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Aupouri Aquifer Water User Group (AAWUG) Expert Conferencing

Item 5 on the Direction issued by Commissioners for the Aupouri Aquifer Water User Group (AAWUG) resource consent application on 16th September 2020 required that:

“The hydrologists for the applicant, NRC and DoC, together with DoC’s ecologist, and, as necessary the Applicant’s and NRC’s ecologists, are to confer with the intention of developing an agreed plan to address the wetland issue”.

A video conference between the respective parties was held on 22 September 2020. Representatives participating in the meeting included:

- Brydon Hughes - NRC Consultant Hydrogeologist
- Jon Williamson - Hydrogeologist for the Applicant
- Dr Dave West - Ecologist for the Department of Conservation
- Tim Baker - Hydrogeologist for the Department of Conservation.

The meeting commenced with a discussion of the potential wetland risk analysis circulated by Mr Williamson on Thursday 17th September 2020.

The experts agreed that:

- The depressional analysis presented by Mr Williamson provides a useful starting point for assessment of wetland risk.
- The AAGM Scenario 2 analysis (February 2020 version) provides a reasonable means of assessing the potential magnitude of drawdown occurring in response to the proposed abstraction in the shallow sand aquifer (i.e., that most likely to impact on surface waterbodies).

Further, the experts agreed on a process for identifying potentially ‘sensitive wetland areas’ comprising:

1. The depressional analysis undertaken by Mr Williamson will form the starting point for wetland risk analysis.

2. The risk evaluation matrix outlined in the Memorandum of Counsel for the Director general of Conservation will be utilised for the primary assignment of risk to individual areas identified by the depressional analysis.

Mr Williamson signalled potential disagreement with the assignment of 'moderate' risk to areas where drawdown is between 0 and 0.1 m, recommending an alternative criterion where 'low' risk was assigned where the magnitude of drawdown is minor.

It was agreed that the risk criterion proposed by DoC would be used as an initial screen, with further review of the cut-off for 'low' risk once the analysis was completed and comment provided by other DoC experts.

3. The depressional areas identified by Steps 1 and 2 above will be overlain with additional coverages representing:
 - Existing wetland coverages (NRC, LUCAS, FENZ and LCDB5 – merged for the purpose of this analysis)
 - LCDB5 High Producing Grasslands
 - Wetland gradient maps produced by Rissmann *et al* 2019

These coverages will be used to modify the original risk ranking to include the full spatial extent of existing defined wetland areas and potentially exclude 'wet' or 'low-lying' areas on existing areas of improved pasture.

4. The oblique aerial photo coverage will be used to confirm (or otherwise) the presence of wetland vegetation at a number of 'test' locations comprising areas identified from Step 3. The locations for analysis using aerial photography will comprise a representative spatial distribution of sites across the various risk categories.
5. The outcome of mapping and aerial photographic analysis will be reviewed at a further meeting tentatively scheduled for 30 September to develop a map and/or listing of potential 'sensitive wetland areas' sites for potential inclusion in resource consent conditions and/or the respective Groundwater Contingency and Monitoring Plans (GCMPs).

It was noted by Mr Hughes that due to the inherent drainage characteristics of sand, many wetland features on the Aupouri Peninsula are likely to occur in areas where subsurface drainage is impeded by low permeability iron pan or peat deposits (thereby reducing the potential for hydraulic connection with underlying groundwater). In these areas, wetlands and surface waterways are frequently associated with localised perched water tables that act independently of the regional water table. Such conditions are potentially widespread in areas of sandy soils to the north and west of Awanui (where fine clay and peaty clay soils predominate).

The potential impacts of the proposed abstraction on dune lakes, particularly in the Sweetwater area, were also discussed. The applicant agreed to provide a map showing the interpolated depth to groundwater across the wider Aupouri Aquifer to help illustrate the reduced risk assigned to these

features. The map will be derived from LIDAR land surface elevation data and relative groundwater levels calculated using the AAGM Scenario 1 (naturalised).

NRC undertook to provide details of existing (and proposed) groundwater level monitoring sites, along with details of existing and proposed future dune lake monitoring and Northland wetland mapping being undertaken by Morphem Environmental Consultants for circulation prior to the next meeting of the experts.

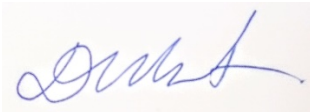
It was noted by Mr Williamson that three of the largest applicants, Te Aupōuri , Ngai Takoto and Te Rarawa Iwi have undertaken collaborative work with DoC identifying and protecting wetlands on their landholdings under the Te Korowai - Te Hiku o Te Ika Conservation Board agreements. Concern had been expressed by these applicants to WWLA about duplicating efforts in this space. Dr West agreed to find out more about this with the local Kaitia branch of DoC.



Brydon Hughes



Jon Williamson



Dave West



Tim Baker