

# The Aim of Rivers SOS

**The Rivers SOS Alliance calls on the NSW Government to mandate a safety zone of at least 1 kilometre around all river systems in the State, to protect them from further permanent damage through the effects of mining under, or too close to, the rivers, aquifers and wetlands that feed them.**

This safety zone would also offer some protection to tributary creeks and streams, dozens of which have already disappeared and/or been drained by mining operations.

We note that numerous man-made structures of heritage or utility value are protected from subsidence damage by such safety zones, and we argue that our precious rivers are of even greater value. They can never be re-built. Remediation attempts are inadequate and not effective in the long term.

Already several major rivers in NSW are cracked and polluted by mining operations, and more are under threat right now. The problem is that the NSW Government has failed to impose appropriate safeguards to protect our rivers.

**In the Southern Coalfield**, the badly damaged rivers include:

- the Cataract River,
- the Georges River,
- the Bargo River, and
- the Nepean River;

as well as the Waratah Rivulet in the Woronora catchment.

Wetlands and creeks are being destroyed in the Avon/Cordeaux catchment.

**To the west**, the Goulburn River has been polluted and partly “re-located,” while the Cox’s River is badly contaminated.

**In the Hunter catchment**, three major creeks have disappeared (South Wambo, Bowmans and Diega) and the Pages River is under threat. Ruby mining is polluting the headwaters of the Hunter and Manning Rivers in the Barrington Tops.

The list goes on, and numerous new plans are approved by the NSW Government without the modifications which could and should be made to save the rivers.

The time must come when fossil fuels are phased out, but by that time many rivers in NSW will be permanently wrecked, and our water sources polluted, in an era of increasing drought and water shortages.

Rivers SOS arrived at our call for a safety zone of at least one kilometre after careful research. A number of experts support us. The major sources used by us are as follows:

*“... Horizontal displacements can extend for more than one kilometre from mine workings.”* [Preliminary Determination of the NSW Scientific Committee, 22.11.04]

*“Reid (1998) reports horizontal movements of up to 25mm near Cataract Dam even when underground mining was about 1500m from survey stations.”* [L.Holla & E.Barclay, “Mine Subsidence in the Southern Coalfield”, DMR, 2000 (Lax Holla was the DMR’s principal subsidence engineer; Peter Reid researches subsidence for the Dam Safety Committee )]

An example is one of BHP Billiton’s longwall mines - Longwall 17 which runs under the Nepean River at Douglas Park. Monitoring showed movement of over 60mm at a distance of 1.5 km from mine workings. Another monitoring station 450m from Longwall 17 showed movement of 70mm, while a station 680m from the adjacent Longwall 16 showed movement of 60mm. [B.K.Hebblewhite, “Regional Horizontal Movements Associated with Longwall Mining”, 2000 (B.K.Hebblewhite is the Research Director of the University of NSW’s Mining Research Centre)]

Hebblewhite sums up the above research on mines under the Cataract River and the Nepean River as follows: *“There is evidence of large scale, regional horizontal displacement of ground, at great distances away from the active mining locations.”*

Recent research carried out by the Australian Coal Association indicates that horizontal movements can be measured as far as **3 kilometres** from mine workings, though movements detected at this distance were small. [ACARP 2002,C9067; ACARP 2003,C10023]

Sections of the Stanwell Park Railway Viaduct had to be replaced due to mining in the 1970s, and trains still must slow down at this point. The bed of the creek beneath has been cracked in several places. This was caused by mine workings only 130m from the viaduct, but Hebblewhite comments that the *“severe damage”* happened *“well outside the conventional ‘angle of draw’ subsidence influence.”* This and other examples have convinced us that protection zones predicated on an ‘angle of draw’ are not sufficiently reliable, which is why we campaign for a 1 kilometre safety zone rather than using ‘angle of draw’ measurements.

All subsidence researchers agree that the degree of subsidence damage cannot be accurately predicted. They also agree that effects will be more severe and unpredictable in hilly or rugged sites such as river gorges. For example, Holla & Barclay write:

*“Where mining occurs in rugged terrains, large strains are likely to occur. The large strains may crack creek beds and cause changes in or even loss of water flow.”*

Hebblewhite writes:

*“Previous experience had indicated that severe surface topographic changes ... could result in significant ‘anomalous’ subsidence behaviour.”*

The State Rail Authority has a railway protection zone based on the 35 degree angle of draw in areas of low to medium topographic relief, but in areas of high relief the SRA calls for intensive on-site investigation.

Subsidence consultants predicted that mining would not seriously damage the Georges River. However the river is now badly cracked and polluted. As Holla says:

*“While conservative designs (mine plans) may unnecessarily sterilise coal reserves, the cost of conservative designs may be justified when balanced against the consequences of wrong predictions.”*

In 1975, the Austral Coal Co., then owner of Tahmoor Colliery, was granted a licence to mine under the Bargo River (which was subsequently cracked) as long as it did not mine within 1 kilometre of the beautiful Mermaid Pool. *“At this distance no impact to flows are expected”* as the company’s Environment Coordinator Joanne Page wrote in 2005. The fact that the 1 kilometre distance was selected in this instance demonstrates that our Rivers SOS formula of “at least one kilometre” for a safety zone is credible and accurate.

We add that cumulative damage to rivers, creeks and wetlands from destructive mining operations is a threat to all forms of wild life. In July 2005 the NSW Scientific Committee listed *“alteration of habitat following subsidence due to longwall mining as a key threatening process in Schedule 3 of the Threatened Species Conservation Act.”* The Committee lists a number of threatened plant and animal species, and after thorough research it commented that remediation efforts have had only *“limited success and are still considered experimental”*.

While other countries like Canada and the USA, and other Australian states, have declared numerous protected rivers, the NSW Government has dragged its feet. The NSW Environment Protection Authority found in its 2003 State of the Environment Report that *“NSW has the poorest aquatic biota conditions of any Australian state or territory”*. Environmental scientist Claire Allen wrote in 2004 that *“the freshwater ecosystems in NSW ... are severely degraded and their health is continuing to decline”*.

Cracking and pollution of our rivers caused by poorly regulated mining operations is only one cause, albeit a major one, of the degradation of NSW’s rivers. However it is one problem which is easy to fix, simply by applying an adequate safety zone around rivers.

Rivers SOS web site: [www.riverssos.com](http://www.riverssos.com)

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