

WEST COAST FISH & GAME REGION

GREYLARD SURVEY 2021

Results of Ground and Aerial Greylard Counts May 2021.



Baylee Kersten, Fish & Game Field Officer, May 2021.



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Results of Ground and Aerial Greylard Trend Counts April 2021.

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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 eighty 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 increased 3.8% from those observed in 2020 (3,453 vs 3,326) and there was considerable fluctuation in the distribution of greylards. Route regression analysis shows the mean annual count for greylard has increased 10% over the last 7 years. Staff recommend are 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 gamebird harvest and are considered the preferable quarry by most of the region's gamebird 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 gamebird 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 2022.
- 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 76 sites. Sites were accessed by a variety of different techniques depending on site accessibility. Most sites were surveyed using a DJI Mavic Pro drone while other sites were accessed by foot, boat or kayak with binoculars being used to help counting. Three sites counted in 2020 could not be counted this year due to access issues. 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 3,453 greylard were counted during this survey which is a slight increase to greylard counted in 2020 (3,326 greylard 3.8% increase) and above the 2015-2021 average of 3, 279 greylard (Figure 1). While the total count was slightly up on 2020 there was a considerable fluctuation in the distribution of greylard. Areas in 2021 with notable increases from 2020 were at North Westport, Reefton, Grey Valley, Kokiri, Lake Brunner, Hokitika and Hari Hari. Areas in 2021 with notable decreases from 2020 were Barrytown, Lake Poerua, Lake Arthur, Mahinapua and Lake Ianthe (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 9% pa over the last 7-years. The standard error in the counts over the 7-year period is 4% (Figure 2).

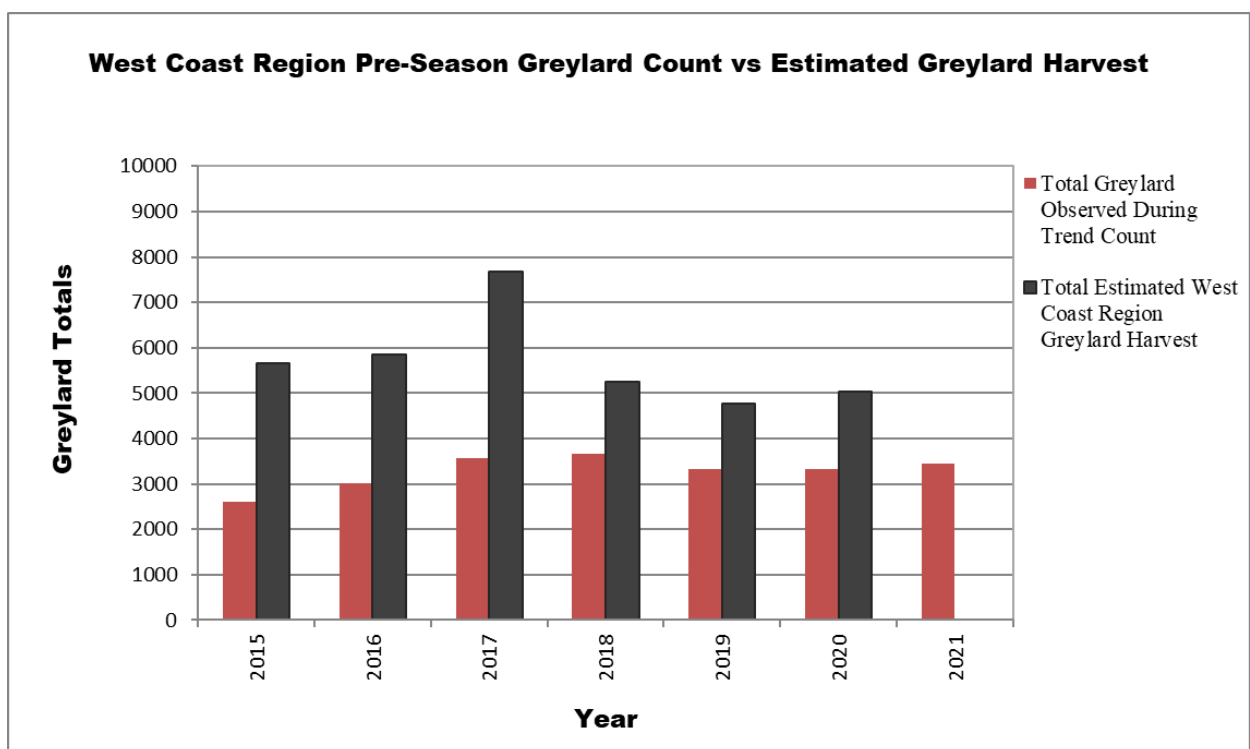


Figure 1. West Coast Region pre-season greylard count vs estimated greylard harvest from Hunter Harvest Survey 2015-2021.

Table 1. Comparison of West Coast Region pre-season greylard counts by site/area for 2018-2021 and 2015-2021 average.

Site/Area	2018	2019	2020	2021	Average*	Note
North Westport	18	64	0	32	46	Birchfield north and south
Westport South	247	144	261	240	224	Virgin Flat, Okari, Holcim, Bradshaws, Tiphead, Nine Mile
Reefton	118	46	83	251	119	Oxidation Ponds, Bead Truck Pond
Barrytown	360	300	325	199	262	Barrytown Lagoon and Bisset Ponds
Grey Valley	186	64	44	65	85	Ikamatua, Snowy, Kennedy
Kokiri	25	103	59	176	69	Meat Works
Lake Brunner	271	333	334	416	316	Yacht club, Molloy, Old mouth, Swans Retreat, Boat ramp
Lake Poerua	171	134	355	172	187	
Greymouth Town	220	333	232	261	250	Paroa oxidation, Waterwalk, Cobden, Lake Ryan
Hokitika	140	101	92	244	124	Oxidation ponds
Lake Arthur	231	392	278	107	323	Lake Arthur, Beside Arthur, Farm ponds, Cuddy's, Nolans, Staples
Groves Swamp	769	622	180	186	451	Ogilvies, Tukes Lagoon, Pukaki, Mont's Creek, Shooting Creek, Harman
Mahinapua	86	87	191	71	81	Mirror Creek, Small bay, Picnic Bay, Grebe Bay and Mahinapua Creek
Totara Lagoon/Ross	117	125	135	127	115	
Lake Ianthe	372	84	120	4	137	North West Bays, Southern Bay
Hari Hari	182	170	263	371	228	Blowhard ponds, Harris ponds, Wanganui River, Tommy's Ponds, Roadside ponds

*2015-2021 average

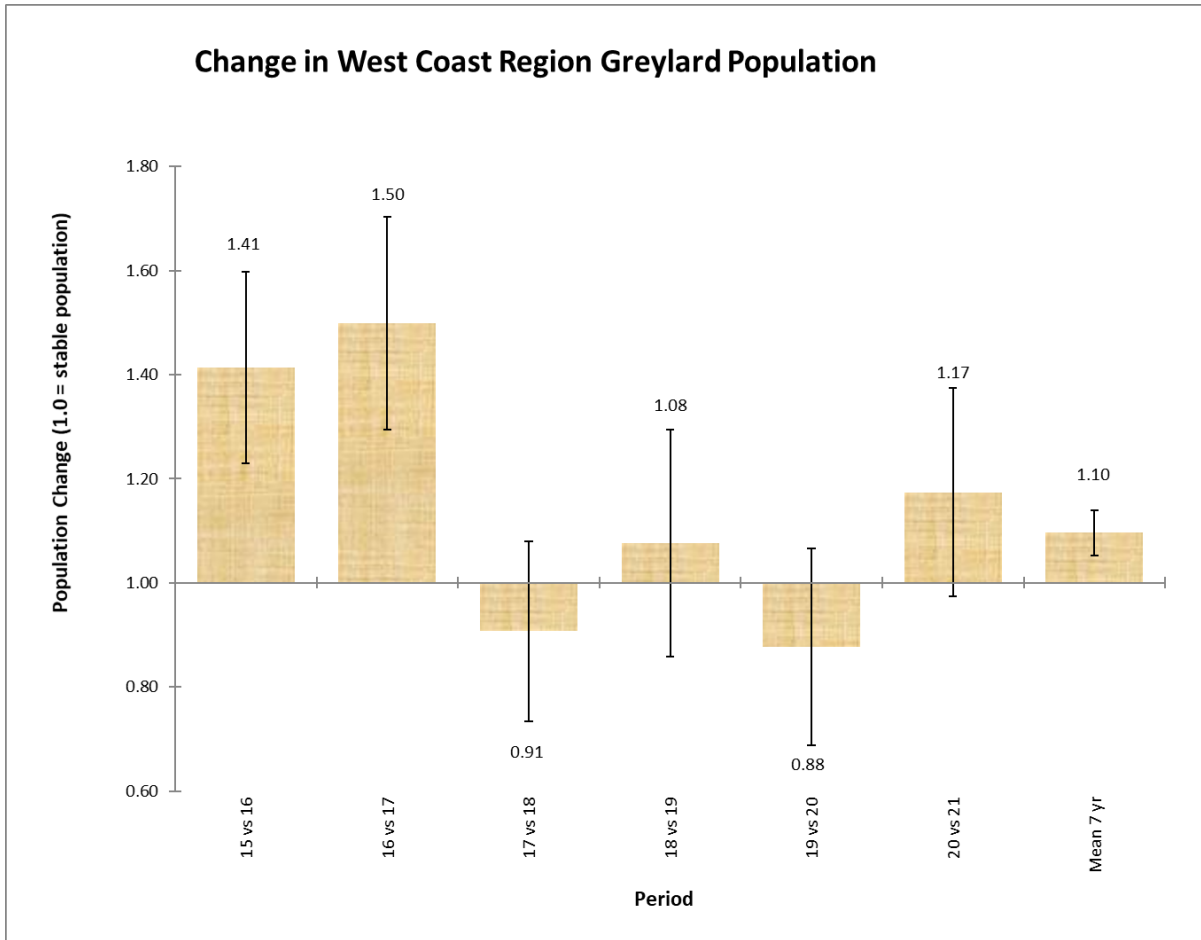


Figure 2: Each column represents the change in the regional population between years calculated by route regression analysis. The mean is the average annual change over the 2015-2021 period. A value above or below 1.0 can be taken as the increase or decrease in population over that period. Standard error bars are also fitted to ascertain the accuracy of the survey.

Discussion

The increase in the greylard population over the last five 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. It must be noted that the survey methodology has changed over the last three seasons with the drone being used to survey several sites. This along with changes in survey personnel means the perceived increase could be accounted for by improved survey techniques although the population increase between 2015 and 2017 was observed without the use of a drone.

Continued variation in the results in 2021 compared to 2020 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.

Recommendations

- That the council receives this report.

- That the current survey methods are maintained in the future.
- 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 2016-2021

Table 1. Raw observed data from West Coast Region Greylard Monitoring Sites 2016-2021.

Greylard Site	2016	2017	2018	2019	2020	2021	LTA
Barrytown lagoons	98	42	236	187	274	123	156
Bisset ponds	163	59	124	113	51	76	98
virgin flat	38	67	8	17	6	0	18
Okari Shed pond	16	23	45	0	0	23	26
Okari Causeway	0	5	0	0	0	0	3
Holcim	0	0	0	24	0	0	5
Lighthouse Private	0	0	0	7	7	1	3
Bradshaws West	16	34	117	21	87	30	67
Bradshaws East	8	37	33	0	55	30	24
Tiphead Shed	14	0	14	38	83	88	34
Tiphead Peninsula	6	14	9	19	21	22	18
North side estuary	8	5	3	2	0	15	5
Birchfield S	4	53	7	40	0	31	21
Birchfield N	0	137	11	24	0	1	25
Nine mile	40	68	18	16	9	31	31
O'Malley 1 (no longer have access)							5
O'Malley 2 (no longer have access)							26
O'Malley 3 (no longer have access)							17
O'Malley 4 (no longer have access)							0
Ikamatua 1	34	36	47	16	3	15	22
Ikamatua 2	0	0	0	0	0	0	0
Snowy pond	0	52	54	8	6	n/a	22
Snowy pond 2	9	48	9	2	0	n/a	12
Snowy pond 3	0	7	74	2	0	n/a	14
Kennedy	2	43	2	36	35	50	24
Reefton Oxi Ponds	38	103	62	16	83	187	74
Breadtruck Pond	48	26	56	30	n/a	64	40
Yacht club	0	3	0	65	100	66	32
Molloy	5	39	64	50	94	150	88
old Mouth	5	15	51	64	2	28	36
Swans retreat	74	454	133	154	138	164	184
boat ramp	61	71	23	0	0	8	25
Meat works pond	44	57	25	103	59	176	63
Paroa Oxy	47	63	11	13	45	111	45
Water walk pond	37	29	46	38	38	36	41
Cobden	98	94	105	36	28	58	64
Lake Ryan	84	124	58	246	121	56	94
Lake Poerua	109	178	171	134	355	172	173
Taramakau Estuary	28	13	0	22	0	0	11
Lake Swan				6	64	259	90
Lake Mudgie				12	n/a	0	4
Kapitea reservoir				13	50	15	38

Paynes Gully				116	n/a	52	71
Okuku Reservoir				21	12	30	21
Kawhaka Race Pond					14	6	10
Hoki Oxi Ponds	91	76	140	101	92	244	144
Flowery Creek Ponds	24	70	62	14	66	23	40
Johnson Road	12	0	0	0	0	15	5
Kokatahi Riverbed and Adjacent Farms		343	12	n/a	n/a	n/a	178
Lake Arthur	274	26	14	191	48	23	98
Beside Arthur	12	14	65	4	2	28	22
Farm ponds	15	45	49	28	8	16	25
Cuddy's	35	30	15	28	91	14	42
Nolans	150	39	18	136	114	24	87
Staples	6	45	70	5	15	2	22
Burdens pond	40	20	0	0	3	23	21
Other oxi ponds etc on loop between Kokatahi bridge and whitcombe valley road excluding lake arthur Burdens etc	72	172	27	n/a	n/a	n/a	90
Mirror Creek Mouth	2	19	8	15	28	5	13
Manhinapua Small Bay	0	2	7	1	52	2	8
Mahinapua Picnic Bay	9	13	16	19	2	0	8
Mahinapua Grebe Bay	0	10	20	11	44	6	13
Mahinapua Creek	11	22	35	41	65	58	39
Kaniere Bridge Pond	0	0	0	0	0	2	1
Totara lagoon	82	74	90	96	113	103	93
Tukes Lagoon	440	172	564	390	56	91	295
Pukaki	12	12	18	12	20	15	17
Monts Creek	67	9	25	126	30	50	47
Shooting Creek	82	85	46	48	50	18	57
Stopbank (Harman)	0	0	42	21	24	12	14
Camel Back	0	26	39	4	18	6	16
Silver Pines	0	0	0	21	140	100	31
Ogalvies	18	6	74	25	n/a	n/a	25
Arahura	n/a	n/a	n/a	n/a	n/a	n/a	0
Ross Pond	27	29	27	29	22	24	27
Lake lanthe NW Bays	60	8	42	21	88	0	37
Lake lanthe Southern Bays	85	68	330	63	32	4	99
Hari Hari Oxi ponds	32	23	7	42	54	51	34
Andy's pond 1	6	1	0	0	0	0	2
Andy's pond 2	0	13	13	0	0	10	5
Andy's pond 3	0	6	64	30	13	45	25
Tommy's pond	70	38	26	14	90	100	62
Hari Hari Roadside Pond	46	28	5	10	65	30	26
Blowhole Pond	20	26	19	30	16	35	21
Oneone	36	0	11	23	25	45	20
Berrys Ponds	13	6	0	0	0	0	3
Petersen's Effluent	24	1	37	21	0	55	25
Total	3007	3576	3653	3331	3312	3453	3279

Appendix 2: West Coast Greylard Survey Locations

