
CV19RR\1036

Quiet Oceans: Assessing and communicating COVID-19 impacts to reef biodiversity

The oceans have been quiet for nearly 10 months due to the lockdown resulting from the COVID-19 pandemic, presenting a unique opportunity to quantify how fish populations are impacted by reduced human activity and expand our ability to more sustainably manage coral ecosystem health. This project will assess the impacts of COVID-19 restrictions on biodiversity using in-situ surveys at historically heavily trafficked reefs and disseminate findings globally through a live underwater broadcast and locally through public presentations and stakeholder seminars.

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

Title Dr
Name Gretchen
Surname Goodbody Gringley
Organisation Central Caribbean Marine
Institute
Website (Work) [REDACTED]
Tel (Work) [REDACTED]
Email (Work) [REDACTED]
Address [REDACTED]
[REDACTED]
[REDACTED]

GMS ORGANISATION

Type	Charity/ trusts
Name	Central Caribbean Marine Institute
Phone (Work)	[REDACTED]
Email (Work)	[REDACTED]
Website (Work)	[REDACTED]
Address	[REDACTED] [REDACTED] [REDACTED] [REDACTED]

Section 2 - Project Title & Previous Applications

Q3. Project Title:

Quiet Oceans: Assessing and communicating COVID-19 impacts to reef biodiversity

Q4. Existing project

Q4a. Does your organisation have an existing (or recently finished) project under either Darwin Initiative, Darwin Plus or Illegal Wildlife Trade Challenge Fund?

Yes

If yes, please list the project reference and title of relevant projects (e.g. 25-001, DPLUS090, IWT099).

Reference of current/recent project:

Title of current/recent project:

Q4b. Is this proposal directly relevant to one of the projects listed above? Yes**If yes, please list the relevant project reference and title.**

DPLUS061:Protecting herbivorous fish to conserve Cayman Island coral reef biodiversity

Section 3 - Countries, Dates & Budget Summary**Q5. Which Fund's objectives will your project most directly address? (please only select one)** Darwin Plus**Q6. Country(ies)****Which eligible country(ies) will your project be working in?**

Country 1	Cayman Islands	Country 2	<i>No Response</i>
Country 3	<i>No Response</i>	Country 4	<i>No Response</i>

Do you require more fields? No**Q7. Project dates****Start Date:**

01 January 2021

End date:

31 March 2021

Q8. Budget summary**Darwin/IWT Funding Request****Total request 2020/21:**

53,952.00

***Please note all spending must fall between 1st
January 2021 - 31st March 2021*****Q8a. If any matched funding arrangements are proposed, please detail them here.**

We have received matching funding from Walkers Cayman Islands in the total of [REDACTED] to pay for the initial field research associated with the proposed work and partial salary support for the PI as well as

██████████ to support communications associated with the ReefsGoLive program as detailed in the budget.

Section 4 - Project Outcome and Summary

Q9. Outcome

What is the expected Outcome of this project?

This project will indicate how alterations in habitat use related to COVID-19 has impacted biodiversity on corals reefs in the Cayman Islands and promote ocean stewardship through education and outreach.

Q10. Summary of project

Please provide a brief summary of your project, its aims, and the key activities you plan on undertaking. Please note that if you are successful, this wording may be used by Defra in communications e.g. as a short description of the project on GOV.UK.

The oceans have been quiet for nearly 10 months due to the lockdown resulting from the COVID-19 pandemic, presenting a unique opportunity to quantify how fish populations are impacted by reduced human activity and expand our ability to more sustainably manage coral ecosystem health. This project will assess the impacts of COVID-19 restrictions on biodiversity using in-situ surveys at historically heavily trafficked reefs and disseminate findings globally through a live underwater broadcast and locally through public presentations and stakeholder seminars.

Section 5 - Project Partners

Q11. Project partners

Please list all the partners involved (including the Lead Organisation) and provide a summary of their roles. Please upload letters, emails or other confirmation of support from any new partners.





Lead Organisation name: Central Caribbean Marine Institute

Other partners involved: Cayman Islands Government, Department of Environment and Department of Tourism: See letters of support

Summary of roles and responsibilities in project: CCMI researchers will lead the project and deliver the educational and outreach components of the project. Partners from the CIG DOE will provide baseline pre-COVID fish data for comparison, while the DOT will provide baseline historical on-water tourist use and activity. All partners will participate in local stakeholder engagement activities. CCMI will be responsible for final manuscripts, financials, and reports.

If you have not provided evidence of support from the Lead Organisation or partners above, please explain why: Letters of support attached in combined PDF below as requested

Please provide a combined PDF of letters of support from the lead organisation and partner(s) as relevant.

-  [CCMI Darwin Letters of Support](#)
-  02/11/2020
-  21:47:40
-  pdf 1.25 MB

Section 6 - Project Staff

Q12. Project staff

Please identify the core staff on this project, their role and what % of their time they will be working on the project. Further information on who should be classified as core staff can be found in the guidance. Please provide a 1 page CV for the proposed Project Leader and any co-Project Leader if relevant.

Name (First name, surname)	Role	% time on project	1 page CV attached?
Gretchen Goodbody-Gringley	Project Leader	10	Checked
Elizabeth Chafin	Outreach and Communications	15	Unchecked
Gabrielle Carpenter	Research Intern	25	
Sabrina Weber	Education and Outreach Intern	25	

Do you require more fields?

Yes


Name (First name, surname)	Role	% time on project
Catherine Holden	Communications Consultant	20
<i>No Response</i>	<i>No Response</i>	0
<i>No Response</i>	<i>No Response</i>	0
<i>No Response</i>	<i>No Response</i>	0
<i>No Response</i>	<i>No Response</i>	0
<i>No Response</i>	<i>No Response</i>	0


No Response	No Response	0
No Response	No Response	0

Please provide 1 page CVs for the proposed Project Leader and any co-Project Leader listed above as a combined PDF.

Ensure the file is named clearly, consistent with the named individual and role above.

 [Darwin CV GGG 2020](#)

 28/10/2020

 17:59:00

 pdf 165.38 KB

Section 7 - Problem, Method and Change Expected

Q13. Problem the project is trying to address

Please describe the problem your project is trying to address in terms of Covid-19 and its impact on biodiversity or IWT and sustainable livelihoods. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? Please cite the evidence you are using to support your assessment of the problem (references can be listed in an additional attached PDF document).

As coral reefs decline around the world, we are in a race against time to find solutions to protect coral reef ecosystems for the future (1). In the Cayman Islands, the oceans have been quiet for nearly 10 months due to the lockdown resulting from the Covid-19 pandemic. On one hand, human impact has been reduced, yet human intervention can also be important (2, 3, 4). We have a unique opportunity to quantify how quieter oceans have impacted our fish populations and expand our ability to better manage coral ecosystem health. Locally, the ocean had almost no direct human impact between March-July and even though the Cayman Islands has lifted many domestic (water) restrictions from July onwards, the borders remain closed and the booming international tourism industry is at a stand-still, as such watersports and ocean activities are still minimal in Cayman.

When COVID-19 restrictions were lifted in Grand Cayman to allow scuba diving (July), CCMI researchers began the first in a series of fish population surveys, with initial surveys occurring when the oceans had been untouched for an unprecedented period. This proposal seeks to continue in-situ surveys and analysis as the oceans become busier and restrictions are eased. Understanding how fish populations respond to human activity, and therefore how/if their natural role in the reef ecosystem is interrupted or changed will provide critical reef management insight.

In order to increase global awareness to the impacts of human activity to biodiversity and promote ocean stewardship, we propose a significant outreach effort associated with the project, including a live underwater broadcast, public presentations, and local stakeholder seminars. Importantly, communication with key stakeholders and subsequent incorporation of our results to the redevelopment of tourism and on-water activities will contribute to the future management of reef biodiversity.

Q14. Methodology

Describe the methods and approach you will use to achieve your intended Outcome. Provide information on:

- How you have analysed historical and existing initiatives and are building on or taking work already done into account in project design. Please cite evidence where appropriate.
- The rationale for carrying out this work and a justification of your proposed methodology.
- If relevant, how this project links to an ongoing Darwin/IWT project.
- How you will undertake the work (materials and methods).
- How you will manage the work (roles and responsibilities, project management tools etc.).

Projects should also consider how best they can address inequality, especially gender inequality, as per the existing guidance for each fund.

Please make sure you read the Guidance Notes, particularly Section 3, before answering this question.

The global Covid-19 crisis and the ensuing closed borders in Cayman which have provided us with this unique opportunity to study the “quiet oceans” come at a pivotal moment in the strategic development of the Cayman Islands. Opposition to the proposed development of a cruise ship port in Grand Cayman’s George Town Harbour garnered a ground swell of local engagement and discussion, ultimately leading to a people-initiated referendum on the issue, a constitutional first for the Cayman Islands. Given the global Covid-19 crisis, local government publicly declared the port project no longer a priority, however Cayman’s economic recovery is at the forefront. The Cayman Islands Department of Environment and local stakeholders have put forward ideas for a green recovery that prioritizes sustainable tourism, which would benefit from and be guided by insights gained from this project.

We hypothesize that fish abundances and biodiversity will increase at heavily used sites during the quieter ocean period as human interaction has ceased to minimal levels. To test this, we will conduct a series of in-situ fish surveys at several reef sites on Grand Cayman (5 sites) and Little Cayman (2 sites) Islands that vary in historical ocean use. Baseline data regarding usage and fish populations are available from CCMI and the CIG DOE and DOT, which will be used for analysis of outcomes. For each survey, divers will count and identify all fish encountered within 1m of either side of a 30m transect tape (5, 6). Fish size will also be estimated to the nearest 5cm size class and used to assess biomass. At each site, 6 surveys will occur on a bi-monthly basis. Surveys for this work began in July 2020 and will continue through March 2021. Overall fish density, diversity, and biomass will be compared overtime with differences between sites compared with historical use. In addition, species specific comparisons will be made to identify shifts in community composition over time relative to habitat use.

Findings from this project will be shared via robust outreach to local stakeholders and CCMI’s strong education programming. This will include a public lecture in Grand Cayman, which will be shared via YouTube, a stakeholder webinar, and a livestreaming, interactive underwater broadcast. This broadcast will be part of CCMI’s ongoing Reefs Go Live series, which is aimed at making marine literacy accessible and engaging for teachers, students, and parents anywhere in the world. CCMI measures the success and impact of these broadcasts via qualitative participant surveys and digital/social media metrics.

Dr. Goodbody-Gringley will manage the research team responsible for conducting surveys, analysing data, and sharing project findings with key stakeholders. CCMI uses Microsoft Teams as a project management tool across the institution. She will coordinate with CCMI’s communications and education departments to

deliver the robust outreach, led by Elizabeth Chafin and communications consultant Catherine Holden.

All core project staff are women. CCMI is a women-led institution, committed to promoting diversity in the sciences, backed by substantive local scholarship opportunities and our Women in Ocean Science Award programme.

Q15. Change expected

Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended). Please describe the changes for biodiversity/environment and for people in developing countries, and how they are linked. If you are proposing building on a current or past project, be clear how additional benefits will be delivered through this project.

When talking about people, please remember to give details of who will benefit and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used. If possible, indicate the number of women who will be impacted.

By monitoring fish populations over time as activity resumes, we will be able to quantitatively describe the impact of increased usage and develop capacity models to recommend thresholds of site-based activity that will guide tourism development. Results of the work are expected to improve local capacity building by establishing science-based guidelines based on the tolerance levels of fish populations and their ability to remain resilient for the future. We will also collaborate with key stakeholders to improve coral reef management, thereby complementing existing marine park area policy and dive site management. Additionally, the proposed project will increase local STEM understanding and opportunities as we will integrate cutting-edge educational materials for a range of initiatives, including a) Reefs Go live - educating thousands of children and citizen scientists through our livestreaming and education programme which has reached over 60,000 viewers and b) via our proven brand communications plan, which includes quarterly newsletters, social media, PR, press and news releases.


Long-term outcomes from this project will impact Cayman Tourism, local residents and reef managers throughout the region (20+), and an Ocean Scholar Intern. This project will also benefit: local primary school students (200+); primary and secondary students who visit CCMI (200+); local interns (2 students post-high school age); citizen scientists who watch our Reefs Go Live programme (45,000 of all ages); and the 1000 visitors per annum who come to CCMI.

If necessary, please provide supporting documentation e.g. maps, diagrams, references etc., as a PDF using the File Upload below:


 [CCMI Quiet Oceans Budget and Justification](#)

 02/11/2020

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 pdf 83.88 KB

 [Darwin References](#)

 02/11/2020

 20:00:33

 pdf 68.01 KB

Section 8 - Aims, Objectives and Exit Strategy

Q16. Aims and objectives

Clearly outline the aim and objectives of the project and how the achievement will be measured. Use SMART objectives if possible.

Our hypothesis is that fish abundances and diversity will increase at heavily used sites during the lockdown/quieter ocean period as human interaction has ceased to minimal levels. Understanding the 'natural' composition of the fish population on a reef in the absence of human impact and determining whether key species, such as herbivorous fish, take refuge elsewhere during high human traffic periods is key to protecting reef ecosystems for the future. By monitoring fish populations over time as activity resumes, we will be able to quantitatively describe the impact of increased usage and develop capacity models to recommend thresholds of site-based activity that will guide tourism development. The objectives of this project are therefore to:

- 1) Assess what impact reduced human activity (the 'quiet ocean' period during lock down) has had on local fish populations.
- 2) Compare heavy use areas (such as George Town Harbour) vs less utilised areas to understand the behaviours of key fish species, depending on human impact levels.
- 3) Understand the rate of impact/change on fish populations as the Cayman Islands slowly open up and tourism resumes higher footfall/volume and the reef ecosystem returns to 'normal' traffic levels.
- 4) Communicate findings with key stakeholders and inform governmental planning for a green economic recovery in a webinar held in March 2021.
- 5) Share information on project aims and initial findings via a live underwater broadcast in February and a public lecture in March, both of which will be made available for public online viewing.

Achievement will be measured through successful completion of surveys and data analysis, publication of a project report, delivery of underwater broadcast, public lecture, and stakeholder webinar, and a review of subsequent participant engagement, surveys and digital metrics.

Q17. Exit strategy

State how the project will reach a stable and sustainable end point, and explain how the outcomes will be sustained, either through a continuation of activities, funding and support from other sources or because the activities will be mainstreamed in to "business as usual".

CCMI has local support which can sustain the work of this project in a meaningful way long-term, particularly if significant and impactful project results and outreach are enabled through this urgent support from the Darwin Initiative. By gathering data in this urgent time window and communicating the results to key stakeholders and a wider global audience, we can convey the importance of continuing the surveys over a longer span to advise tourism and development plans to the benefit of a sustainable future for Cayman's coral reefs and regional biodiversity.

Section 9 - Budget

Q18. Budget

Provide a detailed breakdown of costs to be funded by the Darwin Initiative/Darwin Plus/IWT

Challenge Fund in GBP.

See [Finance for Darwin/IWT](#) for which costs sit under which budget line.

Budget Line	Cost in £ (GBP)
Staff costs	████
Consultancy costs	████
Overhead costs	████
Travel and subsistence	████
Operating costs	████
Capital equipment*	0
Other costs	0
Total (Must be less than or equal to £60,000)	████
*If you are proposing to purchase any capital items over £1,000 please detail these here and provide justification below	N/A

Q19. Financial Risk Management

This question considers the financial risks to the project. Explain how you have considered the risks and threats that may be relevant to the successful financial delivery of this project. This includes risks such as fraud or bribery, but may also include the risk of fluctuating foreign exchange and internal financial processes such as storage of financial data.

CCMI financials are controlled by the business manager, Robert Hedges, who is guided by the CCMI executive board and includes a certified accountant. Financial risk is minimized through performance of annual audits of institutional financials conducted by an external accounting agency who report the audits to the CCMI executive board. CCMI financial statements and audit reports are public record. CCMI maintains a varied funding strategy that incorporates private, federal, and corporate sponsorship, reducing the risks associated with fluctuating markets, while significant reserve funds minimize impacts of fluctuating foreign exchange.

Q20. Capital items

If you plan to purchase capital items with Darwin/IWT funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

N/A

Q21. Value for Money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.

The proposal requests a total of £53,952, which represents 43% of total project costs. Thus, this proposal represents an excellent value for money as the majority of project costs are already covered by other secured funding sources. Staff salaries for the PI and Education Manager are not requested in the present proposal, enabling the funds to contribute directly to the operating costs of the project. Additional support for conducting this project will be sought through research and education interns, one of whom will be supported by the requested funds, the other covered by matching funding. Using undergraduate interns represents an excellent value for money as it integrates career development and hands-on-training for a minimal monthly stipend and housing allowance. Travel and subsistence funds requested apply only to local inter-island costs, with no international travel required to complete the proposed work. Costs associated with producing a live underwater broadcast and other outreach initiatives are realistic based on the costs of operating in the Cayman Islands and broadcasting from remote locations. A detailed breakdown of the budget including further justification is provided as a supplemental document.

Section 10 - Ethics and Safeguarding

Q22. Ethics

Outline your approach to meeting Darwin/IWT's key principles for ethics as outlined in the guidance note. Additionally, are there any human rights and/or international humanitarian law risks in relation to your project? If there are, have you carried out an assessment of the impact of those risks, and of measures that may be taken in order to mitigate them?

CCMI is committed to Darwin/IWT's key principles for ethics. CCMI's institutional code of ethics guides our work and is part of our contract with every employee. CCMI meets all legal and ethical obligations of the UK and the Cayman Islands; as responsible stewards of a science-based education, conservation, and research organization we adhere to the highest ethical standards. We are compelled to uphold the integrity and credibility of our findings, to share them with stakeholders, and to consider/integrate local insight along with our research. There are no human rights or humanitarian law risks related to this project.

Q23. Safeguarding

Projects funded through the Darwin Initiative/IWT Challenge Fund must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding policies in place. The award Terms and Conditions set out clear requirements on safeguarding. Please confirm you have read and understand these and that you comply with them all.

Checked

Section 11 - Key Milestones

Q24. Provide an overview of your proposed project, outlining key

milestones.

N.B. This should cover the period of your requested project only and the start/end dates should match with those provided in Question 7.

Date	Key Milestone
01 January 2021	START
23 January 2021	In situ surveys completed at all sites in Grand Cayman (5) and Little Cayman Island (2). Data available in online database
18 February 2021	Live broadcast filmed and streamed online
11 March 2021	Final set of surveys complete; data available in online database
23 March 2021	Initial data analysis presented at public lecture series in Grand Cayman
31 March 2021	Key results communicated in interactive stakeholder webinar
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>
31 March 2021	FINISH

Section 12 - Certification

Q25. FCDO notifications

Please check the box if you think that there are sensitivities that the Foreign, Commonwealth and Development Office will need to be aware of should they want to publicise the project's success in the Darwin/IWT competition in the host country.

Unchecked

Please indicate whether you have contacted your Foreign Ministry or the local embassy or High Commission (or equivalent) directly to discuss security issues (see Guidance Notes) and attach details of any advice you have received from them.

No

Q26. Certification

On behalf of the

Company

of

Central Caribbean Marine Institute

I apply for a grant of

£53,952.00

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





- I have enclosed a CV for the Project Leader/co-PL and letters or confirmation of support (uploaded at appropriate points in application)

Checked

Name Gretchen Goodbody-Gringley

Position in the organisation Director of Research

Signature
(please upload
e-signature)

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Date 02 November 2020

Section 13 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the "Guidance Notes for Applicants" and "Finance for Darwin and IWT Challenge Fund".	Checked
I have read, and can meet, the current Terms and Conditions for the relevant fund.	Checked
I have provided actual start and end dates for my project.	Checked
I have provided my budget in GBP.	Checked
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	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
I have included a 1 page CV for the Project Leader (and co-Project Leader if relevant).	Checked
I have included a letter or electronic confirmation of support from the lead organisation and main partner organisation(s) identified at Question 11, or an explanation of why not.	Checked
I have checked the website on GOV.UK immediately prior to submission to ensure there are no late updates.	Checked
I have read and understood the Privacy Notice on GOV.UK.	Checked

Data protection and use of personal data

Information supplied in this application form, including personal data, will be used by Defra as set out in the latest copy of the Privacy Notice for Darwin, Darwin Plus and the Illegal Wildlife Trade Challenge Fund available [here](#). 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 the Darwin Initiative including project details (usually title, lead organisation, location, and total grant value) on the GOV.UK and other websites.

Information relating to the project or its results may also be released on request, including under the 2004 Environmental Information Regulations and the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality nor will we act in contravention of our obligations under the General Data Protection Regulation (Regulation (EU) 2016/679).