



West Coast Game Harvest Survey 2021

*Results from annual survey of game bird hunter harvest. May-July 2021.
West Coast Fish & Game Region.*



Olivia, Braden and Moose Savage out hunting opening morning, May 2021.

Baylee Kersten, Fish & Game Field Officer, August 2021

Summary

Fish & Game has a statutory role under the Conservation Act 1987 to monitor hunter satisfaction. An annual telephone survey is performed during the regular game bird season from May to July. The data is considered an estimate of actual harvest and is intended for internal management purposes only. A combined 411 adult and junior full season West Coast licence holders harvested an estimated 6,976 game birds from within the West Coast Region for 2021. Inclusion of out of region hunters visiting the West Coast Region increases this estimated total game bird harvest to 11,145 birds.

The average West Coast Region game bird licence holder harvested 17 game birds in the 2021 season, compared with 18 game birds during the 2020 season and 15 for the 2019 season (rounded to whole bird figures). This equates to approximately; 8.7 Greylards, 4.4 Paradise Shelduck, 3.3 Pukeko and less than one bird each of Swan and Shoveler. Opening weekend accounted for 39% of the season's harvest by West Coast hunters. Hunter effort and harvest by local hunters decreased from the previous season.

Staff Recommendations are: That the council receives this report; That organised events and targeting young hunters aged 16-30 for recruitment continues.

Introduction

Fish & Game West Coast Region has a statutory role under the Conservation Act 1987 to monitor hunter satisfaction. An annual telephone harvest survey is performed during the regular game bird season from May to July. Fish & Game have conducted a game bird harvest survey using telephone interviews of the licence holder database since 1992. The data is considered an estimate of actual harvest. The data is intended for internal management purposes only.

Methods

Seven telephone surveys were undertaken over the length of the regular gamebird season. The first survey was undertaken after opening weekend and the remainder undertaken at fortnightly intervals until the end of the season. 120 interviewees were randomly selected from the West Coast licence holder database for each telephone survey.

The data presented in this survey is split into two sections: that obtained from opening weekend and from the whole season. Only birds actually retrieved during hunting are used in the analysis although an estimate is made of birds not retrieved. As surveys are undertaken across all Fish & Game Regions simultaneously an estimate of out of region hunting is obtained and attributed to the region where the hunting took place.

Licence holders from the West Coast Region are referred to as 'West Coast hunters' (WC hunters) in this report. Licence holders from other regions who harvested birds on the West Coast are referred to as 'Out of Region hunters' (OOR Hunters). Unlicensed hunters and those hunting under the landowner/occupier exemption are not surveyed.

Game bird licence sales fluctuate from year to year, therefore, to compare harvest between years, the data is adjusted to represent the mean or average licence holder. Unadjusted harvest is referred to as total harvest.

Hunting effort is calculated by dividing the total hours hunted by the number of hunters to give an average per hunter. For opening weekend this is calculated per active hunter while for the whole season it is calculated per licence holder.

Hunting success, or the rate of harvest is calculated by dividing the total number of birds harvested by total hunting effort giving a figure of birds harvested per hour of hunting effort (birds/hr).

Results

West Coast Game bird licence holders - 2021

A total of 449 game bird licences were sold on the West Coast during the 2021 season which is below average but similar to last year's licence sales (Figure 1). This consisted of 379 whole season adult (GWA), 32 whole season junior (GWJ), 12 whole season child (GWC), 24 adult day (GDA), and 2 junior day (GDJ) licences. The largest drop has been in sales of GWA licences which make up on average 83% of total sales in the 2006 to 2021 period.

GWA reached their lowest on record in 2019 but fortunately numbers have increased in the last two years (Figure 2). Although the number of West Coast licence holders only increased slightly, looking at place of residence, the actual number of hunters on the Coast saw a 6.8% growth (Table 1). The mean age of WC whole season licence holders has steadily increased until 2019, dropped significantly in 2020 but this year an increase in participation by hunters aged 50+ has resulted in a rise again. (Figure 3). The age demographic of licence holders shows a distribution skewed towards hunters 50+ years old but it is positive to see some growth again and retention of hunters aged 16-45 this season (Figure 4).

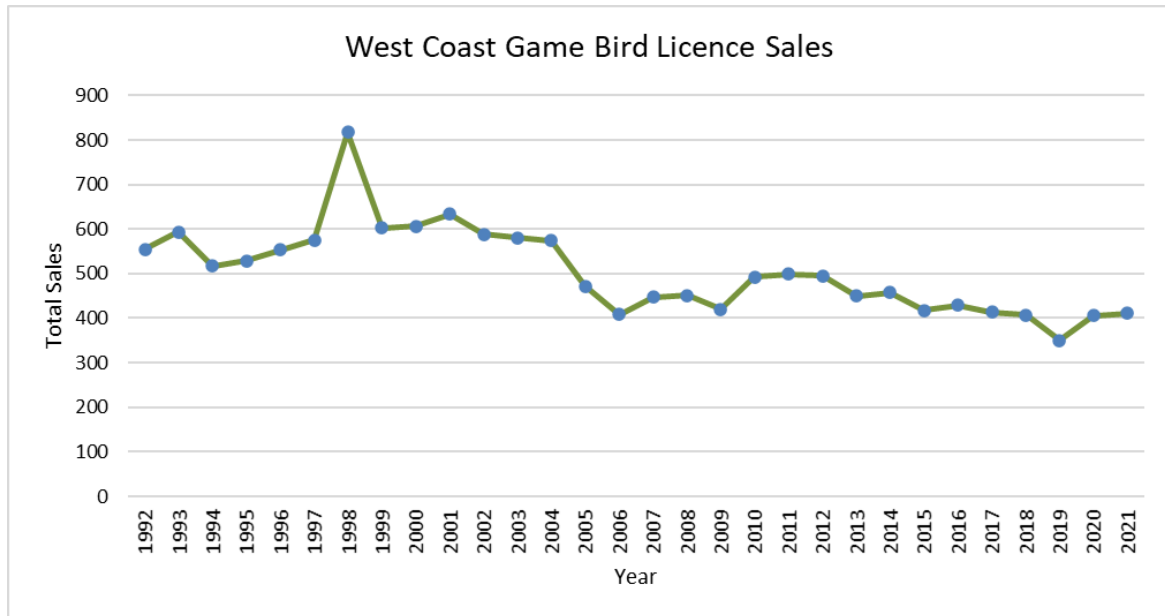


Figure 1. Annual West Coast full season adult and junior game bird licence sales, 1992-2021.

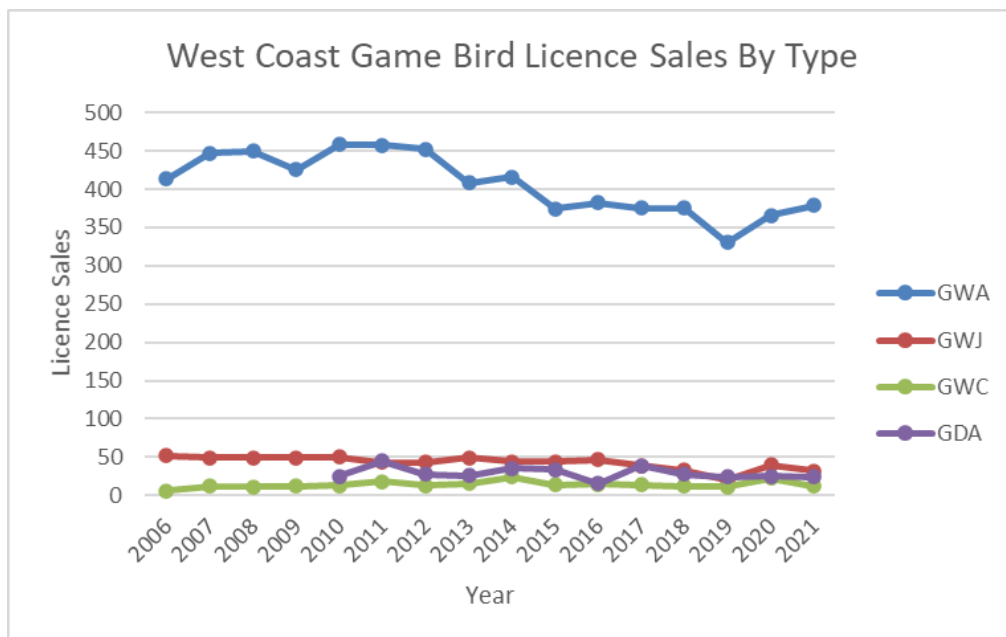


Figure 2. Annual West Coast game bird licence sales by type 2006-2021. Note day licences were only introduced in 2010. GWA=adult full season, GWJ= junior full season, GWC=child full season and GDA=adult day licence.

Table 1: Summary of ‘Out of Region’ licence purchase influence on number of game bird hunters in the West Coast Region.

	2018	2019	2020	2021
WC Residents - North Canterbury licence holders	58	54	35	59
WC Residents - Nelson/Marlborough licence holders	23	11	10	11
WC Residents - Otago licence holders	16	17	11	19
WC Residents - Rest of NZ licence holders	24	20	13	18
Out of region resident - West Coast licence holders	75	51	61	76
Net effect of out of region licence purchases	-46	-51	-8	-31
West Coast licence sales	407	350	406	411
Corrected West Coast hunters	453	401	414	442
Change from previous year (%)		-11.5	3.2	6.8

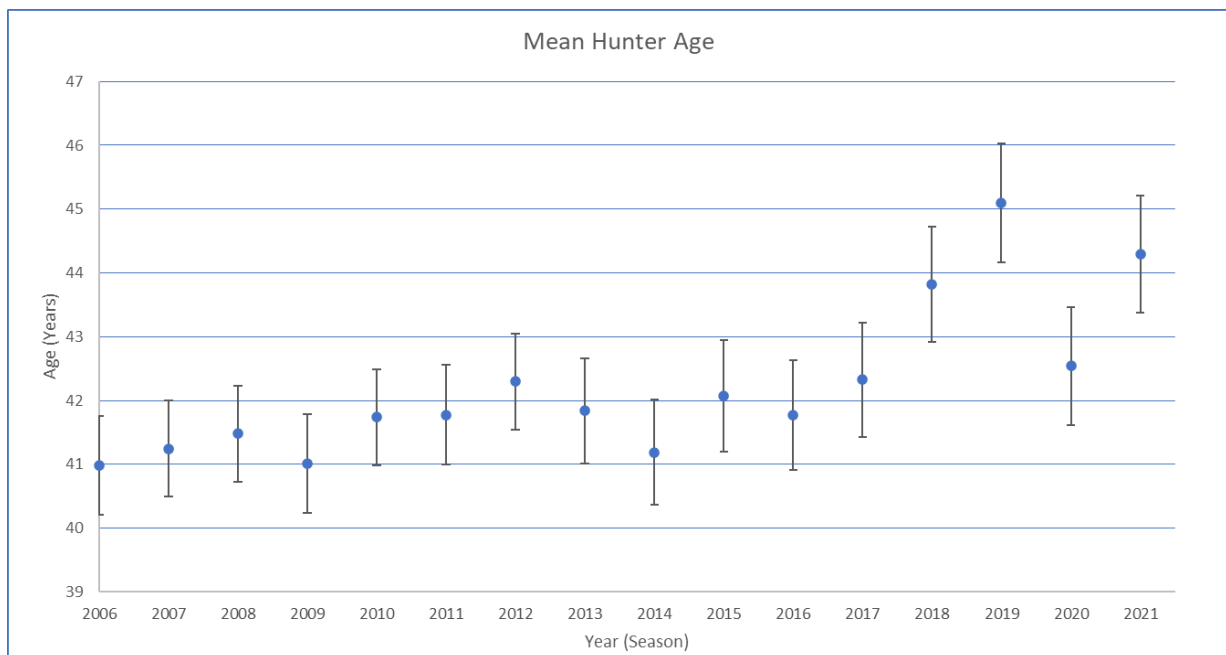


Figure 3. Average age (\pm SE) of West Coast game bird full season licence holders 2006-2021.

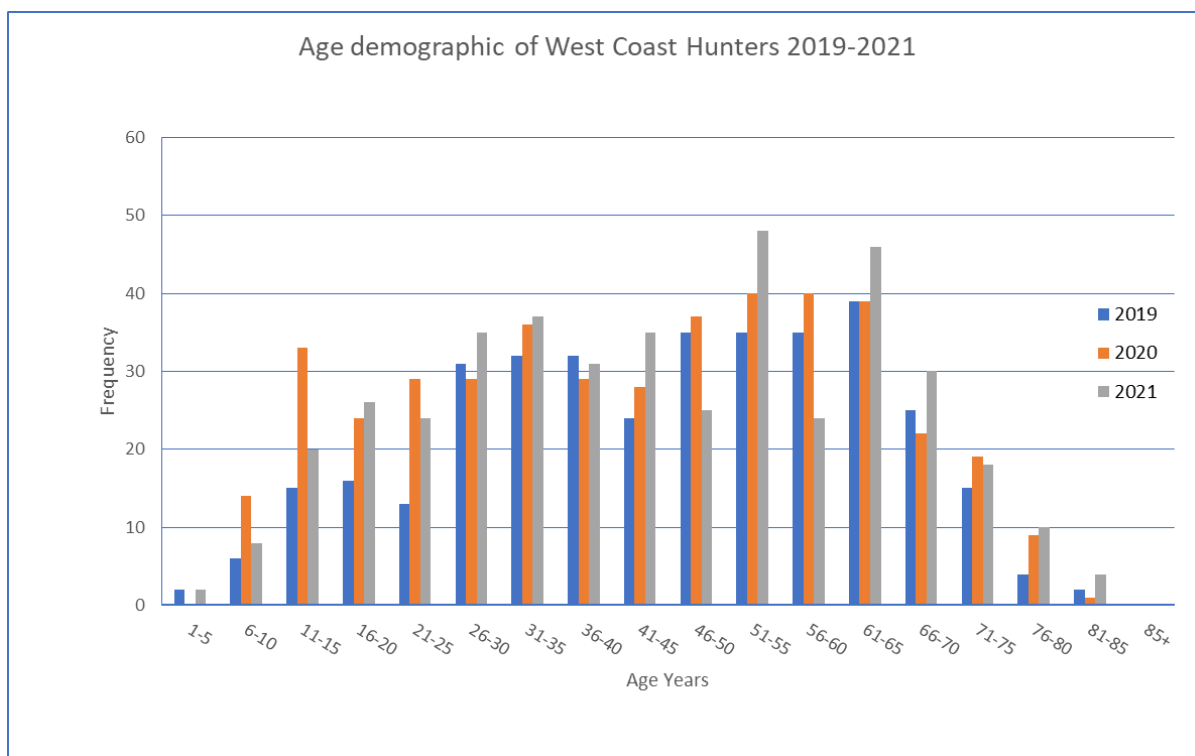


Figure 4. Age demographic of West Coast game bird full season licence holders for 2019 - 2021 season.

Opening Weekend 2021 Hunting Effort, Success and Harvest

During opening weekend, an estimated 499 active licence holders spent 3,663 hours hunting and harvested 5,065 game birds. Of these 343 (69% of total) were WC hunters who spent 2,054 hours hunting (67% of total) and harvested 2,724 game birds (54% of total). While there were less OOR hunters they still spent 1,609 hours hunting and harvested 46% of the total game birds (Table 2). OOR hunter spent on average an extra 4 hours and 20 minutes hunting over opening weekend (10.3 hours OOR vs 6 hours WC). Average hunting effort by WC hunters over opening weekend was the lowest in 20 years (Figure 5).

Table 2: Summary of 'Out of Region Hunters' influence on estimated total effort and species harvest in the West Coast Region during opening weekend 2021.

Hunter/Effort/Species	West Coast Hunter Harvest	Out of Region Hunter Harvest	Total Estimate	Out of Region Hunters Contribution to harvest
Active hunters	343	156	499	31%
Hours	2054	1609	3663	44%
Greyland	1790	1005	2795	36%
Paradise Shelduck	669	920	1066	58%
Pukeko	173	407	580	70%
Shoveler	27	0	27	0%
Swan	64	9	73	12%
Total Birds	2724	2341	5065	46%

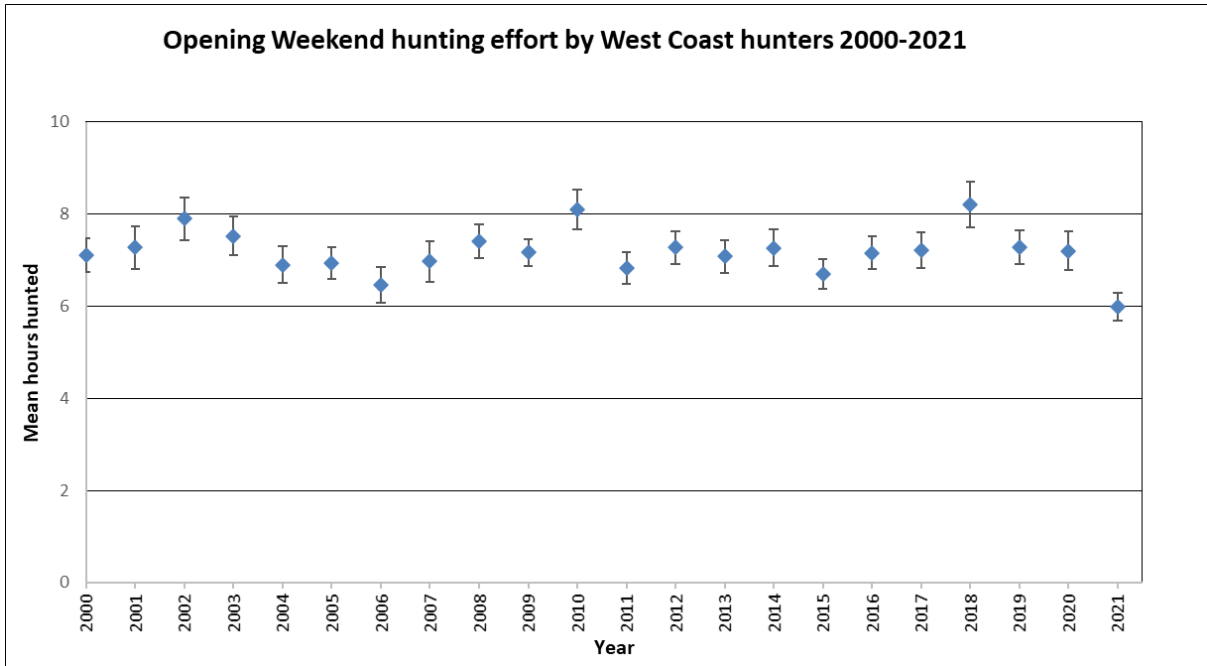


Figure 5. Average time spent hunting during opening weekend \pm standard deviation by West Coast hunters 2000-2021.

Success in terms of game birds harvested per hour favoured OOR hunters with WC hunters harvesting 1.33 birds/hour and OOR hunters 1.46 birds/hour. The success of WC hunters on opening weekend was slightly below average, with the 30-year average being 1.39 birds/hour (Figure 6). West Coast hunters spent 43% of their total hunting effort over the hunting season on opening weekend whereas OOR hunters spent two thirds (66%) of their total hunting effort over the hunting season on opening weekend.

WC hunters mean bag for opening weekend was 8 birds: 5.2 greylards, 2.0 paradise shelduck, and less than one of pukeko, swan and shoveler. OOR hunters mean bag for opening weekend was 15 birds: 6.4 greylards, 5.9 paradise shelduck, 2.6 pukeko less than one of swan. No shoveler were recorded shot by OOR hunters surveyed on opening weekend. A further 140 birds were estimated as not retrieved.

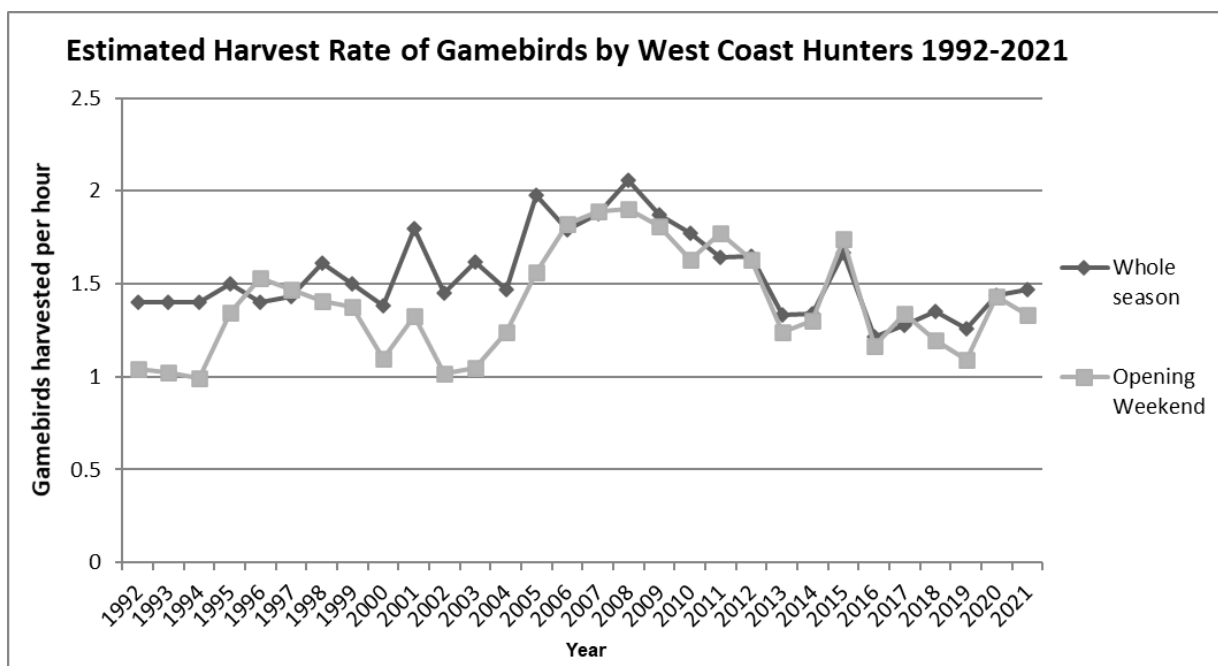


Figure 6: Game bird harvest rate by West Coast licence holders, opening weekend compared with whole season harvest rate 1992-2021.

2021 Full Season Hunting Effort, Success and Harvest by species

Over the full 2021 game bird season all hunters combined spent 7,172 hours hunting and harvested 11,145 game birds. WC hunters spent an estimated 4,749 hours hunting (66% of total) and harvested 6,976 gamebirds (63% of total). OOR hunters spent 2,423 hours hunting and harvested 4,169 gamebirds (Table 3). WC hunters spent an average 11.56 hours hunting over the season. This is slightly lower than recent seasons but can be contributed to reduced effort opening weekend. (Figure 7). There continues to be a noticeable decline in both total hours hunted, and total game birds harvested by WC licence holders when compared to earlier years of the game harvest survey (Figure 8).

Table 3: Summary of 'Out of Region Hunters' influence on estimated total effort and species harvest in the West Coast Region during the 2021 gamebird season.

Effort/Species	West Coast Hunter Harvest	Out of Region Hunter Harvest	Total Estimates	Out of Region Hunters Contribution to harvest
Hours	4749	2423	7172	34%
Greyland	3594	1695	5289	32%
Paradise Shelduck	1793	1905	3699	52%
Pukeko	1354	551	1905	29%
Shoveler	30	0	30	0%
Swan	204	19	222	8%
Total Birds	6976	4169	11145	37%

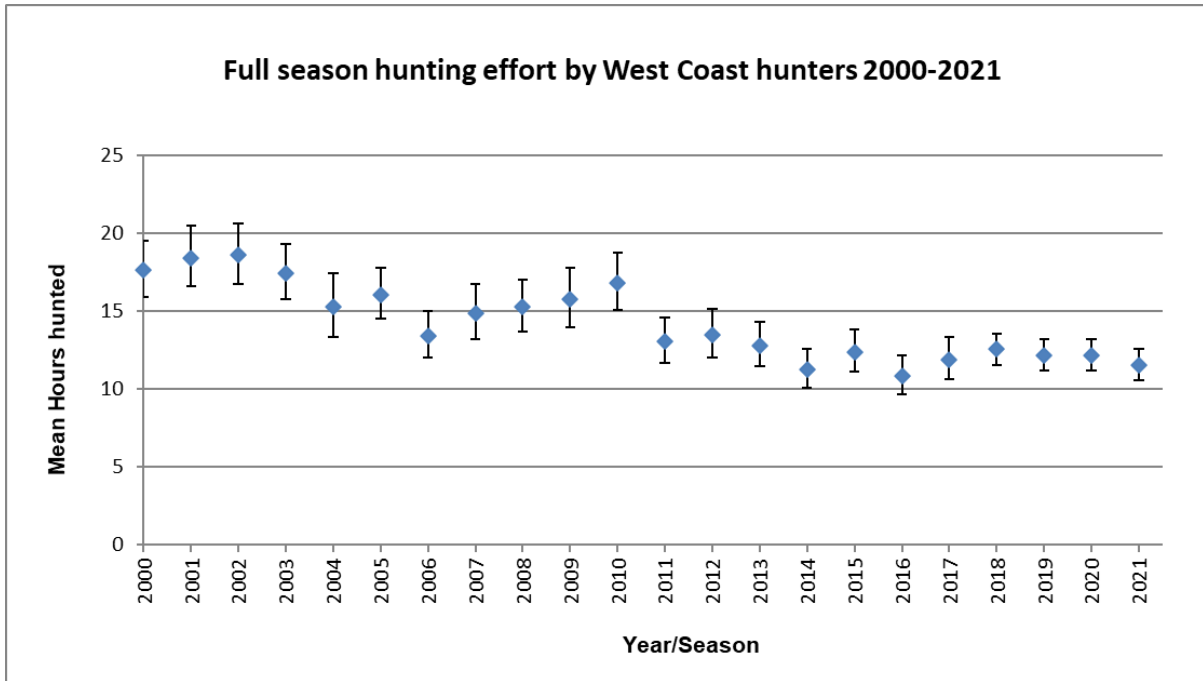


Figure 7. Average time spent hunting during the regular game bird season \pm standard deviation by West Coast hunters 2000-2021.

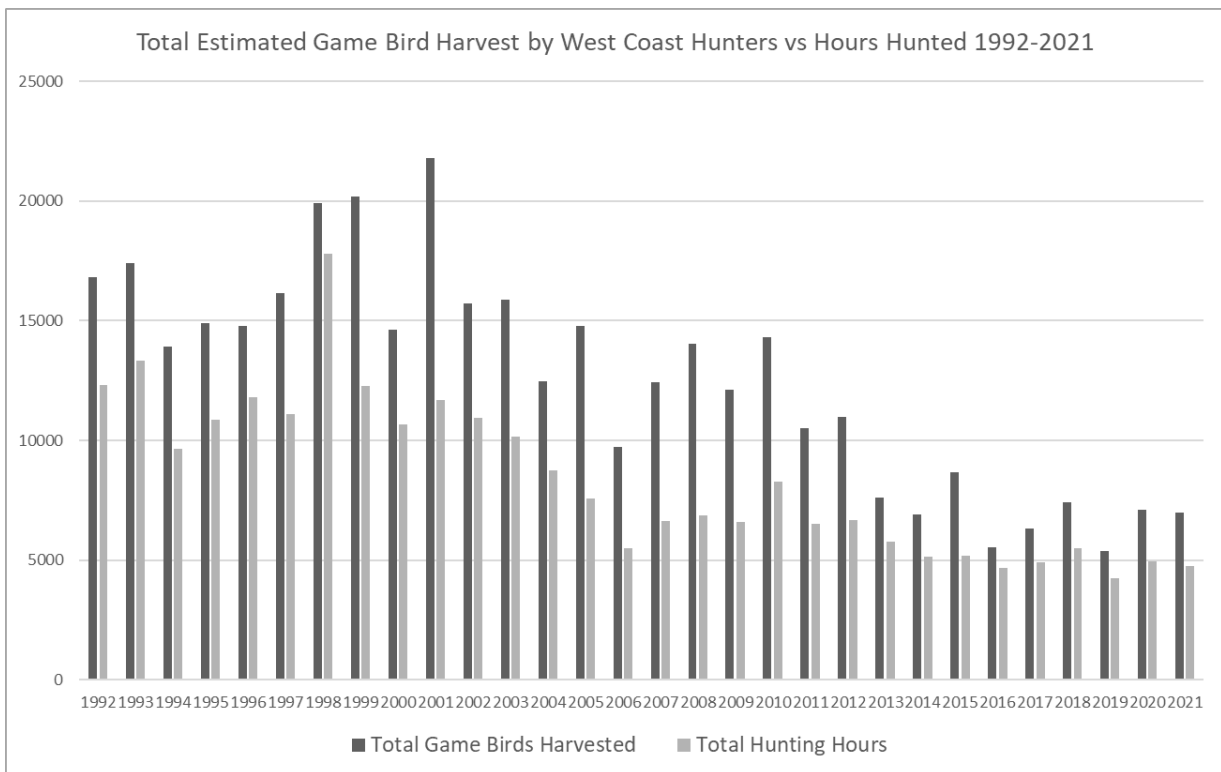


Figure 8: Estimates of game birds harvested by West Coast licence holder's vs hours spent hunting.

Success in terms of game birds harvested per hour favoured OOR hunters with WC hunters harvesting 1.47 birds/hour and OOR hunters 1.72 birds/hour. The success of WC hunters over

the 2021 hunting season was up on the five previous seasons and was only 0.08 birds/hour below the long-term average (Figure 6).

WC hunters mean bag for the 2021 season was 17 birds: 8.7 Greylards, 4.4 Paradise Shelduck, 3.3 Pukeko and less than one bird each of Swan and Shoveler. There has been an increase in the portion of the bag made up of species other than greylards in the last four seasons relative to previous years as hunters diversify their bags (Figure 9). A further 522 birds were estimated as not retrieved.

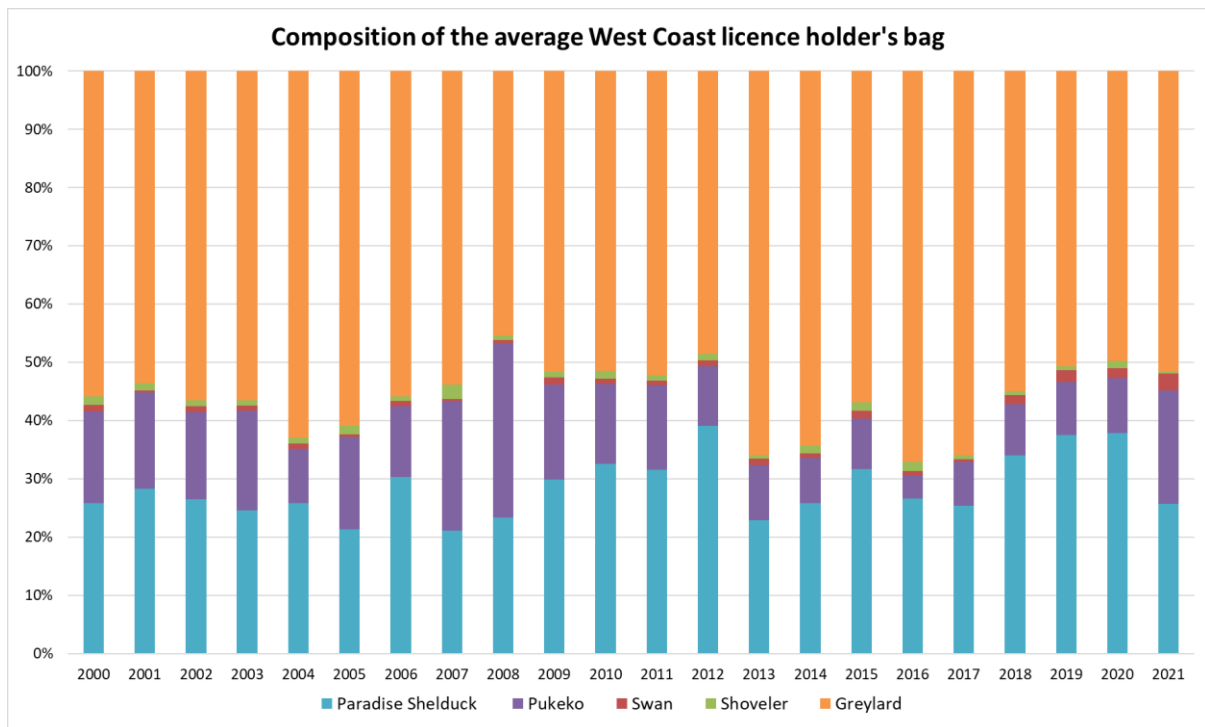


Figure 9: Estimated game bird bag composition of West Coast licence holders from 1992-2021.

Harvest by Game Bird Species

Of the West Coast licence holders surveyed, 'Greylard' or combined Grey and Mallard ducks made up 50 % of the annual harvest. Paradise Shelduck were the second most harvested bird at 38%, followed by Pukeko 9%, Swan 2% and Shoveler 1% (Figure 10).

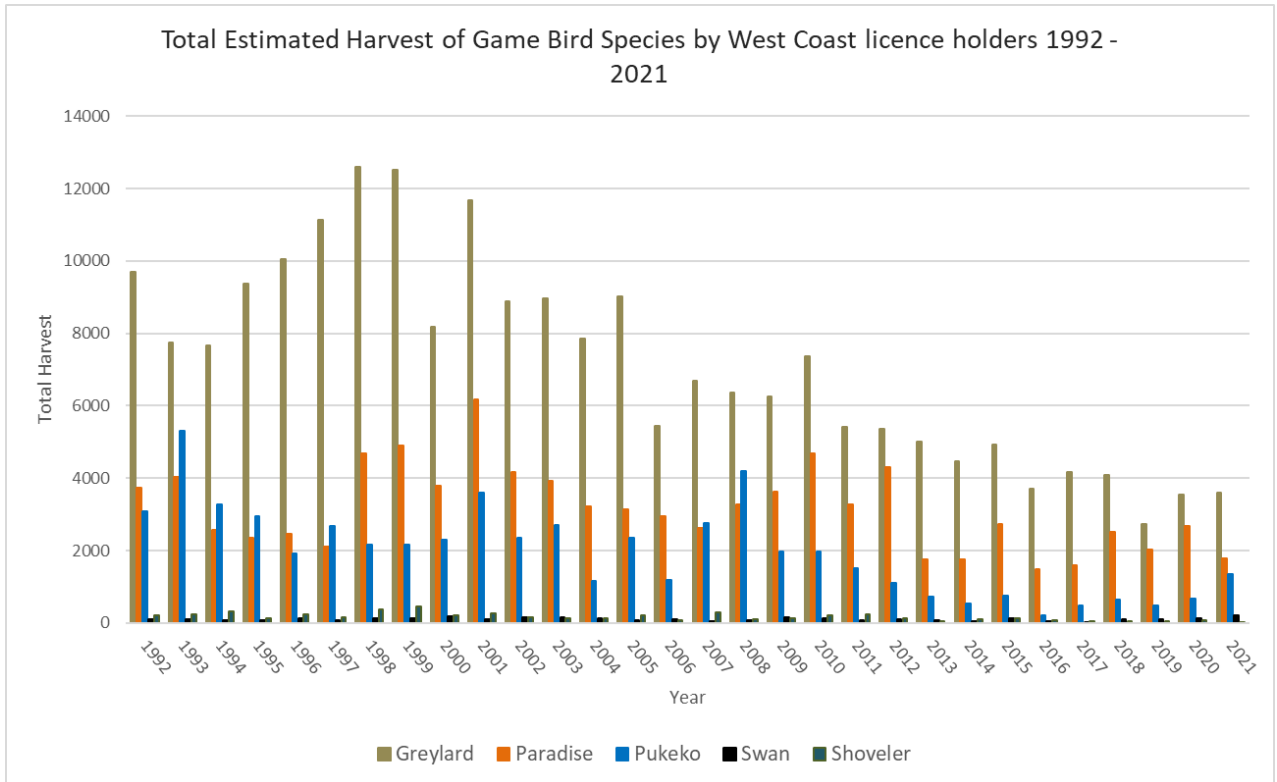


Figure 10: Estimated game bird harvest within the West Coast Region by West Coast licence holders from 1992-2021.

Greylard

In the 2021 game bird season, West Coast licence holders harvested 3,594 Greylards in total. Inclusion of OOR hunter harvest brought the total estimated Greylard harvest for 2021 to 5,289 (Figure 11). There is seven years of data available to correlate annual trend counts with total harvest (Figure 12).

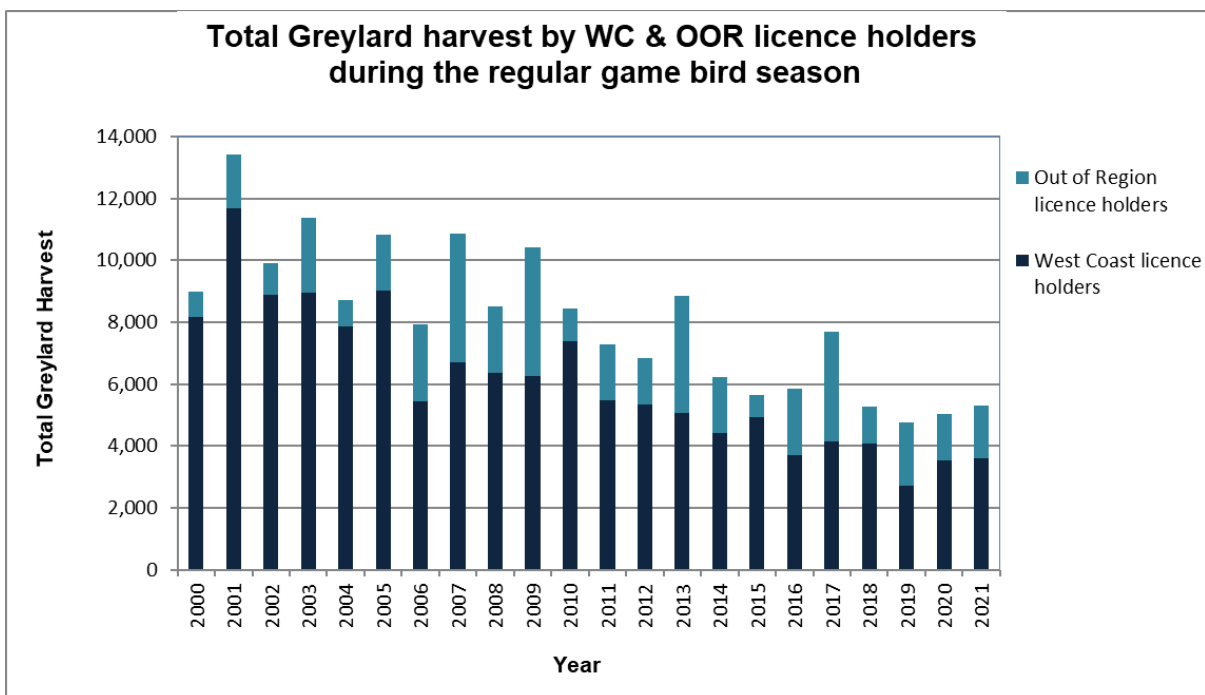


Figure 11: Estimated Total Greylard harvest for the West Coast Region, 2000-2021.

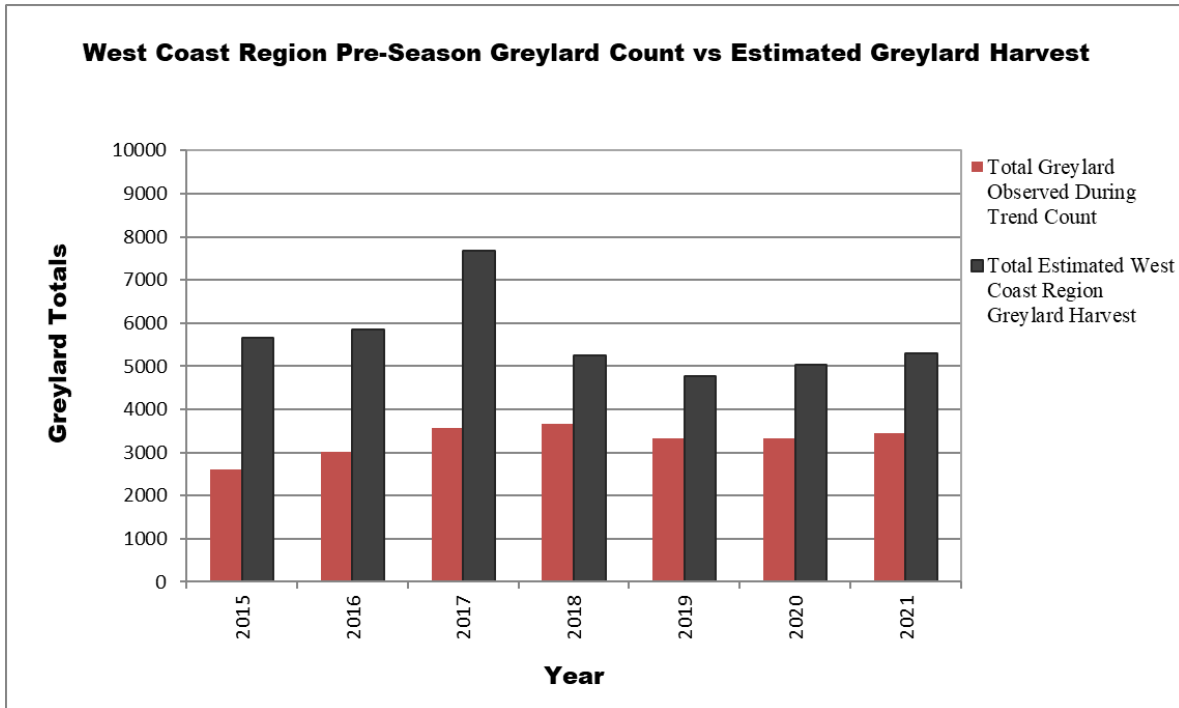


Figure 12: Total Greylard harvest vs trend count results for the West Coast Region.

Paradise Shelduck

In the 2021 game bird season West Coast licence holders harvested an estimated total of 1,793 Paradise Shelduck. Inclusion of out of region hunter brought the estimated total to 3,699 Paradise Shelducks (Figure 13). There is limited correlation between total harvest and annual moult trend counts (Figure 14).

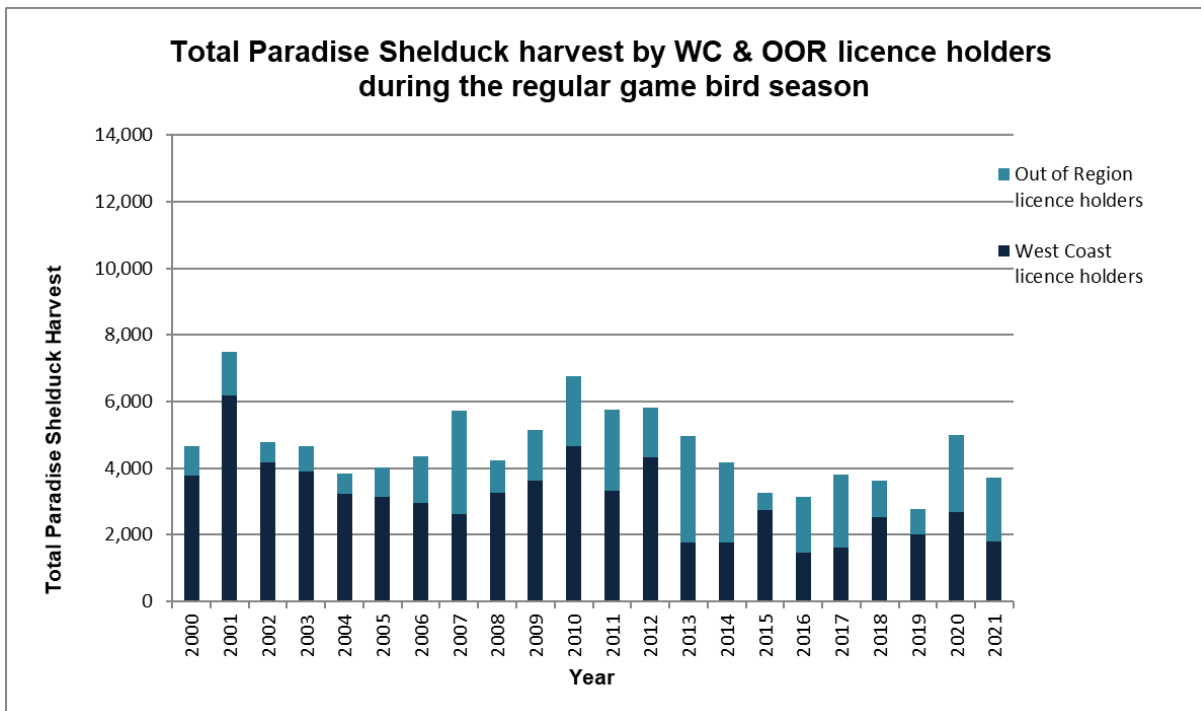


Figure 13: Estimated Total Paradise Shelduck harvest in the West Coast Region 2000-2021.

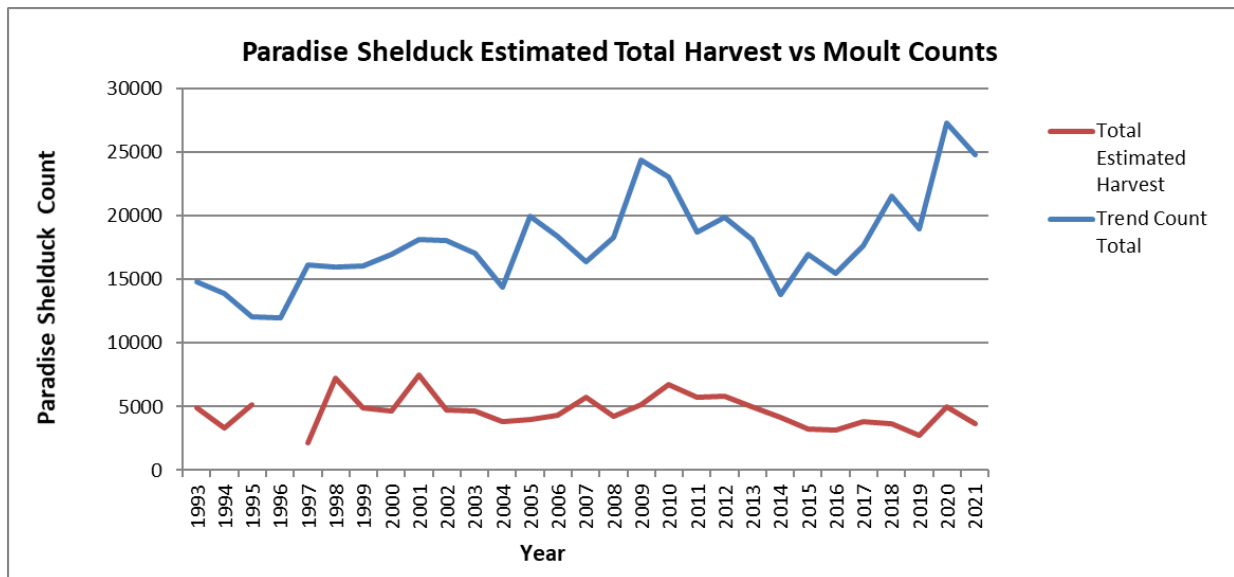


Figure 14: Total Paradise Shelduck harvest vs moult count results for the West Coast Region. (Note: no out of region data available for 1996).

Extra Season: In 2021 there was a summer season during March for Paradise Shelduck, Pukeko and Swan which was not part of the ‘Game Harvest Survey’ period. Hunters were surveyed on their utilisation of the summer season following the opening weekend survey with data being recorded separately.

The one-off telephone survey of 120 licence holders was conducted on the 6th - 8th of May. The survey pool was further reduced to 86 licence holders, as the other 34 2021 licence holders did not hold 2020 game licences. Licence holders were asked a series of questions similar to the normal Game Harvest Survey conducted during the normal game season.

Approximately 9% or 38 licence holders hunted during the summer season. They bagged on average 17.6 paradise shelduck, 2.1 pukeko and 0.3 swan for around 10 hours hunting. This equates to an extra harvest of approximately 664 paradise shelduck, 81 pukeko and 11 swan throughout the region. That is a success rate of 2.0 birds/hr.

Out of region hunters were not included in the survey but assuming trends are similar to the normal gamebird season we can reasonably assume that the total harvest by out of region hunters would boost the harvest to around 1,327 paradise shelduck, 162 pukeko and 22 swan (50% of total harvest).

Pukeko

In the 2021 game bird season, WC licence holders harvested an estimated 1,354 pukeko. Inclusion of out of region hunters brought the estimated total to 1,905 pukeko. This the highest harvest since 2011, and significantly up on recent years (Figure 15). There is limited correlation between total harvest and annual trend counts (Figure 16).

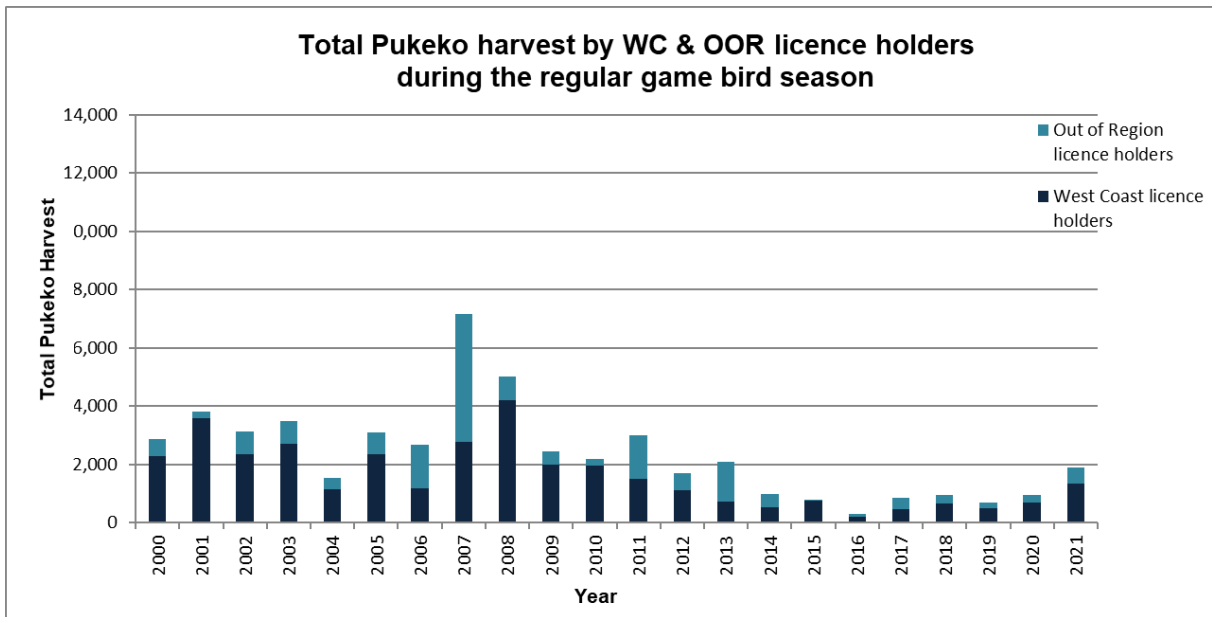


Figure 15: Estimated Total Pukeko harvest in the West Coast Region 2000-2021.

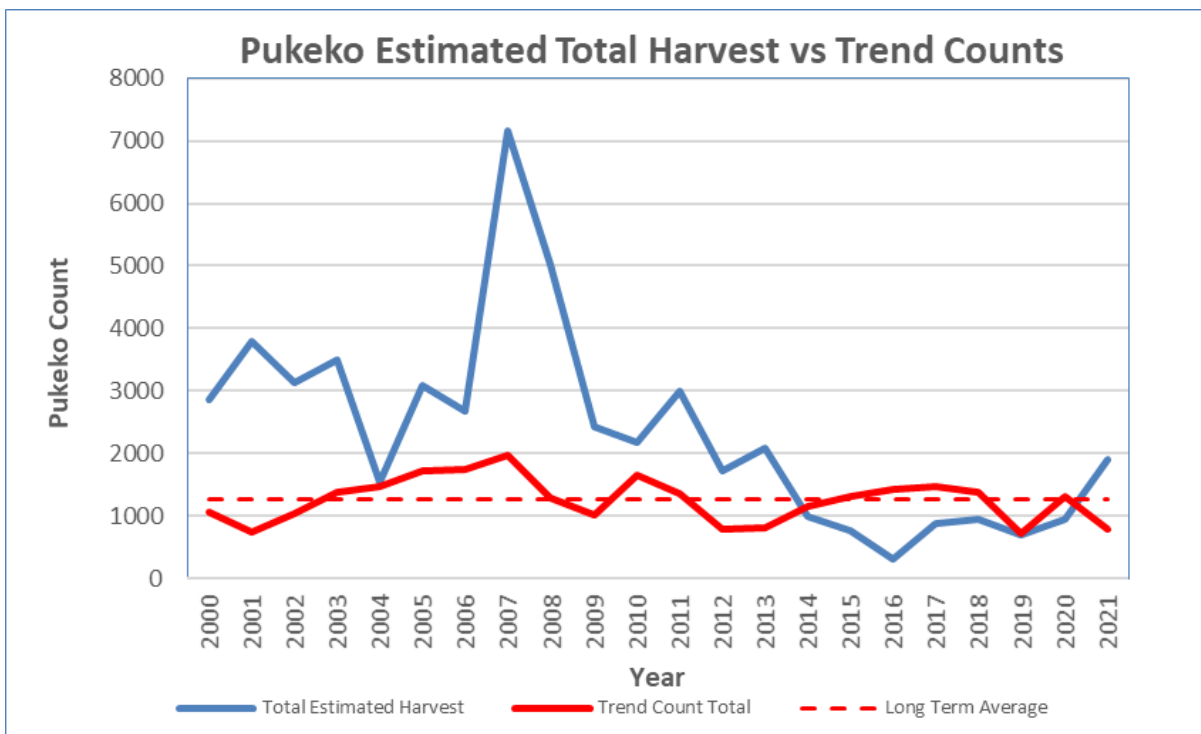


Figure 16: Total Pukeko harvest vs trend count results for the West Coast Region.

Shoveler Duck

In 2021 West Coast licence holders harvested an estimated 30 Shoveler. This equates to less than one bird for each licence holder or 0.07 for the whole season. This seasons 0.07 shoveler per licence holder is down on the last season’s 0.22 shoveler per licence holder and is also below the 20-year average of 0.25 shoveler per licence holder. No shoveler were recorded as being harvested by out of region hunters.

Black Swan

In 2021 West Coast licence holders harvested an estimated 204 Swan. This equates to 0.50 swans per licence holder, being the highest recorded harvest per WC licence holder. This is a continued trend, with the last four years being consistently high harvest levels of swan per licence holder relative to the previous 18 years. Inclusion of out of region hunter brought the estimated total to 222.

Discussion

The 2021 game bird season started with a tough opening but those who utilised the full season experienced good success, being similar to the long-term average. Licence sales were only up very slightly on the previous year, but a look at *Table 1* confirms that there was good growth this season in hunters, with last season's increase being mostly contributed to hunters buying their licence locally due to travel restrictions.

Inclusion of harvest by out of region hunters was significant overall (37% of birds harvested on the West Coast) being the same as last season. Their hunting has had a considerable influence in the overall harvest of paradise shelducks for the West Coast Region with out of region hunters harvesting 52% of paradise shelducks. It appears out of region hunters targeted paradise shelduck this season, with 46% of game birds they harvested being paradise shelduck. This is a continued trend on last season with 56% of their harvest in 2020 being paradise shelduck.

This is favourable, with West Coast paradise shelduck moult counts being record high, additional hunting pressure from visiting hunters to keep the population in check is positive for relationships with landowners. Combined with the additional harvest from the summer season, its hoped that the crop predation issue will be reduced.

This season saw a large increase in pukeko harvest, with some of the harvest contributed to organised events but there was also elevated levels in survey periods that events weren't held. Its great to see pukeko being utilised, as they are an often-overlooked game bird that is present in high numbers. Furthermore, with the summer season for pukeko creating a large hunting opportunity, we will likely see great up take if this trend continues. This should improve landowner relationships as well as grow the sport.

Harvest was slightly down on last season. Effort appears to be the most limiting factor. This can likely be also contributed to tough opening conditions and reduce availability of readily huntable paradise shelduck. The paradise shelduck weren't observed in concentrated numbers, likely due to a mild winter and a lack of very social juveniles relative to the population boom seen in the previous season. Pukeko appear to have taken up the slack, resulting in diversified bags and on average a harvest of 17 gamebirds per licence holder.

The National Institute of Water and Atmospheric Research has confirmed it was both a warm and wet winter for the West Coast. Therefore, we can be optimistic that West Coast game

birds should be in great condition going into the breeding season and we will hopefully see the results of that in trend counts next year.

Staff Recommendations

- That the council receives this report.
- That organised events and targeting young hunters aged 16-30 for recruitment continues.