

IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF applications for resource consent by the Central Plains Water Trust and a notice of requirement for the designation of land by Central Plains Water Limited associated with the construction and operation of the Central Plains Water Scheme

**SECOND SUPPLEMENTARY EVIDENCE OF KENNETH FREDERICK DAVID HUGHEY
ON BEHALF OF THE DIRECTOR GENERAL OF CONSERVATION**

**DIRECTOR GENERAL OF
CONSERVATION**
DEPARTMENT OF CONSERVATION

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Qualifications and Experience

1. My name is Kenneth Frederick David Hughey. My qualifications and experience, and the basis upon which I have prepared this second supplementary statement of evidence, are set out in my evidence in chief prepared for this hearing (dated May 2008).
2. I have been asked by the Department of Conservation to comment on Mr Cliff Tipler's evidence of 7 September 2009, and on Dr Burrell's evidence of 7 September 2009 concerning the revised CPWES. My comments are confined to effects on birdlife.

A. Tipler evidence

3. In paragraphs 40 to 49 of his evidence Mr Tipler refers to a figure from a 2008 report by Mr Duncan for ECan that shows the preferred flow ranges for birds and other instream values in the Waimakariri River. He also presents modified tables (in Figures 5-8 of his evidence) from Mr Duncan's report comparing the effects of the revised CPWES flow regime with flow regimes analysed by Mr Duncan undertaken for evaluating options for Plan Change 1 in the WRRP. On the basis of these comparisons Mr Tipler concluded that the revised CPWES regime will provide more days of preferred birdlife habitat (55-95 m³/s) than provided by allocation allowed under the existing WRRP and provided by the original applications by CPWES.
4. Mr Tipler's analysis does not mention the number of days flows are less than the preferred bird habitat range after abstraction. These lower flows are potentially critical as it is at these flows that the number of riverbed islands reduces substantially and thus average breeding success of birds is likely to decline. I have thus taken the liberty of reproducing data from Table 1 from Mr Duncan's 2008 s.42A report, and added my own columns about the percentage of time flows are in the different bands:

Table 1: Average number (and percent) of days per year (Sept-Dec) when the mean daily flow was in various flow bands for 1967 to 2001 for various take regimes, and percentage change compared to the unmodified flow. **Numbers in bold indicate the preferred flow regime for birds.**

Flow band (m ³ /s)	Unmodified (days)	Unmodified (percent of days)	Pre-CPW (days)	Pre-CPW (percent of days)	Post-CPW (days)	Post-CPW (percent of days)	Post-CPW 1:1 sharing (days)	Post-CPW 1:1 sharing percent of days)	Post-CPW Block take >90 m ³ /s (days)	Post-CPW Block take >90 m ³ /s (percent of days)	Post-CPW Block take >100 m ³ /s (days)
<55	1.6	1	12.2	10	23.9	20	20.4	17	12.2	10	12.1
56-94	33.6	28	38.3	31	32.3	26	36.6	30	44.5	36	44.1
>95	87.4	72	71.5	59	65.8	54	65.1	53	65.6	54	65.8

5. From Table 1 above it should be clear that under natural flows the river is only at <55 m³/s for around 1% of the time, while under the preferred CPWES abstraction this would change to 17% of the time – in my view this is highly significant and would likely place at jeopardy the birdlife of the Waimakariri River. Conversely, the proposed block take at >90 m³/s would maintain bird habitat at current levels, a much preferred state in my opinion. Given the above, and complementary analysis provided in the most recent report of Mr Duncan (paragraph 32), I remain concerned about any analysis that indicates a contrary view, i.e., that there would be an improvement for wildlife under the CPWES flow regime.

B. Burrell evidence

6. The overall tenor of Dr Burrell's evidence is that the revised CPW scheme will likely lead to increased nitrogen inputs to tributary streams of Te Waihora/Lake Ellesmere but that it is likely the positive effects of increased flow and associated

instream habitat will more than outweigh the negative impacts of reduced water quality. As expressed in my principal evidence I remain concerned about water quality.

7. The lake already suffers from aspects of significantly reduced water quality (see for example Hayward and Ward 2009). This reduced quality, both in the streams and in the lake, is having negative impacts on key values and threatens to further impact these values (e.g., through further unwanted and noxious algal blooms).
8. In my view and consistent with best practice elsewhere, e.g., Lake Taupo, overall lake and value specific nutrient loads need to be defined for the tributaries and for the lake – contributors to these loads then need to be quantified and reduction targets set. Where new proposals are set to increase these loads, which appear to be the case here, without significant proposed mitigation, I consider concrete and binding management plans need to be developed and implemented. None of these actions have been taken for the tributaries or the lake in this context.

References

Hayward, S, Ward, J. 2009. Water quality in the Ellesmere catchment. Pp.21-32, in:
Hughey, K.F.D., Taylor, K.J.W. (eds). 2009. Te Waihora/Lake Ellesmere: State of
the Lake and Future Management. EOS Ecology, Christchurch. 150pp.

Ken Hughey

2 October 2009

