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 2025

Please note all projects that were active before 1st October 2025 are required to complete a Half Year Report.

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

Project reference	DPLUS206
Project title	Climate impacts on Falkland Islands past, present and future freshwater dynamics
Country(ies)/territory(ies)	Falkland Islands (FI)
Lead Organisation	South Atlantic Environmental Research Institute (SAERI)
Partner(s)	UK Centre for Ecology and Hydrology and Falkland Islands Government
Project Leader	*Dr Alastair Baylis (report by Dr Nyein Thandar Ko)*
Report date and number (e.g. HYR1)	*HYR2 October 2025*
Project website/blog/social media	*DPLUS206 - Climate impacts on Falkland Islands past, present and future freshwater dynamics - SAERI*

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

Although we are not looking for specific reporting against your indicators, please use this opportunity to consider the appropriateness of your monitoring, evaluation and learning (MEL) systems (are your indicators still relevant, can you report against any Standard Indicators, do your assumptions still hold true?). The guidance can be found on the resources page of the relevant fund website.

Over the past six months, the project has made steady progress in line with the agreed implementation timetable. Our efforts have focused on strengthening partnerships, launching core work packages, and advancing both field-based and desk-based activities.

Partnerships and Stakeholder Engagement

We continued to build strong engagement with key partners, including the Falkland Islands Government's Department of Agriculture and Environment, the Rural Business Association, and CEH collaborators. Stakeholder engagement was a central focus during Farmers Week (2 July 2025), where we introduced the project and presented findings on surface water (1999–2021) and soil moisture trends (2016–2021). The project was also featured in an interview with FITV, raising awareness among the farming community, and introduced to the wider public through an interview on FI Radio.

Progress Against Objectives

Work Package 1

We successfully delivered the Freshwater Report Card and launched the Farmers' Freshwater Survey, designed to capture landowners' experiences with water resources. To date, 12 responses have been received, providing valuable insights into local freshwater conditions.

We analysed farmers' freshwater monitoring data alongside preliminary findings from satellite imagery, covering:

- Surface Water Dynamics (Past: 1999–2021; Present: 2021–2025)
- Soil Moisture Dynamics (2016–2021)

A summary report was shared with farmers. While satellite-derived observations provide a useful spatial overview of water-related patterns across the Falkland Islands, this work remains exploratory. The results align with reported seasonal dryness and pond variability, but cannot yet confirm the extent, duration, or ecological impact of these changes.

Work Package 2

At the Expo on 29 June 2025, we presented a poster on surface water dynamics (1999–2021) based on Landsat-derived JRC data. This analysis assessed yearly water seasonality at 30 m resolution, revealing a relative decrease in total surface water area across East Falkland, West Falkland, and Lafonia.

However, due to the absence of in-situ water area or level measurements, these results must be interpreted with caution. While they may indicate declining freshwater availability, further field-based validation is required, especially in peat-dominated and seasonally variable landscapes.

Fieldwork and Monitoring Activities

To link satellite datasets and hydrological modelling with ground-based realities, we undertook field activities between June and September 2025. These included:

- Site visits to four freshwater monitoring locations for data collection, equipment maintenance, and logger replacement, ensuring the continuity of long-term hydrological monitoring.
- Installation of new water level loggers (BaroSCOUT and LevelSCOUT) in the Murrell River, enabling continuous recording of water level fluctuations.
- Expanded in-situ hydrological measurements, including visits to Moody Brook and Murrell River water treatment plants and reservoirs, which provided insights into operational processes and water quality management.
- Data downloads from TMS dataloggers at Wireless Ridge (9–10 September) and Cape Pembroke (19 September). Installed under the Wetland Project in 2021, these instruments continue to provide valuable reference data for model calibration and validation, supporting improved soil moisture assessments and long-term resource management.

Monitoring, Evaluation and Learning (MEL)

The current MEL systems remain appropriate and relevant to the project's objectives. Indicators are effectively capturing progress, and the assumptions underpinning our implementation strategy remain valid. Survey responses and ground-based monitoring are already informing refinements to satellite image analysis and generating early lessons for adaptive management.
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.
As yet, no notable problems have been encountered.
3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?

Discussed with NIRAS:	Yes/ No
Formal Change Request submitted:	Yes/ No
Received confirmation of change acceptance:	Yes/ No

Change Request reference if known: *If you submitted a financial Change Request, you can find the reference in the email from NIRAS confirming the outcome*

Guidance for Section 4: The information you provide in this section will be used by Defra to review the financial status of projects. This review will identify projects at random for spot checks on financial management and will include requests for evidence of the actual spend information provided below. Please ensure the figures you provide are as accurate as possible and that you have the evidence to support it. You do not need to provide it now.

4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2025 – 30 September 2025) **Actual spend:** £
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 2026)? **Yes** ☐ **No** ☒ Estimated underspend: £
4c. If you expect an 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.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a re-budget Change Request as soon as possible, and not later than 31st December. 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.

NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.

5. Are there any other issues you wish to raise relating to the project or to BCFs management, monitoring, or financial procedures?

Suspicions or allegations related to fraud and error concerns should be reported to fraudanderror@Defra.gov.uk

None

6. Project risk management

6a. If your project has an Overseas Security and Justice assessment, please provide an update on any related risks, and any special conditions in your award paperwork if relevant for your project.

None

6b. Have any concerns or allegations relating to sexual exploitation, abuse or harassment been reported in the past 6 months?

Yes ☐ **No** ☒

If yes, please provide further information, ensuring no sensitive data is included within responses.

Suspicions or allegations related to safeguarding concerns should be reported to ODA.Safeguarding@defra.gov.uk

7. Please use this section to respond to any feedback provided when your project was confirmed, or from your most recent Annual Report. As a reminder, all projects that were scored as 'Not Yet Sensitive' in the Gender Equality and Social Inclusion (GESI) assessment of their latest Annual Report should demonstrate how they are meeting the minimum GESI-Sensitive standard.

- Clarity is needed on how landowner engagement would be maintained post-project to ensure best implementation of project outcomes;

Maintaining landowner engagement beyond the project period is a key priority to ensure the long-term implementation of project outcomes. Our approach includes several complementary strategies:
Ongoing communication and feedback: We will continue sharing monitoring results, Report Card updates, and practical recommendations with landowners through reports, newsletters, local radio, and stakeholder meetings. This ensures they remain informed and can act on evidence-based guidance.
Collaborative networks: We aim to strengthen connections between landowners, local conservation groups, and government departments. These networks provide peer support, knowledge exchange, and a platform to sustain good practice.

Through this combination of network support, we expect landowner engagement to continue naturally, supporting the long-term sustainability of freshwater and terrestrial ecosystem management across the Falkland Islands.

- How could the results be used practically to benefit biodiversity and what mechanisms could there be for this? How could the involvement of local conservation NGOs help support the development of biodiversity benefits and long-term sustainability?

Project outputs, including baseline data on Falkland Islands freshwater dynamics, will provide FIG with critical evidence to support national initiatives on climate change adaptation and mitigation. A clearer understanding of how freshwater availability has changed over time, and how this interacts with habitats and land use, will directly inform and strengthen terrestrial habitat restoration and sustainable land management practices.
The project will also generate practical tools such as maps, datasets, and monitoring recommendations that will be made freely accessible through the Falkland Islands data portal. Combined with workshops and farmer engagement, these resources will ensure a lasting legacy for biodiversity and freshwater management.
Importantly, the findings will support the development of policies to protect and enhance the vast carbon stocks stored in Falkland peatlands. Since these ecosystems are critically dependent on high water levels, improved hydrological understanding will help prevent degradation and associated CO_2 emissions under a changing climate.

- Consider whether higher resolution datasets from Sentinel have a longer return period than 12 days;

Our project integrates multiple satellite datasets to assess surface water and soil moisture dynamics across the Falkland Islands:

- **Sentinel-1 SAR GRD (C-band Synthetic Aperture Radar, 2016–2021):** Used for soil moisture monitoring. Its radar capability allows reliable measurements regardless of cloud cover or lighting conditions.
- **Sentinel-2 (2021–2025):** Used for both soil moisture and surface water area monitoring, providing higher spatial resolution (10–20 m) with a nominal 5-day revisit period when combining 2A and 2B satellites. Effective observations can vary depending on local acquisition conditions and cloud cover.
- **Landsat JRC product (1999–2021):** Provides long-term historical surface water data at 30 m resolution, enabling trend analysis over more than two decades.

By combining these datasets, we achieve a balance between **historical coverage, high spatial resolution, and near-real-time monitoring**, allowing us to track both long-term trends and recent changes in freshwater availability and soil moisture. This multi-sensor approach is complemented by field-based measurements, strengthening the accuracy and reliability of our findings.
However, the 30 m resolution of some datasets is insufficient for detailed hydrological modelling of narrower streams. Access to higher-resolution datasets such as 5 m imagery would greatly enhance our ability to model stream hydrology across the Falkland Islands and support sustainable freshwater management.

- It would be encouraging to see examples of existing terrestrial habitat restoration projects and potential scale for adaptation to enhance/sustain biodiversity;

Our freshwater and soil moisture monitoring is already highlighting patterns of seasonal dryness, pond variability, and peatland sensitivity to hydrological changes. These findings point directly to opportunities where terrestrial habitat restoration can play a critical role in sustaining biodiversity and ecosystem resilience.
Example of existing initiatives include:

- **Peatland rewetting and wetland restoration** (e.g. under the Wetland Project, 2021–present), which trialled techniques for blocking drains and maintaining water levels in degraded peat systems. Such methods not only improve freshwater retention but also support biodiversity by maintaining habitat for wetland birds and invertebrates.

The potential scale for adaptation is significant. Our satellite-based assessments of surface water dynamics (1999–2025) and soil moisture trends (2016–2021) can help identify priority

areas where restoration would deliver the greatest ecological and hydrological gains. For example:

- In regions where ponds show declining permanence, rewetting or tussac planting could stabilise water availability.
- In peat-dominated catchments with marked seasonal fluctuations, habitat restoration could enhance water storage capacity and reduce vulnerability to drought.

By combining field-based hydrological monitoring with remote sensing, the project can help align habitat restoration planning with evidence on water dynamics. This provides a pathway for scaling up restoration that enhances biodiversity while strengthening the resilience of Falkland ecosystems to future climate variability.

- Will the report card evaluate evidence based on terrestrial climate change impacts, incorporating, but not restricted to, key stakeholder perspectives?

Yes, the Report Card is designed to integrate multiple lines of evidence, including both scientific data and stakeholder perspectives, in order to evaluate climate-related impacts on terrestrial systems.

- **Evidence base:** The Report Card already incorporates hydrological monitoring data, satellite-derived observations of surface water and soil moisture dynamics, and long-term datasets where available. These provide a scientific foundation for identifying potential climate-driven changes such as increased seasonal dryness, shifts in pond permanence, and altered soil moisture regimes.
- **Stakeholder perspectives:** Complementing this, the Farmers' Freshwater Survey is capturing landowners' observations and lived experiences of water availability and habitat change. These insights provide context to the scientific data, highlighting where climate variability is already being felt on the ground.

Looking ahead, we see strong potential to broaden the scope of the Report Card by integrating emerging evidence on terrestrial climate impacts (e.g. peat degradation, erosion risks). This will ensure the tool evolves into a holistic resource that can inform adaptation strategies for both biodiversity and land management.

- Indicators for outputs 2 and 3 are timebound to the end of the project, but no milestone indicators are included. Indicators should monitor progress towards outputs, not only completion of an output;

To strengthen monitoring of Outputs 2 and 3, we propose introducing milestone indicators that track progress towards final deliverables.

Output 2 – Establish a freshwater baseline using satellite imagery

- **2.1 Freshwater dynamics (surface water & soil moisture trends):**

✓ Milestone 1: Acquisition and preprocessing of Sentinel-1, Sentinel-2, and Landsat JRC datasets completed (Y2, Q1).
✓ Milestone 2: Preliminary freshwater dynamics analysis shared with stakeholders via poster at Expo and Farmers Week (Y2, Q2).
✓ Milestone 3: Draft freshwater baseline report produced and circulated for review (Y3, Q1).

- **2.2 Soil moisture indices (Soil Water Index):**

✓ Milestone 1: Methodology for deriving indices established and tested (Y2, Q3).
✓ Milestone 2: Draft indices compared with in-situ probes and preliminary validation completed (Y2, Q3).
✓ Milestone 3: Full indices integrated into freshwater baseline report (Y3, Q1).

- **2.3 In-situ water loggers:**

✓ Milestone 1: Additional water loggers procured and installed (Y2, Q2 & Q3).
✓ Milestone 2: Data download and validation cycle completed (Y2, Q1, Q2, & Q3).
✓ Milestone 3: In-situ fully integrated into satellite validation framework (Y2, Q4).

Output 3 – Model future freshwater dynamic scenarios under climate change

- **3.1 Future scenario modelling:**

❖ Milestone 1: Climate scenario datasets identified and collated (Y2, Q4).
❖ Milestone 2: Modelling framework established and parameterised using WP1 data (Y3, Q1).
❖ Milestone 3: Draft modelling outputs (maps, scenario summaries) prepared for stakeholder consultation (Y3, Q2).

❖ Milestone 4: Final report on future freshwater scenarios produced (Y3, Q3).

- Consider if you can measure benefits to people.

Yes, the project can measure benefits to people in addition to biodiversity outcomes. Several mechanisms are already in place:

- **Farmer participation:** To date, 12 landowners have completed the Farmers' Freshwater Survey, providing baseline insights into how water availability affects livelihoods and management practices. The number of respondents and their reported experiences offer a direct measure of farmer engagement and benefit.
- **Knowledge transfer:** Workshops, Farmers Week presentations, and media outreach (e.g., FITV and FI Radio) have already reached a wide cross-section of the farming community. Attendance records and feedback surveys will be used to quantify the reach and usefulness of this engagement.
- **Practical tools:** The Freshwater Report Card and freely available maps/datasets provide accessible decision-support resources. Usage statistics from the Falkland Islands data portal and requests for materials can provide indicators of uptake.
- **Livelihood resilience:** Over time, benefits can be measured through farmer-reported changes in water management practices, reduced vulnerability to seasonal water shortages, and improved alignment of land management with freshwater availability.

At a broader level, sustaining peatland hydrology also safeguards ecosystem services (e.g., water supply, carbon storage) that provide long-term community and economic benefits. These can be tracked through continued monitoring and stakeholder reporting.

Checklist for submission

Have you responded to **feedback from your latest Annual Report Review?** You should respond in section 6, and annexe other requested materials as appropriate.	
Have you reported against the most **up to date information for your project?**	
Have you **clearly highlighted any confidential information** within the report that you do not wish to be shared on our website?	
Include your **project reference** in the subject line of submission email.	
Submit to **BCF-Reports@niras.com**	
Please ensure claim forms and other communications for your project are not included with this report.	