

DPLR4\1036

Containers for Coral: Self-Sustaining Restoration for South Caicos

The School for Field Studies is seeking funds to build in the US and transport to South Caicos, TCI, a self-sustaining (solar-powered), recirculating (closed), coral nursery system housed in a shipping container. We hope to demonstrate the feasibility and scalability of this system in remote areas as a tool in coral restoration. Corals grown in this system will ultimately be outplanted onto local reefs, which have been degraded by bleaching and disease.

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Containers for Coral: Self-Sustaining Restoration for South Caicos

Section 1 - Project Title & Contact Details

Q1. Project Title

Containers for Coral: Self-Sustaining Restoration for South Caicos

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	Dr
Name	Heidi
Surname	Hertler
Website (Work)	[REDACTED]
Tel (Work)	[REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]

GMS ORGANISATION

Type	Organisation
Name	The School for Field Studies
Phone (Work)	[REDACTED]
Email (Work)	[REDACTED]
Website (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.

Turks and Caicos Islands (TCI)

*** 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): Heidi Hertler

Lead Organisation name (if applying as an organisation; Guidance section 3.1): The School for Field Studies

Lead Organisation Website (if applicable): www.fieldstudies.org


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: NA


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


I confirm that all listed partners are aware of this application and have indicated support: Unchecked

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

 [Cover Letter SFS](#)

 13/06/2024

 15:13:04

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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.

The School for Field Studies is seeking funds to build in the US and transport to South Caicos, TCI, a self-sustaining (solar-powered), recirculating (closed), coral nursery system housed in a shipping container. We hope to demonstrate the feasibility and scalability of this system in remote areas as a tool in coral restoration. Corals grown in this system will ultimately be outplanted onto local reefs, which have been degraded by bleaching and disease.

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?

Coral reefs are one of the most biodiverse and productive ecosystems in the world, providing habitat for one in four marine species and generating trillions of dollars in economic value every year. The community of South Caicos is heavily dependent on healthy coral reefs, with a primarily fishing-based economy and a rapidly growing tourism sector.

Unfortunately, coral reefs are currently threatened by many anthropogenic and environmental stressors, such as disease and bleaching caused by rising ocean temperatures. In 2019, stony coral tissue loss disease caused a 62% decrease in coral cover on the reefs around South Caicos. In the summer of 2023, the Caribbean

experienced record sea surface temperatures, resulting in a mass bleaching event. Notable declines were observed in corals around South Caicos, especially in branching corals in the genus *Acropora*.

In response to the threats facing local reefs, the South Caicos Coral Reef Consortium (SCCRC) was formed in 2023 with the goal of building healthier and more resilient reefs. In-situ nursery structures were built and deployed by The School for Field Studies (SFS) around South Caicos in spring and summer of 2023, and a land-based nursery on the SFS campus featuring an open, flow-through seawater system was finished in fall 2023. Both nurseries are now populated with coral fragments which are being grown and closely monitored with the ultimate goal of being outplanted back onto local reefs.

Although the in-situ and flow-through nurseries allow for coral growth and propagation under more controlled conditions, neither can completely shield corals from anthropogenic stressors like increased heat and acidification. The next step envisioned by SCCRC is the construction of a self-sustaining, recirculating nursery system. This would provide the ideal environment in which to grow corals, fully protected from bleaching events and disease outbreaks. SFS is developing a staged coral cultivation model, in which the most vulnerable corals will be grown in the recirculating system and eventually moved to the in-situ nurseries as they become larger and adjust to environmental conditions. This model ensures that corals will be best prepared for outplanting. The recirculating nursery will also be used to increase coral genetic diversity through sexual propagation.

Because of the unique challenges associated with being located on a remote island with limited access to resources, SFS is taking an innovative approach to building this nursery system. The system will be partially constructed within a shipping container in the US by The Reef Institute (TRI), shipped to South Caicos, and installed on the SFS campus. This allows for the procurement of equipment such as solar panels and batteries which are not available in TCI. Once the Coral Container arrives, local workers will be contracted to build nursery tanks and SFS staff will begin populating the nursery.

A successful Coral Container project will support SFS's efforts to improve reef health, biodiversity, and resilience to climate change around South Caicos. In the short term, success will be marked by increased coral fragment survival and growth during bleaching events, and lower incidence of coral disease. In the longer term, the project will lead to greater abundance and diversity of corals on local reefs, which are vital to promote the health of fisheries and tourism. The project is sustainable and builds the capacity of SCCRC and the entire South Caicos community to respond to future environmental threats. It will demonstrate the feasibility of this type of system for a small island and can be replicated in other remote UKOTs as a tool for coral restoration. This project supports the mission of the TCI Department of Environment and Coastal Resources and several Kunming Montreal Global Biodiversity Framework goals.

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?

The closed-system coral nursery built and transported using funds from this grant will support coral restoration efforts on South Caicos for years to come. Coral fragments grown in the closed-system nursery will be moved in stages to in-situ nurseries, and ultimately outplanted onto local reefs, increasing coral abundance and diversity while improving reef health. The closed-system nursery will be continuously operated and maintained beyond the end of this project. Operation and maintenance costs will be much lower than construction and transportation costs and can be met within the existing SFS budget, with additional contributions from SCCRC partners.

(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;**

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. Please use quantitative information where possible here.

The Coral Container system supports coral restoration efforts, which are combating biodiversity loss and reef degradation. The greatest threat to local reefs is coral bleaching caused by rising ocean temperatures associated with climate change. The proposed nursery will be temperature-controlled, protecting corals from excess heat and bleaching. Outplanted corals will also improve the condition and overall health of local reefs by providing higher quality habitat for marine life. Nursery tours will be provided for the local community to increase awareness of restoration efforts.





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 workplan spring 2024](#)
-  13/06/2024
-  15:17:24
-  docx 32.38 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:	NA	£0.00
Consultancy costs:	Local fisherman to build aquariums	£ [REDACTED]
Overhead costs:	NA	£0.00
Travel & subsistence costs:	NA	£0.00
Operating costs:	NA	£0.00
Capital equipment:	shipping container, shipping cost (US to TCI), pumps, filters and lights	£ [REDACTED]
Other Costs	Consumables (tubing, chemicals, etc.)	£ [REDACTED]
Total:		50,000.00

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)

No Response

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

No Response

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

No Response

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

No Response

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

£ [REDACTED] – cost of shipping container that has been outfitted as a coral lab including installed HVAC, solar panels, batteries, pumps, filters, and lights

£ [REDACTED] – shipping costs, from vendor in the US to distributor on Providenciales, to South Caicos, including duty and customs processing fee

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

To hire a local specialist to build coral tanks for the nursery system.

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

Consumables such as tubing and chemicals

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:
US Dollar	1 USD = 0.796 GBP	Forbes.com	13 May 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.

While as much of the grant funds as possible will be spent in the TCI, much of the equipment needed for the coral nursery system is simply not available in the TCI. High quality solar panels, batteries, and aquarium pumps will have to be purchased outside of the TCI and shipped to South Caicos with the container. We will contract local builders to build coral tanks and buy as many consumables as possible in TCI.

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.

This project aligns with the mission and goals of the Turks and Caicos Department of Environment and Coastal Resources (DECR), most specifically the goal to “protect and improve the environment and conserve and enhance biodiversity within the territorial boundaries of the Turks and Caicos Islands.” A recirculating seawater coral nursery promotes biodiversity by allowing for growth of coral fragments which will eventually be outplanted onto local reefs, increasing coral abundance and diversity and providing habitat for countless species of marine life. Locally, this project directly supports the South Caicos Reef Restoration Consortium, a collaboration of stakeholders dedicated to restoring coral reefs around South Caicos. Finally, this project supports the Turks and Caicos National Physical Sustainable Development Plan (NPSDP), specifically the principles of “Resilience + Multi-Functionality” and “Nature as Beauty”.

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
Disease introduciton	New coral fragments will be quarantined prior to introduction into the tanks to prevent disease introduction to the closed-system. Additionally, only healthy corals will be outplanted onto local reefs to prevent disease introduction to the reef.
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>

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:	Heidi Hertler
Position in the organisation: (if applicable)	Center Director
Signature (please upload e-signature)	 signature0001  13/06/2024  15:26:20  jpg 23.68 KB
Date:	13 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.	Unchecked
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.	Unchecked
(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).

Project Title:

Darwin Plus Local

Provide a **Workplan** that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project. Round 3 is for a **maximum of 12 months** with activities starting from 1 April 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 workplan 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	Build Coral Container system	3						
2	Ship Coral Container to South Caicos	2						
3	Contract local workers to build nursery tanks	2						
4	Install nursery on campus and start running	2						
5	Populate nursery with corals	2						