

Darwin Initiative Final Report

To be completed with reference to the Reporting Guidance Notes for Project Leaders (<http://darwin.defra.gov.uk/resources/>) it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin project information

Project Reference	19-020
Project Title	Responding to fish extirpation in the global marine biodiversity epicentre
Host country(ies)	Philippines
Contract Holder Institution	Newcastle University
Partner Institution(s)	Haribon Foundation for the Conservation of Natural Resources
Darwin Grant Value	£294151
Funder (DFID/Defra)	Defra/DFID
Start/End dates of Project	1 April 2012 – 31 March 2016 (extended to 30 September 2016)
Project Leader's Name	Nicholas Polunin
Project Website/blog/twitter	
Report Author(s) and date	Nicholas Polunin & Margarita Lavidés, 24 January 2017

1 Project Rationale

The Philippines is part of the global coastal marine biodiversity epicentre, yet fishing intensity is great, and it is likely that species have been severely depleted or become locally extinct in particular on corals reefs which are the most biodiverse marine ecosystem. Yet there has been no investigation of this. The project used fishers' recollection of former catches and catch rates, and underwater survey data collected in five major areas (Fig. 1) to determine highly depleted and likely vulnerable reef fish species and where possible describe abundance trends of species and groups of these. The five areas were selected particularly based on their being in recognised marine Key Biodiversity Areas. The project sought to strengthen resource management capacity, reconcile conservation needs with those of a relevant sustainable livelihood in one of the five areas, and make appropriate policy recommendations from local to international scales.

2 Project Achievements

2.1 Outcome

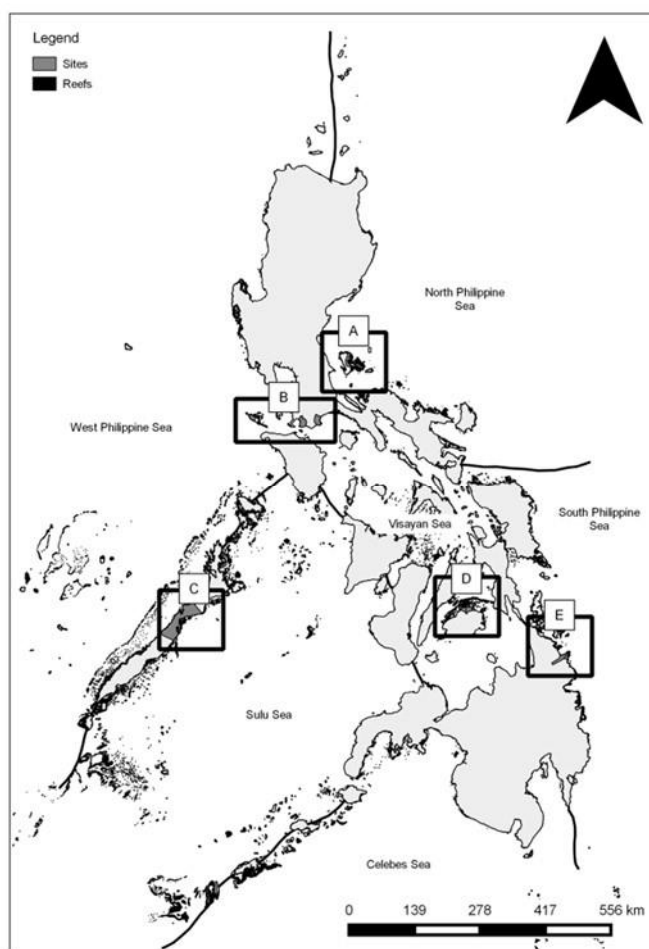


Fig. 1 Diagrammatic map showing location of the five marine areas studied in the Philippines: A = Polillo Islands; B = Verde Island Passage; C = Honda Bay; D = Danajon Bank; E = Lanuza Bay

The outcome had four measurable indicators in the logframe (Annex 1). These were to be verified by reports, peer-reviewed scientific papers, new projects planned and proposals to funding agencies submitted, popular articles, related outreach materials and their uptake, and support for future biodiversity conservation science and actions (Annex 1), all of which in large measure have been achieved (Annex 2). The specific details are as follows:

Outcome: Identify vulnerable reef finfish species, model changes in reef finfish abundances, enhance local capacity in local resource management, reconcile any conservation needs with sustainable livelihoods, recommend policy from local to international levels

Indicators	Baseline	Change by 2016	Source of evidence	Comments
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(1) Vulnerable species identified	No listing of coral-reef species vulnerable to depletion	Vulnerable species listed and published	Published and submitted peer-review papers: Annex 5, this report	
(2) Resource management capacity in Lanuza Bay enhanced	Limited understanding of conservation-sustainable livelihoods, lack of relevant new social enterprise	Extensive communication using various media, dedicated training, support leveraged for social enterprise, basis for relevant new enterprise laid	Newsletter in three languages: Annex 7.4	
(3) Relevant	Policy at local	Recommendations	Annex 7.1, animated audio-	
policy derived and delivered at international, national and a local area	and national levels poorly informed about potential coralreef fish vulnerability issues	made to Lanuza Bay POs and LGUs and the NBSAP, local pilot policy formulation under way (Cortes LGU)	visual material at Annex 7.4.2, input to CBD document (Annex 7.4.6)	
(4) Training and experience required to sustain project outputs in future achieved	Limited expertise in relevant research or social enterprise locally, no continuity funding	Relevant training and experience gained, funding for further relevant work gained	Completion of field work and peer-review papers (Annex 5, YR1 Report [Annex 3]), KAAMPAKA training sessions (Annex 7.4.4), funding gained for further relevant work (Annex 7.4.6)	

Points to highlight in the above include the following. In relation to (2), the capacity building of LGUs and POs was achieved but this became focused on conservation-sustainable livelihoods and developing a social enterprise. For (3), the project provided relevant information at all three levels; at international level this was shared albeit with no verifiable policy impact, at national level this was integrated into the NBSAP for 2015-2028, but only at the local level was there any policy action planned in response. In relation to (4), training and experience at national level refers to that of the project team, while training and experience at local level refers to that in Lanuza Bay.

2.2 Impact: achievement of positive impact on biodiversity and poverty alleviation

Impact statement from logframe: New knowledge gained, stakeholder-led management capacity built and new conservation action taken to conserve marine biodiversity in Philippines hotspots

The new knowledge gained is that there are coral reef finfish that are vulnerable locally and nationally (Outputs 1-2), and this is being used at local level (Lanuza Bay), has informed national biodiversity conservation strategy and action planning (Philippines NBSAP) and been communicated internationally through both the scientific community (peer-review papers and conferences) and conservation bodies (IUCN)(Output 5). The stakeholder-led management capacity built has been as planned in Lanuza Bay where the Kadagatan Ampingan Pagmata Katawhan (KAAMPAKA) was the target in particular for the social enterprise involving *danggit* (dried rabbitfish) in the context of conservation needs (Output 4). A survey of the *danggit* enterprise indicated benefits including greater income for individuals and KAAMPAKA, greater awareness and compliance with fishery regulations, enhanced MPA enforcement, and increased overall catches, although there were also perceived limitations (e.g. no evident increase in rabbitfish catch, limited market, product quality)(Annex 7.2). New marine biodiversity conservation actions included patrolling of the MPA, compliance with MPA regulations and with seasonal fishing ban.

2.3 Outputs

The project had five Outputs nearly all of which were successfully achieved:

Output 1: Vulnerable marine finfish species identified in 5 key marine biodiversity areas			
	Baseline	Change recorded by 2016	Source of evidence
1.0 Inception workshop and database/statistics training conducted	No project using social and ecological data at large scale	Project successfully initiated, training enhanced	Workshop minutes (YR1 report)
1.1 Fishers' knowledge of threatened species surveyed, data processed and analysed	No fisher data on threatened species	Data on threatened fishery target species gathered at five major locations, analysed and published	Published peer-review paper (Annex 5)
1.2 Underwater visual census conducted, presence/absence data gathered and analysed	No underwater data to compare with fisher perceptions of threatened species	Underwater data on fishery-target species gathered at five major locations, analysed and submitted for publication	Paper submitted to peer-review journal (Annex 5)
1.3 List of vulnerable species drafted	No comprehensive evidence-based listing across many marine key biodiversity areas	List of species recorded by fishers as being lost from catches across five major locations	Published peer-review paper (Annex 5)
Output 2: Changes in abundance of reef finfish families and fishery target species modelled for 5 key marine biodiversity areas			
	Baseline	Change recorded by 2016	Source of evidence
2.1 Fishers' retrospective perceptions of abundance trends surveyed and analysed	No fisher data on decadal catch trends in target species across many marine key biodiversity areas	Best days catch per unit effort data gained, analysed and published	Published peer-review paper (Annex 5)
2.2 Abundance trends in underwater visual census and landings data analysed;	No underwater ecological data on abundance changes in fishery-target species across many marine key biodiversity areas	No change	See footnote 2.2
2.3 Trends compared between methods within and among sites, drivers analysed; revised vulnerable species list	No known comparison over underwater visual and catch-recollection data across many marine key biodiversity areas	Comparison completed, vulnerable species list enhanced, paper submitted to peer-review journal	Paper submitted to peer-review journal (Annex 5)
Output 3: Capacity of LGUs and POs for local resource management in conservation site enhanced			
	Baseline	Change recorded by 2016	Source of evidence
3.1 Training in marine ecology, fisheries and conservation conducted	No consideration of training needs in relation to fishery depletions	Decision to focus on sustainable livelihoods and social enterprise	See footnote 3.1
3.2 Workshops on management needs and training on fisheries monitoring conducted	Poor training in sustainable livelihoods and social enterprise in Lanuza Bay	Comprehensive training provided in a range of activities including organisational planning, enterprise management, fish processing, manufacturing practice and product labelling, packaging and marketing	See footnote 3.2; training documented in YR3 Report (Annex 3), and this report (Annex 7.4.4)
3.3 Communication plan and materials (ie. posters, fliers, radio ads) produced and future funding plan drafted	Little communication about fisheries conservation/livelihood issues, relevant social enterprises etc in Lanuza Bay	Extensive communication to local communities on relevant topics, with feedback on project findings	Annexes 7.1, 7.4.1, 7.4.2, 7.4.5
Output 4: Conservation needs reconciled with sustainable livelihoods			

	Baseline	Change recorded by 2016	Source of evidence
4.1 Human behavioural drivers of any diversity losses assessed	Weak understanding of socio-economic drivers of coral-reef fish depletion	Modelling of drivers including access to markets and overpopulation	Published peer-review paper (Annex 5)
4.2 Existing conservation-livelihood agreements with fishers' organizations evaluated	No systematic appraisal of potential new conservation/livelihood actions	Possible new initiatives and options including continuity mechanisms evaluated	KAAMPAKA Business Plan Annex 7.3 (and YR3 Report), impact survey of social enterprise (Annex 7.2)
4.3 Any new livelihood options with conservation agreements (e.g. low impact mariculture) installed	No agreement re any new livelihood options yet in Lanuza Bay	Conservation-livelihood agreement, danggit enterprise set up	Conservation-livelihood agreement (YR3 Report, Annex 3), KAAMPAKA Business Plan Annex 7.3
4.4 Economic impact of livelihood options of participant groups surveyed	Limited income of involved personnel and organisation	Greater household revenue and leveraged funding for KAAMPAKA, among other impacts	Impact survey of social enterprise (Annex 7.2)
Output 5: Policy recommendations made at local, national and international levels			
	Baseline	Change recorded by 2016	Source of evidence
5.1 Lanuza Bay policy paper completed	No scientific basis on which reef finfish to protect via legislation by municipality or across Lanuza Bay	The new data informed the LGUs of Lanuza Bay; Cortes LGU exploring conservation of most depleted reef finfish species identified	Annex 7.1
5.2 National level policy paper completed	No robust data on vulnerable reef finfish for national action	New data contributed to Action Plan to Prevent Species Extinction	M Lavidas as Lead Expert Discussant incorporated project findings into the Philippines NBSAP for 2015-2028 (Annex 7.4.7)
5.3 Recommendations made to IUCN	No input on Philippine reef finfish species vulnerability to local extinction	New information submitted to IUCN	IUCN Global Manager for Global Marine Species Assessment (Prof. Kent Carpenter)

Problems: (2.2) no fishery landings data available for sites. Previous underwater visual census data either not accessed (MoU not possible in one instance) or not comparable (methodology too different or extremely limited data). (3.1) as documented in YR2 Report (e.g. Annex 1), work with KAAMPAKA during the project indicated training in marine ecology, fisheries and participatory monitoring were not required, but training in sustainable livelihoods and social enterprise management was. (3.2): as per 3.1, the focus was required to shift to workshops on sustainable livelihoods and social enterprise management.

3 Project Partnerships

The project was designed and budgeted for as a partnership primarily between Newcastle University in the UK, and both Ateneo de Manila University ('Ateneo') and Haribon Foundation for the Conservation of Natural Resources Inc. ('Haribon') in the Philippines. After the move of Dr Lavidas from Ateneo to Haribon in early 2013, there was a single Philippine partner (Haribon). A Collaboration Agreement was drawn up between Newcastle University and the two Philippine partners in 2012, amended in 2013 to acknowledge the departure of Ateneo de Manila from the project (YR2 Report).

At the inception workshop, all possible partners (e.g. academe, NGOs, government) were involved, especially in identifying available datasets and specific sites for each marine Key Biodiversity Areas pre-selected. Thereafter, decision-making on all aspects of the study including detailed survey design, logistics, data collection and collation, analysis and capacity building, were shared between Newcastle University, Ateneo and Haribon, led by Prof. Polunin. When Dr

Lavides moved to Haribon, the major decision making was by Prof. Polunin and Dr Lavides, albeit with inputs from the Haribon-Newcastle team and project staff and local partners. Haribon led the fishers' knowledge surveys, capacity building, policy initiatives and sustainable livelihood intervention, but these were also supported by local academic collaborators (e.g. Palawan State University), LGUs (across sites), NGOs (e.g. Zoological Society of London) and POs across the project sites. Formal agreements involving all parties were drawn up where desirable. These partners provided historical local data, logistics, counterpart local researchers, local coordination and other forms of support to the Darwin team. Policy initiatives (e.g. NBSAP, local ordinances) were taken in cooperation with the Department of Environment and Natural Resources-Biodiversity Management Bureau with UNDP-GEF project team and several regional and national workshop participants from across sectors (academe, government, NGOs, private sector) around the country. Newcastle University (Prof. Polunin/Christina Skinner and Kaylee Prince) led the underwater surveys, with Haribon workers Gregorio de la Rosa and Erina Molina also coordinating on the ground along with local partners across sites. Writing of peer reviewed journal articles was led by Prof. Polunin and Dr Lavides (published in PLoS ONE, paper on grouper declines in preparation; Annex 5) and Christina Skinner (Newcastle) and Prof. Polunin (paper submitted to Coral Reefs; Annex 5). These were significantly supported by Erina Molina (Haribon) for databasing and statistical modelling and Dr Aileen Mill (Newcastle) for training and guiding statistical modelling and Prof. Selina Stead (Newcastle) and Gregorio de la Rosa Jr (Haribon) for added marine ecology and fisheries inputs.

Overall, the partnership between the two major actors (Newcastle-Haribon) in this project was very complementary, with Newcastle providing the much needed technical expertise on marine ecology and fisheries, advanced statistical modelling and scientific paper writing, while Haribon had the lion's share of social aspects of the project, including the social surveys and overall social impacts. Haribon played a lead role in the sustainable livelihood conservation intervention of the project and in updating the National Biodiversity Strategy and Action Plan (NBSAP 2015-2028), with Dr Lavides as Lead Expert Discussant for Marine Ecosystems including Marine Fisheries, with Darwin staff providing staff support.

The partnerships developed through this project, not only between Newcastle and Haribon but with other local partners, will continue especially at Lanuza Bay where the UNDP-GEF funded project on Strengthening Marine Protected Area Networks (Annex 7.4.6) is proceeding and some of the outcomes of this project will be take-off points (e.g. local policy on protecting extremely depleted marine finfish, conservation-livelihood agreement, model of social enterprise for other sites).

4 Contribution to Darwin Initiative Programme Outputs

4.1 Contribution to SDGs

Since the project provided evidence of marine finfish species at risk of local extinction in support of biodiversity conservation, it clearly addressed SDG14 (Life below water). Having also worked to build local capacity in resource management, reconcile livelihoods with conservation while aiming to reduce poverty through responsible consumption and production patterns in its social enterprise while also empowering women and strengthening a fishers' organization as an effective, accountable and inclusive local organization with the support of national and local government agencies and NGOs, the project also related to SDGs 1 (No poverty), 5 (Gender equality), 12 (Responsible Consumption and Production), and 16 (Peace, Justice and Strong Institutions)(e.g. see KAAMPAKA Impact Evaluation Report).

4.2 Project support to the Conventions or Treaties (CBD, CMS, CITES, Nagoya Protocol, ITPGRFA)

The project principally addressed four Aichi Biodiversity Targets of the CBD 2011-2020 Strategic Plan by: measuring trends in reef fish abundance (Target 6), understanding fishing practices on

coral reefs (Target 10), inputting to the NBSAP (Target 17) and drawing on experiences of customary use and knowledge (Target 18). Based on work with the BFAR/NFRDI for the Philippine Fisheries Strategic Plan, the project focused on 3 of 6 Philippine national biodiversity conservation objectives: (i) expanding and improving knowledge on the characteristics, uses and values of biological diversity; (ii) enhancing and integrating existing and planned biodiversity conservation efforts with emphasis on in-situ activities; and (iii) strengthening capacities for integrating and institutionalizing biodiversity conservation and management.

4.3 Project support to poverty alleviation

The project planned and established an alternative livelihood project designed to reduce fishery exploitation of wild stocks while supporting local communities in Lanuza Bay with a novel source of income and nutritional subsistence that is less damaging to the environment. A survey of participants indicated that there were some beneficial outcomes, including greater household and organisation revenue (Annex 7.2). The main PO beneficiary (KAAMPAKA) had equal representation of women, who gained revenue and were empowered by the social enterprise project (see 4.4). The project is being sustained at the location by the ongoing GEF funding.

4.4 Gender equality

The project leaders (one man, one woman) and field team (three men, three women) were gender balanced. The alternative livelihoods project offered equal increased work and income opportunities for women. Since KAAMPAKA, the people's organization (PO) beneficiary of the pilot social enterprise of this project, was based on family memberships, fish-workers regardless of gender, others involved in fish production and marketing, and their dependents including children, had equal power in decision making and claiming benefits. Benefits for women went beyond an increase in savings which allowed them to have more money for food, other household and personal needs, but also empowered them with skills and knowledge as the social enterprise moved towards building the capacity of family members to engage and be part of the decision making and execution of the social enterprise. The women gained not only income but became more confident and skilled fish-workers, including in fish processing, marketing, and business accounting (see Annexes 7.3, 7.4.4).

4.5 Programme indicators

In the pilot site at Lanuza Bay, KAAMPAKA (PO beneficiary of project) was managing local marine biodiversity (coral reefs, mangroves, seagrass and fisheries) before the project started. It has been leading the management of community-based MPAs in Cortes, with the support of the LGU. However, limited livelihood options and declining catches have been tending to increase poverty. It is felt that the present project together with KAAMPAKA increased representation in management structures including implementing the local MPA management plans, within the context of the conservation-livelihood agreement that was drawn up.

There was perception of increased income among fishers and greater savings among all women members/officers (Annex 7.2), but the sustainability of this remains to be seen. There is greater compliance with MPA and fishery regulations, due to the conservation-livelihood agreement and the financial and operations management policy and contingency plans of KAAMPAKA, however these need ongoing support and guidance from the LGU and government agencies, and NGOs.

4.6 Transfer of knowledge

No one achieved further formal academic qualifications from this project. However, the training by Newcastle University marine scientists and modelers gave the Philippines team skills in Access databasing, advanced statistical modelling (Generalized Linear Mixed Modelling; ZeroInflated Modelling) using the R program, and effective planning and implementation of field work. The project gave Ms Molina and Mr dela Rosa experience in analyzing and interpreting the field data, and co-authoring papers, which is expected to bear fruit in future. The above skills and

experiences, and co-authorship of scientific publications from the project qualified G dela Rosa and Yna Molina for MSc programmes and scholarship funding. Ms Molina is entering the MSc in Environmental Science and Meteorology at UP in Diliman Quezon City and has a Department of Science and Technology - Science Education Institute grant. Her MSc thesis is expected to make use of the statistical modelling skills she gained through this project. Mr dela Rosa is to apply to the UP at Los Banos MSc in Environmental Science and Management also funded by DOST-SEI; he expects to use the data from the project to model declines in relation to climate change parameters. The project also made it possible for these individuals from the Philippines to gain formal scuba-diving qualifications from PADI for Dive Master, Rescue Diver and Dive Instructor certification.

Transfer of knowledge to practitioners or policy makers to apply this thinking to practical conservation challenges.

National platforms (practitioners/policy makers). The transfer of knowledge including the new knowledge generated by the project (identified marine finfish species at risk of extinction; innovation in cross-disciplinary methods including research design and Statistics with R (GLMM;ZIM; Access databasing) happened pre- and post- publication of the first published paper (Annex 5). Between 2013 and 2015, when the Haribon Foundation was engaging with the CBD Country Focal Agency (DENR-PAWB) and UNDP-GEF in updating the NBSAP for 2015-2028, the project through Dr Lavidés as Lead Expert Discussant used the new knowledge generated by the project, especially in marine conservation and fisheries workshop groups. The publication gained wide media coverage and there were several expressions of interest from academe and government to roll out the project's approach more widely. Within months of the publication, a Bureau of Fisheries and Aquatic Resources (BFAR) regional office in the Visayas adopted the methods of the project (albeit without the modelling) and released their findings from which discussion about new local policies resulted.

International/regional platforms (practitioners/policy makers). Initial results and published results and analysis including raw data were transferred to IUCN Global Marine Species Assessment Global Manager Dr Kent Carpenter. There were two attempts made by Dr Carpenter and Dr Lavidés to gain National Science Foundation (NSF) funding to extend the project by proposing to do a National Red List Assessment for fish based on the IUCN criteria and methodology to. However, the NSF declined to fund the proposal since it believed that datasets for various marine taxa in the Philippines are still insufficient to merit a National Red List Assessment. Nevertheless, currently, there is an interest in the part of some Indonesian research institutes and NGOs to partner with Newcastle University and other relevant organizations, to do what Darwin Project 19-020 has done in island ecosystems in Indonesia. Dr Lavidés is currently working on the drafting of a concept note as working document for discussion, initially with Cristi Nozawa of Samdhana Institute.

National/International media coverage (see Annex 7.4.3)

National marine conservation and science conferences/meetings. Findings of the project were presented by project staff at the annual BFAR/National Fisheries Research Development Institute (NFRDI) National Scientific Fisheries Congress and the Philippine Association of Marine Science (PAMS) Philippine Marine Science Symposium. Dr Lavidés was during 2013-2015 Lead Expert Discussant for the National Biodiversity Strategy and Action Plan 2015-2028 on all marine and coastal aspects and also for the Action Plan to Prevent Species Extinction, both funded by UNDP-GEF, with CBD Philippine Focal Agency DENR-Biodiversity Management Bureau.

International marine conservation and science conference/meetings. Initial and final results and analysis of the project were presented by project staff at the 4-yearly Asia-Pacific Coral Reef Symposium (Kaoshioung, Taiwan 2014) and International Coral Reef Symposium (Cairns, 2012; Honolulu, 2016). Dr Lavidés participated and shared the project and the role of participative

science in MPA management at the International Marine Protected Areas Congress in Marseille in 2013. Dr Lavidés was invited by Stanford University to participate in the Small Scale Innovation Summit for (Rockefeller Foundation, Bellagio, 2014) and be an observer to the UNCLOS meeting on Conservation of Highly Migratory and Straddling Fish (UN Headquarters, New York City, 2015).

4.7 Sustainability and Legacy

Most likely to endure will be the analysis of species depletions and extirpation vulnerability, together with appreciation of what underlies these, but the social enterprise and other data particularly in Lanuza Bay are being carried over into another UNDP-GEF-funded project and there is expected to be pilot legislation locally (e.g. Annex 7.1).

5 Lessons learned

The management structure (Project Leader at Newcastle, Philippines Co-ordinator, other Newcastle academic collaborators, Philippines and Newcastle field workers, and additional local partners in the Philippines) worked well; it provided the necessary expertise and administrative control for successful completion. Newcastle had substantial experience with executing this type of work to a high standard, and the project was lucky to work primarily with Haribon, which has almost 50 years' experience in biodiversity conservation.

The core team with added expertise from Newcastle University and Haribon, and support of local partners in the Marine Key Biodiversity Areas (e.g. academe, government, NGOs, POs) was crucial in the project's success, as was the trust built with local stakeholders across sectors by the Haribon Foundation. The association with Newcastle University and Darwin Initiative funding also raised the profile of Haribon Foundation, and public and government attention to potential species extinctions and social drivers of it. The project helped to highlight that many marine finfish are just as vulnerable to extirpation as their terrestrial counterparts, thus action is equally necessary.

The project essentials were well planned, especially given the Haribon Foundation's almost 50 years of successful involvement in biodiversity conservation. However, the Project could have been more relevant as it is today, if in the research aspect, climate change parameters/variables, were included in the statistical modelling. The project is likely to have helped to set a baseline in the Philippines for reef fish depletion in the context of fishery exploitation and climate change. These long-term changes are expected to be addressed through MSc thesis research and/or future funding bids.

The gathering of evidence for biodiversity conservation in the marine realm is a big task yet the project was under pressure before this evidence had been gathered to proceed with the planning of an alternative livelihood project. The social enterprise pilot was in some respects successful (Annex 7.2), but funds within this project only allowed for renting a facility for the purpose; a more permanent fish processing facility and other capital items such as vehicles with which to sustain the activity were not feasible (inconceivable within the budget constraints). There was a risk that the pilot might have amounted to little, but it has thankfully been sustained by Haribon through the UNDP-GEF MKBA project and local and national government (e.g. regional BFAR, DTI and DOLE). However, for the entire process from gaining detailed biodiversity evidence from one of the most biodiverse systems on the planet, consultation with local groups, through to logical implementation and evaluation of the livelihoods project, to be encompassed within one project, more time, resources and more funding were needed.

5.1 Monitoring and evaluation

Four milestones (M1 YR1Q3 Training in database and statistical modelling (completed); M2 YR2Q3 Fishers' knowledge of fish abundance trends (completed); M3 YR3Q3 Fish abundance trends analysed and written up (submitted); M4 YR4Q3 Formulation of national policy paper (submitted)) were identified as likely drivers of success (Proposal section 18) and the requirements for achievement of these discussed at the inception workshop involving the Lead Institution and main Philippines partner, with some input from other bodies. It was agreed at the workshop that there would be quarterly use of distance conferencing and phone calls.

The Newcastle-Haribon team was in communication about all aspects of the project throughout its duration. All data, technical and activity reports, powerpoint presentations and related documentation were iteratively discussed and shared. During field work Dr Lavidés gave frequent updates to Prof. Polunin including features unique to a site or to a species or to an age-group of fishers and to ensure that methods were done properly and that Project staff were safe. During data analysis, Philippines project staff were in frequent communication with Newcastle modelers to check R codes, troubleshoot erroneous models and interpret results. The Project Leader and Dr Lavidés kept activities and outputs under review and discussed these very often on skype.

5.2 Actions taken in response to annual report reviews

YR1:

The Output Indicators should be reviewed and milestones placed against them, so that progress towards achievement of Outputs may be measured. See HYR1 Oct 2013 report, section 2a

YR2:

- (1) Discuss with Darwin the conservation-livelihood component. See letter to Darwin Projects dated 4 July 2014
- (2) Describe current partnership with AMU (staff involved and roles). See YR3 Report section 2
- (3) Please review assumptions and make sure they hold true. Assumptions were reviewed.
- (4) Give examples of dissemination materials that bear the Darwin Logo. See Annex 7.4.2, 7.4.5

YR3:

- (1) Discuss potential for replication of fishermen's surveys. The surveys were well replicated within and across five major locations, and the methodology has been applied elsewhere following the project's striking results (Annex 5).
- (2) Indicate whether you have sought support from Government agencies for setting-up *danggit* enterprise and whether matching funds have been obtained. The activity is being sustained by Haribon, GEF-UNDP and government funding (see section 5).
- (3) *Danggit* enterprise being financially and administratively independent from 2016. The activity is being sustained with the above support beyond 2016 but is not yet independent.
- (4) Discuss current partnership with Ateneo de Manila University. Partnership with ADMU ceased in 2013; see YR3 Report section 2.

6 Darwin identity

The project and Darwin Initiative identity were shared with the public through: 1) international and national coverage via features in print or on the web (Annex 7.4.3), 2) social media, in particular Facebook posts on the 'Big 3' (i.e. found by the project to be the most depleted species) coinciding with events such as National Fish Conservation Week and International Biodiversity Day, 3) TV and radio appearances (e.g. Annex 7.4.2); and 4) oral and poster presentations at international and national marine scientific and conservation conferences and feedback meetings (Annex 7.4.5).

This project became known as 'The Darwin Project' in the Philippines. The Darwin Initiative is considered one of the most prestigious UK government biodiversity funding programmes in the Philippines; most of those working in conservation and environmental science are familiar with it.

7 Finance and administration

7.1 Project expenditure

2015/16

Travel and subsistence			21.28	Underwater work could not have been done more cheaply but was unforeseeably over budget
Operating Costs			34.97	Savings in operating and staff costs made it possible to conduct the field work
Capital items			0.00	
Others (see below)			1.76	
TOTAL	98,891	96,233.63		
Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			3.00	Newcastle Research Assistant less costly than budgeted Research Associate
Consultancy costs			0.00	
Overhead Costs			0.00	

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Staff employed (Name and position)	Cost (£)
Ms CE Skinner – Research Assistant	
Miss KRF Prince – Research Assistant	
Margarita Lavidés – Project Manager	
Gregorio Dela Rosa – Research Associate	
Erina Pauline Molina – Conservation Science & Research Specialist	
Amelita Talotalo – Site Conservation Action Specialist	
Albert Balbutin – Web Designer and Graphic Artist	
Raquel Mogol – Finance Officer	
TOTAL	£59,658.99

Capital items – description	Capital items – cost (£)
n/a	
TOTAL	0

Other items – description	Other items – cost (£)
Telephone, photocopy, communication, courier, bank charges, office supplies	
TOTAL	£209.24

2016/17

Project spend (indicative) since last annual report	2016/17 Grant (£)	2016/17 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			0	
Consultancy costs			0	
Overhead Costs			0	
Travel and subsistence			0	
Operating Costs			0	
Capital items (see below)			0	
Others (see below)			0	
TOTAL	1500.00	1500.00		

Staff employed (Name and position)	Cost (£)
n/a	
TOTAL	0

Capital items – description	Capital items – cost (£)
n/a	
TOTAL	0

Other items – description	Other items – cost (£)
Audit costs	
TOTAL	£1500.00

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
UNDP-GEF MKBA Project (August 2015 to September 2016)	
Newcastle University	
TOTAL	206,297

Source of funding for additional work after project lifetime	Total (£)
UNDP-GEF MKBA (October 2016 to August 31, 2019)	
TOTAL	415,189.68

7.3 Value for Money

Fieldwork was potentially the most expensive part of the project. The staff salaries involved could not be reduced but the costs of travel, accommodation and subsistence could be and where wherever possible in a reasonable and safe manner. Project staff were able to achieve this by effective networking and trust-building with village captains and/or chairs of fisher organizations or local NGOs; these people were able to provide cheap and safe accommodation and facilities (including boats) or lead them to them. Sometimes the location and conditions were sub-optimal but with determination and discipline the team were able.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>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.</p>			
<p>Sub-Goal: New knowledge gained, stakeholder-led management capacity built and new conservation action taken to conserve marine biodiversity in Philippines hotspots</p>	<ul style="list-style-type: none"> * Threatened marine finfish added to national and international listings * Management measures taken in response * Ongoing research and outreach activity on species trends and distributions and their drivers * Key personnel training level increased 	<ul style="list-style-type: none"> * Uptake of lists by NBSAP, IUCN Red List * Planning of new actions e.g. marine protected areas motivated by project outputs * New project proposals, papers and other means of dissemination * Increased competence and skills of key staff * More positive management attitudes 	
<p>Purpose: Identify vulnerable reef finfish species, model changes in reef finfish abundances, enhance local capacity in local resource management, reconcile any conservation needs with sustainable livelihoods, recommend policy from local to international levels</p>	<ul style="list-style-type: none"> * Vulnerable species identified * Relevant policy derived and delivered at international, national and a local area * Resource management capacity in Lanuza Bay enhanced * Training and experience required to sustain project outputs in future achieved 	<ul style="list-style-type: none"> * Progress and final reports, peer-reviewed scientific papers * New projects planned and proposals to funding agencies submitted * Popular articles, related outreach materials and their uptake * Support for future biodiversity conservation science and actions 	<ul style="list-style-type: none"> * LGU and other government agencies continue to be supportive of the project * PO and other community groups continue to be receptive of the project * Funding schemes remain available for local and national studies in future
<p>Outputs</p>			

<p>1. Vulnerable marine finfish species identified in 5 key marine biodiversity areas,</p>	<p>1.0 Inception workshop and database/statistics training conducted</p> <p>1.1 Fishers' knowledge of threatened species surveyed, data processed and analysed</p> <p>1.2 Underwater visual census conducted, presence/absence data gathered and analysed</p> <p>1.3 List of vulnerable species drafted</p>	<ul style="list-style-type: none"> * Workshop minutes, copies of trainee-completed database and statistical assessments * Data and technical reports * Paper submitted for peer-review publication 	<ul style="list-style-type: none"> * Fishers are amenable to survey * Agencies permit access to further data * Weather conditions do not impede underwater data gathering
<p>2. Changes in abundance of reef finfish families and fishery target species modelled for 5 key marine biodiversity areas</p>	<p>2.1 Fishers' retrospective perceptions of abundance trends surveyed and analysed;</p> <p>2.2 Abundance trends in underwater visual census and landings data analysed;</p> <p>2.3 Trends compared between methods within and among sites, drivers analysed; revised vulnerable species list</p>	<ul style="list-style-type: none"> * Data and technical reports * Papers submitted for peer-reviewed publication * Popular articles, other outreach materials 	<ul style="list-style-type: none"> * Fishers are amenable to survey * Agencies permit access to further data * Weather conditions do not impede underwater data gathering
<p>3. Capacity of LGUs and POs for local resource management in conservation site enhanced</p>	<p>3.1 Training in marine ecology, fisheries and conservation conducted</p> <p>3.2 Workshops on management needs and training on fisheries monitoring conducted</p> <p>3.3 Communication plan and materials (ie. posters, fliers, radio ads) produced and future funding plan drafted</p>	<ul style="list-style-type: none"> * Minutes and feedback from sessions on local competence and awareness of conservation actions * Progress and final reports * Seminar training materials * Communication plan 	<ul style="list-style-type: none"> * Political conditions do not substantially impede project or deliverables * LGUs and POs continue to be receptive to training and materials

<p>4. Conservation needs reconciled with sustainable livelihoods</p>	<p>4.1 Human behavioural drivers of any diversity losses assessed</p> <p>4.2 Existing conservation livelihood agreements with fishers' organizations; initiatives and new options including continuity mechanisms evaluated;</p> <p>4.3 Any new livelihood options with conservation agreements (e.g. low-impact mariculture) installed; management system reviewed and improved;</p> <p>4.4 Economic impact of livelihood options of participant groups surveyed</p>	<ul style="list-style-type: none"> * Minutes of consultations with LGUs and POs on livelihoods initiatives/options for Lanuza Bay * Paper on socio-economic drivers of any losses * Report on design and management of new conservation-livelihood agreement project and agreed funding plan, aim to involve ≥25 families * Surveys of income and savings levels of participants before and after project; aim for ≥20% savings by target families * Enforcement reports for marine protected areas 	<ul style="list-style-type: none"> * LGUs and POs continue to be receptive to training, seminars and conservation livelihood agreements * Extreme weather does not substantially affect any conservation-compatible livelihood project(s)
<p>5. Policy recommendations made at local, national and international levels</p>	<p>5.1 Lanuza Bay policy paper completed</p> <p>5.2 National level policy paper completed</p> <p>5.3 Recommendations made to IUCN</p>	<ul style="list-style-type: none"> * Papers taken up by LGUs and/or POs in Lanuza Bay * Policy paper taken up by government agency, used to inform next NBSAP * Report to IUCN Red List Authority 	<ul style="list-style-type: none"> * Local and international stakeholders remain receptive of project outcomes * Weather and political conditions do not substantially impede project or deliverables

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements April 2015 to September 2016	Actions required/planned for next period
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<p>Goal/Impact:</p> <p><i>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.</i></p> <p><i>Sub-goal New knowledge gained, stakeholder-led management capacity built and new conservation action taken to conserve marine biodiversity in Philippines hotspots</i></p>		<p>Robust data on large-scale vulnerability of coral-reef fish species have informed policy and action from local to national levels especially, while offering a model opportunity for a less biodiversity impacting fisheries-related alternative livelihood</p>	n/a
<p>Purpose/Outcome</p> <p>Vulnerable marine finfish species identified in 5 key marine biodiversity areas; changes in abundance of reef finfish families and fishery target species modelled for 5 key marine biodiversity areas; capacity of LGUs and POs for local resource management in conservation site enhanced; conservation needs reconciled with sustainable livelihoods; policy recommendations made at local, national and international levels</p>	<p>Vulnerable species identified</p> <p>Relevant policy derived and delivered at international, national and a local area</p> <p>Resource management capacity in Lanuza Bay enhanced</p> <p>Training and experience required to sustain project outputs in future achieved</p>	<p>With only minor exceptions, the project has been successful in all five respects (see Output details)</p>	n/a
<p>Output 1. Vulnerable marine finfish species identified in 5 key marine biodiversity areas</p>	<p>Inception workshop and database/statistics training conducted; fishers' knowledge of threatened species surveyed, data processed and analysed; underwater visual census conducted,</p>	<p>Output achieved, findings published (fishers' knowledge) or submitted for publication (underwater data)</p>	
	<p>presence/absence data gathered and analysed; list of vulnerable species drafted</p>		
<p>Activity 1.0 Inception workshop: in Manila, review of proposal, preparation for Newcastle training, inception of field work planning</p>		<p>Completed</p>	

Activity 1.1 Training in database and statistical modelling: in Newcastle University, introduction and application of Access, application of R to time-series and multivariate data		Completed
Activity 1.2 Fishers' knowledge, socio-economic and underwater surveys conducted: presence-absence data by site, socio-economic variables derived for Output 5		Fisher's knowledge and underwater surveys and analysis of socio- economic drivers completed
Activity 1.3 Analysis of vulnerable species: entry, processing and statistical analysis of data, technical report		Species extirpation/depletion paper published, international conference presentations delivered
Output 2. Changes in abundance of reef finfish families and fishery target species modelled for 5 key marine biodiversity areas	Fishers' retrospective perceptions of abundance trends surveyed and analysed; abundance trends in underwater visual census and landings data analysed; trends compared between methods within and among sites, drivers analysed; revised vulnerable species list	Output achieved overall
Activity 2.1 Fishers' knowledge of fish abundance trends: own catch and size data, recollection of decadal trends, data on fishers themselves		Data on perceived changes in abundances of reef finfish families and fishery target species gathered together with data on fishers for the five sites
Activity 2.2 Underwater survey and landings data: previous underwater visual data, landings data normalised by effort)		Underwater surveys completed, prior underwater data and landings data proved inadequate or could not be accessed
Activity 2.3 Fish abundance trends analysed across methods, among locations, writing and submission of papers for peer-reviewed publication		Changes in abundances of reef finfish families and fishery target species only inferred in the five sites using fishers' recollection data, presence/absence data only compared between social and ecological methods
Output 3. Capacity of LGUs and POs for local resource management in conservation site enhanced	Training in marine ecology, fisheries and conservation conducted; workshops on management needs and training on fisheries monitoring conducted; communication plan and materials (ie. posters, fliers, radio	Completed but focused on conservation-sustainable livelihoods and a relevant social enterprise. Communication plan implemented and newsletters, animated AVPs, and radio ads, produced. Funding plan being implemented by UNDP-GEF via MKBA project.
	ads) produced and future funding plan drafted	

Activity 3.1 Training sessions: in Lanuza Bay, marine ecology/fisheries, participatory monitoring	Completed but training redirected to capacity building for conservation-sustainable livelihoods and a social enterprise related to species depletion
Activity 3.2 Workshops on management needs and training in fisheries monitoring, participatory management, indicators in Lanuza Bay	Workshops refocused on conservation-sustainable livelihoods and social enterprise, conducted and social enterprise requirements completed.
Activity 3.3 Communication planning, production and distribution of posters, flyers, radio plugs etc in Lanuza Bay area	Newsletter in local dialects (Cebuano/Surigaunon/Filipino) and English distributed to stakeholders across project sites; TV and radio appearances; animated AVPs and other project materials shared through YouTube, Facebook
Output 4. Conservation needs reconciled with sustainable livelihoods	Human behavioural drivers of any diversity losses assessed; existing conservation-livelihood agreements with fishers' organizations; initiatives and new options including continuity mechanisms evaluated; any new livelihood options with conservation agreements (e.g. low- impact mariculture) installed; management system reviewed and improved; economic impact of livelihood options of participant groups surveyed Conservation-livelihood agreements with fishers' organization crafted and implemented and social enterprise (low-impact small-scale mariculture) installed, based on drivers of depletion and value chain analyses. Social enterprise operational and management system reviewed and improved. Social, environmental and economic impact of social enterprise mostly positive.
Activity 4.1 Social-economic drivers of diversity losses assessed	Socio-economic drivers of depletion data obtained for all five sites and analysed
Activity 4.2 Conservation-livelihood agreements assessments, options and training needs	Conservation-Sustainable Livelihood Agreement on marine conservation and fisheries management completed and social enterprise project developed
Activity 4.3 Installation of new livelihood option under conservation agreement set up with people's organisation(s) in Lanuza Bay	Danggit subsector and value chain analysed, development planning done and project progressed to installation and implementation in small-scale
Activity 4.4 Surveys to compare income and savings levels of participants at start of project and following project	Pre-livelihood intervention income and social surveys conducted
Output 5. Policy recommendations made at local,	Lanuza Bay policy paper completed; national level policy paper completed; recommendations made Legislation to protect most depleted reef finfish species being piloted by Cortes LGU, significant contributions to NBSAP 2015-2028. Evidence

national and international levels	to IUCN	shared with IUCN Global Marine Species Assessment.
Activity 5.1 Formulation with LGUs and POs in Lanuza Bay of local policy, submission of policy paper on Lanuza Bay		Formulation of local policy with LGUs and POs in Lanuza Bay under way; Cortes LGU pilot legislation to protect the most depleted reef finfish species based on Project results. MKBA Project currently taking up the activity.
Activity 5.2 Formulation with government agencies of paper targeting national policy including NBSAP, National Fisheries Strategy Plan, submission to BFAR/NFRDI, DENR-PAWB etc		Contributions to updating NBSAP 2015-2028 and Philippines Action Plan to Prevent Species Extinction
Activity 5.3 Recommendations to IUCN Red List Authority: e.g. status of species/families to be revised		Use of project results for future national Red List of fishes progressed with IUCN, further funding obtained for work at two sites (Annex 7.4.6)

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained						
3	Number of other qualifications obtained	2	Philippines	1M;1 F	Rescue/Dive Instructor; Dive Master	English & Filipino	
4a	Number of undergraduate students receiving training						
4b	Number of training weeks provided to undergraduate students						
4c	Number of postgraduate students receiving training (not 1-3 above)	1	Philippines	M	Marine Conservation/Social Enterprise	English/Filipino	
4d	Number of training weeks for postgraduate students	24	Philippines	M	Marine Conservation/Social Enterprise	English/Filipino	
Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments

5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not categories 1-4 above)	3	Philippines	1 M, 2 F	Marine Conservation & Science/Advanced Statistics with R/Scientific Paper Publishing	English & Filipino	
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	120	Philippines	ca. 60 M; 60 F	Technical, finance and administration of a social enterprise; organizational development incl leadership	English/Filipino/Surigaunon	
6b	Number of training weeks not leading to formal qualification	30	Philippines	ca. 60 M; 60 F	Technical, finance and administration of a social enterprise; organizational development incl leadership	English/Filipino/Surigaunon	
7	Number of types of training materials produced for use by host country(s) (describe training materials)	6	Philippines	ca. 60 M; 60 F	Technical, finance and administration of a social enterprise; organizational development incl leadership	English/Filipino/Surigaunon	materials include powerpoint presentations used by Haribon (Annex 7.4.4)

Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for any implementing agencies in the host country	2	Philippines	1 M, 2 F	National Biodiversity Strategy & Action Plan 2016-2028; Action Plan to Prevent Species Extinction	English	Participatory process where Dr Lavidés and project staff formed part of the UNDP-GEF and DENR-BMB team in designing, conducting national and regional workshops

							including documentation drafting/review/revision of plans
10	Number of formal documents produced to assist work related to species identification, classification and recording.						
11a	Number of papers published or accepted for publication in peer reviewed journals	1	Philippines-UK	4 F, 3 M	Patterns of reef finfish species disappearances in global epicentre of shorefish diversity	English	Published in PLoS ONE 2016, one more submitted, one other in preparation (Annex 5)
11b	Number of papers published or accepted for publication elsewhere						
12a	Number of computerbased databases established (containing species/generic information) and handed over to host country	10	Philippines-UK		Access Database for Fishers' Knowledge Surveys and Underwater Surveys for 5 project sites	English	fishers knowledge and underwater-ecological data, available at https://www.dropbox.com/sh/04wkh7mnp4lyfds/AADZPmHI75GfrXWQmYIY5Z9fa/Final%20Databases?dl=0
12b	Number of computerbased databases enhanced (containing species/genetic information) and handed over to host country	5 (under water, site data)	UK-Philippines		Access Database for Underwater Surveys for 5 project sites	English	fishers knowledge and underwater-ecological data, available at https://www.dropbox.com/sh/04wkh7mnp4lyfds/AADZPmHI75GfrXWQmYIY5Z9fa/Final%20Databases?dl=0

13a	Number of species reference collections established and handed over to host country(s)						
13b	Number of species reference collections enhanced and handed over to host country(s)						

Financial Measures	Total	Nationality	Gender	Theme	Language	Comments
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23	Value of additional resources raised from other sources						See also ongoing
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Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/works hops organised to present/disseminate findings from Darwin project work	6	Philippines-UK	2 M;2 F	Project inception planning; feedback meetings on 5 project sites	English/Filipino/Cebuano/Suriga unon	See Annex 7.1, 7.4.5
14b	Number of conferences/seminars/workshops attended at which findings from Darwin project work will be presented/disseminated.	7	Philippines-UK	1 M; 2 F	Marine conservation/fisheries and scientific conferences (PAMS, APCRS, ICRS, SCICON, IMPAC)	English	See Annex 7.1, 7.4.5

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)		
21	Number of permanent educational, training, research facilities or organisation established		
22	Number of permanent field plots established		

	(e.g., in addition to Darwin funding) for project work						funding at 7.2
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Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	✓
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	✓
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	

12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	✓
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	✓
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Type *	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Journal	Patterns of coral-reef finfish species disappearances inferred from fishers' knowledge in global epicentre of marine shorefish diversity. Lavidés MN, Molina EPV, de la Rosa GE, Mill AC, Rushton SP, Stead SM, Polunin NVC 2016	Philippines	Philippines	Female	<i>PLoS</i>	http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0155752
Newspaper	Various titles, see Annex 7.4.3	Philippines	Philippines		e.g. <i>Manila Times</i>	List at Annex 7.4.3
Various media	Various, see Annex 7.4.1, 7.4.2	Philippines	Philippines		e.g. Haribon	Annexes 7.4.1, 7.4.2

Ref No	19-020
Project Title	Responding to fish extirpation in the global marine biodiversity epicentre
Project Leader Details	
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Annex 7 Other materials