Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

Darwin Plus Project Information

Project Ref Number	DPLUS026
Project Title	British Virgin Islands MPA and hydrographic survey capacity building
Territory(ies)	British Virgin Islands
Contract Holder Institution	Centre for Environment, Fisheries and Aquaculture Science (Cefas)
Partner Institutions	United Kingdom Hydrographic Office (UKHO), National Parks Trust of the Virgin Islands (NPT)
Grant Value	£253,443
Start/end date of project	01/04/2014-31/03/2016
Reporting period (e.g., Apr 2015-Mar 2016) and number (e.g., AR 1,2)	April 2014 – March 2015
Project Leader	Koen Vanstaen (Cefas)
Project website	n/a; updates available on Twitter: @KVS1979
Report author and date	Alex Callaway, Koen Vanstaen and Gary Saggers (Cefas) 30/04/2015

1. Project Overview

The British Virgin Islands (BVI) have a large marine area, which presents challenges in protecting biodiversity and sustainable management.

There has been a strong commitment towards marine conservation including the development of a Protected Areas System Plan, which aims to protect 33% of the near-shore marine environment. As part of that plan, maps of the shallow marine habitats were produced from aerial photographs. Large areas remain unexplored and acoustic methods could be utilised to improve knowledge of these areas.

Whereas BVI organisations previously acquired acoustic survey tools, lack of knowledge transfer has limited usage of these systems. There is a need to bring local stakeholder up-to-date with modern survey tools and approaches, and effectively transfer skills and knowledge on their usage.

In the chosen high priority areas, data on topography and hardness of the seabed will be gathered using a Multibeam Echosounder (MBES) system mounted on a local survey vessel. Bathymetric data collected will be utilised by the UKHO to revise internationally recognised navigational charts for the mapped area. These acoustic data will then be ground-truthed using underwater video.

Maps of the physical benthic habitat types, such as subtidal rock or sand, recorded in the study areas will be produced via statistical analysis of dependencies between the ground-truth data and the GIS layers. Species distribution modelling (SDM) methods can be used to further model the distributions of habitat building species in the mapped area. The environmental GIS layers and habitat maps will be delivered in a GIS database with a set standard structure enabling the addition of further layers from future mapping exercises.

Training and capacity building courses aimed at local partners will be held before each stage of the survey, each in turn detailing: 1) the acoustic data acquisition and processing methods, 2) the ground-truthing survey methods and 3) methods for habitat analysis and the production of habitat maps.

The BVI have a national GIS which includes layers on the environment that are utilised in planning and management. The project will produce high resolution marine habitat maps to support the development or management of marine protected areas. The BVI have a Protected Areas System Plan with a number of long term aims for a network of marine parks and protected areas, including ensuring their sustainable use and contributing to economic development. The MPA network will support the Convention on Biological Diversity target to have 10% of the world's oceans protected by 2020, and the UK Government's desire to have the rich environmental assets of the Overseas Territories protected for the future (UK Government White Paper on the UK Overseas Territories, June 2012). Skills needed to produce future data to populate this GIS will be transferred, helping the BVI deliver sustainable spatial planning and management of marine resources.
The project will result in the transfer of skills in mapping marine habitats using modern acoustic survey tools from UK organisations with proven expertise to the stakeholders in BVI. This in turn will provide essential information for spatial planning, sustainable use of marine resources, marine conservation and ensure safe navigation at sea (Figure 1).

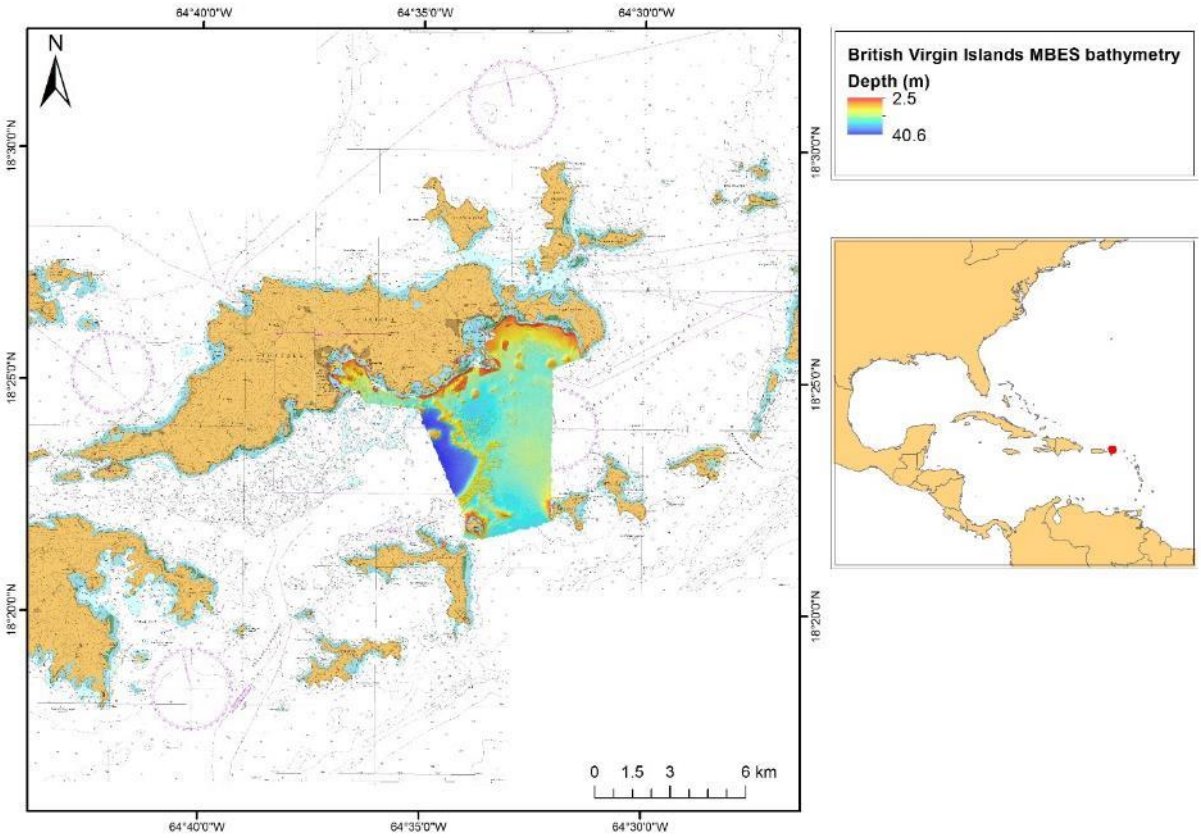

Figure 1 Overview of British Virgin Islands and acquired MBES bathymetry

2. Project Progress

2.1 Progress in carrying out project activities

Please report on the progress in implementing the projects activities for this year. Have the activities been carried out in the manner and time planned? Please substantiate comments with evidence.

The majority of project activities have been successfully implemented. See section 2.3 for detail. All activities that were scheduled for completion in the first year have been carried out, for example acoustic and ground-truthing surveys are complete (Figure 2). Those elements that are ongoing continue to be updated to schedule. Further detail is provided in the table below against each of the activities listed in the project proposal.

27. Main Activities	
Output 1	**Project Steering Group and collaboration group established**

1.1	A project kick-off meeting will be held and steering group formed. The most appropriate area for survey will be agreed with local stakeholders. At the time of submission of the proposal, a proposed MPA area on the North-West of Anegada is considered for survey. We will be flexible in choosing the most appropriate area at the time of survey.	A project kick-off meeting was held in June 2014 attended by 19 people. At the kick-off meeting the group agreed to survey an alternative area to proposed Anegada MPA, due to logistical issues surveying off Anegada. The group unanimously agreed to survey the Rhone MPA, Sir Frances Drake Channel, Beef Island fisheries MPA, approaches to Paraquita Bay hurricane shelter and approaches to Road Harbour.
1.2	Six monthly project steering group meetings will be held to discuss project progress and identify future collaborative opportunities.	The next meeting was held in March 2015, which was later than planned due to calendar availability.
1.3	Six monthly progress reports and final project report.	The half year report was delivered to Darwin by the agreed date.
Output 2	**Knowledge transfer on bathymetric survey and post-processing methodology**	
2.1	Planning of training workshops aimed at local stakeholders and an BSc student (currently funded by National Parks Trust) on acoustic survey methodology and post-processing of acquired acoustic data,	During the July-August 2014 survey local stakeholders were invited and participated in the field surveys. Participants were involved in the process of setting up all survey equipment. Participants were introduced to data acquisition and were given the opportunity to lead the data acquisition. Due to the duration of the survey, a large number of NPT staff had the opportunity to learn more about the survey work and gain new skills. A further 2-day training event was arranged in March 2015 attended by 3 NPT staff. The training introduced NPT staff to new data acquisition systems and provided training operating the hardware and software. This will allow NPT staff to collect further data in August 2015.
2.2	Arrange 1 day training workshop on acoustic survey methodology	Following the project kick-off meeting in June 2015 an introductory training session on acoustic survey methods was provided to local stakeholders.
2.3	Provide at least 2 days of practical hands-on training on the setup of the multibeam echosounder and data acquisition onboard the survey vessel	NPT staff were actively engaged in all aspects of the XX long survey, giving them hands-on training on all aspects of the survey. A further 2-day hands-one training event was arranged in March 2015.
2.4	Arrange 1 day workshop on the post-processing of acoustic data	In March 2015 a full day GIS and data analysis workshop was arranged. The workshop was attended by 16 people, from a range of Government departments (NPT, Conservation & Fisheries Department, Town Planning Department, Department for Disaster Management, Shipping Registry, Ministry of Natural Resources &

		Labour & the Survey Department).
Output 3	**Data for improved navigational chart**	
3.1	Undertake 14 days of MBES surveys (including any weather downtime).	The project delivered 18.5 days of actual survey days, 1 day of transit time and experienced 1.5 days of weather downtime. This exceeds the 14 days specified in the project proposal significantly and can mainly be attributed to the location of the survey site (as opposed to Anegada) and efficiencies may by the project team thanks to efficient planning (reducing shipping and travel durations) and execution (less time required to mobilise all equipment on/from the vessel). The result is that a significantly larger area than originally planned has been surveyed, to the benefit of local stakeholders. For coverage see figure 2.
3.2	Fully process all MBES data to meet charting requirements.	This work was completed by UKHO by December 2014.
3.3	All bathymetry data validated and accepted by UKHO for charting purposes.	All data were reviewed by the UKHO validation departments. The validation concluded: *It is considered that all bathymetric data have been collected in accordance with the Hydrographic Instruction. A review of the data indicates that their overall quality, completeness and reliability are good and to the standard required by the scope of work. It is recommended that a new edition is published for the charts covering the area surveyed.*
3.4	Identify sites suitable for establishing moorings (within MPA, if appropriate)	Initial work on site suitability completed, but some further work required to incorporate results from biological characterisation survey.
Output 4	**Knowledge transfer on analysis of acoustic and ground-truthing data to produce marine habitat maps**	
4.1	Planning of training workshop on the analysis of acoustic and ground-truthing data to produce marine habitat maps, including image analysis and distribution modelling methodology	The delivery of this particular knowledge transfer workshop was delayed till further in the year. BVI stakeholders felt it would be more useful to use locally collected data. Discussions with local stakeholders also identified a greater need for further data acquisition training. Hence the 3 day training was split by 1 day on data analysis and 2 days on data acquisition (as above).
4.2	Arrange a 3 day training workshop on habitat mapping using acoustic and ground-truthing data	The training was delivered in March 2015 attended by 3 NPT staff on day 1 & 2, and by 16 people on day 3. A further training session has been planned for December 2015.
4.3	Researcher Exchange – provide	This has been rescheduled to next

	opportunity for National Parks Trust BSc student to visit experts in UK to participate in data analysis and interpretation and gain hands on knowledge and experience.	FY due to availability of the NPT BSc student. This is now being planned for Autumn 2015.
Output 5	**GIS Database with environmental layers and maps of marine benthic habitats in shelf waters**	
5.1	Undertake a 7 day physical and biological validation survey.	A 10 day survey was delivered in August 2014. This again exceeded the original target of 7 days due to similar reasons as described above. For sample distribution see figure 2.
5.2	Additional processing of MBES bathymetry and backscatter datasets to produce various topographic and seabed reflectance variables in GIS format.	This work was completed and the datasets were used during training sessions in March 2015.
5.3	Image analysis to extract coherent regions in acoustic data based on the bathymetry, backscatter and their derivative layers.	This work was completed and the datasets were used and the approach demonstrated during training sessions in March 2015.
5.4	Statistical analysis relating habitats to acoustic features and production of habitat maps.	Although planned for next FY, some work on this has already started.
5.5	Collation of acoustic data layers, derivative layers, ground-truthing point data and habitat maps into a GIS database with a set structure to meet BVI GIS Centre requirements.	Planned for FY15/16
Output 6	**Knowledge of the distribution marine biodiversity at shelf depths (10 – 40m)**	
6.1	Preparation of peer reviewed publications.	Planned 15/16
6.2	Present results to appropriate audiences, especially targeting other overseas territories. For example, a JNCC/UKOT Technical Workshop focussing on marine protected areas will take place on 28-29 November 2013. Project team members are already invited to attend at the planned event and will seek to present work from this project at future events.	The work will be presented at the Shallow Survey 2015 international conference. We requested a slot at the UKOTCF conference in July 2015, but the organisers were unable to offer a slot as a similar presentation had already been selected. A contribution was provided for the UKOTCF Newsletter in August 2014. The work presented at the World Hydrography Day event at Defra in October 2014. The project attracted attention from Defra's International Biodiversity team as well as Ian Boyd, Defra's Chief Scientist. Outside of the stakeholder meetings, updates were provided to the BVI Governor and Permanent Secretary of the Ministry of Natural Resources and Labour.
6.3	Work with local stakeholders to review survey outcomes and implications for management of biodiversity, human activities and policy development.	Planned FY 15/16
Output 7	**Training materials**	
7.1	Production of PowerPoint presentations and written materials from training workshop, for future reference and training of BVI staff in the future.	All presentations were provided to workshop participants. In addition participants were provided with training datasets and relevant materials (e.g. standard video

		interpretation spreadsheets, bespoke GIS software and instructions).
7.2	Provision of recommended operation guidelines for marine survey tools and techniques employed during the project.	These were introduced at training workshops and will be provided as planned during FY15/16.
7.3	A compilation video of the hydrographic survey results and the marine benthic habitats characterising the areas surveyed. Hydrographic survey results will be presented as a 3D fly-through animation.	In preparation, a 3D animation has already been produced and was presented in March 2015.

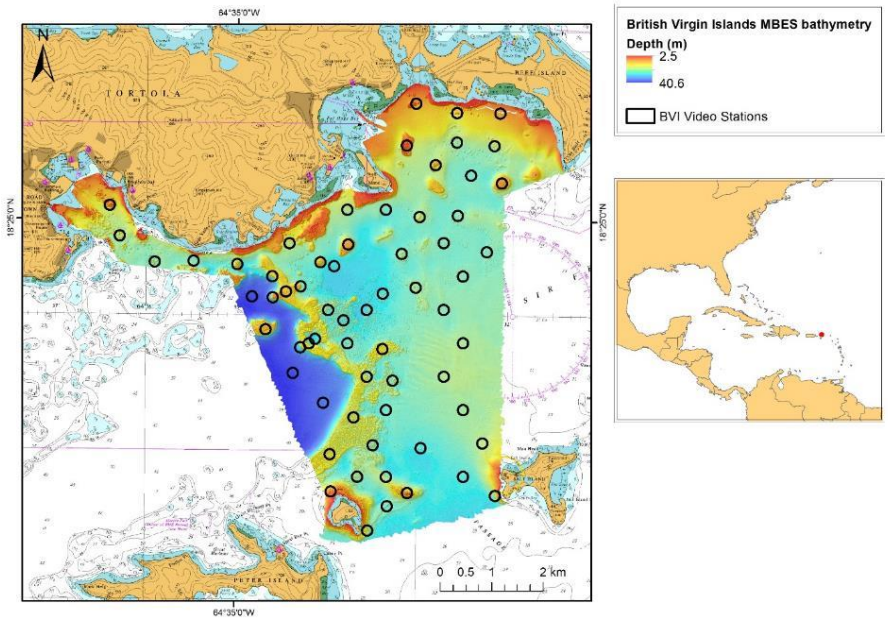

Figure 2 Completed data acquisition showing MBES survey area and visited underwater video stations

2.2 Project support to environmental and/or climate outcomes in the UKOT's

One of the habitats identified for conservation by the BVI coastal atlas was Seagrass beds. These consist of two main species *Thalassia testudinum* and *Syringodium filiforme* and were mostly believed to be constrained to near-shore areas (Figure 3). During the underwater video survey in August 2014, evidence of substantial Seagrass meadows in more offshore areas was acquired.

The distribution of Seagrass in the Sir Francis Drake Channel is far more widespread than previously though and it may be possible to produce an accurate prediction of its distribution throughout the MBES survey area (Figure 4).

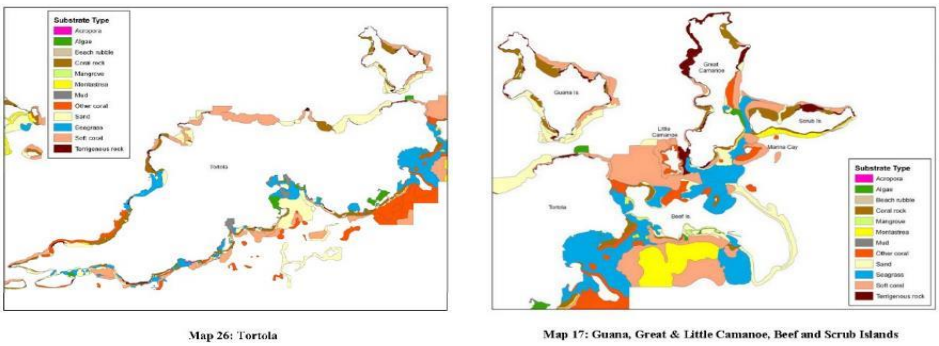

Figure 3. Known distribution of seagrass (Blue) (c/o National Parks Trust, BVI)

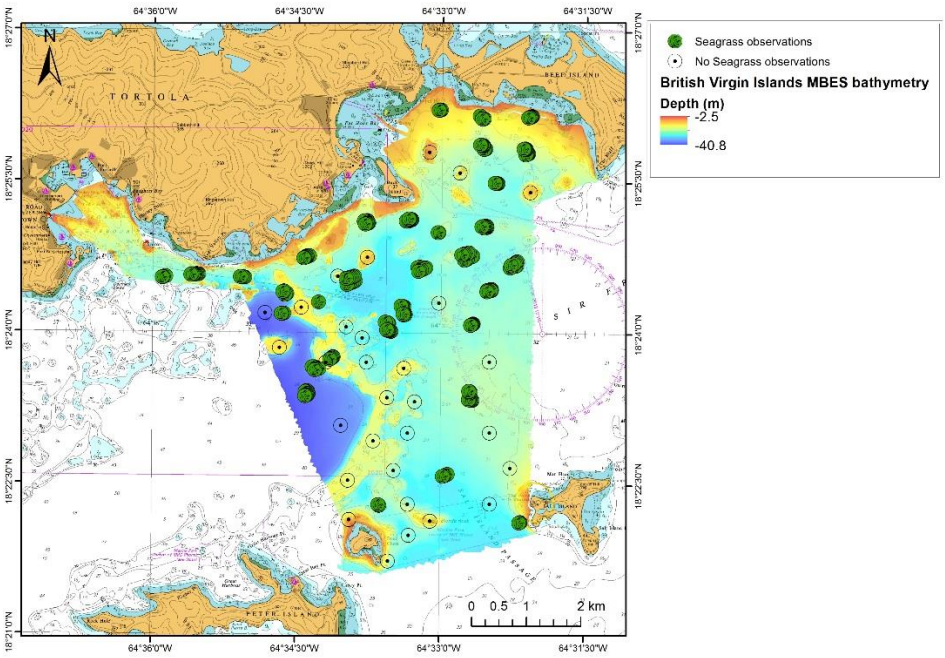

Figure 4. Observed distribution of Seagrass

Also, following interrogation of the high resolution MBES bathymetry scar features were observed on the seabed which appeared to affect coral structures as well. These features were assumed to be the result of ship anchorage and associated dragging (Figure 5). These data will help the BVI stakeholders manage the anchorage for large vessels visiting the islands to provide the best outcome for sustainable tourism and conservation.

Figure 5. Observations in MBES bathymetry enable accurate monitoring of activities in the BVI territory

Anchor scar: https://twitter.com/KVS1979/status/580446810537369600

2.3 Progress towards project outputs

Report on how overall progress has been made towards the project outputs and how likely the project is to achieve them by its close. Please substantiate comments with evidence.

1. Project Steering Group and collaboration group established

The project leader and collaborators met in the British Virgin Islands during the first week of June. A project kick off meeting was held with 19 marine stakeholders attending the event. One of the primary aims of the meeting was to identify the area to be surveyed during the summer. A large number of areas were proposed, including areas around Anegada as mentioned in the application form. After lots of discussion the group unanimously agreed on a

survey area stretching from Road Harbour to Beef Island and across to Salt Island and Dead Chest Island. The area includes the RMS Rhone Marine Park, unsurveyed waters and communities of the Sir Francis Drake Channel, spawning and nursery grounds south of Beef Island, the approach to Paraquite Bay hurricane shelter for sailing yachts as well as the main approach to Road Harbour; thereby meeting interests of all stakeholders.

2. Knowledge transfer on bathymetric survey and post-processing methodology

During the June visit and July survey, NPT and Land Survey Department staff were actively involved in all survey aspects. NPT and Land survey staff assisted and gained knowledge on mobilising a vessel for bathymetric survey. NPT staff joined the survey vessel on a daily basis and gained insights into the acquisition and operation of surveys to international hydrographic standards. The survey was arranged to align with the availability of the NPT BSc student.

3. Data for improved navigational chart

Collecting new high resolution data to modern international standards was a major component of this project. All equipment was shipped from the UK to the BVI. Although there were some issues with shipping, delays were minimised thanks to experience of the project team to fabricate the missing item locally. The survey team arrived in the BVI on Friday 18th July and departed 6th August 2014. Despite Tropical Storm Bertha stopping survey operations for a few days, the team achieved all survey objectives, collecting data from the main priority areas as well as the second and third priority areas. Whilst the navigational chart has not yet been updated, over 10 navigation warnings have already been issued as a result of the survey, where the new survey data revealed dangers to mariners not previously shown on charts.

4. Knowledge transfer on analysis of acoustic and ground-truthing data to produce marine habitat maps

A habitat mapping workshop was originally planned at the very beginning of the project. This would have made use of data from UK waters. It was realised that it would be more beneficial for knowledge transfer purposes that local data are used. The workshop was therefore carried out in March 2015 during a follow up visit. The workshop focused on providing BVI stakeholders with information on systems to choose when designing survey objectives. It also described how to create maps using GIS methods that were freely/already available to stakeholders and provided documentation and methods to enable standardisation of biological data analysis. There was also an opportunity to carry out further training using a SSS system (Figure 6).

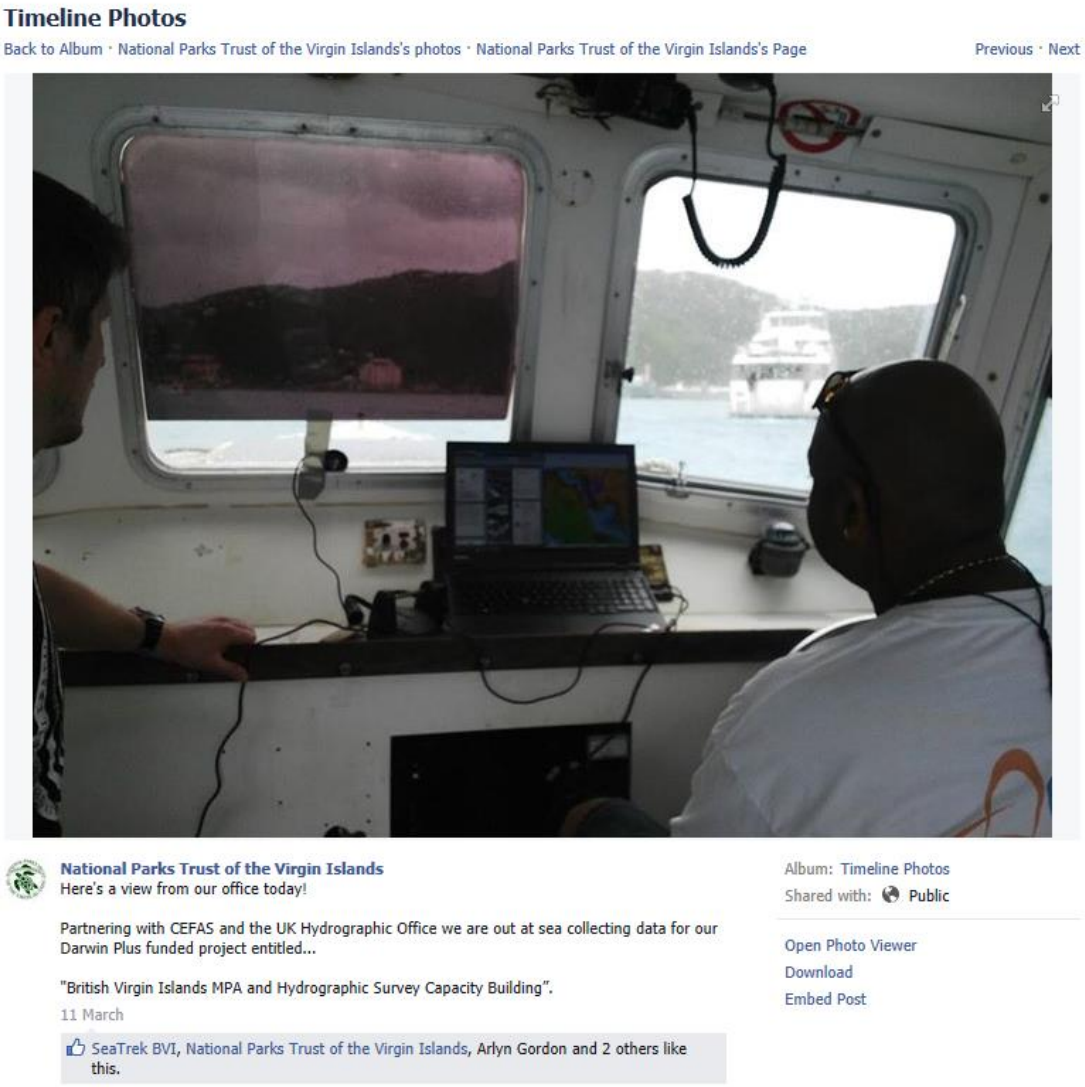

Figure 6. Stakeholder publicity of data acquisition and training

SSS training: https://twitter.com/KVS1979/status/575653212490985473; https://www.facebook.com/NPTVI/photos/a.255491747901287.56161.255427807907681/748472671936523/?type=1&theater

5. GIS Database with environmental layers and maps of marine benthic habitats in shelf waters

The main activity over the last 6 months has been the completion of a video ground-truthing survey. Data from the hydrographic survey were reviewed and 68 sampling stations were distributed across the area to characterise the substrate and associated biological communities. From these stations over 11 hours of video and 492 still images have been analysed to describe taxa and physical environment observed. Subsequently these data have been integrated within ArcGIS so that video positions can be compared to seabed features and verified by comparing photographic imagery to acoustic using hyperlink tools within a geodatabase (Figure 7).

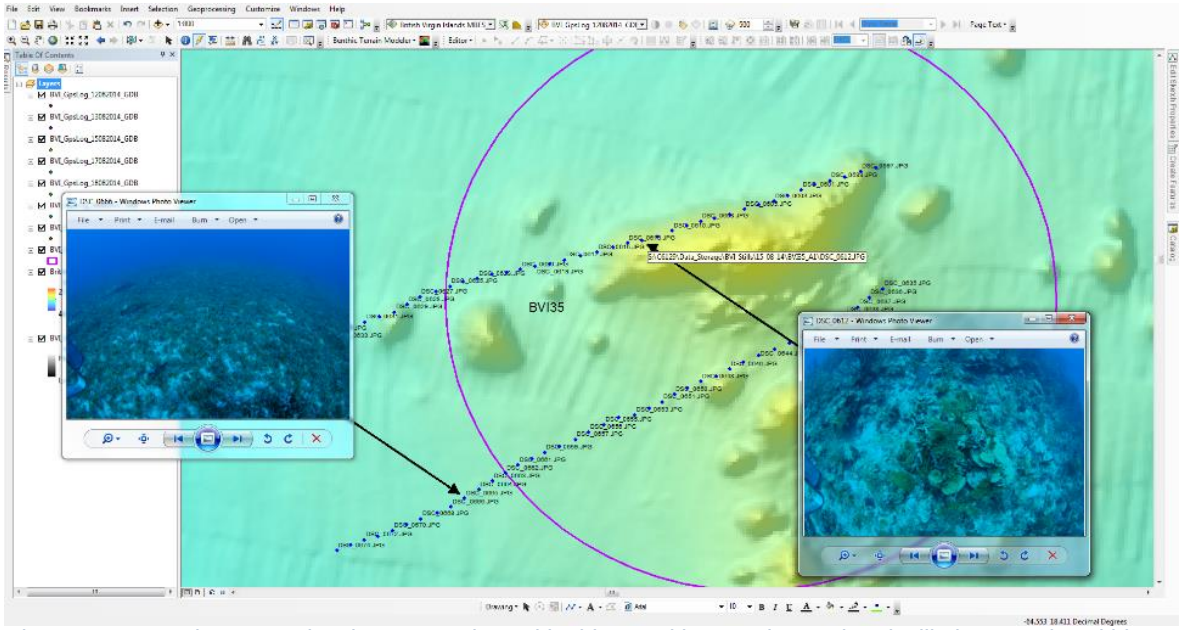

Figure 7. GIS environment showing MBES data with video positions and associated still photographs within station.

6. Knowledge of the distribution marine biodiversity at shelf depths (10 – 40m)

In line with the project plan, there has been no major activity related to this item during the last 6 months.

7. Training materials

Name	Agency
John Shirley	National Parks Trust Board
Jamil Vanterpool	VI Shipping Registry
Louis Potter	National Parks Trust Board
Sue Cotton	Governor's Office
Diehdra Potter	National Parks Trust
Finfun Peters	National Parks Trust
David Parker	UK Hydrographic Office
Natasha Harrigan	National Parks Trust
Christopher Williams	Department of Disaster Management
Maykel Morales Gonzalez	"
Nancy Pascoe	National Parks Trust
Mervin Hastings	Conservation & Fisheries Department
Joseph Smith-Abbott	Ministry of Natural Resources & Labour
Argel Horton	Conservation & Fisheries Department
Ken Pemberton	"
Abbi Christopher	Ministry of Natural Resources & Labour
Lynda Varlack	National Parks Trust
Koen Vanstaen	Cefas
Kedrick Pickering	Deputy Premier – Minster of Natural Resources and Labour (opening session only)

Materials were provided during the March 2015 workshop.

Training Workshop: https://twitter.com/KVS1979/status/576418703161495552

Cefas	National Parks Trust of the Virgin Islands	Town and Country Planning Dept.	Conservation and Fisheries Dept.	Dept. of Disaster Management	Ministry of Natural Resources and Labour	Shipping Registry
Koen Vanstaen	Nancy Pascoe	Troy Dawson	Rozina Norris Gumbs	Christopher Williams	Abigail Christopher	Jamie Vanterpool
Alex Callaway	Israel Bahadoor	Coy Harrigan	Mervin Hastings	Maykel Morales		
	Diehdra Potter	Kareem Skelton	Kelvin Penn			
	Cecil Fraser		Angela Burnett Penn			
	Ronald Massicott					

2.4 Progress towards the project outcome

Outputs 1, 2, 4 & 7 have been carried out successfully building capacity within BVI stakeholders. Output 3 has been completed as far as data acquisition and processing and is in the final phase of being implemented in the latest versions of navigational charts for the region. Outputs 5 & 6 are ongoing and should be successfully delivered by the projects end.

2.5 Monitoring of risks

Of the risks identified, none have had an adverse effect on delivery of the project. The delay in equipment being delivered was overcome by fabrication of the required part on Tortola enabling survey to start as planned. Similarly, the survey time lost to weather did not prevent the acquisition of data from all of the first, second and third priority areas. Additional data have also been acquired using a sidescan sonar (SSS) to further support National Parks Trust conservation and management targets. One of these areas was Round Rock where SSS and video were used to survey an historic Goliath Grouper site (Figure 8).

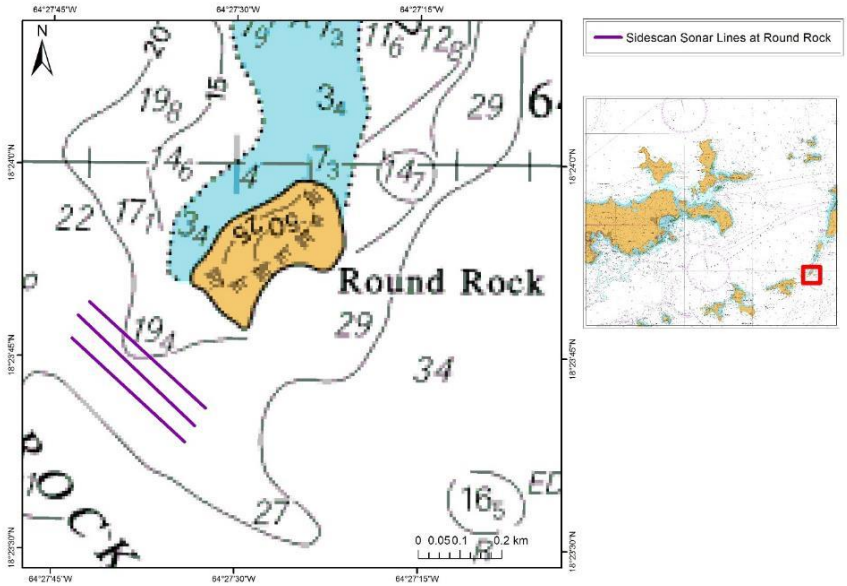

Figure 8. Additional survey achievements following completion of scheduled aims

3. Project Stakeholders

Stakeholders have been engaged at all stages. The rescheduling of the workshop was in direct response to stakeholder engagement. Stakeholders were actively involved in site selection for both MBES and video survey. As mentioned above, the NPT had an interest to undertake the survey north of Anegada. However, the June 2014 stakeholder meeting identified logistical issues with this site, as well as limited interest from other stakeholders. Prior to the meeting stakeholders were indeed asked for their main area of interest, which were presented at the stakeholder meeting and through discussion a unanimously agreed are was identified.

As discussed previously, some changes to the timing and context of workshops was made to meet stakeholder needs and access to software (Figure 9 & Figure 10).

All stakeholders identified in section 23 of the project application have been engaged during the first year of the project. In addition, the project team have engaged with the Governor and his office, as well as the Minister and the Ministry of Natural Resources and Labour.

Figure 9. GIS training workshop with BVI stakeholders - March 2015

Figure 10. Initial stakeholder engagement at project start-up meeting - June 2014

Stakeholder engagement: https://twitter.com/KVS1979/status/476512948459175937

Stakeholder meeting:
https://www.facebook.com/NPTVI/photos/a.255491747901287.56161.255427807907681/747937148656742/?type=1&theater

4. Monitoring and evaluation

Cefas follows ISO9001 project management structure. As part of this commitment, meetings between project manager and project sponsor occur once a month. This ensures that all elements of the project are under control and discussions take place at an early stage when issues arise.

As discussed above, the surveys delivered by this project have been a real success, exceeding the number of days originally planned and thereby increasing the impact of the project. Overall this resulted in a 50% increase in survey time. Similarly, the biological characterisation exceeded the original target duration by 43%.

The project aimed to collect high quality hydrographic data. The survey area was last surveyed 50 years ago or more. The data passed the quality assessment undertaken by the UKHO. Ten hydrographic notes were produced highlighting areas of significant (>10% of water depth) variation from previous knowledge. The survey has therefore reduced danger to mariners navigating the waters in the BVI, and indirectly, could avoid future shipping accidents and resulting environmental disasters.

Stakeholder and training events were well attended. The table below shows attendance numbers per event. Positive feedback has also been received following these events.

Event date	Number of Attendees	Feedback
June 2015	19	
March 2015	16	*"Everyone really enjoyed the workshops so thank you both"* - NPTVI

5. Lessons learnt

What worked well:

Much of the success of the project can be attributed to the commitment of all project partners. We had allowed more time for shipping, getting the vessel ready for the survey, potentially no weekend working, etc. (Figure 11). Despite UK and BVI teams not having worked together before, the partnership and commitment was strong from both sides which allowed original targets to be exceeded.

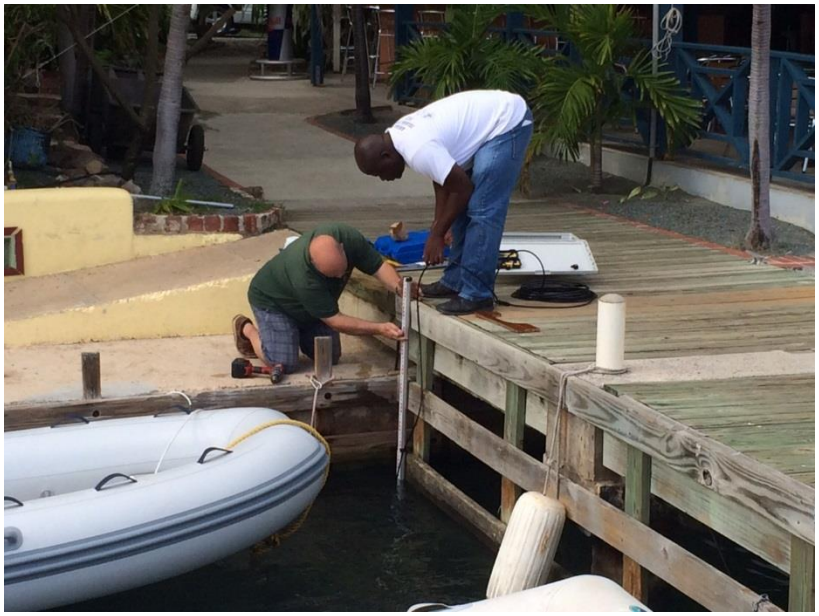

Figure 11. UKHO and NPTVI staff collaborating during survey preparation.

Engagement with stakeholders was also a real success, with unusually (according to local partners) high attendance numbers at stakeholder meetings. Identification of the survey area really engaged all stakeholders in the process and despite the final survey area being a compromise for everyone, all stakeholder supported the final survey area.

What didn't work well:

We had some issues with shipping of equipment to the BVI.

We have has some issues with the resulting survey data, due to hardware and software manufacturer's incompatibility issues. This took significantly longer to resolve, but has been resolved in the end.

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

Not applicable.

7. Other comments on progress not covered elsewhere

No further comments to add. Any difficulties have been discussed and no new major risks face the remainder of the project.

8. Sustainability

The project has become a high profile piece of work in BVI due to the number of local agencies involved and the potential utility of the data acquired for multiple purposes across those agencies. See section 2.3 for detail on current and potential use.

Figure 12. Opening of project by Dr the Hon. Kedrick Pickering.

The kick-off meeting was opened by the BVI's Deputy Premier and Minister of Natural Resources and Labour (Figure 12). The opening session by the Minister and project partners was filmed by the Government Information Service. The project team have also been invited twice to the Governor's office to provide an update on the project (Figure 13). In March 2015 we were invited to provide an update to the Deputy Premier and Minister of Natural Resources and Labour, after he had heard about the progress of the project from his Ministry staff. Unfortunately, this was cancelled at the last minute when the Minister was called to the Assembly for an emergency meeting. Instead the project team briefed the Permanent Secretary, who in turn would brief the Minister (Figure 14).

Discussions are already underway with the Deputy Permanent Secretary of the Ministry of Natural Resources and Labour to build on the existing project.

Figure 13. Meeting the Governor of the BVI in June 2014.

Figure 14. Engagement at all levels has highlighted need for these surveys and increased interest in pursuing further work.

Increasing interest: https://twitter.com/KVS1979/status/576517572138397696

9. Darwin Identity

Progress on survey and stakeholder engagement have been captured on Twitter and Facebook by both Cefas and stakeholders. Stakeholders have also been provided with posters covering various elements of the project. The Governor's office of the BVI have been consulted on each

visit and provided with posters of acquired data. The work was presented at the World Hydrography Event hosted by Defra in October 2014. A poster and 3D animation were produced with a clear Darwin identity (Figure 15). All project and presentation materials have clearly carried the Darwin Initiative logo. Social media engagement has always made clear links to the Darwin Initiative by including @Darwin_Defra or more recently #nature4life.

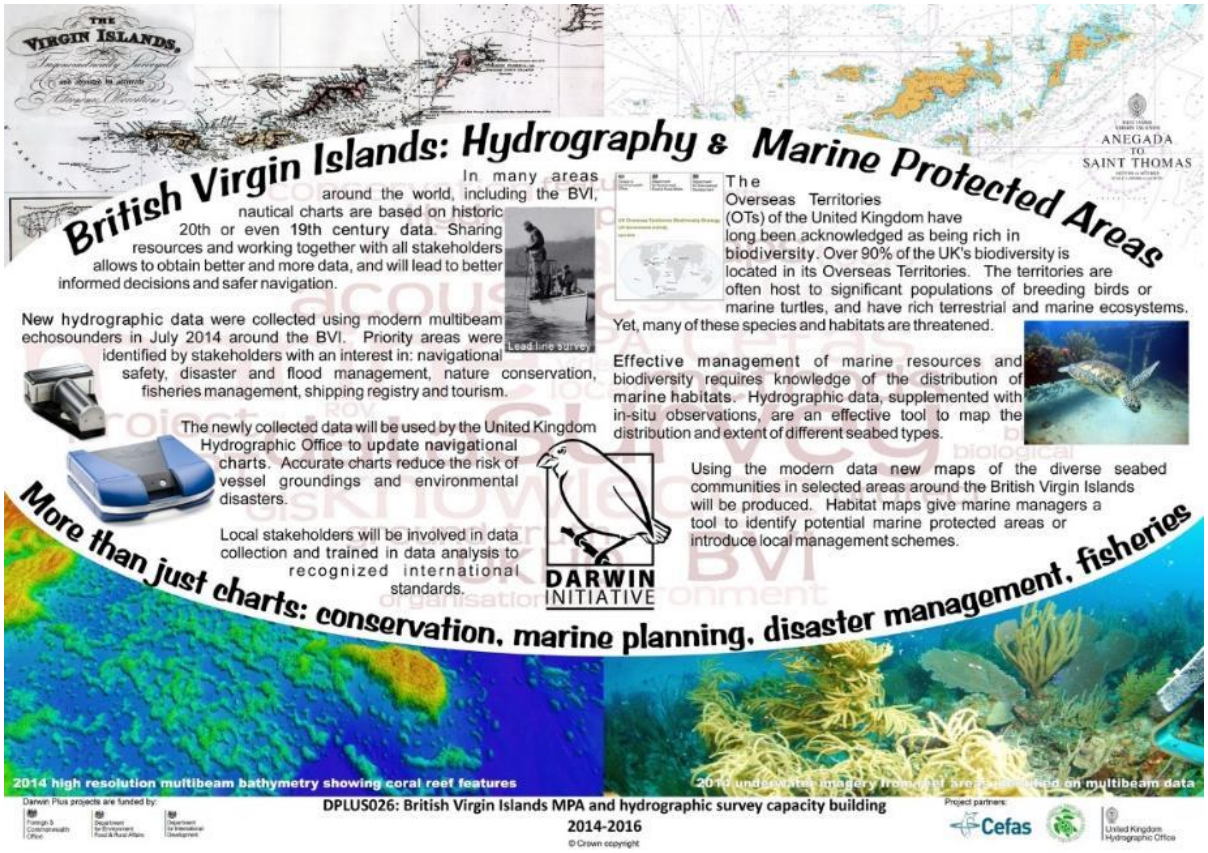

Figure 15. Poster presented at World Hydrography Event hosted by Defra.

This funding support represented a single distinct project. However, the partners involved meant that it could be perceived as part of a network of projects. Our project partners UKHO were involved IN the tasking of HMS Protector to undertake another, more offshore MBES survey at a separate site north of Tortola at the same time as the survey for this project. The large vessel with significant visibility indirectly increased interest in the project. Through the involvement of UKHO in this project it has been possible to release the data from HMS Protector to project partners. Time allowing, a basic review of the data will be undertaken to inform local stakeholders in a biodiversity context. The NPT are involved in multiple Darwin Initiative projects all of which will contribute to more effective management of the BVI natural environment. This project demonstrates that such surveys do not have to be terrestrially constrained. The Premier's office is keen to maintain involvement in future Darwin Initiative projects wherever possible (Figure 14).

10. Project Expenditure

Table 1 Project expenditure during the reporting period (1 April 2014 – 31 March 2015)

Project spend (indicative) in this financial year	2014/15 Grant (£)	2014/15 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				A reduced involvement of Cefas' staff in the survey, we originally planned on using the BVI Government video equipment. We envisaged 2 Cefas staff would run this survey: one to operate the equipment and one to undertake all ancillary data recording. As the equipment wasn't suitable, we contracted a UK specialist to provide a portable high quality video system + operator. Hence we did not require 2 Cefas staff, but instead the sub-contract/consultancy costs increased. These were discussed with the Darwin Initiative in an E-Mail dated 16/01/2015 with confirmation of receipt dated 20/01/2015, although the expectation to remain within 10% has not been achieved.
Consultancy costs				
Overhead Costs				The reduction in overheads is a consequence of reduced staff costs, see explanation above.
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
TOTAL	**£181,641**	**£178,692.41**		