Applicant: **Cavanagh, Rachel**
Organisation: **British Antarctic Survey**
Funding Sought: **£241,145.00**

DPR11S2\1020

Evaluating climate change risks to Patagonian and Antarctic toothfish

Climate change is altering ecosystems and fisheries yet is conspicuously absent from fisheries management policy and implementation. The effects of climate change on high value toothfish caught in Southern Ocean longline fisheries are largely unknown. This project will synthesise environmental and biological information to undertake a risk assessment of climate-driven change to toothfish in South Georgia and the South Sandwich Islands, contributing to conservation priorities for the region, including enhancing existing management of fisheries and the Marine Protected Area.

PRIMARY APPLICANT DETAILS

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Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

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GMS ORGANISATION

Type	**Organisation**
Name	British Antarctic Survey
Phone (Work)	[redacted]
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Address	[redacted]

Section 2 - Title & Summary

Q3. Project Title:

Evaluating climate change risks to Patagonian and Antarctic toothfish

What was your Stage 1 reference number? e.g. DPR11S1\1123

DPR11S1\1050

Q4. Summary of project

Please provide a brief summary of your project: the problem it is trying to address, its aims, and the key activities you plan to undertake.

Successful Darwin Plus Main projects in Round 11 must demonstrate substantial measurable outcomes in at least one of the themes of Darwin Plus either by the end of the project's implementation or via evidenced mechanisms for post-project delivery.

Preference will be given to discrete projects implementing existing identified environmental solutions on the ground.

The broad themes of Darwin Plus Main are:

- **Biodiversity:** improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;
- **Climate change:** responding to, mitigating and adapting to climate change and its effects on the natural environment

and local communities;
- **Environmental quality:** improving the condition and protection of the natural environment;
- **Capability and capacity building:** enhancing the capacity within OTs to support the environment in the short- and long-term.

Please write this summary for a non-technical audience.

Climate change is altering ecosystems and fisheries yet is conspicuously absent from fisheries management policy and implementation. The effects of climate change on high value toothfish caught in Southern Ocean longline fisheries are largely unknown. This project will synthesise environmental and biological information to undertake a risk assessment of climate-driven change to toothfish in South Georgia and the South Sandwich Islands, contributing to conservation priorities for the region, including enhancing existing management of fisheries and the Marine Protected Area.

Section 3 - UKOT(s), Dates & Budget Summary

Q5. UKOT(s)

Which UK Overseas Territory(ies) will your project be working in?

☑ South Georgia and The South Sandwich Islands (SGSSI)

*** if you have indicated a territory group with an asterisk, please give detail on which territories you are working on here:**

No Response

In addition to the UKOTs you have indicated, will your project directly benefit any other Territories or country(ies)?

⦿ No

Q6. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 April 2023	31 March 2025	2 years

Q7. Budget summary

Year:	2023/24	2024/25	2025/26	Total request
Amount:	£119,569.00	£121,576.00	£0.00	**£** 241,145.00

Q8. Proportion of Darwin Plus budget expected to be expended in UKOTs (%)

Q9a. Do you have matched funding arrangements?

⦿ Yes

What matched funding arrangements are proposed?

British Antarctic Survey (BAS) and Centre for Environment, Fisheries and Aquaculture (Cefas) overhead costs, and staff costs for contributions from Government of South Georgia and the South Sandwich Islands (GSGSSI). Industry and nongovernmental organisation (NGO) stakeholders, as well as expert scientists within and outside of the partner

organisations will contribute significant staff time in-kind to attend workshops and engage throughout the project, including contributing to the outputs.

Q9b. Total confirmed & unconfirmed matched funding (£) [redacted]

Q9c. If you have a significant amount of unconfirmed matched funding, please clarify how you fund the project if you don't manage to secure this?

n/a

Section 4 - Problem statement

Q10. Problem the project is trying to address

Please describe the problem your project is trying to address in the UKOTs, relating to at least one of the themes of Darwin Plus.

For example, what are the specific threats to the environment that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? How will your proposed project help? Please cite the evidence you are using to support your assessment of the problem (references can be listed in your additional attached PDF document).

This project will address the need to integrate climate change considerations into fisheries management. Climate change is significantly altering ecosystems and fisheries throughout the world's oceans, affecting the ability of fisheries management to deliver their objectives, with accumulative consequences for the sustainable management and biodiversity conservation of marine living resources. Although wider ecosystem dynamics are addressed within ecosystem-based fisheries management, which may facilitate climate change resilience, there are few examples of climate change considerations being directly incorporated into fisheries management policy and implementation1.

The Southern Ocean is one of the world's most rapidly changing oceans2,3, with major impacts expected on marine ecosystems, species, and the ecosystem services they support4,5,6. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) recognises the need for climate-responsive options within its ecosystem approach to management to reduce and manage the effects of climate change, but little progress has been made7. Patagonian and Antarctic toothfish (Dissostichus eleginoides and D. mawsoni) are high-value deep-water species caught by longline fisheries throughout the Southern Ocean, including South Georgia and the South Sandwich Islands (SGSSI)8,9 where their distribution overlaps, and the income from toothfish fisheries is around 60% of government income. Given the longevity and complex life history of these species, their integral role in the ecosystem, and their value, understanding potential impacts of climate change on stocks, and developing management strategies and measures that take account of these, is essential but currently lacking. This means that current management may not be as precautionary as it should be in the face of change. For example, guidelines that determine how much fishing can take place, based on indicators of the targeted stock's status, need to account for a changing environment rather than based on historical biomass and conditions. Furthermore, climate change risks may be higher for certain stocks and areas than others based on life history and exposure to change.

Our project will synthesise relevant environmental, biological and fishery information and use this to undertake a risk assessment of climate-driven change to toothfish in SGSSI. Together with project stakeholders, we will translate the risk assessment into recommendations for fisheries management, emphasising the need to reduce and manage the risks that climate change presents to toothfish and the wider ecosystem of which they are part. The results will directly inform toothfish fishery management and the SGSSI Marine Protected Area (MPA) and enhance the Marine Stewardship Council (MSC) certification of the South Georgia fishery, with broader biodiversity benefits for the region in line with the SGSSI Biodiversity Action Plan (BAP). We envisage our evaluation framework will be applicable to other species and areas, addressing the challenge of integrating climate change into fisheries management and MPA design more widely.10

Section 5 - Environmental Conventions, Treaties and Agreements

Q11. Environmental Conventions, Treaties and Agreements

Please detail how your project will contribute to the aims of the national and/or international agreement(s) your project is targeting. What key OT Government priorities and themes will it address and how? You should also consider local, territory specific agreements and action plans here. Letters of support from UKOT Government partners/stakeholders should also make clear reference to the agreements/action plans your project is contributing towards.

Note: No additional significance will be ascribed for projects that report contributions to more than one agreement.

In the context of the Paris Climate Agreement, and the significant implications of climate change (as highlighted by Intergovernmental Panel on Climate Change (IPCC) assessments), governments have committed to implement mitigation and adaptation actions to reduce climate change-related impacts on ecosystems, biodiversity, and the services they provide. Recognising this commitment for the Southern Ocean, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) agreed a Resolution (Resolution 30/XXVIII) emphasising the need for consideration of climate change impacts to better inform decisions within its ecosystem approach to management. CCAMLR, an integral part of the Antarctic Treaty System, is the framework within which SGSSI fisheries are managed. CCAMLR's ecosystem approach is focused on the maintenance of ecological relationships between harvested, dependent and related populations of Antarctic marine living resources. CCAMLR was not established to specifically manage the impacts of climate change, however, within its ecosystem approach and under Article II of the Convention, is required to take into account the effects of environmental changes. To help inform and drive this work forward, the project findings and associated recommendations will be presented at CCAMLR, supporting the UK's leadership in natural resource management in the Southern Ocean.

The project aligns with on the ground climate change and biodiversity priorities of the Government of South Georgia and the South Sandwich Islands, including within the stewardship framework for SGSSI 'Protect Sustain Inspire,' particularly regarding sustainable fisheries and consideration of climate change impacts. Through improving understanding of climate change effects on toothfish and the wider ecosystem, and using this to inform management, the project will contribute to the management of the SGSSI Marine Protected Area (MPA), specifically the objective "increase the resilience of the marine environment to the effects of climate change", directly addressing research needs in the MPA Research and Monitoring Plan connecting particularly to Themes 5 (Harvested species – fish) and 9 (Climate change and variability). Preliminary findings will be provided for the upcoming review of the MPA, and relevant outputs (e.g. maps of predicted present/future habitat) and the risk assessment will be provided for inclusion in the MPA Data Portal.

The project is also relevant to the SGSSI Biodiversity Action Plan, addressing a key objective "enhance knowledge of the biodiversity and habitats of SGSSI through research, monitoring and review, including the establishment of scientific baselines from which to assess environmental change, including the potential effects of climate change", with each objective mapped against global conservation targets outlined by the Convention on Biological Diversity. The project will contribute directly to the SGSSI Toothfish Fisheries Management Plan, whereby the plans will be revised according to project findings and recommendations to "reduce the risk of over-exploitation in conditions of environmental uncertainty", as well as providing information to enhance the Marine Stewardship Council certification of the South Georgia fishery. In considering climate change in the context of risks to species and sustainable management of living resources, the findings will also be relevant to the UN Decade of Ocean Science for Sustainable Development Southern Ocean Action Plan.

Section 6 - Method, Project Stakeholders, Gender, Change Expected, Pathway to Change & Exit Strategy

Q12. Methodology

Describe the methods and approach you will use to achieve your intended Outcome and contribute towards your Impact. Provide information on:

- **How have you reflected on and incorporated evidence and lessons learnt from past and present activities and projects in the design of this project?**
- **The need for this work and a justification of your proposed approach.**
- **How you will undertake the work (materials and methods).**
- **How you will manage the work (roles and responsibilities, project management tools, etc.).**

There is a growing body of evidence that climate change poses a major threat to marine ecosystems, with consequences for fisheries and their management1,2. Despite recognition of the need to integrate climate change into fisheries management, in practice there are few examples, little progress and guidelines are lacking3,4. This project is rooted in the premise that conveying climate change impacts in terms of risk provides valuable information for decision-makers5. Drawing on our experience of the Southern Ocean, including South Georgia and the South Sandwich Islands (SGSSI), as a rapidly changing marine system, and on toothfish as an exemplar species, our project will first address the need to synthesise existing environmental, biological and fishery information from a range of disparate sources6,7. Building on recent efforts to project future distribution of Southern Ocean fishes8,9, we will undertake analytical and modelling approaches informed by latest guidance for developing and reporting robust species-environment relationship models10. Our project will be informed by, and contribute to, ongoing analyses including modelling biological and physical processes that affect the distribution of key life stages and recruitment11, and stock assessment approaches to consider how populations may be affected by climate change7,12. These analyses will underpin our ecological risk assessment of the effects of climate change on toothfish which we will translate into management recommendations to inform ecosystem-based fisheries management and other conservation priorities in the region. The project team is well-connected within the Southern Ocean research community, understands its governance and priorities, and will draw on expertise from other regions13. Team members have experience with previous/current DarwinPlus projects (e.g. see Q31, 32), providing valuable insight on the project design.

To undertake the work, we will begin by establishing a knowledge base to provide a foundation for understanding the relationships between Patagonian and Antarctic toothfish and environmental parameters. A kick-off workshop will be convened for expert scientists and stakeholders to co-design objectives, identify available information and sources for relevant environmental (e.g., temperature, climate indices), biological (e.g., toothfish distribution, life history parameters, physiology) and fishery (e.g., timing, location and management measures of the fishery) data, together with timeframes for projections and reference points for the risk assessment. Using the knowledge base we will determine species-environment relationships for both species and, where possible, for different life history stages, providing novel insights into important determinants of distribution. We will explore a range of analytical and modelling approaches to statistically explore these relationships further and to extend our knowledge of the distribution of important areas of suitable habitat. Linking these analyses with research into oceanographic retention and connectivity of key life stages (eggs and larvae) will increase understanding of the key drivers of the distribution of both species. Results will be projected under future climate conditions using latest Intergovernmental Panel on Climate Change (IPCC) climate models and Shared Socioeconomic Pathway (SSP) scenarios to assess changes to suitable habitat. This will underpin a risk assessment of climate-driven change to toothfish, based on agreed reference points, and including severity of projected change and certainty across projections, informing decisions, highlighting gaps and guiding future work.

We will develop a preliminary climate change evaluation framework for toothfish, encompassing data acquisition, methodology, analyses and results, through to management recommendations. A second scientist and stakeholder workshop will be convened to discuss and refine this. This will entail evaluating current management, including reviewing how/if existing management measures account for climate change and considering options for reducing risk. Post-workshop, the framework will be presented in the form of a report published on the project/GSGSSI websites, with key findings and recommendations prepared for input to the Toothfish Fishery Management Plan and Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

To manage the work, we will create a project website and use an appropriate team collaboration tool to ensure partners and stakeholders are informed of progress and able to engage throughout the project. The post-doctoral research assistant (PDRA) will be responsible for project coordination, overseen by the project leader (PL), with support from the project team. Regular meetings will be held to monitor and evaluate progress with minutes disseminated to all parties. Progress reports will be shared with stakeholders and published on the project/GSGSSI websites. Project outputs will be made available where appropriate through the UK Polar Data Centre, the project/GSGSSSI websites and the SGSSI Marine Protected Area data portal. Peer-reviewed publications led by the PDRA will be submitted to open access journals. Findings will also be communicated through presentations, e.g. at conferences and written media e.g. The South Georgia Association Newsletter.

Q13. Project Stakeholders

Who are the stakeholders for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them.

The principal stakeholder is the Government of South Georgia and the South Sandwich Islands (GSGSSI), a partner in this project and directly involved in its development. GSGSSI will have a key role in the project, bringing expertise on toothfish, fisheries management and the SGSSI region, participating in workshops, providing advice and contributing to outputs. They will help with wider stakeholder engagement and lead on revisions to the Toothfish Fishery Management Plan and Marine Protected Area (MPA) plan. An important stakeholder is the fishing industry. South Georgia toothfish operators are committed to engaging throughout, including attending the workshops. They will also facilitate input from the wider toothfish fishing community through the industry body Coalition of Legal Toothfish Operators (COLTO) with representation from all Patagonian and Antarctic Toothfish fisheries. Other stakeholders include Marine Stewardship Council (MSC) and World Wide Fund for Nature (WWF) – both committed to engaging throughout, including providing staff time in-kind – and other nongovernmental organisations (NGOs) with an interest in South Georgia. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) is another key stakeholder. Climate change is a priority topic, with the UK strongly advocating progress to integrate climate change into CCAMLR's management. With project team members on the UK delegation, we will ensure outputs from this exemplar project are presented to CCAMLR in a timely manner. Consulting stakeholders during proposal development, project co-design, and engaging throughout will provide important context, ensuring relevant outputs and maximising their uptake and translation into action on the ground.

Q14. Gender equality

All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain how your understanding of gender equality within the context your project, and how is it reflected in your plans. Please summarise how your project will contribute to reducing gender inequality. Applicants should, at a minimum, ensure proposals will not increase inequality and are encouraged to design interventions that proactively contribute to increased gender equality.

The British Antarctic Survey (BAS) is committed to equality, diversity and inclusion see (https://www.bas.ac.uk /jobs/working-for-bas/our-cultural-values-equality-and-diversity/) and aims to embrace diversity in all its forms and provide staff with a sense of belonging regardless of their characteristics, culture, experience, education or economic background. BAS policies will ensure that there are equal opportunities during recruitment for the post-doctoral research assistant position. BAS has been a member of the Athena Swan Charter since 2014. Athena Swan is used across the globe to support and transform gender equality within higher education and research, and BAS is proud to hold an Athena Swan Bronze Award. During the development of this proposal, assembling of the project team and consulting with stakeholders, we have considered gender equality and achieved a good balance, and we will ensure equality in workshop participation and involvement in outputs.

Q15. Change expected

Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended) and the potential to scale the approach. Please describe the changes for the environment and, where relevant, for people in the OTs, and how they are linked.

When talking about how people will benefit, please remember to give details of who will benefit, differences in benefits by gender or other layers of diversity within stakeholders, and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used.

Moving from a range of disparate, difficult to access information, to a comprehensive knowledge base synthesising relevant environmental, biological and fishery information for toothfish will be a significant change. In the short-term this resource will be the foundation of this project, facilitating analyses on the relationships between toothfish and environmental parameters, and will also be of value for related research on toothfish occurring beyond the timeframe

and/or scope of this project, benefiting the Government of South Georgia and the South Sandwich Islands (GSGSSI), the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), other stakeholders and the wider scientific community. In addition, much of the information will be useful for similar studies on other species in the Southern Ocean region and beyond.

The analyses undertaken by the project will drive a shift from a position where the effects of climate change on toothfish are largely unknown to a clear evaluation of risks. This information will be valuable for all project stakeholders in terms of understanding the risks climate change presents to their conservation and management objectives and informing the development of actions to reduce and manage these risks. The risk assessment will also inform the management of the SGSSI Marine Protected Area (MPA), feed into Intergovernmental Panel on Climate Change (IPCC) assessments, and provide a baseline for future analyses, including at finer spatial and temporal scales.

Moving from a lack of guidance on integrating climate change into management to the provision of a framework for GSGSSI and CCAMLR to consider incorporating measures to reduce climate change risks will be an important change. A revised SGSSI Toothfish Fishery Management Plan that includes consideration of climate change and addresses the outcome of this project will be an important move towards ensuring the management measures are robust to future change. With regard to CCAMLR, in the short-term the outputs will be made available via papers and recommendations to the Scientific Committee and Commission via Working Groups. Achieving consensus to change management measures can be challenging and ideas can tend to need socialising over a period of time such that some of the required changes, such as incorporation into Conservation Measures (CMs) are likely to be longer-term aspirations.

Although focused on toothfish in SGSSI, there is potential to scale the approach for broader reach and impact towards mitigating climate change-related impacts on ecosystems, biodiversity, and the services they provide. Our framework will inform toothfish management in areas outside SGSSI; provide an example of best practice and a template for exploring climate change impacts on other taxa; and inform the development of climate-response options for ecosystem-based management and the design of climate-smart MPAs more broadly as these challenges are not unique to the Southern Ocean.

Q16. Pathway to change

Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline why and how you expect your Outputs to contribute towards your overall Outcome and, longer term, your expected Impact.

The Southern Ocean is rapidly changing, and supports important ecosystem services, including international fisheries. There is recognition of the need to integrate climate change into fisheries management, however a huge gap exists between intention and practical action. Focusing on South Georgia and the South Sandwich Islands (SGSSI), and high value toothfish, as an exemplar, this project will benefit a range of stakeholders including GSGSSI, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), fishing industry, non-governmental organisations and the science community, by synthesising and reviewing existing data from disparate sources, undertaking analyses to provide an ecological risk assessment of climate change effects on toothfish, and using this to inform decision-makers. The results will be published in the scientific literature and disseminated to stakeholders, to ensure that the risks of climate-driven change to toothfish populations in SGSSI are better understood and made available to inform ecosystem-based fisheries management in the region. Longer-term, we envisage the climate change evaluation framework being applied to other areas and species (including other UKOTs). More broadly this project will help catalyse the move towards adaptive fisheries management that accounts for climate change effects on fish stocks, fisheries and the societies that depend on them.

Q17. Exit Strategy

How will the project reach a sustainable point and continue to deliver benefits post-funding? Will the activities require funding and support from other sources, or will they be mainstreamed in to "business as usual"? How will the required knowledge and skills remain available to sustain the benefits? If relevant, how will your approach be scaled?

This project has a clear endpoint with delivery of the climate change evaluation framework, underpinned by the knowledge base and risk assessment. Within the project timeframe the associated outputs will be incorporated into the South Georgia and South Sandwich Islands (SGSSI) Toothfish Fishery Management Plan, provided for input in the Marine Protected Area (MPA) Data Portal, presented to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and made available for use by all stakeholders to inform conservation and management in the region.

Knowledge sharing throughout the project together with strategic project management, with regular reports and outputs made available, will ensure that acquired knowledge and skills are maintained between the partners well beyond the lifetime of the project. Team members will continue to collaborate (i.e. "business as usual"), building on project findings to enhance ecosystem-based management in the region. For example, as measures in the revised fishery management plan become implemented or contributing to progress towards MPA objectives. The Project Leader and members of the project team in their established roles on the UK delegation will ensure relevant outputs and recommendations are presented at CCAMLR's annual meetings. Longer-term, catalysed and informed by this project, we envisage the climate change evaluation framework being applied to other areas and species (including other UKOTs).

Reports will be available on the project/GSGSSI websites and peer-reviewed papers will be open access and available to all stakeholders and the wider public, ensuring the resources and outcomes are available and can continue to deliver benefits beyond the project. Any underlying data that can be made publicly available will be provided with a digital object identifier (DOI) by the UK Polar Data Centre and cited in relevant open access publications.

If necessary, please provide supporting documentation e.g. maps, diagrams, references etc., as a PDF using the File Upload below:

Cavanagh References
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pdf 115.83 KB

Section 7 - Risk Management

Q18. Risk Management

Please outline the 6 key risks to achievement of your Project Outcome and how these risks will be managed and mitigated, referring to the Risk Guidance. This should include at least one Fiduciary, one Safeguarding, and one Delivery Chain Risk.

Projects should also draft their initial risk register using the Risk Register Template provided, and be prepared to submit this when requested if they are recommended for funding. Do not attach this to your application.

Risk Description	Impact	Prob.	Inherent Risk	Mitigation	Residual Risk
Fiduciary (Financial) Funds not used for intended purpose, e.g. for personal gain.	Moderate	Rare	Minor	Large proportion of the funds are for salaries/associated overheads, overseen by UKRI Shared Business Services Centre (SBS). Travel/accommodation must be booked using centralised government travel provider, expenses submitted with receipts through SBS, in line with UKRI policy. BAS finance will oversee expenditure and there will be an independent audit.	Minor

Safeguarding Discrimination, bullying and harassment among project staff, or by colleagues from outside of the project.	Moderate	Rare	Minor	We will adhere to UKRI Safeguarding Policy (ukri.org). This will be shared with partners at the project outset and embedded in all practices. The PI will monitor the project and be alert to any safeguarding issues through project meetings and 1:1 meetings. Any issues will be raised with BAS HR.	Minor
Delivery Chain Issues with ability for partner(s) to deliver an aspect of the project.	Moderate	Rare	Moderate	The partners are committed to the project and have the capability and capacity to deliver. We will have a collaboration agreement in place with all partners before the project commences and regular monitoring meetings to address any issues around delivery at an early stage.	Minor
Risk 4 Unable to recruit suitable postdoctoral research assistant (PDRA).	Severe	Rare	Major	BAS has an excellent reputation attracting staff of high calibre. We will advertise widely before the onset of the project and will be guided by the job description to ensure the PDRA has all the essential skills.	Moderate
Risk 5 Issues with project staff that may delay the project schedule (e.g. sickness, maternity/paternity leave, staff member leaving, etc).	Moderate	Rare	Minor	We have established a good size project team with relevant expertise such that responsibilities are shared. We will also be able to draw on in-kind support from other scientists. Progress will be regularly assessed, support provided as needed, seeking guidance from BAS HR if required.	Minor
Risk 6 Stakeholder issues e.g. not engaging, not using findings or recommendations.	Moderate	Possible	Major	Across the project team we have good relationships with all the stakeholders. We have committed to stakeholder engagement throughout the project, from the outset, including co-design. This should maximise uptake and implementation of findings. Some aspects are beyond our control such as achieving consensus within CCAMLR.	Moderate

Section 8 - Implementation Timetable

Q19. Provide a project implementation timetable that shows the key milestones in project activities

Provide a project implementation timetable that shows the key milestones in project activities. Complete the Word template as appropriate to describe the intended workplan for your project.

Implementation Timetable Template

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and fill/shade only the quarters in which an activity will be carried out.

Cavanagh Implementation Timetable
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Section 9 - Monitoring and Evaluation (M&E)

Q20. Monitoring and evaluation (M&E) plan

Describe how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.

Darwin Plus projects will need to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E. For more information, see Finance Guidance**.**

To manage the work, we will create a project website and use an appropriate team collaboration tool (e.g. Microsoft Teams) to ensure that partners and stakeholders are informed of progress and able to engage throughout the project. The post-doctoral research assistant (PDRA) will be responsible for project coordination, overseen by the Project Leader (PL). A Project Board will be established at the outset and will include key staff from all project partners. This will be chaired by the PL with monthly meetings (hybrid option for those not based at British Antarctic Survey (BAS) to assess progress against agreed timelines, objectives and budget, address any challenges or concerns, and review stakeholder engagement. These will be minuted with key points disseminated to all stakeholders in the form of an outreach bulletin. Every three months we will expand the Board meeting to include wider project team members and stakeholders (hybrid option for those not based at BAS) to discuss progress and invite feedback. In addition, the PL will meet weekly with the PDRA to assess progress and challenges. We have budgeted for two in-person meetings per year between BAS and Centre for Environment, Fisheries and Aquaculture (Cefas), to include the PDRA, PL and others from the wider team. These meetings will be used to discuss project progress and advance ongoing activities. We have also budgeted for the PDRA to attend a small number of relevant national and international conferences, and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) Working Group on Fish Stock Assessment (WG-FSA) in the second year. These will all provide opportunities to solicit external evaluation of the project for consideration by the Board and wider team. Any requests to make changes to timelines or budget will be raised with DarwinPlus as soon as such requirements are apparent. Six-monthly progress reports will be shared with all interested stakeholders and published on partner websites. The PL will work closely with the BAS Finance Office to monitor the budget and will report back to the Board each month. BAS Finance Office will have overall control of the budget and the project will be subject to external audit (funds have been allocated for this). There will be several CCAMLR papers produced during the project together with journal papers, all will be subject to peer-review to ensure unbiased external evaluation of the project. The principal costs associated with monitoring and evaluation are staff time (project team and BAS Finance) and audit costs.

Total project budget for M&E in GBP (this may include Staff, Travel and Subsistence costs)	[redacted]
Percentage of total project budget set aside for M&E (%)	[redacted]
Number of days planned for M&E	50

Section 10 - Logical Framework

Q21. Logical Framework (logframe)

Darwin Plus projects will be required to monitor and report against their progress towards their Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you expect to measure progress against these and how we can verify this.

Stage 2 Logframe Template

The **logframe template** (N.B. there is a different template for Stage 1 and Stage 2) needs to be downloaded from Flexi-Grant, completed and uploaded as a PDF within your Flexi-Grant application – **please do not edit the logframe template structure (other than adding additional Outputs if needed) as this may make your application ineligible.** On the application form, you will be asked to copy the Impact, Outcome and Output statements and activities - these should be the same as in your uploaded logframe.

Please upload your logframe as a PDF document.

- Cavanagh Logframe
- 17/10/2022
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Impact:

Potential risks of climate-driven change to toothfish in South Georgia and the South Sandwich Islands (SGSSI) are better understood and made available to inform ecosystem-based fisheries management in the region.

Outcome:

An evaluation of the risks that climate change poses for toothfish in SGSSI informs ecosystem-based fishery management such that it can incorporate measures to reduce these risks.

Project Outputs

Output 1:

Knowledge base of relevant environmental, biological and fishery information for both species of toothfish created, providing the basis for understanding toothfish sensitivity to environmental parameters.

Output 2:

Ecological risk assessment of the effects of climate change on toothfish.

Output 3:

Climate change evaluation framework for toothfish fishery management.

Output 4:

No Response

Output 5:

No Response

Do you require more Output fields?

It is advised to have fewer than 6 Outputs since this level of detail can be provided at the Activity level.

- ⦿ No

Activities

Each activity is numbered according to the Output that it will contribute towards, for example, 1.1, 1.2, 1.3 are contributing to Output 1.

1.1 Advertise, interview and appoint a PDRA for the project.
1.2 Establish project webpage to keep partners and stakeholders informed of progress and create appropriate online collaborative space for the project team.
1.3 Organise and prepare for kick-off workshop, finding suitable date for workshop to enable maximum participation.
1.4 Convene workshop with scientists and stakeholders to co-design objectives and identify required information and sources for the knowledge base, together with timeframes and reference points.
1.5 Source and collate information into useable format to establish knowledge base.
1.6 Determine how the information needs to be synthesised, summarised and visualised.
1.7 Prepare and disseminate workshop report, including making available on the project website.
1.8 Prepare and submit information paper to CCAMR WG-FSA.
1.9 Provide relevant information for inclusion in SGSSI MPA Data Portal.

2.1 Interrogate knowledge base to identify appropriate dependent variables representing distribution and abundance of key life stages of both species.
2.2 Interrogate knowledge base to identify candidate predictor variables for species-environment modelling.
2.3 Determine candidate analytical and modelling approaches for species-environment relationship modelling.
2.4 Identify the most suitable approaches based on objectives and variables.
2.5 Identify an appropriate way to represent uncertainties in climate change projections in the results of the chosen species-environment modelling approach.
2.6 Apply approach from 2.4 to develop species-environment models.
2.7 Extract prognoses of predictor variables from the knowledge base representing timeframes identified in consultation with stakeholders.
2.8 Use the results of 2.5, 2.6 and 2.7 to project the change in suitable habitat within the identified timeframes, and associated uncertainties.
2.9 Develop method (simple model/calculation) to translate projections of the distribution of key life stages into estimates of population size for both species.
2.10 Apply results of 2.8 in combination with the approach in 2.5 to assess climate change risk to species distributions based on distribution reference points identified in 1.4.
2.11 Apply results of 2.9 in combination with the approach in 2.5 to assess climate change risk to species abundance based on population reference points identified in 1.4.
2.12 Prepare two scientific papers for peer-reviewed journals, one on present-day, one on projections (also prepare for CCAMLR WG-FSA).
2.13 Provide relevant information (e.g., maps of predicted present/future habitat) and the risk assessment for inclusion in the SGSSI MPA Data Portal.

3.1 Develop a framework to evaluate climate change for toothfish (encompassing data acquisition, analyses and visualisation, management recommendations).
3.2 Stakeholder workshop held to discuss project results, consider current management, refine framework and develop recommendations.
3.3 Prepare workshop report.
3.4 Input to SGSSI Toothfish Fishery Management Plan.
3.5 Provide recommendations to CCAMLR.

Section 11 - Budget and Funding

Q22. Budget

Please complete the template below which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.

Budget form for projects over £100k

Please ensure you include any co-financing figures in the Budget spreadsheet to clarify the full budget required to deliver this project.

NB: Please state all costs by financial year (1 April to 31 March) and in GBP. Darwin Plus cannot agree any increase in grants once awarded.

Please upload the Lead Partner's financial accounts at the certification page at the end of the application form.

Please upload your completed Darwin Plus Budget Form Excel spreadsheet using the field below.

Cavanagh Phase 2 Budget approved
17/10/2022
15:12:20
xlsx 86.64 KB

Q23. Funding

Q23a. Is this a new initiative or a development of existing work?

⦿ New Initiative

Please provide details:

This is a new initiative.

Q23b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?

⦿ No

Q24. Balance of budget spend

Defra are keen to see as much Darwin Plus funding as possible directly benefiting OT communities and economies. While it is appreciated that this is not always possible every effort should be made for funds to remain in-Territory.

Explain the thinking behind your budget in terms of where Darwin Plus funds will be spent. What benefits will the Territory/ies see from your budget? What level of the award do you expect will be spent locally? Please explain the decisions behind any Darwin Plus funding that will not be spent locally and how those costs are important for the project.

South Georgia and the South Sandwich Islands (SGSSI) does not have any permanent local residents so it is not possible to benefit the local economy through the employment of staff. A large portion of the project budget is for staff time to undertake the work from British Antarctic Survey (BAS) in the UK. All the outputs will be for the benefit of the OT and will be available for the long-term to improve fisheries management, with associated biodiversity and ecosystem benefits, and the potential to be adapted for other OTs. Fisheries revenue constitutes the majority of the revenue of GSGSSI with toothfish fisheries around [redacted] of government income, therefore by increasing the sustainability and longevity of the fisheries, the capacity for financial benefit to GSGSSI will also increase over time.

Q25. Capital items

If you plan to purchase capital items with Darwin Plus funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

Laptop

Q26. Value for Money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.

This project brings together an experienced multi-disciplinary science team with relevant stakeholders to support Government of South Georgia and the South Sandwich Islands (GSGSSI) in addressing an urgent conservation and fisheries management issue. We have budgeted staff costs to provide input from a strong team. Additional British Antarctic Survey (BAS) staff costs, particularly those from climate change experts, will be contributed as matched funding. Centre for Environment, Fisheries and Aquaculture (Cefas) are also providing matched funding including for additional scientists to attend workshops and contribute to outputs. GSGSSI staff are contributing their time in-kind to support the project. Stakeholder in-kind staff time will also be significant. The work will be further enhanced through collaborations with external scientists during the project, e.g. linking to the extensive work of our New Zealand colleagues on toothfish in the Ross Sea. The employment of a full-time post-doctoral research assistant (PDRA) - with appropriate ecological and analytical skills - on this project, brings the benefit of dedicated effort to ensure the project can be delivered in a short timeframe. We have minimised travel costs, hosting both workshops at BAS, with a hybrid option. We have budgeted for only a small number of in-person meetings, relying on virtual meetings for regular contact with the team and stakeholders in lieu of costly in-person meetings. The longer-term, broader benefits of this work reduce future costs in providing a baseline (knowledge base, evaluation framework) for similar work (different species, areas) with multiple applications of the outputs (GSGSSI, CCAMLR).

Section 12 - Safeguarding and Ethics

Q27. Outputs of the project and Open Access

All outputs from Darwin Plus projects should be made available on-line and free to users whenever possible. Please outline how you will achieve this and detail any specific costs you are seeking from Darwin Plus to fund this.

All data derived from the project will be archived with the UK Polar Data Centre and wherever possible made publicly available. If this is not possible due to commercial, or other legitimate constraints, UK Polar Data Centre will hold the data and provide a metadata record explaining how a request can be made for access. Outputs will also be made available to the South Georgia and South Sandwich Islands (SGSSI) Marine Protected Area (MPA) Data Portal, which was funded by a previous Darwin Plus grant (DPLUS069). Information including reports and data visualizations (e.g. maps of predicted present/future habitat) will be made available on the project and partner websites. Scientific outputs from the project will be published as open access and we have requested funds in the budget to cover this (i.e. two open access peer-reviewed journal papers). Any code (e.g. R or other) generated by the project will be made available via a publicly accessible repository where appropriate.

Q28. Safeguarding

Projects funded through Darwin Plus must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding policies in place.

Please confirm the Lead Partner has the following policies in place and that these can be available on request:

Please upload the lead partner's Safeguarding Policy as a PDF on the certification page.

We have a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse	Checked
We have attached a copy of our safeguarding policy to this application (file upload on certification page)	Checked
We keep a detailed register of safeguarding issues raised and how they were dealt with	Checked
We have clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made	Checked
We share our safeguarding policy with all partners	Checked
We have a whistle-blowing policy which protects whistle blowers from reprisals and includes clear processes for dealing with concerns raised	Checked
We have a Code of Conduct for staff and volunteers that sets out clear expectations of behaviours - inside and outside the work place - and make clear what will happen in the event of non-compliance or breach of these standards	Checked

Please outline how you will implement your safeguarding policies in practice and ensure that all partners apply the same standards as the Lead Partner.

UKRI (of which BAS is a component) has detailed policy and guidance on Safeguarding and this guidance will be shared with all partners at the outset of the project, included for discussion on the agenda of project meetings and embedded in all practices.

Q29. Ethics

Outline your approach to meeting the key ethical principles, as outlined in the guidance. Additionally, are there any human rights and/or international humanitarian law risks in relation to your project? If there are, have you carried out an assessment of the impact of those risks, and of measures that may be taken in order to mitigate them? Any risk assessment and mitigation of human rights and/or international humanitarian law risks should be included in the Question 18 on Risk Management.

There are no permanent residents living in the OT engaged with this project. However, the Government of South Georgia and the South Sandwich Islands (GSGSSI) has been consulted throughout the development of this proposal. GSGSSI are also a project partner and have pledged staff time in-kind to participate in the project. British Antarctic Survey (BAS) has a long history of collaboration with GSGSSI from extensive research conducted in the region. BAS also operates the research station at King Edward Point, South Georgia on behalf of GSGSSI and the Foreign, Commonwealth and Development Office (FCDO) of the United Kingdom. As a result of these activities, BAS has a well-established process to address ethical, legal and environmental obligations. We will continue to work closely with representatives from SGSSI to ensure that our activities comply with any relevant requirements. To uphold the highest international scientific standards, all data derived from the project with be archived with the UK Polar Data Centre and wherever possible made publicly available. If this is not possible due to commercial, or other legitimate constraints, UK Polar Data Centre will hold the data and provide a metadata record explaining how a request can be made for access to the data. We have planned activities to engage and share outputs with the wider stakeholder community and have budgeted for funds to publish our findings in open access scientific journals.

Section 13 - Project Staff

Q30. Project staff

Please identify the core staff (identified in the budget), their role and what % of their time they will be working on the

project.

Please provide 1-page CVs or job description, further information on who is considered core staff can be found in the Finance Guidance**.**

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Rachel Cavanagh	**Project Leader**	15	Checked
Martin Collins	Toothfish management, SGSSI and CCAMLR expertise	5	Checked
Jennifer Freer	Ecological modeller	4	Checked
Simeon Hill	Foodweb and fisheries modeller	4	Checked

Do you require more fields?

⦿ Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Philip Hollyman	Fisheries scientist	4	Checked
Sally Thorpe	Biophysical modeller and oceanographer	4	Checked
Claire Waluda	Marine and fisheries ecologist	3	Checked
Oliver Hogg	SGSSI benthic environment and climate change expertise	4	Checked
Marta Soeffker	Toothfish ecology and deep-sea fisheries expertise	4	Checked
Mark Belchier and Sue Gregory	SGSSI fishery management and stakeholder engagement	4	Checked
TBD	Postdoctoral research assistant (PDRA)	100	Checked
Polar Data Centre Staff	Data management	5	Unchecked

Please provide 1 page CVs (or job description if yet to be recruited) for the project staff listed above as a combined PDF.

Ensure the file is named clearly, consistent with the named individual and role above.

Cavanagh_CVs
17/10/2022
14:10:08
pdf 2.39 MB

Have you attached all project staff CVs?

⦿ No

If you cannot provide a CV or job description, please explain why not.

The Polar Data Centre (PDC) staff time is not assigned to a particular person and will be shared across the PDC team.

Section 14 - Project Partners

Q31. Project partners

Please list all the Project Partners (including the Lead Partner – i.e. the partner who will administer the grant and coordinate the delivery of the project), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far and planned.

This section should demonstrate the capability and capacity of the Project Partners to successfully deliver the project. Please provide Letters of Support for all project partners or explain why this has not been included.

The partners listed here should correspond to the Delivery Chain Risk Map (within the Risk Register template) which you will be asked to submit if your project is recommended for funding.

Lead partner name:	British Antarctic Survey (BAS)
Is the Lead Partner based in a UKOT where the project is working?	⦿ No
Please explain why this project is led from outside the UKOT	South Georgia & South Sandwich Islands does not have permanent residents; therefore the project work will be undertaken from BAS/UK. BAS was established to work in the British Antarctic Territory and other associated territories including SGSSI. All the outputs will be for the benefit of the OT.
Website address:	https://www.bas.ac.uk

Details (including roles and responsibilities and capacity to engage with the project):	BAS has a long history of ecological research at South Georgia and in the surrounding waters, through the research stations at Bird Island and King Edward Point and science on its research vessels. A key strength is BAS's multi-disciplinary approach and access to a range of expertise from physical oceanography to ecology, to provide advice and support to projects such as this. BAS also provides scientific advice to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) through the Foreign, Commonwealth and Development Office. This proposal brings together a strong experienced team, led by Rachel Cavanagh, a marine ecologist working at the climate-ecology interface, leading on climate change issues for the UK delegation to CCAMLR. The team also includes Martin Collins, former Chief Executive/Director of Fisheries for GSGSSI, now Head of the BAS-CCAMLR team, together with ecological, oceanographic and fishery scientists and modellers, with data management support. Five team members are on the UK delegation to CCAMLR, leading on Commission/Scientific Committee (Collins); Working Groups on Fish Stock Assessment (Hollyman) and Ecosystem Monitoring and Management (Hill); CCAMLR's Ecosystem Monitoring Programme (Waluda); climate change (Cavanagh). The climate change research will be further supported by the engagement of BAS climate scientists.
Allocated budget (proportion or value):	[redacted]
Representation on the Project Board (or other management structure)	⊙ Yes
Have you included a Letter of Support from this organisation?	⊙ Yes
Have you provided a cover letter to address your Stage 1 feedback?	⊙ Yes

Do you have partners involved in the Project?

⊙ Yes

1. Partner Name:	Centre for Environment, Fisheries and Aquaculture (Cefas)
Website address:	www.cefas.co.uk

Details (including roles and responsibilities and capacity to engage with the project):	Cefas is an Executive Agency of the UK Government's Department for Environment, Food and Rural Affairs (Defra) and is internationally active in science that is essential to a sustainable use and exploitation of resources around UK and overseas, including providing support to GSGSSI. Cefas will contribute with expert knowledge on biology and ecology of toothfish species around SGSSI, fisheries sustainability and management, the SGSSI region, and where relevant, support on data analysis. Cefas will also play a role in disseminating results and advise how project outputs can inform and support management. Cefas scientists will participate in the workshops, provide advice and contribute to outputs throughout the project. Cefas has extensive experience providing support to UKOTs, including development and implementation of marine protection strategies and are experienced in capacity building, fisheries management advice, climate change impacts on fisheries and biodiversity assessments, as well as expertise in Antarctic marine ecosystems, and experience and expertise delivering research for science-informed management. Cefas scientists have key roles on the UK delegation to CCAMLR, including head of delegation. Cefas personnel have the time and resources to undertake this project successfully. Cefas has successfully completed previous Darwin Plus funded projects (e.g. DPLUS026, DPLUS045, DPLIS067, DPLUS079, DPLUS112, IWT057).
Allocated budget (proportion or value):	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes
Have you included a Letter of Support from this organisation?	⦿ Yes

2. Partner Name:	Government of South Georgia & South Sandwich Islands (GSGSSI)
Website address:	www.gov.gs
Details (including roles and responsibilities and capacity to engage with the project):	The Government of South Georgia & South Sandwich Islands (GSGSSI) are based in Stanley, Falkland Islands, where they report to the Commissioner (who is also the Governor of the Falklands). GSGSSI has a small team mostly based in Stanley, but with some staff working remotely from the UK. GSGSSI are responsible for the management of the Territory. GSGSSI will contribute expertise on toothfish, fisheries management and the SGSSI region. GSGSSI (Mark Belchier and Sue Gregory) will play a key role engaging throughout the project, including participating in the kick-off meeting; providing advice and contributing to outputs throughout the project; and participating in the final workshop. They will have a key role in helping to coordinate stakeholder engagement and will lead on revisions to the Toothfish Fishery Management Plan and Marine Protected Area (MPA) plan.
Allocated budget (proportion or value):	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes

Have you included a Letter of Support from this organisation?	⦿ Yes

3. Partner Name:	*No Response*
Website address:	*No Response*
Details (including roles and responsibilities and capacity to engage with the project):	*No Response*
Allocated budget (proportion or value):	£0.00
Representation on the Project Board (or other management structure)	○ Yes ○ No
Have you included a Letter of Support from this organisation?	○ Yes ○ No

4. Partner Name:	*No Response*
Website address:	*No Response*
Details (including roles and responsibilities and capacity to engage with the project):	*No Response*
Allocated budget (proportion or value):	£0.00
Representation on the Project Board (or other management structure)	○ Yes ○ No
Have you included a Letter of Support from this organisation?	○ Yes ○ No

5. Partner Name:	*No Response*

Website address:	*No Response*
Details (including roles and responsibilities and capacity to engage with the project):	*No Response*
Allocated budget (proportion or value):	£0.00
Representation on the Project Board (or other management structure)	○ Yes ○ No
Have you included a Letter of Support from this organisation?	○ Yes ○ No

6. Partner Name:	*No Response*
Website address:	*No Response*
Details (including roles and responsibilities and capacity to engage with the project):	*No Response*
Allocated budget (proportion or value):	£0.00
Representation on the Project Board (or other management structure)	○ Yes ○ No
Have you included a Letter of Support from this organisation?	○ Yes ○ No

If you require more space to enter details regarding Partners involved in the project, please use the text field below.

No Response

Please provide a cover letter responding to feedback received at Stage 1 if applicable and a combined PDF of all letters of support.

Cavanagh Cover Letter
17/10/2022
14:31:49
pdf 167.66 KB

Cavanagh_LoS
17/10/2022
14:10:58
pdf 729.08 KB

Section 15 - Lead Partner Capability and Capacity

Q32. Lead Partner Capability and Capacity

Has your organisation been awarded Darwin Plus, Darwin Initiative or Illegal Wildlife Trade Challenge Fund funding before (for the purposes of this question, being a partner does not count)?

⦿ Yes

If yes, please provide details of the most recent awards (up to 6 examples).

Reference No	Project Leader	Title
DPLUS109	Philip Hollyman	Initiating monitoring support for the SGSSI-MPA Research and Monitoring Plan
DPLUS120	Victoria Warwick-Evans	Spatial segregation and bycatch risk of seabirds at South Georgia
DPLUS132	Peter Fretwell	Monitoring albatrosses using very high resolution satellites and citizen science
DPLUS149	Martin Collins	Resolving ecosystem effects of the South Georgia winter krill fishery
DPLUS166	Philip Hollyman	Improving identification of fish bycatch in the Antarctic krill fishery
DPLUS179	Cecilia Liszka	Characterising pelagic biodiversity at South Georgia through novel sampling methods

Have you provided the requested signed audited/independently examined accounts?

If yes, please upload these on the certification page. Note that this is not required from Government Agencies.

⦿ Yes

Section 16 - Certification

Certification

On behalf of the

Company

of

British Antarctic Survey

I apply for a grant of

[redacted]

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- **I have enclosed CVs for project key project personnel, a cover letter, letters of support, a budget, logframe, Safeguarding Policy and project implementation timetable.**
- **Our last two sets of signed audited/independently verified accounts and annual report are also enclosed.**

Checked

Name	Margaret Clark
Position in the organisation	Head of Finance
Signature (please upload e-signature)	M Clark signature 17/10/2022 15:00:16 pdf 31.85 KB M Clark Sig 17/10/2022 15:00:10 jpg 8.41 KB
Date	17 October 2022

Please attach the requested signed audited/independently examined accounts.

UKRI-200721-AnnualReport2020-2021 smaller
17/10/2022
14:12:40
pdf 934.9 KB

UKRI-190822-AnnualReportAccounts2021To2022 smaller
17/10/2022
14:12:29
pdf 958.13 KB

Please upload the Lead Partner's Safeguarding Policy as a PDF

UKRI-081020-CodeOfConduct
17/10/2022
14:12:11
pdf 218.17 KB

Section 17 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the "Darwin Plus Guidance**", "**Monitoring Evaluation and Learning Guidance**", "**Risk Guidance**" and "**Financial Guidance**".**	Checked
I have read, and can meet, the current Terms and Conditions **for this fund.**	Checked
I have provided actual start and end dates for the project.	Checked

I have provided my budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached my completed logframe and timeline as a PDF using the templates provided.	Checked
I have included a 1 page CV or job description for all the Project Staff identified at Question 30, including the Project Leader, or provided an explanation of why not.	Checked
I have included a letter of support from the lead partner and main partner organisation(s), including relevant OT Governments, identified at Question 31, or an explanation of why not.	Checked
I have included a cover letter from the Lead Partner, outlining how any feedback received at Stage 1 has been addressed where relevant.	Checked
I have included a copy of the Lead Partner's safeguarding policy, which covers the criteria listed in Question 28.	Checked
I have included a signed copy of the last 2 annual report and accounts for the Lead Partner, or provided an explanation if not.	Checked
I have checked the Darwin Plus website **immediately prior to submission to ensure there are no late updates.**	Checked
I have read and understood the Privacy Notice on the Darwin Plus website**.**	Checked

We would like to keep in touch!

Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under the Darwin Initiative and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. You are free to unsubscribe at any time.

Unchecked

Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the **Privacy Notice**, available from the Forms and Guidance Portal.

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising the Darwin Initiative including project details (usually title, lead partner, project leader, location, and total grant value).

Project Title: Evaluating climate change risks to Patagonian and Antarctic toothfish

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1 **Relevant environmental, biological and fishery information for toothfish synthesised, providing the basis for understanding toothfish sensitivity to environmental parameters**										
1.1	Advertise, interview and appoint a post-doctoral research assistant (PDRA) for the project (this will be prior to the project start date).	3								
1.2	Establish project webpage to keep partners and stakeholders informed of progress and create appropriate online collaborative space for the project team.	1								
1.3	Organise and prepare for kick-off workshop, finding suitable date for workshop to enable maximum participation (some of this will be initiated prior to the project start date, by the Project Leader (PL)).	3								
1.4	Convene workshop with scientists and stakeholders to co-design objectives and identify required information and sources for the knowledge base, together with timeframes and reference points	<1								
1.5	Source and collate information into useable format to establish knowledge base	3								
1.6	Determine how the information needs to be synthesised, summarised and visualised	1								
1.7	Prepare and disseminate workshop report, including making available on the project website	3								
1.8	Prepare and submit information paper to the Commission for Conservation of Antarctic Marine Living Resources (CCAMLR) Working Group on Fish Stock Assessment (WG-FSA)	3								

Project Title: Evaluating climate change risks to Patagonian and Antarctic toothfish

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.9	Provide relevant information for inclusion in SGSSI Marine Protected Area (MPA) Data Portal.	1								
Output 2 **Ecological risk assessment of the effects of climate change on toothfish**										
2.1	Interrogate knowledge base to identify appropriate dependent variables representing distribution and abundance of key life stages of both species	1								
2.2	Interrogate knowledge base to identify candidate predictor variables for species-environment modelling	1								
2.3	Determine candidate analytical and modelling approaches for species-environment relationship modelling	1								
2.4	Identify the most suitable approaches based on objectives and variables	1								
2.5	Identify an appropriate way to represent uncertainties in climate change projections in the results of the chosen species-environment modelling approach	1								
2.6	Apply approach from 2.4 to develop species-environment models	1								
2.7	Extract prognoses of predictor variables from the knowledge base representing timeframes identified in consultation with stakeholders	<1								
2.8	Use the results of 2.5, 2.6 and 2.7 to project the change in suitable habitat within the identified timeframes, and associated uncertainties	2								
2.9	Develop method (simple model/calculation) to translate projections of the distribution of key life stages into estimates of population size for both species	1								

Project Title: Evaluating climate change risks to Patagonian and Antarctic toothfish

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.10	Apply results of 2.8 in combination with the approach in 2.5 to assess climate change risk to species distributions based on the distribution reference points identified in 1.4	1								
2.11	Apply results of 2.9 in combination with the approach in 2.5 to assess climate change risk to species abundance based on the population reference points identified in 1.4	1								
2.12	Prepare two scientific papers for peer-reviewed journals, one on present-day (also prepared for WG-FSA), one on projections (also prepared for WG-FSA although this will be after the end of the project)	15								
2.13	Provide relevant information (e.g. maps of predicted present/future habitat) and the risk assessment for inclusion in the SGSSI MPA Data Portal	1								
Output 3 **Climate change evaluation framework**										
3.1	Develop a framework to evaluate climate change for toothfish (encompassing data acquisition, analyses and visualisation, management recommendations)	15								
3.2	Stakeholder workshop held to discuss project results, consider current management, refine framework and develop recommendations	<1								
3.3	Prepare workshop report	3								
3.4	Input to SGSSI Toothfish Fishery Management Plan	1								
3.5	Provide recommendations to CCAMLR (this will be after the end of the project)	1								

Project Title: Evaluating climate change risks to Patagonian and Antarctic toothfish

Project Summary	SMART Indicators	Means of Verification	Important Assumptions
Impact: Potential risks of climate-driven change to toothfish in South Georgia and the South Sandwich Islands (SGSSI) are better understood and made available to inform ecosystem-based fisheries management in the region.			
Outcome: An evaluation of the risks that climate change poses for toothfish in SGSSI informs ecosystem-based fishery management such that it can incorporate measures to reduce these risks.	0.1 Scientific papers and reports on the ecological risk assessment of the effects of climate change on both species of toothfish will be prepared at regular intervals during the project (2023, 2024, 2025). Scientific papers will be submitted for publication in peer-reviewed literature (Oct 2024; Jan 2025). Papers will be submitted to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) (Oct 2023, 2024). Reports will be made available on the project and Government of South Georgia & the South Sandwich Islands (GSGSSI) websites (Jul 2023, Mar 2025). 0.2 Stakeholder workshop report presenting the climate change evaluation framework encompassing data acquisition, analyses and visualisation, and management recommendations (Feb 2025).	0.1 Project reports will be made publicly available via the project website and the GSGSSI website as appropriate. Scientific papers will be published as open access. Papers submitted to CCAMLR will be cited in the CCAMLR meeting reports and made available on the project website. 0.2 Workshop report will be published on project webpage and GSGSSI webpage. 0.3 Approved updated fishery management plan published on the GSGSSI website. 0.4 MPA review report includes preliminary project results (potentially end 2023, date of review to be determined). 0.5 MPA Data Portal includes project outputs (Mar 2025).	0.1 Successful appointment of a post-doctoral research assistant (PDAR) with the required skillset. 0.1 Reports and papers are prepared and submitted on time. 0.2 Engagement and feedback from stakeholders to ensure the outputs are relevant and useable. 0.3 Stakeholders engage in management discussions to incorporate scientific advice into future fishery management decision-making. 0.4 SGSSI MPA review is completed on schedule, with an opportunity for preliminary project results to be submitted for consideration. 0.5 Outputs are suitable for inclusion in the MPA Data Portal.

	0.3 Revised SGSSI Toothfish Fishery Management Plan that includes consideration of climate change and addresses the outcome of this project (Mar 2025). 0.4 Preliminary project results considered in the upcoming review of the SGSSI MPA (potentially end 2023, to be determined). 0.5 Project outputs provided for inclusion in the MPA Data Portal (Oct 2023; Jan; Mar 2025).		
Outputs: **1**. Knowledge base of relevant environmental, biological and fishery information for both species of toothfish created, providing the basis for understanding toothfish sensitivity to environmental parameters.	1.1 Project kick-off workshop report (Jun 2023). 1.2 Information paper submitted to CCAMLR Working Group on Fish Stock Assessment (WG-FSA) (Oct. 2023). 1.3 Project knowledge base established for both species of toothfish (Oct 2023). 1.4 Relevant information provided for inclusion in the SGSSI MPA Data Portal (Oct 2023).	1.1 Report published on project website 1.2 Paper included in WG-FSA report, and also made publicly available on project website. 1.3 Knowledge base for both species made available via project website. 1.4 Information accessible via the SGSSI MPA Data Portal.	1.1 Availability of key scientists and stakeholders to engage in the kick-off workshop. 1.2 Paper prepared on time for submission to WG-FSA. 1.3 Relevant restricted information made available (e.g. toothfish occurrence data on request to CCAMLR). 1.4 SGSSI MPA Data Portal updated in timely manner.

2. Ecological risk assessment of the effects of climate change on toothfish.	2.1 Scientific paper submitted to peer-reviewed journal on toothfish life history, identifying life-stages that may be particularly susceptible to changing climate, also submitted to CCAMLR WG-FSA (Oct 2024). 2.2 Scientific paper that considers projected climate change impacts to both species of toothfish submitted to peer-reviewed journal, describing the model projections and the risk assessment (Jan 2025). Note this will also be submitted to CCAMLR WG-FSA (*Oct 2025). 2.3 Relevant outputs from the risk assessment provided for inclusion in the SGSSI MPA Data Portal (Oct 2024, Jan 2025).	2.1 Scientific paper will be published in a journal as open access. Paper mentioned in WG-FSA report. 2.2 Scientific paper will be published in a journal as open access. Paper mentioned in CCAMLR WG-FSA report (*verifiable after project end date due to timing of WG-FSA meeting). 2.3 Outputs made available via the SGSSI MPA Data Portal.	2.1 Available predictor variables usefully explain observed variance in species distribution. 2.2 Prognoses of key predictor variables are available at the appropriate scale. 2.3 Dependent on Indicators 2.2 and 2.3
3. Climate change evaluation framework for toothfish fishery management.	3.1 Report from stakeholder workshop, presenting evaluation framework for climate change risk for both species of toothfish which encompasses data acquisition, analyses and visualisation, to management recommendations (Feb 2025). 3.2 Project outputs and recommendations incorporated	3.1 Stakeholder workshop report published on project and GSGSSI websites. 3.2. Approved updated fishery management plan published on the GSGSSI website. 3.3 Paper cited in CCAMLR WG-FSA meeting report, proposing incorporation of outputs into CCAMLR Conservation	3.1 Availability of key scientists and stakeholders, engagement in the final workshop. 3.2 Stakeholders engage in management discussions to incorporate scientific advice into future fishery management decision-making. 3.3: Project Leader (PL) submits CCAMLR WG-FSA paper after

	into the SGSSI Toothfish Fishery Management Plan (Mar 2025). 3.3 Paper submitted to CCAMLR WG-FSA that presents project outputs and recommendations (prepared Mar 2025, *submitted Oct 2025).	Measures (CMs) (*verifiable after project end date). Paper will also be made publicly available on project website.	the end of the project. *Note that the CCAMLR 2025 annual meetings will take place after the end of the project, but the papers will be prepared during the project and submitted by the PL to CCAMLR WG-FSA in Oct 2025. Note that CCAMLR CMs are agreed by consensus, therefore there is no guarantee that they will be adopted, even if most Members are supportive.

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. Each activity should start on a new line and be no more than approximately 25 words.)

Output 1 Relevant environmental, biological and fishery information for toothfish synthesised, providing the basis for understanding toothfish sensitivity to environmental parameters

1.1 Advertise, interview and appoint a PDRA for the project.
1.2 Establish project webpage to keep partners and stakeholders informed of progress and create appropriate online collaborative space for the project team.
1.3 Organise and prepare for kick-off workshop, finding suitable date for workshop to enable maximum participation.
1.4 Convene workshop with scientists and stakeholders to co-design objectives and identify required information and sources for the knowledge base, together with timeframes and reference points.
1.5 Source and collate information into useable format to establish knowledge base.
1.6 Determine how the information needs to be synthesised, summarised and visualised.
1.7 Prepare and disseminate workshop report, including making available on the project website.
1.8 Prepare and submit information paper to CCAMR WG-FSA.
1.9 Provide relevant information for inclusion in SGSSI MPA Data Portal.

Output 2 Ecological risk assessment of the effects of climate change on toothfish

2.1 Interrogate knowledge base to identify appropriate dependent variables representing distribution and abundance of key life stages of both species.
2.2 Interrogate knowledge base to identify candidate predictor variables for species-environment modelling.
2.3 Determine candidate analytical and modelling approaches for species-environment relationship modelling.
2.4 Identify the most suitable approaches based on objectives and variables.

2.5 Identify an appropriate way to represent uncertainties in climate change projections in the results of the chosen species-environment modelling approach.
2.6 Apply approach from 2.4 to develop species-environment models.
2.7 Extract prognoses of predictor variables from the knowledge base representing timeframes identified in consultation with stakeholders.
2.8 Use the results of 2.5, 2.6 and 2.7 to project the change in suitable habitat within the identified timeframes, and associated uncertainties.
2.9 Develop method (simple model/calculation) to translate projections of the distribution of key life stages into estimates of population size for both species.
2.10 Apply results of 2.8 in combination with the approach in 2.5 to assess climate change risk to species distributions based on distribution reference points identified in 1.4.
2.11 Apply results of 2.9 in combination with the approach in 2.5 to assess climate change risk to species abundance based on population reference points identified in 1.4.
2.12 Prepare two scientific papers for peer-reviewed journals, one on present-day, one on projections (also prepare for CCAMLR WG-FSA).
2.13 Provide relevant information (e.g., maps of predicted present/future habitat) and the risk assessment for inclusion in the SGSSI MPA Data Portal.

Output 3 Climate change evaluation framework
3.1 Develop a framework to evaluate climate change for toothfish (encompassing data acquisition, analyses and visualisation, management recommendations).
3.2 Stakeholder workshop held to discuss project results, consider current management, refine framework and develop recommendations.
3.3 Prepare workshop report.
3.4 Input to SGSSI Toothfish Fishery Management Plan.
3.5 Provide recommendations to CCAMLR.