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Sonja Nicol  
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Dear Sonja

## REVIEW OF EFFECTS OF THE FIORDLAND TRAIL ON WETLAND VALUES

Environment Southland have received a retrospective resource consent application (APP-20191150 W4931) from the Fiordland Trails Trust to modify a wetland due to construction of a multi-use trail on the eastern margin of Lake Manapouri. The trail crosses the wetland approximately two kilometres northeast of Manapouri township. A report accompanying the application states that the wetland is significant in terms of Section 6(c) of the RMA. The report then goes on to say that the effects of construction of the trail on the wetland are very low owing to the small area of wetland affected. Environment Southland required an independent assessment of the likely effects of trail construction on the wetland, which was provided on 26 February 2019 (Wildland Consultants 2019).

Following this, it was suggested (K. Lloyd, email to Environment Southland, 12 March 2019) that potential fish passage through culverts installed under the trail should be reassessed, a ditch excavated on one side of the formed trail should be filled in, monitoring of the infilled area should be undertaken to check for settling of the substrate (with re-filling if required), and monitoring of subsequent colonisation by rautahi (*Carex coriacea*) should be undertaken. The applicant has agreed to undertake these works and monitoring, and provided photographic evidence that showed fish passage should not be restricted through the culverts. If the infilling work is carried out successfully, this should remedy the adverse hydrological effects on the wetland to the point that they are less than minor.

The residual adverse effects relate to the direct loss of wetland vegetation caused by trail construction.

### **EXTENT OF WETLAND LOSS**

Beale Consultants (2018) assessed the effects of trail construction on the hydrological and ecological function of the wetland as being less than minor, due to the 120 m<sup>2</sup> loss of wetland habitat being a small proportion (0.3%) of the total wetland area. However, the wetland extent indicated by Beale Consultants (2018) includes non-wetland habitat near the lake, and it is not clear

what area of wetland extent was used to calculate this percentage. Assessment of satellite imagery indicates, however, that the wetland may occupy only approximately 0.75 hectares, and thus the extent of clearance would be 1.6% of the wetland extent.

### **WETLAND SIGNIFICANCE**

The wetland was assessed as being significant by Beale Consultants (2018) in terms of the Representativeness, Rarity, and Ecological Context criteria in the Southland Regional Policy Statement:

- (a) *Representativeness*
  - (i) *Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district or coastal biogeographic region. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.*
- (b) *Rarity/Distinctiveness*
  - (i) *Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, freshwater environment, or coastal biogeographic region.*
- (d) *Ecological Context*
  - (i) *Vegetation or habitat of indigenous fauna that provides or contributes to: an ecological linkage, ecological corridor or network; buffering function; or ecosystem service.*
  - (ii) *A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a water body, including a river or coastal system, or springs, lakes and streams.*

The assessments against the Representativeness and Rarity criteria are appropriate, but the importance of this wetland in terms of the ecological context criteria is less certain.

### **PLANNING CONTEXT**

The retrospective consent sought has the status of a non-complying activity. As such, there is a relatively high test under Section 104D of the RMA. Before a consent authority can consider to grant or refuse a consent for a non-complying activity, it must be satisfied that either the effects of the activity are no more than minor, or the activities are not contrary to the policies and objectives of the relevant planning documents.

Relevant policies from the proposed Southland Water and Land Plan include:

- Objective 1 *Land and water and associated ecosystems are sustainably managed as integrated natural resources, recognising the connectivity between surface water and groundwater, and between freshwater, land and the coast.*
- Objective 14 *The range and diversity of indigenous ecosystem types and habitats within rivers, estuaries, wetlands and lakes, including their margins, and their life-supporting capacity are maintained or enhanced.*
- Objective 16 *Public access to, and along, river (excluding ephemeral rivers) and lake beds is maintained and enhanced, except in circumstances where public health and safety or significant indigenous biodiversity values are at risk.*

Objective 17 *The natural character values of wetlands, rivers and lakes and their margins, including channel and bed form, rapids, seasonably variable flows and natural habitats, are protected from inappropriate use and development.*

Objective 18 *All activities operate in accordance with “good management practice” or better to optimise efficient resource use safeguard the life supporting capacity of the region’s land and soils and maintain or improve the quality and quantity of the region’s water resources.*

**Policy 32 - Protect significant indigenous vegetation and habitat (pSWLP)**

*Protect significant indigenous vegetation and significant habitats of indigenous fauna associated with natural wetlands, lakes and rivers and their margins.*

**Policy 33 - Adverse effects on natural wetlands**

*Prevent the reduction in area, function and quality of natural wetlands, including through drainage, discharges and vegetation removal.*

**Policy 34 - Restoration of existing wetlands, the creation of wetlands and riparian planting**

*Recognise the importance of wetlands and indigenous biodiversity, particularly their potential to improve water quality, offset peak river flows and assist with flood control, through encouraging:*

1. *the maintenance and restoration of existing natural wetlands and the creation of new wetlands; and*
2. *the establishment of wetland areas and associated indigenous riparian plantings, including on farm, in subdivisions, on industrial sites and for community sewerage schemes.*

**CONSISTENCY WITH PLAN OBJECTIVES AND POLICY**

Construction of the trail through the wetland would appear to be at least partly contrary to Objective 14 and Objective 17, and contrary to Policy 32 and Policy 33.

**ARE THE EFFECTS LESS THAN MINOR?**

Residual adverse effects on the wetland are more than minor, for the following reasons. Various matters need to be considered to determine the scale of residual effects:

- The wetland has been classified as a representative marsh wetland, a wetland class that has is one of the most reduced classes of wetland in most parts of New Zealand.
- The wetland is located within a land environment that retains less than 20% of its original indigenous cover nationally.
- Recent research in Southland has shown that the rate of wetland loss has not slowed, with 10.5% of Southland’s remaining wetlands (excluding those in Fierldand on Rakiura) being cleared between 1990 and 2012 (Robertson *et al.*, in press).
- Clearance of indigenous wetland vegetation, while representing a relatively small wetland area, increases the cumulative loss of wetland extent, and the effects of this have not been avoided, remedied, or mitigated.

Overall, even though the extent of wetland loss is relatively small, the residual adverse effects are more than minor, for the reasons set out above.

**OPTIONS TO FURTHER REDUCE THE RESIDUAL ADVERSE EFFECTS**

A grove of deciduous trees which are almost certainly willows (*Salix* spp.) occur approximately 100 metres upstream of the affected wetland. These are most likely to be crack willow (*Salix fragilis*) but could potentially be grey willow (*Salix cineria*). In either case, they are significant weeds of wetland ecosystems, and are likely spread further downstream, and into the affected

wetland over time. Willow invasion could potentially displace indigenous wetland vegetation and alter the hydrology of the wetland.

Eradication of these willow trees would therefore represent a very positive effect that may reduce the residual adverse effects on the wetland to less than minor. Willows can be drilled and poisoned *in situ*. Willow control sites should be monitored for regrowth and regeneration, with additional control undertaken if required.

Scotch broom (*Cytisus scoparius*) occurs in patches on the wetland margin, and while not likely to have adverse effects on the wetland, are very likely to be having adverse effects on the natural character of the wetland. Control of this Scotch broom could therefore mitigate adverse effects on natural character. Follow-up control would also be needed. Encouraging regeneration of mānuka on wetland margins, or planting it, would help to reduce future invasion of Scotch broom.

## **CONCLUSION**

Remediation of the adverse hydrological effects on the wetland is likely to reduce those effects to a less than minor level. Residual effects of wetland vegetation loss caused by track construction could be addressed by eradication of willow trees. Effects on natural character of the wetland could be mitigated by control of Scotch broom and increasing indigenous plant dominance on the wetland margins.

It should be noted that these conclusions are made without the benefit of having visited the site.

Please don't hesitate to contact me if you require further input or discussion.

Yours sincerely



Kelvin Lloyd  
Principal Ecologist

## **REFERENCES**

Beale Consultants 2018: Te Anau - Manapouri multi-purpose trail. Ecological assessment of Leg 6 wetland crossing. Prepared for the Fiordland Trails Trust.

Robertson H.A., Ausseil A-G., Rance B., Betts H., and Pomeroy E. In press. Loss of wetlands since 1990 in Southland, New Zealand. *New Zealand Journal of Ecology* 43: in press.

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