

Supplementary Submission

Portfolio Committee No. 5 regarding its inquiry into the augmentation of water supply in rural and regional NSW.

NSW Upper House Inquiry into Water Augmentation

Re: Proposal for a dam on the Belubula River, south of Blayney, NSW.

17th May 2017

Supplementary Submission from Daroo Orange Urban Landcare Group following Inquiry into Water Augmentation held at Orange Ex-Services Club on 17th May 2017

The ecology of the Belubula River

Native vegetation in the Central Tablelands and Slopes that includes the floodplains and environs of the Belubula River and tributaries, is highly fragmented and highly disturbed. A development that impacts on any remnant vegetation communities can have a significant overall impact on the region. The Endangered Ecological Community of White Box (*Eucalyptus albens*) / Yellow Box (*E. melliodora*) / Blakeleys Red Gum (*E. blakelyi*) Grassy Woodland is highly modified in this region, any of this extant woodland should be assessed for impact as this is an Ecologically Endangered Community EEC under both State and Federal legislation.

Along the Belubula River the vegetation community of Gallery Riverine Forest / Eastern Riverine Forest (Keith, 2004 *Ocean Shores to Desert Dunes*) is dominated by *Casuarina cunninghamiana* River Oak. The community here appears to be relatively intact, from the river's proximity to Burnt Yards, west to Canowindra.

Damming at any of the selected sites will have a serious effect on this forest and split the ecosystem in two, placing an obstacle for fauna species utilising the gallery riverine forest moving up and down the Belubula River. This intact high quality riparian habitat - as opposed to so much that is highly modified in many parts of the tablelands - is an important ecological niche. Species such as platypus *Ornithorhynchus anatinus* (recently categorised 2014 as 'near-threatened' by IUCN), water rat, frogs, and birds such as Golden Whistler, and many other bird species, are known to utilise this riparian habitat.

http://www.waternsw.com.au/__data/assets/pdf_file/0016/118006/Belubula-and-Lachlan-Dam-investigation-report.pdf

A dam will inundate and destroy this significant remnant riparian vegetation and wildlife corridor, and flood large areas of productive river flats. There are well-known spots for platypus, in particular around Needles Gap, where 'it is regularly reported in the river and some of its tributary streams'

<http://www.bionetnsw.gov.au/>

and the riparian corridor is providing ideal habitat 'of pool-riffle sequences, with many boulder, cobble and gravel substrates'; also described in Grant 1995:

"Ideal habitat for the platypus is a fairly shallow river or stream with relatively steep earth banks consolidated by the roots of native vegetation and with its growth overhanging the bank. The river should have a diversity of habitats for benthic invertebrates (the main food source), including aquatic vegetation and logs, and consist of a series of distinct pools of less than 5 metres depth, with little sand accumulation and separated by cobbled riffle areas"

and

'The riverine forest provides very good platypus habitat, many holes develop which are safe harbour in dry times. the bank vegetation is ideal for concealing burrows with many tree roots and overhanging grasses and shrubs (Grant, 1995)'

<http://legacy.earlham.edu/~whistem/bio%20div/platypus%20article.pdf>

As these niches are destroyed there is nowhere left for the animals to go.

Fish and flows in the Belubula River

Alteration of the natural flow regime across the majority of valleys in the Murray-Darling Basin has had significant impacts on the hydrological, hydraulic and ecological conditions that native fish rely on for recruitment success and survival. Significantly, the degradation of in-stream processes and habitat features in the regulated Belubula River has resulted in the local fish community values being in poor to very poor condition. All of the Belubula River downstream of Carcoar Dam is included as a part of the **Lachlan River**

Endangered Ecological Community, listed under the *Fisheries Management Act*.

Historically, the Belubula River has supported a suite of native fish, including both state and federally listed threatened species. These fish include representatives across a range

of functional flow groups. the main functional groups known or expected to occur in the Belubula River, are:

1. Flow Dependent Specialists (e.g. Golden Perch)
2. In-channel Specialists
 - A. Flow Dependent (e.g. Murray Cod)
 - B. Flow Independent (e.g. Freshwater Cat-fish, Purple Spotted Gudgeon)
3. Generalists (e.g. Carp Gudgeon, Australian Smelt)

The Scientific Committee details the Final Recommendation listing of of the ***Aquatic Ecological Community in the Natural Drainage System of the Lowland Catchment of the Lachlan River*** in

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/636519/FR25-Lachlan-River-EEC.pdf

It is the expectation that any short or long term changes to water management for the Belubula River should support all life-history stages of the native fish community. For native fish this includes the broad outcomes of no loss of native species, maintained and improved population structure of key species through regular recruitment, increased movement of key species, and expanded distribution of key species. Key species listed in the Belubula River water source include Freshwater Catfish, Purple Spotted Gudgeon, Murray Cod and Golden Perch.

Since gazettal of the plan for the Belubula Regulated River Water Source in 2012, a greater understanding of flow-ecology relationships for native fish has emerged, with environmental watering requirements for key fish species currently being incorporated into adaptive management approaches across NSW. A major concern is that the current plan does not appear to be adequately supporting native fish and any further development within the water source area is likely to have a major impact on either the existing population or the ability for the expected assemblage to improve or recover.

Listed Threatened Species (FMA) with expected distribution in the Belubula River

Purple Spotted Gudgeon - Endangered

Eel Tailed Catfish - Endangered population (Murray Darling)

Provisions for fish passage

Based on observations of fish passage off-sets that were meant to occur as part of major industry development and upgrades (i.e. Cadia Mine conditions of approval and the State-wide Dam Safety Upgrade) the community has no confidence that any negotiations or consent conditions regarding fish passage will result in on-ground outcomes due to the lack of delivery or 'renegotiated outcomes' on the above programs to date (S. Davies pers. com.)

Information required

In order to adequately assess the impact of construction of another major water storage dam on the fish assemblages of the Belubula River, additional information is required. This information includes:

- The proposed rule set for operation of the storage, including Full Supply Level volume, flood mitigation and airspace, user account carry-over rules and projected user behaviour/daily release and extraction volumes;
- details on valve capacity and spill gate operations;
- ability to manage thermal pollution, algal blooms and other water quality issues associated with storages that cause downstream impacts on native fish;
- seasonal analysis of modelled flow data for a range of scenarios at key gauges;
- spatial distribution and volume of each access licence type being serviced by the storage and the maximum daily extraction capacity;

Large structures such as Wyangala Dam and Carcoar Dam cause thermal pollution; another large dam will contribute considerably to the same problem and to a reduction in floodplain and wetland inundation affecting the ecosystem, reducing its complexity and productivity. The Scientific Committee states that the *Aquatic Ecological Community in the Natural Drainage System of the Lachlan River is likely to become extinct in nature, unless the circumstances and factors threatening its survival cease to operate.*

Important Lachlan River wetlands include the Booligal Wetlands and the Great Cumbung Swamp

Australia's migratory bird agreements are JAMBA -Japan Australia Migratory Bird Agreement, CAMBA - China Australia Migratory Bird Agreement, and ROKAMBA -

Republic of Korea Migratory Bird Agreement on the Protection of Migratory Birds (2007).

Part of this agreement reads:

“.....that birds not only constitute an important element of the natural environment but also play an essential role in enriching the natural environment and that this role may be enhanced by proper management thereof” and

“All migratory bird species listed in the annexes to these bilateral agreements are protected in Australia as matters of national environmental significance under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*”. Great Egret and Glossy Ibis both utilise these wetlands for breeding, as part of “*protecting and conserving important habitats*” under the agreements.

The Booligal Wetlands are extensive covering about 5,000 ha. They are nationally important and are recognised for the large waterbird colonies they can sustain. They form a part of the extensive lower Lachlan River wetlands and rely on river flows from the upper Lachlan, with the tributaries of the Belubula and Abercrombie Rivers. The current state of the Booligal Wetlands will challenge future environmental flow management which a new dam will represent.

https://www.ecosystem.unsw.edu.au/files/Booligal_Lachlan_River_Report.pdf

The Booligal Wetlands are in severe decline and without significant improvement of river flows to these wetlands, the chance of rehabilitation will be poor. Investment by governments in the buyback of irrigation licenses offers some opportunity to rehabilitate these nationally important wetlands.

The Great Cumbung Swamp covers an area of approximately 16,000ha and is listed in A Directory of Important Wetlands in Australia (Department of the Environment, Water, Heritage and the Arts 2001), as well as on the Register of the National Estate (Department of the Environment, Water, Heritage and the Arts 2008). It is a good example of a terminal reed swamp, supporting large areas of common reed (*Phragmites australis*). Extensive river red gum (*Eucalyptus camaldulensis*) communities occur on the surrounding floodplain and in riparian areas, while black box (*E. largiflorens*) is found in marginal floodplain areas, and lignum shrubland (*Muehlenbeckia florulenta*) near water ponding areas (Department of the Environment, Water, Heritage and the Arts 2009). As with many other large inland wetlands, this area provides drought refuge when wetlands in other parts of the state are dry (Department of the Environment, Water, Heritage and the Arts 2009), supporting large

numbers of waterbirds, some of which are considered vulnerable at State level. These include the Australasian Bittern, Freckled Duck, Magpie Goose and Blue -billed Duck. Other species listed under migratory bird treaties include the Great Egret, Glossy Ibis, White -bellied Sea - e Greenshank.

<https://www.mdba.gov.au/sites/default/files/archived/proposed/EWR-Great-Cumbung-Swamp.pdf>

Listed Key Threatening Processes (FMA)

The following Key Threatening Processes are associated with the dam construction proposal:

1. Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams;
2. Degradation of native riparian vegetation along New South Wales water courses.

<http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/key-threatening-processes>

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