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Report to: Taharoa Domain Governance Committee

Meeting date: **12 February 2019**

Subject: **Kai Iwi Lakes Food Web Studies**

Date of report: 11 February 2019

From: Mark Schreurs; Policy Analyst

Report purpose **Decision** **Information**

Assessment of significance **Significant** **Non-significant**

Summary

NorthTec, in partnership with Northland Fish and Game Council (Fish and Game), has been undertaking a study on how trout diet varies across seasons in the Kai Iwi Lakes. Fish and Game has also been doing a study into trout diet at a national level. The opportunity has arisen to use resources from this national level study to expand the present study at the Kai Iwi Lakes.

NorthTec and Fish and Game are seeking approval from the Committee to undertake these activities in the Lakes. In particular, they require permission under section 50 of the Reserves Act 1977 to take the macroinvertebrate samples they require. The Taharoa Domain Governance Committee (the Committee) is the appropriate body to grant this permission with respect to the collection of fauna samples in the Taharoa Domain.

In addition, there is also the opportunity to include tuna in this study. This would make the study more robust.

Recommendation

That the Taharoa Domain Governance Committee:

- 1 *Receives the Policy Analyst's report 'Kai Iwi Lakes Food Web Studies' dated 11 February 2019; and*
- 2 *Believes it has complied with the decision-making provisions of the Local Government Act 2002 to the extent necessary in relation to this decision; and in accordance with the provision of s79 of the Act determines that it does not require further information prior to making a decision on this matter; and*
- 3 ***Either*** *authorises* ***or*** *denies authorisation under section 50 of the Reserves Act 1977 for the Northland Fish and Game Council and NorthTec to take samples of macroinvertebrates from the Kai Iwi Lakes as part of their research; and*
- 4 *Notes that any authorisation given shall apply only where actions are not in contravention of the Wildlife Act 1953.*

Reason for the recommendation

The proposed studies will provide valuable information on the food webs in the Lakes and predation pressure by trout on the DLG. The number of macroinvertebrates taken would not be significant within

the context of these species' ecology.

Reason for the report

To seek approval for the Northland Fish and Game Council and NorthTec to take macroinvertebrate samples from the Kai Iwi Lakes as part of their ongoing research.

Background

NorthTec and Northland Fish and Game Council (Fish and Game) have been analysing the contents of trout stomachs to better understand how the trout diet varies over the course of their life cycle and at different times of the year. They want to know what other species the trout are eating and in what quantities. This information is needed to advise management actions that could protect native species such as the Dune Lakes Galaxias (*Galaxias sp.*) (hereafter referred to as the DLG).

The opportunity has arisen to expand this study by working with a national study on trout diet being conducted by Fish and Game. This has enabled additional resources to be directed to research at the Kai Iwi Lakes.

Expanding this study will include two additional kinds of monitoring:

- a) Using fish traps and spotlighting to monitor small fish in the lakes such as Dune Lakes Galaxias (DLG), common bully and *Gambusia* – these methods are not destructive and all native fish caught can be returned to the Lakes.
- b) Collection of macroinvertebrate samples from about 8—10 sites in both Lake Waikare and Lake Taharoa – these will need to be preserved for identification in a laboratory for isotope analysis i.e. they will not be returned to the Lakes.

This additional monitoring is proposed to be carried out by third year NorthTec students. These studies will allow researchers to understand not only what the trout are eating and how much, but also how abundant the populations of their various prey species are and what impact the trout are having on these species.

Issues

Under section 50 of the Reserves Act 1977, NorthTec and Fish and Game require approval from the Taharoa Domain Governance Committee to take the required samples of macroinvertebrates. The Committee will need to consider whether to grant or deny this permission. The aspirations of Te Roroa and Te Kuihi in their role as kaitiakitanga will be fundamental to this decision.

In addition to the above, NorthTec and Fish and Game are also offering to expand the current study to include gut content and isotope analysis on tuna (eels) if Mana Whenua are interested in this being done. Extending this study to include tuna would add extremely useful information in conjunction with the trout analysis. This is because both trout and tuna occupy a similar ecological niche as a top predator and it would be useful to understand to what extent their diets overlap and what their combined effect is on their prey. Including tuna in this study could be useful for:

- Gaining a more complete understanding of food webs in the Kai Iwi Lakes;
- Better understanding the interactions between tuna and trout;

- Gaining an understanding of what tuna eat in dune lake ecosystems and what impacts they may have on prey species. This may have wide reaching uses, especially where Iwi are seeking to stock tuna in other lakes such as is being done by Te Uri o Hau on the Pouto Peninsular; and
- Investigating to what extent tuna prey on Gambusia.

Undertaking gut content analysis would require the destruction of a sample of tuna and hence also require permission from the Committee under s50 of the Reserves Act 1977. Isotope analysis only requires a small sample of flesh (e.g. a fin clip) and does not require the tuna to be killed. If the Committee chooses to grant permission under s50 for tuna to be taken, then the tuna caught could be given to Mana Whenua for distribution among whanau. Conversely, the tuna could be caught by members of the Iwi and the stomachs provided to NorthTec for analysis.

If Mana Whenua are interested in better understanding what tuna are eating in the Lakes and to what extent they are competing with trout, then the Committee will need to consider if to grant or deny permission under s50 for a sample of eels to be taken. Conversely, the Committee could limit approval to isotope analysis which does not require the tuna to be killed. The aspirations of Te Roroa and Te Kuihi in their role as kaitiakitanga will be fundamental to this decision.

A representative from NorthTec will be present at the meeting so that these opportunities can be discussed further, and Committee members will have the opportunity to ask questions.

Factors to consider

Community views

This study contributes towards a greater understanding of species interactions in the Kai Iwi Lakes and may provide insights that can be used to better protect endangered species. The community are likely to support these studies.

Policy implications

The proposed research contributes to a number of study areas agreed under the Dune Lakes Galaxias Monitoring Strategy which was endorsed by the Committee on 10 August 2017. The Monitoring Strategy is the fulfilment of an action under the Kai Iwi Lakes (Taharoa Domain) Reserve Management Plan 2016 (RMP). It contributes to Aim 3 of the RMP: *“Complete knowledge about Kai Iwi Lakes will enable effective protection and enhancement of its natural environment and pristine waters.”*

Financial implications

There are no financial implications for Kaipara District Council.

Legal/delegation implications

Kaipara District Council as the administering body of the Taharoa Domain has the power to grant or deny permission for fauna to be taken for scientific research under section 50 of the Reserves Act 1977. The Committee, which includes Mana Whenua (Te Kuihi and Te Roroa), is the appropriate body to approve the proposed research actions having been given the appropriate delegations by Kaipara District Council under its Terms of Reference.

Options

The Committee has the following options:

Option A: Grant permission for NorthTec, and Fish and Game to take macroinvertebrate samples as part of their research.

Option B: Refuse to allow any macroinvertebrate samples to be taken.

Options around tuna: This will be discussed at the meeting. This may lead to a preferred option being identified.

Assessment of options

Option A: granting permission for NorthTec and Fish and Game to take macroinvertebrate samples as part of their research, would provide valuable information on food webs and species interactions. The number of macroinvertebrates to be taken is considered not to be significant within the context of these species' ecology. That is, macroinvertebrates naturally experience high mortality and high fecundity. Removing a sample of macroinvertebrates as proposed is therefore not expected to have a lasting impact on their numbers. In making this decision, the Committee should consider the aspirations of Te Roroa and Te Kuihi in their role as kaitiakitanga.

Option B: refusing to allow the taking of macroinvertebrates, would prevent NorthTec and Fish and Game from gaining the important knowledge needed to advise management actions that could protect the indigenous species in the lakes.

Assessment of significance

This decision does not trigger Council's Significance and Engagement Policy.

Recommended option

The recommended option is **Option A**.

Next step

NorthTec and Fish and Game will undertake the research detailed in this report to the extent approved by the Committee.