



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 April

Darwin Project Information

Project Reference	DPLUS007
Project Title	Using seabirds to inform Caribbean marine planning
Host Country/ies	UK, Anguilla, British Virgin Islands
Contract Holder Institution	University of Liverpool
Partner institutions	Anguilla National Trust Jost Van Dykes Preservation Society BVI National Parks Trust
Darwin Grant Value	£226 367
Start/end dates of project	April 2013 – April 2015
Reporting period (eg Apr 2013 – Mar 2014) and number (eg Annual Report 1, 2, 3)	Annual report 1 April 2013 – March 2014
Project Leader name	Dr Jonathan Green
Project website	www.caribbeanseabirds.org.uk
Report author(s) and date	Dr Louise Soanes (University of Liverpool) 24/03/2014

1. Project Rationale

This project is based in the UK Overseas Territories (UKOTs) of Anguilla and the British Virgin Islands (BVI) (see figure 1), with the overall aim to make an important contribution to ecosystem-based sustainable marine planning within these territories.

The project aims will be achieved through the identification of important foraging areas of globally and regionally important seabird populations breeding in both Anguilla and BVI using GPS tracking technology. Threats to key populations will also be identified and locally run long-term seabird monitoring programmes will be established. In the long-term, this project will enhance strategic sustainable management of marine resources for the benefit of the people of Anguilla and the BVI.

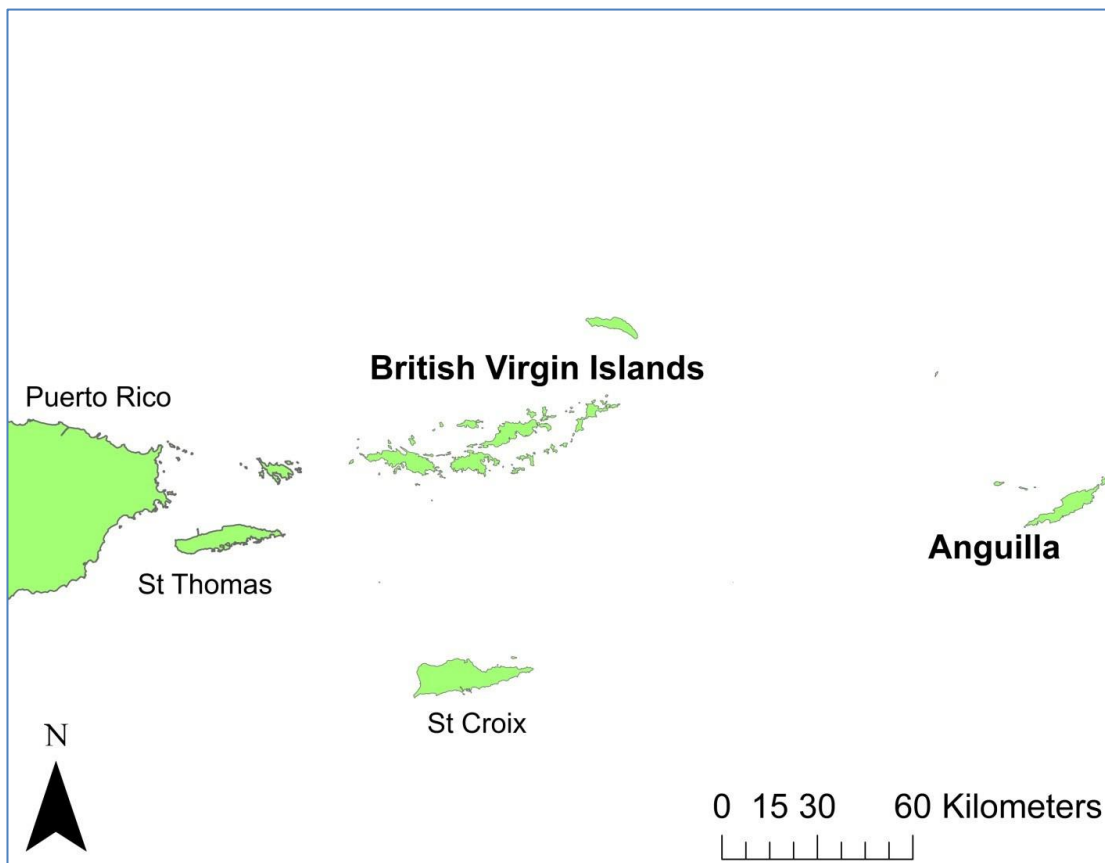


Figure 1. Map showing the location of Anguilla and the British Virgin Islands

2. Project Partnerships

This project is being conducted in partnership with the Royal Society for the Protection of Birds (RSPB), the Anguilla National Trust (ANT), the Jost Van Dykes Preservation Society (JVDPS) and BVI National Parks Trust (NPT) with support from the Anguillan Government's Department of Fisheries and Marine Resources and the BVI Government's Department of Conservation and Fisheries. The project application stemmed from pilot work undertaken in Anguilla during 2012, as such all partners in the project were involved in the application process, and all stages of the project implementation. Representatives from each of the UKOT partner organisations have been involved in project planning and trained in data collection

In addition to the official partners named on this project, there has been a lot of support from the BVI's Department of Conservation and Fisheries who are extremely keen to see the project outputs. The Post-doctoral researcher working on this project (Dr Louise Soanes) was invited to assist in a training workshop (Birds of Paradise workshop funded by the BVI Governor's fund) run by this department to talk about the role of bird monitoring in conservation.

Our initial application provisioned for the Post-doctoral researcher working on this project to be based in Anguilla for three months of each year, with one visit per year to the British Virgin Islands. However, due to changes in the timing of the breeding of birds Dr Soanes is now based full time in Anguilla working from the ANT office. This means that as well as more fieldwork being conducted and therefore more data collected, Dr Soanes has also embedded within the ANT team, allowing her to assist more with ANT's work and to develop the project further than if she was based in the UK. This new arrangement has also meant Dr Soanes has been able to visit project partners in the BVI three times over the last year to conduct additional fieldwork and workshops rather than the initial one trip provisioned for.

3. Project Progress

3.1 Progress in carrying out project activities

Output 1:1 GPS track Brown boobies breeding at three of Anguilla's IBAs.

We successfully tracked 100 brown boobies breeding on two of Anguilla's IBAs (Dog Island and Prickly Pear West). This work will continue into year two when birds breeding on Dog Island and Sombrero will be tracked.

Output 1.2 GPS track sooty terns breeding on Dog Island

We attached 20 loggers to sooty terns in June 2013, however technical difficulties with the devices, which are the smallest of their kind and still in early stages of development, meant that no data could be collected. We have been in touch with alternative device developers who have allowed us to trial and test a smaller more efficient GPS loggers. Tests of these proved successful so we will be deploying these in year two of the project.

Output 1.3. GPS Magnificent frigatebirds from Dog Island and Great Tobago.

One attempt was made to track frigatebirds on Dog Island and two attempts on Great Tobago (30 loggers deployed in total). This species proved difficult to recapture due to disturbance issues at the colony and the wariness of the birds, and so only seven loggers were retrieved. Refinements to field methods such as only conducting work at night to avoid disturbance and the use of newly available remote download GPS loggers will help to ensure more data are collected in year two

Output 1.4 Identify important marine areas in Anguilla and BVI to help inform marine spatial planning, produce GIS data layers and report for dissemination to Anguilla and BVI governments

With the foraging data already collected we have been working with BirdLife International to test their analytical tools used for identifying marine IBAs. Preliminary maps have so far been produced with the GPS data collected from brown boobies breeding on two of Anguilla's offshore cays (appendix 4). We have also been working with the Governments of BVI and Anguilla to overlay tracks with territorial boundaries and fishing banks.

Output 2.1 Compare the foraging areas of colonies between years and sites and relate to important foraging areas and habitat and environmental data.

Comparisons of foraging areas have been made between brown boobies breeding on two of Anguilla's offshore cays, initial maps have been produced that overlay seabird foraging tracks with territorial boundaries and fishing banks.

Output 3.1 Produce seabird monitoring handbook

The Anguilla seabird monitoring handbook is now in print as an A6 waterproof guide (and available as a pdf on our website). This guide will be suitable for carrying into the field for Anguilla National Trust staff and volunteers. The BVI monitoring guide is currently in production.

Output 3.2 Train local staff in monitoring procedures

During surveys of all seven of Anguilla's offshore cays, four of the five Anguilla National Trust staff were trained in identifying and surveying all of Anguilla's 15 seabird species,. In addition, up to four volunteers were also trained on each field trip (total number of volunteers trained = 6 of 8 active volunteers). A presentation and a workshop were also given on seabird monitoring in both Anguilla and BVI. In Anguilla we have assisted in the establishment of a seabird database and have trained a member of staff trained in collating and entering count data, as well as producing report-quality tables, figures and maps, including training in GIS software. Members of staff from JVDPS, NPT and BVI Department of Conservation and Fisheries also assisted in seabird counts during January 2014.

Additional work undertaken

During year one our project website was launched (www.caribbeanseabirds.org.uk) and the project objectives promoted to the wider Caribbean region through the BirdsCaribbean (<http://www.scsb.org/>) mailing list and by contacting the Caribbean based EPIC conservation based organisation (<http://www.epicislands.org>). Project meetings have been held with the Anguillan government's Fisheries and Natural Resources Department and the Department of Environment and three meetings have been held with the BVI Government's Conservation and Fisheries Department. We have also promoted the project through four talks to schools clubs in both Anguilla and JVD, two talks held at the RSPB, a poster presentation at the 2014 International Seabird Conference in Oxford, UK. and been part of two Anguillan radio shows detailing our project.

As well as holding two steering group meetings where members of the partner organisations and BirdLife International were present (appendix 1 & 2), we have also had separate meetings with JNCC and with BirdLife International to discuss the use of GPS foraging data in identifying important foraging areas and are currently using their analytical tools to produce marine IBA maps.

By combining our work with work already being conducted by ANT and JVDPS we have managed to add additional tracking work at no extra cost to the project including the GPS tracking of brown noddies and the globally important population of red-billed tropicbirds in Anguilla. We have also trialled the tracking of juvenile magnificent frigatebirds on Great Tobago.

We have also been able to publish a peer-reviewed paper on the pilot tracking and monitoring work undertaken in Anguilla during 2012 with a member of ANT as a co-author entitled "*Foraging behaviour of brown boobies breeding on Anguilla, Lesser Antilles: preliminary identification of at-sea distribution using the time in area approach. Bird Conservation International 2014. DOI: 10.1017/S095927091400001X* (appendix 3).

3.2 Progress towards project outputs

Output 1: Foraging areas of globally and regionally important seabird populations identified

Despite a few unexpected set-backs such as the loggers ordered for use on sooty terns being unsuitable, weather conditions preventing fieldwork and difficulties in retrieving loggers from magnificent frigatebirds we have made good progress. We have tracked 100 brown boobies over the last year and have managed to add additional species to our tracking work at no extra cost to this project. To address the fieldwork problems from year one we made contact with several device developers to try to find a GPS logger that would be suitable for the small sooty tern. Through our investigations we were offered the opportunity to test a new micro logger and these tests have proved successful. As a result we will be using these loggers for sooty tern tracking in year two. Difficulties in retrieving loggers from frigatebirds caused us to adapt our fieldwork, with visits to the colony now only being made during the night time when less disturbance is caused to the colony. We are also in the process of testing remote download GPS loggers for this species. We are confident that with our refinements based on experiences from year one more data can be collected in year two of the project. Overall this puts us on track to define the foraging areas of the globally and regionally important seabird populations identified by the end of the project.

Output 2: Potential at-sea threats to seabird populations on Anguilla and BVI identified along with possible mitigation strategies.

This is ongoing work into year two of the project. We have however, started to assess the potential threats through talking to local stakeholders and have started working with the RSPB's marine policy team to evaluate potential threats and suggest possible mitigation measures

Output 3: Local partner NGOs in Anguilla and BVI operate self-sustaining monitoring programmes

The training of local staff is on-going but good progress is being made in both territories. Nine staff and volunteers from both ANT and JVDPS are now competent in conducting seabird surveys independently, thus exceeding our aim of training two staff from each organisation. A waterproof field guide for seabird monitoring has been produced for Anguilla and a guide for BVI is in production. These resources will aid in the recording of data. A long term monitoring plan for Anguilla has been devised with input from ANT and is being incorporated into the organisations long-term biodiversity action plan. We are currently working with BVI partner organisations in developing a long term strategy for seabird monitoring, and presented at the Department of Conservation and Fisheries Birds of Paradise workshop in November 2013.

Output 4: Anguilla and BVI decision makers awareness of the role of seabirds in sustainable marine planning is increased,

This is ongoing into year two of the project, however we have met with all stakeholders and policy makers to discuss the project and send regular email updates on the projects progress and the data being collected.

3.3 Progress towards the project Purpose/Outcome

Our project purpose was to provide comprehensive and rigorous data on the at-sea distribution and status of regionally and globally important seabird populations to the governments of Anguilla and British Virgin Islands and establish a self-sustaining seabird monitoring programme in each territory. In the longer-term, it is aimed to enhance strategic sustainable marine planning in these UKOTs, ensuring both the conservation of globally important seabird populations, and the sustainable management of marine resources for the benefit of the people of Anguilla and the British Virgin Islands.

Given our progress in training staff, the production of monitoring guides and discussions on long-term monitoring strategies in both territories as well as the interest from stakeholders in the foraging track maps already produced we are confident that the project will help in informing marine spatial planning in the territories in the future.

3.4 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation

The overall goal of this project is to make a contribution to ecosystem based sustainable monitoring through the study of their globally and regionally important seabird populations. Our work so far in monitoring seabirds has confirmed the presence of these important populations in the territories and has recognised further globally important populations. Our GPS tracking work will add to existing knowledge in identifying important at-sea areas that can form part of the marine protected area network in the BVI and will be a useful source of information for the Anguilla government in their marine planning.

4. Project support to the Conventions (CBD, CMS and/or CITES)

The 1992 UN Rio Convention requires the development of the holistic ecosystem-based management regimes. States around the world are developing integrated marine plans to help to meet this commitment. In the Caribbean UKOTs two initiatives are underway. The BVI aims to designate 20% of their territorial waters as Marine Protected Areas by 2020 as part of the cross-territorial Caribbean Challenge initiative. Meanwhile Anguilla is reviewing its fishery capacity. The outputs from this project will feed into both of these programmes.

5. Project support to poverty alleviation

Not applicable to the Darwin plus funding stream

6. Monitoring, evaluation and lessons

We have held two steering group meetings over the past year with members of the partner organisations present along with external advisers from BirdLife international, the University of Liverpool, the RSPB and Joint Nature Conservation Committee to assess progress and to gain advice on improving and strengthening the project.

As previously discussed, we have had problems with some of the technology used in year one, but have overcome these problems after discussion with device developers. The retrieval of loggers has also been difficult for some species but we have refined our fieldwork (e.g. working at night) to increase the chances of logger retrieval. The asynchronous breeding of brown boobies also altered the schedule of our fieldwork from March to November. The need for flexibility in fieldwork schedules was overcome by our Postdoctoral researcher moving to be based in Anguilla, working through the ANT office. Fortnightly Skype meetings are held between our postdoctoral researcher based in Anguilla and the project leader based in Liverpool. This is quite a substantial change to our original approach but we feel that it has made a significant contribution to the good progress that we are making in the project.

7. Actions taken in response to previous reviews (if applicable)

Not applicable

8. Other comments on progress not covered elsewhere

Discussed elsewhere

9. Sustainability

One of the main components of this study is to train local partners in seabird monitoring, to enable long-term seabird monitoring programs to be established. This includes data collection, storage, writing reports, producing maps in GIS software and ensuring results are submitted to global databases and when possible published. All staff at the ANT and JVDPS have been involved in aspects of these, and training will continue into year two. Staff from all partner organisations are also being trained in bird handling, attaching loggers and presenting data from GPS tracks. Further training will continue into year two to ensure that staff from ANT, JVDPS and NPT have the resources and ability to use and apply the data collected and if possible in the future to assist in the collection of more GPS data. All partner organisations will be competent in conducting seabird monitoring.

In addition to this Darwin funding we have also assisted JVDPS in securing funds from the British Ecological Society to install a live streaming frigatebird camera at the colony which will provide valuable knowledge on the behaviour of these birds and will be used as an education tool over the next 12 months. Also having our postdoctoral researcher embedded with the ANT has allowed us to assist them in applying for other funding opportunities to help in long-term seabird and sea turtle research that will

assist in conservation and marine spatial planning in the region. We are also currently in the process of mentoring member of staff from ANT in writing a scientific research paper on sea turtle numbers in Anguilla, which again will be valuable for governments to refer to when considering marine spatial planning within the territory.

10. Darwin Identity

This project is solely funded by the Darwin plus initiative, the host countries are familiar with the funding source, having received funding from Darwin for previous projects.

The Darwin logo is on the first page of our website, and on our seabird monitoring guide for Anguilla. The logo was clearly visible on the poster presented at the International Seabird Conference. Whenever a press release, presentation or radio interview is given we always state that this work was funded by the Darwin Plus Initiative. Any further publications will have the Darwin logo on and a description of the funding source within the acknowledgements of any talks, presentations and project communications.

11. Project Expenditure

Table 1 project expenditure during the reporting period (1 April 2013 – 31 March 2014)

Project spend since last annual report	2013/14 Grant (£)	2013/14 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				This is over budget as we budgeted for one flight per year for our project postdoc, however since she is now based in Anguilla we sought and were granted permission to bring the year two flight forward to year one.
Operating Costs				This overspend was due do an oversight in the VAT cost of loggers ordered from Europe. University of Liverpool is covering this oversepnd
Capital items (see below)				Laptop was cheaper than budgeted
Others (see below)				
TOTAL	£ 112,555	£115,504		

12. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

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

Our project is still only half way through so our main outputs will be seen in year two

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2013-2014

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
<p>Goal/Impact</p> <p>By the end of the project we aim to provide a comprehensive and rigorous data on the at-sea distribution and status of regionally and globally important seabird populations to the governments of Anguilla and the British Virgin Islands and established a self-sustaining seabird monitoring programme in each territory. In the longer term, this will enhance strategic sustainable marine planning in these UKOTs, ensuring both the conservation of globally important seabird populations, and the sustainable management of marine resources for the benefit of the people of Anguilla and the British Virgin Islands.</p>			
<p>Purpose/Outcome</p>			
<p>Output 1. Foraging areas of globally and regionally important seabird populations identified</p>	<p>GIS data layers produced for each study species by 18 months. Peer-reviewed papers produced describing results by EOP</p>	<p>We have been working with BirdLife international to produce maps of important foraging areas for brown boobies, and will be able to produce maps for other species once more data has been collected. We have published one paper using pilot data collected from Anguilla and are in the process of writing another paper.</p>	
<p>Activity 1.1 GPS 50 track brown boobies at each of three IBAs in Anguilla: Dog Island, Prickly Pear and Sombrero</p>		<p>100 Brown boobies have been tracked from Dog Island and Prickly Pear West, Anguilla, additional tracking work of brown boobies breeding in BVI has also been possible.</p>	
<p>Activity 1.2, GPS track 30 sooty terns breeding on Dog Island</p>		<p>26 Sooty terns were tracked in June 2013 but technical problems with the loggers meant that no foraging data was retrieved. We have been successfully testing a newly developed logger which we will use for sooty tern tracking in 2014.</p>	
<p>Activity 1.3 GPS track 30 magnificent frigatebirds from Dog Island and Great Tobago</p>		<p>30 Magnificent frigatebirds have been tracked on both Anguilla and BVI, difficulties in recapturing individuals ahs led us to rethink our fieldwork plans, and to test remote download loggers for this species. We have also been able to collaborate with US conservation organisations to attach 3 satellite transmitters to frigatebirds on BVI.</p>	
<p>Activity 1.4 Identify important marine areas. Produce GIS data layers and report for dissemination to Anguilla and BVI governments through partner NGOs</p>		<p>We have produced GIS data layers of brown booby foraging areas using analytical tools provided by BirdLife International. Preliminary maps available to view on our website</p>	

Output 2. Potential at-sea threats to seabird populations on Anguilla and BVI identified along with possible mitigation strategies	Territory-specific reviews of current potential threats to seabirds at sea and suggested mitigation methods published by EOP.	Work has begun on identifying potential threats to breeding seabirds and possible mitigation measures. We are working with the RSPB's marine policy team to produce these reviews.
Activity 2.1. compare the foraging areas of colonies between years and sites to determine foraging behaviour and to identify important foraging areas and relate to habitat and environmental data		On-going into year two of the project
Activity 2.2. use foraging data to identify important foraging areas and relate these to potential threats in the area		On- going into year two of the project
Activity 2.3 Identify specific immediate threats to seabirds		Threats such as entanglement in fishing line and development of breeding sites have been identified, we are working with local partners to help raise the profile of seabird breeding colonies and in outreach activities
Output 3. Local partner NGOs in Anguilla and BVI operate self-sustaining seabird monitoring programmes	Production of 100 copies of Caribbean Seabird Monitoring Handbook by end Y1. Training of two members of staff each from Anguilla and BVI to a competent level by EOP. Monitoring data uploaded annually to Birdlife International's World Bird Database	This output is well underway, with all members of staff and volunteers from ANT now trained in seabird monitoring techniques, data entry and report writing. A long-term monitoring plan for Anguilla has been drafted and will be incorporated into ANT's long-term Biodiversity Action plan document. Seabird monitoring guides for both territories are also in production.
Activity 3.1 Production of a seabird monitoring handbook aid in the long term monitoring of seabird population in the Caribbean		Monitoring guide for Anguilla in print, monitoring guide for BVI in draft stages.
Activity 3.2 Training of at least two staff from ANT and JVDPS and/NPT to conduct and implement seabird monitoring and managing a database, and submitting data to BirdLife international's world database		Seven members of staff and volunteers have been trained in seabird monitoring techniques in Anguilla. We have been working with members of JVDPS, NPT and Department of Conservation and Fisheries on setting up a long term monitoring programmes.
Activity 3.3 Training workshop in both territories to develop seabird monitoring techniques, to establish long-term monitoring programs, on maintaining and managing a database, and submitting data to Birdlife Internationals World Bird Database		In November 2013 we took part in the BVI government's Birds of Paradise workshop. A long-term monitoring plan has been produced for Anguilla and will be incorporated into the ANT's Biodiversity monitoring plan.
Output 4: Anguilla and BVI decision makers awareness of the role of seabirds in sustainable marine planning is increased.	Local NGO project partners engaged in appropriate territory-level marine planning by EOP	
Activity 4.1 Local NGO partners take part in appropriate territory-specific marine planning. Findings from project used to increase awareness of decision makers to enhance marine planning processes.		Maps based on our current data have been circulated to stakeholders who have expressed an interest in our findings.

Annex 2 Project's full current logframe

25. Expected Outputs (EOP=end of project)			
Output (<i>what will be achieved e.g. capacity building, action plan produced, alien species controlled</i>)	Indicators of success (<i>how we will know if its been achieved e.g. number of people trained/ trees planted</i>)	Status before project/baseline data (<i>what is the situation before the project starts?</i>)	Source of information (<i>where will you obtain the information to demonstrate if the indicator has been achieved?</i>)
1. Foraging areas of globally and regionally important seabird populations identified	(a) GIS data layers produced for each study species by 18 months (b) Peer-reviewed papers produced describing results by EOP	Pilot tracking data from Dog Island Brown Boobies from one field season. No other foraging data collected from either territory.	(a) Link to data uploaded to Birdlife Seabird Wikispace (b) Copies of peer-reviewed papers
2. Potential at-sea threats to seabird populations on Anguilla and BVI identified along with possible mitigation strategies	Territory-specific reviews of current potential threats to seabirds at sea and suggested mitigation methods published by EOP.	Only anecdotal evidence of threats from fisheries, e.g. entanglement of Great Tobago Frigatebirds in monofilament fishing line	Copies of territory-specific reviews
3. Local partner NGOs in Anguilla and BVI operate self-sustaining seabird monitoring programmes	(a) Production of 100 copies of Caribbean Seabird Monitoring Handbook by end Y1 (b) Training of two members of staff each from Anguilla and BVI to a competent level by EOP (c) Monitoring data uploaded annually to Birdlife International's World Bird Database	No regular monitoring in either territory. Previous monitoring work has generally been conducted and coordinated by external organisations.	(a) Copy of handbook (b) Reports on training workshops (c) Link to data uploaded to Birdlife International's World Bird Database
4. Anguilla and BVI decision makers' awareness of the role of seabirds in sustainable marine planning is increased	Local NGO project partners engaged in appropriate territory-level marine planning by EOP	No specific consideration of seabirds in current marine planning activities	Records of meetings from territory-specific marine planning fora.

Annex 3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
Established codes								
8	Number of weeks postdoctoral researcher Louise Soanes based in Anguilla full time working from ANT office	52					12	100
9	Long term monitoring plan produced for ANT	1					1	2
10	Seabird field guide produced for ANT, guide for BVI in draft	1					2	2
11A	Number of papers to be published in peer reviewed journals	1					1	4
12B	Number of computer based databases to be enhanced and handed over to the host country	1					1	2
14A	Attended workshop in BVI and hosted a workshop in Anguilla on seabird monitoring and establishing long term plans	2					2	2
14B	ANT director presented project at BirdsCaribbean conference August 2013, Jonathan Green presented poster at UK's Seabird Conference March 2014	2					2	2
15A	Number of local press releases in UK	1					1	2
15B	Number of national press releases in host country(ies)	1					1	2
15C	Number of local press releases in host country(ies)	2					2	4
15D	Number of national press releases in UK	0					0	1
19B	Number of national radio interviews/features in host county(ies)	2					2	4
23	Value of resources raised from other							

	sources (ie. in addition to Darwin funding) for project work							
New - Project specific measures								

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Journal article	<i>Foraging behaviour of brown boobies breeding on Anguilla, Lesser Antilles: preliminary identification of at-sea distribution using the time in area approach. Soanes LM, Bright JA, Millett J, Mukhida F & Green JA (2014)</i>	Bird Conservation International (Cambridge Journals)	http://dx.doi.org/10.1017/S095927091400001X	Free to download from publisher under Open Access publishing agreement
Booklet	Seabird Monitoring Guide: a field guide. 2014		Fifty hard copies held by ANT for use by staff and volunteers and can be downloaded from project website	Free to download

