Submit by Monday 30 November 2009

DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 17: STAGE 2

Please read the Guidance Notes before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required. Information to be extracted to the database is highlighted blue.

1. Name and address of organisation (NB: Notification of results will be by post)

Name: **Dr John R Turner**	**Address:** **School of Ocean Sciences, College of Natural Sciences, Marine Science laboratories, Bangor University, Menai Bridge, Wales, UK. LL59 5AB**

2. Project title (not exceeding 10 words)

Darwin Initiative to Enhance an Established Marine Protected Area System, Cayman Islands.

3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date:		**Duration of project:**		**End date:**	
Darwin funding requested	**2010/11** **£ 92,529**	**2011/12** **£ 91,934**	**2012/2013** **£ 89,451**	**2013/14** **£**	**Total*** **£ 273,914**

The slight increase from Stage 1 is due to a higher salary grade point for the Darwin Fellow to reflect a more involved role in the project in DOE which has developed between stages 1 and 2.

4. Define the purpose of the project (extracted from logframe)

To ensure coastal protection for human settlements and future tourism income by enhancing the protection of coral reefs thereby allowing rehabilitation of supporting ecosystems, and increased resilience to climate change.

5. Principals in project. Please provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more than one overseas project partner.

Details	**Project Leader**	**Other UK personnel (working more than 50% of their time on project)**	**Main project partner and co-ordinator in host country/ies**
Surname	**Turner**	**TBA**	**Ebanks-Petrie**
Forename (s)	**John**	**TBA**	**Gina**
Post held	**Senior Lecturer in Marine Biology; Director Marine Environmental Protection; Head Coastal Zone Management**	**MPA Darwin Research Fellow to work in DOE, Caymans full time, but employed through Bangor University**	**Director, DOE**
Institution (if different to above)			**Cayman islands Government**
Department	**Ocean Sciences**		**Environment**
Telephone			
Email			

Details		Regional Partner
Surname		**Byrne**
Forename (s)		**James**
Post held		**Marine Science Program Manager**
Institution (if different to above)		**The Nature Conservancy, USA**
Department		**Florida Keys Office**
Telephone		
Email		

6. **Has your organisation received funding under the Darwin Initiative before? If so, give details.**
Bangor University is a large institution - Ref in bold refers to same School (Ocean Sciences).

Reference No	Project Leader	Title
3063	Dr John Healey	Tree Regeneration, Vegetation Dynamics and the Maintenance of Biodiversity on Mount Cameroon: The Relative Impact of Natural and Human Disturbance
6065	Dr Anita Malhotra	Four Volume Field Guide to Herpetofauna of Mainland SE Asia
10031	Dr Zewge Zeklehaimanot	Biodiversity conservation in ancient church and monastery yards in Ethiopia
12020	Dr Lorraine Gormley	Building Nicaraguan and Costa Rican capacity in biodiversity conservation
15003	Dr Einir Young	Conservation of Biodiversity in Traditional West African Vegetable Species
17006	Dr Julia Jones	Bushmeat hunting in Madagascar: linking science, policy and local livelihoods
EIDPJ007	Dr Morag McDonald	In situ conservation of indigenous tree species in Southern Cameroon
EIDPR015	Dr Shaun Russell	Conservation of the critically endangered hirola antelope
EIDPR016	Dr Dorian Moro	Conflict resolution between people and carnivores outside reserves in Kenya
EIDPR020	**Dr Hilary Kennedy**	**Reconstruction of diet, movement and distribution of sharks**
EIDPR025	Dr Margaret Pasquini	Conservation of biodiversity in traditional West African vegetable species
EIDPR054	Dr Shaun Russell	Screening of Ethiopian plant diversity for sustainable livelihoods potential
EIDPR088	Dr Fergus Sinclair	Integrating local and scientific knowledge in conservation management in Nicaragua

7. IF YOU ANSWERED 'NO' TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words)

The School of Ocean Sciences, Bangor University (SOS) is a research led, teaching department, located on Anglesey, Wales, UK. The School's mission is to conduct high quality marine research, in coastal and shelf environments throughout the world, and to deliver interdisciplinary teaching programmes at both undergraduate and postgraduate levels.

Activities (50 words)

Ocean margins, shelf seas, estuaries and the coastal zone are the key elements of the marine system with respect to climate change impacts (sea level, ecosystem functioning) and anthropogenic interactions. Activity accordingly encompasses blue skies, strategic and applied research, and active knowledge transfer in this area.

Achievements (50 words)

SOS has a 60 year international reputation for the quality of research on shelf seas and shallow marine environments. In the last assessment period from 2001, SOS produced over 600 peer-reviewed papers and research income exceeded £15M. SOS is an active member of the Climate Change Consortium of Wales.

8. Please list all the institutions involved including the UK/collaborative (where there are partners <u>in addition</u> to the applicant organisation) and host country partners that will be involved, and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of host country partners to be involved in the project. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships.

Lead UK institution and website where available:	**Details (including roles and responsibilities and capacity to engage with the project):**
School of Ocean Sciences, Bangor University (SOS) http://www.sos.bangor.ac.uk	Research led university school providing academic input in survey design and analysis, marine field research, project co-leadership, financial management, monitoring and evaluation and research publication in high impact international scientific journals. The School has developed a working relationship with the Cayman Island Government Department of the Environment (DOE), and this Darwin project arises out of active research collaboration on monitoring coral reefs in the Marine Protected Area system. The Project will be co-led from Bangor (Turner) and **will employ one Darwin Research Fellow to work full time in the Department of the Environment, Cayman Islands to complement DOE staff (especially McCoy) working on the project, with responsibility for field work planning, workshop and community meetings organisation, project data management, media liaison, and output preparation. <u>DOE advise that there are no local persons with the qualifications to fulfil this role, and hence we propose to appoint from UK.</u>** Turner provides PhD supervision for a member of DOE (McCoy) and leads an international postgraduate Masters course in Marine Environmental Protection providing training and UK MSc project students to collaborate with DOE and assist in field research

Lead host country Partner and website where available:	**Details**
Cayman Islands Government Department of the Environment (DoE) http://www.doe.ky/	The Department of the Environment (DOE) is under the Cayman Islands Ministry for Tourism, Environment, Investment and Commerce (TEIC). The DoE is the main Government agency responsible for the management and conservation of the environment and natural resources. DoE works to facilitate responsible management and sustainable use of the natural environment and resources of the Cayman Islands through various environmental protection and conservation programmes and strategies. DOE Manages the Marine Protected Area System across all three islands and provides field operational capacity for research and enforcement: 15 staff in research and assessment staff (7 marine); 19 staff in enforcement and operations (12 Conservation Officers); 4 administrative staff; and operates 7 research boats and 6 enforcement boats. DOE has the institutional and legal structure to implement the project in the field, but does not have the financial resources and research focus to undertake a scientific assessment of the current MPA system and enhancement planning initiative, while maintaining existing programmes of necessary monitoring and enforcement. DOE will lead the stakeholder consultation and district community consultation. This project will involve 10 DOE staff on 10-100% time, of which 3 staff (Darwin Research Officer Fellows) > 50% time: McCoy 100%, Chin 75% and Gibb 50%). The Director will co-lead the project.

Partner Name and website where available:	**Details (including roles and responsibilities and capacity to engage with the project):**
The Nature Conservancy, USA Marine Science Program – Caribbean Challenge Florida Keys Office 55 North Johnson Road Sugarloaf Key, FL 33042 http://nature.org	The Nature Conservancy is the leading US conservation organization working around the world to protect ecologically important lands and waters for nature and people. The Caribbean Challenge Program will result in a wholesale transformation of countries' national park systems and will nearly triple the amount of marine and coastal habitat currently under protection, setting aside almost 21 million acres of coral reefs, mangroves, sea grass beds and other important habitat for sea turtles, whales, sharks and other wildlife. Cayman is shortly to join other countries and territories in Caribbean Challenge. TNC will continue to have major role post Darwin project. The three core components of the Challenge include: (1) creating networks of marine protected areas expanding across 21 million acres of territorial coasts and waters; (2) establishing protected area trust funds to generate permanent, dedicated and sustainable funding sources for the effective management, expansion and scientific monitoring of all parks and protected areas; (3) developing national level demonstrations projects for climate change adaptation Through collaboration with the UK Darwin Initiative, TNC will develop a Cayman specific *Ecological Gap Analysis* (http://www.cbd.int/protected/gap.shtml), and use habitat mapping data to examine the goals and constraints of an extended marine protected area using *Marxan* conservation planning software (University of Queensland http://www.uq.edu.au/marxan/) and specifically, the *Marzone* tool (http://gg.usm.edu/pat/). James Byrne (Marine Science Program Manager) has established a working relationship with DOE, and will co-lead the Marine Conservation Workshops. **Byrne's travel and subsistence costs during the project will be met by Darwin Initiative funds allocated to the host country, since TNC is a regional partner.** **DOE (Director, Research Director, and Senior Marine Research Officer), Byrne (TNC) and Turner (SOS) met to identify the need for the project in May 2009 in the Cayman Islands during the UK Overseas Territories Conservation Forum.**

9a. Have you consulted stakeholders not already mentioned above? √**Yes** ☐ **No**
If yes, please give details:

DOE have an established process of regularly consulting stakeholders in the marine environment through the Marine Conservation Board which is the statutory body responsible for administration of the Marine Conservation Law, control of fisheries officers and licensing of various fishing activities. The DOE's role is to advise the MCB on scientific matters.

9b. Do you intend to consult other stakeholders? √**Yes** ☐ **No**
If yes, please give details:

The Marine Conservation Board (MCB) will be consulted, and will also have a monitoring and evaluation role (see s.20). MCB is comprised of a cross section of the general public (water sports operators, fishermen, and business owners) representing stakeholders in the marine environment. In addition, the project will consult the Watersports Association which represents all water sports and water based tourist operators.

The Marine Protected Areas (MPA) system already has wide public support in the Cayman Islands, and there is high community involvement and participation. Communities have seen the benefits of the MPA system through coastal protection during hurricanes (reefs, mangroves), recreational and aesthetic uses and tourism income, but need to know that an increased MPA would increase protection from development and climate change.
Consultation will therefore take place at 4 levels:
(1) Marine Conservation Workshops: in house DOE staff training, involvement, initiatives and feedback, and project ownership;
(2) Marine Conservation Board: on existing uses, strategic direction and technical issues
(3) District community workshops: to introduce new concepts and obtain feedback to residents;
(4)Target group questionnaires and results feedback: to obtain quantitative information and comments on service values and specific issues (e.g. recreational fisheries; recreational dive operations; wildlife interaction excursions).

9c. Have you had any (other) contact with the government not already stated? √**Yes** ☐ **No**
If yes, please give details:

Dr John Turner is collaborating with DOE in marine environmental research: (1) as supervisor of PhD candidate Croy McCoy, a DOE Senior Research Officer in the Marine Research Unit; (2) as supervisor of Bangor MSc students working with DOE on recreational fisheries and coral reef monitoring. In addition, Dr Turner is a member of the UK Overseas Territories Forum and attended the UKOTF conference hosted by the Cayman Islands in May 2009.

9d. Is any liaison proposed with the CBD/CMS/CITES focal point in the host country? √**Yes** ☐ **No**
If yes, please give details:

The DOE is the CBD/CMS/CITES focal point for the Cayman Islands.

9e. Will your project support any work in the UK Overseas Territories? √**Yes** ☐ **No**
If yes, please give brief details stating which Territory/ies will be involved.

Cayman Islands. Lessons learnt may have transferable outputs into other UK Overseas Territories both in the Caribbean as an example of good practice (through TNC Caribbean Challenge), and those further afield (British Indian Ocean Territory where Turner/Bangor also work, and for which a UK government MPA consultation has just started).

PROJECT DETAILS
10. Please provide a Concept note (Max 1,000 words) (repeat from Stage 1, with changes highlighted)

The Cayman islands are a UK OT located centrally in the Caribbean, with strong financial and tourism sectors, and negligible industry, run off or agricultural impact. The islands present a rich marine environment, seemingly benefiting from over two decades of world-class *in situ* conservation through the active enforcement of zoned Marine Protected Areas (MPAs). Cayman DOE has diligently maintained and monitored the MPAs, and, despite identifying the urgent need to review the system to address development and climate change, has insufficient resources to scientifically assess their effectiveness to make an informed case for their expansion. An enhanced MPA system would demonstrate globally what far-sighted *in situ* conservation can achieve in building resilience back into ecosystems. The current economic downturn has necessitated government cut backs which limit such new work, but current DOE staff and operations remain unaffected at present.

The islands are subject to hurricanes, and coastal protection is paramount to island security, for 90% of the population live within one mile of the coast. Climate change impacts including increased storm frequency, coral bleaching, sea level rise and ocean acidification, combined with

increased tourism, coastal developments, and a growing artisanal/recreational fishery are impacting coral reefs and associated ecosystems. **There is an urgent need to review the MPAs, to ensure that the system maintains the capacity of the reefs to recover from major damage, and to protect reef associated ecosystems such as pelagic ecosystems, seagrass and mangroves, seabirds, reptiles and mammals, and thereby to address Cayman's obligations under CBD.**

Strict Marine Reserves were established in 1986 under the Cayman Islands Marine Conservation Laws of 1978, with Marine Park Zones primarily to control recreational diving, anchoring and fishing close to the major resorts. These zones were complemented by No Diving Zones, and Grouper Spawning Areas, and additional zones have been added in response to specific issues; Wildlife Interaction Zones (swimming with stingrays) and Replenishment Zones. Closed seasons and catch limits operate for lobster, conch and whelks, and fishing and other activities require permits. **MPAs currently cover 16.7% of the shelf of the Cayman Islands.**

The resident human population and visitors have increased significantly since MPA establishment (by 150% and 425% respectively) and half of visitors dive on the reefs. Recent changes in building legislation are resulting in redevelopment with taller buildings and larger footprints fronting the Marine Park. Further, in the wider Caribbean, disease induced mortality of the keystone grazing urchin *Diadema*, and the near complete die-off of Elkhorn coral have also affected Caymanian reefs. Widespread overfishing, especially of herbivores; reduction in water quality from land based pollution; and coral bleaching, have accelerated degradation, resulting in reefs phase shifting from coral to an algal dominated state. **In the context of these local development and regional changes and increasing risk from climate change impact, the Government acknowledges that a review of the MPA system is urgently necessary, to assess whether MPAs are optimal in area, appropriately located, and provide maximum resilience.**

3 recent pilot studies by DOE and SOS strongly indicate that a Darwin Initiative project can address these questions by longer term research. Study 1 (July 2009) identified that the coral-algae dominance phase shift has occurred on Caymanian reefs. Algal cover now dominates (80%) and corals represent 3.40% to 17.25% of cover. Species diversity, richness and coral cover appear greater within MPAs and algae cover lower, than outside protected areas. The reefs have largely recovered from the 1998 mass bleaching and subsequent disease outbreaks, but recent observations highlight that the islands are currently experiencing major bleaching, potentially as serious as 1998.

There is no commercial fishing, but recreational fishing by residents and tourists, and artisanal fishing by migrant workers seems significant. Study 2 (July 2009) used structured questionnaires to identify that 172 fishers caught 11,140 fish in the previous month, of which 87% were reef species including important and vulnerable species such as herbivores and those forming spawning aggregations. These catches will inevitably affect ecosystem functioning and algal cover in coral habitats, reducing reef resilience, and may prove incompatible with the developed dive industry and importance of tourism to the economy.

Study 3 (Jan 2009) surveyed reef fish within and outside an MPA on Grand Cayman, and demonstrated that fish biomass within protected zones was 2 x higher for herbivores, and 4 x higher for carnivores than fished areas. In addition, a 'Spillover' of higher fish biomass was found up to 5km beyond the MPA boundary, indicating strong replenishment. These short 'one-off' studies cannot conclusively determine there is an MPA effect, but they infer an increased resilience, to be confirmed in this strategic Darwin project.

MPAs increase reef resilience by reducing anthropogenic impacts to the reef, enabling increased abundance, biomass, size and diversity of species; increased fecundity, and consequently increased reproductive success and genetic stability; and maintenance and restoration of supporting ecosystems. The ability of a reserve to succeed will depend on its location, size, proximity to other reserves, location of larvae sources, level of protection, and public support, and management.

The proposal aims to:

(1) assess the current level of reef resilience within and outside all marine protected areas of Grand Cayman, Little Cayman and Cayman Brac;

(2) examine representativeness and variation by utilising mapped reef and associated ecosystem habitats;

(3) assess overspill of fish biomass from all No-Take zones;
(4) quantify the impact of the artisanal/recreational fishery;
(5) use the data from 1-4 to plan and promote an extension to the MPA system with full public consultation and involvement from stakeholders (represented by the Marine Conservation Board/Watersports Association/District Communities).

Objectives 1, 3 and 4 will be completed by the DOE in partnership with SOS. The methodology involves coral reef and fish surveys developed by McCoy & Turner between 2007-2009, and socioeconomic survey methodologies tested by the team in 2009. Objective 2 will use habitat maps from Darwin 14051, & TNC's Ecological gap Analysis and Protected Area GIS Tools. Objective 5 will be led by DOE senior staff (supported by SOS/TNC) since local leadership and government representation are required.

11a. Is this a new initiative or a development of existing work (funded through any source)? Please give details:

This is a new initiative, building on collaborative pilot studies between DOE and Bangor University and a PhD study (McCoy DOE) on monitoring Caymanian coral reefs in MPAs. It also builds on a developing relationship between DOE and TNC Caribbean Challenge. The Project also builds on the results of Darwin Project 14051: *In Ivan's Wake - Darwin Initiative BAP for the Cayman Islands*, Government of Cayman Islands and University of Exeter in Cornwall (see below).

11b. Are you aware of any other individuals/organisations/Darwin Initiative projects carrying out similar work? **√Yes ☐ No**
If yes, please give details explaining similarities and differences, and explaining how your work will be additional to this work and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits:

Darwin Project 14051 *In Ivan's Wake* (DOE & Exeter University, 2005-2009) generated a Biodiversity Action Plan for terrestrial and marine ecosystems, which included marine habitat mapping and development of a Geographical Information System in Cayman. This legacy will be used in Objective 2 and 5 of this project, and contact has been made with Darwin Project Leader Dr Brendan Godley (Exeter) and staff in DOE such that these results and systems can be utilised in this new Darwin project.

An OTEP (Overseas Territories Environment Programme) on invasive species in UK OTs, is managed by DOE, but relevance is restricted to lion fish eradication.

There is a lack of knowledge as to the effectiveness of MPAs in relation to their use for the conservation of ecosystems in the Caribbean. Studies have largely focussed on fisheries management (eg. Roberts *et al.*, 2001) with few directly assessing effectiveness in terms of benthic species composition (Rogers & Miller, 2006) and resilience. Of the 285 MPAs established in the Caribbean, only 6% have effective management. There are some studies investigating the impacts of human activity on Cayman reefs, eg. Tratalos & Austin (2001) but other than studies by DOE (McCoy)/SOS, no research documents monitoring and temporal change.

We are aware of Darwin Project 17004: *Building civil society capacity for conservation in the Caribbean UKOTs*, Caribbean Natural Resources Institute and Commonwealth Foundation 2009-2012. The project seeks to strengthen civil society organisations in biodiversity conservation, such as the National Trust in the Cayman islands. The project has some relevance, since such organisations are stakeholders in this project (represented through Marine Conservation Board).

Other Darwin Projects on Marine Protected Areas do not focus on assessing and extending an existing MPA, although there is some similarity, despite a very different context, with 14020 *Network of Locally Managed Marine Protected Areas in Solomon Islands*. WWF - Solomon Islands, WWF - UK, 2005-2008. Elements of this project are relevant, although the economy and culture of the islands are very different, and the MPAs are community managed. The project examined established MPAs, alternative livelihoods and new community MPAs, and included the aftermath of

a Tsunami (here hurricanes and coral bleaching provide major impact).

17017 *Innovative Governance Models for Marine Protected Area Management in Ecuador* FFI - Fauna and Flora International, 2009-2012 seeks to overcome legal and institutional constraints, which are not the major issues in the Cayman Islands, although some lessons may be learned from their processes.

EIDPO025 *Capacity building to enhance marine protected area effectiveness, Malaysia* Marine Conservation Society - MCS, Sabah Parks 2009-2011 is fact finding about a potential project to enhance understanding and support – something we already have in the Cayman islands – and so there is little overlap.

12. Please indicate which of the following biodiversity conventions your project will contribute to: -
At least one must be selected.
- Only indicate the conventions that your project is directly contributing to.
- No additional significance will be ascribed for projects that report contributions to more than one convention

Convention on Biological Diversity (CBD)	√**Yes** ☐ **No**
CITES	☐ **Yes** √ **No** (indirectly only)
Convention on Migratory Species (CMS)	☐ **Yes** √ **No** (mostly indirectly)

What problem is this project addressing and how was it identified? (150 words)

The Cayman MPA system is one of the most recognised long-established networks in the world, and has been effectively enforced, resulting in the status of the reefs of the Cayman Islands being above average compared to the rest of the Caribbean. However, since its establishment in 1986, the Cayman population has increased by 150% (21,545 to 53,172) and tourists by 425% (436,576 to 1,856,000 in 2008). 90% of the population and infrastructure are based on the coast. Climate change impacts including storm frequency, coral bleaching, sea level rise and ocean acidification, combined with tourism activity, coastal developments, and a growing artisanal/recreational fishery are placing severe impact on shallow water ecosystems. The Government has identified the need to urgently review and enhance the MPA system to protect ecosystems, coastlines and economy. Species specific plans are documented in the Darwin Initiative National Biodiversity Action Plan developed under Darwin Project 14051**.**

What will change as a result of this project? (150 words)

This Darwin project will provide the scientific evidence, resource the consultative process, extend manpower and enrich expertise to enable the Cayman to increase the area of shelf sea under protection from 16.7% to approximately 30%, thereby going significantly beyond the recommendations of the Convention on Biological Diversity of 10%. The project will provide the information base for the DOE to assess, review, plan, and promote an extended MPA system for the foreseeable future. **DOE do not have the scientific resources to undertake such major interim studies, but they do have the expertise and goodwill of the local population to effectively manage and enforce the current and an extended MPA system**, which is essential to maintain the resilience of reefs and associated ecosystems in response to coastal development and climate change. Datasets and specifically trained personnel will further enhance capacity, enabling Cayman to address its BAP and future national conservation legislation.

Why is the project important for the conservation of biodiversity? (150 words)

Coral reefs are the most biologically diverse habitats of the oceans and provide essential ecosystem goods and services. However, at today's level of 387ppm CO_2, reefs are fast declining (19% lost, 35% threatened) with consequential impacts on associated ecosystems. **Resilient reefs are known to have a better capacity to recover from damage, and management actions that reduce harvesting of herbivorous fish to sustainable levels, maintain trophic levels, manage water quality and minimise stressors will increase resilience**. Networks of marine protected areas provide an effective mechanism for such management, and a revised and updated MPA system covering at least 30% of representative habitats of coral reef and associated ecosystems in the Caymans will **protect island biota, pelagic, reptile, seabird and sea mammal species at a time of increasing human impact and climate change and will ensure that the system maintains the capacity of the reefs to meet user defined conservation goals.**

How does this relate to one or more of the biodiversity conventions? (150 words)

This project addresses Articles 6-8-12-13 and 18, and key 2010 Biodiversity Goals/Targets of CBD:
1. Promote conservation of the biological diversity of ecosystems, habitats and biomes
2. Promote conservation of species diversity
4. Promote sustainable use and consumption
5.1. Rate of loss and degradation of natural habitats decreased
7.1. Maintain and enhance resilience of components of biodiversity to adapt to climate change
7.2. Reduce pollution and its impacts on biodiversity
8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods
11. Improve financial, human, scientific, technical and technological capacity to implement CBD.

Further, the *Specially Protected Areas and Wildlife Protocol to the Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region*, and the *Environment Charter*, obligate Cayman to protect, develop and manage important resources, habitats and ecosystems by establishing protected areas for their aesthetic beauty, environmental value and services.

13. How will the results of the project be disseminated; how will the project be advertised as a Darwin project and in what ways will the Darwin name and logo be used? (max 200 words)

The project will be titled ***Darwin Initiative to Enhance an Established Marine Protected Area System, Cayman Islands.*** **The most important result of the project will be a new world leading enhanced system of Marine Protected Area Zones**, gazetted in the *Marine Park Regulations and Marine Conservation Laws* sheet, maps, and signage with the Darwin logo prominently displayed. Interim reports and results will be disseminated in *DOE Marine Research News* (DOE website http://www.doe.ky/). The website *Caymanbiodiversity.com* and *The Darwin Initiative Newsletters* established under Darwin 14051 will be continued. Important results from feedback responses gathered from stakeholders and public will be presented at The Marine Conservation Board, and District Community meetings. Results of the project will be reported to the UK Overseas Territories Conservation Forum, and be published in *Forum News,* and to TNC Caribbean Challenge, published in the *Great Places e newsletter*. Scientific results demonstrating MPA effect on reef resilience will be published in high impact international journals and presented regionally at the Gulf and Caribbean Fisheries Institute annual conference, and at key international conferences: 2nd International Marine Conservation Congress, Washington DC; 7th European International Society for Reef Studies Netherlands 2010; 12th International Coral Reef Symposium, Cairns 2012 to maximise project impact.

14. What will be the long term benefits of the project in the host country or region and have you identified any potential problems to achieving these benefits? (max 200 words)

The collaborative project will utilise the best scientific data achievable to provide the information base for DOE to review, plan, promote and manage an extended MPA system for the foreseeable future to maintain the resilience of reefs and associated ecosystems in response to pollution and climate change. Long term benefits from resilient reefs will be the protection of biodiversity, people, critical infrastructure, property and coasts, and enhance sustainable use by residents and visitors, and thus economic development. **The project will excellently demonstrate the Cayman enhanced zoned MPA system to the wider Caribbean and beyond.**

Public support for MPAs is already strong, and participation from stakeholders from an early stage should ensure acceptance. Threats to achieving these benefits may arise through immediate impacts from coral bleaching which could devastate current healthy reefs, and hurricanes which could devastate infrastructure. The possibility of an EU aviation tax or carbon levy, continued economic recession and coral bleaching might reduce tourism and the value of some zones. DOE staffing is stable and Government funding cuts should not result in staff cuts. The Cayman Government urgently needs to pass the National Conservation Bill, and changes will be required in the Marine Conservation Laws.

15. State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave? (Max 200 words)

The stable end-point will be an enhanced MPA system covering 30% of representative habitats of coral reef and associated ecosystems, thereby helping to protect island biota, pelagic, reptile, seabird and sea mammal species at a time of increasing human impact and climate change. **DOE will ensure that the MPA system is a central component of current and future planning, to be incorporated into future national climate change response policy (including: Grand Cayman Development Plan, Disaster Risk Management Framework, National Conservation Bill, Storm Atlas).** Involvement of most DOE staff in field training and Marine Workshops will have enhanced institutional capacity and personal involvement in future planning. McCoy will have a doctorate, and is committed to working in DOE in Cayman in the long term. Collaborative partner TNC has established expertise in nurturing MPAs in the Caribbean region over the long term, through increasing funding, building support and improving management. A robust MPA system will need to be reviewed regularly and maintain flexibility with continued stakeholder consultation and representation in management. The establishment of financial mechanisms that drive funding to protected areas including endowment funds, and payments for natural resources and services that protected areas supply may be necessary in the future.

16. If your project includes training and development, please indicate how you will assess the training needs in relation to the overall purpose of the project. Who are the target groups? How will the training be delivered? What skills and knowledge to you expect the beneficiaries to obtain. How will you measure training effectiveness. (max 300 words)
You should address each of these points.

Training is required in measuring the effect of MPAs on resilience of coral reefs and associated ecosystems, and in using this data, habitat data and agreed conservation goals to enhance MPA design using cutting edge marine protected area tools. Additional training in monitoring and enforcement specific to new areas will also be required. Training will be provided in Marine Conservation Workshops to which all staff will be encouraged to attend (including sister island staff) to ensure maximum involvement, and to maximise future capacity. In addition, *in situ* field training will be provided during field surveys. Junior DOE staff (Research Officers in the Marine Resources Unit (Blumethal, Johnson and Gibb) will be trained in underwater survey techniques (including video survey and analysis, disease assessment, fish biomass) to assess the MPA effects of reef resilience and overspill, and in socioeconomic questionnaire development to assess recreational, artisanal and migrant worker fishing impacts and watersport impacts. Training

in protected area tools including GIS incorporating Environmental Risk Surface, Relative Biodiversity Index, and Marxan and Mazone protect area planning software will be delivered during Marine Conservation Workshops, specifically for DOE Marine Resource Unit Senior Research Officers (Bush, McCoy, Bothwell and GIS Officer, Olynik). **These staff are highly experienced officers, and training effectiveness will be assessed by ability to undertake the work and to deliver results as the project develops.** Marine Conservation Officers will receive training in more effectively enforcing the extended protected system through in-house workshops. Bangor runs an internationally recognised Masters course in Marine Environmental Protection, offering opportunities for Caymanian staff to gain postgraduate qualifications, and research opportunities to UK postgraduates to work with and gain experience with DOE, whilst providing an increased manpower for field survey. Senior Marine Research Officer McCoy is undertaking PhD research on monitoring Cayman coral reefs with Turner at Bangor.

LOGICAL FRAMEWORK

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: To review the effectiveness of the Marine Protected Area system of the Cayman islands in maintaining resilience of coral reefs and shallow marine ecosystems in response to direct human impact and climate change, and if appropriate, to provide the information base to extend the system to increase that effectiveness	Measures of resilience (see below – output 1) Area (km ^{2}) of specific MPA zones Currently 103.8 km ^{2} protected. Increase by approx 30% if appropriate	Coral reef and associated ecosystem survey, including in water, acoustic and satellite data sets Geographical Information System and Report of MPA acceptance and implementation, supported by public workshops and followed by management	[redacted]
Purpose: To ensure coastal protection for human settlements and future tourism income by enhancing the protection of coral reefs thereby allowing rehabilitation of supporting ecosystems, through increased resilience to climate change.	Increases in species abundance diversity, biomass, size and fecundity and therefore resilience to major impacts both in and (through Spillover) outside MPAs	Future monitoring and resilience in the face of climate change, especially when compared with inadequately protected sites in many degraded Caribbean locations	Major coral bleaching event during project could severely impact shallow reefs, resulting in change of emphasis to one of assessing reef resilience and recovery. Occurred October – November 2009 to 90m depth. In medium term, and due to time lag, ocean acidification will almost certainly result from high atmospheric carbon dioxide concentrations resulting in the catastrophic loss of coral reefs. Only the most resilient species will survive in a greatly modified habitat
Outputs 1. Map the reef and associated subtidal ecosystem habitats around the islands to assess habitat variation and examine representativeness	Marine Habitat classification and GIS available in Cayman from Darwin project 14051. Additional data from satellite, in situ acoustic surveys (multibeam) & Groundtruthing surveys from TNC Caribbean Challenge (Byrne). Report to DOE / papers	Accuracy assessment conducted under Darwin 14051 and by DOE. Additional assessment necessary to identify any change resulting from October 2009 bleaching event.	That temperatures cool in November (2009) (happening), and that bleached corals recover rather than display mass mortality (signs of recovery are apparent).
2. Assessment of the current level of reef resilience within and outside the Marine Protected Areas of Grand Cayman, Little Cayman and Cayman Brac	Measures of: Coral cover Coral species abundance Calcareous and fleshy macroalgae Coral recruits Frequency of coral diseases and bleaching	Reef survey at 55 established permanent sites around islands using visual census and video techniques. Comparisons with old data and photographs for some sites from 1970s and 1980s (source Ogden). Comparisons with permanent photo	Sites and techniques already established and old data and photographs archived, so no expected problems. New video data archived. Bleaching event October 2009 means early comparison with pre bleaching survey of July 2009 essential.

An assessment of the extent of overspill of fish biomass from the No Take Zones into surrounding zones	Frequency of Herbivorous fish Quantification of other impacts eg anchoring damage. Report to DOE / papers Diving surveys of fish species abundance and size, to assess biomass at sites within and at increasing distances outside of No Take Marine Protected Zones. Report to DOE	quadrats from early 2000s by McCoy. Statistical comparisons with video and visual census by Gall, McCoy & Turner, 2009. Use of experienced team with species specific knowledge, and training for junior members Regular tests of visual assessments of fish size and accuracy of species recognition Enforcement of No Take Zone by MPA patrols	Will require additional training of junior staff in DOE to provide appropriate dive team size to satisfy health and safety requirements and ensure future monitoring capability. Assisted by MPA Darwin Fellow and Bangor MSc project students. As above. Assumes enforcement ensures No Take Zones are not transgressed.
3. An assessment of the artisanal/recreational fishery	Socio-economic questionnaires directed at recreational fishers (visiting piers, and via patrol boat), tourists in departure lounge at airport and via hotel excursion operators, diving operators, charter boat skippers, and migrant workers Report to DOE.	Unbiased questionnaires and recorded interviews analysed from representative cross section. Questionnaires tested and trialled in 2009 by Henshall, McCoy & Turner	May not get honest answers when recreational fishers approached in patrol boat, but in general, such fishers are compliant. Honesty and safety will be issue when interviewing migrant workers (mostly Jamaican & Pakistani) who tend to fish late evening/night.
4 - 7 (subdivided below for clarity) Plan and promote an extension to the MPA system with full public consultation and involvement.	Using data from 1-4, plan extended MPA zones to cover all representative habitats, covering at least 30% shallow marine environment. Initial consultation to ensure public participation on all 3 islands. Show benefits in terms of results of MPA effects on reef resilience Ecological gap Analysis, and Protected Area Tools in GIS such as Environmental Risk Surface, Relative Biodiversity Index, and Marxan and Mazone protect area planning software GIS data system to show revised boundaries and purpose of zones Stakeholder workshops and public presentations on all 3 islands Acceptance and implementation of extended MPA system.	MPA plans led by Dept of Environment (DOE), Cayman Islands to ensure local ownership, with overseas scientists maintaining behind the scenes advisory scientific role. Changes in legislation required, facilitated by Director, DOE through Government Modified Management plan accepted Modified Monitoring plans accepted Modified enforcement plans accepted	Unusually, there are few assumptions or risks here. Caymanians have been highly supportive of MPA system since benefits have been so obvious, especially in comparison with other Caribbean islands where reefs are substantially more degraded Threats from climate change are widely recognised (especially increased intensity and frequency of hurricanes, sea level rise and mass coral mortality from bleaching and disease) because most have suffered effects. Coastal protection and income from tourism are recognised as being widely important and need to update MPA system is generally understood. Sensitization is already high due to existing MPA system, and education elements are already exceptionally strong.

	Activities (detailed in work plan)	Monitoring Indicators
1.1	Steering Group Meeting 1 to Establish Darwin project	Existing data assessed and initial EGA completed to identify survey objectives. Stakeholders engaged with Darwin project. 2 Steering Group Meetings (1 & 2) 1 Marine Conservation Board (1) 1 Marine Conservation Workshop (1)
1.2	Stakeholder meeting 1: Marine Conservation Board	
1.3	Link with Darwin 14051 (Exeter) review of BAP and GIS Marine habitat maps (Cayman)	
1.4	Assess existing long term data sets	
1.5	Initial Ecological Gap Analysis assessment (EGA) (Marine Conservation Workshop 1)	
1.6	Steering Group Meeting 2: Objectives and methodologies	
2.1	Reef resilience field training and survey	Darwin Fellows trained in specific methodologies to take part in field work Data on MPA effects on resilience attained and compared with pilot studies Impact of October 2009 bleaching event quantified in short term and medium term Papers on reef resilience presented at GCFI 2010, Euro ISRS 2010 and ICRS 2012 accepted Benefits of MPA system quantified, and communicated to stakeholders Importance of effective enforcement reinforced and Marine Conservation Officers informed/training enhanced 1 Marine Conservation Board (2) 2 x ½ year DI reporting
2.2	Fish biomass field training and survey	
2.3	½ year reports Darwin Initiative and Interim Report on benefits of MPA	
2.4	Stakeholder meeting 2: Marine Conservation Board	
2.5	Reef resilience survey 2	
2.6	Fish biomass survey 2	
2.7	½ year report to Darwin Initiative and Final report on Benefits of extended MPAs	
3.1	Socioeconomic assessment of artisanal and migrant worker fishers	Data on non commercial fishing pressure attained & compared with pilot survey. Fisher impact compared with fish biomass study Papers on recreational fishing presented at GCFI 2010, Euro ISRS 2010 and ICRS 2012 accepted EGA reviewed in context of new field data Stakeholders views on threats and conservation goals assessed Environmental risks to specific habitats/species mapped and verified 1 Steering Group Meeting (3) 3 Community Stakeholder meetings (3 islands) Annual DI reporting
3.2	Socioeconomic assessment of recreational fishers	
3.3	Interim report of fisher surveys	
3.4	Annual Reporting to Darwin Initiative	
4.1	Ecological Gap Analysis update and review	
4.2	Steering Group Meeting 3: Identification of concerns and threats	
4.3	District community stakeholder meetings on Grand Cayman, Little Cayman and Cayman Brac: engage comments on perceived threats and goals	
4.4	Environmental Risk Assessment and mapping	
4.5	Field survey to verify specific habitats	

5.1 Steering Group Meeting 4: Marine Protected Area Planning 5.2 Marine Conservation workshop 2 and training: Site Conservation Index and Relative Biodiversity Index Assessment Calculation Workshop 5.3 Marne Conservation Workshop 3 and training: Use of Marxan protected area modelling software 5.4 Review conservation scenarios - determine optimal configuration of protected areas that meet user defined conservation goals. 5.5 Field verification of possible configurations	Darwin Fellows trained in Protected Area tools Biodiversity Index for sites quantified Optimal configuration of protected areas that meet user defined conservation goals determined Verified by field assessment Papers on protected area enhancement based on quantitative assessment presented at IMCC Washington DC 1 Steering Group Meeting (4) 2 Marine Conservation Workshops (3 & 4)
6.1 Marine Conservation Board and Community Stakeholder consultation (3) on MPA protected area optimal configuration 6.2 Steering Group Meeting 5: Consideration of feedback and implementation planning 6.3 Marine Conservation Law modifications 6.4 Development of MPA management plan, monitoring plans, enforcement plans and education plans 6.5 Presentations at international conferences 6.6 ½ year report to Darwin Initiative on implementation 6.7 Finalisation of maps, signage and brochures 6.8 Acceptance and implementation of extended MPA system	Stakeholders consulted on proposed options for MPA area configuration Relevant changes in Marine Conservation Law made Monitoring plans, enforcement plans and education programs adopted Clear dissemination of new laws and areas Optimal configuration of enlarged MPA covering 30% Cayman shelf accepted if appropriate Increases in species abundance diversity, biomass, size and fecundity and therefore resilience to major impacts both in and (through Spillover) outside MPAs ½ year DI reporting Marine Conservation Board (3) 3 Stakeholder Community Meetings (3 islands) 1 Steering Group Meeting (5)
7.0 Final Steering Group Meeting and Final Report to Darwin Initiative	Final Steering Group Meeting (6) Final DI Reporting

18. Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project.

	Activity	Months	Year 1				Year 2				Year 3			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.1	Steering Group Meeting 1 with project partners, introduction of new personnel (MPA Darwin Fellow) and establish Darwin project in DOE	April	●											
1.2	Stakeholder meeting Marine Conservation Board with Watersports Association to introduce project and plans and incorporate involvement, participation and feedback,	May	●											
1.3	Link with Darwin 14051 through meeting with Brendan Godley (Exeter) and via review of BAP and GIS Marine habitat maps (Cayman)	June	●											
1.4	Assess existing long term data sets and 1970s-1980s photographic images from Ogden	June	●											
1.5	Initial Ecological gap Analysis assessment (Marine Conservation Workshop 1)	June	●											
1.6	Steering Group Meeting 2: To finalise research study objectives and methodologies	End June	●											
2.1	Reef resilience video & photo surveys at 55 permanent sites – all islands, specifically to compare with July 2009 pilot and to assess recovery from October 2009 bleaching event, includes in field training. Involvement of Bangor MSc students.	July-Aug		●										
2.2	Fish biomass survey within and outside MPA at selected sites all islands (to compare with Jan – April 09 pilot), includes in field training. Involvement of Bangor MSc students	Aug -Sept		●										
2.3	½ year report to Darwin Initiative and interim Report on benefits of MPA	Oct - Nov			●									
2.4	Stakeholder meeting Marine Conservation Board with Watersports Association to promote results illustrating benefits of current MPA , and to identify threats	Jan				●								
3.1	Socioeconomic assessment of artisanal and migrant worker fishers. Involvement of Bangor 4 year BSc students	Oct - Dec			●									
3.2	Socioeconomic assessment of recreational fishers. Involvement of Bangor 4 year BSc students	Nov - Jan			●	●								
3.3	Interim report of fisher surveys	March				●								
3.4	Annual Reporting to Darwin Initiative													
4.1	Ecological Gap Analysis update and review	March- April				●	●							
4.2	Steering Group Meeting 3: Identification of concerns and threats	April					●							
4.3	District community stakeholder meetings on Grand Cayman, Little Cayman and Cayman Brac to engage comments on perceived risks and benefits and to set conservation vision and goals	May - June					●							
4.4	Environmental Risk Assessment and mapping	July - Aug						●						
4.5	Field survey to verify specific habitats	July_Aug						●						
2.5	Reef resilience re-survey at 55 permanent sites, specifically to compare with previous survey July 2009, July 2010, and to assess medium term recovery from bleaching. Involvement of Bangor MSc students	July - Aug						●						
2.6	Fish biomass survey within and outside MPA at selected sites – all islands. Involvement of Bangor MSc students	Aug - Sept						●						
2.7	½ year report to Darwin Initiative and Final report on Benefits of extended MPAs	Oct - Nov							●					

5.1	Steering Group Meeting 4: Marine Protected Area Planning	Jan								●				
5.2	Marine Conservation workshop 2 and training: Site Conservation Index and Relative Biodiversity Index Assessment calculation Workshop	Jan								●				
5.3	Marine Conservation Workshop 3 and training: Use of Marxan protected area modelling software	Jan - Feb								●				
5.4	Review various conservation scenarios, Determine optimal configuration of protected areas that meet user defined conservation goals.	Feb -March								●				
.5	Field verification of possible configurations	March -April								●	●			
6.1	Marine Conservation Board and Community Stakeholder consultation on MPA protected area optimal configuration relevant to each island	April									●			
6.2	Steering Group Meeting 5: Consideration of feedback and implementation planning	April									●			
6.3	Marine Conservation Law modifications	May - Dec									●	●	●	
6.4	Development of MPA management plan, monitoring plans, enforcement plans, education plans	May - Dec									●	●	●	
6.5	Presentations at international conferences (GCFI, Euro ISRS 2010 Netherlands, IMCC 2010, Washington DC, ICRS 2012 Cairns) & research paper submissions	July			●				●		●	●		
6.6	½ year report to Darwin Initiative on implementation	Oct											●	
6.7	Finalisation of maps, signage and brochures	Jan-Feb												●
6.8	Acceptance and implementation of extended MPA system	March												●
7.0	Final Steering Group Meeting 6 and Final Report to Darwin Initiative	March												●

19. Please indicate which of the following Standard Measures you are likely to report against. You will not necessarily plan to cover all these Standard Measures in your project. Separate guidance on Standard Measures can be found at http://darwin.defra.gov.uk/resources/reporting/standard_measures/

Standard Measure No	Description	Tick if Relevant
1A	Number of people to submit thesis for PhD qualification (in host country)	√
1B	Number of people to attain PhD qualification (in host country)	√
2	Number of people to attain Masters qualification (MSc, MPhil etc)	√
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)	
4A	Number of undergraduate students to receive training	√
4B	Number of training weeks to be provided	√
4C	Number of postgraduate students to receive training	√
4D	Number of training weeks to be provided	√
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	√
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	√
6B	Number of training weeks to be provided	√
7	Number of (ie different types - not volume - of material produced) training materials to be produced for use by host country	√
8	Number of weeks to be spent by UK project staff on project work in the host country	√
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	√
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording	√
11A	Number of papers to be published in peer reviewed journals	√
11B	Number of papers to be submitted to peer reviewed journals	√
12A	Number of computer based databases to be **established** and handed over to host country	
12B	Number of computer based databases to be **enhanced** and handed over to host country	√
13A	Number of species reference collections to be **established** and handed over to host country(ies)	
13B	Number of species reference collections to be **enhanced** and handed over to host country(ies)	
14A	Number of conferences/seminars/ workshops to be **organised** to present/disseminate findings	√
14B	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	√
15A	Number of national press releases in host country(ies)	√
15B	Number of local press releases in host country(ies)	
15C	Number of national press releases in UK	√
15D	Number of local press releases in UK	√
16A	Number of newsletters to be produced	√
16B	Estimated circulation of each newsletter in the host country(ies)	
16C	Estimated circulation of each newsletter in the UK	
17A	Number of dissemination networks to be **established**	
17B	Number of dissemination networks to be **enhanced/ extended**	√
18A	Number of national TV programmes/features in host country(ies)	√
18B	Number of national TV programmes/features in UK	
18C	Number of local TV programmes/features in host country(ies)	
18D	Number of local TV programmes/features in UK	
19A	Number of national radio interviews/features in host county(ies)	√
19B	Number of national radio interviews/features in UK	√
19C	Number of local radio interviews/features in host country(ies)	
19D	Number of local radio interviews/features in UK	
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	√
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work	√

PROJECT BASED MONITORING AND EVALUATION

20. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

The project will be monitored by a Steering Group meeting biannually, comprising of Director and Deputy Directors of DOE; Marine Program Director, TNC; Project leader, Bangor, and Chair of Marine Conservation Board (representing stakeholders). Financial monitoring will be provided by Bangor University Finance Office. Evaluation will be undertaken by the Marine Conservation Board (Cayman); Bangor University Research and Innovation Office, and peer review.
By the 1st Quarter of Year 1, existing data, especially from Darwin 14051 will be assessed, and an initial Ecological Gap Analysis will have identified key survey objectives. Stakeholders will be engaged during these initial phases through the Marine Conservation Board and Watersports Association. The Steering Group will have met twice (1.1- 1.6).
DOE staff will have been trained in specific methodologies to take part in field work to assess resilience. Data on MPA effects on resilience will have been attained over 2 years and will have been compared with pilot studies. The impact of October 2009 bleaching will have been quantified in the short term and medium terms. Collaborative papers on reef resilience provided by MPAs will have been presented at key international conferences: GCFI 2010 (McCoy, Byrne), Euro ISRS Netherlands (Turner) and ICRS 2012 Cairns (McCoy, Turner and Darwin Fellow) and will have been submitted to high impact journals (eg. *Biological Conservation*, *PLoS One*). The benefits of the MPA system will have been quantified and peer reviewed by these means, and communicated to stakeholders at meetings of the Marine Conservation Board and District Communities. Effective enforcement will have been reinforced and Marine Conservation Officers will have received enhanced training (2.1 - 2.7 across both years).
By the middle of year 2, an assessment of non commercial (recreational, artisanal and migrant worker) fishing pressure will have been attained & compared with the pilot survey in the last quarter of year 1. Fisher impact will have been compared with area specific fish biomass data from 2.2 (and later 2.6). Papers on the impact of recreational fishing will have been presented at regional conferences GCFI 2010 (McCoy & Darwin Fellow), and ICRS 2012, Cairns (McCoy, Turner, Darwin Fellow) and will be published in peer reviewed journals. The Ecological gap Analysis will have been reviewed in context of new results from field data. Stakeholders on all 3 islands will have been consulted, and threats and conservation goals will have been assessed, and the Environmental risks to specific habitats/species mapped and verified by additional site study (3.1-4.5). The Steering Group will have met to evaluate progress identifying the environmental threats and conservation goals.
The Darwin Fellows will have been trained in the use of Protected Area tools, and will be using these to quantify Biodiversity indices for extended MPAs. The GIS will have incorporated Marxan and Marzone protected area planning software to evaluate the optimal configuration of protected areas that meet user defined conservation goals, and these areas will have been verified by field assessment. Papers on protected area enhancement based on quantitative assessment will have been presented at the International Marine Conservation Congress, Washington DC (McCoy, Darwin Fellow, Byrne, Turner) (5.1-5.5). The Steering Group will have evaluated progress on MPA design against the agreed conservation goals.
At the beginning of year 3, stakeholders on all 3 islands will have been consulted on the proposed options for MPA area configuration, and their comments will have been considered in determining the final design. The optimal configuration of an enhanced MPA system covering approximately 30% of the Cayman shelf will have been accepted if appropriate. Relevant changes in Marine Conservation Law will have been made, and monitoring plans, enforcement plans and education programs will have been designed and adopted. The enhanced Marine Protected Area system will have been clearly documented and widely disseminated by conclusion of year 3 (6,1-6.8). The Steering Group will have met to oversee implementation. Collaborative partner TNC will then assist by nurturing the MPAs over the long term, through increasing funding, building support and improving management through the Caribbean Challenge. The MPA system will need to be reviewed regularly and maintain flexibility with continued community and stakeholder consultation and representation in management. The establishment of financial mechanisms may be necessary in the future.

FUNDING AND BUDGET

Please complete the separate Excel spreadsheet which will provide the Budget information for this application. Some of the questions below refer to the information in this spreadsheet.

NB: Please state all costs by financial year (April to March). Use current prices – and include anticipated inflation, as appropriate up to 3% per annum. The Darwin Initiative will not be able to agree increases in grants to cover inflation on UK costs once grants are awarded.

21. How is your organisation currently funded? (max 100 words)

Bangor University is funded by the Higher Education Funding Council for Wales and the Welsh Assembly Government which has responsibility for funding the Higher Education sector of Wales, and through research grant capture and consultancy work. The university is an independent organisation, whose legal status derives from a Royal Charter granted in 1885. Bangor University is charity exempt from registration as per Schedule 2 section C of the Charity Act 1993.

22. Provide details of all <u>confirmed</u> funding sources identified in the Budget that will be put towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity. Please include any additional <u>unconfirmed</u> funding the project will attract to carry out addition work during or beyond the project lifetime. Indicate those funding sources which are confirmed.

Confirmed:

Bangor University staff salaries	£XXX
Bangor University overheads	£XXX
Bangor University MSc students (2 project students 2010/2012) NERC	£XXX
Cayman Island Government DOE salaries	£XXX
Cayman Island Government DOE institutional overheads (including provision of boats, vehicles, diving apparatus and NITROX 36 breathing gas)	£XXX
The Nature Conservancy Jim Byrne salary	£XXX
The Nature Conservancy institutional overhead	£XXX

Unconfirmed:

Bangor University MSc students (2 project students per year for 2 years) NERC £XXX

Beyond lifetime of project: The Nature Conservancy Caribbean Challenge (unknown)

23. Please give details of any further funding resources (confirmed or unconfirmed) sought from the host country partner (s) or others for this project that are not already detailed in the Budget or Question 22. This will include donations in kind or un-costed support eg accommodation. (max 50 words per box)

Financial resources:

The Nature Conservancy Caribbean Challenge (unknown at present)

Funding in kind:

Cayman Island Government 50% reduction on costs for accommodation when DOE housing is used (usually for visiting researchers and postgraduate students).

FCO NOTIFICATIONS

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

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

Yes (no written advice) ☐ **Yes, advice attached** ☐ **No** √☐

CERTIFICATION 2010/11

On behalf of the trustees/company* of Bangor University

(*delete as appropriate)

I apply for a grant of £92,529 in respect of expenditure to be incurred in the financial year ending 31 March 2011 on the activities specified in the above application.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful. (This form should be signed by an individual authorised by the lead UK institution to submit applications and sign contracts on their behalf.)

I enclose a copy of the organisation's most recent audited accounts and annual report, CVs for project principals and letters of support.

Name (block capitals)	Paul Story
Position in the organisation	Accountant

LINK TO MOST RECENT AUDITED ACCOUNTS
http://finweb.bangor.ac.uk/e/bu/aa/default.htm

Signed		**Date:**	30.11.09

Stage 2 Application - Checklist for submission

	Check
Have you provided actual start and end dates for your project?	√
Have you provided your budget based on UK government financial years ie 1 April – 31 March?	√
Have you checked that your budget is complete, correctly adds up and that you have included the correct final total on the top page of the application?	√
Is the concept note within 1,000 words?	√
Is the logframe no longer than 2 pages and have you highlighted any changes since Stage 1?	√
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable in the email, but a wet signature should be provided in the hard copy version)	√
Have you included a 1 page CV for the Project Leader, any other UK staff working 50%+ on this project, and for a main individual in each overseas partner organisation?	√
Have you included a letter of support from the main overseas partner organisations?	√
Have you checked with the FCO in the project country/ies and have you included any evidence of this? *Only Checked at http://www.fco.gov.uk/en/travel-and-living-abroad/travel-advice-by-country/north-central-america/cayman-islands1 (all OK)*	√
Have you included a copy of your most recent annual report and accounts? An electronic link to a website is acceptable.	√
Have you read the Guidance Notes ?	√

Once you have answered Yes to the questions above, please submit the application, not later than midnight GMT on **Monday 30 November 2009** to Darwin-Applications@ltsi.co.uk using the application number (from your Stage 1 feedback letter) and the first few words of the project title **as the subject of your email**. However, if you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc). **In addition**, a signed hard copy of the application and any supporting documents not available electronically should be submitted to the Darwin Applications, c/o LTS International, Pentlands Science Park, Bush Loan, Penicuik EH26 0PL **postmarked** not later than **Tuesday 1 December 2009.**

DATA PROTECTION ACT 1998: **Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (ie name, contact details and location of project work) on the Darwin Initiative and Defra websites(details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Foreign and Commonwealth Office posts outside the United Kingdom, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.**