



**Meeting:** Conservation Services Programme Technical Working Group

**Date:** Thursday 26<sup>th</sup> August 2021  
**Time:** 9:30 am – 1:00 pm  
**Place:** Microsoft Teams Meeting  
**Chair:** Ian Angus ([iangus@doc.govt.nz](mailto:iangus@doc.govt.nz))

**Attendance:** Chris Gaskin, Kerry Lukies, Edin Whitehead, Lily Kozmian-Ledward (NNZST), Gaia Dell'Araccia (Auckland Council), Tom Clark (FINZ), Ian Tuck, Josh van Lier, Marco Milardi, Karen Lisa Tunley, William Gibson, Rosa Edwards (FNZ), Igor Debski, Karen Middlemiss, Graeme Taylor, Shannon Weaver, Lyndsey Holland, Tiffany Plencner, Johannes Fischer, Samhita Bose, (DOC), Andrew Jeffs (University of Auckland), Barry Weeber (ECO), Denham Cook (Pelco), Di Tracey, Diana Macpherson, Peter Marriott, Savannah Goode, Matt Pinkerton, Jennifer Beaumont, Campbell Murray (NIWA).

**MIT2019-03: Lighting adjustments to mitigate against deck strikes/vessel impacts - NNZST**

**BW** Has the light spill from fishing vessels been measured for comparison? Did you decide not to use blue LED lights for bird consideration reasons?

**KL** Not that I am aware of, we did not measure that. Blue is quite similar to white in terms of wavelength, so we wanted to get more varied wavelengths in the testing.

**BW** I think it would be good to get measurements of fishing vessel light spill. There can be quite a difference in light use across fishing methods, e.g., purse seiners.

**DC** Purse seine vessels don't fish at night, at most they will be in transit.

**WG** Did you measure what proportion of vessels in the Hauraki Gulf were fishing vessels?

**KL** No, but the focus was on fishing vessels for this project.

Discussion around the lighting impacts from cruise ships, ferries etc.

Discussion around navigation lights.

**PM** Fluorescent lights are actually strobing, not visible to humans but possibly for seabirds.

**KL** Yes would be very interesting as these lights did seem to pull in more birds.

Discussion around the fishing vessel lighting seen during the trials.

**GT** Did you get any obvious results on a light colour proving less attractive?

**KL** Saw fewer birds during the red lights but just not a big enough sample size.

**CG** We are looking at Auckland City light fall out outside of this project.

**BW** Has there been comparison of work with squid jiggers - in the South Atlantic or on bird attraction?

**KL** Not much work in this area (bird attraction to light vessels).

**BW** I thought there had been some work on squid jiggers around the Falkland Islands.

**KL** I didn't find this during the literature review but it may have been published more recently.

Discussion around next steps with the project.

**SW** Report will be finalised and then there will be discussions around whether to do further work in this area or not.

**TM** The back of a vessel is a workplace and needs more involvement with the industry on what is the minimum of lighting required for human safety. No reason lighting shouldn't be dimmed when anchored or not fishing.

**CG** Agree that lighting is absolutely required for night work.

**TM** It is a problem and do think there is more that can be done by vessels when lighting is not needed.

Discussion around street lighting as an attractant to seabirds.

**WG** Please change title to: Lighting adjustments to mitigation against fishing vessel deck strikes/vessel impacts

**SW** Noted, will amend title.

### **BCBC2020-08: Fish shoal dynamics in north-eastern New Zealand– NNZST**

Discussion around wax esters

**AJ** Highly unlikely that krill in Hauraki Gulf are using wax esters.

**MP** Yes very likely that it is a more cold temperature trait.

**WG** Was there a reduction in purse seine activity?

**CG** Previous seasons we made trips that were quite wide ranging, just didn't see the tuna schools like last years.

**DC** Skipjack captures are looking very low this season.

**CD** We didn't encounter many skipjack schools inside the Mokohinau and Hen and Chickens while looking for manta rays this summer.

**DC** Jack mackerel stocks decreased by 52% where was that infographic taken from?

**AJ** From the state of our gulf report, available online.

Discussion around this project as a whole, how it started around investigating poor breeding success of seabirds in the Hauraki Gulf region.

**GT** Questions we were wanting to answer were- what was in the fish shoals attracting the birds, what was the food value, did it relate back to diet samples at the colonies and what was being fed to chicks? What was available to birds if there are less fish shoals?

**CG** We were sampling from birds at colonies in the past contract. The birds that showed the strongest connection to fish shoals were fairy prions and fluttering shearwaters. With Buller's shearwaters early in the season, they were feeding mostly around those fish shoals, but then switch to mostly following tuna schools later in the season. Red-billed gulls were a real mixture, a lot more terrestrial items in regurgitations. White fronted terns, feed on krill and small fish.

Discussion around the third element of the project still to come- analysis of the spotter plane database of the purse seine fishery. To be presented on at a TWG around end of 2021.

**DC** Is the sampling in this project really sufficient to provide the answers wanted?

**IA** Will have to discuss where to next on this work as is very complex.

**MP** MPI have contracted NIWA to look at the role of small fish in the Hauraki Gulf ecosystem via a ZBD project. If further work or workshops by DOC it would be good to be involved.

### **BCBC2020-01: Protected coral reproduction– NIWA**

Discussion around settlement cues and how they may differ from shallow species to deep-sea coral species. For example, in tanks shallow species have been seen to preferentially settle in the presence of conspecifics, as well as onto certain coloured substrates (e.g., red plastics specifically, that could simulate coralline algae). By extending this to the deep-sea, in heavily trawled areas, could the absence of conspecifics impede settlement and is this something we need to factor into dispersal / refugia models?

**JB** Here there was certainly settlement onto substrates in addition to settlement onto coral fragments

Discussion around coral connectivity, and how reproductive strategies and pelagic larval duration are often used as a proxy for connectivity (with brooders generally assumed to settle nearer to parent colonies and spawners dispersing further, and therefore causing higher connectivity and gene flow rates). The present study, and varied strategies employed by closely related taxa make inferring connectivity patterns difficult without species-by-species data.

Discussion around further work needed in coral reproduction to guide risk assessments. Mixed / unpredictable reproductive modes across the four protected coral groups, alongside varied morphotypes or functional traits make categorising productivity values quite challenging. i.e. how can we reconcile reproductive trait data with productivity parameters, perhaps an offline discussion.

**DT** Yes, big question

**LH** Have we got enough data or is more needed?

**SG** I think the main thing will be trying to find out if there is major differences within a species and across regions. A big lack of knowledge at the moment is when and why they spawn, e.g., all year, or due to an increase in food, increase in temperature etc. Also, how to link fecundity to settlement success, what proportion of those larvae settle and grow to adults. Substrate preferences is also an area of further work.

Discussion around genetic work in coral reproduction research, and how genetic data can support inferences of likely reproductive modes, but also how genetic data do not always reflect actual reproductive mode (e.g., *Goniocorella* showing relatively high connectivity despite being a brooder).

**LH** Biophysical models can also address gaps in knowledge about dispersal – empirical data, genetic data and larval dispersal models in combination are a useful approach to address connectivity, and hence inform productivity inputs in a future risk assessment.

***End of meeting***