray-Darling Basin, Australia

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

Practicing sociogeomorphology: relationships and dialog in river research and management

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

River sensitivity: a lost foundation concept in fluvial geomorphology
47. Different depths, different fauna: habitat influences on the distribution of groundwater invertebrates

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

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

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

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

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

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

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

55. Identifying key sedimentary indicators of geomorphic structure and function of upland swamps in the Blue Mountains for use in condition assessment and monitoring

56. Defining the floodplain in hydrologically-variable settings: implications for flood risk management

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

58. Assessing the geomorphic recovery potential of rivers: forecasting future trajectories of adjustment for use in management

59. Intrinsic and extrinsic controls on the geomorphic condition of upland swamps in Eastern NSW

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

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

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

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

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

65. A channel evolution model for subtropical macrochannel systems

66. 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

68. Managing legacy waste in the presence of cultural heritage at Wilkes Station, East Antarctica

69. Rehabilitating upland swamps using environmental histories: A case study of the Blue Mountains Peat Swamps, Eastern Australia

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

71. Metal and petroleum hydrocarbon contamination at Wilkes Station, East Antarctica

72. Morphological and historical resilience to catastrophic flooding: The case of Lockyer Creek, SE Queensland, Australia

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

74. Hydrological conditions explain variation in wood density in riparian plants of south-eastern Australia

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

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

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

78. Geomorphic mapping and taxonomy of fluvial landforms

79. Reading the Landscape in Field-Based Fluvial Geomorphology

80. Geochemical insights to the formation of "sedimentary buffers": Considering the role of tributary-trunk stream interactions on catchment-scale sediment flux and drainage network dynamics

81. 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

82. The geomorphic character and hydrological function of an upland swamp, Budderoo Plateau, Southern Highlands, NSW, Australia

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

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

85. Digging deep for diversity: Riparian seed bank abundance and species richness in relation to burial depth

86. Reading the landscape: Integrating the theory and practice of geomorphology to develop place-based understandings of river systems
87. Channel-floodplain connectivity during an extreme flood event: Implications for sediment erosion, deposition, and delivery  

88. (Dis)Connectivity in catchment sediment cascades: A fresh look at the sediment delivery problem  

89. Progress, problems and prospects in Australian river repair  

90. Sediment tracing in the upper Hunter catchment using elemental and mineralogical compositions: Implications for catchment-scale suspended sediment (dis)connectivity and management  

91. The type and spatial distribution of past waste at the abandoned Wilkes Station, East Antarctica  

92. Highlighting the need and potential for use of interdisciplinary science in adaptive environmental management: The case of Endangered upland swamps in the Blue Mountains, NSW, Australia  

93. Use of ergodic reasoning to reconstruct the historical range of variability and evolutionary trajectory of rivers  

94. How Does Restoration of Native Canopy Affect Understory Vegetation Composition? Evidence from Riparian Communities of the Hunter Valley Australia  

95. Geomorphology in action: Linking policy with on-the-ground actions through applications of the River Styles framework  

96. The Geographic Basis of Geomorphic Enquiry  
Preston, N., Brierley, G. & Fryirs, K., Jan 2011, In: Geography Compass. 5, 1, p. 21-34 14 p.

97. What are we monitoring and why? Using geomorphic principles to frame eco-hydrological assessments of river condition  

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

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

100. Inside the "Black Box" of river restoration: Using catchment history to identify disturbance and response mechanisms to set targets for process-based restoration  

101. Has river rehabilitation begun? Social perspectives from the Upper Hunter catchment, New South Wales, Australia  

102. Don't fight the site: Three geomorphic considerations in catchment-scale river rehabilitation planning  

103. Naturalness and place in river rehabilitation  

104. Post-European settlement response gradients of river sensitivity and recovery across the upper Hunter catchment, Australia  

105. The relationship between geomorphic river adjustment and management actions over the last 50 years in the upper Hunter catchment, NSW, Australia  

106. Spatial variability in the timing, nature and extent of channel response to typical human disturbance along the Upper Hunter River, New South Wales, Australia  
107. Where do floodplains begin? The role of total stream power and longitudinal profile form on floodplain initiation processes

108. Buffers, barriers and blankets: the (dis)connectivity of catchment-scale sediment cascades

109. Catchment-scale (dis)connectivity in sediment flux in the upper Hunter catchment, New South Wales, Australia

110. Post-rehabilitation environmental hazard of Cu, Zn, As and Pb at the derelict Conrad Mine, eastern Australia

111. Knowing your place: An Australasian perspective on catchment-framed approaches to river repair

112. Landscape connectivity: The geographic basis of geomorphic applications

113. Linking geomorphic character, behaviour and condition to fluvial biodiversity: Implications for river management

114. The relationship between geomorphic river structure and coarse particulate organic matter (CPOM) storage along the Kangaroo River, New South Wales, Australia

115. Comparative assessment of three approaches for deriving stream power plots along long profiles in the upper Hunter River catchment, New South Wales, Australia

116. Did humid-temperate rivers in the Old and New Worlds respond differently to clearance of riparian vegetation and removal of woody debris?

117. Guiding principles for assessing geomorphic river condition: Application of a framework in the Bega catchment, South Coast, New South Wales, Australia

118. Application of the River Styles framework as a basis for river management in New South Wales, Australia

119. Antecedent landscape controls on river character, behaviour and evolution at the base of the escarpment in Bega catchment, South Coast, New South Wales, Australia

120. Die Auswirkungen antezedenter Landschaftsentwicklung auf Aussehen, Eigenschaften und Entwicklung von Fließgewässern am Fuße der Landstufe im Bega Einzugsgebiet, Südküste von New South Wales, Australien

121. Variability in sediment delivery and storage along river courses in Bega catchment, NSW, Australia: Implications for geomorphic river recovery

122. A geomorphological framework for river characterization and habitat assessment

123. A geomorphic approach to the identification of river recovery potential

124. River styles, a geomorphic approach to catchment characterization: Implications for river rehabilitation in Bega catchment, New South Wales, Australia

125. River Styles in Bega Catchment, NSW, Australia: Implications for river rehabilitation

126. Habitat assessment using the River Styles™ methodology

127. Post-European changes to the fluvial geomorphology of Bega catchment, Australia: implications for river ecology

128. Tributary-trunk stream relations in a cut-and-fill landscape: A case study from Wolumla catchment, New South Wales, Australia
129. **Slope-channel decoupling in Wolumla catchment, New South Wales, Australia: the changing nature of sediment sources following European settlement**

130. **A fluvial sediment budget for upper Wolumla Creek, south coast, New South Wales, Australia**

131. **The character and age structure of valley fills in upper Wolumla Creek catchment, south coast, New South Wales, Australia**

**Book Chapters**

1. **Abordagens de Restauração Fluvial na Australásia**

2. **Impacts of land clearing**

3. **River types and contemporary sediment storage**

4. **Assessment of riparian seed bank resources for river rehabilitation: Wollombi Brook, Lower Hunter Valley, NSW**

5. **Underfit streams in the upper Hunter catchment NSW: Antecedent controls on partly-confined river behaviour**

6. **Suspended sediment connectivity of the Lower Macquarie River system, central west NSW, Australia**

7. **Moves towards an era of river repair**

8. **River futures**

9. **Working with change: the importance of evolutionary perspectives in framing the trajectory of river adjustment**

10. **Principles of river condition assessment**

11. **The Australian river management experience**

12. **Social and biophysical connectivity of river systems**

13. **Sediment organisation along the upper Hunter River, Australia: A multivariate statistical approach**

14. **16 sediment organisation along the upper Hunter River, Australia: a multivariate statistical approach**

15. **Sedimentary cascades in Australian river systems: Using examples from the Bega and Hunter catchments to demonstrate (di)connectivity of sediment movement and its implications for river recovery**
16. The distribution of organic matter along the Kangaroo River, NSW

17. Bega River: Sediment Source, Transfer and Accumulation Zones

18. Bega River: Impacts of European settlement on sediment transfer relationships

Peer-reviewed Conference Papers

1. Identifying corridors of river recovery in coastal NSW for use in decision support and prioritisation systems

2. The certified environmental practitioner scheme geomorphology specialisation

3. Reviewing fire as a vegetation management technique in highly modified riparian ecosystems

4. Do we still need a human? Geomorphic analysis and interpretation of river systems in an age of emerging technology and big data

5. Delineating multiple flow paths in anastomosing river systems with wetlands using DEMs

6. Exploring the relationship between channel bed control structures and stream power in low-gradient floodplain wetlands

7. A quarter-century of evolution in Australian stream management: trends and prospects

8. The recovery of riparian vegetation along rivers of coastal NSW since the 1980s: implications for working with river recovery in management

9. Ecosystem productivity of a wet-dry tropics wetland system: establishing a baseline understanding for conservation

10. It's a good news story! Tracking geomorphic recovery of rivers in eastern New South Wales as part of process-based river management
11. Towards defining geomorphic rarity and vulnerability; use of River Styles in High Ecological Value Aquatic Ecosystems (HEVAE)

12. Trialling the use of controlled burning for exotic vegetation management in novel riparian ecosystems

13. Sociogeomorphic river recovery: integrating human and physical processes in rehabilitation

14. 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

15. The use and usefulness of geomorphology in river management

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

17. Relating with rivers: geomorphic foundations for ethical cross-cultural dialogue in river management

18. Management and conservation of a unique and diverse Australian river type: chain-of-ponds

19. Adaptive management of Temperate Highland Peat Swamps on Sandstone in the Blue Mountains: is it occurring?

20. The importance of ‘moving targets’ in assessing what is physically achievable and what we seek to achieve in river restoration practice

21. Developing a model of upland swamp structure, function and evolution for biodiversity conservation and rehabilitation: the case of threatened Temperate Highland Peat Swamps on Sandstone (THPSS)

22. Is passive revegetation through utilisation of soil seed banks a viable rehabilitation option in riparian ecosystems?

23. On-site teaching with XRF and XRD: training the next generation of analytical X-ray professionals

24. The Formation and geomorphic condition of upland swamps in the Blue Mountains: rehabilitation potential of these endangered ecosystems

25. Tracing sediment supply to a colmation layer in the upper Hunter River using X-ray diffractometry: implications for catchment-scale sediment management
26. **Depth, stratification and viability of seed banks in riparian systems: Watagan Creek, NSW**


27. **Using geomorphology in river management: linking policy with on-the-ground actions through applications of the River Styles framework in NSW**


28. **Space, place and a healthy dose of realism: Grounding the process of river repair**


29. **The importance of reach sensitivity and catchment connectivity in river rehabilitation planning**


30. **Challenges faced in the integration of science in river management in Australia**


31. **An interdisciplinary perspective of riverwork projects in the upper Hunter catchment: Has river rehabilitation begun?**


32. **Making Integrative, Cross-disciplinary Research Happen: Initial Lessons from the Upper Hunter River Rehabilitation Initiative**


33. **A catchment scale perspective on biophysical fluxes in the upper Hunter: Constraints and limiting factors on a large river rehabilitation experiment at Muswellbrook, NSW**


34. **Landscape perspectives on river rehabilitation practice**


35. **Linking landscape processes and river systems: Assessing implications of catchment-scale (dis)connectivity of sediment movement on river sensitivity, recovery and river management**


36. **Geomorphic controls on Coarse Particulate Organic Matter (CPOM) distribution: implications for river rehabilitation**


37. **Sedimentary Cascades in Australian River Systems: Using Examples from the Bega and Murrumbidgee Catchments to Demonstrate the Connectivity of Sediment Movement and Its Implications for Geomorphic River Recovery**


38. **Creating a catchment-framed biophysical vision for river rehabilitation programs**

39. **Application of the river styles framework to river management programs in New South Wales**

40. **The recovery potential of river styles in Bega catchment, NSW: a catchment based framework for prioritisation of river rehabilitation strategies**