WEST COAST FISH & GAME REGION

GREYLARD SURVEY 2023

Results of Ground and Aerial Greylard Counts April 2023.

Baylee Kersten, Fish & Game Field Officer, May 2023.

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Results of Ground and Aerial Greylard Trend Counts April 2023.

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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 fifty 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 4.3% from those observed in 2022 (3,351 vs 3,313) 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 8 years. Staff recommend; That the council receives this report. 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. 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 2024.
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 fifty-one 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 3,351 greylard were counted during this survey which is a slight increase on the greylard counted in 2022 (3,212 greylard, 4.3% increase) and above the 2015-2023 average of 3,200 greylard (Figure 1). While the total count was slightly up on the 2022 count, there was considerable fluctuation in the distribution of greylard. Areas in 2023 with notable increases from 2022 were at Barrytown, Lake Brunner, Greymouth, Groves Swamp, Lake Ianthe, and Hari Hari. Areas in 2023 with notable decreases from 2022 were Westport South, Reefton, Lake Poerua, Hokitika, Lake Arthur, Mahinapua and Totara Lagoon (Table 1).

Route regression analysis shows the greylard population has increased by 3% pa over the last 8-years. The standard error in the counts over the 8-year period is 4% (Figure 2).

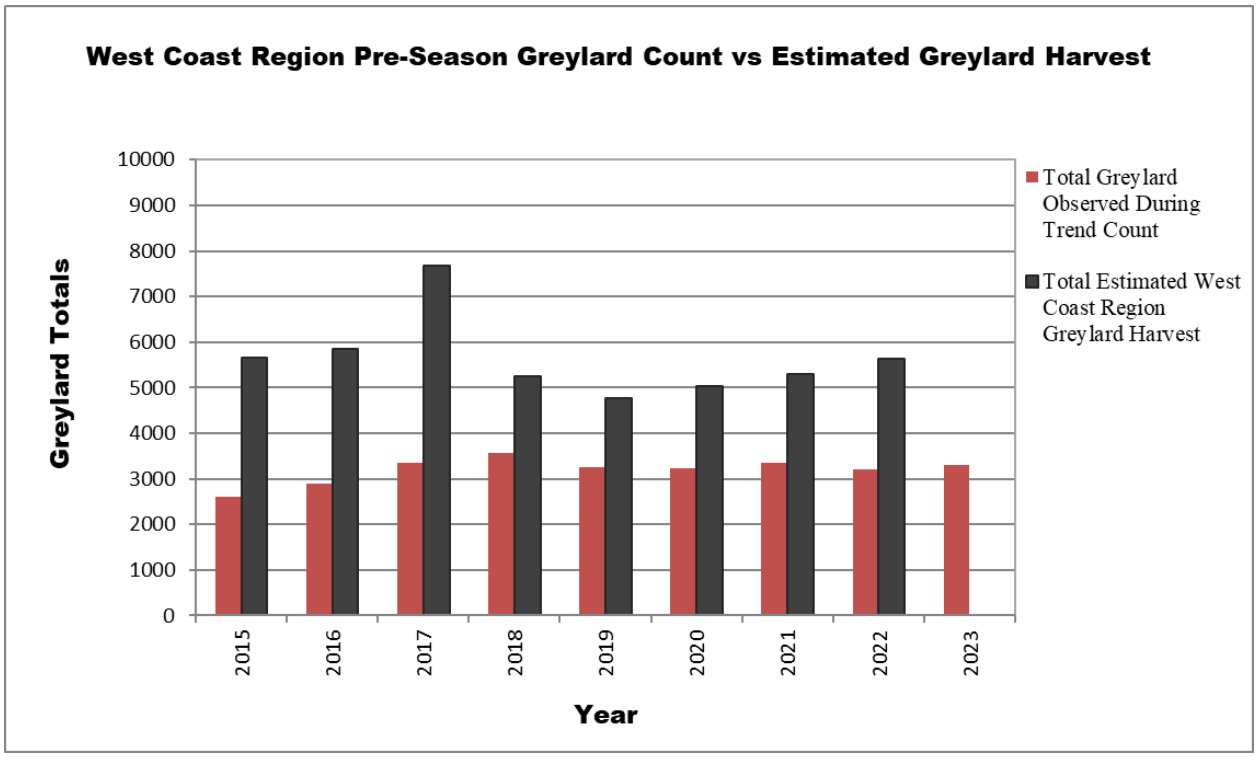

Figure 1. West Coast Region pre-season greylard count vs estimated greylard harvest from Hunter Harvest Survey 2015-2023.

Table 1. Comparison of West Coast Region pre-season greylard counts by site/area for 2020-2023 and 2015-2023 average.

Site/Area	2020	2021	2022	2023	Average*	Note
North Westport	**0**	**32**	**3**	**7**	**37**	Birchfield north and south
Westport South	**261**	**240**	**396**	**123**	**232**	Virgin Flat, Okari, Holcim, Bradshaws, Tiphead, Nine Mile
Reefton	**83**	**251**	**171**	**118**	**125**	Oxidation Ponds, Bead Truck Pond
Barrytown	**325**	**199**	**249**	**364**	**272**	Barrytown Lagoon and Bisset Ponds
Kokiri	**59**	**176**	**51**	**91**	**70**	Meat Works
Lake Brunner	**334**	**416**	**394**	**420**	**336**	Yacht club, Molloy, Old mouth, Swans Retreat, Boat ramp
Lake Poerua	**355**	**172**	**377**	**48**	**193**	
Greymouth Town	**232**	**261**	**176**	**228**	**239**	Paroa oxidation, Waterwalk, Cobden, Lake Ryan
Hokitika	**92**	**244**	**131**	**75**	**119**	Oxidation ponds
Lake Arthur	**278**	**107**	**322**	**200**	**310**	Lake Arthur, Beside Arthur, Farm ponds, Cuddy's, Nolans, Staples
Groves Swamp	**180**	**186**	**370**	**838**	**485**	Ogilvies, Tukes Lagoon, Pukaki, Mont's Creek, Shooting Creek, Harman
Mahinapua	**191**	**71**	**170**	**10**	**83**	Mirror Creek, Small Bay, Picnic Bay, Grebe Bay and Mahinapua Creek
Totara Lagoon	**135**	**127**	**138**	**30**	**88**	
Lake Ianthe	**120**	**4**	**20**	**154**	**126**	Northwest Bays, Southern Bay
Hari Hari	**263**	**371**	**137**	**348**	**231**	Blowhole ponds, Harris ponds, Wanganui River, Tommy's Ponds, Roadside ponds

***2015-2023 average**

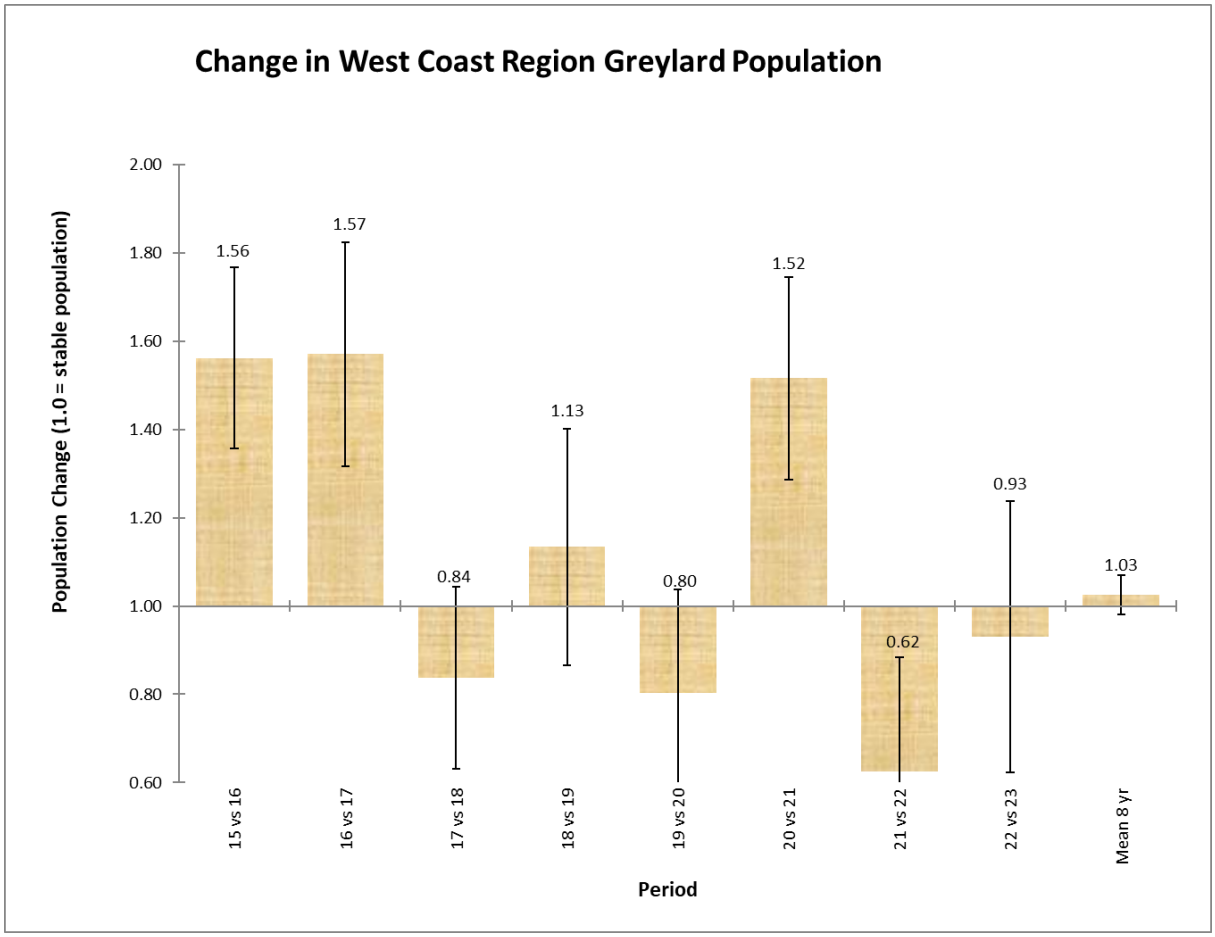

Figure 2: Each column represents the change in the regional population between years calculated by route regression analysis. The mean is the average annual change over the 2015-2023 period. A value above or below 1.0 can be taken as the increase or decrease in population over that period. Standard error bars are also fitted to ascertain the accuracy of the survey.

Discussion

The stable count over the last seven 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 2023 compared to 2022 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 wet period following a prolonged dry period. As a result, the distribution of greylards was likely influenced with birds occupying larger water bodies and feeding areas given many smaller ponds likely had been dry most of the summer. 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 readily used by greylards in dry conditions. Monitoring riverbed habitat has been considered but without the use of a plane, given how mobile river duck camps are, the requirement of being easy repeatable is not met. The number of sites has been reduced this year, with many being combined due to their proximity to each other and greylards readily moving between them (e.g., grove swamp sites) although some sites were also dropped due to consistently having a lack of greylards. Currently one of our most popular hunting areas, the Grey Valley, has limited

monitoring due to loss of access of seven ponds on two properties and the last pond being affected by recent flooding. New monitoring sites should be located in the Grey Valley and counted annually to gage changes in greylard numbers in an area that experiences significant hunting pressures and fluctuations in food availability.

Recommendations

- That the council receives this report.
- 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.