Motu Kaikoura

An open sanctuary promoting wilderness education, ecosystem restoration and public recreation on an offshore island

KAKA COMMENTS

MOTU KAIKOURA TRUST SUPPORTERS' NEWSLETTER ISSUE 20 APRIL 2017

April already! The year is zooming by and not because the great weather has kept us lounging on the beach!
Far from it. It's been wet wherever I've gone this year. I hope you and your families haven't been adversely affected by all these deluges.

If you are trapped indoors I hope this edition of Kaka Comments bring some distracting reading for you.

Inside you will find:

- results of our latest bird survey – steady improvement - not dramatic but hopefully this means its sustainable
- an interesting proposal for more dolphin research
- results of a 2015 study on mangroves. There are differing views about the value of mangroves and what their presence tells us about what we are doing to our bays and estuaries. So, the more we learn the better.
- a report reviewing the last 18 months of our rat eradication programme is too large to include in this newsletter but it is available on our website - www.motukaikoura.org.nz. It's worth finding as it's a good read. If you would like a copy to hold please let us know and we will send you one.
- also a very interesting update from the Stannard family

Thanks, as always, to Rosalie for putting this newsletter together.

Enjoy!

Harry Doig
Chair

MOTU KAIKOURA BIRD SURVEY, December 2016

The 2016 bird surveys were completed in good weather by an enthusiastic team. The actual counts are suggesting a gradual creep upwards of diversity and numbers of species. Of the individual species, those that are showing noticeable increase, both in the survey data and anecdotal observations, are tui and kereru. This may indicate that vegetation growth is starting to benefit species such as these that have more specialised feeding needs. The ongoing rodent management, and potential vegetation growth, will foster improvement in the bird diversity, perhaps at an increasing rate.

This successful rodent management is particularly evident in the species that nest and/or feed at ground level. A banded rail family of four chicks was often seen darting in and out of cover along the road below the cabins. The ground-level morepork nest that we observed last year was active again. We also observed kereru feeding on tall dandelions on the ground at the edge of the mown lawns.

There were some "firsts" recorded during the survey. A new species was added to the list – a long-tailed cuckoo was heard calling early one morning, and actually seen by one of the survey teams the following day. The cuckoo was probably just a little off-course, as nearby Hauturu-a-Toi/Little Barrier Island is a local stronghold. The species lays its eggs in nests of whitehead, so without its host on Motu Kaikoura, sadly it will not be establishing a population on the island. However, its presence does illustrate the potential for species to colonise the island naturally.

A pair of brown teal was seen feeding at the water's edge at Bradshaw's Cove with three ducklings. We have seen the species around the island before, but this is our first recorded breeding of the species on the island. The stream entering the Cove has dense vegetation just above the beach, and is the most likely nesting site.

Again, low rat densities would have favoured the successful nesting at ground level. The teal were sharing the beach with the regular resident pair of variable oystercatchers with their family of three chicks.

Our observations suggest that the vegetation on the island is poised for significant growth of fruit-bearing species. This, combined with managing the rodents at low density, will flow on to support higher bird numbers. It is always exciting to organize the bird survey "expedition" in anticipation of this change. The expedition was supported by research funding from Unitec Institute of Technology, and the voluntary participation by team members. I extend my thanks to the team, and look forward to their continued support.

Mel Galbraith

NEW RESEARCH PROJECT ON BOTTLENOSE DOLPHIN AT GREAT BARRIER ISLAND

Continuing the work previously done by researchers from Massey University, this year I will start my PhD research at Great Barrier Island studying bottlenose dolphins.

The objective of my PhD thesis project, which is in its early stages, is to assess individual differences in behaviour and the social structure of this dolphin population. To do this, I will be doing boat-based surveys along the west coast of the Island taking photographs of the dolphins and recording their acoustic behaviour. This research is important because of the potential for a negative association between individual differences, sociality and interactions with humans by wild dolphins; an issue that has not been studied.

Since dolphins are a major focus of marine based eco-tourism, it is essential to understand how different individuals within a population respond to humans and disturbance and to assess the potential risks to dolphin welfare and population sustainability. My research seeks to quantify and explore individual differences and social networks in a population of dolphins, an approach that has not been used in wild cetacean before.

Understanding dolphin individual differences will increase our understanding of dolphin behaviour, and hence, compile wider knowledge of effective management tools for different populations. In addition, I will use a network social approach to shed light on how individual differences can affect the larger population. It is anticipated that the results from this research will be applicable to any dolphin population and contribute to the conservation of a wide range of other dolphin species.

I want to thank Motu Kaikoura for supporting this project.

Jessica Patiño-Perez

Bottlenose dolphins socialising at Gt Barrier Island
Photo by Jessica Patiño-Perez

MANGROVE NUTRIENT STATUS AT MOTU KAIKOURA AND GREAT BARRIER ISLAND.

Gritcan Iana[1] and Duxbury Mark[1]
[1]Institute for Applied Ecology New Zealand, School of Science, AUT University

In 2015 the AUT Mangrove Research team investigated the nutrient status of mangrove species across the Auckland region and at Mangawhai in Northland. We analysed nutrient concentrations (total nitrogen and total phosphorus) in mangrove leaves to test the hypothesis that mangrove plants that are growing in highly populated areas would have higher nutrient concentrations in their leaves due to eutrophication. Eutrophication is the release of excess plant nutrients (nitrogen and phosphorous) into water due to human activities such as farming and sewage.

The science behind the study is very robust as it is a common knowledge that levels of nutrient concentrations in the tissues of aquatic plants (like seagrass, algae, and mangroves) are intrinsically linked to the levels of nutrient availability in the ecosystem. However, it was not tested previously in temperate New Zealand mangrove settings.

Initially, we studied 3 locations, the Waitemata and Manukau harbours around Auckland city and Mangawhai Harbour Estuary. After conducting the preliminary study where we found high leaf nutrient levels in mangroves in the three harbours, we decided to sample mangrove leaves at Great Barrier Island and Motu Kaikoura in particular in an attempt to identify leaf nutrient concentrations from mangroves growing under presumably pristine conditions.

To our surprise, nitrogen concentrations in mangrove leaves from Great Barrier and Motu Kaikoura (Figure 1) were relatively high (greater than 2.0%) and similar to ones at Mangawhai Harbour Estuary. Typically pristine leaves have nitrogen contents of less than 1.9% whereas the Motu Kaikoura and Great Barrier mangroves were above 2.0%. We hypothesised that these elevated nitrogen concentrations might be linked to the few potential anthropogenic sources of nitrogen in the area sampled.

There were two potential marine sources of anthropogenic nitrogen. Firstly, there were three oyster and/or mussel farms in the area, and aquaculture in general (e.g. shrimp farming) has been associated with elevated nitrogen values in mangroves due to release of waste products in overseas studies.

Secondly, the bay between Motu Kaikoura and Great Barrier is used as a yacht anchorage and human waste products may also contribute to the elevated nitrogen levels. This explanation is supported by the observation that the lowest nitrogen concentrations in the sampled area were at Kiwiriki Bay, which is most distant from the farms and potential yacht anchorages.

Conversely, the phosphorus values in mangrove leaves were relative low compared to the three other harbours, which fits in with previous observations of low phosphorus availability in old growth New Zealand pristine forests.

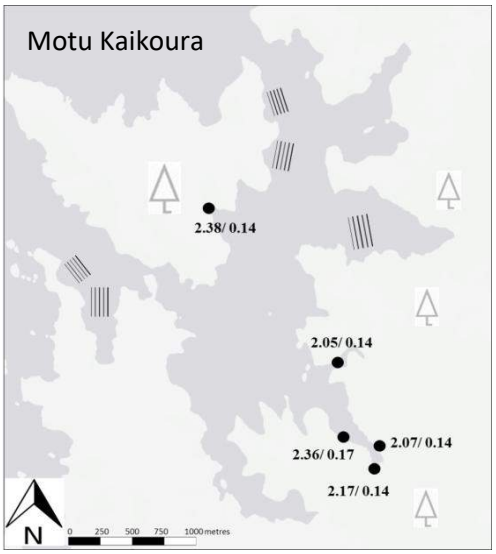

Figure 1. Nutrient concentrations (total nitrogen/total phosphorus, % dry weight) of mangroves (*Avicennia marina* sp. *australasica*) at Motu Kaikoura and surrounding Great Barrier Island (n=10). Five lines symbol represented approximate location of aquaculture farming, information retrieved from Google© maps.

Thus a paradoxical situation exists at Motu Kaikoura, with the nitrogen levels indicating pollution in the area, but the phosphorus levels indicating that the area is relatively pristine. The likely explanation for this is the high solubility of nitrogen compounds such as nitrate in water and the low solubility of phosphorus compounds in water, which instead tend to bind to sediments.

Both nitrogen and phosphorus are being released into the bay between Motu Kaikoura and Great Barrier from human activities, but the nitrate is able to travel further in the water and pollute the mangroves whereas the phosphorus is trapped more locally where it is released.

Our research team greatly appreciates assistance from The Motu Kaikoura Trust, especially Rod Miller and Clint Stannard. Please find attached a link to the scientific publication where Rod and Clint and the Trust are thanked in the Acknowledgements section at the end of the paper.

Link to the original publication: http://journal.frontiersin.org/article/10.3389/fpls.2016.01922/full

THANKS TO PUB CHARITY FOR THE GRANT TO PURCHASE HONDA 50 HP MOTOR FOR THE TRUST'S BOAT.

Also to Wayne, Mahurangi Marine for installing the motor on the boat at Motu Kaikoura

Digger attaching new motor

Digger removing old motor

New motor attached (supervised by Rod)

Ready for launching

Thanks to Clint Stannard for the installation of the plaque

And also Jon Nicholson for continuing with the battle of the pines

Annual breeding of the Ruru

A SAMPLE OF LIFE ON MOTU KAIKOURA BY THE STANNARD FAMILY

Hi Everybody,

Well since this article is for Kaka Comments and I'm not sure who all the readers are that are reading this, the first thing I'd like to comment on are the Kaka.

Lately lots of local orchard owners have been pretty irate (and that's putting it softly) about the impact our fine feathered friends have been having on their crops. The adjectives some have used to describe them conjure up images of gangs of flying hoodlums, up all hours and especially on brightly moonlit escapades..

I have seen visitors to Motu Kaikoura actually cower; arms covering their heads as a squadron of Kaka zoom over low, complete with shrill "kee-aaahs" as they go. Lately they have taken to hanging out on top of the water tank in the late morning for some dip and sip and prinking..

One fledgling in particular has been dragged over to the edge of the tank on numerous occasions to be taught to drink from the overflow that comes out closest to the road. An adult clamps its beak over the top of the young ones and like a child being led by its twisted ear it is taught quite firmly. Rather an anthropocentric view of it all, but that's the way I imagined it, except these events occurred without much screeching.

We have had visits from three different tertiary groups this summer, one has been dolphin researchers from AUT (Auckland University of Technology) trialing various methods to capture and hold the attention of dolphins using techniques involving mirrors and bubbles.

Mahuki island gannet 'flock minders' overlooking Hauturu... note the shepherd's crook

Also from the same institute were scientists looking at plastic particles in our food web, and how they relate to Australasian gannets in particular. We were lucky to be invited out for one of the days they were here, and got to see them in action, and to capture some good moments on camera to share with you all.

Observation from a safe distance…

The third visit to Motu Kaikoura was from Auckland University representatives, with a community involvement programme that tied in with Okiwi school for our annual coastal cleanup. Rubbish is categorised and analysed to find out how we can come up with ways to reduce it, and just before Easter the Auckland team are returning to show all the students how to do this.

Joe, Xyra and Alyssa at Bradshaw Cove categorising some of the rubbish

There was too little time in the one day we had extra help to do the whole coast of Motu Kaikoura, so before that time we completed the rest of the coast and saved our rubbish up to be counted later, and lucky that we saved the two calmest bays to do on the day.

Recording and removing what we had found

Lots of rat motels have been deployed along the coastline of Motu Kaikoura this Summer. No mean feat as you really have to pick the right weather to get into many of these places that these rats populate. Swimmers from Great Barrier now have the option of taking the bait from two locations within the motel as well as the choice between two rat traps as well, meaning we are able to be more effective in reducing the amount of poison consumed because the old system offered only poisoned bait, and it seems like many dead rats have taken the option of investigating the baited trap before going for the poison.

The team onboard the Hauturu from the Department of Conservation dropped off all of our motels on the floating pontoon for us. Great service, thanks guys and girls!

Aside from pest control, we have been helping out a few chicks when they needed it. We had a Morepork for a week before releasing it back in to the bush after we found it on the road, much more robust than when we first had it, and also a banded rail chick and an injured tui which had such sharp claws it made the honey water feeding times a mixture of pleasure and pain, approached with some trepidation by some of us...

One hungry Ruru

Well. That's the tip of the iceberg for events out here lately. We have recently replaced the motor on Takapu 2 and the tyres on the Mule, so things are looking good for winter!

See you soon,

From the Stannard family.

Nudi branch at Bradshaw Cove

Newsletter acknowledgements

Compiled by: Rosalie Miller
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Thanks to all the contributors for this edition.

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Thank you.
Rosalie Miller
Motu Kaikoura Supporters

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"Having vision is not enough.
Change comes through realising the vision
And turning it into reality."
Sir Peter Blake

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