

The role of public perceptions in reducing risks to coastal wildlife from interactions with dogs

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Project sponsors:



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Abstract

The New Zealand Department of Conservation is seeking to prevent or reduce interactions between coastal wildlife and dogs as dog numbers increase on beaches where vulnerable wildlife are also present. This study used site assessments, surveys and interviews to assess the public's perceptions of dog-wildlife encounters. Since many dog owners frequent beaches to exercise their dogs, they have a greater chance of encountering coastal wildlife. We developed resources to educate dog owners about beach regulations and wildlife, and empower them to make better decisions with their dogs on beaches. Well-educated dog owners have the potential to influence other recreationists in creating a safer, more positive beach environment for people, dogs and wildlife.

Executive summary

The issue

A number of endangered species, but in particular the New Zealand sea lion (rāpoko, whakahao, *Phocarctos hookeri*), New Zealand fur seal (kekeno, *Arctocephalus forsteri*), little penguin (little blue penguin, kororā, *Eudyptula* spp.) and yellow-eyed penguin (hoiho, *Megadyptes antipodes*), live along New Zealand's coastline and are at risk from interactions with dogs. While the coastline provides critical habitats for coastal wildlife, many New Zealanders also consider the coast, and beaches in particular, to be an integral part of their recreational lifestyle. With roughly one dog per nine residents in New Zealand, it is common for dogs to accompany their owners on the beach. In places where the number of threatened species is growing, partly as a result of conservation efforts by the Department of Conservation (DOC) and various other governmental and non-governmental organisations (NGOs), the likelihood of recreationists and dogs encountering threatened species is also increasing. While dogs and their owners may not have harmful intentions, their presence can have direct and indirect impacts on threatened species. Figure A below illustrates the potential for an off-lead dog to interact with wildlife.



Figure A: Dog off lead near a female sea lion.

In 2016, 24 fatal attacks on penguins by dogs were recorded in the Western Bay of Plenty area alone. More recently, in January 2017, dogs killed a total of eight little penguins in Coromandel and Canterbury. Overall, disturbances and predation risks from dogs contribute to injuries, a lower breeding success rate, and hinder conservation efforts. The general public and the media's response to recent dog attacks on coastal wildlife highlight many of the risks at hand. Dog control is a well-publicised issue in many parts of the country. While it can be contentious or even controversial, dog control is necessary to create a safer environment for wildlife while still allowing dog owners the freedom to take their dogs to public areas such as beaches. Recently, an increased push towards collaborative conservation has led to the reassessment of current dog bylaws and implementation of new laws and regulations designed to keep wildlife safe and to allow humans to have fun with their pets on beaches.

Nationally, legislation and wildlife management programmes, including the Marine Mammals Protection Regulations, several species-specific recovery plans, and more recently two species-specific Threat Management Plans have been introduced to manage the recovery of threatened species. In some cases, this will include an effort to minimise the negative consequences of dog-wildlife encounters. The Dog Control Act of 1996, in conjunction with these regulations, has been used to help create a safe environment for wildlife in coastal areas. DOC and other organisations have found that some beach-goers fail to comply with regulations; however, at present they do not have the resources or jurisdiction to constantly monitor and enforce laws.

Our approach

The goal of this project was to assist DOC to prevent or reduce dog interactions with coastal wildlife through the development of improved tools and resources. We identified three objectives and seven associated tasks required to fulfill the primary goal. These are illustrated in Figure B below.

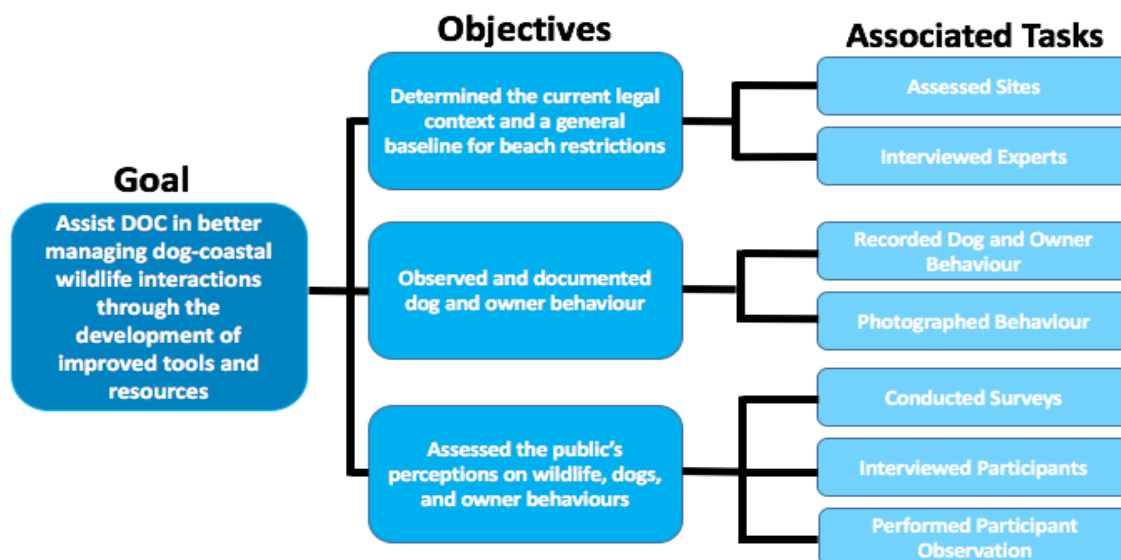


Figure B: Flowchart of study methodology.

Objective 1: Determine the current legal context and a general baseline for dog restrictions on beaches

In order to determine how existing dog restrictions are implemented, we conducted site assessments at key beach locations in Dunedin and Wellington. Beaches were selected based on popularity, suggestions from DOC sponsors sponsor input, and the kinds of wildlife known to be present. At each site, we photographed any posted regulations and categorised them based on number and type of signs. We further analysed the signs' visual appeal and location to determine how dog control rules and information were presented at each site.

To understand just what restrictions on dogs were in place at the study beaches, we conducted 14 expert interviews from relevant area agencies and organisations. This included participants from the Wellington City Council, Places for Penguins and DOC staff. These interviews were

used to gauge the perspectives of experts in the field on dog-wildlife interactions and to gain an understanding of their role in monitoring these interactions.

Objective 2: Observe and document dog and owner behaviours

In order to characterise present social norms, we recorded dog and owner behaviours on targeted beaches chosen from the site assessments. Our observations included responsiveness of the dog to its owner and attentiveness of the owner. We took photographs of dog and owner behaviour to supplement the written records. At every beach we noted whether the area was known habitat for any of four target wildlife species and if any were present. We also noted dog presence and whether the dogs were on- or off-lead.

Objective 3: Assess the public's perceptions on wildlife, dogs, and owner behaviours

We carried out two surveys (a beach intercept survey and a dog park intercept survey) at beaches in Wellington and Dunedin, plus a dog exercise park in Wellington, to gather information about the public's beliefs, knowledge and attitudes about dog-wildlife interactions and dog beach regulations. Our beach intercept survey questioned people walking on beaches about their beach regulation knowledge and their perceptions about dog-wildlife interactions, while the dog park intercept survey only asked about dog-wildlife perceptions. The 205 survey responses we collected helped identify trends in public perceptions of dog and coastal wildlife interactions.

If a survey participant showed an eagerness to talk, we went on to ask them more in-depth questions about their thoughts on dogs and wildlife on beaches. In this way, we were able to turn the survey into more of a discussion to allow us to more fully understand the viewpoints of our survey participants.

To experience beach social norms first hand, rather than relying solely on survey and interview data, we engaged in participant observation. We took our DOC sponsors' dogs to dog exercise areas on the survey beaches and a dog park. At each site we were able to look for signage and follow regulations as if we were dog owners, which enhanced our ability to interpret our collected data.

What we found

In our assessments and surveying of Dunedin and Wellington, our data revealed some interesting and sometimes unexpected trends. Overall, it was difficult to generalise social norms across the two locations, as they varied by beach. On each individual beach, however, we found that dog-owners typically respected regulations and followed the examples set by other dog-owners. We also found that they respected the presence of native wildlife on beaches and were willing to follow protective regulations. In fact, 73% of survey respondents either agreed with or were neutral towards the concept that the beach is more important for native wildlife habitat than human and dog recreation.

Survey results revealed that the most common way the public learned about beach regulations was through signage at the beaches they visited. However, we found a lack of consistency in how information is conveyed and substantial variations in content, design and location of signage on the beaches. Many of these signs were put up by different organisations depending on the beach and its habitat. A lack of collaboration among organisations posting signs can lead to redundant, confusing or conflicting messages. At beaches where organisations posting signs had collaborated, there were fewer signs and the messages were conveyed more clearly and effectively.

We found a wide spectrum of awareness and knowledge regarding coastal wildlife on beaches. Most survey respondents in Dunedin were aware of wildlife such as fur seals and sea lions, which are more easily visible on public beaches. In both Wellington and Dunedin, however, fewer participants were aware of penguins, which are more numerous on beaches than fur seals and sea lions but are rarely seen. Most participants recognised the potential for a direct dog-wildlife interaction to be harmful, but fewer acknowledged that seemingly minor interactions can lead to distress among wildlife. Additionally, we discovered that many participants were unaware of how to behave around wildlife. While most people knew to put their dogs on lead around wildlife, few stated the need to maintain the appropriate distance of 20 m between dogs and wildlife.

Analysis of the data obtained from the surveys revealed that 89% of surveyed dog owners agreed or were neutral about the need to control human and dog recreation on beaches to protect wildlife. Most were equally concerned about their freedom to enjoy the beach, however, and strongly emphasised the need for beach space to exercise their dogs. In both Dunedin and Wellington, we found that dog-owners are open to compromise in finding solutions that benefit themselves, their dogs, and the wildlife.

From our research, we found that certain tools and resources are more effective than others. Experts repeatedly stated that interactive methods of communication are more engaging and can create a more personal connection between the public and the wildlife. Additionally, with signage being one of the major sources of information, more succinct and positive signage would be more effective and beneficial in promoting favourable behaviour. We have used all of these findings to create various tools and resources to aid DOC in preventing or reducing interactions between dogs and coastal wildlife.

Looking forward

Based on our findings, we developed a series of tools and resources for DOC. Table A summarises our recommendations in four areas: signage, education, beach database and community engagement.

Table A. List of recommendations to DOC for improvements in approaches aimed at preventing or reducing interactions between dogs and coastal wildlife.

Signage	<ul style="list-style-type: none"> • DOC and city and regional councils need to work together to implement more uniform dog control signage which should employ the three-colour red-orange-green ‘traffic light’ system superimposed over maps of beaches. Signs need to be placed at the main entrances to beaches and existing signage needs to be consolidated and standardised. • New signs employing the traffic light system should be used directly on beaches in targeted areas. • Specific signage aimed at increasing public awareness of wildlife should be used on wildlife-sensitive beaches.
Education	<ul style="list-style-type: none"> • A small flier including information on the proposed new three-colour dog control signage and current dog regulations applicable on local beaches could be produced to accompany the annual dog registration renewal packets that are sent out to dog owners. • A further brochure should be produced for wider use in Wellington that includes facts about little penguins and fur seals in addition to the information about dog regulations and signage. This should be distributed in places such as Veterinarians’ waiting rooms and other public information sites.

	<ul style="list-style-type: none"> • Articles about the issues raised in our study should be prepared for publication in New Zealand Dog World magazine to engage with the wider dog owner community in New Zealand. • A children’s book aimed at educating and informing children about coastal wildlife and dog interactions should be designed and published.
Database	<ul style="list-style-type: none"> • Individual beach-specific information on wildlife, dog regulations and signage information and accompanied by maps and pictures should be compiled in a database.
Community Engagement	<ul style="list-style-type: none"> • A live camera feed broadcasting system could be installed inside a little penguin nest box to increase public awareness of these birds • A series of signs with rhymes could be developed to inform dog-owners on how to act while at the beach. • Promotional materials such as bumper stickers could be used to promote awareness of local wildlife relevant to specific areas. • Radio advertisements promoting wildlife awareness and specific beach notices should be run during the most wildlife-sensitive times of the year. • DOC could participate in outreach events at Lyall Bay or other public venues with the aim of connecting with dog owners. • DOC and other local conservation groups could expand their system of volunteers to include local dog owners on beaches. • At public events, DOC could provide an activity for kids about dogs and wildlife as a way to promote positive conservation messages in families.

Looking forward, we believe that the recommendations and deliverables we have provided create a comprehensive approach to increasing public awareness of coastal wildlife and the impacts humans and dogs have it. The developed signage suggestions should create clear expectations of how people with dogs should behave on beaches. The education resources we propose provide information on coastal wildlife and explain why beach regulations are important for protecting both wildlife and dogs. The community engagement plans we have designed encompass a variety of ways to reach members of the public and encourage conservation-minded practices. We believe our methods can be applied to evaluate other threats faced by wildlife and how the public views these threats. We also think our recommendations can be tailored to educate and engage the public on these other threats.

In the near future, if native wildlife continues to increase along New Zealand’s coastline, interactions with them will increase, and a broader change in public behaviours will be required to protect them. Dogs are only one of the dangers facing wildlife. Others include vehicles, disease and threats at sea. However, dogs are a threat that can be controlled. By addressing this seemingly small issue now, we can help give coastal wildlife a chance at brighter future and create an environment where they can coexist harmoniously with people in the future.

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Authorship

All members of the team collaborated to draft and edit the entirety of the paper. The whole team participated in site assessments, carrying out surveys at the various beaches and conducting expert interviews.

Ian Banatoski was a co-contributor to the database, dog registration flyer, and volunteer job description. He designed the bumper sticker to promote awareness for little penguins. Ian photographed signage and dog owner behaviour at the sites we visited, and constructed maps to denote signage.

Bryanna Dellaripa co-created the volunteer job description. She also created the radio ad, wildlife signage, and the supplemental signs denoting dog regulations. Bryanna conducted data analysis on the collected site assessment data to create tables about wildlife and dog presence as well as dog regulations.

Samantha Hires was the co-creator of the dog registration flyer. She designed the brochure about dog regulations and beaches, wrote the magazine article for *NZ Dog World*, and planned a few potential events to engage the dog owner community. Samantha was in charge of data analysis for the expert interviews, and the dog owner observations.

Larissa Naidoo created the children's book. She was also a co-contributor to the data analysis and creation of graphs to represent our survey results.

Elizabeth Rooney was a co-creator of the database. She also designed the rhyming signs and created the catchy slogans used throughout our deliverables. Elizabeth co-contributed to analysing the data collected from our surveys and creating graphic representations.

In addition, photographs not credited in this document were taken by the authors themselves.

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Chapter 1: Introduction

New Zealand's coast provides critical habitats for coastal wildlife. In addition, many New Zealanders also consider the coast, and especially beaches, to be an integral part of their recreational lifestyle. With recent figures showing that 65% of the nation's residents live within 5 km of the coast (Statistics New Zealand, 2016¹), visitors to some beaches may encounter fragile coastal wildlife populations (in particular, the New Zealand sea lion (rāpoko, whakahao, *Phocarctos hookeri*), New Zealand fur seal (kekeno, *Arctocephalus forsteri*), little penguin (little blue penguin, kororā, *Eudyptula minor*) and yellow-eyed penguin (hoiho, *Megadyptes antipodes*)), on a regular basis.

When people bring their dogs to the beach, whether for a family vacation or an everyday walk, they are introducing an additional potential threat to the many others faced by coastal wildlife. With roughly one dog per nine residents in New Zealand (Statistics New Zealand 2016), it is common to see dogs on- and off-lead on beaches at all times of the year (dogsafety.govt.nz 2015). While dogs and their owners may not have harmful intentions, their presence can directly and indirectly impact threatened species. Dogs are curious and tend to want to approach wildlife, which can lead to interactions that can be injurious to both animals. However, even the simple action of a dog barking can disturb a sleeping fur seal or a nesting penguin. While this may seem innocent, it can lead to aggressive behavior and more generalised stress responses in wildlife (Fowler 1999). For example, the New Zealand sea lion has now resumed breeding on beaches near Dunedin, after being absent for many years. Mother sea lions return to the sea to hunt for food, leaving their young pups alone in the bordering woodlands, increasing their vulnerability. An off-lead dog exploring the beach could encounter a resting pup and potentially attack it. Interactions like this between wildlife and dogs can have serious impacts on the maintenance and reestablishment of populations of threatened species.

In an effort to minimise the negative consequences of encounters between dogs and wildlife, dog control measures have been included in legislation and addressed in various species management programmes, including the Marine Mammals Protection Regulations and several species-specific

¹ http://www.stats.govt.nz/browse_for_stats/population/Migration/internal-migration/are-nzs-living-closer-to-coast.aspx

New Zealand Threat Management Plans. The Dog Control Act of 1996, in conjunction with these regulations, has been used to help create a safe environment for wildlife in coastal areas. While these regulations establish a baseline for protecting the wildlife, local and regional authorities are responsible for implementing and enforcing bylaws that further promote coastal wildlife conservation.

In some areas, the Department of Conservation (DOC), as well as other local and regional authorities and local non-governmental organisations (NGOs) and concerned individuals monitor beaches to evaluate coastal wildlife populations and health. Tracking programmes and hotlines have also been created to further aid conservation efforts nationally. DOC has found that many beach-goers in New Zealand fail to comply with regulations; however, DOC and other organisations currently do not have the resources or jurisdiction to constantly monitor and enforce wildlife protection regulations and laws.

In order to protect the wildlife on New Zealand's coasts, DOC needs a better understanding of public perceptions on dog-wildlife encounters to facilitate positive changes in dog owner behaviour. The goal of this project is to assist DOC to prevent or reduce dog-wildlife interactions through the development of improved tools and resources. To accomplish this, we determined the current legal context relating to dog control and wildlife protection on beaches in two areas – Wellington and Dunedin – and identified a general baseline for dog restrictions on beaches. We also observed and documented dog and owner behaviours at beaches in these areas and surveyed dog owners and others on their beliefs, knowledge, and attitudes towards wildlife, dog and owner behaviours.

Chapter 2: Background

As a first step, we researched threatened wildlife and their habitats to identify where and how dog-coastal wildlife interactions can occur and the impacts of these interactions. We then examined the regulations on dog-coastal wildlife with regards to DOC, local dog registration, and national legislation. Additionally, we discussed the opposing viewpoints on these regulations. To further assist in our analysis, we investigated a variety of ways to analyse public perceptions and current efforts to promote positive behavioural change. In particular, we researched the theory of planned behaviour (TPB) in order to better yield positive changes. Finally, we examined three relevant case studies in order to better support our own research questions.

2.1 New Zealand Coastal Wildlife most at threat from dogs

The Department of Conservation, along with other national, regional and local government organisations, NGOs and conservation groups work to protect a wide variety of native New Zealand wildlife. Four species are of particular concern with respect to interactions with dogs: the New Zealand sea lion, the New Zealand fur seal, the little penguin and the yellow-eyed penguin.

New Zealand sea lions were eliminated from the New Zealand mainland following the arrival of people and their main population is now located around New Zealand's subantarctic islands. Recently, a small breeding population has begun to re-establish on the Otago Peninsula, but sea lions can also be found at haul-out areas along the southeast coast of the South Island, Stewart Island and the islands of Foveaux Strait. The population is currently in decline, with around 11,000 individuals and is categorised as Nationally Critical under the New Zealand Threat Classification System (Baker et al. 2016). Male sea lions can grow up to 3 m long and weigh up to 400 kg, while females are roughly half their size (see Fig. 1 below). The breeding season lasts from November until January, when the female gives birth to one pup, which will typically remain with its mother for its first year. Although adult sea lions typically congregate on sandy beaches, females are known to leave their young up to 1 km inland when they return to the sea to feed. Adults and pups are typically unafraid of humans, but pups are still particularly vulnerable to disease and injury following encounters with dogs or humans (New Zealand Sea Lion Trust, 2016²).

² <https://sealiontrust.org.nz/a-rare-native-treasure/>



Figure 1. New Zealand sea lions at Sandy Bay, Enderby Island, one of the main sea lion breeding colonies in the subantarctic. *Photo: S.A. Michael 2017.*

Fur seals are much more common than sea lions, with both breeding and haul-out areas found widely around the New Zealand mainland as well as in the Chatham Islands, subantarctic islands and further afield in Australia. They differ from sea lions in that they generally prefer rocky coasts over sandy beaches. Breeding sites are often large and densely populated as fur seals spend time resting and sunbathing in the same areas. Following the arrival of people in New Zealand, their numbers dropped drastically, but through protection efforts that began in the late 1890s, the fur seal population has been reestablishing in New Zealand. The total population is estimated to be 200,000 and it is now categorised as Not Threatened under the New Zealand Threat Classification system (Baker et al. 2016). Adult males weigh in at about 180 kg with females at roughly half that weight. Fur seals usually live for 14–17 years, reaching breeding maturity at around 5 years of age (see Fig. 2, below). Breeding occurs from mid-November to mid-January and pups are weaned around 1 year. Fur seals are most at risk as pups in their first year of life, as parents often leave their young while they feed at sea (New Zealand Sea Lion Trust 2016).



Figure 2. New Zealand fur seals in Kaikoura. *Photo: DOC 2011.*

Little penguins spend the majority of their life at sea but utilise the New Zealand shoreline as a base for breeding, molting and resting. Little penguins are the smallest penguin species in the world, at about 25 cm tall and 1 kg in weight (see Fig. 3, below). They are present along the New Zealand and southern Australian coast year-round, with mating and breeding occurring from May to November and moulting from November to March (Phillip Island Penguin Foundation, 2015³). As people have expanded into their territory, little penguins have adapted by nesting under houses or boat sheds, to mimic their natural habitats of underground burrows or caves. The Department of Conservation, along with other local organisations, has fenced off certain key nesting areas and provided nesting boxes. In some places, local authorities and other groups have erected signs to alert drivers and dog-owners to their presence,

Aside from habitat loss, the largest threat facing the little penguin is dog interference. Although DOC has implemented predator controls in certain areas to prevent further population decline, the little penguin is still classified as At Risk under the New Zealand Threat Classification Series (Robertson et al. 2017).

³ <https://penguinfoundation.org.au/>



Figure 3. A little blue penguin. *Photo: S. Evans 2013.*

The yellow-eyed penguin is classified under the New Zealand Threat Classification System as Nationally Endangered (Robertson et al. 2017) and is thought to be the world's rarest penguin species. They are found along the southeastern coast of the South Island and on Banks Peninsula, as well as on Stewart Island/Rakiura and its outlying islands and on New Zealand's subantarctic islands. Yellow-eyed penguins are vulnerable to predation by dogs, cats, stoats and ferrets, general habitat loss and environmental changes and disease. These penguins can be identified by their yellow irises and the band of yellow feathers on their heads, as well as their high-pitched mating calls (see Fig. 4, below). In contrast to other seabirds, the yellow-eyed penguin prefers private nesting sites rather than large colonies and is therefore extremely susceptible to habitat disturbances or interferences. According to the Yellow-Eyed Penguin Trust, there are presently less than 200 breeding pairs on the Otago coast, making protecting their nests from dog interference extremely important.

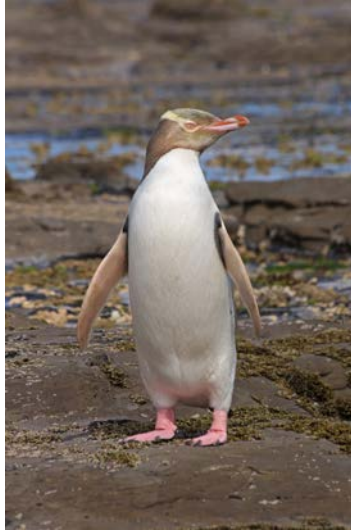


Figure 4. A yellow-eyed penguin.

Photo: A. Cressler.

As these four species are struggling to maintain or re-establish themselves on New Zealand coasts, wildlife agencies and conservation organisations have taken measures to protect them. Threats posed by dogs are of particular concern to these fragile populations. Throughout the North and South Islands, news reports in recent years have covered dog attacks on wildlife, drawing public attention to this issue.

2.2 Dog-coastal wildlife interactions

A recent report to the Western Bay Wildlife Trust relayed an encounter that occurred when ‘a friendly little lapdog on a lead poked its head under a rock’ and found a penguin, which then attacked the dog (Hess 2016). Disturbances like this can lead to high stress levels in native birds and discourage them from staying in areas where such interactions occur, which can be extremely detrimental to birds that nest territorially. Dr. Andrea Lord, professor in the Department of Biological Sciences at the University of Waikato, suggests that ‘dogs at nesting sites disrupt incubation more seriously than lone people’, because the birds in question were ‘flushed from their nests earlier and stayed off them for longer’ (Lord et al. 2001). Disturbances such as these can also increase predation risks (not just from the dogs causing the disturbances), which are a significant threat to coastal wildlife in New Zealand.

According to Western Bay Wildlife Trust chairwoman, Julia Graham, ‘even the most friendly of dogs can attack and kill penguins on the beach’ (Hess 2016). In 2016, 24 fatal attacks on

penguins by dogs were recorded in the Western Bay of Plenty area (Ottley 2016). More recently, in January 2017, dogs killed eight little penguins at various places around New Zealand (Cleave 2017; Fletcher 2017). These incidents, which have occurred at widespread locations on both the North and South Islands, reflect permissive laws that do not prevent dogs from being unleashed in areas where penguins are present and particularly at the times when the birds leave or return from the sea early in the morning or later in the evening. As a result of these recent attacks, local penguin protection activists have been urging the public to be more careful when their dogs are unleashed at the beach. Most people do not know where penguins nest, however, because their nests are generally hidden. Likewise, attacks on seals and sea lions (Figure 5) can also be fatal. The majority of reported dog-seal incidents involve seal pups, such as a case reported from Pukehina in September 2016, in which a dog mauled a young fur seal (Ottley 2016). According to authorities, the ‘unleashed dog refused to let go’ of the seal, which later died from its injuries. Documented encounters such as these represent just a few of the many instances in which the presence of dogs has resulted in negative impacts on wildlife.



Figure 5. A dog attacks a New Zealand fur seal pup in the Auckland area. *Photo: Bin Bai 2014.*

Overall, uncontrolled or poorly controlled dogs on beaches hinder conservation efforts by reducing breeding success rates and increasing wildlife stress, injuries and fatalities. The general public and the media’s increased response to recent dog attacks on coastal wildlife highlight

many of the risks. Dog control is an issue at many beaches around the country, but management efforts must also accommodate the needs and desires of dog owners. The Western Bay Wildlife chairwoman acknowledges ‘we all love taking out dogs to the beach...[but] if we are going to cohabit with [coastal wildlife] we need training’ (Hess 2016). The increase in involvement of conservation is leading to the reassessment and implementation of new laws and regulations, designed to keep wildlife safe while allowing people to have fun with their pets on beaches.

2.3 Regulation of dog-coastal wildlife interactions

In addition to DOC, various other organisations, including other government agencies, are involved in supporting conservation efforts. DOC heads many of these efforts and has developed several initiatives to protect coastal wildlife. Additionally, regional and local councils work with DOC in the development and implementation of effective regulations. Councils are responsible for implementing regulations, including those regarding dogs. Together these efforts are designed to create an amicable environment for both wildlife and the public.

2.3.1 New Zealand Department of Conservation: jurisdiction and outreach

The Department of Conservation is responsible for administering 27 Acts and has roles under 16 others. Some examples are the Conservation Act 1987, the Wildlife Act 1953, and the Marine Mammals Protection Act 1978. Its primary mandate is to promote conservation of New Zealand’s natural and historic heritage which includes managing wildlife protection.

Within this, DOC develops strategies, recovery plans or other mechanisms to provide guidance and prioritise actions to protect endangered wildlife. DOC also has responsibilities under the Resource Management Act 1991, which requires the Minister of Conservation to be consulted on the preparation of coastal and regional plans, for example under the New Zealand Coastal Policy Statement. DOC is able to make submissions on such statements, plans and resource consents, and may advise on the protection of natural and historic resources. This ensures that mechanisms DOC has for protecting wildlife and ecosystems are not compromised through the planning process and that the Coastal Policy Statement is interpreted consistently through regional and coastal plans. (DOC 2017⁴).

⁴ <http://www.doc.govt.nz/about-us/our-role/managing-conservation/resource-management/resource-management-act/>

Beyond assisting regional councils, DOC develops species-specific management plans, such as the Hoiho Recovery Plan (McKinlay 2001) for yellow-eyed penguins, and the New Zealand sea lion Threat Management Plan (along with the Ministry for Primary Industries; see <http://www.doc.govt.nz/Documents/conservation/native-animals/marine-mammals/nz-sea-lion-tmp/nz-sea-lion-threat-management-plan.pdf>). Table 1 summarises the main threats identified for the four species previously identified in this report as most at threat from dogs and the DOC-related management initiatives that relate specifically to them. Of the threats listed in the table, there has recently been an increased focus on those posed by dogs.

Table 1. Threats to four species of coastal wildlife particularly vulnerable to interactions with dogs.

Species	Threat level	Threatened by	Specific DOC-related management initiatives
Sea lion	<i>Nationally Critical</i>	Fishing industry, dogs, disease	Threat Management Plan, MMPR*, MMPA**
Fur seal	<i>Not Threatened</i>	Fishing industry, dogs, human interference	MMPR*, MMPA**
Hoiho (yellow-eyed penguin)	<i>Nationally Vulnerable</i>	Dogs, human interference, pollution	Hoiho Recovery Plan
Little penguin	<i>At Risk</i>	Dogs, human interference, pollution	No specific plan

* MMPR - Marine Mammal Protection Regulations (1992)

** MMPA - Marine Mammal Protection Act of 1978

With dogs being a threat to all four of these species, it is important for DOC and councils to know how many dogs are present in wildlife-sensitive areas. Annual dog registration (which is usually carried out at city and district council level – one level down from regional councils) informs councils of the approximate number of resident dogs in their area.

2.3.2 Dog registration in New Zealand

In New Zealand, dog registration is specific to each city or district council but generally follows similar guidelines and regulations. Dog owners are obliged to register their dogs with the local council where they reside. According to the Wellington City Council (WCC) website, owners face fees ranging from \$61.50 to \$257.50 for registering dogs. Along with the registration information provided on the website, WCC provides a guide called ‘Capital Canines’ in order to better inform city dog owners about their responsibilities regarding dog welfare and training, registration, and enforcement. The guide also gives an overview of exercise areas and dog-prohibited areas (<http://wellington.govt.nz/~media/services/consents-and-licenses/dogs/files/capital-canines.pdf>).

As a way ‘to encourage and recognise good dog owners’, the Wellington City Council reduces registration fees for owners that achieve Responsible Dog Owner (RDO) status. In order to qualify for this status, an owner must have attended and passed an approved ‘Responsible Dog Owner Education and Obedience’ course, have paid all registration fees on time, and have no prior convictions or violations under the Dog Control Act of 1996 or the Animal Welfare Act of 1999. Additionally, an animal control officer must conduct a home inspection to ensure that the dog has a ‘fully-enclosed containment area’ on the property. Dog registration and RDO status are examples of how Wellington City Council currently encourages positive dog owner behaviour.

Through registration, positive dog owner behaviour is encouraged; however, this alone is not enough to protect coastal wildlife. National legislation has been enacted to further establish proper behaviour regarding dogs in the public domain.

2.3.3 National Legislation governing dog interactions with coastal wildlife

New Zealand has made efforts nationally to increase the protection of threatened coastal wildlife, particularly in regard to potential interactions with humans and their dogs. Three laws (the Marine Mammal Protection Regulations (1992), the Marine Mammal Protection Act (1978) and the Dog Control Act (1996)) along with the New Zealand sea lion Threat Management Plan address interactions between dogs and marine mammals. Table 2 summarises the sections of these laws, regulations and plans as they pertain to dogs and dog owners.

Table 2. Descriptions of the main dog-related actions from the four major documents that address interactions between dogs and marine mammals in New Zealand.

Marine Mammal Protection Regulations (1992)	Marine Mammal Protection Act (1978)	Dog Control Act (1996)	New Zealand Sea Lion Threat Management Plan
<p>Interactions with marine wildlife must be ceased if the animal becomes distressed.</p> <p>Groups of marine animals should not be disturbed in a way that causes them to separate in any fashion.</p> <p>Wildlife is not to be 'disturbed or harassed'</p> <p>Vociferous noises must be avoided near marine wildlife, such as seals.</p>	<p>A distance of 20 metres must be kept from seals and sea lions, and contact should not be made.</p> <p>Dogs must be leashed and prevented from going near any marine wildlife.</p> <p>'Harassing or disturbing' seals is illicit. This includes loud noises that could startle them.</p>	<p>Dog owners must control their dogs and always have a leash available when in public.</p> <p>'Dog control officers or dog rangers' can seize a dog harassing another animal.</p> <p>Dog owners are liable to be imprisoned, fined, or both if their dog kills protected wildlife.</p> <p>'Dog control officers or dog rangers' can seize or 'destroy' a dog that's a direct danger to protected wildlife.</p>	<p>Decrease the amount of negative encounters between dog owners and their dogs with sea lions.</p> <p>Decrease the number of sea lion deaths due to encounters with humans and their dogs.</p> <p>Further partnership with locals to prevent negative dog-marine wildlife encounters.</p>

Beyond these national laws, there are more recent regional initiatives such as the Auckland Council Policy on Dogs (2012). The objective of this policy, for example, is 'to keep dogs as a positive part of the life of Aucklanders ... while adopting measures to minimise the problems caused by dogs'. In following this objective, the Auckland Council is careful to ensure that both wildlife protection and the concerns of dog owners are addressed. The policy establishes four types of beaches with respect to dogs: prohibited areas, on-leash areas, off-leash areas, and designated dog exercise areas. The determination of beach classification is made by the local council or by park officials. This has led to different rules depending on the beach, and rules can even vary with different times of the day or year.

Within the past year, there have been many changes proposed to dog control laws on beaches in different regions of New Zealand, including Dunedin, East Auckland, Christchurch and Wellington (Labone 2016; Thomas 2016; Kelly 2016; Otago Daily Times 2016; Law 2016; Campbell,2016). David Collings, chairman of the Howick Local Board in East Auckland, expressed his concern over the practice of different beaches having their own leash laws, believing that a regional approach would prevent confusion (Thomas 2016). This concern over confusion is one issue facing authorities, along with public opinion of leash laws, which tends to generate polarised views in the general public.

2.4 Challenges: opposing viewpoints

With new beach regulations being proposed, conflicting opinions have surfaced amongst government officials and the general public on whether dogs should be allowed at all in certain areas and whether they should be on- or off-lead. In Christchurch, dogs are not allowed off-lead on beaches for 5 months of the year, which is an increase from the 3-month ban that previously existed (Law 2016). A petition was started by dog owner Holly Jamieson to prevent this change, who called it ‘ill-advised and illogical’ (Law 2016). Like Jamieson, many dog owners believe the beach is a safe place for their dogs to play without fear of getting hit by a car. Those who signed the petition believe that ‘increasing the ban to almost half a year penalised good dog owners for no justifiable reason’ (Law 2016). Earlier in 2016, the Christchurch City Council did a poll of its residents to gauge how they felt about changes to the Dog Control Policy that would allow dogs in the central city (Campbell 2016). Through this survey, they found that 83% of respondents believed ‘effective control’ to be defined as having the dog within the owner’s sight and not causing a problem when off-lead. It was also determined that 74% of residents wanted dogs to be allowed on-lead in the central city, 73% wanted dogs to be allowed on-lead in a pedestrian mall, and 75% thought that all restrictions in the Akaroa region of Christchurch should be removed (Campbell 2016).

Similar controversies exist further north. The changes being proposed in East Auckland by the Howick Local Board produced a sharp difference of opinions regarding potential changes to beach regulations that would further restrict dogs on beaches and require them to be leashed more frequently (Thomas 2016; Kelly, 2016). Three members of the Board did not see any reason for these tighter regulations since they believed there was no evident problem. However,

the Board stated that the laws were being changed to aid in the protection of birdlife and the salt marsh in the area. In the end, the vote passed five to three, standardising leash laws in the East Auckland region (Thomas 2016; Kelly 2016).

Even more relevant to our project are changes in Wellington where there was a proposal to relax leash laws and allow dogs off-lead in more locations (Labone 2016). According to local dog owners, ‘taking [their dogs] to the beach is important for [the dogs’] health and wellbeing’, yet some people, like ZEALANDIA™ chief executive Paul Atkins, insist that ‘a dog off-lead could do a lot of damage to shorebirds’ and other coastal wildlife (Carnegie 2016; Labone 2016). Iona Pannett, the WCC environment committee chairwoman, believes that educating owners rather than enlisting more dog control officers is the best way to improve adherence to leash laws (Labone 2016). Previously, Ngaio (a suburb in Wellington) has been the scene of heated debates over whether dogs must be leashed or not inside a park (Labone 2016). Accounts from dog owners around New Zealand echo sentiments that bringing dogs to the beaches is an important part of their lifestyle. On the other hand, dog presence in wildlife breeding areas, which will include some beaches, prompts responses from those concerned about native species. Each time an incident occurs, media coverage inflames conflict between these opposing viewpoints. In order to aid DOC in developing ways to improve the situation, we need to understand the origins of these opposing viewpoints.

2.5 Public perceptions and conservation outcomes

Gauging the perceptions of the public and the different viewpoints that are held on the need for legislation and conservation programmes is essential to their success. To tackle coastal conservation challenges policy makers and wildlife advocates have become increasingly aware of the need to meaningfully engage with different stakeholders. Identifying where public perceptions differ from those of conservation experts is just as crucial to enable effective communication and education programmes to be designed (Jefferson et al. 2015). The knowledge gained from identifying and assessing the extent of different views on the subject can be used to understand the likely acceptability of conservation initiatives, and to identify the challenges associated with the programmes or policies (Gelcich & O’Keefe 2016). In some cases, this knowledge can pinpoint why the public does not support an initiative (Bennett 2016). Additionally, accounting for perceptions may reveal potential ways of modifying existing

conservation practices and policies, or finding efficient solutions to the challenges facing conservation (Gelcich & O'Keefe 2016). In order to fully understand and analyse data collected on public views, it is important to understand how to interpret perceptions.

In 2016, Nathan James Bennett published an article in *Conservation Biology* on using perceptions as evidence to improve conservation practices, which identifies four distinct categories of insights (Bennett 2016). The first category evaluates perceptions of 'social impacts of conservation', further exploring the nature and significance of impacts on well-being and rights, which reveals whether the public believes the social impacts of conservation to be just or equitable. Secondly, the 'ecological outcomes of conservation' perception research creates an understanding on how communities may evaluate initiatives. This category also gauges the levels of support there will be for ecological conservation and the related benefits to individuals and the community. Thirdly, perceptions on the 'legitimacy of conservation governance' stem from public views on the appropriateness of the context of these laws and the authority presenting them, which can reflect public support or opposition. Finally, the fourth category highlights that perceptions can be used to predict the 'social acceptability of conservation management', revealing whether the public would be receptive to the enforcement of new or modified regulations. After understanding the insights provided by examining public perceptions and identifying problems, this newfound knowledge can be used to find effective solutions that create desired change.

Educational programmes and education can provide effective solutions that lead to changes in public perceptions. In general, education aims to help overcome the internal barriers of the action part of perceptions, particularly ignorance and misinformation (Gardner & Stern 2002). To address these barriers, conservation and educational outreach programmes should promote an interdisciplinary understanding of the natural environment through sciences, arts, and humanities (Jacobson et al. 2007). Ideally, conservation education should include formal education and training that raises public awareness (Howe 2009). Some coastal wildlife tours highlight how conservation education can increase awareness and encourage pro-conservation behaviour by providing participants with personal, educational, and conservation benefits (Zeppel 2008). Tours can involve an activity, such as walking, boating, biking, and so forth, during which participants are given the opportunity to observe and enjoy the wildlife in a pro-conservation and educational setting. Coastal tours have the benefit of demonstrating how to properly interact with

wildlife. These interactions can provoke emotions, such as excitement, which can potentially increase the memorability of a learning experience (Jacobson et al. 2007). Interactivity, emotional input, and strong educational value can all be linked back to changing perceptions on conservation. While education is a common approach to changing public perceptions, programmes that combine different types of intervention often work better than those based on a singular approach, since there tends to be more than one barrier to conservation behaviour (Gardner & Stern 2002). A deeper understanding of why humans behave the way they do is needed in order to initiate a change in behaviour as well as to understand why they have particular perceptions.

2.6 Motivating behavioural change

Icek Ajzen (Ajzen 2011) described a concept called ‘The Theory of Planned Behaviour (TPB)’ which states that human action is guided by three kinds of considerations. The first consideration is how a person’s attitude towards a particular behaviour is influenced by means of a favourable or unfavourable evaluation. In this consideration, a person will evaluate the outcomes of performing an action, leading to a positive or negative attitude. The second consideration in the TPB is the subjective norm, or the perceived social pressures. This is a person’s estimation of how an individual or group would view the performance of the behaviour. The strength of this consideration lies within the person’s motivation to comply with social norms. The final TPB consideration is the perception of behavioural control. This consideration reveals any factors the person believes will facilitate or inhibit their performance of the behavior, as well as the likelihood of their presence. Together, these three considerations lead to the formation of a behavioural intention to perform a certain action. In order to facilitate a change in behaviour, the three considerations need to be analysed to find the public's attitudes towards them.

Additionally, a person’s behaviour is greatly affected by the value they place on themselves and on the natural world around them. Schultz, a psychology professor at California State University San Marcos, suggests that ‘attitudes about environmental issues are the result of more general underlying values, and that different value orientations lead to different attitudes’ (Schultz 2001). This is further supplemented by argument that ‘the link between values and environmental concern is moderated by an awareness of the harmful consequences to valued objects’ such as the value of self, other people, and the environment (Schultz 2001). A dog owner subconsciously places

different values on their dog, themselves, the coastal wildlife, and how people view their actions; therefore, a positive change in their behaviour may require a change in the values they hold.

Changing human behaviour is essential to increasing compliance with dog leash laws. A 2011 study on the effect of posted signs investigated whether reading signs posting regulations on the Kaikoura Peninsula on the northeast coast of the South Island had an effect on the behaviour of tourists around fur seals in the area (Acevedo-Gutierrez et al. 2011). The researchers found no significant difference in compliance between the groups of tourists who read the signs and those who did not, leading them to conclude ‘that posted signs are ineffective in increasing compliance to regulations’ (Acevedo-Gutierrez et al. 2011). They suggested that alternative methods of increasing compliance be investigated.

Acevedo-Gutierrez et al. (2011a & b) also evaluated whether the presence of a volunteer, who appeared official, would alter the behaviour of people around fur seal pups at the Ohau stream near Kaikoura. The researchers noted the frequent use of voluntary compliance, in which signage is used in an attempt to control people’s behaviour, as a tool for protecting wildlife, but found it was ‘ineffective’. However, when an official-looking volunteer was posted near the stream, the seal pup harassment decreased by two-thirds, even without the volunteer speaking to any of the tourists. Volunteers, although presently under-utilised, offer other benefits beyond increasing compliance. They can educate the public at the site and they are a cheap alternative to hired enforcement officers. Globally, many similar studies have been conducted aimed at better-understanding human behaviour with regard motivating positive relationships to the natural world. More recently, studies have been published regarding domestic pet-wildlife interactions and their effects on the surrounding environment. Three relevant cases that examine this relationship are outlined in detail below.

2.7 Relevant case studies

2.7.1 Piping plovers and dogs, Nebraska, USA

In 2014, ‘Piping Plovers *Charadrius melodus* and dogs: compliance with and attitudes toward a leash law on public beaches at Lake McConaughy, Nebraska, USA’ was published in the journal *Human Dimensions of Wildlife*. This study (Jorgensen & Brown 2014) was conducted to investigate the interactions between dogs and shorebirds as well as assessing the public’s

opinions of and willingness to follow a leash law on the beaches surrounding Lake McConaughy. Although there is a difference in ecosystems between New Zealand coastlines and Nebraska, many aspects of the study, like methods to determine attitudes, are applicable to our project. The study had two parts: observations and surveys. To conduct observations, the study randomly selected plover breeding sites and counted the number of leashed and unleashed dogs present and noted the behaviours of dogs and their owners. Personal interview surveys were used to measure the recreationists' attitudes and awareness of piping plovers and leash laws at Lake McConaughy. In the survey, the recreationists were asked to rank a series of statements in order of importance to them to gauge current attitudes toward the laws and motivations for leashing their dogs or not. This was a successful method for quantifying what people think.

2.7.2 Obligation to leash dogs on beaches, Victoria, Australia

In 2009, a study was conducted along Victoria's beaches on the southern coast of Australia investigating dog owners' perspectives on the interactions between dogs, birds and beaches as well as their compliance with leash laws currently in place (Williams et al. 2009). In addition, this study also investigated how the awareness of dog control regulations influence and explain dog owners' sense of obligation to leash their dogs while at the beach, a topic we also investigated in New Zealand. To measure the public's knowledge on dog-bird interactions, participants were presented with different scenarios and were asked to respond with their thoughts on the seriousness of the encounter. Through this questionnaire, it was found that the majority of the public could not identify the negative consequences of these encounters and this could be why they may not take leash laws on beaches as seriously as they should, indicating the need for more education on this topic.

2.7.3 Cat owner behaviour, Wellington, New Zealand

Recently, the impact that cats left out at night have on New Zealand native wildlife has been receiving increased attention. In 2015, Edith MacDonald published a study on what drives cat-owner behavior. The aim of the study was to help reduce the impacts of cats on native wildlife. The study used the theory of planned behaviour (TPB) to assess which different socio-psychological factors explained the reasoning behind whether or not Wellington Zoo visitors confined their cats inside at night. Although there have been campaigns encouraging owners to keep their cats inside at night, this study identified that they lacked the appropriate psychological

understanding, which could lead to them failing attempt to achieve behavioural change. Results revealed that attitudes and normative beliefs were the best predictors of people's intentions to confine cats inside at night. The study suggests that to be a more persuasive and effective, campaigns should also focus on general benefits to cats and cat owners from the desired behavior, rather than just the positive impact on native wildlife.

Overall, the studies we assessed were very similar and had several areas of overlap in methodology and even in findings. Interestingly, all studies suggested that the best way to increase compliance with beach laws or promote behavioural change is through the reinforcement of social norms. Beach-goers responded most to the behavior of other people at the beach, rather than any posted rules. The actions of other people and what they perceived are expected of them by others, creates a 'social norm' and a social pressure from peers that a certain behaviour should be displayed (Jorgenson & Brown 2014).

2.8 Summary

An analysis of the literature reveals the complex nature of regulating private citizens in public areas. We identified how polarised opinions surfaced due to proposed changes in beach regulations regarding dog control in several places. Media have drawn the public's attention to recent dog attacks on penguins, fur seals and sea lions, further polarising opinions. In order to prevent negative encounters between dogs and wildlife, legislation has been created aimed at protecting coastal wildlife, people and their pets. Unfortunately, the rules and regulations generated by this legislation are not always followed. In order to promote better adherence to regulations, an investigation of previous case studies indicates that encouraging new social norms is the most promising way to incur positive behaviour change. To that end, we developed a series of strategies to investigate public perceptions on dog-coastal wildlife interactions to assist DOC in bringing about this behaviour change.

Chapter 3: Methodology

The primary goal of our project was to assist DOC to prevent or reduce dog interactions with coastal wildlife through the development of improved tools and resources. To achieve our goal, we completed the following objectives:

- Determine the current legal context and a general baseline for beach restrictions on dogs;
- Observe and document dog and owner behaviour; and
- Assess the public's perceptions on wildlife, dogs, and owner behaviours.

To accomplish these objectives, we used a variety of methods, including site assessments, surveys, interviews and participant observation, which are described in detail below. This approach was designed to give us a more holistic view of beach culture and perceptions of beachgoers regarding dog-coastal wildlife interactions.

3.1 Determining the current legal context and a general baseline for beach restrictions on dogs

To orient ourselves to the settings of our surveys, we conducted site assessments at key locations. In Wellington, we used the Wellington City Council interactive online map of dog exercise areas to compile a comprehensive list of dog-accessible beaches as well as local dog parks. We refined this list in consultation with our sponsors and other experts, accounting for transportation to the site, site popularity, and wildlife present. The sites finally selected gave us the best opportunity to interact with dog-owners in the Wellington area. In Dunedin, we visited the Otago Peninsula between February 1 and 8. An initial set of Otago beaches for study were identified by DOC, but we refined the final list through a process of evaluation similar to that used in Wellington. At each site, we photographed the signage present, including maps and information stations. We focused on those that conveyed information on dog leash rules and regulations, the types of wildlife on the beach and dog behaviour guidelines. We then categorised the signage based on purpose and appearance to determine how regulations and other information were presented at each site. The complete list of sites is included in Appendix 1.

In order to understand the essential dog restrictions in place at our survey beaches, we interviewed experts from relevant government agencies and other organisations. The Department of Conservation assisted in organising expert interviews. From these semi-structured interviews,

we used snowball sampling to further identify, contact and interview government agency and wildlife organisation stakeholders. Our interviews included participants from Wellington City Council, Places for Penguins and DOC staff. We conducted fourteen interviews using a guide that can be found in Appendix 2. After a participant granted permission, we took supplemental notes that can be found in Appendix 3. The topics covered included an overview of each expert's role in their organisation and their perspective on the issues surrounding dog and coastal wildlife interactions. We also discussed potential solutions and ways to mitigate the risks involved. We used these topics to develop a general scripted set of questions and then further tailored certain questions based on the expert's role and background. These interviews were used to gauge the perspectives of experts in the field on dog-wildlife interactions and to gain an understanding of their role in monitoring these interactions. The names of the interviewees, their affiliations, and the date of the interviews are summarised in Appendix 4.

3.2 Observed and documented current dog and owner behaviours

In order to identify the range of risks and interactions, we recorded dog owner behaviours on target beaches. These target beaches were chosen based on our site assessment findings. We documented the time of day, and day of the week (weekday, weekend, holiday) at each location. We observed and recorded owner behaviours, such as talking on the phone or to others around them, and/or engaging with their dog. These observations also included whether the dog was responsive to owner commands. Photographs of dog and owner behaviour at each site were used to supplement our recorded documentation.

Quantitative observations augmented our initial findings. We noted the numbers, if any, of the four target species identified above. We also recorded whether any of the target beaches were known wildlife habitat for any of the four species. Using this information, we determined wildlife-sensitive areas as locations that have a reported wildlife presence or potential habitat. We also recorded whether dogs were present at the site, and if they were on-lead or off-lead. Using this information, we were able to identify the social norms at the sites on the days we visited.

3.3 Assess the public's perceptions of wildlife, dogs and owner behaviours

To meet this objective, we conducted surveys and unstructured interviews in conjunction with opportunities for participant observation. Copies of the surveys are attached in Appendices 5 and

6. Initial versions of the survey were pretested at Oriental Bay and Wellington Harbour to determine clarity and response time. Based on these results, we modified the questions and formatting and finalised the survey instrument. We then conducted surveys (200 in total) simultaneously at the sites where observations were collected by splitting up into pairs. While one person gave the survey, the other would record any notes on the dog and owner behaviour, such as how attentive the dog stayed to the owner and how far the dog wandered from the owner. We considered factors such as wildlife present, numbers of dogs and owners, signage and leash usage when choosing survey and interview locations. High foot traffic areas on target beaches and dog parks were also considered, to provide the greatest opportunity to collect data. A sample of convenience was used when conducting our surveys and interviews because it relied on available subjects 'who were close at hand or easily accessible', i.e. those we encountered walking on the beach (Berg 2004, p.35).

We conducted two surveys addressing people's beliefs about, knowledge of and attitudes towards interactions between dogs and wildlife and dog beach regulations. The type of survey administered depended on whether we were on or off the beach. A general preamble, stated at the start of each survey, explained the nature and purpose of the survey. By keeping participants' identity anonymous, we ensured the confidentiality of any information revealed.

The on-beach survey, which took 6–8 minutes to complete, consisted of three sections: The first section asked if participants owned a dog and based on their response the participant was then guided to the appropriate questions. Dog owners were directed to questions related to dog walking habits. People who did not own dogs were directed to the final part of section one to respond to questions regarding their knowledge of leash regulations and their awareness of wildlife. The second section utilised a seven-point scale to measure their perceptions and conservation opinions. In the third section, we asked for basic demographic information. The off-beach survey similarly began by asking whether the participant was a dog owner before continuing in the same format as the on-beach survey. This survey took about 4 minutes to complete and was carried out mostly at dog parks following similar protocols to those described above.

Both surveys were administered on tablets using the Qualtrics App. The survey results were uploaded to the Qualtrics online program that provided comprehensive tools for data analysis.

Overall, the responses we collected from the surveys helped identify trends in public perceptions of dog and coastal wildlife interactions.

We engaged in participant observation in order to give a more in-depth view of the dog-beach and dog park culture by enabling us, as observers, to become a part of the environment (Kawulich 2005). After discussing our plans for participation observation, two of our sponsors allowed us to use their dogs as aids in data collection. We brought dogs, Mack and Mena (see Figs 7 and 8), to dog exercise areas on beaches as well as local dog parks. This technique permitted us to act as dog owners looking for signage and regulations while on specific beaches. Furthermore, the company of Mena or Mack made us appear more approachable to dog owners in dog exercise areas. This also enabled us to experience beach social norms first hand rather than relying on what was reported through surveys and interviews, thus enhancing our ability to interpret the collected data (Kawulich 2005).



Figure 7. Mack.

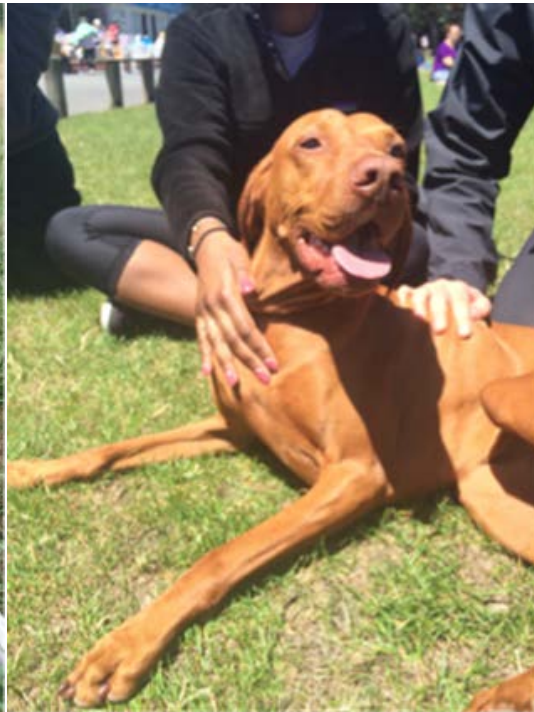


Figure 8. Mena.

Interviewing dog owners and people who did not own dogs provided us with a more comprehensive understanding of the public's perceptions of the issues regarding dog interactions with coastal wildlife. We selected interview participants based on people's willingness to talk

with us. If a participant that we surveyed showed an eagerness to talk with us, we went on to ask them more in-depth questions about their thoughts on dogs and wildlife on beaches. The questions were based on how the participant reacted to survey questions and what they wanted to discuss further. In this way, we were able to turn the survey into more of a discussion to allow us to more fully understand the viewpoints of our participants. These interviews were used to supplement the information gathered by observations and surveys.

Chapter 4: Results and discussion

In this chapter, we present the data found by conducting the steps outlined in the methodology chapter. First, we discuss the results of our site assessments, including signage and beach regulations. We divided the data and analysed by region, helping to identify signage inconsistencies. After conducting a series of expert interviews, we recorded key findings to further increase our understanding of the issues surrounding interaction between dogs and coastal wildlife. Lastly, we present and analyse the results of our survey to assess the public perceptions regarding dogs and wildlife, as well as dog owner social norms and beach behaviour.

4.1 Objective 1. Determine the current legal context and a general baseline for beach restrictions

In order to determine the current legal context and a general baseline for beach restrictions, we conducted site assessments and expert interviews. The results in section 4.1.1 give a summary of the information we collected for each site, organised by district: Wellington (including Lower Hutt), Dunedin, and the Catlins. In section 4.1.2, we documented the main findings from our expert interviews.

4.1.1 Site assessment results

At each site we photographed and documented the signage related to dog regulations. We noted how many different types of signs displayed regulations and the total number of signs at each beach. Tables 3–5 show dog signage and regulations in Wellington, Dunedin, and the Catlins respectively.

Table 3. Dog signage and regulations at Wellington (including Lower Hutt) beaches.

Site	Dog Regulations			Observed Signage		
	On Lead	Off Lead	Prohibited	Total	Types	Correct
Days Bay			X	4	2	Y
Port Nicholson Yacht Club	X			0	0	N
Balaena Bay			X	4	3	N
NIWA	X			2	1	Y
Cog Park		X		2	1	Y
Hataitai Beach	X		X	3	1	Y
Evans Bay			X	3	3	Y
Shelly Bay*				0	0	N
Kau Bay		X		0	0	N
Scorching Bay			X	3	3	Y
Churchill Park		X	X	3	2	Y
Tarakena Bay			X	8	4	N
Lyll Bay		X	X	20	3	Y
Eastbourne		X	X	12	3	Y
Oriental Bay		X	X	6	2	Y
Red Rocks Reserve	X	X		1	1	Y
Island Bay	X	X	X	13	3	N

* indicates that regulations cannot be found

Table 4. Dog signage and regulations at Dunedin beaches.

Site	Dog Regulations			Observed Signage		
	On Lead	Off Lead	Prohibited	Total	Types	Correct
Brighton Beach		X	X	9	8	Y
St. Clair Beach	X	X	X	10	5	N
St. Kilda's Beach		X		4	4	Y
Tomahawk Beach		X		13	5	Y
Allan's Beach	X	X	X	4	4	Y
Sandfly Bay			X	6	6	Y
Smalls Beach	X	X		3	3	Y
Tunnel Beach			X	1	1	Y
Kettle Park	X	X		8	2	Y
Aramoana		X	X	7	4	Y

Table 5. Dog signage and regulations at Catlins beaches.

Site	Dog Regulations			Observed Signage		
	On Lead	Off Lead	Prohibited	Total	Types	Correct
Curio Bay	X		X	4	4	Y
Surat Bay		X		2	2	N
Purakaunui Bay	X			1	1	N
Roaring Bay			X	1	1	Y
Nugget Point			X	1	1	Y

After assessing sites in Wellington and Lower Hutt, Dunedin, and the Catlins, we found that signage was inconsistent across locations. Each beach we visited had a variety of types of signs, including those specific to dogs. In Wellington and Lower Hutt, each beach had different signage stating the regulations relating to dogs. In some cases, the **dog prohibited** and **dog allowed** signs were so similar that we were not able to tell them apart when standing across the street. Furthermore, signage was only visible from the road access and not from the beach. This meant that when we crossed from a **dog allowed** into a **dog prohibited** area while on the beach, we were unaware of the change. In other cases, the signs were full of information, and it was not until reading to the end of the sign that we learned that no dogs were allowed (an example is shown in Fig. 9). At some sites, the information from the signage was incorrect. As first-time visitors to the beaches we were unaware of this fact until we checked the bylaws online. This means that beach goers at these sites can unknowingly be breaking the regulations.

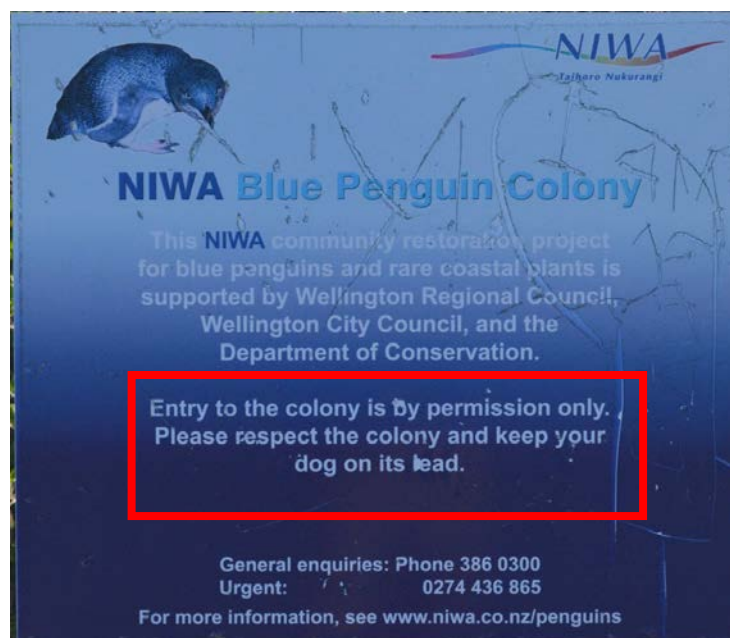


Figure 9. Penguin information sign. The superimposed red box indicates where the dog regulations are.

In Dunedin, we saw that the city employs a different format for signs than in Wellington, using a traffic light system (red, orange, green) to indicate where dogs are and are not allowed on beaches. We found a map (see Fig. 10) at the entrance of most beaches, with orange indicating dogs on-lead are allowed, green indicating dogs off-lead are allowed, and red indicating no dogs allowed. However, at some of the beaches the location on the map of the 'you are here' markers

were incorrect, thus giving erroneous information about where dogs were allowed in the area. A sign, which is also given as a pamphlet in the yearly dog registration packets, was installed at the entrance to all dog-friendly beaches that we visited. This reinforced that dogs should be on lead when within 20 m of protected wildlife.



Figure 10. Dogs prohibited and off-lead signage.

The Catlins covers a large area south of Dunedin and consists primarily of wildlife reserves. Despite its size, however, there are only a few locations where owners are allowed to bring their dogs. In contrast with the greater Wellington and Dunedin regulations, the Catlins had, in many cases, less formal beach signage expressing the restrictions and regulations. To better understand how the different organisations are involved in creating and maintaining beach regulations and how they affect conservation experts, we conducted interviews with experts in the respective fields.

4.1.2 Expert interview results

Through our expert interviews, we identified important points that were repeated by various experts. When asked about whether they thought there was a legitimate concern about interactions between dogs and wildlife on beaches, five of the experts all brought up the fact that the majority of dog owners are very responsible and it is the minority of less-responsible owners that typically create problems. Steve Broni, the chairman of the New Zealand Sea Lion Trust,

pointed out that wildlife and dogs are capable of coexisting on beach as long as dog owners are responsible. Experts emphasised that penguins are particularly at risk of dog attacks since they are smaller and more vulnerable. Three experts pointed out that the scale of the issue depends on who you are talking to; some find dogs to be a significant problem on beaches because they are very focused on the wildlife while others note that the actual number of dog attacks on wildlife is not as high as, for example, attacks by cats. From this question, we asked what the experts thought was the root of the issue surrounding dog-wildlife interactions, and this raised some common themes. Five experts identified the topic of signage. Some agreed that signs in the area were incorrect, while others said that people do not read signs as much as we believe they do. Experts also suggested that signage be made more positive so that the public can see all they are allowed to do rather than focus on what they cannot do and how they will be punished. In conjunction with this signage problem, seven of the experts mentioned that people do not necessarily know the regulations regarding dogs on beaches. Four experts emphasised that people are often unaware of the presence of wildlife on the beaches, particularly little penguins that come onto shore late at night and leave early in the morning.

We asked what the experts believed were the major threats dogs posed to wildlife. Nine of the experts pointed out that penguins are most vulnerable to physical attacks by dogs, bodily attacks or destruction of nesting sites. Megan Jolly, a resident veterinarian with Wildbase Hospital, Massey University, described the severity of typical dog bites. She remarked that what appear to be simple puncture wounds could have crushing damage underneath the surface and/or go septic, and the penguins could then be damaged socially by being kept for months while they are treated.

Based on their view of the problem and its root, we asked the experts how they thought our work could best aid them. Seven of the experts felt that the most useful outcome would be to identify novel ideas about how to deliver messages more effectively to dog owners in a way that they will listen to and not feel as if they are being attacked. They highlighted the importance of reaching out to dog owners and working with them so they do not feel alienated. Simon Alefosio-Tuck, a DOC ranger in Dunedin, said during his interview with us that the best way to reach dog owners is through the annual dog registration process, and this connection is important so that you can get into that dog owner community. Steve Broni pointed out that residents could also be reached by leaving informative pamphlets or fliers in waiting rooms at hospitals, dentists' offices,

doctors' offices, and vet clinics to educate, reach and inform a broader audience. In these locations, people are often waiting and have the time to read an educational brochure. Seven of the experts pointed to education as being a key element in promoting positive dog owner behaviour. Craig Prattley, the president of the Titahi Bay Canine Obedience Club, stated that dog obedience relies on knowledge, and so you have to give the owners knowledge. Mike Rumble, of the Eastern Bays Little Penguin Project, Steve Broni, and Peter Hanlon of the Dunedin City Council, all went on to say that educating children was the best way to aid in conservation efforts. Mike Rumble believes that in order to change behaviour overall, you have to change the mindset of the next generation. This sentiment was echoed by Peter Hanlon who stated that children will listen and can go on to teach adults. Summarising notes of all of the interviews can be found in Appendix 3.

4.2 Objective 2. Observe and document dog and owner behaviour

As part of our observations and documentation of dog and owner behaviour, we photographed what both dogs and owners were doing, and recorded whether dogs were present and if they were on-lead or off-lead. The results in section 4.2.1 illustrate the wildlife and dog presence at each location as well as marking which locations are known wildlife habitats. We then describe the social norms that we determined based on dog and owner behaviour for the beaches on which surveys were conducted. In section 4.2.2 we discuss the similarities and differences between dog and owner behaviour at the different beaches we surveyed.

4.2.1 Wildlife and dog presence

In Wellington, many of the sites we visited were known habitats for little penguins, but we did not observe any penguins during our surveys. In some cases, we did observe dogs off-lead in penguin habitat areas. Although most beaches in Wellington have nesting little penguins, Red Rocks Reserve is the only site where fur seals are commonly found. When we visited, one fur seal was present, but all dogs in close proximity to it were on leads. While we observed very little wildlife on Wellington's coast, many wildlife species were seen during our Dunedin trip.

The beaches that we visited around Dunedin and the Otago Peninsula provide suitable habitat for the four species we have focused on. Dogs were present at all but one site we visited, even when regulations stated that they were prohibited. It was not uncommon for sea lions to be visible to

dog owners walking by on beaches. Dunedin’s beaches are much longer and wider than those in Wellington, allowing dogs to roam farther from their owners.

The beaches in the Catlins were similar to those in Dunedin with respect to dog presence and known wildlife habitat. Many of the beaches along the Catlin’s coast are suitable environment for wildlife, including sea lions, fur seals and yellow-eyed penguins. Dogs were present on the beaches where we observed sea lions and fur seals. Tables 6–8 show dog and wildlife presence in Wellington, Dunedin and the Catlins, respectively.

Table 6. Dog and wildlife presence in Wellington and Lower Hutt coastal regions.

Site	Dogs Present	Known Habitat		Observed Wildlife	
		Little Penguin	Fur Seal	Little Penguin	Fur Seal
Days Bay	Y	X			
Port Nicholson Yacht Club	N				
Balaena Bay	N	X			
NIWA	Y	X			
Cog Park	Y				
Hataitai Beach	N	X			
Evans Bay	Y	X			
Shelly Bay*	N	X			
Kau Bay	N	X			
Scorching Bay	Y	X			
Churchill Park	N	X			
Tarakena Bay	Y	X			
Lyal Bay	Y				
Eastbourne	Y	X			
Oriental Bay	Y				
Red Rocks Reserve	Y		X		1
Island Bay	Y	X			

Table 7. Dog and wildlife presence in Dunedin coastal regions.

Site	Dogs Present	Known Habitat				Observed Wildlife			
		Little Penguin	Fur Seal	Sea Lion	Yellow Eyed Penguin	Little Penguin	Fur Seal	Sea Lion	Yellow Eyed Penguin
Brighton Beach	Y	X	X	X					
St. Clair Beach	Y			X					
St. Kilda's Beach	Y			X					
Tomahawk Beach	Y			X					
Allan's Beach	Y	X	X	X	X	1	4	8	
Sandfly Bay	N	X	X	X	X		10+	3	2
Smaills Beach	Y	X		X				4	
Tunnel Beach	Y								
Kettle Park	Y								
Aramoana	Y	X	X	X	X	1	4		2

Table 8. Dog and wildlife presence in the Catlins coastal region.

Site	Dogs Present	Known Habitat				Known Habitat			
		Little Penguin	Fur Seal	Sea Lion	Yellow Eyed Penguin	Little Penguin	Fur Seal	Sea Lion	Yellow Eyed Penguin
Curio Bay	Y	X		X	X				
Surat Bay	Y			X				6	
Purakaunui Bay	Y		X	X				2	
Roaring Bay	N		X		X				2
Nugget Point	Y		X	X			10+		

4.2.2 Dog control and behaviour observations on surveyed beaches

The findings from our behaviour observations are summarised in Table 9 below.

Table 9. The social norms we experienced during surveys and observations each location.

Location	Social norms observed
Days Bay	A majority of dogs were observed off-lead, even in dog-prohibited areas on the beach (See Fig. 13). This is an area with known little penguin habitat.
Lyllall Bay	The vast majority of dogs were off-lead. Most of the dogs stayed in their designated area but some moved into the prohibited portion of the beach. The beach is not little penguin or fur seal habitat, but they may be present occasionally when they stray from their usual habitat on neighbouring beaches.
Oriental Bay	The majority of dogs were on-lead on the walkways, although there was still a portion off-lead. The dogs are prohibited from the actual beach but little penguins have been known to come up in the boat shed area.
Red Rocks Reserve	There was a mixture of on-lead and off-lead dogs. A fur seal was present the day of the site visit and it is a known fur seal habitat. Multiple dog owners warned us of the fur seal near the road up ahead of us.
Island Bay	The majority of dogs were off-lead, and remained in their designated area.
Charles Plimmer Dog Park	Almost every dog was off-lead. Some owners did not go all of the way up to the dog park but let their dogs off-lead in a dog-prohibited area farther down Mount Victoria.
Brighton Beach	We observed very few dogs here. There were new bylaw changes on this beach to further restrict dog areas, and so it had new signage. The beach is known little penguin habitat.
St. Clair Beach	Almost all of the dogs were off-lead once they got down to the beach. A sea lion was reported to have drowned a dog at this location.
St. Kilda's Beach	There was a mixture of on-lead and off-lead dogs. Some owners only used the walkway above the beach while others used the walkway and took their dogs down onto the beach. Sea lions are known to be present at times.

Tomahawk Beach	Almost all the dogs we observed were off-lead. This beach is known sea lion habitat, and has a rocky section that is potential fur seal and little penguin habitat.
Allan's Beach	Only two dogs were present during observations and both were under control and on-lead near the sea lions. There were eight sea lions present along with fur seals and little penguins.
Kettle Park	Most dogs were off-lead and had come off the beach below.
Aramoana Beach	There was a mixture of off-lead and on-lead dogs. We observed fur seals and little penguins, and heard yellow-eyed penguin calls.



Figure 11. Dog on the beach at Days Bay during dog-prohibited hours (Sign indicated with arrow).



Figure 12. Sign at Days Bay stating the dog regulations.



Figure 13. Dog and dog owner next to two male sea lions.

We made note of the regulations before arriving at each beach we made observations at, as seen in Fig. 12. This was necessary in order to determine if these regulations were being followed or not. At five of the six beaches we visited in Wellington, most dogs were off-lead. In addition, within the Wellington and Lower Hutt area there were several beaches where regulations stated that dogs were strictly prohibited; however, dogs were present. We observed dogs in prohibited areas at Days Bay, Evans Bay, Scorching Bay, Tarakena Bay and Lyall Bay. Fig. 11 shows an example of a dog and owner in a dog-prohibited area at Days Bay. On the days that we observed in Dunedin, dogs were mostly off-lead at three sites, a mixture of off- and on-lead at three sites, and at the last site not enough dogs were observed to determine a norm. Fig. 13 shows a dog and owner next to two male sea lions at a beach on the Otago Peninsula.

Overall, our observations indicated that there is no constant overarching social norm across all of the beaches we visited. Norms directly correlated with each specific beach, and didn't necessarily carry over to other beaches in the area. Depending on which beach we were at, the behaviour of the dog owners and whether dogs were on- or off-lead, or a mixture, varied. To better understand these beach-specific norms and to see if trends in behaviour existed in different areas, we assessed the public's perceptions through surveys.

4.3 Objective 3. Assess the public's perceptions on wildlife, dogs, and owner behaviours

The results in this section reveal the responses from our surveys. We conducted a total of 205 surveys, including both dog-owners and non-dog-owners. We have organised our results into two separate case studies of Wellington/Lower Hutt and Dunedin, followed by overall perceptions results.

4.3.1 Wellington/Lower Hutt Survey Results

In Wellington/Lower Hutt, we collected a total of 89 surveys (53 beach intercept, 36 dog park intercept). Of these, 63 respondents were dog-owners (71%) and 26 non-dog-owners (29%).

Dog owners in our beach intercept survey **overwhelmingly prefer** to walk their dogs off-lead 61%, vs 6% on lead and 31% walk their dogs both on and off lead. Most participants from the Wellington sample stated that they preferred to walk their dogs off-lead for the freedom of their dog. Fifty-eight percent of Wellington dog owners surveyed stated that being off-lead allowed their dogs to have better exercise and the opportunity to socialise. When asked what dog regulations existed on the beaches, 80% of participants were aware of some type of dog-regulation at the beach, with signage being the most cited source of information. While a majority of participants were aware of regulations, this did not necessarily reflect their dog walking preferences. Some people chose to walk their dog on-lead in off-lead areas.

Our survey also asked about the respondents' awareness of wildlife present at beaches. We found that 78% of Wellington respondents from the beach intercept survey were aware of the wildlife that could be present at the beach (Fig. 14). Within that group a majority (66%) were aware of shorebirds. However, while most beaches where we surveyed were penguin habitat, fewer participants (30%) were aware of the potential for their presence. Only one beach we surveyed had suitable habitat for fur seals, so it is not surprising that only 4% of respondents were aware of them.

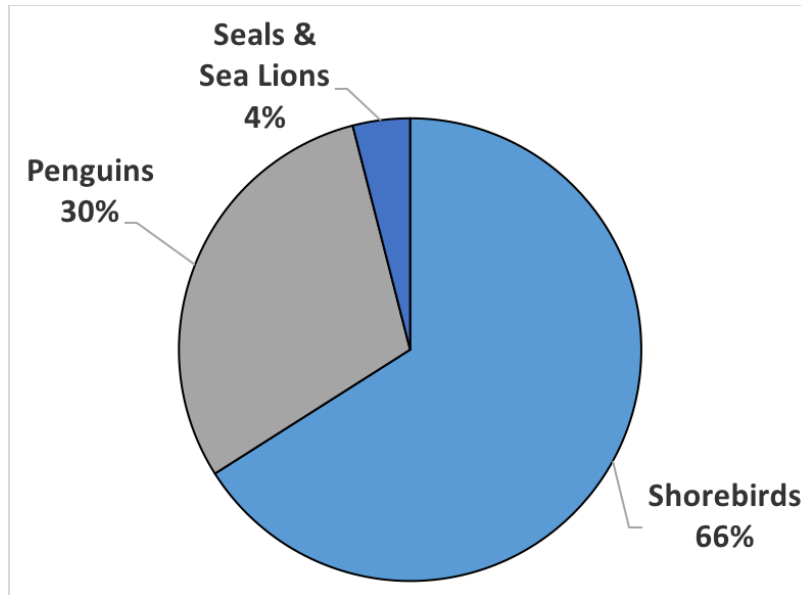


Figure 14. Survey respondents' awareness of wildlife on Wellington Beaches (n = 53).

4.3.2 Dunedin survey results

In Dunedin, we collected a total of 116 surveys (108 beach intercept, 8 dog park intercept). Of those people who participated in either survey, 80 were dog-owners (69% of total respondents) and 36 were non-dog-owners (31% of total respondents). Our results revealed that 56% of the dog-owners who participated in the survey **prefer** to walk their dogs off-lead, while 9% prefer on-lead and 35% walk their dogs both on- and off-lead on the beach. Most chose to walk off-lead as a better way to exercise their dogs, although many respondents also emphasised the opportunities to socialise their pets.

In Dunedin, we asked respondents about their awareness of wildlife on the beach. We found that 97% of respondents were aware that some type of wildlife was present. Among these 106 survey respondents, fur seals and sea lions were the species most commonly mentioned (49%), followed by shorebirds (33%) and then penguins (18%), as shown in Fig. 15.

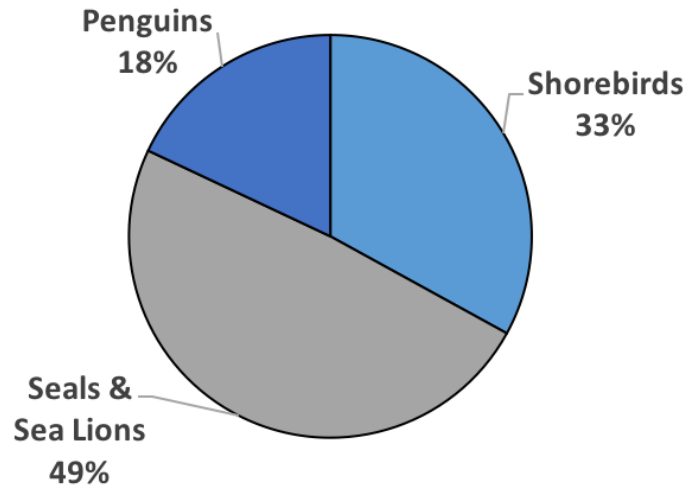


Figure 15. Survey respondents' awareness of wildlife on Dunedin Beaches (n = 106).

In terms of knowledge of beach regulations for dogs, most respondents (88%) were aware that the beaches had rules. When asked how they found this information, the majority relied on information posted on signs. The next most popular response was 'commonsense', followed by the Dunedin City Council (website, signs, information packets), and the yearly dog registration packet.

4.3.3 Perceptions section survey results

Between Dunedin and Wellington, we surveyed a total of 205 people on beaches and in dog parks (143 dog-owners, 62 non-dog-owners). In this section, we present the results of the perceptions scale questions asked on both intercept surveys. Overall, in both Dunedin and Wellington, we found that generally people agreed that dog access to beaches is important. We also found that while most non-dog-owners agreed with this sentiment, there were also some in this group who completely disagreed with the sentiment.

When asked if dogs were generally expected to be leashed on beaches, we found a variety of answers. Most dog-owners (DO – shown in orange) disagreed with this statement or were neutral, while many non-dog-owners (NDO – shown in blue) agreed, as shown in Figure 16 below. Several respondents commented that it was difficult to answer, because regulations are very beach-specific.

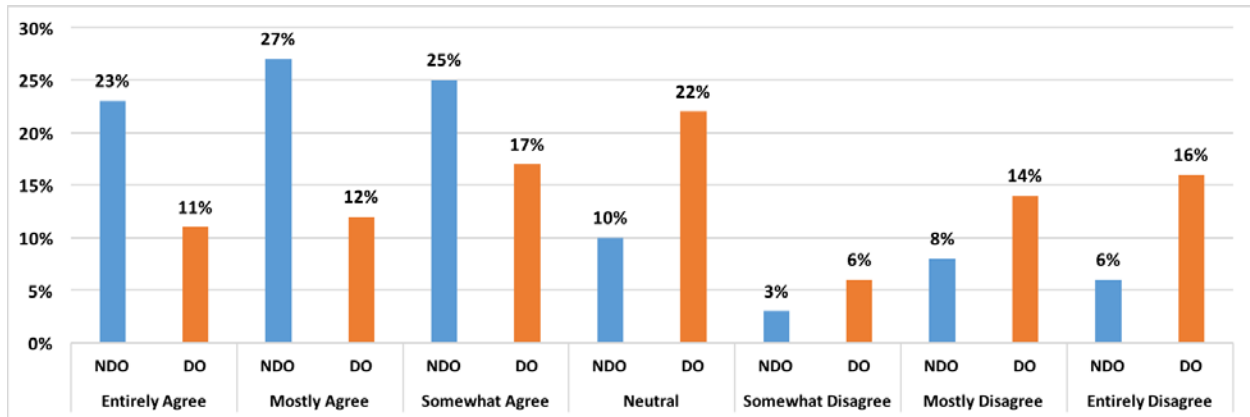


Figure 16. 'Generally dogs are expected to be leashed on beaches' (n = 205).

In Wellington, there was a lack of consensus concerning the statement 'There are instances when some dog-wildlife interactions are acceptable' (Fig. 17). In contrast, most participants in Dunedin strongly disagreed with the statement, including both dog-owners and non-dog-owners (Fig. 18).

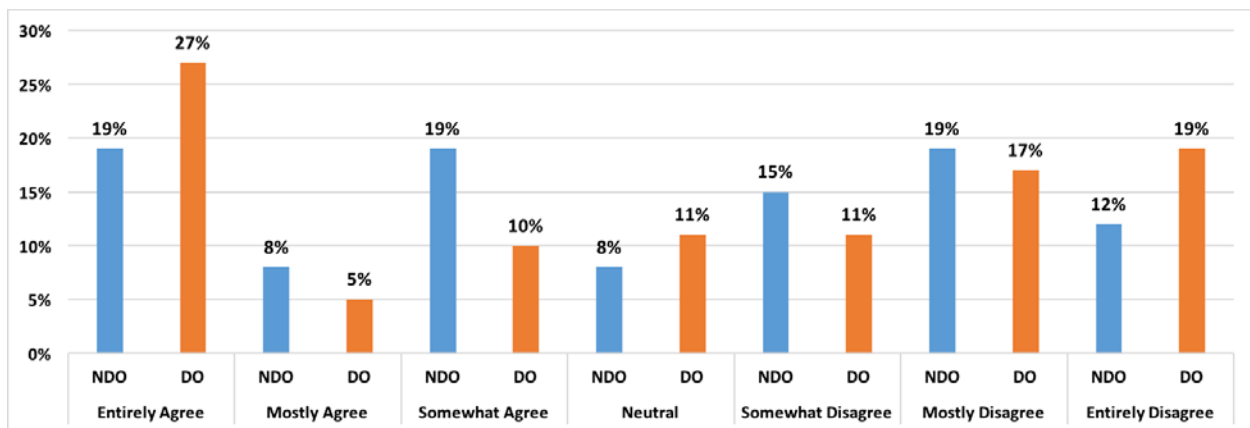


Figure 17. Wellington responses to 'There are instances when some dog-wildlife interactions are acceptable' (n = 89).

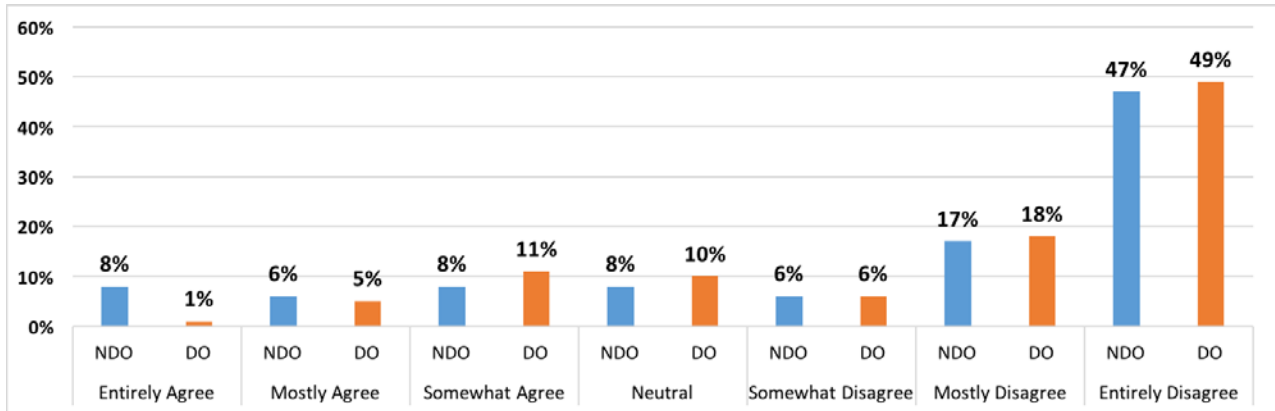


Figure 18. Dunedin responses to 'There are instances when some dog-wildlife interactions are acceptable' (n = 116).

When asked whether or not dog interactions with coastal wildlife were dangerous, survey participants in both Wellington and Dunedin agreed (84%) that they could be dangerous for both the dogs and the wildlife. Furthermore, for the most part, participants in both Wellington and Dunedin understood and agreed that leash laws were important for protecting wildlife. However, the participants from both Wellington and Dunedin showed a wide variation of opinion when asked whether beaches are more important for native wildlife than for human and dog recreation, as seen below in Fig. 19. In Wellington, more people were neutral or disagreed as compared with Dunedin, where the majority of people agreed.

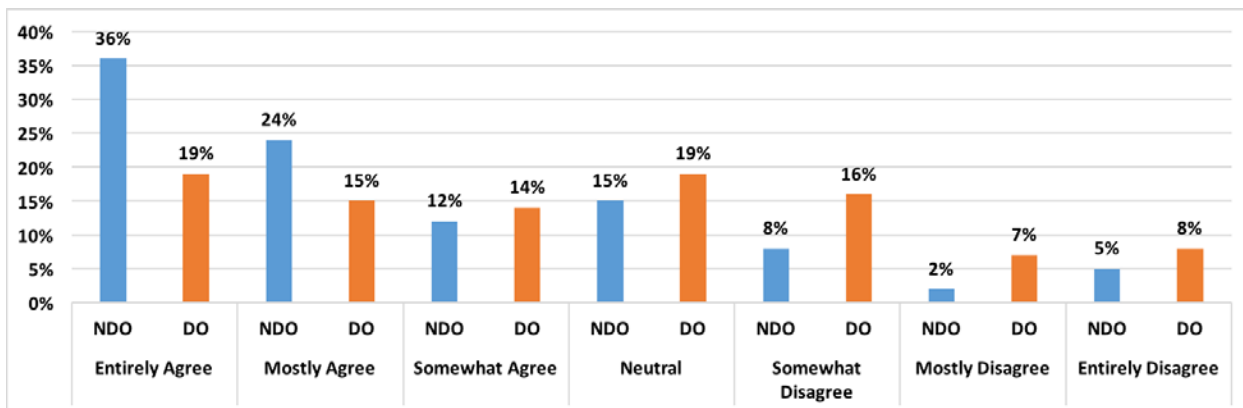


Figure 19. 'Beaches are more important for native wildlife than for human and dog recreation' (n = 205).

Most survey participants agreed that human and dog recreational activity should be controlled for the protection of wildlife. The Wellington survey, however, showed more variety in

responses. Overall, when survey participants were asked if dogs should be prohibited from beaches during wildlife breeding seasons, most (76%) non-dog-owners agreed mostly or entirely (Fig. 20). While the majority of dog-owners (64%) agreed with this statement, there was a noteworthy number of them who were neutral or disagreed (38%).

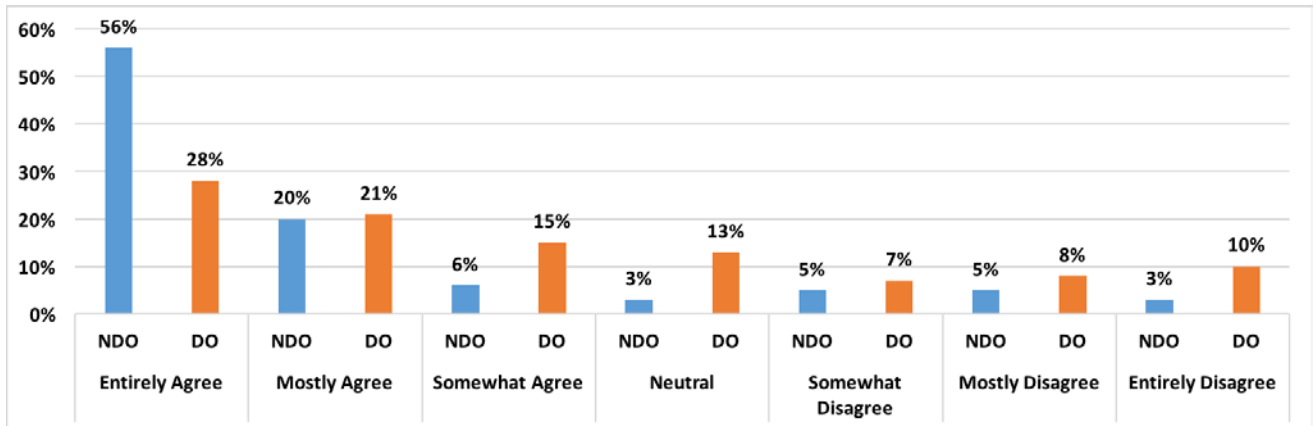


Figure 20. 'Dogs should be prohibited during breeding seasons' (n = 205).

Following the scaled perceptions questions of our survey, we asked participants to define their definition of what it means to have a dog **under control**. Most dog owners responded that an obedient and under-control dog is one that responds to its owner's commands. However, most non-dog-owners defined a controlled dog as on-lead. The response generated open-ended definitions, as mapped below in Fig. 21.



Figure 21. 'What is a dog under control?'

Our surveys allowed us to quantitatively analyse the public's perceptions of wildlife and dogs on the beach. There were a few outliers that we encountered while interviewing. Some participants mentioned hating the presence of seals and sea lions on the beaches because they are noisy and smell, while others mentioned the inconvenience of penguins nesting under houses near the beach. In rarer cases, there were participants unaware of wildlife or who did not regularly walk their dog on beaches. Despite these outliers, there were not enough of them to skew our data and distort trends.

The data described above is only a portion of what was collected. The questions highlighted were chosen because they show the general trends of the scaled perceptions questions and free response questions. We believe this data best represents the general public's viewpoint on the issue of dog-wildlife interactions.

4.4 Discussion of findings

Although we have made efforts to reduce limitations in our study, we are aware that some are inevitable. Because we had a limited timeframe, we had to limit our assessment was to two regions of the country. As a result, we were unable to conduct a comprehensive look around the country through different seasons. Furthermore, as we told study participants that we were working in conjunction with DOC, our responses may have been biased towards pro-conservation ideas that may not reflect all beliefs or actions. We kept these limitations in mind as we analysed our data. In our assessments and surveys of Dunedin and Wellington, our data revealed some interesting and sometimes unexpected trends. While there were outliers on either end of the spectrum, we overall found a population of dog-owners that respected the presence of native species on beaches and were willing to follow protective regulations. Experts in conservation echoed this sentiment. Many affirmed that the majority of dog owners are very responsible, but it is a tiny percentage that causes the problems. In speaking with survey participants, we learned that dog-owners typically communicate with each other about wildlife presence and follow cues from other dog-owners on beaches. Despite a large community of conscientious dog-owners, the quantity and variation of regulations on beaches in a coastal area can sometimes lead to confusion and misunderstanding.

One of the major findings from our site assessments was a lack of consistent signage. There were great variations in content, design, and location of signage on the beaches, making it difficult for

beach-goers to identify the regulations. When experts were asked about what they believed the root of the issue was regarding dog-wildlife interactions, many brought up the incorrect or unclear signage. The addition of wildlife-specific signs further adds to the amount of signage present at the beaches. The signs were often wordy, and detracted from the main message they were trying to convey. In many cases, these signs are put up by different organisations depending on the beach and its habitat. The lack of collaboration is very visible, as information is often repeated across various signs. At beaches where there was collaboration, there were fewer and clearer signs, making information more readily available.

A second concern we noted with signage is that the phrase ‘under control’ is frequently used but never defined. Therefore, we asked survey participants how they defined ‘under control’ and found a difference in interpretation of what it means. Non-dog-owners typically defined a dog ‘under control’ as it being on a lead. However, many dog-owners commented that ‘under control’ does not have mean the dog is on a lead. They stated that if a dog responds when called and is obedient, the dog is ‘under control’. Generally, we found that people were aware of the need to keep their dogs on-lead around visible wildlife, but did not always abide by this in areas where wildlife was thought to be present but not in sight.

With regard to both visible and non-visible wildlife on beaches, we found a wide spectrum of awareness and knowledge. Our survey and interview data revealed that, overall, participants are aware of the potential harm to both wildlife and dogs in dog-wildlife interactions. In a few cases, survey and interview participants would reveal that they had witnessed a dog-wildlife interaction, and some who had not seen it first-hand described hearing of a fatal attack. However, while the public was aware of the dangers of direct interactions, our expert interviews revealed there are also other more-subtle interactions that can occur. If a dog is on the beach it can deter a sea lion or a penguin from coming ashore to feed their young or rest. With this, the trends in dog walking times are cause for particular concern for penguin conservationists. Evenings were the second-most popular walking time for dog-owners during the week and this timing can coincide with the time penguins return back to shore.

A more serious matter of concern that we found was the small proportion of respondents that confidently stated there was no wildlife on the beaches, or regulations to protect them, when in fact both existed. More commonly, survey participants that were aware of the presence of

wildlife were unaware of how to behave around specific wildlife. While most people knew to put their dogs on-lead around wildlife, they were unaware of the exact distance away they should be on the beach. One of our expert interviewees also noted that many people cannot tell the difference between a fur seal and sea lion. These species react very differently to humans and dogs, so it is important for visitors to know how to act in the presence of each.

Although the degree of awareness varied, there were consistent viewpoints on the protection of wildlife. Many participants agreed that beaches are more important for native wildlife habitat than for human and dog recreation. Analysis of our data revealed that dog-owners generally understood the need for some level of control in order to protect the native wildlife. At the same time, most were also equally concerned about their freedom to enjoy the beach and greatly stressed the need for having a beach space to exercise their dogs. In both Dunedin and Wellington, we found that dog-owners are open to compromise in finding solutions that benefit themselves and their dogs, as well as the wildlife.

We developed two case studies based on the locations of our data collection. While the findings from Wellington and Dunedin shared the points above, there were also some key differences that can be attributed to the differences in the kinds of wildlife present, signage and outreach in the two locations.

In Wellington, many respondents reported a general lack of wildlife knowledge and awareness, particularly with regard to whether or not wildlife was present on the beach. Our expert interviews attributed this lack of awareness to local conditions and patterns of use. For example, little penguins are only visible on beaches early in the morning or late at night, so many people do not see them. This can lead local residents to believe that penguins are not there, and therefore be dismissive of the regulations. Experts further expressed a concern that a lack of awareness contributes to apathy towards conservation initiatives and a decreased feeling of responsibility to follow protective regulations. In contrast, most of the survey and interview participants in Dunedin were aware of the wildlife presence on the beaches and readily followed the regulations. The regular presence of wildlife on the beaches in Dunedin reinforces the need for dog-owners and non-dog-owners to be vigilant. Compared with Wellington, Dunedin survey participants were more aware of and knowledgeable about the wildlife in their area.

We also found that Dunedin had a much more consistent and clear system of signage than in the Wellington area. The Dunedin City Council worked with their local DOC office to create these signs, while in Wellington there is little to no collaboration on signage. In addition to better signage, many survey participants in Dunedin reported that they also got their information through their dog registration packets. Dunedin also had the unique programme of wildlife volunteers and rangers who were available on-site to provide further information. Volunteers helped make the presence of less-visible wildlife known, advised people on proper behaviour, and provided specific wildlife information in a more engaging way than just reading a sign. By contrast, the majority of our Wellington participants found out about dog regulations primarily from signage at or on the beaches.

We found that certain communication tools and resources are more effective than others. Many experts indicated that interactive methods of communication can be more engaging and create a more personal connection between the public and the wildlife. Furthermore, with signage being one of the major sources for information, more succinct and positive displays would be more effective and beneficial in promoting favourable behaviour. We found that many of the issues surrounding dog-wildlife interactions are simply based in the lack of knowledge of regulations or awareness of wildlife. Education is one of the major avenues to reach the community and generate a better understanding of wildlife and conservation practices. Based on all of these findings, we have created various tools and resources to aid DOC in working to prevent or reduce interactions between dogs and coastal wildlife.

Chapter 5: Recommendations and conclusion

During our work in Wellington and Dunedin, we were exposed to a variety of viewpoints and signage for regulations aimed at protecting marine wildlife from interactions with dogs. We were able to compare current efforts to mitigate these kinds of interactions in each location. After analysing our data and taking into account the suggestions arising from interviews with both experts and members of the public, we compiled the following recommendations. Our recommendations focus on signage, education, a signage database and community engagement.

5.1 Recommendations

5.1.1 Signage

We visited 33 beaches and observed a total of 158 signs, indicating that signage is the main method of communicating information to beach goers. Since the signs greatly varied with regard to content, design and location, our team identified the need to consolidate and standardise a way of presenting this information. We recommend that DOC collaborates with city, district and regional councils to develop a more uniform and simpler signage system, allowing beach goers to easily identify the dog regulations at any beach. Our team has proposed an array of three types of signs that will create a clearer depiction of the rules and regulations on each specific beach. These include maps of the beaches at the main entrances, a set of smaller signs indicating areas in which the regulations change, and wildlife awareness signs.

We determined that the most clear and effective signage were those that employed the red-orange-green ‘traffic light’ system (as used in Dunedin). On beaches with multiple regulations, colour-keyed maps were provided to explain the regulations. Green indicated off-lead areas, orange – on-lead areas, and red – dogs prohibited. As first timers at each beach, we were easily able to identify from a distance and at quick glance what the dog regulations were without prior knowledge.

We recommend that signs similar to the existing signs in Dunedin be placed at beaches that have more than one type of regulations regarding dogs. Additionally, in order to further encourage compliance, we recommend including a short explanation as to why it is important to leash your dog on the beach. Potential reasons for leashing your dog could include to protecting wildlife, dog safety and benefits for fellow dog-owners and beach-goers. This can be included in the key section of the map (see Fig. 22).



Figure 22. Dogs on-lead and off-lead signage.

In addition to the maps, we recommend the creation of three new smaller signs that should be placed on beaches at points where the regulations change. To minimise costs, these smaller signs can be placed at the entrances of beaches with only one dog regulation. They will follow the same traffic light colour coding system to eliminate the need for any additional types of signage for the three main regulations (on-lead, off-lead, dogs prohibited). A mock-up of these new sign designs can be found in Figs 23, 24 and 25 below.



Figure 23. Mock-up of dogs welcome off-lead sign.



Figure 24. Mock-up of dogs on-lead sign.



Figure 25. Mock-up of dogs prohibited sign.

When creating the new signage, it will be important that DOC and local councils present a positive message. For this reason, wherever the ‘Dogs Prohibited’ sign is posted, we propose there be an additional sign indicating the nearest dog exercise or ‘dogs welcome’ area below it. To decrease the number of signs, this information can also be included on the larger map sign.

We encourage DOC and local councils to retain the existing wildlife-specific signs on the beaches, as they provide the public with information on the species they may encounter. At sites where wildlife is known to be present and dogs are allowed, we recommend simply implementing a sign similar to the one used in Dunedin as seen in Fig. 26 below.



Figure 26. Dunedin dog control around wildlife sign.

The sign should continue to have the image of a dog in the forefront to emphasise the focus on dog control and to grab the attention of dog owners. This should be accompanied by an explanation of how leashing your dog increases safety for both the dog and wildlife, as has been done here. Additionally, we suggest that instead of stating that dogs must be put on-lead within 20 m of wildlife, we recommend the use of ‘four car lengths away’ to give an easily recognisable distance. The image of wildlife on the signs can be tailored to match those species found in the

area. Mock-ups of these signs can be seen in Figs 27 and 28 below. Large-scale versions can be found in Appendix 7.



Figure 27. Mock-up of Dunedin wildlife and dog control sign.



Figure 28. Mock-up of Wellington wildlife and dog control sign.

Overall, we consider these signage replacements and additions to be the most effective representation of the dog regulations. By standardising with a highly visible ‘traffic light’ system, regulations at beaches across New Zealand will be more easily identifiable, even at a

distance. This should also consolidate the amount of signage needed. It is important to note that the information on the map sign and the wildlife sign should be succinct, eliminating redundancies. Additionally, if there are changes in regulations, these mock-ups provide a template for how the new signage should be designed, allowing them to be more easily updated. The information on the signs, the icons, and the colour codes can further be repeated and enforced through the use of educational brochures and pamphlets.

5.1.2 Education for Awareness


The need for education was mentioned in seven of our expert interviews. With this in mind, we have focused on education for a number of our recommendations, ranging from dog owners to the general public and to children who do not own dogs. One resource that we have found to be under-utilised is the Wellington dog registration packet. While some information about dogs on beaches is included, it is buried in a dense packet of other information. Based on what is done in Dunedin, we propose a small, two-sided flier that pulls out key information on dog regulation to make it more accessible. A copy of the flier, which includes information on our proposed new dog signage, as well as relevant dog regulations, can be seen in Fig. 29 and in Appendix 8.



Figure 29. Flyer with key dog-beach information and regulations.

During an expert interview, it was suggested that we provide information in waiting rooms at medical offices and vet clinics, since people in these locations will have the time to read it. Therefore, we created a larger brochure which includes information about little penguins and fur seals as well as the information about dog regulations and signage, which could be distributed at all of these places. The brochure can be seen in Fig. 30 and is included in Appendix 9.

Sharing Our Beaches



Little blue penguin

NZ fur seal

Little blue penguins (kororiki) are the smallest penguins in the world, and call the coasts of New Zealand home. They generally come onto shore at dusk and leave at dawn, making them rarely seen by people. They can be found in rocky areas on shore more frequently from June to March as they lay their eggs, care for their young, and moult.

The New Zealand fur seal or kekeno are found all over New Zealand. Once on the brink of extinction, fur seals have made a strong comeback. The seals haul out on rocky shores to rest. And from mid-November to mid-January is breeding season for the seals.


To Learn More and Help

If you see any sick, injured, or vulnerable wildlife call the DOC hotline: 0800 362 468

To learn more about the wildlife in Wellington, and how you can help them visit:

Department of Conservation www.doc.govt.nz

Wellington City Council
www.wellington.govt.nz/services/consents-and-licences/dogs



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Taking Your Dog to the Beach


Wellington City has a number of beaches available to dog owners to exercise their dogs on-lead or off-lead. As a community we share these beaches not only with other humans and dogs but also with the native wildlife, such as little blue penguins, and the shorebirds. Part of responsibly sharing these beaches is dog owners following beach regulations along with always having their dogs under control regardless of whether they are at on or off-lead area. In this way, dog owners can help ensure the safety of the community as a whole, including the wildlife that calls these beaches their home.



Department of Conservation
Te Papa Atawhai



Off-lead Exercise Areas

Houghton Bay Beach
Island Bay Beach (From the pier to the western beach end)
Kio Bay Beach
Little Karaka Bay Beach
Lyllall Bay Beach (From steps opposite 30 Lyllall Parade to the airport end of the beach)
Makara Beach
Oriental Bay Beach (From 1 May to 31 October)
Seaford Beach (From the wharf to Churchill Park)
Weka Bay Beach
Worse Bay Beach (Anytime in the winter; Before 10 am and after 7 pm from 1 December to 1 March)



On-lead Exercise Areas

Hataitai Bay Beach (Anytime in the winter; Before 10 am and after 7 pm from 1 December to 1 March)
Island Bay Beach
Palmer Head (On coastal path)
Princess Bay Beach (On coastal path)
Seaford Beach (Churchill Park before 10 am and after 7 pm from 1 December to 1 March and anytime in the winter)
Tarakona Bay Beach (On coastal path)

Prohibited Areas

Bahena Bay Beach
Freyberg Beach
Hataitai Bay Beach (From 9 am to 7 pm 1 December to 1 March)
Island Bay Beach (East of the breakwater and in the dunes)
Lyllall Bay Beach (From steps opposite 30 Lyllall Parade to the western end of the beach)
Oriental Bay Beach (From 1 November to 30 April)
Palmer Head (Off coastal path)
Princess Bay Beach (Off coastal path)
Seaford Bay Beach
Seaford Beach (West of Seaford Wharf; Churchill Park from 10 am to 7 pm from 1 December to 1 March)
Taputeranga Island
Tarakona Bay Beach (Off coastal path)
Worse Bay Beach (From 10 am to 7 pm in the summer)




Figure 30. Dog-beach educational brochure.

Another educational strategy that we designed is an article that could potentially be published in the magazine *New Zealand Dog World*. This magazine has monthly issues and is sent to all members of the New Zealand Kennel Club, as well as any dog lovers who want to stay up-to-date on news. We think this would be a great opportunity to engage with the dog owner community by talking about our project and its findings. Through our article we hope to engage this group of stakeholders to get them involved with efforts to make beaches safer for people, the wildlife, and dogs since they are the ones frequently on the beach. Reprints can be on hand at veterinary clinics, pet stores, and training clubs. A copy of this article can be found in Appendix 10.

In addition to reaching dog-owners, we suggest utilising the children's book we have created or something similar as a way to educate and inform children about coastal wildlife and dog interactions. We believe that early education in conservation practices, particularly regarding wildlife can lead to better practices later in life. A children's book that incorporates the history or the current challenges facing coastal wildlife would give kids an appealing way to connect with the wildlife. This connection with nature can lead to an increased desire to protect these animals resulting in better beach behaviour. It can also instill a sense of pride in the fact that these native species call New Zealand home. Our story line includes appropriate behaviour around little penguins, fur seals, sea lions, yellow-eyed penguins and some shorebirds. The main characters act as role models and have encounters with each of the animals mentioned above as well as a conservation dog and a DOC volunteer. The cover can be seen below in Fig. 31 and the entire story can be found in Appendix 11.



Figure 31. Cover of children's book, Mack Goes to the Beach.

5.1.3 Database for better dog-beach management

During our 33 beach site assessments, we collected data on signage, beach rules and wildlife observations. Currently there is no central archive for information or collection repository for this data. We believe that a resource containing this information would assist DOC and other organisations in better dog-beach management. We suggest that DOC host the draft Excel database that we have developed, which compiles these data for tracking trends, sharing data, or as a resource bank. If DOC chooses to expand this data set, we recommend that they move it from Excel to a more scalable platform for ease of usage. The database includes information on signage, where the signs were posted, as well as dog and wildlife presence. The database also identifies areas from low to high risk for dog and coastal wildlife interactions. Two databases have been created; one each for Dunedin and Wellington. Each database opens to a table with each beach name followed by a series of columns with wildlife, dog regulation, and signage information, as seen in Figs 32 and 34 below. Clicking on a specific beach in the table brings you to another sheet with its map depicting entrances to the beach as well as signs posted at that particular beach, as in Figs 33 and 35. We hope that this database will identify areas that need improvement and be a resource for DOC and other organisations to enable access to all of this information.

Wellington	Number of Entrances	Signage			Dog Regulation Signage		Dog Regulations			Dogs Present?	Known Habitat				Wildlife Observed				Risk
		Total	Types of Signage	Wildlife Signage	Present	Correct?	On Lead	Off Lead	Prohibited		Little Penguin	Yellow Eyed Penguin	Fur Seal	Sea Lion	Little Penguin	Yellow Eyed Penguin	Fur Seal	Sea Lion	
Balaena Bay	3	4	3	0	N	N			X	N	X								
Days Bay	6+	4	2	0	Y	Y			X	Y	X								
Eastbourne	7+	12	3	0	Y	Y		X	X	Y	X								
Evans Bay / Hataitai Beach / NIWA / Cop Park	5+	10	6	2	Y	Y	X	X	X	Y	X								
Island Bay	10	13	13	2	Y	N	X	X	X	Y	X								
Lyall Bay	20	20	3	0	Y	Y		X	X	Y									
Oriental Bay	6	6	2	0	N	Y		X	X	Y									
Red Rocks Reserve	1	1	1	3	Y	Y	X	X		Y		X						1	
Scorching Bay	4	3	3	0	Y	Y			X	Y	X								
Tarakena Bay	4	8	4	3	Y	N			X	Y	X								
Worsler Bay / Churchill Park	3	3	2	0	N	Y		X	X	Y?	X								

Figure 32. Summary page of the Wellington sign database.



Figure 33. Map of dog-related signs at Balaena Bay.

Dunedin	Number of Entrances	Signage			Dog Regulation Signage		Dog Regulations			Known Habitat				Wildlife Observed				Risk	
		Total	Types of Signage	Wildlife Signage	Present	Correct?	On Lead	Off Lead	Prohibited	Little Penguin	Yellow Eyed Penguin	Fur Seal	Sea Lion	Little Penguin	Yellow Eyed Penguin	Fur Seal	Sea Lion		
Allan's Bay	3	4	4	0	Y	Y	X	X	X	X	X	X	X	1		4	8		
Aramoana	3	7	4	1	Y	Y		X	X	X	X	X	X	1		4			
Brixton Beach	4	9	8	1	Y	Y		X	X	X	X	X	X						
Sandfly Bay	1	6	6	6	Y	Y		X	X	X	X	X	X		2	10+	3		
Smalls	3	3	3	0	Y	Y	X	X			X							4	
St. Clair's	7	10	5	0	Y	N	X	X	X			X							
St. Kilda	3	4	4	1	Y	Y		X				X							
Tomahawk	7	13	5	3	Y	Y		X				X							
Tunnel Beach	1	1	1	3	Y	Y			X										

Catlins	Number of Entrances	Signage			Dog Regulation Signage		Dog Regulations			Known Habitat				Wildlife Observed				Risk	
		Total	Types of Signage	Wildlife Signage	Present	Correct?	On Lead	Off Lead	Prohibited	Little Penguin	Yellow Eyed Penguin	Fur Seal	Sea Lion	Little Penguin	Yellow Eyed Penguin	Fur Seal	Sea Lion		
Curio Bay	1	4	4	4	Y	Y	X		X	X	X		X						
Nugget Point	1	1	1	0	Y	Y			X			X	X		10+				
Purakaunui Bay	1	1	1	0	Y	N	X					X	X					2	
Roaring Bay	1	1	1	1	N	Y			X		X	X		2					
Surat Bay	2	2	2	2	Y	N		X				X						6	

Figure 34: Summary page of the Dunedin/Catlins sign database.



Figure 35. Map of dog-related signs at Allan's Bay.

5.1.4 Enhanced community engagement and outreach

One of the many issues facing wildlife living around Wellington Harbour is the community's lack of awareness of their presence. Therefore, to help create awareness for little penguins, we propose a live camera feed inside one of their nest boxes. The exact nest box and its location would remain unknown to the public to ensure that it is not tampered with and the penguins remain safe from intrusions. In order to promote the live feed, various organisations can post on social media websites. The goal of this would be to demonstrate to the public that little penguins nest on many of the beaches surrounding the harbour. Not only would this increase awareness of the species, but would also work in conjunction with new pamphlets and educational signage to instill a sense of pride within the Wellington and greater Wellington community about native wildlife.

In order to positively influence dog-owner behaviour, we recommend implementing a series of signs with rhymes that tell dog-owners how to act while at the beach. Rhymes were created as a way to produce more engaging signage in the hope that it will not only grab beach goers' attention, but also that they will be more likely to remember the rules. We have designed three rhymes to post at beaches as can be seen in Figs 36–38 below, as well as in Appendices 12–14. 'Feet on sand, lead in hand' reminds dog owners to make sure they have a lead on them when going on to the beach in case they encounter wildlife, as dogs need to be leashed if the wildlife is

20 m away. 'Help 'em out, give a shout' encourages other dog owners to alert and caution other people walking on the beach that wildlife is ahead. 'Don't let your dog go astray, keep them 20 metres away' reminds dog owners that dogs must be leashed if they are within 20 m of wildlife. Successful conservation efforts in the past have included rhymes including DOC's 'Seal Deal' and a previously DOC-sponsored WPI project regarding the Maui Dolphin, which developed a bumper sticker with 'Rounded Fin, Send it in'. These strategies suggest that this approach is an effective way to engage with and positively influence the public.



Figure 36. 'Feet on Sand Lead in Hand' sign.



Figure 37. 'Don't let your dog go astray, keep them leashed 4 car lengths away' sign.



Figure 38. 'Help 'em out, Give a shout' sign.

Bumper stickers are a promotional material that can effectively spread awareness of Wellington wildlife. Our team proposes this friendly bumper sticker with the phrase 'The Little Blue Needs You! Penguin Protection is a Community Effort'. We believe this could make the public more mindful of these vulnerable animals in their city. An eye-catching design is implemented to grab the attention of the driver behind, or a person walking by, through a combination of well-thought-out colour use and patterns. We encourage this phrase to be used in different settings and mediums to further promote little penguin awareness and outreach programs. A copy of the bumper sticker can be found in Appendix 15.



Figure 39. Little penguin awareness bumper sticker.

In order to reach an even wider audience, we recommend that DOC or one of the individual wildlife trusts, for example the New Zealand Sea Lion Trust, run a radio advertisement that promotes wildlife awareness during certain times of the year. The New Zealand Sea Lion Trust

has aired ads in the past, but some information was incorrect according to chairman Steve Broni. In addition to accurate information on wildlife, such as particular breeding, moulting, or nesting notices, catchy phrases or jingles, like using those in the signs above, can help to positively market the wildlife. Incorporating these catchy phrases or jingles can help spread a more positive image around key species (such as the sea lion or yellow-eyed penguin), and can develop better public understanding and appreciation for these animals. Keeping the ads brief and targeted towards specific regions can help reduce costs and increase the impact of an effective awareness campaign. A mock radio ad we created can be found in Appendix 16.

Branching off from the magazine article for *New Zealand Dog World* previously discussed in the section above, we suggest further-engaging the dog community through planning an event at Lyall Bay or another public venue. We think this would be a great way to start a dialogue between DOC and other conservation groups and dog owners. During our discussions with experts in Dunedin, we were told about a number of events that DOC was involved in, including ‘Christmas in the Bark’, and a dog breakfast at St Clair Beach. We have outlined plans for a similar event that could be held in Wellington. One option is to participate in an event already happening in order to save costs in setup and advertising. For example, on Sunday 12 March 2017 there is an event called ‘Paws in the Park’ at The Dell in the Botanic Gardens. DOC could potentially set up a table among the stalls that will be there selling products for dogs. Or a table could be set up at ‘Relay for Life’ being held at Frank Kitts Park on Saturday 18 March to Sunday 19 March. The table can be run by volunteers and contain the brochures and fliers that we created, along with information about little penguins and fur seals. Mints could be given out at the table and keychains or something else small could also be sold to attract more attention. Another option is for DOC to plan their own event. We suggest a ‘sausage sizzle’ at Lyall Bay on a weekend afternoon. DOC staff could bring their own dogs along and be dressed in street clothes or just a DOC shirt rather than their full uniforms; this should make them more approachable to dog owners. The brochures and fliers could also be handed out at this event. And staff could bring tennis balls or other toys to play with their own and other people’s dogs, allowing them opportunity to talk to dog owners.

Another way to influence positive dog owner behaviour is to get dog owners involved in conservation efforts on beaches. We suggest that DOC, in conjunction with local conservation groups, expand their system of volunteers to include a group of local dog owners. Dog owners

are often the people most consistently present on beaches and therefore have the greatest chance of exposure to wildlife. These volunteers would stay in touch with DOC officers and inform them of any wildlife developments, such as a molting penguin or a sea lion pup being born. This process could be started with a few beach visits by experts to engage with willing locals. Getting dog walkers involved in safely managing wildlife sightings gives the local community a sense of responsibility in protecting native species, as well as creating a norm of proper beach behaviour. From speaking with dog walkers on the beach, we learned that many would alert other dog walkers of any wildlife currently present. Asking volunteers to continue this practice will also promote wildlife awareness and encourage safe beach behaviour for the people, dogs and wildlife. We have created a sample volunteer job description similar to those already found on DOC's website. It can be found in Appendix 17.

Community events such as farmers' markets or public fairs also provide an opportunity to reach out to the community. We suggest having a table at a public event with an activity for children as a way to reach families to promote a positive conservation message. The focus would be on educating the community about the native wildlife and about how local organisations are working to protect the wildlife. Within this main message, there will be components of proper beach behaviour, including that regarding dogs. An example of an activity that could be at the table is making penguin nest boxes out of cardboard or paper plates. To increase awareness of native species, children could also make small versions of the animals themselves using household materials. Though this will require pre-planning to gather supplies, and providing clear step-by-step instructions allows families to continue these activities at home. This process encourages parents to discuss wildlife conservation topics with their children and echo the main focus of positive beach behaviour and further instill pride of the native wildlife in their neighborhood. For Dunedin, another fun game that we suggest is 'Lion or Log.' In this game there are pictures from over 20 m away of either a sea lion or a piece of driftwood that has floated ashore and participants guess whether it's a sea lion or a log. The game demonstrates how hard it can be to identify a sea lion from farther away, and emphasises the importance of being aware while you walk on the beach. The game can be made on PowerPoint and put onto tablets to be used at the community event.

5.2 Conclusion

The main goal of our project was to assist DOC in preventing or reducing interactions between dogs and coastal wildlife through the development of tools and resources aimed at facilitating positive dog owner behaviour. Through our study we have learned that residents and visitors in Wellington and Dunedin appreciate New Zealand's rich coastlines and unique native wildlife. Our results show that the public generally respects regulations and wants to preserve and protect wildlife. In order to further promote this level of pride for caring for wildlife, it is important to engage and encourage local communities to get involved. As some dog owners are out on beaches every day, they have a greater chance of encountering coastal wildlife and therefore a greater responsibility to abide by regulations. This group has the potential to promote better behaviour and influence other recreationists by setting good social norms. Highlighting this responsibility can result in a safer and more positive beach environment for people, their dogs, and the wildlife.

Looking forward, with some native wildlife becoming more common along New Zealand's coastline, experts expect a rise in dog-wildlife interactions and have stressed the need to address a change in public behaviours to protect both dogs and wildlife. Dogs are only one of the dangers facing wildlife, the others include vehicles, disease and threats at sea. With marine wildlife already facing so many other hazards, it makes sense to address the risks posed by dogs, which can be easily controlled, unlike the others (such as climate change) that are much harder to address. By focussing on this seemingly small issue now, we can help give these native species a chance at brighter future and create a habitat where we can coexist harmoniously.

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Appendices

Appendix 1 - Complete List of Site Assessments

Wellington Coastal Regions
Days Bay*
Port Nickerson Yacht Club
Balaena Bay
NIWA
Cog Park*
Hataitai Beach
Evans Bay Marina/Beach
Shelly Bay
Kau Bay
Worser Bay
Wahine Memorial Park
Moa Point
Lyll Bay*
Rona Bay
Oriental Bay*
Weka Bay
Red Rocks Reserve*
Island Bay*
Aramoana*

Dunedin Coastal Regions
Brighton Beach*
St. Clair Beach*
St. Kilda's Beach*
Tomahawk Beach *
Allan's Beach *
Sandfly Bay
Smalls Beach
Tunnel Beach
Kettle Park*
Aramoana*
Catlins Coastal Regions
Curio Bay
Surat Bay
Purakaunui Bay
Roaring Bay
Nugget Point

Appendix B - Interview Guide

Interview Questions

1. Could you describe your current job and prior experience?
2. How would you describe the issue surrounding dogs on beaches and their impact on the wildlife, especially penguins, seal, or sea lions?
3. Why do you think this is a problem? What would you say is the root of the issue?
4. What are the major threats that dogs pose to wildlife?
5. How will our work with the DOC best aid your conservation efforts?
6. Have there been unsuccessful efforts in the past? Do you have pending efforts to mitigate this problem in the future?

Appendix C - Expert Interview Notes

1. Could you describe your current job and prior experience?

- Ranger for 20 years and past 4 years as community ranger in Dunedin. Works with conservation groups in Dunedin and helps them overcome impediments, helps them find funding opportunities, and links like groups together. Occasionally organizes to get groups together to do training and educational programs.
- Coastal marine ranger in Coastal Otago Region since 1999 with a Zoology background. First started working with DOC in 1990 and focuses on sea lions in his work. Now works with the community to foster good relationships with coastal wildlife.
- Science Advisor for the Yellow-Eyed Penguin Trust. Had involvement over the years with the DCC in monitoring dogs on beaches. Talking with people and putting up no dog signs and negotiating no dog areas.
- Part of national partnership team whose purpose is to expand conservation in big chunks, looking at opportunities for DOC to operate differently and work with other groups. Previously worked on the community team in Dunedin and was a visitor access ranger in Rotorua.
- Biodiversity ranger in Alexandria for 4 years now a partnership ranger in Dunedin. Comments on bylaws from DCC and works to get public engagement, worked with DCC in reviewing dog laws last year, and has organized some dog owner awareness events.
- Volunteer for Places for Penguins, focuses on little penguins in Wellington. In charge of the nest boxes, submits information to the council about animal control laws and incorporates educational roles.
- Works for the Eastern Bays Little Penguin Project. Studies nest behaviour and foraging. Worked with penguins on Mātū Somes Island.
- Works with the Wellington City Council as an urban ecologist. Helps with dog exercise area policy and education areas.
- President of the Canine Obedience Club. Training people for 6 years, dogs for 10 years.
- Veterinary resident at Wildbase, treating wildlife around the country, doing pathology and mortality assessments, working as a veterinarian at Wellington zoo, and doing research projects as part of her residency. Previously worked in Australia for 6 years as a mixed practice veterinarian.
- Has served as chairman of the New Zealand Sea Lion Trust since 2005/2006, and also works full-time at the University of Otago running a high school science academy.
- Has served as the team leader of Compliance of Animal and Parking Services for the Dunedin City Council for the past 3 years. He previously worked as a police officer and dog handler for 27 years.
- Works as policy advisor for the Wellington City Council. As part of the policy, strategy, and research team helps to manage and analyse policy and bylaw reviews, as well as working in close liaison with community groups, elected officials, and other council groups in changes bylaws.
- Operation manager for Kaikoura Ocean Research Institute. Is a conservation dog handler running a penguin detection dog.

2. How would you describe the issue surrounding dogs on beaches and their impact on the wildlife, especially penguins, seal, or sea lions?

- How big the issue really is depends on who you are talking to. There are definitely interactions because he learns about an attack about every 2 months. The most common incidents that occur regularly would be dogs not on lead that get too close to sea lions. They usually are either barking, biting, or attacking. Dog walking is a big activity in Dunedin and most dog owners are responsible, however there is a small group of poorly behaved dogs and dog owners that ignore the rules.
- Many dog owners in Dunedin who want to walk their dogs on the beach. On the flip side there are local people who like peace and quiet, and the wildlife so there are different views in the community. Irresponsible dog owners are the real problem along with areas of vulnerable wildlife. Get good dog owners to educate the irresponsible ones. Educate irresponsible dog owners and protect vulnerable wildlife in two-fold plan
- More of an issue for little blues. A penguin isn't a match for a dog, but chicks are especially vulnerable. Sometimes dog attacks go unreported, and there are few reports. Infrequent that dog attacks are reported but 20 years ago a dog killed a number of yellow-eyed and in Oamaru there were a ton of little blues that were killed a while back. Not as many yellow-eyed penguins getting attacked but there aren't many so any deaths are devastating
- The problem is "Over-exaggerated". He owns a dog and isn't tolerant of poorly behaved dogs. Changed idea from more country, working dog to a suburban dog owner which is why he switched to on the beach. He doesn't see anything at the beach when he goes 2-3 times a week to different beaches. Took a long time before he saw wildlife beyond seagulls on the beach when he first came.
- There is an issue but it's hard to say what it is. There is a lot of publicity regarding whether dogs have not enough or too much access to beaches. The social vs conservation issue is also up for question. Socially people like wildlife but also want dogs on beaches, while conservation-wise people are concerned with dogs displacing wildlife on beaches, although there's very little evidence of this. There is not one species that issues with dogs is main concern.
- Dogs on beaches can kill little penguins. Noticed that people often don't follow the lead laws.
- "Pretty serious situation." People do not realize how fast their dog can strike at a penguin.
- Difficult subject in Urban areas. Need areas where dogs can go to the beach to exercise but limit areas so they do not harm wildlife. There is a tension between people wanting to have their dogs run around off-lead and are where penguins are, and lack of monitoring
- "An awful lot of little blue penguins in particular with injuries that we're pretty sure are dog injuries" since the injuries are consistent with crushing and shaking injuries caused by dogs and not cats or stoats. The majority of dog injuries are on little blues, probably half that are treated at the zoo have suspected dog injuries, but that's probably due to the penguins' location in the Wellington harbor leading them to have increased chances of interacting with humans and dogs.

- “There are hotspots. Dogs and sea lions can coexist on our beaches...the issue revolves around responsible dog ownership and behaviour.”
- In Dunedin, “the majority of dog owners are extremely responsible” but even so, there’s still a portion that aren’t that cause problems. “There is an issue. We’re trying to make the public more aware through education and advertising.” Every year there are complaints about dogs on beaches with seals and sea lions, and just recently the bylaws were changed to further protect a little blue breeding area at Brighton.
- Over the past 8 years there has been an increase in public awareness about wildlife presence on the beach, but there has also been a shift with the public’s view of dogs. In the mid-90’s there were a few horrific dog attacks on children and so a focus was put on keeping people safe from dogs by restricting what public places they are allowed in; however, the dog-allowed spaces are increasing since public safety is no longer as big of a concern. People don’t take into consideration that dogs don’t only impact public safety but also the wildlife.
- Dogs are carnivores and predators by nature so any dog is capable of attacking or killing wildlife. The complexity of the situation lies in the fact that the dog restriction laws are difficult to enforce, and it’s hard to convince people that wildlife is present and that, not only dogs in general, but their dog could kill or harass wildlife.

3. Why do you think this is a problem? What would you say is the root of the issue?

- Most dog owners think they are responsible; however, many people don’t know how their dog will react to wildlife, nevertheless most recognize the need to control. Unfortunately the community can be resistant to change. People are generally aware of wildlife but most don’t know the rules and this is the issue. This lack of education about rules means that many people don’t behave properly around wildlife.
- Signage is new and wrong, but people don’t tend to read signs anyway. In addition, many people can’t tell seals and sea lions apart and the two species react very differently to people so require different human behaviour.
- Some people will say they know the regulations but think their dog would never chase the penguins or other wildlife. Never know until your dog actually interacts with wildlife how it will react. Some people are ignorant of laws but it shows how “ignorant of nature” they are since they don’t check for wildlife and regulations before going to the beach. People can be very “human-centric” and not focus on the wildlife that call it their home.
- Definitely things happen, every year dogs kill a number of species. 18,000 registered dogs in Dunedin, and probably about 2,000 unregistered so the number of dogs walking around on beaches is large while the frequency of interaction is low. As a department, we’re caught up in the catastrophe of this event but for people there every day they have plans for when they see wildlife because they see the wildlife relatively frequently. We’ve done a poor job of understanding the dog culture of the community and working with that.
- Species are important and need to be protected. People are unaware of wildlife, the rules of how their dog should behave, and where they are allowed to go.
- The signage is rubbish and often doesn’t reflect the updated bylaws. People do not see the penguins since they are out very early in the morning and late at night. Issues are due to “insignificant signage, incorrect signage, dog owner apathy, and ignorance.”

- People ignore the signs. At Days Bay people just ignore the dogs in prohibited areas. Info isn't readily available or publicized.
- There is a lack of awareness of penguins being on the beaches. People do not realize how vulnerable penguins can be and how prominent they are on the coastline.
- In talking to dog owners in Lyall Bay and at Moa Point she's found that they are just unaware of the presence of little blue penguins there; they thought the signs were for decoration. In general, she's found that "they (people) don't take in what the signs say."
- Sea lions have only recently come back to the coast in Dunedin so to many people seeing sea lions on the beach is a new experience. "The issue is an ongoing education one." Initially you can try to educate people through newspapers and signage, but "failure to comply quite often the root cause of that is fear." So a second level of education is need to reassure people that sea lions won't take over. The trust wants to instill a sense of pride in people about the fact that sea lions are coming back to Dunedin, and convince them that sea lions are good for Dunedin economically.
- "Lack of ownership from the dog owners, just not being responsible. They just think it's their right to go wherever they wish." The other issue is ignorance; people don't think their dogs would ever go near the wildlife so they trust their dogs will behave even when they can't see them.
- In general a lot of council laws are inaccessible because there's a big difference between having something on a piece of paper and transferring it into people's lives. Legislation needs to be put into words the average person can read and understand how it impacts their life. The other issue is that people don't read signs as much as they think they do. Some signs are also incorrect but they don't want to add more because people don't necessarily read or follow them.
- "I haven't seen any evidence of dogs killing or harassing wildlife. I know it happens...Personally the most I've seen is dogs chasing seagulls." People think they have a right to do what they want on the beach and the wildlife are just living there. "The wildlife have just as much right if no more right to be on the beaches than we do." There's also the issue that people get very defensive when you insinuate that their dog could do harm.

4. What are the major threats that dogs pose to wildlife?

- The major threat is to small children and penguins while molting. Even though there are interactions with sea lions, they are more resilient, not as stressed, and bad interactions are less common than with penguins.
- Sea lions aren't particularly susceptible to dogs; females try to keep their pups away from males so they may go to human and dog areas.
- Penguin isn't a match for a dog, and chicks are especially vulnerable.
- If a dog got ahold of a sea lion pup "that's catastrophic for that species." When the tide comes in people have to walk closer to the rocks where penguins nest.
- Specific species and dogs are of particular concern. Dogs pose the biggest threat to little blues especially eggs or juvenile birds. Dogs can also affect sea lion pups, but they cause more displacement than direct interaction.
- Dogs can kill or severely injure little blue penguins.
- Dog can kill a penguin in a matter of seconds.

- Dogs and cats are definitely are a threat to coastal wildlife.
- “Dogs could easily destroy nesting areas. But the dogs that would be destroying nesting areas would be the owners that do not care”
- Dog bite wounds either kill or they crush causing broken bones, damage to muscles, and infection. Dog bites are very dangerous; simple looking puncture wounds can cause crushing damage, the wounds can go septic, the animal could spend months in care if it’s able to be killed. The way penguins are distributing themselves, where they choose to nest, and where they are successfully nesting is affected by dogs on the beach.
- Dogs are a threat particularly to pups and sometimes females. If a dog started nipping at a sea lion’s flippers it could do a lot of damage. Sea lions are much stronger than dogs but the dogs are more mobile on sand.
- Dogs as predators are nowhere near the problem that cats are: “We don’t have a problem with dogs if you want to put it in perspective.” But the natural instinct of dogs is to chase, grab, and shake.
- It is the Wellington City Council’s job to prohibit dogs from vulnerable areas to protect wildlife, but it’s the owner’s job to be responsible for their dog and abide by the rules. Dogs are a threat particularly to penguins and smaller animals.
- Both the physical harm, but also changing wildlife’s behaviour due to their presence; for example a sea lion might not come onto shore if it sees a dog there.

5. How will our work with the DOC best aid your conservation efforts?

- Really understanding the most effect way of communication and how to interact with the people. There needs to be general public awareness and not us just dog owners awareness about the wildlife.
- He feels like a broken record constantly giving the same message, but we need to keep going and grow the discussion. See how NZ manages wildlife and see what works and doesn’t work in US to find new ways of providing messages to the community
- New insights. We bring our own experiences and insights from our lives. Anything we can do to give more information is useful. Is there a better way to change behaviour than through punishment? We want more of an involvement with the community to become more influential, and to make sure we realize how communities can have different views than we do.
- Finding out what dog owners need. Have places available for dog owners to go because they’re legally allowed to do that. Demanding that dogs always be on-lead is not going to work. Need to identify the things we need to do to benefit both dog owners and conservation, it can’t be all conservation focused, we need to help dog owners too. Identify what the dog community wants and how they can aid conservation and work with them. Dogs have such a bad reputation because the few poorly behaved dogs ruin it for everyone
- Determine what sort of message will reach dog owners, and influence their behaviour. Is it messages about wildlife, dog safety, prosecution, the rules, or recommended behaviours?

- Would like to see ambassadors on well-seen areas giving leashes and tags to obedient owners. Help to slowly change the perceptions of people. Add an element into dog training programs that involves how dogs can harm wildlife.
- What's important is to highlight the importance of the role of DOC because "without them things won't happen" and doc must have the resources to do that.
- Get DOC to collect information and keep records to help other agencies deal with what's injuring the animals. Can use instances of injury/death so they can show it to the public.
- Education is the best plan of action because the majority of people walking their dogs around Wellington don't want to injure penguins, they just don't know the penguins are there or don't realize that their dogs aren't under control. "If they're (little blues) there on a dog beach, people have to know they're there"
- Due to limited resources, awareness campaigns need to be targeted at locations they're most needed. So if we can help by finding beaches where we've received feedback that shows any resentment or lack of support for sea lions repopulating, or places where people didn't see the need for dog restrictions on beaches or were outright opposed to them.
- Any way to get message across to the public in a way that isn't offensive so that they get on board and don't become defensive. Small changes make big differences, and consistency is key. A lot of people in Dunedin don't know the history of sea lions there and what makes them so special. "Education starts at the lowest levels at the schools. Kids are the ones that listen...and then they can teach the adults."
- Provide the perceptions of dog owners about wildlife to see what the people are thinking. Think about how the land and sea interact with each other despite how they are viewed as separate domains.
- If we can make things more clear for the general public and eliminate those grey areas that exist about beach rules, there will be a better outcome for conservation.

6. Have there been unsuccessful efforts in the past? Do you have pending efforts to mitigate this problem in the future?

- Should host events that educate the public on how to behave properly on beaches. Successful work includes handing out brochures and other materials and also having a presence. In addition they have had fun events, such as BBQs, because they generally get good feedback from them. They also did a beach walk over christmas break. In the coming years, they are going to have more wildlife on beaches so the important thing is to not create more rules and restrictions but to focusing on educating the community.
- People would read signs and then bring their dog past anyway. Get good dog owners to be the eyes and ears to stop those people since they can't have someone there all the time
- "Christmas in the Bark" which had fun events, and also displays with brochures and some signs to help them engage the dog owner community. His team also wanted to put a sea lion on poop bags or on dispensers, but this was too expensive and complicated. Primarily focused on using positive messages, not negative . Also his team hosted a "Dog's Breakfast" at St. Kilda's. They brought some DCC and dog control guys but people got spooked by the dog control vans and would leave.

- They did an event with the SPCA but it was not the best because it wasn't the right audience. You need to harness the energy of an issue that gets the public's attention. The best conservation outcomes use public perception. The key messages need to be clear and effective to influence dog owner behaviour.
- Conducted a similar survey on dog owners. Found that people did not know what to do if their dog tried to interact with a penguin, but believed the wildlife was well protected. Has held workshops, one that involved a dog trainer.
- Hutt City Council approved a dog exercise area, but nothing has happened with it. Tries to use the media (Radio, TV, and Local Newspapers) to gain support. Works on educational outreach.
- In the last policy there was a discussion on their effect on biodiversity. The Dog Control Act can have regulations put into place using it. A lot of signs were put out, not necessarily related to coastal wildlife. There is an e-newsletter for dog owners. There is a plan for the south of the city to get a dog exercise area.
- In Rainbow Springs there has been a lot of work done with local schools about dog-kiwi safety but not so much for penguins. It would be important to give general awareness information but also inform people how harmful dog bites can be. Currently dead penguins should be sent by DOC or others to Wildbase for autopsy but not all dead penguin findings are reported. There's the Huia database in which dead animals are catalogued but this is not always up to date.
- Both the dog breakfast and Sea Week could be more impactful. Last year Sea Week shared a venue with a very noisy event so you couldn't hear most of what was going on, a dog breakfast was planned at a conflicting time, and the only DOC staff there was a planner who didn't know much about conservation efforts.
- They have been trying to promote wildlife conservation in a positive way, and so far in 2017 have had no issues between dogs and sea lions. But there are a lot of cases especially with little blues that the DCC never hears about since they aren't the first group called if an injured or dead animal is found. The new bylaws came into effect on 1 July, 2016, and the majority of people have accepted these changes. A lot of responsibility is being given to dog owners to be the eyes and ears of the DCC out on beaches and report someone if they aren't following the new rules, or talk to that person about the new bylaws.
- The boundary lines marking changes in dog leash laws are not always marked with signage because it would be too expensive, and the signs have on-going costs to repair damage done to them. There was talk of making an app that would be interactive and allow for easy access to dog regulations, but this would have on-going costs as well for maintenance so it never went through. There will be another review of domestic animal bylaws in relation to dogs as well as cats. The Wellington Zoo and Places for Penguins have both done work with the parks team on keeping dogs on lead in wildlife sensitive areas.
- A penguin aversion course was done in Eastern Bays but it has to be very specific to work. It is also very difficult to mimic a live penguin coming in from the ocean or walking across the beach. The general public won't willingly put their dog through aversion training since it mainly uses negative reinforcement.


Additional Comments:

- Dog bites are treated more frequently than stoat or cat wounds because dogs don't go for the kill right away as cats and stoats do.
- In Australia, most cities have 1 or 2 dog beaches where they know wildlife don't frequent them, but there is also a greater fear of dogs being injured by the wildlife there.
- You need to give people the facts and let them come to their own conclusions.
- "If the kids are comfortable around sea lions hopefully they can reassure mom, dad, grandpa that sea lions aren't the Rottweilers of the ocean."
- If you can work through a community group that doesn't focus on wildlife, you can get access to people who don't know as much about conservation and not be preaching to the converted. "Recreational events are a missed opportunity," we need to be tagging along with events already happening to reach a lot of people.
- A dog under control is "if it's not on a lead it should be able to be called back at any time."
- The issue with dogs on beaches needs to be a compromise; "the reality is there will be casualties to wildlife...you can't have wildlife in a metropolitan area and not expect some casualties."
- Use as many tools as possible to reach the public in any way. "If a dog is not in control around wildlife, can you trust it in a playground?"
- Effective control is where you have visual contact with the dog at all times and you are able to call the dog with any command and it responds right away. If the owner doesn't have effective control, the dog needs to be on a lead.
- "We have to keep our beaches or portions of the beaches open to dogs."
- The majority of dog owners are responsible, a medium amount are accidentally doing something wrong due to ignorance, and a small portion will not follow the rules or engage with the community.
- "Knowledge is a big thing. If people know about it they'll be less inclined. If you had stats people would think about that. All dog obedience is knowledge. All we are doing is giving the owners the knowledge"
- Encourage a higher level of obedience to promote dog safety as well as the safety of wildlife and people.
- A dog under control is when the dog is off-lead but you still have an "imaginary lead" so that the dog will stop straight away no matter how far away it is, as if it's on-lead.

Appendix D - List of Experts

Date	Name of Interviewee	Association
1/12	Karin Wiley	Places for Penguins
1/13	Mike Rumble	Eastern Bays Little Penguin Group
1/27	Myfanwy Emeny	Wellington City Council (Urban Biodiversity)
1/31	Craig Prattley	TBCOC and CGC
2/1	John Barkla	Dunedin DOC Community Ranger
2/2	Jim Fyfe	Dunedin DOC
2/3	Trudy Webster and Dave McFarlane	Yellow-Eyed Penguin Trust
2/3	Simon Alefosio-Tuck	Dunedin DOC
2/6	Megan Jolly	Wildlife Vet
2/7	Steve Broni	NZ Sea Lion Trust
2/7	Craig Wilson	Dunedin DOC
2/7	Peter Hanlon	Dunedin City Council
2/9	Jessica Clarke	Wellington City Council (Policy Team)
2/14	Alastair Judkins	Conservation Dog Trainer

Appendix E - On Site Survey

 WPI


Surveyor Name

Time (Military Time)

Beach

>>


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 WPI

Do you own a dog?
 Yes
 No

>>

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 WPI

What size is your dog?
 Small (less than 10kg)
 Medium (10kg- 25kg)
 Large (above 25kg)

Do you walk your dog on this beach?
 Yes
 No

>>

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 WPI

If yes, how many times have you walked your dog on this beach since Christmas?
 Daily
 Once a week
 Occasionally
 Once

What time do you typically walk your dog on this beach during the week? (Select all that apply)
 Early morning (6am - 9am)
 Mid Morning (9am - 12pm)
 Afternoon (2pm - 5pm)
 Evening (5pm - 11pm)
 Night (11pm - 6am)

What time do you typically walk your dog on this beach during the weekend? (Select all that apply)
 Early morning (6am - 9am)
 Mid Morning (9am - 12pm)
 Afternoon (2pm - 5pm)
 Evening (5pm - 11pm)
 Night (11pm - 6am)

When you walk your dog on this beach, do you walk them on or off lead?
 On lead
 Off lead

When you walk your dog on this beach, do you walk them on or off lead?

On lead
 Off Lead
 Both

Why do you walk your dog on or off lead?

Are you aware of any wildlife that live on this beach?

Yes
 No

If yes, what wildlife are you aware of that live on this beach? (Select all that apply)

Shorebirds
 Seals & Sea Lions
 Penguins
 Turtles

Does this beach have any regulations regarding dogs?

Yes
 No
 I don't know



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WPI

If so, what regulations for this beach exist regarding dogs?

How did you find these regulations?



WPI

In this section we will be asking you your views of nature. There are no right or wrong answers. Please be as honest as possible and respond to the following statements using the scale below in regards to beaches in general.

N/A = not applicable

Dog access to the beach is important.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Generally dogs are expected to be leashed on beaches.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Some beaches are a good place for dogs to run around unleashed.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

There are instances when some dog-wildlife interactions are acceptable.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dog and wildlife interactions can be dangerous to the dog.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dog and wildlife interactions can be dangerous to the dog.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dog and wildlife interactions can be dangerous to the wildlife.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Leash laws are important for protecting wildlife.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Beaches are more important for native wildlife habitat than for human and dog recreation.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Human and dog recreational activity on beaches should be controlled for the protection of wildlife.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dogs should be prohibited from beaches during wildlife breeding seasons.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I have seen someone else's dog interact with wildlife on the beach.

Beaches are more important for native wildlife habitat than for human and dog recreation.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

Human and dog recreational activity on beaches should be controlled for the protection of wildlife.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

Dogs should be prohibited from beaches during wildlife breeding seasons.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

I have seen someone else's dog interact with wildlife on the beach.

Yes
 No

How would you define a dog that is under control by its owner?

>>

WPI

The following three questions are based off your personal conservation outlook.

I have a deep understanding of how my actions affect the natural world.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

I put my glass, paper, and cans into a recycling collection.

Yes
 No
 Sometimes

I take reusable bags when shopping.

Yes
 No
 Sometimes

>>

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WPI

The survey is almost complete. We just have some final questions about you.

With what gender do you identify?

Male
 Female
 Other

What is your age?

Under 18 Years Old 45 - 49 Years Old
 18 - 24 Years Old 50 - 54 Years Old
 25 - 29 Years Old 55 - 59 Years Old
 30 - 34 Years Old 60 - 64 Years Old
 35 - 39 Years Old 65 - 69 Years Old
 40 - 44 Years Old 70+ Years

Which of the following best describes the last level of education you completed?

No secondary schooling Technical or trade qualifications
 Secondary school, no School Certificate or NCEA Certificate or Diploma
 School Certificate/NCEA Level 1 Attended tertiary but did not graduate
 Sixth Form Certificate/ University Entrance/ Matriculation/ NCEA Level 2 University/ tertiary/ professional qualifications e.g. Bachelors' degree
 Bursary exams/ Higher School Certificate/ NCEA Level 3 Postgraduate studies e.g. Masters or PHD

How long would it typically take you to travel to your nearest beach?

35 - 39 Years Old 65 - 69 Years Old
 40 - 44 Years Old 70+ Years

Which of the following best describes the last level of education you completed?

No secondary schooling Technical or trade qualifications
 Secondary school, no School Certificate or NCEA Certificate or Diploma
 School Certificate/NCEA Level 1 Attended tertiary but did not graduate
 Sixth Form Certificate/ University Entrance/ Matriculation/ NCEA Level 2 University/ tertiary/ professional qualifications e.g. Bachelors' degree
 Bursary exams/ Higher School Certificate/ NCEA Level 3 Postgraduate studies e.g. Masters or PHD

How long would it typically take you to travel to your nearest beach?

Up to 10 minutes
 Up to 30 minutes
 Up to 60 minutes
 More than one hour

Where are you from originally?

What town/suburb do you currently live in?

>>

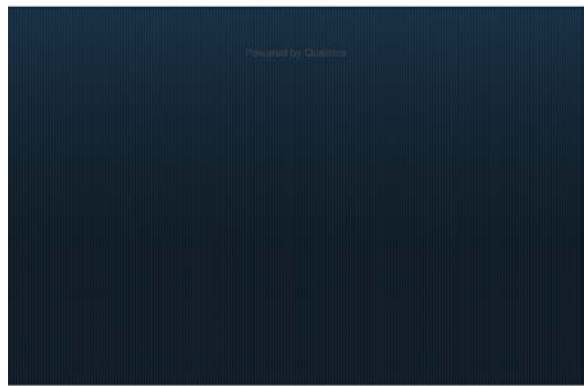
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Additional Comments:



We thank you for your time spent taking this survey.
Your response has been recorded.



Appendix F - General Survey

WPI

Surveyor name

Time

Beach

>>

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WPI

Do you own a dog?
 Yes
 No

<< >>

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WPI

Respond to the following statements using the scale below in regards to beaches in general. There are no right or wrong answers. Please be as honest and candid as you can. N/A = not applicable

Dog access to the beach is important.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Generally dogs are expected to be leashed on beaches.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Some beaches are a good place for dogs to run around unleashed.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

There are instances when some dog-wildlife interactions are acceptable.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dog and wildlife interactions can be dangerous to the dog.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dog and wildlife interactions can be dangerous to the dog.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dog and wildlife interactions can be dangerous to the wildlife.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Leash laws are important for protecting wildlife.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Beaches are more important for native wildlife habitat than for human and dog recreation.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Human and dog recreational activity on beaches should be controlled for the protection of wildlife.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dogs should be prohibited from beaches during wildlife breeding seasons.

entirely disagree	mostly disagree	somewhat disagree	neutral	somewhat agree	mostly agree	entirely agree	N/A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I have seen somebody else's dog interact with wildlife on the beach.

Beaches are more important for native wildlife habitat than for human and dog recreation.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

Human and dog recreational activity on beaches should be controlled for the protection of wildlife.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

Dogs should be prohibited from beaches during wildlife breeding seasons.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

I have seen somebody else's dog interact with wildlife on the beach.

Yes
 No

How would you define a dog that is under control by its owner?

<< >>

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 WPI

The following three questions are based off your personal conservation outlook.

I have a deep understanding of how my actions affect the environment.

entirely disagree mostly disagree somewhat disagree neutral somewhat agree mostly agree entirely agree N/A

I put my glass, paper, and cans into a recycling collection.

Yes
 No
 Sometimes

I take reusable bags when shopping.

Yes
 No
 Sometimes

<< >>

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 WPI

This survey is almost complete. We just have some questions about you.

With what gender do you identify?

Male
 Female
 Other

What is your age?

18-24 years old 55-64 years old
 25-34 years old 65-74 years old
 35-44 years old 75+ years
 45-54 years old

Which of the following best describes the last level of education you completed?

No secondary schooling Technical or trade qualifications
 Secondary school, no School Certificate or NCEA Certificate or Diploma
 School Certificate/NCEA Level 1 Attended tertiary but did not graduate
 Sixth Form Certificate/ University Entrance/ Matriculation/ NCEA Level 2 University/ tertiary/ professional qualifications e.g. Bachelors' degree
 Bursary exams/ Higher School Certificate/ NCEA Level 3 Postgraduate studies e.g. Masters or PHD

How long would it typically take you to travel to the nearest beach?

Up to 10 minutes
 Up to 30 minutes
 Up to 60 minutes
 More than 1 hour

What town/ suburb do you currently live in?

Where are you from?

<< >>

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Appendix G - Wildlife Dog Control Sign

Looking out for
our coastal
wildlife



Department of
Conservation
Te Papa Atawhai



DON'T LET YOUR DOG GO WILD



When you come across wildlife on our beaches:

**Put your dog on a lead and stay at least 20m
(4 car lengths) away**

*Penguins have sharp beaks and can hurt your dog
This prevents our nesting wildlife from being disturbed*

Warn other dog owners

Set a positive example

Use the widest and safest place to pass

**Report roaming or uncontrolled dogs to
the Wellington City Council**

Animal Services: 04 4994444

Call DOC for sick or injured wildlife

DOC Hotline: 0800 362 468

Looking out for our coastal wildlife



Department of
Conservation
Te Papa Atawhai



When you come across wildlife on our beaches:

**Put your dog on a lead and stay at least 10m
(2 car lengths) away**

*This can help prevent your dog from getting a disease
This prevents our wildlife from being disturbed*

Warn other dog owners

Set a positive example

Use the widest and safest place to pass

**Report roaming or uncontrolled dogs to the
Dunedin City Council**

Animal Services: 03 477 4000

Call DOC for sick or injured wildlife

DOC Hotline 0800 362 468

Share the Beach!



As a community we share Wellington's beaches not only with other humans and dogs, but also with the native wildlife, such as little blue penguins, and the shorebirds. Part of responsibly sharing these beaches is dog owners following beach regulations along with always having their dogs under control regardless of whether they are at on or off-lead area. In this way, dog owners can help ensure the safety of the community as a whole, including the wildlife that call these beaches their home.



Dogs can exercise off-lead but must be under control



Dogs are allowed but must be on-lead



Dogs are not allowed

Under control*: "a dog can be kept under control by a person by physically limiting its movements, or by using commands."

*As defined by the Wellington City Council in the Wellington Dog Policy (2016)

For More Info

To learn more about the wildlife in Wellington and conservation efforts:

www.doc.govt.nz

To find dog regulations on Wellington Beaches:

www.wellington.govt.nz/services/contents-and-licenses/dogs

If you see any sick, injured, or vulnerable wildlife call the DOC hotline:

0800-362-468

Appendix I - Brochure

Sharing Our Beaches



Little blue penguin



NZ fur seal

Little blue penguins (kororā) are the smallest penguins in the world, and call the coasts of New Zealand home. They generally come onto shore at dusk and leave at dawn, making them rarely seen by people. They can be found in rocky areas on shore more frequently from June to March as they lay their eggs, care for their young, and moult.

The New Zealand fur seal or kekeno are found all over New Zealand. Once on the brink of extinction, fur seals have made a strong comeback. The seals haul out on rocky shores to rest. And from mid-November to mid-January is breeding season for the seals.



To Learn More and Help

If you see any sick, injured, or vulnerable wildlife call the DOC hotline:
0800 362 468

To learn more about the wildlife in Wellington, and how you can help them visit:

Department of Conservation www.doc.govt.nz

Wellington City Council
www.wellington.govt.nz/services/consents-and-licences/dogs



Sources:
<http://www.doc.govt.nz/nature/native-animals/marine-mammals/seals/nz-fur-seal/>
<http://www.forestandbird.org.nz/what-we-do/projects/plaons-penguins/little-penguins-life-cycle>
<http://wellington.govt.nz/services/consents-and-licences/dogs/exercise-areas/prohibited-areas>

Taking Your Dog to the Beach

Wellington City has a number of beaches available to dog owners to exercise their dogs on lead or off lead. As a community we share these beaches not only with other humans and dogs but also with the native wildlife, such as little blue penguins, and the shorebirds. Part of responsibly sharing these beaches is dog owners following beach regulations along with always having their dogs under control regardless of whether they are at on or off-lead area. In this way, dog owners can help ensure the safety of the community as a whole, including the wildlife that calls these beaches their home.



Department of Conservation
Te Papa Atawhai



Off-lead Exercise Areas

Houghton Bay Beach
 Island Bay Beach (From the pier to the western beach end)
 Kio Bay Beach
 Little Karaka Bay Beach
 Loyal Bay Beach (From steps opposite 30 Loyal Parade to the airport end of the beach)
 Makara Beach
 Oriental Bay Beach (From 1 May to 31 October)
 Seatoun Beach (From the wharf to Churchill Park)
 Weka Bay Beach
 Worser Bay Beach (Anytime in the winter; Before 10 am and after 7 pm from 1 December to 1 March)



On-lead Exercise Areas

Hataitai Bay Beach (Anytime in the winter; Before 10 am and after 7 pm from 1 December to 1 March)
 Island Bay Beach
 Palmer Head (On coastal path)
 Princess Bay Beach (On coastal path)
 Seatoun Beach (Churchill Park; before 10 am and after 7 pm from 1 December to 1 March and anytime in the winter)
 Tarakena Bay Beach (On coastal path)



Prohibited Areas

Balaena Bay Beach
 Freyberg Beach
 Hataitai Bay Beach (From 9 am to 7 pm 1 December to 1 March)
 Island Bay Beach (East of the breakwater and in the dunes)
 Loyal Bay Beach (From steps opposite 30 Loyal Bay Parade to the western end of the beach)
 Oriental Bay Beach (From 1 November to 30 April)
 Palmer Head (Off coastal path)
 Princess Bay Beach (Off coastal path)
 Scorching Bay Beach
 Seatoun Beach (West of Seatoun Wharf; Churchill Park; from 10 am to 7 pm from 1 December to 1 March)
 Taputeranga Island
 Tarakena Bay Beach (Off coastal path)
 Worser Bay Beach (From 10 am to 7 pm in the summer)



Help ‘Em Out, Give ‘Em a Shout

By: Samantha Hires

“Excuse me, do you have a few minutes?”

This question has been the refrain of not only my life, but of the four other American students working on a team with me. The answer to that question has varied anywhere from wary looks to enthusiasm and most things in-between. And the next line is usually, “What brings a group of American students all the way here?” The answer to that question is a bit more complicated than a request for a survey.



Simply put, we’re here as part of our degree requirements to complete a seven week project sponsored by a local group in New Zealand. However, for us, this project is much more than a simple check box on our way to a degree. All five of us are self-professed animal lovers, with dogs of our own back home; so we jumped at the opportunity to work with the Department of Conservation to engage the public about their perceptions of dog-coastal wildlife interactions.

There is growing concern over dog-wildlife interactions becoming more prevalent as a result of wildlife returning to coastal beaches. In some cases there have been interactions that have resulted in harm or death to the wildlife or to the dog. Despite the infrequency of these interactions, they’re still of concern for the safety of dogs and wildlife alike. All of this led up to our project.

As we worked through the data collection of our survey we had the opportunity to talk to experts from both the conservation-side of things as well as dog trainers, and city council members. We travelled to 33 beaches in Wellington, Lower Hutt, Dunedin, and the Catlins exploring the signage and surveying over 200 dog owners and non-dog owners.

Through our research we determined that despite the media we had observed about dog-wildlife encounters, there wasn’t a marked dichotomy between dog owners and conservations; they could and, in many cases were, one and the same. Most of the dog owners that we talked to respected the wildlife that call the beach home. And they understood the need to restrict their dog’s access to the beach in deference to the safety of native wildlife. Experts in the field agreed that the majority of dog owners are responsible, and even worked to warn each other about the presence of wildlife in different areas on the beach.

A number of these experts pointed to dog owners as being the greatest ally to vulnerable native species; this was one of the main takeaways we got from our project. Dog owners are the ones out on beaches day in and day out, and so they have the greatest power to generate change by monitoring beaches while they walk. That’s what we’re asking all of you. If you see a sick or injured animal, or an animal being harassed while you’re out walking, call the DOC hotline (0800 362 468). In Dunedin and the Catlins, keep your eyes peeled for sea lions resting in the sand. If you are on a rocky shore, keep your eyes open for fur seals or penguins. They can be found even in Wellington, where beach and city meet. If you see wildlife, put your dog on lead until you’re 20 meters (about 4 car lengths) away, and warn other dog walkers of their presence. Keep your eyes open for temporary closings of parts of beaches to accommodate for breeding seasons. Lastly, if you see someone not obeying leash regulations and you feel comfortable, just nicely tell them.

With your help we can make beaches safer for wildlife and dogs.

Appendix K - Storybook





Okay Mack, now that we're here we have to keep you on lead.

But why? It's early in the morning and we're here all by ourselves.



See that sign? It says that little blue penguins are in this area. It's their molting season now so we have to stay far from their nests and be careful not to disturb them.

Do you hear that?



Hi! What's your name?

No worries! Mack and I always make sure we read the signs so we can be safe and share the beach.

I'm Sue the Little Blue. Thank you for staying far away from my home. Sometimes people don't read the signs and it makes me very nervous.



Oh thank you! We will be sure to head over there!

Further down the beach you might have more fun without having to worry about disturbing the other little blues. There you can enjoy your walk off-lead!



Be carefull
My friend,
Sue the
Little Blue
is molting
nearby!

Thank you for
telling me! My
name is Mena.
I'm here
working to help
Sue and her
friends.



Wow! We don't want
to interrupt your
work. I know another
beach we can explore.
Good luck with Sue
and her friends!

I'm a conservation dog
and I help find little
blues. My job is to
make sure we know
where they are to keep
them safe!



Mack stay close, we have to make sure
we are aware of any fur seals here
because this is their home.
Look there's one on that far rock now!

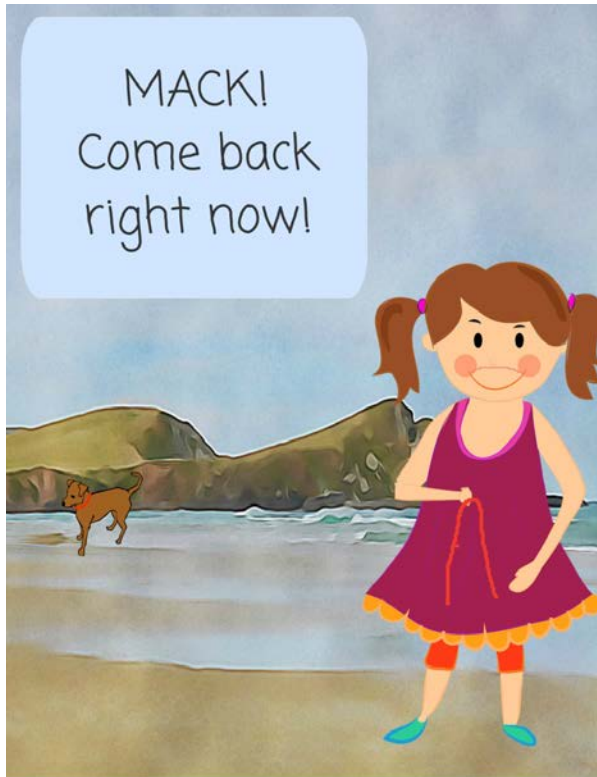
I am so glad I
get to explore
these rocks!



Hil I'm Neal the Fur Seal. You
are very friendly, but I'm
here getting some rest. I
need to save my energy for
later when I go fishing.

We understand, let's give
Neal some space. Come on
Mack, I know another fun
beach we can play at!

Hello! My name is Mack,
would you like to play?



MACK!
Come back
right now!



There is a sea lion
resting on the beach up
there! We need to put
you back on your lead.

What is it?



Hey you look like you
want to play! I'm
Brian the Sea Lion.

I think you're
too big to
play with me.
I could get
hurt.



Yes, that's right. At school my
teacher says we need to stay at
least 20m away from any sea lions
to be safe. That's about 4 cars.

Aw that's too bad, but I
understand. We can share the
same beach but it's safer for
all of us not to play together.



Hi there, I'm Dominic the DOC volunteer. Please stay up here on the path and not down on the beach. There are yellow-eyed penguins coming up to shore now.

Why do we have to be so far away? We didn't have to be that far from the little blue penguins.



Clyde the Yellow-Eyed lives here and he is very shy. He won't come back to his nest if people are here, and he needs to come home to feed his chicks.

Thanks for letting us know! Mack and I have one last beach to visit before it gets dark.



Alright Mack, you can be off lead at this beach if you promise to behave yourself and stay close.



Hi! I'm Thatcher the oystercatcher and this is my friend Will the Spoonbill.

Hello! My name is Mack. Would you mind if I played in the water nearby?

Yes, as long as you promise not to chase us!

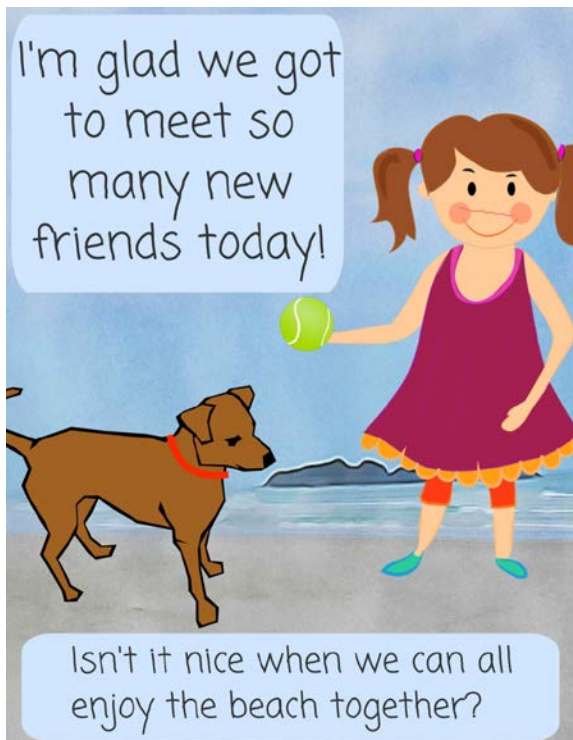


Of course I wouldn't do that! I just want a place to play with my ball.

What a relief! Sometimes dogs like to bark at us and chase us while we search for food.

Oh no, that's not very nice! Don't worry, you can enjoy your dinner in peace!

Thank you Mack! We appreciate it!



I'm glad we got to meet so many new friends today!

Isn't it nice when we can all enjoy the beach together?

Mack Goes to the Beach:

A short story to educate children on proper beach behaviour with dogs and coastal wildlife encounters.

Although this book only focuses on little blue penguins, fur seals, sea lions, yellow-eyed penguins and some shorebirds, these practices can be expanded to apply to all coastal wildlife.



Appendix L - Feet on Sand



Appendix M - Dog Astray



Appendix N - Help em Out



Appendix O - Bumper Sticker



Appendix P - Radio Ad

The Little Blue Needs You

Penguin Conservation is a Community Effort

Little Blues are on shore between the hours of dusk and dawn

They nest in the rocky areas with vegetative cover

Please stick to the sandy area and leash your dogs during these times

To get more involved with conservation efforts go to the DOC website

Appendix Q - Volunteer Job Description

Volunteer Wildlife Wardens

Ongoing/dates vary: Located in Te Whanganui-a-Tara/Wellington Harbour
Volunteers help ensure beach goers have an enjoyable experience on beaches surrounding Wellington. You will spend time talking to other dog walkers, answering questions about the native wildlife, and helping ensure people stay safe around them.

Some of the beaches you may be at include:

Lyll Bay: is one of our more popular dog beach area where you can meet and talk with dog owners from all around Wellington.

Island Bay: Is across from an island with penguin nesting areas. Dogs are allowed on the sides of the beach and there is an additional dog exercise area.

Eastbourne: is located across the harbour from Wellington and is home to penguin habitat. Dogs are allowed off-lead in certain areas.

Red Rocks: is popular place for fur seals to bath in the sun where dogs can be walked.

Description

Volunteers will talk to visitors about shorebirds, little blue penguins, and fur seals and explain how to behave appropriately around them.

Volunteers may at times need to politely intervene if inappropriate behaviours are encountered.

Volunteers with dogs are encouraged to walk them during their shift and demonstrate proper beach behaviours.

At the end of each shift volunteers report back to a DOC ranger.

What to expect

You will be added to our weekly roster system – this can be flexible but it would be great if you could commit to one or two shifts a week. Training will be provided. Food and accommodation are not provided.

Skills and experience required

Volunteers must be able to represent the Department of Conservation in a professional manner. People with the following characteristics are welcome to apply:

- *passionate about wildlife and conservation*
- *honest and reliable*
- *friendly and helpful, confident in talking to members of the public*
- *comfortable interacting with dogs*
- *culturally sensitive*
- *conversant in English*
- *compliance with DOC Health and Safety Policy.*

How to apply

Fill in the online application form.

Contact

TBD