

A trend count of Kuruwhengi, the Australasian Shoveler Duck - 2024

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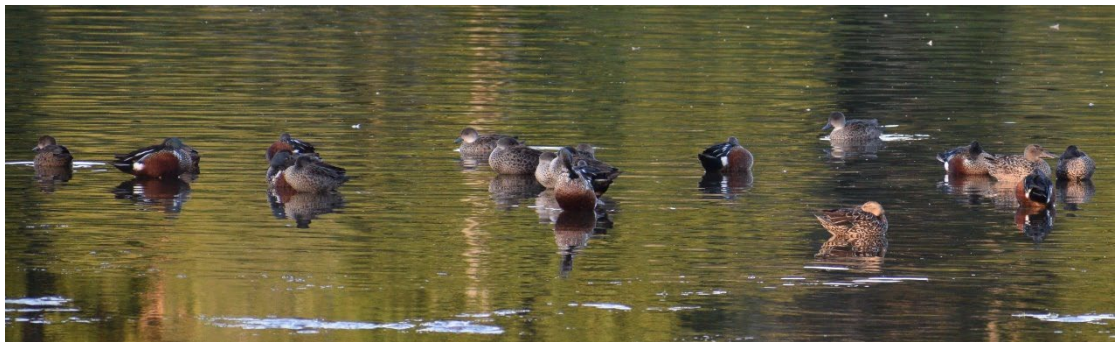


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Summary

Fish and Game New Zealand conducted a national count of kuruwhengi, Australasian shoveler duck (*Spatula (Anas) rhynchotis*) on 5 August 2024. This is the 25th annual count (2000 – 2024) to monitor change in the New Zealand shoveler duck population. Four indices were examined, (1) total national count ($n=277$ survey sites), (2) the sum of counts from sites that have been counted every year ($n=73$), (3) a two-year trend of each site (2023–2024; $n=250$) and (4) a 25-year trend of each site (2000–2024; $n=268$). The trends are derived from a regression line, i.e., a linear slope, fitted to the annual log count for each site.

The 2024 total count (12,514) was the 20th highest ranked count in the 25 years and similar to last year's count of 12,359 ($n=259$). There were however 18 more sites counted in 2024 cf. 2023.

The long-term trend indicates a stable population (average change = -0.006; 95% CI - 0.087 – 0.075) despite a decrease in the last two years (average change = -0.09; 95% CI -0.17 – -0.015).

The total counts at the 73 sites that have been counted every year was the fourth lowest (4,350; last year was the lowest at 3,884 shoveler duck) since 2000. A linear regression line fitted to these 73 sites suggest no change in the shoveler population at these count sites over the 25 years ($\beta_{Year} = -2.82$; $P = 0.948$).

Sex ratios were examined using a chi-squared test. Reported observations of females were significantly fewer ($P < 0.0001$) than males with a ratio of 0.59 females to males. This sex imbalance is consistent with ratios from previous years (0.63 females to males).

The national survey is an index of population change. Count sites were not randomly selected so inference about national shoveler populations must be made with caution. All indices, except the short term (2023 – 2024) counts, point to a stable shoveler population. Following a small decrease detected in the 2022 count Southland and Otago Fish and Game regions introduced more restrictive conditions (daily bag limits) which may explain the change in population trends.

Introduction

Two species of extant shoveler duck are recorded in New Zealand, the northern shoveler (*Spatula clypeata*), a rare arctic vagrant, and the Australasian shoveler (*S. rhynchotis*) or kuruwhengi, a common native (Heather and Robertson 1996).

Shovelers are filter feeders (Crome 1985; Potts 1977) that extract relatively fine seeds, planktonic animals (e.g. cladocerans, copepods, rotifers, and ostracods), and small snails by sifting water through lamellae on their bills (Marchant and Higgins 1991; Potts 1977). They are considered a bird of lowland fertile wetlands (Heather and Robertson 1996; Williams 1981b) but also frequent sheltered estuaries (Marchant and Higgins 1991).

Australasian shoveler are deemed a game bird that can be hunted in New Zealand subject to conditions stipulated in the Wildlife Act 1953 and the annual Game Bird Gazette Notice, and are managed by Fish and Game New Zealand. The effective monitoring of game birds was set as a high priority by the New Zealand Fish and Game, Game Bird Research Committee. It was proposed to monitor Australasian shoveler duck, within a national framework (Rodway 1999) as this species is very

mobile and tends to disperse nationally (Barker, Caithness, and Williams 2005; Sutton et al. 2002; Williams 1981b) compared with other more sedentary game species in New Zealand such as the mallard (*Anas platyrhynchos*) (Balham and Miers 1959; M. McDougall 2012) or the paradise shelduck (*Tadorna variegata*) (Barker 1990; Williams 1981a).

Method

Survey Design

The aim of the shoveler survey is to detect an annual change in the population of shoveler duck at indicator ponds (Figure 1) and to monitor long term changes at these sites.

Survey forms (Appendix 4) were distributed to all Fish and Game Regions who made them available to surveyors. The survey forms included pre-printed site name, grid references, the name of last year's observer (to try and ensure observers are paired with the same sites each year to minimise observer bias) and site access details. Site information was provided to minimise between year observer variation.

The survey date was Monday 5th of August 2024 to coincide with pre-breeding flock formations (Williams 1981b). Chosen sites were visited and the number of male and female shoveler duck and total grey teal were recorded. Where sex could not be determined due to light conditions, distance, or large numbers, they were recorded as unidentified sex.

Survey Sites

Shoveler prefer lowland fertile waterways such as ponds and lakes (Williams 1981b). We did not have data on this type of habitat to allow us to randomly select count sites so in 2000 staff were asked to select a minimum of 10 count sites in each region where shoveler were known to congregate. Over the 25 years, 445 different survey sites (annual range = 202–291 in 2009 and 2001 respectively; Figure 1) have been counted but some are not surveyed every year due to a number of factors including, loss of access, detectability and difficulty conducting an accurate count. New count sites have been added to offset some of these sites.

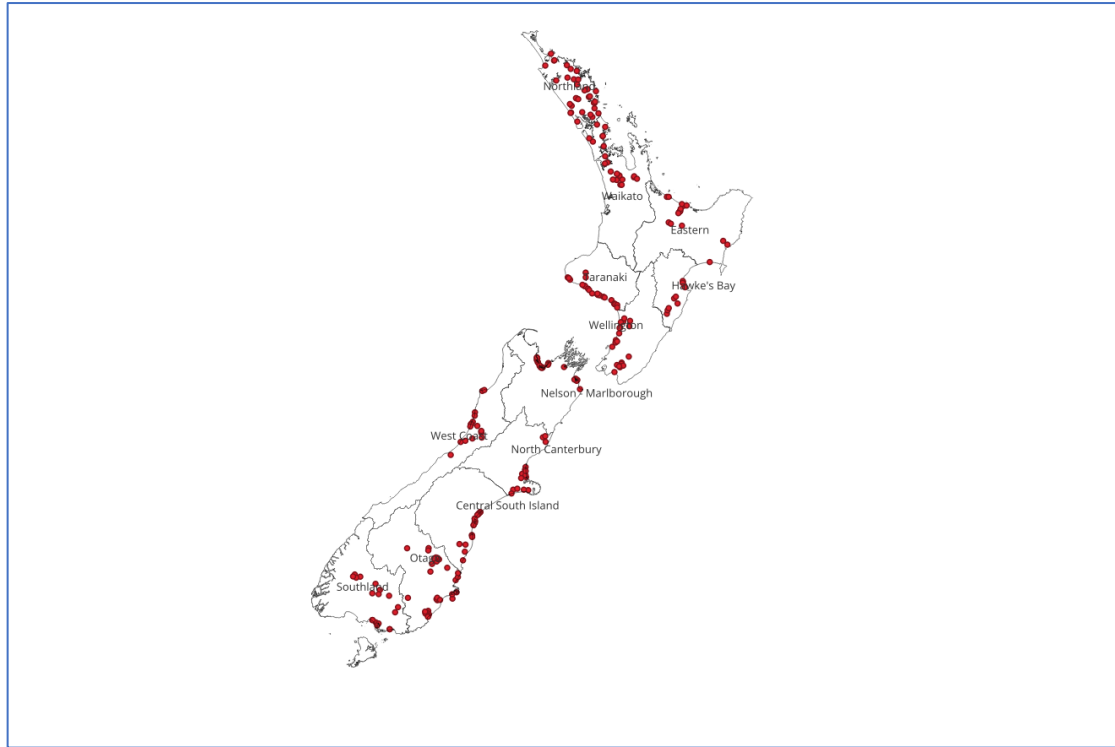


Figure 1. Shoveler 2024 count locations (red dots). Black lines are regional Fish and Game boundaries.

Analysis

Count data was examined using two different methodologies; (1) sites that have been counted for the 25 years were summed ($\sum C_t$) and, (2) a variant on the route regression method (Geissler and Sauer 1990) where counts were converted to their natural log ($\ln C_{ij} + 1 = y_{ij}$) and a temporal regression line was fitted to each site then the average regression coefficient across all sites was estimated to provide the long-term trend.

The percentage population change (lambda) was derived as the exponent of the mean regression coefficient:

$$\hat{\lambda} = (e^{\bar{b}} - 1) \times 100 \quad (\text{Rosenberg 1998}).$$

The best way to deal with the natural log of zeros in regression models lacks consensus (Bellégo, Benatia, and Pape 2022). I chose to add 1 to the natural log for the sole reason that the natural log of 1 is zero.

The back transformation of the natural log estimate can be biased. A possible correction is (Geissler and Sauer 1990):

$$\hat{\lambda} = \exp \{ \ln(\bar{b}) - 0.5 \widehat{\text{variance}}[\ln(b)] \}$$

Male:Female Ratio

The chi-square goodness of fit test was used to test whether the expected ratio of 50:50 males to females was observed.

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

Where:

E_i = The expected frequency of the i th class

O_i = The observed frequency of the i th class

Degrees of freedom; $\nu = k-1 = 2-1 = 1$

The Hypothesis is:

H_0 : That the ratio of males to females is 50:50,

H_A : The ratio of males to females is not 50:50.

Results

Sites

In 2024 a total of 277 sites were counted throughout New Zealand (Table 1; Appendix 6), 73 of which have been counted for the past 25 years. The number of sites counted in each region varied from 11 – 45.

Count Spread

84% of the 277 sites were counted on the 5th of August 2024 and 5% on the 4th of August. The remainder were counted between 24 July and 6 August 2024.

Count Results

Total annual counts: 12,514 ($n=277$) shoveler were counted throughout the country, similar to the 2023 count of 12,359 ($n=259$; Figure 2, Table 2). The fitted regression line indicates no long-term change in the total annual shoveler count ($\beta_{Year} = 66.07$; $P = 0.16$).

Shoveler counted per site ($\text{mean}_{(2024)} = 45.18$) has shown no long-term change ($\beta_{Year} = 0.222$; $P = 0.241$).

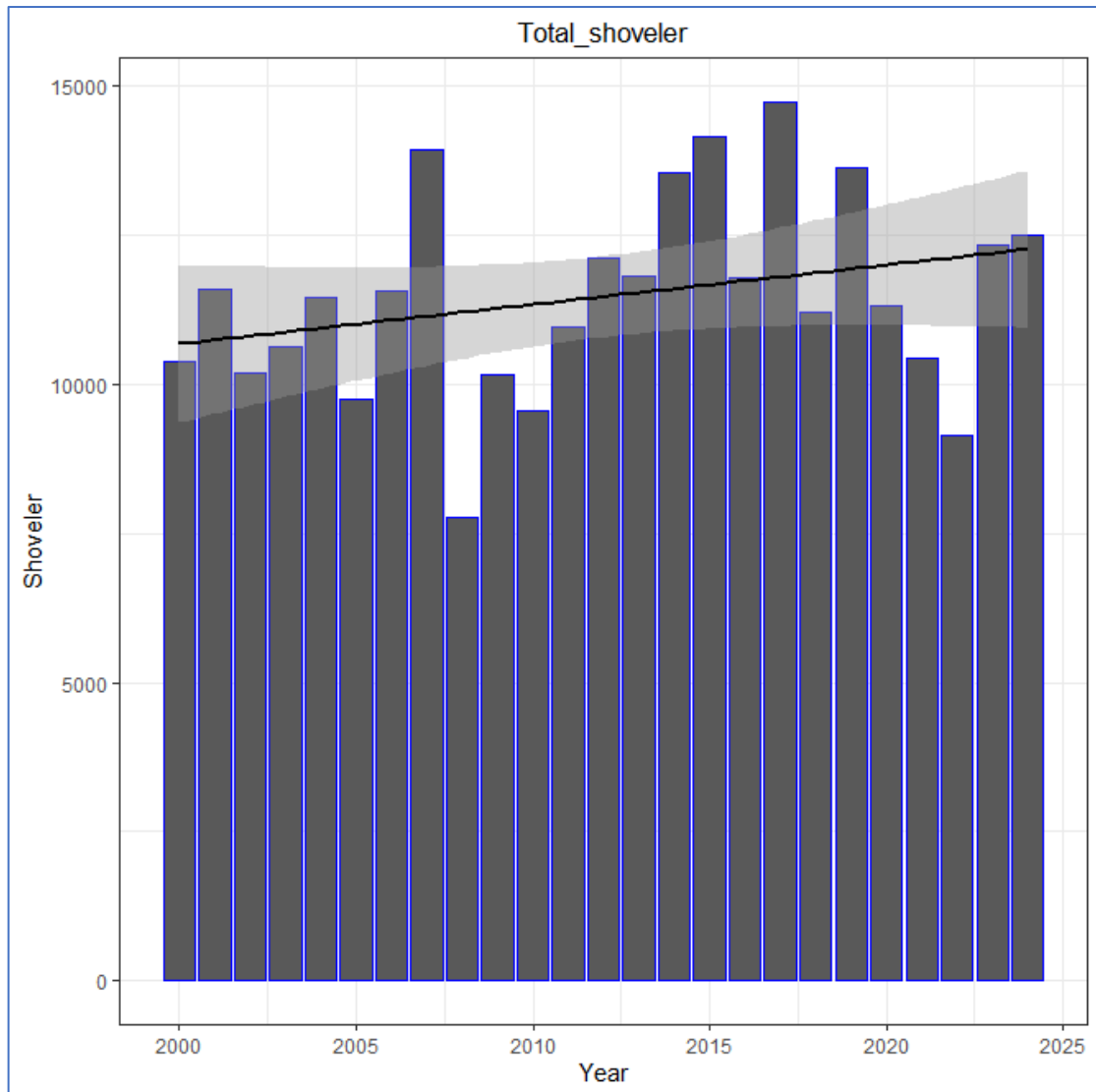


Figure 2. Total shoveler counted throughout New Zealand 2000–2024. The solid black line is the regression line.

Long and short term trends: The trend (average regression coefficient of the log transformed data for each count site) over the 25 years indicates no change in the shoveler population at the sites counted (average change = -0.006; 95% CI -0.087 – 0.075; $n=268$; Figure 3).

The estimate of the average regression coefficient (log transformed data) for the last two years (2023 – 2024) was negative (average change = -0.09; 95% CI -0.17 – -0.015).

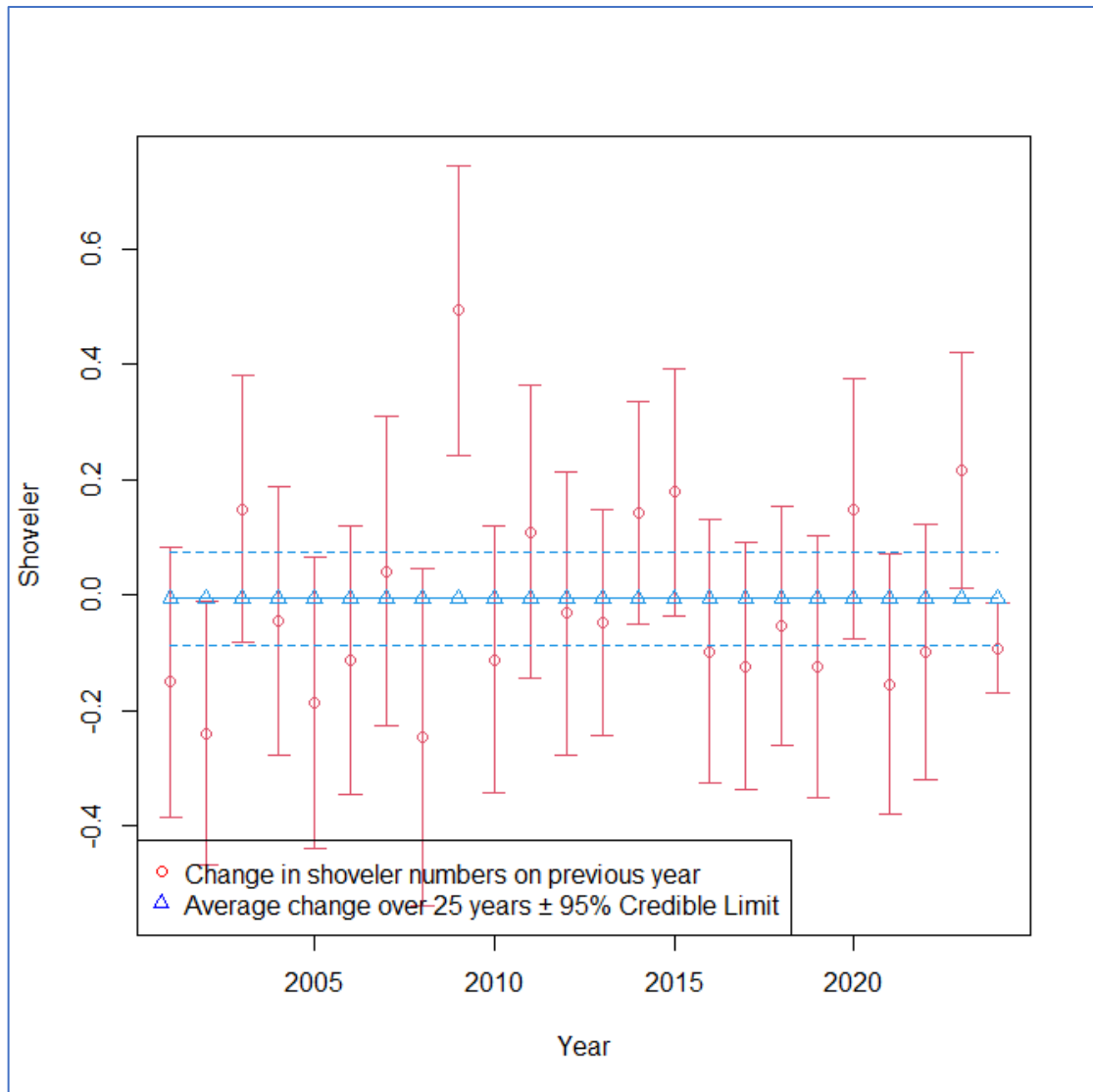


Figure 3. Annual change in shoveler count (red point estimates $\pm 95\%$ CI). Blue line is change over the 25 years ($\pm 95\%$ CI; $n=268$).

For sites that had been counted every year ($n=73$; Figure 4) there is no indication that the counts at these sites are increasing or decreasing ($\beta_{year} = -2.82$; $P = 0.948$).

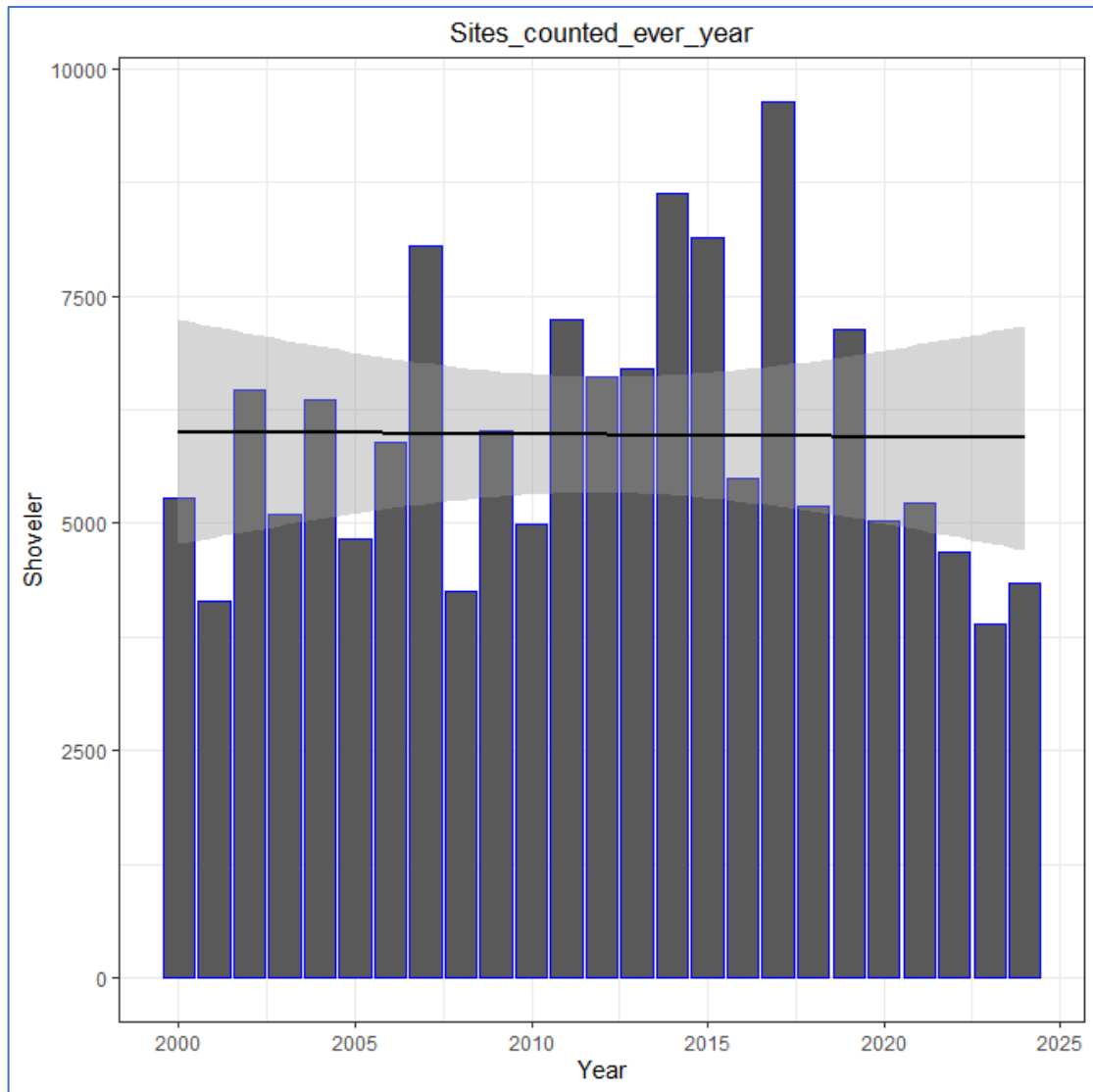


Figure 4. Total shoveler count (blue dots) of the sites that have been counted every year (25 years; $n=73$). The black line is the regression line.

Male Female Ratios

The 2024 female: male ratio was 0.59 which differs from the 50:50 ratio hypothesised ($\chi^2 = 243.276$; $P < 0.0001$). The observed imbalance in the female: male ratio in 2024 is similar to previous years (Appendix ; Table 4). Over the 25 years the average ratio of recorded females to recorded males is 0.63 ($\chi^2 = 5920.44$; $P < 0.0001$).

Table 1. Number of sites counted by year and region

Year	Northland	Auckland/Waikato	Eastern	Taranaki	Hawke's Bay	Wellington	Nelson/Marlborough	West Coast	North Canterbury	Central South Island	Otago	Southland	Total
2000	19	47	17	23	10	18	63	10	7	16	42	16	288
2001	20	48	17	23	10	22	67	11	8	17	32	16	291
2002	23	27	17	15	9	20	45	12	9	20	30	15	242
2003	21	26	16	16	9	22	43	14	8	20	30	16	241
2004	18	17	18	16	9	23	44	13	9	20	29	16	232
2005	21	22	18	23	9	23	56		7	20	31	16	246
2006	16	21	18	18	11	23	55	12	9	20	27	16	246
2007	22	20	18	22	11	23	42	12	9	20	29	16	244
2008	12	20	19	11	10	23	33	12	9	22	21	16	208
2009	10	21	17	11	11	24	26	12	9	22	23	16	202
2010	12	21	19	21	11	29	26	12	8	22	25	16	222
2011	12	20	16	22	11	32	26	12	5	22	26	16	220
2012	13	20	16	22	10	32	26	12	7	22	31	17	228
2013	15	20	19	23	10	32	26	13	8	22	32	12	232
2014	15	20	20	25	10	32	26	13	8	22	31	17	239
2015	15	20	20	25	12	32	26	13	9	22	34	17	245
2016	19	21	19	25	11	31	26	13	9	22	35	17	248
2017	21	21	17	25	11	31	24	13	9	22	38	17	249
2018	26	21	17	25	9	30	23	13	9	22	38	17	250
2019	29	22	18	26	9	30	21	14	9	22	38	17	255
2020	30	20	17	25	9	21	21	14	9	21	36	16	239
2021	26	22	17	25	9	22	19	14	9	22	38	16	239
2022	27	21	17	26	10	23	19	15	16	22	38	17	251
2023	28	21	17	26	11	23	20	19	16	22	38	18	259
2024	35	22	18	27	11	21	24	19	15	22	45	18	277

Table 2. Shoveler and grey teal counts for the last ten years (2015–2024) by region (previous years are in Appendix)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
AUCKLAND/WAIKATO										
SHOVELER MALES	614	355	272	253	417	377	311	169	224	335
SHOVELER FEMALES	406	258	161	143	193	194	212	92	140	204
SHOVELER UNKNOWN SEX	1751	1450	1826	1695	2239	2632	2880	622	810	455
TOTAL SHOVELER	2771	2063	2259	2091	2849	3203	3403	883	1174	994
GREY TEAL	293	187	424	505	301	203	190	164	328	394
CENTRAL SOUTH ISLAND										
SHOVELER MALES	442	352	450	178	99	391	116	339	552	496
SHOVELER FEMALES	243	191	328	110	63	245	74	253	360	286
SHOVELER UNKNOWN SEX	38	125	147	53	188	47	7	156	195	54
TOTAL SHOVELER	723	668	925	341	350	683	197	748	1107	836
GREY TEAL	2573	2395	3731	1182	3383	3991	456	2533	3081	5560
EASTERN										
SHOVELER MALES	189	112	64	68	87	140	131	73	126	72
SHOVELER FEMALES	166	86	37	44	61	99	87	44	82	47
SHOVELER UNKNOWN SEX	41	265	53	112	180	69	12	47	94	52
TOTAL SHOVELER	396	463	154	224	328	308	230	164	302	171
GREY TEAL	300	57	131	86	187	181	75	64	120	82
HAWKE'S BAY										
SHOVELER MALES	91	621	1395	140	246	209	198	104	279	230
SHOVELER FEMALES	76	280	595	60	321	149	186	54	174	156
SHOVELER UNKNOWN SEX	2830	703	2377	1662	1515	52	252	1462	17	1797
TOTAL SHOVELER	2997	1604	4367	1862	2082	410	636	1620	470	2183
GREY TEAL	18	382	1667	5	0	62	65	13	337	2240
NELSON/MARLBOROUGH										
SHOVELER MALES	0	0	0	0	0	0	0	0	0	0

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
SHOVELER MALES	134	181	167	176	138	290	111	93	101	134
SHOVELER FEMALES	58	143	102	63	77	120	44	28	43	59
SHOVELER UNKNOWN SEX	1714	1525	1108	2213	1507	1944	1676	956	1653	1607
TOTAL SHOVELER	1906	1849	1377	2452	1722	2354	1831	1077	1797	1800
GREY TEAL	77	350	347	207	166	329	166	71	1131	1202
NORTH CANTERBURY	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	128	217	561	188	88	156	40	421	1194	1429
SHOVELER FEMALES	88	184	568	132	67	138	29	263	680	806
SHOVELER UNKNOWN SEX	164	240	0	86	2046	155	0	7	754	262
TOTAL SHOVELER	380	641	1129	406	2201	449	69	691	2628	2497
GREY TEAL	445	640	880	589	2253	153	20	276	3863	2314
NORTHLAND	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	67	14	57	116	64	133	44	63	64	147
SHOVELER FEMALES	36	8	42	58	44	61	45	42	38	82
SHOVELER UNKNOWN SEX	0	0	0	6	0	10	81	0	0	0
TOTAL SHOVELER	103	22	99	180	108	204	170	105	102	229
GREY TEAL	99	56	42	67	58	127	39	72	63	148
OTAGO	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	183	391	1412	300	487	392	1055	1008	904	884
SHOVELER FEMALES	128	346	982	183	378	332	793	532	577	506
SHOVELER UNKNOWN SEX	1387	354	23	448	436	541	0	1	221	103
TOTAL SHOVELER	1698	1091	2417	931	1301	1265	1848	1541	1702	1493
GREY TEAL	800	735	1256	871	1053	628	776	1483	1299	1276
SOUTHLAND	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	393	782	460	487	614	516	551	465	534	305
SHOVELER FEMALES	240	457	155	219	213	196	192	241	651	291

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
SHOVELER UNKNOWN SEX	22	63	50	26	49	4	17	334	60	408
TOTAL SHOVELER	655	1302	665	732	876	716	760	1040	1245	1004
GREY TEAL	271	448	344	246	298	770	296	353	374	343
TARANAKI	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	326	194	198	190	199	178	266	167	286	218
SHOVELER FEMALES	161	88	80	66	75	69	110	73	111	80
SHOVELER UNKNOWN SEX	692	16	47	268	218	54	14	82	25	161
TOTAL SHOVELER	1179	298	325	524	492	301	390	322	422	459
GREY TEAL	397	55	171	286	196	125	153	82	118	236
WELLINGTON	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	491	979	459	674	215	533	297	329	420	229
SHOVELER FEMALES	289	623	335	682	169	567	166	186	304	151
SHOVELER UNKNOWN SEX	419	88	135	51	827	135	318	292	510	172
TOTAL SHOVELER	1199	1690	929	1407	1211	1235	781	807	1234	552
GREY TEAL	354	374	226	321	832	643	185	389	413	303
WEST COAST	0	0	0	0	0	0	0	0	0	0
SHOVELER MALES	34	50	42	27	62	128	74	98	106	194
SHOVELER FEMALES	22	40	36	24	35	69	47	43	46	102
SHOVELER UNKNOWN SEX	85	0	9	0	0	0	0	0	0	0
TOTAL SHOVELER	141	90	87	51	97	197	121	141	152	296
GREY TEAL	278	446	121	405	377	337	212	295	516	424
TOTAL SHOVELER MALES	3092	4248	5537	2797	2716	3443	3194	3329	4790	4673
TOTAL SHOVELER FEMALES	1913	2704	3421	1784	1696	2239	1985	1851	3206	2770
TOTAL SHOVELER UNKNOWN SEX	9143	4829	5775	6620	9205	5643	5257	3959	4339	5071
TOTAL SHOVELER	14148	11781	14733	11201	13617	11325	10436	9139	12335	12514
TOTAL GREY TEAL	5905	6125	9340	4770	9104	7549	2633	5795	11643	14522

Discussion

Fish and Game staff and volunteers conducted the 25th annual national shoveler duck count in August 2024. Although termed national, the sites were not randomly selected, so the survey is considered an index of population status.

Count Results

All long-term indices indicate that the shoveler population is stable. The two-year population change from the 2023 to 2024 count suggest a small decrease however the upper confidence interval is approaching zero.

The count was similar to the 2023 count which were both higher than the 2022 count. The low numbers in 2022 may have been due to poor weather on the day and flooding in many parts of the country prior to the count (i.e., the birds may have dispersed to less traditional feeding areas).

The issue of comparing total count between years is compromised by the annual change in the number of sites that are counted (due to issues such as loss of access). A better approach may be to look at the average count (total annual shoveler count/number of sites counted in that year).

Count design

There are issues with a single count providing an indication of population change (Johnson 2008). For example, this survey does not account for detectability or observer bias. Detectability is influenced by the distance from the observer to the birds, cover, weather, light and the conspicuousness of the animal being observed (male shoveler plumage is more recognisable than that of the female and so are more easily identified). Moreover, observer bias is influenced by experience, skill, and the type of binoculars/ spotting scope they use. To overcome some of this bias survey sheets are circulated prior to the count with details of the observer in the preceding year, to try and ensure that the same person counts the same sites each year with instructions on where to count the birds from (i.e., standardise the observation point and the observer).

Detectability is difficult to accurately assess and may bring its own set of bias and inaccuracy (depending on the surveyor). In some larger wetland complexes detectability may also change due to wetland water levels and or weather as birds may be more concentrated or widely dispersed depending on habitat availability, particularly in tidal areas. Shoveler however, generally appear to occupy the same areas of the wetlands from year to year (pers. obs.), perhaps reducing the consequences of not recording detectability. Weather is also a contributing factor to detectability. Observers regularly make a comment on the weather if the conditions are not conducive to counting. Nevertheless, when count data (2000 – 2021) was modelled against weather covariates the results were counter intuitive. It was hypothesised that wind strength and rain would decrease the count, however the covariate estimates suggest otherwise. The only covariate that made sense was the count decreasing when there was a southerly component in wind direction. Part of this anomaly may be explained by the large number of low counts, almost 40% of counts were 1 or 0. But it is unclear why the covariates fit the data so well ($P < 0.001$) and yet do not make sense (M. B. McDougall 2021).

Sites

The non-random selection of survey sites is a weakness of this monitoring programme. Ideally a random sample would be taken from all shoveler habitat but as shoveler habitat has not been mapped this cannot be easily completed. Ideally a stratified sampling regime should be developed. Staff should be encouraged to record the location/habitat when they encounter shoveler during their normal activities to enable the development of a shoveler habitat GIS layer. Additionally, hunters could be canvassed during the gamebird harvest survey to help identify areas that hold shoveler. A third option is to assess the representativeness of these sites is to compare them to the E-Bird (OSNZ) mapping scheme showing known shoveler sites.

The consequence of non-random habitat selection is that no formal inference about the status of the national population can be made. Readers will have to judge for themselves if counts from 277 sites are a fair representation of the national shoveler population.

An application to the research fund has been made to try and improve the statistical robustness of the survey design has been approved.

Sex ratios

The consistent imbalance of females: males in the count data may be due to the ease of distinguishing male shoveler from other waterfowl at this time of the year. Alternatively, the result may occur because males were identified as males and females as unidentified sex, or it may be a true reflection of the population balance. This imbalance is very similar to mallards trapped for banding in the Eastern Region (1.5 juvenile males: juvenile females; 1.35 adult males: adult females) (M. McDougall 2010) and many other dabbling duck populations globally which is largely attributed to sex specific mortality. Shoveler banding data (Department of Conservation band schedules 1971 – 1986; $n=3284$ adults) further corroborates these observations with an imbalance of 2.37 shoveler males to females (McDougall unpublished data). Nevertheless, it is likely that the imbalance is a combination of a sex imbalance and observers identifying a higher proportion of the males as males.

Count Date

The 5th of August was chosen as count date. This date coincides with the end of the waterfowl season and the pre-breeding flocks that begin to gather at the end of July (Williams, 1981a). The timing of the count is a compromise between females moving away to nest and the end of the waterfowl season. The date is also consistent between years for the past two decades which removes another factor of variability with the census counts.

Analysis technique

A regression estimate of the natural log of the count data over time was calculated and the average of these slope estimates were back transformed to indicate annual percentage population change (termed a variant on the route regression method). Using the route regression method is useful where counted sites are not consistent from year to year. In addition:

- New sites can be included.
- Small sites are comparable to large sites.

- Sites that are disturbed or missed don't affect the estimate (but may affect the error of the estimate).
- The estimate is an estimate of the change in population with an associated error.

Nevertheless, this method provides no insight on the total population size and, as alluded to above, is compromised by lack of randomisation in count site selection. Further the variance estimates shown in the graph do not account for the individual variance of each regression estimate nor detection probabilities. Therefore, the very narrow CI around the trend estimates is underestimating the true variability.

An alternative index is the annual total shoveler count per site. The concern with this approach is that sites that consistently have few or no shoveler are more likely to be dropped in favour of new sites with lots of shoveler creating a positive bias.

Managers are left to judge for themselves if the average trend of approximately 277 sites is going to be indicative of the population at large. The 73 sites counted each year likely provide a good basis for a longitudinal study, however these sites might be preferred shoveler habitat and not reflect what is happening to the wider population. The counts at these sites may in fact increase in years when other habitat has dried up or is sub-optimal and the population has decreased.

Conclusion and Recommendations

Shoveler duck abundance at the sites counted has fluctuated over the 25 years however the average trend is relatively stable.

Fish and Game should consider a review of the survey. The review could consider:

- Inclusion of randomly selected sites (some form of random stratified design)¹. Alternatively establish a new survey where count sites are randomly selected.
- Consider using Ebirds database to establish shoveler habitat in New Zealand. This could form the basis for the random survey. This would probably entail giving over F&G count data.
- If it is useful to know the size of the national population of shoveler duck (for example every five years), or density (shoveler km⁻²) nationally and regionally.
- If Fish and Game should agree on a national harvest strategy given the presumption that the population is monitored as such?

Acknowledgments

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¹ An application for research funding has been submitted and approved.

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Appendix 1

Shoveler and grey teal counts by region and year

Table 3. Count data 2000 - 2014

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Auckland/Waikato															
Sum of Shoveler Males	561	356	181	242	186	322	222	62	123	201	572	619	175	475	498
Sum of Shoveler Females	397	240	94	176	139	227	150	36	69	161	328	222	102	303	379
Sum of Shoveler Unknown Sex	168	1434	259	987	1602	151	2210	1548	1010	934	268	2247	713	982	4144
Sum of Total Shoveler	1126	2030	534	1405	1927	700	2582	1646	1202	1296	1168	3088	990	1760	5021
Sum of Grey Teal				0	348	732	15	98	0	12	511	101	446	1000	348
Central South Island															
Sum of Shoveler Males	0	229	166	241	168	174	267	220	267	825	265	228	1296	191	1161
Sum of Shoveler Females	0	138	140	167	115	127	210	154	122	242	122	183	67	97	437
Sum of Shoveler Unknown Sex	629	94	160	31	52	134	18	56	98	49	281	33	99	511	16
Sum of Total Shoveler	629	461	466	439	335	435	495	430	487	1116	668	444	1462	799	1614
Sum of Grey Teal					510	3033	2143	1817	4882	4303	3467	5980	3011	3102	3746
Eastern															
Sum of Shoveler Males	549	232	77	177	638	216	99	162	57	119	149	60	96	64	110
Sum of Shoveler Females	288	124	60	121	402	82	58	104	40	72	58	31	62	42	91
Sum of Shoveler Unknown Sex	285	2786	683	931	91	697	936	534	1027	59	731	174	129	163	80
Sum of Total Shoveler	1122	3142	820	1229	1131	995	1093	800	1124	250	938	265	287	269	281
Sum of Grey Teal					38	146	113	111	44	149	92	208	83	438	173
Hawke's Bay															
Sum of Shoveler Males	446	400	267	307	357	355	55	183	97	161	430	223	128	51	17
Sum of Shoveler Females	304	281	200	188	235	246	36	133	102	77	148	115	105	36	15
Sum of Shoveler Unknown Sex	2404	1055	3059	1575	2501	2093	2834	4243	1803	2758	2373	1988	3054	2644	1615

Sum of Total Shoveler	3154	1736	3526	2070	3093	2694	2925	4559	2002	2996	2951	2326	3287	2731	1647
Sum of Grey Teal					283	3836	458	2529	212	854	385	375	161	277	260
Nelson/Marlborough															
Sum of Shoveler Males	111	116	122	198	155	205	169	135	143	236	82	165	257	132	71
Sum of Shoveler Females	61	100	94	204	120	141	111	93	112	179	69	96	183	126	47
Sum of Shoveler Unknown Sex	453	22	27	301	366	1055	851	1373	327	885	668	694	1707	2230	1615
Sum of Total Shoveler	625	238	243	703	641	1401	1131	1601	582	1300	819	955	2147	2488	1733
Sum of Grey Teal					957	1220	170	468	105	547	872	115	66	247	110
North Canterbury															
Sum of Shoveler Males	83	38	278	482	181	120	108	636	27	148	106	101	186	80	194
Sum of Shoveler Females	68	27	124	308	152	124	89	586	21	112	122	92	102	56	116
Sum of Shoveler Unknown Sex	185	143	124	10	73	65	482	256	0	75	13	0	0	62	68
Sum of Total Shoveler	336	208	526	800	406	309	679	1478	48	335	241	193	288	198	378
Sum of Grey Teal					4014	3570	4135	1966	86	0	510	1025	250	23	178
Northland															
Sum of Shoveler Males	30	53	28	53	60	41	24	12	64	17	23	33	101	46	54
Sum of Shoveler Females	27	44	26	49	46	27	28	9	73	12	24	13	76	31	26
Sum of Shoveler Unknown Sex	0	5	0	0	1	0	0	0	0	0	0	1	0	0	0
Sum of Total Shoveler	57	102	54	102	107	68	52	21	137	29	47	47	177	77	80
Sum of Grey Teal					246	158	43	44	37	73	13	67	36	46	159
Otago															
Sum of Shoveler Males	0	800	662	123	110	760	578	568	296	350	266	158	482	417	148
Sum of Shoveler Females	0	505	507	105	96	509	532	475	120	331	233	204	444	348	285
Sum of Shoveler Unknown Sex	1073	136	290	826	1103	241	213	423	535	338	430	845	57	737	639
Sum of Total Shoveler	1073	1441	1459	1054	1309	1510	1323	1466	951	1019	929	1207	983	1502	1072
Sum of Grey Teal					1496	1926	1940	863	895	361	810	392	759	2773	1091
Southland															
Sum of Shoveler Males	369	260	27	92	98	216	117	228	126	114	183	430	489	337	380

Sum of Shoveler Females	210	164	22	96	101	116	103	133	68	72	93	257	243	153	214
Sum of Shoveler Unknown Sex	56	134	806	651	1118	640	359	519	204	569	537	102	128	0	105
Sum of Total Shoveler	635	558	855	839	1317	972	579	880	398	755	813	789	860	490	699
Sum of Grey Teal					268	243	317	128	377	604	175	295	429	144	195
Taranaki															
Sum of Shoveler Males	76	100	155	135	30	72	8	25	26	51	85	203	147	207	227
Sum of Shoveler Females	47	84	114	98	25	58	3	22	10	27	63	134	86	124	120
Sum of Shoveler Unknown Sex	210	196	165	68	238	3	121	124	0	40	82	115	37	29	11
Sum of Total Shoveler	333	380	434	301	293	133	132	171	36	118	230	452	270	360	358
Sum of Grey Teal					7	44	76	23	0	29	98	93	43	34	160
Wellington															
Sum of Shoveler Males	246	480	253	455	203	152	114	489	347	461	366	565	657	569	303
Sum of Shoveler Females	196	244	104	150	94	78	67	214	220	293	265	313	364	412	202
Sum of Shoveler Unknown Sex	755	459	815	787	367	311	243	60	108	116	45	175	196	72	44
Sum of Total Shoveler	1197	1183	1172	1392	664	541	424	763	675	870	676	1053	1217	1053	549
Sum of Grey Teal					269	322	146	381	84	178	216	217	169	292	203
West Coast															
Sum of Shoveler Males	39	34	37	125	89		48	55	71	54	35	82	80	48	68
Sum of Shoveler Females	18	37	40	115	85		38	51	47	30	42	49	71	36	54
Sum of Shoveler Unknown Sex	48	49	32	50	66		71	0	3	0	0	0	0	4	0
Sum of Total Shoveler	105	120	109	290	240		157	106	121	84	77	131	151	88	122
Sum of Grey Teal					210		91	79	270	83	142	317	206	113	69
Total Sum of Shoveler Males	2510	3098	2253	2630	2275	2633	1809	2775	1644	2737	2562	2867	4094	2617	3231
Total Sum of Shoveler Females	1616	1988	1525	1777	1610	1735	1425	2010	1004	1608	1567	1709	1905	1764	1986
Total Sum of Shoveler Unknown Sex	6266	6513	6420	6217	7578	5390	8338	9136	5115	5823	5428	6374	6120	7434	8337
Total Sum of Total Shoveler	10392	11599	10198	10624	11463	9758	11572	13921	7763	10168	9557	10950	12119	11815	13554
Total Sum of Grey Teal				0	8646	15230	9647	8507	6992	7193	7291	9185	5659	8489	6692

Appendix 2

Male: female ratios

Table 4. Male: Female ratio by year

Year	F:M_Ratio	Chi_Square	P_value
2000	0.643825	96.85361	P<0.001
2001	0.641704	121.1266	P<0.001
2002	0.676875	70.14082	P<0.001
2003	0.675665	82.55151	P<0.001
2004	0.707692	56.91441	P<0.001
2005	0.658944	92.30815	P<0.001
2006	0.787728	22.79777	P<0.001
2007	0.724324	61.15204	P<0.001
2008	0.610706	77.34139	P<0.001
2009	0.587505	146.6791	P<0.001
2010	0.611632	119.8868	P<0.001
2011	0.596093	146.5214	P<0.001
2012	0.465315	399.3766	P<0.001
2013	0.674054	83.04143	P<0.001
2014	0.61467	148.5552	P<0.001
2015	0.618693	138.8652	P<0.001
2016	0.636535	171.4568	P<0.001
2017	0.617844	249.9138	P<0.001
2018	0.637826	112.0027	P<0.001
2019	0.624448	117.9057	P<0.001
2020	0.650305	127.5621	P<0.001
2021	0.621478	141.1161	P<0.001
2022	0.556023	210.8575	P<0.001
2023	0.668053	158.804	P<0.001
2024	0.592767	243.2762	P<0.001

Appendix 4

Shoveler Counts Survey Sheet

Fish & Game Region: _____ Observer: _____

Date: _____ Time: _____

Location: _____ Grid ref: _____

Map No (260 Series): _____

Access Details: _____

Weather Conditions

Wind direction: _____ Wind Strength¹: _____

Cloud²: _____ Rain³: _____

Shoveler Males: _____

Shoveler Females: _____

Shoveler unknown sex: _____

Total Shoveler: _____

Comments: _____

Please return completed form to your nearest Fish and Game Office

If you have any queries phone Matthew M'Dougall 07-357-5501 (wk) 07-357-2687 (AH)

¹ Wind strength: Nil, moderate, Strong.

² Cloud: Estimate percentage cover; eg no cloud 0%, complete cover 100% cover.

³ Rain: Drizzle, Moderate Showers, Heavy Showers, Moderate, Heavy.

Appendix 5

2024 Count Details

Region	Auckland/Waikato				
	Site	Males	Females	Unknown Sex	Total
	Caldwells Dam	0	0	0	0
	Chick's Pond	6	2	0	8
	Clarks Bay Shelbank	3	1	0	4
	David Saxton Wetland	0	0	0	0
	Fisher Pond	4	2	0	6
	Helensville Oxy. Ponds	2	2	0	4
	Kidds, Karaka	2	2	0	4
	Lake Waikare	0	0	72	72
	Leighton's Lake	30	22	0	52
	Mangere Water Storage	32	30	0	62
	Meremere Power Station	17	6	0	23
	Meremere WWTP	1	0	0	1
	Murray Young Wetland	0	0	0	0
	Ralph Road Ponds	0	0	0	0
	Rosedale Oxy. Ponds	7	4	0	11
	Strakas Refuge	5	5	0	10
	Tee Head Pond	12	4	0	16
	Tuakau Oxy. Ponds	130	72	0	202
	Wairewa Oxy. Ponds	45	25	0	70
	Wellsford Oxy Ponds	20	10	0	30
	Whangamarino	0	0	363	363
	Whitney's Lake	19	17	20	56
Region	Central South Island				
	Site	Males	Females	Unknown Sex	Total
	All Day Bay Lagoon	6	4	0	10
	Bells Irrigation Pond	9	2	17	28
	Bortons Settling Pond	0	0	0	0
	Devils Bridge Wetland	19	8	0	27
	Horseshoe Lagoon	0	0	0	0
	Normanby Lagoon	11	4	0	15
	Old Orari Lagoon	11	5	0	16
	Opihi Lagoon	48	23	0	71
	Opihi Lagoon Nth Arm	12	8	0	20

Opihi Lagoon Sth Arm	6	3	0	9
Orari Lagoon	1	1	0	2
Otipua Wetland	0	0	0	0
Pareora Freezing Works	0	0	0	0
Pareora Lagoon	0	0	0	0
Pig Hunting Creek Lagoon	0	0	0	0
Rooneys Pond	38	28	10	76
Saltwater Creek	2	2	0	4
Smithfield Settling Pond	0	0	0	0
Spider Lagoon	6	5	0	11
Wainono Lagoon	179	89	27	295
Wainono Reserve	134	95	0	229
Washdyke Lagoon	14	9	0	23

Region

Eastern

Site	Males	Females	Unknown Sex	Total
Aniwhenua Lake	0	0	16	16
Awaiti Wildlife	18	12	0	30
Bookers Pond	0	0	0	0
Braemar Lagoon	4	1	0	5
East Valley Pond	0	0	0	0
Kaituna Cut	9	7	2	18
Kaituna Wildlife	1	1	0	2
Kawerau Road Pond	0	0	4	4
Marsden Cove Ponds	0	0	0	0
Matata Wildlife Refuge	4	4	0	8
Poverty Bay Golf Club	16	13	0	29
Repongaere Lake	0	0	0	0
Rerewhakaaitu	5	0	10	15
Rotomahana Wildlife	1	1	0	2
Rotoroa Lake	7	4	20	31
Tamurenu Lake	0	0	0	0
Thornton Lagoon	7	4	0	11
Whakaki Lagoon	0	0	0	0

Region

Hawke's Bay

Site	Males	Females	Unknown Sex	Total
Clive East Road	0	0	0	0
Horseshoe Lake	7	4	0	11
Lagoon Farm	97	65	0	162
Pirimu	9	6	0	15
Poukawa	0	0	1600	1600

Roto O Kiwa	7	5	0	12
Turfrey Swamp	0	0	0	0
Waitangi (Horseshoe)	0	0	0	0
Westshore Ponds	96	66	120	282
Whatuma	11	8	77	96
Willow Dam	3	2	0	5

Region

Nelson/Marlborough

Site	Males	Females	Unknown Sex	Total
Bell's Island	9	2	0	11
Best Island	0	0	0	0
Big Lagoon	0	0	240	240
Coastal Highway Pond	0	0	0	0
Corder Pond	0	0	0	0
Havelock Estuary	0	0	125	125
Kumaras/Oxidation Ponds	32	19	0	51
Kumera Estuary	0	0	0	0
Lake Grassmere	0	0	0	0
Lower Waimea River	0	0	0	0
Maori Lookout	0	0	1190	1190
Mapua	0	0	0	0
Mapua School	0	0	0	0
Motueka River mouth	2	1	0	3
Motueka Sandspit	0	0	0	0
Moutere Inlet	0	0	0	0
Mouth of O'Connor's	0	0	0	0
Oxidation Ponds	0	0	52	52
Pearl Creek	0	0	0	0
Port Motueka Estuary	0	0	0	0
Te Aropipi Channel	0	0	0	0
Traverse	0	0	0	0
Wakapuaka Oxidation	34	14	0	48
Wakapuaka Pond	57	23	0	80

Region

North Canterbury

Site	Males	Females	Unknown Sex	Total
A&P Ponds	7	5	0	12
Bromley Sewage Ponds	11	10	0	21
Brooklands Lagoon	90	54	42	186
Cheviot Settling Ponds	10	3	0	13
Coopers Lagoon	4	4	1	9
Greenpark Sands (Lake	6	6	2	14

Harts Creek Reserve	11	12	0	23
Kaiapoi Wastewater	869	261	0	1130
Lake Ellsmere - Kaituna	3	4	0	7
Lake Forsyth	31	13	0	44
St Annes Lagoon	67	36	0	103
Styx Mill Reserve	17	8	0	25
The Sister Ponds	7	3	0	10
Travis Wetland	43	45	0	88
Tutaepatu Lagoon	253	342	217	812

Region

Northland

Site	Males	Females	Unknown Sex	Total
Ararua	2	0	0	2
Borrowcut Wetland	0	0	0	0
Dargaville (Oxidation	1	0	0	1
Flaxmill Wetland	1	1	0	2
Glinks Gully	0	0	0	0
Greenheart Pond	0	0	0	0
Hikurangi Oxidation	1	0	0	1
Hokianga (Rawene	0	0	0	0
Hospital Pond	3	3	0	6
Kaeo Oxidation Ponds	0	0	0	0
Kaitaia Oxidation Ponds	3	2	0	5
Kaiwaka Rail Pond	0	0	0	0
Karikari Oxidation Ponds	0	0	0	0
Kawakawa Wetlands	57	34	0	91
Lake Manuwai	0	0	0	0
Lake Omapere Kaikohe	0	0	0	0
Lake Ora	3	2	0	5
Lake Owhareiti	3	3	0	6
Mangawhai Pond	0	0	0	0
Maungaturoto Oxidation	0	0	0	0
Ngunguru Oxidation Pond	8	3	0	11
Omaha Wastewater	28	22	0	50
Opahi Swamp	0	0	0	0
Port Marsden Hwy Ponds	0	0	0	0
Red Hill	0	0	0	0
Riverside Drive	28	9	0	37
Rototuna	0	0	0	0
Ruakaka Oxidation	0	0	0	0
Taipa Marsh	0	0	0	0

	Taipa Oxidation Ponds	9	3	0	12
	Waipu Oxidation Ponds	0	0	0	0
	Wairua wetlands	0	0	0	0
	Waitangi Wetlands	0	0	0	0
	Waro Lake	0	0	0	0
	Whangarei	0	0	0	0
Region	Otago				
	Site	Males	Females	Unknown Sex	Total
	Balclutha Backwater	20	12	0	32
	Balclutha Oxidation	4	4	0	8
	Blakelys Dam	12	8	0	20
	Blueskin Bay	0	0	0	0
	Borrow Pits	20	15	0	35
	Camerons Dam	9	4	0	13
	Carr's Oxbow	0	0	0	0
	Catlins Lake	130	70	0	200
	Creamery RD Pond	0	0	0	0
	Duffys Lane	0	0	0	0
	Finegand WR	0	0	0	0
	Hawksbury Lagoon	23	14	0	37
	Hoopers Inlet	25	9	0	34
	Inch Clutha WMR	25	20		45
	Kaikorai Estuary	20	18	0	38
	Kaitangita Oxidation	1	1	0	2
	Kogans Bridge Oxbows	6	4	0	10
	Lake Dunstan	29	11	0	40
	Lake Tuakitoto	200	122	0	322
	Lake Waihola	3	3	0	6
	Lake Waipori	5	5	0	10
	Lone Pine Reservior	24	6	0	30
	Mathias Dam	8	4	0	12
	McSkimmings Pond	6	4	0	10
	Merton Arm	0	0	8	8
	Middlemarch Sewage	0	0	0	0
	Old River Channel	1	1	0	2
	Palmerston Oxidation	12	7	0	19
	Patersons Dam	86	58	0	144
	Prison Oxidation Ponds	0	0	0	0
	Puerua River Estuary	1	1	0	2

Ranfurly Sewage	3	2	0	5
Rutherfords Dam	0	0	8	8
Sinclair Wetland	1	1	0	2
Stirling Oxidation	1	1	0	2
Stoney Ck Lagoon	0	0	15	15
Styx	32	21	0	53
Taieri Lake	7	3	0	10
Taieri Mouth School	14	8	0	22
Takitakitoa Wetlands	25	18	0	43
Tapanui Oxidation Ponds	110	42	0	152
Tomahawk Lagoon	3	1	0	4
Tomahawk Lagoon	0	0	0	0
Waikouaiti Sewage	18	8	0	26
Winmill Dam	0	0	72	72

Region Southland

Site	Males	Females	Unknown Sex	Total
Acton Downs Pond	0	0	0	0
Big Lagoon	0	0	0	0
City Lagoon	89	118	0	207
Daffodil Bay	80	87	0	167
Dawson City GMA	14	9	5	28
Gore Oxidation Ponds	0	0	398	398
Lake Murihiku	22	15	0	37
Lake Te Anau Outlet	0	0	0	0
Little Lake Waituna	0	0	0	0
Lumsden Oxidation	24	11	0	35
Mahinga Kai Pa site	31	22	0	53
Mataura Oxidation	15	8	0	23
Outlet Area Kakapo	0	0	0	0
Peter Menlove's Pond	0	0	0	0
Riversdale Gravel Pit	0	0	0	0
Ryan's Pond	3	1	0	4
Te Anau Oxidation Ponds	7	5	0	12
Waimatuku Wetland	20	15	5	40

Region Taranaki

Site	Males	Females	Unknown Sex	Total
Arrenmore	3	1	0	4
Eltham Oxidation Ponds	16	7	0	23
Huroto Road	0	0	0	0
Hawera Oxidation Ponds	54	19	0	73

Julian's Lake	0	0	0	0
Kaitoke Lake	0	0	75	75
Lake Herengawe	0	0	0	0
Lake Kohata	0	0	0	0
Lake Marahau	5	2	0	7
Lake Oturi	25	12	0	37
Lake Pauri	10	3	0	13
Lake Rotokauwau	14	4	0	18
Lake Waiau	0	0	0	0
Lake Waikato	0	0	10	10
Lake Waipu	0	0	28	28
Lake Westmere	0	0	0	0
Lake Wiritoa	0	0	0	0
Lower Ball Road	7	2	0	9
Lower Taumaha Road	2	2	0	4
Manaia Oxidation Ponds	0	0	0	0
Milne's Lake	0	0	0	0
Nowell's Lake	0	0	0	0
Opunake Oxidation Ponds	0	0	0	0
Opunaki Lake	27	13	0	40
Patea Oxidation Ponds	8	5	48	61
Stratford Oxidation Ponds	47	10	0	57
Waverly Oxidation	0	0	0	0

Region

Wellington

Site	Males	Females	Unknown Sex	Total
Barton's Lagoon	1	1	0	2
Carex Grove	21	17	0	38
Carterton Sewage Ponds	0	0	0	0
Duncans Lagoon	5	6	0	11
Featherston Sewage	0	0	0	0
Lake Omanu	3	0	14	17
Lake Omanuka	18	10	0	28
Lake Wairarapa -	0	0	0	0
Lake Wairarapa -	56	56	0	112
Lake Wairarapa -	0	0	0	0
Lake Wairongomai	1	1	0	2
Matthews Lagoon	3	3	0	6
Otaki Sewage Ponds	50	33	0	83
O-Te-Pua Wetland	3	2	0	5
Pounui Lagoon	0	0	0	0

	Pukepuke Lagoon	55	20	0	75
	Smiths	8	2	0	10
	Voss Lagoon	5	0	0	5
	Waikanae Sewage Ponds	0	0	0	0
	Wairoa Pond	0	0	158	158
	Waiterere Beach Road	0	0	0	0
Region	West Coast				
	Site	Males	Females	Unknown Sex	Total
	Barry Town Lagoon	33	19	0	52
	Bisset Ponds	3	3	0	6
	Blaketown Lagoon	33	19	0	52
	Bradshaws Wetland	0	0	0	0
	Buller Lagoon	13	10	0	23
	Hokitika Oxidation	44	21	0	65
	Karoro Oxidation Ponds	6	2	0	8
	Lake Brunner - Iveagh	1	1	0	2
	Lake Brunner - Swan	2	1	0	3
	Lake Ianthe	1	1	0	2
	Lake Poerua	3	1	0	4
	Lake Ryan	27	9	0	36
	Mahinapua	5	7	0	12
	NE Shore Lake Brunner	4	1	0	5
	North Cobden Lagoon	1	1	0	2
	Okuku Reservoir	2	1	0	3
	Pheonix Meat Works	0	0	0	0
	Runanga Oxidation Pond	16	5	0	21
	South Cobden Lagoon	0	0	0	0

Appendix 6

Count site details

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Northland	Ararua	428	Q08	2615200	6570700	1704583.26	6008865.60	12.4 km on Ararua Rd from SH 12. 10 Ha irrigation lake on edge of road Jackson's property.
Northland	Aupouri Forest (Lake 5km North of Lake Bulrush)	153	N03	2509030.3	6722020.7	1598065.00	6159828.00	Travelled 5km North of Lake Bulrush to un named lake . Situated in D.O.C RESERVE.Just North of Swan Lake. The Grid ref for this is wrong. Have change GR but not sure if this is the site???
Northland	Aupouri Forest (Swan Lake)	152	NO3					Access on foot at end of Road
Northland	Borrowcut Wetland (Hikurangi Swamp)	155	Q06	2623885	6622053	1713140.00	6060221.00	Turn West off State Highway 1 next to Hikurangi and follow Jordan Valley Rd until the Wairua River bridge is reached . Cross bridge and turn right then follow stopbank Rd until wetland is reached on the right hand side.
Northland	Bulrush Lake	620	N03	2510982.0	6721553.5			
Northland	Dargaville (Oxidation Ponds)	147	P07	2591291	6585286	1680650.00	6023388.00	Turn left off State Highway 14 just over bridge prior to entering Dargaville. Follow road to pondes.
Northland	Doug Donaldson Kaiwaka	580	Q08	2638100	6559530	1727501.78	5997753.00	Farm track past Burnt? 1/2 round shed off Ranganui Road off Oneriri Road Kaiwaka. Farm for sale. Doug Donaldson 09-431-2228
Northland	Flaxmill Wetland	533	P07	2587286	6589295	1676637.00	6027386.00	Located off Waihue Rd, Northwest of Dargaville (5km). Observed from town end (Southern Pond)
Northland	Glinks Gully	599	P08	2588653	6569098	1678051.00	6007203.00	In gully on left approx. 250m down Glinks Road
Northland	Greenheart Pond	586	P07	2606200	6600400	1695515.33	6038531.98	End of Bob Taylor Rd and walk in
Northland	Hikurangi Oxidation Ponds.	138	Q06	2602600	6602100	1691912.68	6040222.39	Turn left into oxidation ponds off Jordan Valley road from state Highway 1 near Hikurangi.Ponds situated at the end of the raceway.
Northland	Hokianga (Rawene Oxidation Ponds)	143	O05	2556335	6642827	1645574.90	6080820.40	Short drive from township. (Western side of bight) Clear.Bino observation.(7x50)The grid ref for this site was wrong think I have corrected it?? (MM)
Northland	Hospital Pond	619	O05	2556426.0	6643279.8			Below hospital 445m North of Rawene oxidation ponds
Northland	Kaeo Oxidation Ponds	641	P04	2580629	6677540	1669757.00	6115572.00	Omaunu Road North of Kaeo, right into dip Road. 60m over bridge left poplar lined drive. Left at first house marked Belinda? 2580629.6,6677540.3
Northland	Kaikohe	142	P05					Take TePua road off state highway 1. The whole lake has a road in close proximity to the lakes periphery. Bordering landowners are very helpful.

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Northland	kaikohe oxidation ponds	503	P05	2585300	6641500	1674520.69	6079560.64	Accessed of Cumbers Road, South of Kaikohe on Mangakahia Road.
Northland	Kaitaia Oxidation Ponds	608	O04	2531554	6676830	1620708.00	6114727.00	303 Bonnett Road
Northland	Kaiwaka Rail Pond	602	Q08	2638164.0	6559678.5	1727568.00	5997905.00	Off Ranganui Road (past woolshed) new manager is Brett Best 021956-676
Northland	Karikari Oxidation Ponds	606	O03	2544599	6703634	1633671.00	6141554.00	Inland Road Karikari through recycling depot
Northland	Kauri Dairy Company	139	Q06	2601800	6602900	1691111.05	6041020.07	Access is via Dairy farm raceway prior to Dairy Company entrance when heading North. Follow race until settling pond is reached.
Northland	Kawakawa Wetlands	504	P05	2606200	6644800	1695402.89	6082913.50	Off Mill Road near Kawakawa on SH1
Northland	KeriKeri Oxidation Pond (Waitangi Forest).	150	P05					Access is via Te Wairoa Rd near Haruru Falls. Check Topo for details.
Northland	Lake Manuwai	531	P04	2589300	6669100	1678445.98	6107158.67	End of Sandys Road Kerikeri
Northland	Lake Omapere Kaikohe	426	P05	2581900	6649300	1671101.89	6087348.06	6 km North of Ohaewai on SH 1
Northland	Lake Ora	506	Q06	2601100	6602700	1690411.86	6040818.43	Able to walk around lake. Lake area approx 7 acres.
Northland	Lake Owhareiti	425	P05	2596400	6645500	1685605.22	6083587.71	Accessed off Ludbrook Road off SH 1 at Pakaraka
Northland	Mangawhai Pond	594	R08	2652094	6568039	1741472.00	6006293.00	The sanctuary gated subdivision wetlands and ponds off Robert Hastie Drive
Northland	Marua	141	Q06					Private irrigation dam. Access through farm.
Northland	Matakohe (Murphys Rd)	149	Q08					Turn right off State Highway 12 when heading to Ruawai into Oparakau Rd. Follow Rd till Ball Rd is reached. Follow Ball Rd, then take the first left into Murphy Rd. Irrigation dam is 12 Hectares in size on private property.
Northland	Maungaturoto Oxidation Pond	648	Q08	2633916	6564911	1723307.00	6003123.00	
Northland	Mimiwhangata Coastal Park	502	Q06	2640300	6610300	1729578.42	6048512.91	
Northland	Ngunguru Oxidation Pond	607	Q06	2646459	6618336	1735715.00	6056562.00	Off Waiotoi Road on LHS long driveway opposite No. 3132 Ponds tucked into hill
Northland	Omaha Wastewater Treatment	646	R09	2667271	6537106	1756717.00	5975401.00	64 Jones Road, Warkworth. Alastair Chisholm is the person in charge at Jones Road and very helpful. (021 833 494). We counted from this location: -36.354672, 174.747055 Which can be easily accessed from the carpark here: -36.353942, 174.746357
Northland	Opahi Swamp	505	P06	2603800	6633500	1693033.07	6071612.01	Off Matawai-Marommaku road swaamp right hand side of road near Maromaku from SH1
Northland	Port Marsden Hwy Ponds	595	Q07	2641801	6591965	1731124.00	6030187.00	3.9km on right from Marsden point roundabout on SH15A opposite Development gravel site Access through farm gate then Taaranaki gate.

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Northland	Pouto Peninsula (Lake Rotokawau)	144	Q09					Turn right just before road bridge on Pouto road. Bridge is approx 2.5km before the end of the road. Follow road until Lake is sighted on the right hand side.
Northland	Pouto Peninsula (Lake Rotopouua)	146	P09					Turn right off Pouto Peninsula onto Ari Ari Rd, follow road until the first track on the left is encountered. Follow track until lake is spotted.
Northland	Pouto Peninsula (Lake Rotouana, Northern most))	148	P09					45 KMS from Dargaville on Pouto Rd. Lake is visual from road on right hand side heading South.
Northland	Pouto Peninsula (Lake Waingate)	145	Q09					Same as Lake Rotokawau except lake is on the left hand side of the road as one proceeds.
Northland	Rawene	613	O05	2556424	6643287	1645650.30	6081277.00	393 Rawene Road Private Pond off Rawene Road between oxidation pond and hospital
Northland	Rawene Wetland	593	O05	2556620	6640771	1645656.70	6081268.00	Off Rawene Rd park in old siding 1.5km up Rawene Road on RHS. Walk into plantation forest to view wetland
Northland	Red Hill	427	R08	2589930	6569924	1679326.00	6008030.00	Off Red Hill Cemetery Road on Leith McKenzie property
Northland	Riverside Drive	642	Q07	2632655	6606728	1721945.00	6044923.00	
Northland	Riverside Drive Oxidation Ponds	647	Qo7	2632655	6606728			
Northland	Rototuna	618	P09	2604022.1	6549422.2	1693507.70	5987566.50	45 KM from Dargaville on Pouto Road
Northland	Ruakaka Oxidation	424	Q07	2643316	6591619	1732640.00	6029845.00	Ponds off Imovale Road
Northland	Smiths Irrigation	552	Q06	2621440	6622200	1710694.86	6060361.46	Private Farm Race Leading from Tanekaha Road, Off Jordan Valley Road
Northland	Souther Irrigation Dam Kerikeri (Lake Waingaroa)	415	P05	2590800	6659500	1679970.88	6097566.86	Access on foot from Wiroa Road Past Kerikeri Airport.
Northland	Taipa Marsh	604	O04	2551397.5	6688424.5	1640538.00	6126180.00	242 Taipa View Road
Northland	Taipa Oxidation Ponds	605	O04	2552410	6689067	1641536.00	6126937.00	Off Taipa Orruru Road
Northland	Waipu	135	Q09	2604000	6507800	1693527.47	5945965.42	Situated near township. The grid ref for this site is wrong
Northland	Waipu Oxidation Ponds	596	Q08	2643162	6579379	1732515.00	6017608.00	120 Nova Scotia Drive, Fontera supplier #11742. Take farm track to the right follow the river for 1km then turn left onto farm track heading into dune scrub on hill
Northland	Wairua wetlands	592	Q06	2620612	6620314	1709872.00	6058474.00	F&G and DoC sign on swamp Road just past Ballance Fert Silo on LHS Road
Northland	Waitangi Wetlands	151	P05	2602988	6664331	1692141.00	6102428.00	Check topo for access via Kerikeri township.
Northland	Waro Lake	570	Q06	2627445	6623010	1716695.66	6061186.36	Go into Hikurangi township, drive past recycling/rubbish station down side road (east of main road). Lake at end of side road.
Northland	Wellsford	134	Q09	2648700	6542500	1738138.12	5980751.82	First turn right off State Highway 1 past Golf Course. Oxidation ponds situated at end of road.

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Northland	Whakapara River	140	Q06	2602400	6602700	1691711.29	6040821.64	Access off state highway 1 where the road crosses the Whakapara river. Follow Southern river bank.
Northland	Whangarei	154	Q07	2630390	6605356	1719684.00	6043545.00	Aprox 1km down RewaRewa Rd off State Highway 1 when entering Whangarei. Easy access from road edge through gates. District Council owned property.
Auckland/Waikato	Beachlands	433	R11	2677500	6487400	1767053.23	5925721.99	North Beachlands Marina "Pine Harbour"
Auckland/Waikato	Black Lake, Chapman Road	378	S13	2691300	6418900	1780983.81	5857246.27	
Auckland/Waikato	Caldwells Dam	578	R13	2684715	6417505	1774400.66	5855839.76	Through Andrew Caldwell's Farm, past woolshed, see dam from top of hill. Farm is first on right (North) past Glen Murray Hall SH22
Auckland/Waikato	Cambridge Oxy. Ponds	400	S15	2724300	6364200	1814078.98	5802587.61	
Auckland/Waikato	Cathcart Property	436	S12	2691000	6437000	1780651.49	5875347.38	From Mill Creek, left boat and walked McKenzie stopbank. Scanned Cathcart from McKenzie
Auckland/Waikato	Chick's Pond	391	T13	2732779	6424855	1822461.00	5863276.00	
Auckland/Waikato	Clarks Bay Shelbank	581	R12	2666500	6454000	1756119.65	5892302.03	Private
Auckland/Waikato	David Saxton Wetland	609	R13	2688091	6414632			
Auckland/Waikato	Duck Creek - Tairua	437	T11	2762300	6456800	1851931.41	5895289.85	Access by road (Hikenai-Pauanui Rd 16acre "sanctuary" opp Tanners Sawmill. Small numbers present for last 6 years
Auckland/Waikato	Finlayson Road	376	S12	2703800	6433300	1793459.75	5871670.35	From findlayson Road
Auckland/Waikato	Firth of Thames	377	T12	2731200	6440000	1820853.36	5878422.80	From landing (Pipiroa Landing) Very popular shoveler counts Large number bagged in season
Auckland/Waikato	Fisher Pond	390	T13	2732400	6422500	1822086.09	5860919.71	
Auckland/Waikato	Francis's Pond	559						
Auckland/Waikato	Friedlanders Road Oxidation Pond	561						
Auckland/Waikato	Hahei Oxy.Ponds	387	T11	2760500	6480800	1850080.31	5919295.72	
Auckland/Waikato	Helensville Oxy. Ponds	370	Q10	2639300	6503800	1728824.52	5942040.45	
Auckland/Waikato	Helensville Project Pond	534	Q10	2640000	6501000	1729530.18	5939242.57	From side of Mangakura Road
Auckland/Waikato	Howarth Memorial, Te Aroha	397	T13	2749000	6403000	1838726.60	5841441.67	
Auckland/Waikato	Huntly Oxy. Ponds	395	S13	2702300	6405500	1792008.23	5843863.22	
Auckland/Waikato	Karaka Lakes	535	Q10	2626400	6509200	1715916.69	5947411.89	woodhill Forest Block 7b. Note may be closed due to deer hunting. Access via gate immediately of Lake Kereta (marked no trespassing) thence 100m to locked forest gate, past Karaka Lake No. 1 along Decon Road, thence next track left along forest boundary
Auckland/Waikato	Kidds, Karaka	445	R12	2672500	6456500	1761815.22	5894512.73	
Auckland/Waikato	Kopuatai West	446	T13	2732600	6425900	1822279.99	5864321.15	Checked most ponds from Dagger Road to the Waikaka

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
								River along the side of the Piakp River.
Auckland/Waikato	Lake Areare	406	S14	2704500	6390500	1794233.24	5828864.06	
Auckland/Waikato	Lake B	402	S14	2708500	6389000	1798236.48	5827370.15	Through andrew Singers property
Auckland/Waikato	Lake C	403	S14	2708200	6389500	1797935.61	5827869.78	Via Andrew Hayes
Auckland/Waikato	Lake D	404	S14	2707200	6389400	1796935.56	5827768.16	
Auckland/Waikato	Lake E	405	S14	2710500	6386500	1800240.91	5824872.77	
Auckland/Waikato	Lake Harihari	412	R16	2661000	6331000	1750813.44	5769295.38	
Auckland/Waikato	Lake Huiputea - Otorohanga	453	S16	2704000	6332600	1793816.87	5770950.45	
Auckland/Waikato	Lake Kimihia	394	S13	2704000	6411200	1793698.87	5849567.09	
Auckland/Waikato	Lake Koromatua	454	S14	2706000	6371500	1795763.02	5809862.40	
Auckland/Waikato	Lake Mangakawere	407	S15	2705300	6361000	1795078.33	5799358.97	
Auckland/Waikato	Lake Ngaroto	408	S15	2710900	6357500	1800684.72	5795866.15	Used walking track around perimeter of Lake - viewing from all outcrops. Started from jetty finishing at rowing club approx 6km walk
Auckland/Waikato	Lake Ohinewai	384	S13	2702500	6409700	1792201.17	5848064.27	From Ohinewai Domain
Auckland/Waikato	Lake Pikopiko	401	S14	2703500	6391000	1793232.24	5829362.56	
Auckland/Waikato	Lake Pokorua	611	R12	2655300	6444200	1744784.00	5882579.00	Awhiitu Peninsula. Private, scoped from private road end off Douglas Raod
Auckland/Waikato	Lake Rotokawau, Ohinewai	383	S13	2704000	6411300	1793698.70	5849667.11	Access canal waikare-Rotokawau - boated length of lake until too shallow
Auckland/Waikato	Lake Taharoa	410	R16	2662500	6336000	1752307.12	5774297.39	By foot from Taharoa Village
Auckland/Waikato	Lake Waahi	396	S13	2698000	6403000	1787711.71	5841355.64	from crossing, under haulage road tunnell to Coalcorp plantings, to marae and back (includes bays and streams)
Auckland/Waikato	Lake Waikare	380	S13	2706000	6417500	1795688.34	5855871.66	From yacht club to refuge islands then down lake to Rotokawau entry.
Auckland/Waikato	Lake Whangape	385	S13	2690000	6413700	1779692.65	5852043.51	from Shuggs Landing to SE Arm to Swann Island to Tikotiko arm and back.
Auckland/Waikato	Leighton's Lake	542	Q10	2631000	6511300	1720510.93	5949521.00	95 Tuparekura Road
Auckland/Waikato	Main Karaka Lake	530	260 (sheet Q10)					Parked car in Wilson's Road (at south end of Main Kareta Lake) Crossed private property of Geoff and Belinda Ward (025 933 729) to get to eastern edge of Woodhill Forest. Followed a well formed track (heading south) that runs along the western margins of the Kareta South Lakes (H2+3) and also the Main Karaka Lake.
Auckland/Waikato	Mangere Water Storage Ponds	371	R11	2667000	6470500	1756587.85	5908801.87	Due to major works at the Ponds access is limited to Perimeter Roads
Auckland/Waikato	Matarangi Oxy. Ponds	386	T10	2749500	6493300	1839049.38	5931775.87	
Auckland/Waikato	Meremere Power Station	652	S12	2693707	6430480	1783371.00	5868832.00	Roadside off SH pull in area by Meremere
Auckland/Waikato	Meremere WWTP	598	S12	2694020	6430110	1783684.00	5868462.00	Drive along Island Block Road Treatment pond on RHS when coming off SH1 500m from turnoff

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Auckland/Waikato	Miranda	467	S12	2716200	6443800	1805842.41	5882195.28	South of Pukorokoro and Miranda Streams
Auckland/Waikato	Murray Young Wetland	616	S13	2704380	6405445	1794089.00	5843812.00	Drive down Evans Road, over bridge, wetland on right.
Auckland/Waikato	Ngaruawahia Oxy. Ponds	399	S14	2700500	6393100	1790228.31	5831458.12	Park in entrance to /ponds and walk approx 80 mtrs to ponds which are visible from the road
Auckland/Waikato	Otorohanga Oxy. Ponds	409	S16	2705000	6334500	1794814.65	5772852.20	
Auckland/Waikato	Owera Oxy. Ponds	368	R10	2660500	6510200	1750006.97	5948484.07	
Auckland/Waikato	Paeroa Oxy. Ponds	413	T13	2745500	6421500	1835192.55	5859943.04	
Auckland/Waikato	Patetonga / Piako	389	T13	2732300	6423000	1821985.16	5861419.68	
Auckland/Waikato	Peter Lapwood's	381	S13	2703500	6426500	1793172.00	5864868.76	
Auckland/Waikato	Pike's Pond	558						
Auckland/Waikato	Ralph Road Ponds	393	S13	2701500	6405900	1791207.43	5844261.94	Ralphs Road
Auckland/Waikato	Rhyburns Lagoon	375	S12	2692400	6437800	1782050.14	5876150.01	From creek, walked along stopbank
Auckland/Waikato	Rosedale Oxy. Ponds	369	R10	2663900	6493300	1753442.11	5931593.47	Along southern shore from plant to motorway box tunnel
Auckland/Waikato	Seagrove	548	R12	2667800	6455500	1757416.74	5893804.40	Through private property walked the foreshore from Clarks Creek 3.5km West
Auckland/Waikato	Strakas Refuge	366	R10	2661300	6516200	1750793.93	5954484.87	From weir to opposite teal boxes.
Auckland/Waikato	Te Awamutu Oxy Ponds	411	S15	2711500	6353800	1801290.14	5792166.00	Walked perimeter
Auckland/Waikato	Te Kuiti Oxy. Ponds	414	S16	2698300	6318600	1788133.12	5756940.15	
Auckland/Waikato	Tee Head Pond	392	T13	2739200	6419200	1828894.34	5857630.81	Awaiti Canal
Auckland/Waikato	Thames Oxy Ponds	388	T12	2737000	6445000	1826645.54	5883435.39	
Auckland/Waikato	Tuakau Oxy. Ponds	374	R12	2679700	6435700	1769353.26	5874026.74	From internal roads round ponds off Friedlander Rd
Auckland/Waikato	Waikato Delta	373	R13	2665500	6429200	1755164.95	5867501.43	Hoods Landing. Waikato Delta to top of windy channel.
Auckland/Waikato	Wairewa Oxy. Ponds	367	R10	2661900	6516500	1751393.19	5954786.12	On foot from road entrance along stopbank
Auckland/Waikato	Wattle Downs	372	R11	2678500	6460500	1768106.86	5898824.72	
Auckland/Waikato	Wellsford Oxy Ponds	487	Q09	2648700	6542500	1738138.12	5980751.82	From St1 used Ray McFaddens race to pond entrance - walked perimeter of ponds.
Auckland/Waikato	Whangamarino	476	S13	2699500	6426500	1789171.41	5864861.61	Used boat from end Wattle Rd launched at Herlet's Hut, down Reo Stream, along Suttons causeway to Peninsula, then across country to scan by binoc to Lone Pine
Auckland/Waikato	Whangapoa Harbour	488	T10	2745500	6492500	1835050.00	5930966.87	5 different points including inlets to Opitonui, Owera and Matarangi Stream
Auckland/Waikato	Whitford	489	R11	2674300	6485900	1763856.48	5924215.50	cnr Potts and Clifton Rds - Ayrles Pond owner Bev Conner
Auckland/Waikato	Whitianga Harbour	490	T11	2750500	6479500	1840079.61	5917973.82	Via various farms and by boat
Auckland/Waikato	Whitianga Oxy. Ponds	379	T11	2751000	6482000	1840574.42	5920475.69	
Auckland/Waikato	Whitney's Lake	382	S13	2692900	6416500	1782588.15	5854848.79	From roof of Whitney family hut.
Eastern	Aniwhenua Lake	12	V16	2841000	6312600	1930929.63	5751110.74	Access at Rabbit Bridge or Dam. Count from Kopuriki Bridge first (upstream and downstream). Good idea to do this area by Kayak and lower lake by motor boat.

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Eastern	Awaiti Wildlife Management Reserve	7	V15	2845300	6357700	1935171.84	5796265.19	Access off Gregg Road.
Eastern	Bethlehem Wetlands	550	U14	2785300	6385828	1875075.17	5824321.37	SH 2 Tauranga, turn right at Bethlehem round-about into Bethlehem Road, right into Westmorland Rise, and follow down to first wetland
Eastern	Bookers Pond	20	V15	2835600	6344200	1925481.79	5782736.64	The outlet is used for sprinklers on the effluent ponds.
Eastern	Braemar Lagoon	25	V15	2838200	6350700	1928074.95	5789247.11	Braemar Road
Eastern	East Valley Pond	21	V15	2836100	6344900	1925981.29	5783438.07	Henarae Kapa 0212232957 (security) Really two ponds. Count top pond when first comes into view as drive down hill (from Hogg Road entrance) and bottom pond once have driven down to bottom of hill and along shoreline short distance adjacent to main pond. This flows into pond 3.
Eastern	Kaituna Cut	27	V14	2811000	6378000	1900806.97	5816529.95	End of Ford Road
Eastern	Kaituna Wildlife Management Reserve	9	U14	2807000	6378000	1896803.76	5816523.38	Access off Parr Road, where road takes a sharp right angle to the West.
Eastern	Kawerau Road Pond	26	V15	2833000	6341000	1922883.74	5779529.69	Kawera Road. Rotopatoka Trust for permission
Eastern	Lake McLaren	416	U14	2777900	6372200	1867692.40	5810672.69	
Eastern	Marsden Cove Ponds	650	Q07	2644328	6594522	1733644.00	6032750.00	
Eastern	Matata Wildlife Refuge	8	V15	2841000	6361500	1930861.40	5800062.57	Access off SH 2. Can get good view from on top of sand dunes.
Eastern	Poverty Bay Golf Club	575	Y18	2944081.6	6269464.3	2034204.53	5708022.12	via Golf Club
Eastern	Repongaere Lake	18	Y18	2934500	6278000	2024598.66	5716564.84	Though John Tuhoe's property. Access track to ridge line which overlooks the lake. 4WD when dry.
Eastern	Rerewhakaaitu	11	V16	2816000	6317000	1905899.64	5755484.23	Access off Brett Road or Ash Pit Road.
Eastern	Rotoitipaku Lake	23	V15	2835800	6342700	1925684.15	5781235.39	As coming from Rotorua to kawerau go through first set of traffic lights (offices go left big car park opposite) there is an overhead road with access to it off to right off SH34. Go over bridge and head towards river will need to phone 07-323-3456 to get to open green gate (Safety Card No. 3395 exp 4/8/2010). From Norsk Skog Effluent Plant
Eastern	Rotomahana Wildlife Refuge	10	V16	2811000	6320000	1900891.49	5758480.64	Turn off Waimangu Road into Wairua Road then follow angler access signs to Lake.
Eastern	Rotorua Lake	19	V15	2836000	6344500	1925881.77	5783037.52	Is called pond 4 & is the pond before the outfall into the Tarawera River. First large pond come to when coming via Hogg Rd entrance is Pond 3 count them (ie 3& 4) as one pond
Eastern	Tamurenu Lake	24	V15	2837500	6346000	1927381.13	5784541.22	Access off SH 30.
Eastern	Thornton Lagoon	532	W15	2851800	6358300	1941678.02	5796875.82	Access off Thornton Road

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Eastern	Urupa Lake	22	V15	2835900	6343000	1925783.82	5781535.84	From Norske Skog Tasman Effluent Plant
Eastern	Whakaki Lagoon	17	X19	2904000	6230000	1994086.47	5668464.55	View from railway line. Eastern side viewed from Max Pakus or A Power? Access via 1st gate on left when traveling from Whakaki to Wairoa when you first reach the lake. Whakaki Farm Brownrig - Manager Wayne Feck Manager 06-838-3998. Other access to the Eastern end can be through via Whakaki Trustees Harold Ngarimu??? Brownrigg Manager Pane Hook 06-8377654. Trustee Paul Teaho 06-8384043. Permission on sign 06-8377901
Taranaki	Arrenmore	640	S22	2702644	6144531			End of Makirikiri Valley road, climb over hill (south) to Arranmore wetland
Taranaki	Eltham Oxidation Ponds	576	Q20	2622590	6195320	1712529.87	5633586.41	
Taranaki	Geary Road	45	Q21	2629900	6167800	1719853.95	5606073.01	Southern side of Manutahi Raod at the Geary Road corner. Go into paddock on LHS of lake
Taranaki	Hauroto Road	622	Q21	2615186	6178546	1705136.00	5616810.00	Irrigation pond on Hauroto Road north of Hawera.
Taranaki	Hawera Oxidation Ponds	41	Q21	2618900	6176200	1708850.85	5614466.65	Off Fairfield Road off SH3 or Manawapou Road
Taranaki	Hawken's Lagoons	52	R22	2653600	6150300	1743560.82	5588584.21	Off the end of Hawken Road, follow track round to the right and along fence line. Climp to top of highest mound.
Taranaki	Ihupuku Road pond	50	R22	2652200	6155700	1742158.63	5593983.67	Ihupuku Raod opposite the end of Lennox Road
Taranaki	Julian's Lake	40	P21	2587000	6190200	1676949.42	5628446.86	Michelle & Richard Julian Off SH45 just north of Watino Road
Taranaki	Kaitoke Lake	56	R22	2687100	6136000	1777068.75	5574295.56	Kaitoke Road. From Pritchard property, top of farm track
Taranaki	Lake Grassmere	60	S22	2692900	6133300	1782870.53	5571597.06	SH3, From drive way track shown on topomap
Taranaki	Lake Herengawe	49	R22	2650300	6155500	1740258.71	5593782.84	From Ihupuku Road
Taranaki	Lake Kohata	57	R22	2687600	6135000	1777569.14	5573295.58	Kaitoke Road. Access track from road
Taranaki	Lake Marahau	54	R22	2665600	6149700	1755561.52	5587989.06	Waitotara. Marahau Road, 'Marahau'. Follow tracks to southern and northern ends of lake
Taranaki	Lake Oturi	48	Q22	2649000	6157200	1738957.99	5595482.27	Rob Amon 0274713767 063465812 On RHS of Waverley Beach Road heading toward the sea. Entry on lake front (drives birds to far side of lake), then enter Dairy No.90, go into left hand paddock at the second set of gates (the one with a single pine tree in it), go to far bottom corner of paddock, across stile, out on boardwalk to maimai
Taranaki	Lake Pauri	59	R22	2689500	6134300	1779469.66	5572596.11	Pauri Road. At east end of lake, from road

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Taranaki	Lake Ratapiko	537	Q19	2624800	6221300	1714722.60	5659565.00	Ratapiko Rd. Access at boat ramp for power boat arm of the lake. Access at ski club for ski arm of the lake.
Taranaki	Lake Rotokauwau	61	S22	2694000	6132600	1783970.94	5570897.29	SH3 Ken McDowall's place
Taranaki	Lake Waiiau	51	R22	2654000	6154800	1743959.02	5593084.43	Chris & Carley Amon 063465533 Off Ihupuku Road, walk from southern end half way up the north-western side
Taranaki	Lake Waikato	53	R22	2662800	6151300	1752760.72	5589588.02	Russell Road, stables entrance. Roger Handley 3074 SH3 to access Northern end of lake follow race.
Taranaki	Lake Waipu	63	S23	2694000	6126900	1783972.65	5565196.34	Rangatahi Road. Through gate with railway irons down to below woolshed
Taranaki	Lake Westmere	55	R22	2681000	6143600	1770965.30	5581894.40	Rapanui Road. Enter at Westmere Refuge sign
Taranaki	Lake Wiritoa	58	R22	2688400	6134600	1778369.39	5572895.79	SH3&Kaitoke Road. North arm accessed from Campbell's property (SH3), view points also ski club and Scoutlands
Taranaki	Lower Ball Road	46	Q21	2630500	6166400	1720454.57	5604673.41	Mark Shrider 0276688176 Up farm race by cowshed and onto gravel track to centre of crescent shaped lake
Taranaki	Lower Taumaha Road	44	Q21	2627800	6169700	1717753.19	5607971.83	Edna Saxton 067589290 Glenn Wingate Through gate on RHS near lower end of lower Taumaha Road, Manutahi
Taranaki	Manaia Oxidation Ponds	612	P21	2606256.7	6180383.3			At the end of Sutherland road
Taranaki	Milne's Lake	43	Q21	2620800	6175700	1710750.89	5613967.68	Left hand lake at the end of Nowell Road off Manawapou Road Hawera
Taranaki	Nowell's Lake	42	Q21	2620400	6176000	1710350.78	5614267.44	Paul Roberts 021360260 Right hand lake at the end of Nowell Road off Manawapou Raod, Hawera
Taranaki	Opunake Oxidation Ponds	574	p20	2581760	6195350	1671707.95	5633592.44	Off SH 45
Taranaki	Opunaki Lake	603	P20	2584205.7	6193857.6	1674184.50	5632050.60	?
Taranaki	Patea Oxidation Ponds	536	Q22	2637200	6159000	1727157.55	5597276.98	From gate on Motor Camp Road
Taranaki	Ratana Oxidation Ponds	62	S23	2694900	6127200	1784872.72	5565496.66	Rangatahi Road, 2 ponds
Taranaki	Spence Road	47	Q21	2632500	6165200	1722455.00	5603474.45	RHS by old dairy shed. Park by shed and walk across concrete crossing and then left to centre of crescent shaped lake
Taranaki	Stratford Oxidation Ponds	577	Q20	2622480	6206170	1712413.15	5644435.12	Victoria Road Stratford
Taranaki	Waverly Oxidation Ponds	546	Q22	2649200	6158300	1739157.52	5596582.35	Turn right over railway line 700m down Waverly Beach Road from Waverly.
Hawke's Bay	Clive East Road	587	v21	2847900	6172800	1937943.61	5611168.80	Estuary that starts at the end of old Ferry Road in Clive. There is a cycle path along the estuary
Hawke's Bay	Horseshoe Lake	579	v22	2831000	6136000	1921036.00	5574331.00	Access off Mangarara Road. Stop at the gate that's sign posted for lake viewing point - walk along fence at top and walk towards lake for 5- 10m

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Hawke's Bay	Hurimoana Swamp	2	V21	2829700	6176700	1919725.16	5615066.18	Access of Taihape Road. Second gate after cross the Ohiwa Stream. Follow farm track around base of hill. Gate is next to a sheep dip. Farm owners are Selwyn Dorward Alness Farm 644 Taihape Road, Hastings.
Hawke's Bay	Lagoon Farm	589	V21	2842544	6182669	1932579.00	5621046.00	Shallow wetlands by Lagoon Farm parralel to Prebensen Drive West of HW 2B
Hawke's Bay	Oingo Lake	15	V21	2831500	6174500	1921527.54	5612864.87	
Hawke's Bay	Pirimu	4	U23	2806800	6112600	1896820.64	5550911.64	Access off Lake Road. Travel along high ridge Gate is the second? one back from the Lake Road intersection. John & Raymer? Barrett, Lake Station 478 Lake Road.
Hawke's Bay	Poukawa	6	V22	2827100	6151500	1917130.25	5589843.65	Access Settlement Road. Turn left at sign that says Private Access beyond this point. Travel down farm track until hit drain that enters Pokawa from South end. Can Launch boat/kayak here.
Hawke's Bay	Pump House Drain	14	V21	2843100	6183000	1933135.41	5621377.17	Best access is from Tamatea Drive and walking down eastern side of drain.
Hawke's Bay	Roto O Kiwa	3	V22	2823200	6147500	1913227.92	5585839.49	At the end of Boundary Road turn left and follow farm track. Land is managed by Brownriggs. First pod is dry, other one is on the West side of the railway tracks.
Hawke's Bay	Runanga Lake	16	v21	2842700	6186000	1932733.86	5624379.97	
Hawke's Bay	Turfrey Swamp	507	V21	2842800	6187000	1932833.57	5625381.00	From SH2, 200m past Turfrey Rd by Napier airport. Best done early am to get light right.
Hawke's Bay	Waitangi (Horseshoe)	545	V21	2846700	6174900	1936741.76	5613270.49	Off SH2, across Railway. Count from Railway embankment.
Hawke's Bay	Westshore Ponds	13	V21	2843300	6184600	1933335.00	5622978.83	Turn off SH 2 at Westshore on to Watchman Road. Count birds from causway.
Hawke's Bay	Whatuma	529	V23	2811000	6125500	1901022.33	5563820.80	Access sign off Race Course Road by cattle stop (past race course)
Hawke's Bay	Willow Dam	5	U23	2808500	6120500	1898521.15	5558817.06	Access off Nichols Road. Farm House Doug Mackie 852 Porongahau Road.
Wellington	Barton's Lagoon	526	S27	2704100	6001800	1794078.83	5440081.24	Form Featherston via Murphy's Line and Lake Domain Road. Barton's Lagoon is immediately north of the toilet block situated under pine trees at Lake Domain, it is immediately west of the adjacent count sites at Lake Domain wetland.
Wellington	Carex Grove Subdivision	643	S24	2699379	6080397	1789361.00	5518687.00	Carex Grove
Wellington	Carterton Sewage Ponds	497	S26	2720300	6015400	1810282.48	5453679.88	Turn off SH 2 onto Dalefield Road. Entrance to sewage ponds is sign posted.
Wellington	Duncans Lagoon	232	S24	2723200	6096600	1813185.33	5534895.94	Owner: William Duncan 0274431998

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Wellington	Featherston Sewage Ponds	528	S27	2707700	5994900	1797677.69	5433180.25	Turn off State Highway 53 onto Donald Street and then turn right onto Viles Road. Entrance to sewage ponds is the first turn on the left along Viles Road.
Wellington	Foxton 3	495	S24	2701400	6083800	1791382.36	5522090.61	
Wellington	Foxton 4	562	S24	2701415	6084495	1791397.29	5522785.72	Nigel Sexton 06-329-9797. turn off main road by water tank drive along farm track as far as possible Gap between 3 & 4 on left.
Wellington	House Lake	563	S24	2701600	6086500	1791582.09	5524791.06	1st lake on LHS of Rd, En route to Lake Koputara. Mr Sexton 06-329-9797
Wellington	Kaikokopu Lake	566	S24	2702205	6089790	1792186.78	5528081.69	Owner Charlie Pederson, Access via Himitungi Beach Road 404. Combination Lock 1310
Wellington	Kourarau Dam	243	T27	2737100	6009300	1827083.65	5447575.98	From Gladstone via Tupurupuru Te Wharau Road
Wellington	Lake Domain wetland	238	S27	2704400	6001200	1794378.73	5439481.16	From Featherston via Murphy's Line and Lake Domain Road. To avoid any confusion the count site is not the Lake Domain Lagoon but the wetland immediately adjacent to Simmonds Lagoon at the far eastern boundary of Lake Domain.
Wellington	Lake Koputara	228	S24	2701800	6086900	1791782.08	5525191.15	Owner: Tom Willis 06 327 7397
Wellington	Lake Omanu	229	S24	2700900	6081600	1790882.51	5519890.21	Owner: Wellington Fish and Game
Wellington	Lake Omanuka	226	S24	2707700	6094900	1797682.06	5533193.38	Owner: Cameron McKelvie 06 324 8526
Wellington	Lake Pukekura	230	S24	2714000	6081600	1803984.87	5519891.44	Contact: Richard and/or Geoff George, 06 363 8576
Wellington	Lake Rotomahana	235	S25	2694500	6063500	1784482.85	5501787.31	Off Hokio Beach.
Wellington	Lake Rotowhero	225	S23	2708700	6116500	1798678.24	5554798.16	Owner: Jim McDonald 06 327 5566
Wellington	Lake Wairarapa - Lake Domain	239	S27	2704100	6001400	1794078.76	5439681.22	From Featherston via Murphy's Line and Lake Domain Road. Count site is immediately in front of the stand of Radiata Pine at Lake Domain camping ground.
Wellington	Lake Wairarapa - Oporua Spillway	241	S27	2700400	5994000	1790377.31	5432281.57	Off Parera Road then along the stop bank on the south side of the Oporua Spillway. Count is made from the end of the stop bank.
Wellington	Lake Wairarapa - Otakura Stream	240	S27	2703900	5999000	1793878.31	5437281.13	From Featherston via SH53 and Diversion Road, then access property of Jane Gillett to the mouth of the Otakura Stream.
Wellington	Lake Wairarapa - Western Lake Road	242	S27	2693500	5996400	1783477.69	5434682.79	From Featherston via Western Lake Road. Count is made from the road side adjacent to the lake.
Wellington	Lake Wairongomai	234	S25	2691000	6052800	1780982.70	5491086.14	From Main Street in Otaki, turn onto Te Rauparaha Street, and continue along Convent Road, and then past the Otaki Golf Course onto Wairongomai

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
								Road. The Lake lies to the west of the end of Wairongomai Road across farm land.
Wellington	Lakeview Farm	236	S25	2698500	6066800	1788483.21	5505087.91	Turn off Hokio Beach Road onto Moutere Road. Farm managers residence is at the end of Moutere Road, from this point lagoon can be reached via farm tracks. Contact Lindsay or Wendy Smitt, farm managers.
Wellington	Masterton Sewage Ponds	496	T26	2735500	6020200	1825485.53	5458478.19	Entrance to sewage ponds is sign posted on Manaia Road just south of intersection with Homebush Road.
Wellington	Matthews Lagoon	498	S27	2700300	5991300	1790276.80	5429581.52	Turn off Kahutara Road onto Parera Road. From Parera Road walk down the access track to the edge of Matthews Lagoon and then follow the eastern shore of the lagoon south past to row of poplars until a clear view of the lagoon can be obtained.
Wellington	Middle Lake	565	S24	2701595	6086810	1791577.05	5525101.11	This Lake is Between Koputara and House Lake
Wellington	Otaki Sewage Ponds	500	S25	2690200	6047300	1780182.60	5485585.68	Turn off SH 1 onto Riverbank Road, the entrance to the sewage ponds is signposted.
Wellington	O-Te-Pua Wetland	527	S25	2693800	6049800	1783782.92	5488085.88	Turn Off Statehighway 1 just before reaching the Forest Lakes Road turn-off on the left heading north. Contact landowner Graham Booth to arrange access (04 476 9603 or 06 364 5584)
Wellington	Pounui Lagoon	499	R28	2687800	5980300	1777774.82	5418583.86	Turn off Western Lake Road and travel along the stop bank that forms the northern shore of Lake Onoke.
Wellington	Pukepuke Lagoon	227	S24	2702400	6093600	1792381.27	5531892.36	Dept Conservation, PNth, 06 350 9700
Wellington	Smiths	494	S23	2710100	6102100	1800081.41	5540395.25	
Wellington	Voss Lagoon	231	S24	2721500	6084300	1811486.27	5522592.69	Owner: Max Voss 06 329 6835
Wellington	Waikanae Sewage Ponds	233	R26	2682700	6037700	1772681.96	5475985.22	Off State Highway 1, via Moana Road, turn left at Waikanae Bowling Club onto Ono Huiawa Street, then onto Field Way and William Street, turn left off William Street onto Rutherford Drive, entrance to Sewage Treatment Plant is at the end of Rutherford Drive, contact Kapiti Coast District Council on 04-9045700 to arrange entry.
Wellington	Wairoa Pond	644	S27	2698523	5993045	1788462.71	5431519.50	Parera Road, Kahutara
Wellington	Waitawa Lake	567	S25	2693500	6051310	1783482.91	5489596.02	Off Forest Lakes Road
Wellington	Waiterere Beach Road Ponds	237	S25	2698500	6068200	1788483.15	5506488.10	Via the McKay property off Waiterere Beach Road
Nelson/Marlborough	Aorere Estuary	309	M25	2480700	6061400	1570725.70	5499669.89	Road
Nelson/Marlborough	Aorere Estuary/Ruataniwha Inlet	310	M25	2481400	6060200	1571425.41	5498470.49	Road
Nelson/Marlborough	Aorere River mouth	308	M25	2482400	6059300	1572424.97	5497570.97	Boat -Ruataniwha Inlet/Aorere Mouth

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Nelson/Marlborough	Balfour's Pond	256	P28	2597000	5961800	1686985.24	5400099.77	From road bridge
Nelson/Marlborough	Bankhouse	268	O28	2569400	5963700	1659392.50	5402002.38	Canoe from south bank
Nelson/Marlborough	Bell's Island	284	N27	2524900	5990700	1614908.00	5428997.53	On NE Pond + other ponds
Nelson/Marlborough	Best Island	285	N27	2523300	5989600	1613308.48	5427897.99	From road. Corner besides estuary + bridges
Nelson/Marlborough	Big Lagoon	251	P28	2603500	5962400	1693483.80	5400698.85	From 4WD Track
Nelson/Marlborough	Carter's Pond	290	N27	2517400	5984500	1607410.17	5422800.13	With permission, downstream pond
Nelson/Marlborough	Casey Road Pond	248	P29	2602400	5946600	1692381.90	5384902.45	From road
Nelson/Marlborough	Coastal Highway Pond	292	N27	2513700	6002800	1603712.54	5441093.93	All ponds cut off by highway, especially freshwater (Easton's)one
Nelson/Marlborough	Corder Pond	279	O27	2536700	5996800	1626704.42	5435095.00	From beside internal road. Remove as no longer holds water
Nelson/Marlborough	Duck Shooter's Access	255	P28	2602000	5960200	1691983.88	5398499.50	Top of terrace & Department of Conservation sign
Nelson/Marlborough	Dune Lake, Wharariki	313	M24	2488200	6077300	1578221.17	5515562.70	From vehicle track
Nelson/Marlborough	Eastern Waimea Inlet	280	N27	2527500	5986800	1617506.91	5425098.68	From Whakatu Drive
Nelson/Marlborough	Elterwater	246	P29	2605800	5933400	1695778.88	5371705.10	Gate/Hill past gravel stock pile, Mrs Sandall's front lawn
Nelson/Marlborough	Ferrer Creek estuary	299	N26	2510600	6014900	1600614.08	5453189.76	From both sides of Lodder Lane
Nelson/Marlborough	Grove Arm (Anakiwa)	269	P27	2586200	5992700	1676190.48	5430993.76	From road
Nelson/Marlborough	Grove Mill	267	P28	2576600	5965000	1666590.70	5403301.27	From behind winery
Nelson/Marlborough	Grovetown Lagoon	263	P28	2591600	5969500	1681587.38	5407798.64	From Crafar maimai, olive nursery to road side
Nelson/Marlborough	Havelock Estuary	274	P27	2573300	5991700	1663293.58	5429994.68	From vantage points from SH6
Nelson/Marlborough	Island Lake, Wharariki	314	M24	2481000	6077200	1571024.67	5515462.18	From vehicle track
Nelson/Marlborough	Kaihoka Lakes	317	M24	2475600	6072600	1565627.68	5510864.12	
Nelson/Marlborough	Kenepuru Head	271	P27	2604400	6003500	1694387.12	5441790.79	
Nelson/Marlborough	Kidney Ponds	253	P28	2604200	5961100	1694183.48	5399399.04	From 4WD Track
Nelson/Marlborough	Kumaras/Oxidation Ponds	297	N26	2512500	6011900	1602513.30	5450190.78	From end of Staples St through estuary to east of ponds down to coastal area
Nelson/Marlborough	Kumera Estuary	501	N26	2511913	6012681	1601927.00	5450972.00	Walk down Northern boundary of Phil Peters horse paddock to get accurate count of birds between Kumueras carpark and oxidation pond carpark
Nelson/Marlborough	Lake Grassmere	247	P29	2609500	5941500	1699479.37	5379802.59	SH 1 Clifford Bay Farm gate
Nelson/Marlborough	Lake Jasper	249	P29	2591200	5948700	1681184.95	5387003.55	From vehicle halfway along lake
Nelson/Marlborough	Lake Otuhie	319	M25	2460300	6057500	1550336.12	5495771.23	
Nelson/Marlborough	Lake Rotoiti (Kaikoura)	245	O31	2558800	5867700	1648780.65	5306033.67	
Nelson/Marlborough	Lake Rotorua (Kaikoura)	244	O31	2558300	5866300	1648280.61	5304634.24	Brian Seddon on both sides of lake
Nelson/Marlborough	Lower Opawa	257						
Nelson/Marlborough	Lower Pelorus	275						
Nelson/Marlborough	Lower Waimea River	282	N27	2521800	5991500	1611809.10	5429797.43	From Rough Island and O'Connors and out to boat ramp on Rabbit Island
Nelson/Marlborough	Mahikipawa Arm	270	P27	2579500	5990500	1669491.98	5428794.62	Boat
Nelson/Marlborough	Mangarakau	318						

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Nelson/Marlborough	Maori Is Oxidation Ponds	262	P28	2591400	5969600	1681387.44	5407898.64	Drive along Maori Island Rd
Nelson/Marlborough	Maori Lookout	252	P28	2602000	5960300	1691983.89	5398599.48	
Nelson/Marlborough	Mapua	289	N27	2518300	5993800	1608310.44	5432096.82	Grossis Point Reserve to Noman's Island
Nelson/Marlborough	Mapua School	590	n27	2517650	5995536	1607661.00	5433832.00	Park at Mapua school - pond immediately behind school
Nelson/Marlborough	Marahau	302	N26	2510800	6023500	1600814.10	5461786.61	High tide roosts at mouth of Marahau
Nelson/Marlborough	Marlborough Ridge	266	P28	2582800	5963100	1672788.88	5401401.09	From Lake View Rd
Nelson/Marlborough	Mississippi (Copp's)	259	P28	2596900	5964700	1686885.60	5402999.14	From True LH Stopbank
Nelson/Marlborough	Motueka River mouth	298	N26	2511500	6013800	1601513.72	5452090.13	From west bank road and from Kaiteriteri Road
Nelson/Marlborough	Motueka Sandspit	296	N26	2512300	6010200	1602313.33	5448491.39	From Motueka Quay only
Nelson/Marlborough	Motupipi Inlet	304	N25	2496100	6040700	1586119.63	5478979.83	Boat - Mouth and estuary of Motupipi.River. On Foot at grid ref
Nelson/Marlborough	Moutere Inlet	291	N27	2514100	6002200	1604112.37	5440494.11	From vehicle, especially at head and beside island
Nelson/Marlborough	Mouth of O'Connor's Creek	287	N27	2519700	5992100	1609709.86	5430397.34	From Hunter Brown Reserve and Equestrian Road
Nelson/Marlborough	Neiman's Creek	281	N27	2523400	5989000	1613408.41	5427298.19	From track leading from corner of Lansdowne Rd and from Best Island road corner
Nelson/Marlborough	North Wairau Bar	261	P28	2598100	5966800	1688085.56	5405098.55	From Department of Conservation track beside large pines
Nelson/Marlborough	Otarawao	272	O26	2567500	6018000	1657495.72	5456288.22	Ask Jeremy Foley
Nelson/Marlborough	Otuwhero	301	N26	2509700	6021300	1599714.51	5459587.44	In estuary from Marahau Road
Nelson/Marlborough	Oxidation Ponds	258	P28	2596900	5963200	1686885.43	5401499.47	All ponds including PPCS
Nelson/Marlborough	Pakawau	311	M25	2483300	6068800	1573324.08	5507066.47	Road
Nelson/Marlborough	Para	265	P28	2589800	5978000	1679788.62	5416296.88	By canoe from new pond outlet to Boat Point and Mackels & return
Nelson/Marlborough	Parapara Inlet North	525	M25	2483300	6054300	1573324.75	5492573.35	Road
Nelson/Marlborough	Parapara Inlet South	306	M25	2483200	6052600	1573224.86	5490874.14	Road
Nelson/Marlborough	Pearl Creek	283	N27	2521000	5990400	1611009.31	5428697.85	End of Cotterel's Rd
Nelson/Marlborough	Port Motueka Estuary	295	N27	2511300	6008000	1601313.62	5446292.21	High tide roost from York Park looking towards Wharf Rd
Nelson/Marlborough	Puponga Estuary	312	M24	2487500	6075800	1577521.62	5514063.37	Road
Nelson/Marlborough	Riverside Pond	293	N27	2500	6000			
Nelson/Marlborough	Riwaka River mouth	300	N26	2510000	6015900	1600014.32	5454189.41	High tide roosts from Kaiteriteri Road
Nelson/Marlborough	Robinson's	273	P25	2578500	6043400	1668492.36	5481682.11	D'Urville Island
Nelson/Marlborough	Rough Island bridge	288	N27	2520800	5991100	1610809.42	5429397.62	Old Waimea R channel to west
Nelson/Marlborough	Saxton Field Pond	513	N27	2528100	5986700	1618106.71	5424998.68	Off Station Road
Nelson/Marlborough	Takaka River mouth	305	N25	2493300	6043100	1583320.74	5481378.74	Boat - Mouth and estuary of Takaka River from Rangitaeata to Waitapu Estuary
Nelson/Marlborough	Taylor Dam	264	P28	2587700	5958900	1677687.16	5397201.55	Flushed lake edges
Nelson/Marlborough	Te Aropipi Channel	254	P28	2599600	5965200	1689585.03	5403498.72	From Boulder Bank, near Waverley wreck
Nelson/Marlborough	Traverse	286	N27	2520400	5992800	1610409.65	5431097.06	From bridge and drive along road on Southern side
Nelson/Marlborough	Triangle Lake	315	M24	2488300	6076800	1578321.16	5515062.95	From East
Nelson/Marlborough	Upper Lagoon	250	P28	2597700	5963300	1687685.25	5401599.36	From Harding's Rd and walkway
Nelson/Marlborough	Upper Moutere Ponds	294	N27	2510700	5990100	1600712.93	5428398.65	Various locations
Nelson/Marlborough	Wainui Inlet	303						

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Nelson/Marlborough	Wairau Estuary	260						
Nelson/Marlborough	Wakapuaka Estuary	276	O27	2546500	6003400	1636501.52	5441692.65	From Maori Pa Rd
Nelson/Marlborough	Wakapuaka Oxidation Pond	277	O27	2537700	6000700	1627704.23	5438993.73	From northern access road
Nelson/Marlborough	Wakapuaka Pond	278	O27	2537500	5999000	1627504.24	5437294.27	Sewerside Drive and adjacent estuary
Nelson/Marlborough	Westhaven	316	M24	2474100	6071000	1564128.54	5509264.83	Ferguson's Letterbox
West Coast	Barry Town Lagoon	573	k31	2371005	5888760	1461051.23	5327117.66	Drive down race on George Coutts (ph: 7311805) farm Count lagoon and small pond adjacent - take kayak to ensure small pond viewed adequately.
West Coast	Bisset Ponds	637	k31	2370467	5881051	1460511.00	5319411.00	
West Coast	Blaketown Lagoon	122	J32	2361500	5859400	1451541.30	5297766.87	Count from Raleigh street and from Floodwall pump station
West Coast	Bradshaws Wetland	638	k29	2387733	5937333	1477786.00	5375671.00	
West Coast	Buller Lagoon	639	k29	2392325	5939417	1482377.00	5377753.00	
West Coast	Hokitika Oxidation Ponds	516	J32	2349200	5824100	1439236.06	5262475.21	View from road.
West Coast	Karoro Oxidation Ponds	621	J32	2360396.6	5856603.6	1450449.80	5294961.60	
West Coast	Lake Brunner - Iveagh Bay	127	K32	2385700	5841900	1475732.66	5280265.80	Boat 150m from shore along western shores of bay to end of Stormy Point
West Coast	Lake Brunner - Swan Retreat	431	K32	2385400	5844800	1475433.24	5283165.22	Count via centre of Lagoon looking to both edges.
West Coast	Lake Ianthe	120	I34	2316000	5792000	1406032.33	5230382.79	Motor from jetty across lake to Raupo then anticlockwise around lake edge (150m off shore) 100m down outlet also.
West Coast	Lake Poerua	129	K32	2386500	5831500	1476530.77	5269867.87	Boatramp to lake outlet 150m offshore then down middle of lower lake to outlet stream.
West Coast	Lake Rotokino	121	I34	2301000	5780000	1391029.79	5218384.30	Up outlet creek then into western arm of lake. Count from outlet of that lake. Around southern lake edge 150m off shore to White heron lagoon. Then go into arm with hut at the end. (SW corner)
West Coast	Lake Ryan	124	J31	2362500	5862900	1452541.90	5301265.92	Counted from access road to farm and from main road to Pt Elizabeth.
West Coast	Mahinapua	430	J33	2338500	5821400	1428536.74	5259777.52	Anticlockwise around lake 100m off shore - up mirror creek 100m and down lake outlet 200m.
West Coast	NE Shore Lake Brunner	432	K32	2385500	5846500	1475533.52	5284864.83	Start at yacht club ramp travel around Molloy, Howitt and Pah Bays 150m from edge. Stop at entrance to Iveagh Bay (separate count /survey line).
West Coast	North Cobden Lagoon	125	J31	2362000	5861400	1452041.66	5299766.35	Counted from tiphead road then from Jellyman Park for northern end.
West Coast	Okuku Reservoir	636	J33	2365132	5829327	1455167.00	5267699.00	
West Coast	Pheonix Meat Works Pond	128	K32	2376300	5857900	1466337.78	5296264.04	Counted from dumping platform just through gate
West Coast	Runanga Oxidation Pond	123	J31	2366100	5867200	1456142.13	5305564.17	Off Bathhouse Road to oxidation pond outlet.
West Coast	South Cobden Lagoon	126	J31	2362000	5861300	1452041.63	5299666.37	Off stopbank along road edge

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
North Canterbury	A&P Ponds	627	m36	2475911	5739408	1565938.00	5177714.00	Southside riding for the disabled carpark whin showgrounds off Curletts Road
North Canterbury	Bromley Sewage Ponds	131	M35	2487000	5741500	1576997.10	5179888.47	Drove and walked around pond. 6 ponds in all.
North Canterbury	Brooklands Lagoon	633	M35	2486239.6	5755339.6	1576237.00	5193723.00	Survey from several shoreline locations (including observation tower).
North Canterbury	Cheviot Settling Ponds	556	O33	2531545	5821645	1621529.30	5259999.37	
North Canterbury	Coopers Lagoon	205	M37	2454000	5704400	1544012.86	5142799.82	Viewed from McEvedys Road, then drove along beach side to top of lagoon in order to cover all bays.
North Canterbury	Greenpark Sands (Lake Ellesmere)	417	M36	2467200	5715200	1557206.63	5153597.49	From Eglens? At Wolfs Road to Halswell River mouth. NB covers two Maps M36 & M37, E672 to 756, N152 to 210
North Canterbury	Harts Creek Reserve	133	M36	2457800	5713000	1547810.36	5151397.22	Along boardwalk North to South + use of hide. Access off Timber Yard Road
North Canterbury	Janet Stewart Reserve	624	M35	2482416	5749437	1572415.00	5187822.00	Off Lower Styx Rd
North Canterbury	Kaiapoi Wastewater treatment ponds	632	M35	2484641	5758182	1574638.72	5196563.90	Full survey of all ponds - Follow internal perimeter road.
North Canterbury	Lake Ellesmere - Kaituna Lagoon	514	M36	2482000	5713000	1572000.85	5151399.91	Parked vehicle at both ends and walked along old rail embankment.
North Canterbury	Lake Forsyth	130	M36	2492000	5712000	1581996.56	5150401.26	Started from top end of bay near Kinlock? Homestead; round bay to little river; through rushes & swamp & willows along eastern embankment to settlement and to outlet.
North Canterbury	Prestons Ponds	625	M35	2482842	5749482	1572841.00	5187867.00	End of Metehau St (4 ponds)
North Canterbury	Rakaia Lagoon	623	L37	2448971	5701729	1538986.00	5140129.00	Launch boat at ramp and observe from the closed game area to the river mouth
North Canterbury	St Annes Lagoon	203	O33	2525300	5832000	1615287.99	5270351.31	Walked around the North Side from the entrance to Rentoul Park, to a point where the Western end of the water could be seen. Southern side not walked as ewes lambing.
North Canterbury	Styx Mill Reserve	585	M35	2478200	5748900	1568200.36	5187285.40	Styx Reserve Birds on all 3 ponds. Access via public walkway off Styx Mill road.
North Canterbury	The Sister Ponds	204	O32	2530600	5834700	1620586.32	5273049.65	Walked around Southern end of main pond to be able to see all of the water area. NB the pond on the North side of the Sisters Rd alongside the entrance to the main pond was viewed from the road.
North Canterbury	Travis Wetland	626	m35	2485828	5745895	1575831.00	5184676.00	Carpark of Mairehau Rd. Walk to bird hides + access points
North Canterbury	Tutaepatu Lagoon	132	M35	2486000	5764500	1575997.42	5202879.55	This was originally recorded as Woodend Lagoon. Gladstone Road, then walk 400m to lagoon. NB Cannot walk around shore. Or via Tahaitaua coastal park Woodend Beach
Central South Island	All Day Bay Lagoon	77	J42	2343800	5552600	1433917.25	4990981.28	Count from Waianakarua Beach Rd

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Central South Island	Bells Irrigation Pond	519	J41	2349500	5588200	1439586.41	5026583.39	Count from Ross road off Ikiwai Raod at Tawhai. Count from road skirting pond.
Central South Island	Bortons Settling Pond	518	J41	2335800	5589500	1425885.83	5027873.04	Access via angler access/public road off SH 83. count while driving road that skirts pond.
Central South Island	Devils Bridge Wetland	517	J41	2348000	5572200	1438099.23	5010583.41	Devils Bridge Road from Ardgown Road. Source of an Oamaru Creek tributary.
Central South Island	Horseshoe Lagoon	70	K38	2376200	5655300	1466245.90	5093691.63	From end of Connollys road walk south approx 800m along stopbank/beach. Count from beach
Central South Island	Normanby Lagoon	73	J39	2370700	5637800	1460754.19	5076191.40	drive to end of lagoon drive off Normanby road. Count from beach Dune
Central South Island	Old Orari Lagoon	64	K38	2383400	5662300	1473442.22	5100693.34	Walk along beach north of river mouth and count from Beach dune starting near marrocarpas
Central South Island	Opihi Lagoon	69	K38	2378400	5657300	1468444.82	5095692.22	Count from Milford huts
Central South Island	Opihi Lagoon Nth Arm	67	K38	2379400	5658500	1469444.22	5096892.43	Park at the end of White Rd. Walk along stopbank and beach. Count all lagoon and farm pond oxbows as you go. Long walk.
Central South Island	Opihi Lagoon Sth Arm	68	K38	2377900	5656900	1467945.04	5095292.08	From end of Connollys road, north, Count from about the macrocarpus row
Central South Island	Orari Lagoon	65	K38	2382700	5661700	1472742.54	5100093.18	count from stopbank at the end of Parke rd.
Central South Island	Otipua Wetland	72	J39	2370500	5641500	1460552.48	5079890.86	Count from public walking track around wetland
Central South Island	Pareora Freezing Works Lagoon	75	J39	2368100	5632900	1458156.90	5071290.70	Access along beach from freezing works
Central South Island	Pareora Lagoon	76	J39	2367800	5632300	1457857.24	5070690.62	Park adjacent to freezing works, walk south along track and beach to lagoon (approx 500m further along bach from freezing works pond)
Central South Island	Pig Hunting Creek Lagoon	74	J39	2370300	5636900	1460354.67	5075291.32	Access from end of Craigies road off SH1. count from top of beach dune and walk 800m along southern bank to count the top end of the lagoon.
Central South Island	Rooneys Pond	554		2364675	5605575	1454747.90	5043967.15	Access off Myers or Hayman Road via farm track. Count from southern end in paddock.
Central South Island	Saltwater Creek	71	J39	2371500	5641500	1461552.36	5079891.33	Walk true right of saltwater creek from SHWY 1 to sea and then along coast
Central South Island	Smithfield Settling Pond	555		2370370	5646625	1460420.20	5085015.22	Count from car park (deer unloading area) off Westcott Road (back entrance to Smithfield works)
Central South Island	Spider Lagoon	66	K38	2381600	5660700	1471643.07	5099092.93	Access from end of Macaulay rd. walk north along stopbank. Count all water visible until standing near centre of the lagoon complex
Central South Island	Wainono Lagoon	78	J40	2364000	5610000	1454070.20	5048391.16	count using spotting scope from both sides. Western side from the end of Clay road opposite café. Eastern side count from two or more central

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
								points whilst driving along beach dune track
Central South Island	Wainono Reserve	79	J40	2364500	5608600	1454571.01	5046991.65	Access from Poingdestres rd. count from top of dune using spotting scope
Central South Island	Washdyke Lagoon	429	K39	2370426	5647379	1460477.00	5085769.00	Park near train overbridge (assume this is on Bridge Road?), walk along beach, count from two central points on beach.
Otago	Balclutha Backwater	584	H46	2257600	5436200	1347872.88	4874444.55	Behind Nash Park. Accross (NW) from Balclutha township
Otago	Balclutha Oxidation	163	H46	2258359.3	5433436.6	1348648.00	4871593.00	Through gate of sewage pond turn right approximately 250m to point where all of the pond can be seen.
Otago	Big Boggy Burn	583	F9	2182700	5624100	1272689.87	5062388.07	Counting point from 20m above trail, on hill @ 300m from lake. Plus count where possible on North side of wetland
Otago	Blakelys Dam	188	H42	2278300	5556865	1368405.05	4995182.11	#188 off Gimmerburn/ Waipata Rd. Geoff Winmall new owner 0274380647
Otago	Blueskin Bay	173						Viewed from vantage point approximately 500m past railway on rout to Warrinton?
Otago	Borrow Pits	569	I45	2291850	5467740			View from main road
Otago	Camerons Dam	600	H41	2265059	5575040	1355165.00	5013364.00	Drive up Hills creek Road off Oturehua Road through the Ida Valley turn left into McKnight Road it is right beside the road. (Please check grid reference as this was guess from instructions and Google Earth)
Otago	Carr's Oxbow	423	H42	2273600	5544500	1363716.37	4982807.88	From gate 1/2 way down hill on Pateroa - Puketoi Road LHS
Otago	Catlins Lake	645	H47	2250244	5408999			Access off Papatowai Highway
Otago	Creamery RD Pond	183	H42	2280300	5554300	1370408.31	4992618.29	From Creamery Road
Otago	Diamond Lake	192	E40	2144600	5598100	1234561.39	5036336.51	Old day use picnic area midway off Gly/Paradise Road NE end.
Otago	Duffys Lane	182						Drive along fence line from Duffys lane to end of willow view driveway
Otago	Finegand WR	164	H46	2258668.7	5431631.6	1348966.00	4869808.00	Walked flood bank on SW bank
Otago	Flood Free Borrow Pit	165						
Otago	Frankton Arm	191	F41	2173700	5566800	1263721.26	5005021.82	Kawarau Falls Motor camp pier south side at outlet
Otago	Glenorchy Lagoons	194	E41	2146100	5586000	1236071.84	5024221.70	Elevated above lagoons midway on road eastern shore
Otago	Hawksbury Lagoon	176	J43	2332105	5514605	1422264.47	4952976.47	Waikouaiti - Walked along the stop bank in the centre of Hawksbury Lagoon
Otago	Hoopers Inlet	171	I44	2329000	5480000	1419206.08	4918370.43	Glassed area from Kohuka (outlet) to Hoopers Inlet Road along Hoopers inlet Road to Allans Beech Road, and along road to Murray Farm Point?
Otago	Inch Clutha WMR	161	H46	2259227.0	5434588.1	1349506.00	4872805.00	Drove along road next to main ponds

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Otago	Kaikorai Estuary	169						From standing next to bridge on main road.
Otago	Kaitangita Oxidation	159	H46	2266300	5430000	1356587.64	4868259.58	From Road
Otago	Kidds Rd (Bruhnes)	180						Standing on Southern side of pond
Otago	Kirkpatrick Lake	189	E41	2161400	5566500	1251407.41	5004710.03	Outlet North end of lake
Otago	Kogans Bridge Oxbows	181						
Otago	Lake Dunstan	582	G41	2217000	5580100	1307049.66	5018372.69	Gilmoree Rd off SH6. Drive to end of road through gate walk up hill to get some elevation for glasing
Otago	Lake Hayes	190	F41	2180200	5572500	1270223.05	5010733.85	Bendmeer Reserve and Aslo counted GR 797-737 Mill creek confluence reserve north shore
Otago	Lake Johnson	196	F41	2173600	5569500	1263618.67	5007724.69	Elevated position above lake on east shore
Otago	Lake Tuakitoto	158	H46	2264700	5437900	1354971.93	4876158.73	Stationary from anglers access gate at NE corner of main lake
Otago	Lake Waihola	166	H45	2285500	5462000	1375733.44	4900301.69	From Titi Road (GR 855-620).
Otago	Lake Waipori	168	H45	2285200	5467700	1375423.92	4906002.20	From Bert O'Briens front lawn
Otago	Lone Pine Reservior	547	I42	2308000	5535700	1398134.26	4974043.84	Off Golden Point Road?
Otago	Mathias Dam	184	H42	2284060	5550026	1374173.87	4988346.86	Access through Anglers Access point off Patearoa - Waipiata Road. From hill behind shooters hut.
Otago	Matukituki Valley	200						
Otago	McSkimmings Pond	571	h41	2265766	5580350	1355844.39	5018664.46	
Otago	Merton Arm	174						Walked 3/4 length of estuary along SH1
Otago	Middlemarch Sewage	179						From access road.
Otago	Minaret Station	199						
Otago	Moke Lake	195	E41	2161200	5568500	1251205.34	5006712.25	Elevated point off track SE corner
Otago	Old River Channel	160	H46	2264788.5	5425851.6	1355085.00	4864073.00	Walked NW side from Sth to Nth mouth of Clutha
Otago	Paddock Bay	198						
Otago	Palmerston Oxidation	178	J43	2332535	5523525	1422683.84	4961896.44	Walked length of pond (West Shore) adjacent to Horse Range road
Otago	Papanui Inlet	172	J44	2331000	5482000	1421202.95	4920373.09	Glassed from Inakays? Road over entrance area, then along Cape Saunders? Road, Papanui Inlet Road to Dicks? Road, then along edge of inlet to cribs.
Otago	Patersons Dam	564	H42					Off Moa Creek Road, Ida Valley Station
Otago	Prison Oxidation Ponds	597	H45	2278851	5453246			Oxidation ponds can be seen off Back Road
Otago	Puerua River Estuary	615	H46	2263984	5424450	1354283.20	4862733.00	Turn off Kaka Point Road down farm track to the fishing hunts at river mouth
Otago	Ranfurly Sewage	187	H42	2282340	5559155	1372444.08	4997476.87	Behind Ranfurly Township
Otago	Reid Lake	193	E40	2145500	5594700	1235464.83	5032932.66	Along high terrace, east side midway?
Otago	Rutherfords Dam	186	H42	2286330	5557895	1376436.51	4996220.44	Off Waipata - Naseby Road. From dam wall at SW corner

Location by region								
Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Otago	Sinclair Wetland	167	H45	2283500	5464500	1373728.90	4902798.79	From Road to SW at top of the hill (GR 835-645) and from boat ramp
Otago	Stirling Oxidation	162	H45	2262100	5434200	1352378.24	4872452.60	From gravel Road at GR H46 621 342
Otago	Stoney Ck Lagoon	177						walked along the Southern Shore
Otago	Styx	572	H43	2269842	5527011	1359977.16	4965308.11	Off the upper Taieri - Paerau Road
Otago	Taieri Lake	185	H42	2289400	5554800	1379510.44	4993127.67	From high ground at GR H42 895-545
Otago	Taieri Mouth School	588	I45	2292479	5455891			Off Akatore Rd, Behind Taieri Mouth School
Otago	Takitakitoa Wetlands	601	I45	2291665	5462665	1381896.70	4900975.80	Off Takitakitoa Road - access true left bund wall
Otago	Tapanui Oxidation Ponds	630	g45	2218679	5467543	1308874.00	4905733.00	Access off Duncan Road, Tapanui
Otago	Tomahawk Lagoon (Lower)	170	I44	2319100	5475500	1409313.57	4913856.12	Glassed area from Tomahawk Road
Otago	Tomahawk Lagoon (Upper)	365	I44	2319800	5465600	1410028.91	4903957.94	From behind hall and Northern carpark and track
Otago	Waikouaiti Sewage	175	I43	2327048	5507639	1417216.45	4946004.54	Counted birds by standing on the north shore
Otago	Wanaka Oxidation Pd	201						
Otago	Winmill Dam	617	H42	227667	5556105			Crn of Gimmerum-Waipiata Road and Patearoa-Maniotot Road
Southland	Acton Downs Pond	98	E44	2145300	5499400	1235367.46	4937504.68	Adjacent Acton Downs Homestead
Southland	Big Lagoon	543	E46	2138500	5417400	1228710.43	4855380.00	Through Tony Riegers property
Southland	City Lagoon	523	E47	2152000	5409500	1242245.98	4847500.10	
Southland	Daffodil Bay	568	E47	2148718.6	5404877.9	1238971.15	4842864.65	From Sandy Point track to Daffodil Bay - walking track to North and grassed area to West.
Southland	Dawson City GMA	106	D43	2110700	5515700	1200692.24	4953780.36	Via Wilderness Road
Southland	Gore Oxidation Ponds	93	F45	2196200	5446400	1286415.22	4884532.31	Located on southern outskirts of Gore
Southland	Invercargill City Lagoon	538	E47	2152400	5409500	1242646.48	4847501.01	From Bluff Rd, on new walking track
Southland	Invercargill Refuse Pond	102	E46	2152000	5410000	1242244.84	4848000.72	Via city tip
Southland	Lake Murihiku	103	E46	2145700	5412000	1235932.23	4849988.94	Via Mark Sutton's old place. New owner Keryn Crook 03-2131208. 26 Huges Road. Take waders as you will need to wade out about 20m into lake. Be careful as mud becomes very deep about this point. Count done at -46.405518, 168.2622 degrees
Southland	Lake Te Anau Outlet	521	D43	2094400	5516300	1184363.11	4954359.65	
Southland	Lake Te Anau Shoreline	105	D43	2095500	5516300	1185465.10	4954361.12	Shoreline adjacent Te Anau Golf Course
Southland	Little Lake Waituna	92	F47	2177000	5396500	1267304.49	4834543.79	Via eastern end Lake Waituna
Southland	Lumsden Oxidation Ponds	96	E44	2155200	5485700	1245301.66	4923802.09	Located via .5km SW of Lumsden via NS Transport access road
Southland	Mahinga Kai Pa site	635	F47	2177298	5396438	1267603.00	4834483.00	

Location by region

Region	Site	Ref No	Map No	Easting	Northing	NZTM_East	NZTM_Nort	Access Details
Southland	Mataura Oxidation Ponds	94	F46	2189600	5434800	1279832.16	4872908.70	Located 1 km south of Mataura on true right of Mataura River
Southland	Outlet Area Kakapo Swamp	107	D43	2101500	5513500	1191479.53	4951564.22	Via public right of way though O. Buckingham farm.
Southland	Peter Menlove's Pond	97	E44	2152300	5476100	1242413.83	4914185.07	At Caroline adjacent State Highway 6
Southland	Riversdale Gravel Pit	95	F44	2176000	5472300	1266148.29	4910420.98	Located on Dunn and Cody Road 3kms west of Riversdale.
Southland	Ryan's Pond	99	E44	2137900	5478000	1227991.22	4916063.34	Via Castle Downs Road
Southland	Te Anau Oxidation Ponds	104	D43	2098200	5520700	1188164.13	4958772.53	Adjacent left bank lower Upukeroa River
Southland	Waimatuku Wetland	100	E46	2137500	5417300	1227709.29	4855277.63	Adjacent mouth of Waimatuku Stream
Southland	Wallacetown Oxidation Ponds	101	E46	2148200	5418700	1238420.44	4856703.18	Adjacent Makarewa Stream