

# Muriwai Takapu Monitoring Pilot Study

## Muriwai Environment Action Community Trust



Thank you for your interest and participation in this pilot study of a community driven monitoring study. Iconic to Muriwai, we are privileged to have these captivating seabirds, the Australasian Gannet or Takapu (in Maori), nest on our back doorstep at the Otakamiro colony. The more we learn of their biology and behaviour, the more interesting they become!

The 2010/2011 breeding season saw a large scale egg abandonment. This was of concern to rangers and our community. After confirmation that this is not uncommon in a significant La Nina event, we asked how we could utilise the colony to gain more knowledge and insight into the health of the marine environment by studying this indicator species.

As Takapu are a long lived species and top predator in marine food chains; they are sensitive to changes in food supply, marine pollution and environmental conditions. This makes them a potentially useful indicator of oceanic changes, which may be related to larger scale climate changes such as those related to global warming.

Otakamiro colony has not, to date, been monitored for breeding success, although colony size and numbers of pairs counts are monitored annually by the university of Auckland university and the Auckland Council. These surveys are done by analysing photos and bird counts conducted by zoology students. The colony is one of few West coast gannetries, and in general we know little of the feeding grounds and population health of this species. Ease of viewing access makes the Otakamiro colony an excellent site for the study of this species.

The main goal of this pilot study is to begin monitoring the Takapu population at Muriwai using members of the local community to gather data, and hence both increase our awareness of the colony population dynamics and breeding success, as well as demonstrate the value of community driven research. Participants will learn observational techniques and their data will directly contribute to scientific analyses, educational presentations and reports on this species. Additionally, fresh carcasses will be reported (eyes present indicate recent death) and subsequently collected by approved staff for analyses of the cause of death particularly in relation to diet, viral and pollution factors.

## Biology of Australasian Gannet (Takapu)

Kingdom; ANIMALIA

Phylum; CHORDATA

Class; AVES

Order; PELECANIFORMES

Family; SULIDAE

Genus; MORUS

Species; *Morus serrator*

There are three species of gannet- – the Atlantic gannet, *Morus bassana*, in the North Atlantic and North Sea, the Cape gannet, *Morus capensis*, around the southern coast of South Africa, and the Australasian gannet, *Morus serrator*, in New Zealand and south-eastern Australia.



## Physical description

- With a wingspan of around 180cm and length from 85-91cm adults are mostly white, with black flight feathers at the wingtips and lining the trailing edge of the wing. The central tail feathers are also black. The head is yellow, with a pale blue-grey bill edged in black and blue-rimmed eyes. Male and female are not easily distinguishable.
- Young birds have mottled plumage in their first year, dark above and light below. The head is an intermediate mottled grey, with a dark bill. The birds gradually acquire more white in subsequent seasons until they reach maturity after six years.

## Distribution

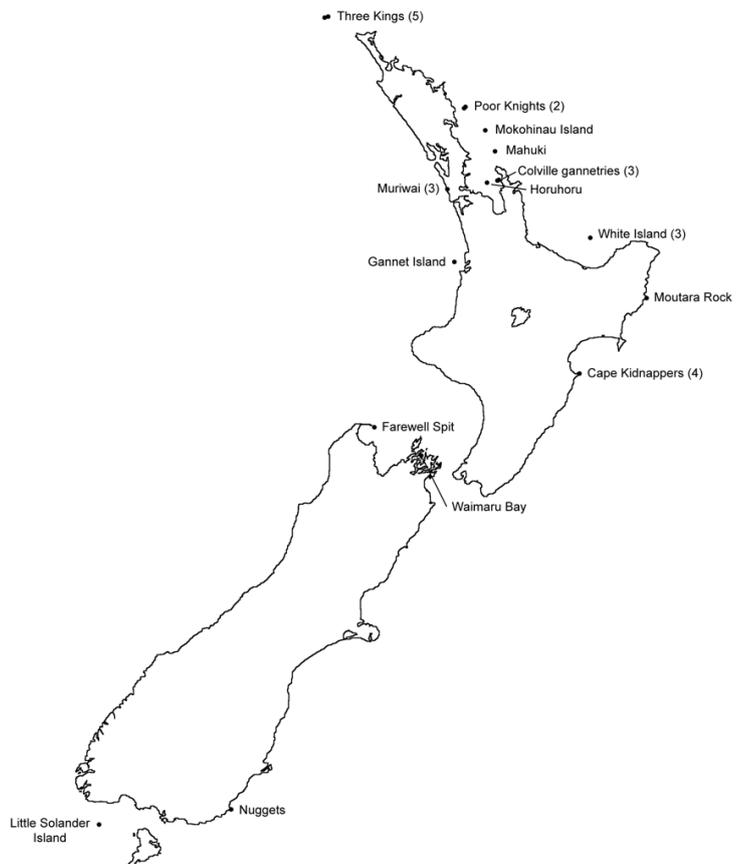
- Takapu have 29 breeding colonies throughout New Zealand, mainly on off shore islands. Outside of the breeding season birds are widespread, including the Chatham, Campbell and Auckland Islands.
- There is estimated to be around 55,000 breeding pairs. The population has steadily increased in the last 50 years. The success of each breeding season is related to food availability, which is in turn impacted by sea temperatures and spawning times of prey species.

## Habits

- Exclusively marine, Takapu forage mainly over inshore waters. Adults are sedentary while fledglings are migratory, spending several years in Australian waters before returning to first breed at age 5-6.

## Breeding

- Their breeding habitat is on islands off Victoria, Tasmania and New Zealand. They normally nest in large colonies on coastal islands. In New Zealand there are three significant mainland colonies at Cape Kidnappers, Farewell spit and here at Muriwai.
- The colony is large and crowded with nests around 1m apart. The Muriwai colony is occupied from around July each year, with eggs laid from late September through to October. Usually only one egg is laid and incubation lasts about 44 days. Chicks leave the colony at 100-110 days to take their first voyage- to Australia.



- Previously believed to pair with a single mate for life, it is now known that some colonies have a 40% divorce rate among pairs. Mating pairs perform elaborate greeting rituals at the nest, stretching their bills and necks skywards and gently tapping bills together. The adults mainly stay close to colonies, whilst the younger birds disperse to distant waters.
- Gannets live for around 25-28 years.

## Food

- Using a highly successful hunting technique called plunge-diving, gannets dive from various heights capturing squid and small fish such as anchovy, jack mackerel and pilchard. Just before they hit the water, they hold their wings out straight and bend them so they're pointing completely backwards, so they don't get damaged when hitting the water at high speed (up

to 145km/hr!). They also take a gulp of air before striking the water, which fills air sacs in their neck, providing cushioning just like an airbag in a car.

Numbers of Australasian Gannet have been increasing since 1950, although some colonies have disappeared and others have decreased in size.

Location of the 29 New Zealand Australasian gannet colonies. The names of the colonies are indicated, with figures in brackets representing the number of gannetries at that location. (Stephenson, 2005).

If you are interested in more scientific reading about Gannets please contact Sonya Veldhuizen , she has many more scientific papers for your interest.

### ***What should I do if I find a gannet?***

- 1) Check for the presence of eyes. If present the bird has died within 24 hours and is a valuable study specimen
- 2) Record the date and where it was found (GPS co-ordinates are ideal but not always possible)
- 3) Place carcass in 2 plastic bags, along with the note)
- 4) Keep carcass frozen, or as cold as possible

The rangers depot has poly chill boxes an ideal size for gannets.

### ***Report carcasses to;***

Gabriel Machovsky Cupuska 414 0800 extn 41196

Emmanuelle Martinez 021 760411

Sonya Veldhuizen 4118017, 021 403663

Rangers Depot 4118076

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## **Methodology of data collection**

We will be looking at subplots on the colony and the nest sites identified. Egg laying and fledgling success will be monitored. Do all couples lay an egg? Do they all hatch? Do these chicks survive? The population success is affected by food supply, environmental pollution, extreme weather conditions and other factors. The results of this pilot study will help contribute to the development of future monitoring programmes of this colony.

Data will be collected on data sheets provided (appendix I and II) WE NEED TO BE VERY CAREFULL NOT TO LOOSE THIS DATA as this will jeopardise the value and possible interpretation of the data.

Northern and Southern colony have been marked using a plastic coated wire. This is on the left hand side as you look from the platform.

Nests have been marked and numbered on the colony photos included in this booklet. We will uses a data collection sheet to record our observations of these sites. Note; Some new nest sites may have been created as the colony fills up, if so please number these on the photo and add them to the data sheet (also inform Sonya of the change).

Data is to be collected on a daily or every second day basis depending on volunteer numbers and availability. It would be ideal to work a roster of 4 to 7, hand in data and pass on to the next person. This way we can share the task and also be flexible.

## Collecting Data

Start at south colony viewing platform.

1. Note the following: date/time, weather conditions (sunny/cloudy/raining light/raining heavy/ no wind/high wind).
2. Locate the section of birds to be surveyed (left hand side of colony) and have a brief look to see the general area you will be observing.

3. Begin surveying from nest 1A noting the following codes as applicable

E = empty nest, no adult, no egg

A= one adult

AU= Adult, unsure of egg

C= couple

CU=couple, unsure of egg

O= egg present

∅= abandoned egg

∕= abandoned chick

G= grey chick

GW= grey and white chick

W= white chick

DC= dead chick (estimate age from resource sheets in booklet)

4. Look over the whole colony. Take note of any dead birds and records these on the northern colony data sheet. Also take note of any obvious pest disturbance, such as scattered feathers or headless carcasses.
5. Record interaction with visitors, such as how many people you spoke to about the Takapu/project.
6. Move to the north colony viewing platform. Repeat steps 1-5
7. Data will be entered into MEACT data base on a weekly basis At the close of your roster please tear off your data sheet and place in Gerry's mail box, 235 Oaia Rd. Gerry enter your data into an excel file. At the end of the season our results will be collated and analysed with the assistance of Gabriel Machovsky ( Marine biologist) and Todd Landers (AC terrestrial scientist). In the future this data will be useful in teaching us more about these sea birds and the health of the ocean.

Any questions call Sonya on 021403663 or Gerry 0274960753