



**Darwin Initiative/D+ Project
Half Year Report
(due 31st October 2019)**

Project reference	DPLUS072
Project title	Developing the risk assessment framework for the Antarctic krill fishery
Country(ies)/territory(ies)	British Antarctic Territory
Lead organisation	British Antarctic Survey
Partner(s)	
Project leader	Philip Trathan
Report date and number (e.g. HYR3)	14 October 2019 HYR2
Project website/blog/social media etc.	

1. Outline progress over the last 6 months (April – Sept) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up to end September).

During the past 6 months we have made significant progress with the project:

The data layers for the risk assessment are progressing well: we have now developed data layers for three species of penguin, for the fishery, and for cetaceans. Additionally, we have initiated a new collaboration with ecologists at University of California Santa Cruz, through which we have gained access to at-sea observation data from flying seabirds. We have started to develop the analytical techniques necessary to process these data, and aim to have data layers for all species of flying seabird that are frequently recorded in this area by the end of 2019.

Additionally, we submitted 6 papers to the CCAMLR Working Group on Ecosystems and Monitoring and Management (WG-EMM), which was held from 24 June to 6 July 2019 in Concarneau, France. All papers were well received by the CCAMLR community, and provided the basis for important discussions. Most importantly, for the first time in almost 25 years, WG-EMM has also now agreed a clear approach for managing the krill fishery which has been detailed in the report of the meeting and will be considered at the forthcoming meeting of the Scientific Committee (21 to 25 October 2019) and subsequently by the Commission (28 October to 1 November 2019). An extract from the WG-EMM report is given here:

2.18 The Working Group agreed a prioritised, three-part approach to advance a preferred strategy to manage the krill fishery by: (i) developing a stock assessment to estimate precautionary harvest rates (Tables 2 and 3), (ii) developing updated biomass estimates, initially at the subarea scale, but potentially at multiple scales (Tables 4 to 6), (iii) advancing the risk assessment framework to inform the spatial allocation of catch (Tables 7 and 8).

Discussions regarding point three of this action plan were facilitated largely by the outputs we have achieved to-date with this Darwin Plus project, and subsequently submitted to WG-EMM. To have reached consensus that the Risk Assessment plays a fundamental part in the management of krill fisheries is a huge step forward.

Prior to WG-EMM we jointly coordinated a workshop on krill fishery management for Subareas 48.1 and 48.2 with a US colleague (10 to 14 June, also held in Concarneau). The workshop

brought together key stakeholders in krill fisheries management including expert scientists, industry and eNGOs, to work towards the harmonisation of approaches for krill fisheries management. The meeting was jointly funded by eNGOs and the krill fishing industry; it was a huge success, and we reached agreement on some of the key approaches necessary for successful krill management. The report from this workshop was discussed at WG-EMM, and contributed to the agreement reached at this meeting. We consider that the meeting with stakeholders lay the foundation for subsequently achieving consensus at WG-EMM.

Finally, we have submitted a paper describing the behaviour of chinstrap penguins in relation to tidal cycles for peer-review. Understanding how penguins use tidal cycles is important when predicting the behaviour of individuals from untracked colonies, and this information can be used to create layers for the Risk Assessment when we extend it into other Subareas.

Papers submitted to WG-EMM 2019 (attached)

Developing layers for a Risk Assessment for Subarea 48.1 using data from at-sea sightings
V. Warwick-Evans, L. Dalla Rosa, E. Secchi, E. Seyboth, N. Kelly and P.N. Trathan

Developing a Risk Assessment for Subarea 48.1 using tracking data
V. Warwick-Evans, A. Friedlaender, J.T. Hinke, N. Kokubun, J.H. Kim and P.N. Trathan

Considerations about managing the krill fishery at small spatial and temporal scales
P.N. Trathan, V. Warwick-Evans and E. Young

Report from the Workshop on Krill-fishery Management for Subareas 48.1 and 48.2
G. Watters and P. Trathan

Towards the development of Marine Important Bird and Biodiversity Areas (mIBAs) for penguins in Antarctica – an update on progress
J. Handley, M.-M. Rouyer, L. Pearmain, V. Warwick-Evans, P. Trathan and M.P. Dias

Advances are urgently needed in providing regular estimates of krill stock status based on the available data
S. Hill, J. Hinke, N. Ratcliffe, P. Trathan and G. Watters

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

There have been no important problems or unexpected developments over the last 6 months. Our most notable problem has been with delays in acquiring data from our collaborators. In particular it has been very slow receiving data about at-sea sightings of cetaceans; this was due in large part to a severe lack of resources for our collaborator. We finally obtained two years of survey data, but the analyses would be more robust if more data were obtained; we are therefore pursuing this option and our collaborators are currently working to finalise the data. Consequently, we have analysed all data that we have managed to obtain, and have developed code to analyse further data should it become available during the life of the project. Importantly, even if we are unable to obtain additional data, we can proceed with the Risk Assessment using the analyses that we have already undertaken. We have learned from this that it is important to discuss the timescale of the project with relevant data holders, before the commencement of such collaborations.

The introduction of cetacean data to WG-EMM was also a key milestone for CCAMLR. Historically, there has been a reluctance on the part of some CCAMLR Members to consider whales at CCAMLR meetings. In submitting papers about whales that also estimate krill consumption by cetaceans, CCAMLR has made a very significant step forward. This is a major success and underlines the importance of pursuing what can be challenging collaborations.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS: No

Formal change request submitted:	No
Received confirmation of change acceptance	No

3a. Do you currently expect to have any significant (e.g., more than £5,000) underspend in your budget for this year?

Yes No Estimated underspend: £

3b. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary.

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

Unfortunately the laptop which we have been using to carry out this project has failed. We therefore request that we are allowed to redirect funds originally requested for travel to an international conference, which we decided was not essential to attend. If Darwin Plus is happy to sanction this, it would be greatly appreciated.

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document. Additionally, if you were funded under R25 and asked to provide further information by your first half year report, please attach your response as a separate document.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also be raised with LTS International through a Change Request. **Please DO NOT send these in the same email.****

Please send your **completed report by email** to Darwin-Projects@ltsi.co.uk. The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g. Subject: 25-035 Darwin Half Year Report**