Applicant: **Zaluski, Susan**
Organisation: **H. LAVITY STOUTT COMMUNITY COLLEGE**
Funding Sought: **£42,314.81**

DPLR4\1065

Building the BVI's Capacity to use Photogrammetry for Marine Conservation

This project will develop an enabling framework for environmental stakeholders to use Large Area Imaging (LAI) to support BVI coral monitoring through the acquisition of requisite equipment and photogrammetry software; hosting of field data collection and image-processing workshops; digitizing corals for at least three key sites; establishing data management systems and developing an online module to support future asynchronous training. This project will build capacity for using photogrammetry to evaluate ecosystem shifts/changes and become an invaluable reference for other projects.

DPLR4\1065

Building the BVI's Capacity to use Photogrammetry for Marine Conservation

Section 1 - Project Title & Contact Details

Q1. Project Title

Building the BVI's Capacity to use Photogrammetry for Marine Conservation

Q2. Please select whether you are applying as an organisation or as an individual **(Guidance section 3 and Guidance Glossary)**

⦿ Organisation

CONTACT DETAILS

Name	Susan
Surname	Zaluski
Organisation	[redacted]
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

CONTACT DETAILS

Name	Laura
Surname	Arton
Organisation	[redacted]
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

CONTACT DETAILS

Name	YVONNE
Surname	CRABBE
Website (Work)	[redacted]
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

GMS ORGANISATION

Type	**Organisation**
Name	H. LAVITY STOUTT COMMUNITY COLLEGE
Phone (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

Section 2 - Overseas Territory(ies)

Q3. Please state whether the same (or similar) project proposal has previously been submitted to the UK Government for funding, including through Darwin Plus Local, Defra's other Darwin Plus grant schemes or other UK Government funding mechanisms. Failure to do so may result in the application being ineligible.

⦿ No

Q4. Overseas Territory (Guidance section 1.3):

Which UK Overseas Territory(ies) will your project be working in? Please note that in case of a non-permanent resident population you need to demonstrate a clear, meaningful, long-term link to the territory.

☑ British Virgin Islands (BVI)

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

No Response

In addition to the UKOT(s) you have indicated, will your project directly benefit any other UK OT(s) or country(ies)?

⦿ No

Section 3 - Project Partners

Q5. Project partners (Guidance section 3.2)

In this section, please give details of all the partners involved (including the Lead Organisation) and provide a summary of their roles.

Project Leader name (Guidance section 3.1):	Susan Zaluski
Lead Organisation name (if applying as an organisation; Guidance section 3.1):	H. LAVITY STOUTT COMMUNITY COLLEGE
Lead Organisation Website (if applicable):	www.hlscc.edu.vg
Is the Lead Organisation based in a UKOT where the project is working (Guidance section 3.1)?	⦿ Yes
List other partners involved and where are they based:	1. Louisiana State University, Seascape Ecology Laboratory, Baton Rouge, Louisiana, USA 2. Ministry of Environment, Climate Change and Natural Resources, Government of the Virgin Islands, Tortola, British Virgin Islands
Summary of roles and responsibilities of each partner in the project:	H. Lavity Stoutt Community College's (HLSCC) Centre for Applied Marine Studies (CAMS): CAMS will serve as the project lead, organising training workshops, coordinating field exercises, liaising with local BVI stakeholders, compiling project data, and drafting project reports. Louisiana State University (LSU) Seascape Ecology Lab: Dr. Dan Holstein and his lab will provide technical expertise in processing Large Area Imaging (LAI) and leading field training exercises for photogrammetry data collection. Ministry of Environment, Natural Resources & Climate Change: The Ministry's Marine Biologist (Ms. Argel Horton) will have access to all training workshops and final data sets. The Ministry will also be asked to review recommendations for persons/agencies to be involved in training and to review final training materials produced through the project.
I confirm that all listed partners are aware of this application and have indicated support:	Checked

Attach a Cover Letter for your application (Guidance section 4.2).

HLSCC Cover Letter for Darwil Plus Local Round 4_HLSCC
24/06/2024
18:57:13
pdf 179.78 KB

Section 4 - Project Summary & Description

Q6. Project Summary (Guidance section 3.8)

Please provide a brief summary of your project. This may be used in communication activities and/or published online, if your application is successful.

This project will develop an enabling framework for environmental stakeholders to use Large Area Imaging (LAI) to support BVI coral monitoring through the acquisition of requisite equipment and photogrammetry software; hosting of field data collection and image-processing workshops; digitizing corals for at least three key sites; establishing data management systems and developing an online module to support future asynchronous training. This project will build capacity for using photogrammetry to evaluate ecosystem shifts/changes and become an invaluable reference for other projects.

Q7a. Description (Guidance section 2.1 and 6)

Please provide a description of your project, including:

- **the overall objective**
- **the current situation and the problem the project is trying to address**
- **what success will look like and how you will measure it.**

Please be as specific as possible when describing the project, using quantified data and evidence where available. You may wish to consider: what are the specific threats to the environment that the project will attempt to address, and what should we know about these threats? What does your successful project look like? And how will you demonstrate whether and how your project has been successful?

Within the last few decades, marine ecosystems worldwide have faced multiple threats due to ocean acidification and climate change, leading to a significant decline in coral coverage and fish populations. Their rate of decline is significantly faster than the rate at which these systems can recover naturally. Along with bleaching, an increase in coral diseases, such as Stony Coral Tissue Loss Disease (SCTLD) and the (2022) Diadema antillarum die-off, have been key drivers of mass mortality events for the Caribbean's coral reefs.

Between February 2023 and April 2024, significant coral bleaching was documented in both the Northern and Southern hemispheres of each major ocean basin (NOAA). Global Sea surface temperature trends indicates that it is likely that these events will continue through the end of 2024. There is a critical need to begin documenting these changes as our baselines are continually shifting.

The British Virgin Islands (BVI) has limited long-term monitoring data sets for marine ecosystems. From 1997 to 2012 there were regular underwater reef surveys conducted by Reef Check-trained divers in the BVI, along with a recent coral reef monitoring initiative led by the Ministry of Environment, Natural Resources and Climate Change (MENRCC). Building upon this foundation, this project will help develop new techniques for BVI reef monitoring and conservation, pathways for training survey divers, and systems for data management.

By improving our ability to capture ecosystem changes, we will support the development of an improved understanding of long-term trends in the BVI's marine environment, providing greater potential for early and informed decision-making and climate-adaptive intervention methods. This need has already been identified by government and environmental stakeholders, as documented in the "Virgin Islands Strategic Blue Economy Road Map (2020-2025"), which called for "improving the knowledge base to support evidence-based decision-making" for sustainable ocean management.

This project will build a framework for the use of a photogrammetric approach to coral reef monitoring in the BVI through the procurement of equipment (e.g. camera, housing, computer, software) and provision of training for personnel from at least three local agencies in the BVI in data collection methods and analysis through both fieldwork and online sessions. Photomosaics of at least three key sites will be produced during training workshops with participants using Agisoft software. Each photomosaic will then be analysed for total coral coverage, algae coverage, and bleaching.

Large Area Imaging (LAI) is a photogrammetric approach combining thousands of individual overlapping imaging using Structure-from-Motion (SfM) software to generate photorealistic 3D representations of topographic surfaces (NOAA). LAI is a passive, non-invasive method that can be used efficiently to locate areas that require immediate intervention (e.g. high-level areas of disease (SCTLD) requiring treatment) or to support longer-term interventions (e.g. using images as historical baselines to support future restoration).

Q7b. Long-term sustainability (Guidance section 2.1 and 6)

Please describe the long-term benefits of the project and the change it will bring about. How will the outcomes of the project be sustained after the funding is finished?

LAI can provide permanent digital snapshots of ecosystems, providing a baseline/reference to track changes over time. This project will build a foundation to make the LAI process more accessible to a diverse selection of stakeholders in the BVI, who can adapt the technology to support a wide range of monitoring, conservation, and restoration activities.

As the BVI's only tertiary education institution, HLSCC is well-positioned to become a focal point for visiting universities and research institutions. This project will help support HLSCC's ability to incorporate new methods and techniques into existing curricula. As a part of training processes, students may carry out cursory imaging to identify potential areas of interest for more detailed investigation and analysis by others, widening the base of contributors and developing pathways for early career conservationists to make meaningful research contributions.

The CAMS is also part of the College's Workforce Training Division (WTD), which helps fulfil professional development needs for the BVI's private and public sectors via both standard and customised training courses. HLSCC has facilities and personnel on campus to support the development of data archives and training tools that can support both in-person and online, asynchronous learning opportunities beyond the life of the project.

(Optional) Please upload any additional and supporting materials or files (such as maps of project sites, etc) below. Maximum of 5 sides of A4, and is combined as a single PDF:

No Response

Section 5 - Project Outcome(s)

Q8. Project Outcome(s) (Guidance section 1.2)

Successful Darwin Plus Local projects must demonstrate measurable outcomes in at least one of the themes of Darwin Plus with a clear focus on biodiversity and the natural environment, either by the end of the project or soon after through a credible plan.

Please note: Any proposals including research or monitoring are required to demonstrate a clear link to tangible outcomes for conservation of biodiversity and the natural environment. Please explain how any new research will be applied to drive environmental outcomes on the ground.

Please confirm that your project has a clear focus on biodiversity and the natural environment.

Checked	**Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;**

Please tick which additional theme(s) of Darwin Plus your project contributes to (if relevant):

Checked	**Climate change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;**
Unchecked	**Environmental quality: improving the condition and protection of the natural environment**
Checked	**Capability and capacity building: enhancing the capacity within OTs, including through community engagement and awareness, to support the environment in the short- and long-term.**

Please justify your selection. Please use quantitative information where possible here.

With Caribbean coral reefs once again predicted to experience unprecedented levels of heat stress in 2024, it is vital to understand the effects on our reef systems and identify areas that are showing signs of resilience.

This project will develop photomosaics for three reef sites in the BVI that can be used for current and future marine conservation needs. The project will also help support at least five persons from at least three organisations/agencies to be trained to carry out LAI, data processing and photomosaic production.

Section 6 - Workplan

Q9. Workplan (Guidance section 2.2)

Please provide anticipated dates for the start and end of your planned project here. Please use the Darwin Plus Local Project Workplan (available at: https://darwinplus.org.uk/apply/local-applications/**) to provide a list of the individual activities you have planned for this project, a brief description of what each activity entails, and the months in which the activities will be carried out. If the project involves only one activity (e.g. a purchase), please still provide project start and end dates (noting estimated times for procurement). Please note that your project must start after 1 October 2024 and be completed by 31 March 2025.**

Start date:	End date:	Duration (e.g. 3 months):
01 October 2024	31 March 2025	6 months

Please upload the completed Darwin Plus Local Project Workplan with your proposed project activities here

Darwin Plus Local Project Workplan_HLSCC
24/06/2024
16:27:35
pdf 142.79 KB

Section 7 - Costs

Q10. Costs (Guidance section 2.2 and please read the Finance Guidance)

Please provide a breakdown of costs to be funded through Darwin Plus Local (in GBP).

Are you seeking any matched funding for this project?

⦿ No

Budget line	Explanation	Cost in GBP
Staff costs:	HLSCC Programme Administration and Coordination: 24 days (4 days per month x 6 months)	£[redacted]
Consultancy costs:	LSU Team - 20 hours for online sessions (2-3 sessions, plus prep) + 224 hours field work week (8 hours x 7 days x 4 people)	£[redacted]
Overhead costs:	Provided as 'in-kind' support by HLSCC	£[redacted]
Travel & subsistence costs:	Covers international flights and sea (ferry) transportation for 4 persons from LSU to visit BVI, lodging for the visiting team and Per diem to cover food costs.	£[redacted]
Operating costs:	Covers 3 days of Dive Vessel rental (includes captain and crew)	£[redacted]
Capital equipment:	Includes Cameras, housing and accessories, 2Go Pro Cameras and Housing, GoPro batteries and charging, Computer hardware for data storage, field accessories, cloud image storage, HOBO Temp sensors, shipping and handling, and Agisoft Software license (1-year subscription).	£[redacted]
Other Costs	None	£0.00
Total:		42,314.81

This section provides more information on the budget to help evaluators understand how you will use the funds you are requesting. You do not need to list all costs, but please list and detail costs of more than £1,000 per item below, under the appropriate budget line.

Details of staff costs over £1,000 (if relevant)

The Marine and Maritime Studies Programme Administrator will manage and coordinate all administration and logistics for the project for 4 days per month x 6 months.

Details of overhead costs over £1,000 (if relevant):

N/A

Details of travel and subsistence costs over £1,000 (if relevant):

Travel for 4 persons from LSU Seascape Ecology lab from Lousianna and USVI (flight + sea (ferry) transportation), plus accommodations for 7 nights and food/incidentals for the 7 days in the BVI.

Details of operating costs over £1,000 (if relevant):

Vessel rental (to hire a vessel, including captain, fuel and diving equipment rental for 3 diving days)

Details of capital equipment costs over £1,000 (if relevant):

These costs include:
- Underwater Camera with lights & housing
- Computer with 64GB RAM, 2TB SSB, NVIDIA GeForce RTX 4090 Card
- 8 x 256GD SD cards
- 8 x 2TB hard drives
- 2 x expansion desktop drives
- Agisoft Software license
- Cloud storage

Details of consultancy costs over £1,000 (if relevant):

Dr. Dan Holstein, Louisiana State University, for a total of 244 hours to prep and deliver training sessions both online and in person.

Details of other costs over £1,000 (if relevant)

N/A

If your project budget was prepared in another currency and converted to GBP, please provide the exchange rate, its source, and the date it was accessed:

Other currency:	Exchange rate:	Source of this exchange rate:	Date exchange rate accessed:
USD	1.0 USD to 0.79 GBP	www.xe.com	21 June 2024

Darwin Plus Local has been created to build capacity and contribute to local economies in-territory.

What % of the total will be spent in the OTs?	[redacted]

If less than 80% of the total project spend is to be spent within the OT(s), please explain why.

N/A

Section 8 - Local and National Priorities

Q11. Local and national priorities

Please explain how this project aligns with local and national priorities? You may wish to consider the project in the context of national environmental laws, objectives, strategies, territory specific agreements, action plans or policies.

The Government of the Virgin Islands and the United Nations Development Programme (UNDP) "Virgin Islands Strategic Blue Economy Roadmap (2020-2025)" sets out an "integrated approach to ocean-based sustainable development which brings together economy, environment and society, consistent with the Sustainable Development Agenda (2030)."

Throughout this document, there is a consistent theme of capacity building at HLSCC for marine-related scientific research and monitoring, including "forging partnerships with overseas institutions to provide support and further training." Section 5.2.2 of the document calls to "Develop the marine scientific research capacity of existing government agencies" with a future that positions "HLSCC to better support national marine research needs and to become a regional centre of excellence for marine scientific research and training."

By acquiring the equipment and undergoing training to digitize the BVI's marine ecosystems through HLSCC, our proposed project will help to directly meet a goal set out in the Blue Economy Road Map.

Will the project take place on Government owned land or water or involve biocontrol, invasive alien species control or eradication?

⦿ No

Section 9 - Project Risks

Q12. Project Risks

Please demonstrate your consideration of any risks involved in this project and how you intend to manage them. Please note the importance of health and safety and environmental risk assessment in the design of your project. If there is any possibility that your project may have negative impacts on the environment or human health, it is important that you provide a comprehensive analysis of potential environmental and human health risks, and the prevention measures you will take to ensure the work does not cause harm.

Depending on your project, you may wish to consider:

- **Biosecurity risks – particularly for projects involving external equipment.**
- **Safeguarding risks – particularly for projects involving vulnerable groups such as children, older people or people with disabilities.**

Risk	Mitigation

Inclement weather and/or storm events may make it difficult to dive at selected areas or cause travelling delays for visiting consultants (LSU).	In total, there will be a potential of 6 possible dive days for 3 days of data collection. In addition to the 3 main monitoring sites selected, alternatives will be selected that are more protected and can be used as a backup. Diving activities will take plan in November at the end of the Atlantic Hurricane season, minimising the likelihood of a storm event. Trip insurance and alternative travel dates by visiting consultants will be included in the planning.
Dive-related injury during diving activities.	All divers will follow standard safe diving practices, plus divers will be at least PADI Advanced Open Water certified (or equivalent) and completed a minimum of 50 dives. For each day of fieldwork there will be a dive plan and a briefing will be carried out daily, including roles, responsibilities, planned dive profiles and safety procedures. The dive boat will have an emergency accident plan to follow in the event of a diving-related injury. The boat will be equipped with emergency oxygen and first aid, with the captain and at least two others on board trained in correct operating procedures.
Delays in equipment procurement may shift project timeline.	We have confirmed that LSU can bring the requisite equipment for the in-person training workshops if HLSCC project equipment does not arrive in time.

Do you require more fields?

⦿ No

Section 10 - Terms & Conditions

Q12. Terms and conditions (Guidance section 3.10)

By applying for Darwin Plus Local you are adhering in full to the grant Terms and Conditions in full (available at: Darwin Plus website **and as referenced in the Guidance at section 3.10). For information, the Terms and Conditions include requirements for all applicants to (amongst other requirements as per the full Terms and Conditions):**

- **Uphold a zero tolerance for inaction approach to tackling sexual exploitation, abuse, and harassment.**
- **Where appropriate, make all reasonable and adequate efforts to address gender inequality and other power imbalances.**
- **Notify all cases of fraud and theft (whether proven or suspected) relating to the project to the Grant Administrator as soon as they identified.**

Please indicate you have read, and understood, and will adhere to the Terms and Conditions.

Checked

Supporting documents list (please have these ready to attach with application)

- **Cover Letter of no more than two A4 pages. (Guidance section: 4.2 has information on what this cover letter should include).**
- **If the project takes place on public land or water or is addressing invasive alien species, a Letter of support from OT Government.**
- **Project Workplan in the template provided for Darwin Plus Local (available at: https://darwinplus.org.uk/apply/local-applications/).**
- **Map and additional information (optional) maximum five additional pages.**

If your application is successful

If your project application is successful, the Fund Administrator (NIRAS) will ask you to provide some financial evidence for due diligence checks before you receive your project grant. (Please see section 3.3 of the Darwin Plus Local Finance Guidance). Please be ready to provide this evidence promptly.

- **Financial evidence for organisations: Year-end financial statements, the latest management accounts or audited accounts (if you have these).**
- **Financial evidence for individuals: Proof of identity such as a passport, ID card or driving licence and solvency (such as bank statements) and a police check.**

Section 11 - Certification

Certification

I certify that, to the best of my knowledge and belief, the statements made in this application are true and the information provided is correct.

Checked

I have the authority to submit an application on behalf of my organisation.

Checked

Name:	YVONNE CRABBE
Position in the organisation: (if applicable)	H. LAVITY STOUTT COMMUNITY COLLEGE
Signature (please upload e-signature)	Electronic Signature (blue ink) 24/06/2024 17:10:27 jpg 64.21 KB
Date:	24 June 2024

Section 12 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance **documents, including the "Darwin Plus Local Guidance" and the "Darwin Plus Local Finance Guidance".**	Checked
If my proposed project takes place on public lands or water or is addressing alien invasive species, I have uploaded a Letter of Support from Government.	Checked
I have uploaded a cover letter that details the information requested in the guidance (Guidance section 4.2 has information on what this cover letter should include).	Checked
I have read, and can meet, the current Terms and Conditions **for this fund (found at:** https://darwinplus.org.uk/apply/local-applications/**) for this fund.**	Checked
I have provided actual start and end dates **for my project that fit this Round.**	Checked
I have provided my summary budget based on UK government financial years **i.e. 1 April – 31 March and in GBP in the application form.**	Checked
I have uploaded my project workplan using the specific template provided (available at: https://darwinplus.org.uk/apply/local-applications/**).**	Checked
I have uploaded all supplementary documents if I have any.	Checked
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
The application has been signed by a suitably authorised individual **(clear electronic or scanned signatures are acceptable).**	Checked
I have checked the Darwin Plus website **immediately prior to submission to ensure there are no late updates.**	Checked
I have read and understood the Privacy Notice on the Darwin Plus website**.**	Checked

We would like to keep in touch!

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

Checked

Data protection and use of personal data

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

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

Darwin Plus Local

Provide a **Project Implementation Timetable** that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended work plan for your project. Round 4 is for a **maximum of 6 months** with activities starting from **1 October 2024**. All activities must be completed by **31 March 2025**.

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and shade only the months in which an activity will be carried out. The work plan can span multiple pages if necessary.

Activity #	Description (max 25 words)	No. of Months	UK Financial Year 2024/25					
			Calendar Year 2024			Calendar Year 2025		
			Oct	Nov	Dec	Jan	Feb	Mar
1	Procurement of equipment and software, including shipping to the BVI	1	x					
2A	Conduct 1-3 remote training sessions for data collection and analysis techniques, including introducing Agisoft software to stakeholders from HLSCC (2-3) and other BVI environmental agencies/organisations.	1	x					
2B	During 3 field training dives, training candidates learn correct techniques for data collection using equipment and document at least 3 sites in the BVI.	0.25		x				
2C	Data analysis training on site: downloading data sets, and processing in Agisoft software to produce mosaics. Using mosaics, begin to digitise images for coral coverage, algal coverage and rugosity.	0.25		x				
3A	Using the data collected, produce a final report for the project, presenting variables extracted from mosaics.	2			x	x		
3B	Presenting the project outcomes to relevant stakeholders.	2			x	x		