



**Meeting:** Conservation Services Programme Technical Working Group

**Date:** Thursday 19<sup>th</sup> May 2022

**Time:** 9:00 am – 12.45 pm

**Place:** Microsoft Teams Meeting

**Chair:** Katie Clemens-Seely ([kclemens@doc.govt.nz](mailto:kclemens@doc.govt.nz))

**Attendance:** Igor Debski, Karen Middlemiss, Graeme Taylor, Lyndsey Holland, Tiffany Plencner, Johannes Fischer, Katie Clemens-Seely, Katharina Manno, Clinton Duffy, Laura Boren, Mel Young (DOC), Chris Lalas (independent seabird biologist), Peter Frost (science support service), Dave Goad (Vita Maris), Esteban Fernandez-Juricic, Morgan Lee Chaney, Hannah Moon (University of Hawai'i), Ben Leslie, Nigel Hollands, Keith Jacob (DOC LOs), Graham Parker, Kalinka Rexer-Huber (Parker Conservation), David Thompson (NIWA), Carol Scott (Southern Inshore Fisheries), Ben Steele Mortimer, Richard Wells (DWG – apologies John Cleal), Michael Donoghue (observing on behalf of SPREP), Rosa Edwards (FINZ), Janice Molloy (Southern Seabirds Solutions Trust), Chris Gaskin (Northern Seabirds Solutions Trust), Mike Bell (Toroa consultant), Rob Schuckard (independent seabird ecologist), Sarah Michael (Australian Department of Natural Resources and Environment), Jack Fenaughty (Silvifish Resources), Simon Childerhouse (Cawthron), Jim Roberts (independent consultant), William Gibson (FNZ)

## Welcome, Karakia, Introductions, Scope, Objectives, Apologies

- 1) **The effect of lasers on bird vision; a *special external research presentation on work led by Esteban Fernandez-Juricic* (Purdue University)**  
The presentation described experimental approaches and their results on the effects of lasers on the eyes and subsequent behaviour of domestic birds, with a discussion on the applicability of the data to seabirds.

Questions raised:

PF: laser in video was at fixed point behind boat that moved forward with the boat. In wider setting, has there been a trial where the laser moves in a rotating fashion to deter birds moving behind boat? E: when contracted, it was for a check on lasers with expectation they were not an issue. When they found the injuries, project staff were surprised -because they found injury they now need to look at this in a more focused way – so no research on this as yet.

PF: is it deterrence (away from trawl), or disturbance (interruption to time they are pecking away at birds)? E: It's a bit of both. We're in a reactive rather than proactive mode so that is a good question - reacting to a commercial entity pushing this approach.

GP: regarding the laser used, do you know why they started at such a high strength? E: there was a report on effects, but it was erroneous methodologically and conclusively,

and revised in light of these results, that question was not really answered. GP: there is scope for further engagement on different set ups such as one being tested in NZ, with strobe effect set up with a less-powerful laser (that is deemed effective).

JM: are you planning further research? E: Yes, we have plans but no funds.

JM: Also, what is the Dazzler? To find out and discuss after.

JM: on funding, how it could work. E: haven't found an agency that will fund work on seabirds.

JM: aware of work on a laser curtain, could this also be an approach to test /are you aware of it? E: need more research and it's a really interesting idea. Needs investigating in a way that ensures we're not making things worse.

JF: based on evidence and research, is it fair to say that the SeaBird saver should not be used (along with other lasers with the same power?). E: agreed, for Class 4 lasers, within the likely set up (eg 20km away it might be fine...) – it's not just about the laser power.

JF: parameters like wavelength, output powers etc on slide – which of them would be selected for further research? E: multiple, as there are synergistic effects (these are not necessarily additive effects and can increase or decrease impacts). Light speed varies (movement) depending on distance to laser (ie moves more further away, its multidimensional).

JF: have you investigated the effects of lasers to prevent bird strikes at airports? E: Yes, we're working on it.

DG: are you aware of any autopsy work from fleets using lasers. E: No. You see degradation within 10 minutes, so also difficult to do timewise.

JM: lasers in water, what could make it worse. E: relates to light refraction.

- 2) **POP2021-07: Otago shag census. Kalinka Rexer-Huber, Parker Conservation.**  
The presentation showed an update in methods and results for the Otago shag census, including estimates of the current Otago shag breeding population size.

Questions raised:

PF: can one assume that the early estimates in the trend assessments are comparable with those made later if the methods and their precision differed? K: In 2007 -mostly counts were done on foot, so some variability - but they were the same in that time of year etc. and counting from distance (laterally) was the same. With a drone, there's a higher chance of seeing something away from your vantage point.

PF: if you change monitoring methods there should be some overlap and generate estimates using their old methods. K: this is addressed in the report.

PF: Do we know how synchronous breeding is in Otago shags, both within a colony and between colonies (and even among years)? For example, your estimates of birds seen on nests but not eggs could be birds that are still to lay? i.e., can we assume that such birds will remain non-breeders for the season? If you're surveying at the peak, you need to assume there will be more egg laying. Could we do a week apart or something, and you must report that this is the minimum number K: yes, we recognize there will be more egg laying.

GP: resourcing and the DOC funding cycle a scramble, so it is hard to include repeats of surveys with a time interval between them. Also, there is privately owned unavailable information the team could not access on this.

GT: 1) can you see nest contents by lowering the drone? (ie birds take flight so you can see), 2) saw an empty nest next to the colonies, what are those? K: 1) shags are known to be disturbance prone and this would be too risky, for bird/nest in question as well as surrounding birds (so wider impacts, and would be uncomfortable with this approach given known shag behavior). They saw no nesting shags standing up as they considered this evidence for disturbance (as their threshold). 2) these are old nests from previous breeding seasons that have not yet weathered away

3) **POP2019-04: Southern Buller's albatross census. David Thompson (NIWA)**

The presentation showed results of the second year of a 3-year project to revisit 3 established colonies to assess breeding pairs, and determine annual survival of banded birds from recapture data.

Questions raised:

RW: isn't 12 the age at maturity? Here there appears to be a bias towards older birds.

DT: yes that does seem older than usual, it could be an unusual year, but we can also consider that any distribution of age at first breeding will be skewed to the right if 12 is the average. If the adult population was declining, you'd expect a skew towards average age of first breeding to decline - as there would be more space for those birds to recruit into. Needs delving into a little.

RW: over time, it's hard to see recruitment pulses and strong cohorts following in these data - and to see what the natural trends are - I'm keen to clarify reasons for pop dynamics and there are some fisheries implications, so would like to follow up DT: agreed, we should tease apart what's happening and what is real, and what this means in terms of population trajectory. Recruitment is 'taking up the slack' (from the declining trend of adult survival) at the moment and this might not be sustainable (ie anything lower than 0.93 a problem).

Kalinka: we don't need to doubt that the annual survival rate is dropping - these data are imminently believable and definitely an issue for Buller's. The other comparison we could look at is Gibson's - the recruitment pool is getting younger so interesting contrast.

GT: we should be cautious of age at first breeding info. To GT, other species you see females moving between colonies and they're not wedded to breeding in one particular

area – there could be a bird that has bred and then moved into one of the study sites (that would be older, so they may have bred younger elsewhere).

DT: good point and we look at a halo around the three studied colonies to check for bands, and from this you don't see generally a lot of movement.

QS? Upper Punui bay – why is the line smoother in the graph and less variation? DT: unsure. Could be habitat based (the two sites not far enough apart for another explanatory).

PF: do we know anything about male to female ratios? Who's more likely to move? DT: we could look at that but haven't as yet, and we could also tease apart (next year) survival rates for males and females.

PF: are the nests determined to be of a certain quality? DT: upper and lower Punui (lost sound here)

#### 4) POP2018-03: NZ sealion, Auckland Islands pup count. Kat Manno

The talk showed results on pup counts from an abbreviated field trip to the Auckland Islands in January 2022, from which some data were obtained but with associated caveats.

Questions raised:

QS: PF Have you considered the possibility of gradually shifting breeding phenology associated with probable climate change? Might adjusting one year's count to fit in with what has been recorded previously be potentially misleading? I appreciate that these surveys that are effectively spot counts, the timing of which can't always be determined ahead of time, but I think that one might want to consider that some of these baselines might be shifting. I think that this applies to all our surveys (seals and birds).

PF: shifting baselines – is the breeding season shifting in relation to a changing climate and would that be picked up? Especially if you're monitoring earlier in the season. I.e. the peak breeding season might be shifting. SC: a good point and to assess this we should shift back to longer field seasons to see that the pupping curve is shifting

JR: pup counts back to the early 80s have been supplied by him to DOC. From 1981-2016 he didn't see a long term trend over 35 years. Also, climate in subAnts much more stable than the rest of NZ, apart from last 3-4 years. Those data and a logistic model would better help disentangle trends rather than a daily rate and an average during counts. JR: how confident are we with the adjustment index and the numbers for Dundas? KM: we can't interpret too much and shouldn't add these data into the long term dataset, but could potentially do more data analysis on the data they got

SM: was the variance between observers assessed for the Dundas direct counts? KM: There were three observers and the spread was quite even; my estimate was low, Annie's was high and Simon's was right in the middle, so we took the mean to be a decent estimate.

SC: The direct counts on Dundas do vary considerably. My rule of thumb from looking at the previous years with both mark recapture and direct counts together was that the direct counts are generally 10-20% lower than the MR counts but this could easily be looked at from old data.

GP: comment that the vessel availability is such an issue and affects timing and data quality of research. DOC really need to look at funding things ahead of time, vessel operators and sign off of CSP plans don't align and causes problem every year. DOC needs to look at getting the AP signed off ASAP and potentially chartering vessels for multiple years

DT: to whom do we send tag sightings data. KM: Samhita Bose or Hannah Hendricks uploads to Dragonfly, if untagged to Hannah Hendriks (for the marine mammal sightings database). Always cc Kat and Laura for any sea lion sightings.