



Meeting: Conservation Services Programme Technical Working Group

Date: 9th December 2020

Time: 9:00 am – 3:00 pm

Place: Microsoft Teams Meeting

Chair: Ian Angus (iangus@doc.govt.nz)

Attendance: Chris Gaskin, Kerry Lukies, Lily Kozmian-Ledward, Paul Taylor (NNZST), Carol Scott (Southern Inshore Fisheries Management), Richard Wells (DWG/FINZ), Oliver Wilson (FINZ), Ursula Ellenberg, Thomas Mattern (Eudypates Consulting), , Brit Finucci, Jaret Bilewitch, Fabrice Stephenson (NIWA), Marco Milardi, Sonja Austin, Greg Lydon, Mary Livingston, William Gibson (FNZ), Igor Debski, Karen Middlemiss, Johannes Fischer, Graeme Taylor, Katie Clemens-Seely, Shannon Weaver, Clinton Duffy, Tiffany Plencner, Hendrik Schultz, Kevin Carter, Kirsten Rodgers (DOC), David Middleton (Pisces Research), Andrew Jeffs, Aimee van der Reis (University of Auckland), Kalinka Rexer-Huber (Parker Conservation), Bill Chisholm (Chatham Islands Finfish Association), Jesse Rihia (TOKM), Chris Lalas, Rob Shuckard, Peter Frost (Independent researchers).

POP2019-02: Fish shoal dynamics in North-eastern New Zealand- NNZST

PF Was the 'search effort' (time in air spent searching) standardised among pilots and within pilots across time?

PT No standardisation was carried out.

PF Do you think that variations in 'search time' (assuming that ST does vary substantially among pilots and across time) might affect your results?

PT For these analyses I was treating the data as samples of school size measures - a simple approach to explore whether there was any obvious change through time. Later in the project, offset modeling will be carried out - a BRT will be used to look at the relationship between sightings and environmental variables; the output from this will then be used, along with other predictors in a GLM to apply the offset model and estimate the year effects.

DM I was interested in the use of the AER-sight data, not a dataset that has had a lot of use over the last few years, MPI concluded that it wasn't useful in monitoring fish abundance. So what value is it thought to have in this project? Is there some updating of the database occurring through this database?

KM Can provide comment after this working group.

PT They have been used for stock assessment models for kahawai etc. in the past. Probably best to provide you an outline of the project by email.

PF Lily, you argued that in the krill-length data the 22 Nov sample might be exceptional, and that the overall relationship of krill length with time was bell-shaped. But couldn't one equally argue that the 15 Dec sample was anomalously low, relative to those recorded on the dates on either side, and that the pattern of krill size across time is one of a fall-off from spring-summer peak?

LKL Yes, certainly possible that the 15 Dec sample was anomalously low. This is very much a snapshot and requires more date to get more definitive results and whether the size ranges could be attributed to other factors such as location.

RW I have a question for Lily re variability in "catch-ability" of zooplankton and therefore comparability of results of sampling.

LKL With the patchy nature of zooplankton particularly with some more mobile types such as krill, there is definitely much variability between samples, evens replicate samples taken at the same event. Possibly requires a much greater amount of sampling/replicates.

RW My interest is in what overseas or other plankton samples show and additionally what caution will be advised re for e.g. 'relative abundance' plots as shown in presentation.

LKL It is an area that needs more thought and greater volume of sampling. Zooplankton nets are a very old technology but are still used and it could be worth seeing if there is other technology out there.

RW Weaknesses need to be highlighted in any reports.

LKL There's not many zooplankton studies in relation to seabird diet worldwide. Surface horizontal tows like what we are doing is quite a novel approach.

OW In terms of the controls is there value in a stratified sampling approach as opposed to sampling controls next to sampled events?

AJ Zooplankton are notoriously difficult to sample because of their patchiness at multiple scales caused by behavior and physical processes. Krill are particularly difficult to capture when they are in small fast-moving swarms. The Leigh Laboratory does not have any long-term data sets of zooplankton.

DM Is there any standardised plankton sampling in this area? Does the Leigh lab undertake regular CPR transects for example?

LKL There's definitely value in regularly sampling but these are vertical pulls not horizontal pulls.

KM This is covered in the reports recommendations to increase sampling.

MM Very low sample size, was there a minimum length for tows? Stomach contents has very low sample size. Please include a bit more caveats in the reports about the data.

POP2020-04: Grey petrel population estimate, Antipodes Island- methodology presentation- Parker Conservation

GT Are you going to be doing soil depth measurements on the slips?

KRH You are right, that should be part of the methodology and shouldn't be hard to do- just requires a fine soil depth probe.

PF Given the variation in your measurements, how robust or precise would you have to be to detect population changes of say 5-15% over a given timeframe?

KRH The precision of pop estimates is notoriously poor for burrowing petrels just due to the wide range of uncertainties. Ability to detect a change has to be quite a big change to be detected in that situation. The first priority is to design a population size estimate that seeks to remove as much of that uncertainty as possible to reduce large confidence intervals. From there conduct a population trend study.

POP2018-02: Hoiho population and tracking project- Eudyptes Consulting

RW Does 118,000 dive events mean surface to surface or data points? Seems like a large number

UE That is all dives but doesn't differentiating between foraging dives vs traveling drives.

KC These are dive events. Each hoiho performed between 150-400 dives per foraging trip. The data points are in the millions.

RW Is there a split between benthic and pelagic dives?

UE Higher % of pelagic dives in places like the Catlins due to bathymetry, this is detailed in report.

BC The Patterson inlet foraging is interesting what is the benthic habitat there?

UE We have camera footage to show this, they appear to forage off the mussel lines.

BC You mentioned predators on SI not being a major issue, I've witnessed lots of predation of little penguins by cats there. I wonder about the vulnerability to YEP from cats on the island?

UE Little penguins are much smaller (1 kg to a YEP 6kgs) so the adults are certainly not easy prey. There has been a 5-year study on cat population numbers on Stewart Island but no recorded cat predation events during that time.

Discussion around other small islands around Stewart Island and including Hoiho population studies of those colonies.

UE We will likely not get access to these locations this season but it would be great and something we are working towards.

Discussion around adding in other previous data through other research projects conducted by other providers.

BCBC2019-05: King shag dietary analysis- Chris Lalas, Rob Schuckard, Aimee van der Reis

DM I'm interested in the specificity of the DNA barcoding, what happens if some of the DNA doesn't match up with what you have in your catalogue?

AvdR I would say that what we are matching is correct but always a possibility that we aren't detecting the right thing. Quite confident to genus level.

LH Am quite surprised that you got Cnidaria in your samples, it may be that a prey species ate something (different trophic level) etc.

AvdR I have found some of that in some other studies I have done as well.

PF Yes, possibility that you are sampling more than one trophic level of prey.

GT Did you pick up any eels?

AvdR Not in the DNA analysis.

CL We got one silver conger, in other studies it has shown up, around 1% of diet. This is just incidental not targeted we believe.

POP2020-03: Basking shark habitat suitability modelling - NIWA

MM What are the potential effects of the temporal mismatch between the species presence records and the environmental biotic predictors?

FS There's a potential for there to be a mismatch, inevitable effectively unless there is really good, recent data. What we have is a 20-year average so the assumption is it wouldn't have changed a lot. There's lots of reasons why we aren't seeing them in areas of suitable habitat.

Discussion around a risk assessment for basking sharks.

Discussion around the use of pseudo absences in the habitat suitability modelling.

FS When you mix different methods you have to take into consideration catchability of certain methods. We did look at using fishing data for absences, but pseudo absences came out as the only viable option for the project based on a range of discussions prior to undertaking the work.

DM Are we representing habitat suitability throughout the whole life cycle of basking sharks?

BF A lot of data missing on the whole life cycle of basking sharks

CD Don't know enough about them in the absence in tagging studies etc.

End of meeting