Department of
Conservation
Te Papa Atawhai

Meeting: Conservation Services Programme Technical Working Group

Date: Tuesday 21 June 2022
Time: 9:30 am – 2:30 pm
Place: Microsoft Teams Meeting
Chair: Joint Katie Clemens-Seely (Manager, Marine 027 296 2231
                kclemens@doc.govt.nz) & Karen L. Middlemiss 0273401232
                kmiddlemiss@doc.govt.nz

Attendance:

Graeme Taylor, Tiffany Plencer, Lyndsey Holland, Karen Middlemiss, Katie Clemens-Seely, Anton van Helden, Mike Ogle, Clinton Duffy, Dave Lundquist, Kristina Hillock, Hannah Hendriks, Samhita Bose, Johannes Fischer (DOC), Di Tracey, Sadie Mills, Kareen Schnabel, Owen Anderson, Diana Macpherson, Brit Finucci, Jaret Bilewitch, Matt Pinkerton, Darren Parsons, Malcolm Clark, Emma Jones (NIWA), Karen Tunley, Greg Lydon, Matt Dunn (FNZ), Ben Steele-Mortimer (DWG), Stefan Meyer (Proteus), Karen Baird, Mike Donoghue (SPREP), Jim Roberts (Anemone), Nora Kandler (?), Oliver Wilson (Sustainable Horizons), Wendi Roe (Massey)

Presentations:

9:45 am	INT2019-04 Identification and storage of cold-water coral bycatch specimens	NIWA
10:30	BCBC2020-26 Octocoral bycatch diversity on the Chatham Rise	NIWA
11:30 am	INT2021-02 Characterisation of protected coral interactions	Proteus
12:15 am	POP2021-02 Identification of protected coral hotspots using species distribution modelling	NIWA
1:15 pm	INT2021-03 marine reptile interactions with commercial fisheries	NIWA
2:00 pm	Improving the estimation of population risk to Hector's and Maui's dolphins using carcass data, focusing on toxoplasmosis	Jim Roberts

1. **INT2019-04 Identification and storage of cold-water coral specimens (NIWA)**

StM- There are a greater number of corals in FMA 4&5, are particular FMAs targeted for ID purposes and would that lead to biases? ie Was the proportion of samples similar across FMAs?

SaM – Haven't analysed to that level

DT: no -we ID whatever comes back from observers, so its not structured by area.

The table in the report contains #'s for reference. No biases.

LH – it's interesting to see coral bycatch from setnet fisheries and seems unusual. Which taxa were caught in them?

DT -Don't have that detail but will check appendices

LH – we'd expect most coral bycatch from offshore deepwater not setnet

CD: I've seen bioluminescent scleractinians coming back in set net regularly, sometimes buckets of them

LH – DOC can help improve sample labelling through Observer Training Programme and will seek input from NIWA.

DT – Hoping the new FNZ labels will improve things.

LH – Genetics – DOC wants to make this routine and utilize archival specimens.

DM - I just had a quick look at the specimen IDs from images to see what species were collected from set net operations targeting school shark. There were 28 specimens of hydrocoral *Errina novaezelandiae* collected from SOU (Southland FMA5), 1 specimen of black coral *Antipathella fiordensis*, also from SOU, and 1 specimen of bryozoan (non-protected coral taxa) Cinctipora elegans from SEC (South-East Coast FMA3) (total count =30).

LH - Great, thanks Diana - I also wondered where the *A. fiordensis* in the images was collected from so interesting to see it was set net.

DM - The *A. fiordensis* photos in the presentation were collected by longline, also targeting school shark. There were 6 specimens collected by longline targeting school shark (*A. fiordensis* (3 specimens) and associated species of ophiuroid (3 specimens). All from SOU.

CD - Lyndsey, it's probably no surprise to you but the coral I mentioned was fairly commonly caught in set nets (target ling, 180-200 ftm) in the Conway Trough was a branching species resembling *Solenosmilia variabilis* or *Goniocorella d*umosa.

JB - Could the high catch rate for black corals in non-deepwater fishing be accounted for by set-nets, as mentioned in Sadie, Di and Diana's presentation?

CD - Black corals are fairly common on mid-outer shelf reefs and have sometimes been observed with longlines tangled around them. I would think they are vulnerable to a mix of methods including rock lobster potting.

LH – Maps SW Coast SI – which taxa and method?

DT – Bottom trawling and stony and black corals

DT – Note: SPRFMO samples are sometimes ID'd as they are unlabeled – so we don't know they are ex-EEZ until we've ID'd them. There's also some bycatch this time from use of Modular Harvest Systems - in appendix.

CD – Regularly used to catch corals along Kaikoura Coast in setnets.

JB – Incorporating observer and expert ID's into the database. Plans to keep track of changes to expert ID's overtime?

DT – When uploaded into COD the comment field is updated with date and name of expert who ID's samples.

JB – Useful to track for deeper analyses.

DT – Wouldn't go down to species level but to genus.

JB -Interested in expert accuracy - JB: are there potentially ways we can track changes in accuracy of IDs by experts through time? It's something to think about but we don't at present

DT – Could also look at publications and international visitors expert ID. Comments field tracks when ID's have been amended.

2. BCBC2020-06 Octocoral bycatch diversity on the Chatham Rise

LH – What would your recommendations be for further sampling and focus? Would it be further examination of several families or another family in the same location, or Primnoidae further afield, or..?

> JB – Based on the extent of diversity in other coral families and what I'm finding in terms of high diversity in this family from a relatively limited area, it probably makes most sense to focus on specific regions like the Chatham Rise rather than large scale EEZ. Too big to cover EEZ.

LH – Looking at the data in the phylogenetic tree. How many unique haplotypes are there?

> JB – There were some unique haplotypes, but, for example, they fell within the same species clade so the issue with haplotype is that you need to know what it corresponds to, species, population, potential DNA sequencing error etc. Genomic data might give us a better idea.

LH – Is the tree based upon all of/a combination of the three genetic markers, were they concatenated?

> JB – Yes. 2 of the 3. Captures species level differences. May be more diversity with other genomic approaches if used.
>
> LH – Tricky doing coral genetics.

3. INT2021-02 Characterisation of protected coral interactions – preliminary results

KS - How will the information behind the dashboard be updated? As new samples are added or taxonomic identifications updated?

> SM – Data will be updated based on adapted input data -scripts will be made available.

LH – DOC will endeavor to maintain this dashboard and keep it updated regularly – we're going to see what's feasible now we have it developed.

BSM - Would you be able to identify what target fishery corals are caught in?

> SM – Yes.

DT - As lace corals are also known as bryozoans best to use the term hydrocoral - as you are talking about stylasterids Stefan - we presume (yes we are)

LH –After initial exploratory analyses, what are your thoughts on fisher reported data – is it much coarser resolution as we might expect? Was there any reporting at lower taxonomic levels?

> SM – Not looked at in detail yet, but gut feeling is it seems reported catch is lower for fisher reported vs observer reported, but what it might do compared to observer data is show records in new areas where there are no observers present.

LH – Here data are amalgamated across all fishing years combined -a year by year analysis would be good.

> SM – Yes, will do. Will create time series across FMA's.

LH – Dashboard – and bycatch distribution data – is a really useful tool and interesting to see coral bycatch records for unexpected methods like BLL and POT. Just a note the species distribution models are partly based on COD data too (ie observer bycatch records), so we'd expect correlation - although perhaps over different time periods – so this could be a good reference for new records but not as a predictor of bycatch

> SM – Yes, is COD data used for distribution models
>
> OA – Yes, COD data is used sometimes, only when specimen is retained.

DT – Protected Species Captures database – non-observed data. What level are you getting data at from fishers, is it combining bryozoans?

> SM – Need to clarify. PSC=observer (COD & fisher reported) – coral captures are not

recorded in this database at all, so coral captures can't be analysed using the PSC database alone (it links to effort and is well groomed data that can be linked to coral records).

DT -Who would have access to the dashboard – public etc. or restricted?

SM – Part of discussion with DOC/MPI around data confidentiality. Progressing.

LH – second that, ideally this would be public facing as in Dragonfly PS website, but we need to work through data issues and resourcing.

4. POP2021-02 Identification of protected coral hotspots using species distribution modelling

LH – What defines a hotspot – particularly based on work in SPRFMO, has there been any discussion? A discussion for Year 2 perhaps, but we need to think about it (e.g., multiple species vs. lots of one species for example, or both)

KS&OA - Not sure necessary to define a threshold. SPRFMO trying to grapple with it. Depends on what hotspot maps used for. Will be able to show highest concentrations of corals per 1000m2. Haven't thought about threshold. Will consider. Diversity v abundance.

LH – Might get mixture of both over a few species. JB pointed out earlier that for corals, they are unique in that they are a protected species group not managed at all at the species level and are lumped, despite demonstrated diversity and variation in abundance.

5. INT2021-03 Review of commercial fishing interactions with marine reptiles

JR: predictive model – did it have six predictive terms? If so, it might be quite a lot for a model with a few data points and suggest you revert to a simpler model and a cross validation.

MD: agreed, seems even though we tried with 4 terms SST still doing the driving for predictions

KM – Probability of re-capture of individuals inflating individual bycatch rates? Is anything known about recapture rates for the turtles (eg indicated by fishing hooks still on the animals etc).

MD – Nothing seem from images that showed evidence of previous capture / damage, but work investigating in future.

KM: revisiting photos to revise species ID – have they all been re-examined?

MD: yes I think we've done all of them.

StM: in 2021 observer coverage was a bit higher – would this affect the captures reported?

MD: 40% of catch from one skipper without an observer – although it is possible that this would improve fisher behaviours (having an observer on board).

StM: What's the SST range in the area encompassed by observations and how would this effect the ecology?

MD: Almost all observations from FMA1 and 2 (SLL), so captures coincide with area of higher temperature (ie the model essentially describing the NE coast) MD – Refer to slide 22. Covered there for observations only. Not outside FMA1/2.

MD: Mesopelagic foraging changes what they're feeding on at different times – so they may not take the bait at certain times of the year (olive ridley's). See the report - recommendations that we don't use squid.

KB: I'm from SPREP – provides advice to 21 member countries – including here on the western leatherback population, who's nesting sites are in PNG, Solomons and Vanuatu. Our Bycatch and Integrated Ecosystems Programme works in the region –

we're interested in your recommendations, particularly allowable catch limits, but there are limited data on populations. Keen to talk to DOC, and NZ should now be looking at implementing more mitigation e.g. large circle hooks, finfish bait instead of squid, info from karenb@sprep.org -as bycatch levels are now above international threshold levels.

MD – Emerging threat and significant effect on leather back population. Keen to work in mitigation space. Handling guidelines, tissue samples, circle hooks etc.

LH – Perhaps DOC and FNZ can do something through the observer programme re observer coverage

KM – also looking at increased review of footage for FNZ for electronic monitoring programme in FMA 1/2.

MD – Don't need to reinvent the wheel with mitigation. Existing research and guidelines used internationally.

LH - I think observer coverage in the SLL fishery is typically 10-12% and is planned to meet CCSBT requirements (STN target).

GT - Those peaks in bycatch coincide with La Nina events and more NE winds in north.

CD - Olive ridleys do seem to be at their thermal limit in NZ. Auckland Zoo reports stranded ORs never survive. They strand regularly in NZ but are reported to be infrequent stranders in New Caledonia for example.

6. Improving the estimation of population risk to Hector's and Maui's dolphins using carcass data, focusing on toxoplasmosis

AVH – Toxoplasmosis science plan is in review.

AVH - Wonder about kitten seasonality Summer through April

GT – Large feral cat population in Otago due to high rabbit numbers.

Close of Meeting @ 2:35