

Modelling river flows

River characteristics the Committee can establish minimum flows (“hands off flows”) for include ecology, recreation and mana whenua values. Recreation activities at low flows are affected by works in beds of rivers that can’t be tested in modelling for river flows. For example, changes to flows or water levels at swimming holes from increasing or reducing flows cannot be quantified.

Modelling

Two modelling exercises are underway. Mike Thompson is using a model (EFTSAP) that will allow the Committee to assess the implications of various flows on habitat and reliability of supply. In addition the Collaborative Modelling Project (CMP) will explore the Business as Usual (BAU) scenario and a scenario for river flows at 80% (large rivers) and 90% (small rivers).

Ecological flows

The available methodology used for setting ecological flows in rivers relies on establishing habitat protection that provides levels of protection for selected species as a proportion of low flow. Once appropriate levels of protection are decided, the reliability of water available to users can be estimated based on requirements to cease or reduce flow at the habitat protection level.

Assessing ecological flows relies on models that have been developed and used for habitats of fish species. The Committee will need to consider which species it wants to test through the modelling process (indigenous species and trout) and which rivers are relevant to the species selected. The RMA directs particular regard be given to protection of the habitat of trout. Generally, protection of trout habitat relies on higher flows than indigenous species.

Mana whenua flows

The Committee supported testing a scenario that uses “mana whenua flows” for identified rivers in Caleb Royal’s report¹. For rivers not identified, flows of twice the mean annual low flow will be modelled. This scenario will be reported with other modelling results at the next workshop.

Questions

What indigenous fish species does the Committee want to select for testing flows (given that some species are not particularly flow reliant while others are)?

What rivers and flows does the Committee want to identify as being suitable for the habitat of indigenous species?

What rivers and flows does the Committee want to identify as being suitable for the habitat of tuna?

What rivers and flows does the Committee want to identify as being suitable for torrent fish? – The indigenous species most vulnerable to low flows.

What rivers and flows does the Committee want to identify being suitable for the habitat of trout?

¹ Royal Caleb. 2011. Cultural Values for Wairarapa Waterways