

Briefing - mining impacts and the Metropolitan catchments



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The Importance of the Metropolitan Water Catchments

The Woronora, O'Hares Creek and Metropolitan Special areas extend from Campbelltown in the north, south to Robertson and cover more than 100,000 hectares and are 90 per cent publicly owned. The Woronora catchment supplies water to southern Sydney, while the Metropolitan catchment meets the needs of the Macarthur and Illawarra regions. In total these Metropolitan catchments provide 20% of Sydney's drinking water supply and all of Wollongong's drinking water.

These pristine catchments are also home to 30 threatened animals and 26 threatened plants, including the Spotted-tail Quoll and contain the only viable koala populations near Sydney. The catchments cradle significant rainforest and tall old growth forests remnants, as well as upland swamps of very high conservation significance. These catchments were recommended for World Heritage listing values in 1994 by the Royal Botanic Gardens as part of the Blue Mountains and surrounding plateaux nomination. The only reason these precious catchments are not fully protected as nature reserves and national parks is the presence of extensive coal mining operations.

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The Current Mining Program in the Water Catchments

There are eight operational and two currently proposed mines in the water supply catchments south of Sydney:

Colliery	Catchment	Company	Mining Method
Appin (CL 768,381,388)	Metropolitan	BHP-Billiton	Longwall
Tower (CL 767)	Metropolitan	BHP-Billiton	Longwall
West Cliff (CL 724)	O'Hares	BHP-Billiton	Longwall
Metropolitan (CL 379, 703)	O'Hares and Woronora	Helensburgh Coal P/L	Longwall
Bellambi West (CL 745)	Metropolitan	Allied Plant Servs	Longwall
Cordeaux (CL 768)	Metropolitan	BHP-Billiton	Longwall
Elouera (CL 768)	Metropolitan	BHP-Billiton	Longwall
Avon (CL 765)	Metropolitan	Avon Colliery P/L	Bord and Pillar
Dendrobium proposal (CL 768)	Metropolitan	BHP-Billiton	Longwall
Bargo proposal (CL 747)	Metropolitan	Tahmoor Coal P/L	Longwall

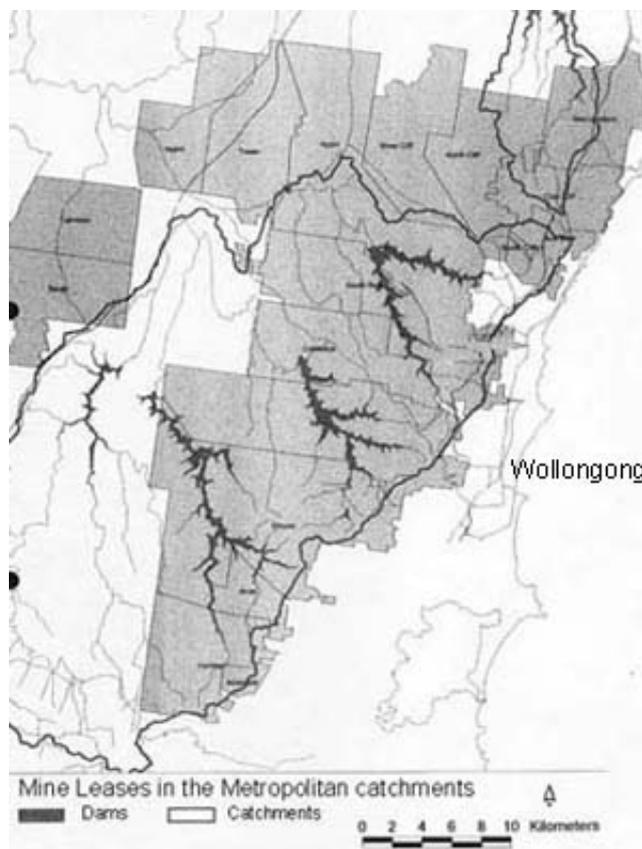
Key: CL= Coal Lease.

The above table and map below reveal the extent of coal mining in our water supply catchments. There is significant potential for these mines to cause very serious environmental damage to tens of thousands of hectares of these sensitive and precious water supply areas.

The full extent of damage from mining, however, is unknown. Neither the Sydney Catchment Authority or the Department of Mineral Resources adequately monitors the mining damage and any monitoring which the industry undertakes is not made public. Public access to the catchments is prohibited and it is possible that serious damage to our water supplies has already occurred.

Map showing the extent of Coal Mining Leases in the Metropolitan drinking water catchments.

Note: Coal Mining leases are shown in grey.



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Impacts of longwall coal mining on our water supply areas

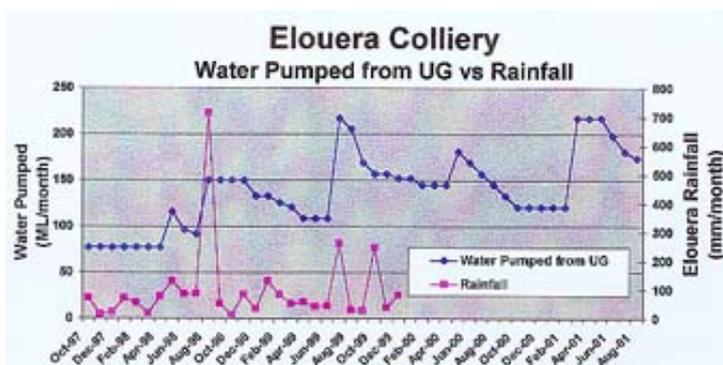
As shown in the table above, the longwall mining method is used in the majority of collieries in the water supply catchment. Longwall mining involves removing a large block of coal, hundreds of metres wide in panels up to several kilometres long. As the extraction proceeds, the roof of the mine is allowed to collapse the full height of the extracted coal seam, which results in major surface subsidence.

Unless strong and effective protection measures are applied to current coal mining in our pristine bushland catchments, the water supplies critical to Sydney and Wollongong will drain away and become more polluted. The catchment is managed by the Sydney Catchment Authority which was created in 1998 after the water contamination incidents. The Catchment Authority has a legislative duty to preserve the ecological integrity of the area, but does not have any power to prevent mining.

The intensity of coal mining is increasing in the catchment areas. With underground longwall coal mining, the amount of surface movement and damage is greatly influenced by the width of the longwall mining panels and the depth of the mine. In recent longwall mining in the Metropolitan water supply catchments and nearby areas, widespread surface damages occur when very wide panels of coal are extracted.

In the 1990s, coal mining in the water supply catchments began causing environmental damage. In the case of the BHP Elouera Mine which underlies two creeks in the water supply catchments, the longwalls are 185m wide at a depth of 340m. The damage to the creeks includes extensive and intense cracking of their rock beds and draining of all rock pools (small and large) in mined areas. Under normal unmined circumstances the affected streams would be flowing (and this is the case with unmined creeks in the vicinity).

There is a persuasive argument that water flow is being lost underground and possibly even into the Elouera Mine, that is reporting increased water inflow (225megalitres a month). The loss of water is most serious in terms of the catchments' capacity to supply water, particularly in drought years and the loss of catchment integrity and biota (see graph of increasing water losses).



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Poor regulatory control of mining in water supply areas

Each longwall is given permission solely by the Department of Mineral Resources which we argue has a conflict of interest, as it is the primary advocate of mining in NSW. It has not imposed mining prohibition zones under the streams or otherwise guaranteed the ecological sustainability of our essential water supply areas.

Further mines will be proposed in the future, setting drinking water supply goals against coal mining. Rehabilitation techniques have been rejected (eg. cement grouting of cracks) as these have been only 50 per cent successful and are polluting in themselves.

The issue of water loss and damage to the catchment was highlighted at the recent commission of inquiry into the proposed Dendrobium Mine. In its submission, Sydney Catchment Authority said, “ There is evidence of pools being drained, reduce flows and a reduction in water quality....a potential for cracking beneath swamps to drain a significant amount of water contained in the swamps. This could lead to drying of swamps – adversely affecting their ecological integrity but also reducing water flows downstream. Practical means of remediation are generally not available.” (30 July 2001)

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Fact Sheet on Longwall Mining Damage

Colliery	Area Affected	Depth of Cover (m)	Panel width (m)	Pillar width (m)	Damage
Elourera 1993-	Wongawilli and Native Dog Creeks	340	185	40	Creek beds cracked, pools and creeks dry.
Appin 1997-99	Cataract Tunnel	460	206.2	32.8	Shear stress fractures, cracks in wall and roof.
Appin 1999-	Cataract Tunnel	520	255.4	32.8	Greater shear stress fractures and cracks in wall and roof.
Tower 1988-92	Cataract River	430	110	40	Some damage.
Tower 1992-94	Cataract River	430	155	40	River bed extensively cracked, river dry, water pollution downstream.
Tower 1994-00	Cataract River	430	207	40	Greater bed cracking, river dry, more water pollution.
Westcliff	Georges River	400-500	250	35	River bed pollution, river dry, water pollution downstream.
Bulli 1980s	Cataract Reservoir	230	80	60	No damage.
Bulli 1990s	Cataract Reservoir	320	110	60	No damage.
Dendrobium Area 1	Lake Cordeaux and streams	145-310	183	40	Soil slumps, rock toppling, cliff falls into stored waters, creek and rainforest damage +?

Dendrobium Area 2	Lake Cordeaux and streams	105-360	225	35	Soil slumps, rock toppling, cliff falls into stored waters, creek and rainforest damage.
Dendrobium Area 3	Wongawilli Creek and other streams	300-400	305	35	Creek beds cracked, creeks and upland swamps drained, water pollution downstream.
KEY: ?+ = Further unknown subsidence due to current mine proposals being underlain by old workings.					

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The Predicted Impacts of BHP-Billiton's Dendrobium Mine Proposal

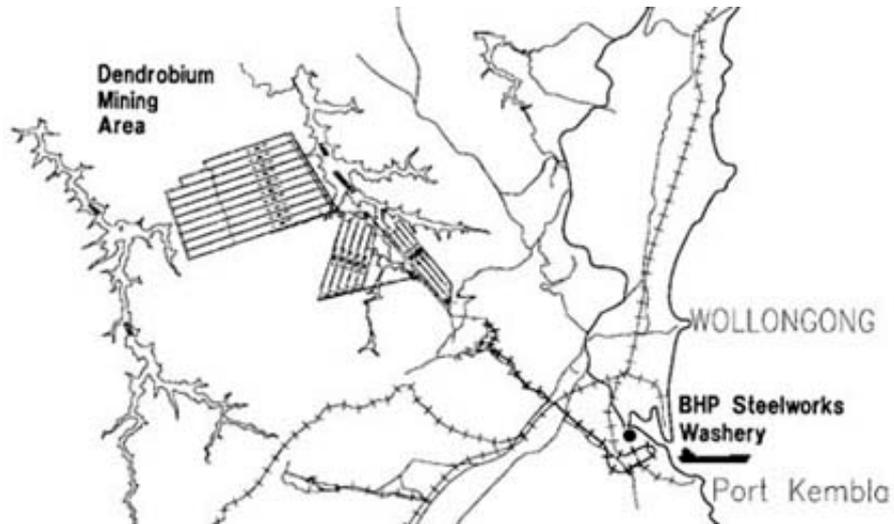
The issue has come to the fore because BHP-Billiton is proposing a major new mine – Dendrobium – that will extend the longwalls, with panels up to 305m wide under key steams in our water supply catchments and advance towards the actual stored waters.

The damage predicted by BHP-Billiton's own experts include two metre surface above mined areas leading to cracking up to 200 mm wide, drainage of streams, the draining upland swamps, mining induced landslides and rock falls affecting 10 per cent of cliffs, death of native vegetation due to methane gas emissions and water pollution from the emergence of ecotoxic groundwater. The signal from BHP-Billiton's experts is very clear - maximising coal extraction will cause severe damage to essential water supply areas, a view confirmed by the damages being caused by existing mines.

BHP-Billiton has not sought to avoid any damages that will occur from the mining operations even though they are about 50 per cent more intense than the existing operations, which have caused considerable damages as described in the above table. The proposed Dendrobium Mine should not be approved. Damage can be prevented by creating protection areas where coal pillars are retained to prevent surface subsidence. The regulatory environment must also be vastly improved so that the mining industry is obliged to respect the ecological integrity of these water supply areas upon which 4 million people depend.

For more information regarding BHP-Billiton's proposed Dendrobium Mine in our water supply catchment download our [submission to the Commission of Inquiry on the proposal](#).

Map of the proposed Dendrobium Colliery



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Last updated Wednesday 31-Oct-2001