

DPLR1\1060

Nature-based solutions to treat SCTL D - Montserrat - Pilot Program

Objective:

Stony Coral Tissue Loss Disease (SCTL D) is a devastating and highly lethal disease that impacts over 20 species of hard corals throughout Florida and the Caribbean. A variety of treatments have been developed however many of them use substances not found naturally in the marine environment and have the potential to create collateral issues. An effective option has been developed by creating a treatment from the naturally occurring microorganisms in uninfected corals to create a probiotic. By using these probiotics, the corals have a nature-based solution to overcome and prevent the disease. To be able to develop the most effective treatments for corals within Montserrat's reef systems probiotics need to be developed from Montserrat corals and need to be tested on Montserrat corals. This project will create a multipurpose closed system test tank system to analyse the effectiveness of multiple probiotics options so that most effective option can be produced for actual treatment on the reef. The program will engage with the members of the Government of Montserrat (GoM) dive team to provide training on how to develop a treatment program, how to monitor the tests, how to maintain the test tank, and how to properly document and analyse data. The test tank will be the first one in the Eastern Caribbean UKOTs and provide an important system that will be used in further phases of testing, can be used for other reef science programs and assist other OTs with reef and coral issues.

Current situation and problem trying to address:

The project lead organisation, Island Solutions, first identified SCTL D in Montserrat in January 2021 and has since worked in collaboration with the GoM, the JNCC and multiple regional working groups to address this issue. From 2021 our organisation has led the in-water efforts to document the disease, train the GoM dive team on survey techniques, assisted with a treatment training program, and implemented a treatment program. The reef survey and treatment/retreatment program is currently active and will continue until April 2023. Our surveys show that SCTL D is still active on the reef system.

In August 2022 Andrew Myers and Emmy Aston attended the UKOT SCTL D workshop in Cayman and formed a working relationship with staff of the Smithsonian Marine Station in Florida and the Ushijima Lab of University of North Carolina – Wilmington. Those organisations are treating corals with probiotics derived from healthy corals to combat SCTL D. The effectiveness has been found to be similar to antibiotics without the issue of potential antibiotic resistance and unintended impacts to other organisms. Samples of Montserrat coral biome have already been provided to the lab and probiotics are being prepared to be tested. Currently there is not a facility to test the treatments within the Eastern Caribbean area to conduct those tests.

What will success look like and how will it be measured:

This project has three goals:

- 1) To create a multipurpose testing tank system in Montserrat. This test tank will be designed to support multiple marine science applications using systems developed at the Smithsonian Marine Station facility. This tank will increase Montserrat's capability to address marine environment issues.
- 2) To test probiotic treatments for effectiveness on Montserrat corals. A minimum of 4 samples will be tested in the Montserrat tank, with the goal of testing 12 probiotic treatments over the course of this project.

3) To train members of the Government of Montserrat dive team on tank and testing systems. The project will engage the GoM team in all aspects of the creation, training and implementation phases of this project. Documentation will be done on participation.

PRIMARY APPLICANT DETAILS

Title Mr
Name Andrew
Surname Myers
Organisation Island Solutions Inc.
Website (Work) [REDACTED]
Tel (Work) [REDACTED]
Email (Work) [REDACTED]
Address [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

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Nature-based solutions to treat SCTL D - Montserrat - Pilot Program

Section 1 - Project Title & Contact Details

Q1. Project Title

Nature-based solutions to treat SCTL D - Montserrat - Pilot Program

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

Organisation

PRIMARY APPLICANT DETAILS

Title	Mr
Name	Andrew
Surname	Myers
Organisation	Island Solutions Inc.
Website (Work)	[REDACTED]
Tel (Work)	[REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]

GMS ORGANISATION

Type	Organisation
Name	Island Solutions Inc.
Phone (Work)	[REDACTED]
Email (Work)	[REDACTED]
Website	[REDACTED]
Address	[REDACTED]

Section 2 - Overseas Territory(ies)

Q3. 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.

Montserrat

* 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)?

Yes

Please list these below and describe how they will benefit:

The probiotic treatments tested in Montserrat will likely have the same treatment value as in the 2 close Caribbean UKOTs - Anguilla and the BVIs. There are no tank testing facilities in either currently.

Section 3 - Project Partners

Q4. Project partners (Guidance section 3.2)

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

**Project Leader name
(Guidance section 3.1):** Andrew Myers

**Lead Partner name (if
applying as an
organisation; Guidance
section 3.1):** Island Solutions Inc.

**Lead Partner Website (if
applicable):** www.islandsolutions.org

**Is the Lead Partner based
in a UKOT where the
project is working
(Guidance section 3.1)?** Yes

List other partners involved and where are they based (Guidance section 3.2):

Island Solutions will be collaborating with the following organisations:
1) Smithsonian Marine Station - Florida
2) Ushijima Lab for Coral Health and Restorative Microbiology at the University of North Carolina - Wilmington
3) Government of Montserrat Departments of Agriculture and Environment

Summary of roles and responsibilities of each partner in the project:

Island Solutions will be responsible fully for the management and delivery of this project:

1. Has already engaged the consultants responsible for supporting the technical aspects of the project. Andrew Myers - project lead - has visited the Florida based facility that will support tank construction and communicates regularly with the lab that will lead treatment production.
2. Will interact with the Government of Montserrat dive team and the related departments to engage their support and provide training on the systems and procedures.
3. Outreach programs and educational material will be lead by our organisation but will engage the program dive team for delivery.
4. Financial management will fall to Island Solutions, however it will be maintained by the outside accounting firm that does our organisation's audits.
5. Data processing and analysis will be done by Island Solutions and the program dive team. We will engage our two collaborating organisations to assess the data. This data will be provided to the Government of Montserrat.

The Government will provide availability to the GoM dive team and support administrative efforts to engage with that personnel.





Smithsonian Marine Station will support test tank design and construction.

Ushijima Lab for Coral Health and Restorative Microbiology at the University of North Carolina - Wilmington will develop and supply the probiotic treatment. They will assist in setting up the testing trial.

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).

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Section 4 - Project Summary & Description

Q5. 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.

Stony Coral Tissue Loss Disease (SCTLD) has impacted over 20 species of hard corals throughout the Caribbean, including Montserrat. Effective treatments created from the natural probiotic microorganisms of healthy corals to prevent and treat the disease are being used in the US but have not yet been used in the Caribbean. This project will create a multi-purpose testing tank to test probiotic samples from Montserrat corals on Montserrat corals and train Government of Montserrat personnel on testing and documenting procedures.

Q6. Description (Guidance section 2.1)

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?

Objective:

Stony Coral Tissue Loss Disease (SCTLD) is a devastating and highly lethal disease that impacts over 20 species of hard corals throughout Florida and the Caribbean. A variety of treatments have been developed however many of them use substances not found naturally in the marine environment and have the potential to create collateral issues. An effective option has been developed by creating a treatment from the naturally occurring microorganisms in uninfected corals to create a probiotic. By using these probiotics, the corals have a nature-based solution to overcome and prevent the disease. To be able to develop the most effective treatments for corals within Montserrat's reef systems probiotics need to be developed from Montserrat corals and need to be tested on Montserrat corals. This project will create a multipurpose closed system test tank system to analyse the effectiveness of multiple probiotics options so that most effective option can be produced for actual treatment on the reef. The program will engage with the members of the Government of Montserrat (GoM) dive team to provide training on how to develop a treatment program, how to monitor the tests, how to maintain the test tank, and how to properly document and analyse data. The test tank will be the first one in the Eastern Caribbean UKOTs and provide an important system that will be used in further phases of testing, can be used for other reef science programs and assist other OTs with reef and coral issues.

Current situation and problem trying to address:

The project lead organisation, Island Solutions, first identified SCTLD in Montserrat in January 2021 and has since worked in collaboration with the GoM, the JNCC and multiple regional working groups to address this issue. From 2021 our organisation has led the in-water efforts to document the disease, train the GoM dive team on survey techniques, assisted with a treatment training program, and implemented a treatment program. The reef survey and treatment/retreatment program is currently active and will continue until April 2023. Our surveys show that SCTLD is still active on the reef system.

In August 2022 Andrew Myers and Emmy Aston attended the UKOT SCTLD workshop in Cayman and formed a working relationship with staff of the Smithsonian Marine Station in Florida and the Ushijima Lab of University of North Carolina – Wilmington. Those organisations are treating corals with probiotics derived from healthy corals to combat SCTLD. The effectiveness has been found to be similar to antibiotics without the issue of potential antibiotic resistance and unintended impacts to other organisms. Samples of Montserrat coral biome have already been provided to the lab and probiotics are being prepared to be tested. Currently there is not a facility to test the treatments within the Eastern Caribbean area to conduct those tests.

What will success look like and how will it be measured:

This project has three goals:

- 1) To create a multipurpose testing tank system in Montserrat. This test tank will be designed to support multiple marine science applications using systems developed at the Smithsonian Marine Station facility. This tank will increase Montserrat's capability to address marine environment issues.
- 2) To test probiotic treatments for effectiveness on Montserrat corals. A minimum of 4 samples will be tested in the Montserrat tank, with the goal of testing 12 probiotic treatments over the course of this project.
- 3) To train members of the Government of Montserrat dive team on tank and testing systems. The project will engage the GoM team in all aspects of the creation, training and implementation phases of this project. Documentation will be done on participation.

(Optional) Please upload any additional and supporting materials or files (such as maps of project sites, etc) below. Maximum of 5 pages:

No Response

Section 5 - Project Outcome(s)

Q7. 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, either by the end of the project or soon after through a credible plan.

Please tick which theme(s) of Darwin Plus your project underpins:

Checked	Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;
Unchecked	Climate change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;
Checked	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.

This project will:

- 1) Implement a program to treat and reduce the impacts of coral species loss by a coral disease. This will assist in maintaining Montserrat's biodiversity.
- 2) The testing tank system will increase Montserrat's capacity to address other marine habitat issues.
- 3) Train multiple persons in Montserrat, including members of the government dive team, systems and techniques for conducting a testing program. This will increase local capacity.





Section 6 - Project Timeline

Q8. Project timeline (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 Implementation Timetable Template (which can be downloaded below) 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 will need to be completed by 31 March 2024.

Start date:	End date:	Duration (e.g. 3 months):
01 May 2023	31 March 2024	11 months

Please upload the completed Darwin Plus Local Project Implementation Timetable template with your proposed project activities below.

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Section 7 - Costs

Q9. 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? (Please note that this is optional and there is no requirement to seek matched funding for Darwin Plus Local projects).

Yes

How much matched funding are you seeking and where from?

Island Solutions is providing reduced rates for management, training, and equipment usage. Additionally we will cover all overhead costs during the project.

The total amount for in-kind and covered expenses is approximately ████████ GBP.

Budget line	Explanation	Cost in GBP
Staff costs:	This covers project management fees, additional staff, and related costs.	██████████
Overhead costs:	Island Solutions will cover.	██████
Travel & subsistence costs:	Monitoring and Evaluation has been included here and is the only expense.	██████████
Operating costs:	This covers the expenses with equipment needed for the creation and operating the test tank, dive operation costs, shipping, supplies, educational and outreach needs	██████████
Capital equipment:	No Capital equipment	██████
Consultancy costs:	Travel costs for 2 persons: 1 test construction expert and 1 person from the lab to set up testing. Fees will also cover development of additional development of samples at the lab.	██████████
Total:		██████████

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)

Andrew Myers - project management - 2 days per month average, 10 months - ██████████
 Emmy Aston - data/program/outreach management - 2 days per month average, 10 months - ██████████
 ██████████

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

No Response

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

Dr. Greta Aeby - M&E - ██████████

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

Equipment needed for the test tank - ██████████

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

No Response

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

Travel and related expenses for 2 persons - Woody Lee (SMS) and Dr. Blake Ushijima (UNCW) - ██████████
 Support at lab to develop additional samples - ██████████

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

No Response

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	0.885	xe.com	14 February 2023

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?

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

No Response

Section 8 - Local and National Priorities

Q10. 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.





This project aligns with international, regional and local priorities:
 International agreements that are relevant to this project include:
 Convention on Biological Diversity (CBD) – educating Montserrat public on the interactive relationship of habitats, species, and impacts that make up biodiversity.
 UN SDP Goals 13,14 - Climate action and life below water
 Regional agreements via the Organisation of Eastern Caribbean States (OECS) include:
 ~St. George’s Declaration of Principles for Environmental Sustainability - 2007 - Achieve the Long-term protection and Sustained 13 Productivity of the Region’s Natural Resource Base and Ecosystem Service it Provides
 Nationally:
 Montserrat Environment Charter - 2001 - protection of Montserrat species and habitats
 Conservation and Environmental Management Act (CEMA) - 2019 - protection of Montserrat species and habitats

Will the project take place on Government owned land or water?

Yes

Please attach evidence that you have Government support i.e. Letter of Support.

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Section 9 - Project Risks

Q11. Project Risks

Please demonstrate your consideration of any risks involved in this project and how you intend to manage them. 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
Biosecurity risks	<ol style="list-style-type: none">1. Testing samples will be transported by lab personnel.2. Testing tank waste water will be disposed of using established systems that prevent contamination.3. Handling of biological material will follow international standards, in particular ones used by SMS and UNCW.
Extreme weather impacts	<ol style="list-style-type: none">1) Prior to any dive operation sea conditions will be assessed and during operations will be reassessed if changes occur,2) In the case of an expected extreme weather event test tanks operations will be adjusted as required (system is used in a hurricane zone currently, established protocol will be implemented).

Field operations (diving) risks

To reduce risk the following will be done:
1) All divers must be assessed for competence, provide proof of certification,
2) All divers must have dive insurance,
3) Island Solutions has an Emergency Action Plan for dive operations. This plan will be discussed.
4). All participants must agree to abide by safety procedures,
5). A minimum of 2 professional level divers with first aid train will be on each dive.
6) Dive safety equipment will be provided during every dive operation.
7) A policy will allow any diver to stop operations if the conditions are deemed unsafe

Do you require more fields?

Yes

Risk	Mitigation
Safeguarding risks	1) A policy to report inappropriate behaviour will be implemented that has multiple persons to report to including the M&E persons not in Montserrat, 2) Public outreach event will offer a feedback option that will allow for anonymous complaints
No Response	No Response
No Response	No Response
No Response	No Response
No Response	No Response

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: <https://dplus.darwininitiative.org.uk/apply> 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

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: Andrew Myers

**Position in the organisation:
(if applicable)** President/project manager

Signature (please upload e-signature)

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Date: 14 February 2023

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, 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.	Checked
I have provided actual start and end dates for the project.	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 implementation timetable using the specific template provided.	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.

Unchecked

Data protection and use of personal data

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

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising 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 workplan for your project. Projects are based on UK Financial Years (**1 April – 31 March** - therefore starts April 2023).

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 workplan can span multiple pages if necessary.

Activity #	Description (max 25 words)	No. of months	UK Financial Year 2023/24												
			Calendar Year 2023									Calendar Year 2024			
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1	Ordering and sourcing of necessary supplies for testing tank construction. Purchase of some items will have to be done via US suppliers.	0.25													
2	Construction of test tank systems on land with system designer from Smithsonian Marine Station (SMS). Approximately 1 week of work.	0.25													
3	Testing setting up - Arrival of the UNCW consultant. Collection of corals for trial. Begin trials. Note: some in water operations.	0.25													
4	Collection of second coral mucus samples for processing at UNCW. Samples will be taken to the lab by UNCW personnel.	0.10													
5	Monitoring of trial, documentation of results, and maintenance of test tank	8													
6	Data processing and analysis. Data provided to SMS and UNCW to further analysis.	8													

Project Title: Nature-based solutions to treat SCTL D - Pilot Program

Activity #	Description (max 25 words)	No. of months	UK Financial Year 2023/24											
			Calendar Year 2023									Calendar Year 2024		
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
7	Outreach – Development of project infographic posters, social media posts and 1-2 events (dates TBD)	10												
	WORKPLAN COLOUR CODE													
	LAND BASED OPERATIONS													
	IN WATER OPERATIONS													