Department of Conservation
Te Papa Atawhai

MINISTRY OF FISHERIES
Te Tautiaki i nga tini a Tangaroa

Meeting: **Conservation Services Programme Technical Working Group**
National Plan of Action – Seabirds Technical Working Group

Date: 12 June 2008
Time: 9.30 am – approx. 11:00 am
Place: Department of Conservation, 18-32 Manners Street, Wellington

Chair: Igor Debski (DOC)
Attendees: Johanna Pierre (DOC), Richard Wells (Clement & Associates), David Middleton (SeaFIC), Greg Lydon (SeaFIC), Martin Cawthorn (Cawthorn and Associates), Dave Gilbert (NIWA), Paul Breen (NIWA), Dan Fu (NIWA), Rosie Hurst (NIWA), Nathan Walker (MFish), Rob Mattlin (MFish), Aoife Martin (MFish), Kirstie Knowles (Forest & Bird), Ed Abraham (Dragonfly), Martin Cryer (MFish), Michelle Brock (MFish), Patrick Cordue (ISL), Laura Boren (DOC), Chris Lalas.
Apologies: Louise Chilvers (DOC), Susan Waugh (Forest & Bird), Mike Legge

Population studies:

New Zealand sea lion

POP 2006/01 objective 3 Draft final results on sea lion pupping rate estimation - Dave Gilbert

- DG presented his draft final results for pupping rate estimation. A copy of the presentation was circulated with the draft minutes.
- There was discussion on categorising breeders and non-breeders.
- RM - asked how pregnancy was observed.
- DG – retrospectively, agreed was not perfect, but was not a commonly used comment.
- RM - noted that females can lactate for a year so could suckle for a full year or more.
- DG – assumes that a cow is reluctant to suckle a yearling if it has its own pup.
- RM, MCawthorn – generally agree, but can happen.
- DG – agrees there could be some modification to using these comments.
- RM - why were 5 observations chosen for the Alt 1 case.
- DG – numbers of observations were chosen by inspecting plots of number of observations of suspected and known pupped females, and noted that slightly changing the definitions didn't have a large effect on final result.

- RM – were all data from Sandy Bay? How were animals that moved elsewhere dealt with?
- DG – only used data from tagged and seen on Enderby.
- CL – does smooth curve in slide 12 show breeding proportion at age 3?
- DG – no, artefact of plotting at 0.5 year intervals, value for 3 years old is zero.
- PC – queried why predicted total number of live animals always higher than observed (slide 14).
- DG – correction for observability was only made for breeders, not total number.
- DG – noted that he would prefer not to use subjective selection criteria but doesn't consider it a major problem. Plans to produce credibility intervals.
- RH – how much does the 98 cohort, that suffered the epizootic disease event, influence estimates of pupping rate?
- DG – the 98 cohort has shown very low fertility, could have addressed this by using a special 98 parameter, but contribution of that data is small overall, so would not have a big effect.
- MCawthorn – how was data from old tags that had worn numbers and were replaced dealt with?
- DG – caused initial problems, but all retags were correctly identified. It would influence rates of tag loss, but tag loss has not been dealt with in great depth in this analysis.
- PB - noted that pupping rate schedule was low, seemed reasonable, but survival is also quite low and pup mortality is variable – have you simulated whether the population would maintain its self?
- DG – have simulated, and the population does not replace its self. Tag loss is included in mortality/survival. Removing tag loss fully could increase survival.
- PB – is estimate of pupping rate also depressed because of tag loss?
- DG – the definition criteria may be too strict, but doesn't seem too bad. Fitting a mixture model may help, but that is still not completely objective.
- PC - noted that mortality includes natural mortality, tag loss and fishing mortality so we may not expect replacement.
- DG – fishing impact appears low based on tag returns from bycatch.
- RM – detection in bycatch will depend on proportion of population tagged.
- DG – also there are assumptions that Enderby animals are representative of the Aucklands population.
- MCawthorn – does the data include branded animals?
- DG – yes. Should be treated separately as there is no tag loss, but account for only a small proportion of data.
- DM – other assumptions include all breeding animals see and positively identified, and a closed population on Enderby.
- DG – breeding site fidelity between Endery/Dundas is very high. Very few animals that birthed were seen only once or twice, suggesting breeders are recorded, often many times.
- MCawthorn – high level of first year mortality seems almost implausible.
- DG – but as shown in slide 14 only small proportions of cohorts are observed again as adults, suggesting mortality after pups leave the colony is high.
- MCawthorn – noted there used to be considerable numbers of pups in the bush, but current observations suggest this behaviour has changed.
- EA – high mortality in first year could be partly explained if tag loss was age dependent, perhaps if they last one year they last many.
- MCawthorn – noted that double tagging began in 1987.

- PC – agrees with EA, tag loss and mortality are confounded so worth investigating closely tag types used and how they are applied each year.
- DG – still not sure adjustment for tag loss would give a stable population, is concerned that estimated parameters don't give a sustainable population.
- PB – pup survival estimates are reasonable but survival of one and two year olds is not well known.
- DG – average lifetime pup production is about 1, needs to be 2.
- PB – Louise Chilvers has provided some estimates of single and double tag loss, is difficult to predict, rate of loss doesn't appear to increase but number of data points is small.
- DG – problems include the ability to read both tags – e.g. animal may be lying on one flipper.
- PB – has had a look at the data, would be good to investigate closely as it's not obvious what's happening based on the data.
- PC – need credibility intervals to assess precision of estimates.
- DG – yes, will do – may also shed light on uncertainty of breeder criteria used.
- CL – presented some slides of his own modelling based on the Gales & Fletcher approach, using parameters from DG's report – population is not self sustaining, population size multipliers need to be higher – e.g. fecundity would need to be doubled to allow for a sustaining population. See written summary circulated together with these minutes.
- DG – agrees the data gives higher population multipliers.

ID – minutes and presentations will be circulated to the group, and written comments are called for by June 27.

End of session.

Note: this session was followed by a meeting of the Ministry of Fisheries Aquatic Environment Working Group.