WEST COAST FISH & GAME REGION

GREYLARD SURVEYS 2018

Results of Ground and Aerial Greylard Counts March/April 2018.

Lee Crosswell, Fish & Game Field Officer, May 2018.

Drone Footage from Greylard Surveys of Westland Bush Ponds, April 2018.

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Results of Ground and Aerial Greylard Trend Counts March/April 2018.

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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'. Current monitoring within the West Coast Fish and Game Region consists of counting Greylards at approximately seventy indexed sites between Granity and Hari Hari using both ground and aerial methods. Counts of small accessible wetlands by foot generally provided the most accurate counts until recently, while the use of a fixed wing plane provided useful estimates of Greylard densities on more remote, yet significant wetland habitat. This year the purchase of a drone has improved count accuracy over sites where it has been used, giving a close, bird's eye view over entire wetland areas. West Coast Greylard numbers for this year's pre-season counts, in total have shown a 2.1% increase from those observed in 2017. While the total count number remained relatively similar to that of last year, there was a considerable fluctuation in the distribution of Greylards. Many of the larger waterbodies held the highest concentrations of birds in 2018. Staff recommendations are; That the Council receives this report; That the current Greylard limit and season remains the same.

Introduction

Fish & Game West Coast has a statutory requirement under S26Q of the Conservation Act 1987 to assess and monitor game bird populations. This includes grey duck (*Anas superciliosa*) and mallard duck (*Anas platyrhynchos*). Given that both hybridise readily, they are often collectively referred to as 'Greylard'. Locally Greylard make up the majority of gamebird harvest and are considered the preferable quarry by most of the regions gamebird hunters.

Monitoring should be conducted to identify the current (or recent) status of the mallard 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).

Currently West Coast Region monitoring is carried out between Granity and Hari Hari and consists of counting sites that can be physically defined and include all or parts of; lakes, ponds, streams, wetlands, lagoons, and estuaries. Site selection is targeted across a variety of habitat types, encompassing areas significant to hunters in an attempt to reduce variability during the counts. It is hoped that monitoring 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.

The current monitoring survey incorporates areas of the West Coast Fish & Game Region known by staff to have relatively high Greylard harvest and relatively high hunter use as indicated by the Game Harvest Survey. Additionally, some accessible areas where moderate to high numbers of Greylard are known to reside such as local oxidation ponds or waterways close to towns are also included.

The 2018 survey set out to repeat the more intensive site counts from the past four years when additional sites were established. Once five years of data has been collected from both the ground and aerial sites, route regression analysis will provide modelling of population trends from the sites surveyed.

Method

It was decided previously that the aerial transects used in other regions are not suited to the West Coast Greylard habitat and topography, with large areas of vegetation and undulating terrain.

In 2018, counts were again carried out during late March/Early April to sample the population prior to the hunting season. The advantage of counts undertaken at this time of the year is that they provide a measure of the status of the duck population of interest to hunters (i.e. the duck population entering the hunting season). 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).

The majority of sites surveyed in 2018 were counted by foot with binoculars around Westport, Grey, Ikamatua, Hokitika and Hari Hari. The Fish and Game boat was used for lakes Brunner, Poerua, Mahinapua and Ianthe. The remaining sites around Hokitika such as Lake Arthur, Totara Lagoon and Grove Swamp were counted by drone. In the Hokitika area there is generally a significant proportion of the local Greylard population holding in difficult to access large waterbody's. In particular, the Grove Swamp site and the creeks surrounding it.

Aerial waterbody surveys were conducted using the DJI Mavic Pro drone purchased by West Coast Fish and Game in 2018.

The majority of sites were counted between 10am and 4pm during settled weather periods. The intention for this timing is so all Greylards using a particular site should be loafing, and not still returning from, or heading to feeding areas at the time of counting that particular site.

Results

In total approximately seventy sites were surveyed during March and April 2018 to replicate surveys of the past four years. After a considerable increase in Greylard observed during last years counts, there was once again an increase in the total number of birds during this year's surveys, with an increase of 2.1% from 2017. While the total count quantity remained relatively similar to that of last year, there was a considerable fluctuation in the distribution of the Greylards. Many of the larger waterbodies held high numbers of birds, while many of the remaining sites provided lower counts than observed during the previous year.

Counts in the northern parts of the region, in general didn't show the increased numbers experienced last year. Although, good numbers were found in the Barrytown area, and some sites south of Westport compared with the long-term average for these sites. Respectable numbers were found in a couple of the Ikamatua ponds, continuing from increased numbers there the previous year. Sites in Reefton and a number of the sites in the lower Grey Valley didn't provide high numbers. Many of the sites in the Hokitika, Kokatahi area showed lower count totals, however this was offset by a high concentration of birds in Grove Swamp, and an increase in the observed numbers within the Lake Mahinapua and Totara Lagoon areas. Likewise, further south in Hari Hari, while a number of the regular monitored sites provided lower count totals, there was a significant increase in Greylard numbers on the larger waterbody of Lake Ianthe.

The raw data collected in 2018 was compared with the Long-Term Average (LTA) at each individual site to measure percentage change against the past average to give some indication of how the observed numbers compared with those from previous years surveyed. This can be seen in Chart 1 below.

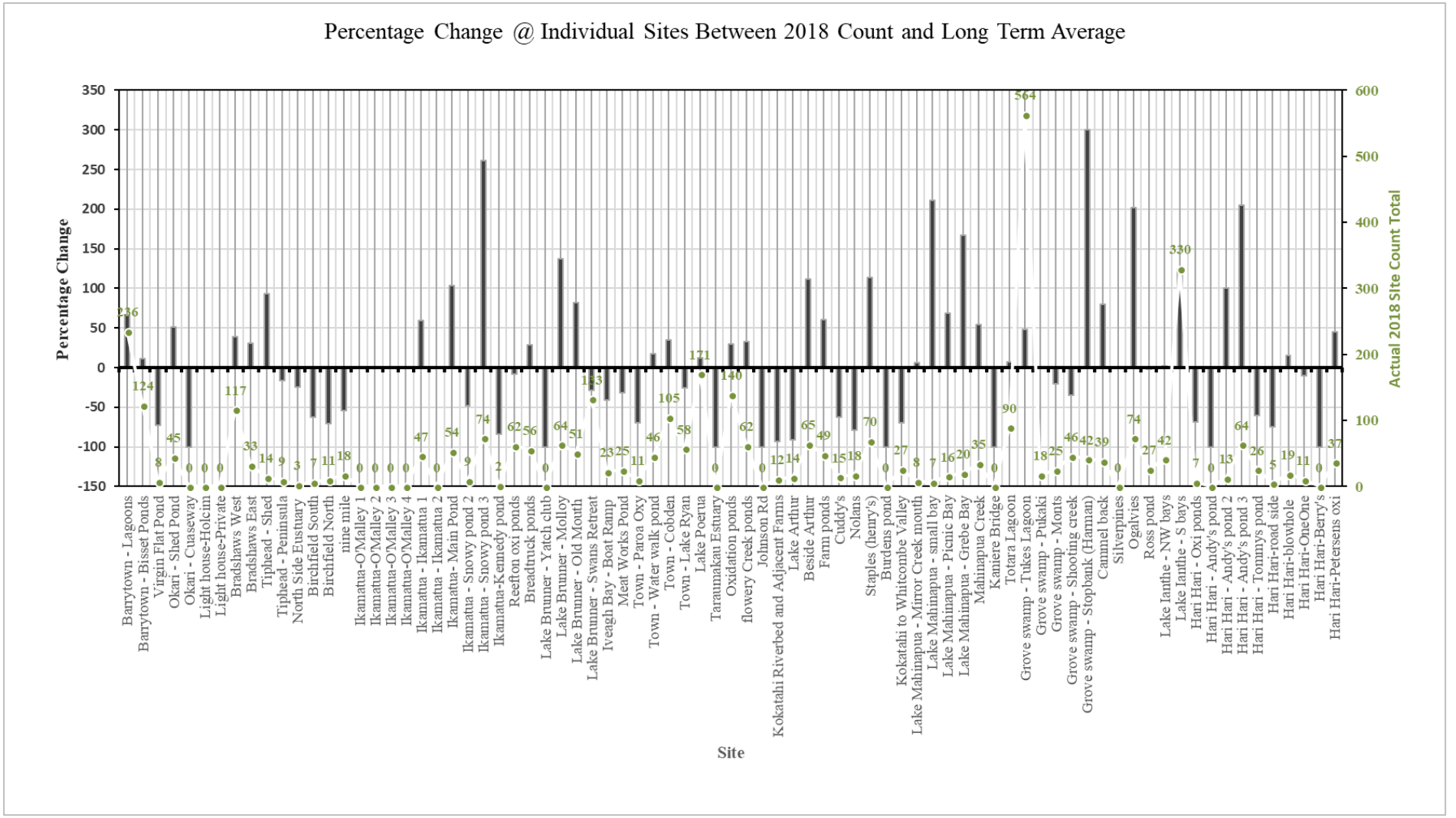

Chart 1: Percentage change in Greylard presence at the individual surveyed sites compared with the long-term mean for sites, 2014-2018.

Chart 2 below shows the total estimated harvest of Greylards within the region vs the total observed Greylards during the more intensive surveys between 2014-2018.

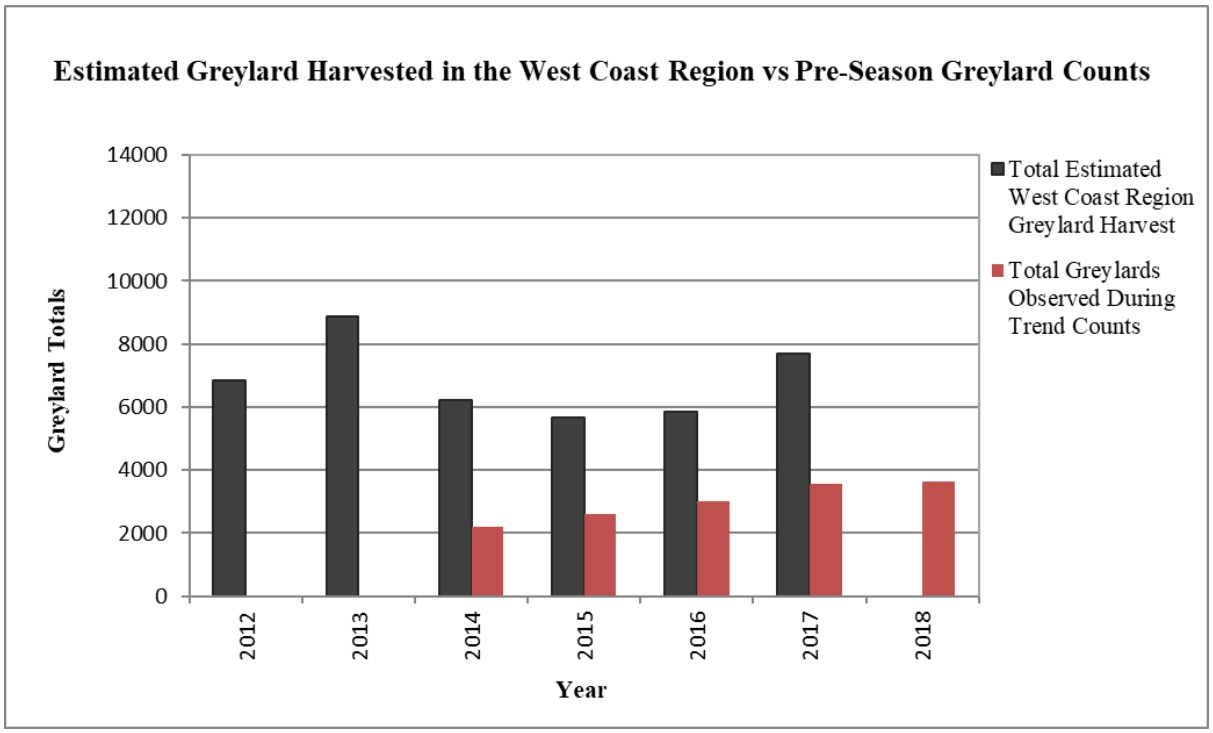

Chart 2: A comparison of the total estimated Greylard harvest within the West Coast Region from the Gamebird Hunter Survey vs pre-season Greylard counts.

Discussion

Greylard surveys for 2018 suggest that there is no need to reduce hunter harvest. From the increasing estimated harvest and increased observed counts since 2015, provided our monitioring is an adequte reflection of the wider population, we can asume that harvest rates are at present not preventing population growth. Greylard numbers have continued to increase following what appeared to have been a productive breeding season over the 2016/17 spring and summer period.

Results from the 2018 survey highlight the need to retain a high number of survey sites during the Greylard counts. There can be considerable fluctuation in the distribution of these species between favoured habitat, despite counts being carried out at the same time each year.

Since the counts were undertaken the game bird season has opened in the region, with what was considered a quiet opening weekend, with few birds shot locally. The reduction in hunter numbers locally means several significant larger wetland areas are not being hunted at the level they were in the past. From the Greylard survey completed last month it seems a number of birds have not been hunted in areas that held high numbers pre-season. This means these birds would not have been in flight over opening weekend, resulting in fewer birds on the wing for hunters.

Recommendations

- That the Council receives this report.
- That the current Greylard limit and season remains the same.

References

Crosswell L. 2016. Game Bird Harvest Survey 2016. Fish & Game West Coast Region –Internal Report.

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

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

Appendix 1: Raw Greylard Count Data 2014-2018

Table 1. Raw observed data from West Coast Region Greylard Monitoring Sites 2012-2018.

Greylard Site	2012	2013	2014	2015	2016	2017	2018
Barrytown lagoons			97	189	98	42	236
Bisset ponds				99	163	59	124
virgin flat			5	2	38	67	8
Okari Shed pond			69	35	16	23	45
Okari Causeway			21	0	0	5	0
Holcim			14	0	0	0	0
Lighthouse Private			6	0	0	0	0
Bradshaws West			57	170	16	34	117
Bradshaws East			8	23	8	37	33
Tiphead Shed			31	1	14	0	14
Tiphead Peninsula			40	14	6	14	9
North side estuary				0	8	5	3
Birchfield S				11	4	53	7
Birchfield N				0	0	137	11
Nine mile				33	40	68	18
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				1	34	36	47
Ikamatua 2				0	0	0	0
Snowy pond			32	0	0	52	54
Snowy pond 2				4	9	48	9
Snowy pond 3				1	0	7	74
Kennedy				2	2	43	2
Reefton Oxi Ponds			29	n/a	38	103	62
Breadtruck Pond			14	n/a	48	26	56
Yacht club			19	1	0	3	0
Molloy		12	378	0	5	39	64
old Mouth		6	115	41	5	15	51
Swans retreat		6	450	84	74	454	133
boat ramp			33	2	61	71	23
Meat works pond			23	20	44	57	25
Paroa Oxy			42	24	47	63	11
Water walk pond			60	45	37	29	46
Cobden			81	15	98	94	105
Lake Ryan			19	44	84	124	58
Lake Poerua		90		n/a	109	178	171
Taramakau Estuary				n/a	28	13	0
Lake Swan		30		n/a			
Lake Mudgie		0		n/a			
Kapitea reservoir		74		n/a			
Paynes Gully		45		n/a			
Hoki Oxi Ponds	198	176	194	125	91	76	140

Flowery Creek Ponds			26	31	24	70	62
Johnson Road				8	12	0	0
Kokatahi Riverbed and Adjacent Farms				n/a		343	12
Lake Arthur	40	43	21	300	274	26	14
Beside Arthur				32	12	14	65
Farm ponds				13	15	45	49
Cuddy's				80	35	30	15
Nolans				130	150	39	18
Staples				10	6	45	70
Burdens pond			57	25	40	20	0
Other oxi ponds etc on loop between Kokatahi bridge and Whitcombe valley road excluding lake Arthur Burdens etc					72	172	27
Mirror Creek Mouth			22	1	2	19	8
Mahinapua Small Bay			2	0	0	2	7
Mahinapua Picnic Bay			2	0	9	13	16
Mahinapua Grebe Bay			16	0	0	10	20
Mahinapua Creek				n/a	11	22	35
Kaniere Bridge Pond				2	0	0	0
Totara lagoon				90	82	74	90
Tukes Lagoon				350	440	172	564
Pukaki				30	12	12	18
Monts Creek				25	67	9	25
Shooting Creek				70	82	85	46
Stopbank (Harman)				0	0	0	42
Camel Back				n/a	0	26	39
Silver Pines	3	18		0	0	0	0
Ogalvies				0	18	6	74
Arahura		0		n/a			
Ross Pond			28	n/a	27	29	27
Lake Ianthe NW Bays			21	54	60	8	42
Lake Ianthe Southern Bays			100	106	85	68	330
Hari Hari Oxi ponds			32	27	32	23	7
Andy's pond 1				4	6	1	0
Andy's pond 2				0	0	13	13
Andy's pond 3				14	0	6	64
Tommy's pond			24	130	70	38	26
Hari Hari Roadside Pond			20	0	46	28	5
Blowhole Pond				1	20	26	19
Oneone				2	36	0	11
Berrys Ponds				0	13	6	0
Petersen's Effluent				40	24	1	37
Total	**241**	**500**	**2208**	**2609**	**3007**	**3576**	**3653**

Appendix 2: West Coast Greylard Survey Locations