

**INQUIRY INTO THE CONTINUED PUBLIC OWNERSHIP  
OF SNOWY HYDRO LIMITED**

**Organisation:**

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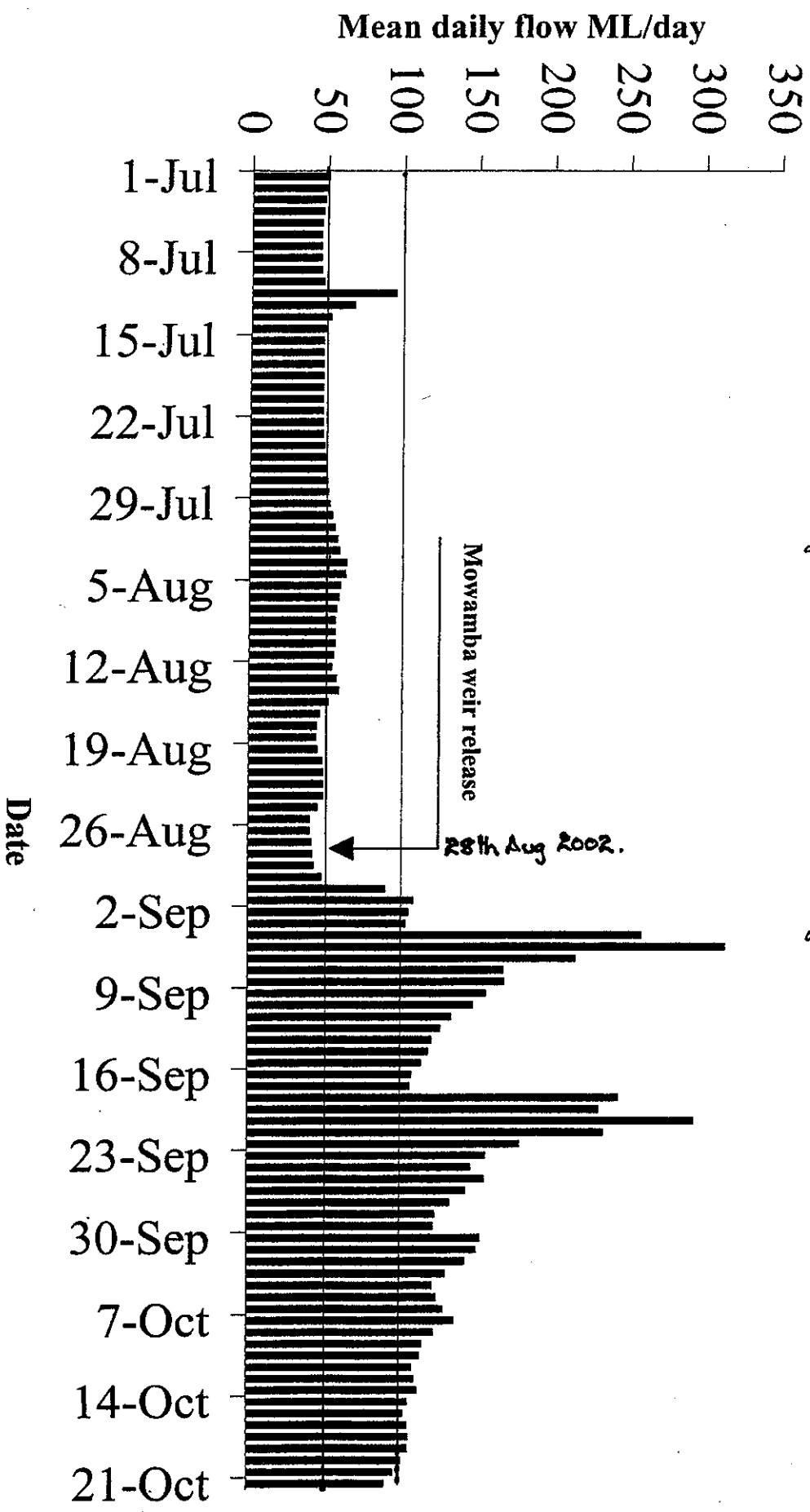
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**Theme:**

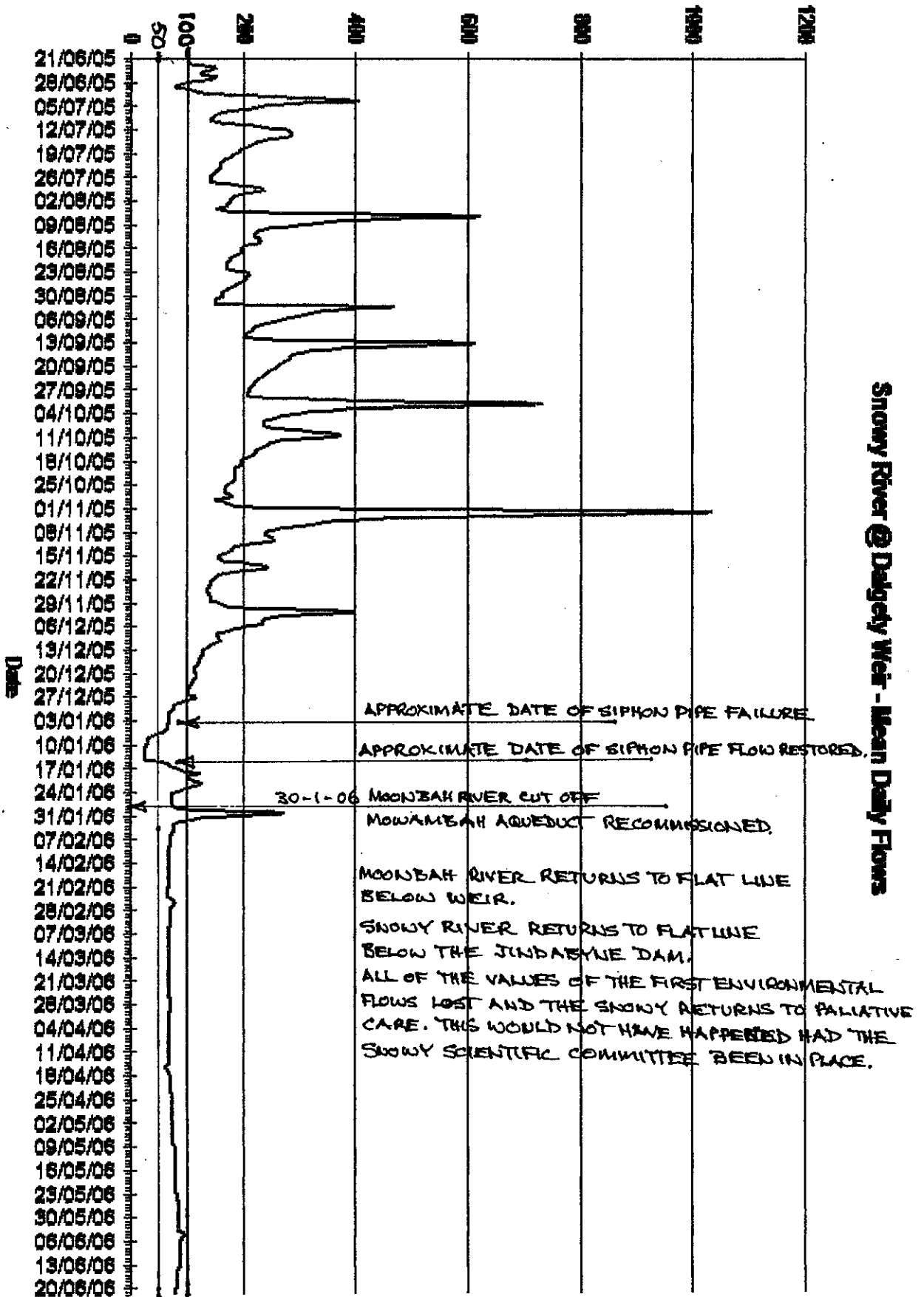
**Summary**

# Snowy flows at Dalgety weir July-Oct 2002

Flat Line finishes 28th August - New life returns to the Snowy River



Mean Daily Flow (ML/day)



THIS IS ADDITIONAL INFORMATION WHICH I HAD INTENDED TO TALK TO AND REFERS TO LAST PARAGRAPH OF THE ENQUIRY ADDRESS WHEN I WAS ASKED TO FINISH BY THE CHAIRMAN AS I WAS OUT OF TIME.

*Angel J. Gellard*  
13-7-06

ENVIRONMENTAL FLOW RELEASES AND HYDROLOGICAL  
CONNECTIVITY IN THE SNOWY RIVER BELOW JUNDABYNE.

Paper by  
Professor  
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The first practical step to deliver environmental flow releases to the Snowy River downstream of Jindabyne will take place in the near future. This welcome step involves the cessation of diversion of water from Cobben Creek and the Mowamba River, and the decommissioning of two aqueduct structures. However, it has been rumoured that in decommissioning of the Mowamba River aqueduct structure, the dam wall and the upstream impoundment will remain intact and water will be released downstream through a valve and used to generate hydro-electricity. This step largely defeats the purpose of generating an environmental flow by the use of Mowamba river water, and should not be allowed to proceed.

A vital property of natural free-flowing rivers is what has been termed ecological connectivity (Ward 1989, 1998, Ward and Stanford 1995, Ward et al 1999, Pringle 2000). Basically connectivity refers to the natural situation in rivers whereby there are longitudinal, lateral and vertical connections or linkages. The longitudinal linkages involve the movement downstream of water, chemicals (both dissolved and particulate), detritus (from fine particles to logs), fauna (fish, crustaceans and insects) and flora (both algae and macrophytes). But they also involve upstream movements of such biota as migrating and dispersing invertebrates and fish (Pringle 1997). The river is a continuum without fragmentation (Dynesius and Nilsson 1994). Lateral connectivity involves the linkages between the stream channel and the riparian zone and between the river channel and the floodplain. Vertical connectivity involves linkages between the stream channel and surrounding ground water. All of these linkages are vital for the maintenance of ecological sustainability in natural rivers.

Dams and their impoundments disrupt almost completely these linkages, and greatly alter the downstream fauna and flora (e.g., Dynesius and Nilsson 1994, Poff *et al* 1997, Rosenberg *et al.*, 1997, Pringle 2000). The alterations involve a depletion of diversity, decline in fish stocks, degradation of channel and riparian geomorphology and species composition and disruption of ecological processes.

In restoring the condition of the Snowy River below Jindabyne, the restoration of

hydrological and ecological connectivity was seen as a vital need (Banks *et al* 1996). As water released from Jindabyne Dam will involve the release of standing water; such a release whilst providing valuable water for the major part of the environmental flow regime will not restore ecological connectivity. The impoundment and the dam will still act as barriers to longitudinal movement (both upstream and downstream), notably of biota such as macroinvertebrates and fish. Thus, it was recommended that the Mowamba River Aqueduct be decommissioned and the dam wall breached to allow unimpeded movement of biota (fauna and flora). This will allow biota, especially fish and macroinvertebrates, to move downstream to colonize the newly regenerated habitats formed by the environmental flow regime, and will also allow the biota to undertake seasonal migrations for breeding and dispersal. It is essential that the Mowamba River Aqueduct be fully decommissioned. This step needs to be done by cessation of the water diversion to allow an increase in flow downstream and by breaching the dam wall to allow organisms unimpeded movement upstream and downstream.

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