



## Darwin Initiative Main Project Annual Report

To be completed with reference to the “Writing a Darwin Report” guidance: (<http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms>). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2018**

### Darwin Project Information

Project reference	24-016
Project title	Sustainable community-based stewardship of freshwater resources in the Northern Philippines
Host country/ies	Philippines
Contract holder institution	Zoological Society of London (ZSL)
Partner institution(s)	Bureau of Fisheries and Aquatic Resources (BFAR); Department of Environment and Natural Resources (DENR)
Darwin grant value	£378,174
Start/end dates of project	1/7/2017 to 31/12/2020
Reporting period and number	Apr 2017 – Mar 2018: Annual Report 1
Project Leader name	Dr Matthew Gollock
Project website/blog/Twitter	<a href="https://twitter.com/ZSLMarine">https://twitter.com/ZSLMarine</a> <a href="https://www.facebook.com/ZSLMarineAndFreshwaterConservation/">https://www.facebook.com/ZSLMarineAndFreshwaterConservation/</a>
Report author(s) and date	Matthew Gollock, Alejandro Belen, Emma Levy, Surshti Patel, Franklin Piad, Mae-Ann Rabina and Bryan Villanueva.

### 1. Project rationale

An estimated 126,000 described species rely on freshwater (<https://www.iucn.org/theme/species/our-work/freshwater-biodiversity>), and this biome exhibited species’ population declines of 81% between 1970 and 2012 (Living Planet Index, 2016). The Convention on Biological Diversity (CBD) states that globally, freshwater habitats and associated biodiversity are impacted by unsustainable use, construction, land conversion, pollution and invasive alien species. This is echoed in both the 4<sup>th</sup> (<https://www.cbd.int/doc/world/ph/ph-nr-04-en.pdf>) and 5<sup>th</sup> (<http://www.cbd.int/doc/world/ph/ph-nr-05-en.pdf>) Philippines National Report to the CBD (NRCBD) which highlight that freshwater systems require urgent conservation attention. The study site is the Cagayan River Basin (CRB) in Luzon, Philippines, the largest freshwater body in the country. Habitat surveys in our previous project (21-020) identified key threats which include deforestation and ‘slash and burn’ agriculture leading to erosion and siltation, abstraction, unmanaged exploitation, stocking with exotic tilapia and expansion of settlements due to rising populations, which will generally increase the pressure on freshwater resources. Some of these threats have provided the basis of both our biological and socio-economic interventions, and these have been tailored such that we can capitalise on the expertise of our partners (see section 2).

If the freshwater systems continue to be impacted by these activities without intervention, the communities that rely upon them will lose essential ecological, economic and cultural resources. The core of this project is community engagement and over the three years of the previous project and nine months that we have been implementing the present project we have built relationships with key stakeholders to ensure buy-in at the local level. The protection and management of freshwater biodiversity, and by association, the success of the project, is reliant on the Freshwater Sanctuaries (FS) being managed effectively by local stakeholders and we have been heartened by the enthusiasm shown by communities that are linked to them.



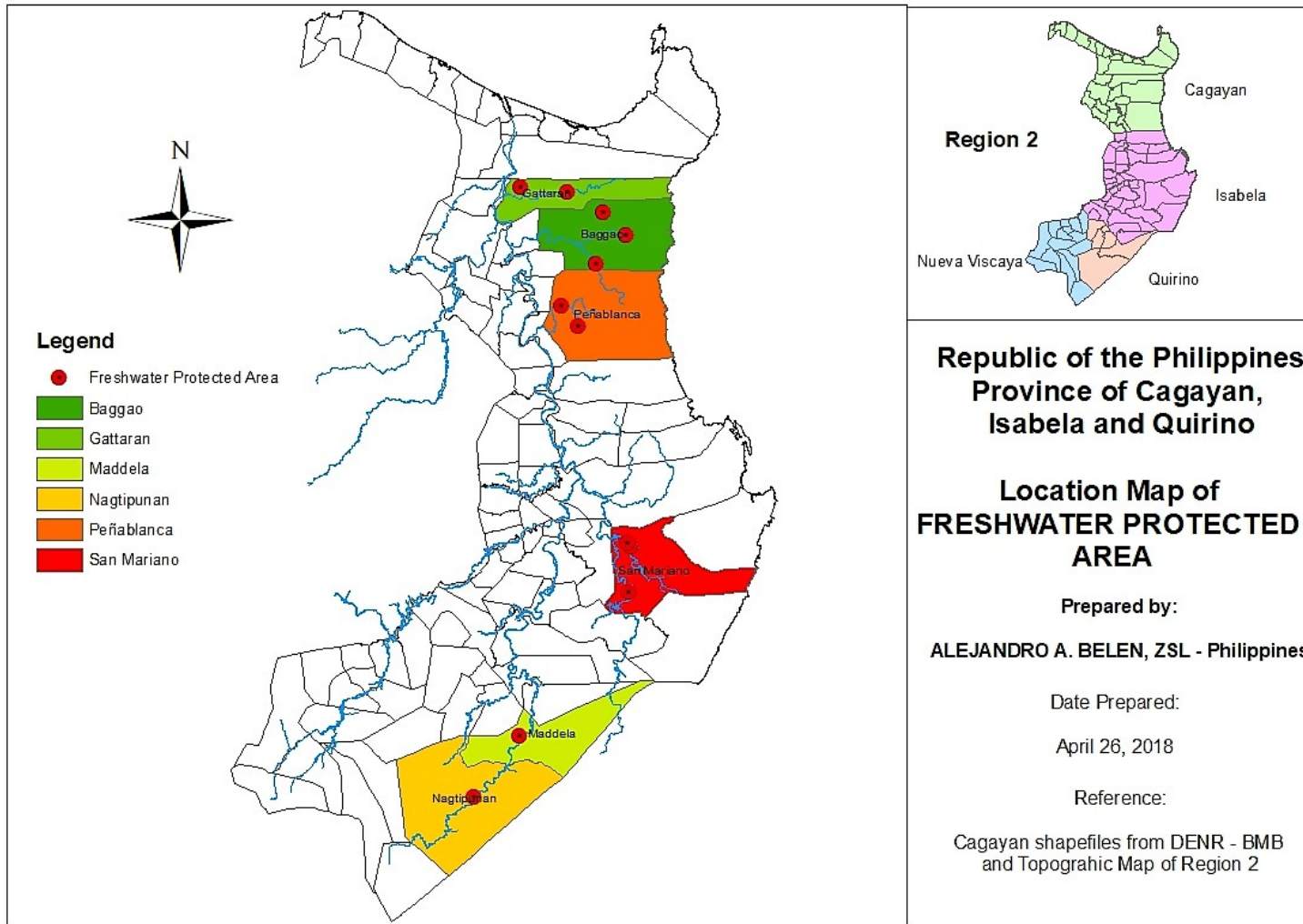
Figure 1. Maps of study area (see Figure 2 for Freshwater Sanctuary locations).

**2. Project partnerships**

We have now been working with both the Bureau of Fisheries and Aquatic Resources (BFAR) and Department of Environment and Natural Resources (DENR) for over four years. These relationships have been borne out of, and developed by, identifying the key threats and management measures required to improve conservation of key species and habitats in the CRB. We have now signed two new Memorandums of Agreement (MOA) with these organisations to formalise the roles and responsibilities of delivering the project.

ZSL have also moved offices from BFAR’s facility in Aparri, to DENR’s regional office in Tuguegarao. This location is far more appropriate for the inland focus of the present project and allows us to capitalise on the terrestrial experience of DENR staff (see Output 4 and associated activities). We continue to work closely with BFAR on aquatic species focussed elements of the project (see Outputs 1,2 and 5 and associated activities).

In addition to these regional level relationships, we have been maintaining our municipal level partnerships with Local Government Units (LGUs) – see Annex 4 for governance structure in the Philippines - as it is within these that monies and resources can be allocated for the support of FS at the barangay level where implementation occurs. We have again signed MoAs with the LGUs in order that there is a resource commitment to support the FS – at present two have already been approved by Sangguniang Bayan (the Municipal Council) through a municipal resolution, and we expect the other four to be signed before the end of 2018. However, adoption of the FS Management Plan (FSMP) has proven quite challenging due to political divisions in some councils and the negotiations of budget apportioning.



**Figure 2 – Freshwater Sanctuary sites.**

All in country partners are co-ordinated via the Technical Working Group (TWG) that meets quarterly (see Annex 5).

In addition to these in-country partnerships, ZSL have been building a relationship with international partners. ZSL are the main delivery partner for two reports to the CITES secretariat relating to trade in anguillid eels, and have attended technical workshops relating to this where lessons learned from both the previous and present Darwin projects have been shared (see Output 2 and associated activities). In addition to this, relationships have been built by both ZSL and BFAR with the Food and Agriculture Organisation (FAO) and Southeast Asian Fisheries Development Center (SEAFDEC) such that best practices in management of eels can be regionally shared (<http://www.seafdec.org/anguillid-eel-survey-northern-luzon-philippines/>).

### **3. Project progress**

To avoid repetition, progress in some elements of work have been delayed due to a restructure of the team and associated hiring activities. We felt this was necessary due to the added terrestrial focus of the project, but the team was back to full strength by the end of October 2017, and has been working extremely well since. Over-riding project orientation meetings were held in all twelve sites (361 participants in total (212 female and 149 male)).

#### **3.1 Progress in carrying out project Activities**

##### 1.1 Tagging, monitoring and analytical techniques training (Y1Q3-Y1Q4)

Our approach to tagging fish (Output Indicator (O.I.) 1.2) was amended through a change request due to an underspend, and a greater focus was put upon using acoustic tags and receivers to gather information as to the effectiveness of FS for protecting key species and also provide baseline information on poorly understood fish (O.I. 2.2). Acoustic tags provide positional data which the Passive Integrated Transponder (PIT) and visual tags lack – ultimately more robust data is gathered.

Dr. Adam Piper carried out demonstrations of eel tagging to ZSL staff, barangay level community monitoring groups (CMG), fish sanctuary management body (FSMB) officer, personnel of municipal environment & natural resources office (MENRO) and BFAR Region 1 and 2 representatives at key sites in Baggao. Activities included a brief orientation to all during the first fish tagging activity, and three sessions of information, education and communication (IEC) were conducted to local community members and local tourists to disseminate the importance of eel tagging on determining the effectiveness of the FS, how it works and how we secure the receivers (See Annex 6). The support from the communities for carrying out this work was invaluable and the enthusiasm for being part of the project was testament to the ongoing engagement with those that live near, and rely upon, the aquatic resources we are focussing on.

No training was given to staff during this initial programme of work (O.I. 1.1) as we are still working with BFAR to understand their national needs for these techniques. It is hoped that a national level workshop will be held in October in Tuguegarao in order to build knowledge across the national team as to how telemetry can benefit fish management and conservation.

##### 1.2 Native fish species – including anguillid eels - are tagged with acoustic/ PIT tags / elastomers and acoustic receiver array is established. (Y1Q3 –Y3Q2)

In our initial tagging activity, which focused only on eel, we tagged a total of 23 anguillid eels using acoustic, PIT and elastomers (O.I. 1.2). Tagging activities will resume in October 2018 and this will include the tagging of other native freshwater fish and introduced fish species.

In addition to this, a small receiver array was set up in key sites and along the main-stem of the Cagayan (see Annex 7)

##### 1.3 Movement of native fish species within the Cagayan River Basin is monitored on a micro- and macro- scale on a monthly basis. (Y1Q4 – Y4Q3)

We will collect data from acoustic receivers during our next project visit in October 2018.

#### 1.4 Fish movement data and existing FS bi-weekly abundance monitoring data is consolidated and analysed. (Y2Q1 – Y4Q3)

The collection of fisheries independent data (FID) involves CMG, established during the previous project, in each FS. The FID data is submitted to municipal agriculture office (MAO) in the LGU (see Annex 8), which in turn submits the data to BFAR office (O.I. 2.2 + 2.3). As part of on-going monitoring activity, ZSL staff sometimes join the CMG during the collection of data. There are challenges relating to the collection of data as some CMG members are not regularly conducting the bi-weekly transect swim/walk and some of them are not submitting it to the MAO office, ZSL staff are trying to identify the gaps and assist different FS to strengthen the gathering of data. While we have encountered variable success in establishing these lines of communication between differing levels of government, for those that are collecting regular data, this sharing and consolidation is being used as an example of how local level data can help to drive regional and municipal level decisions (O.I. 2.3).

#### 1.6 FSMB expanded to include beneficiaries of new livelihoods e.g. native tree nurseries. (Y2Q3 – Y4Q3)

Consultative meetings with FSMB members have been initiated and discussions include livelihood interventions such as CoMSCAs, development of native tree nurseries, and establishment of People's Organisations (O.I. 1.3, 3.2, 4.3 + 4.4). These will be developed in Y2 as per the work plan.

#### 1.7 Management Effectiveness Assessment Tool (MEAT) adapted for use in FS in consultation with MPA Support Network (MSN). (Y1Q3 – Y1Q4)

ZSL is currently drafting the questionnaires intended for assessment of FS as a pre-cursor to consulting with MSN and formalising the use regionally (O.I. 1.4.) (see Annex 9).

#### 1.8 MEAT assessment carried out at all 12 sites. (Y2Q1 – Y4Q3)

Coordination with LGUs and corresponding FSMBs already started in January, informing them about MEAT and the pilot trials of the developed questionnaire that will take place from May 2018 (O.I. 1.4). The discussion also included the need to convene the FSMB to discuss the preparation of these activities, how the MEAT assessment relates to the implementation of FSMPs and to revisit the targeted activities indicated in the plan.

#### 2.1 National eel data framework established in collaboration with BFAR. (Y1Q3-Y1Q4)

Discussions with BFAR indicate the establishment of the data framework is still in progress, but Region 2 where our project has been established is likely to be a pilot for the system (O.I. 2.1). BFAR have established monthly sampling at sites in the CRB to monitor eel recruitment to the river, which will be hugely valuable in ensuring off-take is sustainable (O.I. 2.3). Further, there are efforts to introduce a licencing procedure for eel farms – 27 have been established nationally in the past five years, and to strengthen fisher registration. All of the above will ensure the data collected for the framework is robust.

#### 2.2 Key metrics are identified and analysed in line with CITES call. (Y2Q1 – Y4Q3)

BFAR are working with SEAFDEC to develop national monitoring of eel fisheries in an effort to harmonise regional data collection for key species – *Anguilla bicolor* and *Anguilla marmorata* (O.I. 2.4).

#### 2.4 Data submitted to national CITES focal point. (Y2Q1 – Y4Q3)

The CITES Management Authorities have deferred to the BFAR national eel lead – Evelyn Ame, our project partner – in relation to the recent CITES Notification (O.I. 2,1 and 2.4), and associated questionnaires, relating to the collection of eel data - <https://www.cites.org/sites/default/files/notif/E-Notif-2018-018.pdf>. At present, we can't share the response as it is confidential prior to publication of the report (see Activity 2.7) but we will do so in the Y2 half year report, however, it highlights the expertise of the project team in relation to our focal species.

#### 2.5 Regional eel focal points in other range states identified and engaged. (Y2Q1 – Y4Q3)

This is an on-going process through SEAFDEC. BFAR are a key partner in this coalition and ZSL are hoping to attend the next regional meeting in Bangkok, Thailand in June (O.I. 2.4). Further, the project lead was asked to present at a national workshop in Indonesia, where lessons learned from our work in the Philippines could be shared (see Annex 10).

Within the Philippines, Region-level focal points are being established to provide a network of expertise (O.I. 2.1) in areas where fisheries have established over the past 5-10 years – this is particularly encouraging in the case of Mindanao where little is understood.

#### 2.7 Project representatives attend national and international CITES workshops relating to anguillid eels. (Y1Q2 – Y4Q3)

The project lead was invited to attend a workshop in the Dominican Republic (<https://twitter.com/SargassoSeaCmsn/status/983367858813095938>) which focussed on the American eel, however, there were a number of opportunities to highlight the work that had been carried out as part of the Darwin-funded project.

Both the project lead and the Philippines eel focal point were invited to attend an international workshop in London ([https://twitter.com/Vin\\_Fleming/status/986678909184937984](https://twitter.com/Vin_Fleming/status/986678909184937984)) held by CITES relating to trade in anguillid eels (O.I. 2.1). Unfortunately due to visa issues there was no representation from the Philippines but ZSL were able to provide a number of lessons learned from our Darwin-funded work.

#### 3.1 Socioeconomic survey is developed, carried out and analysed, and report produced. (Y1Q2 – Y1Q4)

Community Focus Group Discussions (FGD) were conducted with stakeholders in 10 of the 12 key sites with the representatives from the MEO, MAO, Barangay Officials, Department of Education, senior citizens, youth sector, and indigenous people (see Annex 11 for summary attendance; Annex 12 for report cover page; Figure 1 for key site locations). Through the FGD, several existing civic and social organizations were identified and were willing to become ZSL partners in environment-related activities. These include fraternities (Samahang Ilokano, Guardians Brotherhood), religious groups (Knights of Columbus), women's group (Go WOW) to name a few. SWOT Analysis was conducted in the remaining two key sites (Maddela and Nagtipunanan that have existing People's Organization, with representatives from the LGUs). Following the completed SWOT analyses and FGD, a more focussed socio-economic survey will be carried out from May onwards (O.I. 3.1). Results of the FGD were used to develop the questionnaire which the team will use. Orientation and training of enumerators (data collectors) is scheduled for the first week of May followed by pilot testing in one of our key sites.

#### 3.3 Capacity and engagement needs of community and FSMB addressed through series of training courses, social marketing and infra-structure development. (Y2Q1 – Y2Q4)

Key findings from the FGD included the lack of patrolling equipment, no financial incentives for the river wardens, and threats such as infrastructure development, in or near sanctuaries. Co-ordination with the local government units to adopt the Fish Sanctuary Management Plan (FSMP) will address the issue of financial incentives (O.I. 3.5). Adoption measures on landscape changes will be dealt with during upcoming land-use planning (O.I. 4.1). Lack of equipment has been channelled to other government agencies (BFAR for patrol boats, etc.).

Key findings from the SWOT analysis include the lack of training for diversified livelihood (smoked tilapia, T-shirt printing, woodworking, etc), lack of financial resources to invest in diversified livelihood, lack of financial resources to expand current activities, lack of legal identity to enable them to secure loans and seek additional support from government agencies. To address these issues, the LGU will assist in the registration of the People's Organisations to the Securities and Exchange Commission. Coordination with various government agencies were facilitated and livelihood trainings scheduled.

The concept of using CoMSCAs as a mechanism of social infrastructure was introduced during the stakeholder project orientation (O.I. 3.2). Attendees were keen to join knowing that COMSCA develops financial resiliency in the community. More women have volunteered to join, and a group of fraternity members are keen to join as well.

#### 3.4 CoMSCA training is delivered at 12 key barangays. (Y1Q2 – Y4Q2)

This will be delivered in a staggered schedule due to staff capacity – four of our twelve sites will begin induction from May onwards (O.I. 3.2), though this has been slightly delayed due to barangay elections.

#### 3.8 Environment funds are established and proposed budget developed and agreed. (Y1Q2, Y2Q2, Y3Q2)

This will begin once CoMSCAs are established (O.I. 3.2 + 3.4).

#### 3.9 Community and GO co-funding agreement and mechanism of delivery is established for FS enforcement and management. (Y1Q3-Q4, Y2Q4 – Y3Q1, Y4Q1-Q2)

To date, two LGUs have ratified the FSMPs and committed resources to the FS (O.I. 3.5). We expect the other four to be formally ratified before the end of 2018. At this point, CoMSCA Environment Funds can be used to match these government funds.

#### 4.1 Community consultations relating to land use are carried out in 12 key barangays linked to FS. (Y1Q3 – Y1Q4)

Participatory Land Use Planning (PLUP) (O.I. 4.1) was presented to stakeholders during the project orientation. All are in agreement that the community has to be involved in the planning and use of their natural resource. Coordination with the Municipal Planning and Development Office, and the local tourism office identified key people that can assist in the development of maps and zonation. This process will be supported by DENR. Nursery establishment was discussed during the project orientation at key sites (O.I 4.4 + 4.5). Teachers from elementary schools near FS are interested to partner with ZSL and be trained in nursery establishment and operations.

#### 4.2 Behaviour change programme related to responsible farming practices and mitigation of threats established. (Y1Q3 – Y1Q4)

During the above consultations, initial discussions were had relating to matters such as pesticide use and leaving a buffer zone along river banks – the latter is required by law (O.I. 4.3). Discussions were also had about which other native species could be farmed as a livelihood option.

#### 4.3 Participatory land-use mapping carried out in the areas around the 12 FS. (Y1Q3 – Y1Q4)

Initial coordination with DENR has been carried out in four key sites – and PLUP will begin in Q2Y2 (O.I. 4.1).

#### 4.4 Consolidation and analysis of data for each of the 12 sites is carried out to identify priority areas for mitigation. (Y1Q4 – Y2Q1)

This has been delayed and will begin once data from PLUP has been collected - beginning Q2Y2 (O.I. 4.1).

#### 5.1 Invasive species survey carried out in 12 FS (Y1Q3 – Y2Q1)

Gathering of invasive species related data has been integrated into FID collection by the CMG and is being collected on a bi-weekly basis (O.I. 5.1). As highlighted above, there are issues relating to this data collection in some sites but we are working to resolve these with LGUs. However, during site visits, discussions with CMG members indicated that there is a new invasive species, the janitor fish (*Pterygoplichthus pardalis*) (Annex 13), in Penablanca, Maddela and Nagtipunan. The janitor fish has already had a negative impact in aquatic systems in the Philippines and based on the report entitled “Introduced Freshwater Fishes in the Philippines: An Assessment and Recommendations” published by National Academy of Science and Technology, the burrowing habits of *P. pardalis*, has also eroded the banks of Marikina River, a tributary of Laguna de Bay.

This is an ornamental fish and so could have been released from private aquaria – BFAR have been informed, but it highlights the importance of the regular monitoring that has been established. Anecdotal evidence from local fisheries indicates that it may have been in the region for some time but our monitoring will hopefully allow us to determine the range of the species and what mitigation may be appropriate

#### 5.2 FSMPs adapted to incorporate mitigation activities. (Y1Q3 – Y2Q2)

This activity has been delayed, and will be developed once FSMPs have been ratified by LGUs. We expect to be able to add mitigation activities from Y2Q4 onwards (O.I. 4.2).

### **3.2 Progress towards project Outputs**

**Output 1:** The establishment of a tagging programme of native species in Q4Y1 means that data is already being accumulated in relation to how effective FS are in protecting these species (O.I. 1.2). This is the first of its kind in the country and this data is unique. Our aim is to tag more fish in October thus ensuring the analysis is robust. The results of this study will allow us to provide information to LGUs and regional government about any further measures that need to be taken to strengthen the FS e.g. area expansion. In addition to the scientific and management benefits of this work, the visit of the consultant proved to be a huge community engagement opportunity. Many local stakeholders – including local residents, members of FSMBs and CMGs, and also LGU and regional staff – were involved in the efforts to tag fish and there was a huge sense of pride and ownership of the FS that were chosen for this study – Hot Springs FS and Duba Cave FS, both in Baggao (see photos included in Annex 6). This also provided an opportunity to highlight the importance of reporting any tagged/marked fish that were caught which provides another strand of data, which will be analysed and fed in to the development of the FSMPs.

While we did not carry out training of BFAR staff as was originally envisaged (O.I. 1.1), we felt it was better to postpone the training until we had more time for them to assess their tagging needs nationally, as this is a new range of methodologies and it is essential that training is robust and meeting BFAR’s needs. Our aim is to hold a national workshop in October where the pros and cons of telemetry will be discussed in the context of focal species, and training will be provided in basic tagging methods.

At present, we are confident that through training of BFAR staff, engagement with local communities (including FSMB members) and both LGUs and regional government bodies, and studies of focal species that management of aquatic flora and fauna, in and around the FS will be improved.

**Output 2:** The anguillid eel focal point in BFAR is part of the SEAFDEC group that focuses on this species; baseline surveys have been carried out in a number of locations across the Philippines (<http://www.seafdec.org/anguillid-eel-survey-northern-luzon-philippines/>) and South East Asia more broadly, in order to try and harmonise data collection and species sustainable



management regionally (O.I. 2.1-2.4). In addition to this, a regional workshop was held in Bangkok in January 2018 – both ZSL and BFAR had aimed to attend but the former was unable to due to clashing schedules; the agenda and outputs were confidential at the time of writing and could not be annexed. A follow up workshop is planned for June, which both ZSL and BFAR will attend (O.I. 2.4).

At present, BFAR are exploring the roll-out of replicating the CRB EMP, the first EMP in the Philippines, in other regions and how an over-arching national EMP (O.I. 2.3) would encompass these. Further, national policy – specifically Fisheries Administrative Order 242 relating to export in anguillid eels – is being reviewed by BFAR and ZSL are engaging as requested.

ZSL – and by association the IUCN Anguillid Eel Specialist Group, which the project lead chairs - are the lead organisation in the delivery of two reports that relate to trade, population status and threats of anguillid eels that relate to CITES Decision 17.186 (<https://cites.org/eng/dec/valid17/81868>). These reports are presently being drafted and two technical workshops were attended by ZSL. Lessons learned from Darwin-funded-projects were invaluable and will be included in the reports (particularly the study on non-CITES listed species) (O.I. 2.4). These will be published prior to the 30<sup>th</sup> Animals Committee and will provide the basis for a working group at the meeting.

Anguillid eels are receiving increasing attention globally, and it is essential that data from projects such as this feed in to management and policy initiatives. The network we have developed nationally and internationally continues to be strengthened and we feel that we are progressing towards achieving Output 2 at present.

**Output 3:** We have now completed 12 FGD/SWOT analyses in the key communities that link to the FS (see Annex 11). These results have been written up (see Annex 12) and will provide the basis for the questionnaire for the socioeconomic survey that will commence Q1Y2 (O.I. 3.1). These community consultations also provided the opportunity to outline the benefits of establishing CoMSCAs (O.I. 3.2), of which there are none at present, thus allowing the process of self-selection to begin and to explain how the CoMSCA environment fund (O.I. 3.4) fund could help to support the FS management, including current issues such as lack of equipment for enforcement (O.I. 3.6).

CoMSCA training will begin in Q1Y2. Members of the FSMB and CMG will provide the backbone of the membership in each barangay to ensure that those invested in the FS benefit, and in turn, the FS benefit from the associated environmental fund (O.I. 3.6).

CoMSCAs have an excellent success rate – 95% are operational after five years – and our previous project, and other ZSL projects in the Philippines, have established them as an excellent way to increase financial resilience, community organisation and investment on local biological resources. As such, we are confident that the first round of CoMSCA training in Q1Y2 will prove to be a step towards this output proving successful.

**Output 4:** Initial engagement relating to PLUP (O.I. 4.1) was carried out in the twelve key sites during both the orientation presentations and FGD/SWOT analysis. During these meetings, discussions were had relating to reducing the impact of land-use on aquatic resources and the FS in particular (O.I. 4.3). PLUP will be carried out in combination with the socio-economic survey – four sites will begin in Q2Y2. This will gather data for analysis but also provide a further opportunity to focus interventions that will mitigate the impact of land-use practices and communities.

In addition to this, several community nurseries have been identified during consultations and it is our aim to partner with them to grow native species seedlings to provide planting activities associated with Output 4 rather than establish new ones (O.I. 4.4 + 4.5). It aims to use native species that will have livelihood options e.g. fruit trees or edible ferns.

At present, we have not made significant progress in this output, however, the identification of established nurseries, and a willingness of them to partner with the project has been a success. Ultimately, many stakeholders rely on land-use to survive and over the next year we will have a significantly improved understanding of their willingness to change damaging practices to reduce the impact on aquatic resources.

**Output 5:** Regular monitoring of FS, which was established during project 21-020, is continuing in order to build a baseline to carry out mitigation actions relating to aquatic invasive species (O.I. 5.1). An invasive species, which had not been identified by LGUs or BFAR in the region before,

was identified as part of our regular FID collection in the FS in three sites (Annex 13). In year 2, we will be identifying mitigation activities for aquatic invasive species (O.I. 5.2), of which at present there are none, and also terrestrial areas where native species planting can take place using seedlings grown in community nurseries (O.I. 4.1, 4.4, 4.5 + 5.3).

Many of the invasive species, both terrestrial and aquatic, have been present in the region for significant periods of time. By gathering information through socio-economic surveys and PLUP in the focal sites, we can increase our understanding of community reliance upon them and develop appropriate mitigation that we will ensure that well-being will not be impacted.

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

While there have been implementation delays due to staff recruitment, we believe we are progressing towards achieving the project outcome. We have begun collecting data on focal species (23 tagged to date) which will feed in to FSMP revisions and also been engaging with communities to identify stakeholders to (Outcome Indicator 1). As previously stated, national and international communications relating to anguillid eels are strengthening and the importance of the Philippines as a range state to seven species is recognised (Oc.I.2). CoMSCA training will begin in Q1Y2 and the community buy-in to this intervention, and the associated environment fund has been described above (Oc.I. 3 and 4). We are also working with communities and MAOs/MEOs to secure resources from LGUs for the six FSMBs – two have been secured to date (Oc.I.4). PLUP will begin in Q2Y2 and areas for rehabilitation identified – we have already begun exploring native species for re-planting that will offer livelihood options (Oc.I.5). At present, there has been little progress towards Oc.I.6 however, we expect activities in Y2 – including PLUP - to remedy this and to be able to report more fully in the Y2 HYR.

### **3.4 Progress towards the project Outcome**

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### **3.5 Monitoring of assumptions**

#### **Outcome assumptions**

- *Novel threats to the freshwater environment do not impact the 12 focal sites – having carried out a comprehensive survey of areas identified as FS, we feel confident our interventions address key threats.*

To date we have not identified any new threats, though we have begun to understand more about those we encountered from our activities e.g. the presence of the invasive janitor fish (see above).

- *Natural disaster does not affect project sites – Super Typhoon Haima recently made landfall in our project site and activities relating to 21-020 have continued with little interruption thanks to a committed team and excellent stakeholder relations.*

To date we are pleased to say no natural disasters have befallen our project sites.

- *Currency rates/rate of inflation does not fluctuate to levels that compromise delivery of the project – we have carried out a robust assessment of historical exchange rates and researched forecasts in light of Brexit and feel confident our budget is robust.*

At present the currency exchange has improved compared to when the proposal was submitted - <https://www.xe.com/currencycharts/?from=GBP&to=PHP&view=1Y>. We are keeping a watching brief as we are expecting fluctuations in the run up to Brexit in March 2019.

- *The freshwater biome is recognised as valuable by stakeholders and they invest resources accordingly – the establishment of FS has indicated stakeholder buy-in.*

The support and buy-in for FS from LGUs and communities has been excellent (as evidenced above). From community consultations, TWG meetings and field activities there is positivity and pride with being involved in these unique initiatives. There are still some issues around financing in some of the sites, but we are hoping they will be resolved when FSMPs are ratified by LGUs and CoMSCA environmental funds are established.

- *Cross-sector stakeholder willingness to engage in project continues - our consultations with stakeholders with regards to the present project have ensured continued buy-in.*

See above – the support for the project remains at the local, municipal and regional level.

- *Communities are not fatigued by any previous efforts to develop interventions – due to the lack of focus on freshwater resources, we believe our interventions are the first of their kind in the region.*

We have maintained contact with communities over the period of three years and we believe that this continuity and familiarity has meant the buy-in remains. Further, the project aims to offer further tangible benefits such as the establishment of CoMSCAs and livelihood interventions, which have been recognised by the communities.

- *Identified livelihood options are feasible – we are using interventions that have been successful in other ZSL projects and as such will apply the lessons learned to the proposed work.*

The interventions will take place in Y2, but at present we are confident they will be successful.

- *Mitigation efforts for tilapia are supported by LGUs - our anecdotal research indicates that tilapia are stocked with little assessment of the biological and socio-economic impact; through IEC and biological monitoring we aim to ensure an understanding and dissemination of these in order to intervene in a way that is supported by local communities.*

The assessment of reliance on this species will occur as part of the socio-economic surveys and this information will be used to underpin discussions with BFAR about how to mitigate impacts.

- *Interventions relating to invasive species are successful.*

These interventions will begin in Y2.

## **Output assumptions**

### **Output 1**

- *LGU / Community commitment to FS continues – we believe we have buy-in through on-going community engagement.*

See above.

- *Tag readers work effectively*

Range testing of the acoustic receivers was carried out before deployment and worked well.

- *FSMB approve changes in relation to fish/eel movement and/or presence of native species – our programme of IEC / social marketing aims to increase the understanding of the importance of adaptive management for natural resource protection.*

This will occur once data has been collected and analysed in Y3.

- *FSMB approve expansion of membership.*

These consultations will begin in Y2.

- *MSN approve adaptation to use in freshwater – ZSL have worked with MSN on previous projects and we have a good relationship with them.*

We are in on-going discussions with MSN and have developed a draft assessment for their review (See Annex 9).

## **Output 2**

- *Establishment of framework improves consolidation of national anguillid data – ZSL and the Anguillid Eel Specialist Group (AESG) have experience of data collation nationally and internationally and aim to apply this to achieve this output.*

The framework is presently being discussed in BFAR and will continue in Y2.

- *National stakeholders and international range states of anguillid species found in the Philippines are willing to co-operate – through the AESG and BFAR's links to the South East Asia Fisheries Development Centre (SEAFDEC) we believe there is a strong co-operative network in place.*

The SEAFDEC network is proving supportive and productive, as evidenced above. Further eel focal points have been identified in other parts of the Philippines which has improved communications nationally.

- *EMP produced as part of project 21-020 is adopted nationally – this is presently being reviewed by stakeholders and was developed through a consultative process which and as such we expect it to be approved nationally early next year.*

These discussions are ongoing within BFAR. To date, we have no timeline for adoption, but the CRB EMP has been proposed as a template for regional rollout in other areas of the Philippines.

- *Funding is identified for regional workshops by range states.*

The CITES secretariat funded two regional workshops (see above). SEAFDEC also hold workshops on a regular basis which ensures regional communications are ongoing.

## **Output 3**

- *Communities participate in surveys.*

Communities engaged positively in FGDs/SWOT analysis (see Annexes 11 and 12).

- *Community buy-in to benefits of CoMSCAs – communities have been requesting the establishment of CoMSCAs since hearing of the success of those established in coastal communities in 21-020.*

Community consultations indicated that the desire for CoMSCA establishment remained and self-selection has already begun prior to training in Y2Q1.

- *Availability of funds and savings and support of the community.*

The community support for CoMSCAs indicates that funds are available.

- *Suitable Village Agents are identified.*

This will occur in Y3.

- *Village Agents set up new CoMSCAs – once identified, this is a proven method for establishing CoMSCAs.*

This will occur in Y3.

- *Communities are motivated to support freshwater management and conservation activities – communities were key in identifying FS sites and as such we believe there is buy in to their on-going management.*

Having seen the on-the-ground support in communities for FS we are confident that they will continue to support project activities.

- *COMSCAs strengthen FS.*

This will be discerned from Y3 onwards when environment funds mature.

- *COMSCA members understand benefit of inclusion of the environment fund and there is a willingness to adopt – we have developed a social marketing programme to address this issue.*

The environment funds will be established with CoMSCAs but having seen the on-the-ground support in communities we are confident that they will be used to support FS.

- *Support of LGU's / Barangay Councils, communities, Fisherfolk Association's etc. to long-term development of FS.*

From community consultations and TWG meetings, we believe we have buy-in to the FS from communities, LGUs, BFAR and DENR.

- *FS management bodies are transparent and accountable, and effective mechanism for utilising environment funds that gives CoMSCAs confidence and trust in handing over environment funds for FS management.*

FSMBs are variably effective at present and we believe this is due to the lack of ratification of the FSMPs which the bodies aim to implement. Once these have been approved by the LGUs we believe the resources will be made available for the FSMBs to work effectively.

#### **Output 4**

- *Community able to self-select areas for improvement and change behaviours and practices relating to terrestrial livelihoods – this process was used to identify FS and we believe it worked well.*

This process will occur during the socio-economic survey.

- *FSMB willing to take on bankside areas to manage.*

Through consultation with communities, which include members of the CMG and FSMB, we have highlighted the importance of riparian management and land-use practices for the success of FS, and believe that FSMBs will adopt the expansions of the FS boundaries to include terrestrial elements.

- *River bank users are willing to participate in improved practice trials – we aim to use IEC and social marketing to engage and increase awareness of stakeholders to the link between healthy riparian areas and healthy freshwater systems.*
- *Communities buy-in to nursery development and seedling production.*

We have already identified existing nurseries in focal sites which we are discussion partnering with to produce seedlings.

- *Good availability of native seedlings.*

We have already identified potential species for inclusion and believe availability will not be a problem.

- *Native species grow successfully.*

The species we have identified are ones that we expect to have a high chance of survival.

- *There is a market for native species seedlings – the NGP has been extended to 2028 by DENR and we are confident that as a project partner we will have access to this market.*

We are communicating with DENR with regard to where seedlings can be marketed – it is very possible that sales will occur between POs at the community level.

## **Output 5**

- *There is government support for invasive species mitigation.*

BFAR are the organisation that are presently stocking rivers with invasive Tilapia as a means of providing livelihoods, however to date there has been no socio-economic analysis of the stocking and how important Tilapia are and whether native species stocking may be preferable. We are in the process of collecting this information as part of the socio-economic survey and will use it to develop interventions in discussion with BFAR.

- *Appropriate native species are available.*

We have identified potential native species for culture but will also assess community needs through the socio-economic surveys to ensure the culture trials use species there is a market for.

## **3.6 Impact: achievement of positive impact on biodiversity and poverty alleviation**

This project continues to be a unique initiative in the Philippines; freshwater systems can often be over-looked in a country that has over 35,000km of coastline across over 7,000 islands. Our partners BFAR have already begun replicating the successes of the previous Darwin project – e.g. establishing eel monitoring programmes in the CRB in order to inform sustainable management. The FS and their management at the community level are key to contributing to the impact statement and our engagement through both biological and socio-economic initiatives is ensuring there is continued buy-in through improved knowledge and accruing benefits from improved skills, recognition and organisation. Our interventions are aimed both to increase protection of freshwater systems and community capacity – e.g. planting of native species that will provide livelihood options, and establishing CoMSCAs that include a mechanism to feed back in to freshwater management (environment funds). There is strong buy-in at the community level

and we are confident that activities in Y2 will continue to strengthen their ability to manage and steward the aquatic resources they live near and rely upon.

#### **4. Contribution to the Global Goals for Sustainable Development (SDGs)**

The proposed project's aim is to protect and sustainably manage areas of the Philippines' largest freshwater system at the community level while reducing anthropogenic impacts. In establishing FS, the species and habitats that will be protected by them, and the associated communities that rely on these resources, Sustainable Development Goals (SDG) 1.5, 6.6, 12.2, 15.1 and 15.5 are captured. Community management of natural resources (SDG 6.8) is ongoing through the FSMBs and CMGs and through Y1 consultations and FGD/SWOT analysis the understanding of freshwater systems, locally and globally has been improved (SDG 4.7 and 12.8). While these are Y2 activities, the establishment of CoMSCAs associated with FSs will offer access to financial services that would otherwise be unavailable (SDG 1.4 and 9.3), increasing financial security, alleviating poverty (SDG 1.1) and allowing livelihood diversification (SDG 8.3). The inclusion of an environmental fund into CoMSCAs has a track record of increasing stewardship of aquatic resources and improving management. Pilot CoMSCAs in the region have consisted of ~75% females and are an established tool in ensuring gender equality (SDG 5.5 and 5.7). Again, this will be captured by activities in Y2, but by expanding the FS to include riparian habitat we will ensure land management is improved (SDG 2.3 and 6.3) and habitats are more resilient to changing climate and/or natural disasters (SDG 2.4 and 11.5). The focus on reducing impacts of invasive species (SDG 15.8) will strengthen these ecosystems.

#### **5. Project support to the Conventions, Treaties or Agreements**

This project has relevance to both the CBD and CITES. ZSL engaged with BMB staff (the national focal point for the CBD) at the CMS conference in Manila in 2017, and as a bureau within our partner DENR, we are able to make contact as needed.

As with the SDGs, in establishing FS, Aichi Targets relating to habitat loss and restoration, sustainable management and protection (AT 5, 6 11 and 14) are captured. Although this activity is tabled for Y2, the expansion of FS to include riparian habitat will strengthen management of aquatic resources (AT 7) and where feasible, there will be an aim to improve both waste management and improve land-use practices to reduce pollution (AT8). The reduction of the impact of invasive species (AT 9) and the on-going protection of threatened and/or endemic species in FS (AT 12) will ensure aquatic resources are more resilient and systems are intact. Again, this activity is tabled for Y2, but the CoMSCA environmental fund has a track-record of increasing stewardship of aquatic resources and improving management, as well as providing leverage for municipal and national funding (AT 2).

At the CITES CoP17, a proposal was submitted, and decisions subsequently adopted (<https://cites.org/eng/dec/valid17/81868>) by the EU relating to anguillid eels, a key species in the CRB, and Philippines more broadly. This document related to all anguillid species when only one - the European eel - is listed in CITES Appendix II. Further, the call was for research, data collation and analysis, and collaboration on issues beyond just trade, including population status and biology. This recognised the impact of the closure of the EU export market on other range states and species – including *Anguilla bicolor* in the Philippines – and the species' complex life history. The report produced on trade in the Philippines as part of 21-020 ([http://www.trafficj.org/publication/14\\_Slipping\\_Away.pdf](http://www.trafficj.org/publication/14_Slipping_Away.pdf)) was key in the development of the EU document and ZSL and partners secured the contract to deliver two reports outlined in decision 17.186. We have been liaising with the CITES secretariat, the Philippines focal points for CITES and eels, as well as many other national governments and international organisations (see Activities 2.4 and 2.7). These documents will be available at the CITES Animals Committee in July 2018 and provide the basis for discussions and recommendations to be put forward to CoP18 in 2019.

#### **6. Project support to poverty alleviation**

FGDs and SWOT analysis were conducted in key sites and needs such as additional funding, livelihood diversification, lack of organizational and operational management, and training were identified. Identified beneficiaries in key communities are FSMB and CMG members (O.I. 1.1 and

1.3; 3.2,3.4 to 3.6; 4.2 - improved training, resources, organisation, capacity and knowledge base), CoMSCA members (O.I. 3.2 and 3.3 - increased financial resilience), land-users (O.I. 4.3 and 4.4 - increased training and knowledge base, and diversified livelihoods). We expect overlap in these beneficiary groups. One clear direct impact to poverty alleviation, which we have a proven track record in, is improved financial resiliency through the formation of CoMSCA's. We will also build the capacity of land users willing to change their practices to reduce their impact on the aquatic systems through supporting training programs for livelihood diversification (e.g. smoked fish, woodwork, souvenir crafts, etc). We have already begun to foster relationships between Local Government Units and other national agencies in the Philippines (e.g. Department of Science and Technology, and Department of Labor and Employment) to address the issues identified during the community consultations.

## **7. Project support to gender equality issues**

We aim to ensure that at a minimum any work we carry out is gender aware/sensitive and that we deliver this through locally appropriate mechanisms. We have actively engaged with women to join initial community meetings and consultations to engage with us on early stage planning, etc. Across all twelve sites we engaged with 327 individuals, of which 185 (56.6%) were female (see Annex 11 for attendance).

CoMSCA membership has been well documented to be primarily female – in our previous project, the mean female membership was 75%, which is also the global mean according to Care International - and therefore women will see direct benefit from this increased economic resilience and access to financial service (O.I. 3.2). This also lends opportunity to more women becoming village agents and local champions, developing skills and a livelihood from this intervention (O.I. 3.3).

Finally, we will ensure long term participation from women in freshwater sanctuary management developments and decision making by utilising the CoMSCAs as platforms for information dissemination and feedback between the FSMB and CoMSCAs within the community. At present, across the six FSMBs only 10% of members are women and we will be looking for opportunities to increase this number.

## **8. Monitoring and evaluation**

### Project Outcome

Due to a delay in project implementation we are still at early stages with implementing outputs and activities to reach project outcomes. We have two dedicated staff to M&E (one in-country and one international lead) who oversee technical data collection, and where feasible, implement standardised methods and systems. We are planning within the next few weeks to facilitate a participatory session with all project staff to design an M&E plan to review and finalise data collection types, intervals, management and ensure that relevant indicators are captured and finalised against the logframe to demonstrate contribution towards the outcome and outputs. This will also include a review of any data collection that has already taken place and set up a clear framework and accountability moving forwards. We have already delivered some training on standardised tools (i.e. semi-structured interview guide for FGDs and CoMSCA monitoring) which have been implemented well and further training on database management and encoding is scheduled for May. Previous novel research in the Philippines, using global frameworks/methods where appropriate (i.e. Food Insecurity Experience Scale, Fish Visual Census) has enabled us to implement standardised and well-tested indicators across biological and socioeconomic activities. Where needed, participatory sessions with local communities will take place and further advice will be sought from relevant experts within the organisation and externally (i.e. as is being done with FS MEAT).

Where simpler community-led fisheries monitoring is taking place, we have encountered some challenges discussed further in Section 9. To help us to monitor progress we are implementing monthly visits to 3-5 fish sanctuaries to support data collection efforts. Through the community consultations we identified some additional/newer threats to the FS (i.e. removal of riparian vegetation for farming). To ensure we are able to monitor change and impact of project implementation we plan to introduce monitoring of new variables every quarter inside and outside the FS to monitor these.



## Project Management

We also have regular reporting mechanisms in place to ensure project management; monthly targets and activities are reviewed and the workplan amended accordingly. TWG meetings are attended quarterly by all project partners, led by ZSL, to ensure implementation is on track and all partners are able to input technically and administratively. Quarterly work plans are built based on the log frame and submitted to the project manager and project lead for review. Where relevant, technical specialists will review and input to work plans to ensure that activities carried out are designed to deliver the agreed outcomes, and maximise efforts.

### **9. Lessons learnt**

Building capacity in the communities for FS management through CMGs has been challenging and rewarding. As with most training or capacity building, we have seen that initial motivation to participate voluntarily and regularly start to wane. We will actively work with CMGs to understand inactivity and motivate participation; in areas that have LGU support of the FSMP and are providing resources, the buy-in is greater and our efforts are focussed in getting the remaining four FSMPs approved. Also, through the CoMSCA environment fund, we are hopeful that members, particularly those that are also FSMB members, will ensure the correct resources are directed to the CMG and FSMP implementation.

We are conscious that female membership in FSMBs is low. As such, we will be using the establishment of CoMSCAs - which average a female membership of 75% - as a mechanism to organise and resource FSMBs but also to ensure that the number of women is also increased when there are opportunities to do so.

Management of FS through the management body against the management plan has been harder to mobilise in some FS sites. The FSMP was written at the municipal level and standardised across all sites. This was to ensure support by the LGU for FS establishment and funding. The next step is to now translate those management plans into tangible local actions which are identified with the relevant management bodies and will vary for each village.

Enforcement of FS sanctuaries is a challenge at specific sites due to variety of reasons, including locals fishing within the FS, distance between the community and the FS and the lack of enforcement equipment. Moving forwards this will be considered and targeted through social marketing, one possibility is that if the environment fund is adopted by the CoMSCAs, buying equipment for enforcement can be proposed as a possible investment.

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

The following points were raised upon receipt of the grant; in error, we neglected to submit responses as part of the Y1 half year review and so offer a response below:

- *the link between conservation and livelihood components needs to be more clearly articulated e.g. there is no explicit link between freshwater sanctuaries and increased incomes.*

Beyond providing protection to key freshwater sites in the region, and an opportunity for local stakeholders to take stewardship of these, FS provide a basis to organise the community, through this, CoMSCAs can more easily be established; this provides economic stability. Further, 'income' is potentially to be generated at sites on a case-by-case basis e.g. eco-tourism; riparian development to nurseries and/or organic agriculture (edible ferns); and fines for misuse. In some cases these funds will go direct to the community, in others it will go indirectly through the support of the FS and match funds accrued from CoMSCA environment funds and/or LGU support. We are expecting all LGUs to financially commit to supporting the FS in their municipalities before the end of 2018; two out of six FSMP has been adopted to date.

- *and it is unclear how local women (and men) will find the necessary cash to put into group savings schemes;*

ZSL works mainly with communities whose primary source of income is either fishing or farming. What we know is the income is irregular and highly variable throughout the year for fishers, and for farmers is linked closely to seasons and harvest, so they make a bulk of their income for the year in short punctuated periods throughout the year. For the Fishers, what that means is when they earn well and have taken out daily expenses they will indulge in their 'vices' which is usually smoking or alcohol, sometimes gambling. On days/lean period where they have been unable to fish, they then don't have enough money to meet daily expenses such as food for family, so we see patterns like skipping meals, or variation in diet.

We know from the previous project there was a need, and demand, to help individuals spread their risk, and have some financial security to fall back on. The model is built to enable those with irregular incomes/low incomes to participate through principles such as; a) self-selection i.e. you are likely to go into a group with those you trust and know and are likely to be in similar occupations principally due to the way social groups exist within the communities, b) the group defines how often they meet i.e. those engaged in farming may only meet once a month and have higher share values, c) set-share values and self-imposed fines i.e. members can decide a really low share price to allow members to participate (linked to self-selection principles) and decide whether to have fines and how much.

- *the beneficiaries need to be clearly identified and quantified;*
- *the logframe should be updated to ensure all indicators are measurable and achievable;*
- *the Indicators should be revisited to ensure they do not read as activities.*

In relation to the above three points, we have submitted a revised logframe to LTSI for review and approval, and will include in an official change request once it has been completed. We would highlight that in the existing logframe that we have identified and quantified beneficiaries in the logframe (Oc.I.3; O.I. 1.1; O.I. 3.2 and 3.3; O.I. 4.4).

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

N/A

## **12. Sustainability and legacy**

ZSL is recognised as a national expert in the field of freshwater conservation in the Philippines. Our work is beginning to be replicated by project partners nationally – e.g. EMPs, habitat survey methods, fish monitoring methods, as described previously. Further, with the use of remote telemetry in the present project there is significant interest in BFAR as to how this technology can be used to monitor other key freshwater species – particularly the endemic and rare Ludong (<http://www.pna.gov.ph/articles/1024195>). We have been engaging with the British Embassy in Manila in order to raise the profile of the project through other networks and staff recently paid a visit to one of our project sites (See Annex 14). In addition to national profile, the project lead has taken opportunities to present the work being carried out at international conferences and workshops, and fora such as the CMS CoP, and the CITES Animals and Standing Committees. The inclusion of mechanisms such as CoMSCAs ensure that there is life beyond the project – 95% are still active after five years – and by linking this to FS management through the environment fund, the resource protection can also be sustained.

## **13. Darwin identity**

In-country the Darwin logo sits side-by-side with partner logos on all communications relating to the project (see Annexes 12 and 15). Further, in all consultation meetings or publications, Darwin Initiative is acknowledged as the funder. ZSL has had a number of projects funded by Darwin and so the network of both GO and NGO partners are familiar with the Darwin Initiative. This project has followed on from previously Darwin-funded work and we are continuing to work in the same region in the present project and as such our focal communities are also familiar with the Darwin Initiative. The project does not form a part of a larger initiative and is a stand-alone programme of work.

We do not have a project specific Twitter, however, we do have a general ZSL Marine and Freshwater Twitter account which project updates are posted on (e.g. <https://twitter.com/ZSLMarine/status/925586588276482048>).

#### 14. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2017 – 31 March 2018)**

Project spend (indicative) since last annual report	2017/18 Grant (£)	2017/18 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			-3	
Consultancy costs			+7	
Overhead Costs			-8	
Travel and subsistence			-40	We had hoped to book travel for Y2 with the remainder of the funds, however due to illness and the associated uncertainty of when the member of staff could travel, this was not possible.
Operating Costs			+30	This overspend was primarily due an underestimation of fieldwork costs.
Capital items (see below)			-18	This underspend was due to a miscalculation of the VAT on acoustic receivers.
Others (see below)			-1	
<b>TOTAL</b>				

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2017-2018

Project summary	Measurable Indicators	Progress and Achievements October 2017 - March 2018	Actions required/planned for next period
<p><b>Impact</b></p> <p>Freshwater resources in the Philippines are effectively conserved and managed at the community and local government level to secure ecosystem services and contribute to National and International targets.</p>		<p>Through our efforts there is an increased the level of awareness of the importance and benefits of freshwater resources and their protection within key communities.</p>	
<p><b>Outcome</b></p> <p>The biological status, community capacity, resilience and stewardship, and sustainable management of key sites in the Cagayan River Basin are measurably improved to benefit the freshwater ecosystem.</p>	<p>0.1 The protection of native species in 12 FS is increased through strengthened monitoring of 1000 tagged fish, updated FS management plans (FSMPs), and an expanded and representative membership of the FSMBs by Q3Y4.</p> <p>0.2 A national management framework is established by Q4Y2 to improve data collection and analysis relating to anguillid eels supporting the Philippines in meeting national and international policy and management requirements by Q3Y4.</p> <p>0.3 Through the establishment of COMSCAs and training of 12 Village Agents (VAs), 720 beneficiaries in 12 barangays have annual savings of at least PHP4,000 / person (~£65) by Q3Y4 (from a baseline of 0 in Y1).</p> <p>0.4 Community managed FS are self-supporting in 12 barangays</p>	<p>23 fish have been tagged to date, FSMPs are presently being ratified and new members will be identified during the socioeconomic survey.</p> <p>BFAR assessing how to establish a national framework. BFAR exploring roll-out of EMP to other regions. BFAR and ZSL engaging internationally with SEAFDEC.</p> <p>CoMSCAs have been introduced during public meetings and there is community support and interest.</p> <p>Two FSMPs have been ratified which has provided LGU resources.</p>	<p>Data collection from acoustic receivers.</p> <p>Tagging of more fish.</p> <p>FSMP ratification by remaining LGUs.</p> <p>Identification of new FSMB members.</p> <p>BFAR to continue national engagement and framework development.</p> <p>ZSL to attend CITES Animal Committee and Standing Committee.</p> <p>BFAR and ZSL attending SEAFDEC workshop in June 2018.</p> <p>CoMSCA training is scheduled to begin in Q1Y2.</p> <p>ZSL will collect fund data and analyse accordingly.</p>

	<p>through co-funding of at least 7200PHP / FS / year (from a baseline of 0 in Y1) by COMSCAs environment fund monies and local and regional GOs by Q3Y4.</p> <p>0.5 10ha of bankside habitat is rehabilitated by Q3Y4 through silviculture livelihood diversification and adaptation of freshwater sanctuary management plans (FSMPs) in 12 barangays, reducing impacts on FS and increasing resilience to natural disasters.</p> <p>0.6 Invasive / exotic species numbers are reduced in both 12 FS and 10ha of associated bankside through improved management and initiatives focussing on native species by Q3Y4 (from the end of surveys carried out by Q1Y2).</p>	<p>Environment funds will be initiated with CoMSCAs in Q1Y2.</p> <p>Existing nurseries have been identified during public consultation.</p> <p>Native plant species have been identified for riparian rehabilitation.</p> <p>On-going discussions with BFAR regarding invasive fish species.</p>	<p>Continue to work with communities, MEOs and MAOs to ratify FSMPs at LGU level.</p> <p>Establish environment funds with CoMSCAs.</p> <p>PLUP will begin in Q2Y2.</p> <p>Continued engagement with existing nurseries to develop native species planting.</p> <p>PLUP will begin to identify invasive species and areas for rehabilitation.</p> <p>Begin native fish species culture in collaboration with BFAR.</p>
<p><b>Output 1.</b> Native species protection and sustainable management is measurably improved through increased staff capacity and monitoring efforts, and strengthening Freshwater Sanctuaries and management plans.</p>	<p>1.1 10 local/regional government staff members are trained to a self-sufficient level of competency in tagging, monitoring and analytical techniques (from a baseline of zero) through mentoring by UK experts by Q4Y1.</p> <p>1.2 1000 native fish – including anguillid eels - are tagged (Q4Y1 = 200; Q4Y2= 400; Q4Y3 = 400) and the results of monitoring are used to amend delineation of 12 existing FS, and strengthen associated FSMPs by Q3Y4.</p> <p>1.3 FSMB membership is expanded by 25% to include at least two land-users (see Output 4) ensuring a</p>	<p>Orientation in tagging has been provided but training will occur at a national level in Q3/Y2.</p> <p>To date, we have only tagged 23 fish, however these tags will provide significantly more data, and more robust data, than simpler methods that allow higher numbers.</p> <p>Our aim is to tag more fish in Q3/Y2, however, we would expect to reduce the number of fish tagged due to relying more on acoustic tags and the delay in training.</p> <p>FSMB membership will be reviewed as part of the socio-economic survey (Q1/Y2 onwards) and new members identified.</p>	

	<p>holistic approach to management by Q2Y2.</p> <p>1.4 Management Effectiveness Assessment Tool (MEAT) is adapted and applied to FS and Level 2 attained in all 12 by Q3Y4.</p>	Draft questionnaire has been produced and will be trialled in Y2.
Activity 1.1 Tagging, monitoring and analytical techniques training		<p>Pilot tagging programme of work was carried out but no training was held until partner needs are clarified.</p> <p>Training workshop is expected to be held in October 2018.</p>
Activity 1.2 Native fish species – including anguillid eels - are tagged with PIT tags / elastomers.		Initially 23 eels were acoustically tagged in key sites in the municipality of Baggao. Tagging of more eels and other native species scheduled for October 2018.
Activity 1.3 Movement of native fish species within the Cagayan River Basin is monitored on a micro- and macro- scale on a monthly basis.		First data download and associated analysis will be carried out in October 2018.
Activity 1.4 Fish movement data and existing FS bi-weekly abundance monitoring data is consolidated and analysed.		Monitoring is on-going and issues relating to consistency are being addressed.
Activity 1.5 FSMPs are updated in light of consolidated data from FS and fish monitoring.		Due in Y4.
Activity 1.6 FSMB expanded to include beneficiaries of new livelihoods e.g. native tree nurseries.		During the consultation meeting in the barangay level last November and December 2017, the team were able to established 6 Fish Sanctuary Action Team (FSAT) within Cagayan province. The selected team leaders are now completing the list of each committee members as requisite for the proper orientation on their role and responsibilities.
Activity 1.7 MEAT assessment adapted for use in FS in consultation with MSN.		Draft questionnaire has been produced. This will be submitted to MSN for approval.
Activity 1.8 MEAT assessment carried out at all 12 sites.		Coordination of LGUs and FSMBs began in January informing them of MEAT activities in Q1Y2. The discussions included the need to convene the FSMB to prepare for the assessment.
<p><b>Output 2.</b></p> <p>Data relating to anguillids eels in the Philippines is fed into the national eel management plan and CITES call for international collaboration for improved management of these species.</p>	<p>2.1 National and international co-ordination of data collection is strengthened to meet CITES data call through establishment of national data framework by Q4Y2.</p> <p>2.2 Understanding of biology and population status of anguillid eels resident in CRB increased by Q3Y4 through analysis of monitoring data from FSMBs by BFAR and AESG.</p>	<p>SEAFDEC baseline surveys aim to harmonise data collection nationally and internationally.</p> <p>Philippines submitted a national response to CITES Notification (<a href="https://www.cites.org/sites/default/files/notif/E-Notif-2018-018.pdf">https://www.cites.org/sites/default/files/notif/E-Notif-2018-018.pdf</a>) and ZSL are leading delivery of studies.</p> <p>Tagging studies – See Output 1 and associated activities – will increase our understanding of the species globally.</p> <p>Data collection by CMGs is being supplied to LGUs and BFAR – identified issues relating to this in some sites are presently being addressed.</p>

	<p>2.3 National eel management plan (EMP) is updated through consolidated analysis of data sets by Q3Y4.</p> <p>2.4 Regional engagement relating to anguillid eels is improved through participation in CITES workshops by Q3Y4.</p>	<p>BFAR are presently assessing how to establish a national EMP. Replication of the CRB EMP is being planned for other parts of the Philippines.</p> <p>Project lead attended two CITES workshops and shared lessons learned from the Philippines.</p>
Activity 2.1. National eel data framework established in collaboration with BFAR.		Development is on-going but a number of related activities will ensure that data sources will be expanded and robust. We expect this framework to be in place by end of Y2.
2.2 Key metrics are identified and analysed in line with CITES call.		<p>Metrics for eel species are being regionally identified through SEAFDEC. ZSL and BFAR will continue to engage in the process throughout Y2.</p> <p>BFAR have established eel fisheries dependent data collection in Aparri and Camalaniugan fishing grounds (previously carried out by ZSL).</p>
2.3 Data submitted to AESG for inclusion in Red List assessment workshop.		Workshop planned for Q3Y2. ZSL will lead.
2.4 Data submitted to national CITES focal point.		Data submitted to CITES Notification. No present call for data but ZSL are liaising closely with the CITES secretariat.
2.5 Regional eel focal points in other range states identified and engaged.		<p>BFARs engagement with SEAFDEC is ensuring close communication. This will be on-going throughout Y2.</p> <p>Eel focal points across the Philippines are beginning to be identified to improve communications.</p>
2.6 Data relating to eel species used to update EMP		Due in Y3.
2.7 Project representatives attend national and international CITES workshops relating to anguillid eels.		ZSL have attended two international workshops. None further are planned.
<p><b>Output 3.</b></p> <p>Human and financial capacity and engagement in managing freshwater resources in 12 focal barangays is increased through social marketing and environment funds delivered by COMSCAs</p>	<p>3.1 Needs, cultural and socio-economic assessments carried out in 12 key barangays (including a minimum of 360 respondents) and number of beneficiaries identified and disaggregated by household and gender to identify community understanding of the freshwater ecosystems, the value and use of the freshwater resources and key capacity issues by Q4Y1.</p>	SWOT analysis conducted in two (2) POs. Focus Group Discussion conducted in seven (7) sites. Only three (3) sites remaining. Socio-Economic survey to follow in four (4) priority sites.



	<p>3.2 COMSCAs are established in 12 key barangays – encompassing 240 beneficiaries (&gt;50% female) – by Q2Y2 ensuring improved financial security through increased annual savings and access to loans of at least 4000PHP (£65) / person by Q3Y4.</p> <p>3.3 Twelve Village Agents are trained to increase capacity and engagement to establish at least two new COMSCAs per barangay including 480 new beneficiaries (&gt;50% female) across key sites by Q3Y4.</p> <p>3.4 COMSCA environment funds are established in 12 key barangays and an increased willingness of communities to input results in cumulative annual input to environment fund in each barangay rising from PHP0 to at least PHP3600 (£60) per cycle by Q3Y4.</p> <p>3.5 Environment funds are used to leverage monies from LGUs and national agencies for FS to at least match the value of environment funds (PHP3600 (£60) per COMSCA per cycle) by Q4Y3.</p> <p>3.6 Environment funds are being used to support effective enforcement and management activities of FS by end of Q4Y2.</p>	<p>The COMSCA concept was introduced during the project presentation where it received a positive response from the participants. Some attendees already volunteered to be the COMSCA officers. Aside from a regular COMSCA group (&gt;50% female), a group of fraternity members plan to create an all-male COMSCA group – this will provide a very interesting case study as it is believed to be the only one in the Philippines.</p> <p>Due in Y2 – likely delayed to Q1Y3 due to delay in CoMSCA training.</p> <p>This will occur in Q1Y2 once CoMSCAs are established. ZSL will monitor input to the fund.</p> <p>Again this will be delayed till Y2, however, LGUs are beginning to ratify FSMPs which means that resources will become available. At present two of six have been approved and we expect all six by the end of Q3Y2.</p> <p>This will likely be delayed until Q1Y3 (see above).</p>
<p>Activity 3.1 Socioeconomic survey is developed, carried out and analysed, and report produced.</p>		<p>FGDs and SWOT analysis has been carried out across the 12 sites. These have helped to focus the questionnaire to be used for the socio-economic survey which will be rolled out in Q1+2/Y2</p>
<p>Activity 3.2 Community feedback sessions held in 12 key barangays.</p>		<p>Due in Y2 – likely to be delayed till after the socio-economic survey.</p>

<p>Activity 3.3 Capacity and engagement needs of community and FSMB addressed through series of training courses, social-marketing and infra-structure development.</p>	<p>FGD and SWOT analysis highlighted a number of needs which mitigation was identified for. More detailed needs assessment will be expected from socio-economic survey during Q1+2/Y2. Associated training and resource needs will be identified.</p>
<p>Activity 3.4 COMSCA training is delivered at 12 key barangays.</p>	<p>This has been delayed but will being Q1Y2.</p>
<p>Activity 3.5 Analysis of COMSCA beneficiary financial access and use.</p>	<p>Due Y2 – will be delayed due to the delay in Activity 3.4.</p>
<p>Activity 3.6 Village Agents training reinforcing the value of being local champions and their contribution to the management of the FS carried out.</p>	<p>Due Y2 – training will be carried out after a 12 month CoMSCA cycle, so likely to occur in Q1Y3.</p>
<p>Activity 3.7 Village Agent training carried out and new COMSCAs are established.</p>	<p>Due Y2 - training will be carried out after a 12 month CoMSCA cycle, so likely to occur in Q1Y3.</p>
<p>Activity 3.8 Environment funds are established and proposed budget developed and agreed.</p>	<p>Due Y2 – will be delayed due to the delay in Activity 3.4.</p>
<p>Activity 3.9 Community and GO co-funding agreement and mechanism of delivery is established for FS enforcement and management.</p>	<p>This has been delayed due to the delay in Activity 3.4, however, two LGUs have committed resources to implementation of FSMPs.</p>
<p><b>Output 4.</b> Land use surrounding 12 FS is assessed and mitigation plans developed, and implemented at three priority sites to reduce the impact of terrestrial anthropogenic threats and ensure long-term sustainability of a viable freshwater environment and associated livelihoods within communities.</p>	<p>4.1 Terrestrial areas for mitigation/improvement are identified in 12 FS through consultation and collaborative land-use mapping by end of Q1Y2.</p> <p>4.2 All FS agreements and FSMPs strengthened through the inclusion of terrestrial areas and associated mitigation activities identified in 4.1 by Q2Y2.</p> <p>4.3 10ha of bankside have reduced impact activities implemented (e.g. conservation agriculture, agro-forestry, erosion control) by Q3Y4 from 0ha in Y1.</p> <p>4.4 At least 30 individuals are engaged in establishing three pilot community nurseries for native tree species.</p> <p>This process will begin in Q2Y2 and as such we expect a delay in identifying these areas. We hope to have this information collated by Q3Y2.</p> <p>This process will be delayed due to the delay in identifying areas for mitigation. Further, the process of ratifying the FSMPs at the LGU level has taken longer than expected and amending them at present could further delay this process. We therefore expect to be able to carry this out by Q1Y3.</p> <p>Due in Y4.</p> <p>Through consultations we have already identified community nurseries in key sites and we aim to partner with them to grow native plant species.</p>

	<p>4.5 Three community nurseries have cumulatively produced 2000 seedlings by Q4Y2, 5000 by Q4Y3 and 10000 by Q3Y4.</p> <p>4.6 Communities become recognised suppliers to DENR's National Greening Project by Q4Y2.</p> <p>4.7 FSMPs include disaster risk reduction plans with relevant activities e.g. deforestation reversion to prevent siltation/flash floods by Q3Y4.</p>	<p>Due Y2.</p> <p>We are presently discussing this with DENR and once relationships with community nurseries have been formalised we will facilitate the establishment of supply chains.</p> <p>Amendments to FSMPs will be carried out in line with Output 4 Indicator 4.2.</p>
<p>Activity 4.1 Community consultations relating to land use are carried out in 12 key barangays linked to FS.</p>		Initial community consultation carried out with DENR and LGUs.
<p>Activity 4.2 Behaviour change programme related to responsible farming practices and mitigation of threats established.</p>		During above consultations, initial discussions have been had relating to matters such as pesticide use and leaving a buffer-zone along river banks – the latter is required by law.
<p>Activity 4.3 Participatory land-use mapping carried out in the areas around the 12 FS.</p>		Initial coordination with DENR has been carried out in four key sites – PLUP will begin in Q2Y2.
<p>Activity 4.4 Consolidation and analysis of data for each of the 12 sites is carried out to identify priority areas for mitigation.</p>		This has been delayed and will begin once data from PLUP has been collected - beginning Q2Y2.
<p>Activity 4.5 Twelve FS agreements and FSMPs amended to include identified riparian areas and associated mitigation actions</p>		Due Y2 – will occur after all six FSMPs have been ratified at the LGU level.
<p>Activity 4.6 Prioritisation of terrestrial mitigation to identify three implementation sites.</p>		Due Y2 – the process of identifying key sites has begun, but will be finalised after PLUP (Activity 4.3).
<p>Activity 4.7 Training in reduced impact land-use activities delivered at three priority sites.</p>		Due Y2 – will follow Activity 4.6.
<p>Activity 4.8 Participatory implementation of reduced impact land-use livelihoods at three priority sites.</p>		Due Y2 – will follow Activity 4.6. However, consultations have already identified reduced impact livelihoods: Pako Fern Farming, Ecotourism, Soft Broom industry, Woodworking, Souvenir shirts, Smoked fish (tilapia).
<p>Activity 4.9 Monitoring of mitigation activities to assess effectiveness.</p>		Due Y2 – will follow Activities 4.7 and 4.8.
<p>Activity 4.10 Value Chain Analysis for native species seedlings.</p>		Due Y2 – will likely be delayed; liaising with DENR around process.

<p>Activity 4.11 Community training in silviculture and nursery establishment delivered in three sites.</p>	<p>Due Y2 - To be carried out by ZSL, in partnership with DENR and State University of Cagayan. Target participants identified through consultation.</p>
<p>Activity 4.12 Native seedling planting and cultivation.</p>	<p>Due Y2 – but consultations have already indicated that communities are open to tree planting/riparian rehabilitation. Some sites have already done tree planting activities initiated by Municipal and Provincial LGUs.</p>
<p>Activity 4.13 Seedlings sold into market – including local mitigation activities and NGP.</p>	<p>Due Y3.</p>
<p>Activity 4.14 Disaster risk reduction plans developed and included in FSMPs.</p>	<p>Due Y2 – will occur in line with Activity 4.5.</p>
<p><b>Output 5.</b> The impact of introduced / invasive species on Freshwater Sanctuaries is understood and mitigation is implemented.</p>	<p>5.1 Terrestrial and aquatic exotic / invasive species in all FS are catalogued and/or mapped and impact assessment carried out by Q1Y2.</p> <p>5.2 In collaboration with BFAR and LGUs, invasive freshwater species mitigation feasibility study (including native species culture) is initiated by Q2Y2.</p> <p>5.3 10ha of bankside is cleared of exotic/invasive species (from 0ha in Y1) and rehabilitated using native species seedlings from community nurseries (4.4) by Q3Y4.</p> <p>5.4 Management of invasive species is included in FS ordinances by Q4Y2.</p> <p>Janitor fish has been identified in Penablanca, Maddela and Nagtipunan through FID collection. We have a list of invasive species from this monitoring and will develop the interventions depending on the impact assessment and how feasible it is to reduce any detrimental effect of the chosen species.</p> <p>We are presently in discussion with BFAR regarding non-native species mitigation, prior to Y2 activities.</p> <p>Identification of appropriate sites will be part of the PLUP – Output 4 Activity 4.3 - which begins in Y2.</p> <p>This maybe delayed due to the delay in ratifying FSMPs – we would hope this is possible to begin in Q1Y3.</p>
<p>5.1 Invasive species survey carried out in 12 FS</p>	<p>This has been integrated in to CMG FID and are on-going – issues relating to this data collection are being addressed.</p>
<p>5.2 FSMPs adapted to incorporate mitigation activities.</p>	<p>This activity has been delayed – will occur in line with Activity 4.5.</p>
<p>5.3 Native freshwater fish species pilot culture programme initiated.</p>	<p>Due Y2 – BFAR have offered facilities for pilot programme of work.</p>
<p>5.4 Feasibility study produced.</p>	<p>Due Y4.</p>

5.5 Areas of non-native riparian species identified and cleared.	Due Y2 – presently working with DENR on feasibility.
5.6 Native species seedlings transplanted from nurseries.	Due Y3.
5.7 FS barangay ordinances adapted to incorporate invasive species mitigation.	Due Y2 – likely to be delayed; will occur in line with Activities 4.5 and 5.1.

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Freshwater resources in the Philippines are effectively conserved and managed at the community and local government level to secure ecosystem services and contribute to National and International targets. (Max 30 words)</p>			
<p>Outcome: (Max 30 words) The biological status, community capacity, resilience and stewardship, and sustainable management of key sites in the Cagayan River Basin are measurably improved to benefit the freshwater ecosystem.</p>	<p><b>0.1</b> The protection of native species in 12 FS is increased through strengthened monitoring of 1000 tagged fish, updated FS management plans (FSMPs), and an expanded and representative membership of the FSMBs by Q3Y4.</p> <p><b>0.2</b> A national management framework is established by Q4Y2 to improve data collection and analysis relating to anguillid eels supporting the Philippines in meeting national and international policy and management requirements by Q3Y4.</p> <p><b>0.3</b> Through the establishment of COMSCAs and training of 12 Village Agents (VAs), 720 beneficiaries in 12 barangays have annual savings of at least PHP4,000 / person (~£65) by Q3Y4 (from a baseline of 0 in Y1).</p> <p><b>0.4</b> Community managed FS are self-supporting in 12 barangays through co-funding of at least 7200PHP / FS / year (from a baseline of 0 in Y1) by COMSCAs environment fund monies and local and regional GOs by Q3Y4.</p> <p><b>0.5</b> 10ha of bankside habitat is rehabilitated by Q3Y4 through silviculture livelihood diversification and adaptation of freshwater sanctuary management plans (FSMPs) in 12 barangays, reducing impacts on FS and increasing resilience to natural disasters.</p>	<p>Aquatic survey/monitoring reports and maps; Training reports and materials; Updated management plans; Management Effectiveness Assessment Tool (MEAT) reports</p> <p>Virtual framework; Data collection and analysis reports; National and regional CITES meeting reports; Updated EMP</p> <p>Socio-economic survey report; COMSCA and VA training reports; COMSCA agreements; COMSCA reports</p> <p>COMSCA agreements; Training reports and materials; Environment fund monies and associated budgets; Freshwater Sanctuary Management Boards (FSMB) report; MoUs between barangays, LGUs and Regional governments</p> <p>Socio-economic survey report; Terrestrial survey reports and maps; Updated Community Land Use Plan (CLUP) and map;</p>	<p>Novel threats to the freshwater environment do not impact the 12 focal sites – having carried out a comprehensive survey of areas identified as FS, we feel confident our interventions address key threats.</p> <p>Natural disaster does not affect project sites – Super Typhoon Haima recently made landfall in our project site and activities relating to 21-020 have continued with little interruption thanks to a committed team and excellent stakeholder relations.</p> <p>Currency rates/rate of inflation does not fluctuate to levels that compromise delivery of the project – we have carried out a robust assessment of historical exchange rates and researched forecasts in light of Brexit and feel confident our budget is robust.</p> <p>The freshwater biome is recognised as valuable by stakeholders and they invest resources accordingly – the establishment of FS has indicated stakeholder buy-in.</p> <p>Cross-sector stakeholder willingness to engage in project continues - our consultations with stakeholders with regards to the present project have ensured continued buy-in.</p>

	<p><b>0.6</b> Invasive / exotic species numbers are reduced in both 12 FS and 10ha of associated bankside through improved management and initiatives focussing on native species by Q3Y4 (from the end of surveys carried out by Q1Y2).</p>	<p>Training reports; Farming / nursery records; Amended barangay ordinances; Updated FSMPs</p> <p>Terrestrial and aquatic survey / monitoring reports and maps; Training reports and materials; Amended barangay ordinances</p>	<p>Communities are not fatigued by any previous efforts to develop interventions – due to the lack of focus on freshwater resources, we believe our interventions are the first of their kind in the region.</p> <p>Identified livelihood options are feasible – we are using interventions that have been successful in other ZSL projects and as such will apply the lessons learned to the proposed work.</p> <p>Mitigation efforts for tilapia are supported by LGUs - our anecdotal research indicates that tilapia are stocked with little assessment of the biological and socio-economic impact; through IEC and biological monitoring we aim to ensure an understanding and dissemination of these in order to intervene in a way that is supported by local communities.</p> <p>Interventions relating to invasive species are successful.</p>
<p>Outputs: <b>1. Native species protection and sustainable management is measurably improved through increased staff capacity and monitoring efforts, and strengthening Freshwater Sanctuaries and management plans.</b></p>	<p>1.1 10 local/regional government staff members are trained to a self-sufficient level of competency in tagging, monitoring and analytical techniques (from a baseline of zero) though mentoring by UK experts by Q4Y1.</p> <p>1.2 1000 native fish – including anguillid eels - are tagged (Q4Y1 = 200; Q4Y2= 400; Q4Y3 = 400) and the results of monitoring are used to amend delineation of 12 existing FS, and strengthen associated FSMPs by Q3Y4.</p> <p>1.3 FSMB membership is expanded by 25% to include at least two land-users (see Output 4) ensuring a holistic approach to management by Q2Y2.</p>	<p>Tagging report and peer-reviewed paper.</p> <p>Training records and materials</p> <p>Documentation of migration / residence patterns and map of fish</p> <p>Survey report and associated recommendations for FSMB produced.</p> <p>FSMB membership / meeting minutes.</p>	<p>LGU / Community commitment to FS continues – we believe we have buy-in through on-going community engagement.</p> <p>Tag readers work effectively</p> <p>FSMB approve changes in relation to fish/eel movement and/or presence of native species – our programme of IEC / social marketing aims to increase the understanding of the importance of adaptive management for natural resource protection.</p> <p>FSMB approve expansion of membership.</p>

	1.4 Management Effectiveness Assessment Tool (MEAT) is adapted and applied to FS and Level 2 attained in all 12 by Q3Y4.	Adapted MEAT protocol approved by MPA Support Network (MSN)  MEAT report	MSN approve adaptation to use in freshwater – ZSL have worked with MSN on previous projects and we have a good relationship with them.
<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>1.1 Tagging, monitoring and analytical techniques training</p> <p>1.2 Native fish species – including anguillid eels - are tagged with PIT tags / elastomers.</p> <p>1.3 Movement of native fish species within the Cagayan River Basin is monitored on a micro- and macro- scale on a monthly basis.</p> <p>1.4 Fish movement data and existing FS bi-weekly abundance monitoring data is consolidated and analysed.</p> <p>1.5 FSMPs are updated in light of consolidated data from FS and fish monitoring.</p> <p>1.6 FSMB expanded to include beneficiaries of new livelihoods e.g. native tree nurseries.</p> <p>1.7 MEAT assessment adapted for use in FS in consultation with MSN.</p> <p>1.8 MEAT assessment carried out at all 12 sites.</p>			
<p><b>2. Data relating to anguillids eels in the Philippines is fed into the national eel management plan and CITES call for international collaboration for improved management of these species.</b></p>	<p>2.1 National and international co-ordination of data collection is strengthened to meet CITES data call through establishment of national data framework by Q4Y2.</p> <p>2.2 Understanding of biology and population status of anguillid eels resident in CRB increased by Q3Y4 through analysis of monitoring data from FSMBs by BFAR and AESG.</p> <p>2.3 National eel management plan (EMP) is updated through consolidated analysis of data sets by Q3Y4.</p> <p>2.4 Regional engagement relating to anguillid eels is improved through participation in CITES workshops by Q3Y4.</p>	<p>National data framework established</p> <p>CITES meeting minutes</p> <p>Peer reviewed paper</p> <p>Updated EMP</p> <p>Workshop minutes</p>	<p>Establishment of framework improves consolidation of national anguillid data – ZSL and the AESG have experience of data collation nationally and internationally and aim to apply this to achieve this output.</p> <p>National stakeholders and international range states of anguillid species found in the Philippines are willing to co-operate – through the AESG and BFAR's links to the South East Asia Fisheries Development Centre (SEAFDEC) we believe there is a strong co-operative network in place.</p> <p>EMP produced as part of project 21-020 is adopted nationally – this is presently being reviewed by stakeholders and was developed through a consultative process which and as such we expect it to be approved nationally early next year.</p> <p>Funding is identified for regional workshops by range states.</p>



<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>2.1 National eel data framework established in collaboration with BFAR.  2.2 Key metrics are identified and analysed in line with CITES call.  2.3 Data submitted to AESG for inclusion in Red List assessment workshop.  2.4 Data submitted to national CITES focal point.  2.5 Regional eel focal points in other range states identified and engaged.  2.6 Data relating to eel species used to update EMP  2.7 Project representatives attend national and international CITES workshops relating to anguillid eels.</p>			
<p><b>3. Human and financial capacity and engagement in managing freshwater resources in 12 focal barangays is increased through social marketing and environment funds delivered by COMSCAs.</b></p>	<p>3.1 Needs, cultural and socio-economic assessments carried out in 12 key barangays (including a minimum of 360 respondents) and number of beneficiaries identified and disaggregated by household and gender to identify community understanding of the freshwater ecosystems, the value and use of the freshwater resources and key capacity issues by Q4 Y1.</p>	<p>Survey report including recommendations is produced</p> <p>Training and social marketing materials.</p>	<p>Communities participate in surveys.</p> <p>Community buy-in to benefits of COMSCAs – communities have been requesting the establishment of COMSCAs since hearing of the success of those established in coastal communities in 21-020.</p>
	<p>3.2 COMSCAs are established in 12 key barangays – encompassing 240 beneficiaries (&gt;50% female) – by Q2Y2 ensuring improved financial security through increased annual savings and access to loans of at least 4000PHP (£65) / person by Q3Y4.</p>	<p>Twelve COMSCAs established</p> <p>COMSCA summaries, loan use and membership data.</p>	<p>Availability of funds and savings and support of the community.</p> <p>Suitable Village Agents are identified.</p>
	<p>3.3 Twelve Village Agents are trained to increase capacity and engagement to establish at least two new COMSCAs per barangay including 480 new beneficiaries (&gt;50% female) across key sites by Q3Y4.</p>	<p>Twelve COMSCA Agent trained</p> <p>Village Agent training reports</p> <p>Agents and community organizers exchanges visits/cross visits</p>	<p>Village Agents set up new COMSCAs – once identified, this is a proven method for establishing COMSCAs.</p> <p>Communities are motivated to support freshwater management and conservation activities – communities were key in identifying FS sites and as such we believe there is buy in to their on-going management.</p>
	<p>3.4 COMSCA environment funds are established in 12 key barangays and an increased willingness of communities to input results in cumulative annual input to environment fund in each barangay rising from PHP0 to at least PHP3600 (£60) per cycle by Q3Y4.</p>	<p>COMSCA agreements from communities</p> <p>Environment fund records</p> <p>Monies from environment funds and proposed budget for spending in place</p>	<p>COMSCAs strengthen FS.</p> <p>COMSCA members understand benefit of inclusion of the environment fund and there is a willingness to adopt – we have developed a social marketing programme to address this issue.</p>
	<p>3.5 Environment funds are used to leverage monies from LGUs and national agencies for FS</p>		

	<p>to at least match the value of environment funds (PHP3600 (£60) per COMSCA per cycle) by Q4Y3.</p> <p>3.6 Environment funds are being used to support effective enforcement and management activities of FS by end of Q4Y2.</p>	<p>Memorandum of Agreement support to the Environment Funds and activities program</p> <p>FSMP produced and institutionalised into LGU Annual Investment Plan (AIP).</p> <p>Breakdown of sources of management and enforcement budget</p> <p>COMSCA summaries</p> <p>Monitoring reports</p> <p>FSMB reports</p>	<p>Support of LGU's / Barangay Councils, communities, Fisherfolk Association's etc. to long-term development of FS.</p> <p>FS management bodies are transparent and accountable, and effective mechanism for utilising environment funds that gives COMSCAs confidence and trust in handing over environment funds for FS management.</p>
<p><b>Activities</b></p> <p>3.1 Socioeconomic survey is developed, carried out and analysed, and report produced.</p> <p>3.2 Community feedback sessions held in 12 key barangays.</p> <p>3.3 Capacity and engagement needs of community and FSMB addressed through series of training courses, social-marketing and infra-structure development.</p> <p>3.4 COMSCA training is delivered at 12 key barangays.</p> <p>3.5 Analysis of COMSCA beneficiary financial access and use.</p> <p>3.6 Village Agents training reinforcing the value of being local champions and their contribution to the management of the FS carried out.</p> <p>3.7 Village Agent training carried out and new COMSCAs are established.</p> <p>3.8 Environment funds are established and proposed budget developed and agreed.</p> <p>3.9 Community and GO co-funding agreement and mechanism of delivery is established for FS enforcement and management.</p>			
<p><b>4. Land use surrounding 12 FS is assessed and mitigation plans developed, and implemented at three priority sites to reduce the impact of terrestrial anthropogenic threats and ensure long-term sustainability of a viable freshwater environment and associated livelihoods within communities.</b></p>	<p>4.1 Terrestrial areas for mitigation/improvement are identified in 12 FS through consultation and collaborative land-use mapping by end of Q1Y2.</p> <p>4.2 All FS agreements and FSMPs strengthened through the inclusion of terrestrial areas and associated mitigation activities identified in 4.1 by Q2Y2.</p>	<p>Minutes of community consultations held to identify suitable areas for reforestation / afforestation and alternative locations for agriculture.</p> <p>ZSL, LGU and community land use mapping surveys carried out.</p> <p>Updated CLUP and map</p> <p>FS ordinances updated and mitigation plan developed</p> <p>Map of updated FS</p>	<p>Community able to self-select areas for improvement and change behaviours and practices relating to terrestrial livelihoods – this process was used to identify FS and we believe it worked well</p> <p>FSMB willing to take on bankside areas to manage.</p> <p>River bank users are willing to participate in improved practice trials – we aim to use IEC and social marketing to engage and increase awareness of stakeholders to the link between</p>

	<p>4.3 10ha of bankside have reduced impact activities implemented (e.g. conservation agriculture, agro-forestry, erosion control) by Q3Y4 from 0ha in Y1.</p> <p>4.4 At least 30 individuals are engaged in establishing three pilot community nurseries for native tree species.</p> <p>4.5 Three community nurseries have cumulatively produced 2000 seedlings by Q4Y2, 5000 by Q4Y3 and 10000 by Q3Y4.</p> <p>4.6 Communities become recognised suppliers to DENR's National Greening Project by Q4Y2.</p> <p>4.7 FSMPs include disaster risk reduction plans with relevant activities e.g. deforestation reversion to prevent siltation/flash floods by Q3Y4.</p>	<p>Hectares of reduced impact activities and monitoring report</p> <p>Training methods</p> <p>Nursery record sheets</p> <p>Value Chain Analysis report</p> <p>Sale of seedlings</p> <p>FSMPs include disaster risk reduction plans</p>	<p>healthy riparian areas and healthy freshwater systems.</p> <p>Communities buy-in to nursery development and seedling production.</p> <p>Good availability of native seedlings.</p> <p>Native species grow successfully.</p> <p>There is a market for native species seedlings – the NGP has been extended to 2028 by DENR and we are confident that as a project partner we will have access to this market.</p>
<p><b>Activities</b></p> <p>4.1 Community consultations relating to land use are carried out in 12 key barangays linked to FS.</p> <p>4.2 Behaviour change programme related to responsible farming practices and mitigation of threats established.</p> <p>4.3 Participatory land-use mapping carried out in the areas around the 12 FS.</p> <p>4.4 Consolidation and analysis of data for each of the 12 sites is carried out to identify priority areas for mitigation.</p> <p>4.5 Twelve FS agreements and FSMPs amended to include identified riparian areas and associated mitigation actions</p> <p>4.6 Prioritisation of terrestrial mitigation to identify three implementation sites.</p> <p>4.7 Training in reduced impact land-use activities delivered at three priority sites.</p> <p>4.8 Participatory implementation of reduced impact land-use livelihoods at three priority sites.</p> <p>4.9 Monitoring of mitigation activities to assess effectiveness.</p> <p>4.10 Value Chain Analysis for native species seedlings.</p> <p>4.11 Community training in silviculture and nursery establishment delivered in three sites.</p> <p>4.12 Native seedling planting and cultivation.</p> <p>4.13 Seedlings sold into market – including local mitigation activities and NGP.</p> <p>4.14 Disaster risk reduction plans developed and included in FSMPs.</p>			
<p><b>5. The impact of introduced / invasive species on Freshwater Sanctuaries is understood and mitigation is implemented.</b></p>	<p>5.1 Terrestrial and aquatic exotic / invasive species in all FS are catalogued and/or mapped and impact assessment carried out by Q1Y2.</p> <p>5.2 In collaboration with BFAR and LGUs, invasive freshwater species mitigation feasibility</p>	<p>Survey report and maps</p> <p>Monitoring reports</p>	<p>There is government support for invasive species mitigation.</p> <p>Appropriate native species are available.</p>

	<p>study (including native species culture) is initiated by Q2Y2.</p> <p>5.3 10ha of bankside is cleared of exotic/invasive species (from 0ha in Y1) and rehabilitated using native species seedlings from community nurseries (4.4) by Q3Y4.</p> <p>5.4 Management of invasive species is included in FS ordinances by Q4Y2.</p>	<p>Training records / farm log sheets</p> <p>Planting records</p> <p>Map of rehabilitated areas</p> <p>Amended FS ordinance</p>	
<p><b>Activities</b></p> <p>5.1 Invasive species survey carried out in 12 FS</p> <p>5.2 FSMPs adapted to incorporate mitigation activities.</p> <p>5.3 Native freshwater fish species pilot culture programme initiated.</p> <p>5.4 Feasibility study produced.</p> <p>5.5 Areas of non-native riparian species identified and cleared.</p> <p>5.6 Native species seedlings transplanted from nurseries.</p> <p>5.7 FS barangay ordinances adapted to incorporate invasive species mitigation.</p>			

### Annex 3: Standard Measures

Other training is expected but this can not be detailed until needs assessment has been carried out during socio-economic survey.

**Table 1 Project Standard Output Measures**

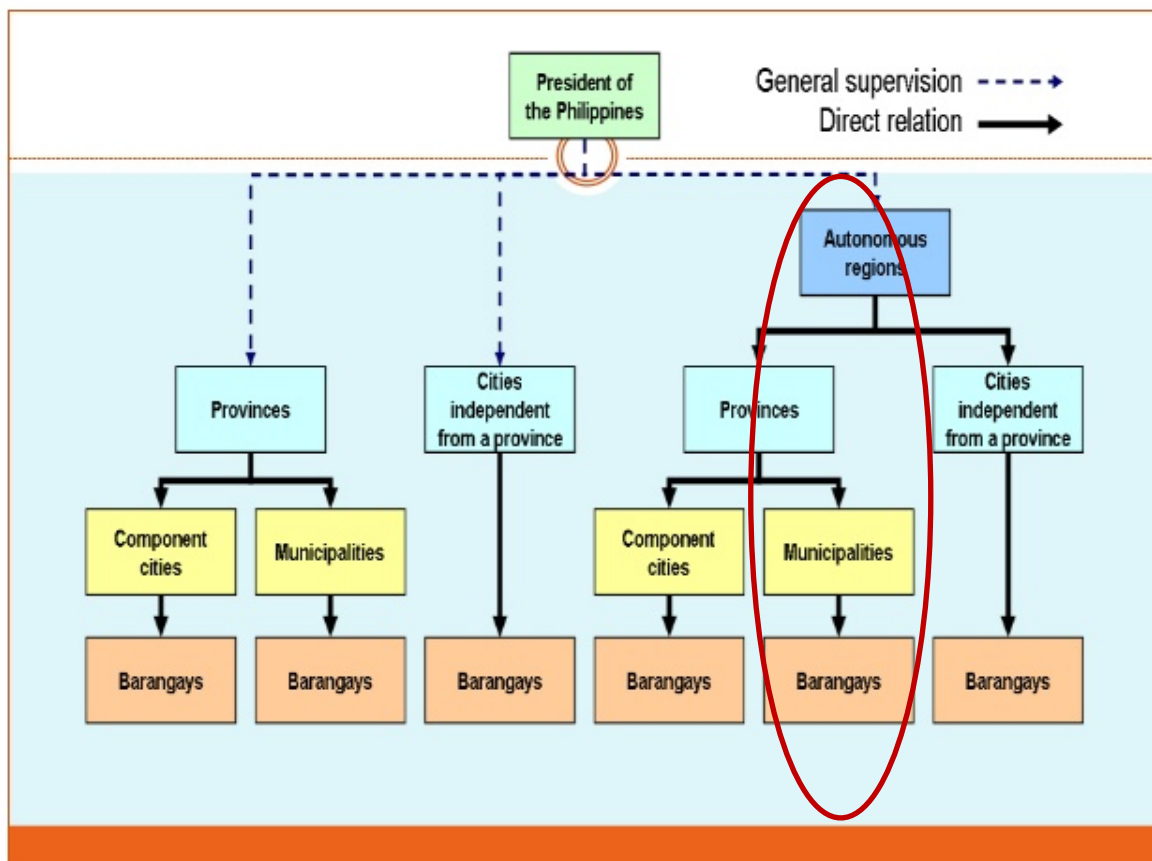
Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
6A	Tagging orientation and training		Filipino		10		0	10
6A	CoMSCA training		Filipino		360		0	360
6A	Village Agent training		Filipino			12	0	
12A	Anguillid eel data framework				1			To be lead by BFAR

**Table 2 Publications**

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

**Annex 4 – Organogram of Philippines Governance – relevant structure is circled.**

The present project is focussed in Region 2, has 12 project sites in three Provinces (Cagayan, Isabella and Quirino) within six municipalities (LGUs) and managed at the barangay level.



## Annex 5 – Technical Working Group Agenda and group photo

What : 3<sup>rd</sup> TWG Meeting - Freshwater Conservation Project

When : March 22, 2018

Where : DENR Conference Hall

### Agenda:

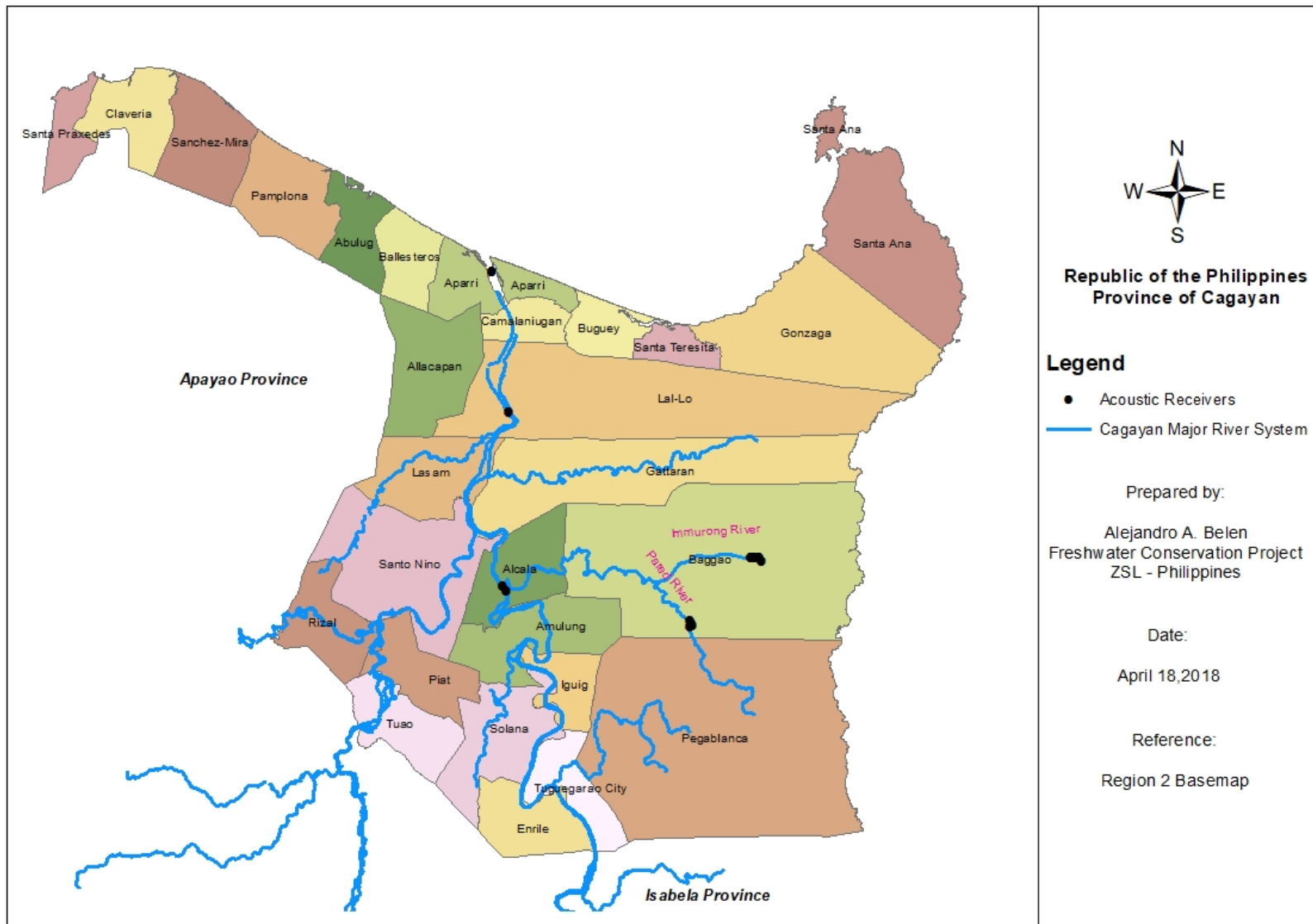
Date	Location	Activity	PR
<b>22 March 2018 (Sunday)</b>			
9:00 – 9:30 AM	DENR Hall	Opening Program	Frank
9:00– 10:30AM	DENR Hall	Project Updates Socio Bio	Frank and Rey Bryan and Luz
10:30 – 12:30PM	DENR Hall	Sharing of best practices Siitan FS Governors Rapids FS San Mariano FS Penablanca FS Baggao FS Gattaran FS	MA MA MA MA MENRo MA
12:30 – 1:30PM	DENR Hall	Lunch break	Mae Ann
1:30 – 2:00PM	DENR Hall	Presentation of Year 2 Work Plan	Ali
2:00 – 3:30PM	DENR Hall	Logframe/budget Review	MG
3:30 – 4:00PM	DENR Hall	Closing Distribution of TWG uniform (T-shirt) Photo offs with Uniform	Jinky, Luz, Mae
4:00 – 5:30PM	Tug.	Home Sweet Home	TWG members

## Annex 6 – Tagging trip report

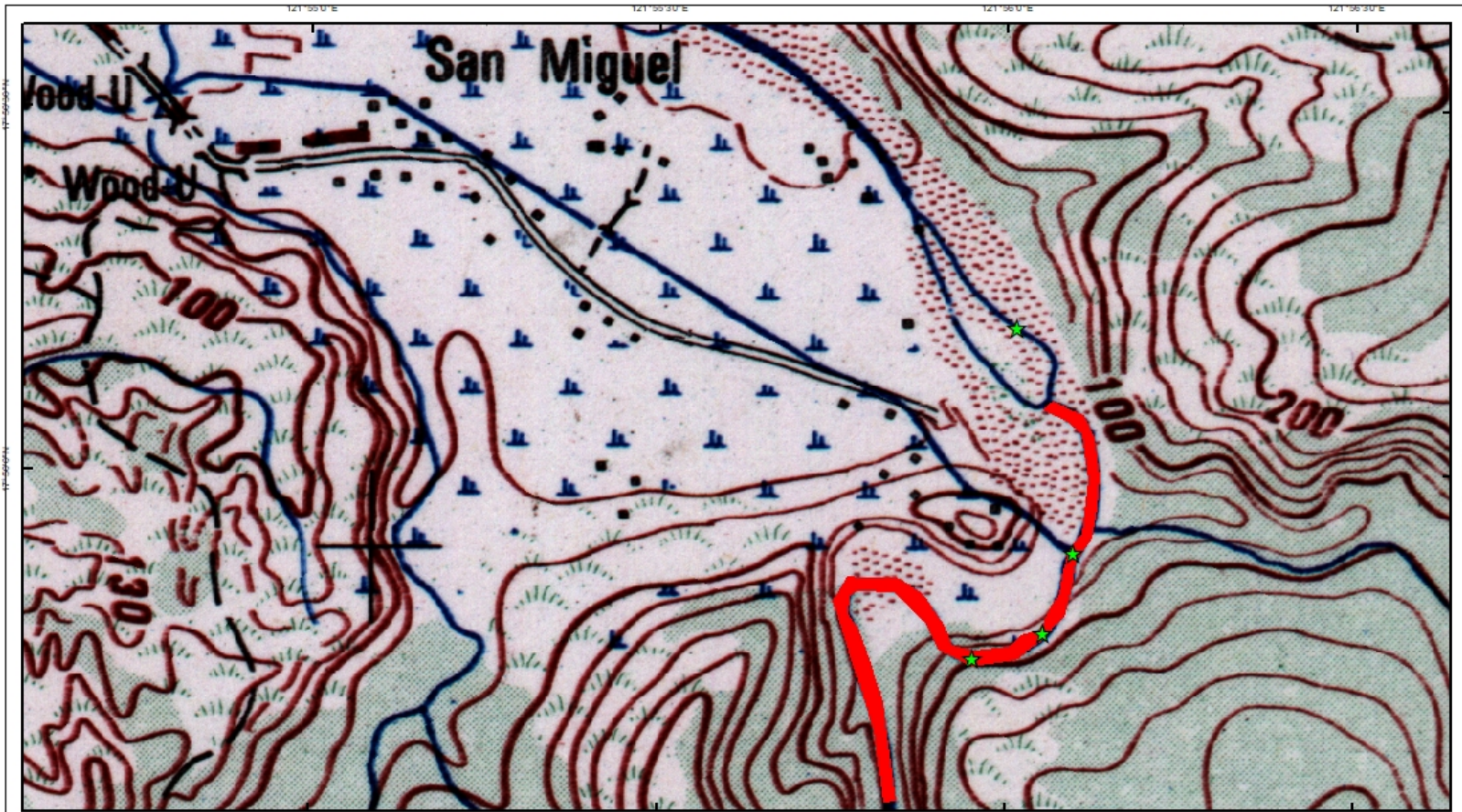
March/April 2018

### Eel tracking in Hot Springs and Duba fish sanctuaries, Philippines

**Annex 7 – Maps of receiver locations**









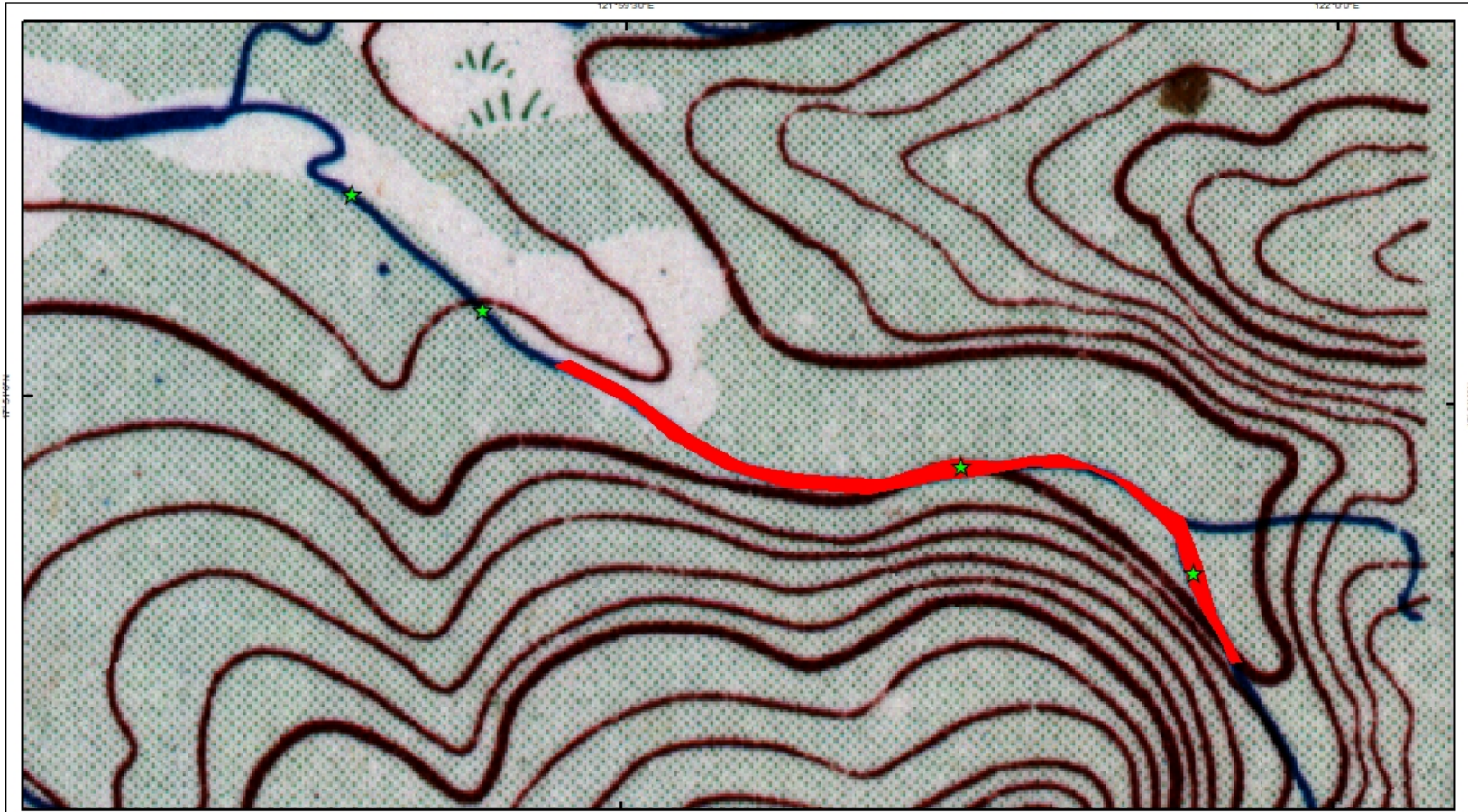
Republic of the Philippines  
 Province of Cagayan  
 Municipality of Baggao  
 BARANGAY SAN MIGUEL

**Legend**

-  Receiver
-  Duba FS\_Tagging site



Prepared by:  
 ALEJANDRO A. BELEN  
 Freshwater Conservation Project  
 ZSL-Philippines

Date Prepared:  
 April 18, 2018  
 Reference:  
 Topographic Map of Baggao



Republic of the Philippines  
 Province of Cagayan  
 Municipality of Baggao  
 BARANGAY A SINGA-VIA

**Legend**

-  Acoustic Receiver
-  Hotspring FS\_Tagging site

Prepared by:  
 ALEJANDRO A. BELEN  
 Freshwater Conservation Project  
 ZSL-Philippines

Date Prepared:  
 April 18, 2018  
 Reference:  
 Topographic Map of Baggao

**Annex 8 – Consolidated CMG data submitted to Municipal Agriculture Office (LGU)**



**Annex 9 – Draft Freshwater Protected Area – MEAT assessment (Level 1 only)**



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SUSTAINABLE COMMUNITY-BASED STEWARDSHIP OF  
FRESHWATER RESOURCES IN NORTHERN PHILIPPINES

# FOCUS GROUP DISCUSSION

FINAL REPORT  
APRIL 2018

**FRANKLIN PIAD**  
Social Technical Specialist

**REYNOR AQUINO**  
Community Organizer

**ZOOLOGICAL SOCIETY OF LONDON - PHILIPPINES**  
DENR Regional Office II, Carig Sur, Tuguegarao City, Cagayan



**Annex 13 – The invasive janitor fish (*Pterygoplichthus pardalis*)**



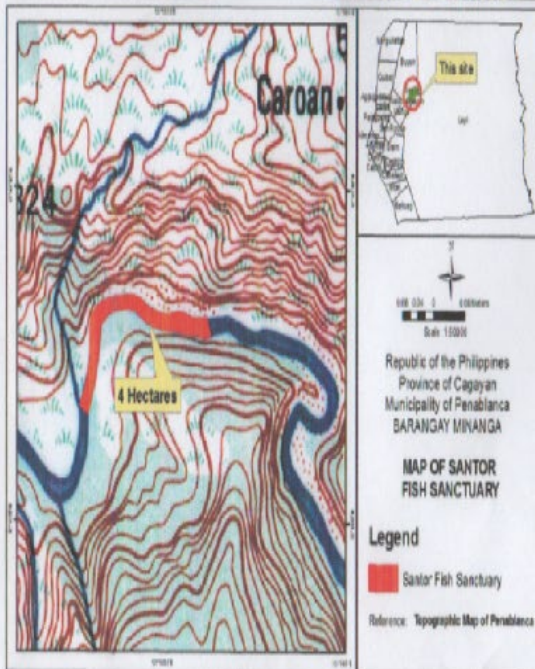
Annex 14 – Embassy staff visit to project site

Annex 15 – Darwin branding on presentation materials





# SANTOR FISH SANCTUARY



BARANGAY ORDINANCE NO. \_\_\_\_

Series of 2016

AN ORDINANCE DECLARING A PART OF THE PINACANAUAN DE TUGUEGARAO RIVER WITHIN THE PEÑABLANCA PROTECTED LANDSCAPE AND SEASCAPE (PPLS) LOCATED IN BARANGAY MINANGA AS A FISH SANCTUARY FOR THE CONSERVATION AND SUSTAINABLE MANAGEMENT OF FISHERIES AND AQUATIC RESOURCES.

WHEREAS, the Zoological Society of London (ZSL), a non-government organization based in Aparri, Cagayan with project entitled "*Eels as a Flagship Species for Conservation and Management*" in partnership with the Bureau of Fisheries and Aquatic Resources (BFAR), Department of Environment and Natural Resources (DENR) and the Local Government Unit of Peñablanca, have recommended the site for the establishment of fish sanctuary.

**SECTION V:** That it shall be unlawful for any person to fish in the established fish sanctuary. Anybody who violates this Ordinance herein declared by the barangay shall be penalized with the following:

- First Offense = Warning and Fine of P500.00
- Second Offense = Fine of P1,000.00 and confiscation of fishing gears and catch.
- Third Offense = Fine of P2,000, confiscation of fishing gears and catch and cancellation of fisherfolks registration.

Funded by: Darwin Initiative thru Zoological Society of London (ZSL)  
Initiated by: Local Government Unit of Peñablanca and Aggugaddan barangay Council



# Conservation of Eels – the Global Context



Matthew Gollock  
Zoological Society of London

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	X
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	X
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	X
Do not include claim forms or other communications with this report.	