



## West Coast Game Harvest Survey 2019

*Results from annual survey of game bird hunter harvest. May-July 2019.  
West Coast Fish & Game Region.*



Glen Newton, Fish & Game Field Officer, August 2019

## 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 350 adult and junior full season West Coast licence holders harvested an estimated 5380 game birds from within the West Coast Region for 2019. Inclusion of out of region hunters visiting the West Coast Region increases this estimated total game bird harvest to 8380 birds.*

*The average West Coast Region game bird licence holder harvested 15 game birds in the 2019 season, compared with 18 game birds during the 2018 season and 15 for the 2017 season (rounded to whole bird figures). This equates to approximately; 7.6 Greylards, 5.8 Paradise Shelduck, 1.3 Pukeko and less than one bird each of Swan and Shoveler. Opening weekend accounted for 41% 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 the current season duration and bag limits remain unchanged; That further review of the hunter database be undertaken to identify hunters who are no longer getting full season licences, the reasons for this, and the option for reactivation; That incentive options are identified for existing hunters if they take a mate out hunting; That the junior Paradise Shelduck and Pukeko season allows adult licence holders to hunt if present with a junior licence holder; Review the survey methodology to identify ways of improving the data obtained and to ensure WC hunters enjoy the survey experience.*

## **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 August. 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. One hundred and twenty 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 - 2019**

A total of 385 game bird licences were sold on the West Coast during the 2019 season which is the lowest figure on record (Figure 1). This consisted of 330 whole season adult (GWA), 20 whole season junior (GWJ), 11 whole season child (GWC), and 24 adult day (GDA) licences. The largest drop has been in sales of GWA licences which make up on average 84% of total sales in the 2006 to 2019 period (Figure 2). The mean age of WC whole season licence holders

has steadily increased with 2019 hunters being the oldest on record at 45 years old (Figure 3). The age demographic of licence holders shows a distribution skewed towards hunters 50+ years old (Figure 4).

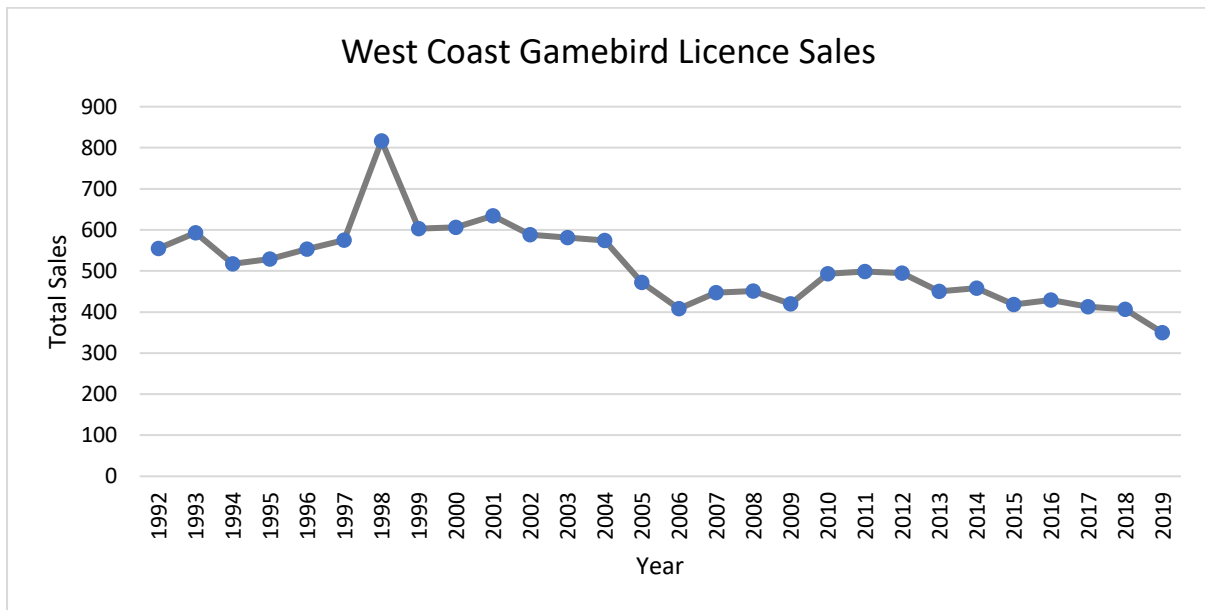


Figure 1. Annual West Coast full season adult and junior game bird licence sales, 1992-2019.

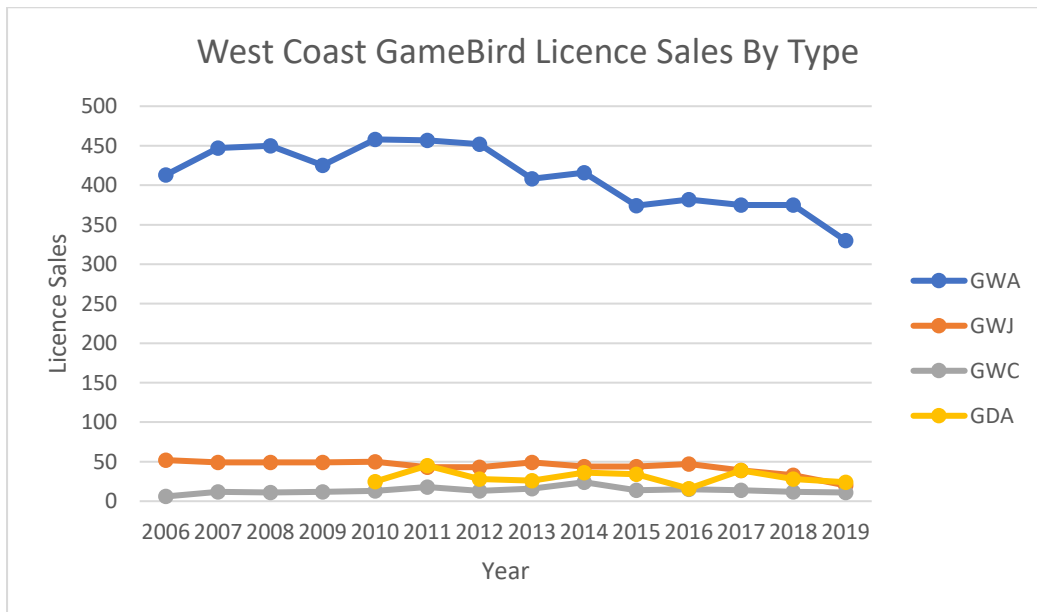
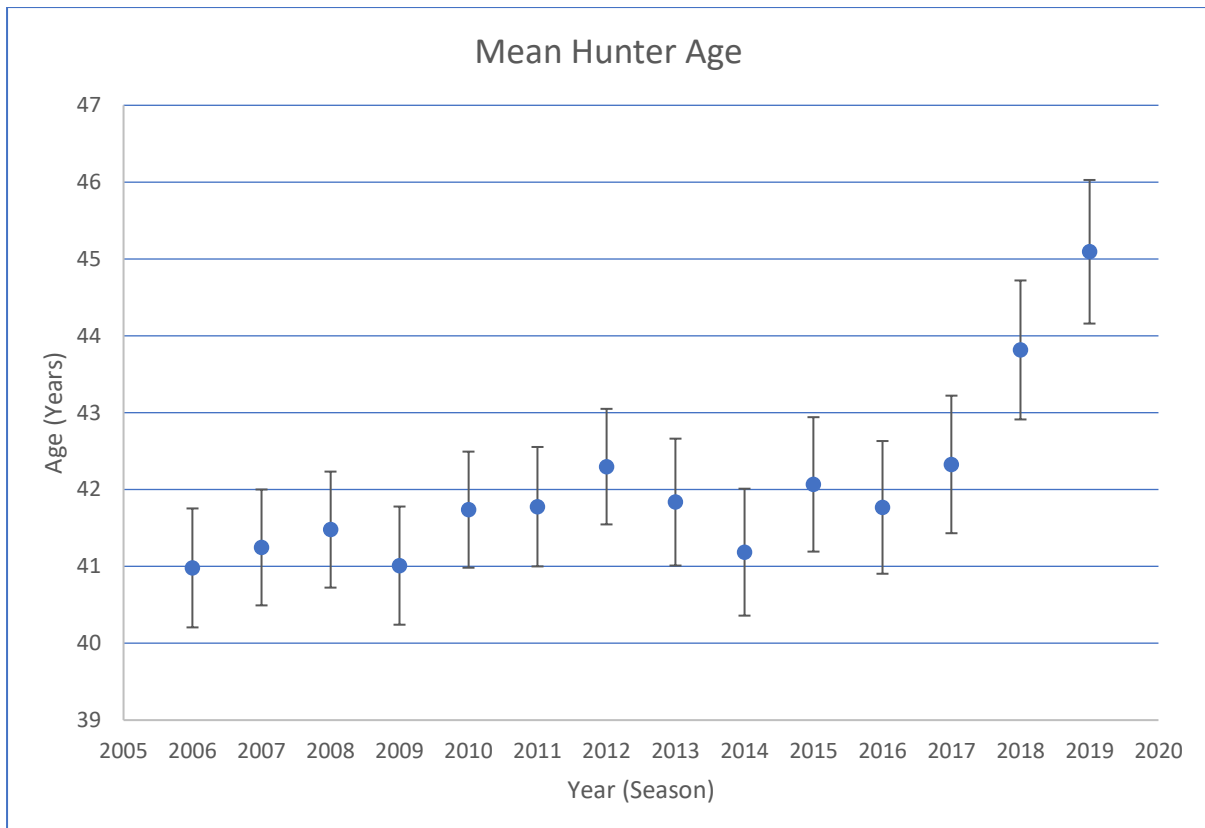
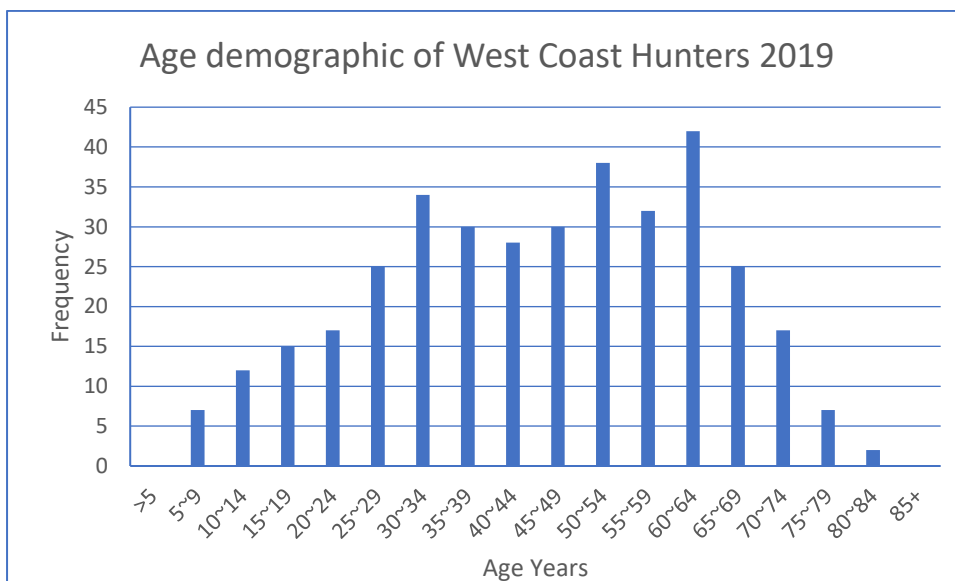


Figure 2. Annual West Coast game bird licence sales by type 2006-2019. Note day licences were only introduced in 2010. GWA=adult full season, GWJ=junior full season, GWC=child full season and GDA=adult day licence.



**Figure 3. Average age ( $\pm$ SE) of West Coast game bird full season licence holders 2006-2019.**



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

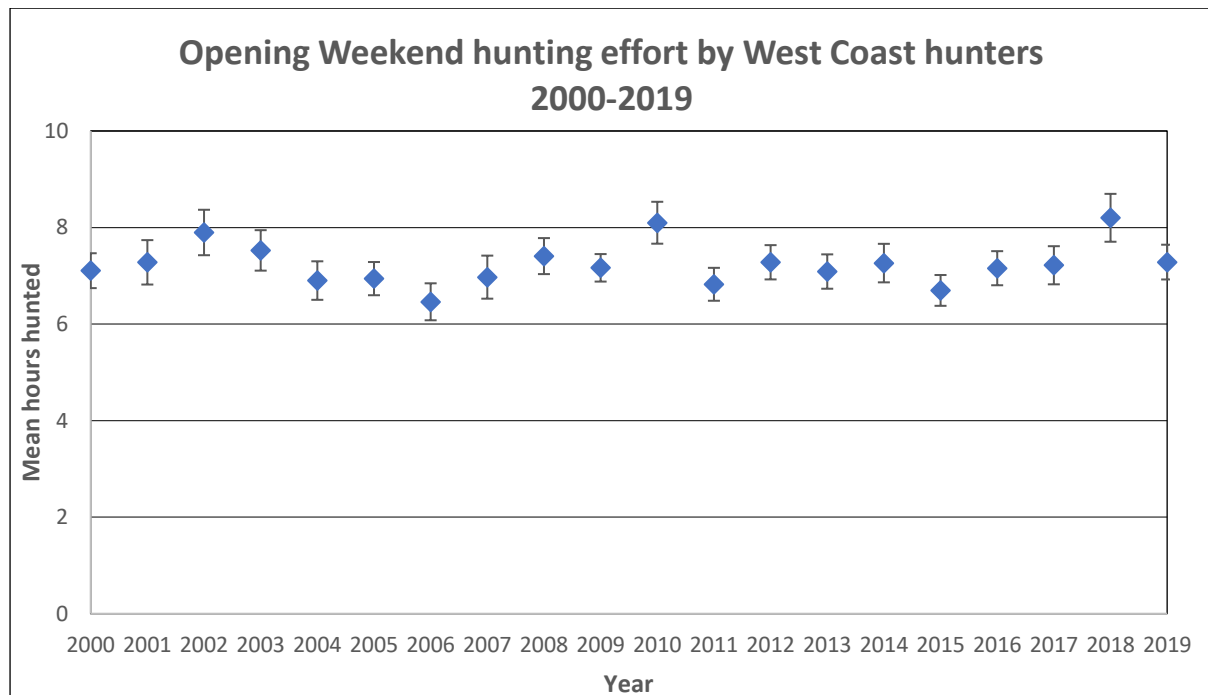
### Opening Weekend 2019 Hunting Effort, Success and Harvest

During opening weekend an estimated 465 active licence holders spent 3857 hours hunting and harvested 4,100 game birds. Of these 275 (59% of total) were WC hunters who spent 2,006 hours hunting (52% of total) and harvested 2,186 gamebirds (53% of total). While there were less OOR hunters they still spent 1,851 hours hunting and harvested nearly half of the total

game birds (Table 1). To achieve this each OOR hunter spent an extra 2.5 hours hunting over opening weekend (9.75 hours OOR vs 7.25 hours WC). Average hunting effort by WC hunters over opening weekend was similar to historic levels (Figure 5).

**Table 1: Summary of ‘Out of Region Hunters’ influence on estimated total effort and species harvest in the West Coast Region during opening weekend 2019.**

Hunter/Effort/Species	West Coast Hunter Harvest	Out of Region Hunter Harvest	Total Estimate	Out of Region Hunters Contribution to harvest
Active hunters	275	190	465	41%
Hours	2006	1851	3857	48%
Greylard	1432	1146	2578	44%
Paradise Shelduck	603	694	1297	54%
Pukeko	92	61	153	40%
Shoveler	23	12	35	34%
Swan	37	0	37	0%
<b>Total Birds</b>	<b>2186</b>	<b>1914</b>	<b>4100</b>	<b>47%</b>



**Figure 5. Average time spent hunting during opening weekend ± standard deviation by West Coast hunters 2000-2019.**

Success in terms of game birds harvested per hour was similar with WC hunters harvesting 1.09 birds/hour and OOR hunters 1.03/birds/hour however the success of WC hunters on opening weekend was the lowest since 2003 (Figure 6). West Coast hunters spent about half (47%) of their total hunting effort over the hunting season on opening weekend whereas OOR hunters spent about three quarters (73%) 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, 2.2 shelduck, and less than one of pukeko, swan and shoveler. OOR hunters mean bag for opening weekend was 10

birds: 6 greylards, 3.7 shelduck and less than one pukeko and shoveler. No swans were recorded shot by OOR hunters surveyed on opening weekend. A further 164 birds were estimated as not retrieved.

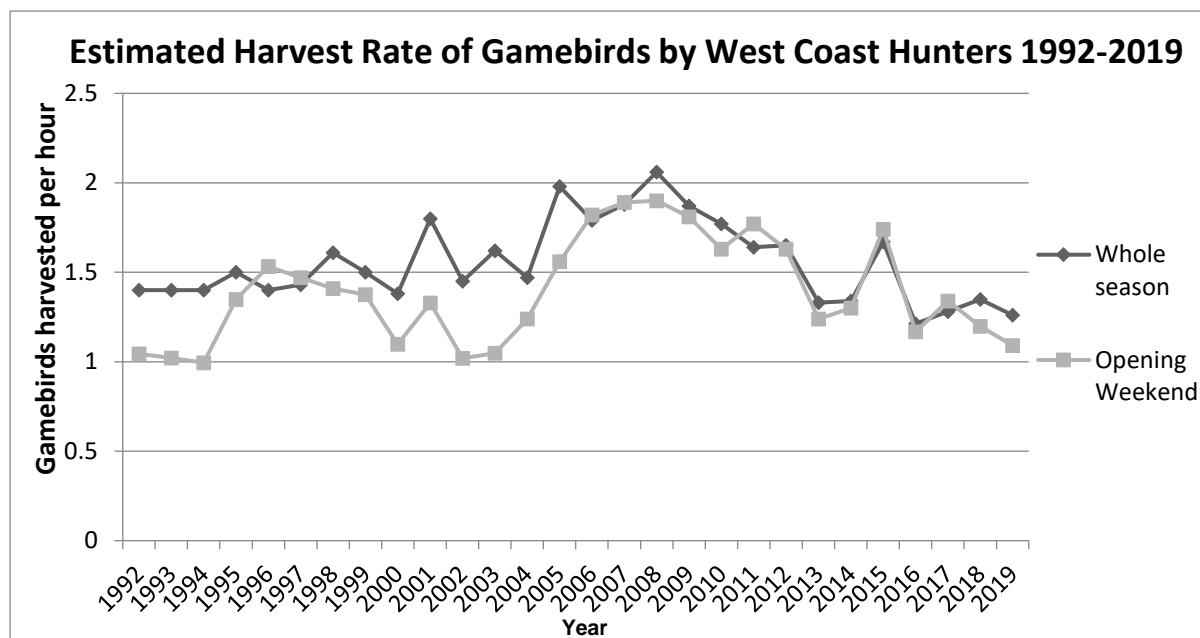


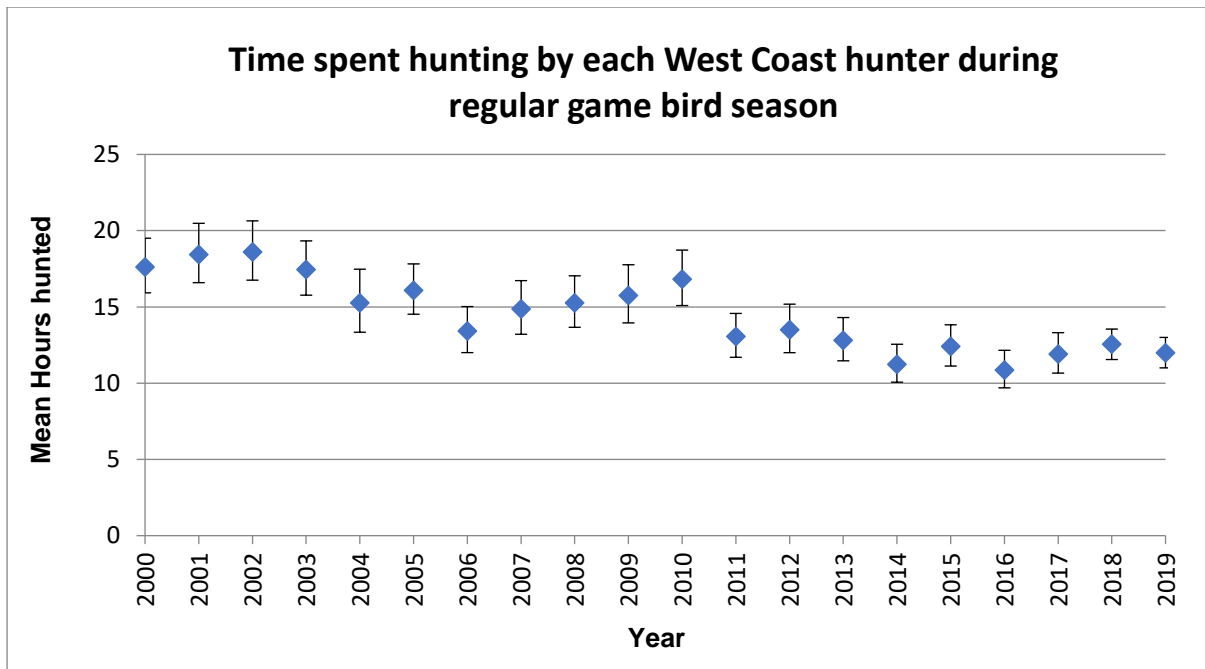
Figure 6: Game bird harvest rate by West Coast licence holders, opening weekend compared with whole season harvest rate 1992-2019.

### 2019 Full Season Hunting Effort, Success and Harvest by species

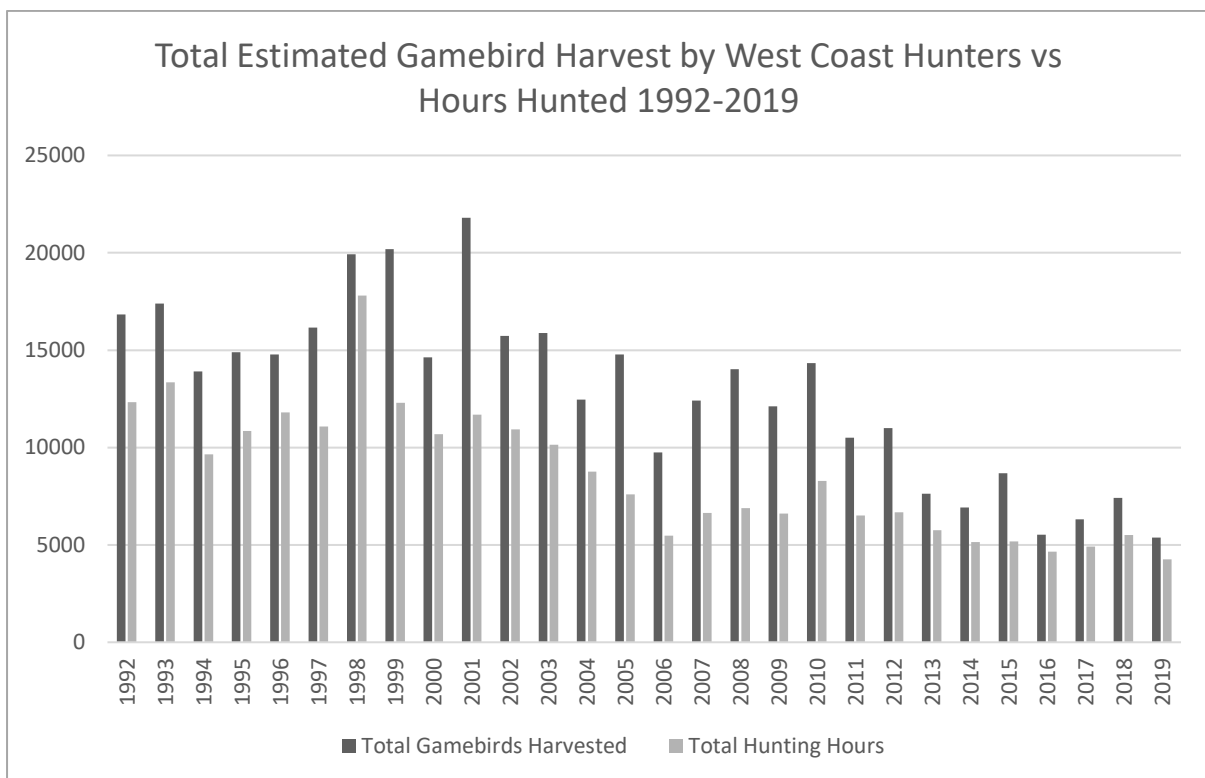
Over the full 2019 game bird season all hunters spent 6,809 hours hunting and harvested 8,380 game birds. WC hunters spent an estimated 4,261 hours hunting (63% of total) and harvested 5,370 gamebirds (64% of total). OOR hunters spent 2,547 hours hunting and harvested 3,006 gamebirds (Table 2). WC hunters spent an average 12.18 hours hunting over the season and this was very similar to time spent hunting in the last nine seasons although lower than historic levels (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 2: Summary of ‘Out of Region Hunters’ influence on estimated total effort and species harvest in the West Coast Region during the 2019 gamebird season.

Effort/Species	West Coast Hunter Harvest	Out of Region Hunter Harvest	Total Estimates	Out of Region Hunters Contribution to harvest
Hours	4261	2548	6809	37%
Greylard	2723	2040	4763	43%
Paradise Shelduck	2014	743	2757	27%
Pukeko	490	215	705	30%
Shoveler	37	12	49	24%
Swan	106	0	106	0%
Total Birds	5370	3010	8380	36%



**Figure 7.** Average time spent hunting during the regular game bird season  $\pm$  standard deviation by West Coast hunters 2000-2019.



**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 was similar with WC hunters harvesting 1.26 birds/hour and OOR hunters 1.18 birds/hour. The success of WC hunters over the 2019 hunting season was down in comparison to historic levels but similar to that experienced 2016-2018 (Figure 6).



WC hunters mean bag for the 2019 season was 15 birds: 7.6 greylards, 5.8 shelduck, 1.4 pukeko and less than one swan and shoveler. A further 714 birds were estimated as not retrieved.

## Harvest by Game Bird Species

Of the West Coast licence holders surveyed, ‘Greylard’ or combined Grey and Mallard ducks made up 51% of the annual harvest. Paradise Shelduck were the second most harvested bird at 38%, followed by Pukeko 9%, Swan 2% and Shoveler <1% (Figure 9).

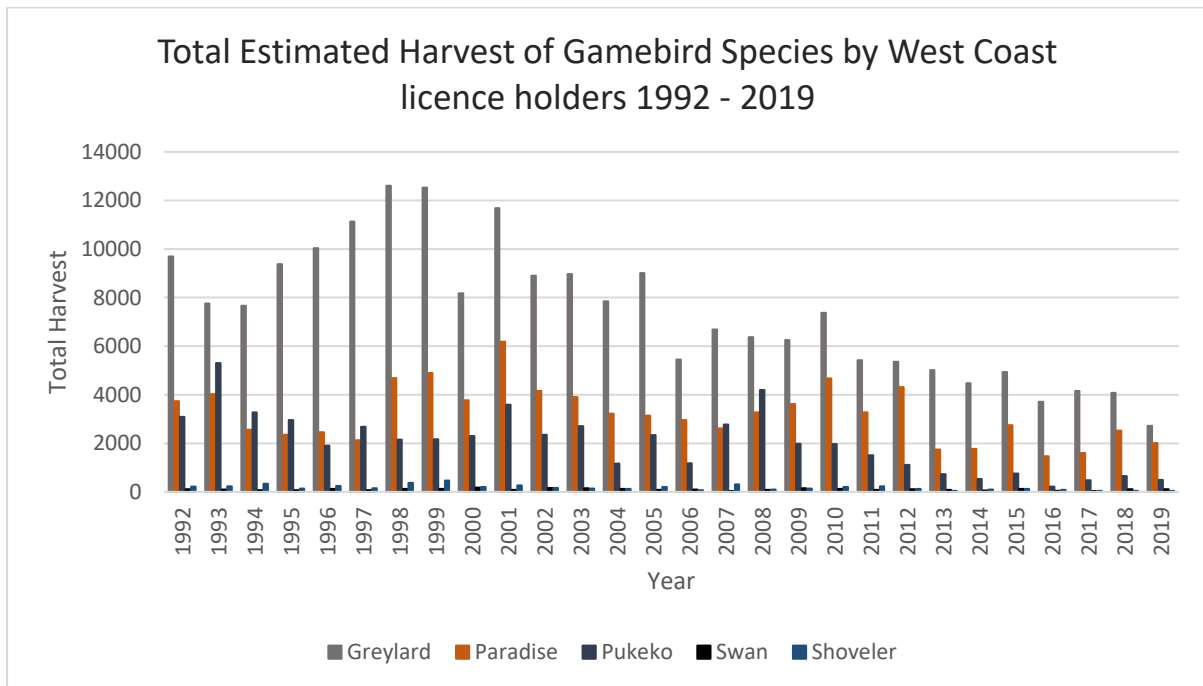


Figure 9: Estimated gamebird harvest within the West Coast Region by West Coast licence holders from 1992-2019.

## Greylard

In the 2019 game bird season, West Coast licence holders harvested 2,723 Greylard in total. Inclusion of OOR hunter harvest brought the total estimated Greylard harvest for 2019 to 4,763 which was is the lowest ever recorded (Figure 10). There is only five years of data available to correlate annual trend counts with total harvest (Figure 11).

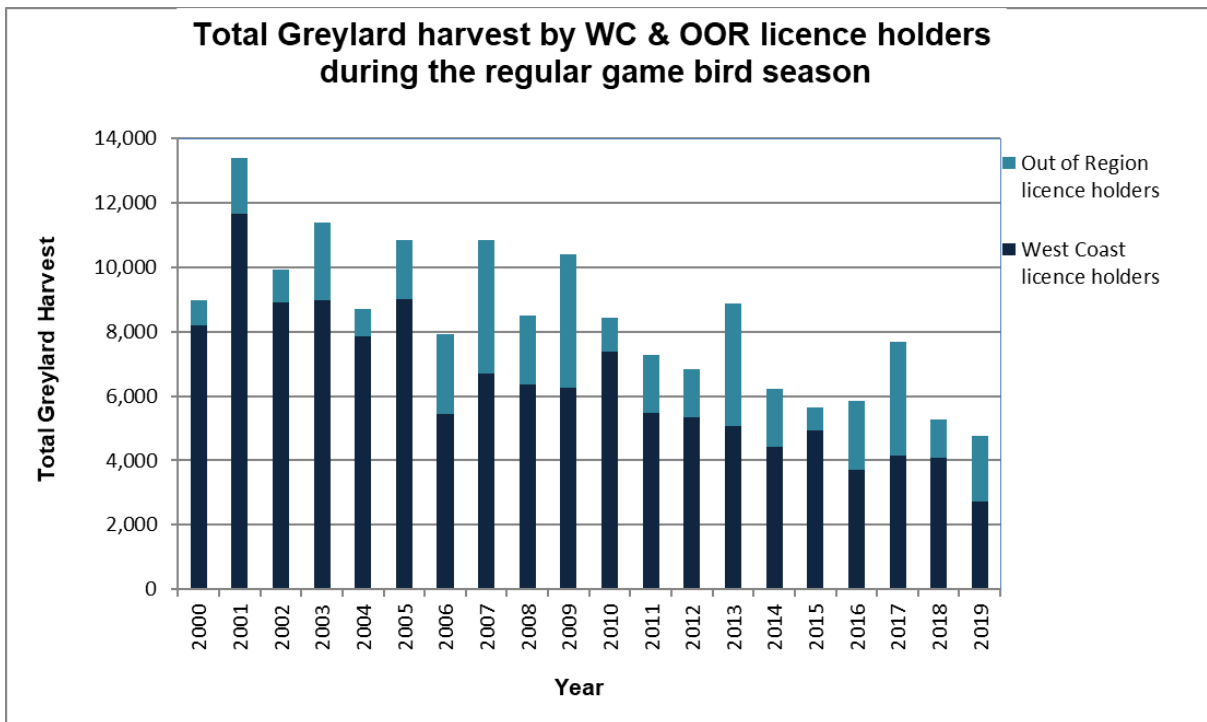


Figure 10: Estimated Total Greylard harvest for the West Coast Region, 2000-2019.

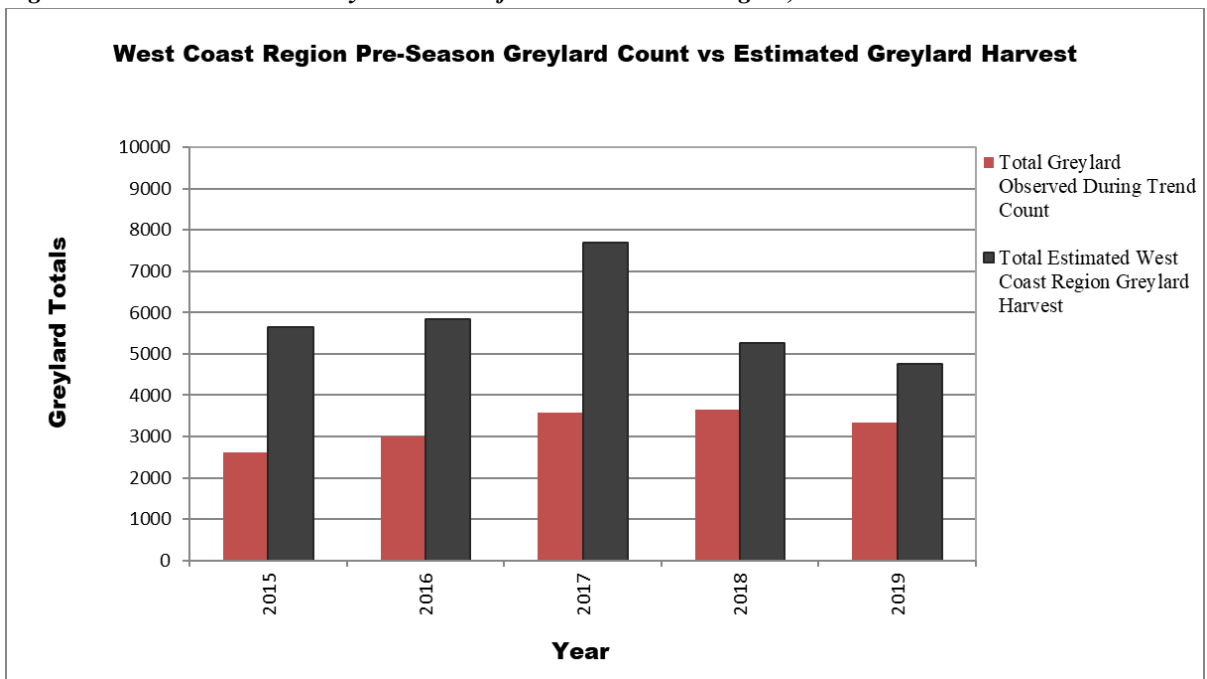


Figure 11: Total Greylard harvest vs trend count results for the West Coast Region.

### Paradise Shelduck

In the 2019 game bird season West Coast licence holders harvested an estimated total of 2,014 Paradise Shelduck. Inclusion of out of region hunter brought the estimated total to 2,757 Paradise Shelducks (Figure 12). There is limited correlation between total harvest and annual moult trend counts (Figure 13).

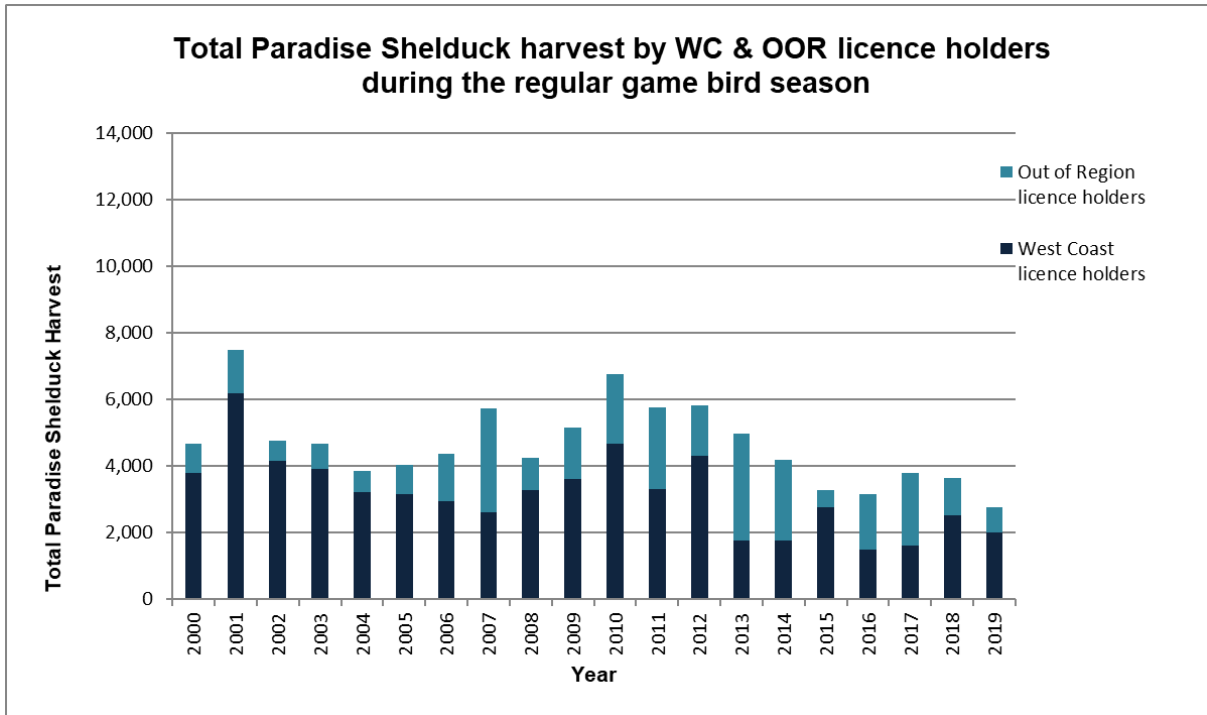


Figure 12: Estimated Total Paradise Shelduck harvest in the West Coast Region 2000-2019.

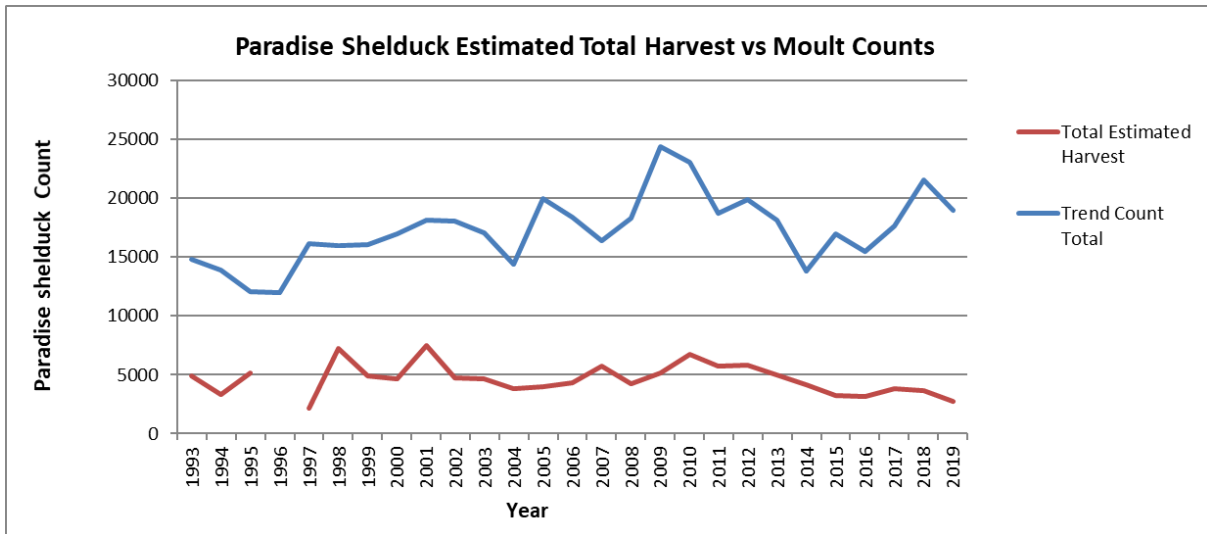


Figure 13: Total Paradise Shelduck harvest vs moult count results for the West Coast Region. (Note: no out of region data available for 1996).

### Pukeko

In the 2019 game bird season, WC licence holders harvested an estimated 490 Pukeko. Inclusion of out of region hunter brought the estimated total to 705 Pukeko (Figure 14). There is limited correlation between total harvest and annual moult trend counts (Figure 15).

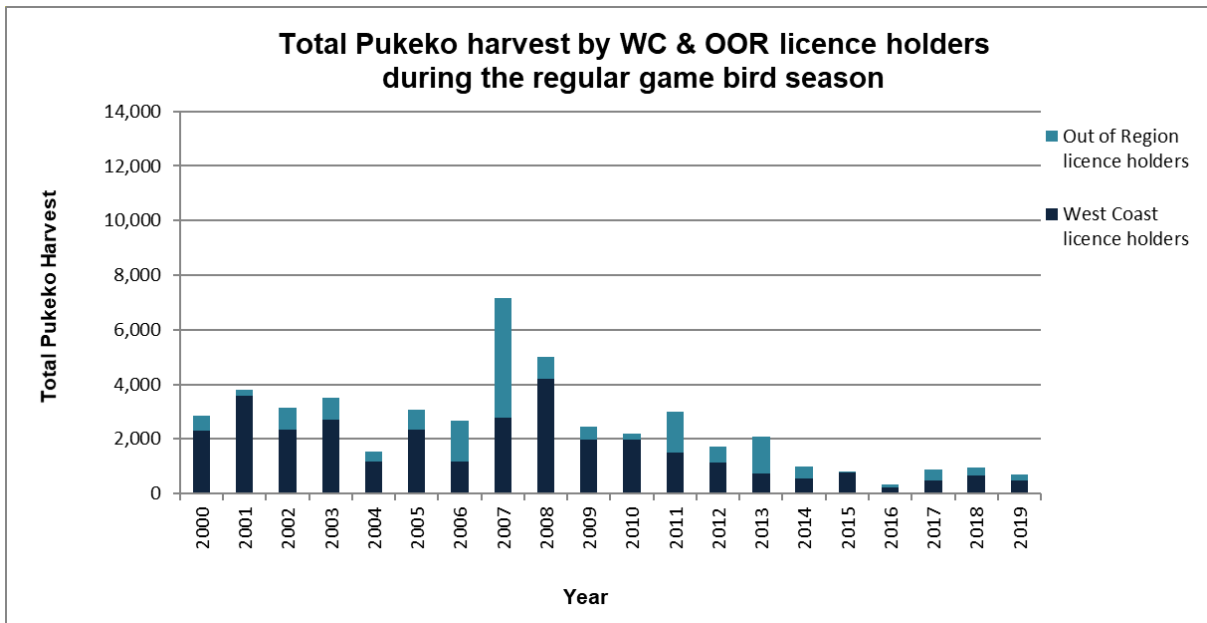


Figure 14: Estimated Total Pukeko harvest in the West Coast Region 2000-2019.

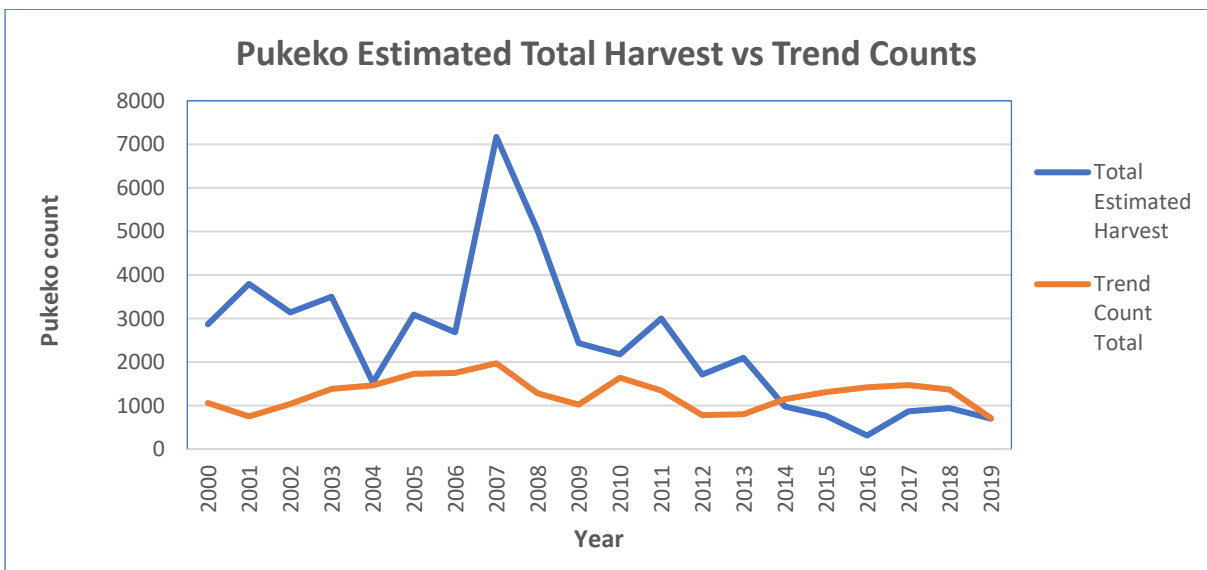


Figure 15: Total Pukeko harvest vs trend count results for the West Coast Region.

### Shoveler Duck

In 2019 West Coast licence holders harvested an estimated 37 Shoveler. Inclusion of out of region hunter brought the estimated total to 49.

### Black Swan

In 2019 West Coast licence holders harvested an estimated 106 Swan in total for the whole season. None were recorded as being harvested by visiting hunters in contrast to 2018 when 297 were harvested by OOR hunters.

## Discussion

The ongoing decline in the number of WC licence holders continues with this season's sales being the lowest on record. The main driver for this decline is the number of full season adult licences being sold. While recruitment and retention of junior hunters through junior hunting programs is important for longer term sales junior hunters only make up 9% of hunters on average. Of more immediate concern is understanding the factors behind reduced GWA licences. Factors are likely varied but could include competition for recreational time, licence price, old age, lack of motivation, reduction in hunting opportunities (perceived or otherwise), availability of day licences, shooting on own property without the need for a licence or simply not getting a licence. Another complicating factor this season was the Gun Reform legislation and potential uncertainty created around gun regulation. This uncertainty may have reduced licence sales although in reality the new regulations had no impact on existing WC gamebird regulations. Understanding these factors is important and work should continue to identify trends at the West Coast level.

The survey method is limited to those who provide a valid telephone number and are willing to answer the phone and respond to the questions. This year 10 licence holders didn't provide any telephone contacts when purchasing licences and a further 24 had contact details that were incorrect. This meant 10% of potential WC hunters to be surveyed were excluded from the surveys. Over one third of WC licence holders were surveyed each period and survey fatigue may have set in after repeated calls. WC hunters who purchase their licences OOR (most likely in CSI or NC) are less likely to be surveyed due to the large number of hunters in those areas: only a relatively small proportion of NC and CSI licence holders are surveyed each period.

An example of the limitation of the survey method is the lack of swans harvested by OOR hunters this season. This shows that the dataset can be biased particularly for OOR hunters from regions with high numbers of hunters relative to those surveyed. Communications showed numerous OOR hunters were known to have harvested swans but were obviously not surveyed (Baylee Kersten *pers. comm*). The potential for hunter bias in the survey results has always been present particularly for OOR hunters.

On opening weekend WC hunters put in on average two hours less effort than OOR hunters. This was shown in that OOR made up nearly 50% of opening weekend harvest. Overall OOR hunters continue to make a significant contribution to the WC harvest. OOR hunters appear more motivated, potentially from having to travel and wanting to make the most of the opportunity. Hunting effort over the whole season was consistent over the last nine years but lower than historically. Once opening weekend is over not a lot of hunting effort is put in although those who do hunt have higher success rates than those hunting opening weekend. This is likely the result of the more motivated and presumably more focused and successful hunters being active in this period. Also, gaining an understanding of the trend in the number of hunters with land occupier rights and their contribution to total harvest would be beneficial. This might be a significant contribution to hunter harvest.

Pre-season game bird monitoring has shown stable or increasing numbers of gamebirds over recent years. This increase should result in increased hunting opportunities for hunters that are

active in the West Coast Region. Unfortunately, this opportunity doesn't appear to be being realised as the result of low hunter numbers and effort resulting in low success when compared to historic levels.

Of concern was the decline in Paradise Shelduck harvest compared to historic levels. Paradise Shelduck cause the majority of pasture and crop predation complaints. The declining harvest provides limited management of pasture and crop predation in the face of increasing trend counts for this species. If this trend continues, it will be detrimental to the management of this population and make the relationship with agricultural farmers more tenuous.

### **Staff Recommendations**

- That the council receives this report.
- That the current season duration and bag limits remain unchanged.
- That further review of the hunter database be undertaken to identify hunters who are no longer getting full season licences, the reasons for this, and the option for reactivation.
- That incentive options are identified for existing hunters if they take a mate out hunting.
- That the junior Paradise Shelduck and Pukeko season allows adult licence holders to hunt if present with a junior licence holder.
- Review the survey methodology to identify ways of improving the data obtained and to ensure WC hunters enjoy the survey experience.