Feedback on CSP Draft Annual Plan 2022/23

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Survey of light use in fishing fleets

Characterising current light set ups in use of fishing vessels is one of the objectives in the project description. This survey could be expanded to determine the distribution of reported deck strikes due to light attraction in Aotearoa New Zealand waters. Also, to include the occurrence of deck strikes with respect to fishing operations: i.e., line/net setting, line/net hauling, cruising (no fishing), and at anchor close to islands.

Island and sea-based experiments

As per our earlier feedback we are not sure what additional information you are seeking from land trials outside of what has already been done (Atchoi et al., 2020; Lukies et al., 2020; Rodríguez et al., 2017; Rodríguez et al., 2014). The at-sea work, however, is completely different from what we are seeing in this space and that, we believe, is where the focus of this project should be.

As it stands the project description for the land-based component highlights the need to substantially increase the number of experiments and trying to do both (land and at sea-based experiments) in a single year and within the estimated budget is not feasible.

There is no question, seabirds attracted to lights is a major problem. This is especially so for Procellariforms breeding in the Hauraki Gulf and we support research and action to address this threat. However, that research needs to be investigating light use in coastal situations (urban environments, all types of vessels) which could be argued, as expressed at the RAG meeting, outside the scope of CSP.

We also raise the concern of disturbance from running experiments night after night and the effects on all the species breeding on these islands, as well their habituation to the lights including vulnerable species. There is also the question of predation of birds by morepork and possibly harrier if light experiments run continuously and predatorial birds become habituated to activity.

Light attraction close to seabird islands

There have been major deck strikes of birds on vessels close to seabird islands, not only commercial fishing vessels, but also other types of commercial vessels (e.g., cruise ships, ferries) and recreational boats.

We know this is a problem, then shouldn't we be introducing restrictions/protocols that reduce the lights and light level used?

We do not need to conduct light experiments on islands (as above) to show that this is a problem. It is a problem and needs to be addressed.

In the Hauraki Gulf fishing vessels anchor very close to islands and run extremely bright deck lights while crew do maintenance tasks. At times these can be left on while crew are in the wheelhouse or down below.

Crayfish fishing vessels will operate late into the night and predawn around islands using extremely bright spotlights to locate the buoys marking their pots. Spotlighting surveys for NZ storm petrels highlighted the problem of attracting birds and risk of hitting superstructure, sides of the hull and rigging.

Key islands where light attraction is a major risk need be identified – for example: Whenua Hou / Codfish Island, Aldermen Islands, Taranga / Hen Island, Marotere / Chickens Islands, Mokohinau Islands, Mercury Islands, Manawatāwhi / Three Kings Islands, islands around Rakiura, as well as all the subantarctic islands and Chatham Islands. Species breeding on these islands would need to be factored in to identify when they would be most at risk.

An expanded survey to include the distribution of reported deck strikes due to light attraction in Aotearoa New Zealand waters could populate the list of islands where deck strike is an issue.

At-sea experiments

We would suggest that the at-sea experiments are the focus of this project and take place on a **working commercial fishing vessel,** one that continues with fishing operations. It is possible this may circumvent the issue of compensating an operator for time away from fishing, especially if the number of nights is substantially increased. However, such an approach will require a major commitment from skipper, crew and fleet owner to tolerate jiand accommodate a two-person team working night after night for an extended period.

We suggest conducting an alternative method from previously, although this would mean data collected not be directly comparable to data collected in MIT2019-03.

The alternative method is to rig a vessel (or vessels) so that all working lights are set up in such a way that light colours and arrangements could be varied through repeatable sets including control periods (no fishing). Control periods are important to gauge attraction to scent/habituation to the vessel and to the lights, a critical part of the analysis.

Deck strikes and interactions would be counted throughout experiments on the vessel which continues operating commercially. Thermal imaging could be required during control periods, however there are limitations in terms of coverage.

It should be accepted that lights used in operating a long line vessel and trawl / purse seine vessel at night are markedly different. This would need to be established through a comprehensive survey of light use across all fisheries.

Logistical issues to overcome

1. Two persons to run the experiments would need to be accommodated throughout voyages (with a huge amount of tolerance from the fishing crew)
2. Rigging a vessel out with an appropriate and compliant lighting set up would need to be costed and included in the contract budget.
3. Light types (colour and intensity) are required that do not compromise the safe operation of fishing vessels.
4. Control periods of no lights or as little light as possible. Total blackout is not possible under NZ Maritime regulations.
5. Whoever does this contract would the need to sub-contract someone to code automated detection in videos as well.

The project as proposed covers one season, however lights used vary between different fishing vessel types. Comparing light arrangements between, for example, long-liners and trawlers should be undertaken.

Given the threat to seabirds from light attraction from vessels, it would be useful to see what the overlap is in lighting types between fishing and other marine activity (cruises) and aim to get a good sample size (i.e., two years).

References

Atchoi, E., Mitkus, M., Rodríguez, A. (2020). Is seabird light-induced mortality explained by the visual system development? Conservation Science and Practice. https://doi.org/10.1111/csp2.195

Lukies, K., Gaskett, A., Heswall, A.-M., Gaskin, C., & Friesen, M. (2020). Lighting adjustments to mitigate against deck strikes/vessel impacts. Retrieved from https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/draft-reports/mit2019-03-lighting-adjustments-to-mitigate-against-deck-strikes-draft-report-yr1.pdf

Rodríguez A., Burgan G., Dann P., Jessop R., Negro J.J., Chiaradia, A. (2014). Fatal attraction of short-tailed shearwaters to artificial lights. PLOS ONE 9 (e110114) https://doi.org/10.1371/journal.pone.0110114.

Rodríguez, A., Dann, P., Chiaradia, A. (2017). Reducing light-induced mortality of seabirds: high pressure sodium lights decrease the fatal attraction of shearwaters. Journal for Nature Conservation, 39, 68-72.

An educational poster on Pollution and light attraction produced by the Northern NZ Seabird Trust. Available through the Hauraki Gulf Forum https://gulfjournal.org.nz/?post_type=poster