Darwin Plus: Final Report

To be completed with reference to the "Project Reporting Information Note":
(*https://darwinplus.org.uk/resources/information-notes/*).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes.

Submission Deadline: no later than 3 months after agreed end date.

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

Darwin Plus Project Information

Project reference	DPLUS139
Project title	Improving Falklands marine management effectiveness for marine higher predators
Territory(ies)	Falkland Islands (FI)
Lead Partner	South Atlantic Environmental Research Institute (SAERI)
Project partner(s)	Joint Nature Conservation Committee (JNCC)
Darwin Plus Grant value	£85,460
Start/end date of project	1 August 2021 - 30 April 2023
Project Leader name	Alastair Baylis
Project website/Twitter/blog etc.	Website: https://www.south-atlantic-research.org/dplus139-tracking-seabirds-seals-in-the-falkland-islands/ Twitter: @SAERI_FI Facebook: https://www.facebook.com/S4ERI/ #DPLUS139
Report author(s) and date	Dr Alastair Baylis and Dr Megan Tierney 10 July 2023

1   Project Summary

Marine Protected Areas (MPAs) are key ocean conservation strategies to stem the wave of biodiversity loss, to improve ecosystem resilience, and achieve sustainable resource use. The Falkland Islands (FI) started a process of Marine Spatial Planning (MSP) in 2014, which culminated in a network of proposed Marine Managed Areas (MMAs – highlighted through DPLUS0071) (Figure 1). MMAs is a term that includes MPAs, but creates a broader remit to balance socio-economic and environmental objectives. DPLUS0071, concluded in March 2021, and delivered policy recommendations for designating FI MMAs. However, the FI MMA process has not had an opportunity to fill Marine Higher Predator (MHP) data gaps. There is an urgent, overdue need for innovative approaches to fill data gaps.

DPLUS139 addressed these data gaps through an intensive field program, which identified priority at-sea areas to feed into MMA categorization, management and monitoring. The project had three key work packages.
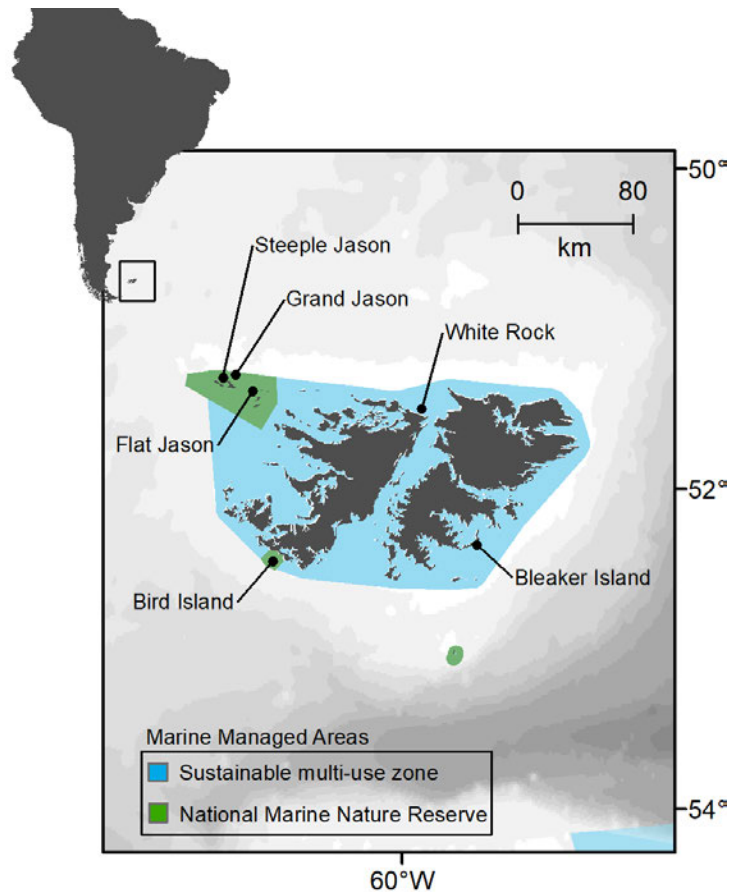
Figure 1: Location of the Falkland Islands in relation to South America, and the location of field sites visited during DPLUS139.

WP1: Fill pressing data gaps
We collated all FI telemetry data (1999-2020) and identified gaps, selecting species and sites representative of FI MHP. To fill data gaps, we used GPS tags to record animal movements at-sea. Fieldwork took place over 2-years and four globally significant breeding colonies (> 1 % global population).

WP2: Baseline data to inform MMA adaptive design and promote holistic marine management
We quantified spatial use (within and outside of FI waters) using a range of analytical approaches and identified high conservation priority at-sea areas.

WP3: Stakeholder engagement, webGIS
We presented the final project findings and data products to key stakeholders at our project workshop in April 2023. All data is available through the Falkland Islands IMS-GIS data center.

2   Project Partnerships

The project partners delivering the project were SAERI and JNCC.

SAERI is the lead organisation and based in the host country. Dr Alastair Baylis was the project lead and Project Manager (PM). Alastair oversaw the project administration, engagement, fieldwork and analysis – with support from our project partner JNCC. The project was

supported by SAERI's CEO Director Dr Paul Brickle, SAERI's Director of Resources Teresa Bowers and SAERI's office staff (Arlene Bowers and Amy Constantine) with general administration, finance outreach and logistics.

JNCC has a long, successful record of UKOT work and has worked closely with SAERI on a range of projects throughout the South Atlantic and Caribbean UKOTs, providing advice and support on a range of nature conservation issues and projects. JNCC has a permanent member of staff based in the Falkland Islands who engaged directly with the project, providing additional expertise in seabird tracking, review and input to analyses and recommendations for ensuring MMA effectiveness. Dr Megan Tierney (JNCC project partner) provided support on all aspects of the project, including reporting, fieldwork and analysis.

We are very pleased to report that DPLUS139 enabled SAERI and JNCC to continue to grow and support the close working relationship developed over many years. SAERI and JNCC worked together effectively to ensure the smooth running and delivery of the project. For example, both SAERI and JNCC staff were key to undertaking fieldwork, and in delivering the final project workshop (Figure 2). The SAERI/JNCC partnership will continue after project completion, having already identified follow-on projects stemming from DPLUS139. The key lesson and strength that this project reinforced, related to this partnership, was the value of having staff that live locally in the OT where the project is being conducted, that are themselves, invested in the OT, and have local knowledge and contacts. This enhances and facilitates project delivery and impact.

Figure 2: Project partners JNCC (Dr Megan Tierney) presenting at the DPLUS139 workshop (left-hand panel), and also pictured in the field (Grand Jason Island, Falkland Islands; right-hand panel).

FIG was the primary and key project stakeholder. Establishing the project required regular engagement with FIG. We also worked with FIG to ensure we had research permits to conduct fieldwork and permission to access FIG owned islands (e.g., Bird Island). Research permits were approved. We worked closely with FIG to0 provide regular updates on project progress. This included fieldwork reports (also submitted to the Environment Committee – see below). The reports are available on our project website. Finally, our project workshop, which was our key engagement activity, was delivered to the Environment Department and Fisheries Department (Figure 2). The workshop was particularly important for presenting a summary of key finding from both technical reports produced during the project (submitted with this Final Project Report).

Research permit applications were submitted to the Falkland Islands Environment Committee for consideration. The Environment Committee comprises government, industry and the general public, and was a useful platform to deliver formal updates to a range of project stakeholders – including via field reports, also available on our project website.

Local community outreach as part of the project, included a Careers Day at the Falkland Island Community School (FICS), which involved a two-hour session where students were able to try out different practical's and learned about the career paths of SAERI scientists. The PM introduced students to animal tracking and tracking technology, and showcased the tags purchased using Darwin Plus Initiative funding (brief overview of careers day can be found here). We also held a public talk on 31 August 2022, which was well attend (over 20 members of the public) (Figure 3).

Local and international outreach as part of the project, included regular posts on SAERI's social media platform, which provided updates on the project, particularly around fieldwork. SAERI currently has 2,133 followers on Facebook and 2,948 followers on Twitter. Social media posts reach out to both local and international audience with an interest in SAERI's science. Examples of Facebook posts and Tweets are provided in Figure 4. The project also featured in SAERI's newsletter (Southern Currents – available here). Finally, the PM also presented the framework for DPLUS139 at a Caribbean seabird workshop that aimed to identify seabird biodiversity hotspots in the Caribbean and generate wider discussion across UKOTs. The workshop was held in November 2021 and a copy of the talk is available on request. The link to the project website (non-SAERI project, led by the University of Liverpool) is https://caribbeanseabirds.weebly.com/current-project.html.

Figure 3: Dr Alastair Baylis gave a public talk on the DPLUS139 project – 31 August 2022 in Stanley.

Figure 4: An example of a tweet showcasing DPLUS139 activities, and using hash tag DPLUS139

3   Project Achievements

3.1   Outputs

Output 1. Tracking data gaps filled for globally significant MHP populations.

Indicator 1.1 Two intensive field seasons successfully completed, and 5 species and 4 breeding colonies tracked over summer and/or winter, and 20 individuals per species/stage (by Y2, Q3)

Achieved! In total, 5 species and over 200 individuals were tracked from five breeding colonies during DPLUS 139 (Table 1, Figure 5). The data collected represents the very first tracking data for these globally important breeding colonies, providing important baseline information to inform their management. Field work reports were submitted to FIG and are available on the project website here. This work also provided the basis of our workshop and two technical reports, the latter submitted along with the final report.

Table 1: Summary of deployments from two Falkland Islands summer field seasons, 2021 and 2022. BBA = Black-browed albatross, RHP = Rockhopper penguins, SAFS = South American fur seal, TBPR = Thin Billed Prion, WISP = Wilsons Storm Petrel, IMSH = Imperial shag.

Species	Colony	Year	Individuals	Trips	Duration (days)	Duration (SD)	Max distance (km)
BBA	Bird	2021	24	63	2.9	2.7	589.9
RHP	Bird	2021	26	96	0.9	1.5	235.9
RHP	Steeple Jason	2021	30	35	3.1	2.1	143.2
SAFS	Flat Jason	2021	10	13	48.5	38.1	1498.1
TBPR	Bird	2021	9	9	7.7	0.9	697.5
BBA	Grand Jason	2022	27	31	4.8	3.1	930.9
IMSH	Grand Jason	2022	15	102	0.3	0.1	22.3
IMSH	Steeple Jason	2022	17	150	0.2	0.1	31.5
IMSH	White Rock	2022	5	32	0.1	0.1	21.7
RHP	Grand Jason	2022	27	78	1.6	2.6	234.0
SAFS	Flat Jason	2022	18	18	91.5	51.9	2039.6
WISP	Grand Jason	2022	3	3	5.5	1.4	641.3
			213	**630**			

Figure 5: Field work examples - Grand Jason Islan (left) and Bird Island (right).

Indicator 1.2 Data on-line, readily accessible and easily discoverable on the FI IMS-GIS data centre (by Y3, Q1)

Achieved! All data collected during DPLUS139 are accessible and discoverable via the webGIS project page (Figure 6) and available here.
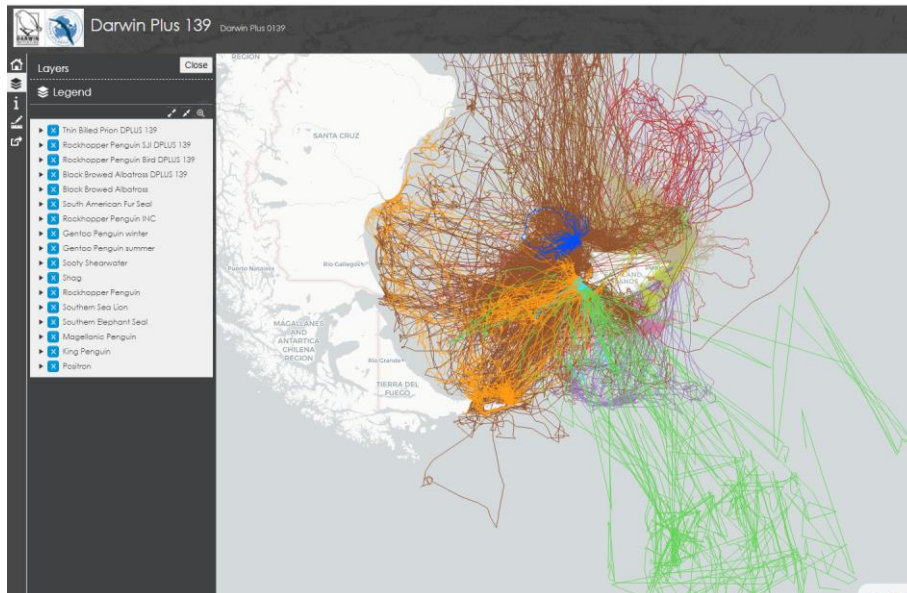
Figure 6: A screenshot of the project webGIS page that lists the data available, including data collected during the first field season. See webGIS page <u>here.</u>

Output 2: Conservation value of proposed MMAs in a global context is understood.

Indicator 2.1 Existing tracking data for at least 5 species collated, re-analysed and combined with new data (by Y2, Q1)

Achieved! We used existing data, and combined with the data collected during DPLUS139 to form the basis of our analysis of important areas at-sea. This is detailed on Page 35 of our second technical report, which is submitted separately with this Final Project Report, but also see Figure 7 for a summary of the combined tracking data available. This data is available via the Falkland Islands Marine Spatial Planning webGIS page, available <u>here</u>.
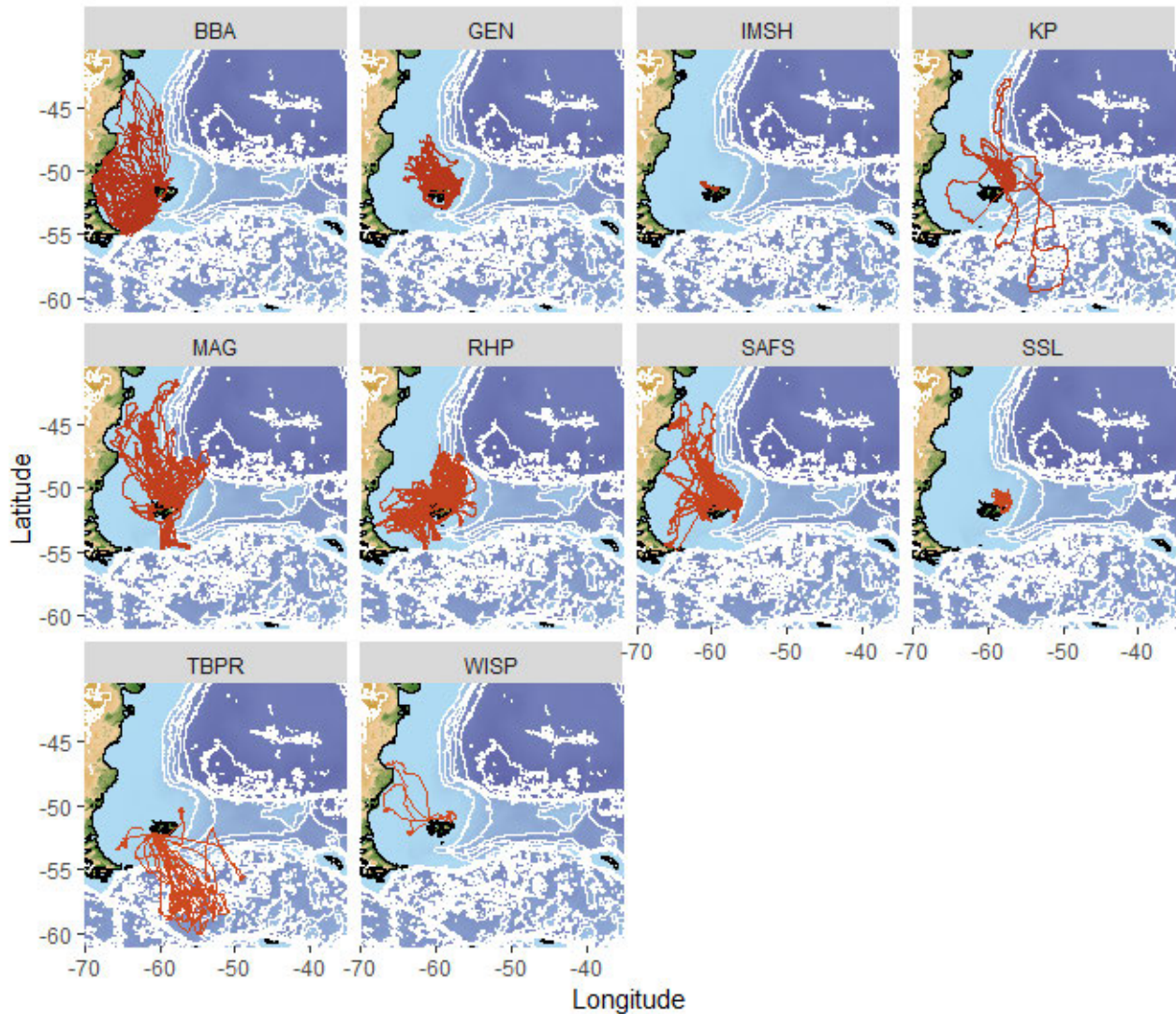
Figure 7: Combined data, from both satellite (PTT) and GPS tags, spanning over 20 years and for ten species – includes data collected during DPLUS139. Accessible by the project webGIS page, or the Marine Spatial Planning webGIS page (available [here](#)). Red lines represent foraging trips, which are individual plots are different species. BBA = Black-browed albatross, GEN = Gentoo penguin, IMSH = Imperial shag, KP = King Penguin, MAG = Magellanic Penguin, RHP = Rockhopper penguin, SAFS = South American fur seal, SSL = Southern sea lion, TBPR = Thin Billed Prion, WISP = Wilsons Storm Petrel,

Indicator 2.2 At least 5 predictive habitat models successfully developed (by Y2, Q2 – but updated as new data collected)

Achieved! As detailed in our technical report 2 – we used boosted regression trees to develop predictive models for each species (Figure 8). Technical report 2 is submitted along with this Final Project Report.
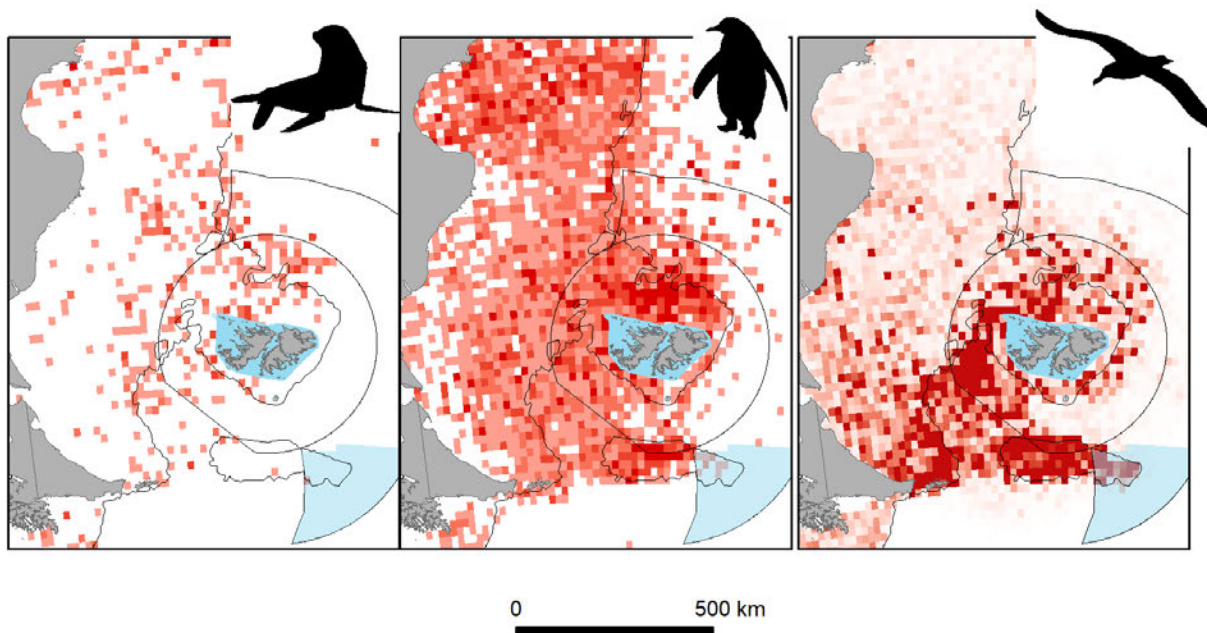
Figure 8: An example of the predictive model outputs using Boosted Regression Trees. This figure is for five species, including South American fur seals (left-hand panel), combined plot of Gentoo, Rockhopper and Magellanic Penguins (central panel) and Black-browed albatrosses (right-hand panel). Proposed Marine Managed Areas are represented by blue shading.

Indicator 2.3 At least 5 high conservation priority at-sea areas identified (by Y2, Q4)

Achieved, but not what was envisaged at the project start. Specifically, much of the Patagonian Shelf around the Falkland Islands proved to be important to seabirds and seals (Figure 8 and Figure 9). Selecting additional small, discrete areas within the proposed MMAs, are unlikely to be representative or adequate in the context of seabird and seal foraging areas, as is evident from the tracking data compiled, and presented within this and the technical report. Additionally, further fine-scaling MMAs may spawn unintended, negative effects. For example, it could lead to a mismatch in scale between the MMA size and the intended purpose of MMAs, or draw attention or resources away from other areas or other approaches concerned with seabird and seal management and conservation. Hence, given the scale at which seabirds and seals use the marine environment, it seems reasonable to conclude that the entire area that is currently proposed as an MMA is an important foraging habitat for seabirds and seals.
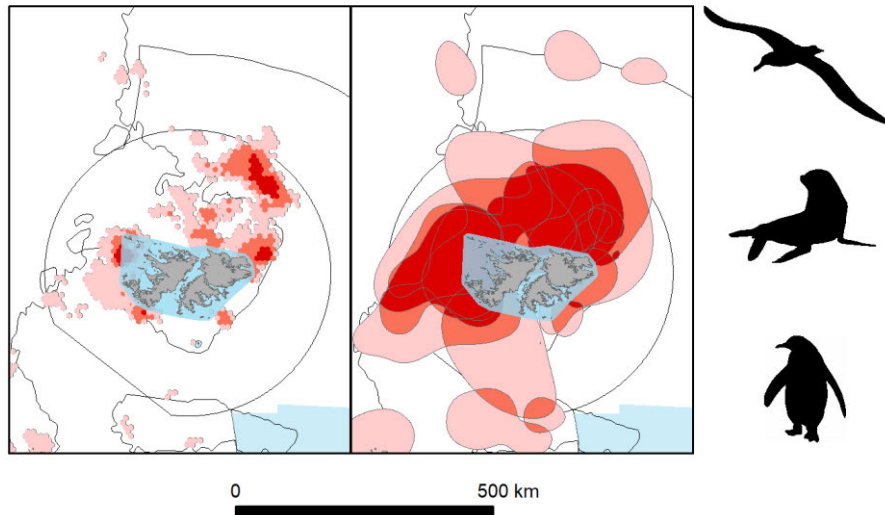
Figure 9: An example of foraging hotspots overlayed on the proposed Marine Managed Areas, the latter represented by blue shading. Darker colours represent areas where multiple species overlapped. The figure highlights that from the available tracking data, a very large area outside of the Falkland Islands Marine Managed Areas are important to seabirds and seals – depending on the method used (Getis Ord Hotspot analysis 99 % contours verses Kernel utilization distribution 50 % contours, see also Figure 8).

Indicator 2.4 One report on MHP overlap with MMAs and methods (technical assessment of key methods currently available the FI MMA context) (by Y2, Q4)

Achieved! Our first technical report (Figure 10), includes an overview of methods used to identify important areas at-sea, with a focus on Key Biodiversity Areas (KBAs), given local interest in KBAs. The report is submitted along with the Final Project Report and is also available on our project website [here](#).

DPLUS139 Technical report 1
Use of IUCN Key Biodiversity Areas to identify important areas for seabirds in the Falkland Islands

Photo credit SAERI: Gentoo penguin calling (for uncertainty in methods to be made interpretable to decision makers)

Figure 10: Cover of our Technical Report 1, which includes an overview of methods used to identify important areas for seabirds (and seals) in the Falkland Islands. The report is submitted along with this final project report and available on our project website.

Indicator 2.5 One report that assesses MHP overlap with commercial activities both within and outside of FI waters (e.g., using Global Fishing Watch data) (by Y2, Q4)

Achieved! Our second technical report (Figure 11), includes an overview of overlap with commercial fisheries and seabirds in the Falkland Islands. The report is submitted along with this final project report and is also available on our project website here.
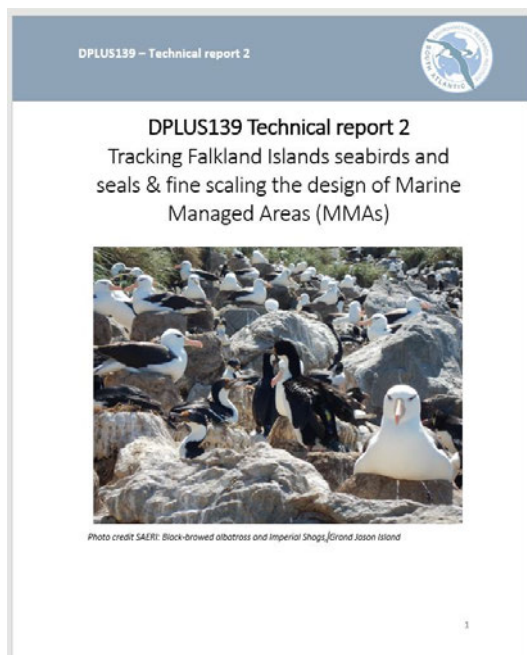

Figure 11: Cover of our Technical Report 1, which includes a brief overview of overlap with commercial fisheries and seabirds in the Falkland Islands. The report is submitted along with this Final Project Report and available on our project website.

Output 3: Key stakeholders and decision makers engaged and informed, specifically with regard to MHP at-sea spatial distribution and MMA relevance to MHP. Data integrated into MMA, MSP and EIA processes.

Indicator 3.1: Opportunities to fine scale MMAs based on high conservation priority at-sea areas discussed and consensus reached (by Y2, Q4)

Achieved! Albeit not as initially intended. It became clear during the project that we should be looking at ways of 'up-scaling' rather than 'fine-scaling'. This was the forefront of discussions during our workshop – guided by project findings.

Project partners felt consensus was reached on the following:

(1) Our detailed review and additional analysis highlights that the entire Patagonian Shelf around the FI is important to seabirds and seals. It is of course possible to select species that highlight smaller areas of importance (e.g., imperial shags) owing to shorter foraging trip distances and durations - but this would not be representative. Therefore, it was agreed that managers should accept that the spatial scale at which FI seabirds and seals use the environment is very large – well beyond the boundaries of proposed MMAs – and management requires a range of approaches and tools, including MMAs.

(2) Fine-scaling MMAs might not be appropriate for seabirds and seals

- Areas surrounding breeding colonies are important - but already protected under the proposed MMAs and indeed, were part of the impetus for National Marine Nature Reserve designation for areas including Bird Island and the Jason Islands Group.

- Proposed MMAs encompass foraging areas of some species (*e.g.,* rock shags, endemic steamer ducks).

- For species that travel extended distances during foraging trips, MMAs protect areas around breeding colonies where animals are known to congregate and encompass foraging ranges at certain times of the year.

- Further fine-scaling MMAs may spawn unintended, negative effects. For example, it could lead to a mismatch in scale between the MMA size and the intended purpose of MMAs, or draw attention or resources away from other areas or other approaches concerned with seabird and seal management and conservation.

A workshop report was appended to Technical Report 2, which is submitted along with this Final Project Report (see also Figure 11).

Indicator 3.2: Project findings are published on a dedicated project webGIS page and integrated into MSP and MMA toolbox (by Y3, Q1).

Achieved! All data collected during DPLUS139 are accessible and discoverable via the webGIS project page (Figure 6) and available *here*. Data was also deposited on the Falkland Islands Marine Spatial Planning webGIS page available here.

3.2 Outcome

Outcome: Robust baseline data and evidence base from high conservation priority areas for MHP inform MMA policy and management

Indicator 0.1 Major advance in baseline knowledge of 5 globally significant MHP populations (Y3,Q1)

As detailed in Table 1 and Figure 7 – this has been achieved. For the firs time, we have tracked globally important breeding colonies of Black-browed albatross at Bird Island and Grand Jason Island, Rockhopper penguins at Bird Island, Grand Jason Island and Steeple Jason Island, Thin Billed prions at Bird Island, and South American fur seals at Flat Jason Island. Data are available through our project webGIS page (here) and the findings described through Technical report 2, which was delivered to FIG in the form of a workshop held on 24th April 2023 (Figure 2 and Figure 11).

Indicator 0.2 High conservation priority at-sea areas for at least 5 MHP are identified and available to FIG and industry to inform MMA categorisations and support holistic management (Y3,Q1)

This has also been achieved – but not as initially intended. Our results highlight that the entire Patagonian Shelf area around the Falkland Islands is actually an important habitat for seabirds and seals. While the area identified as important is too large for strict protection, it offers opportunities for FIG to further develop Ecosystem Based Management. For example, our findings highlight that a range of management tools need to be considered when seeking to manage seabirds and seals. For example, fixed-area based measures like MMAs, should be combined with non-area-based measures that address threats beyond MMA boundaries, such as bycatch mitigation. This approach is in-line with the current FIG Environment Strategy, that aspires to develop Ecosystem Based Management approaches to the marine environment.

3.3 Monitoring of assumptions

Assumptions were monitored throughout the lifetime of the project through regular meetings with project partners (Dr Megan Tierney and Dr Alastair Baylis, who are both based in the SAERI Head Office, Stanley). The assumptions remained valid through the project. The additional assumption for the second field season, was that avian influenza, which has swept through much of the northern hemisphere, would not disrupt fieldwork. Our fieldwork was at the start of breeding season, which minimised the risk of disruption and the Falkland Islands has, thankfully, remained 'avian influenza-free' thus far.

4 Contribution to Darwin Plus Programme Objectives

4.1 Project support to environmental and/or climate outcomes in the UKOTs

The project will support FIG in achieving international commitments. Specifically, this project will make an important contribution towards FIG meeting CBD objectives, in particular Aichi Targets 5 (loss of habitat), 11 (protected areas), 10 (Vulnerable Ecosystems) and 19 (biodiversity knowledge improved). The project will also make important contribution towards FIG commitments to the Agreement of the Conservation of Albatross and Petrels (ACAP; specifically, Article II; Article III c, d, h; Article VI and elements of Annex 2 – the Action Plan), and CMS for Appendix I and II species (cetaceans, fur seals, sea lions).

The project will also help FIG achieve national commitments including the 2016-2030 FI Biodiversity Frame work priority areas, particularly coastal, shelf and marine species and ecosystems, and contributes to the environmental commitments of the FI Island Plan 2018-2022 to protect globally significant biodiversity. The project covers priority species and actions identified in the FI ACAP Implementation Plan – specifically black-browed albatross and actions calling for fine-scale analyses of foraging distribution and overlap with fishing effort (A6.2.2), and ensuring a coordinated and collaborative approach to tracking work on FI (A6.2.4/6.2.5).

SAERI will continue to maintain the webGIS page, ensuring this data is available and accessible to FIG, as they work toward Ecosystem Based Approaches to marine management.

4.2 Gender equality and social inclusion

In the SAERI office, the current staff cohort is 60% female and 40% male, and SAERI has an Equality, Diversity and Inclusion Policy as part of its internal policy framework. Two of the three key project staff are female.

Please quantify the proportion of women on the Project Board[1].	75% SAERI is ultimately responsible for project delivery. The SAERI executive leadership team comprises the CEO (Paul Brickle), Director of Resources (Teresa Bowers), and Director - International (Tara Pelembe)
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	100% Our main project partner was JNCC, who was represented by Dr Megan Tierney,

5 Monitoring and evaluation

The project partners worked well together and regularly met to discuss the project and progress. The project partners also worked together to deliver fieldwork and workshop – each delivering a specific element of the project (e.g., tracking data versus risk and vulnerability assessments). The quality of the outputs were also evaluated and reviewed. Completion of the indicators and full project delivery highlights the project partners worked well, as did monitoring and evaluation.

6 Actions taken in response to Annual Report reviews

Not applicable – non-received.

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[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

7   Lessons learnt

The value of being a UKOT organisation, where the project is being implemented, cannot be understated. The project would not have been possible without a Project Manager and partner being based permanently in the FI, along with a ready-made network of stakeholders. It is this which provides the breadth and depth of local and international expertise to deliver successfully on the project goals and objectives. Given the project also involved substantial remote area fieldwork, the advantage of having local expertise is also a critical factor for success. It enabled complex fieldwork – with two field teams across the islands - to be undertaken with relative ease. In addition, the opportunity to join Careers Day, Farmers Week, and other local activities - although not scheduled as project activities - provided an opportunity for local outreach to engage with the public and strengthen the breadth of awareness within the Islands – something that would not be possible if the Project Manager was not FI based.

Equipping animals with biologging tags is not new. But there is now a bewildering range of GPS tags available made by a myriad of companies (e.g., solar powered tags, those able to communicate with base-stations, Fastloc processing) all of which allow greater flexibility in how, when and where we track animals. Purely from a data perspective, animal behaviour influences tag performance, and selecting the wrong tag could compromise fieldwork, simply because the data collected might not be fit for purpose. Or worse still – tags may fail to collect any useable data, resulting in a failed field season. We were fortunate to draw upon our network of colleagues, who recommended tags with which they had prior experience. This helped ensure a successful field season, including tracking species that had previously not been tracked in the FI. However, there was still trial and error involved, particularly with winter fieldwork using archival GPS tags, for which we had limited data return. This could have been due to either equipment or seabird behaviour. Further work is planned after the project end (as part of a 'legacy' PhD project), and we hope for better success with our solar powered GPS tags and base-stations.

8   Risk Management

There were no new risks to report.

9   Sustainability and Legacy

Public consultation for the proposed MMAs have been completed and they are set to be designated, with policy and legislation progressing. This project provides further support for the proposed MMAs – areas around globally important breeding colonies are already recognised as nationally important National Marine Nature Reserves, but a reliance on area-based conservation measures alone such as MMAs and KBAs is not effective – simply because the scale at which FI seabirds and seals use the marine environment is across the entire Patagonian Shelf. Management of globally important seabirds and seals requires a multi-faceted approach which includes FI MMAs, as well as other non-area-based measures, such as bycatch mitigation interventions/strategies. This project highlights the importance of Ecosystem-Based Management and therefore supports current FIG Environment Strategy which aspires to develop Ecosystem-Based Management approaches to the marine environment.

The planned exit strategy is still valid. The project will provide FIG with the baseline data to enhance marine protection for seabirds and seals. We have established a long-term archive of tracking data and intend to support the continued collection of tracking data from several legacy projects as described below. The interactive spatial webGIS database was built using an open-source platform that carries no licensing costs and therefore ensures longevity. Additionally, the long-term management of the spatial database is ensured by having it embedded in the FI IMS-GIS Data Centre, managed by a full time and skilled Data Manager already employed by SAERI.

We also take this opportunity to highlight the legacy tracking projects. Specifically, we have identified, developed and secured funding for two seabird PhD projects to tackle knowledge gaps for species that remain poorly studied (Figure 12). These include the endemic Falkland Islands Steamer duck (project webpage here), and Imperial shag (project webpage here). Data collected during DPLUS139 will contribute to these PhD projects, and in-turn these projects will continue to build upon and expand the data available to decision makers, particularly in the context of nearshore Marine Spatial Planning.
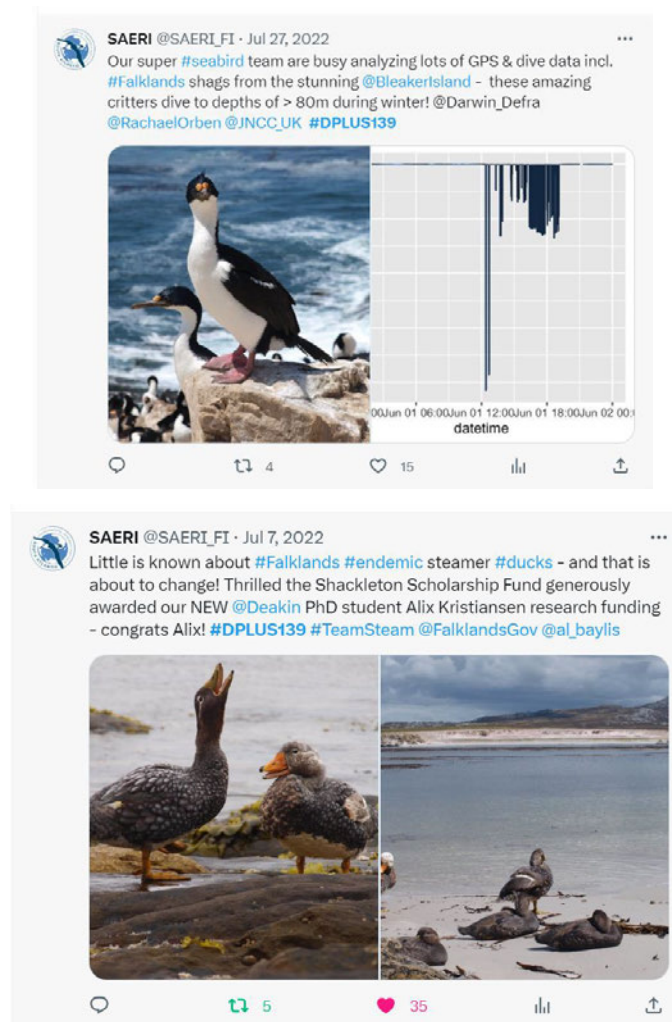

Figure 12: Two DPLUS139 legacy projects were successfully funded, to enable PhDs on Steamer ducks and on Imperial shags.

The project PM will remain in the FI employed by SAERI. He will not only support these legacy projects but continue with some of the project work to ensure a lasting legacy. This will include further data analysis and the preparation of findings for scientific publications.

10 Darwin Plus Identity

The Darwin Initiative funding was recognised in every communication and public engagement event. The logo was displayed in presentations and the Darwin Initiative was recognised in social media – please see examples listed below. Most people are aware of Darwin Plus, given the long history of projects in the Falkland Islands, many of which are focussed on stakeholder engagement, and the new Darwin Local funding scheme, which is open to individuals within the OTs. We found Twitter and Facebook generated the most interest around our project – and as highlighted above, Darwin Initiative funding was recognised in all posts.

- Project website here.

- Project webGIS here.

- Several Facebook posts and tweets in which the Darwin Initiative was tagged using #DPUS139 (Figure 4). See SAERI Facebook and Twitter

- SAERI Newsletter here.

- Careers Day presentation to year 7, 8 and 9 students at FICS here

- Caribbean seabird workshop (hosted by University of Liverpool November 2021)

- Guest web blog related to recent scientific paper here.

- Scientific paper published from our first field season, and available online here.

- Public talk presented on 31 August 2022 (Figure 3).
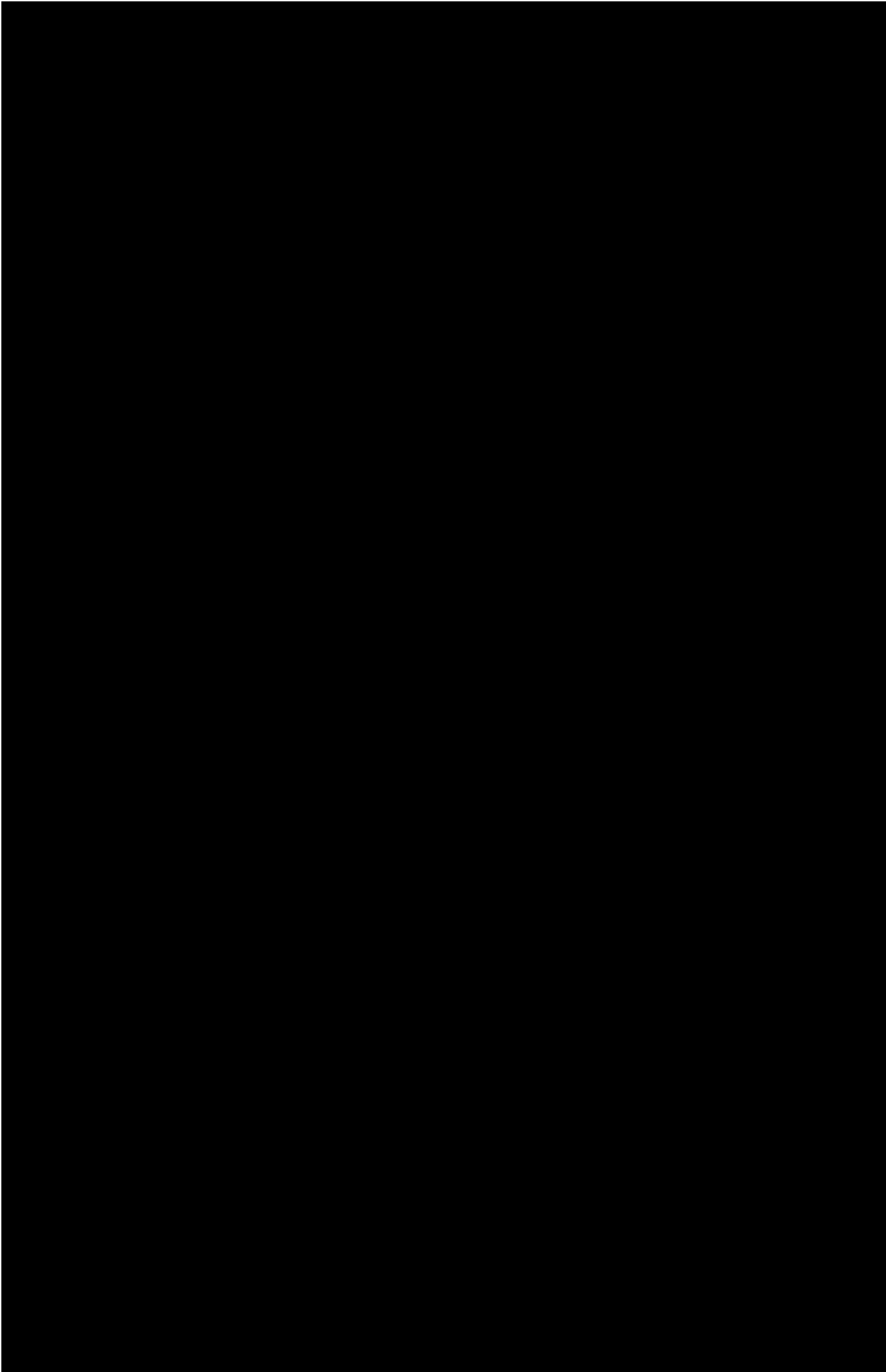
- Project workshop on 24 April 2023 (Figure 2).

11 Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been investigated in the past 12 months	No
Does your project have a Safeguarding focal point?	No [*If yes, please provide their name and email*]
Has the focal point attended any formal training in the last 12 months?	No [*If yes, please provide date and details of training*]
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 0 Planned: 0
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. That holding outreach events which are practical and include children and vulnerable adults would require our policy process and permissions.	

12 Finance and administration

12.1   Project expenditure

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others				
TOTAL	39,392	39,392		

12.3   Value for Money

This project tracked five species, from five globally important breeding colonies, involving 7 staff, partners and volunteers, and succeeded in generating a great deal of baseline tracking data from which to disentangle and identify important areas. The field sites visited were remote, difficult and expensive to access. The project achieved all of this from a grant of < £100,000 which we feel represents exceptional value for money. The evidence is in the volume of data collected and range of species studied (Table 1), as well as the two technical reports produced and submitted with this final report.

The project greatly benefitted from in-kind time provided by project partners and SAERI staff as outlined in section 12.2. Volunteers and SAERI staff dedicating their time to assist with desk and field work allowed the project to work across multiple islands simultaneously. The project also benefited from equipment and additional seal and seabird tags belonging to SAERI, which facilitated fieldwork.

13 OPTIONAL: Outstanding achievements of your project (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

The Falkland Islands are a wildlife wonderspot, well known for their very large breeding populations of penguins and albatross. Yet despite these globally important breeding populations, the Falkland Islands remain a scientific frontier – including for seabirds and seals. The Darwin Plus 139 project set out to fill gaps in tracking data for some of the largest breeding populations of seabirds and seals, and by doing so, to raise awareness of seabird and seal habitats and pressures faced. Why was this important? Tracking the movements of seabirds and seals enables us to understand how individuals, colonies and populations use our seascape and coastal and offshore waters, and helps us to disentangle and then address potential threats to population persistence. Tracking data collected from seabirds and seals ultimately improves evidence-based marine management and conservation initiatives, facilitates Ecosystem-Based Management and increases the amount and quality of information available to researchers and decision-makers. The project found that seabirds and seals often spent time outside the areas designated as Marine Managed Areas. Fixed boundary approaches to conservation like Marine Managed Areas are indisputably important in conserving seabirds and seals. However, the project highlighted the need for a range of management approaches, which include Marine Managed Areas as well as non-area-based measured such as bycatch mitigation to adequately conserve and protect these species. This finding is in line with the Falkland Islands Government's long-term strategic environmental policy, associated with Ecosystem-Based Management, and adds a vast treasure trove of data with which to support environmental management and policy. The project legacy not only includes a spatial database of tracking data which is freely accessible, but also the creation of two PhD projects, which will continue to fill knowledge gaps.

Image 1

Caption: Examples of seabirds and seals breeding in the Falkland Islands.

Photo credit: SAERI

Image 2

Caption: Examples of DPLUS139 fieldwork locations in the Falkland Islands.

Photo credit: SAERI

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
Image	Image 1	Examples of seabirds and seals breeding in the Falkland Islands. SAERI	@SAERI_FI	Yes
Image	Image 2	Island life: examples of DPLUS139 fieldwork locations in the Falkland Islands.	@SAERI_FI	Yes

Annex 1   Project's full current logframe as presented in the application form (unless changes have been agreed)

Please insert your project's logframe (<u>if your project has a logframe</u>), including indicators, means of verification and assumptions. N.B. if your application's logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact <u>BCF-Reports@niras.com</u> if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: (Max 30 words) A holistic, ecosystem-based management of the Falkland Islands marine environment.			
Outcome: (Max 30 words) Robust baseline data and evidence base from high conservation priority areas for MHP inform MMA policy and management	0.1 Major advance in baseline knowledge of 5 globally significant MHP populations (Y3,Q1) 0.2 High conservation priority at-sea areas for at least 5 MHP are identified and available to FIG and industry to inform MMA categorizations and support holistic management (Y3,Q1)	0.1 Publication of tracking data on the FI IMS-GIS data centre portal http://dataportal.saeri.org/ 0.2 High conservation priority areas are integrated into the MMA and FI MSP webGIS toolbox *e.g.*, <u>webGIS page</u>	- High conservation priority at-sea areas identified - High conservation priority at-sea areas support proposed MMAs - High conservation priority at-sea areas are amenable to management
Outputs: **1.** Tracking data gaps filled for globally significant MHP populations, including the largest breeding colonies of Thin-billed prions, Gentoo penguins, Rockhopper penguins and South American fur seals, for which data presently does not exit, and GPS data for Black-browed albatross over winter, which does not exist.	1.1 Two intensive field seasons successfully completed, and 5 species and 4 breeding colonies tracked over summer and/or winter, and 20 individuals per species/stage (by Y2, Q3) 1.2 Data on-line, readily accessible and easily discoverable on the FI IMS-GIS data centre (by Y3, Q1)	1.1 Project annual report submitted to Darwin 1.2 Dedicated webGIS project page *e.g.*, <u>webGIS page</u>	- No national Falkland Islands Covid-19 travel restrictions (as has been the case since May) - Enough lead-in time is allocated for delays in the procurement and delivery of goods related to Covid-19 disruptions - Recovery rates of loggers attached to birds and seals are sufficient to provide data required. We have budgeted for a large number of loggers

			- Charter boat is available and FIG permission to visit offshore islands granted. SAERI already works closely with a number of charter boat operators, and FIG is our project partner.
2. Conservation value of proposed MMAs in a global context is understood (specifically with regard to MHP).	2.1 Existing tracking data for at least 5 species collated, re-analysed and combined with new data (by Y2, Q1) 2.2 At least 5 predictive habitat models successfully developed (by Y2, Q2 – but updated as new data collected) 2.3 At least 5 high conservation priority at-sea areas identified (by Y2, Q4) 2.4 One report on MHP overlap with MMAs and methods (technical assessment of key methods currently available the FI MMA context) (by Y2, Q4) 2.5 One report that assesses MHP overlap with commercial activities both within and outside of FI waters (e.g., using Global Fishing Watch data) (by Y2, Q4)	2.1 Updated and complete MHP tracking dataset for the Falkland Islands is published on a dedicated project webGIS page 2.2 Annual report published on line 2.3 High conservation priority at-sea areas published on dedicated project webGIS page 2.4 Report compiled and published on the SAERI website. 2.5 Report compiled and published on the SAERI website	- Data owners of existing data are willing to contribute data. We have previously collaborated with data owners on two peer reviewed publications *e.g.,* https://www.nature.com/articles/s41598-019-44695-1

3. Key stakeholders and decision makers engaged and informed, specifically with regard to MHP at-sea spatial distribution and MMA relevance to MHP. Data integrated into MMA, MSP and EIA processes.	3.1 Opportunities to fine scale MMAs based on high conservation priority at-sea areas discussed and consensus reached (by Y2, Q4) 3.2 Project findings are published on a dedicated project webGIS page and integrated into MSP and MMA toolbox (by Y3, Q1). Example webGIS project page [here](#)	3.1 At least 10 stakeholders (FIG, industry, NGOs, community representatives) participate in a workshop where findings are presented. Workshop report, including recommendations, list of attendees, and presentations published on the SAERI project website 3.2 Project WebGIS is publicly available online, and easily discoverable. Example webGIS project page [here](#)	- Key people attend workshop and consensus achieved on workshop findings

Activities (each activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1 Recruit the Project Field Assistant
1.2 Organise and undertake intensive fieldwork, and write fieldwork report. Make report available on-line.
2.1 Review and collate existing data. Combine and analyze all tracking data. Update the Falkland Islands data portal and webGIS with data collated.
2.2 Develop predictive models using the analyzed tracking data
2.3 Identify high conservation priority areas using both tracking data and predictive models
2.4 Compile one report detailing high conservation priority areas, FI MMAs and methods
2.5 Use tracking data and predictive models to assess overlap with commercial activities, specifically fisheries. Compile one report.
3.1 Organize and host a workshop and present findings to stakeholders
3.2 Deposit data within the Falkland Islands data portal and webGIS pages

Annex 2   Report of progress and achievements against final project logframe for the life of the project (<u>if your project has a logframe</u>)

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Impact: A holistic, ecosystem-based management of the Falkland Islands marine environment		While the areas we highlight as important exceed the MMA boundaries, we have also highlighted that much of the Patagonian Shelf around the Falkland Islands is important – to both seabirds and seals as well as the Falkland Islands economy. Hence, developing an Ecosystem Based Management approach to our marine environment has never been more relevant. Data collected as part of this project will provide a key component to developing a marine Ecosystem Based Management approach in the Falkland Islands.
Outcome Robust baseline data and evidence base from high conservation priority areas for MHP inform MMA policy and management	0.1 Major advance in baseline knowledge of 5 globally significant MHP populations (Y3,Q1) 0.2 High conservation priority at-sea areas for at least 5 MHP are identified and available to FIG and industry to inform MMA categorizations and support holistic management (Y3,Q1)	As above. The project has made a significant contribution to advancing baseline knowledge of globally significant populations of seabirds and seals. This has included collection of the very first tracking data from numerous globally important breeding colonies, but crucially, ours is the only study to bring together the large volume of tracking data that exists for the Falkland Islands – representing some 13 species and 360,000 locations at-sea – which we have made discoverable and accessible through our webGIS page, available [here.](#) While the areas we highlight as important exceed the MMA boundaries, we have also highlighted that much of the Patagonian Shelf around the Falklands is important – to both seabirds and seals as well as the Falkland Islands economy. Hence, developing an Ecosystem Based Management approach to our marine environment has never been more relevant. Data collected as part of this project will provide a key component to developing a marine Ecosystem Based Management approach in the Falkland Islands.
Output 1. Tracking data gaps filled for globally significant MHP populations, including the largest breeding colonies of Thin-billed prions, Gentoo penguins,	1.1 Two intensive field seasons successfully completed, and 5 species and 4 breeding colonies tracked over	1.1 Completed. Evidence provided in Annex 5.4 and Annex 5.5 (fieldwork reports). Also available on our project [webpage.](#) 1.2 Completed. Evidence provided via WebGIS updated and available [here.](#)

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Rockhopper penguins and South American fur seals, for which data presently does not exit, and GPS data for Black-browed albatross over winter, which does not exist.	summer and/or winter, and 20 individuals per species/stage (by Y2, Q3) 1.2 Data on-line, readily accessible and easily discoverable on the FI IMS-GIS data centre (by Y3, Q1)	
Activity 1.1 Recruit the Project Field Assistant		Completed. Field assistant recruited. Evidence provided in Annex 5.4 – field report.
Activity 1.2, Organise and undertake intensive fieldwork, and write fieldwork report. Make report available on-line		Completed. Evidence provided in Annex 5.4 and Annex 5.5 (fieldwork reports). Also available on our project webpage.
Output 2. Conservation value of proposed MMAs in a global context is understood (specifically with regard to MHP).	2.1 Existing tracking data for at least 5 species collated, re-analysed and combined with new data (by Y2, Q1) 2.2 At least 5 predictive habitat models successfully developed (by Y2, Q2 – but updated as new data collected) 2.3 At least 5 high conservation priority at-sea areas identified (by Y2, Q4) 2.4 One report on MHP overlap with MMAs and methods (technical assessment of key methods currently available the FI MMA context) (by Y2, Q4)	2.1-2.3 and 2.5 Completed. Evidence provided in Annex 5.2 (Technical report 2). Also available on our project webpage. 2.4 Completed. Evidence provided in Annex 5.1 (Technical report 1). Also available on our project webpage.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	2.5 One report that assesses MHP overlap with commercial activities both within and outside of FI waters (e.g., using Global Fishing Watch data) (by Y2, Q4)	
Activity 2.1. Review and collate existing data. Combine and analyze all tracking data. Update the Falkland Islands data portal and webGIS with data collated.		Completed. Evidence provided via WebGIS updated and available here.
Activity 2.2. Develop predictive models using the analyzed tracking data		Completed. Evidence provided in Annex 5.2 (Technical Report 2). Also available on our project webpage.
Activity 2.3 Identify high conservation priority areas using both tracking data and predictive models		Completed. Evidence provided in Annex 5.2 (Technical Report 2). Also available on our project webpage.
Activity 2.4 Compile one report detailing high conservation priority areas, FI MMAs and methods		Completed. Technical Report 1 (Annex 5.1), is submitted with final report.
Activity 2.5 Use tracking data and predictive models to assess overlap with commercial activities, specifically fisheries. Compile one report.		Completed. Technical Report 2 (Annex 5.2), is submitted with final report.
Output 3. Key stakeholders and decision makers engaged and informed, specifically with regard to MHP at-sea spatial distribution and MMA relevance to MHP. Data integrated into MMA, MSP and EIA processes.	3.1 At least 10 stakeholders (FIG, industry, NGOs, community representatives) participate in a workshop where findings are presented and opportunities to fine scale MMAs based on high conservation priority at-sea areas discussed (by Y2, Q4) 3.2 Project findings are published on a dedicated project webGIS page and integrated into MSP and MMA toolbox (by Y3, Q1). Example webGIS project page here	Completed. A workshop report (Annex 5.3) is submitted with this Final Project Report.
3.1 Organize and host a workshop and present findings to stakeholders		Completed. A workshop report (Annex 5.3) is submitted with final report.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
3.2 Deposit data within the Falkland Islands data portal and webGIS pages		Completed. WebGIS page can be accessed here.

Annex 3 Standard Indicators

Table 1   Project Standard Indicators

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS- A03 & DPLUS-A07	Number of local/national organisations with improved capability and capacity as a result of project.	Local organizations with improved capability and awareness as a result of the project	Number	Organizations				3	
DPLUS-A04	Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.	Number of students trained and applying training to continue postgraduate studies	People	Women				2	
DPLUS-B11	Area identified as important for biodiversity	Area identified as important for seabirds	Area	Biodiversity				1	
DPLUS-C17	Articles published by members of the project team	Number of unique papers published in peer reviewed journals	Number	None				1	
DPLUS -C01	Number of best practice guides and knowledge products published and endorsed	Number of knowledge products published	Number	Reports				2	
DPLUS-C16	Number of records added to accessible databases. Number Biodiversity (Species occurrence, Utilisation); Socio-economic (sustainable enterprises, community benefits products), database.	Number of datasets added to accessible databases.	Number	Datasets				5	

Table 2   Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Breeding Thin-Billed Prions Use Marine Habitats Ranging from Inshore to Distant Antarctic Waters	Journal (Animals)	Quillfeldt P, Bange A, Boutet A, Orben RA, Baylis AMM. 2022	Female	German	Animals, Basel	https://pubmed.ncbi.nlm.nih.gov/36428358/
Technical report 1	Report	Baylis, AMM and Tierney M. 2022	Male	Australian	SAERI, Stanley	https://www.south-atlantic-research.org/dplus139-documents/
Technical report 2	Report	Baylis, AMM and Tierney M. 2023	Male	Australian	SAERI, Stanley	https://www.south-atlantic-research.org/dplus139-documents/
Field report 1	Report	Baylis, AMM and Tierney M. 2022	Male	Australian	SAERI, Stanley	https://www.south-atlantic-research.org/dplus139-documents/
Field report 2	Report	Baylis, AMM and Tierney M. 2023	Male	Australian	SAERI, Stanley	https://www.south-atlantic-research.org/dplus139-documents/

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	✓
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	✓
If you are submitting photos for publicity purposes, **do these meet the outlined requirements (see section 10)?**	✓
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	✓
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 13)?	✓
Have you involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	