

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications for water permits to abstract water, land use consents to excavate and disturb the bed of the Homestead Stream, the construction and operation of a dam and discharge of water from a dam for the proposed Forevan and Winterberg activities

BY ROBERT HAY ROBERTSON
Applicant

TO ENVIRONMENT CANTERBURY
Local Authority

**EVIDENCE IN REPLY OF WAYNE FRANCIS DONOVAN
IN SUPPORT OF THE APPLICATIONS BY ROBERT HAY ROBERTSON**

NORTH SOUTH ENVIRONMENTAL LAW

Barristers & Solicitors
PO Box 109045
Newmarket
AUCKLAND

Phone: 09 304 0043
Fax: 09 303 2427

Counsel: R A Makgill

FLUCTUATIONS IN THE WATER LEVEL OF THE WINTERBERG RESERVOIR

1. Regarding the question that Commissioner Ryder raised regarding the effects of the fluctuations in the water level of the Winterberg Reservoir, I consider that the evaluation that I presented in my principal evidence still stands. That evaluation was presented in the following paragraphs of my evidence:
 47. Given that the reservoir will be drawn down on an annual basis, to supply water for irrigation, in my opinion the reservoir will form a poor quality unstable aquatic habitat, primarily because very few aquatic plants will be able to successfully colonise a large part of the shallower areas of the reservoir, as any established aquatic plants will be desiccated as the reservoir will be dewatered during the hottest, driest period of the year, and prevented from becoming attached by wave action within the shallow margins of the reservoir.
 48. While the potential exists for increased primary production, in the form of aquatic plant (algae, macrophyte) growth, this depends on such factors as retention time, water temperature, water clarity and available nutrients. In the case of the Winterberg Reservoir, I consider that the level of primary production will be low, principally because the predicted concentrations of nutrients in the reservoir of TN: 0.04 g/m³ and TP: 0.006 g/m³ (Heller - Table 6) are well below the ANZECC nutrient trigger values for upland rivers of 0.295 g/m³ (TN) and 0.026 g/m³ (TP), and the reservoir will essentially be "flushed-out" annually.
2. I would be somewhat reluctant to be any more specific than that given that the design and the operational use of the reservoir needs to be finalised. The key aspect from my perspective is that it needs to be borne in mind that this is a water supply irrigation reservoir that will be drawn-down substantially on occasions (surface area: 55 ha down to 14 ha) so that significant areas of the littoral (shallow-water) zone of the reservoir are likely to be dewatered on occasions.

RAVENSCROFT'S EVIDENCE (DOC)

3. Regarding the evidence of Ravenscroft (DoC) I wish to make the following comments:
4. **Ravenscroft - Paragraph 4.18:** Reference is made to the Applicant's proposed use of 3.8 mm mesh screens and concern is expressed about the size of these screens and that fact that mudfish would be able to pass through screens of this dimension.
5. In my evidence (paragraph 54) I recommended that the intake from the Winterberg Reservoir be screened in accordance with the Commonly used Condition "System Design - Fish Screen" used by Ecan, that has provision for both 2 and 3 mm screens:

Discharge - Winterberg (CRC084057)

54. A condition similar to that listed in Appendix 6 of the s42A introductory report, namely Standard Condition 7 for Water Permits relating to System Design 2 - Fish Screen, be included in this Consent."
6. **Ravenscroft - Paragraph 5.16:** In this paragraph of the evidence the suggestion is made that monitoring be undertaken.
7. In my opinion some of the monitoring suggested is already being undertaken by Ecan, and I consider such monitoring should be undertaken.
8. **Ravenscroft - Paragraph 5.17:** Concern is expressed about fish being able to move throughout the waterways.
10. As I indicated in my evidence (Paragraph 50 - principal evidence) I share this concern and as a result I recommended that access for eels and other climbing fish be included in the design of the Winterberg Dam. While I addressed the situation in relation to eels in particular, I acknowledge that there is concern that the lowland longjaw galaxiid may be present in the Homestead Stream it may well be that access for this species may need to include a bypass (rather than just a roughened surface of the dam) that contains a small amount of flowing water at times of high flow when there is a hydraulic connection between the reservoir and the Hakataramea River to ensure that the dam is not a barrier to the movement of these fish throughout Homestead Stream:
50. As I have indicated, the potential exists for the Winterberg Dam to prevent migrating fish from moving between the Hakataramea River and Homestead Stream. In my opinion the only fish likely to be affected is the longfin eel, as this fish has been recorded in the stream in the past, and migrates into the headwaters of the river. Even though the number of these fish attempting to access the Homestead Stream is in my opinion, likely to be low, given that the surface water in the stream only flows into the Hakataramea River on a couple of occasions a year, and that no eels have been recently recorded in the stream, I consider that access for these fish, in the form of a roughened surface on the face of the dam, be provided to enable these fish to move upstream over the dam during periods of high flow when the surface water from Homestead Stream is flowing into the Hakataramea River.

Wayne Donovan

28 September 2008