



## Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

To be completed with reference to the "Project Reporting Information Note"  
(<https://dplus.darwininitiative.org.uk/resources/information-notes/>).

It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2022**

### Darwin Plus Project Information

Project reference	DPLUS067
Project title	Regional collaboration to achieve sustainable Caribbean fisheries management
Territory(ies)	Anguilla, British Virgin Islands (BVI), Turks and Caicos (TCI)
Lead partner	Centre for Environment, Fisheries and Aquaculture Science (CEFAS)
Project partner(s)	Department of Fisheries and Marine Resources (DFMR, in Anguilla), Conservation and Fisheries Department (CFD, in BVI), and Department of Environment and Coastal Resources (DECR, in TCI)
Darwin Plus grant value	£228,584
Start/end dates of project	01/04/2017-31/03/2023
Reporting period (e.g. Apr 2021-Mar 2022) and number (e.g. Annual Report 1, 2)	Apr2021-Mar2022, AR5
Project Leader name	Rosana Ourens
Project website/blog/social media	<a href="#">Regional collaboration to achieve sustainable fisheries in the Caribbean - Cefas (Centre for Environment, Fisheries and Aquaculture Science)</a>
Report author(s) and date	Rosana Ourens, 30/04/2022

### 1. Project summary

Caribbean UKOTs possess rich marine environments with significant resources. Fisheries comprise a significant component of the resources and often local economies. Consequently, recent Joint Ministerial Council (JMC) communiqués have recognised the need for policies to support sustainable fisheries, and the UKOT Biodiversity Strategy identified "*Conservation and Sustainable Use of the Marine Environment*" as a priority.

In British Virgin Islands (BVI), Turks and Caicos (TCI) and Anguilla (Fig. 1) conch and spiny lobster are commercially the most important fishing resources, and they support the livelihood of many families. The lack of fisheries data, science capacity, and effective legislation and enforcement, have all been identified as barriers to achieving sustainable exploitation. While in all three UKOTs there is Government support for sustainable exploitation, the lack of capacity and evidence to inform decision making, and broader regional cooperation between UKOTs, has hampered progress to date.

This project will provide the three UKOTs with the skills, knowledge, data, and tools to conduct reliable evaluations of the status of their stocks in the medium to long run and to use scientific evidence to support fisheries management decisions. The project has four main sections: 1) data collection, 2) data analysis and assessment, 3) fisheries management, and 4) capacity building and collaboration.

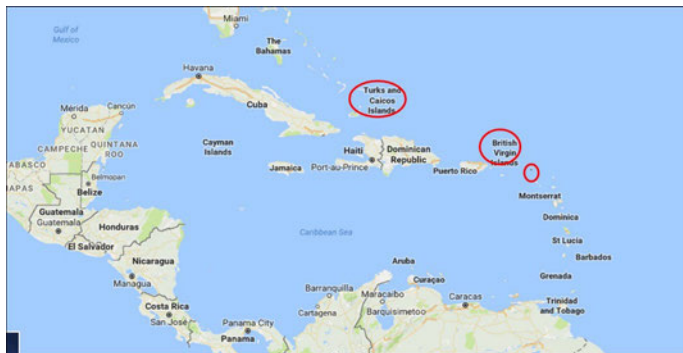


Figure 1. Map of the Caribbean. The three host countries are highlighted in red.

## 2. Project stakeholders/partners

Cefas regularly communicates with the three partner institutions to discuss the progress of the project, request data, clarify information, etc. The communication channels are WhatsApp, phone calls, or emails, depending on the subject and the individual/s being communicated with.

The main tasks of the partners in the project have been: 1) participate in the design of activities providing ideas and local knowledge; 2) collect fishing data and share it electronically with Cefas; 3) actively participate in the training activities programmed; 4) assist Cefas with the organisation of the training activities when they are hosted in their country; 5) collaborate with Cefas during the visits in-country; 6) discuss with Cefas the progress of the project and communicate any issue or potential obstacle to achieve the goals; 7) participate in the decision-making of the project; 8) collaborate writing the annual reports for Darwin.

Communication with the partners has been crucial to adapt the activities of the project to the local needs to achieve the outcome of the project (the new activities discussed with the UKOTs were approved by Darwin in 2018). In addition, the three partner institutions have greatly assisted Cefas staff during their visits to the UKOTs each year: they have provided advice on the logistics for the trips (i.e., best dates, accommodation, rental cars, etc.); arranged interviews, meetings, and informal chats with the fishing industry; assisted with the organization of workshops; and sent regular updates with the new data.

No trips have been carried out last year because of COVID-19 (see section 12). The main tasks during the reporting period were to finalize the stock assessments for the three UKOTs, make progress in the development of the phone app CariCatch, and provide management advice. This desk work was conducted by Cefas with the input of the partner institutions when requested (e.g., answering questions regarding their fisheries, or confirming and clarifying data. Annex 3).

It must be noted that the communication with CFD (partner in the BVI) in recent years has not been as good as in the past. For example, they have not provided a clear answer about how to proceed with the phone app (activity 1.11, see section 3.1) and no replies were received when Cefas offered help with the design of a co-management. However, they confirmed their interest on participating in the stock assessment course next year, and this miscommunication issue has not affected the outputs of the project so far.

### 3. Project progress

#### 3.1 Progress in carrying out project Activities

Only the activities that have been fully or partly conducted in 2021/2022 are included in this section. All activities expected during the project are listed in the logframe (Annexes 1 and 2).

##### OUTPUT 1. DATA COLLECTION

###### Activity 1.11. Design and test a phone application for the fishermen

The company Quaytech has developed a mobile app for the fishermen to report information about their daily fishing activity. Fishers will be asked to report fishing effort, fishing area, weight landed by species, and the main market (local restaurants, processing plants, exports, etc.), which will help with the development of indicators of sustainability and stock assessments in the future. The information will be stored in a database hosted by the partners on their servers for further analyses. Fishers can also see and download summary reports of their fishing activity. The three partners helped to identify the data to be collected with the app.

The phone app has been developed in 2019/20 (Annex 4). However, there has been a few issues that have delayed its release. After involving the IT departments of the UKOTs governments in the project, we realised that Anguilla does not have suitable infrastructures and capacity to host the app at the moment. CFD (BVI) stated similar issues with their infrastructures, although they never provided a clear answer on how they wanted to proceed with the app. Cefas will send the source code of the app to DFMR and CFD in case they want to install it in the future.

The app in the TCI will be hosted in the cloud using Microsoft Azure, and Cefas assisted the IT department of the government to create a developer account in Apple and Google stores to make the app alive. The app has been upgraded this year to work with the latest software of Apple and Android, and it was also slightly modified to accommodate the data collection needs from the TCI that did not apply to Anguilla and the BVI (Annex 5). However, DECR wants to ensure that they have funding in the next coming years to upgrade the app when needed before implementing it. They will have an answer from the heads of the government in May or June, and then they will decide how to proceed with the app (Annex 6). If they have funding for the future, the app will go alive next financial year; otherwise, Cefas will share with DECR the source code to implement the app in the future.

*This activity related to measurable indicator e of output 1 in Annex 1.*

##### OUTPUT 2. DATA ANALYSIS

###### Activity 2.4. Assess the sustainability of TCI conch and spiny lobster exploitation levels

The status of the conch and spiny lobster stocks in the TCI have been analysed. A summary of these analyses is presented below, under Activity 2.6.

*This activity related to measurable indicators (a) of output 2 in Annex 1.*

###### Activity 2.5. Produce stock assessment toolkits for both species in all 3 UKOTs

The workshop on stock assessment was postponed to 2022/2023 due to COVID-19 (see section 12). Material is being prepared at Cefas with focus on data exploration and assessment methods for data limited stocks. Books have been ordered to be distributed to the partners at the workshop. These have been chosen to support essential aspects of the toolkit – using R, fish biology and fisheries statistics and stock assessment methods. The different assessment methods that can be used depending on the data available will be also explained during the course.

*This activity related to measurable indicators (b) of output 2 in Annex 1.*

###### Activity 2.6. Produce stock status reports for both species in all 3 UKOTs

Three individual stock status reports, one for each UKOT, have been written. The reports for Anguilla and the BVI were submitted last financial year. The analysis and report for the TCI was finalised in 2021/22 (Annex 7).

The stocks in the TCI were assessed using the landing data provided by the processing plants and the length data collected by DECR on a routine basis. Three different length-based methods often applied to data-limited stocks were used to assess the spiny lobster stock (length-based indicators, mean length mortality, and length cohort analysis). A surplus production model in continuous time (SPiCT) was explored in conch but the lack of contrast in the data produced high uncertainty in the outputs and it was not possible to determine the status of the stock.

The analyses showed the spiny lobster stock in the TCI are likely to be exploited above maximum sustainable yield reference points, although the results are not conclusive given the limited data available. The report includes recommendations to improve the input data in the models as well as management recommendations when possible.

An online meeting was held to explain the methodology and main conclusions of the analyses to DECR (Annex 8).

*This activity related to measurable indicators (a) of output 2 in Annex 1.*

### OUTPUT 3. SUSTAINABLE MANAGEMENT

#### **Activity 3.2. Using a collaborative approach, involving fisheries managers and fishers, recommended management options based on best practice identified in other UKOTs (or beyond).**

Recommendations to improve the management of lobster and conch fisheries were provided to the three UKOTs through the timeline of the project. In addition to verbal discussions on management during diverse meetings (e.g., meeting with DCR and fishers in the BVI, 2019, meetings discussing the stock assessments), recommendations were submitted on the stock assessment reports (e.g. see annex 7, pages 23-24 and 34-35). The recommendations were based on the discussions held at the workshop on fisheries management in 2019 (Annex 9), the results of the stock assessments (Annex 7, 14, 15), the weakness and strengths of the fisheries governance identified in each UKOT (Annex 9), and the approaches used by other countries to manage resources with similar life histories (Annex 10).

*This activity related to measurable indicator (a) of output 3 in Annex 1.*

#### **Activity 3.3. Using the outcomes of the wider project, the relevant government fisheries departments will collaborate to develop a generic conch and spiny lobster fishery management plan, which can be built upon and refined to meet local management needs. A locally specific management plan will be developed for TCI.**

Given the different needs and objectives of the three partners, it was not possible to develop a generic conch and spiny lobster fishery management plan. However, a draft plan with the goals and main bullet points was developed for each UKOT during the workshop on fisheries management in 2019 (Annex 9).

#### **Activity 3.4. Draft TCI species management plans and recommendations presented to Government**

DECOR is updating the previous TCI fisheries management plan 2005-2010. Cefas provided feedback for the sections related to lobster and conch. The draft plan is a confidential document and cannot be shared. An email between Cefas and DECR is attached as a proof of the activity (Annex 11).

#### **Activity 3.6. Assist BVI with the implementation of a Fisheries Management Council to oversee co-management of an established Fisheries Protected Area.**

Covid-19 slowed down the communications between the fishing industry and CFD for the implementation of the Fisheries Management Council and the co-management in the Fisheries Protected Area (section 12). Cefas offered assistance with the design of the co-management in Anegada but not further assistance was required this year (Annex 12).

### **Activity 3.8. Assess the effectiveness of the management measures implemented by the Fisheries Management Council In BVI**

BVI has not yet officially implemented the Horseshoe Reef FPA or the Fisheries Management Council and therefore there are no regulations to assess. This activity will not be carried out during the project because the new management regulations must be in place for a few years before evaluating their impact on the stocks.

*This activity related to measurable indicators (e) of output 3 in Annex 1.*

## **OUTPUT 4. CAPACITY BUILDING AND COLLABORATION**

### **Activity 4.1. Deliver three 3-day training workshops, one hosted in each UKOT**

2 members of each partner organization were expected to visit Cefas this year to attend a course on stock assessment and exchange experience and knowledge on fisheries science. These activities were postponed to 2022/2023 due to COVID-19 (section 12).

### **Activity 4.3. Plan UK-based knowledge exchange activities.**

Two staff members of each partner organization will visit Cefas between the 11<sup>th</sup> and 15<sup>th</sup> July 2022 (Annex 13). The agenda has not been finalised yet, but it includes an introductory course to stock assessment (activity 4.1) and an activity to show participants how the data-collection and the assessments are used to provide fisheries advice within Cefas.

Cefas will also provide external hard drives with the relevant data generated during the project for each UKOT, as well as essential books to better understand the stock assessments and the R environment (part of the activity 2.5). If there is enough time, Cefas will explain individually to each UKOT the data in the hard drives, and how to continue the data-collection programmes and assessments in the future will be discussed. If there is not time, these discussions will be held virtually in 2022/23 (activity 3.10 in Annex 1 and 2).

## **3.2 Progress towards project Outputs**

### **Output 1. Implement new or improve existing conch and spiny lobster fisheries data collection approaches in the three UKOTs.**

The first output of the project has been mostly achieved. The data collected through the logbooks and in the Fishing Complex in the BVI was analysed (Appendix 1 in Annex 14) but they could not be used in the assessments given the limited data available (measurable indicator 1a). With assistance from CFD, Cefas developed a new sampling programme for conch and lobster that ensured that comprehensive data relevant to stock assessments were consistently collected. A preliminary database was also developed for BVI to encourage and facilitate data entry. As a result, 53 sampled trips were included in the database and used in the baseline stock assessment. They included biological information on 2,415 spiny lobsters and 30 conchs (all 30 conchs from a single trip). Conchs were not sampled due to fishers reporting very low to no catches in the Horseshoe reef FPA area (usually their main fishing ground for the species).

In Anguilla, the fishing grounds for spiny lobster were identified (Annex 15, measurable indicator 1b) and fishers were interviewed to identify the development of the fishery (Annex 15, measurable indicator 1c). The data provided by the processing plants in the TCI was also collated and combined in a single dataset for the analyses (measurable indicator 1d, Annex 16). The data is provided in independent spreadsheets every year, and the data of each week is in a different sheet. A code in R was created to automatically combine all data in a single dataset, and the code was shared with DECR for them to use in the future (Annex 17). The data was used in the stock status report.

Additionally, the three partners of the project were provided with a tablet and a Bluetooth calliper to streamline the biological data collection programmes in the three UKOTs and make them more effective (measurable indicator 1g, Annex 18). A comprehensive database, which link with the callipers to efficiently store the information collected, has been also designed in collaboration with the UKOTs and handed to the partners (measurable indicator 1f, Annex 19). A webinar was held to demonstrate how to use the database and the callipers (Annex 20).

The implementation of a phone app to collect catch data (measurable indicator 1e) is the only indicator that has not been completed yet for this output. The CariCatch app was designed in order to collect landing and effort data since this information is currently lacked or very inaccurate in the three UKOTs and it is essential for any stock assessment method. It was expected that the app would replace the logbooks in the BVI. One of the main issues with the logbooks in the BVI is that CFD does not have enough staff to manually enter the data into an electronic database. Consequently, a significant part of the information was lost during diverse hurricanes and the database was outdated and could not be used in the assessments. The phone app would solve this issue, as the data is automatically recorded into the app once the fishers submit the data. Despite the benefits of the app, BVI and Anguilla will not host it in the timeline of the project, and it is uncertain if the TCI will do it (see activity 1.11 in section 3.1). The source code of the app will be shared with the partners in case they decide to implement it in the future, but they are likely to need assistance from QuyTech or other developer company to make the app alive.

## **Output 2. Data assessment**

Data quality and availability dictate what type of stock status evaluation can be conducted. Data from all 3 UKOTS have now been analysed and reported on. Only data from the TCI and the BVI allowed some level of quantitative stock assessments, with TCI having the most comprehensive datasets, albeit still limiting in terms of how much can be drawn from it. Spiny lobster was assessed in both countries, but challenges remain for conch in both territories due to data limitations of different sources. In the TCI, the lack of contrast in the data lead to meaningless results. More work, including the creation of a robust biomass index and the identification of the stock unit is required to improve the assessment model. In the BVI, a combination of landings data not being consistently recorded historically, with loss of data from hurricane Irma, and conch landings having recently been very sparse, pre-empted an assessment to be conducted. The three reports have been finalised and shared with the UKOTs (measurable indicator 2a. See annexes 7, 14, 15).

The partner institutions will attend a course on data-limited stock assessments in July 2022. The methods used to assess their stocks will be explained, as well as other methods that they could use in the future when more data become available. The code created to assess their stocks will be shared with them, so the assessments can be replicated (measurable indicator 2b).

## **Output 3. Sustainable management**

Fisheries management recommendations have been provided to the three UKOTs in diverse occasions (measurable indicator 3c), but most of the recommendations are summarised in the stock assessment reports (Annexes 7, 14, 15). These recommendations are based on the status of the stocks, a review of the management policies in other Caribbean countries (measurable indicator 3b, annex 10), and the weakness and strengths of the current governance systems in the three UKOTs (measurable indicator 3a, SWOT analysis in annex 9). Additionally, the draft management in the TCI has been developed (measurable indicator 3d, Annex 11).

Unfortunately, COVID-19 caused delays in the implementation of the Fisheries Management Council and the Horseshoe Reef FPA in the BVI, which is not in place yet (measurable indicator 3e). A half day community workshop was successfully held in Anegada (BVI) in 2019/2020 to discuss the co-management of the future Horseshoe Reef FPA. The meeting was well attended with active participation and positive engagement of the fishers (Annex 21). The creation of the Fisheries Management Council was discussed as well as the implementation of new management regulations for the co-management area. In addition, a 3-day fisheries

management workshop took place in Tortola in 2019/2020 where Cefas worked together with the BVI partners on an overview of a management plan for the Horseshoe Reef FPA (measurable indicator 3f, Annex 9). Cefas will continue providing support through 2022/23 with the implementation of the co-management as requested.

#### **Output 4. Training and knowledge exchange initiatives and collaborative working opportunities for UKOT fisheries scientists, managers and fishers.**

Two out of the three planned workshops have been successfully delivered (measurable indicator 4a): one on fisheries data collection and sampling design, and other on fisheries management (Annex 9, 22). The feedback provided by the participants on the quality of the training was very positive in both cases (e.g., Annex 23).

The third workshop on stock assessment will take place during the visit of two members of the partner organizations to the UK. The visit was expected last year, but it had to be postponed until July 2022 because of COVID-19.

Although it is not included in the logframe of this project, a webinar was held in April 2021 to train the staff of the three partner organizations in using the sampling database created under this project (Annex 20).

### **3.3 Progress towards the project Outcome**

Good progress was made towards the main project outcome: 'Fisheries managers in the three UKOTs have the skills, knowledge, data and tools to inform sustainable management and exploitation of their commercially important fisheries'.

Before the project, the data collection in Anguilla and the BVI was very poor and the data available was not adequate to assess the status of the stocks. The data collection programme in the TCI was more comprehensive, although some key information, such as total landings, were still unknown. A common problem in the three UKOTs was the limited staff available for data collection and data entry, which has facilitated the loss of several data kept on paper during several hurricanes both in the TCI and the BVI. Whereas the stocks in Anguilla and the BVI have never been assessed using quantitative methods, the conch stocks in the TCI were evaluated in the past using a surplus production model. However, the results of the model were considered unreliable, and the stock has not been assessed in the last decade. In addition, the staff in the three partner organisations had limited numerical skills to conduct stock assessments and knowledge on population dynamics. Many of them are not familiar with the software R for statistical computing, Access databases, and in some cases Excel.

Diverse tools have been provided in this project to improve the data available for the stock assessments in the future (measurable indicator c). The current data collection programmes were reviewed, and their limitations and strengths were discussed with the partners (workshop on fisheries management). In collaboration with the three UKOTs, the data parameters that need to be collected in the future were identified, and Cefas created a database to enter the future data. Cefas assisted with the implementation of the new data collection programme in Anguilla and the BVI, and in fact the new data collected in BVI was used for the assessments. The project also provided tablets designed to be used outdoors and Bluetooth callipers, that will allow the partners to directly enter the data in the database during the sampling, without the need of using paper forms that have to be automatized later in the office. The CariCatch app would also streamline the data collection process, as it is expected to gradually replace the logbooks forms in paper. In addition, it can be used to estimate total landings assuming that all fishers submit their fishing data. However, it is uncertain if the partners will use it in the near future.

It is worth to note that the main obstacle in Anguilla to collect data is that the current Fisheries Act is very broad and vague, and it does not provide legal support to DFMR to collect fisheries data. In addition, the fishing industry is not engaged and most of the fishers refuse to collaborate with DFMR. The project is providing DFMR with the tools and skills to effectively collect fisheries data and assess the stocks, as well as advice to improve fisheries management. These tools and skills will be useful for the future when the current issues are

solved and DFMR is able to collect enough fisheries data. Meanwhile, DFMR is likely to fail in its goals of monitoring fisheries.

A baseline assessment of the status of the stocks was produced (measurable indicator b). Data sources made available from the partners were explored and where possible quantitative assessments were conducted, using previously collected data and data collected from the onset of the project. With the workshop on stock assessments still to be conducted and the toolkit to be provided, together with the tools that will be in place for data collection (catch app for landings and callipers with database for biological sampling), the project will deliver on the objective of supporting each UKOT in building up the capacity to assess the status of their stocks. Additionally, the management plan in the TCI has been updated.

Training and knowledge exchange have been on-going, and two workshops (on fisheries management and design of a sampling scheme) and a webinar (to learn how to use the sampling database in Access) have been held so far. Two staff members of each partner organization will also visit Cefas next year to exchange more experience and knowledge on data-collection, data analysis, and providing scientific management advice. A course on stock assessment will be held as well during the visit. Although with some delays, the project is delivering, and the outcome is expected to be achieved by the end of the project.

### 3.4 Monitoring of assumptions

Some of the assumptions have changed since the proposal of this project:

**Assumption 1: Fishers will support data collection programmes.** The data collection programme in Anguilla has been designed and implemented already. However, only a few fishermen are collaborating, and the number of observations is limited. To improve the situation, Cefas and DFMR have agreed a set of actions to engage fishermen in data-collection (see Annex 15) but they are not in place yet. DFMR is also trying to implement new legislation that authorises DFMR to measure and weigh the landings.

**Assumption 2: Available data are robust enough for assessment purposes.** Available data were mostly not robust enough for assessment purposes, even the most data-limited methods. Only the status of the spiny lobster stocks of TCI and BVI could be assessed, but still with high uncertainties in the outcomes. All data available were analysed and reported on, for example as temporal trends indicators or through size structure analysis. The stock assessment workshop will aim to provide each UKOT with the tools to assess the status of their stocks as more data become available, following on from the work done during this project to support best data collection practices.

**Assumption 3: BVI Government is able to facilitate setting up a Fisheries Management Council for one of the FPAs.** Some of the activities of the project relied on the Fisheries Management Council of BVI to be put in place. Since this is still in development in BVI, it will not be possible to provide support and analyses during the lifespan of the current project.

**Assumption 4: logbook database contains sufficient data to develop meaningful indicators.** The logbook data was considered unreliable and insufficient to assess the stocks, and consequently other databases were explored. A new monitoring programme has been also put in place to record the data needed for future assessments.

**Assumption 5: UKOTs have the capacity and infrastructures needed to host a phone app.** This assumption has failed in Anguilla and the BVI and therefore they cannot currently host and use the app. The source code will be shared with them in case they can implement it in the future.

## 4. Project support to environmental and/or climate outcomes in the UKOTs

Fishing is an important recreational, commercial, and cultural activity in the Caribbean, and most locals have been exposed to fishing activities at one time or another. The Caribbean spiny lobster and conch support ones of the most valuable fisheries to the region, including the BVI, TCI and Anguilla. The mission of the partners of the project is as follows:



-DFMR (Anguilla): "To manage and regulate the use of Anguilla's fisheries and marine resources, in a **sustainable** manner, for the maximum economic and recreational benefit for the people residing in Anguilla."

-CFD (BVI): "To ensure **sustainable** production, harvest and supply of safe, high quality food by regulating the agricultural and fisheries sectors."

-DECR (TCI): "Ensure **sustainable** utilisation of the natural resources of the Turks and Caicos Islands, protect and promote biodiversity and economic prosperity through a sustainable fishing industry and a protected areas system."

The project supports the mission of the partners by providing the skills, tools and knowledge to design and implement a fisheries policy that preserves the marine ecosystems and enhances the socio-economic development of the fishing communities. The design of an effective fisheries monitoring programme is the first step towards promoting responsible use of marine resources, as data is needed to identify the status of the stocks and provide scientific advice on management. So far, the project has improved the data-collection programmes in the three UKOTs, assessed the stocks where possible, and highlighted where data were lacking and issues in the quality of existing information. The main contribution of the project this year to support the conservation of the natural environment was the advice provided on fisheries management and the draft fisheries management plan in the TCI (see output 3 in section 3.2).

## 5. OPTIONAL: Consideration of gender equality issues

Fishing is often a family business in the Caribbean, and whereas most of the fishers are men, women are often involved in post-catch activities, such as marketing or fish processing. In addition, both conch and lobster fisheries are part of the culture and identity of the Caribbean society. For example, the lobster festival in Anegada (BVI) is a popular event that takes place every year to celebrate the opening of the fishing season, whereas conch salad and conch fritters are popular dishes in the Caribbean cuisine that can be easily found in the local farmers markets. The improvement of the lobster and conch stocks would benefit the wellbeing of the fishing communities in general, and the livelihood of many women and men.

The main goal of this project is to provide the partner organisations with the skills and knowledge to assess their stocks and make informed management decisions based on scientific evidence. Fisheries officers are therefore the main target group of the project. In the first workshop held in Anguilla 3 women and 8 men received training on fisheries data collection; in the second workshop held in the BVI 2 women and 3 men received training on fisheries management; whereas we expect 4 women and 2 men to attend the workshop planned for next year in the UK (see annex 22). It must be also noted that the project manager and project leader are both women as are the directors of 2 out of the 3 partner organizations.

## 6. Monitoring and evaluation

The project manager (PM) is operating in accordance with Cefas' ISO 9001 certified quality management system. The PM and project leader (PL) meet at least once a month to track progress against milestone delivery and quality using the logical framework of the project and the timetable of the activities. Finances are also revised monthly and the expected expenses for the following months are forecast. The PM also maintains a risk register which is reviewed monthly. When a new risk has been identified (e.g., Hurricane Irma, COVID-19 pandemic), the PM and PL have explored options to revise the project plan to achieve the best outcome. The changes of the project were discussed with the partners in the UKOTs as well as being discussed and internally approved by the project sponsor (principal scientist at Cefas) before submitting the formal request to Darwin.

The maturity model questionnaire completed by the three UKOTs at the beginning of the project, will be completed again at the end of the project to monitor achievements from the partners' perspective. The quality of the training is also assessed by the attendees by completing an evaluation form (Annex 23).

## 7. Lessons learnt

The partners' engagement is essential for the success of the project, and it is necessary to ensure they can do the work assigned to them. A good strategy for engagement is to design a project adapted to their needs, so the effort and time invested on the project is worthwhile for them. In this case, DFMR did not have enough staff to work on the camera survey planned in Anguilla. For this and other reasons, the camera survey was replaced with the use of new technologies in fisheries data-collection. The new activities much better meet the partners' needs and contribute to achieve the outcome of the project. The three partners collaborated identifying the data to be collected in the landing sampling programme and with the phone app, and the database and Bluetooth callipers are being already used. Having said that, the infrastructures needed to host the app were not considered by Cefas and the partners and therefore the IT departments were not consulted when defining the activity. We realised later in the project that Anguilla and probably the BVI cannot currently host the app.

Having knowledge of the political, social, and cultural characteristics of the UKOTs help to design the project as well as being familiar with the previous data that is available. In this regard, Cefas was not aware that the fishing industry was not cooperative in Anguilla and DFMR relied on a few fishers that provide some catch data. Because this issue cannot be solved by the project (a third party located in the Caribbean would be needed to act as a facilitator), our strategy was to advise DFMR how to improve the relationship with the fishing industry and design a data-collection programme appropriate for future assessments. Similarly, the initial proposal relied on the logbook data for the stock assessments in the BVI given CFDF believed that the quality of the data was good. When Cefas had access to the data it realised that it could not be used in the assessments and the methodology had to be adapted.

Another note here is that the study area is situated in a potential hurricane region, and the activities must be scheduled taking the hurricane season into account. The partners can provide good advice in this regard. In addition, a risk assessment and a safety plan have been developed to mitigate the impacts of future hurricanes on the outputs of the project (section 6).

Phone calls and texts via *WhatsApp* are the best methods to communicate with some of the partners in the host countries. Slow e-mail communication has been shown to hamper progress in some cases and risk misunderstandings and frustration. However, it is still preferable to follow up a conversation with an email to have a record of what has been discussed and agreed for future reference and handover.

## 8. Actions taken in response to previous reviews (if applicable)

These are the answers to the reviewers' comments:

**1. Involvement of project partners in final reporting is strongly encouraged.** The annual report has been shared with the partners of the project for their feedback in previous years, but answers have not been received (see email sent last year as a proof in Annex 24). Partners have been also contacted to answer specific questions when the project leader did not know the answer.

There has been a delay written this current report and consequently the partners have not time to review it. The report will be shared with them once submitted to Darwin, and their feedback (if any) it will be included in the final report of the project.

**2. Clarity to what extent recommendations on how to improve relationships with fishers in Anguilla have been taken forward.**

DFMR convened a workshop with the fishing industry in 2019 to discuss the main issues of their relationship and engage them on fisheries data-collection. Cefas was acting as a facilitator and planned a role-playing game to help fishers and DFMR to understand the role of each other. However, only two fishers attended the meeting and the main activities programmed for the day could not take place. Instead, the main concerns about the fisheries in Anguilla were discussed. More information can be found in Annex 25. The other suggested actions (i.e. find funding to install an ice machine in Anguilla; raise the fishermen's concerns at higher level in the government and get funding to repair the piers and install and maintain lights in the

harbours; and design of a website to internationally promote the lobster fishery in Anguilla) have not been put in place yet.

**3. There are some outstanding items of feedback from AR3R which have not clearly been actioned. An update on these items is requested at the next full report:**

- **The logframe should be reviewed to ensure all indicators remain valid. For example, the project should consider updating indicator 1d related to Horseshoe Reef monitoring survey as this is no longer planned.**
- **Firm reassurance from partners that they will cover maintenance and repair of equipment provided through this project would be welcomed.**

The logframe has been updated (Annex 2). Unfortunately, partners have not confirmed that they will cover maintenance and repair of the equipment as it will depend on the trade-off between the cost of the repair and the use and benefits from using the equipment.

## **9. Other comments on progress not covered elsewhere**

Several change requests have been approved by Darwin to adapt the activities of the project to the local and current needs and achieve the outputs. The measurable indicators and means of verification of the logframe have been updated. The main changes from the original application are the following:

- The project will end on the 31<sup>st</sup> March 2023 instead of the original date 31<sup>st</sup> March 2021. This change was approved to consider the delays caused by the Hurricane Irma in September 2017 and the COVID-10 pandemic crisis.
- The original camera survey in Anguilla to characterise the preferent habitats on spiny lobster was replaced with the introduction of new technologies in the data collection schemes in the three UKOTs. This includes the development of the phone app CariCatch, the design of a database to enter sampling data, and the use of Bluetooth callipers and tablets in the sampling. The use of new technologies (activities 1.11 and 1.12) will streamline the process making possible to collect more data in an efficient way. We are confident that the new technologies will contribute more than the habitat survey to achieve the outcome of the project. In addition, the project in Anguilla is now only focused on the spiny lobster fishery.
- The stock assessment workshop will take place in the UK when fisheries officers from the three UKOTs visit Cefas next year. This change allows more fisheries scientists from Cefas, experts in some of the methodologies used in this project, to be involved in the training. In addition, the budget initially allocated to travel and subsistence costs for the workshop will be used to bring an additional staff member of each partner institution to Cefas for training.
- The phone app will work independently in the three UKOTs. This change will allow the partners to update the app according to their needs in the future.

## **10. Sustainability and legacy**

The three partner institutions of the project are the fisheries departments of the governments in the three UKOTs, and their mission is to promote responsible use of the marine resources. This project has been specifically designed to assist them to fulfil their goal. The data collection programmes have been revised and improved (output 1), the stocks have been assessed when possible (output 2); and scientific advice on fisheries management has been provided (output 3). In addition to these three scientific outputs, a technical output has been incorporated to ensure a sustained legacy of the project outcome: build local capacity on fisheries science (output 4). To achieve this latter output, fisheries officers from the three UKOTs are attending three workshops on data collection, stock assessment and fisheries management, and they will visit Cefas for knowledge exchange. A final visit to the three UKOTs was planned at the end of the project to support outcomes implementation and legacy (activity 3.10 in Annex 1). However,

because of limitations in the budget, the visit will be replaced by individual virtual meetings with each of the partners.

As in BVI and TCI, fisheries officers in Anguilla will be provided with the skills, knowledge and tools to monitor fisheries, conduct stock assessments and use scientific evidence to support fisheries management decisions. However, their capacity to successfully manage the fisheries in the future could be limited if the availability of data to assess the stocks does not improve

## 11. Darwin identity

The goals of Darwin Plus, and more specifically the goals of this project, have been explained to the fishing communities in the three UKOTs during the initial meetings, informal conversations, and the interviews with the fishers.

The project is being publicised on the Cefas website and it links back to the Darwin Initiative website:

<https://www.cefas.co.uk/impact/case-studies/regional-collaboration-to-achieve-sustainable-fisheries-in-the-caribbean/>

Additionally, the Darwin logo has been included in all presentations of the project, as well as in the splash screen of the phone app CariCatch, and the flyers created to publicise the project within the fishing communities the first year (Annex 25).

In 2020/21 the project leader participated in the Future Oceans Conference host by Cefas with a short oral communication about the project. The video was shared in Twitter:

[https://twitter.com/CefasGovUK/status/1405529498804637706?s=20&t=Hp\\_j-E16mQuw42KYWJ\\_kg](https://twitter.com/CefasGovUK/status/1405529498804637706?s=20&t=Hp_j-E16mQuw42KYWJ_kg)

## 12. Impact of COVID-19 on project delivery

COVID-19 had a substantial impact on the project. All travel had to be suspended, and consequently the course on stock assessment and the visit to the UK could not take place in 2021/22 as planned. Although a virtual training was considered, the stock assessment course requires high computing skills from the participants and a remote course would take longer and would be very difficult to deliver effectively. In addition, the material and settings for the course would need to be adapted for a virtual interaction, which would increase the time (and expenses) required for Cefas to develop the course. The partners of the project were consulted, and their preference was also to delay the project and have the course in person. Therefore, it was agreed with Darwin to extend the project to 31<sup>st</sup> March 2023 and conduct the stock assessment and the visit to the UK this coming year when travel is safe. The visit has been now scheduled for July 2023 and no more delays are expected.

Both the UK and the UKOTs have undergone severe lockdowns, where people involved in this project had to work from home and find a new work-life balance. Poor internet connection, limited social contact, and home-schooling, were some of the obstacles that workers had to tackle in the last two years, and this situation also led to delays in some of the activities. For example, the communication with the fishing industry was nil during the lockdown in the BVI, and CFD was not able to make progress in the implementation of the Fisheries Management Council in the BVI.

## 13. Safeguarding

Please tick this box if any safeguarding violations have occurred during this financial year.

If you have ticked the box, please ensure these are reported to [ODA.safeguarding@defra.gov.uk](mailto:ODA.safeguarding@defra.gov.uk) as indicated in the T&Cs.

Cefas has in place, and maintains, all of the following:

- a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero-tolerance statement on bullying, harassment and sexual exploitation and abuse
- a detailed register of safeguarding issues raised and how they were dealt with
- clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made
- a whistle-blowing policy which protects whistle blowers from reprisals and includes clear processes for dealing with concerns raised
- a Code of Conduct for staff and volunteers that sets out clear expectations of behaviours - inside and outside the work place - and make clear what will happen in the event of non-compliance or breach of these standards

Cefas also shares its safeguarding policy with downstream partners.

**14. Project expenditure**

**Table 1: Project expenditure during the reporting period (1 April 2021 – 31 March 2022)**

Project spend (indicative) in this financial year	2021/22 D+ Grant (£)	2021/22 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
<b>TOTAL</b>				

**15. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

In this section you have the chance to let us know about outstanding achievements of your project over the year that you consider worth highlighting to the Darwin Secretariat and sharing with the wider Biodiversity Challenge Fund community. This could relate to achievements already mentioned in this report, on which you would like to expand further, or achievements that were in addition to the ones planned and deserve particular attention e.g. in terms of best practice. We may use material from this section for various promotion and dissemination purposes, including for example, publication in the Defra Annual Report, Darwin Plus promotional material, or on the Darwin Plus website. As we will not always be able to ask projects on an individual basis for their consent to publish the content of this section, please note the above agreement clause.

### Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the <b>correct template</b> (checking fund, type of report (i.e. Annual or Final), and year) and <b>deleted the blue guidance text</b> before submission?	
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
<b>Do you have hard copies of material you need to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	