



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
Joint meeting with MFish Aquatic Environment Working Group

Date: 6 May 2010

Time: 9 am – 5:30 pm

Place: MFish Head Office, Wellington

Chair: Ian Angus (ph: 04-4713081; email: iangus@doc.govt.nz)

Present: Greg Lydon (SeaFIC), Ed Abraham (Dragonfly), Martin Cawthorn (Cawthorn & Associates), Nathan Walker (MFish), Kirstie Knowles (Forest & Bird), Rob Mattlin, David Middleton (SeaFIC), Paul Breen (Breen Consulting), Kris Ramm (DOC), Igor Debski (DOC), Louise Chilvers (DOC), Darryl MacKenzie (Proteus), Rebecca Bird (WWF-NZ), Chris Francis (NIWA), Martin Cryer (MFish), Dave Gilbert, Barry Weeber (ECO)

Apologies: Pat Reid (Area 2)

POP2007-01 Objective 3. Estimation of demographic parameters for NZ sea lions breeding on the Auckland Islands: 1998-2009. Presentation by Darryl MacKenzie, Proteus Wildlife Research Consultants.

- IA outlined that this work represented the draft final report from year two of the three year term of this project, and feedback was sought to inform the final year's work

DMac's presentation is available for download alongside these minutes at www.doc.govt.nz/mcs

- DMac outlined that the major change to the modelling this year was inclusion of annual variation
- PB - age classes rather than age being used?
- DMac – yes, as agreed from model selection in year 1
- CF – what is n for your binomial distribution?
- DMac – days of resight effort, about 80-90
- PB – are resightability classes used?
- DMac – no, as only resights from Enderby are used
- DG – use of binomial distribution is clearly wrong as there are too many zero data points, for example half of non-breeders aren't seen at all

- PB/DG/MCry/DMac – there was discussion on measuring the fit of the model to the data, and that this was different to other statistical approaches, but a Bayesian predictive test can be performed
- PB – what does the MCMC use?
- DMac – joint probability of random variables, uses Gibbs sampler, based on likelihood methods.
- PB – do you know what WinBUGs does?
- DMac – know the theory
- ID – the WinBUGs code developed for this project will be appended to the final project report
- PB – are informed priors used?
- DMac – all priors are vague or flat
- PB – all priors should be clearly listed in the report
- MCry – is there a formal process to minimise deviances?
- DMac – no, not formal, but Bayesian P-values are used
- DMid/DMac/CF/EA – discussed further possible methods for comparing models and describing model fit to data, DMac noted this is a recognised struggle in M-R methods, DMid would like to see observed vs predicted plots such as those presented by DG
- PB – are all parameters estimated simultaneously?
- DMac – yes
- CF noted that there were similar patterns in resights between breeders and non-breeders, could this be built into the model?
- DMac – yes, possibly
- CF – why is the mass mortality event of 1998 not reflected in that year?
- DMac – there is a time lag, as young animals are not seen for a few years, rates are annualised, and sample sizes were small
- PB – does the model know about early pup mortality?
- DMac – happens outside of data set used (i.e. before tagging)
- DG/PB – other assessments of the data have shown changes in probabilities within 4-14 year age class?
- DMac – as part of year 1 of this project two models were compared, and dividing the 4-14 class made no change to results, and a single age class over this age class was chosen as being most appropriate
- DG – does the model account for live animals not seen in 2009?
- DMac – yes, using M-R robust design
- It was agreed there would be more clarity on 2009 rates after 2010 data had been analysed
- PB/CF/DMac – there was discussion on definitions around the population size estimate, as this estimate covers only females of certain cohorts
- EA suggested that the current age distribution could be used to extrapolate back to produce a comparable time series
- PB enquired how this data will be used in fisheries management?
- ID – referred to the objectives of the study as consulted upon in the 2007 CSP Annual Plan¹

¹ See <http://www.doc.govt.nz/publications/conservation/marine-and-coastal/marine-conservation-services/csp-plans/archive/2007-2008/approved-csp-annual-plan-2007-08/>

- IA - the purpose of this meeting as outlined during introductions was to provide technical review of the projects
- PB recommended using an integrated approach using all information available
- CF supported such an approach
- DMac – will consider what can be done for year 3 of this project

Further analyses of sea lion tag data. Presentation by Dave Gilbert (SeaFIC/DWG commissioned project)

- DMid introduced this project explaining that it arose from a DOC stakeholder meeting in 2009 to further investigate the decline in pup production observed that year.

DG's presentation is available for download alongside these minutes at www.doc.govt.nz/mcs

- DMac – is there a report available?
- DG – no, but presentation will be made available
- DMac – would like to see further info on sample size and error around tag loss estimates
- MCry – a detailed report would be useful
- EA – if there has not been a change in survival in recent years does that mean there has been a change in pupping rate?
- DG – can only be answered by a full population model, using all info
- DG outlined that this work indicates areas of particular interest/concern when building a population model
- DG/LC discussed the possible effects of using round tags in 1998 and 1999, and possibility of some disease carry over from 1998 to 1999
- DG/LC also discussed the high rate of adult female tag loss - because tags were replaced into same hole as last tag was in.

Round-up

- IA- encouraged written feedback on either presentations by 21 May 2010