

Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

Important note *To be completed with reference to the Reporting Guidance Notes for Project Leaders:
it is expected that this report will be about 10 pages in length, excluding annexes*

Submission Deadline: 30th April 2019

Darwin Plus Project Information

Project reference	DPLUS077
Project title	Sustainable fishery management for St Helena's lobster populations
Territory(ies)	St Helena
Lead organisation	Marine Section, St Helena Government
Partner institutions	Centre for Environment Fisheries and Aquaculture Science (Cefas)
Grant value	£198,394.00
Start/end date of project	01/09/2018 – 31/08/2020
Reporting period (e.g., Apr 2018-Mar 2019) and number (e.g., AR 1,2)	Apr 2018 – Mar 2019 AR 1
Project leader name	Annalea Beard
Project website/blog/Twitter	http://www.sainthelena.gov.sh/dplus077-sustainable-fishery-management-for-st-helenas-lobster-populations/ https://www.facebook.com/sthelenaconservation/
Report author(s) and date	Dr Ralf Bublitz, 30/4/19

1. Project overview

St Helena is home to two lobster species with commercial and recreational interest, the brown spiny lobster (*Panulirus echinatus*) and the endemic red slipper lobster (*Scyllarides obtusus*). The population status for both species is largely unknown and detailed information on abundance, distribution, movement, growth rate, sex ratio, size distribution, size at maturity and seasonality of reproductive cycles is needed for the sustainable management of both species. St Helena declared a Category VI Sustainable use Marine Protected Area (MPA) in 2017. A key-part of ensuring sustainability is to understand the ecology of species and how this relates to its current and potential future use. This project will fill existing data gaps identified under the Marine Management Plan 2016 and address key priorities for DPLUS R6, including (i) improving marine conservation, protection or management (ii) Promoting sustainable fisheries and (iii) Developing tools to monitor biodiversity to inform sustainable development policies and practices. Information and lobsters are being collected by using dive based habitat and abundance surveys and trapping with lobster pots. Caught lobsters will be measured for biometric data and tagged with plastic t-bar anchor tags and tissue and gonad samples will be collected for maturity and diet analysis. An acoustic grid with a fine scale positioning system will be deployed to track diurnal and long-term population movements. The data collection on lobsters and habitats will cover the whole island depending on weather and sea conditions (Fig 1). Besides collecting data, part of this project also involves various outreach activities from school visits to public talks, interviews with recreational and commercial fishermen and working closely together with stake holders.

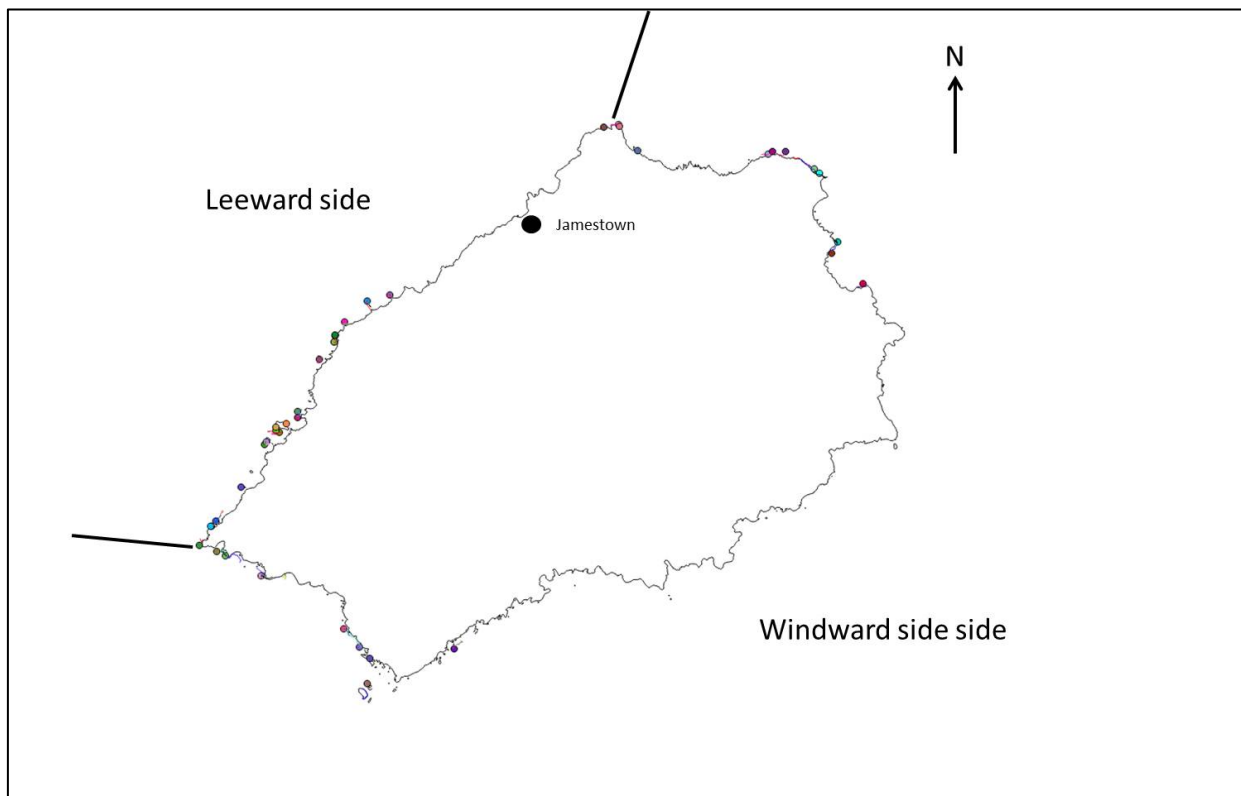


Figure 1: Island outline of St Helena. Coloured dots indicate dive sites surveyed between Jan – Mar 2019

2. Project stakeholders/partners

The landing of lobsters at the St Helena Fisheries cooperation has been very sporadic and few over the past 50 years as there is no established fisheries and market in place. Most lobster consumed by local people is either caught through recreational fishing or purchased on the black market. Since the start of this project the project officer has been working closely together with the Fisheries cooperation to develop a one year trial plan to encourage local fishermen to increase their fishing effort and landing for lobsters by offering a better price, setting minimum landing sizes and conditions based on preliminary data and supplying the local market setting a lower price to undermine the black market. This was implemented in Feb 2019 and lobsters have been offered at the local market once so far. The Fisheries cooperation board has agreed to a new buying price which has not been released yet, therefore the landing of lobsters is currently on halt. Due to the very low landing rates, biometric data from commercially landed lobsters have been collected only twice (see lobster landing data in annex 3) since the start of this project.

The project officer has been consulted by Fisheries Section and Legal Department of the St Helena Government providing preliminary recommendations for the new Marine Legislation in regards to lobster fisheries management.

Cefas has provided some suggestions for the development of the methodology.

Evidence provided in annex 3 (file 16)

3. Project Progress

3.1 Progress in carrying out project Activities

Activities 2.4, 2.5, 3.6, 4.3, 4.5, 5.3, 7 and 8 have not been implemented in year 1 as they are scheduled for year 2 and 3.

1. Write Job profiles, devise recruitment panel, prepare job adverts, and advertise posts.

Job profile for the project officer were completed and advertised in April 2019 and recruitment panel has been devised for the interviews taking place in June 2019.

1.2 Recruit suitably experienced project officer and fieldwork assistant

A project officer has been successfully recruited and taken up this position with a delay of one month after the official start date. It was not possible to recruit a suitable field work assistant in the first year of this project due to a shortage in the staff budget caused by a miscalculation and the lack of a suitable candidate. However a change request has been approved to re-allocate some of the funds and a suitable candidate has been now recruited starting in year 2. This has not impacted the progress of the project as the project officer has created and been working with a network of local volunteers who have been assisting in the field work.

1.3 St Helena staff trained in crustacean monitoring techniques

There has been no training of local staff in year 1 due to a shortage of available staff within the Marine Section, delays in commencement of the field work and testing of the methodology. The tender process for hiring a boat for this work needed time to be processed and completed. The staffing issue has been addressed and one local staff member has been allocated for 3 days/week to this project for year 2 and a second local staff member will be joining for the 3rd and 4th quarter of year 2.

1.4 St Helena staff gain practical experience in monitoring techniques (tagging, biometrics, dive surveys)

Two local staff managed to join 4 dive surveys to gain first hand experience for this work. After resolving the staffing issue within the Marine Section, one St Helena staff has been allocated 3 days/week for this project for year 2 and 3 and a second local staff member will be joining the project from month 6 of year 2 onwards gaining all necessary experience.

1.5 Training log maintained by SHG staff and training/supervision report compiled and verified by Cefas/Project Officer.

As there has been no training in year 1 a training log has not been started and maintained. It will start in the beginning of year 2.

Evidence provided in annex 3 (files 17,18 & 19)

2.1 Review and collate existing fisheries biological and catch data.

Catch data from 1990 onwards have been obtained but further back dated information couldn't be found yet. The only biological data were found in a previous study (Ninnes 1991).

2.2 Review relevant current lobster legislation, licensing and management.

To date there is no legislation in place for fishing lobsters commercially or recreationally. However this is part of the marine management plan and the drafting of a revised legislation is in progress. Lobsters are only protected under the spear gun control ordinance prohibiting the use of SCUBA equipment to take out any marine life.

2.3 Conduct research into the past and present lobster fishery (commercial and recreational) through a questionnaire and face to face interviews.

Evidence provided in annex 3 (files 20&21)

3.1 Establish mobile lobster pot network along coastline.

It was not possible to establish a lobster pot network in year 1 as the lobster pots have not yet been delivered to the island. This is due to a delay in the procurement process by the shipping company. The lobster pots arrived in the UK in January but due to the remoteness of the island the minimum shipping time from the UK is 2-3 months. The lobster pots are due to arrive in

mid- April and the lobster pot network will be established soon after. Additional materials such as buoys and rope have already arrived on the island and are ready to be deployed.

3.2 Deploy a minimum of 10 pots for 25000 trap hours within the first six months and 29000 trap hours within the following year.

No lobster pots have been deployed in year 1 but this will commence in the beginning of year 2.

3.3 Tag, measure and release a minimum of 1500 spiny and 1000 slipper lobster from a range of sizes with a subset of 50 (25 of each species) double tagged within 22 months.

The field work was delayed by 4 months due to the project officer arriving on the island a month after the start date and the time needed for the tender process for the boat hire to conduct the dive surveys. The tags and tagging equipment arrived in March 2019 and tagging commenced in mid-March and a 161 lobsters have been tagged in year 1 (155 spiny and 5 slipper lobsters). From January to March 2019 a total of 610 spiny and 41 slipper lobsters have been caught during dive surveys, measured, sexed and released. Double tagging has started and will commence in April 2019.

Table 1: number of lobsters caught by hand using SCUBA diving, biometric data collected and tagged.

	Caught & measured	Size range [mm]	Females with eggs	tagged
<i>Panulirus echinatus</i> male	248	20-155	-	71
<i>Panulirus echinatus</i> female	364	34 - 116	315	85
<i>Scyllarides obtusus</i> male	26	65 - 130	-	5
<i>Scyllarides obtusus</i> female	21	86 - 145	13	1

3.4 A minimum of 50 gonads collected for examination.

St Helena does not have the facilities for processing and analysing the gonad samples and therefore none have been collected to date. A change request will be submitted shortly after the report for re-allocating some of the funds to enable two staff to travel to Ascension Island and use their facilities for the processing and analysis of the gonad samples. Although Cefas would be able to analyse the samples, the logistics of sending samples across to the UK seems too difficult.

3.5 Integrate tagging and biometric data into existing EMD fisheries database.

Biometric and tagging data have been collated, formatted and prepared in Excel for importing into the EMD fisheries Access data base in year 2.

Evidence provided in annex 3 (files 1,2,3,4,11,12,14,15)

4.1 100 diet samples collected for examination and 20 tissue samples for stable isotope analysis

Twenty tissue samples for stable isotope analysis have been collected and shipped to the UK with the RRS Discovery. Cefas will be coordinating the analysis in the UK.

4.2 Completion of 120 habitat, abundance and diet surveys within the first six months and 144 within the following year.

A total of 72 habitat and abundance surveys have been completed between January and March 2019. A change request has been approved to move funds into year 2 for additional boat hire to increase the amount of surveys in order to catch up.

4.4 Habitat survey data combined with existing seabed spatial data to identify and map key areas or habitat zones with high lobster abundance.

There are not enough habitat data to date but good progress has been made between January and March 2019. The existing spatial seabed data are incomplete and low resolution. However the hydrographic office UK completed a thorough survey of the coastal waters of St Helena in December 2018. We will receive the new and more accurate seabed data in year 2 and will have a more extensive set of habitat data which we will then combine to create more accurate maps of key areas and zones.

Evidence provided in annex 3 (files 11, 13 & 26)

5.1 install acoustic receiver array grid inshore.

The acoustic receivers have not arrived yet due to delays in the procurement process and the equipment being shipped out from Canada via the UK. They are expected to arrive in St Helena in May 2019. The additional materials such as rope, weights and epoxy glue have already been acquired.

5.2 Deploy 15 acoustic telemetry devices onto lobster within first 6 months.

The acoustic equipment is expected to arrive in St Helena in May 2019 and will be deployed shortly after.

6.1 Launch and publicise reward scheme for lobster tagging programme.

The lobster tag reward scheme has been publicised via posters and a radio interview is planned for the beginning of year 2.

6.2 Plain English pamphlets and presentations prepared to inform St Helena stakeholders, public, school children and visitors about the lobster populations and the project.

Two presentations have been delivered to the council, a session on coral ecology for GCSE Marine Science has been delivered at Prince Andrew School, a public talk was given at the St Helena Conference and during Marine Awareness week. Additionally, the Marine team is planning to visit 3 primary schools to deliver information combined with activities about lobsters and other marine life. Preparations have been made in year 1.

6.3 Attended regular key stakeholder meetings to inform of project progress

Two council meetings have been attended to present the project process.

6.4 Produce monthly newspaper articles and radio interviews for local media, other OT's and international media.

Evidence provided in annex 3 (files 5,6,7,8,9,10,27)

3.2 Progress towards project Outputs

Output 1: Capacity building, with ENRD staff trained in crustacean data collection methods and sampling techniques.

Baseline: Prior to this project there was no knowledge, skill set or experience in crustacean data collection and sampling techniques in St Helena

Year 1: The project officer was successfully recruited but the start date for this appointment was delayed by one month. A suitable fieldwork assistant has been identified and recruited but

the starting date for this position will be April 2019. This was due to necessary changes of finances within the staff budget which had to be approved first and the lack of suitable applications in the first round. The field work commenced in January 2019 as the tender process for boat the boat hire could not be completed before the Christmas period. Field work was not possible to be conduct without the availability of a boat hence the methodology and the sampling protocols could not be tested and established beforehand. Additionally it was not possible to get the lobster pots shipped to St Helena in year 1. St Helena staff were not available in year 1 to assist for this project nor to be trained in crustacean data collection and sampling techniques therefore capacity building has been delayed and will commence in year 2.

The staff availability has been addressed and St Helena staff time has been re-allocated for this project. Two local staff will be assisting the project officer in year 2 and 3 and be able to get training within the first quarter of year 2.

The measurable indicators set for this output are still the best and will be continued for the remaining project. These are the successful employment of the project officer and field work assistant and St Helena staff being able to undertake the data collection, tagging, habitat surveys and maintaining the lobster pot network independently.

Evidence provided in annex 3 (files 18&19)

Output 2: Undertake research on existing lobster fishery practices, policies, legislation, biological and catch data.

Baseline: The Marine Management plan, legislation and fisheries practice is currently being reviewed by the St Helena government but not finalised. Currently there is no specific legislation for the commercial and recreational fisheries of lobsters in place. Prior to this project no catch details on lobster were recorded for many decades. Detailed historical data are rare.

Recommendations, such as seasonality, minimum landing size, ban of 'lancing', hobby licence and banning the catch of berried females have been forwarded to the St Helena Government to be implemented into the new legislation. The data mining is still ongoing as detailed catch data are rare and not easily accessible. This will be completed and compiled in a summary report in year 2.

The measurable indicators for this output are the data mining of existing biological and catch data, meetings with relevant stakeholders and members of the public to research relevant data on lobster fisheries and to quantify findings in a summary report. These indicators are still adequate and continued for the remaining time of this project.

Evidence provided in annex 3 (files 20&21)

Output 3: Population size, structure and growth of lobster species established.

Baseline: The study of Ninnes in 1991 on the biology and population dynamics of both species is the only existing one prior to this project.

Field work in year 1 has been undertaken between January and March 2019 and tagging started in March 2019. During this period a total of 161 individuals have been tagged and release and biometric data of 651 lobsters taken. It is anticipated that the tagging of 2500 lobsters will be completed in year 2 and biometric data in month 22.

The measurable indicators are establishing a tag and release programme with 2500 lobsters tagged and associated biometric data collected and analysed within 22 months. These are the best indicators and will be continuously used throughout the project.

Evidence provided in annex 3 (files 1,2,3,4,11,12,14,15)

Output 4: Lobster abundance, habitat association and foraging ecology established.

Baseline: Lobster abundance has been addressed during the study by Ninnes in 1991 but there is no knowledge on habitat association and foraging ecology for both the slipper and spiny lobster. The spiny lobster is also present on the coast of Brazil, Cape Verde Islands and Canary islands. Some studies on this particular species have been done but none of them in St Helena.

Field work started in January 2019 and focused on establishing the methods, tagging, size distribution, sex ratio and habitat association. The 100 diet samples have not been collected yet but will commence in year 2. So far 20 tissue samples have been collected and shipped to the UK for stable isotope analysis. The results should be available in year 2. A total of 72 surveys have been completed in year 1 between January and March 2019. The re-allocation of some of the funds for boat hire into year 2 have been approved and the number of surveys for year 2 increased. Given the successful completion of 72 surveys over 3 months, we are confident to complete in year 2 at least 192 dive surveys (144 as suggested for year 1 and the remaining 48 from year 2).

Measurable indicators are 100 diet samples and 20 tissue samples collected and analysed within first year, 120 dive surveys completed within the first six months and 144 within the following year. Integration of data into existing datasets, analysed and summarised. These indicators are still the best and will be kept for year 2 and 3.

Evidence provided in annex 3 (files 11, 13 & 26)

Output 5: Experimental acoustic telemetry technology trialled to monitoring lobster

Population movements.

Baseline: There is no previous knowledge or study on acoustic telemetry for both lobster species, especially in St Helena.

The acoustic equipment is expected to arrive in St Helena in May 2019 and will be deployed straight away. This delay will not impact the outcome as it will be still possible to have the system deployed and collect data for one year.

Measurable indicators are establishing the acoustic array grid with 15 acoustic telemetry devices deployed within the first six months and acoustic telemetry data collected and analysed by end of project. The amount of acoustic tags has been increased from 15 to 25 to get a better detection rate and the deployment will commence in year 2. These are the only amendments as the remaining indicators are still the best for this output.

Output 6:

Increase public awareness of the fisheries science research programme and its relevance to sustainable management practices.

Baseline: Similar tag and reward schemes already exist for grouper and tuna but not for lobsters. Public available information within St Helena on any aspects of lobster biology, ecology and fisheries did not exist prior to this project.

The tag and reward scheme has been launched in March 2019 as soon as the tagging started and posters have been displayed in public. Newspaper articles and radio interviews are planned for year 2 and 3. Presentations were given to stakeholders, the public and local schools. Two question and answer sessions have been held with stakeholders together with the presentations and will be continued. However, this depends when the stakeholders, such as the council, is available and invites the project leader.

The measurable indicators for this output are to get the St Helena residence actively participating in the tag and reward scheme, to document public talks, produce pamphlets, make presentations and educational resources freely available online, to have question and answer sessions with key stakeholders quarterly and to document monthly newspaper articles and radio interviews produced. Most of the indicators are still realistic enough for year 2 and 3 however it will not be always possible to keep to the set timing for meetings with stakeholders or radio interviews and newspaper articles. The field work strongly depends on weather and

sea conditions and during periods of good weather especially over the warmer months (December to May) take up most of the time and staff resources.

Evidence provided in annex 3 (files 5,6,7,8,9,10)

Output 7 and 8 are timetabled for year 3.

3.3 Progress towards the project Outcome

The outcome for this project is to establish a basic understanding of the population and foraging ecology of two lobster species at St Helena, to evaluate current lobster fisheries practices and facilitate sustainable management.

Baseline: The only biological and ecological information available on the two lobster species in St Helena is out-dated and incomplete. Current fisheries practice for lobsters is either spearfishing or using traps by some of the commercial fishermen. Most lobsters are caught recreationally and commercial landings are rare. Currently there are no specific legislations for the sustainable management of both lobster species in place.

Progress to date: The methodology and sampling regime is now well established and good progress has been made in collecting data on population ecology of the spiny lobster in the rocky habitats with some first significant results on sex ratio, size distribution and seasonality. The slipper lobsters prefer the sandy/muddy habitats in deeper waters therefore not many data have been collected in the rocky habitats for this species. The lobster traps are expected to arrive in April 2019 and trapping will commence shortly after. Data collection on foraging ecology will commence in May 2019 as soon as the acoustic equipment has arrived. The first measurable indicator for this outcome is to promote the understanding of basic ecological features of the lobster populations and the importance of sustainable fisheries practices within the St Helena's population particularly the fishing community. Good progress has been made within the public through the delivery of presentations to the public and schools focusing informing on this project, the ecology and biology of lobsters and need for sustainable management. So far there have only been a few off the record discussions with fishermen.

The closed season for spear fishing is from January to March and from April 2019 leaflets will be given out at the wharf together with off the record discussions during at peak times for recreational fishermen. These indicators are still adequate measure achievements and will be kept for year 2 and 3. The second measurable indicator is the management of St Helena lobster populations utilising ecological information gained through the project. Currently the revision of the fisheries legislation and licencing is being drafted and preliminary recommendations for the management of lobsters have been forwarded to the legal team. The majority of the ecological, biological and habitat data will be collected in year 2 and a management plan will be finalised in year 3. The measurable indicators will be kept as they are adequate in measuring the achievements.

We are confident that the outcomes for this project are going to be achieved as the majority of the methods are in place, and the start of the data collection and engagement with the public was successful in year 1.

Evidence provided in annex 3 (files 5,6,7,8,9,14,20,22)

3.4 Monitoring of assumptions

Output 1: The delivery of training to local staff for capacity building is based on the assumptions that travel arrangements for Cefas staff can be organised for appropriate time to support the project officer logging the training hours and cross-checking collected data. Training of local staff and cross checking of preliminary data will commence in year 2. The project officer will, together with the marine conservation officer, monitor and log the training hours of local staff. Cefas staff are planning to travel regularly to St Helena for the blue belt program but meetings will be arranged to discuss and verify the training logs. As for the collected data, these will be sent by email to Cefas on a regular basis and discussed either via email or skype. These have proven in other projects to be the most efficient way of managing it.

Output 2: Undertaking research on existing lobster fishery practices, policies, legislation, biological and catch data is based on the assumption that data/location of data is accessible (via various routes), stakeholders provide data/location of data and members of the public co-operate with research techniques. So far it was possible to acquire some historic catch data from the fisheries department (see annex 3) and involve 2 local volunteers with experiences of dive sites and recreational fishing for lobsters. Although little data on lobster catches are available it will be still useful for this project and with no significant impact on the integration of these historic data into a database. The marine conservation officer is actively involved in the development of the policies and legislation and therefore access to information is guaranteed. Local members of the public are already involved as volunteers and they are familiar with the local recreational fishing scene. This will help to get more members of the public involved in the face to face interviews and questionnaire. There is a risk of not being able to complete 50 face to face interviews and 100 questionnaires however this will be continued throughout year 2 given enough time and opportunities to achieve this.

Output 3: The collection of data on population size, structure and growth of lobster species is based on assistance by local fishermen. Two local dive operators with good knowledge of field sites and fishing grounds have been contracted to assist with the field work. A local spear fisher has also been recruited assisting with the data collection. So far 161 lobsters have been tagged in a period of 2 weeks. At this rate it is expected to reach the target of 2500 tagged lobsters by month 18 which would be 4 months ahead of schedule. The tagging progress will be monitored by the project officer and leader and the marine conservation officer on a monthly base.

Output 4; The assumption for collecting data on lobster abundance, habitat association and foraging ecology is that samples can be collected in sufficient number and sea conditions acceptable for completion of dive surveys. The indicators are collecting 100 diet and 20 tissue samples in year 1, 120 dive surveys in year 1 and 144 in year 2 and integration of the collected data into the EMD fisheries data base. So far it was possible to complete 72 survey dives and collect 20 tissue samples over a period of 3 months on both the lee- and windward side of the island. Although there is a shortage of 48 survey dives, the high rate of surveys in this short period of time despite at various weather conditions proves that it will be possible to collect a sufficient number of data in year 2. It is anticipated to undertake the planned 144 and an additional 48 survey dives. The progress is being monitored on a monthly base by the project officer and lead and the marine conservation officer.

Output 5: The assumption for the trial of the experimental acoustic telemetry technology to monitor the lobster population movements is based on the setup of a suitable acoustic array and at a suitable location for collecting lobster movement data. A number of suitable habitats have been identified and all the necessary equipment for deploying the system is ready. This should shorten the time need to setup and test the acoustic array when it arrives in May 2019. The setup and testing is also supported by the manufacturer. The system will record the lobster movements and it is anticipated to recover the data in June 2020, leaving enough time for the analysis and compilation of reports. Progress will be monitored monthly by the project officer and leader and marine conservation officer.

Output 6: Increasing public awareness of the fisheries science research programme and its relevance to sustainable management practices is based on St Helena residence being interested in the fisheries science programme. Both lobster species are a popular food amongst St Helena residents and the delivery of presentations to the public and key stake holders have been well received. This will be continued with monthly updates in the local newspaper or radio interviews and monitored by the project officer and leader and marine conservation officer.

3.5 Project support to environmental and/or climate outcomes in the UKOTs

- St Helena has a number of legislation and policies aimed at protecting and sustainably managing its marine environment, with the Environmental Protection Ordinance (EPO) that was enacted in 2016 being the primary piece of legislation. As part of the EPO a

Marine Management Plan was created which identifies the major existing and potential pressures on the marine environment of St Helena. It specifies the management strategies for St Helena's marine environment so that its rich biodiversity and unique natural ecosystems can be conserved, protecting in particular rare, endangered, globally significant and endemic species and ensuring that its natural resources are used sustainably. This project also contributes to the St Helena Government's 10 Year Plan, and its relevant Key Performance Indicator area 'Altogether Greener'. The project is contributing to the existing information required to manage St Helena's marine environment. Although not identified as an existing knowledge gap within the Marine Management Plan a review is currently underway and it has been identified that there is a lack of understanding of the population status of brown spiny lobster (*Panulirus echinatus*) and endemic red slipper lobster (*Scyllarides obtusus*) on St Helena. Detailed information on abundance, distribution, movement, size at maturity and seasonality of reproductive cycles is collected as part of this project is critical for ensuring the sustainable management of this species and decisions taken by local government. It is intended that the outputs from this project will be used to inform and update the Marine Management plan as part of its review.

- Given that very little is known about both of the lobster species on St Helena the project will be filling a large data gap essential for management decisions with regards to the species. This baseline understanding created by the project comes at a key time when there is interest potentially creating a lobster fishery market beyond current recreational fishing, and without the knowledge created as part of this project management decisions with regards to the sustainable fishing of the species cannot be taken by local government. It will also provide the local core staff with more knowledge of the species and their ecology which will improve their understanding and quality of advice given to island residents. Furthermore to support the capacity building of local staff the project officer is also able to provide training and certifications to the European Scientific Diver level.

4. Monitoring and evaluation

Given that very little is known about both of the lobster species on St Helena the project will be filling a large data gap essential for management decisions with regards to the species. This baseline understanding created by the project comes at a key time when there is interest potentially creating a lobster fishery market beyond current recreational fishing, and without the knowledge created as part of this project management decisions with regards to the sustainable fishing of the species cannot be taken by local government. It will also provide the local core staff with more knowledge of the species and their ecology which will improve their understanding and quality of advice given to island residents. Furthermore to support the capacity building of local staff the project officer is also able to provide training and certifications to the European Scientific Diver level.

Finances are monitored regularly by the project officer and lead, marine conservation officer, departmental finance and cooperate finance.

5. Lessons learnt

A challenge in the first year was the delay in purchasing and the delivery of essential equipment for this project. This is not unusual and a challenge in most remote islands however indicators and timetables should be kept more flexible and anticipate delays of 3-6 months. A recommendation for other similar projects would be to ensure that if there is any field work planned for the first 6 months to schedule only the activities which don't require the purchase of equipment or consumables.

Getting local volunteers involved in this project worked well as it allowed the project officer to undertake the field work more independently without any impacts for this project as there has been a staff shortage especially during the busy field work season. This is similar to citizen science and offers an opportunity for public engagement and education.

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

N/A - this is the first annual report

7. Other comments on progress not covered elsewhere

The majority of the field work involves SCUBA diving around the island and many sites on the windward side have either been surveyed only a few times in the past or not at all as conditions can be quite often challenging. During some of the habitat surveys we have recorded new sightings of a hydroid and one fish species. This is additional information is helpful for the monitoring of the bio-diversity and invasive species.

A collaboration between the St Helena marine team and the Ascension Island conservation team has been instigated to work together on lobster and grouper monitoring. Also the Ascension Island team have a fully equipped histology lab available and a change request will be submitted shortly after this report for two staff member travelling to the Ascension Island to use their facilities for analysing the developmental stages of gonads. Originally it was planned to send samples to Cefas in the UK but this will be more difficult in terms of shipping and time.

Evidence provided in annex 3 (files 24 & 25)

8. Sustainability and legacy

The outreach and awareness activities to promote this project have been described in other sections of this report.

This project is still in the beginning and capacity building has not started yet. However, the training of local staff will commence in the beginning of year 2 and finish in year 3. Once the equipment has arrived it will be setup to function beyond this project.

The legacy of this project will be based on a long-term monitoring program and an exit strategy. This is to ensure that there is clear and supported evidence based advice, which will feed into policy development, fisheries licencing, sustainable development and SHG strategic planning. Progress has already been made towards the evidence but the project is still in the beginning and the St Helena Government is currently re-structuring the departments. Once this has been completed an appropriate exit strategy can be identified.

9. Darwin identity

As this is not the first Darwin project in St Helena, the public, stakeholders, councillors, staff and government employees are aware of Darwin projects.

The project has been publicised on the St Helena Government website:

<http://www.sainthelena.gov.sh/dplus077-sustainable-fishery-management-for-st-helenas-lobster-populations/>

The Darwin logo has been included in all presentations, posters and websites and mentioned in talks and discussions.

People in St Helena are generally interested in the lobsters and when mentioned that it is funded by Darwin it is clear that there is a general awareness of it.

10. Project Expenditure

Table 1: Project expenditure during the reporting period (1 April 2018 – 31 March 2019)

Project spend (indicative) in this financial year	2018/19 D+ Grant (£)	2018/19 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (drafts)				
Consultancy costs				
Overhead Costs (drafts)				
Travel and subsistence (drafts)				
Operating Costs (drafts)				
Capital items (drafts)				
Others (Please specify) (drafts)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2018-2019 – if appropriate

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
<p>Impact</p> <p>The lobster populations at St Helena are sustainably managed and suitably protected.</p>		<p>The following early recommendations for the new legislation have been identified:</p> <ul style="list-style-type: none"> • Minimum landing size • Ban of catching females with eggs • Closed season • Ban of 'lancing' (spear fishing) for lobsters • Introduction of a hobby licence with a catch quota 	
<p>Outcome</p> <p>Establish a basic understanding of the population and foraging ecology of two lobster species at St Helena to valuate current lobster fisheries practices and facilitate sustainable management</p>	<p>0.1 St Helena's population particularly the fishing community understand basic ecological features of the lobster populations and the importance of sustainable fisheries practices. 0.2 Management of St Helena lobster populations utilises ecological information gained through the project.</p>	<p>0.1 public presentations delivered</p> <p>0.2 collection of ecological information has started.</p>	<ul style="list-style-type: none"> • Newspaper articles and radio interviews • Continuation of data collection
<p>Output 1.</p> <p>Capacity building, with ENRD staff trained in crustacean data collection methods and sampling techniques.</p>	<p>1.1 Project Officer and Fieldwork Assistant appointed.</p> <p>1.2 St Helena staff able to undertake tagging and basic biological data collection independently.</p> <p>1.3 St Helena staff able to conduct habitat and abundance surveys and maintain a lobster pot network at St Helena independently.</p>	<p>1.1 both posts have been filled</p> <p>1.2 & 1.3 Training has not started but will commence in year 2</p> <p>Indicators are still valid</p> <p>Evidence provide in section 3.1 and 3.2 and annex 3</p>	
<p>Activity 1.1 Write Job profiles, devise recruitment panel, prepare job adverts, and advertise posts.</p>		<p>Completed</p>	

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
Activity 1.2 Recruit suitably experienced project officer and fieldwork assistant		Completed	
Activity 1.3 St Helena staff trained in crustacean monitoring techniques		Training has not started	Training will start in the beginning of year 2
Activity 1.4 St Helena staff gain practical experience in monitoring techniques (tagging, biometrics, dive surveys).		Training has not started	Training will start in the beginning of year 2
Activity 1.5 Training log maintained by SHG staff and training/supervision report compiled and verified by CEFAS/Project Officer.		Training has not started	Training will start in the beginning of year 2
Output 2. Undertake research on existing lobster fishery practices, policies, legislation, biological and catch data.	2.1 data mining of existing biological and catch data. 2.2 meetings with relevant stakeholders and members of the public to research relevant data on lobster fisheries. 2.3 Quantify findings in summary report.	2.1 biological data have been found from a previous study and some catch data obtained from the fisheries department 2.2 meetings with the fisheries cooperation and fisheries department have been held 2.3 report has not been written yet as the data mining has not been completed yet Indicators are still valid Evidence provide in section 3.1 and 3.2 and annex 3	
Activity 2.1. Review and collate existing fisheries biological and catch data.		Ongoing, catch data from 1990 onwards have been obtained	Effort to acquire data from before 1990
Activity 2.2. Review relevant current lobster legislation, licensing and management		Ongoing, there is no current legislation, licencing or management for lobsters in place	Continue active involvement in the drafting of the new legislations
Activity 2.3 Conduct research into the past and present lobster fishery (commercial and recreational) through a questionnaire and face to face interviews.		Incomplete, only a few face to face discussion with recreational and commercial fishermen have been undertaken	Questionnaire and face to face interviews
Activity 2.4 Threat analysis completed to identify areas for improvement and compilation of possible solutions		Scheduled for year 2	Commencement of threat analysis

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
Activity 2.5 Interim report on findings and implications summarised and presented to key stakeholders		Scheduled for year 2	Interim report will be completed and presented to stakeholders
Output 3. Population size, structure and growth of lobster species established.	3.1 Tag and release programme established with 2500 lobsters tagged and associated biometric data collected and analysed within 22 months.	3.1 tag and release programme has been established and 161 lobsters have been tagged in year 1. Indicators are still valid Evidence provide in section 3.1 and 3.2 and annex 3	
Activity 3.1 Establish mobile lobster pot network along coastline		Incomplete, lobster pots have not been delivered yet	Mobile lobster pot network will be established
Activity 3.2 Deploy a minimum of 10 pots for 25000 trap hours within the first six months and 29000 trap hours within the following year		Incomplete, lobster pots have not been delivered yet	10 pots will be deployed on a weekly base with a target of 29000 trap hours
Activity 3.3 Tag, measure and release a minimum of 1500 spiny and 1000 slipper lobster from a range of sizes with a subset of 50 (25 of each species) double tagged within 22 months.		Ongoing, in year 1 a total of 155 spiny and 5 slipper lobsters have been tagged and a total of 610 spiny and 41 slipper lobster caught and measured.	Continuation of measuring and tagging. The target of 2500 tagged lobsters is anticipated to be completed in month 18.
Activity 3.4 A minimum of 50 gonads collected for examination		Incomplete, no gonad samples have been collected	All 50 gonad samples will be collected and preserved for shipping
Activity 3.5 Integrate tagging and biometric data into existing EMD fisheries database.		Ongoing, first set of data has been prepared for implementation into data base	Implementation of first set of data and ongoing collected data
Activity 3.6 Paper prepared on lobster population size, structure and growth.		Scheduled for year 3	Scheduled for year 3
Output 4. Lobster abundance, habitat association and foraging ecology established.	4.1 100 diet samples and 20 tissue samples collected and analysed within first year. 4.2 120 dive surveys completed within the first six months and 144 within the following year. 4.3 integration of data into existing datasets, analysed and summarised	4.1 20 tissue samples have been collected and shipped to CEFAS UK for stable isotope analysis. 100 diet samples will be collected in year 2. 4.2 a total of 72 dive survey have been completed and 192 will be completed in year 2 4.3 collected data are being integrated and pre-analysed Indicators are still valid Evidence provide in section 3.1 and 3.2 and annex 3	

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
Activity 4.1 100 diet samples collected for examination and 20 tissue samples for stable isotope analysis		Ongoing, 20 tissue samples have been collected	Collection of 100 diet samples
Activity 4.2 Completion of 120 habitat, abundance and diet surveys within the first six months and 144 within the following year.		Ongoing, 72 habitat and abundance surveys completed	192 dive surveys completed in year 2
Activity 4.3 Stable isotope and diet analysis completed and compiled with existing pelagic data to map St Helena's trophic food web relationships		Scheduled for year 2	Isotope analysis will be completed by September 2019
Activity 4.4 Habitat survey data combined with existing seabed spatial data to identify and map key areas or habitat zones with high lobster abundance		Ongoing, GIS map has been set up. Awaiting updated seabed maps from the Hydrographic institute	Completion of map with key areas and habitat zones by June 2020
Activity 4.5 Paper prepared on habitat, abundance and foraging ecology		Scheduled for year 3	Scheduled for year 3
Output 5 Experimental acoustic telemetry technology trialled to monitoring lobster population movements.	5.1 Acoustic array grid established and 15 acoustic telemetry devices deployed within first six months. 5.2 Acoustic telemetry data collected and analysed by end of project.	5.1 acoustic equipment is due to arrive in St Helena in May 2019 5.2 acoustic equipment is due to arrive in St Helena in May 2019 Indicators are still valid	
Activity 5.1 install acoustic receiver array grid inshore.		Incomplete as equipment has not arrived yet	Installations of acoustic grid
Activity 5.2 Deploy 15 acoustic telemetry devices onto lobster within first 6 months		Incomplete as equipment has not arrived yet	Deployment of acoustic tags
Activity 5.3 Collect and analyse telemetry data to establish and map movement ranges, residence times, cost effectiveness and evaluation of method as lobster monitoring technique.		Scheduled for year 3	Scheduled for year 3
Output 6 Increase public awareness of the fisheries science research programme and its relevance to sustainable management practices.	6.1 St Helena residence actively participate in tag reward scheme. 6.2 Documented public talks, pamphlet produced, presentations and educational resources freely available online.	6.1 tag and reward scheme has been launched but no returns have been received to date 6.2 public talks, pamphlets, presentations and educational material have not been made publicly available online due to limited internet access 6.3 question and answer session have been held 6.4 this has not been done in year 1 but will commence in year 2	

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
	6.3 Question and answer sessions with key stakeholders completed quarterly. 6.4 Documented monthly newspaper articles and radio interviews produced.	Indicators are still valid Evidence provide in section 3.1 and 3.2 and annex 3	
Activity 6.1 Launch and publicise reward scheme for lobster tagging programme		Ongoing, reward scheme has been launched and publicised.	Radio interviews and newspaper article
Activity 6.2 Plain English pamphlets and presentations prepared to inform St Helena stakeholders, public, school children and visitors about the lobster populations and the project.		Ongoing, presentations to stake holders and public delivered, activity booklets for school children completed	More presentations and pamphlets for stakeholders and public
Activity 6.3 Attended regular key stakeholder meetings to inform of project progress		Ongoing, 2 meetings have been attended	More meetings with stakeholders
Activity 6.4 Produce monthly newspaper articles and radio interviews for local media, other OT's and international media		Incomplete	Production of newspaper articles and radio interviews
Output 7	7.1 Long term research programme manual prepared for implementation post project.	Scheduled for year 3	
Output 8	8.1 Bioeconomic analysis of St Helena lobster populations conducted to assess long-term viability under different future management scenarios. 8.2 Lobster population management options report produced based on results and recommendations from outputs 2,3,4 and 5 and circulated for stakeholder review prior to adoption by SHG.	Scheduled for year 3	

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed) - if appropriate

N.B. if your application's logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact Darwin-Projects@ltsi.co.uk if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: The lobster populations at St Helena are sustainably managed and suitably protected.			
Outcome: Establish a basic understanding of the population and foraging ecology of two lobster species at St Helena to evaluate current lobster fisheries practices and facilitate sustainable management	0.1 St Helena's population particularly the fishing community understand basic ecological features of the lobster populations and the importance of sustainable fisheries practices. 0.2 Management of St Helena lobster populations utilises ecological information gained through the project.	0.1 Records of newspaper articles, radio interviews, talks and presentations. 0.2 Lobster management report includes revision and recommendations for fisheries licencing, legislation and habitat protection.	Members of the public interpret the information available to them appropriately
Output 1 Capacity building, with ENRD staff trained in crustacean data collection methods and sampling techniques.	1.1 Project Officer and Fieldwork Assistant appointed. 1.2 St Helena staff able to undertake tagging and basic biological data collection independently. 1.3 St Helena staff able to conduct habitat and abundance surveys and maintain a lobster pot network at St Helena independently.	1.1 Employment records. 1.2 SHG staff training hours logged by CEFAS and project officer. Summary training report provided. 1.2 Sub-set of independently collected data will be cross checked by CEFAS/project officer. 1.3 Fieldwork supervision report	1.1 Travel arrangements for CEFAS staff can be organised for appropriate time.
Output 2 Undertake research on existing lobster fishery practices, policies, legislation, biological and catch data.	2.1 data mining of existing biological and catch data. 2.2 meetings with relevant stakeholders and members of the public to research relevant data on lobster fisheries. 2.3 Quantify findings in summary report.	2.1 bibliography of existing known data sources, catch data integrated into EMD fisheries database. 2.3 A minimum of 50 transcribed face to face interviews and 100 questionnaires completed. 2.3 Summary report of findings published online.	Data/location of data is accessible (via various routes) Stakeholders provide data/ location of data Members of the public co-operate with research techniques.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Output 3 Population size, structure and growth of lobster species established.	3.1 Tag and release programme established with 2500 lobsters tagged and associated biometric data collected and analysed within 22 months.	3.1 Publication of article in peer reviewed journal.	Fishermen assist with data collection.
Output 4 Lobster abundance, habitat association and foraging ecology established.	4.1 100 diet samples and 20 tissue samples collected and analysed within first year. 4.2 120 dive surveys completed within the first six months and 144 within the following year. 4.3 integration of data into existing datasets, analysed and summarised.	4.1 & 4.2 Project activities reported in online blogs, social media posts and newsletters. 4.3 Peer-reviewed manuscript accepted for publication in high impact scientific journal.	Assumes samples can be collected in sufficient number and sea conditions acceptable for completion of dive surveys.
Output 5 Experimental acoustic telemetry technology trialled to monitoring lobster population movements.	5.1 Acoustic array grid established and 15 acoustic telemetry devices deployed within first six months. 5.2 Acoustic telemetry data collected and analysed by end of project.	5.1 Project activities reported in online blogs, social media posts and newsletters. 5.2 results incorporated into peer reviewed manuscript.	Acoustic array and location suitable for collection of lobster movement data.
Output 6 Increase public awareness of the fisheries science research programme and its relevance to sustainable management practices.	6.1 St Helena residence actively participate in tag reward scheme. 6.2 Documented public talks, pamphlet produced, presentations and educational resources freely available online. 6.3 Question and answer sessions with key stakeholders completed quarterly. 6.4 Documented monthly newspaper articles and radio interviews produced.	6.1 Statistical increase in tag return rate through the course of the project. 6.2 Project and SHG website. 6.3 Stakeholder meeting minutes. 6.4 local and international media.	St Helena residence will be interested in the fisheries science programme.
Output 7 Long term lobster fisheries research programme established.	7.1 Long term research programme manual prepared for implementation post project	7.1 Research programme approved by ENRD and protocol published on website.	SHG are willing to fund/support research programme

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Output 8</p> <p>Optimal solutions for lobster population management proposed based on integrated biological, habitat data, historic and present fishing pressure, threat assessment and formulate into a lobster population management plan.</p>	<p>8.1 Bioeconomic analysis of St Helena lobster populations conducted to assess long-term viability under different future management scenarios.</p> <p>8.2 Lobster population management options report produced based on results and recommendations from outputs 2,3,4 and 5 and circulated for stakeholder review prior to adoption by SHG.</p>	<p>8.1 & 8.2 Population management option report circulated and published online via SHG website.</p>	<p>Assumes SHG and key stakeholders approve recommendations for sustainable lobster fisheries management.</p>
<p>Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>1.1 Write Job profiles, devise recruitment panel, prepare job adverts, and advertise posts.</p> <p>1.2 Recruit suitably experienced project officer and fieldwork assistant</p> <p>1.3 St Helena staff trained in crustacean monitoring techniques</p> <p>1.4 St Helena staff gain practical experience in monitoring techniques (tagging, biometrics, dive surveys).</p> <p>1.5 Training log maintained by SHG staff and training/supervision report compiled and verified by CEFAS/Project Officer.</p> <p>2.1 Review and collate existing fisheries biological and catch data.</p> <p>2.2 Review relevant current lobster legislation, licensing and management.</p> <p>2.3 Conduct research into the past and present lobster fishery (commercial and recreational) through a questionnaire and face to face interviews.</p> <p>2.4 Threat analysis completed to identify areas for improvement and compilation of possible solutions.</p> <p>2.5 Interim report on findings and implications summarised and presented to key stakeholders.</p> <p>3.1 Establish mobile lobster pot network along coastline.</p> <p>3.2 Deploy a minimum of 10 pots for 25000 trap hours within the first six months and 29000 trap hours within the following year.</p> <p>3.3 Tag, measure and release a minimum of 1500 spiny and 1000 slipper lobster from a range of sizes with a subset of 50 (25 of each species) double tagged within 22 months.</p> <p>3.4 A minimum of 50 gonads collected for examination.</p> <p>3.5 Integrate tagging and biometric data into existing EMD fisheries database.</p> <p>3.6 Paper prepared on lobster population size, structure and growth.</p> <p>4.1 100 diet samples collected for examination and 20 tissue samples for stable isotope analysis</p> <p>4.2 Completion of 120 habitat, abundance and diet surveys within the first six months and 144 within the following year.</p> <p>4.3 Stable isotope and diet analysis completed and compiled with existing pelagic data to map St Helena's trophic food web relationships.</p> <p>4.4 Habitat survey data combined with existing seabed spatial data to identify and map key areas or habitat zones with high lobster abundance.</p>			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>4.5 Paper prepared on habitat, abundance and foraging ecology.</p> <p>5.1 install acoustic receiver array grid inshore.</p> <p>5.2 Deploy 15 acoustic telemetry devices onto lobster within first 6 months.</p> <p>5.3 Collect and analyse telemetry data to establish and map movement ranges, residence times, cost effectiveness and evaluation of method as lobster monitoring technique.</p> <p>6.1 Launch and publicise reward scheme for lobster tagging programme.</p> <p>6.2 Plain English pamphlets and presentations prepared to inform St Helena stakeholders, public, school children and visitors about the lobster populations and the project. 6.3 Attended regular key stakeholder meetings to inform of project progress</p> <p>6.4 Produce monthly newspaper articles and radio interviews for local media, other OT's and international media.</p> <p>7.1. Lobster research programme reviewed to determine appropriate long-term monitoring programme.</p> <p>7.2. Long-term research and monitoring programme designed and established.</p> <p>8.1 Bio-economic analysis of St Helena's lobster fisheries conducted to assess its long term viability under different future management scenarios.</p> <p>8.2 Lobster management plan options report produced based on project findings and circulated for stakeholder review.</p> <p>8.3 Lobster fisheries management plan finalised and accepted by SHG.</p>			

Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	yes
Do you have hard copies of material you want to submit with the report? 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.	No
Have you involved your partners in preparation of the report and named the main contributors	No
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	