



Stressed Rivers Assessment Report

NSW State Summary
1998

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1.0 INTRODUCTION

In mid 1997, the Government announced a series of water reforms which included the release of a discussion paper *A Stressed Rivers Approach to the Management of Water Use in Unregulated Streams*. The paper put forward a proposal aimed at addressing the problem of stressed rivers. It also reinforced the Government's commitment to community involvement in the decision making, monitoring and management processes.

The stressed rivers approach recognises that not only environmental circumstances but also economic, social and equity factors vary significantly in each catchment and that common rules and actions across all rivers would result in either unnecessary hardship in some catchments or, conversely, inadequate environmental protection in others.

On the other hand, the resources and time needed to evaluate each stream individually and develop appropriate management strategies would be enormous. A key outcome of the stressed rivers analysis is the prioritisation of catchments for immediate attention.

The stressed rivers approach, therefore establishes a consistent and transparent rationale for the future management of all rivers while allowing for different priorities and policies depending on the circumstances of each catchment.

A SUBCATCHMENT FOCUS

Given that there are substantial variations in the hydrologic, environmental and water use characteristics across a valley, the stressed rivers classification has been based on a subcatchment analysis.

This has allowed the rivers in each subcatchment to be assessed independently. While it is recognised that the interactions between subcatchments are important, efforts will be focussed initially on the most stressed subcatchments. This should in most cases also achieve the most cost effective improvements to downstream areas.

The boundaries for subcatchments have been

determined primarily on hydrologic grounds, but have also taken some account of social, infrastructure and other factors. This has resulted in the delineation of some 680 unregulated subcatchments statewide with their sizes varying considerably depending on each stream's characteristics.

THE CLASSIFICATION CATEGORIES

The Classification system separates subcatchments into nine categories based on assessments of both environmental and hydrologic stress. This is best illustrated by the matrix in figure 1 which also provides some of the rationale underlying the different categories:

A special category of subcatchments has also been identified based on rivers of particularly high conservation value.

FULL DEVELOPMENT SCENARIO

The primary classification for each subcatchment is based upon estimates of current water usage and environmental health. Many catchments also have a substantial number of undeveloped water entitlements which could activate in the future significantly increasing the hydrologic stress. It is likely that this increase in hydrologic stress could also result in an increase in the environmental stress. In order to indicate the possible level of future stress each subcatchment has also been assessed on the basis of the full development of all existing entitlements

RIVERS WITH IDENTIFIED CONSERVATION VALUES

The classification process has also attempted to identify all subcatchments which have special conservation value. This may relate for example to the presence of threatened or high value species or wetlands, or high biodiversity or may reflect the pristine or near pristine condition of the rivers.

While it would be expected that many low stressed rivers - which by their nature are largely undeveloped - would have special conservation values, some impacted rivers can also support valuable remnant habitats and species which have

	Low ENVIRONMENTAL STRESS	Medium ENVIRONMENTAL STRESS	High ENVIRONMENTAL STRESS
High PROPORTION OF WATER EXTRACTED	<p>CATEGORY U1</p> <p>Immediate indications are that water extraction is causing a problem. However, more detailed evaluation should be undertaken to confirm. It is also likely that conflict between users may be occurring during critical periods.</p>	<p>CATEGORY S3</p> <p>Water extraction is likely to be contributing to environmental stress.</p>	<p>CATEGORY S1</p> <p>Water extraction is likely to be contributing to environmental stress.</p>
Medium PROPORTION OF WATER EXTRACTED	<p>CATEGORY U2</p> <p>There is no indication of a problem and, therefore, such rivers would be a low priority for management action.</p>	<p>CATEGORY S4</p> <p>Water extraction may be contributing to environmental stress</p>	<p>CATEGORY S2</p> <p>Water extraction may be contributing to environmental stress.</p>
Low PROPORTION OF WATER EXTRACTED	<p>CATEGORY U4</p> <p>There is no indication of a problem and, therefore, such rivers would be a low priority for management action.</p>	<p>CATEGORY U3</p> <p>Environmental stress is likely to be due to factors other than water extraction and, as stress is not high, these rivers would be a lower priority for management action</p>	<p>CATEGORY S5</p> <p>While environmental stress is likely to be due to factors other than water extraction, the high level of environmental stress means it is important to ensure extraction is not exacerbating the problem.</p>

Notes:

1. Dark shading indicates categories with high combined stress rating
2. Lighter shading indicates categories with medium combined stress rating
3. Absence of shading indicates categories with low combined stress rating

Figure 1: Matrix of Stress Classifications and Management Categories.

been lost from similar rivers elsewhere. The identification of these values provides important information to the river management planning process.

While many rivers have specific conservation values that need to be explicitly addressed in future management, a smaller number have been nominated as having high overall conservation value which would justify a greater level of protection and management. These have been given a special classification as *High*

Conservation Rivers.

MANAGEMENT IMPLICATIONS OF THE CLASSIFICATION SCHEME

Under the stressed rivers approach, rivers have been classified according to their assessed level of stress and conservation status, and this classification will guide both the management priorities and policies. This will ensure that actions are taken according to the needs of the individual rivers, and that the impact on the rural

community is focussed on those areas where it is likely to make a real difference to river health.

The stressed rivers classification will influence the following decisions:

- Immediate review of current licence embargoes.
- Priorities for development of river management plans (high priority subcatchments to be completed by 2000/01 at the latest).
- Identification of issues to be addressed in river management plans
- Introduction of interim water transfer schemes.
- The volume available for extraction in any subcatchment.
- Protection for rivers of high conservation value.

It will **not** determine:

- The actual volumetric conditions placed on individual licenses - this will be undertaken by the Department of Land and Water Conservation based on existing irrigated and licensed areas.

The stressed rivers approach will provide water users and the local community with clear information on the issues pertinent to each river and to help them in the management of that river by making the risks more obvious. For rivers already under stress, license embargoes will be retained meaning that the community will also be assured that new water licenses which could further threaten supply or river health will not be available. However, once the river management plans are in place, water users will be able to trade entitlements in accordance with the local rules set by those plans, and broader Government policies.

For rivers classified as unstressed, an upper limit to development will be determined. Trading will also be allowed subject to reasonable safeguards. Triggers will be put in place which signal when a river is approaching a higher stress level, and therefore requiring more intensive management.

UNRESOLVED SUBCATCHMENTS

It has not been possible to classify a number of subcatchments due to lack of streamflow or other data. Action will proceed on these catchments to generate the necessary information to allow these subcatchments to be classified as soon as possible. River Management Committees may also identify such streams to be of concern and given priority for management planning. Rivers which are currently unclassified will be treated as a stressed system for interim management decisions, pending classification.

PRIORITY SETTING FOR RIVER MANAGEMENT PLANNING

Stressed rivers and high conservation streams will be given priority in terms of resources and management (see figure 2), so that the limited government resources available are directed to the area where they can do the most good.

River management plans, which will address both river flow and water quality objectives, will be developed for all priority subcatchments by 2000/01. Priority subcatchments will include stressed rivers, high conservation streams and as far as possible, those rivers which while not currently stressed are at risk of being put into a stressed category by activation of undeveloped water entitlements. Plans for the remaining rivers will be developed after that time. All plans will include a set of performance criteria so that management can be reviewed and adjusted as necessary.

REVIEW OF LICENSING EMBARGOES

An embargo on the issuing of new water licences is in place on regulated rivers throughout most of NSW due to the growing concern about the impact of water extractions on river health and the high level of entitlements already issued in many systems.

The embargoes in the Murray Darling Basin must remain due to the Murray Darling Basin Ministerial Cap which limits water diversions throughout the basin to the 1993/4 level of development. In coastal rivers however, the

	Low ENVIRONMENTAL STRESS	Medium ENVIRONMENTAL STRESS	High ENVIRONMENTAL STRESS
High PROPORTION OF WATER EXTRACTED	CATEGORY U1 Medium Priority for River Management Plans excepting high conservation streams	CATEGORY S3 Highest priority for River Management Plan	CATEGORY S1 Highest priority for River Management Plan
Medium PROPORTION OF WATER EXTRACTED	CATEGORY U2 Low priority for River Management Plan excepting High Conservation Streams	CATEGORY S4 Medium Priority for River Management Plans excepting high conservation streams or where full development may put subcatchment into a high stress category	CATEGORY S2 Highest Priority for River Management Plan
Low PROPORTION OF WATER EXTRACTED	CATEGORY U4 Low priority for River Management Plan excepting High Conservation Streams	CATEGORY U3 Low priority for River Management Plan excepting High Conservation Streams	CATEGORY S5 Medium Priority for River Management Plans excepting high conservation streams or where full development may put subcatchment into a high stress category

Figure 2: Matrix for Management Planning Priorities.

stressed rivers classification has provided enough information to allow the selective lifting of the embargo subject to the following criteria:

- Any decision to lift an embargo will be based on the classification of the subcatchment according to the full development scenario (ie assuming all licences activate) as this is a better indication of the future risks associated with the issuing of additional entitlements.
- The embargo not be lifted in highly stressed streams (categories S1, S2, S3), or in high conservation value streams pending the outcome of the river management plans
- New licences will preclude access to flows less than the 80th percentile flow (that flow which is exceeded on 8 days out of 10 days)

in all unregulated rivers.

- The embargo may be lifted in other subcatchments and new licenses issued with either type 1 or type 2 pumping conditions where:
 - Type 1 conditions - pumping is limited to flows above the 80th percentile flow
 - Type 2 conditions - pumping is limited to flows above the 50th percentile flow

Figure 3 illustrates the proposed approach.

INTERIM WATER LICENCE TRANSFER ARRANGEMENTS

Full water trading will not be possible in unregulated streams until all licences have been converted to volumetric conditions and river

	Low ENVIRONMENTAL STRESS	Medium ENVIRONMENTAL STRESS	High ENVIRONMENTAL STRESS
High PROPORTION OF WATER EXTRACTED	CATEGORY U1 Embargo may be lifted subject to Type 2 conditions	CATEGORY S3 Embargo maintained	CATEGORY S1 Embargo maintained
Medium PROPORTION OF WATER EXTRACTED	CATEGORY U2 Embargo may be lifted subject to Type 2 conditions	CATEGORY S4 Embargo may be lifted subject to Type 2 conditions	CATEGORY S2 Embargo maintained
Low PROPORTION OF WATER EXTRACTED	CATEGORY U4 Embargo may be lifted subject to Type 1 conditions	CATEGORY U3 Embargo may be lifted subject to Type 1 conditions	CATEGORY S5 Embargo may be lifted subject to Type 2 conditions

Figure 3: Matrix for licence embargo decisions

management plans prepared for at least the stressed systems.

In the meantime, a set of water licence transfer arrangements have been established for the unregulated rivers which will provide improvements in water access opportunities while still limiting any future impacts on river health and the reliability of supply to existing users. (see figure 4)

As part of these arrangements, transfers will be limited according to the stress classification of the stream as follows:

- Transfers will be limited to movements of entitlements within, or out of, but not into higher risk subcatchments including high conservation streams so as to prevent any increase in extraction in these streams. Transfers into lower risk subcatchments will be allowed (unlimited transfer provisions). (see figure 4)
- No inactive entitlements (sleepers or dozers) will be allowed to be transferred within the Murray Darling Basin until volumetric conversions have been completed in order to prevent any increase in total diversions

All transfer arrangements will be reviewed as part

of the river management plans and following the conversion of licenses to volumetric conditions.

REVIEW AND MONITORING

The NSW Government will establish River Management Committees to begin developing river flow and water quality plans for each catchment to meet agreed environmental objectives. The Committees will develop recommendations for the high priority subcatchments first based on the stressed rivers classification.

As river management plans are developed, the river management committees will review the classification of each stream using additional field assessment where appropriate. The Department of Land and Water Conservation will also be undertaking a survey, including photographic assessment of existing irrigation development and this information will also assist the review.

A stressed rivers assessment report has been prepared for each region and will be reviewed through the River Management Committees.

These Committees will also assist the government in determining an appropriate river monitoring strategy to enable the classification to be reviewed and performance to be monitored.

	Low ENVIRONMENTAL STRESS	Medium ENVIRONMENTAL STRESS	High ENVIRONMENTAL STRESS
High PROPORTION OF WATER EXTRACTED	CATEGORY U1 Limited transfer provisions only	CATEGORY S3 Limited transfer provisions only	CATEGORY S1 Limited transfer provisions only
Medium PROPORTION OF WATER EXTRACTED	CATEGORY U2 Unlimited transfer provisions	CATEGORY S4 Limited transfer provisions only	CATEGORY S2 Limited transfer provisions only
Low PROPORTION OF WATER EXTRACTED	CATEGORY U4 Unlimited transfer provisions	CATEGORY U3 Unlimited transfer provisions	CATEGORY S5 Limited transfer provisions only

Figure 4: Matrix for water licence transfer arrangements

The type and intensity of field monitoring will be determined according to the needs of the individual stream.

It will be essential to re-evaluate the classification of each subcatchment approximately every five years. This will indicate the success and appropriateness of the management strategies. If an unstressed stream was later classified as stressed, necessary action would be taken. If a stressed stream remained stressed, a careful evaluation of the adequacy of management action would be necessary to determine if more stringent actions are justified. This will feed into a review of the river management plan.

Throughout the process of developing the stressed rivers assessment a whole of government approach has been undertaken, and has included State inter-agency workshops comprising DLWC, EPA, NSW Ag., NPWS and NSW Fisheries.

Importantly, in the longer term, the process identifies data gaps required for the better assessment of subcatchments.

LIMITATIONS

The stressed rivers process was designed to provide a rapid desktop analysis of the current stress levels within unregulated subcatchments

using the best data available. This was carried out by regional scientists and technical experts, with expert panels (consisting of DLWC, EPA, NSW Agriculture, NPWS, Fisheries, and CMC representatives) also used to assess the environmental stress for each subcatchment. Although this process excluded additional data collection and extensive field verification, it is based on the best available information and provides a sound basis from which interim management decisions may be made and expanded upon. More detailed investigation will occur at the catchment planning stage, using the stressed rivers assessment as a guide.

It is also acknowledged that on-going monitoring is required to verify the desktop assessments and to enable inclusion of future issues in the planning process.

2.0 METHODOLOGY

The stressed rivers assessment was undertaken in four steps:

- Selection of subcatchment and mapping boundaries.
- Estimation of the proportion of daily flow extracted within subcatchments.

- Compilation of evidence of environmental stress.
- Overall stress classification.

2.1 SELECTION OF SUBCATCHMENT AND MAPPING BOUNDARIES

In general, the boundaries of subcatchments were defined on a hydrological basis. When defining the boundaries, consideration was also given to geology, terrain, social groupings of the area (e.g., government or water user group boundaries, more subcatchments in intensive landuse areas), and stream gauging and major water quality sampling points.

2.2. PROPORTION OF DAILY FLOW EXTRACTED

2.2.1. Streamflow Estimates

In most unregulated rivers, flows are only likely to be adversely affected during relatively dry times when water is low and demand is high. The 80th percentile flow for the month of maximum demand has therefore been used for the classification in most subcatchments (An 80th percentile flow is a relatively low flow, as it occurs, or is exceeded, 80% of the time - 80 days out of 100 days. The actual volume of flow that this equates to will of course differ from river to river).

In some subcatchments the river ceases to flow for significant periods (20% or more of the time) and therefore the 80th percentile flow is no use. In these rivers the 50th percentile flow has been used instead (The 50th percentile flow is that flow which is exceeded 50% of the time).

The flows have been estimated using information available through the Department of Land and Water Conservation's monitoring network, and a range of hydrologic predictive techniques to extend estimates into rivers without local gauging sites. In some cases no accurate estimate of the percentile flow could be made and these subcatchments were left unclassified at this stage. The Department will be undertaking further work to try to fill these gaps over the next few months.

2.2.2 Water Usage Estimates

Estimates of the peak monthly water extractions have been made using the surface water returns lodged by license holders and adjusted for the proportion of license holders who have chosen not to lodge a return. Reported annual water usage was distributed over the year depending on crop type and crop areas. Further confirmation was obtained by multiplying the reported irrigated areas by the peak monthly application rates averaged across the crop types for each subcatchment.

It is recognised that the quality of data provided by users in the past may be considered poor, but until extraction monitoring arrangements are changed and additional studies undertaken, they provide the best possible data and are believed to be reasonable for a preliminary classification.

2.2.3 Index of Hydrological Stress

An hydrological index (indicating hydrological stress), was then derived for each subcatchment for current use by proportioning water extraction to the streamflow estimate.

Each subcatchment was then classified as being of low (0 to 30% extraction of flow), medium (40 to 60% extraction) or high (70 to 100% extraction) hydrological stress. For borderline subcatchments (i.e., those with extraction between 30 to 40% and 60 to 70%, additional local information was used to place these subcatchments into the higher or lower category.

Where it was not possible to make either streamflow or water use estimates with any confidence, such as was the case for several subcatchments in the Macquarie and Murrumbidgee valleys, expert panels (consisting largely of DLWC licensing officers with knowledge of the local areas), were used to assess the hydrological stress.

Where there was no streamflow data and expert panels were not able to make a reliable assessment, these subcatchments remain unclassified at this stage.

2.3 EVIDENCE OF ENVIRONMENTAL STRESS

2.3.1 Stream Health Indicators

A range of indicators have been used to assess the

environmental condition of rivers including bank and bed erosion, riparian vegetation, landuse, fish barriers, water quality (total phosphorus, turbidity, salinity, pH), macro-invertebrates, algal blooms, fish kills, point source discharges, levee banks, and acid runoff. The actual indicators used varied between catchments depending on the available information and whether rivers were coastal or inland. Indicators were also selected for estuaries according to whether they were permanently open, intermittently closed or coastal lakes.

While it is recognised that some indicators may reflect problems caused by factors other than impacts on flow or water quality, it is considered that all available evidence of river stress should be taken into account as this will effect the rivers ability to tolerate water extraction or pollution.

Where regions had comprehensive data sets (i.e., the Hunter, Murrumbidgee, and North Coast), a rigorous statistical analysis was undertaken to determine overall stress level (high, medium or low) in each subcatchment (known scientifically as a principal component statistical analysis). Where the data sets were incomplete or limited (i.e., the Barwon, Central West, Far West, Murray, and South Coast) a less rigorous (decision tree) approach was used.

Expert panels (consisting of DLWC, EPA, NSW Agriculture, NPWS, Fisheries, and CMC representatives) also assessed the environmental stress for each subcatchment. In most cases the panels were able to confirm the risk assessment. Where there was disagreement between these approaches the more conservative assessment was adopted.

2.3.2 Identified Conservation Value or High Conservation Status

An evaluation of environmental or conservation status was also undertaken as part of the stressed rivers approach. Indicators of environmental value were developed and assessed by the NSW National Parks and Wildlife Service and NSW Fisheries. Indicators included presence of wetlands, National Park (or similar), riparian vegetation, water birds, threatened species, fish species diversity, and absence of alien fish species. On the basis of this data, NPWS and

Fisheries assigned either an environmental value or a high conservation value each subcatchment. This assessment is preliminary at this stage and will need review.

2.3.3 Areas of Future Risk

Throughout the stressed rivers assessment, it became apparent that there was a need to consider future risk when assigning management categories for future resource management decisions. Primarily this assessment considered a full water licence development scenario by estimating peak monthly usage if all licensed area was active within each subcatchment. In addition, future development activities that may also impact on water usage and/or stream system health, such as urban development, rural residential development, mining, agriculture, highway construction, river gravel extraction, industry and hydro power generation, were considered in the future risk assessments. This assessment may be used to vary the river planning priority given to a subcatchment

2.4 OVERALL STRESS CLASSIFICATION

In order to determine the final stress classification for each catchment, the hydrological stress ranking and the environmental stress ranking

were combined. By taking the environmental and hydrological stress rankings and applying them to the stress classification matrix a final category of stress for a subcatchment was ascertained.

3.0 RESULTS

Hydrologic Stress	Low ENVIRONMENTAL STRESS	Medium ENVIRONMENTAL STRESS	High ENVIRONMENTAL STRESS
High EXTRACTION	CATEGORY U1 15 (2.2%)	CATEGORY S3 57 (8.4%)	CATEGORY S1 72 (10.6%)
Medium EXTRACTION	CATEGORY U2 12 (1.8%)	CATEGORY S4 27 (4.0%)	CATEGORY S2 37 (5.4%)
Low EXTRACTION	CATEGORY U4 121 (17.8%)	CATEGORY U3 105 (15.4%)	CATEGORY S5 81 (11.9%)

Figure 5: Matrix of stress classifications showing numbers and percentages of subcatchments in different stress categories based on current levels of water extraction at current level of development.

Adopting the planning priorities proposed this means that:

- 166 subcatchments (24.4%) would be in the high priority categories (S1, S2, S3) for the preparation of river management plans;
- 123 subcatchments (18.1%) would be medium priority (S4, S5, U1) for the preparation of river management plans;
- 238 (35%) would be low priority (U2,U3,U4) for the preparation of river management plans.

Another 153 (22.5%) remain unresolved.

3.1 CLASSIFICATION MATRIX

Total Number of Subcatchments = 680
 Number Unclassified = 153/680 (22.5%)
 Number Classified = 527/680 (77.5%)

Consideration of future risk, specifically the activation of all existing water licenses would change the numbers in each category as follows:

Hydrologic Stress	Low ENVIRONMENTAL STRESS	Medium ENVIRONMENTAL STRESS	High ENVIRONMENTAL STRESS
High EXTRACTION	CATEGORY U1 23 (3.4%)	CATEGORY S3 77 (11.3%)	CATEGORY S1 114 (16.8%)
Medium EXTRACTION	CATEGORY U2 16 (2.4%)	CATEGORY S4 22 (3.2%)	CATEGORY S2 37 (5.4%)
Low EXTRACTION	CATEGORY U4 43 (6.3%)	CATEGORY U3 49 (7.2%)	CATEGORY S5 67 (9.9%)

Figure 6: Matrix showing numbers and percentages of subcatchments in different categories based on full development of water licences.

Adopting the future risk scenario as a basis for planning priorities would mean that:

- 228 subcatchments (33.5%) would be in the high priority categories (S1, S2, S3) for the preparation of river management plans. An additional 62 are included in this category due to their potential for future water use development;
- 112 subcatchments (16.4%) would be medium priority (S4, S5, U1) for the preparation of river management plans;
- 108 (15.9%) would be low priority (U2,U3,U4) for the preparation of river management plans.

In this case 232 (34.1%) remain unclassified.

Identified Conservation Value

- A total of 553 subcatchments (81.3%) have been identified by NPWS and/or NSW Fisheries as having specific conservation values.
- 380 rivers (55.9%) have been identified by the NPWS as having specific conservation values;
- 450 subcatchments (66.2%) have been identified by NSW Fisheries as having specific conservation values.

These conservation values will be factored into the river management plans where specific conservation strategies may be necessary.

High Conservation Value

A subset of identified conservation value subcatchments were determined as being of High Conservation Value if they had significant aquatic fauna and flora (including threatened species) or dependent wetlands, and significant native fish species (including endangered species) or habitat.

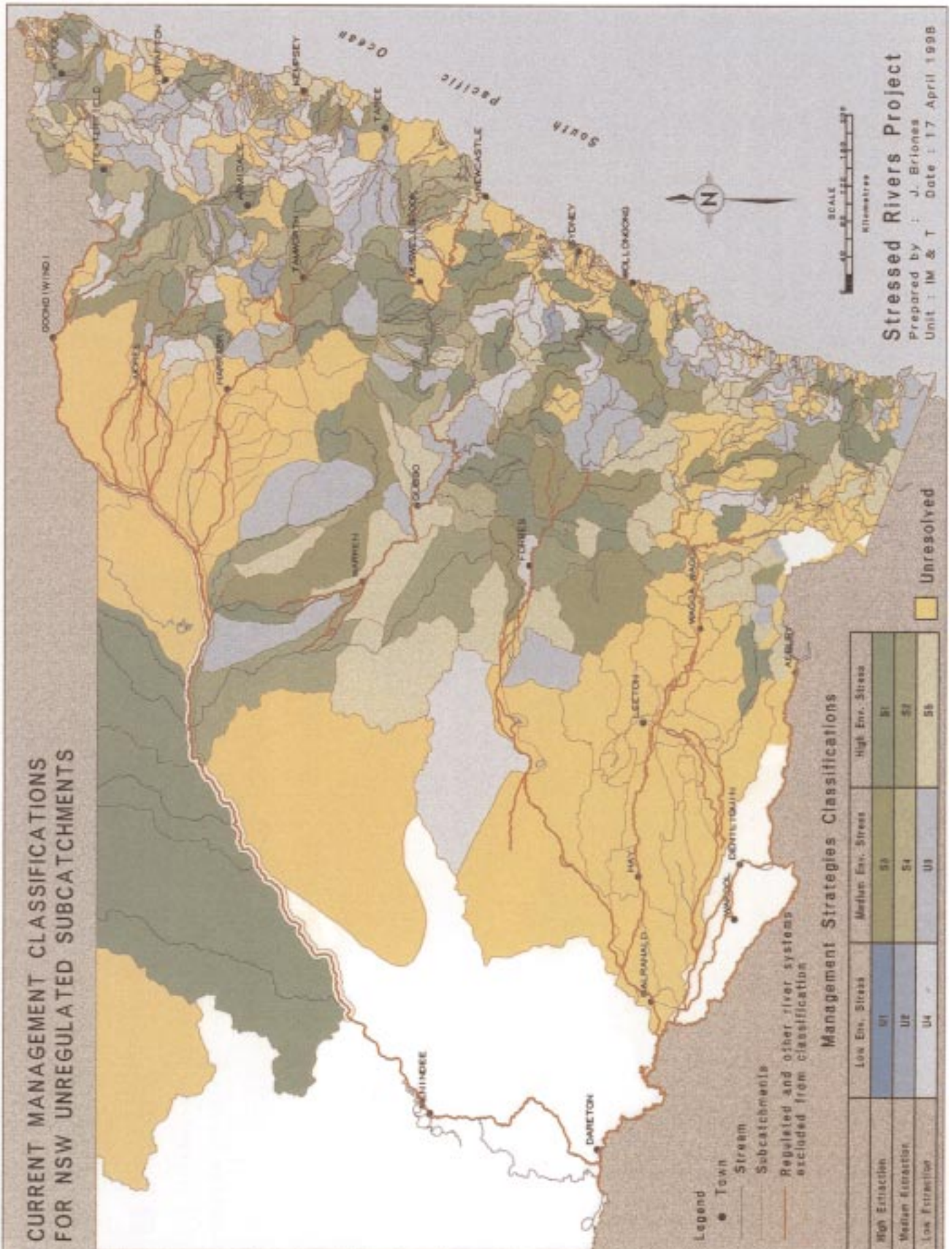
- A total of 100 subcatchments (14.7%) have been identified by NPWS and NSW Fisheries as having high conservation values.
- 25 subcatchments (3.7%) have been identified by NPWS and NSW Fisheries as having high conservation values within the high stress categories (i.e. S1, S2, S3).
- 22 subcatchments (3.2%) have been identified by NPWS and NSW Fisheries as having high conservation values where overall stress classifications are currently unresolved.

Table 1 sets out the subset of these subcatchments which have been identified as having high conservation value.

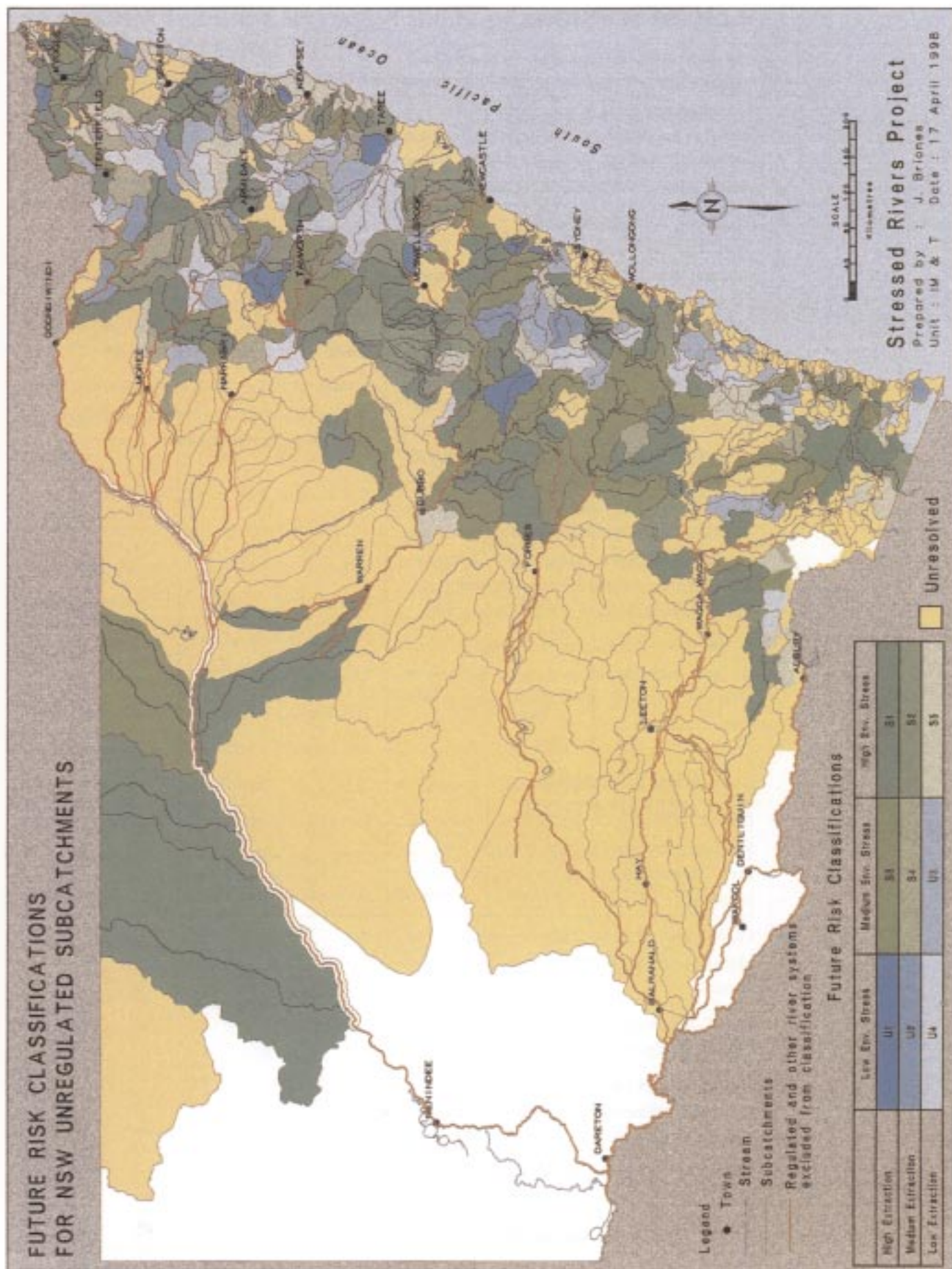
Table 1. High Conservation Value Rivers

Catchment	Subcatchment	Overall Stress Classification	Catchment	Subcatchment	Overall Stress Classification	
Bega	Brogo River	S1	Lachlan	Western Bland Creek	S3	
	Murrah River	U3		Lachlan above Reids Flat	S5	
	Sandy Beach Creek	Unresolved		Bogandillon and Manna Creeks	S5	
	Bega Estuary	Unresolved		Abercrombie River above Wyangala	U3	
Bellinger	Coastal Bellinger	S5	Lower Shoalhaven	Lower Shoalhaven River	S2	
	Coastal Kalang	S5		Broughton Mill Creek	S2	
Border Rivers	Glen Innes	S1		Yalwal Creek	U4	
	Brunswick	Belongil Creek		U3	Upper Shoalhaven Catchment	Kangaroo River
Lower Marshalls Creek		U3	Mongarlowe River	U4		
Simpsons Creek		U3	Macleay	Toorumbie Creek	Unresolved	
Clarence	Clarence Coastal	S5		Macquarie	Unregulated Lower Macquarie	S1
	Paddys Flat-Upper Clarence	S5	Lower Bogan River system		S2	
	Lower Nymboida River	U3	Castlereagh below Coonamble		S2	
	Boyd River	U4	Campbell's River		S3	
	Little Nymboida River	U4	Marthaguy Creek system		S3	
	Mid Mann River	U4	Little River		S4	
	Mid Nymboida River	U4	Lower Talbragar		S5	
	Sandon River	U4	Marra Creek system		U3	
Coldstream Creek	Unresolved	Turon/Crudine River	U4			
Clyde/Jervis	Wandandian Creek	U3	Manning		Dingo	U1
	Mid Clyde River	U4	Murrumbidgee		Numeralla East	S4
	Clyde River	U4		Goodradigbee	U4	
	Buckenbowra River	U4		Queanbeyan	U4	
	Nelligen Creek	Unresolved	Nambucca	Lower Deep Creek	S3	
	Batemans Bay/Clyde	Unresolved		Coastal Nambucca	U3	
	Narrawallee Inlet	Unresolved	Namoi	Upper Namoi	U2	
Deua	Deua River	S4		Lake Goran	Unresolved	
	Moruya River	Unresolved		Bugilbone	Unresolved	
Dry River	Bermagui	U1		Baradine	Unresolved	
	Far West	Warrego	S1	Richmond	Coopers Creek	S1
		Paroo	S1		Kyogle Area	S1
		Culgoa	S1		Leycester Creek	S2
		Narran	Unresolved		Myrtle Creek	S3
Yanda	Unresolved	Eden Creek	U3			
Genoa	Genoa River	U3	Terania Creek		U3	
	Gwydir	Gwydir	Unresolved		Tuckean Area	U3
Gingham Watercourse		Unresolved	Broadwater Area		U4	
Barwon		Unresolved	Double Duke Area	Unresolved		
Hastings	Coastal Hastings	S5	Myall Creek	Unresolved		
	Ellenborough River	U2	Snowy	Bombala River	S1	
	Forbes River	U4		Towamba	Towamba River	S5
Hawkesbury-Nepean	Wingecarribee River	S1	Wonboyn River		U3	
	Upper Nepean River	S1	Tuross	Tuross Estuary	U3	
	Mid Coxs River	S1		Wadbilliga River	Unresolved	
	Wollondilly River	S3		Mid Tuross River	Unresolved	
	Colo River	U4	Tuross River	S5		
	Erskine/Sassafras River	U4	Tweed	Cudgen Lake	S5	
Hunter	Allyn	S3		Mooball Creek	S5	
	Williams	S3				
	Hunter Estuary	S5				
	Karuah	Karuah	S4			
Myall		Unresolved				

3.2.3 Management Categories



3.2.5 Full Development Management



4.0 CONCLUSIONS

The Stressed Rivers Assessment Process has been designed as a rapid assessment of the current and potential future stress of unregulated rivers. This report on the findings of the approach has been designed as a guide for resource planning and prioritisation of subcatchments across NSW.

The report will also be used to provide water users and the local community with issues pertinent to each river system and to help them in the management of rivers by making the risks more obvious. The NSW Government will now move to establish River Management Committees to begin developing river flow and water quality plans for each catchment to meet agreed environmental objectives (to be completed by 2000/01 at the latest). The Committees will develop recommendations for the high priority subcatchments first based on the classification in this report. As river management plans are developed, the River Management Committees will review the classification of each stream using additional field assessment where appropriate.

A more detailed stressed rivers assessment report has been prepared for each region and will be reviewed through the River Management Committees.

5.0 ADDITIONAL DOCUMENTATION

Supplementary documentation to the Stressed Rivers Report: NSW State Summary includes the following:

DLWC. 1997. A Stressed Rivers Approach to the Management of Water Use in Unregulated Streams.

DLWC. (In Draft). Stressed Rivers Assessment: Discussion Paper and Method Report.

DLWC. (In Draft). Hydrologic Analysis of Unregulated Watercourses for the Stressed Rivers Policy.

DLWC. (In Draft). Stressed Rivers Report: Barwon.

DLWC. (In Draft). Stressed Rivers Report: Central West.

DLWC. (In Draft). Stressed Rivers Report: Far West.

DLWC. (In Draft). Stressed Rivers Report: Hunter.

DLWC. (In Draft). Stressed Rivers Report: Murray.

DLWC. (In Draft). Stressed Rivers Report: Murrumbidgee.

DLWC. (In Draft). Stressed Rivers Report: North Coast.

DLWC. (In Draft). Stressed Rivers Report: South Coast.

NPWS. (In Draft). High Conservation Value Rivers: A Report on NSW National Parks and Wildlife Service's Preliminary Assessment.

APPENDIX 1: SUMMARY OF STRESS CLASSIFICATIONS FOR BEGA CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Brogo River	S1	S2	Low	High	Yes	Yes
Wolumla Creek	S1	S1	High	High	No	Yes
Candelo Creek	S1	S1	High	High	No	Yes
Bemboka River	S1	S1	Medium	High	Yes	Yes
Upper Murrumbidgee River	S1	S1	High	High	Yes	Yes
Narira Creek	S1	S1	High	High	No	Yes
Dignams Creek	S1	S1	High	High	Yes	Yes
Sandy Creek	S3	S3	High	Medium	No	Yes
Tantawangalo Creek	S4	S3	Medium	Medium	Yes	Yes
Murrumbidgee River	U3	S3	Low	Medium	Yes	Yes
Upper Brogo River	U4	Unresolved	Low	Low	Yes	No
Nelson Lagoon	U4	Unresolved	Low	Low	Yes	Yes
Wallagoot Lake	U4	Unresolved	Low	Low	Yes	Yes
Middle Lagoon	U4	Unresolved	Low	Low	Yes	Yes
Bega River	Unresolved	Unresolved	Unresolved	High	No	Yes
Wapengo Lagoon	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Tura Beach	Unresolved	Unresolved	Low	Unresolved	Yes	Yes
Sandy Beach Creek	Unresolved	Unresolved	Unresolved	Unresolved	Yes	Yes
Bondi Lake	Unresolved	Unresolved	Low	Unresolved	Yes	Yes
Bega Estuary	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes

APPENDIX 2: SUMMARY OF STRESS CLASSIFICATIONS FOR BELLINGER CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Bellinger River	S5	S2	Low	High	Yes	No
Coastal Bellinger	S5	S5	Low	High	Yes	Yes
Coastal Kalang	S5	S5	Low	High	Yes	Yes
Never Never Creek	S5	S2	Low	High	Yes	No
Hydes Creek	U3	U3	Low	Medium	No	No
Kalang River	U3	S4	Low	Medium	Yes	No
Boggy Creek	U4	U2	Low	Low	Yes	No
Thora - North Arm Bellinger	U4	U2	Low	Low	Yes	No
Dalhousie Creek	Unresolved	U3	Unresolved	Low	No	No
Rosewood Creek	Unresolved	U4	Unresolved	Low	Yes	No
Spicketts Creek	Unresolved	S5	Unresolved	High	No	No

APPENDIX 3: SUMMARY OF STRESS CLASSIFICATIONS FOR BORDER RIVERS CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Glen Innes	S1	S1	High	High	Yes	Yes
Tenterfield	S1	S1	High	High	No	No
Ottley's Creek	S2	S1	Medium	High	No	Yes
Inverell	S3	S3	High	Medium	No	Yes
Bonshaw	S3H	S3H	High	Medium	No	Yes
Gulf Creek	S3H	S3H	High	Medium	No	Yes
Mole River	S4	S4	Medium	Medium	Yes	Yes
Kings Plains	S4H	S4H	Medium	Medium	Yes	Yes
Rock of Gibraltar	U2	U4	Medium	Low	Yes	Yes
Yetman	U4	U2	Low	Low	Yes	Yes
Beardy River	U4	U2	Low	Low	Yes	Yes
Tenterfield Creek	U4	U3	Low	Low	Yes	Yes
Reedy River	U4H	U4H	Low	Low	Yes	Yes
Gundablu	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Gil Gil Creek	Unresolved	Unresolved	Unresolved	High	No	Yes
Whalan Creek	Unresolved	Unresolved	Unresolved	High	No	Yes
Croppa Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Dumaresq	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Campbells creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Stony Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Camp Creek	Unresolved	Unresolved	Unresolved	High	No	Yes

APPENDIX 4: SUMMARY OF STRESS CLASSIFICATIONS FOR BRUNSWICK CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Tyagarah Creek	S1	S1	High	High	Yes	Yes
Upper Marshalls Creek	S2	S1	Medium	High	No	No
Upper Brunswick River	S3	S3	High	Medium	Yes	No
Lower Brunswick River	S5	S5	Low	High	Yes	Yes
Mullumbimby Creek	U2	U1	Medium	Low	No	No
Belongil Creek	U3	U3	Unresolved	Medium	Yes	Yes
Lower Marshalls Creek	U3	S1	Low	Medium	Yes	Yes
Simpsons Creek	U3	U3	Unresolved	Medium	Yes	Yes
Tallow Creek	U4	S5	Unresolved	Low	Yes	Yes
Kings Creek	Unresolved	S1	Unresolved	High	No	No

APPENDIX 5: SUMMARY OF STRESS CLASSIFICATIONS FOR CLARENCE CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Acacia Creek	S1	S1	High	High	No	No
Mid Orara River	S1	S1	High	High	Yes	Yes
Peacock Creek	S1	S1	High	High	No	No
Maryland River	S2	S1	Medium	High	No	No
Tunglebung Creek	S2	S2	Medium	High	No	Yes
Upper Duck Creek	S2	S1	Medium	High	Yes	No
Bookookoorara Creek	S4	S3	Medium	Medium	No	No
Bucca Bucca Creek	S4	S1	Medium	Medium	No	Yes
Koreelah Creek	S4	S1	Medium	Medium	No	No
Upper Orara River	S4	S3	Medium	Medium	Yes	Yes
Aberfoyle River	S5	S5	Low	High	No	No
Clarence Coastal	S5	S5	Low	High	No	Yes
Clarence Tidal Pool	S5	S5	Low	High	No	Yes
Deep Creek	S5	S5	Low	High	No	No
Paddys Flat-Upper Clar	S5	S5	Low	High	No	Yes
The Gorges/ Upper Mid Clar	S5	S5	Low	High	No	Yes
Tooloom Creek	S5	S1	Low	High	Yes	No
Wooloweyah Lake	S5	S5	Unresolved	High	Yes	Yes
Yarrow River	S5	S5	Unresolved	High	No	No
Beaury Creek	U3	S2	Low	Medium	No	No
Copmanhurst-Lower Mid Clar	U3	S2	Low	Medium	No	Yes
Demon Creek	U3	U3	Unresolved	Medium	No	No
Lower Mann River	U3	U3	Low	Medium	No	Yes
Lower Nymboida River	U3	S1	Low	Medium	Yes	Yes
Lower Orara River	U3	S1	Low	Medium	Yes	Yes
Lower Timbarra River	U3	S4	Low	Medium	Yes	No

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Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Sara-Oban Rivers	U3	U3	Low	Medium	Yes	Yes
Upper Nymboida River	U3	S4	Low	Medium	No	Yes
Upper Timbarra River	U3	U3	Unresolved	Medium	Yes	No
Angourie/ Redcliffe	U4	U4	Unresolved	Low	Yes	Yes
Blicks River	U4	U4	Low	Low	No	Yes
Boyd River	U4	U4	Low	Low	Yes	Yes
Coombadjha Creek	U4	U4	Unresolved	Low	Yes	Yes
Dandahra Creek	U4	U4	Unresolved	Low	Yes	Yes
Esk River	U4	U2	Unresolved	Low	Yes	Yes
Henry River	U4	U4	Low	Low	Yes	Yes
Little Nymboida River	U4	U4	Low	Low	Yes	Yes
Mid Mann River	U4	U2	Low	Low	Yes	Yes
Mid Nymboida River	U4	S1	Low	Low	Yes	Yes
Plumbago Creek	U4	U4	Low	Low	No	Yes
Sandon River	U4	U4	Unresolved	Low	Yes	Yes
The Broadwater	U4	U4	Unresolved	Low	Yes	Yes
Washpool Creek	U4	U4	Low	Low	Yes	Yes
Wooli River	U4	S5	Unresolved	Low	Yes	Yes
Alumy Creek	Unresolved	S5	Unresolved	High	No	Yes
Boonoo Boonoo River	Unresolved	U4	Unresolved	Low	Yes	No
Bottle Creek	Unresolved	Unresolved	Unresolved	High	No	No
Cataract River	Unresolved	S3	Unresolved	Medium	Yes	No
Coldstream Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Guy Fawkes River	Unresolved	S5	Unresolved	Low	Yes	Yes
Lower Duck Creek	Unresolved	Unresolved	Unresolved	High	No	No
Shark Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Sportsman Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Stockyard Creek	Unresolved	Unresolved	Unresolved	Medium	No	No
Swan Creek	Unresolved	Unresolved	Unresolved	High	No	Yes
Upper Mann River	Unresolved	Unresolved	Unresolved	High	No	No

APPENDIX 6: SUMMARY OF STRESS CLASSIFICATIONS FOR CLYDE / JERVIS CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Currumbene Creek	S1	S1	High	High	Yes	No
Pigeon House Creek	U1	U1	High	Low	Yes	Yes
Conjola Creek	U3	U3	Low	Medium	Yes	Yes
Wandandian Creek	U3	S4	Low	Medium	Yes	Yes
Moona Moona Creek	U3	Unresolved	Low	Medium	Yes	No
North Moruya	U3	Unresolved	Low	Medium	Yes	No
Tomaga River	U3	Unresolved	Low	Medium	Yes	Yes
Cyne Mallows Creek	U4	Unresolved	Low	Low	Yes	Yes
Currowan Creek	U4	Unresolved	Low	Low	Yes	Yes
Cockwhy Creek	U4	U4	Low	Low	Yes	Yes
Mid Clyde River	U4	U4	Low	Low	Yes	Yes
Bimberamala River	U4	Unresolved	Low	Low	Yes	Yes
Boyne Creek	U4	Unresolved	Low	Low	Yes	Yes
Clyde River	U4	U4	Low	Low	Yes	Yes
Yadboro River	U4	Unresolved	Unresolved	Low	Yes	Yes
Holland Creek	U4	Unresolved	Low	Low	Yes	Yes
Buckenbowra River	U4	U4	Low	Low	Yes	Yes
Callala Creek	U4	Unresolved	Low	Low	Yes	No
Kioloa	U4	Unresolved	Low	Low	Yes	Yes
St Georges Basin/ Sussex Inlet	U4	Unresolved	Low	Low	Yes	No
Durras Lake	U4	Unresolved	Low	Low	Yes	Yes
Willinga Lake	U4	Unresolved	Low	Low	Yes	Yes
Meroo Lake	U4	Unresolved	Low	Low	Yes	Yes
Termeil Lake	U4	Unresolved	Low	Low	Yes	Yes
Lake Tabourie	U4	Unresolved	Low	Low	Yes	Yes
Lake Conjola	U4	Unresolved	Low	Low	Yes	Yes
Nerrindillah Creek	U4	Unresolved	Low	Low	Yes	Yes
Berrara Creek	U4	Unresolved	Low	Low	Yes	Yes

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Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Swan Lake	U4	Unresolved	Low	Low	Yes	Yes
Nelligen Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Batemans Bay/ Clyde	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Burrill Lake	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Narrawallee Inlet	Unresolved	Unresolved	Unresolved	High	Yes	Yes
South Jervis Bay	Unresolved	Unresolved	Low	Unresolved	Yes	No
North Jervis Bay	Unresolved	Unresolved	Low	Unresolved	Yes	No

APPENDIX 7: SUMMARY OF STRESS CLASSIFICATIONS FOR COFFS HARBOUR CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Bonville Creek	S1 (H)	S1 (H)	High (H)	High	No	No
Coffs Harbour Creek	S1 (H)	S1 (H)	High (H)	High	No	No
Korora Basin	S1 (H)	S1 (H)	High (H)	High	No	No
Boambee Creek	S3 (H)	S1 (H)	High (H)	Medium	No	No
Double Crossing Creek	S3 (H)	S1 (H)	High (H)	Medium	No	No
Corindi River	U1 (H)	U1 (H)	High (H)	Low	Yes	No
Dirty Creek	U1 (H)	U1 (H)	High (H)	Low	No	No
Pine-Bundagaree Creek	U1 (H)	U1 (H)	High (H)	Low	Yes	No
Arrawarra Creek	U3 (H)	S5 (H)	Unresolved	Medium	No	No
Station Creek	U4 (H)	U4 (H)	Unresolved (H)	Low	Yes	No
Moonee Creek	Unresolved	S1 (H)	Unresolved	Medium	Yes	No
Red Bank River	Unresolved	U3 (H)	Unresolved	Low	Yes	No
Woolgoolga Creek	Unresolved	S5 (H)	Unresolved	High	No	No

APPENDIX 8: SUMMARY OF STRESS CLASSIFICATIONS FOR DEUA CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Araluen Creek	S2	S1	Medium	High	No	Yes
Deua River	S4	S4	Medium	Medium	Yes	Yes
Mogendoura Creek	U3	U3	Low	Medium	No	Yes
Wamban River	U3	S3	Low	Medium	Yes	Yes
Burra Creek	U3	S3	Low	Medium	Yes	Yes
Bettowynd & Moodong Ck	U3	U3	Low	Medium	Yes	Yes
Upper Deua River	U4	U4	Low	Low	Yes	Yes
Moruya River	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes

APPENDIX 9: SUMMARY OF STRESS CLASSIFICATIONS FOR DRY RIVER CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Bermagui River	U1	S5	High	Low	Yes	Yes
Murrah Estuary	U3	Unresolved	Low	Medium	Yes	Yes
Cuttagee Lake	U4	S5	Low	Low	Yes	Yes
Barragoot Lake	U4	Unresolved	Low	Low	Yes	Yes
Wallaga Lake	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Bobundra Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes

APPENDIX 10: SUMMARY OF STRESS CLASSIFICATIONS FOR FAR WEST CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Warrego	S1 (H)	S1 (H)	High (H)	High	Yes	Unresolved
Paroo	S1 (H)	S1 (H)	High (H)	High	Yes	Unresolved
Culgoa	S1 (H)	S3 (H)	High (H)	High	No	Unresolved
Narran	Unresolved	Unresolved	Unresolved	Medium	Yes	Unresolved
Yanda	Unresolved	Unresolved	Unresolved	Medium	Yes	Unresolved
Bulloo	Unresolved	Unresolved	Unresolved	Medium	No	Unresolved
Moonie	Unresolved	Unresolved	Unresolved	Medium	No	Unresolved

APPENDIX 11: SUMMARY OF STRESS CLASSIFICATIONS FOR GENOA CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Genoa River	U3	U3	Low	Medium	Yes	Yes

APPENDIX 12: SUMMARY OF STRESS CLASSIFICATIONS FOR GWYDIR CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Myall Creek	S1	S1	High	High	No	Yes
Cobbadah Creek	S1	S2	High	High	No	Yes
Upper Horton	S1	S1	High	High	Yes	Yes
Halls Creek	S2	S2	Medium	High	No	Yes
Lower Horton	S2	S1	Medium	High	No	Yes
Warialda Creek	S2H	S1H	Medium	High	No	Yes
Mosquito Creek	S2H	S5H	Medium	High	No	Yes
Rocky River	S3	S3	High	Medium	No	No
Laura	S3	S4	High	Medium	No	Yes
Moredun Creek	S3	S3	High	Medium	Yes	Yes
Copeton Dam	S4	U3	Medium	Medium	Yes	Yes
Gurley Creek	S5	S2	Low	High	No	Yes
Rocky Creek	S5	S2	Low	High	No	Yes
Roumalla	U1	U2	High	Low	No	No
Boorolong Creek	U2H	U2H	Medium	Low	No	No
Upper Gwydir	U3	S2	Low	Medium	No	No
Mackenzies Flat	U3	U3	Low	Medium	Yes	Yes
Georges Creek	U3H	S4H	Low	Medium	No	Yes
Slaughterhouse	U3H	S4H	Low	Medium	No	Yes
Bakers Creek	U4	U4	Low	Low	Yes	Yes
Keera	U4	U4	Low	Low	Yes	Yes
Upper Tycannah	U4	U4	Low	Low	No	Yes
Moree	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Lower Tycannah	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Boggy Creek	Unresolved	Unresolved	Unresolved	High	No	Yes
Millie Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Thalabah Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Mehi River	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Gwydir	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Gingham Watercourse	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Carole Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Barwon	Unresolved	Unresolved	Unresolved	Low	Yes	Yes

APPENDIX 13: SUMMARY OF STRESS CLASSIFICATIONS FOR HASTINGS CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Wilson River	S1	S1	High	High	Yes	Yes
Stewarts River	S3	S1	High	Medium	Yes	Yes
Thone River	S3	S3	High	Medium	No	Yes
Middle Hastings River	S3	S3	High	Medium	No	Yes
Mortons Creek	S3	S3	High	Medium	No	Yes
Pappinbarra Creek	S3	S3	High	Medium	Yes	Yes
Kindee Creek	S3	S3	High	Medium	No	Yes
Watson Taylors Lake	S5	S5	Low	High	Yes	Yes
Coastal Hastings	S5	S5	Low	High	Yes	Yes
Maria River	S5	S5	Low	High	Yes	Yes
Ellenborough River	U2	S4	Medium	Low	Yes	Yes
Camden Haven River	U4	S1	Low	Low	Yes	Yes
Forbes River	U4	U3	Low	Low	Yes	Yes
Upper Hastings River	U4	U4	Low	Low	Yes	Yes
Limeburners Creek	Unresolved	S5	Unresolved	High	Yes	Yes
Lake Innes	Unresolved	S2	Unresolved	High	Yes	Yes
Queens Lake	Unresolved	S5	Unresolved	High	Yes	Yes

APPENDIX 14: SUMMARY OF STRESS CLASSIFICATIONS FOR HAWESBURY-NEPEAN

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Capertee River	S1	S1	High	High	Yes	No
Cattai Creek	S1	S1	High	High	Yes	Yes
South Creek	S1	S1	High	High	Yes	No
Nepean River	S1	S1	High	High	Yes	Yes
Lake Burragorang	S1	S1	Unresolved	High	Yes	Yes
Upper Nepean River	S1	S1	Low	High	Yes	Yes
Monkey Creek	S1	S1	High	High	No	Yes
Lower Coxs River	S1	S5	Low	High	Yes	Yes
Mid Coxs River	S1	U3	Low	Medium	Yes	Yes
Wingecarribee River	S1	S1	High	High	Yes	Yes
Upper Wollondilly	S1	S1	High	High	Yes	Yes
Macdonald River	S3	S3	High	Medium	Yes	Yes
Wollondilly River	S3	S3	High	Medium	Yes	No
Mulwaree River	S3	S3	High	Medium	Yes	Yes
Bargo River	S4	S4	Medium	Medium	No	Yes
Wolgan River	S5	S5	Low	High	Yes	Yes
Upper Coxs River	S5	S5	Low	High	No	Yes
Mooney Mooney Creek	U1	U1	High	Low	No	Yes
Grose River	U2	U2	Medium	Low	Yes	Yes
Nattai River	U3	U3	Low	Medium	Yes	Yes
Webbs Creek	U4	U4	Low	Low	Yes	Yes
Colo River	U4	U4	Low	Low	Yes	Yes
Wollemi Creek	U4	U2	Low	Low	Yes	No
Erskine Ck / Sassafras River	U4	U2	Low	Low	Yes	Yes
Kowmung River	U4	U4	Low	Low	Yes	Yes
Little River	U4	U4	Low	Low	Yes	Yes
Cowan/Pittwater	U4	U4	Low	Low	No	Yes
Berowra Creek	U4	U4	Low	Low	No	No
Mangrove Creek	Unresolved	S3	Unresolved	Medium	No	No
Hawkesbury River	Unresolved	S5	Unresolved	Medium	Yes	Yes

APPENDIX 15: SUMMARY OF STRESS CLASSIFICATIONS FOR HUNTER CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Black	S1	S1	High	High	No	Yes
Wollombi	S1	S1	High (H)	High	No	Yes
Goulburn & Residual	S1	S1	High	High	No	Yes
Wybong	S1	S1	High	High	No	No
Hall	S1	S1	High	High	No	No
Dart	S1	S1	High (H)	High	No	No
Pages	S1	S1	High	High	No	No
Allyn	S3	S3	High	Medium	No	Yes
Martindale	S3	S3	High (H)	Medium	Yes	Yes
Baerami	S3	S3	High (H)	Medium	Yes	No
Merriwa	S3	S3	High	Medium	No	No
Glenbawn	S3	S3	High (H)	Medium	No	Yes
Williams	S3	S3	High	Medium	Yes	Yes
Widden	S4	S3	Medium	Medium	Yes	No
Krui	S4	S3	Medium	Medium	No	No
Hunter Estuary	S5	S2	Low	High	Yes	Yes
Glennies Residual	S5	S2	Low	High	No	Yes
Bylong	S5	S5	Low (H)	High	Yes	No
Rouchel	U2	U1	Medium	Low	No	No
Bow	U3	S3	Low	Medium	No	No
Munmurra	U3	S3	Low	Medium	No	No
Wollar	U3	S3	Low (H)	Medium	No	No
Lostock	U4	U4	Low	Low	Yes	Yes
Lake St Clair	U4	U4	Low	Low	No	Yes
Hunter Residual	Unresolved	Unresolved	Unresolved	High	Yes	Yes

APPENDIX 16: SUMMARY OF STRESS CLASSIFICATIONS FOR ILLAWARRA / HACKING

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Koona Bay East	S5	Unresolved	Low	High	Unresolved	No
North Urban Area	S5	Unresolved	Low	High	Unresolved	No
Koona Bay East	S5	Unresolved	Low	High	No	No
Windang	S5	Unresolved	Low	High	No	No
Minnamurra River	S5	S2	Low	High	No	Yes
Fairy Creek	S5	Unresolved	Low	High	No	No
Bellambi Gully	S5	Unresolved	Low	High	No	No
Brooks Creek	U3	Unresolved	Low	Medium	Unresolved	No
Allans Creek	U3	Unresolved	Low	Medium	Unresolved	No
Fairy Creek	U3	Unresolved	Low	Medium	Unresolved	No
Towradgi Creek	U3	Unresolved	Low	Medium	Unresolved	No
Bellambi Gully	U3	Unresolved	Low	Medium	Unresolved	No
Bulli	U3	Unresolved	Low	Medium	Unresolved	No
Thirroul	U3	Unresolved	Low	Medium	Unresolved	No
Austinmere	U3	Unresolved	Low	Medium	Unresolved	No
Coledale	U3	Unresolved	Low	Medium	Unresolved	No
Wombarra	U3	Unresolved	Low	Medium	Unresolved	No
Gills Gully	U3	Unresolved	Low	Medium	Yes	No
Munna Munnora Creek	U4	Unresolved	Low	Low	Unresolved	No
Spring Creek	U4	Unresolved	Low	Low	Unresolved	No
Clifton	U4	Unresolved	Low	Low	Unresolved	No
Stoney Creek	U4	Unresolved	Low	Low	Unresolved	No
Stanwell Creek	U4	Unresolved	Low	Low	Unresolved	No
Cabbage Tree Creek (Hacking)	U4	Unresolved	Low	Low	Yes	No
South West Arm Creek	U4	Unresolved	Low	Low	Yes	No
Muddy Creek	U4	Unresolved	Low	Low	Yes	No
Lower Hacking River	U4	Unresolved	Low	Low	Yes	No
Engadine Creek	U4	Unresolved	Low	Low	Yes	No

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Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Kangaroo Creek	U4	Unresolved	Low	Low	Yes	No
Frews Gully	U4	Unresolved	Low	Low	Yes	No
Wilsons Creek	U4	Unresolved	Low	Low	Yes	No
Mid Hacking River	U4	Unresolved	Low	Low	Yes	No
Camp Gully	U4	Unresolved	Low	Low	Yes	No
Cedar Gully	U4	Unresolved	Low	Low	Yes	No
Herbert Gully	U4	Unresolved	Low	Low	Yes	No
Upper Hacking	U4	Unresolved	Low	Low	Yes	No
Dents Creek	U4	Unresolved	Low	Low	Yes	No
Royal National Park (coastal) No		U4	Unresolved	Low	Low	Yes
Minnamurra River	Unresolved	S3	Low	Medium	Unresolved	Yes
Dunmore	Unresolved	Unresolved	Low	Medium	Unresolved	No
Little Lake	Unresolved	Unresolved	Low	Medium	Unresolved	No
Macquarie Rivulet	Unresolved	U2	Low	Low	Unresolved	Yes
Duck Creek	Unresolved	U3	Low	Medium	Unresolved	No
Windang	Unresolved	Unresolved	Low	High	Unresolved	No
Mullett Creek	Unresolved	Unresolved	Unresolved	Medium	Unresolved	Yes
Bundeena Gully	Unresolved	Unresolved	Low	Medium	Yes	No
Waterfall Creek	Unresolved	Unresolved	Low	Low	Yes	No
Little Lake	Unresolved	Unresolved	Unresolved	Unresolved	No	No
Allans Creek	Unresolved	Unresolved	Unresolved	Unresolved	No	No
Towradgi Creek	Unresolved	Unresolved	Unresolved	Medium	No	No

APPENDIX 17: SUMMARY OF STRESS CLASSIFICATIONS FOR KARUAH CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Karuah	S4	S3	Medium	Medium	Yes	No
Myall	Unresolved	Unresolved	Unresolved	Medium	Yes	No
Wallis	Unresolved	Unresolved	Unresolved	Low	Yes	No

APPENDIX 18: SUMMARY OF STRESS CLASSIFICATIONS FOR LACHLAN CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Mandagery Creek	S1	S1	High	High	No	Yes
Goonigal Creek	S1	Unresolved	High	High	No	Yes
Burrangong Creek	S1	Unresolved	High	High	No	No
Crowther Creek	S1	Unresolved	High	High	No	Yes
Kangarooby creek	S2	Unresolved	Medium	High	Yes	Yes
Ooma Creek and tributaries	S2	Unresolved	Medium	High	No	Yes
Boorowa River and Hovell's Creek	S3	S3	High	Medium	Yes	Yes
Waugoola Creek	S3	S3	High	Medium	No	Yes
Belubula Tributaries below Carcoar Dam	S3	S3	High	Medium	No	Yes
Western Bland Creek	S3	Unresolved	High	Medium	Yes	No
Goobang - Billabong Creeks	S3	Unresolved	High	Medium	No	Yes
Belubula River above Carcoar Dam	S4	S3	Medium	Medium	No	No
Lachlan River above Reid's Flat	S5	S1	Low	High	No	Yes
Tyagong Creek	S5	Unresolved	Low	High	No	No
Gunningbland and Yarrabandai Creek	S5	Unresolved	Low	High	No	Yes
Bogandillon and Manna Creeks	S5	Unresolved	Low	High	Yes	Yes
Crookwell River	U3	S4	Low	Medium	No	No
Abercrombie River above Wyangala	U3	S3	Low	Medium	Yes	Yes
Humbug Creek	U3	Unresolved	Low	Medium	No	Yes
Lake Forbes and Back Yamma Creek	U4	Unresolved	Low	Low	No	Yes
Mt Hope Area	U4	Unresolved	Low	Low	Yes	Yes
Lake Cargelligo and Lake Brewster	Unresolved	Unresolved	Low		Yes	Yes
Unregulated effluent creeks	Unresolved	Unresolved	Low		Yes	Yes
Lower Mirrool Creek	Unresolved	Unresolved	Low		Yes	Yes

APPENDIX 19: SUMMARY OF STRESS CLASSIFICATIONS FOR MACLEAY CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Apsley River	S1	S1	High	High	Yes	No
Commissioners Waters	S1	S1	High	High	No	No
Gara River	S1	S1	High	High	No	No
Malpas Dam	S1	S1	High	High	No	No
Chandler River	S2	S1	Medium	High	No	No
Hickeys Creek	S2	S1	Medium	High	No	Yes
Bakers Creek	S5	S1	Low	High	No	No
Coastal Macleay	S5	S5	Low	High	Yes	Yes
Mungay Creek	S5	S5	Low	High	No	Yes
Warbro Creek	S5	S5	Low	High	No	Yes
Chandler Gorge	U3	U3	Unresolved	Medium	Yes	Yes
Collombatti Creek	U3	U3	Low	Medium	No	Yes
Macleay Valley	U3	S5	Low	Medium	Yes	Yes
Nulla Nulla Creek	U3	U3	Low	Medium	Yes	Yes
Tia River	U3	S2	Low	Medium	No	No
Yarrowitch River	U3	S4	Low	Medium	Yes	No
Apsley Gorge	U4	U4	Unresolved	Low	Yes	No
Dungay Creek	U4	S2	Low	Low	Yes	Yes
Euroka Creek	U4	U2	Low	Low	No	Yes
Georges River	U4	S1	Unresolved	Low	Yes	No
Green Gully	U4	U4	Unresolved	Low	Yes	No
Kunderang Creek	U4	S4	Unresolved	Low	Yes	No
Macleay Gorges	U4	U3	Unresolved	Low	Yes	Yes
Blue Mountain Creek	Unresolved	U3	Unresolved	Medium	No	No
Christmas Creek	Unresolved	Unresolved	Unresolved	Low	No	Yes
Dyke Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	No
Five Day Creek	Unresolved	U3	Unresolved	Medium	Yes	Yes
Gills Bridge Creek	Unresolved	Unresolved	Unresolved	Low	No	Yes
Oaky River	Unresolved	Unresolved	Unresolved	Medium	No	No
Salisbury Waters	Unresolved	Unresolved	Unresolved	High	No	No
Stockyard Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Styx River	Unresolved	S1	Unresolved	Medium	Yes	Yes
Toorumbie Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes

APPENDIX 20: SUMMARY OF STRESS CLASSIFICATIONS FOR MACQUARIE CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Queen Charlottes Vale Creek/ Evans Plains Creek	S1	S1	High	High	No	No
Summerhill Creek	S1	S1	High	High	No	Yes
Lawsons Creek	S1	S1	High	High	Yes	No
Bell River	S1	S1	High	High	No	Yes
Molong Creek and Tributaries	S1	S1	High	High	No	Yes
Castlereagh above Binnaway	S1	S1	High	High	No	Yes
Unregulated Lower Macquarie System	S1	S1	High	High	Yes	Yes
Upper Talbragar River/ Coolaburragundy River	S2	Unresolved	Medium	High	No	No
Castlereagh River - below Coonamble	S2	Unresolved	Medium	High	Yes	Yes
Upper Bogan River Catchment	S2	Unresolved	Medium	High	No	Yes
Lower Bogan River System.	S2	S1	Medium	High	Yes	Yes
Campbell's River	S3	S3	High	Medium	No	Yes
Fish River	S3	S3	High	Medium	No	Yes
Macquarie Above Burrendong	S3	S3	High	Medium	No	Yes
Castlereagh Binnaway – Gilgandra	S3	S3	High	Medium	Yes	No
Marthaguy Creek System	S3	Unresolved	High	Medium	Yes	Yes
Winburndale Rivulet	S4	S3	Medium	Medium	Yes	No
Upper Cudgegong River above Windamere	S4	S3	Medium	Medium	Yes	Yes
Cooyal – Wialdra Creek System	S4	Unresolved	Medium	Medium	No	Yes

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Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Little River	S4	S3	Medium	Medium	No	Yes
Castlereagh River – Gilgandra - Coonamble	S4	Unresolved	Medium	Medium	No	Yes
Piambong Creek	S5	S1	Low	High	No	Yes
Lower Talbragar	S5	Unresolved	Low	High	Yes	Yes
Nedgera Creek System	S5	Unresolved	Low	High	No	Yes
Wambangalong - Whylandra system	S5	S5	Low	High	Yes	Yes
Backwater - Boggy Cowal System	S5	Unresolved	Low	High	No	Yes
Bulbodney - Grahway Creek System	S5	Unresolved	Low	High	No	Yes
Ewenmar Creek System	S5	Unresolved	Low	High	No	Yes
Burrendong Dam Storage Tributaries	U3	S3	Low	Medium	Yes	Yes
Pipeclay Creek	U3	U3	Low	Medium	No	Yes
Goolma Creek	U3	Unresolved	Low	Medium	No	Yes
Maryvale-Geurie	U3	S3	Low	Medium	No	No
Tooraweenah – Gulargambone Tributaries	U3	Unresolved	Low	Medium	No	No
Teridgerie Creek System	U3	Unresolved	Low	Medium	No	No
Coolbaggie Creek System	U3	Unresolved	Low	Medium	Yes	No
Marra Creek System	U3	Unresolved	Low	Medium	Yes	Yes
Turon/Crudine River	U4	U1	Low	Low	Yes	Yes

APPENDIX 21: SUMMARY OF STRESS CLASSIFICATIONS FOR MACQUARIE AND TUGGERAH

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Jilliby Jilliby	S1	S1	High	High	Yes	No
Ourimbah	S3	S3	High	Medium	Yes	No
Lower Wyong	U1	U1	High	Low	Yes	No
Upper Wyong	U2	U1	Medium	Low	Yes	No
Lake Macquarie	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Tuggerah Lakes	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Brisbane Water	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes

APPENDIX 22: SUMMARY OF STRESS CLASSIFICATIONS FOR MANNING CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Manning Estuary	S3	S3	High	Medium	Yes	Yes
Gloucester	S3	S3	High	Medium	No	Yes
Dingo	U1	U1	High	Low	No	Yes
Manning	U3	U3	Low	Medium	No	Yes
Barrington	U3	U3	Low	Medium	Yes	Yes
Barnard	U3	U3	Low	Medium	Yes	No
Nowendoc	U4	U4	Low	Low	Yes	No

APPENDIX 23: SUMMARY OF STRESS CLASSIFICATIONS FOR MURRAY CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Billabong	S1	S1	high	high	Unresolved	yes
Mannus	S3	S3	high	medium	no	no
Hume	S5	S5	low	high	Unresolved	yes
Ten Mile	S5	S5	low	high	Unresolved	yes
Tumbarumba	S5	S5	low	high	no	no
Little Billabong	S5	S2	low	high	Unresolved	yes
Jingellic	U3	U3	low	medium	no	yes
Maragle	U3	S4	low	medium	no	no
Yarra Yarra	U3	U3	low	medium	Unresolved	yes
Albury	Unresolved	Unresolved	Unresolved	high	Unresolved	yes
Burrumbuttock	Unresolved	Unresolved	Unresolved	high	Unresolved	yes
Dora Dora	Unresolved	Unresolved	Unresolved	low	yes	yes
Indi	Unresolved	Unresolved	Unresolved	medium	yes	yes
Majors	Unresolved	Unresolved	Unresolved	high	no	yes
Mountain	Unresolved	Unresolved	Unresolved	high	Unresolved	yes
Ournie	Unresolved	Unresolved	Unresolved	high	no	yes
Wongamong	Unresolved	Unresolved	Unresolved	medium	Unresolved	yes

APPENDIX 24: SUMMARY OF STRESS CLASSIFICATIONS FOR MURRUMBIDGEE CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Burra & Googong	S1	S1	High	High	No	Yes
Murrumbidgee II	S1	S1	High	High	Yes	Yes
Yass (upper)	S1	S1	High	High	Yes	Yes
Hillas	S2	S2	Medium	High	No	No
Numeralla (west)	S2	S1	Medium	High	No	Yes
Tarcutta	S2	S1	Medium	High	No	Yes
Muttama	S2	S1	Medium	High	No	Yes
Murrumbidgee I	S3	S3	High	Medium	Yes	Yes
Gilmore / Sandy	S3	S3	High	Medium	No	No
Adelong	S3	S3	High	Medium	No	No
Numeralla (east)	S4	S3	Medium	Medium	Yes	Yes
Upper Mirrool	S5	S5	Low	High	No	No
Bomb/Brungle/Adj	S5	S5	Low	High	No	No
Kyeamba	S5	S5	Low	High	No	Yes
Yass (lower)	S5	S1	Low	High	No	Yes
Houlaghans	S5	S5	Low	High	No	No
Jugiong	S5	S1	Low	High	No	Yes
Cotter	U1	U1	High	Low	No	No
Goobagandra	U3	U3	Low	Medium	Yes	No
Paddy's	U3	U3	Low	Medium	No	Yes
Bredbo	U3	S4	Low	Medium	No	Yes
Molonglo	U3	U3	Low	Medium	No	Yes
Burkes / Bullenbung	U3	U3	Low	Medium	No	Yes
Billabung	U3	U3	Low	Medium	No	No
Tantangra	U4	U4	Low	Low	Yes	No
Goodradigbee	U4	U4	Low	Low	Yes	Yes
Queanbeyan	U4	U4	Low	Low	Yes	Yes
Naas	U4	U4	Low	Low	No	Yes

APPENDIX 25: SUMMARY OF STRESS CLASSIFICATIONS FOR NAMBUCCA CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Missabotti Creek	S2	S2	Medium	High	No	No
South Creek - South Arm	S2	S1	Medium	High	No	No
Buckrabendinni Creek	S3	S1	High	Medium	No	No
Upper Deep Creek	S3	U1	High	Medium	No	No
Taylors Arm	S4	S3	Medium	Medium	Yes	No
North Arm						
Nambucca River	S5	S1	Low	High	Yes	No
Warrell Creek	U1	U1	High	Low	Yes	No
Lower Deep Creek	U2	S1	Medium	Low	Yes	Yes
Coastal Nambucca	U3	S5	Low	Medium	Yes	Yes
Oyster Creek	U4	U3	Unresolved	Low	No	Yes

APPENDIX 26: SUMMARY OF STRESS CLASSIFICATIONS FOR NAMOI CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Mooki River	S1H	S1H	High	High	No	Yes
Qurindi Creek	S1H	S1H	High	High	No	No
Cockburn River	S2	S2	Medium	High	Yes	Yes
Goonoo Goonoo	S2	S2	Medium	High	No	Yes
Lower Peel	S2H	S2H	Medium	High	No	Yes
Phillips	S2H	S1H	Medium	High	No	No
Upper Peel River	S3	S3	High	Medium	Yes	Yes
Werris Creek	S3H	S3H	High	Medium	No	No
Mid Macdonald	S4	S3	Medium	Medium	Yes	Yes
Upper Macdonald	S4	U3	Medium	Medium	No	No
Bluevale	S4H	U3H	Medium	Medium	No	Yes
Upper Namoi	U2	U1	Medium	Low	Yes	Yes
Maules Creek	U3	S4	Low	Medium	Yes	Yes
Warrah	U3H	S3H	Low	Medium	No	No

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Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Rangira	U3H	S2H	Low	Medium	No	Yes
Carrol	U3H	U2	Low	Medium	No	Yes
Chaffey	U4	U4	Low	Low	Yes	Yes
Upper Manilla	Unresolved	Unresolved	Unresolved	Low	No	Yes
Split Rock	Unresolved	Unresolved	Unresolved	Low	No	Yes
Lower Manilla	Unresolved	Unresolved	Unresolved	High	No	Yes
Keepit	Unresolved	Unresolved	Unresolved	High	No	Yes
Lake Goran	Unresolved	Unresolved	Unresolved	Low	Yes	No
Bobbiwaa	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Spring Creek	Unresolved	Unresolved	Unresolved	High	Yes	Yes
Eulah Creek	Unresolved	Unresolved	Unresolved	High	Yes	Yes
Cox's Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Bundella Creek	Unresolved	Unresolved	Unresolved	Medium	No	No
Bohena	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Borah	Unresolved	Unresolved	Unresolved	Medium	Yes	No
Ginudgera	Unresolved	Unresolved	Unresolved	High	No	Yes
Bundock	Unresolved	Unresolved	Unresolved	Low	No	Yes
Brigalow	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Coghill	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Tallaba	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Etoo	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Upper Pian	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Bugilbone	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Baradine	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Box Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Lower Pian	Unresolved	Unresolved	Unresolved	Medium	No	Yes

APPENDIX 27: SUMMARY OF STRESS CLASSIFICATIONS FOR RICHMOND CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Alstonville Area	S1	S1	High	High	No	Yes
Bangalow Area	S1	S1	High	High	No	Yes
Coopers Creek	S1	S1	High	High	Yes	Yes
Kyogle Area	S1	S1	High	High	Yes	No
Doubtful Creek	S2	S2	Medium	High	No	Yes
Leycester Creek	S2	S1	Medium	High	No	Yes
Shannon Brook	S2	S1	Medium	High	No	Yes
Coraki Area	S3	S1	High	Medium	Yes	Yes
Lennox Area	S3	S3	High	Medium	Yes	Yes
Myrtle Creek	S3	S3	High	Medium	Yes	No
Gradys Creek	S4	S1	Medium	Medium	Yes	Yes
Wyrallah Area	S5	S5	Low	High	No	No
Toonumbar Area	U2	S2	Medium	Low	Yes	Yes
Eden Creek	U3	S3	Low	Medium	Yes	Yes
Sandy Creek	U3	S2	Low	Medium	No	No
Terania Creek	U3	S3	Low	Medium	Yes	Yes
Tuckean Area	U3	S1	Low	Medium	Yes	No
Broadwater Area	U4	S5	Low	Low	Yes	Yes
Evans Creek	U4	S5	Unresolved	Low	Yes	No
Roseberry Creek	U4	U1	Low	Low	Yes	Yes
Double Duke Area	Unresolved	S2	Unresolved	Low	Yes	No
Huonbrook Area	Unresolved	U1	Unresolved	Low	Yes	Yes
Myall Creek	Unresolved	Unresolved	Unresolved	Low	Yes	No

APPENDIX 28: SUMMARY OF STRESS CLASSIFICATIONS FOR SHOALHAVEN CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Broughton Mill Ck	S2	S1	Medium	High	Yes	No
Lower Shoalhaven R	S2	S2	Medium	High	Yes	Yes
Nerrimunga Creek	S2	S1	Medium	High	Yes	Yes
Broughton Ck	S5	S2	Low	High	Yes	Yes
Jaspers Brush Ck	S5	S2	Low	High	Yes	No
Flat Rock Ck	S5	S5	Low	High	No	Yes
Crooked River	S5	Unresolved	Low	High	Yes	No
Boro Creek	S5	S5	Low	High	No	No
Reedy Creek	S5	S5	Low	High	No	No
Braidwood	S5	S5	Low	High	Yes	Yes
Back Ck - Round Mountain Ck	S5	S5	Low	High	No	Yes
Bugong Ck	U1	U3	Low	Medium	Yes	Yes
Bombaderry Ck	U3	S4	Low	Medium	No	No
Bungonia	U3	U3	Low	Medium	Yes	Yes
Mid Shoalhaven River	U3	U3	Low	Medium	Yes	Yes
Upper Shoalhaven River	U3	U3	Low	Medium	Yes	Yes
Yalwal Ck	U4	U4	Low	Low	Yes	Yes
Lake Wollumboola	U4	Unresolved	Low	Low	Yes	No
Endrick River	U4	U4	Low	Low	Yes	Yes
Mongarlowe River	U4	U3	Low	Medium	No	No
Calymea Ck	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Shoalhaven Estuary	Unresolved	Unresolved	Unresolved	High	Yes	Yes
Ooaree Creek	Unresolved	Unresolved	Unresolved	High	Yes	No
Kangaroo River	Unresolved	S2	Low	High	Yes	Yes
Jerrabattgula Creek	Unresolved	S1	Low	High	Yes	Yes

APPENDIX 29: SUMMARY OF STRESS CLASSIFICATIONS FOR SNOWY CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Maclaughlin River	S1	S1	High	High	Yes	Yes
Bombala River	S1	S1	High	High	Yes	Yes
Wullwye Creek	S5	S1	Low	High	Yes	Yes
Bobundra Creek	S5	S1	Low	High	Yes	Yes
Delegate River	S5	S2	Low	High	Yes	Yes
Coolumbooka River	S5	S5	Low	High	Yes	Yes
Tombong Creek to Little River	S5	S5	Low	High	Yes	No
Matong Creek To Stoney Creek	S5	S5	Low	High	No	No
Mowamba River	Unresolved	Unresolved	Unresolved	High	Yes	No
Kara Creek	Unresolved	Unresolved	Unresolved	Medium	No	No
Reedy Creek	Unresolved	Unresolved	Unresolved	Low	No	No
Jacobs River to Pinch Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes

APPENDIX 30: SUMMARY OF STRESS CLASSIFICATIONS FOR TOWAMBA CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Pambula River	S3	Unresolved	High	Medium	Yes	Yes
Merimbula Lake	S3	S3	High	Medium	Yes	Yes
Merimbula Creek	S3	S3	High	Medium	Yes	Yes
Towamba River	S5	S5	Low	High	Yes	Yes
Mid Towamba River	U3	U3	Low	Medium	Yes	Yes
Mataganah Creek	U3	S4	Low	Medium	Yes	Yes
Wonboyn River	U3	U2	Low	Medium	Yes	Yes
Eden	U3	Unresolved	Low	Medium	No	Yes
Green Cape	U3	Unresolved	Low	Medium	Yes	Yes
Curalo Lake	U3	Unresolved	Low	Medium	Yes	Yes
Myrtle Creek	U4	U2	Low	Low	Yes	Yes
Towamba Estuary	U4	Unresolved	Low	Low	Yes	Yes
Nullica Creek	U4	Unresolved	Low	Low	Yes	Yes
Far South Coast	U4	Unresolved	Low	Low	Yes	Yes
Jingo Creek	Unresolved	Unresolved	Unresolved	High	Yes	Yes
Pericoe Creek	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Stockyard Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Wog Wog River	Unresolved	Unresolved	Unresolved	Low	Yes	Yes

APPENDIX 31: SUMMARY OF STRESS CLASSIFICATIONS FOR TUROSS CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Wandella Creek	S3	S3	High	Medium	No	Yes
Tuross River	S5	S2	Low	High	Yes	Yes
Yowrie Creek	S5	S5	Low	High	Yes	Yes
Mellion creek	S5	S5	Low	High	No	Yes
Bumbo Creek	U3	U3	Low	Medium	Yes	Yes
Swamp Creek	U3	S4	Low	Medium	Yes	Yes
Reedy Creek	U3	S4	Low	Medium	Yes	Yes
Gulph creek	U3	U3	Low	Medium	Yes	Yes
Upper Tuross River	U3	U3	Low	Medium	Yes	Yes
Wagonga Inlet	U3	Unresolved	Low	Medium	Yes	Yes
Tuross Estuary	U3	Unresolved	Low	Medium	Yes	Yes
Corunna Lake	U4	Unresolved	Low	Low	Yes	Yes
Lake Mummuga	U4	Unresolved	Low	Low	Yes	Yes
Brou Lake	U4	Unresolved	Low	Low	Yes	Yes
Coila Lake	U4	Unresolved	Low	Low	Yes	Yes
Little & Big Belimba Creek	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes
Belimba creek	Unresolved	Unresolved	Unresolved	High	No	Yes
Wadbilliga River	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Mid Tuross River	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Woila Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Bumberry Creek	Unresolved	Unresolved	Unresolved	Low	Yes	Yes
Tilba Tilba Lake	Unresolved	Unresolved	Unresolved	Medium	Yes	Yes

APPENDIX 32: SUMMARY OF STRESS CLASSIFICATIONS FOR TWEED CATCHMENT

Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Cobaki Creek	S1	S1	High	High	Yes	Yes
Sheens Creek	S1	S1	High	High	No	Yes
Cobaki Broadwater	S2	S2	Medium	High	Yes	Yes
Terranora Broadwater	S2	S2	Medium	High	Yes	Yes
Mid Tweed River	S3	S1	High	Medium	Yes	Yes
Piggabeen Creek	S3	S3	High	Medium	Yes	Yes
Pumpenbil Creek	S3	S3	High	Medium	No	No
Upper Tweed River	S3	S3	High	Medium	No	No
Doon Doon Creek	S4	S3	Medium	Medium	Yes	No
Duroby Creek	S4	S3	Medium	Medium	No	Yes
Clothiers Creek	S5	S5	Low	High	Yes	Yes
Cudgen Lake	S5	S5	Unresolved	High	Yes	Yes
Cudgera Creek	S5	S5	Low	High	No	Yes
Mid Rous River	S5	S5	Low	High	No	Yes
Mooball Creek	S5	S5	Unresolved	High	Yes	Yes
Tweed Estuary	S5	S5	Low	High	Yes	Yes
Bilambil Creek	U1	U1	High	Low	No	Yes
Brays Creek	U1	U1	High	Low	Yes	No
Upper Oxley River	U1	U1	High	Low	Yes	No
Crystal Creek	U2	U1	Medium	Low	Yes	No
Rolands Creek	U2	U1	Medium	Low	Yes	Yes
Christies Creek	U3	S5	Low	Medium	No	Yes
Dungay Creek	U3	S3	Low	Medium	No	Yes
Lower Oxley River	U3	S5	Low	Medium	Yes	Yes
Byrill Creek	U4	S5	Low	Low	Yes	No
Dunbible Creek	Unresolved	S1	Unresolved	High	No	Yes
Hopping Dicks Creek	Unresolved	S3	Unresolved	Medium	Yes	No
Lower Burringbar River	Unresolved	Unresolved	Unresolved	High	No	Yes

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Sub-catchment	Overall Stress Classification	Full Development Stress Classification	Hydrology Stress Rating	Environmental Stress Rating	Identified Conservation	
					NPWS	Fisheries
Nobbys Creek	Unresolved	Unresolved	Unresolved	Low	No	No
Smiths Creek	Unresolved	U1	Unresolved	Low	No	Yes
Upper Burringbar River	Unresolved	Unresolved	Unresolved	Medium	No	Yes
Upper Rous River	Unresolved	Unresolved	Unresolved	Low	Yes	No

Note:

(H) refers to hydrological assessment based on 50th percentile flows, where extraction is considered to be dominant in high flow events.