

Meeting Notes

Kai Iwi Lakes Dune Lake Galaxias Working Group

Date : Wednesday 11 December 2019
Time : 11:20 am start, concluded at 1.43pm
Venue : Northland Regional Council, Whangarei Office

Attendance

Tom Drinan	Department of Conservation
Matthew Calder (via phone)	Department of Conservation
Mark Schreurs	Kaipara District Council
Tanya Cook	NorthTech
Graham Gallagher	Northland Fish and Game Council
Carol Nicholson	Northland Regional Council
Will Trusewich	Northland Regional Council
Claire Heyns	NorthTech
Alex Going	Northland Regional Council/NorthTech

Opening

Mark welcomed everyone and explained the agenda for today.

Apologies

Ric Parore (Te Kuihi), Rudi Hoetjes (Fish and Game), Andrew Knock (DOC), Kathie Fletcher (KDC) and Taoho Patuawa (Te Roroa).

Preliminary findings

The Working Group had instigated a number of research and monitoring projects, most notably the trout diet study, otolith study and review of the Department of Conservation's (DOC) Dune Lake Galaxias (DLG) spotlight monitoring. These projects had now been running for over a year and were beginning to show results. The Working Group discussed these initial findings and how effective these were proving.

Tanya explained the methods used to collect a set of samples of DLG. These samples were now being used for otolith and radio isotope analysis. In addition, visual observations have been made of what fish are present (regardless of species) at the time of sampling and measurements are taken of every DLG caught.

Macroinvertebrate samples have also been collected as part of this project. In addition, samples of trout have been caught, their stomachs taken and frozen for analysis and their heads taken for radio isotope analysis.

To date, samples have been collected at regular (typically two monthly) intervals since November 2018. However, analysis of these samples has yet to be fully completed. It is noted that analysis of the samples is very time consuming and takes the NorthTech students involved many hours in the laboratory. In particular, the radio isotope analysis will only begin once all samples have been collected. The findings from this research is therefore still incomplete. However, the findings so far show the methods being employed are robust and yielding good results.

Preliminary findings show the DLG appear to be spawning in all months of the year though there may be peaks of greater spawning activity at certain times. The fish are also reaching sexual maturity at a smaller size than previously expected (45mm). As the study progresses, peaks in spawning will be compared with data on lake level, rainfall, phase of the moon, Gambusia abundance and the trout

release cycle. This is anticipated to give insights into what may trigger spawning events. The findings will also be compared against the spotlighting data collected by the Department of Conservation (DOC) over the same period. It was noted that some of the sample collection sites align with the DOC spotlighting sites, meaning there is good correlation between the two research initiatives.

It was suggested that local iwi along the Pouto Peninsular be asked if they are aware of any patterns in spawning of landlocked inanga populations. Mātauranga Māori from iwi in this area has already contributed some useful insights to understanding the life cycle of other species.

Action: Mark to suggest this to Taoho.

There was some discussion on the effects of bully (*Gobiomorphus cotidianus*) predation on DLG (research so far has revealed that bully eat both DLG and Gambusia). There was also some discussion on tuna (eel) diet. One tuna stomach has been collected to date for analysis. It is hoped further samples of tuna can be obtained for stomach content and isotope analysis.

Matthew gave an update on DOC's DLG spotlight monitoring programme. They are currently in the process of recruiting a new Ranger to be based at the Kauri Coast DOC Office (Dargaville) and have a focus on freshwater. This new staff member will take over responsibility for the DLG spotlight monitoring and will amend the methodology to bring it in line with the recommendations of the recent research DOC have done into this method (see meeting notes from the 12 June 2019 meeting). Till then they are continuing with quarterly monitoring as per their existing methods i.e. surveying each of the regular sites twice in the same night.

There was some discussion on DOC's spotlighting method. It was suggested that DOC's spotlighting method could benefit from a catch and measure calibration exercise to confirm that the size classes are being recorded correctly.

There was some discussion on when the various research programmes will be finished. Results from all research streams should be available by mid-2020. A final report to the Taharoa Domain Governance Committee with recommendations can be provided by late 2020.

It was identified that another round of sample collection was needed to fill gaps in the trout diet study and lake food web study. This would need to be undertaken before the Lakes get busy over the Christmas period. The working group considered their availability and concluded that the following day, Thursday 12 December 2019, would be the best date for this.

Action: Tanya to call Te Roroa to let them know about and invite them to participate in the sampling activities.

Mark extended a big thankyou to NorthTec on behalf of the Working Group. It is acknowledged that the lion's share of the work associated with these research initiatives is being undertaken by the students at NorthTec and that these projects would not be possible without their involvement.

The meeting broke for lunch at 12:32pm and reconvened at 1:03pm

Gambusia Busters

Will explained the suggestion of running a "Gambusia Busters" event at the Lakes. This event would involve issuing children and other interested persons at the Lakes nets and buckets and offering prizes for the most Gambusia caught. Gambusia would be euthanized humanely by submersing them in a slurry of ice water. The intention would be to reduce the population of Gambusia by catching the pregnant females at the start of summer before they have a chance to give birth (Gambusia are a warm water species and experience a population crash over winter before breeding back up again over summer). Will suggested these events could be run in conjunction with the annual Kai Iwi Lakes Open Day.

The Working Group identified a number of concerns about this suggestion, particularly regarding identification of target species by participants and the risk of bycatch. Will noted past research indicates DLG of a similar size to Gambusia are in deep water during the day (when these events would be held) making them less likely to be caught.

There were also concerns over participants trampling lake edge vegetation. And further concerns that predators of Gambusia may switch their predation pressure onto DLG if Gambusia numbers reduce.

The education value of such an event was considered greatly beneficial.

It was suggested a trial be undertaken in 2020. The results of this trial and the findings of the Working Group's research could inform a Gambusia Busters programme in the summer of 2020/2021.

Action: Will to investigate a trial.

Current environmental monitoring programs

Mark asked the Working Group to consider the pre-circulated report giving an overview of the many research and monitoring programmes being undertaken within the Taharoa Domain.

The intention was that the Working Group consider if the current environmental monitoring programmes in place in the Taharoa Domain were sufficient or if more was needed. The Working Group's conclusion could then be put as a recommendation to the Taharoa Domain Governance Committee.

The Working Group considered this matter should be discussed with Mana Whenua as it was they who had raised it initially.

The Working Group also noted that monitoring of koura (freshwater crayfish) remained a gap. Concerns remained over reports their population is declining in the lakes with harvesting by campers and day trippers suggested as the cause. It was suggested the traditional fishing method using bundles of bracken fern could be used by Mana Whenua to monitor the koura population.

The Working Group also considered Kaipara District Council should consider monitoring and addressing the amount of litter left at the Lakes by visitors. Council should also consider monitoring the number of vehicle movements in and out of the Domain and subtracting the number of campers to get an indication of day visitor numbers.

Action: This matter is to be discussed again at the next meeting when Mana Whenua can be present.

Action: Mark to report back on the possibility of Kaipara District Council monitoring vehicle movements and littering.

Next meeting

The Working Group will next meet in March 2020.

Key items for discussion will include:

- Adequacy of current environmental monitoring programs
- Discussion of preliminary findings
- Report structure – for reporting research findings and recommendations to the Taharoa Domain Governance Committee.

Meeting closure

Mark closed the meeting at 1:43pm.