

BEFORE THE ENVIRONMENT COURT

RMA 93/97

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an appeal and an inquiry under Section 118(b) and 120 of the Resource Management Act 1991

BETWEEN

MINISTER OF CONSERVATION

Appellant

AND

WAIKATO REGIONAL COUNCIL

Respondent

AND

WHANGAMATA MARINA SOCIETY

Applicant

EVIDENCE OF DR J E DOWDING
IN SUPPORT OF APPEAL BY MINISTER OF CONSERVATION

INTRODUCTION

1. My full name is JOHN EDWARD DOWDING. I am a free-lance Wildlife Research Scientist, currently employed on contract by Science and Research Division of the Department of Conservation and Auckland Conservancy, Department of Conservation. I specialise in research on the ecology of native birds (particularly shorebirds) and the impact on them of introduced mammalian predators. I am undertaking long-term, detailed studies on the ecology of the NZ Dotterel (over the past 11 years) and the Variable Oystercatcher (over the past five years). I am the author of scientific papers and popular articles on these and other subjects, and a member of the Department of Conservation's NZ Dotterel Recovery Group and of the Shore Plover Recovery Group.
2. I have previously given evidence in this Court for the appellant in *Stillwater Ratepayers and Residents Association v Rodney District Council* (C 48/97).

3. By virtue of my long-running research and publications on the NZ Dotterel, I am considered the world's leading authority on this species. In addition, because of research on Variable Oystercatchers, NZ Shore Plover and other species, I am also considered a leading New Zealand authority on shorebirds generally. Because of this expertise, I was approached by the Department of Conservation in 1991 to write the NZ Dotterel Recovery Plan, which was published by the Department in 1993 (Dowding 1993). This document lists research and management actions required to bring about the recovery of the species.
4. I am familiar with Whangamata Harbour and the surrounding area, which for the purposes of my evidence I define as being the coast from Onemana to the Otahu River, including the entire Whangamata estuary. This definition takes into account movement patterns of NZ Dotterels known to use Whangamata Harbour, a point I will return to later in my evidence. I have visited this area periodically over the past seven years as part of my shorebird research in the wider Coromandel-Bay of Plenty area.
5. My evidence relates generally to the conservation status of the NZ Dotterel (*Charadrius obscurus*) and the Variable Oystercatcher (*Haematopus unicolor*) and the increasing conflict between habitat requirements of these species and human use of the coastline. Specifically, my evidence relates to the conservation values of the estuary and shoreline in and around the Whangamata Harbour for these shorebirds. In particular, I will note:
 - 5.1 The value of the area as habitat for a group of 15-20 NZ Dotterels.
 - 5.2 The value of the area as habitat for a group of 40-50 Variable Oystercatchers.
 - 5.3 The international significance of the area in terms of the Ramsar Convention.
 - 5.4 The difficulty of assessing impacts of the proposed development on the two species of shorebirds.
6. In preparation for giving evidence in this Court I have surveyed the most recent relevant literature known to me and I have read the Assessment of Environmental Effects (AEE), which I take to include the original document dated November 1995 and the 'Further Report' dated July 1996, provided to the consent authority by the Whangamata Marina Society. I have also read the report entitled 'Banded Rail and North Island Fernbird Survey - Beach Road Saltmarsh Whangamata', dated August 1996 and provided to Environment Waikato.

7. I understand that the Minister of Conservation will submit to this Court that there was inadequate information supplied to the consent authority at the original hearing to allow the potential impact of this development on the environment (and in particular on the NZ Dotterel and Variable Oystercatcher populations) to be properly assessed.
8. In my opinion the information supplied in the AEE was not sufficient to allow a proper assessment of the potential impact of this development on the NZ Dotterel and Variable Oystercatcher populations in and around Whangamata Harbour. I will further note that I believe it is impossible, with current knowledge, to assess the potential impacts of the development on these two species with any accuracy.
9. I now wish to provide some information on the status of the NZ Dotterel and the Variable Oystercatcher and on their use of Whangamata Harbour and the surrounding area.

NZ DOTTEREL

Status

10. The NZ Dotterel is an endemic shorebird species classified as endangered (Collar *et al.* 1994). The species was once widespread and numerous in the North and South Islands of New Zealand (Buller 1882). Since the introduction of mammalian predators to New Zealand in the 19th century, the NZ Dotterel has suffered a severe decline in range and numbers. Two subspecies are recognised (Dowding 1994). The Southern NZ Dotterel (*C. o. obscurus*) has disappeared entirely from the South Island as a breeding bird and only about 100 birds from that population survive on Stewart Island (Dowding & Murphy 1993). The Northern NZ Dotterel (*C. o. aquilonius*) comprises the bulk of the population (about 1450 birds) and is now confined to areas of suitable habitat on the coast of northern and central parts of the North Island and on a number of offshore islands.
11. Until recently there was little reliable information on precise numbers and distribution of the NZ Dotterel. In 1989 and again in 1996, the Department of Conservation coordinated two complete surveys of the species. These surveys have shown an increase in the population of NZ Dotterels on the east coast of the North Island and a decrease in

the population on the west Coast. Overall, numbers have remained fairly stable. About 80% of the world population of the species is now found on the coastal strip between North Cape and East Cape.

2. Because the conservation status of the NZ Dotterel is not yet widely appreciated, I believe it would be useful to provide an illustration of just how rare the species is. In recent years species such as Kaka, Yellow-eyed Penguin, Brown Kiwi, Kokako and Yellowhead have received considerable attention from the scientific community and from the Department of Conservation. This has resulted in heightened public awareness of the threatened status of those species. I do not wish to suggest that any of them is not in a serious state but it is a simple matter of fact that the NZ Dotterel is rarer than any of the five species mentioned. The well-known and much-publicised Yellow-eyed Penguin, for example, is four to five times more numerous than the NZ Dotterel (Moore 1992).

I would note also that while many of our endangered and threatened forest birds can be conserved on offshore islands, there is insufficient suitable habitat on these islands to hold a viable population of the NZ Dotterel. As noted in the Recovery Plan (Dowding 1993) "the long-term survival of the species therefore relies on its conservation on the mainland".

Problems facing the NZ Dotterel

14.1 Destruction and degradation of habitat.

During the past 30 years, there has been extensive development of the coastline in northern New Zealand. Dune areas and beaches have been planted with marram grass and, in some areas, pine plantations. Stabilisation of dunes has reduced suitable breeding habitat for NZ Dotterels (Cumming 1991). Housing developments continue, many of them close to important NZ Dotterel breeding sites. Estuaries in northern New Zealand are experiencing increased recreational use and development, including the construction of marinas, moorings, boat ramps and the like.

14.2 Disturbance during breeding.

Recreational use of beaches, including the use of 4WD vehicles and trail-bikes, is increasing. The presence of people, dogs, vehicles and horses increases the chance of crushing of nests and disturbs NZ Dotterels during breeding. When disturbed, NZ

Dotterels leave the nest or chicks and attempt to distract the intruder; prolonged disturbance can therefore result in eggs chilling or over-heating and in unprotected chicks being taken by predators. Disturbance also results in decreased feeding by chicks (Lord 1996).

14.3 Predation.

Predation of eggs and chicks, mainly by introduced mammalian predators, is one of the main factors responsible for the low productivity (i.e. number of chicks raised per pair) seen in most parts of the species range. Cats, stoats and hedgehogs are the main predators, but dogs are known to kill chicks. Cats and stoats also kill adult birds (Dowding & Murphy 1993, 1996). Housing developments result in an increase in the number of cats and dogs in an area. In my evidence to this court in the *Stillwater* case, I noted that following construction of a subdivision close to a breeding area at Omaha Spit, North Auckland, 7-8 pairs of NZ Dotterels (which had previously raised chicks successfully) have failed to raise a single chick between them for the past six seasons.

14.4 Natural factors

Storm surge conditions, high winds and large tides result in some loss of nests and small chicks each season.

NZ Dotterel use of Whangamata Harbour

NZ Dotterels congregate in post-breeding flocks from late January onwards (Dowding & Chamberlin 1991). This is socially an important period, as birds who have lost mates can find new mates, and young birds find their first mates. During my survey in early February 1997, I noted 16 NZ Dotterels in Whangamata Harbour. My research at other sites indicates that numbers would probably grow slightly later in autumn. I note that the AEE recorded 18 birds in March. Observation of banded birds at Whangamata and elsewhere has shown that adult birds from Onemana, Pakaha and probably other sites outside the Harbour congregate there in a post-breeding flock in autumn and early winter; they are joined by a variable number of unpaired adults and transient juveniles from further afield, including Opoutere. Experience at other sites strongly suggests that birds breeding outside the Harbour will also visit the Harbour regularly to feed during the breeding season.

I would emphasise here that although at present only one pair of NZ Dotterels attempts to breed within the Harbour itself, the Harbour is also an important resource for birds

breeding at nearby sites and for juvenile birds. I therefore conclude that the Harbour is important habitat for a group of 15-20 NZ Dotterels. This constitutes a little over 1% of the population of the species. Under the Ramsar Convention on Wetlands 1971, which New Zealand has ratified, this makes Whangamata Harbour a site of international importance for the species.

17. My surveys suggest that two areas in the Harbour are favoured by NZ Dotterels for feeding. One is in the upper Harbour around the confluence of a side channel and the main channel (NZMS 260 T12 Thames GR 647 433). The other is around the confluence of the Wentworth River and the main channel and on both sides of the main channel immediately downstream from that confluence. Birds were normally found feeding on areas of dense, hard-packed cockle beds, close to main channels. The current breeding site is located nearby on the eastern side of the main channel at GR 658 410. The edge of the main channel past this site is the only feeding area available to chicks until they can fly.

18. At high water birds used two roosts near the mouth of the harbour, one on the ocean beach at the entrance to the Harbour (GR 658 404) and the other inside the Harbour, north-west of the wharf at GR 656 409. The flock moves between these sites in response to disturbance by people and dogs.

VARIABLE OYSTERCATCHER

Status

19. This species is also endemic to New Zealand and is found in the North and South Islands, on Stewart Island and some offshore islands. It is restricted to the coastline, numbers about 4000 individuals and is classified as rare (Heather & Robertson 1996).

Variable Oystercatcher use of Whangamata Harbour

20. My surveys in February 1997 found 40-50 Variable Oystercatchers using Whangamata Harbour. This also constitutes a little over 1% of the population of this species; under the Ramsar Convention, Whangamata Harbour is therefore also a site of international importance for the Variable Oystercatcher.

21. My surveys suggest that about 6 pairs of oystercatchers breed along the eastern side of the main channel in the southern half of the Harbour. I have no information on where the remaining oystercatchers using the Harbour breed, and I am aware of none.

22. Distribution of Variable Oystercatchers feeding in the Harbour was different from that of NZ Dotterels. Virtually all oystercatchers were located in the southern half of the Harbour, particularly along the Wentworth River channel, around the confluence of that River and the main channel, and along the edges of the main channel. It was notable that nearly all birds were feeding on the hard-packed cockle beds very close to the edges of channels and that pairs were defending temporary feeding territories.

DISCUSSION

23. The construction of the Whangamata marina would have a number of possible effects on NZ Dotterels and Variable Oystercatchers using the Harbour.

23.1 Construction of the marina and channel would lead to temporary loss of feeding opportunities for both species.

23.2 The presence of the marina would result in permanent loss of feeding area for some oystercatchers in the Moanaanui Estuary.

23.3 Increased use of the foreshore area at the northern end of the township by people and their dogs is likely to result in higher levels of disturbance to NZ Dotterels at their flock sites.

23.4 Increased numbers of people and boats may result in increased disturbance at the dotterel breeding site and oystercatcher breeding sites within the Harbour.

24. That some or all of these impacts will occur seems inevitable. However, the important issues that need to be discussed are (a) the likely magnitude of these effects and (b) their longer-term impacts on the two species.

25. I note that the AEE makes little comment. It is stated (Section 2.2.4, page 10) that "The New Zealand dotterel...is perhaps the most threatened bird species which is found within Whangamata harbour...". However, later in the document (Section 8.2.2.4, page 35) in an Assessment of Environmental Effects on avifauna, the species is not mentioned. I note in passing that the AEE (Section 2.2.3.2, page 9) lists NZ Dotterel and Variable Oystercatcher as "NZ Migrants: ...birds that normally breed in other parts

of New Zealand, but use the estuary...from autumn to spring". I repeat that both species are in fact residents, breeding within the Harbour and on the coastline of the surrounding area.

26. The 'Further Report' (Section 6.2, page 8) states that "New Zealand dotterel and variable oystercatcher are both threatened species but it is unlikely they will be adversely affected by the marina". Little evidence is given to support this opinion in the AEE and I believe that little evidence is available on the matter either way. There currently appears to be an almost complete lack of information on variables such as survival, productivity, use of space and time and feeding success of dotterels and oystercatchers using the harbour. In addition, there appears to be no information on where many of the oystercatchers using the harbour breed.
27. In my opinion, this lack of information makes a realistic assessment of the impacts of the development on the two species virtually impossible. Measurements of annual adult survival, productivity, spatial use and time-budget studies would be necessary before and after the development to allow a robust evaluation. Such studies are necessarily very time-consuming and require considerable expertise. It should be noted that simple counts of the number of dotterels using the estuary will not provide adequate information, because numbers at post-breeding flock sites fluctuate naturally from year to year (Dowding & Chamberlin 1991).
28. The AEE (Section 9.3, page 46) notes that "A monitoring programme should be designed and implemented to monitor the impacts on the benthos and avifauna of Whangamata Harbour". I am not aware of any such monitoring programme, but I believe it would probably be of little value in the current situation. If the marina development occurs and there is an adverse impact on shorebirds, it is likely that little could be done to retrieve the situation. In other words, once the impact is detected it is probably too late. I would emphasise here that I believe we must look at the proposed marina in a wider context; it is one of many developments occurring over a wide area, which will have an impact on the natural values of our coastline. The present reality is that NZ Dotterel habitat is being steadily degraded by developments of many kinds over a large part of the species range. If we wish to save the NZ Dotterel from further decline and possible extinction, we must begin to preserve habitat of sufficient quality

and in sufficient quantity, rather than reduce and degrade it. I noted earlier that about 80% of the world population of NZ Dotterels is now found on the coastal strip between North Cape and East Cape. This area is also subject to heavy and increasing pressure from the human population and the conflicts between habitat requirements of shorebirds and human use of the coastline seem certain to intensify.

29. A key objective of the NZ Dotterel Recovery Plan (Section 7.1.1, page 11) is "To increase the size of the northern population and encourage expansion of its breeding range in the North Island". To achieve this objective it is clearly not sufficient to preserve only the habitat currently being used by the species. Habitat quality (as well as quantity) must also be taken into account. Current information indicates that tidal estuaries, sandspits, and sandy beaches (particularly those with wide open areas where rivers and streams reach the sea) are all important to the survival of the species. I would add here that when environmental impacts on shorebirds are assessed, the focus is often on breeding habitat. Suitable habitat for feeding and for other activities (such as flocking) is obviously also vitally important. Virtually all important NZ Dotterel flock sites are located at or near tidal estuaries.

30. Given the small population, endangered status and the wide variety of problems faced by the NZ Dotterel over most of its remaining range, I would therefore urge that a cautious and conservative approach be adopted when consideration is being given to developments in or near significant habitat for the species.

31. If the marina development were to proceed I would recommend that by way of mitigation of the possible impacts on NZ Dotterels, the management proposal set out in the attached document be adopted and funded by the applicant. This proposal is designed to improve productivity and survival of dotterels in the area, by reducing disturbance and controlling predators. I should note that professional predator control is the vital aspect of the programme, without which it is unlikely to succeed. The procedures and costing are based on similar programmes at other sites. In my view the annual contribution by the marina society should be inflation-adjusted on an annual basis (using the Consumers Price Index) and the requirement for a contribution should run for the life of the marina; recovery of the NZ Dotterel is a long-term programme and management for short periods would have little positive impact on the species as a

whole. There would be an opportunity for local people to be involved in the programme but I believe it should be administered and directed by the Department of Conservation.

32. Finally, I would like to comment on a matter of considerable concern to wildlife scientists which has come to light since the consent authority hearing. The illegal introduction of rabbit calicivirus has the potential to have a significant negative impact on the recovery of the NZ Dotterel. The Department of Conservation has produced a Response Plan (Aikman 1997) which identifies 29 species (including 6 birds) that are believed to be particularly vulnerable to the effects of prey-switching if rabbit numbers drop suddenly. The NZ Dotterel is on that list.

33. Rabbits are common in dune areas and in pasture and scrub behind beaches in many parts of the North Island. Although we cannot yet estimate how efficient RCD will be at reducing rabbit densities, NZ Dotterels are definitely vulnerable to increased rates of predation when the disease spreads to the North Island. Obviously this will put further pressure on the small, endangered NZ Dotterel population and reinforces my belief that a cautious approach is essential when considering any potential impact on this species.

SUMMARY OF MAIN POINTS

34. The NZ Dotterel is an endangered species with a restricted distribution and a population of only 1500 individuals. A group of 15-20 dotterels uses Whangamata Harbour, making the site one of international significance for the species under the Ramsar Convention.

35. The Variable Oystercatcher is a rare species. A group of 40-50 oystercatchers uses Whangamata Harbour, making the site one of international significance for this species also.

36. No adequate information currently exists to allow an accurate assessment of the possible impacts on these shorebirds of the proposed development. Research and monitoring in these situations have little value, because by the time an impact is detected it is likely to be too late to ameliorate the situation.

37. A wide range of threats currently affects survival of the NZ Dotterel as a species; these include loss and degradation of habitat, disturbance, predation and natural factors. The species relies on mainland habitat for survival and its range now overlaps with a part of New Zealand subject to increasing human use and development. In these circumstances, I urge consideration of a wider perspective and a cautious approach when considering potential impacts on this endangered species.

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Dated this day of September 1997

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John Edward DOWDING