

## Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

**Important note** *To be completed with reference to the Reporting Guidance Notes for Project Leaders:  
it is expected that this report will be about 10 pages in length, excluding annexes*

**Submission Deadline: 30<sup>th</sup> April 2019**

### Darwin Plus Project Information

Project reference	DPLUS069
Project title	Building data resources for managing the SGSSI Marine Protected Area
Territory(ies)	South Georgia and the South Sandwich Islands
Lead organisation	British Antarctic Survey, NERC (part of UK Research and Innovation)
Partner institutions	Government of South Georgia and the South Sandwich Islands
Grant value	£173,932
Start/end date of project	1 <sup>st</sup> April 2017 to 30 <sup>th</sup> June 2019
Reporting period (e.g., Apr 2018-Mar 2019) and number (e.g., AR 1,2)	Apr 2018 – Mar 2019 Annual Report 2
Project leader name	Dr Susie Grant
Project website/blog/Twitter	<a href="https://www.bas.ac.uk/project/building-data-resources-for-managing-the-south-georgia-south-sandwich-islands-marine-protected-area/">https://www.bas.ac.uk/project/building-data-resources-for-managing-the-south-georgia-south-sandwich-islands-marine-protected-area/</a>
Report author(s) and date	Susie Grant, Helen Peat, Caitlin Allan, Phil Trathan May 2019

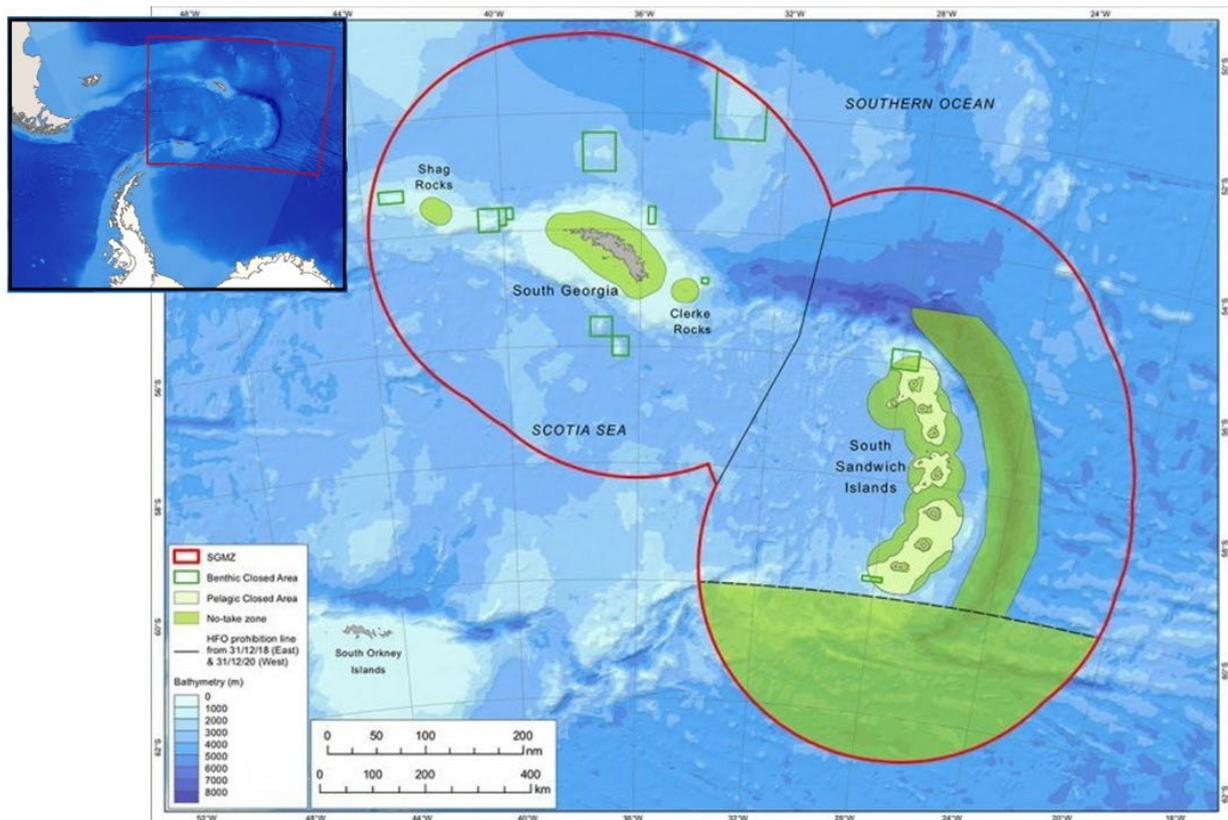
### 1. Project overview

South Georgia and the South Sandwich Islands (SGSSI) is a British Overseas Territory in the southern Atlantic Ocean. These sub-Antarctic islands are surrounded by a 200 nm Maritime Zone, which encompasses some of the world's most biologically rich waters, including abundant marine mammals and seabirds, diverse benthic habitats and species, as well as important commercial fisheries.

The SGSSI Marine Protected Area (MPA) was established in 2012, with the aim of ensuring the protection and conservation of the region's rich and diverse marine life, whilst allowing the continuation of sustainable and carefully regulated fisheries.

The Government of South Georgia and the South Sandwich Islands (GSGSSI) has committed to monitor activities throughout the MPA and to undertake a review every 5 years. The first of these reviews was completed in 2018, resulting in the announcement of a range of enhanced environmental and management measures. Review and ongoing management of the SGSSI MPA requires accessible and comprehensive data on the status and trends of marine biodiversity, ecosystem features and human activities. The aim of this project has therefore been to deliver an integrated MPA Data Portal and Geographic Information System, tailored to provide information and analyses to support the 2018 MPA review as well as the future management of the MPA. The integration of biological data with spatial information will also have significant benefits in terms of improving fundamental understanding of the marine ecosystem in this region. This is critical not only for management of the MPA, but also as a basis for extending our knowledge on the distribution and abundance of species, and their likely responses to potential future environmental change.

In addition, this project aims to work across stakeholder networks to develop a draft MPA Research and Monitoring Plan (RMP) for consideration by GSGSSI. The development of this plan is important in contributing to GSGSSI objectives to ensure that high quality research underpins the Territory's management. Once agreed, the RMP will guide future scientific activities in and around the SGSSI MPA that will contribute to an increased understanding of the marine ecosystem, provide information to evaluate the effectiveness of the MPA, and inform the development of enhanced management.



**Figure 1.** Map of South Georgia and the South Sandwich Islands (inset showing location in the southern Atlantic Ocean) and the extent of the SGSSI Marine Protected Area, with new enhanced measures announced in December 2018 (from: <http://www.gov.gs/32110-2/>)

## 2. Project stakeholders/partners

This project is a collaboration between the British Antarctic Survey (BAS Ecosystems team, BAS Mapping and Geographic Information Centre, and NERC UK Polar Data Centre) and the Government of South Georgia and the South Sandwich Islands (GSGSSI). The project leader and team members have communicated regularly with GSGSSI to determine specific inputs required to inform the 2018 MPA review and priorities for inclusion in a draft Research and Monitoring Plan, as well as to obtain feedback on the MPA Data Portal and web GIS as they are developed.

Further personnel changes within GSGSSI during the second year of the project (in addition to a major change in the first year) have been challenging in terms of maintaining project continuity. However, the new GSGSSI Director of Fisheries and Environment is now based in Cambridge rather than in the Falkland Islands, which has made communications easier, and has also saved on international travel costs originally budgeted for attendance at workshops in the UK.

We have continued to obtain regular input on the project objectives in the context of government priorities. The project leader was invited to give a talk at the annual GSGSSI Fisheries Science and Industry Meeting (28<sup>th</sup> September 2018) (**Evidence:** Annex 6), which was a very useful opportunity to further publicise the aims of the project and to obtain input from stakeholders on planning the development of the Research and Monitoring Plan. We have been in regular contact with Mark Belchier (GSGSSI Director of Fisheries and Environment) and Sue Gregory (GSGSSI Marine Environment & Fisheries Manager) to monitor progress, and for advice on the appropriate inclusion of fisheries management data. We recently demonstrated test versions of the Data Portal and the MPA GIS to Helen Havercroft (GSGSSI Chief Executive), and received positive feedback on their utility for management of the MPA.

Project stakeholders include scientists who contribute and use biological and environmental datasets relevant to the SGSSI region. We have engaged with this community during the course of the project, starting with a workshop held early in the project (May 2017) to obtain input on the priorities for data to be included in the database/GIS, and derived data products to be generated. Many of these scientists have remained engaged with the project and also attended our second workshop (December 2018) to develop the structure and content of the MPA Research and Monitoring Plan. (**Evidence:** Annex 3 - RMP Workshop Report)

Environmental NGOs are also key stakeholders in the development of effective protection and management for SGSSI, and there is broad interest from this community in accessing details of scientific activities relevant to the MPA, and in contributing to the development of effective MPA monitoring. Representatives of NGOs including Birdlife International, Pew Charitable Trusts and WWF-UK participated in the Research and Monitoring Plan workshop (**Evidence:** Annex 3 - RMP Workshop Report).

### 3. Project Progress

The second year of the project has progressed well, despite staff changes and uncertainties due to the changing timeline of the MPA review process (see further detail in Sections 3.4 and 7). The new MPA Data Portal and online GIS are now in the final stages of development and review, and we are on track to make both of these products publicly available by the end of the project.

Project team members (Grant and Trathan) participated in the second SGSSI MPA Review Panel meeting in June 2018, which further considered material included in a report prepared by the DPLUS069 team in collaboration with other stakeholders (**Evidence:** “*South Georgia & South Sandwich Islands MPA Review: Summary of recent (2013-2017) and planned research and monitoring*” – attached to Annual Report 1). Grant and Trathan also contributed to the work of the Review Panel throughout 2018, which resulted in recommendations being reported to GSGSSI in November 2018 (**Evidence:** <https://www.gov.gs/report-of-the-mpa-review-advisory-group-published/>) and enhanced measures announced by GSGSSI in December 2018 (**Evidence:** <http://www.gov.gs/32110-2/>).

#### 3.1 Progress in carrying out project Activities

*Output 1 – South Georgia and South Sandwich Islands MPA database*

##### Activities 1.1 and 1.2

The 1-day data prioritisation workshop was held early in Year 1 of the project (May 2017). Outputs from the workshop and subsequent work on identifying relevant data sources have continued to be used as a foundation for activities during Year 2 (see below), as well as in support of the MPA Review process (**Evidence:** Summary report of the MPA Advisory Group to GSGSSI, available at: [www.gov.gs/docsarchive/Environment/Marine%20Protected%20Area/SGSSI\\_5year\\_MPA\\_Review\\_Summary\\_Report\\_to\\_GSGSSI\\_\(Nov%202018\).pdf](http://www.gov.gs/docsarchive/Environment/Marine%20Protected%20Area/SGSSI_5year_MPA_Review_Summary_Report_to_GSGSSI_(Nov%202018).pdf))

##### Activity 1.3

Prioritised datasets have been collated for inclusion in the MPA Data Portal. These include ecological data on 19 marine mammal and seabird species (breeding colony locations, population dynamics, breeding success and tracking data for selected species), environmental data (mean summer and winter sea surface temperatures (each year for 2013 to 2018), and median monthly sea ice concentration (2000-2009 and 2010-2018), and fisheries data (commercial catch, aggregated distribution, and length frequency data for toothfish and icefish; krill fishery catch distribution). A number of these datasets, with the agreement of the data originators, will be made publicly available, with a small number (e.g. some commercially sensitive fishing data) restricted to access by GSGSSI fisheries managers. A small number of additional datasets are still to be added, including marine Important Bird Areas, Key Biodiversity Areas, and benthic habitat landscape maps, as we are awaiting their availability from collaborators.

##### Activities 1.4 and 1.5

Data have been extracted from existing databases in order to produce new visualisations and summaries. Visualisations of fisheries data time series include maps, tables and graphs, all of which are interactive and can be filtered by year and by species (**Evidence:** Annex 5).

The MPA Data Portal currently includes 66 pages compiled to date, including 23 embedded maps (all of which can be zoomed in/out, and have dynamic links to the underlying database and GIS base layers, allowing automatic update when new data points are added, or map base layers are updated in the future). These pages allow visualisation, both graphical and spatial, of specific datasets in relation to MPA objectives, including background information on key species. Feedback has been obtained from

GSGSSI and from individual scientists on the content of these pages, and will be incorporated into their further development.

### *Output 2 - South Georgia and South Sandwich Islands marine Geographic Information System (GIS), integrated with MPA database*

#### **Activity 2.1 and 2.2**

A new MPA-specific landing page has now been developed as part of the South Georgia GIS (<http://www.sggis.gov.gs>), and is currently under review before public release in July 2019. Following the incorporation of over 20 additional data layers to the GIS during Year 1, we have now included further data layers including

Data tables which include location information have been spatially enabled and published to the same Geoserver instance as the SGGIS. This makes it possible to embed maps within the data portal which use base layers from the SGGIS and have data overlays. The data layers can be queried and filtered to enable user interaction with the data shown on the embedded map. Linking the underlying data tables to the embedded maps means that the maps and any other visualisations are automatically updated when new data are included.

#### **Activity 2.3**

Data summaries were provided to the SGSSI MPA Review Panel as part of the report on “*South Georgia & South Sandwich Islands MPA Review: Summary of recent (2013-2017) and planned research and monitoring*” (**Evidence:** “*South Georgia & South Sandwich Islands MPA Review: Summary of recent (2013-2017) and planned research and monitoring*” – attached to Annual Report 1). Data visualisations will be made available through the MPA Data Portal (see Output 1).

#### **Activity 2.4**

The underlying web GIS software has been enhanced to allow the possibility of embedding much simpler maps into web pages, providing extra visualisation capability alongside presentations of scientific data. Embedded maps can be created and managed using a simple web interface. Embedded maps have been produced for example datasets to enable visualisation of their spatial extent and other properties; these are included in the preliminary web-portal pages. These maps are interactive and clickable with pop-ups with further information and metadata links. The maps are closely integrated with the data visible on the page, and update when these data are filtered.

### *Output 3 – MPA Research and Monitoring Plan*

In September 2018, work started on activities contributing towards the development of a draft Research and Monitoring Plan (RMP) for the SGSSI MPA. Recommendations from the MPA Advisory Group ([www.gov.gs/docsarchive/Environment/Marine%20Protected%20Area/SGSSI\\_5year\\_MPA\\_Review\\_Summary\\_Report\\_to\\_GSGSSI\\_\(Nov%202018\).pdf](http://www.gov.gs/docsarchive/Environment/Marine%20Protected%20Area/SGSSI_5year_MPA_Review_Summary_Report_to_GSGSSI_(Nov%202018).pdf)) were used as a basis to develop the agenda and specific workshop aims and activities for the RMP Workshop (Activity 3.1).

A presentation at the annual GSGSSI Fisheries Science and Industry Meeting

The project leader was invited to give a talk at the South Georgia Fisheries Science and Industry meeting (September 2018) (**Evidence:** Annex 6), which was a very useful opportunity to further publicise the aims of the project and to obtain input from stakeholders on planning the development of the Research and Monitoring Plan.

#### **Activity 3.1**

A stakeholder workshop was held in December 2018 to determine the requirements for an MPA Research and Monitoring Plan, based on supporting the MPA conservation objectives and management requirements, and filling the data gaps identified in Outputs 1 & 2. The workshop involved 32 participants, with positive engagement from across range of academic institutes and stakeholder organisations, and GSGSSI project partners (**Evidence:** Annex 3 and Annex 4). The workshop aims were to:

- i) Outline the key components of an achievable and effective Research and Monitoring Plan for the SGSSI MPA
- ii) Identify key indicators and parameters needed to evaluate the MPA and future change
- iii) Identify existing and planned monitoring and research projects relevant to the MPA
- iv) Consider mechanisms for practical implementation of a Research and Monitoring Plan

A preliminary (non-exhaustive) list of research needs on a range of topics relevant to the MPA objectives was compiled and distributed to participants in advance of the workshop, as a starting point for discussion. This was based on data gaps identified during the Data Prioritisation workshop (Activity 1.1, May 2017), future work identified in specific publications, and recommendations from the MPA Review.

The workshop included updates on recent and planned research and monitoring activities, as well as experience from the implementation of RMPs by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Presentations highlighted the extent of relevant research being undertaken in the SGSSI region, including two major research surveys planned for the 2018/19 austral summer.

Participants discussed and made recommendations on the specific components of a draft RMP, including research themes and topics, geographic focus areas, baseline data, and key indicators or parameters needed to evaluate change. Further discussion and recommendations focused on the practical implementation of an RMP, including priority projects and funding sources, application of new technologies, data management and reporting needs, and update mechanisms.

Workshop participants expressed support for the development of a Research and Monitoring Plan as a valuable tool to support the ongoing management of the MPA and to prioritise and focus research activities, as well as to highlight the importance of long-term monitoring (**Evidence:** Annex 3).

### **Activities 3.2 and 3.3**

A draft Research and Monitoring Plan is currently being prepared based on the workshop outputs and recommendations, and will be provided to GSGSSI for consideration and further consultation.

### **Activity 3.4**

We are currently investigating practical mechanisms to ensure that future data collected in accordance with the MPA Research and Monitoring Plan is incorporated into the MPA database and GIS. These include potential metadata reporting requirements as part of the scientific permitting and reporting process.

## **3.2 Progress towards project Outputs**

### *Output 1 – South Georgia and South Sandwich Islands MPA Data Portal*

A draft version of the MPA Data Portal website has been developed (**Evidence:** Annex 5) and we aim to make this publicly available at the end of the project in July 2019. The Data Portal currently comprises 66 separate pages with summary information, maps and data on features and activities within the MPA.

### *Output 2 - South Georgia and South Sandwich Islands marine Geographic Information System (GIS), integrated with MPA database*

Updates to the GIS have significantly improved the range of datasets available through this online resource. A total of 59 data layers are now accessible at: [www.sggis.gov.gs](http://www.sggis.gov.gs), and free to download (in ESRI shapefile, kmz and csv formats) via the British Antarctic Survey Geodata Portal by any interested organisation or individual (provided the South Georgia GIS is acknowledged as the source). The MPA-specific part of the SGGIS will be available at the close of the project.

### *Output 3 – MPA Research and Monitoring Plan*

The Research and Monitoring Plan workshop held in December 2018 provided a strong, stakeholder-led basis for development of a draft RMP. The draft plan will be provided to GSGSSI for consideration in May 2019.

## **3.3 Progress towards the project Outcome**

We anticipate that the project Outcome of supporting enhanced management of the SGSSI MPA will be achieved by the end of the funding period (July 2019), and that the project outputs will continue to support the management of the MPA beyond this time. Building relationships with the major stakeholders has been an important part of this progress, and we recognise the importance of continuing to engage with these stakeholders as widely as possible.

In relation to the indicators for this Outcome, we have: i) increased the availability of datasets within the database/GIS to support management, ii) drawn on the expertise of a network of SGSSI researchers to develop an effective RMP that has practical application in future management of the MPA, and iii) built a facility that supports the direct application of science into policy and management outcomes. While these are high-level indicators that may be difficult to measure until the end of the project, we believe they are adequate when used in the context of indicators for specific outputs and activities.

The Government of South Georgia and the South Sandwich Islands, as project partners and key end-users of the project outputs, has recognised the importance of a scientific approach to management of the marine ecosystem, and continues to express strong support for the development of the data resources and RMP as key components of the future management of the MPA.

### **3.4 Monitoring of assumptions**

As recommended in the review of the project's first annual report, we have reviewed the project output and outcome assumptions. These remain as originally set out, and the previously identified risk of key staff resigning has arisen and been addressed with the appointment of a new data manager (see Section 7). However, due to delays associated with this staff change and time lost due to staff absence in June/July 2018, we will not be able to include the full scope of datasets originally envisaged for inclusion in the MPA Data Portal/web GIS (particularly lower trophic level biological data). An additionally identified assumption is therefore that we will have completed the MPA data portal to a sufficient extent to be able to make it publicly available by the end of the project. At this stage we believe this is achievable; however we will continue to evaluate progress on a regular basis, and have increased the frequency of project update meetings to facilitate monitoring and adjustment of the work plan as required.

A further assumption that was changed during this year related to the timeframe of the MPA Review process. This process was originally due to be completed in early 2018, however extended political discussions beyond our control resulted in a delay until the end of 2018. In particular, this affected the scheduling of the RMP Workshop (initially planned for September 2018, but delayed for 3 months to allow for relevant reports to be available).

### **3.5 Project support to environmental and/or climate outcomes in the UKOTs**

The outputs generated by this project will provide an important resource to enhance the management of the SGSSI MPA into the future, and to maintain biodiversity and sustainable fisheries in this territory. In particular, improved access to data on ecosystem responses to climate change may facilitate the implementation of adaptive management. The provision of an integrated spatial data system and Research and Monitoring Plan may also provide a useful model for data management and access on which similar initiatives could be based for other UKOTs.

## **4. Monitoring and evaluation**

Monitoring and evaluation of the project is undertaken internally via regular meetings of the BAS project core team. This year we have increased the frequency of these meetings and agreed milestones where possible to help monitor progress. Information is shared with the project partners via email and telephone updates. GSGSSI staff changes resulted in some discontinuity in this regular monitoring, however the relocation of one staff member from the Falkland Islands to the UK has been beneficial in allowing for more direct contact. We have been in regular contact with Mark Belchier (GSGSSI Director of Fisheries and Environment) and Sue Gregory (GSGSSI Marine Environment & Fisheries Manager) to monitor progress, and for advice on the appropriate inclusion of fisheries management data. We recently demonstrated test versions of the Data Portal and the MPA GIS to Helen Havercroft (GSGSSI Chief Executive) and received positive feedback on their utility for management of the MPA.

## **5. Lessons learnt**

During the course of the project we have been very aware of the complexity of dealing with many different stakeholders, and the importance of understanding a broad range of aspirations. This can sometimes cause difficulties in moving forward, however our aim has been to engage as widely as possible, and to maintain openness and transparency. Consulting broadly on the development of a Research and Monitoring Plan resulted in very open and engaged discussion on priorities for future science and monitoring activities, and input from across a range of scientific disciplines and stakeholders (**Evidence:** Annex 3 – RMP Workshop Report).

Based on experience in the first year of the project, and recognising the need to maintain a good monitoring framework with realistic expectations, the core project team has met on a more regular basis this year to monitor progress and to prioritise remaining activities as the project reaches its conclusion.

## **6. Actions taken in response to previous reviews (if applicable)**

We have implemented more frequent core project team meetings and agreed milestones where possible to help monitor progress on project activities and to set expectations.

We are further considering mechanisms to ensure the sustainability of the project once it has concluded, such that stakeholders are able to continue using and benefiting from the resources that we have developed. The Data Portal and web GIS are designed to be automatically updated with the inclusion of new data points (e.g. annually extended time series for monitored species) or base map layers, and additional resources will therefore not be required for the inclusion of this type of data. However, new

datasets collected in the future may require additional resources to facilitate their inclusion, including new visualisations etc. We are currently examining the possibility of using the existing GSGSSI Regulated Activity Permit reporting system to collect e.g. metadata on relevant activities and datasets. Ongoing support for the inclusion of data updates in the future may be obtained from other funding sources that are currently being investigated.

## 7. Other comments on progress not covered elsewhere

The project data manager was unable to work for a period of 6 weeks during June/July 2018, following an accident. She then resigned in September 2018, and we were not able to recruit a replacement until November 2018. This unexpected staff absence delayed the completion of Activities 1.4 and 1.5 (MPA Data Portal) and 2.2 and 2.4 (MPA web GIS), however we remain on track to deliver Outputs 1 and 2 by the end of the project. Once the new staff member was in post, we re-evaluated the scope of datasets that it will be possible to include in these Outputs, and decided to focus efforts on making fisheries data available through the Data Portal. We have reduced focus on the integration of physical and multi-trophic level biological data, but will be able to include most of the other prioritised datasets.

To allow for completion of the remaining work, we submitted a change request to move our budgeted salary costs (unspent in September/October 2018 while the data manager post was unfilled) into the next financial year, and to postpone the end date of the project by two months to 30<sup>th</sup> June 2019.

## 8. Sustainability and legacy

The SGSSI MPA is of significant interest to a broad range of stakeholders, and the MPA review process in 2018 was the focus of high-profile NGO campaigns. Many of these stakeholders have expressed a strong interest and welcomed the enhanced transparency and availability of information that will result from this project. GSGSSI have continued to express strong support for such resources to be made available, in accordance with their commitment to stakeholder engagement.

This year the profile of the project has been raised through presentations given to the MPA Review Advisory Group and to the annual South Georgia Fisheries Science and Industry meeting (**Annex 7**).

The MPA Data Portal and GIS are designed to allow for new information to be collected, stored, accessed, and used for management purposes, well beyond the lifetime of this project. The Data Portal uses dynamic links to databases and map layers held centrally at British Antarctic Survey, and maps, tables, graphs etc. will therefore be automatically updated in the Portal when new data are added to these databases in the future.

During the final phase of the project, we will work with GSGSSI to ensure that capacity exists to maintain the systems we have developed, and to manage future data inputs in collaboration with the UK Polar Data Centre (based at BAS). Based on the 5-year review cycle of the MPA, it may be necessary to seek additional funding for a short period of work in advance of the next review in 2023, to update the Data Portal and to make information available for the review process.

## 9. Darwin identity

We have incorporated the Darwin Initiative logo on the SGSSI MPA Data Portal home page (**Evidence:** Annex 5) and on our project website (<https://www.bas.ac.uk/project/building-data-resources-for-managing-the-south-georgia-south-sandwich-islands-marine-protected-area/>). It has also been included in presentations, workshop materials and reports (**Evidence:** Annex 3 and Annex 6), with Darwin Plus funding acknowledged in all of these. The Darwin Initiative is well understood among scientists and practitioners working in South Georgia and the South Sandwich Islands, and this project is drawing on expertise and data from previous and current OTEP and Darwin Plus projects, including DPLUS065 – ‘Mapping Falklands and South Georgia coastal margins for Spatial Planning’.

## 10. Project Expenditure

Table 1: Project expenditure during the reporting period (1 April 2018 – 31 March 2019)

Project spend (indicative) in this financial year	2018/19 D+ Grant (£)	2018/19 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
<b>TOTAL</b>				

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2018-2019 – if appropriate

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
<p><b>Impact</b></p> <p>Effective protection of the South Georgia and South Sandwich Islands marine ecosystem, and sustainable management of its resources.</p>		<p>The contribution of outputs from this project to date has had a positive impact on the availability of information to support the management of the SGSSI marine ecosystem and its resources.</p>	
<p><b>Outcome</b></p> <p>Management of the SGSSI MPA will be enhanced and supported into the future by development of an integrated marine data and geographic information system, and associated Research and Monitoring Plan.</p>	<p>0.1 Availability of datasets within a database and GIS to undertake spatial and temporal analyses, and to support MPA management</p> <p>0.2 Research and monitoring activities undertaken in accordance with an agreed MPA Research and Monitoring Plan.</p> <p>0.3 Implementation of a clear pathway from data acquisition to databasing, visualisation and analysis, to management decisions.</p>	<p>Key assumptions include an ongoing commitment from GSGSSI to maintain the MPA, and to incorporate scientific advice into future management decision-making. GSGSSI has explicitly recognised the importance of a scientific approach to management of the marine ecosystem, and continues to express strong support for the development of this resource.</p>	<p>Key actions planned for the next period include:</p> <ul style="list-style-type: none"> <li>• Final review and public release of a new online Data Portal and updated web GIS for access to spatial information relevant to management of the SGSSI MPA.</li> <li>• Finalisation and delivery of a draft Research and Monitoring Plan to GSGSSI for consideration.</li> </ul>
<p><b>Output 1.</b> South Georgia and South Sandwich Islands MPA Data Portal</p>	<p>1.1 Attendance of key scientists at workshop to prioritise relevant datasets.</p> <p>1.2 Increase in volume and types of data held in MPA database</p>	<p>The data prioritisation workshop (May 2017) was attended by a broad network of scientists engaged in research around South Georgia and the South Sandwich Islands (see Annual Report 1).</p> <p>The MPA Data Portal now contains 66 online pages summarising information on ecology, physical environment, human activities and scientific research within the MPA, including 23 embedded (dynamically updated) maps.</p>	
<p>Activity 1.1</p> <p>Hold a 1-day workshop with relevant scientists and data managers to generate a prioritised list of datasets for spatial analyses to be included (including on marine biodiversity, ecosystem features and human activities), and to determine how these need to be summarised and visualised in order to be most useful for the MPA review process.</p>		<p>Completed in Year 1 (May 2017)</p>	<p>N/A</p>

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
Activity 1.2 Identify data gaps in existing databases and South Georgia GIS, and develop proposals with relevant scientists for how these might be filled (see also Activity 3.1)		Activity completed in Year 1, with additional input from RMP Workshop ( <b>Annex 3</b> )	N/A
Activity 1.3 Collate prioritised datasets that are not currently in an accessible format		Most datasets now collated.	A small number of additional datasets are still to be added, including marine Important Bird Area, Key Biodiversity Areas, and benthic habitat landscape maps, pending their availability from collaborators.
Activity 1.4 Design and implement queries to extract prioritised data from existing databases		Data have been extracted from existing databases in order to produce new visualisations including interactive maps, tables and graphs ( <b>Annex 5</b> )	Completion of fisheries data extraction.
<b>Output 2.</b> South Georgia and South Sandwich Islands marine Geographic Information System (GIS), integrated with MPA database	2.1 Transfer of datasets into GIS for spatial mapping 2.2 Availability of data maps and visualisations 2.3 Use of map products in MPA review process 2.4 Use of derived products in further spatial analyses e.g. ecoregionalisation	New datasets have been incorporated into the South Georgia GIS as planned. (news story on the GSGSSI website: <a href="http://www.gov.gs/31493-2/">http://www.gov.gs/31493-2/</a> ) Maps and data summaries were provided for use as part of the MPA review process. ( <b>Annex 3</b> )	
Activity 2.1 Update the South Georgia GIS with newly available spatial base data (including physical environmental data, e.g. bathymetry, physical oceanographic features, and data on existing management)		Activity completed.	N/A
Activity 2.2 Develop a series of spatial visualisations of prioritised datasets (based on outcomes of Activity 1.1), including data syntheses and other derived products. Analyses will include integration of physical and multi-trophic level biological data.		Activity completed, with the exception of integration of physical and multi-trophic level biological data.	

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
Activity 2.3 Provide synthesised data products and visualisations as requested by SGSSI MPA review committee or other review contributors.		Activity completed. <b>Evidence: Annex 5</b>	N/A
Activity 2.4 Provide access to South Georgia GIS via new web pages, with maps embedded or closely integrated with the MPA database where appropriate		New MPA-specific version of the South Georgia GIS has been developed in collaboration with BAS Mapping and Geographic Information Centre <b>Evidence: Annex 5</b>	MPA-specific version of the South Georgia web GIS will be made publicly available in July 2019.
<b>Output 3.</b> MPA Research and Monitoring Plan	3.1 Attendance of key scientists at workshop to determine requirements of MPA Research and Monitoring Plan.  3.2 Agreement of Research and Monitoring Plan.	MPA RMP Workshop Report ( <b>Annex 3</b> )	
Activity 3.1 Hold a 2-day workshop with relevant scientists to determine the requirements for an MPA Research and Monitoring Plan, based on supporting the MPA conservation objectives and management requirements, and filling the data gaps identified in Outputs 1 & 2. Consider the need for reference areas that will aid in the process of distinguishing between the impacts of climate change and harvesting.		Activity complete (December 2018) – <b>(Evidence: Annex 3 &amp; 4)</b>	N/A
Activity 3.2 Prepare draft Research and Monitoring Plan for consultation with relevant scientists, and review by SGSSI MPA review committee.		Draft plan is under development and due to be completed by 31st May 2019.	
Activity 3.3 Finalise Research and Monitoring Plan, in consultation with GSGSSI.			Draft plan will be submitted to GSGSSI once complete, and reviews finalised by 31 <sup>st</sup> July.
Activity 3.4 Establish a plan and practical mechanisms to ensure that future data collected in accordance with the MPA Research and Monitoring Plan is incorporated into the MPA database and GIS.		Development of dynamic links between the Data Portal and underlying databases has allowed for automatic update of embedded maps and other data visualisations (graphs,	Mechanisms to ensure sustainability as far as possible will be established by the end of the project.

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
		tables etc) when new data points or base map layers are added.	

## Annex 2: Project’s full current logframe as presented in the application form (unless changes have been agreed) - if appropriate

*N.B. if your application’s logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact [Darwin-Projects@ltsi.co.uk](mailto:Darwin-Projects@ltsi.co.uk) if you have any questions regarding this.*

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<b>Impact:</b> Effective protection of the South Georgia and South Sandwich Islands marine ecosystem, and sustainable management of its resources.			
<b>Outcome:</b> Management of the SGSSI MPA will be enhanced and supported into the future by development of an integrated marine data and geographic information system, and associated Research and Monitoring Plan.	0.1 Availability of datasets within a database and GIS to undertake spatial and temporal analyses, and to support MPA management  0.2 Research and monitoring activities undertaken in accordance with an adopted MPA Research and Monitoring Plan.  0.3 Implementation of a clear pathway from data acquisition to databasing, visualisation and analysis, to management decisions.	0.1 List of datasets included in the new marine data and geographic information system.  0.2 Information on objectives and outcomes of MPA research and monitoring field studies undertaken annually.  0.3 Maps and other visualisation products derived from the data. Referencing of such products in MPA reports and reviews.	This project depends on an ongoing commitment by GSGSSI to maintain the MPA, and to incorporate scientific advice into future management decision-making.  GSGSSI recognises the importance of a scientific approach to management of the marine ecosystem, and has expressed strong support for the development of this resource.  Continuing to work closely with GSGSSI will help to identify any concerns or potential obstacles, and will minimise risks of these becoming real difficulties.
<b>Outputs:</b> 1. South Georgia and South Sandwich Islands MPA database	1.1 Attendance of key scientists at workshop to prioritise relevant datasets.  1.2 Increase in volume and types of data held in MPA database	1.1 Workshop report  1.2 Data statistics from BAS Polar Data Centre.  1.3 Quarterly reports	Assumed availability of key scientists, and engagement in the planned workshop.  Although key data will be provided by BAS, there is a risk that additional scientific data may not be available (e.g. unpublished data may be withheld by external data owners), or key experts and stakeholders may not engage to the extent required.  The project relies on appointing a new MPA data manager. It may also be put

			<p>at risk if existing staff are not available to contribute to the project, or if key staff resign before the work is completed.</p> <p>In the event of this risk occurring, there is sufficient support from other project contributors within BAS to ensure that the project could continue until staff are replaced, and that appropriate training could be provided for new staff.</p>
<p><b>2. South Georgia and South Sandwich Islands marine Geographic Information System (GIS), integrated with MPA database</b></p>	<p>2.1 Transfer of datasets into GIS for spatial mapping</p> <p>2.2 Availability of data maps and visualisations</p> <p>2.3 Use of map products in MPA review process</p> <p>2.4 Use of derived products in further spatial analyses e.g. ecoregionalisation</p>	<p>2.1 Submission of derived spatial data products to MPA review process</p> <p>2.2 Data access statistics from BAS Mapping &amp; Geographic Information Centre</p> <p>2.3 Quarterly reports</p> <p>2.4 Reports of MPA review steering committee</p> <p>2.5 Referenced data products in peer-reviewed publications</p>	<p>Data quality varies, and the databasing process may indicate that there is insufficient information for all of the planned spatial analyses.</p> <p>Undertaking the project at BAS will allow access to data and expertise from existing and planned science programmes.</p>
<p><b>3. MPA Research and Monitoring Plan</b></p>	<p>3.1 Attendance of key scientists at workshop to determine requirements of MPA Research and Monitoring Plan.</p> <p>3.2 Agreement of Research and Monitoring Plan.</p>	<p>3.1 Workshop report</p> <p>3.2 Quarterly reports</p> <p>3.3 Research and Monitoring Plan adopted by GSGSSI following the 2018 MPA review.</p>	<p>Assumed availability of key scientists, and engagement in the planned workshop.</p> <p>Commitment by GSGSSI to establish a Research and Monitoring Plan as part of updated management provisions for the MPA, following its review in 2018.</p>
<p><b>Activities</b> (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)</p> <p>1.1 Hold a 1-day workshop with relevant scientists and data managers to generate a prioritised list of datasets for spatial analyses to be included (including on marine biodiversity, ecosystem features and human activities), and to determine how these need to be summarised and visualised in order to be most useful for the MPA review process</p> <p>1.2 Identify data gaps in existing databases and South Georgia GIS, and develop proposals with relevant scientists for how these might be filled (see also Activity 3.1)</p> <p>1.3 Collate prioritised datasets that are not currently in an accessible format</p> <p>1.4 Design and implement queries to extract prioritised data from existing databases</p> <p>1.5 Design and implement a web data-portal to bring together prioritised datasets, to enable their use for analysis and visualisation.</p>			

- 2.1 Update the South Georgia GIS with newly available spatial base data (including physical environmental data, e.g. bathymetry, physical oceanographic features, and data on existing management)
  - 2.2 Develop a series of spatial visualisations of prioritised datasets (based on outcomes of Activity 1.1), including data syntheses and other derived products. Analyses will include integration of physical and multi-trophic level biological data.
  - 2.3 Provide synthesised data products and visualisations as requested by SGSSI MPA review committee or other review contributors.
  - 2.4 Provide access to South Georgia GIS via new web pages, with maps embedded or closely integrated with the MPA database where appropriate.
  - 2.5 Publicise and facilitate access to the GIS via media releases etc.
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- 3.1 Hold a 2-day workshop with relevant scientists to determine the requirements for an MPA Research and Monitoring Plan, based on supporting the MPA conservation objectives and management requirements, and filling the data gaps identified in Outputs 1 & 2. Consider the need for reference areas that will aid in the process of distinguishing between the impacts of climate change and harvesting.
  - 3.3 Prepare draft Research and Monitoring Plan for consultation with relevant scientists, and review by SGSSI MPA review committee.
  - 3.3 Finalise Research and Monitoring Plan, in consultation with GSGSSI.
  - 3.4 Establish a plan and practical mechanisms to ensure that future data collected in accordance with the MPA Research and Monitoring Plan is incorporated into the MPA database and GIS.

**Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)**

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	yes
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	no
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	yes
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	no
Have you involved your partners in preparation of the report and named the main contributors	yes
Have you completed the Project Expenditure table fully?	yes
Do not include claim forms or other communications with this report.	