



**BIODIVERSITY
CHALLENGE FUNDS**



Biodiversity Challenge Funds Projects Darwin Initiative, Illegal Wildlife Trade Challenge Fund, and Darwin Plus

Half Year Report

It is expected that this report will be a **maximum of 2-3 pages** in length.

If there is any confidential information within the report that you do not wish to be shared on our website, please ensure you clearly highlight this.

Submission Deadline: 31st October 2024

Please note all projects that were active before 1 October 2024 are required to complete a Half Year Report.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Project reference	DPLUS168
Project title	Understanding increased FI seal bycatch to inform bycatch Action Plan
Country(ies)/territory(ies)	Falkland Islands (FI)
Lead Organisation	South Atlantic Environmental Research Institute (SAERI)
Partner(s)	Falkland Islands Government Department of Natural Resources – Fisheries (DNR-Fisheries) Falkland Islands Fishing Companies Association (FIFCA)
Project leader	Dr Alastair Baylis (project report prepared by Dr Javed Riaz and Alastair Baylis).
Report date and number (e.g. HYR1)	HYR3
Project website/blog/social media	Organisation: https://www.south-atlantic-research.org/ SAERI Twitter: @SAERI_FI SAERI Facebook: https://www.facebook.com/S4ERI/ SAERI blogs: https://www.south-atlantic-research.org/news/

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

	Activity	No. of months	Year 3 (24/25)			
			Q1	Q2	Q3	Q4
Activity 1						
1.1	Project Manager (x1) and Specialist to lead net camera deployment (x1) recruited	3	No activities Y3			
1.2	Develop and trial net cameras, with DNR-Fisheries	4	No activities Y3			
1.3	Rollout of net cameras to fishing vessels with DNR-Fisheries	2	No activities Y3			
Activity 2						
2.1	Deploy biologging tags on seals	2				
2.2	Results presented in a report delivered to PMG. Report re-focused for a scientific journal.	2.5				
Activity 3						
3.1	At least 10 variables from FIFD data collated	1.5	No activities Y3			
3.2	10 variables identified and included in models to understand and predict seal-fishery interactions	3	No activities Y3			
Activity 4						
4.1	At least 1 trophic model developed using Ecosim and Ecopath software	5				
4.2	DNA analysis of at least 60 seal scats completed	2	No activities Y3			
4.3	Compound-specific stable isotope analysis of at least 20 seal teeth completed	3	No activities Y3			
Activity 5						
5.1	PMG established, with representatives from DNR-Fisheries, industry and SAERI. M&E Plan created	0.5	No activities Y3			
5.2	One stakeholder workshop on WP 1	1				
5.3	One stakeholder workshop on WP 2-4	1				
5.4	Consensus reached on recommendations for conservation and management	2				

The project has made excellent progress to date and is on track to deliver on all of its work packages. We describe below how the project has progressed over the past six months.

Activity 1: Trial and deploy net camera

While this activity was completed in Year 2 of the project, additional progress has been made in over the past six months. In recent months, two bottom trawl fishing vessels have deployed these net cameras independently, continuing to collect valuable data.

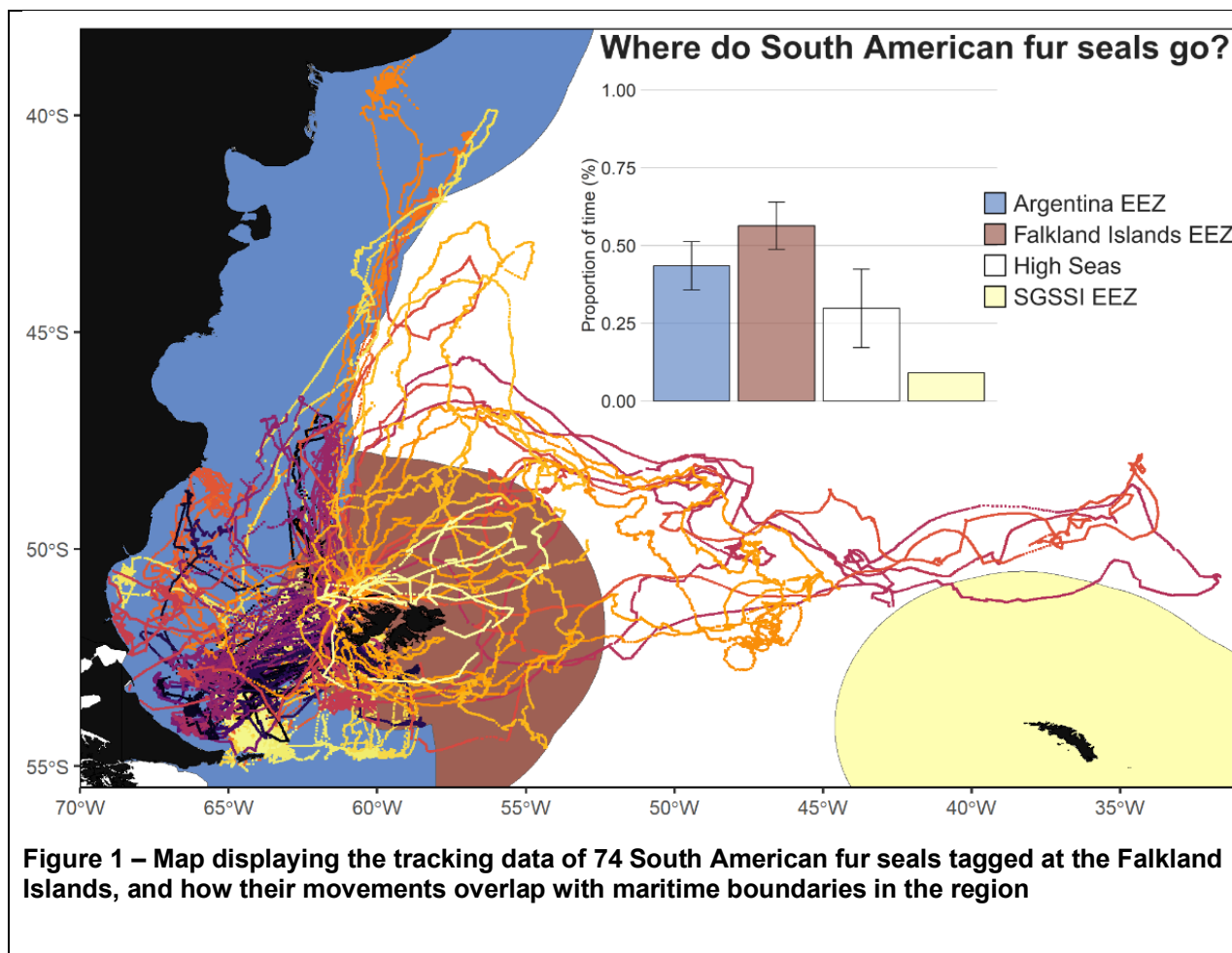
Activity 2: Occurrence of interactions in space and time

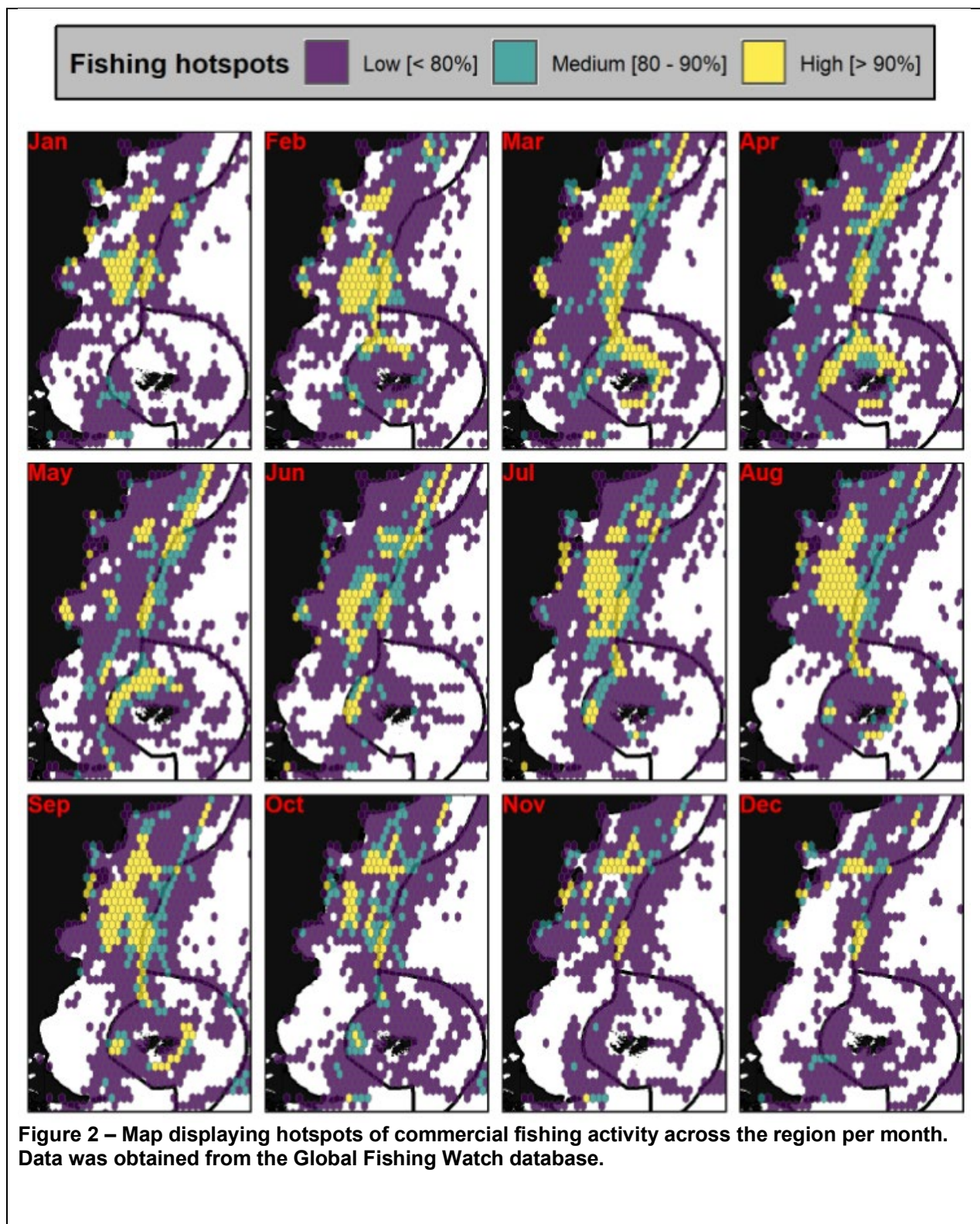
A significant amount of progress was made on this work activity during Year 2 of the project (e.g. peer reviewed publication: <https://doi.org/10.1016/j.gecco.2023.e02615>). However, over the past six months, more exciting progress has been made. For a recent SAERI publication (<https://doi.org/10.1111/ecog.07415>) relating to the spread of highly pathogenic avian influenza (HPAI) over the Patagonian Shelf, we compiled all available fur seal tracking data from the Falkland Islands spanning > 10 years. This impressive dataset contained tracking information for 74 fur seals (19 adult males, 35 adult females and 20 pups). Data for the 19 adult males were collected during this project's fieldwork efforts last year in August 2023. As a whole, the compiled fur seal data represents the largest movement dataset available for this species anywhere in the world. Additionally, the tracking dataset also has an impressive temporal coverage, providing movement information throughout most of the fur seal annual cycle. With the wealth of fur seal movement information we've compiled, progress has been made towards developing a population-level understanding of spatiotemporal overlap with commercial fisheries operating in the Falkland Islands and the broader Patagonian Shelf. This expands upon the work we published last year as part of this project (<https://doi.org/10.1016/j.gecco.2023.e02615>) by including new data on males and pups, enabling insights into potential seal-fishery interactions for demographic groups that are not spatially constrained by the breeding season.

This research has demonstrated that fur seals tagged at the Falkland Islands spend varying amounts of time in different jurisdictions over the Patagonian Shelf and the broader South Atlantic (Fig 1). The majority of their time at-sea was spent within the Falkland Islands EEZ (56.3%). Fur seal also spent substantial amounts of time within the Argentinian EEZ (43.5%). Interestingly, 1 pup ventured relatively far east into the South Georgia and South Sandwich Islands EEZ (9.1% time). Fur seals were also recorded in areas beyond national jurisdiction (29.8% time in the high seas).

With these tracking data, we leveraged regional fisheries datasets obtained via Global Fishing Watch to quantify seal-fisheries spatial overlap (Fig 2). We specifically examined where the hotspots of potential seal-fishery interactions are likely to occur over the Patagonian Shelf, throughout each month of the year (Fig. 3). This involved quantitative integration of time seals spent in particular areas with commercial fishing activity recorded in the same areas.

In brief, we found a medium and high spatial overlap between fur seals and fisheries at all times throughout the year, with the exception of summer months (November, December and January). In particular, the Loligo squid and finfish fishing areas within the Falkland Islands EEZ were consistently identified as hotspot areas for seal-fishery overlap. Throughout July – November, clear hotspots of overlap were also recorded further north over the boundary of the Argentine EEZ and Patagonian Shelf continental shelf.





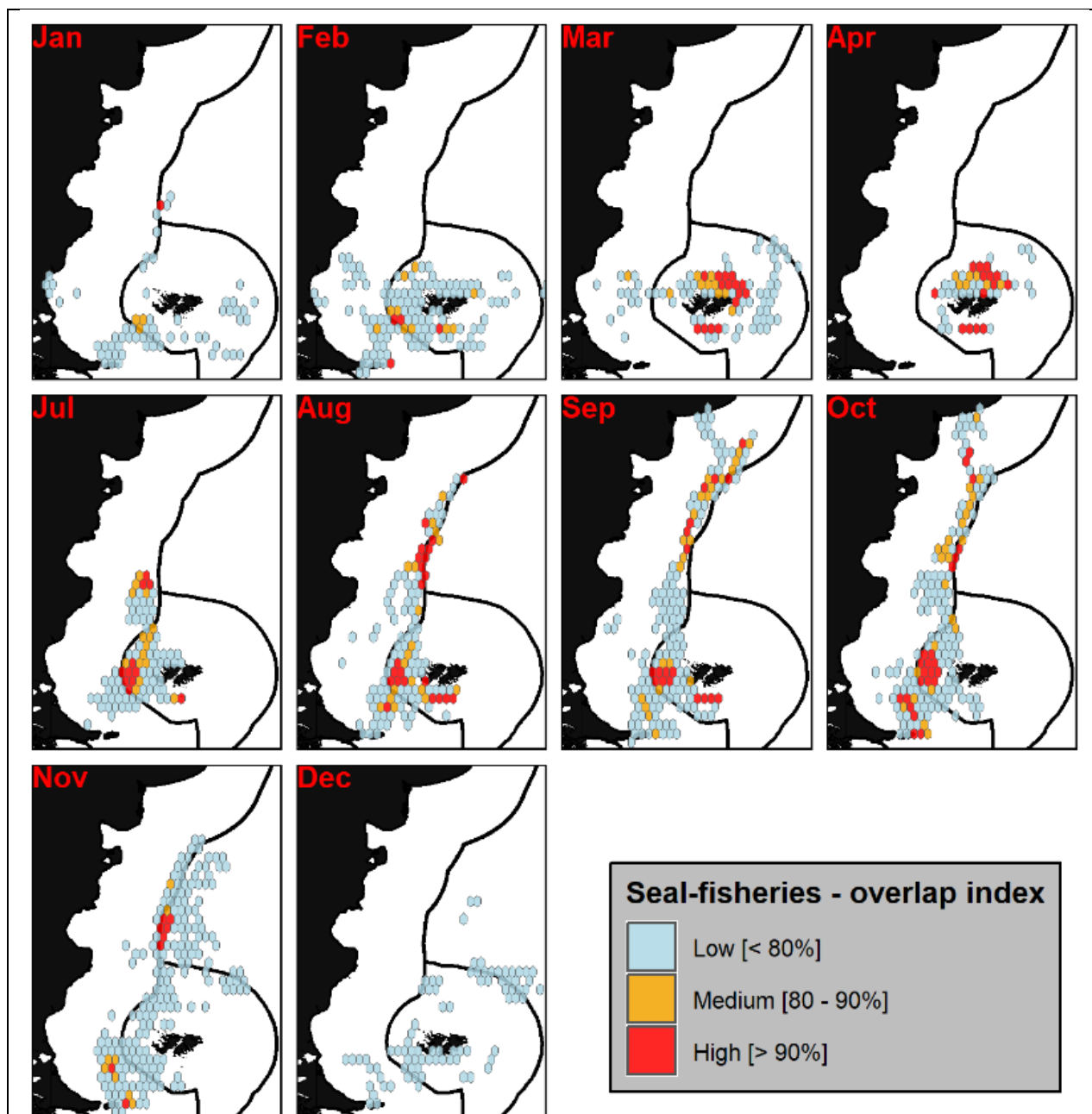


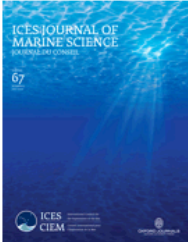
Figure 3 – Map displaying the areas where there was a spatial overlap between seal tracking data and commercial fishing activity. These areas are identified as low, medium and high risk for seal-fishery interactions, according to each month of the year. Classifications are based on a quantitative approach integrating the amount of time seals spend and the extent of fishing activity recorded in particular areas.

Activity 3: Factors that predict an increase in bycatch risk

This component of the work package has been completed. Integrating complete and multi-year observer records with extensive ancillary (i.e. vessel logbook and oceanographic) datasets, we examine the operational and environmental factors influencing the occurrence of seal-fishery interactions. Our findings show interactions most frequently occur in the main squid fishing grounds during trawls associated with high catch quantities. Assessment of long-term catch data (both finfish and squid) also suggests the increase in seal-fishery interactions may be caused by collapses in dominant finfish stocks over the past 20 years, constricting foraging resources available to seals. Taken together, our findings indicate resource competition may be a mechanism of interactions. This work has been packaged up into a research article which is currently in review at *the ICES Journal of Marine Science* and is set to be published as part of

their special issue titled “*Improving conservation outcomes by reducing bycatch of long-lived species in commercial fishing gear*” (Fig 4; Fig 5)

Manuscripts submitted to ICES Journal of Marine Science



**Seal-fishery interactions in the Falkland Islands –
operational and environmental factors drive resource
competition**

Journal:	ICES Journal of Marine Science
Manuscript ID	ICESJMS-2024-208
Manuscript Types:	Original Article
Date Submitted by the Author:	21-Jun-2024
Complete List of Authors:	Riaz, Javed; South Atlantic Environmental Research Institute Bürling, Tobias; South Atlantic Environmental Research Institute van der Grient, Jesse; South Atlantic Environmental Research Institute Winter, Andreas; Falkland Islands Government, Fisheries Department Lee, Brendon; University of Iceland, Faculty of Life and Environmental Sciences Brickle, Paul; South Atlantic Environmental Research Institute Baylis, Alastair; South Atlantic Environmental Research Institute
Keyword:	Bycatch, interactions, fisheries, seal, Falkland Islands

SCHOLARONE™
Manuscripts

Figure 4 – Screen capture of our research article currently in review at the *ICES Journal of Marine Science* and is set to be published as part of their special issue titled “*Improving conservation outcomes by reducing bycatch of long-lived species in commercial fishing gear*”

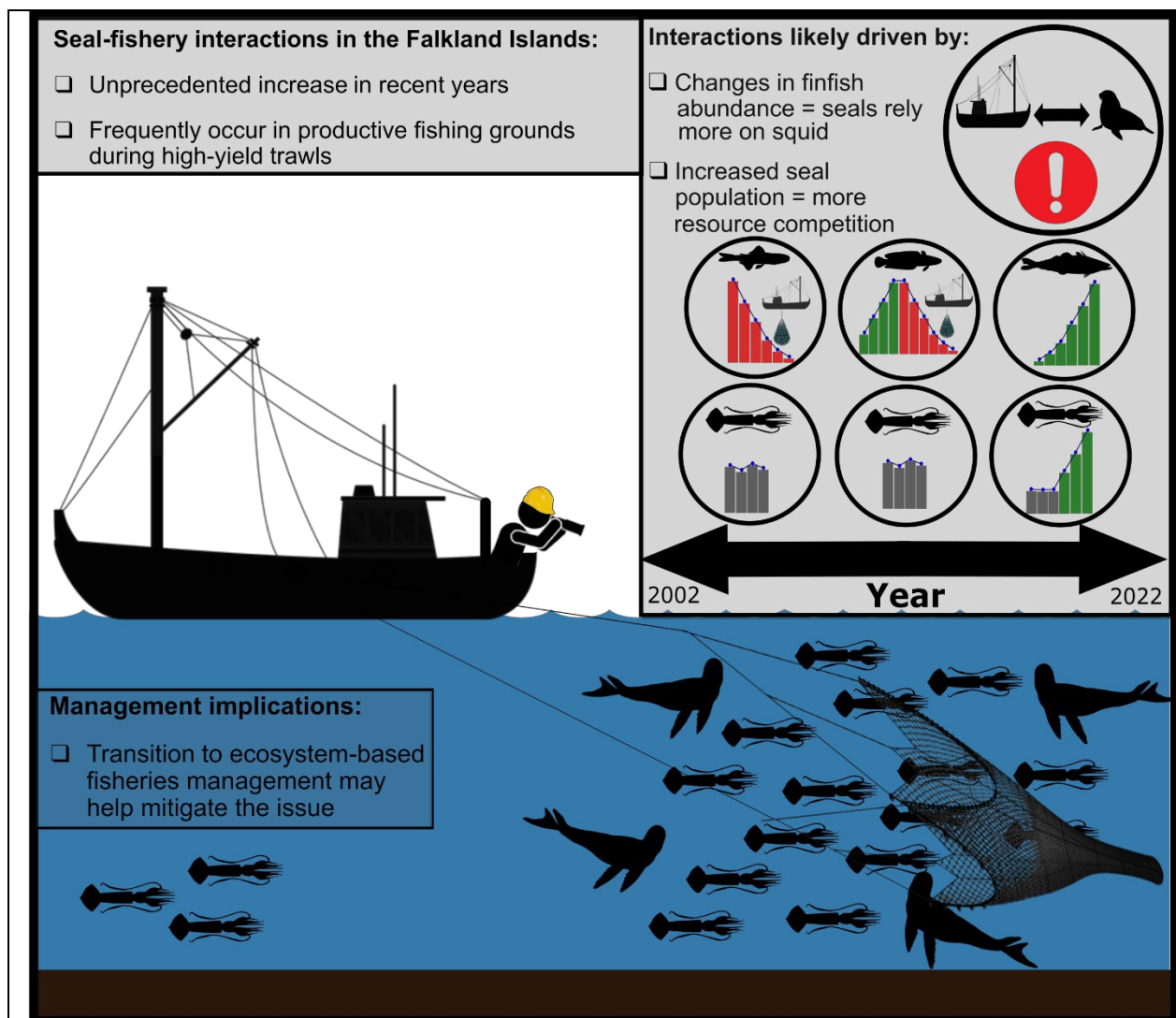


Figure 5 – Graphical abstract prepared to synthesise our research findings in the manuscript currently in review at the *ICES Journal of Marine Science*.

Activity 4: Trophodynamic model and trophic changes over time

This work package requires us to use dietary data to quantify trophic links between seals and prey. To summarise our progress on this work package over the past 6 months, we have successfully shipped 120 fur seal and seal lion faecal samples that we collected during fieldwork last year to our collaborators based at the University of Edinburgh. These samples will be examined using molecular analyses to generate insights into the diet of these two seal species. In August, we also conducted visual analyses of hard parts within these faecal samples. This work supported the notion that Loligo squid are integral components of fur seal diets in the Falklands.

During our recent fieldwork on Bird Island in August 2023, we collected seal whiskers from the 19 male fur seals we tagged. In addition to these samples, we also scoured the island and collected over 100 poo samples. Both of these sample datasets can yield critical insight into fur seal diet and trophodynamics. Molecular and visual analyses of poo samples can provide information about the relative importance of commercially caught species, whilst stable isotope analysis of whiskers will tell us whether there have been any changes in diet over time.

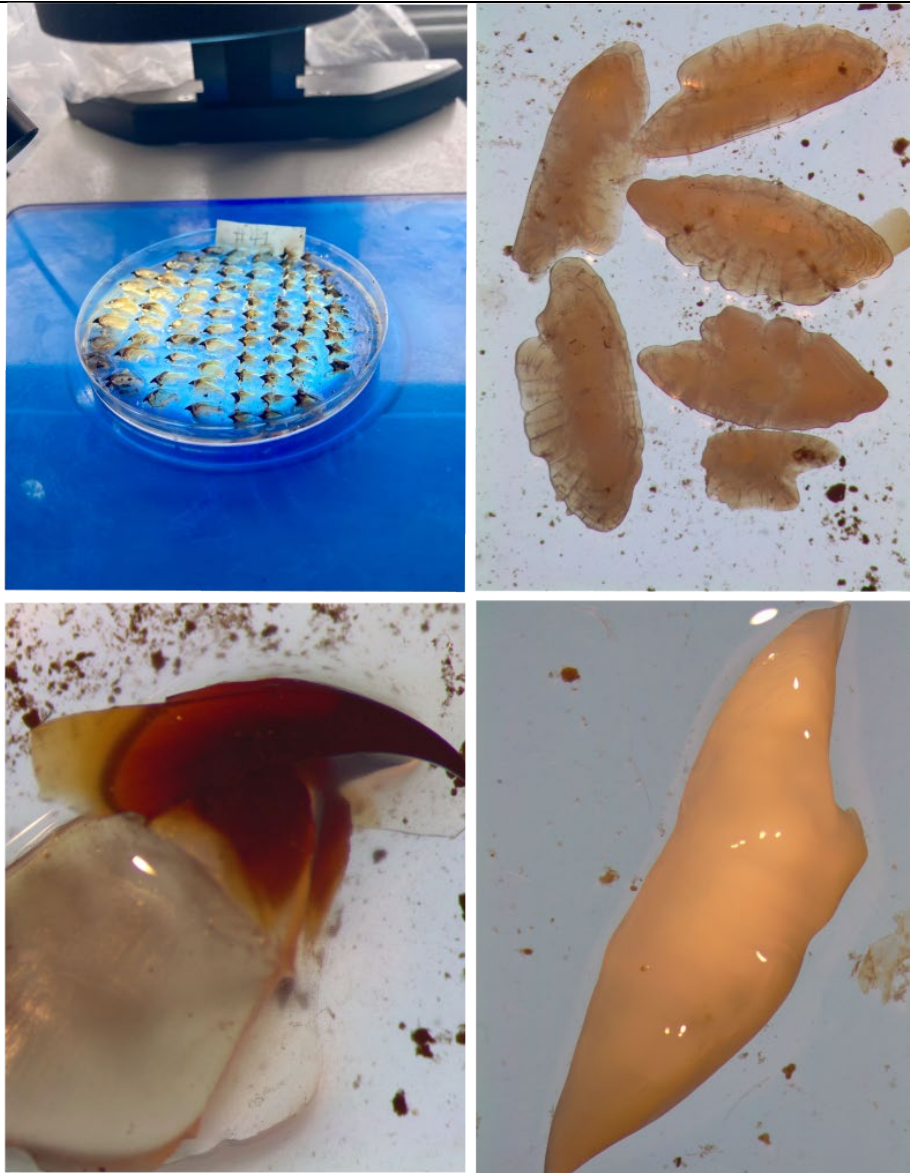


Figure 6 – Example of squid and fish hard parts found in fur seal poo samples

In addition to these faecal analyses, we have also been busy in the lab preparing fur seal whisker samples for stable isotope analysis. We have subsampled 100 fur seal whisker samples, and these have been sent to a laboratory in the UK for data analyses.

Activity 5: Developing management actions

In July, we held a workshop and meeting with project partners (FIFCA and FIFD) (Fig 7). The purpose of this presentation was to synthesise our project findings to date and engage with stakeholders regarding future research direction. The presentation was also an opportunity to engage with stakeholders regarding future research direction and discuss ideas for future research and monitoring. A final meeting with project partners is scheduled for early November. We are currently working on a large summary table collating different options for continued scientific research and bycatch monitoring.



Figure 7 – Project manager Dr Javed Riaz presenting DPLUS168 research progress at a meeting with stakeholders and project partner, held on July 17.

2. 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.

During this reporting period, we have encountered some unexpected issues with the preparation of fur seal whisker samples using laboratory facilities in the Falkland Islands. To reliably complete this lab work, it is essential whiskers are sub-sectioned to a weight of 0.5 mg. The laboratory scales we have access to are technically calibrated to have a weight resolution of 0.1 mg. However, in practice, we have had difficulties with the precision of these scales. To troubleshoot this potential issue and avoid exporting unusable/low-quality samples to the UK, we decided it would be prudent to first send a small test tray of samples for validation purposes.

This sample validation exercise has extended our proposed timeline for delivering this work package. However, critically, it will enable us to make an informed decision about whether to continue preparing whisker samples in the Falkland Islands or look for alternative options to have this work conducted at another laboratory. Contingency plans have been made for having the work completed by Q3 this year. Ultimately, this unexpected development will not impact the overall delivery of this work package.

3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?

Discussed with NIRAS:

No

Formal Change Request submitted:

No

Received confirmation of change acceptance:	No
Change Request reference if known: <i>If you submitted a financial Change Request, you can find the reference in the email from NIRAS confirming the outcome</i>	

<p>4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2024 – 30 September 2024)</p> <p>Actual spend:</p>
<p>4b. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this financial year (ending 31 March 2025)?</p> <p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>4c. If you expect and underspend, then you should 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.</p> <p>If you anticipate a significant underspend because of justifiable changes within the project, please submit a re-budget Change Request as soon as possible. There is no guarantee that Defra will agree a re-budget so please ensure you have enough time to make appropriate changes to your project if necessary. Please DO NOT send these in the same email as your report.</p> <p>NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.</p>
<p>5. Are there any other issues you wish to raise relating to the project or to BCF management, monitoring, or financial procedures?</p>
<p>There are currently no issues to report.</p>

<p>6. Please use this section to respond to any feedback provided when your project was confirmed, or from your most recent annual report. If your project was subject to an Overseas Security and Justice Assistance assessment please use this space to comment on any changes to international human rights risks, and to address any additional mitigations outlined in your offer letters. Please provide the comment and then your response. If you have already provided a response, please confirm when.</p>
<p>NA</p>

Checklist for submission

For New Projects (i.e. starting after 1 st April 2024)

Have you responded to any additional feedback (other than caveats) received in the letter you received to say your application was successful which requested response at HYR (including safeguarding points)? You should respond in section 6, annexes other requested materials as appropriate.	NA
If not already submitted, have you attached your risk register ?	NA
For Existing Projects (i.e. started before 1st April 2024)	
Have you responded to feedback from your latest Annual Report Review ? You should respond in section 6, annexes other requested materials as appropriate.	NA
For All Projects	
Include your project reference in the subject line of submission email.	X
Submit to BCFs-Report@niras.com .	X
Have you clearly highlighted any confidential information within the report that you do not wish to be shared on our website?	X
Have you reported against the most up to date information for your project ?	X
Please ensure claim forms and other communications for your project are not included with this report.	X