Places for Penguins

a Forest & Bird Wellington Branch project

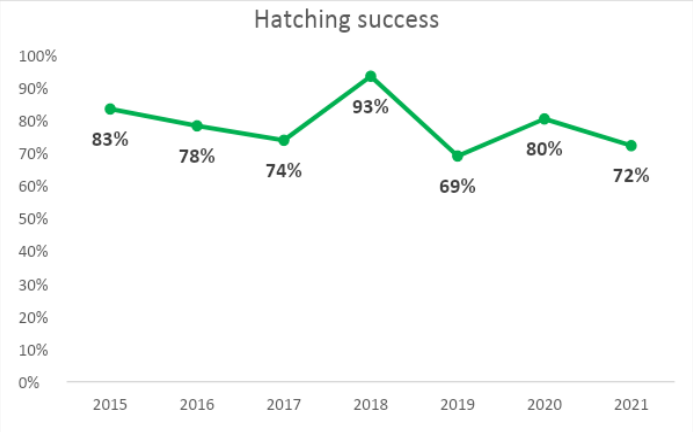
Forest & Bird
TE REO O TE TAIAO
Giving Nature a Voice

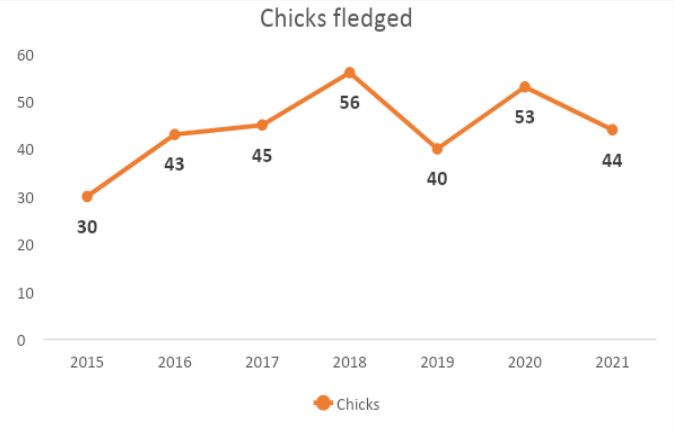
Newsletter **February-March 2021**

IN THIS ISSUE:

SEASON REPORT

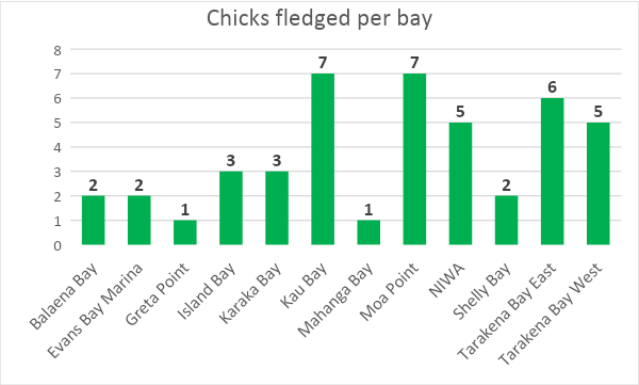
Last year the breeding season started with many kororā coming back early to settle in their nest boxes and so we expected to have a great season ahead of us. As the months passed, we saw more and more boxes being occupied, some of which had never had a breeding pair in them. However, right at a crucial time when adults are feeding chicks, we started hearing about La Niña warming the ocean waters of New Zealand, especially in the North Island. Before we knew exactly what was happening, we had found some dead chicks in nests and we had many people reporting they had seen dead birds washed up in beaches in the South Coast.





Even though the adults went through a rough time finding food at that time, many could manage to raise at least one chick. Therefore 80% of the chicks that hatched, successfully fledged. The hatching success, which is the proportion of eggs that produced fledglings, was a bit lower this season - 72% compared to last season. We found similar results in 2019 after many adults had died early 2018 from starvation during the crucial moulting period of their lives. That was also due to La Niña weather patterns.

We had a total of 76 eggs laid across all bays and 70 of those hatched successfully. Unfortunately, we could not have an accurate number of chicks fledging from Taputeranga Island this season because the weather conditions prevented us from safely accessing the island for many weeks. Therefore, the results included in the graphs and the overall breeding success was calculated removing the data from this bay.



The moult has also finished in all bays so we expect to see penguins returning to their nests in June for hopefully a better breeding season.

-Andrea Westphal

KAHU'S ADVENTURES IN 2020

Wellington's largest Little Blue Penguin had an interesting year in 2020. Lockdown affected us all, and that included Kahu. Luckily Kahu was able to use the time to catch up on some reading, practice their cooking skills and they even learned a new instrument! We hope that everybody's lockdown was just as fruitful.

Once they were able to leave the house, they made sure to spend lots of time on the beach to make up for lost time. Around the coast of Wellington they found many cool things. There were some great signs warning the public about dangers to kororā and some people who were taking the lessons on board. Unfortunately there were also some not so great things found on the beach as well – Kahu took part in two beach cleanups and managed to fill lots of bags with rubbish at both of them. The beaches are looking a bit cleaner now but we need to all do our part to help prevent waste from building back up again.

They helped welcome three new skilled and passionate people onto the committee for Places for Penguins and got to sit in on some meetings discussing the future of penguin conservation in Wellington. You can follow Kahu on Instagram at instagram.com/kahuthekorora to see all the cool things they will get up to in 2021, and be sure to take note of the signage around Wellington's South Coast to ensure *all* of the kororā around Wellington can have a great year.

YELLOW – IS IT ME YOU'RE LOOKING FOR?

King Penguin coloured patches [1]

Other than our little blues, penguins are famous for being mostly black and white. However, other colours can play a vital role for some species. Yellow feathers on the head are found in almost half the species of penguin, and the two largest species have large patches of yellow-orange on their heads and chest. The second largest penguin, the King Penguin, has five patches of colour. One around each ear, one on the chest and throat, and a patch on each side of the bottom half of the beak. These beak patches also have ultra-violet colouration, a type of light which we cannot see but most birds can. Both these colours can be important when it comes to mate selection in these birds.

These patches of colour only develop when the birds mature into adults, and they are used in courtship displays. During courtship, the pair of birds both elevate their heads and move their heads back and forth or to the side of each other with their eyes closed, opening them occasionally to look at the other penguin. This gives each bird a good view of the coloured patches of the other, and the ear patches are specially inflated during this encounter.

Researchers have messed around with these patches to determine how important they are in the mating process. In one study, two male King Penguins had their ear patches completely painted over with black paint, and the two males were unable to mate at all until the paint wore off. Another study painted the ear and chest patches of some penguins white and those penguins took a lot longer to find a mate. The reason for these effects could be that the penguins that had their coloured patches painted took on the appearance of juveniles who had not developed their patches and hence were seen as too young to mate with.

King Penguin mating display [2]

Other studies have kept the yellow-orange patches visible but reduced their size. One study painted black around the edges of the ear patch of male King Penguins, reducing the patch size by 50%. These males were still able to find a mate but on average they took twice as long to do so as males with full-size patches, as females preferred to mate with males that had larger patches.

Females choosing males that are more colourful and have more elaborate ornaments is common among birds, and in many species the males are full of colour while the females are a drab brown. The most obvious example in the bird kingdom is the Peacock, and many native NZ birds follow this trend such as the Hihi or Korimako. Colour and ornaments don't usually give individuals any other advantage except they are more likely to be chosen as a mate, and this may be because birds that are still able to survive even though they put a lot of energy and resources into colour and extra ornaments must be particularly fit individuals and so are more sought after by potential mates. In King Penguins, there are higher numbers of females than males, and females spend several days to pick a mate, so female choosiness could play a factor in the selection of more colourful males.

Sometimes when a trait is chosen in one sex, it also begins to appear in the other sex simply because the genes for that trait end up in the genetics of both sexes and effects both of their appearances. It would usually be less pronounced in the second sex as it is not being actively selected for. Male King Penguins were found to have larger ear patches than females which suggests that selection could be happening in males and then the trait is being carried over to the females as a side-effect. However, traits that appear in both sexes could also be caused by mutual selection by both sexes. It is possible that the yellow-orange patches indicate higher fitness in both males and females and hence are selected by all penguins generally.

King Penguin parents of both sexes have to put a lot of time and effort into raising their young, so it makes sense that both parents would be choosy when it comes to potential mates in order to give their young the best chance at survival. King Penguins of both sexes that were successful in finding a mate had larger patch sizes than those that didn't, suggesting that larger patches signalled an advantage in both sexes. Various studies on King Penguins have found that individuals who had more beak colouration and larger patch sizes also had better immunity, metabolism and responses to stress in both sexes, so it would make sense that both sexes would choose mates with bigger and more colourful patches. Chest patch colouration comes from molecules called 'pterins' and these also help with immune function, so more colourful chest patches would be an honest signal to mates of a better ability to overcome sickness, disease and stress.

Group of King Penguins chicks, note the lack of yellow-orange pigmentation [3]

[1] By Liam Quinn from Canada - King Penguin at St. Andrews Bay, South Georgia. Uploaded by Snowmanradio, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=15465309

[2] By MMessina1245 - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=62283133

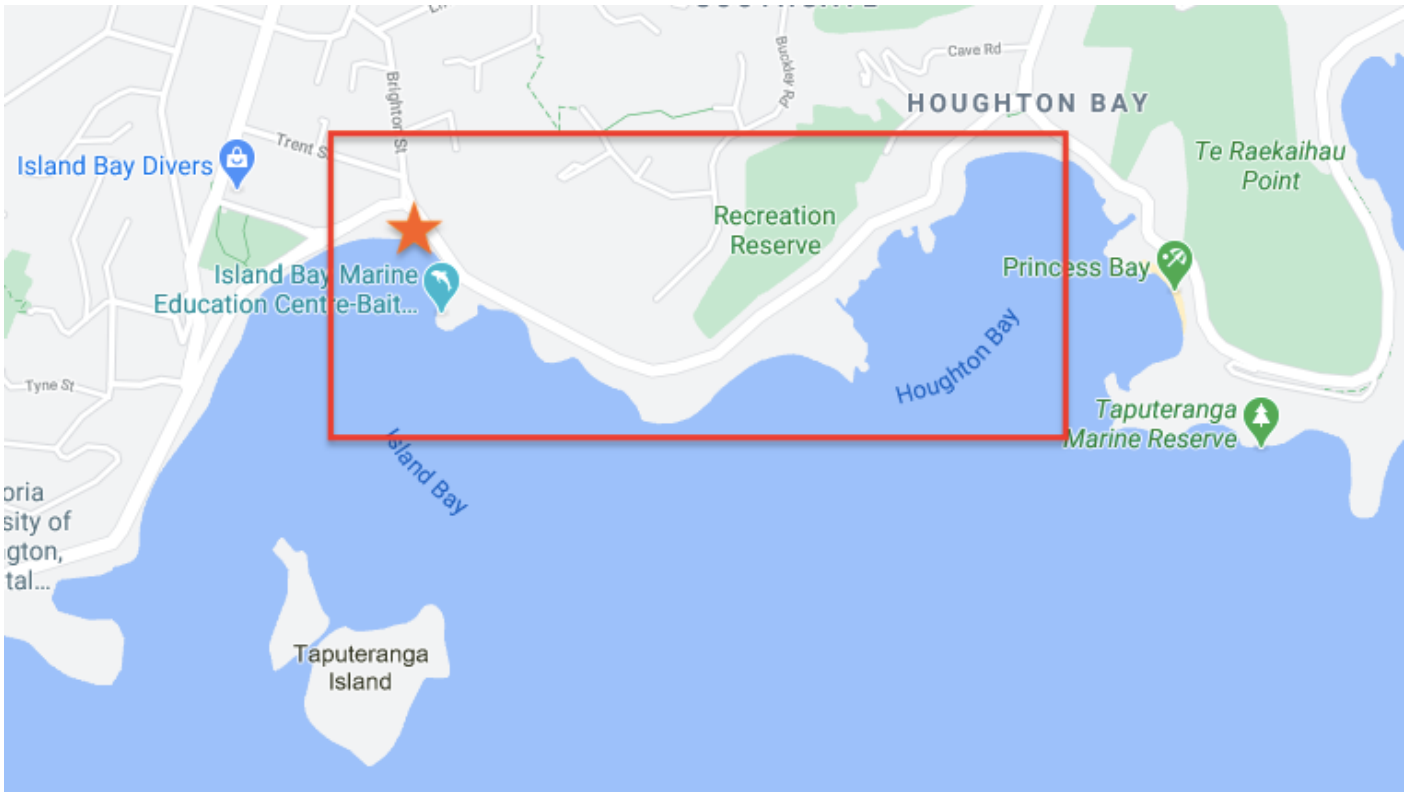
[3] By Butterfly austral - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=8778215

NEW COMMITTEE MEMBER

This year we welcome Brittany Florence-Bennett onto the PfP executive committee. Brittany has been involved with nest-box monitoring in Island Bay for 2.5 years. She comes from a background of Ecology and Biodiversity at Victoria University. She recently completed her MSc focusing on avian predation on native lizards. She now works as a Field Operator for Predator Free Wellington.

NEXT WORKING BEE

We have a beach cleanup planned for Saturday 17th April at 1pm. We will have a table set up in the Island Bay Surf Club parking area where you can stop by to get disposable gloves and rubbish bags (although if you can bring your own appropriate gloves that would be great – so we can reduce the amount of waste produced by the event!). See below a picture of the area targeted by the event, with the star indicating where the table will be set up. Hope to see you there!



Text and photos by members of the PfP management team, except where otherwise credited.

Thanks to all our partners and supporters: Wellington City Council, Greater Wellington Regional Council, the Department of Conservation, the Society for Conservation Biology group at Victoria University, Conservation Volunteers of New Zealand, Weta Digital, Tumbleweed Tees, Sue Dasler Pottery, and the Henderson Trust via the Nikau Foundation.