



# A review of coastal and freshwater habitats of significance for indigenous birds in the Wellington region

February 2015



greater WELLINGTON  
REGIONAL COUNCIL  
Te Pane Matua Taiao





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Cover photo: New Zealand dotterel at Riversdale Beach, Wairarapa (Photo courtesy of Kevin Stevens)

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## **Executive summary**

This report describes a process developed to interpret criteria listed in Policy 23 of the Wellington Regional Policy Statement to identify and evaluate coastal and freshwater habitats in the Wellington region possessing “significant biodiversity values” for indigenous birds. The resulting lists of significant habitats will then be considered for inclusion in Schedule F2 of the draft Natural Resources Plan for the Wellington region.

A panel of ornithological experts was convened to devise a means by which Policy 23 criteria could be translated to be ‘fit-for-purpose’ for identifying coastal and freshwater habitats of significance for indigenous birds. The panel then applied these translation criteria to a list of 166 candidate sites that had been identified during an earlier desktop review of distribution and abundance data for threatened and ‘at risk’ birds in the Wellington region. The panel was satisfied that this list of 166 candidate sites was comprehensive.

Fifty-two (31%) of the 166 sites were identified as meeting these Policy 23 translation criteria and it is recommended that these sites be included in Schedule F2 of the draft Natural Resources Plan for the Wellington region. Information describing the location, bird values and critical periods for each site is summarised in the appendices to this report.

It is recommended that Greater Wellington Regional Council should establish a process to regularly review and update this list of significant coastal and freshwater habitats, and to also periodically update the summary tables provided in the appendices to this report. New bird survey data are frequently being collected in the Wellington region, and the New Zealand Threat Classification System (Townsend et al. 2008) rankings for all New Zealand birds are reviewed and updated every four or five years. As these sources of information are updated, it is likely that sites will need to be added or dropped from the list provided in this report as knowledge of particular sites improves, bird use of sites change, or the threat ranking of species change.



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## 1. Introduction

The Resource Management Act (1991) requires each regional council in New Zealand to prepare a Regional Policy Statement which is designed to promote the sustainable management of each region's natural and physical resources. Section 6(c) of the RMA names "the protection of areas of significant vegetation and significant habitats of indigenous fauna" as a matter of national importance.

Section 6(c) of the RMA has been expressed in the Wellington Regional Policy Statement by Policy 23, which directs regional and district plans to "identify ecosystems and habitats with significant indigenous biodiversity values that meet one or more of the following criteria:

- (a) Representativeness: the ecosystems or habitats that are typical and characteristic examples of the full range of the original or current natural diversity of ecosystem and habitat types in a district or region, and:
  - (i) Are no longer commonplace (less than about 30% remaining); or
  - (ii) Are poorly represented in existing protected areas (less than about 20% legally protected)
- (b) Rarity: the ecosystem or habitat has biological or physical features that are scarce or threatened in a local, regional or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.
- (c) Diversity: the ecosystem or habitat has a natural diversity of ecological units, ecosystems, species and physical features within an area.
- (d) Ecological context of an area: the ecosystem or habitat:
  - (i) Enhances connectivity or otherwise buffers representative, rare or diverse indigenous ecosystems and habitats; or
  - (ii) Provides seasonal or core habitat for protected or threatened indigenous species
- (e) Tangata whenua values: the ecosystem or habitat contains characteristics of special spiritual, historical or cultural significance to tangata whenua, identified in accordance with tikanga Maori" (GWRC 2013).

In order to deliver on Policy 23 of the Wellington Regional Policy Statement, the Greater Wellington Regional Council (GWRC) Environmental Science department carried out a desktop review of existing data describing the distribution and abundance of threatened or 'at risk' indigenous birds in the Wellington region. These data were then used to identify sites within the



coastal marine area, freshwater wetlands and the beds of rivers and lakes that met Policy 23 criteria with respect to indigenous birds (McArthur & Lawson 2014).

McArthur and Lawson (2014) identified a total of 166 sites in the coastal marine area, wetlands, lakes or rivers that met one or more of the Policy 23 criteria based on the bird data available. They also noted that the vast majority of sites for which bird data were available subsequently met one or more of the criteria, and so suggested that any site not identified as significant should be considered “data deficient” rather than not possessing any “significant...biodiversity values” with respect to indigenous birds.

These results were subsequently reviewed by Environmental Policy and Environmental Science staff and it was agreed that because the majority of sites for which bird data were available met one or more criteria, this indicated that the existing Policy 23 criteria were too inclusive with respect to indigenous birds. The intent of Policy 23 was to identify sites that support nationally or regionally-significant populations of threatened or ‘at risk’ bird species or a relatively high diversity of native bird species. It was considered that the desktop review had not fully succeeded in distinguishing these sites from those with lesser values.

In order to solve this issue it was agreed to convene an expert panel of ornithologists (the authors) and give them the task of devising a means by which Policy 23 criteria could be translated in order to be ‘fit-for-purpose’ with respect to indigenous birds. The panel then applied these translation criteria to the 166 candidate sites listed in McArthur and Lawson (2014) and identified a subset of sites that met this more appropriate test of “significance”.

This report describes the process used by the expert panel to devise the translation criteria and to apply them to the candidate sites listed in McArthur and Lawson (2014). A final list of sites recommended by the panel to be included in Schedule F2 of the draft Natural Resources Plan (dNRP; GWRC 2014) is also provided in this report, along with summary information describing the location, values and translation criteria scores for each site identified.

## **2. Methodology**

### **2.1 Convening the expert panel**

In September 2013, Environmental Policy and Environmental Science staff at GWRC compiled a list of individuals and agencies recognised as possessing a detailed local knowledge of the distribution and abundance of indigenous birds in the Wellington region. Invitations were subsequently extended to representatives from the Department of Conservation, the Ornithological Society of New Zealand (now Birds New Zealand), the Museum of New Zealand/Te Papa Tongarewa and GWRC. The resulting expert panel was composed of the following individuals:

- Dr Hugh Robertson, Principal Science Advisor, Department of Conservation, Wellington.
- Lynn Adams, Technical Advisor (Fauna), Department of Conservation, Wellington.
- Delia Small, Wellington Regional Recorder, Ornithological Society of New Zealand.
- Nikki McArthur, Environmental Scientist, Greater Wellington Regional Council.

The panel met on two occasions, (on the 1<sup>st</sup> and 21<sup>st</sup> October 2013) and corresponded by email over several subsequent weeks in order to reach a consensus on a suitable set of translation criteria for Policy 23 for indigenous birds. The panel also applied these criteria to the list of candidate sites and generated a final list of sites recommended for inclusion in Schedule F2 of the dNRP.

### **2.2 Development of the translation criteria**

After reviewing the criteria listed in Policy 23 of the Wellington Regional Policy Statement, the expert panel were satisfied that the 166 sites chosen by McArthur and Lawson (2014) were comprehensive, and no new sites were added to the list. They also agreed with McArthur and Lawson (2014) that criteria (a): Representativeness and (e): Tangata whenua values could not be used to evaluate the “significance” of sites from the bird distribution and abundance data that were available. The representativeness criterion aims to provide adequate representation of ecosystems or habitats rather than individual bird species, so was considered irrelevant given the scope of this review. In the case of the tangata whenua criterion, the members of the panel did not consider that they possessed the expertise or information required to evaluate sites against this criterion. Instead, a separate process has been developed to allow the identification of sites with significant tangata whenua values (J. Beaglehole<sup>1</sup>, pers. comm. September 2014).

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Unlike McArthur and Lawson (2014), the expert panel did consider that enough data and local knowledge existed to evaluate sites against criterion (c): Diversity, so translation criteria were subsequently developed for three of the five Policy 23 criteria: (b): Rarity, (c): Diversity and (d): Ecological Context.

For the purpose of the review, the expert panel found it useful to initially create translation criteria that attributed a score of one to three to each site, reflecting the panel's opinion of the relative significance of each site on a national or regional scale (Table 3.1). Category one sites were those considered by the panel to possess relatively high national or regional significance with respect to indigenous birds, category two sites to have medium national or regional significance and category three sites as having relatively low national or regional significance.

The translation criteria in Table 3.1 were defined using a heuristic approach whereby the expert panel used their local knowledge and available bird data to intuitively assign sites to categories one, two and three, then drafted a set of translation criteria to describe the indigenous bird values that the sites in each category had in common. This approach included an iterative component, whereby translation criteria were modified several times and scores subsequently re-assigned to some sites before the expert panel reached a consensus on the translation criteria to use in the review.

**Table 3.1: Initial translation criteria developed by the expert panel to score candidate sites according to their indigenous bird values**

Policy 23 Criteria	(b) Rarity	(c) Diversity	(dii) Ecological context
Category 1 site (Meets the RPS Policy 23 criteria)	The site provides habitat for: ≥10% of the regional population of a nationally critical species; or ≥15% of the regional population of a nationally endangered species; or ≥20% of the regional population of a nationally vulnerable species; or ≥25% of the regional population of an at risk species	7 or more threatened or at risk species are known to be resident at or regularly using the site	The site provides seasonal or core habitat for ≥67% of the regional population of a protected (but not threatened or at risk) species
Category 2 site (Meets the RPS Policy 23 criteria)	The site provides habitat for 5-25% of the regional population of a threatened or at risk species	4-6 threatened or at risk species are known to be resident at or regularly using the site	The site provides seasonal or core habitat for 33-66% of the regional population of a protected (but not threatened or at risk) species
Category 3 site (Does not meet the RPS Policy 23 criteria)	The site provides habitat for <5% of the regional population of a threatened or at risk species	Less than 4 threatened or at risk species known to be resident at or regularly using the site	The site provides seasonal or core habitat for <33% of the regional population of a protected (but not threatened or at risk) species

**Notes:**

1. The threat rankings for bird species mentioned in this review are those listed in Robertson et al. (2013). These threat rankings were defined and assessed according to the criteria described in Townsend et al. (2008).
2. The term 'protected' refers to any species absolutely protected under the Wildlife Act (1953).
3. Species were considered 'resident or regularly using' a site if they have been or are likely to be encountered during 50% or more of bird surveys carried out in the appropriate season.
4. Translation criteria categories for Policy 23 criterion (b): Rarity are hierarchical, so that if a site meets the criterion for category one, that takes precedence over category two, and so on. For example, a site that supports 20% of the regional population of a nationally endangered species would be placed in category one, but a site supporting 12% of a nationally endangered species would be placed in category two.

### 3.3 Applying the translation criteria to the candidate sites

Candidate sites listed in Appendices 2-4 of McArthur and Lawson (2014) were assigned category scores of one, two or three for each of the three sets of translation criteria (Rarity, Diversity and Ecological Context) during the heuristic process used to draft the translation criteria themselves. The translation criteria were then finalised and category scores for each site were double-checked by the expert panel to ensure that the final set of criteria had been applied correctly and consistently for all sites.

Once the expert panel had reached a consensus on the scores to be assigned to each site, the panel then agreed that any site given a category score of one or two possessed sufficient indigenous bird values to warrant inclusion in schedule F2 of the dNRP. As a consequence, for the purpose of deciding whether or not a site should be listed in the dNRP, the translation criteria were simplified to those outlined in Table 3.2.

**Table 3.2: Simplified translation criteria used to assess whether sites met the expert panel’s threshold for being listed in schedule F2 of the draft Natural Resources Plan**

Policy 23 Criteria	(b) Rarity	(c) Diversity	(dii) Ecological context
Meets the RPS Policy 23 criteria	The site provides habitat for ≥5% of the regional population of a threatened or at risk species	4 or more threatened or at risk species known to be resident at or regularly using the site	The site provides seasonal or core habitat for ≥33% of the regional population of a protected (but not threatened or at risk) species
Does not meet the RPS Policy 23 criteria	The site provides habitat for <5% of the regional population of a threatened or at risk species	Less than 4 threatened or at risk species known to be resident at or regularly using the site	The site provides seasonal or core habitat for <33% of the regional population of a protected (but not threatened or at risk) species

**Notes:**

1. The threat rankings for bird species mentioned in this review are those listed in Robertson et al. (2013). These threat rankings were defined and assessed according to the criteria described in Townsend et al. (2008).
2. The term 'protected' refers to any species absolutely protected under the Wildlife Act, 1953.
3. Species were considered 'resident or regularly using' a site if they have been or are likely to be encountered during 50% or more of bird surveys carried out in the appropriate season.

It should be noted that the candidate sites listed in Appendices 2-4 of McArthur and Lawson (2014) include those sites identified in the coastal marine area and the beds of lakes and rivers. None of the wetland sites listed in Appendix 5 of the report were evaluated as part of this review because the panel had been advised that the indigenous biodiversity values (including indigenous birds) of wetland sites in the Wellington region were being evaluated by a separate process during the development of the dNRP.

## 2.4 **Compiling the list of habitats for inclusion in Schedule F2**

Summary information for each site identified as meeting the expert panel's translation criteria for inclusion in Schedule F2 of the dNRP has been collated in Appendices 2-4 of this report. This summary information includes:

- The name of each site
- The location of each site (the coordinates given describe the geographic centre of each site)
- A description of the threatened and 'at risk' indigenous bird values of each site, with particular emphasis on those values that received a score of one or two for one or more of the translation criteria
- The translation criteria scores for each site, for each of the three Policy 23 criteria considered (Rarity, Diversity and Ecological Context)
- A summary of the critical times of year during which key threatened or 'at risk' bird species are present at each site and so are particularly susceptible to human-related impacts

Each of the sites recommended for inclusion in Schedule F2 of the dNRP have been mapped using ArcMap 9.3.1 and a shapefile describing the extent of each site is held by GWRC's Environmental Policy department. Geographical boundaries were defined using either the boundaries of the bird surveys from which relevant bird data were sourced or by using either natural or artificial boundaries between different habitat types (e.g. the extent of estuarine mudflats or vegetation in the case of estuaries, or extent of open gravels and/or location of stop-banks for riverbed sites).

### 3. Results

This review identified that a total of 52 (31%) of the 166 sites listed in McArthur and Lawson (2014) met one or more of the translation criteria developed by the expert panel to interpret Policy 23 with respect to indigenous bird values.

Of these, 41 sites were located in the coastal marine area, eight sites in the beds of rivers and three sites in lakes (Table 4.1; Appendices 2-4). Across these three habitat types, two sites were found to have met only criterion (b): Rarity alone; 33 sites met criterion (c): Diversity; 14 sites met both criteria (b) and (c) and three sites met criteria (b), (c) and (dii): Ecological Context.

Table 4.1: Number of sites that met the expert panel’s translation criteria on the basis of their value to indigenous birds

	Sites meeting translation criteria for (b): Rarity	Sites meeting translation criteria for (c): Diversity	Sites meeting translation criteria for (b): Rarity and (c): Diversity	Sites meeting translation criteria for (b): Rarity, (c): Diversity and (dii): Ecological Context	Total
Coastal marine area sites	1	28	10	2	41
River sites	1	4	3	0	8
Lake sites	0	1	1	1	3
All sites	2	33	14	3	52

## 4. Discussion

Only one site, Lake Wairarapa, achieved a category score of one for all three Policy 23 criteria considered in this review, highlighting the regional importance of this site as habitat for threatened and ‘at risk’ indigenous birds. Lake Wairarapa, together with adjacent wetlands and the bed of the Ruamahanga River has recently been identified as an “Important Bird Area” by Forest and Bird/Birdlife International (Forest and Bird, 2014). The lake also forms a large proportion of the Wairarapa Moana wetland complex which is the subject of an application to have these wetlands recognised as a “wetland of international importance” under the Ramsar Convention (GWRC, in prep).

Two further sites achieved scores of two or higher for all three Policy 23 criteria considered in this review. The first was the foreshore habitat of Matiu/Somes Island, which not only supports a relatively high diversity of threatened and ‘at risk’ species, but also provides habitat for a very large proportion of the regional (and North Island) population of spotted shags (*Stictocarbo punctatus*). The second site was the inland waters of Wellington Harbour, which not only provides foraging habitat for spotted shags breeding on Matiu/Somes Island, but provides foraging and/or roosting habitat for large seasonal concentrations of fluttering shearwaters (*Puffinus gavia*), white-fronted terns (*Sterna striata*) and little penguins (*Eudyptula minor*).

Three riverbed sites, two in the bed of the Ruamahanga River and another site comprising a large proportion of the bed of the Opouawe River and its tributaries, scored particularly highly for the Rarity criterion. The Opouawe River and one Ruamahanga River site both support regionally significant breeding populations of banded dotterels (*Charadrius bicinctus*), whereas the other Ruamahanga River site supports the only breeding colony of black-billed gulls (*Larus bulleri*) to be found in the Wellington region.

Several sites in the coastal marine area also scored particularly highly for one or more of the Policy 23 criteria. The foreshore habitats on both Kapiti and Mana Islands stood out, not only for the relatively high diversity of threatened and ‘at risk’ bird species present, but also for providing little penguins with access to two of the largest areas of relatively secure breeding habitat for this species in the Wellington region. The Mana Island foreshore also had the distinction of supporting the entire regional population of shore plover (*Thinornis novaeseelandiae*), which represented ca. 20% of the global population of this critically endangered species just prior to 2011. A rat incursion in 2011, followed by the dispersal of shore plover to the mainland led to a decline in this population between 2011 and 2013 and all remaining birds were subsequently captured and transferred to captivity by late 2014. The Department of Conservation intends to re-establish this species on Mana Island in the future, so in anticipation of this we’ve retained a score of one for the Rarity criterion for this site.

Two of the largest estuaries in the Wellington region, Porirua/Pauatahanui Harbour and Waikanae Estuary, scored particularly highly for both the Diversity and Ecological Context criteria. As well as supporting a relatively high number of threatened and ‘at risk’ bird species, both estuaries provide



important foraging and roosting habitat for passage migrants such as South Island pied oystercatcher (*Haematopus finschi*) and bar-tailed godwit (*Limosa lapponica*). In addition, the Waikanae Estuary is one of only two sites in the Wellington region at which North Island fernbird (*Bowdleria punctata*) can be found.

Four further coastal sites scored particularly highly for the Rarity criterion, as a consequence of supporting large proportions of the regional populations of one or more threatened species. For example, Riversdale Beach is the only site in the Wellington region that supports a breeding population of New Zealand dotterels (*Charadrius obscurus*) and Onoke Spit supports the only breeding colony of Caspian terns (*Hydroprogne caspia*) in the lower North Island. Taputeranga Island supports a large proportion of the regional population of the nationally endangered reef heron (*Egretta sacra*) and Castlepoint reef supports the Wellington region's largest nesting colonies of both red-billed gulls (*Larus novaehollandiae*) and white-fronted terns.

## 5. Recommendations

The panel recommends that a process is developed to periodically review the available data describing the distribution and abundance of rare and threatened bird species in the Wellington Region and to regularly re-assess and update the habitats of significance listed in Appendices 2-4 of this report. The reason for this is that new bird survey data are constantly being collected in the Wellington region, enabling further sites of significance to be identified and facilitating the re-assessment of existing sites.

The dynamic nature of the habitat types included in this review also means that the range of species present at individual sites is likely to change relatively quickly over time in comparison to typically more stable habitat types such as indigenous forest.

A third reason for implementing periodic reviews of the available bird data is that the New Zealand Threat Classification System rankings for New Zealand's birds are planned to be reviewed every five years and species' threat rankings do change from one review to the next. The inclusion of any new species among the ranks of nationally threatened taxa could well lead to the identification of new habitats of significance based on the translation criteria used in this review. The converse is also possible; the downgrading of species currently listed as threatened could lead to the future exclusion of some habitats from the current lists. We suggest the optimal timing for a review of the habitats listed in Appendices 2-4 of this report would be immediately following the publication of each new list of national threat rankings for New Zealand birds. The next review is scheduled to be done in 2017, with publication likely to be in 2018.

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## Appendices

### Appendix 1: New Zealand Threat Classification System rankings for bird species mentioned in this report

Threat rankings are as per Robertson et al. (2013). Species names and taxonomic order are as per Gill et al. (2010).

Scientific name	Common name	Threat ranking
<i>Cygnus atratus</i>	black swan	Not threatened
<i>Tadorna variegata</i>	paradise shelduck	Not threatened
<i>Anas gracilis</i>	grey teal	Not threatened
<i>A. rhynchosotis</i>	Australasian shoveler	Not threatened
<i>Poliiocephalus rufopectus</i>	New Zealand dabchick	Nationally Vulnerable
<i>Eudyptula minor</i>	little penguin	At Risk, Declining
<i>Puffinus gavia</i>	fluttering shearwater	At Risk, Relict
<i>Phalacrocorax carbo</i>	black shag	At Risk, Naturally Uncommon
<i>P. varius</i>	piebald shag	Nationally Vulnerable
<i>P. sulcirostris</i>	little black shag	At Risk, Naturally Uncommon
<i>Stictocarbo punctatus</i>	spotted shag	Not threatened
<i>Ardea modesta</i>	white heron	Nationally Critical
<i>Egretta sacra</i>	reef heron	Nationally Endangered
<i>Botaurus poiciloptilus</i>	Australasian bittern	Nationally Endangered
<i>Platalea regia</i>	royal spoonbill	At Risk, Naturally Uncommon
<i>Calidris acuminata</i>	sharp-tailed sandpiper	Migrant
<i>C. melanotos</i>	pectoral sandpiper	Vagrant
<i>Limosa lapponica baueri</i>	eastern bar-tailed godwit	At Risk, Declining
<i>Haematopus unicolor</i>	variable oystercatcher	At Risk, Recovering
<i>H. finschi</i>	South Island pied oystercatcher	At Risk, Declining
<i>Himantopus himantopus</i>	pied stilt	At Risk, Declining
<i>Pluvialis fulva</i>	Pacific golden plover	Migrant
<i>Charadrius obscurus aquilonius</i>	northern New Zealand dotterel	Nationally Vulnerable
<i>C. bicinctus</i>	banded dotterel	Nationally Vulnerable
<i>Euseyornis melanops</i>	black-fronted dotterel	Coloniser
<i>Thinornis novaeseelandiae</i>	shore plover	Nationally Critical
<i>Larus novaehollandiae</i>	red-billed gull	Nationally Vulnerable
<i>L. bulleri</i>	black-billed gull	Nationally Critical
<i>Hydroprogne caspia</i>	Caspian tern	Nationally Vulnerable
<i>Sterna striata</i>	white-fronted tern	At Risk, Declining
<i>Bowdleria punctata vealeae</i>	North Island fernbird	At Risk, Declining
<i>Anthus novaeseelandiae</i>	New Zealand pipit	At Risk, Declining

## Appendix 2: Habitats of significance for indigenous birds in the beds of rivers in the Wellington region

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 translation criteria category scores			Critical periods
			Rarity	Diversity	Ecological Context	
Hutt River (Hutt River mouth to 1.3 km upstream of Hutt River mouth)	41°14'01"S 174°53'59"E	Five threatened or 'at risk' species are resident or regular visitors to this site: Black shag, little black shag, royal spoonbill, variable oystercatcher and red-billed gull.	3	2	3	None
Opouawe River (braided river habitat)	41°29'43"S 175°25'35"E	This site provides breeding habitat for 25% of the regional population of banded dotterels.  Three threatened or 'at risk' species are resident or regular visitors to this site: Banded dotterel, pied stilt and NZ pipit	1	3	3	1 August – 1 February (Banded dotterel nesting period)
Otaki River (Otaki River mouth to downstream end of Otaki Gorge)	40°47'34"S 175°10'38"E	This site supports the largest breeding populations of both banded dotterels and black-fronted dotterels on the west coast of the North Island south of the Manawatu River. These populations represent ca. 8% of the regional populations of both species.  Seven threatened or 'at risk' species are resident or regular visitors to this site: Banded dotterel, pied stilt, black shag, pied shag, white-fronted tern, red-billed gull and NZ pipit.	2	1	3	1 August – 1 February (Banded dotterel and black-fronted dotterel nesting periods)
Pahaoa River (Glendhu bridge to Pahaoa River mouth)	41°23'00"S 175°43'40"E	Five threatened or 'at risk' species are resident or regular visitors to this site: Black shag, little black shag, variable oystercatcher, pied stilt and red-billed gull.	3	2	3	None
Pahaoa River (upstream of Glendhu bridge)	41°21'20"S 175°41'50"E	Four threatened or 'at risk' species are resident or regular visitors to this site: Banded dotterel, pied stilt, variable oystercatcher and NZ pipit.	3	2	3	None

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 translation criteria category scores			Critical periods
			Rarity	Diversity	Ecological Context	
Ruamahanga River (Rathkeale College to Te Ore Ore Rd bridge)	40°55'16"S 175°41'53"E	This site provides breeding habitat for the entire breeding population of black-billed gulls present in the Wellington region.  Five threatened or 'at risk' species are resident or regular visitors to this site: Black-billed gull, banded dotterel, black shag, pied stilt and NZ pipit.	1	2	3	1 August – 1 February (Banded dotterel nesting period)  1 September – 1 February (Black-billed gull nesting period)
Ruamahanga River (Wardell's bridge to Gladstone bridge) and Waingawa River (Totara Park Drive to Ruamahanga Confluence)	41°02'22"S 175°38'58"E	This site provides breeding habitat for 20% of the regional population of banded dotterels.  Five threatened or 'at risk' species are resident or regular visitors to this site: Banded dotterel, black shag, pied stilt, black-billed gull and NZ pipit.	1	2	3	1 August – 1 February (Banded dotterel nesting period)
Waiohine River (railway bridge to SH2 bridge)	41°03'40"S 175°27'02"E	Five threatened or 'at risk' species are resident or regular visitors to this site: Banded dotterel, black shag, pied stilt, black-billed gull and NZ pipit.	3	2	3	1 August – 1 February (Banded dotterel nesting period)

### Appendix 3: Habitats of significance for indigenous birds in the lakes of the Wellington region

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Lake Onoke	41°22'45"S 175°07'50"E	At least ten threatened or 'at risk' species are resident or regular visitors to this site: NZ dabchick, pied shag, black shag, little black shag, banded dotterel, pied stilt, black-billed gull, red-billed gull, Caspian tern and white-fronted tern.	3	1	3	None
Lake Wairarapa	41°13'06"S 175°14'14"E	<p>This site provides winter (non-breeding) habitat for &gt;75% of the regional populations of black-billed gulls, banded dotterels and black-fronted dotterels and up to 60% of the regional population of pied stilts.</p> <p>This site provides summer (non-breeding) habitat for close to 100% of the regional population of bar-tailed godwits, Pacific golden plovers, sharp-tailed sandpipers and pectoral sandpipers.</p> <p>This site provides foraging and roosting habitat for &gt;20% of the Wellington Region's breeding population of Caspian terns.</p> <p>This site provides moulting, foraging and roosting habitat for nationally and/or regionally significant populations of indigenous waterfowl species including black swans, paradise shelducks, grey teal and Australasian shoveler.</p> <p>At least twelve threatened or 'at risk' species are resident or regular visitors to this site: NZ dabchick, Australasian bittern, white heron, royal spoonbill, black shag, little black shag, banded dotterel, variable oystercatcher, bar-tailed godwit, pied stilt, black-billed gull and Caspian tern.</p>	1	1	1	All year round (Important summer site for Arctic-breeding shorebirds; important winter site for NZ-breeding shorebirds; important year-round moulting and feeding site for indigenous wildfowl)



Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Parangarahu Lakes (including adjacent wetlands)	41°21'38"S 174°52'08"E	This site supports the second-largest of only a handful of black shag nesting colonies in the Wellington Region.  Five threatened or 'at risk' species are resident or regular visitors to this site: NZ dabchick, pied shag, black shag, banded dotterel and NZ pipit.	2	2	3	All year round (Black shag breeding)

#### Appendix 4: Habitats of significance for indigenous birds in the coastal marine area of the Wellington region

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Baring Head coastline, including the Wainuiomata River mouth	41°24'29"S 174°52'38"E	<p>This site is one of less than half a dozen sites along the south Wellington coastline that supports a breeding population of banded dotterels (4% of the regional population).</p> <p>Nine threatened or 'at risk' species are known to be resident or regular visitors to this site: Banded dotterel, variable oystercatcher, white-fronted tern, Caspian tern, red-billed gull, pied stilt, black shag, pied shag and New Zealand pipit.</p>	3	1	3	1 August – 1 February (Banded dotterel nesting period)
Castlepoint reef & adjacent foreshore	40°54'14"S 176°13'37"E	<p>This site supports the largest of only a handful of known nesting colonies of red-billed gulls in the Wellington region, comprising up to 80% of the regional breeding population of this species.</p> <p>This site also supports one of the largest nesting colonies of white-fronted terns in the Wellington region, comprising up to 50% of the regional breeding population of this species.</p> <p>Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Red-billed gull, white-fronted tern, black shag, variable oystercatcher and New Zealand pipit.</p>	1	2	3	<p>1 August – 1 March (Red-billed gull nesting period)</p> <p>1 October – 1 March (White-fronted tern nesting period)</p>
Flat Point coastline, including the Arawhata Stream mouth	41°15'14"S 175°55'46"E	<p>Six threatened or 'at risk' species are known to be resident or regular visitors to this site: Banded dotterel, variable oystercatcher, pied stilt, white-fronted tern, black shag and New Zealand pipit.</p>	3	2	3	None

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Kapiti Island foreshore	40°51'23"S 174°54'09"E	<p>This site provides little penguins with access to one of less than half a dozen relatively large and secure nesting colonies remaining in the Wellington region.</p> <p>This site also supports one of only a handful of known nesting colonies of red-billed gulls in the Wellington region.</p> <p>Seven threatened or 'at risk' species are known to be resident or regular visitors to this site: Little penguin, red-billed gull, black shag, variable oystercatcher, pied shag, white-fronted tern and Caspian tern.</p>	1	1	3	<p>1 July to 1 March (Little penguin nesting period)</p> <p>1 August – 1 March (Red-billed gull nesting period)</p>
Makara estuary	41°13'17"S 174°42'53"E	<p>This site supports one of only a handful of pied shag nesting colonies in the Wellington region.</p> <p>Six threatened or 'at risk' species are known to be resident or regular visitors to this site: Pied shag, red-billed gull, white-fronted tern, black shag, pied stilt and variable oystercatcher.</p>	3	2	3	All year round (Pied shag nesting period)
Makaro/Ward Island foreshore	41°17'38"S 174°52'17"E	<p>This site provides little penguins with access to one of less than half a dozen relatively large and secure nesting colonies remaining in the Wellington region.</p> <p>Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Little penguin, white-fronted tern, red-billed gull and variable oystercatcher.</p>	3	2	3	<p>1 July to 1 March (Little penguin nesting period)</p> <p>1 September – 1 April (Variable oystercatcher nesting period)</p>
Mana Island foreshore	41°05'12"S 174°46'53"E	<p>This site supports the only breeding population of shore plover in the Wellington region, comprising up to 20% of the global population of this species<sup>2</sup>.</p> <p>This site provides little penguins with access to one of less than half a dozen relatively large and secure nesting colonies remaining</p>	1	2	3	<p>1 October to 1 March (shore plover nesting period)</p> <p>1 July to 1 March (Little penguin nesting period)</p>

<sup>2</sup> This population is extinct at the time this report was being prepared following the capture and transfer of birds to captivity. However, the Department of Conservation intends to re-instate this population at some point in the future.

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
		in the Wellington region. Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Shore plover, little penguin, red-billed gull, white-fronted tern and pied shag.				
Mataikona River mouth	40°46'54"S 176°16'03"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Black shag, pied stilt, banded dotterel, variable oystercatcher and red-billed gull.	3	2	3	None
Matiu/Somes Island foreshore	41°15'29"S 174°51'51"E	<p>This site provides little penguins with access to one of less than half a dozen relatively large and secure nesting colonies remaining in the Wellington region, supporting at least 10% of the regional population of this species.</p> <p>This site provides foraging &amp; roosting habitat adjacent to one of only two sites in the region at which reef herons have been recorded breeding in recent years. Matiu/Somes Island supports at least 10% of the regional population of this species.</p> <p>This site provides roosting habitat adjacent to the largest nesting colony of spotted shags present in the Wellington region. Matiu/Somes Island supports &gt;67% of the regional population of this species.</p> <p>Six threatened or 'at risk' species are known to be resident or regular visitors to this site: Little penguin, reef heron, variable oystercatcher, black shag, red-billed gull and white-fronted tern.</p>	2	2	1	<p>1 July to 1 March (Little penguin nesting period)</p> <p>1 September to 1 February (Reef heron nesting period)</p> <p>All year round (Spotted shag nesting period)</p> <p>1 September – 1 April (Variable oystercatcher nesting period)</p>
Mokopuna Island foreshore	41°15'04"S 174°51'53"E	<p>This site provides little penguins with access to one of less than half a dozen relatively large and secure nesting colonies remaining in the Wellington region.</p> <p>Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Little Penguin,</p>	3	2	3	<p>1 July to 1 March (Little penguin nesting period)</p> <p>1 September – 1 April (Variable oystercatcher nesting period)</p>

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
		variable oystercatcher, red-billed gull and white-fronted tern.				
Onepoto Arm, Porirua Harbour	41°06'58"S 174°51'03"E	<p>The Onepoto Arm is one of only a handful of relatively large estuaries in the Wellington region and is therefore a regionally important stop-over site for several migrant shorebird species such as SI pied oystercatcher and bar-tailed godwit.</p> <p>At least nine threatened or 'at risk' species are known to be resident or regular visitors to this site: Royal spoonbill, pied shag, black shag, SI pied oystercatcher, variable oystercatcher, bar-tailed godwit, pied stilt, banded dotterel, red-billed gull and Caspian tern.</p>	1	1	3	All year round (Important summer site for Arctic-breeding shorebirds; important winter site for NZ-breeding shorebirds)
Onoke Spit	41°23'19"S 175°07'01"E	<p>This site supports the only nesting colony of Caspian terns in the Wellington region.</p> <p>This site also supports the largest coastal breeding population of banded dotterels in the Wellington region, comprising at least 10% of the regional breeding population of this species.</p> <p>At least eight threatened or 'at risk' species are known to be resident or regular visitors to this site: Caspian tern, banded dotterel, red-billed gull, variable oystercatcher, white-fronted tern, black shag, little black shag and NZ pipit.</p>	1	1	3	<p>1 September to 1 February (Caspian tern nesting period)</p> <p>1 August to 1 February (Banded dotterel nesting period)</p> <p>1 September – 1 April (Variable oystercatcher nesting period)</p> <p>1 August – 1 March (Red-billed gull nesting period)</p>
Otaki River mouth	40°45'31"S 175°06'14"E	Seven threatened or 'at risk' species are known to be resident or regular visitors to this site: Royal spoonbill, black shag, pied shag, banded dotterel, pied stilt, red-billed gull and white-fronted tern.	3	1	3	None
Pahaoa estuary and Pahaoa Scientific Reserve	41°23'45"S 175°43'17"E	<p>This site supports one of only a handful of known nesting colonies of red-billed gulls in the Wellington region.</p> <p>At least seven threatened or 'at risk' species are known to be resident or regular visitors to this</p>	3	1	3	1 August – 1 March (Red-billed gull nesting period)

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
		site: Banded dotterel, variable oystercatcher, red-billed gull, black shag, pied stilt, white-fronted tern and NZ pipit.				
Paraparaumu Beach	40°53'12"S 174°58'58"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, Caspian tern and white-fronted tern.	3	2	3	None
Pauatahanui Inlet, Porirua Harbour	41°05'52"S 174°53'34"E	<p>Pauatahanui Inlet is one of only a handful of relatively large estuaries in the Wellington region and is therefore a regionally important stop-over site for several migrant shorebird species such as SI pied oystercatcher and bar-tailed godwit.</p> <p>At least eleven threatened or 'at risk' species are known to be resident or regular visitors to this site: SI pied oystercatcher, variable oystercatcher, bar-tailed godwit, pied stilt, banded dotterel, red-billed gull, black shag, pied shag, royal spoonbill, little black shag &amp; Caspian tern.</p>	1	1	3	All year round (Important summer site for Arctic-breeding shorebirds; important winter site for NZ-breeding shorebirds)
Pencarrow foreshore	41°22'10"S 174°51'33"E	<p>This site is the largest of less than half a dozen sites along the south Wellington coastline that supports a coastal breeding population of banded dotterels (6% of the regional population).</p> <p>Seven threatened or 'at risk' species are known to be resident or regular visitors to this site: Black shag, pied shag, banded dotterel, variable oystercatcher, red-billed gull, white-fronted tern and NZ pipit.</p>	2	1	3	<p>1 August to 1 February (Banded dotterel nesting period)</p> <p>1 September – 1 April (Variable oystercatcher nesting period)</p>
Pukerua Bay	41°05'07"S 176°04'43"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, white-fronted tern, black shag and pied shag.	3	2	3	None

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Riversdale Beach & Motuwaireka Stream mouth	41°05'07"S 176°04'43"E	<p>This is the only site in the Wellington region that supports a breeding population of NZ dotterels.</p> <p>This site also supports one of the largest coastal breeding populations of banded dotterels on the Wairarapa coast (6% of the regional population).</p> <p>Ten threatened or 'at risk' species are known to be resident or regular visitors to this site: NZ dotterel, banded dotterel, variable oystercatcher, pied stilt, bar-tailed godwit, black shag, white-fronted tern, Caspian tern, black-billed gull and red-billed gull.</p>	1	1	3	<p>1 August to 1 February (New Zealand dotterel nesting period)</p> <p>1 August to 1 February (Banded dotterel nesting period)</p> <p>1 September to 1 April (Variable oystercatcher nesting period)</p> <p>1 July to 1 January (Pied stilt nesting period)</p>
Stony Bay	41°29'45"S 175°32'37"E	This site supports one of only a handful of nesting colonies of red-billed gulls in the Wellington region, comprising approximately 12% of the regional population of this species.	2	3	3	1 August – 1 March (Red-billed gull nesting period)
Taputeranga Island foreshore	41°20'59"S 174°46'22"E	<p>This site provides foraging &amp; roosting habitat adjacent to one of only two sites at which reef herons have been recorded breeding in recent years. Taputeranga Island supports at least 50% of the regional population of this species.</p> <p>Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Reef heron, little penguin, variable oystercatcher, red-billed gull and white-fronted tern.</p>	1	2	3	1 September to 1 February (Reef heron nesting period)
Tokomapuna (Aeroplane) Island foreshore	40°52'51"S 174°55'37"E	<p>This site provides little penguins with access to one of less than half a dozen relatively secure nesting colonies remaining in the Wellington region.</p> <p>Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Little penguin, variable oystercatcher, red-billed gull and white-fronted tern.</p>	3	2	3	1 July to 1 March (Little penguin nesting period)

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Tora foreshore	41°32'50"S 175°28'13"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, pied shag, black shag, red-billed gull and NZ pipit.	3	2	3	None
Turakirae Head	41°25'47"S 174°55'17"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Black shag, variable oystercatcher, red-billed gull, white-fronted tern and NZ pipit.	3	2	3	None
Waikanae Estuary	40°52'30"S 175°00'16"E	<p>This site is one of only two sites in the Wellington region to support a breeding population of NI fernbird, comprising at least 50% of the regional population of this species.</p> <p>The Waikanae Estuary is one of only a handful of relatively large estuaries in the Wellington region and is therefore a regionally important stop-over site for several migrant shorebird species such as SI pied oystercatcher and bar-tailed godwit.</p> <p>At least twelve threatened or 'at risk' species are known to be resident or regular visitors to this site: Banded dotterel, NI fernbird, NZ dabchick, SI pied oystercatcher, variable oystercatcher, bar-tailed godwit, pied stilt, black shag, pied shag, red-billed gull, white-fronted tern and Caspian tern.</p>	1	1	3	All year round (Important summer site for Arctic-breeding shorebirds; important winter site for NZ-breeding shorebirds; year-round habitat for NI fernbird.)
Waitohu Stream mouth	40°43'39"S 175°07'19"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Red-billed gull, variable oystercatcher, banded dotterel, pied stilt and Caspian tern.	3	2	3	None
Wellington Harbour foreshore; Pencarrow sewer outfall to Burdan's Gate	41°20'20"S 174°51'38"E	<p>This site is one of less than half a dozen sites along the south Wellington coastline that supports a coastal breeding population of banded dotterels.</p> <p>Seven threatened or 'at risk' species are known to be resident or regular visitors to this site:</p>	3	1	3	1 August to 1 February (Banded dotterel nesting period)



Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
		Banded dotterel, variable oystercatcher, red-billed gull, pied shag, black shag, little black shag and NZ pipit.				
Wellington Harbour foreshore; northern end of Day's Bay to Point Howard	41°15'47"S 174°54'26"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, black shag, little black shag and pied shag.	3	2	3	None
Wellington Harbour foreshore; Point Howard to eastern shore of Hutt River mouth	41°14'57"S 174°54'09"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Red-billed gull, variable oystercatcher, black shag and pied shag.	3	2	3	None
Wellington Harbour foreshore; western shore of Hutt River mouth to Petone Beach rowing club	41°13'44"S 174°52'35"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Red-billed gull, variable oystercatcher, SI pied oystercatcher, black shag and white-fronted tern.	3	2	3	None
Wellington Harbour foreshore; Petone Beach rowing club to Ngauranga railway station	41°14'07"S 174°50'05"E	Six threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, black shag, little black shag, pied shag and white-fronted tern.	3	2	3	None
Wellington Harbour foreshore; Ngauranga railway station to Interislander ferry terminal	41°15'25"S 174°47'56"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, black shag and pied shag.	3	2	3	None
Wellington Harbour foreshore; Point Jenningham to Point Halswell	41°18'07"S 174°48'39"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, little black shag, pied shag and white-fronted tern.	3	2	3	None

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Wellington Harbour foreshore; Point Halswell to Worsler Bay boat club	41°17'56"S 174°49'56"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Little penguin, variable oystercatcher, red-billed gull, little black shag and white-fronted tern.	3	2	3	None
Wellington Harbour foreshore; Worsler Bay boat club to Point Dorset	41°19'21"S 174°50'02"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, red-billed gull, pied shag, and white-fronted tern.	3	2	3	None
Wellington Harbour foreshore; Palmer Head to Lyall Bay	41°20'22"S 174°48'08"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Little penguin, red-billed gull, variable oystercatcher and white-fronted tern.	3	2	3	None
Wellington Harbour foreshore; Te Raekaihau Point to Ohiro Bay road end	41°20'49"S 174°46'13"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Red-billed gull, reef heron, variable oystercatcher, black shag, white-fronted tern.	3	2	3	None
Wellington Harbour inland waters	41°16'53"S 174°50'59"E	<p>The inland waters of Wellington harbour provide foraging habitat for close to 100% of the regional population of spotted shags.</p> <p>Large numbers (up to several thousand) fluttering shearwaters enter Wellington harbour during winter months to rest and feed, at times comprising a large, but unknown proportion of the Cook Strait population of this species.</p> <p>Wellington Harbour provides foraging habitat and access for little penguins to several large, secure nesting colonies on Matiu/Somes, Mokopuna and Makaro/Ward Islands.</p> <p>Five threatened or 'at risk' species are known to be resident or regular visitors to Wellington Harbour: Little penguin, fluttering shearwater, red-billed gull, Caspian tern &amp; white-fronted tern.</p>	1	2	1	<p>All year round (Year-round foraging habitat for spotted shags)</p> <p>Winter (Important winter habitat for fluttering shearwaters)</p> <p>1 July to 1 March (Little penguin nesting period)</p>

Site name	Latitude and longitude (NZGD2000)	Description	Policy 23 criteria scores			Critical periods
			Rarity	Diversity	Ecological Context	
Wellington south coast (Sinclair Head to Owhiro Bay)	41°21'18"S 174°43'41"E	Five threatened or 'at risk' species are known to be resident or regular visitors to this site: Black shag, variable oystercatcher, red-billed gull, white-fronted tern and NZ pipit.	3	2	3	None
Whareama River mouth	41°00'49"S 176°06'08"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Variable oystercatcher, banded dotterel, pied stilt, and NZ pipit.	3	2	3	None
White Rock to Te Kaukau Point including White Rock beach and Opouawe River mouth	41°34'06"S 175°24'42"E	Four threatened or 'at risk' species are known to be resident or regular visitors to this site: Banded dotterel, pied stilt, variable oystercatcher and NZ pipit.	3	2	3	None

The Greater Wellington Regional Council promotes **Quality for Life** by ensuring our environment is protected while meeting the economic, social and cultural needs of the community

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