Department of Conservation
Te Papa Atawbai

Meeting: Conservation Services Programme Technical Working Group
Date: 22 July 2014
Time: 9.00 am – 2:00 pm
Place: Room Thorndon 1, Level 3 St John House, 114 The Terrace, Wellington.
Chair: Ian Angus (ph: 04-471-3081; email: iangus@doc.govt.nz)

Attendance: Richard Wells (DWG), Simon Childerhouse (BPM), David Middleton (SNZ), Rob Mattlin (MWR), Jim Roberts (NIWA), Bruce Robertson (Otago Uni, via Skype), Barry Weeber (ECO), Finlay Thompson, Richard Mansfield (Dragonfly), Michelle Beritzhoff-Law, Vicky Reeve, Nathan Walker, Rohan Currey, Adam van Opzeeland (MPI), Paul Crozier, Igor Debski, Laura Boren, Sarah Wilson, Jo Hiscock (DOC).

Apologies: Ian Doonan (NIWA), Martin Cryer (MPI)

CSP presentation:

1	**Research Planning for POP2014-01: New Zealand sea lion population project (Auckland Islands)**	**Paul Crozier (DOC)** **Jim Roberts (NIWA)**

DM – is this agenda item constrained to CSP?
PC/IA – yes, will look at other potential activities in the next agenda item
SC - how were resight probabilities estimated?
JR – estimates from SEABIRD model, using real data, estimated simultaneously with other parameters
DM – are CVs using all data presented?
JR – no, but a sample size of 150 is equivalent to tagging all pups at current pup production rates
SC – how are point estimates effected?
JR – stay pretty much the same, even with a sample of 50
SC – you report mean CVs, what about variability between years?
JR – year effect is mainly in the last few years where resight data is limited
DM – interesting pattern in CVs over time with high CVs for survival to age 2 in late 1990s and high CVs for survival 2-5 in early 2000s
JR – survival estimates from early 1990s is confounded between age groups
RC – would be good to know whether even a small change in CVs will influence our ability to actually understand the population dynamics
JR – looking at errors around point estimates of survival from the model, small increases in error are unlikely to influence our ability to determine trends
RW – why do we need to consider reducing tagging rates as this does not save much in terms of cost and logistics
ID clarified that animal ethics approval would require a strong rationale for tagging sample sizes, and other concerns raised include the potential for disease transfer and increased pup mortality
MBH – what resight effort was used?

JR – at Sandy Bay is has been pretty standard, so didn't need to adjust
DM – need also to consider other research activities, particularly resighting effort
There was discussion on the analysis by MacKenzie that investigated effect of shortening the resighting period to three or five week periods. The report is available as a background document on the CSP TWG meetings page.
ID requested clarity on what it would take from an operational perspective to collected a high number of resights in a day on Dundas
SC – weather is the biggest factor limiting the number of animals sighted, if the day's duties were limited to resighting only, good weather would be required to resight 300 animals
BW – would resighting later in the season on Enderby be a better strategy to resight Dundas animals?
JR – could probably be an equally good strategy
SC – but we don't know what proportion of Dundas animals go to Enderby, so not a reliable strategy – if a few days of resighting at Dundas can provide good data as suggested by JR this would be much better
SC noted that relatively high effort but low resight probability 1999-2001 was because effort then was focussed on capturing female animals rather than resighting
JR – haven't considered estimating pupping rate pupping rate at Dundas, as that would require more effort than historically achieved (would probably require at least 10 days)
There was discussion about potential emigration of animals from Dundas to Sandy Bay, which may require more analysis
JR highlighted some potential differences in population dynamics between Dundas and Sandy Bay, pointing to the desirability to conduct further comparative work
SC – what's your feeling on effect of reducing the number of pups tagged on Dundas?
JR – probably similar to Enderby, but need to ensure tagged sample is random
Discussion that tagging more animals is more resource effective than increasing resighting effort.
DM noted that increased resighting effort at Dundas would also improve estimates from previous years too.
JR – if you had one year of say 10 days of resighting you could estimate pupping rate, and could collect other data on the population
SC – agree, a big effort at Dundas every few years could work
SC noted that clearer management objectives are required (e.g. to understand mortality rates with x confidence) to determine effort and sample sizes required

A number of **issues and recommendations from the report on the 2013/14 season** were discussed:

- Stopping research when tour vessels visiting: should consider ways of continuing research
- Autopsies: should consider conducting these – though outside of CSP scope for 2014/15
- Develop confidence intervals for pup production estimates: should be investigated further
- Electronic data entry: currently researchers spend approx. 2 hours per day on data entry, could use a tablet for direct entry – would also be easier to record effort and ancillary data. Would require pre-season testing.

RM – tablets are unreliable in those conditions, need good data backup processes etc.
RW – better use of technology across monitoring projects should be considered
JR – is of particular relevance for resight data
SC noted that protocols well established, but do need to consider sample sizes

In relation to tagging, there was general consensus that if only considering objectives related to gather data on population dynamics all pups at Sandy Bay should be tagged. However, if to support a study of the effect of tagging on pup mortality/disease, then a reduced tagged number can be considered given JR's analyses that impact on CVs is likely to be small.

A number **of topics for further consideration in the methodology development project** were raised:

- Avoid any methodological changes that are dependent on electronic needs – should go that way for efficiency.
- Need a better measure of resight effort, should develop a better paper-based method, and apply an electronic collection method if more efficient.
- When an animal is resighted all marks should be attempted to be read (i.e. tag by flipper, PIT tag, brand) – distinguishing present, absent or not checked.
- Record location of resight – GPS or by zone.
- Record untagged animals. SC – to record number of animals untagged it would require a systematic approach, rather than just recording an untagged animal seen – as you would not be able to distinguish between multiple observations of the same animal or single observations of multiple animals.
- Consider repeating historical tag/chip retention work, which has been conducted in late Feb –systematically checking all pups on the beach as all are known to be tagged and chipped.
- Some of the process, e.g. protocol for choosing pups to tag on Dundas need better description.
- Could also consider temporarily marking PIT tagged animals (e.g. bleach, fur shave) to investigate the probability of successfully resighting PIT tagged animals.

Non-CSP Presentations:

2	**Review of options for future research on New Zealand sea lion pup mortality.**	**Simon Childerhouse (BPM)**

Campbell Island survey:
RM – living animal and environmental samples are currently being collected at Campbell Island
ID – NIWA are planning a seabird research trip in late Jan/early Feb, which may provide opportunities for collaboration
JH – Navy operation trip likely in Feb/March, but firm plans not yet developed, so should not be relied on at this stage
RC – any opportunity to utilise helicopter transport?
SC – is generally more expensive than boat transport and can't carry gear

Detailed modelling of the influence of pup mortality on long-term survival:
BR - Stefan Meyer has already undertaken modelling work to look at relative importance of pup and adult mortality
JR – also need to understand underlying causes

Ramps for holes at Enderby/Dundas
JH – there are options for getting gear down there if pre-constructed ramps are required

RM – the nature of peat holes mean they change year to year, and may also increase number of pups entering holes
JR – likely to have a year effect as severity of holes will vary according to weather conditions and where pups move to (e.g. into areas with holes or away from them

Klebsiella mitigation:
BW – vets concluded that infected animals will die regardless as no treatment is available
MBH – is possible transfer to humans considered?
IA – will consider as part of health and safety plan developed
RM – also need to consider what factors lead animals to become susceptible

Ivomec/Hookworm:
BW – requires further desktop study of trials undertaken previously to clarify if this is a potentially promising approach
JR – originally the study was designed to look at effect on growth, in relation to susceptibility to other factors. Have had an initial look at influence on survival, but not completed – worthy of extra work
SC – the potential benefit, based on Louise Chilver's original work is that treatment may be useful in disease epidemic years
RM – need to consider any possible side effects as these may outweigh benefits which may be minimal

There was discussion on some **other findings from the pup mortality workshop** related to Klebsiella:
– should also consider collection of environmental and other species samples for Klebsiella, including prior to the breeding season
– consider euthanasia of diseased pups? May also limit spread of disease?
- consider process for disposal of necropsied animals

Marking methods:
Could consider temporary marking, e.g. bleach, if only needing to identify animals over the duration of the field trip

Nutritional stress:
Taking more pup weights and at different times may be easy to achieve and provide useful information

RW – would an extended Auckland Islands programme be a one-off, or need repetition? There was discussion that you would probably need three seasons to be satisfied that you were capturing typical year to year variation, but varies by objective
SC – case control was suggested by Massey vets as a two year programme

Indirect effect of fisheries:
BW – indirect fisheries impacts needs further investigation, and should be factored into designing a research programme
JR – need to determine whether the population is nutritionally stressed, then need to determine what is limiting nutritional supply
BW – need to ensure data being collected will be useful to allow this approach
JR – a number of key elements, or knowledge gaps, such as diet information from scats, pup weights etc, have been identified and various bits of work are underway and are being considered in current research planning. Would be beneficial to fully describe the

range of data required. Data on maternal condition and pup weights would be a high priority to collect.
SC – must ensure maximum data collection when animals are captured. Some relevant existing samples may be available for further analyses.

There was consideration of cross sampling versus longitudinal studies – there are a number of marked animals that could be resampled.

3 The creation of a fur seal tagging and sighting database — Finlay Thompson (Dragonfly)

JR – is there a research plan for fur seals?
IA – there is no DOC national fur seal research programme, current work is being undertaken on a local or reactionary basis
It was recognised that creation of this database is an important process in making a vast amount of data available
RW – are resights from fisheries bycatch loaded
FT – no, loading other data such as resights would be the next stage
IA – the current work is a starting point, and future development will depend on resourcing and competing priorities
There was discussion of the extent of previous work completed at various locations, with potential for upload to the database
BW – what about information on genetic studies?
FT – such data likely to be quite different to core tagging and mark-resight data
DM – even if data not available, making meta data available about other datasets would be useful
RW – researchers permitted to do research should be required report findings into this database

CSP Reports tabled

IA – the report "At-sea distribution and population parameters of the black petrels on Great Barrier Island (Aotea Island), 2013/14" by Biz Bell (WMIL) is tabled for review, following presentation of draft results to the CSP TWG on 20 May 2014.

Close of meeting

IA – further written feedback on the items discussed or tabled today is welcomed by 5 August 2014. In addition to feedback on the high level methodological approach for POP2014-01, expression of interest for involvement in the detailed methodological development process for that project is also sought.