

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: 30th April 2018

Darwin Project Information

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| Project reference | 23-011 |
| Project title | Transforming marine resource management in the Republic of Congo |
| Host country/ies | Republic of Congo (Congo-Brazzaville) |
| Contract holder institution | University of Exeter (UoE) |
| Partner institution(s) | Wildlife Conservation Society (WCS) Association de Conservation de la Biodiversité (Rénatura) Ministère de l'Economie Forestière et du Développement Durable et de l'Environnement (MEFDDE) Parc National Conkouati-Douli (PNCD) |
| Darwin grant value | £299,435 |
| Start/end dates of project | 1 ST April 2016 – 30 TH September 2018 |
| Reporting period | 1 ST April 2017 – 31 ST March 2018 (Annual Report 2) |
| Project Leader name | Professor Brendan Godley |
| Project website/blog/Twitter | @wcs_congo |
| Report author(s) and date | K.Metcalf B.J.Godley & M.J.Witt (UoE) / R.Beville & M.Gately (WCS) / N.Bréheret & E.Chauvet (Rénatura) – 27 TH April 2018 |

1. Project rationale

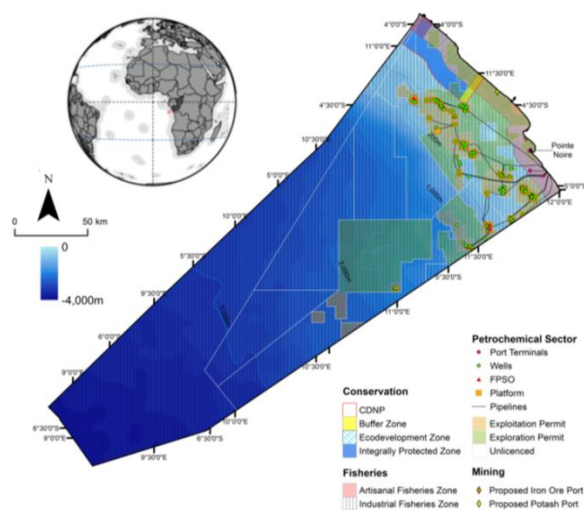


Fig. 1 Location of Congo-Brazzaville, and overlapping ocean uses within its exclusive economic zone.

The Problem: The Republic of Congo (**Fig. 1**) has significant resources with potential to contribute to food security and poverty alleviation in fisheries-dependent coastal communities where few alternative livelihood opportunities exist. This project seeks to improve marine resource governance by promoting the sustainable and legal extraction of marine resources, and the conservation of marine biodiversity through the development of an evidence based marine spatial plan that minimises impacts on, and conflicts between competing sectors. **Objectives:** To address these aims there are clear needs to: (i) improve technical capacity and develop the existing knowledge and skills base in-country; (ii) characterise the socioeconomics of the small-scale artisanal fisheries sector due to their essential role in food security, employment, and its potential role in poverty alleviation; (iii) fill key knowledge gaps related to marine biodiversity of regional importance; (iv)

integrate available information on the spatial distribution of biodiversity and threats associated with different ocean user groups; and finally (v) identify priority areas for conservation zoning. The overall aim of the project is thus to increase awareness among stakeholders to the importance of marine biodiversity and sustainable fisheries in the region; and support the development of a representative MPA network that meets national and international conservation targets, whilst minimising impacts on competing sectors (**Fig. 1**).

2. Project partnerships

Lead Partner and Partner Organisations: The lead partner (**UoE**) has engaged frequently with all partner organisations (**WCS** and **Rénatura**), with the Darwin Research Fellow (**DRF**) Dr Kristian Metcalfe spending a total of 16 weeks in country (April 2017, September – October 2017, November – December 2017 and February - March 2018). **WCS** and **Rénatura** have provided substantial logistical and field support for in-country activities and as a result the partnerships are demonstrably strong with significant progress having been made towards the projects goals. During periods where the **DRF** has not been present in-country the relationship with project partners has been maintained through regular skype meetings and email exchanges.

External Partners: A key objective of the project is to engage local stakeholders and government agencies in the project as well as to increase awareness of the projects findings and outputs. To this end the project partners have continued to engage with representatives from the two main ministries that manage protected areas and marine (fisheries) resources – the Ministère de l'économie forestière et du développement durable et de l'Environnement (**MEFDDE**) and the Ministère de l'Agriculture, de l'Élevage et de la Pêche (**MAEP**). This has included multiple meetings and two marine spatial planning workshops (**see section 3.1**) comprising representatives from major government agencies, local and international non-governmental organisations as well as from different ocean user-groups (notably the artisanal and industrial fisheries sectors). The strength of the projects relationship with key government agencies is also further evidenced by **Rénatura** who attend regular (weekly) meetings with the Director Departmental of **MAEP** in Pointe Noire, Monsieur Gaston Ngassiki (who replaced the previous Director Monsieur Antoine Missamou in May 2017). These regular meetings have ensured that the project is aware of the **MAEPs** current agenda and priorities with two notable developments, including: (1) obtaining access to additional vessel monitoring system (VMS) data from 2016 and 2017, in addition to government procured data from 2012 (see Annual Report 1); and (2) an invitation to input into the revision of the national fisheries law. Finally, Dr Richard Parnell of **WCS**, who coordinated the **Gabon Bleu** initiative (*see: [WCS and National Geographic](#)*) and now based in the United States, continues to support the project and visited Congo for a further two weeks in November 2017 with the specific aim of: (1) evaluating current project progress (in collaboration with the **DRF**, **WCS** and **Rénatura**); and (2) supporting the participatory marine spatial planning workshops by providing evidence of how similar work was undertaken in neighbouring Gabon as part of Gabon Bleu. Dr Parnell will continue to support the project with a further visit scheduled to occur in the forthcoming financial year (provisional date of September 2018).

3. Project progress

3.1 Progress in carrying out project Activities

Activities during the reporting period (April 2017 – March 2018) have primarily focused on four key areas: (1) identifying policy goals and conducting participatory workshops and analyses to support marine spatial planning; (2) completing phase 1 and 2 of the national strategy document that is designed to increase awareness and support marine spatial planning efforts; (3) increasing enforcement effort and capacity through maritime patrols and analysis of industrial fisheries data; and (4) increasing engagement and awareness of project activities with key stakeholders and government agencies. The following section provides a brief summary of the key activities completed under each project output to date:

Output 1: Marine spatial planning: On the 7th – 8th April 2017 **WCS, Rénatura** and **UoE** hosted a 2-day participatory workshop in Pointe Noire with 60 stakeholders representing 12 organisations and 6 sectors. This workshop was opened by Madame la Ministre Rosalie Matondo of **MEFDDE**, Mark Gately Director General of **WCS** Congo Program, and the Préfet (state representative) for Kouilou; the department encompassing the coastal area (**see Annex 4 Fig. S1**). The aim of this workshop was to identify a common set of goals and objectives based on existing and anticipated challenges and threats in the marine area (**Activity 1.1**). Based on this workshop a total of ~10 goals (i.e. high-level statements of desired outcomes) were identified that could be broadly classified into 4 categories: (1) biodiversity conservation; (2) sustainable resource use; (3) local livelihoods; and (4) conflict reduction. Following this workshop project partners conducted three marine spatial planning analyses using Marxan to demonstrate how these goals could be achieved (**Activity 1.3 & 1.4**). Scenario 1 focused on enhancing biodiversity protection through both the expansion of existing and identification of new marine protected areas. Scenario 2 and 3 focused on identifying priority areas for conservation that increasingly incorporated important human-uses into the planning process to minimise conflict with stakeholders, and thus increase the likelihood of implementation (**see Annex 4 Fig. S2**). These analyses were completed in October 2017 and a participatory marine spatial planning workshop (**Activity 1.1**) hosted on 22nd November 2017 in Brazzaville involving 30 stakeholders, comprising representatives from major government agencies, local and international non-governmental organisations as well as from different ocean user-groups (notably artisanal and industrial fisheries) (**see Annex 4 Fig. S3**). The specific aim of this workshop was to demonstrate international standards of best practice used to identify priority areas for conservation, provide detailed information on the positive and negative impacts of adopting different scenarios and work with participants to identify a scenario which could be taken forward for further development (**see Annex 4 Fig. S4**).

*Please note analysis of spatial data on shipping (contributing to **Activity 1.2**) used to support marine spatial planning analyses was accepted for publication in the Journal of Applied Ecology (**See Annex 3 Table 2**).*

Output 2: Enforcement efforts and local capacity: With financial support of project partners **MAEP** have increased the number of maritime patrols targeted at reducing illegal, unreported and unregulated (IUU) fishing. During 2017 **MAEP** conducted a total of 29 patrols (**Activity 2.3**) during which 54 vessels were stopped to ascertain compliance with fisheries law, resulting in the identification of 49 (~91%) vessels that were in non-compliance, including evidence of transshipping (**see Annex 4 Fig. S5 - S6**). To support **MAEP** and **Rénatura** a simple fisheries patrol and reporting database has been developed by **UoE** – this database collated all available data from 2006 to present (n = 13 years including 2018), thereby allowing partners to evaluate trends in patrol efforts (e.g. annual and monthly), compliance, types of infractions, as well as providing a tool to calculate the value of fines. Key findings from analyses of all available data have revealed that annual and monthly patrol effort have increased since 2016 (start of this Darwin project). Furthermore, for the first time since 2006, data from 2017 and 2018 revealed that there has been an increase in number of vessels complying with fisheries regulations and laws from 0% to 9% in 2017 and 11% as of March 2018 (**see Annex 4 Fig. S6**).

Outputs 3: Industrial and IUU fisheries: Project partners continue to provide ongoing technical and analytical support relating to fisheries (**Activity 3.1 & 3.2**). This has included detailed spatial analyses of vessel monitoring system (VMS) data from 2012 to understand the scale of IUU fishing, as requested by **MAEP** (**Activity 3.2**). Findings of this study revealed that fishing effort by 76 vessels totalled 112,240 hours (equivalent to 4,677 days), with an estimated 30.4% (34,170 hours) of fishing effort associated with IUU fisheries activity within the artisanal fisheries zone and Parc National Conkouati-Douli (**see Annex 4 Fig. S7**). Following analyses of these data the new Departmental Director for **MAEP** (**see section 11**) provided project partners with access to VMS data from 2016 and 2017 (**see Annex 4 Fig. S8**). These data are currently subject to similar spatial analyses as per the data from 2012. This will ensure that comparisons can be made across years – particularly between 2016 and 2017 to identify whether patterns of IUU fishing behaviour (and

hotspots) have changed over time following the increase in fisheries patrols (**Activity 3.2**). Analyses of fisheries data have also been complemented by distribution maps for 5 species of conservation concern (**Activity 3.3**). These included 3 marine mammals - humpback whale, humpback dolphin and bottlenose dolphin; and 2 species of marine turtle - olive ridley and leatherback sea turtles (see **Annex 4 Fig. S9**). Given that sea turtles use the waters of Congo for several life history stages project partners produced habitat suitability models for migratory, foraging and inter-nesting areas (**Activity 1.2**) - which were incorporated into the national marine spatial planning strategy document (see **Annex 4 Fig. S10**).

Output 4: Engagement and awareness raising: A key component of this project has involved increasing awareness about the scale of IUU fishing and its impacts on food security and local livelihoods. To this end the project partners have presented key fisheries findings to: (1) key representatives of **MAEP** in Brazzaville; (2) Monsieur Henri Djombo (Minister of State for Agriculture, Animal Husbandry and Fishing) a leading figure within government; and (3) an EU delegation comprising Ambassador Saskia De Lang, Head of Cooperation Tom Ashwanden, and Project Manager for Rural Development Camille Pubill (see **annex 4 Fig. S11**). As a result of continued and regular engagement with **MAEP** project partners were invited to support the revision of national fisheries law (*Loi No 2 - 2000 - Portant organisation de la pêche maritime en République du Congo*). A first workshop was held with representatives from **MAEP**, **WCS**, **Rénatura**, and the artisanal and industrial fisheries sector on 23rd November 2017 in Brazzaville (**Activity 4.2**). At this workshop participants were invited to comment on the text of the first draft – identifying weaknesses and concerns. It was decided that a second participatory workshop should be held with representatives of this sector on the 26th November 2017 in Pointe Noire (see **annex 4 Fig. S12**). The aim of this second workshop was to ensure that artisanal fishers who are typically marginalised from decision making processes were able to comment freely on the proposed changes (**Activity 4.2**).

3.2 Progress towards project Outputs

Green shading represents indicator still valid with evidence of substantial progress, **orange** represents indicator still valid, but too early to assess, and/or ongoing activities are being undertaken to evaluate progress or meet project outputs. Annex 1 provides a summary of progress and achievements against Logical Framework for Financial Year 2017-2018.

| Output 1: | Marine spatial planning | | | Comments |
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| | Baseline | Change recorded | Evidence | |
| Indicator 1.1 - Policy relevant realistic targets and management scenarios identified through a 2-day stakeholder workshop. | Baseline = 0 national scale marine planning workshops | A 2-day participatory workshop was held in Pointe Noire on the 7th – 8th April 2017. Based on this workshop a total of ~10 goals (i.e. high-level statements of desired outcomes) were identified. | See section 2 and 3.1 of the report and Annex 4 Fig S1 – S4 for evidence. | Indicator still valid. This 2 day participatory workshop was attended by 60 stakeholders representing 12 organisations from across 6 sectors. |
| Indicator 1.2 - Enhanced capacity and technical expertise to deliver a scientifically evidenced marine spatial plan as a result of updated Darwin Marine Biodiversity Atlas (incorporating ≥ 20 new data layers). | Baseline = 113 spatial data layers | Total number of data layers available to support marine spatial planning, biodiversity conservation and fisheries resource management now total >200 data layers – (inclusive of 15 data layers on industrial fisheries and 7 on artisanal fisheries). | See sections 3 and Annex 4 for detailed information and examples of spatial data layers. | Indicator still valid. All data layers have been incorporated into the national strategy document. Final delivery of document expected FY3 Q1 2018. |
| Indicator 1.3 - Participatory planning workshop implemented to develop | Baseline = 0 spatial planning | A 1-day participatory marine spatial planning and evaluation workshop was | See section 2 and 3.1 of the report and | Indicator still valid. This 1 day workshop was |

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| marine spatial plan using available information on marine biodiversity, resource extraction (e.g. petrochemical extraction) artisanal and industrial fisheries data and supported by Marxan. | workshops | held in Brazzaville on the 22 nd November 2017 that demonstrated how international best practice could be used to achieve identified policy goals (see indicator 1.1 above). | Annex 4 Fig S1 – S4 for evidence. | attended by 30 stakeholders from government, as well as a small number of representatives from artisanal and industrial fishers. |
| Output 2: | Enforcement efforts and local capacity | | | Comments |
| | <i>Baseline</i> | <i>Change recorded</i> | <i>Evidence</i> | |
| Indicator 2.1 - Increase in the number of formally trained Congolese boat pilots to ≥ 2. | Baseline = 1 | As of December 2017 each enforcement patrol is supported by two Congolese boat pilots (one senior employed by Rénatura and one junior employed by MAEP). | See section 9 and Annex 4 Fig. S6 for evidence of patrol data. | Indicator still valid. Increased focus in FY3 on providing additional training |
| Indicator 2.2 - Increased capacity for marine surveillance and enforcement initiatives enhanced by marine teams attending study exchange with enforcement teams from WCS and ANPN in Mayumba National Park which borders CDPN in neighbouring Gabon (1 x 10 day training workshop). | Baseline = 0 | To date no exchanges have been conducted as existing efforts have been directed at increasing efforts to undertake and report on enforcement patrols. This is at the behest of MAEP , who feel that the most pressing need is to undertake missions. | See section 9 and Annex 4 Fig. S6 for evidence of patrol data. | Indicator still valid. To address lack of training WCS have appointed new staff members. One aspect of these new roles is to identify training opportunities that can be held in Congo. |
| Indicator 2.3 - Increase in the number of regular enforcement patrols at sea by 200% to a minimum of 3 per month. | Baseline = 0 – 1 per month | In 2016 an average of 0.8 patrols were conducted per month (baseline). This average increased to 2.4 in 2017. | See section 3 and Annex 4 Fig S6. | Indicator still valid, with evidence of substantial progress towards target of 3 patrols per month. |
| Indicator 2.4 - At least 25% of 28 fisheries dependent communities engaged in collecting IUU fishing data to inform targeted enforcement efforts based on participatory data collection. | Baseline = 0 | Baseline social, economic and IUU data available for 100% of fisheries communities along the coast. Follow up surveys are being targeted in the same communities as part of evaluating project progress (see indicator 2.5 below). | See sections 3.3, 6 and Annex 4 Fig. S13. | Indicator still valid, with baseline survey data from fisheries dependent communities exceeding project targets with 100% of communities engaged in participatory research. |
| Indicator 2.5 - Effectiveness of increased enforcement and surveillance initiatives on marine biodiversity (ecological spill-overs) and fisheries livelihoods will be assessed in 25% of 28 fishing communities to identify positive or negative impacts on fisheries catches, and economic losses. | Baseline = 0 | 0 change recorded. However, what is clear from enforcement patrol data is that there has been an increase in vessel compliance and so the project will now use follow up surveys (commenced March 2018) to evaluate whether this has translated into positive impacts on fisher communities, or displaced IUU fishing effort to other areas. | See sections 3.3 and 6. | Indicator still valid, but too early to assess. Follow up surveys are being conducted with the aim of targeting 100% of fisheries dependent communities per project baseline (see indicator 2.4 above). |

| Output 3: | Industrial and IUU fisheries | | | Comments |
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| | Baseline | Change recorded | Evidence | |
| Indicator 3.1 - Baseline knowledge of spatiotemporal patterns of industrial fisheries activity and its conflict / overlap with artisanal fisheries quantified and described. Minimum 5 data layers developed. | Baseline = 0 | Detailed spatial analyses of vessel monitoring system (VMS) data from 2012 has resulted in 3 annual and 12 monthly data layers on the spatial distribution of industrial fisheries activity and effort. | See section 3.3 and Annex 4 Figs. S5 – S8 for maps and spatial statistics. | Indicator still valid. |
| Indicator 3.2 - Baseline knowledge of magnitude and spatiotemporal patterns of IUU fisheries using data collected by fishers engaged in participatory research. Extent of area illegally exploited quantified and described. Minimum 5 data layers incorporated into existing Marine Biodiversity Atlas for the Republic of Congo by year 2 Q3-Q4. | Baseline = 0 | Detailed spatial analysis of VMS data from 2012 has revealed that an estimated 30.4% of total fishing effort was associated with IUU fisheries activity. Additionally, fisher surveys have revealed the scale of economic losses associated with IUU, which is equivalent to between 5% - 7% of revenue generated by artisanal fisheries. | See sections 3.3, 6 and Annex 4 Figs. S7, S8 and S13 for maps, spatial statistics and economic data. | Indicator still valid. |
| Indicator 3.3 - Distribution maps for at least 10 species of conservation concern (i.e. sharks, turtles and cetaceans) developed through analysis of existing available field data (e.g. satellite tracking / boat surveys) and overlap with industrial and IUU fisheries quantified. | Baseline = 0 | Using all available data species distribution models have been developed for 5 species of conservation concern, comprising 3 marine mammals (humpback whale, humpback dolphin and bottlenose dolphin) and 2 species of marine turtle (olive ridley and leatherback sea turtles). | See section 3.1 and Annex 4 Figs. S9 – S10 for example data incorporated into the national strategy document. | Indicator still valid. Evaluation of available data revealed that there was only enough data to develop robust distribution models for 5 species (not the targeted 10). However, to ensure that use of available data was maximised, project partners developed species distribution models for each of the 3 key life history stages for sea turtles (e.g. migratory, foraging and inter-nesting areas), as well as at-sea density maps. Thus resulting in a total of 11 data layers. |
| Indicator 3.4 - Potential interventions to reduce bycatch in each fishery sector identified, costed, and species action plans developed for marine mammals, sharks, and turtles. | Baseline = 0 | Comprehensive data for 5 species of conservation concern (see indicator 3.3 above), such as their spatial distribution, and threats have been incorporated into the national strategy document. | See Annex 4 Figs. S9 – S10 and S15. | Indicator still valid. |

| Output 4: | Engagement and awareness raising | | | Comments |
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| | Baseline | Change recorded | Evidence | |
| <p>Indicator 4.1 - Engagement with industrial fishing operators (n = 5 companies) underway by year 1 Q3 facilitating awareness raising initiatives and contribution to stakeholder-led marine spatial planning process (Output 1) with participatory research underway in year 1 Q4.</p> | Baseline = 0 | Participatory data collection and analysis of industrial fishing vessel data was incorporated into development and evaluation of marine spatial planning scenarios. Furthermore, industrial fishing operators continue to be engaged in activities to transform marine resource governance, such as the revision of national fisheries law. | See sections 3.1, 3.3, 5 and Annex 4 Fig. S2 for an example of how incorporating fisheries data influences (i.e. changes) the location of priority areas. | Indicator still valid. |
| <p>Indicator 4.2 - Representatives from each industrial fishing operator (n = 5 companies) attend 1-day workshop to establish current knowledge of rules and regulations and the perceived level of enforcement and risk to help understand the drivers behind IUU fisheries activity.</p> | Baseline = 0 | As of 2017 4 (57%) of 7 industrial fishing operators have engaged in participatory data collection. Representatives of industrial fishing operators also attended national fisheries law revision workshop. <i>N.B. project partners are continuing to engage with fishing companies to host workshop on rules and regulations.</i> | See sections 3.1, 3.3 and Annex 4 Figs. S11 - S12. | Indicator still valid. Understanding drivers behind IUU fishing has been one of the most ambitious components of the project, however, with the availability of additional spatial data on industrial fishing vessels the project can now evaluate whether IUU fishing is linked to ocean productivity, and/or the accessibility of fishing grounds. |

3.3 Progress towards the project Outcome

The following section provides a summary of progress towards the project Outcome as described in the Logical Framework (**Annex 1**).

Indicator 0.1 - Marine protected area network that covers at least 10% of Republic of Congo's EEZ, including community and industrial fishing zones based on robust research and participatory design (baseline = 3%). **Change Recorded:** To date the project has resulted in increased knowledge to support MSP with data available for all key ocean user-groups and increased knowledge on the spatial distribution of marine biodiversity (particularly threatened species). Government partners continue to acknowledge their commitment to honouring the recent announcement at '[Our Ocean](#)' conference to create a 'special marine conservation zone' in Loango Bay (see annual report 1). Participatory workshops with stakeholders have identified broad goals that a marine spatial plan should aim to achieve – the overarching goals of which were to increase marine protection, protect local livelihoods and food security, and minimise impacts on other sectors of the economy. Project partners have undertaken analyses and workshops to demonstrate how international best practice can be applied to achieve such stated goals, with stakeholders contributing to the evaluation of different scenarios based on their contribution and potential impacts. As a result one scenario was identified as warranting further development - scenario 3 where MPA coverage would increase from 3% to 19% of the EEZ. **Comments:** Indicator still remains valid. In financial year 3 activities related to this output will focus on working with stakeholders to identify number and proposed boundaries of new protected areas, and fishing

zones that will be put forward for consultation. **Evidence and means of verification:** Please see **section 3.1, 3.2 and annex 4 Figs. S1 - S4** for evidence of workshops and spatial analyses.

Indicator 0.2 - Increased knowledge of the spatial distribution of industrial and IUU fisheries activity, based on participatory research leading to increased effectiveness and targeted enforcement initiatives to support fisheries regulations (baseline = 0). **Change Recorded:** As a result of increased collaboration with **MAEP** the project has obtained vessel monitoring system (VMS) data that has not been previously analysed by government (i.e. 2012, 2016 and 2017). Analysis of data from 2012 has both identified areas subject to illegal fishing and that approximately 30% of total fishing effort was illegal and are being used to inform more targeted enforcement efforts. **Comments:** Indicator still remains valid with data currently supporting patrols. Analyses of recently obtained data from 2016 and 2017 will also help project partners ascertain the effectiveness of enforcement initiatives, as more regular patrols commenced in 2017. **Evidence and means of verification:** Please see **section 3.1, 3.2 and annex 4 Figs. S5 - S8** for evidence of data obtained, spatial analyses that describe the extent of industrial fishing effort and patrols.

Indicator 0.3 - Increased knowledge of drivers behind IUU fisheries activity based on participatory research will provide decision makers with data to promote more effective governance of marine resources and reduce illegal fishing (baseline = 0). **Change Recorded:** Additional vessel monitoring system (VMS) data provided by **MAEP** to support analyses of IUU fishing (see **section 3.1 and annex 4 Fig. S8**). **Comments:** Understanding the drivers behind IUU fishing has been one of the most ambitious components of the project, however, with the availability of additional spatial data on industrial fishing vessels (see **section 3**) the project can now evaluate whether IUU fishing is linked to ocean productivity, and accessibility of fishing grounds – if neither then this would suggest that IUU is largely opportunistic. With this in mind the **UoE** have identified a MSc student who will analyse all available data with final project due August 2018. Increased efforts are also being made to identify industrial operators and/or boat captains who are willing to undertake anonymised surveys to support the analyses above. Finally, increased engagement, analytical support and data have been used to support revision of fisheries laws. **Evidence and means of verification:** Please see **section 3.1, 3.2 and annex 4 Figs. S7 – S8 & S11 - S12** which provide evidence of spatial data, as well as project partners engaging in activities designed to transform marine resource governance such as workshops focused on revising current fisheries law.

Indicator 0.4 - Economic losses for fishers associated with loss of equipment by industrial and IUU fisheries activity (e.g. nets and buoys) reduced by 50% in focal fishing communities (baseline = 0). **Change Recorded:** Additional fisher surveys focused on '*Quantifying the social and economic contribution of small-scale fisheries and their vulnerability to illegal, unreported and unregulated (IUU) fishing*' were conducted in April 2017 to ensure a minimum of 10% of fishers were surveyed per site, resulting in a total of 326 respondents (14.2% of the ~2,303 individuals estimated to be directly engaged in fishing). **Comments:** Indicator still remains valid. Still early to assess as similar surveys are being conducted to evaluate economic losses associated with IUU following increased patrols and awareness raising initiatives by project partners and government agencies in 2017. **Evidence and means of verification:** Please see **section 6 and annex 4 Fig S13** for evidence of baseline data that will be used for comparisons.

Indicator 0.5 - Number of IUU fisheries infractions reduced by 50% (baseline = 0). **Change Recorded:** Since 2016 the number of enforcement patrols has increased from a total of 9 in 2016 to 29 in 2017, representing a 222% increase in patrol effort. Furthermore the average number of patrols conducted per month increased from 0.8 in 2016 to 2.4 in 2017, indicating that increased support from project partners has had a positive impact on local capacity to undertake and report on marine patrols. The biggest and most notable achievement, however, has been an increase in the number of vessels complying with fisheries regulations and laws. For example, between 2006 and 2016 100% of vessels controlled at sea were non-compliant (i.e. undertaking activities contrary to fisheries law). As of 2017 the percentage of vessels compliant with fisheries laws has increased to 9%, and as of March 2018 the figure has increased to 11% - thus indicating a reduction in IUU

behaviour by fishing vessels. **Comments:** Indicator still remains valid. Whilst still early to assess, current trends in compliance indicate a reduction in the number of vessels committing infractions. **Evidence and means of verification:** Please see **section 3 and annex 4 Fig. S6** for detailed information relating to enforcement patrols.

3.4 Monitoring of assumptions

All outcome risks and assumptions remain valid:

Assumption 1: “Host country remains politically stable, and government remains committed to establishing MPA network, as well as improving fisheries enforcement, and developing a national management plan to support the sustainable use of marine resources”. **Comments:** The strength of the government’s commitment is evidenced by recent announcements, attendance at key workshops, increasing collaboration with project partners and data sharing. **Assumption 2:** “Fisheries sectors continue to engage in participatory research and IUU fisheries reporting to inform targeted enforcement efforts”. **Comments:** MAEP continue to work closely with project partners to increase transparency within the fisheries sector, support analysis of VMS data to inform targeted enforcement efforts, and provide detailed information on the outcome of surveillance patrols. **Assumption 3:** “Partners retain key staff and/or have the ability to appoint replacements, and continue to collect, share and disseminate data”. **Comments:** All project partners continue to work well together as evidenced by both the ambitious number of workshops delivered and activities undertaken during the reporting period. Furthermore, WCS have made several new appointments given the increased momentum in the region to improve marine resource governance. Please see **section 3.1 – 3.3 and 11 as well as annex 4** for evidence.

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

The project is currently improving marine resource governance, through participatory research, planning and evaluation of marine spatial plans that meet biodiversity objectives whilst contributing to food security and poverty alleviation in coastal communities. The former has been achieved through the collation of spatial data on species/habitat distributions, the latter through efforts to establish community and industrial fishing zones that reflect actual patterns of resource use rather than arbitrary delineations, as well as increased enforcement patrols targeting IUU fishing to reduce economic losses in fisheries dependent communities. Please see **section 4, 5, 6 and annex 4** for further details and evidence.

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

This project aims to **alleviate pressure** on fisheries-dependent communities, and contribute to multiple **Sustainable Development Goals** by **reducing poverty (Goal 1)**, **increasing food security (Goal 2)** and **promoting sustainable use (Goal 14)**. To achieve these goals the project has: (1) identified priority areas for conservation, that protect the range of threatened and commercially valuable fish species, the latter on the ecological basis that increased protection will enhance the size and abundance of target species that spill-over into surrounding (fished) areas (**see annex 4 Fig. S2**); (2) explicitly demonstrated the importance of incorporating spatial and socioeconomic data on resource-users such as fishers (e.g. [Metcalf et al., 2017 Conservation Letters](#)) into the planning process to minimise potential economic impacts and secure access rights through the creation of community fishing zones (**see annex 4 Fig. S2 - S4**); and (3) focused on **increasing enforcement capacity and patrol efforts** through increased understanding of the behaviour of industrial fishing vessels (i.e. identifying hotspots of IUU), with the specific aim of **reducing competition and economic losses** associated with gear loss by illegal mechanised trawling in waters reserved exclusively for artisanal fisheries (**see annex 4 Fig. S5 – S8**).

5. Project support to the Conventions, Treaties or Agreements

The overall aim of the project is to improve marine resource governance (**CBD Articles 5, 12, 17**), thereby assisting Congo in fulfilling its commitments to the **CBD, CITES** and **CMS**. In this context, the project has focused on three specific areas. First, the project has incorporated spatial data on key ocean user-groups and marine biodiversity (particularly threatened species) into a national strategy document that is designed to increase knowledge of available data to support marine spatial planning (**CBD Article 6**). Second, project partners have then used principles of best practice (developed internationally) to demonstrate how these data can be used to evaluate the potential contribution to biodiversity and economic impact of different marine spatial planning scenarios that include networks of marine protected areas (**CBD Article 8**) that protect a minimum of **10%** of Congo's coastal and marine **key biodiversity areas (Aichi Target 11)**. Third, within the planning process the project demonstrates how **integrating resource-users and participatory data** into the decision-making process (**CBD Article 10**) can reduce potential impacts on resource dependent groups (such as fishers) through the creation of community and industrial fishing zones that reflect actual patterns of resource use, rather than arbitrary delineations (**Aichi Targets 1, 6, 12, 14, 18**); thereby contributing to food security and poverty alleviation (**see annex 4** for evidence of workshops and marine spatial planning analyses and scenarios).

6. Project support to poverty alleviation

To generate robust estimates of the potential impact of the project on poverty alleviation additional fisher surveys designed to '*Quantify the social and economic contribution of small-scale fisheries and their vulnerability to illegal, unreported and unregulated (IUU) fishing*' were conducted in April 2017 to ensure a minimum of 10% of fishers were surveyed per site (total respondents = 326). The analyses of these data have revealed that the artisanal fisheries sector supports an estimated 2,303 persons directly engaged in fishing as well as a further 12,079 dependents linked to fisher households, which together represent ~2% of the coastal population. In terms of economic contribution the average income generated by fishing is equivalent to \$13 ± \$11 fisher⁻¹ day⁻¹, and the total revenue generated by this sector \$36,212,694 USD per annum, which when including downstream activities is estimated to be \$47,438,629 USD per annum (based on fishing output multiplier approach whereby each dollar of revenue generated by fisheries sector can be expected to generate \$1.31 USD of downstream economic output). These findings indicate that the annual revenue generated by small-scale fisheries is equivalent to ~0.6% of gross domestic product (GDP). In terms of the vulnerability, however, the survey revealed that IUU fishing cost fishers \$967 ± \$1,597 fisher⁻¹ year⁻¹ to replace and/or repair fishing gear damaged by illegal fishing activities; which is equivalent to 10.5 ± 17.4% and 36.6 ± 65.6% of their annual revenue and net income (**see annex 4 Fig. S13**). The total economic impact to the fisheries sector was thus estimated to cost \$2,541,076 USD per annum; equivalent to between 5% and 7% of the total revenue generated by fisheries per annum (\$36,212,694 - \$47,438,629 USD). The projects target was to reduce losses by 50% in 25% (~7) fisheries communities (**see section 3.3**). Therefore, given that the economic impact associated with IUU fishing is available for all 30 (100%) fishing communities follow up surveys commenced in March 2018. What is clear from enforcement patrol data is that there has been an increase in vessel compliance (**see annex 4 Fig. S6**) and so the project will now focusing on assessing whether this has translated into positive impacts on fisher communities (i.e. decreased losses), or displaced IUU fishing effort to other areas (i.e. decreased losses in one area are offset by increased losses in others). Furthermore, as noted in **section 4** commercially valuable species were also included as targets for protection within MPAs on the ecological basis that increased protection will enhance the size and abundance of target species that spill-over into surrounding (fished) areas, and so have positive impacts on fishers livelihoods and downstream economic activities.

7. Project support to gender equality issues

This project is primarily focused on transforming marine resource governance with respect to fisheries and marine management practices. Whilst significant aspects of this work are focused on

working with fishers whom are male, the implementation of community fishing zones and increased enforcement efforts will have long-term benefits on resource availability, which will have positive impact on traders which are predominantly female. Please also note that the project was, designed to provide a broad range of technical, field-based and analytical skills to local staff (both male and female) at a range of levels from locally trained research assistants to senior programme officers, and government officials.

8. Monitoring and evaluation

Please see **section 3.1 - 3.3** for details about monitoring and evaluation of project outputs. Please also note that Dr Richard Parnell (**see section 2**) continues to evaluate the project's progress. Evaluation of project activities is also compiled in a reporting database that details progress, changes and timeframes for delivery of project activities (**see annex 4 Fig S14**).

9. Lessons learnt

Steering committee meetings and progress evaluation by Dr Richard Parnell (**see section 2 and 8**) highlighted that progress associated with the identification of priority areas for conservation, and the development of a national marine spatial planning strategy is on target for delivery in the forthcoming financial year. These meetings, however, identified that increased collaboration and engagement with **MAEP** – i.e. supporting analysis of vessel monitoring system (VMS) data, increasing surveillance patrols and reporting, and awareness raising initiatives have been far more successful than previously envisaged. Rather than support only one or two activities project partners agreed that all efforts should be made to maintain momentum and so additional activities have stretched existing budgets and staff time. As a result **WCS** has establish a new marine team in Pointe Noire through funding from the United States Fish & Wildlife Service (USFWS) (**see section 11**) that will build on the current momentum by supporting and augmenting existing activities to improve fisheries resource governance and local capacity. A specific focus of Romain Beville's role is to address shortfalls in local capacity through training workshops and exchanges of fisheries agents, boat pilots and marine enforcement teams.

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

n/a

11. Other comments on progress not covered elsewhere

We would like to note that during the reporting year **WCS** hired Dr Emilie Fairet in April 2017 as the new *WCS Program Coordinator*, and Romain Beville (previously employed by the World Bank) in January 2018. Romain and Emilie have extensive experience in project management having worked in the Central Africa for > 10 years. Romain will coordinate the new marine team established by **WCS** in Pointe Noire, with a specific focus on the fisheries sector – an area of the project that requires continued engagement and capacity building with stakeholders. Finally, the previous Director Departmental (Monsieur. Antoine Missamou) of **MAEP** in Pointe Noire was replaced with Monsieur. Gaston Ngassiki in May 2017, who as demonstrated by increased patrols efforts and data sharing supports the projects partners and activities (**see section 3.3 and annex 4 Fig. S6**).

12. Sustainability and legacy

With respect to the long-term sustainability and legacy the project has resulted in increased knowledge to support MSP and fisheries management with fine-scale and comprehensive spatial, social, and economic data available for key ocean user-groups and marine biodiversity (particularly threatened species many of which are covered by CITES and CMS). In terms of increasing awareness the project has adopted two complementary approaches. The first has involved hosting workshops, meetings and training sessions that: (1) promote awareness about marine spatial planning and the use of best practice to identify priority areas for inclusion within marine protected areas; and (2) contribute to transforming marine resource governance with respect to fisheries

management, specifically efforts to increase surveillance capacity and revise national laws (see **section 3.1 and annex 4**). The second has involved compiling all available information into a national strategy document. The working title of the document is “*Strategic Information to Support Marine Spatial Planning*” (see **annex 4 Fig. S15**). This document will be handed over to the government and key stakeholders during the forthcoming reporting period (FY3 - April 2018 – October 2018), thereby ensuring that all spatial, social and economic data is available to support decision making processes related to the marine environment long-after the project ceases.

13. Darwin identity

All project presentations, maps, training materials and survey instruments include the Darwin Initiative logo and acknowledge financial support provided through DFID/DEFRA (see **annex 4** for example documents). Given that a previous Darwin Initiative funded project covered the Republic of Congo (Ref: 20-009) the Darwin Initiative is already recognised at a ministerial level as a distinct project where it comprises the key funding partner in an action (e.g. socio-economic and participatory data collection), and as a collaborative partner in larger programmes where actions cover established efforts such as marine mammal and sea turtle monitoring (e.g. training / enforcement / awareness raising). However, to ensure that the project has a long-term identity and legacy all project activities and outputs are being conducted and disseminated under the umbrella of ‘Congo Marine’ – which represents all partners involved in the project (**Fig. 2**). Please note, all documents, reports and maps etc. will clearly state that Congo Marine was supported by funding from Darwin Initiative through the Department for International Development (DFID) in the UK.



Fig. 2 ‘Congo Marine’ logo.

Research and awareness raising activities undertaken by all partners are publicised through a variety of social media, particularly twitter (using [@Darwin_Defra](#)). WCS Congo and country program director Mark Gately, Professor Brendan Godley and Dr Kristian Metcalfe (UoE) periodically promote project activities and outputs in-country using twitter [@wcs_congo](#) (2.2K followers). An example of the value of social media to disseminate project outputs and increase awareness is highlighted by two recent publications in [Journal of Applied Ecology](#) and [Biological Conservation](#) in which graphical abstracts (see **annex 4 Table 2 & Fig. S16**) were retweeted 38 and 60 times, reaching ~117K and ~167K followers, respectively (see [Journal of Applied Ecology Altmetric score](#), and [Biological Conservation Altmetric score](#)). Project partners led by MAEP also contributed to an article on current efforts to address illegal fishing in the national magazine ‘BRAZZAMAG’; and also included a paragraph on the Congo Marine Project (see **annex 4 Table 2 & Fig. S17**). This magazine is freely available at airports and specific venues – and so has the potential to reach a varied audience.

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 | | | +2% | Within 10% limit |
| Consultancy costs | | | - | Within 10% limit |
| Overhead Costs | | | -1% | Within 10% limit |
| Travel and subsistence | | | -3% | Within 10% limit |
| Operating Costs | | | -1% | Within 10% limit |
| Capital items | | | -9% | Within 10% limit |

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| Monitoring & evaluation | | | -8% | Within 10% limit |
| Others (Consumables) | | | -19% | Consumable spends came in slightly under predicted due to reduced communication costs and fewer visa applications (as Congo has increased duration of visa's). |
| TOTAL | | | | |

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

| Project summary | Measurable Indicators | Progress and Achievements April 2017 - March 2018 | Actions required/planned for next period |
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| <p>Impact: Poverty alleviation, increased food security and sustainable use of marine biodiversity through improved governance and regulation of fisheries resources and the implementation of an effectively managed marine protected area network.</p> | | <ul style="list-style-type: none"> ▪ To date the project has resulted in increased knowledge to support MSP with data available for all key ocean user-groups, and increased knowledge on the spatial distribution of marine biodiversity (particularly threatened species). Furthermore, several participatory workshops have been held to identify policy goals and evaluate potential planning scenarios, leading to increased awareness about international best practice to identify priority areas and minimise impacts on ocean user groups. Additionally, increased capacity to undertake enforcement patrols has led to increased fisheries surveillance and a reduction in the number of vessels undertaking illegal activities contrary to fisheries regulations and laws. | |
| <p>Outcome: Improved food security, poverty reduction and biodiversity conservation in coastal communities through effective governance of fisheries resources and implementation of evidence-based marine spatial plan that integrates MPAs and fisheries zones.</p> | <ul style="list-style-type: none"> ▪ Marine protected area network that covers at least 10% of Republic of Congo's EEZ, including community and industrial fishing zones based on robust research and participatory design. ▪ Increased knowledge of the spatial distribution of industrial and IUU fisheries activity based on participatory research leading to increased effectiveness and targeted enforcement initiatives to support fisheries regulations. ▪ Increased knowledge of drivers behind IUU fisheries activity based on | <ul style="list-style-type: none"> ▪ The marine spatial planning scenario identified by stakeholders (both government and non-governmental) as warranting further development would see MPA coverage increase from 3% to 19% if all priority areas were implemented. Focus on priority areas of interest to government, such as Loango Bay (e.g. Our Ocean announcement), Mvassa, and an extension to Conkouati-Douli National Park would see protection increase to 10%. ▪ In terms of improving national capacity | <ul style="list-style-type: none"> ▪ Finalise National Marine Spatial Planning strategy and host workshops or several governmental meetings to disseminate findings. ▪ Produce large-scale informative summary documents and maps of the final (consensus) marine spatial plan developed using international best practice. ▪ Deliver training workshops to fisheries enforcement teams and agents to further augment capacity and maintain |

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| | <p>participatory research will provide decision makers with data to promote more effective governance of marine resources and reduce illegal fishing.</p> <ul style="list-style-type: none"> ▪ Economic losses for fishers associated with loss of equipment by industrial and IUU fisheries activity (e.g. nets and buoys) reduced by 50% in focal fishing communities. ▪ Number of IUU fisheries infractions reduced by 50%. | <p>the development of a comprehensive national strategy document will promote more effective governance and awareness of the marine environment and resources.</p> <ul style="list-style-type: none"> ▪ Analysis of industrial fishing data and engagement with fisheries dependent communities has resulted in increased understanding on the spatial distribution and scale of economic impact associated with IUU. ▪ Increased enforcement efforts have seen the number of vessels undertaking activities contrary to fisheries law decrease for the first time since 2006. | <p>momentum to transform fisheries and increase transparency.</p> |
| <p>Output 1. Marine Spatial Planning: Evidence-based stakeholder-led process resulting in the implementation of a marine spatial plan that includes marine protected areas that protect at least 10% of the Republic of Congo's EEZ as well as community and industrial fishing zones based on realistic goals identified by stakeholder groups, research and participatory design.</p> | <ul style="list-style-type: none"> ▪ Policy relevant realistic targets and management scenarios identified through stakeholder workshop in with findings disseminated to local and national organisations. Dissemination workshop will contribute to local and national awareness of project results and outcomes. ▪ Enhanced capacity and technical expertise to deliver a scientifically evidenced marine spatial plan as a result of updated Darwin Marine Biodiversity Atlas supported by training of biodiversity/fisheries professionals within government agencies to use data for marine spatial planning. ▪ Participatory planning workshop implemented to develop marine spatial plan using available information on marine biodiversity, resource extraction, artisanal and industrial fisheries and supported by Marxan analyses of priority areas, community and industrial fishing zones. | <ul style="list-style-type: none"> ▪ Evidence of progress towards implanting a marine spatial plan that includes protected areas is demonstrated by: (1) the recent announcement at the 'Our Ocean' conference in Washington, DC (September 2016) to create a "special marine conservation zone in Loango Bay, as well as discussions around a possible extension to PNCD; (2) the attendance of stakeholders at 2 participatory workshops focused on identifying policy goals, raising awareness about international best practice in marine spatial planning, and evaluating marine spatial planning scenarios. Enhanced capacity, awareness and technical expertise have been augmented by the creation of a national marine spatial planning strategy. | |

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| <p>Activity 1.1 Workshops (contributing to Activity 1.3 Marine spatial planning): Opening workshop; Marine spatial planning 'Congo Marine' stakeholder workshop; and participatory planning and evaluation workshop.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: A 2-day stakeholder workshop to introduce marine spatial planning and identify broad policy goals was held in Pointe Noire on 7th – 8th April 2017, and attended by 60 stakeholders from 12 organisations across 6 sectors. A follow up 1-day participatory spatial planning and evaluation workshop was held hosted on 22nd November 2017 in Brazzaville involving 30 stakeholders, comprising representatives from major government agencies, local and international non-governmental organisations as well as from different ocean user-groups (notably artisanal and industrial fisheries). ▪ Planned Activities FY3: Finalise National Marine Spatial Planning strategy and host workshops or several governmental meetings to disseminate findings. Produce supporting material for dissemination – e.g. large-scale informative summary documents and maps of the final (consensus) marine spatial plan developed with project partners using international best practice. |
| <p>Activity 1.2. Darwin Marine Biodiversity Atlas: Spatial data analyses leading to updated atlas.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: As specified by project partners and key stakeholders including government agencies all available information has been collated into a National Marine Spatial Planning Strategy document. This document is organised into three sections. Section one provides background to the purpose of this document, who should use it, and how to obtain access to the information presented within. This section also defines the MSP process, why it is needed, the benefits of adopting such an approach and its expected outputs, and provides background context to the current situation in the Republic of Congo; and finally, outlines the Republic of Congo's desired goals and objectives derived from stakeholder workshops. Section two describes the current spatial, social and economic data available to support MSP in the Republic of Congo, including the current extent of maritime boundaries and the physical environment, the present status and distribution of species and habitats and ecological processes, as well as providing the most comprehensive description of human activities within the Republic of Congo's marine area to date. The third phase (currently the focus of ongoing efforts) demonstrates how the data in section two can be combined to develop a range of management scenarios that reflect the Republic of Congo's desired political goals and objectives (described in section 1), stakeholder evaluation and developing a consensus plan (see Annex 4 Fig. S15 for detailed examples of this document). <p>N.B. Two publications were submitted and accepted for publication in the Journal of Applied Ecology and Biological Conservation based on analyses of data collated for the national strategy document. Please see section 13 and Annex 3 Table 2.</p> <ul style="list-style-type: none"> ▪ Planned Activities FY3: Complete phase 3 the National Marine Spatial Planning strategy (described above) and host workshops or several governmental and stakeholder meetings to disseminate findings, maps and summary documents to ensure project outputs reach a large audience. |

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| <p>Activity 1.3 Training: Field data collection techniques.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Additional fisher surveys focused on ‘<i>Quantifying the social and economic contribution of small-scale fisheries and their vulnerability to illegal, unreported and unregulated (IUU) fishing</i>’ were conducted in April 2017 (by two field assistants trained in 2016) to ensure a minimum of 10% of fishers were surveyed across 100% of fishing communities, resulting in a total of 326 respondents (14.2% of the ~2,303 individuals estimated to be directly engaged in fishing). <p>Planned Activities FY3: Given that the economic impact associated with IUU fishing is available for all 30 (100%) fishing communities follow up surveys commenced in March 2018. What is clear from enforcement patrol data is that there has been an increase in vessel compliance (see annex 4 Fig. S6) and so the project will now use baseline data to assess whether this has translated into positive impacts on fisher communities (i.e. decreased losses), or displaced IUU fishing effort to other areas (i.e. decreased losses in one area are offset by increased losses in others).</p> |
| <p>Activity 1.4 Marine spatial planning (see Activity 1.1 Workshops): Spatial prioritisation analysis and participatory planning workshops with stakeholders.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Based on the opening stakeholder workshop a total of ~10 goals (i.e. high-level statements of desired outcomes) were identified that could be broadly classified into 4 categories: (1) biodiversity conservation; (2) sustainable resource use; (3) local livelihoods; and (4) conflict reduction. Following this workshop project partners conducted three marine spatial planning analyses using Marxan to demonstrate how these goals could be achieved. Scenario 1 focused on enhancing biodiversity protection through both the expansion of existing and identification of new marine protected areas. Scenario 2 and 3 focused on identifying priority areas for conservation that increasingly incorporated important human-uses into the planning process to minimise conflict with stakeholders, and thus increase the likelihood of implementation (see Annex 4 Fig. S2). These analyses were completed in October 2017 and a participatory marine spatial planning workshop hosted on 22nd November 2017 in Brazzaville involving 30 stakeholders, comprising representatives from major government agencies, local and international non-governmental organisations as well as from different ocean user-groups (notably artisanal and industrial fisheries) (see Annex 4 Fig. S3). The specific aim of this workshop was to demonstrate international standards of best practice used to identify priority areas for conservation, provide detailed information on the positive and negative impacts of adopting different scenarios and work with participants to identify a scenario which could be taken forward for further development (see Annex 4 Fig. S4). ▪ Planned Activities FY3: Stakeholders at the participatory planning and evaluation workshop identified scenario 3 as warranting further development. Thus, planned activities in FY3 include finalising boundaries of proposed MPAs (based on impact evaluation with project partners) and developing a consensus plan – which will be incorporated into the National Marine Spatial Planning Strategy. |

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| <p>Output 2. Enforcement Capacity: Increased number and effectiveness of IUU fisheries monitoring, surveillance and enforcement initiatives as a result of increased capacity and technical expertise, leading to increased protection, reduced conflict and fishing pressure in coastal and nearshore waters legally reserved for artisanal fishers.</p> | <ul style="list-style-type: none"> ▪ Increase in the number of formally trained Congolese boat pilots. ▪ Increased capacity for marine surveillance and enforcement initiatives enhanced by marine teams attending exchange with enforcement teams from WCS and ANPN in Mayumba National Park, which borders CDNP in neighbouring Gabon. ▪ Increase in the number of regular enforcement patrols at sea by 200% to a minimum of 3 per month. ▪ At least 25% of 28 fisheries dependent communities engaged in collecting IUU fishing data to inform targeted enforcement efforts based on participatory data collection. ▪ Effectiveness of increased enforcement and surveillance initiatives on marine biodiversity (ecological spill-overs) and fisheries livelihoods will be assessed in 25% of 28 fishing communities to identify positive or negative impacts on fisheries catches, and economic losses. ▪ Development of a database to host IUU data collected by focal fishing communities and surveillance patrols leading to increased knowledge of spatiotemporal trends of IUU fisheries activity. | <ul style="list-style-type: none"> ▪ Through increased support (financial, logistical and analytical) MAEP have increased marine surveillance and enforcement effort by 222% with an increase in average number of patrols to 2.4 per month compared to baseline data of 0.8. This increase in patrol effort has also had a notable effect on compliance, which increased to 9% in 2017 and 11% as of March 2018, compared to a baseline of 0%. Furthermore, substantial engagement with fisheries communities has resulted in the first nationwide estimate of revenue generated by artisanal fisheries as well as economic losses associated with IUU fishing. Surveys are now being undertaken in these same communities to evaluate the impact (positive or negative) of increased surveillance effort and fishing vessel compliance on local livelihoods. |
| <p>Activity 2.1. Training: Boat handling, maintenance, surveillance and enforcement techniques, data collection.</p> | | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Two field assistants previously trained in 2016 were provided with additional 1 day refresher course as part of work to conduct additional fisher surveys (see Activity 2.2. and 2.3 below). In addition, MAEP with the support of Rénatura, WCS and UoE have collated all available fisheries patrol data from 2006 into a simple database thereby ensuring that project partners are able to evaluate trends in patrol efforts, compliance, and types of infractions committed by fishing vessels. |

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| | <ul style="list-style-type: none"> ▪ Planned Activities FY3: Project partners will focus on identifying and delivering training courses to further augment enforcement capacity. This training will focus on types of information that should be collected and recorded during patrols, as well as the development and testing of reporting data sheets and document templates for mission reporting. |
| <p>Activity 2.2 and 2.3 Engagement with fishers and data collection: Fishing communities and government agencies engaged in participatory data collection providing information on livelihoods, IUU fisheries activity, and fisheries catches.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Fisher surveys designed to ‘Quantify the social and economic contribution of small-scale fisheries and their vulnerability to IUU fishing’ have now been gathered for a minimum of 10% of fishers per community along the entire coastline (n = 326 respondents, equivalent to 14.2% of estimated fishers). Furthermore, MAEP have kindly provided project partners with access to additional vessel monitoring system (VMS) data from 2016 and 2017 following analysis of historical data from 2012 that revealed an estimated ~30.4% of fishing effort conducted by fishing vessels could be classified as illegal. ▪ Planned Activities FY3: Project partners will continue to engage with industrial fishing companies to collect data, through: (1) GPS tracking; (2) engagement with company owners (such as SOCOPEC who actively participate in all project activities from fisheries to marine spatial planning) to ascertain the drivers behind IUU fishing effort in Congo. Additional GPS trackers will also be deployed on industrial fishing vessels, particularly those identified as having no vessel monitoring system on-board. Project partners will continue to support follow up fisher surveys being undertaken across the same fishing communities to evaluate the impact (positive or negative) of increased surveillance effort and fishing vessel compliance on local livelihoods, using baseline data gathered in FY1/FY2. |
| <p>Output 3. Industrial and IUU fisheries: More effective governance and management of fisheries through increased knowledge of the operating behaviour, spatiotemporal patterns of industrial and IUU fisheries activity, leading to a more effective understanding of the scale of conflict with artisanal fishers and overlap with key biodiversity areas and species of conservation concern.</p> | <ul style="list-style-type: none"> ▪ Baseline knowledge of spatiotemporal patterns of industrial fisheries activity and its conflict / overlap with artisanal fisheries quantified and described. ▪ Baseline knowledge of magnitude and spatiotemporal patterns of IUU fisheries using data collected by fishers engaged in participatory research. Extent of area illegally exploited quantified and described. ▪ Distribution maps for at least 10 species of conservation concern (i.e. sharks, turtles and cetaceans) developed through analysis of existing available field data (e.g. satellite tracking / boat surveys) and <ul style="list-style-type: none"> ▪ There is now a comprehensive understanding of the spatial distribution of IUU fishing on both an annual and monthly basis, with analyses revealing that an estimated 30.4% of fishing effort is associated with IUU fisheries activity within the artisanal fisheries zone and Conkouati-Douli National Park. Furthermore, as a result of continued engagement with both MAEP and local communities (see output 2 above) project partners have been given unprecedented access to additional vessel monitoring system (VMS) data from 2016 and 2017 which will be analysed to evaluate trends in IUU over time, and quantified the true scale of direct economic losses associated with IUU fishing – equivalent to between 5% and 7% of annual revenue. Finally, analysis available data on species data has resulted in the species distribution maps for 5 species of conservation concern – which have been incorporated into marine spatial planning initiatives and fisheries threat analyses. |

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| | <p>overlap with industrial and IUU fisheries quantified by year 2, Q4 (current zero baseline).</p> <ul style="list-style-type: none"> ▪ Potential interventions to reduce bycatch in each fishery sector identified, costed, and species action plans developed for marine mammals, sharks, and sea turtles. | |
| <p>Activity 3.1 Data analysis: Spatiotemporal patterns of industrial and IUU fisheries activity analysed.</p> | | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Detailed maps on the spatial distribution of IUU fishing (annual and monthly) have been developed and provided to project partners to support more effective marine patrols. Fisher surveys have also provided a unique insight into the location of communities suffering the greatest impact from IUU fishing. ▪ Planned Activities FY3: MAEP have provided project partners with additional vessel monitoring system (VMS) data from 2016 – 2017. As of March 2018 these data are the focus of detailed spatial analyses by an MSc student at the UoE, with the specific aim of evaluating whether IUU fishing is linked to ocean productivity, and/or the accessibility of fishing grounds. |
| <p>Activity 3.2 Threat mapping: Increased knowledge on the scale of conflict and overlap with small-scale fisheries sector and marine biodiversity.</p> | | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Using available data species distribution models have been developed for 5 species of conservation concern, comprising 3 marine mammals (humpback whale, humpback dolphin and bottlenose dolphin) and 2 species of marine turtle (olive ridley and leatherback sea turtles). Evaluation of available data revealed that there was only enough data to develop robust distribution models for these 5 species (not the targeted 10). However, to ensure that use of available data was maximised, project partners developed species distribution models for each of the 3 key life history stages for sea turtles (e.g. migratory, foraging and inter-nesting areas), as well as at-sea density maps, thereby resulting in a total of 11 data layers. These data have been incorporated into marine spatial planning initiatives described in output 1 – with aim of identifying priority areas for protection of key habitats for species of conservation concern. Analysis of vessel monitoring system (VMS) data has also revealed that the spatial footprint of the industrial fisheries sector is equivalent to 22.3% of the Republic of Congo’s exclusive economic zone (8,189 km²); of which 12% (1,080 km²) of fishing vessel activity (and thus potential illegal fishing) occurs within the boundaries of Parc National Conkouati-Douli, and 14% (1,203 km²) within the artisanal fisheries zone, equivalent to 77% and 65% of their respective total area (see output 2 above for a description of illegal fishing effort). ▪ Planned Activities FY3: Using newly obtained vessel monitoring system (VMS) data for 2016 and 2017 project partners will be re-evaluating overlap between industrial |

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| | fisheries (legal and illegal) with 5 species of conservation concerns for which distribution models are available. |
| <p>Activity 3.3 Biodiversity (species) action plans: preparation of species action plans for marine mammals, sharks and turtles with interventions identified.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: Comprehensive data for 5 species of conservation concern (see indicator 3.2 above), such as their spatial distribution, and threats have been incorporated into the national strategy document. See Annex 4 Figs. S9 - S10. ▪ Planned Activities FY3: Focus in the forthcoming year will be around identifying potential interventions to reduce bycatch and/or over exploitation of species of conservation concern. |
| <p>Output 4. Engagement & Awareness Raising: More effective governance and management of the fisheries resources as a result of increased knowledge and understanding of the drivers behind IUU fisheries (based on participatory research), that can be used to assess behaviour change resulting from increased surveillance and enforcement efforts.</p> | <ul style="list-style-type: none"> ▪ Engagement with industrial fishing operator's underway, facilitating awareness raising initiatives and contribution to stakeholder-led marine spatial planning process using participatory research. ▪ Representatives from each industrial fishing operator attend workshop to establish current knowledge of rules and regulations and the perceived level of enforcement and risk to help understand the drivers behind IUU fisheries activity. <ul style="list-style-type: none"> ▪ To support more effective marine spatial planning efforts, address current knowledge gaps and increase awareness on the scale, impact and spatial distribution of IUU, project partners have worked closely with MAEP resulting in unprecedented access to vessel monitoring system (VMS) data for several years (i.e. 2012, 2016, and 2017). In terms of awareness raising project partners have also demonstrated how incorporating data on human uses, such as fisheries, into the planning process can minimise impacts on stakeholders. As a result participants at the participatory planning and evaluation workshop identified 'scenario 3' which incorporated all human uses as the scenario warranting further development. |
| <p>Activity 4.1 and 4.2 Workshops and engagement with industrial fishing sector: industrial fishing companies engaged in participatory research and awareness raising initiatives.</p> | <ul style="list-style-type: none"> ▪ Completed Activities FY2: To address current knowledge gaps on the scale, impact and spatial distribution of IUU the project partners have focused on analysing historical data on industrial fishing using VMS data (from 2012); participatory data collection (i.e. GPS tracking) on present distribution of industrial fishing effort, and fisher surveys. All these data combined have provide a comprehensive analysis of the present situation in Congo – and used to lobby for increased patrol efforts. ▪ Planned Activities FY3: Understanding drivers behind IUU fishing has been one of the most ambitious components of the project, however, with the availability of additional spatial data on industrial fishing vessels the project has identified a MSc student who will evaluate whether IUU fishing is linked to ocean productivity, and/or the accessibility of fishing grounds. Outputs of these analyses will thus support more targeted patrols. Finally, project partners will continue to engage with industrial boat operators to collect further participatory data to support targeted enforcement efforts and increase compliance through planned fisheries meetings and awareness raising initiatives and materials. These workshops will focus on fisheries law, location of fisheries zones and will attempt to ascertain the current knowledge of rules and regulations and the perceived level of enforcement. |

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 |
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| <p>Impact: Poverty alleviation, increased food security and sustainable use of marine biodiversity through improved governance and regulation of fisheries resources and the implementation of an effectively managed marine protected area network.</p> | | | |
| <p>Outcome: Improved food security, poverty reduction and biodiversity conservation in coastal communities through effective governance of fisheries resources and implementation of evidence-based marine spatial plan that integrates MPAs and fisheries zones.</p> | <p>0.1 Marine protected area network that covers at least 10% of Republic of Congo's EEZ, including community and industrial fishing zones based on robust research and participatory design identified by year 3 Q2 (current baseline 3%).</p> <p>0.2 Increased knowledge of the spatial distribution of industrial and IUU fisheries activity, based on participatory research by year 3 Q2 leading to increased effectiveness and targeted enforcement initiatives to support fisheries regulations (current zero baseline).</p> <p>0.3 Increased knowledge of drivers behind IUU fisheries activity based on participatory research leading will provide decision makers with data to promote more effective governance of marine resources and reduce illegal fishing by year 3 Q2 (current zero baseline).</p> <p>0.4 Economic losses for fishers associated with loss of equipment by industrial and IUU fisheries activity (e.g. nets and buoys) reduced by 50% in focal fishing communities by year 3 Q2, based on more effective surveillance and enforcement efforts (Baseline established during Project 20-009 and re-examined in years 1, 2 and 3).</p> <p>0.5 Number of IUU fisheries infractions reduced by 50% by end of year 3 Q2. (Baseline to be elaborated year 1 and re-examined in</p> | <p>0.1 Maps of candidate MPAs and fisheries zones (GIS data layers). Submission of reports and maps to Government agencies. Announcements, new legislation relating to designation of MPAs and community/industrial fishing zones. Press releases.</p> <p>0.2 Data collection. Distribution maps (GIS data layers). Government /partner reports relating to creation of community and industrial fishing zones. Peer reviewed publication on fisheries. National Fisheries Management Plan – covering all fisheries sectors (artisanal, semi-industrial, industrial and illegal).</p> <p>0.3 Data collection (IUU status report) Government /partner reports. Peer reviewed publication on IUU fisheries activity/behaviour.</p> <p>0.4 Socio-economic data collection (household surveys, focus groups /fisher surveys to generate baseline data) to monitor effectiveness of interventions, and assess positive or negative impact on economic losses associated with gear loss.</p> <p>0.5 Data collection (IUU reporting data to monitor effectiveness of improved enforcement efforts and increased engagement with industrial fisheries).</p> <p>Note: To support achievement of sustainable development goals all data and reports will be disseminated to project partners for future</p> | <p>Government remains committed to establishing MPA network, as well as improving fisheries enforcement and developing national fisheries management plan to support the sustainable use of marine resources. Note 1: MEFDDE is a project partner, and was involved in identifying priorities, will benefit from capacity building and expansion of staff and will remain fully involved throughout the project.</p> <p>Host country remains politically stable. Note 2: Congo is generally peaceful and has been stable for several decades as stated by Foreign & Commonwealth Office (FCO).</p> <p>Fisheries sectors continue to engage in participatory research, and IUU reporting to inform targeted enforcement efforts. Note 3: Project 20-009 engaged with 82% of 28 fishing communities, the majority of which highlighted threat from IUU fishing that led to development of this project. These communities will thus be engaged to contribute to research to address this threat.</p> <p>Retention of key staff / ability to appoint replacements. Note 4: All partner staff involved in Project 20-009 will be engaged in this new project enhancing legacy and capacity of new Darwin Field Officers.</p> <p>No major economic changes / disasters that could affect fisheries management.</p> |

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| | year 2 and 3). | management. | |
| <p>Output 1. Marine Spatial Planning: Evidence-based stakeholder-led process resulting in the implementation of a marine spatial plan that includes marine protected areas that protect at least 10% of the Republic of Congo's EEZ as well as community and industrial fishing zones based on realistic goals identified by stakeholder groups, research and participatory design.</p> | <p>1.1 Policy relevant realistic targets and management scenarios identified through a 2-day stakeholder (opening) workshop in year 1 Q1, with findings disseminated to local and national organisations by the end of year 1 Q4. Dissemination (closing) workshop year 3 Q2 will contribute to local and national awareness of project results and outcomes.</p> <p>1.2 Enhanced capacity and technical expertise to deliver a marine spatial plan as a result updated Darwin Marine Biodiversity Atlas (incorporating ≥ 20 new data layers; year 2 Q4) supported by training of 10 new biodiversity/fisheries professionals within government agencies to use data for marine spatial planning by year 3 Q1 (current baseline is 10).</p> <p>1.3 Participatory planning workshop implemented to develop marine spatial plan using available information on marine biodiversity, resource extraction (e.g. petrochemical extraction) artisanal and industrial fisheries data and supported by Marxan with Zones analyses of priority areas, community and industrial fishing zones (2 x 2 day participatory workshop in year 3 Q1). Workshop supported by GIS training in year 1 Q3-Q4 and year 3 Q1.</p> | <p>1.1 Workshops delivered (materials, number of attendees, certificates). Number of local, national and government agencies present. List of gaps/needs and key criteria to underpin marine spatial planning process disseminated to partners and government agencies.</p> <p>1.2 Number of practical training days. Number of government staff trained.</p> <p>1.3 Workshops delivered (number of attendees). Number of local, national and government agencies present. Marine spatial plan, candidate maps for the designation of marine protected areas, and community and industrial fisheries zones.</p> | <p>Partners remain committed to hosting training workshops.</p> <p>Trained individuals remain in employment with partner organisations.</p> <p>Retention of key staff / ability to appoint replacements.</p> |

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| <p>Output 2. Enforcement Capacity: Increased number and effectiveness of IUU fisheries monitoring, surveillance and enforcement initiatives as a result of increased capacity and technical expertise, leading to increased protection, reduced conflict and fishing pressure in coastal and nearshore waters legally reserved for artisanal fishers.</p> | <p>2.1 Increase in the number of formally trained Congolese boat pilots to ≥ 2 by end of year 3, Q1 (Current number of pilots is 1 and lack of this capacity is a key factor impeding adequate marine enforcement efforts).</p> <p>2.2 Increased capacity for marine surveillance and enforcement initiatives enhanced by marine teams attending study exchange with enforcement teams from WCS and ANPN in Mayumba National Park, which borders CDNP in neighbouring Gabon (1 x 10 day training workshop in years 1 and 2 Q2). Training will focus on boat handling, safety, maintenance, surveillance, enforcement techniques and data collection and recording.</p> <p>2.3 Increase in the number of regular enforcement patrols at sea by 200% to a minimum of 3 per month in year 3 (baseline 0-1 per month).</p> <p>2.4 At least 25% of 28 fisheries dependent communities engaged in collecting IUU fishing data to inform targeted enforcement efforts based on participatory data collection by year 2 Q3 (2 x 2 day training workshops in year 1 Q2, current zero baseline).</p> <p>2.5 Effectiveness of increased enforcement and surveillance initiatives on marine biodiversity (ecological spill-overs) and fisheries livelihoods will be assessed in 25% of 28 fishing communities to identify positive or negative impacts on fisheries catches, and economic losses. Baseline generated year 1 and re-evaluated in years 2 and 3. Catch surveys will focus on catch-per-unit-</p> | <p>2.1 Training course (attendance numbers and certificates), and number of practical training days.</p> <p>2.2 Workshops delivered. Training course (attendance numbers and certificates), and number of practical training days.</p> <p>2.3 Number of day's boat operating at sea on surveillance/enforcement patrols (confirmed by GPS logs). Interim reports/maps on distribution of effort, and outcome of boat missions.</p> <p>2.4 Workshops delivered (attendance numbers). Surveillance underway in focal fishing communities (number of fishers contributing data). Fisher engagement facilitates participatory research.</p> <p>2.5 Fisheries landing surveys (catch-per-unit effort, size, length, weight, species composition). Socio-economic surveys targeted at identifying economic losses (protocol established in project 20-009) Fisher engagement facilitates participatory research.</p> | <p>Partners remain committed to hosting training workshops and study exchanges to improve fisheries management and reduce IUU fishing effort (Note 5: See supporting letters D and G from WCS-GAB and ANPN).</p> <p>Fishing communities continue to engage in participatory research and data collection.</p> |

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| | effort, size, length, weight and community composition, which will contribute to monitoring and evaluation towards project outcomes. | | |
| <p>Output 3. Industrial and IUU fisheries: More effective governance and management of fisheries through increased knowledge of the operating behaviour, spatio-temporal patterns of industrial and IUU fisheries activity, leading to a more effective understanding of the scale of conflict with artisanal fishers and overlap with key biodiversity areas and species of conservation concern.</p> | <p>3.1 Baseline knowledge of spatiotemporal patterns of industrial fisheries activity and its conflict / overlap with artisanal fisheries quantified and described. Minimum 5 data layers incorporated into existing Marine Biodiversity Atlas for the Republic of Congo by year 2 Q1-Q4 (current zero baseline).</p> <p>3.2 Baseline knowledge of magnitude and spatiotemporal patterns of IUU fisheries using data collected by fishers engaged in participatory research. Extent of area illegally exploited quantified and described. Minimum 5 data layers incorporated into existing Marine Biodiversity Atlas for the Republic of Congo by year 2 Q3-Q4 (current zero baseline).</p> <p>3.3 Distribution maps for at least 10 species of conservation concern (i.e. sharks, turtles and cetaceans) developed through analysis of existing available field data (e.g. satellite tracking / boat surveys) and overlap with industrial and IUU fisheries quantified by year 2, Q4 (current zero baseline).</p> <p>3.4 Potential interventions to reduce bycatch in each fishery sector identified, costed, and species action plans developed for marine mammals, sharks, and turtles (year 2 Q3-Q4). Current number of interventions and action plans is zero.</p> | <p>3.1 National fisheries action plan. Maps, updated GIS database and Marine Biodiversity Atlas. Deposited with relevant government agencies.</p> <p>3.2 IUU status report, seasonal trends and patterns. Maps, updated GIS database and Marine Biodiversity Atlas.</p> <p>3.3 Species distribution maps, threat layers. Updated GIS database and Marine Biodiversity Atlas for the Republic of Congo.</p> <p>3.4 Partner reports. National species action plans.</p> | <p>Partners continue to collect and share data.</p> <p>Fishing communities continue to engage in participatory research and data collection.</p> <p>Government remains supportive of providing access to industrial fisheries data.</p> <p>Effective / appropriate measures can be identified for both fisheries and bycatch species.</p> |
| <p>Output 4. Engagement & Awareness Raising: More effective governance and management of the fisheries</p> | <p>4.1 Engagement with industrial fishing operators (n = 5 companies) underway by year 1 Q3 facilitating awareness raising initiatives and contribution to stakeholder-</p> | <p>4.1 Fisher engagement / focus groups / workshops participatory data collection.</p> <p>4.2 Workshops delivered (attendance numbers, training materials). Report on the drivers</p> | <p>Representatives / owners of industrial boats willing to engage with partner organisations, and explore role of fisheries management.</p> |

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| <p>resources as a result of increased knowledge and understanding of the drivers behind IUU fisheries (based on participatory research), that can be used to assess behaviour change resulting from increased surveillance and enforcement efforts.</p> | <p>led marine spatial planning process (Output 1) with participatory research underway in year 1 Q4. Representatives from each industrial fishing operator (n = 5 companies) attend 1-day workshop to establish current knowledge of rules and regulations and the perceived level of enforcement and risk to help understand the drivers behind IUU fisheries activity (1 x 1-day assessment workshop in year 1 Q3). Evaluation workshop in year 2 Q4 following increased awareness raising and enforcement initiatives, current zero baseline).</p> | <p>behind IUU. Evaluation report on level of information retained each year by boat operators to assess behaviour change (e.g. trends in number of recorded infractions elaborated in year 1 and re-examined in year 2 and year 3).</p> | <p>Fishers continue to engage in participatory research and data collection.</p> |
| <p>Output 5. Project monitoring and evaluation:</p> | <p>5.1 Minimum of 2 steering group / committee meetings with partners each year to evaluate progress. Feedback to Outputs & Activities 1-4.</p> <p>5.2 Submission of half year and annual Darwin Reports. Feedback to Outputs and Activities 1-4.</p> | <p>5.1 Steering group / committee meetings and minutes. Interim partner reports on annual progress towards agreed goals.</p> <p>5.2 Darwin Reports. Darwin project website updated.</p> | |
| <p>Activities:</p> <p>Output 1</p> <p>1.1 Workshops: Project launch (opening workshop YR1 Q1) and dissemination of outputs (YR1 Q4), closing workshop & dissemination of project results (YR3 Q2).</p> <p>1.2 Darwin Marine Biodiversity Atlas: Data analysis (YR2 Q1-Q3), leading to updated atlas incorporating ≥ 20 new data layers (YR2 Q4).</p> <p>1.3 GIS Training: Field data collection techniques (YR1 Q3-Q4), introduction to biodiversity atlas, GIS data manipulation & tools for ≥ 10 national staff (YR3 Q1).</p> <p>1.4 Marine spatial planning: Spatial prioritisation analysis (YR2 Q3-Q4) and participatory planning workshops with stakeholders (YR1 Q3).</p> <p>1.5 Peer-reviewed paper: Preparation of peer-reviewed paper on stakeholder-led marine spatial planning outputs from participatory workshops (YR3 Q2)</p> <p>Output 2</p> <p>2.1 Training: Boat handling, maintenance, surveillance and enforcement techniques, data collection (reporting database), & international exchange (YR1 Q2, YR2 Q2).</p> <p>2.2 Engagement with fishers: ≥ 25% of 28 fishing communities engaged, workshop to identify focal representative at each site established (YR1 Q2).</p> <p>2.3 Field data collection: ≥ 25% of fishing communities engaged in participatory data collection, providing information on livelihoods, IUU fisheries activity, and fisheries catches (YR1-YR3).</p> <p>2.4 Peer-reviewed paper: Preparation of peer-reviewed paper to demonstrate cost-benefits of stakeholder-led IUU reporting (YR3 Q2)</p> <p>Output 3</p> | | | |

3.1 Data analysis: Spatio-temporal patterns of industrial and IUU fisheries activity analysed leading to ≥ 5 new data layers on fisheries sector (YR2 Q1-Q4).

3.2 Threat mapping: Increased knowledge of scale conflict/overlap with small-scale fisheries sector, & marine biodiversity, leading to ≥ 10 new data layers (YR2 Q3-Q4).

3.3 Biodiversity (species) action plans: Preparation of species action plans for marine mammals, sharks, turtles, with interventions identified & costed (YR2 Q3-Q4).

3.4 Policy paper: Preparation of policy paper to government on the fisheries sector, and the socio-economic and ecological impact of IUU fishing activity (YR3 Q1-Q2).

Output 4

4.1 Workshops: ≥ 5 industrial fishing companies engaged to assess baseline levels of rules governing fisheries sector (YR1 Q3) re-evaluated (YR 2 Q4).

4.2 Engagement with industrial fishing sector: ≥ 5 industrial fishing companies engaged with participatory research and awareness raising initiatives (YR1 Q4).

Output 5

5.1 Steering committee: Project launch & annual progress meetings (monitoring and evaluation).

5.2 Progress reporting: Half year, annual & final reports.

Annex 3: Standard Measures

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 |
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| 6A | Number of people to receive other forms of education/training | Male | Congolese / French | 6 | 60 | | 66 | 30 (220%) |
| 6B | Number of training weeks to be provided – socioeconomic surveys, gps tracking, marine spatial planning, enforcement/surveillance | n/a | Congolese / French | 8 | 12 | | 20 | 25 (80%) |
| 7 | Number of training materials to be produced for use by host country – fisher surveys, gps tracking | n/a | n/a | 2 | 1 | | 3 | 4 (75%) |
| 9 | Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country - policy paper on fisheries and IUU, species action plans (x 4), national marine spatial planning guide (inc. marine atlas data). | n/a | n/a | 0 | 3 | | 0 | 6 (50%) |
| 11A | Number of papers to be published in peer reviewed journals | n/a | n/a | 1 | 2 | | 3 | 2 (150%) |
| 11B | Number of papers to be submitted to peer reviewed journals | n/a | n/a | 1 | 2 | | 3 | 2 (150%) |
| 12B | Number of computer based databases to be enhanced and handed over to the host country – GIS atlas of spatial data, fisheries patrol database | n/a | n/a | 0 | 1 | | 0 | 1 (100%) |
| 14A | Number of conferences/seminars/workshops to be organised to present/disseminate findings – e.g. stakeholder, planning and/or closing workshops / fisheries workshops | n/a | n/a | 1 | 4 | | 5 | 2 (250%) |

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) |
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| Using satellite AIS to improve our understanding of shipping and fill gaps in ocean observation data to support marine spatial planning. | Journal | 2018 – Metcalf, K., Bréheret, N., Chauvet, E., Collins, T., Curran, B.K., Parnell, R.J., Turner, R.A., Witt, M.J. Godley, B.J. | Male (Total authors: 9 of which 6 male and 3 are female) Central African based authors: 3 (33%) | British | Journal of Applied Ecology | Accepted – in press http://onlinelibrary.wiley.com/doi/10.1111/1/1365-2664.13139/pdf * |
| A novel approach to estimate the distribution, density and at-sea risks of a centrally-placed mobile marine vertebrate. | Journal | 2018 – Pikesley, S.K., Agamboue, P.D., Asseko, G.M., Bayet, J.P., Bibang, J.N., Bonguno, E.A., Boussamba, F., Broderick, A.C., Coyne, M., Faure, F.E., Fay, J.M., Formia, A., Godley, B.J., Gnandji, M.S., Kema Kema, J.R., Mabert, B.D.K., Manfoumbi, J.C., Metcalf, K., Minton, G., Nelms, S., Nzegoue, J., Ogandanga, C., Olwina, C.K.K., Otsagha, F., Parnell, R.J., du Plessis, P., Ngouessono, S., Sounguet, G.-P., Wada, M., White, L., Witt, M.J. | Male (Total authors: 31 of which 24 male and 7 are female) Central African based authors: 19 (61%) | British | Biological Conservation | Accepted – in press https://www.sciencedirect.com/science/article/pii/S000632071730770X * |

* Please note as part of the UoE's open access policy this paper has been archived in pre-submission format within the UoE's Open Research Exeter (ORE) online repository. See: <https://ore.exeter.ac.uk/repository/handle/10871/32052> for example.

Checklist for submission

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