



MRQ

Monitoring Research Quarterly



Monitoring Research Quarterly, MRQ is produced by Auckland Council’s Research and Evaluation Unit, RIMU.

Each edition of the newsletter contains reports of RIMU’s current work including information about recent publications, research, facts and trends about Auckland. RIMU publications are available on the [Auckland Council](#) and [Knowledge Auckland](#) websites.

Rough sleeping in central Auckland

Homelessness is a complex social issue and there is increasing consensus amongst service providers, social scientists, policy makers and academics alike, that homelessness is of significant concern in New Zealand (see the references at the end of the article: Hodgetts et al, 2011, 1994, Leggatt-Cook, 2007).

Although an accurate estimate of Auckland’s rough sleeping population is difficult, Auckland City Mission counted 147 people sleeping rough within a three kilometre radius of the Sky Tower in 2014: 31 were female, 14 were teenagers, 25 were in their twenties, 33 in their thirties, 15 in their forties and 29 were over 50. Of those whose ethnicity could be identified, 63 were Māori, 45 European/Pākehā, 10 Pasifika and three were of another (non-identified) ethnicity.

There is still much to learn about the experiences of those who sleep rough and how best to

coordinate an appropriate response.

The interagency Rough Sleeping in Central Auckland project was developed to gain insights about homelessness in order to create meaningful change for those who sleep rough.

In-depth, semi-structured interviews were carried out with 13 people who were sleeping rough, nine people who had formerly slept rough and three people with family members sleeping rough. Each participant was asked to share their story of rough sleeping. Additional information was sought on a range of relevant topics including: pathways into and out of housing; the practicalities of everyday life; and engagement with professional, social and familial networks. Short interviews comprising four questions were also carried out with 68 members of the public to determine people’s thoughts, perceptions and attitudes towards homelessness.

The interviews were analysed in collaborative workshops where attendees were asked to mine the interviews for insights. The following section considers one of these insights.

The research revealed multiple and complex ways of conceptualising the “choice” to sleep rough. The research team heard from the general public that living on the streets was a personal lifestyle choice that people made. The general public often used such a claim to make sense of people’s decisions that were so very different from their own. Many, however, were critical of those who sleep rough and used the language of choice to justify their decision not to offer help or support to those they encountered on the street. This was especially the case for those who believed that New Zealand’s welfare system offered a safety net to all who required or desired it, and that life on the street came with financial rewards beyond what could be attained in the paid workforce.

Outdoor bench sleeping space in Auckland

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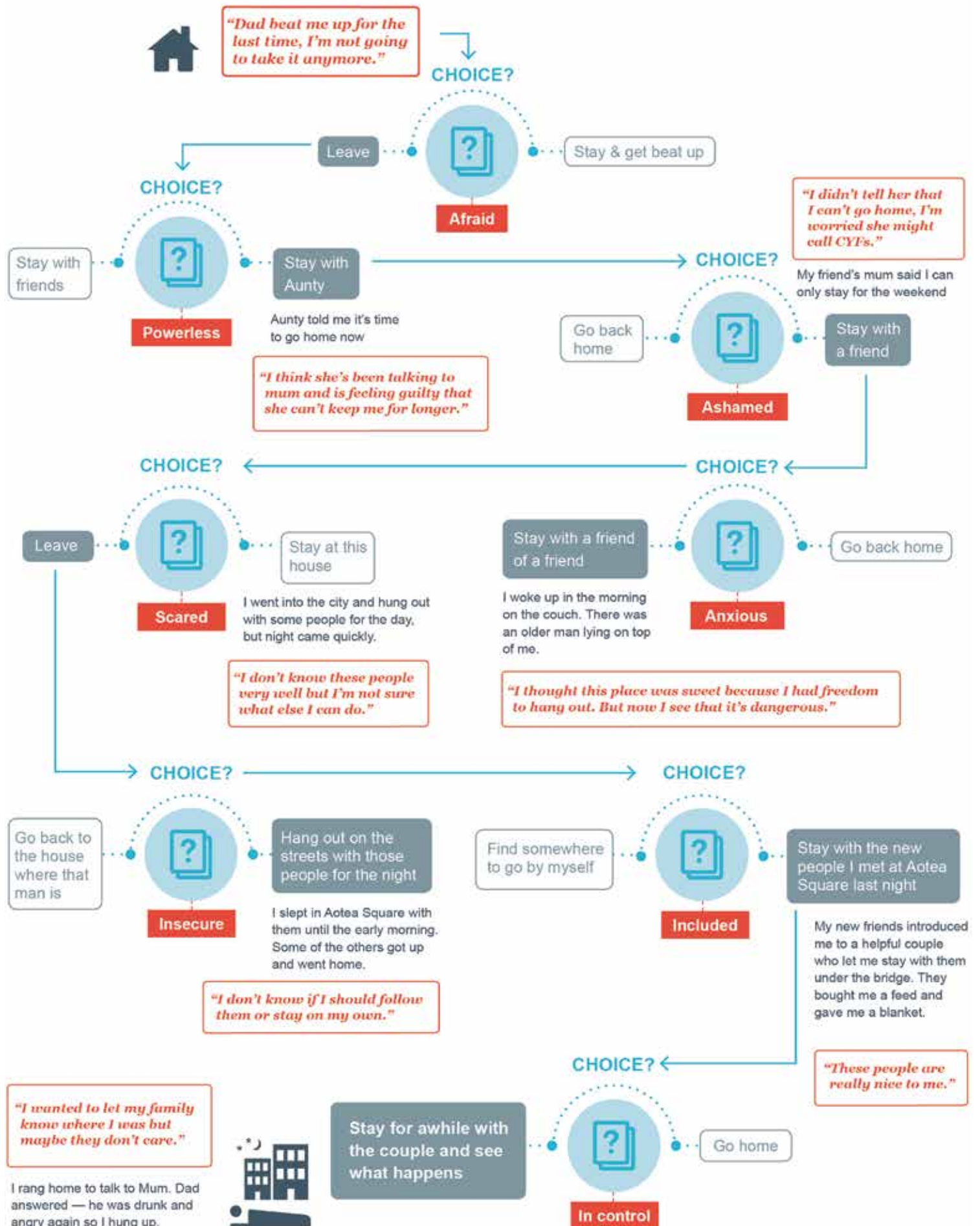


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Figure 1

Follow this journey from a young person's perspective exploring their actions, thoughts and feelings as they grapple with some difficult life choices.



The word "choice" was also used consistently by people who were sleeping rough to explain their decision to do so – but in a very different way. Their declaration of choice was often made defensively but also with a sense of autonomy and pride; they valued the self-determination and freedom that underpinned their choice to sleep rough. We also noted, however, that the initial decision to sleep rough was often made in the face of intolerable physical or emotional abuse, often at the hands of family members and from a young age. The choice to remain on the street was complex and was often grounded in a sense of financial security (having no rent or utility bills to pay), a sense of independence and a lack of appropriate options for alternative accommodation. It would seem that many rough sleepers made a choice to live on the street while caught 'between a rock and a hard place'.

Presenting the concept of choice visually (see Figure 1) enables any reader to better understand the perspective of those who sleep rough. In addition, the visual representation serves as an important tool for helping those who work with homeless people to identify new opportunities and levers for change. A recent example is a workshop comprising the

research team (representing 13 organisations) and the Auckland Homeless Steering Group (2011), in which key action points were identified.

Important insights from the research are now available in a report titled *An insight into the experience of rough sleeping in central Auckland* available on the [Auckland Council](#) and [Knowledge Auckland](#) websites.

References:

Auckland Homeless Steering Group. (2011). Memorandum of understanding: an interagency approach for ending rough sleeping in Auckland city. Auckland Council
 Hodgetts, D., Stolte, O., Radley, A., Leggatt-Cook, C., Groot, S and Chamberlain, K (2011). Near and far: social distancing in domiciled characterisations of homeless people. *Urban Studies*, 48: 1739-1753

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For more information about this project, please contact: Trudie Cain, social researcher: trudie.cain@aucklandcouncil.govt.nz; or Sophia Beaton, community safety project leader (homelessness): sophia.beaton@aucklandcouncil.govt.nz



Lake Pupuke water quality monitoring buoy

Lake Pupuke in Takapuna is a flooded volcanic crater with a distinctive heart shape probably from the merging of two craters.

In the past, Lake Pupuke was used as a domestic freshwater supply with the first pump station built

Checking the buoy on Lake Pupuke



in 1894. The lake stopped being a potable water supply in the early 1940s and it's now a popular place for recreation including boating, kayaking, windsurfing, scuba diving, swimming and fishing. This heavy recreational use means that it is essential that the lake's water quality is stringently monitored.

A water quality monitoring buoy, developed as a joint RIMU and Cawthron Institute¹ project, was deployed recently by Ebrahim Hussain and Stephen Kitto from RIMU's Environmental Monitoring and Reporting team. The buoy is permanently moored over the deepest part of the lake and has been customised to measure a variety of environmental parameters pertinent to lake health. The buoy uses a suite of smart sensors that enables the Environmental Monitoring and Reporting team to continuously monitor water quality variables with improved accuracy and reliability. Some of the variables measured are:

- barometric pressure
- dissolved oxygen content
- fluorescent dissolved organic matter (fDOM)
- pH
- temperature
- turbidity
- wind speed and direction.

The buoy's sensors capture this important water quality and meteorological data every 15 minutes and telemeter it back to the RIMU office via Hydrotel (the Research Unit's environmental data management package) which enables real time viewing of information from each sensor.

The transmitted data is supplemented by Ebrahim's routine on-site water sampling and lake profiling checks to provide an accurate indication of the lake's overall health which is currently rated as good. For more information about Lake Pupuke water quality, please contact Ebrahim Hussain, ebrahim.hussain@aucklandcouncil.govt.nz

¹ The Cawthron Institute in Nelson is a private science organisation specialising in research and analytical testing. See www.cawthron.org.nz

Auckland's international 'seabird hotspot' – the Hauraki Gulf

There is no doubt that Auckland contains some of the most interesting birds in Australasia, including several which are found nowhere else on the planet! These include one of New Zealand's rarest birds, the Fairy tern (*Sternula nereis*), which has a population of about 40 (up from a low of 10 in 1983) that are found on Auckland's northern coast, the Black petrel (*Procellaria parkisoni*) from Aotea (Great Barrier Island) and Hauturu (Little Barrier Island), and the recently rediscovered New Zealand storm petrel (*Fregetta maoriana*) found to breed on Hauturu.

So what's common about these three birds? They fall into three categories:

- they are all seabirds
- are all 'threatened' with extinction
- all breed in the Hauraki Gulf

The first two categories go hand in hand, as seabirds are notorious for being one of the most threatened groups of birds on the planet, as a result of threats on land at their breeding colonies (e.g. habitat destruction, invasive pests), as well as at sea (e.g. interactions with fisheries, pollution). Seabirds are particularly important to look after because they are top predators in the food chain and also 'ecosystem engineers', linking the marine environment to the terrestrial areas where they breed (e.g. they increase soil fertility).

The third category identifies the importance of the Hauraki Gulf to seabirds, an area which is known for being a seabird hotspot, with 27 breeding seabirds (21 which are 'threatened' or 'at risk'). That's a lot of seabird action, because it's about a third of the total 86 seabirds which breed in New Zealand – known as the 'seabird capital of the world.' In fact approximately 20 per cent (about 70/359) of the world population of seabirds is found in the Hauraki Gulf. This is why the Hauraki Gulf was recently designated as an Important Bird Area (IBA). It truly is a remarkable area for seabirds (as well as for the marine life below the surface), a place all Aucklanders can enjoy from the beaches to out on the green blue seas.

So here in Auckland at our doorstep we have a globally significant area for seabirds, most of which are 'at risk' or 'threatened' with extinction.

What can we do?

Well it's not all doom and gloom as we are making important progress towards changing this declining population trend. Auckland Council has been working with a variety of institutions and community groups to learn about the biology of these relatively unstudied birds in our Hauraki Gulf, and gain the knowledge we need to implement conservation management plans to help secure their future.

One of the great success stories has been Burgess Island (Mokohinau Group; Figure 1), which was recently resurveyed for birds two decades after it became pest-free (Ismar et al. 2014). We counted 46 species, up from 24 last reported when it was infested with rats.

RIMU scientist Todd Landers with a Black-winged petrel



Takapuna Beach clean-up



Man-made rubbish is a wide spread, ongoing issue for Auckland's marine environment. Marine pollution from litter, especially plastics, is a global concern because plastics remain in the environment for a long time; there are large amounts in the sea and plastics are widely dispersed across the Earth by ocean currents.

Rubbish in Auckland comes from a variety of sources and the bulk of it that ends up on beaches comes from:

- food packaging
- household items
- personal items
- plastics and polystyrene
- cardboard packaging
- glass bottle fragments
- organic waste.

At first glance, Takapuna Beach looks reasonably clean, but take another look. It's not just the big litter items like cans and plastic bags; it's the small stuff like nurdles! But what are nurdles? Nurdles are 'pre-production microplastic resin pellets', typically less than 5mm in diameter that are the base product for many plastics. Nurdles have become a significant source of pollution in waterways, oceans and beaches, threatening marine life because animals eat the nurdles, mistaking them for food.

Why is beach litter a problem? Aside from the aesthetic concerns of rubbish being everywhere, rubbish can have a debilitating effect on marine life. Not only can marine life become entangled in rubbish,

but as plastics break down they form small balls which are eaten by fish and birds blocking digestive systems, which can cause both internal or external wounds injuring the animals and reducing reproductive capacity. Marine animals can also be poisoned from absorbing toxic compounds from plastics.

RIMU's marine team has decided to take action locally and do our part to help fight the beach litter battle by doing monthly beach clean-ups on Takapuna Beach. We are recording everything found and we will analyse both the types of litter we collect and when we found it to check on the amount of rubbish polluting our beach over the year and assess any seasonal patterns. We are also coordinating with Sustainable Coastlines and submitting our results to a much larger beach litter data set.

[Visitsustainablecoastlines.org/about/impact/](https://visitsustainablecoastlines.org/about/impact/) for further information about the data that has already been collected.

After two beach clean-ups we collected 1175 pieces, 7.8kg of rubbish. Of this, 22 per cent was cigarette butts, 35 per cent was small plastic or polystyrene balls (the nurdles noted previously) and the remaining 43 per cent was miscellaneous litter items such as cardboard, paper, metal and glass. These types of rubbish are not always visible as you walk along the beach. Sadly for fish or birds they are often confused with food and are harmful when eaten.

For more information, and to join RIMU's beach clean-up please contact Melanie, melanie.vaughan@aucklandcouncil.govt.nz

Only four seabirds bred on Burgess prior to rat eradication, however today there are nine (Table 1), and hence Burgess Island is a 'seabird hotspot' in itself! Burgess Island, alongside Hauturu and other pest-free sites, is a great example of what conservation management can achieve.

Another exciting seabird restoration story in our Hauraki Gulf has been the rediscovery of the New Zealand storm petrel, which was previously presumed extinct for 108 years. Scientists from DOC, Auckland Museum, Landcare Research and Auckland Council captured birds at sea to learn their breeding timing which was used to conduct a radio-tracking study using tiny tracking gear to lead

scientists to the first known breeding colony on Hauturu (Rayner et al. 2013).

The tide is certainly turning for seabirds in Auckland with a healthy number of council projects underway aiming to continue improving the conservation status of these precious marine avifauna. RIMU seabird ecologist, Todd Landers has been working with other council staff and experts from external institutions on a variety of seabird issues including:

- GPS tracking Black petrels to better understand their foraging ecology and threats at sea
- regional seabird monitoring programme with the council biodiversity team

to identify seabird breeding areas and management actions

- development of innovative acoustic seabird monitoring methods
- The Seabird Initiative – a multi-institutional research group designed to address seabird issues collaboratively to maximise resources and expertise.

For more information about any of RIMU's seabird related research, please contact Todd Landers, RIMU scientist, todd.landerson@aucklandcouncil.govt.nz

References:

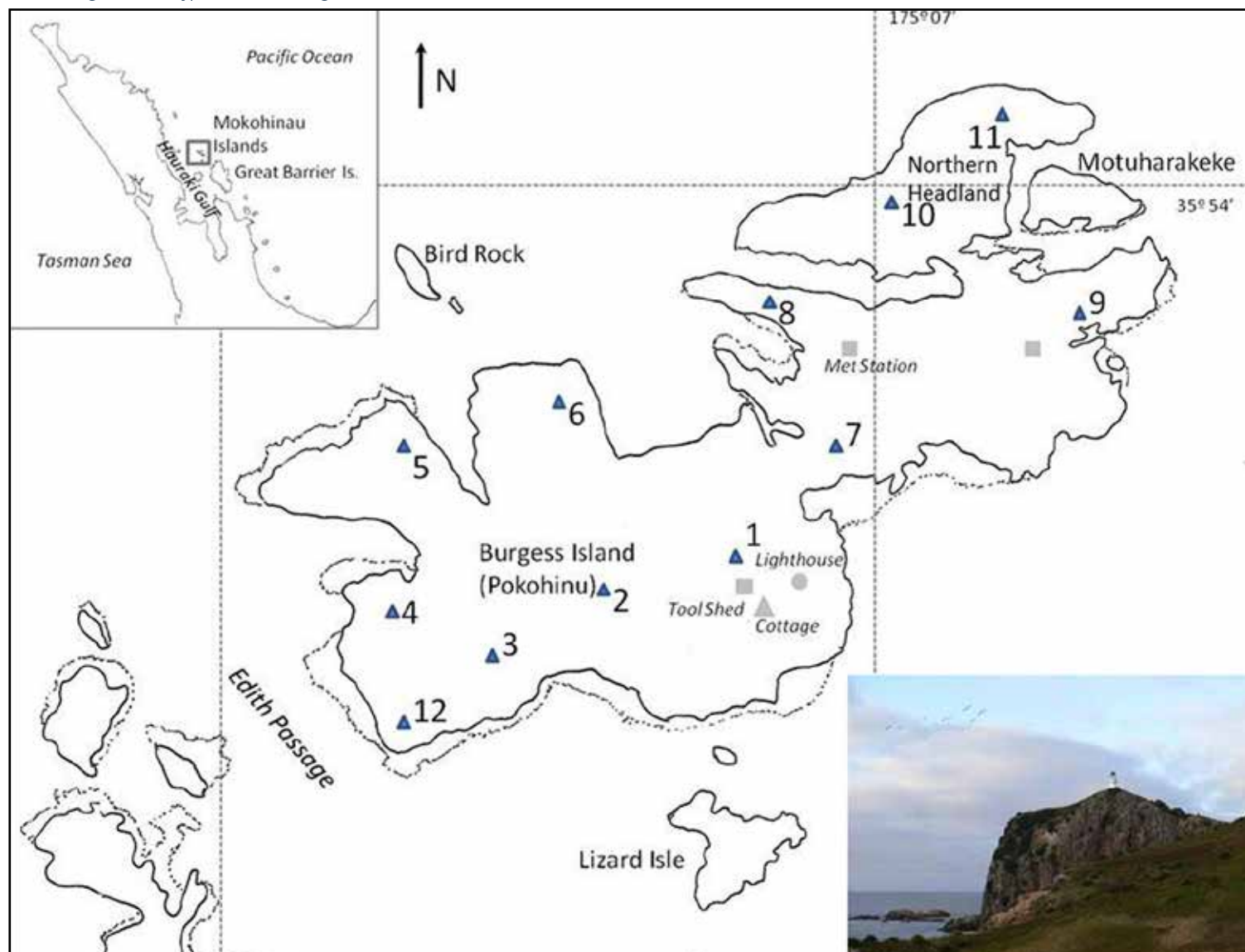
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Rayner, M J., Gaskin, C P., Stephenson, B M., Fitzgerald, N B., Landers, T J., Robertson, B C., Scofield, R P., Ismar, S M H and Imber, M J (2013). Brood patch and sex-ratio observations indicate breeding governance and timing in New Zealand Storm-petrel (*Fregetta maoriana*). *Marine Ornithology*, 41: 107-111

Table 1: Seabirds breeding on Burgess Island

Common name	Species	New Zealand status	Conservation status
Black-winged petrel	<i>Pterodroma nigripennis</i>	NZ native	Not threatened
Common diving petrel	<i>Pelecanoides u. urinatrix</i>	Regional endemic subspecies	At risk
Fluttering shearwater	<i>Puffinus gavia</i>	NZ endemic	At risk
Grey-faced petrel	<i>Pterodroma macroptera gouldi</i>	NZ native	Not threatened
Little penguin	<i>Eudyptula minor iredalei</i>	NZ endemic subspecies	At risk
Little shearwater	<i>Puffinus assimilis haurakiensis</i>	Regional endemic subspecies	At risk
Sooty shearwater	<i>Puffinus griseus</i>	NZ native	At risk
White-faced storm petrel	<i>Pelagodroma marina</i>	NZ endemic subspecies	At risk
Red-billed gull	<i>Larus scopulinus</i>	NZ endemic	Threatened

Figure 1: Burgess Island (Mokohinau Group) showing bird count stations 1-12. Bottom image illustrates typical habitat on Burgess.





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For more information about Auckland related research, data and monitoring programmes visit the Research Unit's websites, **Knowledge Auckland**, **Monitor Auckland** and **State of Auckland**

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Recent research activities

RIMU's scientists, researchers, technical specialists and analysts have assisted with many Auckland Council projects over recent months including:

- published new reports:

- *Auckland Economic Development Strategy: monitoring report 2014* (TR2015/011)
- *Auckland industrial air emission inventory 2011*, (TR2015/004)
- *Benzene 1,3-butadiene and other volatile organic compounds in Auckland 2001-2013*, (TR2014/037)
- *Environmental monitoring plan 2014*
- *Industry snapshot for Auckland: international education*, (TR2015/001)
- *Marine sediment contaminant monitoring: 2012 and 2013 organic contaminants data report*, (TR2014/040)
- *Marine sediment contaminant monitoring: 2013 data report*, (TR2014/039)
- *Marine sediment contaminant monitoring programme review of data quality and procedures*, (TR2014/041)
- *Personal exposure to noise and air pollution (PENAP) in the Queen Street Valley, Auckland* (TR2014/036)
- *Research plans 2015*
- *State of the environment monitoring: Auckland water quantity statement 2012-2013*, (TR2015/005)
- *Te Muri Regional Park catchment*

modelling, (TR2015/003)

- *To buy or not to buy? A spatial analysis of house prices and rents in Auckland, 2001-2013*, (TR2015/002)
- *The value of land, floorspace and amenities: a hedonic price analysis of property sales in Auckland 2011-2014* (TR2015/012)
- land use researchers Craig Fredrickson and Emma Fergusson have begun work on the Residential property amalgamation and aggregation study. A research project that examines which Auckland land parcels have been part of amalgamations; where in Auckland amalgamations have occurred, when the amalgamations occurred and if they are small or large land parcel changes.
- hosted a RIMU Insights presentations by Anthony Byett and Chris Parker, (council's chief economist) *Economic evaluation in Auckland – New ideas and challenges*
- wrote evidence and appeared as expert witnesses at the Auckland Unitary Plan Independent Hearings Panel hearings. Topics considered by the Panel included Auckland's air quality; coastal environment; heritage protection; natural resources; rural environment and urban growth.

The reports noted here are available on the Auckland Council or Knowledge Auckland websites.