DPLUS045
Darwin Plus: Overseas Territories Environment and Climate Fund
Project Application Form

Submit by **2359 GMT Monday 21 September 2015**

Please read the Guidance Notes before completing this form.
Information to be extracted to the database is highlighted blue. Blank cells may render your application ineligible

Basic Data

1. Project Title (max 10 words)	**Mapping Anguilla's 'Blue Belt' Ecosystem Services**		
2. UK OT(s) involved	Anguilla	**Letter of support from OT government attached?**	Yes
3. Start Date:	1st April 2016		
4. End Date:	31st March 2018		
5. Duration of project (no longer than 24 months)	24 months		

Summary of Costs	**2016/17**	**2017/18**	**Total**
6. Budget requested from Darwin	£197,448	£73,790	£271,238
7. Total value of matched funding	*In-kind: £89,900*	*In-kind: 11,000*	*In-kind: £100,900*
8. Total Project Budget (all funders)			
9. Names of Co-funders	In-kind contributions made by project partners, see budget form.		

10. Name, address and contact details of lead applicant organisation (responsible for delivering outputs, reporting and managing funds)*	Cefas Pakefield Road Lowestoft Suffolk NR33 0HT United Kingdom

* Notification of results will be by email to the Project Leader named in Question 12

11. Type of organisation of Lead applicant. Place an x in the relevant box.																	
OT GOVT		UK GOVT	**X**	UK NGO		Local NGO		International NGO		Commercial Company		Other (e.g. Academic)					

12. Partners in project. Please provide details of the partners in this project and provide a CV for the individuals listed. You may copy and paste this table if necessary

Details	Project Leader	Project Partner 1	Project Partner 2
Surname	**Vanstaen**	**Hodge/Samuel**	**Parker**
Forename(s)	**Koen**	**Karim/Calvin**	**David**
Post held	**Group Manager**	**Director/Deputy Director, Strategic Research Programmes**	**Civil Hydrography Manager**
Institution (if different to above)	**Cefas (Centre for Environment, Fisheries and Aquaculture Science)**	**Government of Anguilla**	**United Kingdom Hydrographic Office (UKHO)**
Department	**Environment & Ecosystems**	**Department of the Environment (DoE)**	**Bathymetry Data Centre**
Telephone/Skype			
Email			

Details	Project Partner 3	Project Partner 4
Surname	**Fitzsimmons**	**Medcalf**
Forename(s)	**Clare**	**Katie**
Post held	**Principle Investigator**	**Director**
Institution (if different to above)	**Newcastle University (NCL)**	**Environment Systems (ESL)**
Department	**School of Marine Science and Technology**	**NA**
Telephone/Skype		
Email		

13. Has your organisation been awarded Darwin Initiative funding before (for the purposes of this question, being a partner does not count**)? If yes, please provide details of the most recent awards (up to 6 examples).**

Reference No	Project Leader	Title
DPLUS026	**Koen Vanstaen (Cefas)**	**British Virgin Islands MPA and hydrographic survey capacity building**
EIDPR163	**Joanna Murray (Cefas)**	**Assessing the marine ornamental fishery in the Philippines**

14. If your answer to Q13 was No, provide details of 3 contracts previously held by your institution that demonstrate your credibility as an implementing organisation. These contracts should have been held in the last 5 years and be of a similar size to the grant requested in this application. (If your answer to Q13 was Yes, you may delete these boxes, but please leave Q14)

15. Key Project personnel

Please identify the key project personnel on this project, their role and what % of their time they will be working on the project. Please provide 1 page CVs for these staff, or a 1 page job description or Terms of Reference for roles yet to be filled. Please include more rows where necessary.

Name (First name, surname)	Role	Organisation	% time on project*	1 page CV or job description attached?
Koen Vanstaen	Project Leader	Cefas	4%	Yes
Alex Callaway	Survey and acoustic habitat mapping lead	Cefas	6%	Yes
Simeon Archer	Data analysis and survey support	Cefas	5%	Yes
Louise Brown	Acoustic habitat mapping analysis	Cefas	14%	Yes
TBC (from Cefas pool of staff)	Video survey technical support	Cefas	5%	Yes Example Bill Meadows
Alison Pettafor	Hydrographic surveyor	Cefas	11%	Yes
TBC (from UKHO pool of staff)	Hydrographic surveyor and data processor	UKHO	33%**	Yes Example David Parker
Karim Hodge and Calvin André Samuel	Project advice, survey support & knowledge transfer	DoE, Anguilla	10%	Yes
Clare Fitzsimmons	Biodiversity & mapping advisor	Newcastle University	9%	Yes
Kerry Thomas	OBIA mapping	Newcastle University	20%	Yes
Samuel Pike	Remote sensing analyst	Environment Systems	12%	Yes

*: values derived from Darwin Budget form. Where staff only work on the project for one financial year, the percentage for that year only is shown.

**: relatively higher value due to 12 hour survey days

Project Details

16. Project Outcome Statement: Describe what the project aims to achieve and what will change as a result. (30 words max). You can copy and paste from Q26. No match

The project develops local capacity to undertake comprehensive marine resource assessments of Anguilla's 'Blue-Belt', delivering best practice guidance for combining satellite and acoustic surveys, to extend mapping into deeper waters for the first time.

17. Background: (What is the current situation and the problem that the project will address? How will it address this problem? What key OT Government priorities and themes will it address? (200 words max)

Anguilla's large marine area challenges biodiversity and sustainability management. Increased incidence and severity of storms, predicted under climate change scenarios, have consequences for island sediment dynamics. Shifting sediments can threaten critical ecosystem services, such as beach extent; reef health and diversity; and safe navigation. Darwin+ funded Anguilla National Ecosystem Assessment (NEA) DPLUS022 workshops, highlighted these growing concerns, and the need for monitoring. Initial mapping of shallow marine habitats using satellite images forms part of the Anguillan NEA and a PhD at Newcastle University, but large areas of deeper water remain undescribed. Mapping of these habitats is essential to inform protection and conservation of biodiversity.

Acoustic methods will increase knowledge of deeper areas while improving interpretation of satellite data to support change detection and future monitoring. Equally, better knowledge of marine habitats will improve satellite derived bathymetry, supporting navigation to protect both lives at sea and the marine environment, and form the baseline for sustainable fisheries management. Acoustic survey tools are new to local stakeholders; this project develops DoE capacity in the use of cutting-edge survey approaches. This will improve understanding of marine dynamics, supporting MPA management, local 'Blue Belt' related assessments, CBD obligations and safe navigation.

18. Methodology: Describe the methods and approach you will use to achieve your intended outcomes and impact. Provide information on how you will undertake the work (materials and methods) and how you will manage the work (roles and responsibilities, project management tools etc). Give details of any innovative techniques or methods. (500 words max)

This project will apply the highly successful approach of DPLUS026 to work with Anguilla Government officials. High priority areas for mapping will be identified by and agreed on by DoE and partners at project initiation. Areas will be selected considering potential storm sensitivity, biological importance, local management priorities and logistical limitations; drawing on work already completed by PhD student Kerry Thomas (NCL), and during the ANEA.

In selected high priority areas, data on depth, morphology and hardness of the seabed will be gathered using a Multibeam Echosounder (MBES) system mounted on a local vessel. Bathymetric data collected will be utilised by the UKHO to update SOLAS standard navigational charts for the area, where needed. The MBES bathymetry data will also be processed to produce GIS layers of morphological variables, such as slope and seabed roughness. Backscatter data will be collected to provide information on substrate type, for which return signal intensity is a proxy. Object based image analysis (OBIA) will identify distinct regions from topographic and seabed reflectance layers, to guide ground-truth sampling locations.

PhD student Kerry Thomas has developed analogous OBIA approaches to satellite derived habitat mapping for Anguilla's shallow coastal waters (<20m). Environment Systems will apply further advanced data processing routines to these data to produce a satellite derived bathymetric layer, for which MBES data provides a calibration dataset, significantly enhancing outputs. More accurate bathymetric data will also improve the ability to delineate and characterise coastal habitats. MBES will also provide coverage of little known deeper water habitats, which cannot be mapped using satellites and are often beyond the reach of divers.

Ground-truth sampling will be undertaken within surveyed areas. Extensive ground-truthing to support the existing PhD is planned for May/June 2016. This will be complemented by this project to include the deeper water habitats. An underwater camera system as used in DPLUS026 will be deployed to collect video and still images of the seabed to characterise and quantify the physical environment and biological communities.

Maps of benthic habitat types, such as coral reef, seagrass beds and/or sandbanks, will be produced via statistical analysis of dependencies between the ground-truth data and the GIS layers. This work will be undertaken as part of the PhD research, and outputs tailored as part of this project developed into best practice guidance for multi-purpose marine mapping, change detection and monitoring. Data will be available for download and made directly available to the Anguillan Government to support the Climate Change Protection Plan.

A stakeholder workshop will be held at the beginning of the project to brief key individuals, demonstrating the wide applicability of the work through the 'collect once, use many times' concept. Training and capacity building courses for local stakeholders will be held before each stage of the survey, exploring: 1) the acoustic data acquisition and processing methods, 2) the ground-truthing survey methods and 3) methods for analysis and the production of sediment and habitat maps.

19. How does this project:
a) Deliver against the priority issues identified in the assessment criteria
b) Demonstrate technical excellence in its delivery
c) Demonstrate a clear pathway to impact in the OT(s)
(500 words max)

a)
Anguilla has a national GIS, which includes environmental layers utilised in planning and management. Terrestrial ecosystem service maps were developed during the ANEA project (DPLUS022), and initial basic marine services included. This project will build upon this to produce high resolution marine habitat maps for shallow (satellite data) and deeper (MBES) water for the first time. Analyses will initially focus on understanding sediment dynamics and the implications for critical ecosystem services that underpin the Anguillan economy, such as shoreline protection, safe navigation and beach recreation. Data will subsequently be available to support understanding of marine habitats and biodiversity augmenting Anguilla's contribution to the CBD target of 10% global ocean protection by 2020 (e.g. recent Ramsar proposal of Sombrero Island), and the UK Government's desire to protect the 'blue-belt' of rich environmental assets of the OTs for the future. New workshops to support the integration of these new data sources will support the delivery of sustainable spatial planning and management.

b)
Cefas and UKHO are trusted partners to UK Government, providing technical excellence in environmental survey delivery and advice, and hydrographic surveys and charting, respectively. This project applies recognised and proven procedures and quality standards to work undertaken in Anguilla, adjusted to local needs and conditions where necessary. Integrative elements delivered by Newcastle University (NCL) and Environment Systems (ESL) are novel, but techniques proven via support from ongoing NERC grants held by Newcastle (NE/K007874/1 and NE/K007874/1). UK partner collaboration is well established through a series of joint marine ecosystem service projects, particularly in the UKOTs (NCL, ESL; Anguilla 'Greening the Economy' 2013, Defra WC1032 2014 and DPLUS022), environmental mapping for Marine Conservation Zones (MCZ) (Cefas, NCL) and the successful Darwin award (Cefas-UKHO, DPLUS026) upon which this proposal builds. Collaboration with Anguilla's DoE builds on a strong track-record, and core methodologies have been routinely and successfully used in UK marine mapping programmes (e.g. MCZ evidence collection (Cefas, NCL); Civil and Defence Hydrography Programmes (UKHO)).

c)
Pathways to impact are assured by partners' active ongoing work with UKOTs. NCL-ESL worked closely with DoE Anguilla and JNCC to build a suite of projects around the successfully funded NEA project DPLUS022, including ongoing DoE collaboration via NERC funded PhD (NCL-Thomas) satellite mapping the shallower marine resources. The NEA established GIS capacity, which is further developed here. The team is committed to the territory and existing relationships form a sound basis for dissemination of impact.

As work builds on Cefas-UKHO surveys in BVI, knowledge sharing potential is high. This will primarily be achieved through the delivery of best practice guidance for multi-purpose marine mapping, change detection and monitoring. This will include survey design and implementation, but will focus on commissioning and subsequent data analysis and interpretation by UKOTs. Existing relationships will ensure that key stakeholders are trained in the state-of-the-art survey techniques to achieve the best possible results, and embedding surveys and data into good local decision making policies and processes.

20. 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. (250 words max)

The primary stakeholders for this project are the Government of Anguilla's Department of the Environment, and Department of Fisheries & Marine Resources.

This proposal is a result of needs identified by Anguillan stakeholders during the Darwin Plus funded Anguilla National Ecosystem Assessment project. As part of that project beach erosion and the potential cumulative impacts of sediment loss and predicted increased storm frequency and severity due to climate change, were identified as a critical area for active management.

Initial results from PhD research (NCL-Thomas) have begun to quantify changes in beach extent, focussing on Hurricane Gonzalo (for which before-after satellite images are available). Far greater knowledge is required to build upon this work. One of the key questions being what happens to the sediment, as a net loss is apparent. Thomas' PhD is focussed on mapping shallow water habitats for DoE, but with hydrographic input and MBES data a full marine survey and a method for assessment of change can be developed.

Initial discussions around this proposal took place in January 2015 during the ANEA workshops, with further clarification sought from DoE in August and September 2015. Local stakeholders led conceptual development during the ANEA process, and are only requesting external support due to time constraints. The letter of support from the Ministry of Home Affairs (Environment) confirms that they are fully supportive of the proposal.

All named UK based participant organisations have fully committed to delivery.

21. Institutional Capacity: Describe the implementing organisation's capacity (and that of partner organisations where relevant) to deliver the project.
(500 words max)

The Centre for Environment, Fisheries and Aquaculture Science (Cefas) is an Executive Agency of the UK Government's Department for Environment, Food and Rural Affairs (Defra). Cefas is internationally renowned in delivering applied marine science solutions based on high quality science to conserve and enhance the aquatic/terrestrial environment, promote sustainable management of its natural resources, and protect the public from contaminants. It has a range of resources and wide breadth of expertise with more than 500 staff and over 100 years of experience. Cefas was the project leader for DPLUS026.

The United Kingdom Hydrographic Office (UKHO), a trading fund of the Ministry of Defence, is the world's leading producer of nautical charts and navigational services for mariners. Hydrography is the science of surveying and mapping the seabed to identify the key dangers and safe areas for shipping. The UKHO has unrivalled expertise in multibeam echosounder mapping and has developed expertise in satellite derived bathymetry mapping which will be applied to this project.

The DOE has ten years of institutional experience and combined experience of forty years in project management, monitoring and evaluation. It has seven staff members trained in an array of disciplines, including biodiversity conservation, climate change, coastal engineering, environmental engineering and environmental management. DOE have successfully completed several environmental management and conservation projects. The Department of the Environment, Anguilla, manages national parks and designated marine and terrestrial protected areas. They produced the original coastal habitat atlas in 2001-2002 and have a good understanding of the local environment to plan to the new coastal atlas and fieldwork most effectively.

Newcastle University, School of Marine Science & Technology is a leading UK research intensive academic institution that is in the global top 10 coral reef research organisations (based on ISI citations) and has a century-long tradition of marine science. Expertise in marine ecology and habitat mapping, coastal management, governance and interdisciplinary science is underpinned by 12 academics, 15 support staff, 19 post-doctoral fellows and 28 PhD students.

NCL have held two Darwin main projects (13027 and 19020) and a Defra grant to explore threats to biodiversity in the UKCOTs (WC1032), currently support two related NERC-CASE funded PhDs and have supported JNCC in the Anguilla 'Greening the Economy' project 2013, and DoE in the DPLUS022.

Environment Systems is an established environmental consultancy with a valued reputation using their recognised expertise in data analysis, specifically geoinformatics, remote sensing and earth observation. Environment Systems have worked on large projects in the UK and overseas, including compilation of a new habitat map for the whole of Wales using remote sensing, or coastal habitat assessment in Anguilla. Environment Systems has extensive experience working with the Government of Anguilla as part of Government and Darwin funded projects, bringing extensive experience and excellent working relationships to the project.

APPLICANTS SEEKING £100,000 OR OVER SHOULD PROCEED TO QUESTION 26

22. Expected Outputs			
Output (*what will be achieved e.g. capacity building, action plan produced, alien species controlled)*	Indicators of success *(how we will know if its been achieved e.g. number of people trained/ trees planted)*	Status before project/baseline data *(what is the situation before the project starts?)*	Source of information *(where will you obtain the information to demonstrate if the indicator has been achieved?)*
1.	n/a		

23. Expected change: How will each of the outputs contribute to the overall outcome of the project? (100 words max)
n/a

24. Main Activities	
Output 1	Activities or tasks to be done to deliver the outputs. Include activities on open access information sharing and collaboration with other OTs
1.1	n/a

25. Risks			
Description of the risk	Likelihood the event will happen (H/M/L)	Impact of the event on the project (H/M/L)	Steps the project will take to reduce or manage the risk
n/a			

APPLICANTS SEEKING LESS THAN £100,000 YOU MAY SKIP QUESTION 26

26. LOGICAL FRAMEWORK

Darwin Plus projects will be required to report against their progress towards their expected outputs and outcome if funded. 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.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: To provide the Anguillan Government the necessary skills and tools for effective management of marine biodiversity, fisheries resources and monitor coastal change. (Max 30 words)			
Outcome: To develop marine survey capability and data layers to enhance the ability to protect biodiversity and manage the marine environment and its resources sustainably. (Max 30 words)	0.1 Publish a territory wide database of coastal habitats. Increase habitat knowledge in waters exceeding 20m compared to baseline 0.2 Anguilla Government staff are confident and have the skills to implement and maintain good marine surveys.	0.1 Area coverage (km^2) increased compared to 2004 baseline. 0.2 Two-way knowledge exchange has been undertaken between local managers and UK domain specialists. Anguilla staff attended UK based knowledge exchange. Course certificates issued.	0.1 Good quality satellite imagery is available for the area of interest. Weather allows new multibeam echosounder data collection 0.2 Training and knowledge exchange will give staff skills and confidence needed.
Outputs: **1**. Provide training for local stakeholders in state-of-the-art marine survey techniques and processes	1.1 At least 5 days of training opportunities provided during the lifetime of the project on hydrographic and environmental survey techniques, either classroom based or through practical experience. 1.2 At least one person attending from each local stakeholder organisation. 1.3 One DoE staff member participates in researcher exchange, gaining hands-on experience of marine survey	1.1 Training course registers 1.2 Training course register 1.3 Participation in knowledge exchange.	Local staff are able to participate in knowledge exchange events. DoE are able to participate in researcher exchange and are able to obtain necessary seagoing and medical qualifications.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	techniques onboard Cefas' ocean going research vessel *Cefas Endeavour.*		
2. High resolution bathymetry data for majority of coastal waters and selected deeper water sites	2.1 Deliver at least 10 days (incl. any weather downtime) of high resolution multibeam echosounder surveys in water depths exceeding 15m. 2.2. Multibeam bathymetry data meets recognised international standards (IHO Order 1a) 2.3 Process available satellite imagery to derive a satellite derived bathymetry data layer with 2m resolution for Anguillan coastal waters.	2.1 Daily progress reports produced during survey. 2.2 Data verified and accepted by UKHO Bathymetry Data Centre 2.3 More than 75% of coastal waters (<20m) covered by high resolution SDB data.	Weather conditions suitable for survey activities to be undertaken during time in country. Quality of satellite imagery allows bathymetry down to 20m to be extracted. Bathymetry extraction routines can be applied successfully to the satellite imagery.
3. Provide detailed coastal habitat layer database to local stakeholders	3.1 Undertake 5 day video characterisation survey of habitats identified in deeper waters. 3.2 At least 75% of coastal habitats (<20m) mapped using satellite imagery and habitat map produced from MBES survey area. 3.3 Coastal and deeper water habitat data made available to DoE/Anguilla National GIS by end of project and through free online portal.	3.1 Number of survey days delivered, evidence from daily progress reports. 3.2 Area covered by habitat data layers 2.6 Confirmation of delivery of data to Anguillan Government. Mechanism in place to make data freely available to end-users and interested parties.	Weather conditions suitable for survey activities to be undertaken during time in country. Correlation between satellite/echosounder data and ecological communities can be established.

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

1.1 Project kick off meeting, mid-project and final project stakeholder meetings
1.2 2 day acoustic survey techniques and analysis training course
1.3 2 day video survey techniques and analysis training course
1.4 1 day data interpretation and mapping training course
1.5 Researcher exchange

Project summary	Measurable Indicators	Means of verification	Important Assumptions
2.1 Stakeholder meeting to identify priority survey area(s) (align with activity 1.1 kick off meeting) 2.2 Vessel and equipment mobilisation 2.3 Hydrographic survey of deeper water habitats and bathymetry 2.4 Data processing 2.5 UKHO validation against IHO standards 2.6 Processing of multibeam backscatter data for habitat mapping 2.7 Acquisition of high resolution satellite imagery 2.8 Data processing of satellite imagery to derive bathymetry 2.9 Calibration of satellite derived bathymetry against multibeam echosounder data 2.10 Review of satellite derived bathymetry by UKHO assessment team 3.1 Review multibeam echosounder data and design video characterisation survey 3.2 Undertake 5 day video characterisation survey 3.3 Analyse and quantify physical characteristics and biological communities from video and photographs. Qualitatively describe reef health. 3.4 Undertake object based image analysis of satellite and multibeam echosounder data and combine with in-situ observations to develop habitat characterisation data layers. 3.5 Share habitat layers with local stakeholders 3.6 Make data freely available to data archive centres and through online portals. Data available to UK and local Government to inform Blue Belt assessments, where necessary.			

27. Sustainability: How will the project ensure benefits are sustained after the project has come to a close? If the project requires ongoing maintenance or monitoring, who will do this? (200 words max)

Capability building lies at the heart of this proposal. Through workshops, active involvement and staff exchanges, knowledge will be shared with local staff. Training materials and operating guidelines will be produced, to facilitate ongoing activities after this project. This has proven successful during the ANEA project (DPLUS022).

This project maintains the DPLU026 concept of "collect once, use many times" to maximise the data that can be extracted from satellite and other survey data, achieving benefits for a wide range of stakeholders. We will bring together all parties with an interest in marine survey data collection and demonstrate the sustainability of a joined-up delivery model and benefit for all.

DPLUS026 demonstrated sustainability beyond the project. The local Government is developing a strategy to bring the capacity to the BVI and discussions are taking place at an OECS level to support long term marine survey capability across the wider region. We expect similar outcomes from this project, recognising the need to have this capacity and capability for sustainable resource management, and long-term opportunities to align with regional OECS initiatives.

If OT 'Blue-Belt' protection is to contribute to global biodiversity targets, knowledge of these resources is a critical first step.

28. 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. (200 words max)

As an Executive Agency of Defra, Cefas complies with UK Government requirements to make all data available for re-use. Cefas has an internal data management system which published data directly to UK Data Archive Centres (DAC) for marine data established by the Marine Environmental Data and information Network (MEDIN). Cefas itself is a DAC for fisheries data. All data supplied to DACs is often picked up by global data centres such as GBIF, thereby increasing the visibility of the data.

Bathymetry data collected during this project will be supplied to UKHO, who also host the DAC for bathymetry data, and data will be freely available to end-users.

All data will be shared with the Government of Anguilla. In addition, in consultation with the Government of Anguilla we will explore make the data available through an interactive online portal.

Cefas always strives to publish its work in peer reviewed journals and are committed, in line with UK Government expectations, to publish these articles as Open-Access so that anyone can view the work without the need of a subscription or paying a fee.

29. Monitoring & Evaluation: How will the project be monitored and who will be responsible? Will there be any independent assessment of progress and impact? When will this take place, and by whom? (250 words max)

To ensure the effective management of projects and project funding, Cefas maintain a pool of qualified project managers. Every project has a Project Sponsor and a Project Manager. The project sponsor will be internally accountable for the delivery of the project through in-life monitoring and review to final completion. The Project Manager will have the day-to-day responsibility for all elements of the project including implementation and monitoring of an appropriate project plan, resourcing schedule and risk register. The project manager will submit 6-monthly monitoring reports.

Cefas and its partners have extensive experience delivering successful, high impact projects. Success of the project can be guaranteed through use of tried and tested protocols for the collection of acoustic and biological data against quality standards. Peer-reviewed publications in quality scientific journals would be produced using the data collected during this project providing an indicator of scientific quality. Bathymetry data will be collected to recognised international standards (International Hydrographic Organisation – Standards for Hydrographic Surveys – Special Publication S44 Edition 5) by a Charge Surveyor and validated by UKHO Bathymetry Analysts.

A project steering group will be formed to oversee progress and impact of the project. Meeting minutes detailing progress and impact as assessed by the project steering group will be produced and made available as part of the final report.

30. Financial controls: Please demonstrate your capacity to manage the level of funds you are requesting. (Who is responsible for managing the funds? What experience do they have? What arrangements are in place for auditing expenditure?)

To ensure that the resources of the project are utilised in the best possible way, only certain members of staff within Cefas have authority to approve and control requisitions and expenditure. An Audit Committee (AC), a formally constituted committee of the Cefas Management Board (CMB) considers and provides advice on: the establishment and maintenance of an effective system of internal control and risk management, oversees the appointment and effective operation of internal audit, enhances the effectiveness of the relationship with external audit and reviews the reviews the annual financial statements. Cefas receives regular reports by internal audit to government audit standards which includes the Head of Internal Audit's independent opinion on the adequacy and effectiveness of the agency's system of governance, internal control and the system for risk management, together with recommendations for improvements.

The Project Manager will be responsible for managing the project funds. All project expenditure will be approved by the Project Sponsor or a member of the Cefas Senior Management Team. The project manager has over 8 years experience managing projects and project budgets, ranging from £20k to £500k projects for Government and commercial customers, and varying complexity. A purpose build Management Information System is available to manage and audit expenditure.

As an Executive Agency of Defra, Cefas is subject to Government Spending Controls as set out in the Cabinet Office Controls guidance document (https://www.gov.uk/government/publications/cabinet-office-controls/cabinet-office-controls-guidance-version-40). All sub-contract expenditure over £10k will be reviewed and approved by the Senior Management Team. All goods and services will be procured in a fair and open manner.

Please complete the separate Excel spreadsheet which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet. If you are requesting over £100,000 from Darwin Plus, you must complete the full spreadsheet.

31. Value for Money

Please explain how you worked out your budget and how you will provide value for money through managing a cost effective and efficient project. You should also discuss any significant assumptions you have made when working out your budget. (200 words max)

The budget for this project has been built based on the project team's experience undertaking similar work in the UK and overseas, allowing us to present a realistic budget. Using our experience from previous Darwin projects, we will be able to deliver the work or training in a cost effective manner.

High quality marine evidence collection is expensive, so data will be collected to maximise the number of outputs. Equipment will be made available at no cost to the project (an in kind contribution of around £53,000). Compared to the cost of one day of multibeam data collection and processing for the UK Civil Hydrography Programme (on average £20,000/day), this project will deliver such survey effort at significantly lower cost and deliver additional outcomes.

By aligning this work with an existing PhD research project, we will achieve significant benefits, such as tapping into an extensive ground-truthing survey programme, complementary shallow water coastal habitat mapping and being able to validate the satellite derived bathymetry to expand its use for navigational purposes (NERC £87,000).

With our experience and free access to world-class facilities and datasets, we strongly believe this project provides excellent value for money.

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

	Activity	No of Months	Year 1													Year 2										
			A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Output 1	Provide training for local stakeholders in state-of-the-art marine survey techniques and processes																									
1.1	Project kick off meeting, mid-project and final project stakeholder meetings			■									■										■			
1.2	Two day acoustic survey techniques and analysis training course					■																				
1.3	Two day video survey techniques and analysis training course						■						■													
1.4	One day data interpretation and mapping training course												■													
1.5	Researcher exchange (exact timing tbc)																	■								
Output 2	High resolution bathymetry data for majority of coastal waters and selected deeper water sites																									
2.1	Stakeholder meeting to identify priority survey area(s) (align with activity 1.1 kick off meeting)			■																						
2.2	Vessel and equipment mobilisation					■																				
2.3	Hydrographic survey of deeper water habitats and bathymetry					■																				
2.4	Data processing							■	■	■																
2.5	UKHO validation against IHO standards										■															
2.6	Processing of multibeam backscatter data for habitat mapping											■	■													
2.7	Acquisition of high resolution satellite imagery								■																	
2.8	Data processing of satellite imagery to derive bathymetry										■	■	■	■												
2.9	Calibration of satellite derived bathymetry against multibeam echosounder data											■														
2.10	Review of satellite derived bathymetry by UKHO													■												

	Activity	No of Months	Year 1												Year 2										
			A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
	assessment team																									
Output 3	Provide detailed coastal habitat layer database to local stakeholders																									
3.1	Review multibeam echosounder data and design video characterisation survey																									
3.2	Undertake 5 day video characterisation survey																									
3.3	Analyse and quantify physical characteristics and biological communities from video and photographs. Qualitatively describe reef health.																									
3.4	Undertake object based image analysis of satellite and multibeam echosounder data and combine with in-situ observations to develop habitat characterisation data layers.																									
3.5	Share habitat layers with local stakeholders																									
3.6	Make data freely available to data archive centres and through online portals.																									
Output 4																										
4.1																										
4.2																										
4.3																										

CERTIFICATION

On behalf of the company* of Cefas

(*delete as appropriate)

I apply for a grant of £271,238 in respect of **all expenditure** to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

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 lead institution to submit applications and sign contracts on their behalf.)*

- I enclose CVs for key project personnel and letters of support.
- I enclose the most recent 2 years of signed and audited/independently verified accounts.

Name (block capitals)	DAVID CARLIN
Position in the organisation	Division Director, Environment & Ecosystems

Signed	PDF: C6950_Certification_signed.pdf	**Date:**	

If this section is incomplete the entire application will be rejected. You must provide a real (not typed) signature. You may include a pdf of the signature page for security reasons if you wish. Please write PDF in the signature section above if you do so.

Application Checklist for submission

	Check
Have you **read the Guidance Notes**?	✓
Have you **checked the Darwin Plus website** immediately prior to submission to ensure there are no late updates?	✓ 21/09
Have you provided **actual start and end dates** for your project?	✓
Have you provided your **budget based on UK government financial years** i.e. 1 April – 31 March and in GBP?	✓
Have you checked that your **budget is complete**, correctly adds up and that you have included the correct final total on the top page of the application?	✓
Has your application been **signed by a suitably authorised individual**? (clear electronic or scanned signatures are acceptable in the email)	✓
Have you included a **1 page CV for all the key project personnel**?	✓
Have you included a **letter of support from the applicant organisation, main partner(s) organisations and the relevant OT Government**?	✓
Have you included a **copy of the last 2 years' annual report and accounts** for the lead organisation?	✓

Once you have answered the questions above, please submit the application, not later than midnight **2359 GMT Monday 21 September 2015** to Darwin-Applications@ltsi.co.uk using the first few words of the project title **as the subject of your email**. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (e.g. whether the e-mail is 1 of 2, 2 of 3 etc). You are not required to send a hard copy.

DATA PROTECTION ACT 1998: Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of Darwin Plus. Application form data will also be held by contractors dealing with Darwin Plus monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (i.e. name, contact details and location of project work) on the Darwin Initiative and Defra/FCO/DFID websites (details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Governor's Offices outside the UK, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.