Department of Conservation
Te Papa Atawhai

Meeting: Conservation Services Programme Technical Working Group
Date: 08 October 2024
Time: 10:40 am – 12.15 pm
Place: Microsoft Teams Meeting
Chair: Kris Ramm (Marine Bycatch and Threats Manager)

Attendees:

Kris Ramm, Mel Young, Jody Weir, Kat Manno, Olivia Rowley, Lyndsey Holland, Graeme Taylor, Sean Jacques, Steve Pilkington, Hendrik Schultz, Erin Hewetson (DOC), Aimee van der Reis, Andrew Jeffs (University of Auckland), Jason van Zanten (The OPERA), Peter Frost (Science Support Service), Charles Heaphy (Sealord), Matt Rayner (Auckland Museum), Janelle Wierenga (University of Otago), Chelsea McGaw (Forest & Bird), Nathan McNally (PF2050 Ltd), Heather Benko (FNZ), Richard Wells (Resourcewise), Jason Hamill (NIWA), Rosa Edwards (Seafood NZ)

Apologies:

Presentations:

9:35 am	POP2023-04 Campbell Island hoiho research - Year 1 progress update	DOC
11:15 am	INT2023-08 Albatross Diet: composition of natural prey versus fisheries bait/waste	University of Auckland

1. POP2023-04 Campbell Island hoiho research – Year 1 progress update

Mel Young presented a year one progress update on the terrestrial and marine distribution of hoiho on Motu Ihupuku/Campbell Island project.

Discussion:

PF In terms of foraging trips and overall diving patterns, particularly when far offshore, could they be visiting offshore reefs, and what could be inferred beyond camera footage?

> **MY** Most stayed relatively close to the coast, some northeast harbour birds stayed relatively close to the coast but consistently dived quite deep each foraging day. Difficult to know about specific features underwater as this

information is often unavailable but helpful to see individual features from the animal-borne cameras. Birds are visiting lots of rocky outcrops, 70% of substrate was rippled sand and relatively featureless open seafloor. Seem to travel to the same locations everyday, consistent with mainland birds but with a high level of individual variability.

GT Intrigued by the survey issues in perseverance harbour, in the 80s hoiho were common here but sea lions were not. Do you think growth of the sea lion population has altered these dynamics?

> **MY** Yes, assume that vegetation change has impacted this as well. We were there during sea lion breeding period which made this quite challenging. A few spots where we were bluffed out, much easier to do with vessel support which is factored into future trips.

> **GT** Interesting to see how this compares with other sites.

> **MY** Yes, no sign of hoiho at all in Lookout Bay this season**.**

> **GT** Sounds like things have dramatically changed along that coast.

2. INT2023-08 Albatross diet: composition of natural prey versus fisheries bait/waste

Aimee Van der Reis presented on albatross diet composition of natural prey versus fisheries bait and waste.

Discussion:

RW Did you separate surface longline events from the other general fishing events?

> **AV** For the necropsy samples we were able to identify the distinct event so could identify fishing method for each sample.

LH For those species of prey that are typically deeper than albatross diving depths, was this an artifact for the taxonomic threshold to not be a distinct match? For example, orange roughy which is unlikely to be a target species for albatross.

> **AV** Had quite high confidence in the fish prey species, if there wasn't confidence in the species, this was taken back to genus level. Had a threshold of 97% match and double checked this.

RW I presume that the species identification of squid is a strong match and not species that naturally come to the surface? I wouldn't suspect arrow squid showing up to that

level it would all be from fisheries discards as they are able to catch these themselves from the surface.

> **AV** Yes, confident in this species identification. Arrow squid is more predominant in the necropsy samples, only detected one in the scat sample. Not disputing that they don't catch squid naturally but are just seeing it very prevalent in the necropsy samples which kind of points to fisheries interactions.

> **RW** This is a biased sample because they are caught from fishing boats.

> **AV** Note that the necropsy samples are from fishing interactions.

RW Hake bycatch in the surface longline, is that correct?

> **WG** Agreed, Hake is not seen in fisheries bycatch.

> **AV** Found references for this in the literature and will look into this to make any adjustments needed for the final report.

> **RE** I haven't heard of hake bycatch, but it is a significant species in other fisheries. Thinking of the location of where the necropsy samples are and the fisheries overlap, there is potentially some overlap with trawl fisheries the albatross have been feeding around before feeding near surface longline vessels. Thinking of this in a slightly broader context could help answer questions of where hake came from.

> **WG** Our database shows hake has been caught on surface longline fisheries on the west coast South Island, so there is some data to support this link if there is one.

RW A lot of the conclusions from your data suggest that most prey is brought up by commercial fishing rather than within their reach from a natural fishing perspective.

> **AV** Resource competition is more related to the fishing vessels fishing in their foraging area. It is changing the resources in the area, but this can be clearer in the report.

LH These results could potentially be due to analyses and stringency artifacts, scat samples could have more degraded DNA when compared to tissue sampling

> **AV** Yes, found this more difficult, and a lot of the scat samples were thrown out for this reason.

> **LH** Clearly necropsy samples are a lot more useful which is great. If you changed the threshold and made it more stringent, would this distinguish species a bit better?

> **AV** Species-level consumption was also coded to different gene regions. Initially you could see one gene region if the species is wrong because it would be a species of the same genus that doesn't occur in New Zealand, so I manually

changed the species. I am relatively confident in the matches, if there were a lot of artifacts, I wouldn't have expected to see so many New Zealand species which provided a lot of confidence in the species level resolution.

LH If you made the threshold really stringent, what would you see in terms of species? There are some potentially strong ecological ramifications, interesting to see high species diversity which was quite surprising.

RW It is risky to compare scat and necropsy when the two data sources aren't able to be tested the same due to degradation after full digestion, what was the number of scat samples collected?

KM 89 scat samples and 72 necropsy samples.

GT A lot of consumed squid is from floating to the surface after spawning. There is a large diversity of squid species, and these have different seasons where they spawn/die, and may have missed the main time of year where these would show up as prey. Surprised by the lack of crustacean species as amphipods and euphausiids have a high concentration of oil that is often seen in albatross chick scat. Is there a methodological reason why you may have missed these in their diet?

AV My experience with DNA metabarcoding is that we would have seen it if it was there, the literature shows crustaceans are a lesser proportion of the albatross diet. This work can be expanded. One of our recommendations was that to tease anything out was quite difficult because this was an opportunistic sample and replicates are therefore quite low. Opens up a good pathway into future studies where we increase sample size to tease these things out. Would have expected to be able to find crustaceans if they were there.

GT So this may just be a seasonal observation, banding chicks towards the end of winter we often see a lot of orange oil from chicks.

RW It is a very small sample size; previous work has been done on inducing chicks to vomit and look at fishery processing waste versus natural food. If there were crustaceans amongst this, it should be discernible. Detailed records have been kept of stomach contents, and enumerating numbers of individuals in squid fisheries. Previous paper published by Leigh Torres caused some confusion because of the popular view that all albatrosses follow fishing vessels, I recall from this research that results were the opposite.

BS Was the top recommendation bait being recorded by the vessel, because trying to get the bait to a specific species level might be quite difficult, particularly for the SLL vessels. They either know that its squid or mackerel but possibly not to species level so this may be a difficult recommendation to put through. Skipper is probably not going to know the squid species.

PF: Support of recommendation three and the need to get a better idea of what might be the positive and negative aspects of albatrosses scavenging either fish discards or bait. There are a couple of papers that provide lipid breakdowns of fish and squid species, would be useful to think of the quality of material they are ingesting both naturally and in association with fishing vessels.

Any additional comments should be provided to csp@doc.govt.nz by 5pm, 22nd October 2024. Close of Meeting @ 12:15 pm