Department of Planning and Environment

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New South Wales River Styles

Spatial dataset companion document

June 2023

Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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More information

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Acknowledgements

The River Styles Framework was developed at Macquarie University and the dataset is a 20 year collaboration between NSW Department of Planning and Environment and Macquarie University.

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Contents

What is River Styles?

Rivers in New South Wales display a broad range of physical forms and processes. Their form, or character, is a result of many factors including their position in the landscape, geology, landuse (both current and historical), runoff and streamflow (amount and variability), sediment dynamics and vegetation. Understanding the processes and responses, or behaviour, of these systems, allows us to develop ways to support and improve riverine health. Healthy rivers are critical not only for the plants and animals that live there, but have important cultural, social and economic value.

River Styles is a framework that describes the physical characteristics and diversity of rivers and assesses geomorphic stream condition. It considers their capacity to adjust, sensitivity to change due to disturbance, and the pressures (natural and human) that affect their geomorphic condition. It further considers how *likely* a river is to change its current form or condition and provides a geomorphic input when considering the prioritisation of river management activities.

The River Styles Framework

A River Style is a discrete type of river, defined according to its valley setting, planform, bed material and assemblage of geomorphic units. The River Styles Framework is an approach to geomorphologically informed river management that was developed at Macquarie University (https://riverstyles.com/river-styles-framework). The four stages in the River Styles Framework cover the description of river morphology and interpretation of behaviour (processes that create and shape landforms at different flow stages), assessment of condition, prediction of its potential to recover (improve its geomorphic condition), and prioritisation of river management.

- Stage 1 is used to identify river types (Styles) and interpret their forms, processes, adjustment to disturbance (natural and human), patterns across connected reaches and catchments, and controls on their character and behaviour. Examples are shown Figure 1.
- Stage 2 is used to interpret geomorphic condition in the context of river evolution. The data can be used to describe the extent to which the river has been altered relative to an expected reference (good) condition and to identify causes of deterioration or improvement.
- Stage 3 places each reach within its catchment context to analyse a river's potential to improve its geomorphic condition over a reasonable timeframe (normally decades). The data can be used to identify trajectories and likely timeframes of geomorphic recovery.
- Stage 4 identifies priorities for conservation and rehabilitation at the catchment scale.

In New South Wales, the River Styles framework is used to inform river management decisions, guide restoration efforts, and assess the ecological condition of rivers. It helps in understanding the natural functioning and variability of river systems, identifying key threats and pressures, and developing targeted strategies for sustainable river management and conservation.

Figure 1. A selection of the diversity of Rivers Styles in NSW.
A) Roumalla Creek, Kingstown, Partly confined, bedrock margin-controlled, discontinuous floodplain, sand bed.
B) McCoys Creek, Moparrabah, Partly confined, planform controlled, low sinuosity, discontinuous floodplain, gravel bed.
C) Rocky Creek, Horton, Confined, bedrock margin-controlled, gorge, bedrock bed.
D) Two Mile Water, Boorolong, Laterally unconfined, discontinuous channel, chain of ponds, fine-grained.
E) Lachlan River, Kalyarr, Laterally unconfined, continuous channel, meandering, fine-grained bed.
F) Gwydir River, Bundara, Partly confined, bedrock margin-controlled, discontinuous floodplain, gravel bed.
Photos by R. Williams (A, C, F), P. Panaretos (B), F. Hancock (D) and S. Bowen (E).

River Styles in New South Wales

History of River Styles in NSW

The NSW River Styles spatial dataset is a collaboration between the Department of Planning and Environment – Water, and Macquarie University. The first version was created in 2004 with assessments of the Namoi and Hunter catchments and by 2012 the remainder of the state had been assessed. River Styles assessments are ongoing (Figure 2), with updates generally completed on a rolling ten-year cycle to align with Water Sharing Plan remakes.

The updated information is used in preparing the NSW High Ecological Value Aquatic Ecosystem (HEVAE) framework and the Risk Assessments used in remaking Water Sharing Plans. This important dataset provides a reach-to-catchment scale geomorphic assessment of rivers in NSW, incorporating changes to rivers and geomorphic condition over time, and also using new information (from satellite and aerial imagery, elevation data and fieldwork) to improve the quality of the data.

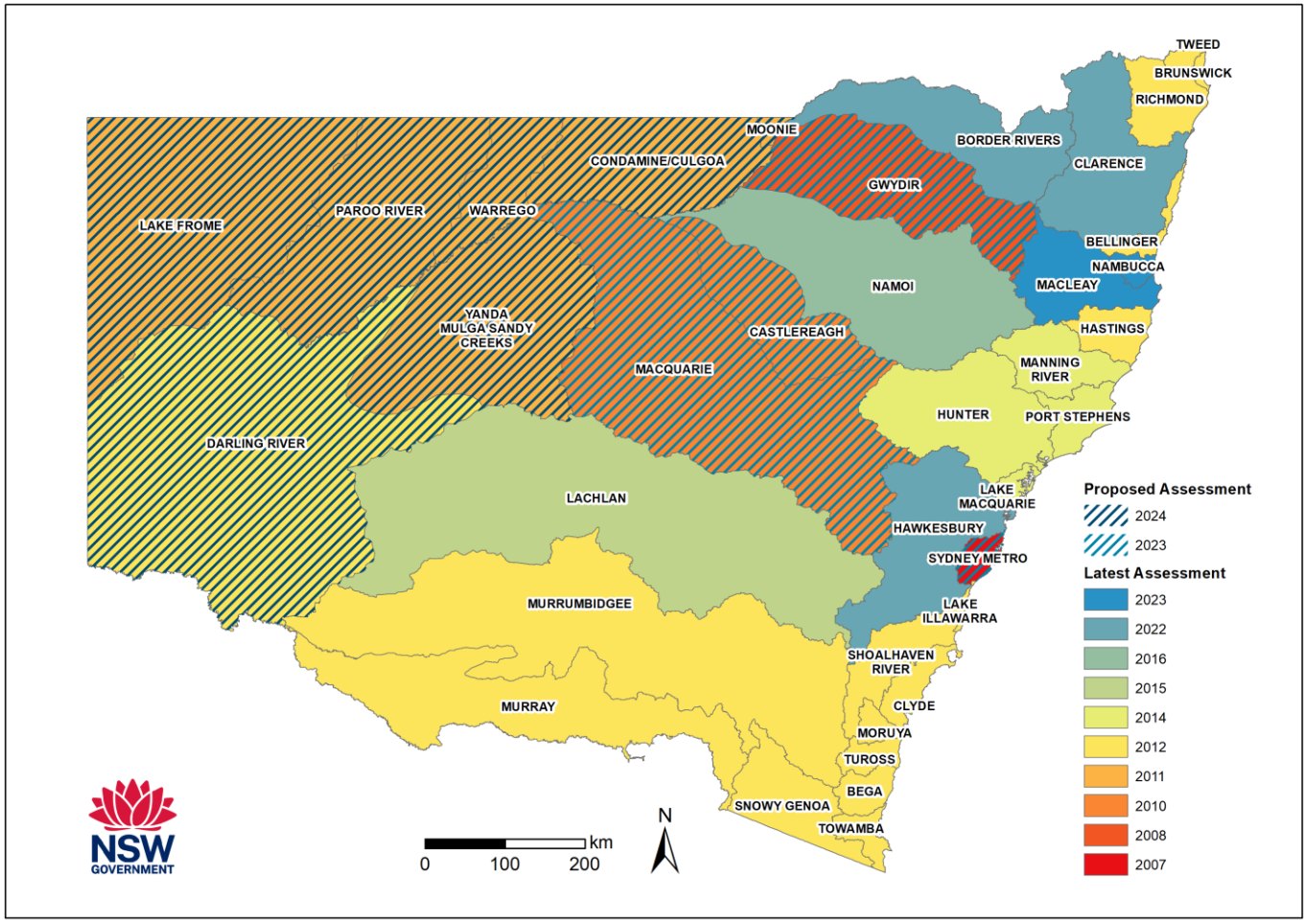

Figure 2. Status of state-wide River Styles assessments. The angled line shows the dates for proposed assessments.

River Style assessments use a range of data including recent[1] and historical[2] aerial imagery and elevation data[3]. Field assessments are then undertaken to validate the desktop assessments and gather better data on bed material, geomorphic features and stream condition. Individual reaches are then considered in context of upstream and downstream reaches and then broader sub-catchment and catchment scale processes, threats and connections, such as erosion and sediment transport, landuse, and riparian vegetation.

The timing of the assessment may vary depending on the time since the last assessment or requirements to provide input into HEVAE and Water Sharing Plan Risk Assessments, as noted above.

NSW River Styles spatial dataset

The spatial dataset is a map overlay that contains over 220,000 km of river length in NSW and records information (attributes) for each discrete section (reach) of river (Figure 3). The information is stored in a file geodatabase. The data is available as an online web app, viewable in a web browser. It can also be viewed using a web map or feature service in ArcGIS (licence required) or other applications like QGIS (free software). The data is also available from the NSW data repository, SEED (https://www.seed.nsw.gov.au/).

Changes and improvements to the data in the 2023 update

The key changes to the dataset are;

- The alignment of the data to the River Styles naming convention,
- The inclusion of Stage 4 of the River Styles Framework – River management applications (Prioritisation) (https://riverstyles.com/river-styles-framework/)
- Additional information and context to improve the quality and transparency of River Styles geomorphic prioritisation values.

Previous recovery potential values attempted to include prioritisation, but this made it difficult or impossible to identify the recovery potential of 'strategic' reaches or provide detail on why a reach is 'strategic'. The separation to have recovery potential and priority fields provides a clear understanding of these issues and creates consistent processes and definitions for assessments by multiple users. Diagrams illustrating the changes and processes are in Figure 5 and Figure 6 of the Appendix. A description of the fields (attributes) in the dataset is explained below and changes to the fields are shown in Table 3 in the Appendix.

[1]Recent aerial imagery from SIX Maps (Spatial Services, NSW Department of Customer Service), Google Earth (https://earth.google.com/) and Planet (https://www.planet.com/explorer/).

[2]Historical Aerial Photography (https://aerialphotography-geoscience-au.hub.arcgis.com/)

[3]Elevation data is from publicly available datasets including Elvis Elevation and Depth (https://elevation.fsdf.org.au/), which consists of airborne LiDAR and photogrammetry from ADS aerial imagery. Additional local data is acquired though field surveys and photogrammetry using photos from remote piloted aircraft

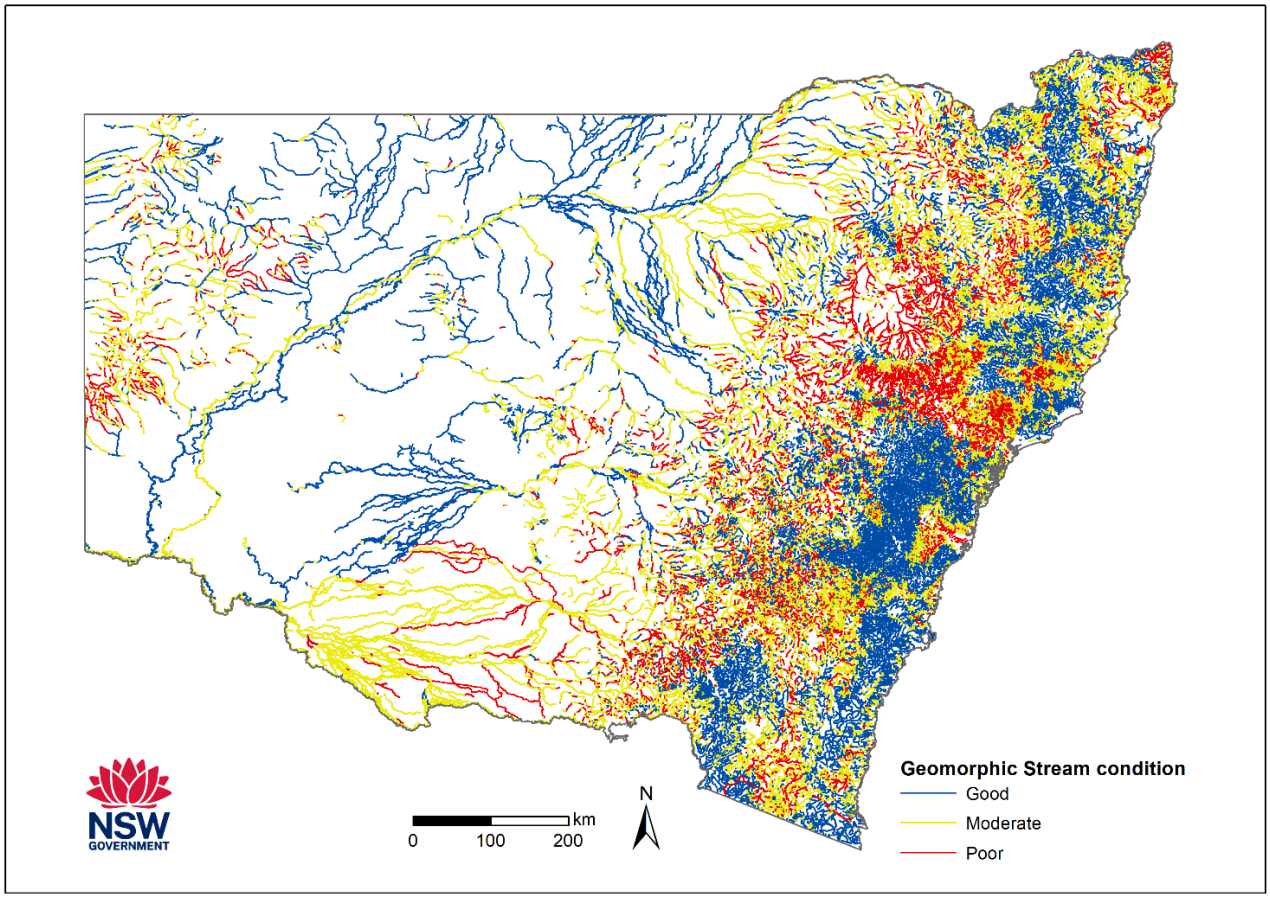

Figure 3. River Styles map of NSW displaying river condition. Blue is good condition, yellow is moderate condition and red is poor condition.

Fields (attributes) in the NSW River Styles spatial dataset

A full list of the fields and the alias (the plain English displayed name) along with the connection to the previous dataset is summarised in Table 3.

Stage 1 – River character and behaviour

A basic description of the following fields that define the river character and behaviour (Stage 1) are provided below. For more detail and examples of the classification and naming convention used in the River Styles Framework please read the open access article *What's in a name? A naming convention for geomorphic river types using the River Styles Framework* by Fryirs and Brierley (2018).

Lateral and bed confinement imposed on the channel – the presence of non-erosive valley margins (e.g. bedrock) that prevent river migration and/or change in channel form and the proportion of the length that the channel abuts this margin. These are classified into three main categories,

- *Confined* (>85% of the channel length abuts the valley margin),
- *Partly confined* (10–85% of the channel length abuts the valley margin), and
- *Laterally unconfined* (<10% of the channel length abuts the valley margin).

This field also includes whether the channel is *continuous* or *discontinuous* for laterally unconfined reaches.

Anthropogenic is an additional value that describes reaches with controls that are dominated by human changes, such as reservoirs, urban watercourses or irrigation canals.

Valley margin or planform control type – the types of controls (e.g., *bedrock*, *terrace*, *dune*) that prevent or limit river migration, bed incision or channel length. This field is only required for confined and partly confined reaches. Partly confined reaches, where the channel abuts the valley margin for 10–85% of its length, are split into *margin controlled* (50–85%) and *planform controlled* (10–50%).

Channel planform (pattern seen from above) – planform is a way of seeing a river; a plan of the river channel from above, showing its location, position on any floodplain, meandering pattern, branching, anabranching, paleo-channels, flood channels, break out or re-entry points. This field is only required for partly confined and laterally unconfined, continuous channels.

Additional constraints on planform-controlled reaches – additional constraint applied to the river planform via secondary confining features. An example would be a *terrace* creating an additional constraint on the ability of the channel to migrate. This field is only required for partly confined, planform-controlled reaches, but may contain information that adds clarity to other margin-control types.

Distinctive or primary geomorphic descriptor – the dominant or key defining geomorphic unit. For example, *occasional floodplain* pockets along a bedrock margin-controlled reach, or *chain of ponds* in a laterally unconfined, discontinuous channel reach. More detail on some of the units is available in the River Styles Toolkit Geomorphic Unit Quick Reference Guide

Additional geomorphic descriptor – an additional descriptor to provide more information or context, or split reaches. For example, to differentiate a *meander cut-off* or *flood channel* from the primary channel.

Dominant channel bed material or sediment size – the dominant bed material of the river channel, or for discontinuous channels, it is the valley-fill sediment texture or dominant grain size. Examples include *bedrock*, *boulder*, *cobble*, *gravel*, *sand*, *fine-grained*. This field also informs the likelihood of mobilisation and transport of sediment.

This field is often difficult to identify without a field assessment as the resolution of aerial imagery is usually limited to 0.5 m pixels or there is vegetation or water obscuring the channel. Bed forms may be complex with a range of particle sizes due to the variability of flows that move them. In addition, there are difficulties in accessing rivers for field verification as many are physically inaccessible or access to the rivers is only via privately held land.

River Style and abbreviated name – merges the controls and descriptions to create specific River Styles. It divides rivers into classes based on the hierarchy of geo-attributes. It includes a description of the valley confinement, any margin controls or constraints, planform and continuity, distinctive geomorphic features and bed material. For example, a *Partly confined, planform controlled, meandering, discontinuous floodplain, gravel bed* river (Figure 1D) or a *Laterally unconfined, discontinuous channel, chain of ponds, fine-grained* (Figure 1C). NSW River Styles may also be described as *Anthropogenic*, identifying a reach that has been highly modified, such as an *Anthropogenic, bedrock margin-controlled, urban watercourse – highly modified*.

For more information and details on the naming convention see the open access journal article 'What's in a name?' by Fryirs and Brierley (2018).

Stage 2 – Geomorphic condition in the context of river evolution

Geomorphic stream condition – is the geomorphic condition at time of assessment. It indicates whether the physical form and function of the reach is appropriate and expected for the Style of river and the environmental/landscape setting in which it is found. An example is shown in Figure 4.

- *Good condition* reaches have the expected geomorphic character (physical form and features, including vegetation) and behaviour (response to disturbances and adjustments) for a particular River Style. These are considered to be intact or a reference reach and include,
  - River character and behaviour fits the natural setting, presenting a high potential for ecological diversity, similar to the pre-development intact state.
  - Self-adjusting river forms and processes, allowing fast recovery from natural disturbance.
  - Relatively intact and effective vegetation coverage, giving resistance to natural disturbance and accelerated erosion.
- *Moderate condition reaches* are noticeably degraded, typically through human disturbance and may include,
  - Localised degradation of river character and behaviour, typically marked by modified patterns of geomorphic units.
  - Degraded forms of geomorphic units, for example, uncharacteristic grain size distribution.
  - Patchy areas of effective vegetation coverage (allowing some localised accelerated erosion).
- *Poor condition* reaches have accelerated degrading processes and lack the expected geomorphic features and characteristics. This may include,
  - Abnormal or accelerated geomorphic instability (reaches are prone to accelerated and/or inappropriate patterns or rates of planform change and/or bank and bed erosion),
  - Excessively high volumes of coarse bedload which blanket the bed, reducing flow diversity
  - Absent or geomorphologically ineffective coverage by vegetation (allowing most locations to have accelerated rates of erosion).

Figure 4. Examples of a Partly confined, planform controlled, low sinuosity, sand bed river in good (Wallis Creek, Hunter Valley, left) and poor (Macdonald River upstream St Albans, right) geomorphic condition.

Stage 3 – River recovery potential

Potential to recover from its current condition (Recovery potential) – the likelihood that a river reach will improve its geomorphic condition over management timeframes (see Table 1). Recovery potential is then used to inform prioritisation. This field has been updated for the new dataset to move *Strategic* (a prioritisation category) from recovery potential. The values from the old dataset have been reassigned based on the flow chart in the Appendix, Figure 5. Some catchments may have the value 'Strategic – to be assessed' to indicate that it was previously assessed as a *strategic priority* and therefore contained no value for its recovery potential. These values will be updated as new assessment of the catchments are undertaken.

Table 1. Rates of recovery likely for different recovery potential categories.

Recovery potential	Geomorphic condition	Rate of recovery
Intact	Good	No recovery required. The reach has not been recently disturbed or has fully recovered from past disturbances.
High	Moderate	Geomorphic condition may improve quickly if existing pressures are removed and connected to good condition upstream reaches. Or at moderate rate if disconnected to good condition upstream reaches.
Moderate	Moderate or poor	Condition may improve at a slow to moderate rate if existing pressures are removed. Some recovery may already be occurring.
Low	Poor	Very slow rate of recovery or not at all. Degradation may still be occurring.

Stage 4 – Prioritisation for river management

Some of these fields may not have information for some catchments as it requires a full reassessment to identify the reason for the previously labelled 'strategic' recovery potential reaches. This information will be populated as new River Styles assessments are completed around NSW.

(NEW) Priority for river management - River reaches are prioritised for management or intervention according to condition, recovery potential and spatial relationships to other reaches which may affect, or be affected by, processes operating in adjacent reaches (see Table 2). This Priority dataset is one layer of information to consider when embarking on river management activities. It must be considered in the context of the capacity to complete the work, feasibility, stakeholders and ongoing maintenance liabilities and monitoring.

This field has been updated for some catchments where the most recent River Styles assessment has been completed. Other catchments have been updated using calculations in ArcGIS based on stream condition, recovery potential, fragility and connections to other reaches – see Appendix, Figure 6 for a flow chart that describes the process.

The prioritisation sub-group is not within the River Styles Framework, but groups similar strategic reaches and identifies high recovery potential reaches that form connected corridors or loci for possible management activities.

Table 2. Prioritisation group descriptions and possible actions or management consideration

Prioritisation group	Description	Possible actions or management considerations
Conservation	Reach is already in good geomorphic condition or intact.	Conserve and protect from threats and maintain current condition. This may require treating strategic reaches.
Strategic	Reaches that contain threatening processes and threaten the integrity of conservation or high recovery potential reaches.	Control the threatening processes. Consideration should be given where intact or high recovery potential reaches are isolated or separated by strategic reaches. This should also consider the difficulty of effective action, stakeholders, maintenance liability, and costs.
High priority	Reaches with high recovery potential. These reaches can be rehabilitated with little intervention and a high chance of success. Those connected to Conservation or other High recovery potential reaches present a higher likelihood of positive outcomes.	Stop further human disturbance and continue to allow recovery, e.g., erect fencing for livestock control, vegetation establishment and maintenance, weed control, plant buffer strips. Rehabilitate upstream reaches or revegetate and install large instream wood in this reach. Remove encroaching vegetation from excess sediment slugs.
Medium priority	Reaches that should only be addressed when *Conservation* and *High recovery potential* reaches have been treated.	Rehabilitate upstream reaches and revegetate and install large instream wood in this reach. This may involve structural works.
Low priority	Low priority for rehabilitation – highly degraded. These reaches are likely to require expensive works and have a lower likelihood of success.	May require extensive rehabilitation of a long length of upstream reaches and this reach, including bed raising structures, bank erosion control structures, etc., to reduce the rates of change before vegetation can be established or large instream wood is installed. May require dredging of excess sediment slugs.

(NEW) Prioritisation reason – may contain more detail or context about the reason for the prioritisation value of a reach. This may contain information beyond the scope of the River Styles Framework and should be used as a starting point for on ground investigations by a trained geomorphologist and river managers.

Additional information and context

Fragility or sensitivity to disturbance – the likelihood of a river channel to change shape, location, or condition when disturbed. This is a natural and inherent part of rivers and is not a measure of health.

High fragility – Significant adjustment potential. Sensitive. It may alter or degrade dramatically and over long reaches. Major character changes can occur, or the River Style can change to another one when a low threshold of damaging impact is exceeded (e.g. clearing of bank toe vegetation alone, or a headcut migrating upstream through valley-fill sediments).

Medium fragility – Potential local adjustment. It may adjust over short sections within the vicinity of the threatening process. Major character changes can occur, or the River Styles can change to another - but only when a high threshold of damaging impact is exceeded. For example, it may require a catastrophic flood, sediment slug or clearing of all vegetation from bed, banks and floodplain.

Low fragility – Resilient. Minimal or no adjustment potential. Only minor changes occur such as bedform alteration and the River Style never changes to another one regardless of the level of damaging impact.

(NEW) Internal and external threats to geomorphic condition – Identified threats to geomorphic condition that are either acting within the reach (internal, e.g., bank slumping leading to channel expansion) or indirectly (external, e.g., landuse change in the catchment leading to a change in run off and increased stream flow).

(NEW) Sediment yield (relative to an intact reach) – an estimation of the amount to sediment being supplied, transported or deposited in a reach, relative to a reference (natural) reach in good condition. For example, a reach where the bed has incised and the channel banks are eroding, would be described as a '*sediment source - higher yield than reference or undisturbed reach'*.

(NEW) Historical or evolutionary context of the reach – provides information that can better explain historical (typically post-European settlement) geomorphic changes to reaches and considerations for recovery works. Examples are '*Urbanised catchment and changes to channels and riparian areas leading to altered hydrology and often reduced resilience*' or '*Incision of a valley-fill reach due to post-European landuse changes'*

Assessment confidence – reflects the ability to use remotely sensed imagery (e.g., aerial photography or elevation data) and field work to verify River Style, geomorphic condition, and recovery potential.

- High confidence – recent LiDAR-derived DEM (maximum 2 metre resolution) and/or high resolution (maximum 0.5 metre) remotely sensed imagery followed by representative field work and verification which may include external professional field assessment work.
- Moderate confidence – recent remotely sensed data (>2m LiDAR-derived DEM or any 5 m ADS photogrammetry DEM, and/or <3 m resolution imagery) with either limited field work to verify specific site conditions and/or external non-professional field assessment.
- Low confidence – older and/or low-resolution remotely sensed data and no field work to verify specific site conditions.

Reasons for change in River Style character, condition or recovery potential

There are many reasons for changes to the attributes or a reach (such as the River Style or condition) when updated catchment assessments are included into the state-wide dataset. Some of these reflect real changes in condition and recovery potential but others are due to improvements in the data used for assessments, or structural changes to the dataset.

- Improvement or decline in geomorphic condition, or change to a different River Style, due to changes in natural (e.g., major flooding) and/or human disturbance (e.g., landuse changes, livestock ingress), or river rehabilitation works.
- Improved data quality and availability including higher resolution imagery or elevation data, or more field verification sites. Since many of the first round of River Styles assessments, imagery may have changed from 2 x 2 m ground sample satellite imagery to 0.5 x 0.5 m aerial photographs. In many cases elevation data now has a resolution between 1 m and 5 m (LiDAR or photogrammetry), compared with older 30 m datasets (SRTM satellite) for some areas. However, some of these newer higher-resolution elevation datasets are now ten years old and need to be used with caution and in conjunction with newer aerial imagery or field verification.
- Changes to the fields and the recorded attributes in the spatial dataset to better align it to the River Styles Framework (https://riverstyles.com/river-styles-framework/). This is one of the key improvements. In the previous versions, the *Recovery Potential* field contained information on both recovery potential and prioritisation for river management. This obscured the actual recovery potential for those important reaches labelled 'strategic', and also provided no reason why it was defined as 'strategic'. The new *Recovery Potential* and *Prioritisation* fields allow a river's recovery potential to be recorded, and also categorise its River Styles priority in line with the Framework.
- Changes to the database fields to better align it to the River Styles naming convention (open access journal article – https://doi.org/10.1371/journal.pone.0201909). This ensures consistency between different people assessing and allows for comparisons between catchments, regions, and new or updated versions. There are some older descriptions used but these will be updated as new assessments are carried out across NSW.

Acknowledgements

The River Styles Framework was developed at Macquarie University by Professor Kirstie Fryirs and Professor Gary Brierley (now University of Auckland).

The NSW Government proudly supported and worked with Macquarie University to co-develop and deliver the database project.

The database was developed in a partnership between the Water division of NSW Department of Planning, Industry and Environment and Macquarie University through 20 years of continuing collaboration.

More Information

Contacts

For more information on the NSW River Styles spatial dataset, please email water.science@dpie.nsw.gov.au.

More information on the River Styles Framework and its use in Australia and internationally, can be found at www.riverstyles.com

References

NSW Department of Planning and Environment – Water, Surface Water Science – River Assessment Tools https://water.dpie.nsw.gov.au/science-data-and-modelling/surface-water/river-assessment-tools

River Styles website https://riverstyles.com/

Brierley, G.J. and Fryirs, K.A. 2005. Geomorphology and River Management: Applications of the River Styles Framework. Blackwell Publications, Oxford, UK. 398pp.

Fryirs, K.A. and Brierley, G.J. 2013. Geomorphic Analysis of River Systems: An Approach to Reading the Landscape. John Wiley and Sons, Chichester, UK, 345pp.

Fryirs, K.A. and Brierley, G.J. 2018. What's in a name? A naming convention for geomorphic river types using the River Styles Framework. PLoSONE. 13(9):e0201909. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0244719

Appendix

Assigning Recovery Potential and Priority to the updated dataset

Previous recovery potential values attempted to include prioritisation, resulting in the actual recovery potential of 'strategic' reaches not being recorded and reduced the information as to why a reach is 'strategic'. Having separate recovery potential and priority fields resolves these issues and creates a clear process and consistent definitions for assessment by multiple users.

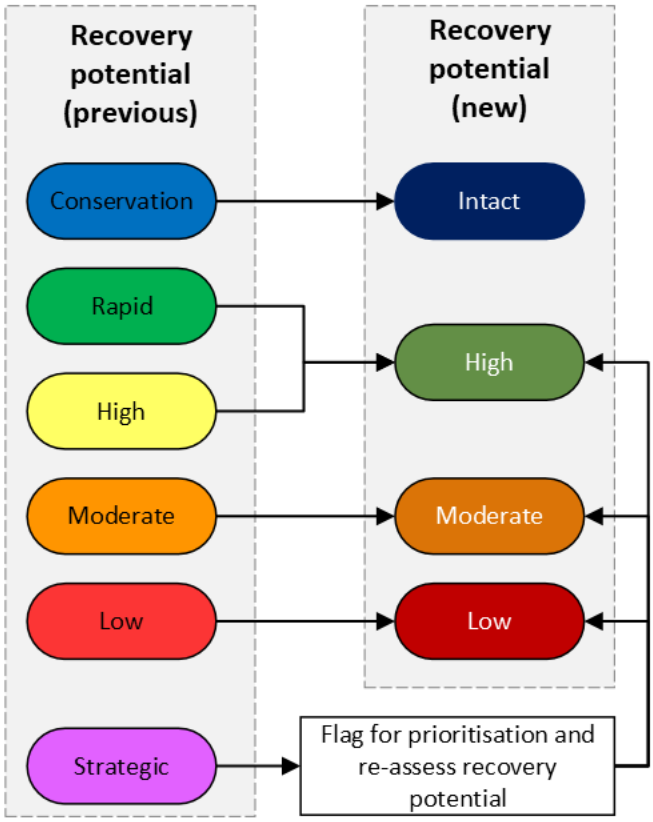

Figure 5. Changes to, and reassessment of, the previous recovery potential values in the updated 2023 River Styles dataset.

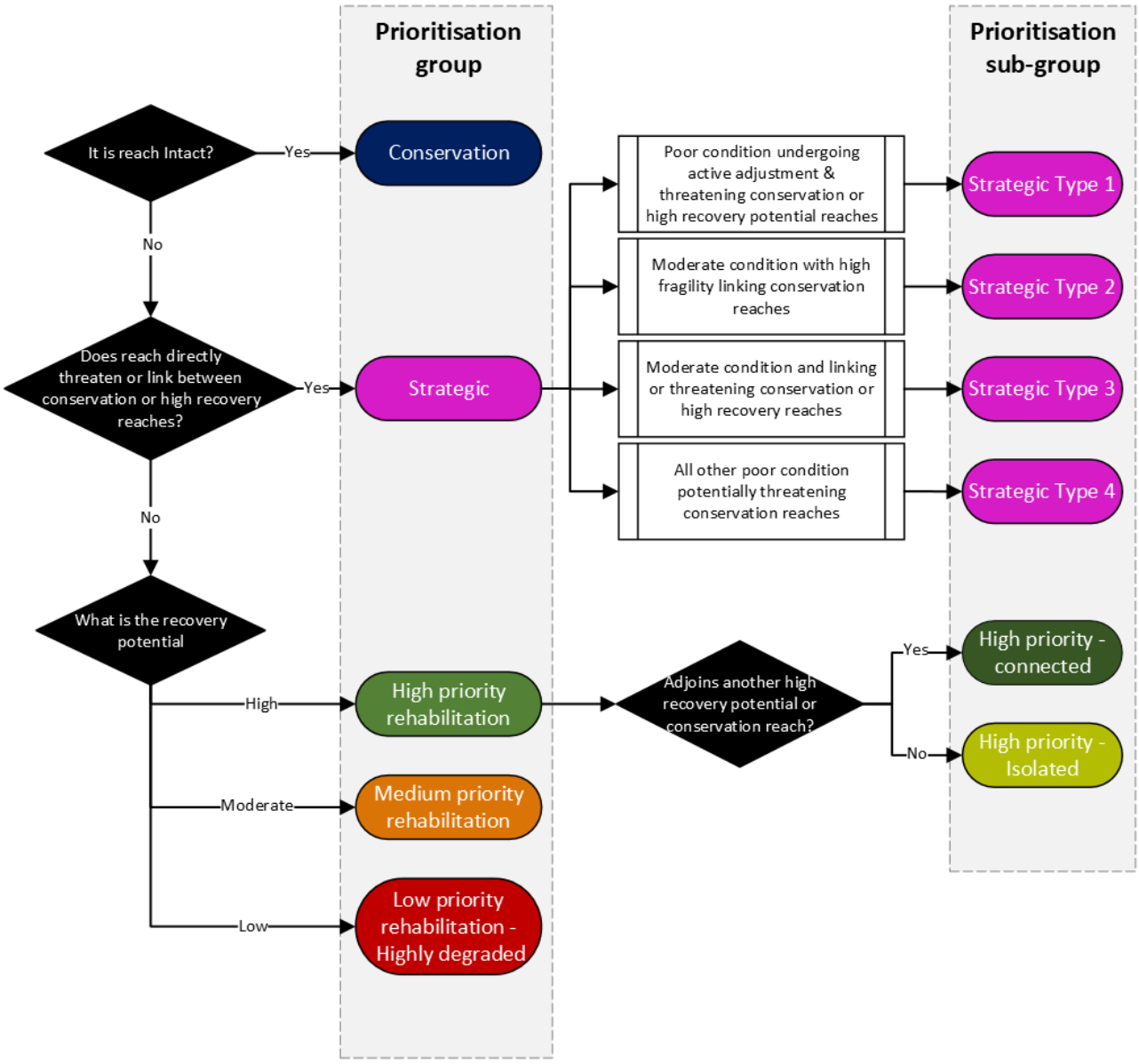

Figure 6. Assigning Priority to the NSW River Styles dataset based on condition, recovery potential, fragility, threats and spatial connections. The sub-group is not within the River Styles Framework but classifies similar strategic reaches and identifies high recovery potential reaches that form connected corridors or loci for possible management activities

Table of fields in the previous and updated 2023 River Styles dataset. Fields in bold are new or improved.

Table 3. Fields in the previous and updated River Styles spatial dataset. Fields in bold are new or improved. Some fields are not visible on the public web viewer as they are incomplete or used as a function in the file geodatabase for assessments.

Previous Field Name	New Field Name	Visible	Alias (public/web name)
OBJECTID	OBJECTID	No	
Shape	Shape	No	
HYDRO_NAME	HYDRO_NAME	No	
HYDRO_TYPE	HYDRO_TYPE	No	
	HYDRO_NAME_TYPE	Yes	Name
STREAM_ORDER	STREAM_ORDER	No	
RIVER_STYLE_CODE	RIVER_STYLE_SUBTYPE	No	
CONFINEMENT_LEVEL	CONFINEMENT_LEVEL	Yes	Lateral and bed confinement imposed on the channel
MARGIN_CONTROL	MARGIN_CONTROL	Yes	Valley margin or planform control type
PLANFORM_DESCRIPTOR	PLANFORM_DESCRIPTOR	Yes	Channel planform (pattern seen from above)
FLOODPLAIN	(Included in DISTINCTIVE_DESCRIPTOR)	n/a	
	PLANFORM_CONSTRAINT	Yes	Additional constraints on planform controlled reaches
RIVER_STYLE_DESCRIPTION	DISTINCTIVE_DESCRIPTOR	Yes	Distinctive or primary geomorphic descriptor
	GEOMORPHIC_DESCRIPTOR	Yes	Additional geomorphic descriptor
RIVER_STYLE	(synonymous with ABBREVIATED_NAME)	n/a	
FULL_BED_MATRIX_DESCRIPTOR	BED_MATERIAL_TEXTURE_DESCRIPTOR	Yes	Dominant channel bed material or sediment size
RIVER_STYLE_FULL_NAME	RIVER_STYLE_FULL_NAME	Yes	River Style
RIVER_STYLE_ABBREVIATED_NAME	RIVER_STYLE_ABBREVIATED_NAME	Yes	River Style (abbreviated)
STREAM_CONDITION	STREAM_CONDITION	Yes	Geomorphic stream condition
FRAGILITY	FRAGILITY	Yes	Fragility or sensitivity to disturbance
RECOVERY_POTENTIAL	RECOVERY_POTENTIAL	Yes	Potential to recover from its current condition
(partly included in recovery potential)	**PRIORITISATION_GROUP**	Yes	Priority for river management

Previous Field Name	New Field Name	Visible	Alias (public/web name)
	PRIORITISATION_SUBGROUP	No	Priority for river management (Subgroup). This additional classification is beyond the River Styles Framework
	PRIORITISATION_REASON	Yes	Prioritisation reason
	THREAT_INTERNAL	Yes	Internal threat to geomorphic condition
	THREAT_EXTERNAL	Yes	External threat to geomorphic condition
	SEDIMENT_YIELD	Yes	Sediment yield (relative to an intact reach)
	HISTORICAL_CONTEXT	Yes	Historical or evolutionary context of the reach
BED_MATERIAL_AFFECTOR	BED_MATERIAL_AFFECTOR	No	
LIKELY_CONDITION_CHANGE	LIKELY_CONDITION_CHANGE	No	
REFUGIA	REFUGIA	No	
CONFIDENCE_text	CONFIDENCE	Yes	Assessment confidence
NOTES	NOTES	Yes	Notes or comments
CATCHMENT	CATCHMENT	Yes	Catchment
REPORT	ASSESSMENT_REPORT	Yes	Assessment report
DATE_COMPLETED	REPORT_DATE	Yes	Assessment date
created_user	created_user	No	
created_date	created_date	No	
last_edited_user	last_edited_user	No	
last_edited_date	last_edited_date	No	
(copy for reference)	**OBJECTID_OLD**	No	
(copy for reference)	**RIVER_STYLE_OLD**	No	
(copy for reference)	**FLOODPLAIN_OLD**	No	
Shape_Length	Shape_Length	Yes	Reach length (m)