

WEST COAST FISH & GAME REGION

GREYLARD SURVEY 2022

Results of Ground and Aerial Greylard Counts April 2022.



Baylee Kersten, Fish & Game Field Officer, May 2022.



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Results of Ground and Aerial Greylard Trend Counts April 2022.

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Summary

Fish and Game has a responsibility to monitor Grey and Mallard Ducks under the Conservation Act. With hybridisation between the two species they are now collectively monitored and referred to as 'greylards'. West Coast Fish and Game currently count greylards at approximately seventy sites between Granity and Hari Hari. Until recently small accessible wetlands were counted by foot giving the most accurate counts while more remote, yet significant wetlands were counted by fixed wing plane giving useful estimates of greylard. In 2018 a drone was purchased to improve count accuracy at sites where it has been historically difficult to gain accurate counts. This year total greylard numbers decreased 4.1% from those observed in 2021 (3,313 vs 3,453) and there was considerable fluctuation in the distribution of greylards. Route regression analysis shows the mean annual count for greylard has increased 3% over the last 7 years. Staff recommend; That the council receives this report. That current sites be audited, and additional sites be added to monitor riverbeds. That the current greylard limit and season remains the same.

Introduction

The endemic New Zealand grey duck (*Anas superciliosa*) and the introduced mallard duck (*Anas platyrhynchos*) are well distributed throughout New Zealand. Both species readily hybridise together with many birds showing varying degrees of hybrid traits and are often collectively referred to as 'Greylard duck.' On the West Coast greylard make up most of the game bird harvest and are considered the preferable quarry by most of the region's game bird hunters. Fish & Game West Coast has a statutory requirement under S26Q of the Conservation Act 1987 to assess and monitor game bird populations. Monitoring should be conducted to identify the current (or recent) status of the greylard population, enabling managers to make decisions about what level of action (e.g. change in harvest, habitat creation/restoration, etc.) might be required to maintain, or at least try to maintain, the population at a desired level (McKenzie 2014).

Greylard are a transient bird readily moving from site to site according to food availability. This means that counts at any one site can be hit and miss with large fluctuations. While best practice is to undertake line transect surveys topography on the West Coast made it impractical to randomise transect locations. Instead, a small number of representative sites were chosen where an annual count of the population was made. To gain a better understanding of the West Coast greylard population, and reduce overall count variability, additional sites have been counted since 2015 over and above the originally selected sites (Adams 2015). Monitoring is carried out between Birchfield and Hari Hari and consists of counting sites that are physically defined for easy repeatability and include: lakes, ponds, streams, lagoons and estuaries (Appendix 2). Sites encompass a variety of habitat types and areas known to have relatively high hunter usage and harvest. It is thought that this will provide an indication of the wider greylard population trends in response to hunter harvest, predation and environmental conditions, therefore aiding in the setting of effective game bird regulations.

By counting in April each year, a snapshot of the greylard population entering the upcoming hunting season is gained. The advantage of counts undertaken at this time of the year is that they provide a measure of the status of the greylard population of interest to hunters. Also, they reflect the contributions made by survivors of the previous hunting season, their reproductive output, and the survival of these birds and their offspring through to the start of the next hunting season. A disadvantage of counts at this time of year is that the data cannot be used for setting the following seasons regulations (Taylor 2014).

The aim of the current survey was to:

- 1) Repeat the counts of sites started in 2015 to gain an index of relative abundance of greylard on the West Coast.
- 2) Identify any new sites holding greylard for repeat counting in 2023.
- 3) Use route regression analysis to assess population trends of greylard.
- 4) Provide recommendations for management of the greylard population in context of the goals and objectives of the West Coast Region 'Sports Fish & Game Bird Management Plan'.

Method

Counts were undertaken in early April across 73 sites. Sites were accessed by a variety of different techniques depending on site accessibility. Most sites were surveyed using a drone while other sites were accessed by foot, boat or kayak with binoculars being used to help counting. All sites were counted between 10am and 4pm NZST during settled weather periods to ensure all greylard would be loafing at, rather than returning to, or heading to feeding areas at the time of counting.

Data was recorded on survey sheets and entered into the greylard survey database. A comparison of this year's count with site long term averages was made. To enable easier interpretation of the data and to account for movement between adjacent sites data was amalgamated into 'area' counts. Further analysis of numbers was completed using Fish & Game best practice Route Regression analysis.

Results

A total of 3,313 greylard were counted during this survey which is a slight decrease to greylard counted in 2021 (3,453 greylard, 4.1% decrease) and above the 2015-2021 average of 3,284 greylard (Figure 1). While the total count was slightly down on 2021, there was considerable fluctuation in the distribution of greylard. Areas in 2022 with notable increases from 2021 were at Westport South, Barrytown, Lake Poerua, Lake Arthur, Groves Swamp, Mahinapua, Lake Ianthe. Areas in 2022 with notable decreases from 2021 were North Westport, Reefton, Grey Valley, Kokiri, Greymouth, Hokitika and Hari Hari (Table 1). A full list of sites with data for the last six years is included in Appendix 1.

Route regression analysis shows the greylard population has increased by 3% pa over the last 7-years. The standard error in the counts over the 7-year period is 4% (Figure 2).

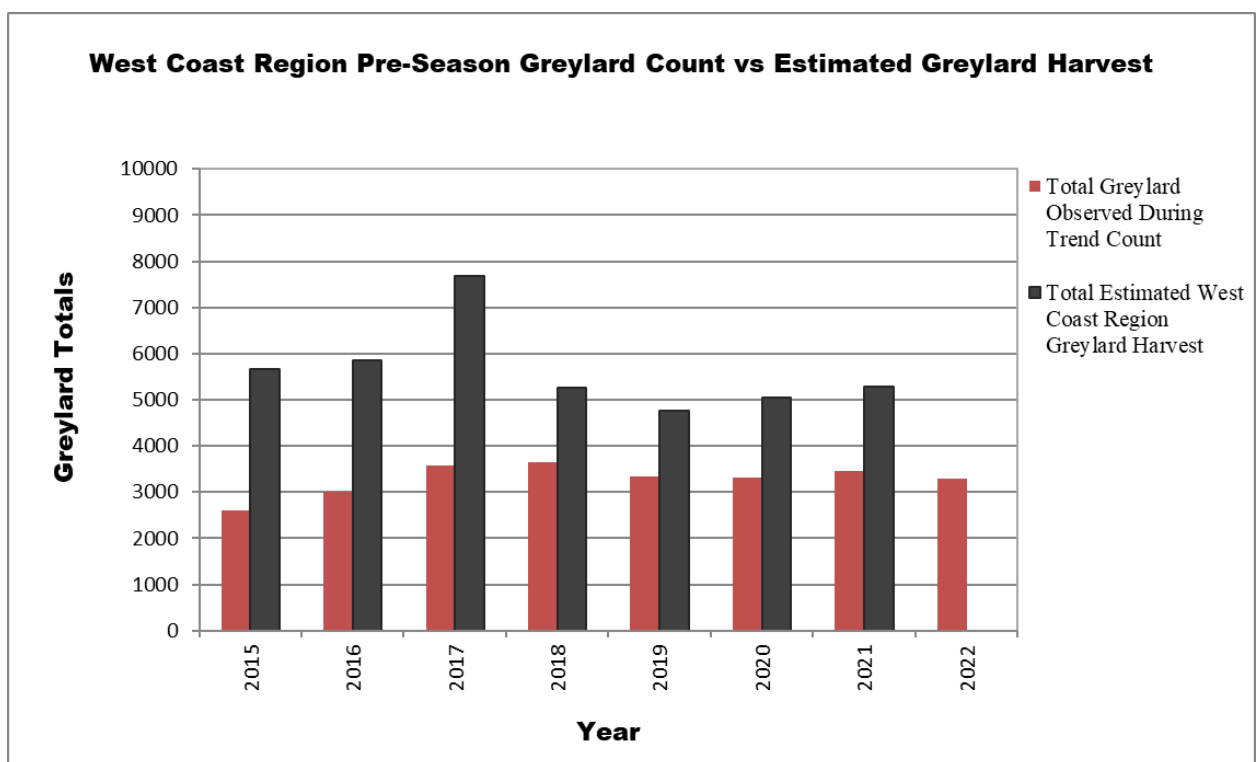


Figure 1. West Coast Region pre-season greylard count vs estimated greylard harvest from Hunter Harvest Survey 2015-2022.

Table 1. Comparison of West Coast Region pre-season greylard counts by site/area for 2019-2022 and 2015-2022 average.

Site/Area	2019	2020	2021	2022	Average*	Note
North Westport	64	0	32	3	46	Birchfield north and south
Westport South	144	261	240	396	224	Virgin Flat, Okari, Holcim, Bradshaws, Tiphead, Nine Mile
Reefton	46	83	251	171	119	Oxidation Ponds, Bead Truck Pond
Barrytown	300	325	199	249	262	Barrytown Lagoon and Bisset Ponds
Grey Valley	64	44	65	21	85	Ikamatua, Snowy, Kennedy
Kokiri	103	59	176	51	69	Meat Works
Lake Brunner	333	334	416	394	316	Yacht club, Molloy, Old mouth, Swans Retreat, Boat ramp
Lake Poerua	134	355	172	377	187	
Greymouth Town	333	232	261	176	250	Paroa oxidation, Waterwalk, Cobden, Lake Ryan
Hokitika	101	92	244	131	124	Oxidation ponds
Lake Arthur	392	278	107	322	323	Lake Arthur, Beside Arthur, Farm ponds, Cuddy's, Nolans, Staples
Groves Swamp	622	180	186	370	451	Ogilvies, Tukes Lagoon, Pukaki, Mont's Creek, Shooting Creek, Harman
Mahinapua	87	191	71	170	81	Mirror Creek, Small bay, Picnic Bay, Grebe Bay and Mahinapua Creek
Totara Lagoon/Ross	125	135	127	138	115	
Lake Ianthe	84	120	4	20	137	Northwest Bays, Southern Bay
Hari Hari	170	263	371	137	228	Blowhole ponds, Harris ponds, Wanganui River, Tommy's Ponds, Roadside ponds

*2015-2022 average

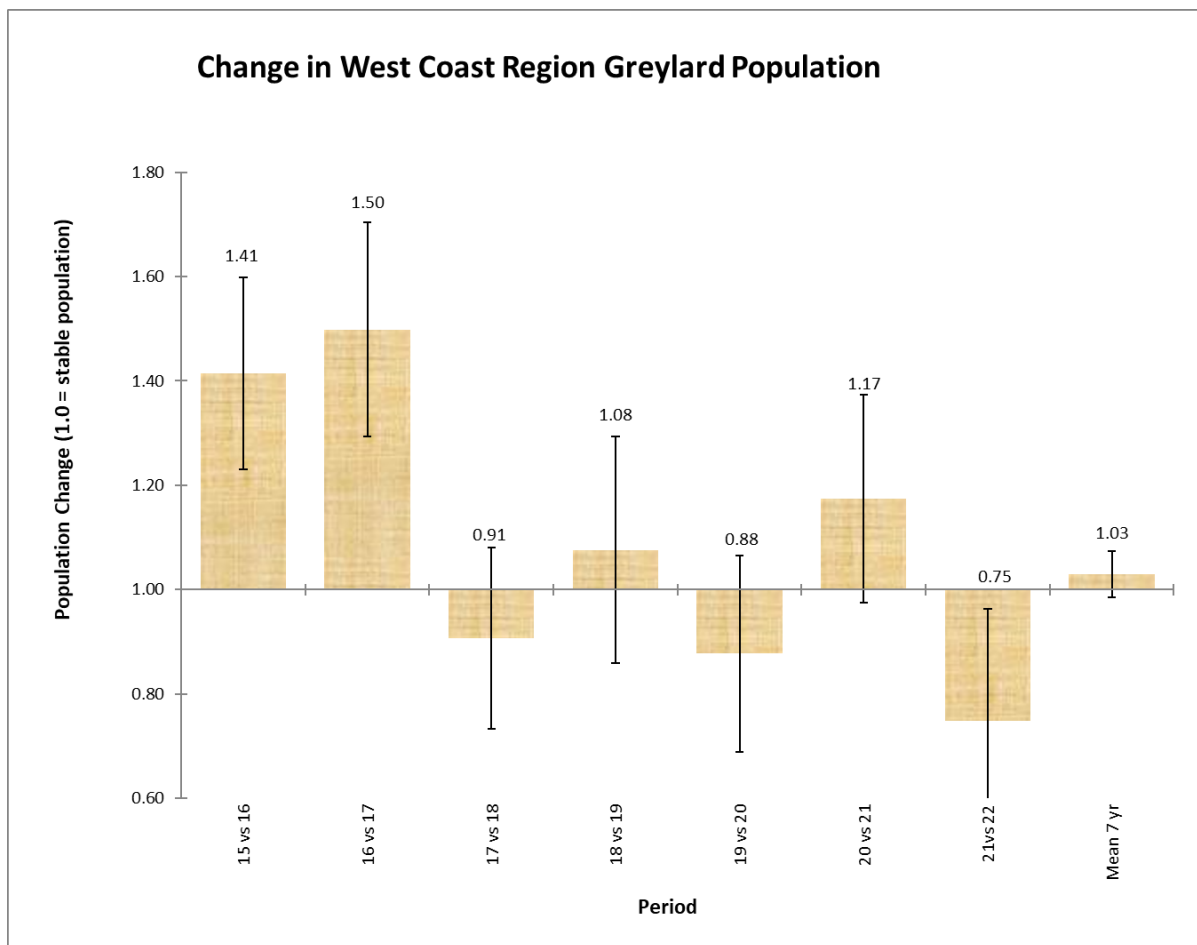


Figure 2: Each column represents the change in the regional population between years calculated by route regression analysis. The mean is the average annual change over the 2015-2022 period. A value above or below 1.0 can be taken as the increase or decrease in population over that period. Standard error bars are also fitted to ascertain the accuracy of the survey.

Discussion

The stable count over the last six years in conjunction with annual hunter harvest returns suggests that the population is comfortably maintaining itself at current harvest levels. Provided our monitoring is an adequate reflection of the wider population, then there appears to be no need to reduce hunter harvest. Continued variation in the results in 2022 compared to 2021 shows the distribution of the greylard population fluctuates significantly across favoured habitat between years and within the season. Maintaining a high number of survey sites helps to reduce variability and error in the dataset and will give greater certainty to the results in the long term. This year's count was carried out during a prolonged dry period. As a result, a fair portion of the sites held no ducks in Hari Hari due to the ponds being dry. It's believed these were not the only site counts that were influenced by the dry conditions. Although doing a range of different habitat sites is meant to account for this, a current lack of river monitoring leaves a large portion of habitat unaccounted for and is likely readily used by ducks in dry conditions.

Recommendations

- That the council receives this report.
- That current sites be audited, and additional sites be added to monitor riverbeds.

- That the current greylard limit and season remains the same.

References

Adams R. 2015. *Greylard Trend Surveys, April 2015. Results of trial aerial and ground trend surveys.*
Fish & Game West Coast Region –Internal Report.

McKenzie D. 2014. *Mallard monitoring research.* Proteus Wildlife Research Consultants.

Taylor P.2014. *Mallard Autumn Transect Count Methodology Research.* Fish & Game Wellington Region
– Internal Report.

Appendix 1: Raw Count Data 2017-2022

Table 1. Raw observed data from West Coast Region Greylard Monitoring Sites 2017-2022.

Greylard Site	2017	2018	2019	2020	2021	2022	LTA
Barrytown lagoons	42	236	187	274	123	149	156
Bisset ponds	59	124	113	51	76	100	98
virgin flat	67	8	17	6	0	22	18
Okari Shed Pond	23	45	0	0	23	6	26
Okari Causeway	5	0	0	0	0	0	3
Holcim	0	0	24	0	0	0	5
Lighthouse Private	0	0	7	7	1	2	3
Bradshaws West	34	117	21	87	30	224	67
Bradshaws East	37	33	0	55	30	15	24
Tiphead Shed	0	14	38	83	88	27	34
Tiphead Peninsula	14	9	19	21	22	37	18
North side estuary	5	3	2	0	15	29	5
Birchfield S	53	7	40	0	31	0	21
Birchfield N	137	11	24	0	1	3	25
Nine mile	68	18	16	9	31	31	31
O'Malley 1 (no longer have access)						n/a	5
O'Malley 2 (no longer have access)						n/a	26
O'Malley 3 (no longer have access)						n/a	17
O'Malley 4 (no longer have access)						n/a	0
Ikamatua 1	36	47	16	3	15	0	22
Ikamatua 2	0	0	0	0	0	0	0
Snowy pond (no longer have access)	52	54	8	6		n/a	22
Snowy pond 2 (no longer have access)	48	9	2	0		n/a	12
Snowy pond 3 (no longer have access)	7	74	2	0		n/a	14
Kennedy	43	2	36	35	50	21	24
Reefton Oxi Ponds	103	62	16	83	187	119	74
Breadtruck Pond	26	56	30	n/a	64	31	40
Yacht club	3	0	65	100	66	194	32
Molloy	39	64	50	94	150	124	88
old Mouth	15	51	64	2	28	53	36
Swans retreat	454	133	154	138	164	0	184
boat ramp	71	23	0	0	8	23	25
Meat works pond	57	25	103	59	176	51	63
Paroa Oxy	63	11	13	45	111	53	45
Water walk pond	29	46	38	38	36	45	41
Cobden	94	105	36	28	58	55	64
Lake Ryan	124	58	246	121	56	23	94
Lake Poerua	178	171	134	355	172	377	173
Taramakau Estuary	13	0	22	0	0	0	11
Lake Swan			6	64	259	8	90
Lake Mudgie			12	n/a	0	0	4
Kapitea reservoir			13	50	15	139	38

Paynes Gully			116	n/a	52	26	71
Okuku Reservoir			21	12	30	28	21
Kawhaka Race Pond				14	6	0	10
Hoki Oxi Ponds	76	140	101	92	244	131	144
Flowery Creek Ponds	70	62	14	66	23	2	40
Johnson Road	0	0	0	0	15	n/a	5
Kokatahi Riverbed and Adjacent Farms	343	12	n/a	n/a	n/a	n/a	178
Lake Arthur	26	14	191	48	23	96	98
Beside Arthur	14	65	4	2	28	52	22
Farm ponds	45	49	28	8	16	31	25
Cuddy's	30	15	28	91	14	18	42
Nolans	39	18	136	114	24	125	87
Staples	45	70	5	15	2	0	22
Burdens pond	20	0	0	3	23	28	21
Mirror Creek Mouth	19	8	15	28	5	57	13
Manhinapua Small Bay	2	7	1	52	2	7	8
Mahinapua Picnic Bay	13	16	19	2	0	27	8
Mahinapua Grebe Bay	10	20	11	44	6	26	13
Mahinapua Creek	22	35	41	65	58	53	39
Kaniere Bridge Pond	0	0	0	0	2	20	1
Totara lagoon	74	90	96	113	103	110	93
Tukes Lagoon	172	564	390	56	91	180	295
Pukaki	12	18	12	20	15	0	17
Monts Creek	9	25	126	30	50	50	47
Shooting Creek	85	46	48	50	18	15	57
Stopbank (Harman)	0	42	21	24	12	15	14
Camel Back	26	39	4	18	6	n/a	16
Silver Pines	0	0	21	140	100	70	31
Ogalvies	6	74	25	n/a	n/a	n/a	25
Arahura	n/a	n/a	n/a	n/a	n/a	n/a	0
Ross Pond	29	27	29	22	24	28	27
Lake lanthe NW Bays	8	42	21	88	0	4	37
Lake lanthe Southern Bays	68	330	63	32	4	16	99
Hari Hari Oxi ponds	23	7	42	54	51	50	34
Andy's pond 1	1	0	0	0	0	0	2
Andy's pond 2	13	13	0	0	10	0	5
Andy's pond 3	6	64	30	13	45	0	25
Tommy's pond	38	26	14	90	100	0	62
Hari Hari Roadside Pond	28	5	10	65	30	5	26
Blowhole Pond	26	19	30	16	35	3	21
Oneone	0	11	23	25	45	23	20
Berrys Ponds	6	0	0	0	0	0	3
Petersen's Effluent	1	37	21	0	55	56	25
Total	3576	3653	3331	3312	3453	3313	3279

Appendix 2: West Coast Greylard Survey Locations

