



Darwin Initiative: Final Report

To be completed with reference to the “Writing a Darwin/IWT Report” Information Note:
(<https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/>).

It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin Project Information

Project reference	25-009
Project title	Fish for Tomorrow – Community sustainable fisheries management Nkhotakota District, Malawi
Country(ies)	Malawi
Lead organisation	Ripple Africa
Partner institution(s)	District Fisheries Office, Nkhotakota District
Darwin grant value	£314,269
Start/end dates of project	1 st July 2018 – 31 st March 2021
Project leader’s name	Geoffrey Furber
Project website/blog/social media	www.rippleafrica.org
Report author(s) and date	Geoffrey Furber and Pam Haigh 28 th April 2020

1. Project Summary

The project location is the area comprising the three northern fishing strata of Nkhotakota District. These are shown on the map at Annex 7.1 as Strata 5.3, 5.4 and 5.5.

The problem we were trying to address is that of unsustainable fishing in Lake Malawi, with the consequent loss of biodiversity.

70% of people in Malawi, one of the world’s poorest countries, live in poverty. Malawi’s population has grown from five million in 1975 to almost 20 million today and this growth has led to poverty, environmental degradation and unemployment. There is 80% livelihood and food security dependency on natural resources contributing to biodiversity loss - particularly noticeable in Lake Malawi, home to an estimated 800 to 1000 different fish species, most of them endemic to the lake.

In the 1970s, fish provided 70% of animal protein, but consumption has declined dramatically from 14kg/capita/year, to less than 6kg with serious nutritional implications for pregnant and lactating women, children and HIV sufferers. This also means a decline in economic benefits along the fish value chain and allied industries, the value of which is estimated at over \$1 billion/year.

Certain species have become over-exploited and fishers have changed effort, using longer and smaller meshed nets to catch Usipa (*Engraulicypris sardella* - a freshwater sardine) and Chambo (*Oreochromis spp*) – including anti-malaria mosquito nets. This indiscriminate use of undersized mesh means fish are caught before they have a chance to breed. Three of the formerly most common species of Chambo, *Oreochromis squampinnis*, *Oreochromis karongae*

and *Oreochromis lidole* are now classified as critically endangered on the IUCN Red List. While Usipa are still classified as Least Concern on the IUCN Red List, numbers being caught are decreasing dramatically and fishers are noticing fewer fish in the lake, leading to the fear that this species too will soon become endangered. The problem has been exacerbated by a lack of government enforcement of regulations due to chronic underfunding of fisheries, and previous failed top-down attempts to introduce participatory fisheries management. Without action, stocks of many other species in the lake will also soon diminish.

The Fish for Tomorrow project works to educate all levels of local communities, from district governance stakeholders to fishing community members, about the impact of adopting more sustainable fishing practices on livelihoods, biodiversity and nutrition. Women are actively engaged in the project as they are heavily involved in the processing and selling of the fish caught and also want to stop illegal fishing damaging their family livelihoods. The nutritional benefits of the project benefit the broader Malawian population and those in neighbouring countries who rely on fish in their diets. The project was trialled in Nkhata Bay District in 2012 before being extended to Nkhotakota, Salima and Dedza Districts, covering 400km of Lake Malawi's shoreline.

2. Project Partnerships

We are working in partnership with the Nkhotakota District Fisheries team to deliver the project. This is the same model that we developed in Nkhata Bay District - our team in Nkhotakota have offices in the same building as Fisheries and Ripple Africa staff and fisheries extension workers work together to deliver and support the project. Malawi's Director of Fisheries, Friday Njaya, has been very supportive of the project and has assigned one of his deputy Directors, Mrs Kazembe to be Ripple Africa's liaison officer at the Department of Fisheries, further strengthening the partnership at the national as well as at the district level. Mr Njaya recently visited FCC members in Nkhotakota and fully supports Ripple Africa's approach. He is keen for us to develop the same relationship with other District Fisheries officers and their teams in all of Malawi's lakeshore districts, given sufficient funding.

The District Fisheries Officer (DFO) in Nkhotakota is Symon Ngwira who replaced the original DFO during the project period. The positive working relationship that we have with him and his team has really helped the project progress well in Nkhotakota District.

We do not fund the salaries of the fisheries staff as these are funded by the Government of Malawi but in order to build the capacity of the team and enable them to get out to visit the fishing communities and develop strong relationship with the fishers themselves, Ripple Africa funds travel and subsistence costs as there is little government money available for this. Without this funding, the Fisheries Department cannot afford to operate or maintain vehicles and the support enables their activities to be carried out effectively.

We have also developed a strong partnership with the District Executive Council in Nkhotakota District, who are the local governance structure for the district. They are key stakeholders in the project and their active and enthusiastic support for the project underpins its success. We are currently working closely with them to discuss ongoing funding for the project through the collection of District Fishing Permits which will guarantee the sustainability of the project after Darwin Initiative funding ends.

3. Project Achievements

3.1 Outputs

Output and Indicators	Achievements
<p>Establish 42 fish conservation committees in Fishing Strata 5.3, 5.4 and 5.5 , Train them alongside local leaders – and support them in managing fishing practices in their beach areas.</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Each committee to contain 10 members – 30% of whom are female and 60% of whom are non-fishers and should be established by Dec 2018. All member details and details of fishers and fishing gears used at the landing sites where they will operate entered onto database by March 2019. • Training of all FCCs will cover fish management and conservation, impact of family size and other family lifestyle choices on the natural environment, finance issues and committee management. Priorities for training committees will be in the Chambo nursery and breeding areas, but all FCCs will be fully trained by July 2019 • All FCCs will be encouraged to actively patrol their beach area, confiscate nets and train other members of their community – from when they are fully trained until March 2021. This FCC led training will mirror the training that the FCC received, including the importance of fish as a natural resource and of sustainable fishing as a means of improving nutrition and household income. It will also highlight the impact of continued human population growth on future prospects for both fisheries and livelihoods <p>1.1 More than 125 female FCC members (revised to 108 after the reduction in planned FCCs) feel that they are empowered and fully involved in the project and fish value chain by December 2019</p>	<ul style="list-style-type: none"> • Target revised to 35 Fish Conservation Committees once the project commenced and research was undertaken, • 36 FCCs are now in the project area • 31.9% members are female • 64% are non-fishers • 35 established by March 2019 • 1 additional established by June 2020 • All fishers’ details entered into database by March 2019 • 35 FCCs were fully trained by July 2019. The 36th FCC was trained by July 2020 • All training includes these items and training materials are at Annex 7.2 • FCCs are monitored to assess whether they are training other community members effectively and whether they are patrolling their area regularly to ensure the bylaws are being adhered to. Retraining is carried out if required to ensure that patrols and community awareness training is effectively carried out • 115 women are active FCC members – many are secretary or treasurer of their FCC and one is Chair. Wellbeing surveys show that they feel empowered and involved – see Section 4.4 and Annex 7.3
<p>Problems and resolutions</p> <p>Ngala FCC (Stratum 5.5) was responsible for an extremely large area and it was becoming increasingly difficult for the FCC members to patrol the area and to raise awareness of all community members. Therefore, it was decided to split the area into two and establish and train an additional FCC to manage fisheries in part of this area. Lukuchi FCC is now the 36th FCC in the project area.</p>	

<p>Identify all Chambo breeding and nursery areas and ensure that protection measures and sanctuaries are in place for all of these.</p> <p>2.1 Survey Strata 5.3, 5.4 and 5.5 between July and September 2018 to identify and map Chambo breeding areas</p> <p>2.2 Provide more in-depth training on Chambo and Usipa breeding cycle, seasons and need for protection of breeding areas. Particularly the importance of preserving natural vegetation such as reeds in shoreline areas, which offer protection for the Chambo fry. Also the importance of using larger mesh and closed season for Usipa. Targeting those FCCs who will be closest to the sanctuaries and responsible for their protection by November 2018.</p> <p>2.3 Ensure that FCCs stop all fishing activities in breeding areas, respect the closed season and confiscate all mosquito nets (used for Chambo and Usipa) as a priority by February 2019</p> <p>2.4 FCC members will train non-FCC community members on the importance of protecting fish breeding areas and respecting closed seasons by July 2019</p>	<ul style="list-style-type: none"> • Ten Chambo breeding areas were identified by Sept 2018 and one further area, Luluzi has been identified in 2020. Map at Annex 7.4 (Luluzi not yet added) • Training of the FCCs located in the initial 10 breeding areas was carried out by November 2018. Luluzi FCC were trained on their responsibilities for protecting the 11th breeding area in 2020. We are checking their understanding of their responsibilities and knowledge of the bylaws as part of the FCC monitoring cycle. • Achieved and measured as part of the FCC Performance Monitoring process. Retraining carried out as required • Achieved and measured as part of the FCC Performance Monitoring process. Retraining carried out as required
<p>Problems and resolutions</p> <p>The only issue has been the discovery of an additional medium sized chambo breeding area in 2020. Luluzi Breeding Area is located in a river mouth and has now been added to the list of breeding areas and the audit programme. No mosquito nets or drag nets are in use here as the FCC have now trained all community members using this area for fishing.</p>	
<p>Measurement systems for Chambo and Usipa catches and income of fishers are developed and introduced, collecting accurate data to measure the success of the project and feedback to community management</p> <p>3.1 Develop the catch monitoring system to operate in this project area by Dec 2018</p> <p>3.2 Data collectors are selected and trained by April 2019</p> <p>3.3 From April 2019, collect data on a daily basis for selected data collection fishers and establish economic value chain that the catch will generate segregated for Chambo and Usipa</p>	<ul style="list-style-type: none"> • This has been established and we are collecting catch data for Chambo and Usipa along with beach prices to identify the economic value of the catch. • Four fishers have been trained at each beach area in data collection • Three day catch data is collected from sample fishers on their catch weight and the size of fish caught. Annex 7.5 shows examples of this. We are also getting average market prices for small, medium and large fish to enable us to estimate the

<p>3.4 Fisher’s income generated by catches of larger Chambo and Usipa will increase by an average of 20% per annum against the baseline figure from April 2019 until project end.</p>	<p>income from sales for fishers based on their catch.</p> <ul style="list-style-type: none"> • See Section 4.5 for catch and income data. Although the income varies between beaches and is affected by market prices, there have been substantial increases in income from fish sales for both Chambo and Usipa fishers between 2018 when data collection started and 2020/2021. Details of the income increase are shown in Section 4.5.
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Problems and resolutions

The collection of accurate data has proved more difficult than originally anticipated, particularly for Chambo. The reasons for this are detailed in Section 6.1. After testing better ways of ensuring the collection of accurate catch data, Ripple Africa are now undertaking three-day sampling for Chambo from four fishers in each stratum – this is a smaller number of fishers that we had originally intended to use but we are finding that it is much easier for us to check the accuracy of the data being provided.

3.2 Outcome

Outcome and Indicators	Achievements
<p>Fishing communities, supported by Fisheries Department in Nkhotakota District are empowered and take ownership of managing sustainable fishing methods, reducing illegal practices and protecting breeding/nursery sanctuaries for Chambo and Usipa</p> <p>0.1 350 Fishers and community members are trained and active members of 35 Fish Conservation Committees by July 2019. Of these 105 will be women</p> <p>0.2 All Chambo breeding / nursery areas in Nkhotakota District will be identified by September 2018 and will be protected by FCC members by March 2019.</p> <p>0.3 Fishers’ earnings stabilised by catching larger Chambo and Usipa and therefore earn a higher income from April 2019 until project end compared with baseline (to be established)</p>	<p>We revised the number of Fish Conservation Committees that we needed to establish in the project area from 42 to 35. However, the number of fully trained and active FCCs that we now have in place in the project area is 36.</p> <ul style="list-style-type: none"> • 360 fishing community members are trained and active and 115 are women • 11 Chambo breeding sites identified and are being actively protected – 10 by March 2019, 1 by July 2020 • Assessment system established and baseline data collected – details of income increase at Section 4.5

3.3 Monitoring of assumptions

The assumptions were monitored throughout the project and there were no major changes in the Outcome and Output level assumptions. However, during the course of the project, Malawi experienced political turmoil, following substantiated allegations of vote rigging. In the May 2019 general election. There were political demonstrations and rioting during the period immediately following the election until in February 2020 the High Court annulled the presidential election results, citing evidence of irregularities, and ordered fresh elections to be held. On 23rd June 2020, the election was re-run and a new president was elected. We monitored the impact of this on the project but the District Governance structures were not

affected by the national election results and as Malawi has been committed to devolving many national political issues to district level, we have seen little impact on the project as district support for the project has been consistent.

The impact of the Covid-19 pandemic was monitored – obviously not something that was anticipated at the start of this project period. Fortunately, all FCCs were formed and trained and had already been active for over a year in most cases when the pandemic started in 2020 and were able to continue their work with social distancing in place and therefore there has been little impact on the progress of the project.

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

The impact statement on our original application was:

Lake Malawi fishing communities manage fish resources sustainably and improve biodiversity through protection of endangered species, breeding areas and regulation of fishing gears thereby securing their livelihoods and improving nutrition.

Obviously, this will take longer than a three-year project to achieve, but we have seen considerable progress made towards these objectives.

The project has empowered members of poor lakeshore communities to become the custodians of the fish in their area of Lake Malawi -115 of these are women who feel more empowered and involved in fish conservation. Through protection of fish breeding areas and the enforcement of agreed district bylaws, including the confiscation of small meshed fishing nets, they are now ensuring that stocks of critically endangered species of fish are allowed to grow. As fishers are using larger meshed nets, they are now catching larger fish and making more money.

In the project area, we now have 36 trained conservation committees who are ensuring that the new Nkhotakota District fishing bylaws which were signed in 2018 are enforced. 11 *Oreochromis lidole* breeding areas and nursery sanctuaries are now being actively protected, improving the stocks of a critically endangered fish species and thereby conserving biodiversity in this area of Lake Malawi. Illegal fishing gear has been confiscated and offenders have been fined and there are now virtually no mosquito nets being used for fishing. Fishers are now almost all using larger meshed nets to catch fish and there are no small meshed drag nets in use in the project area.

This is evidenced from the FCC performance monitoring that we have carried out. Members of 80% of the 36 FCC have been assessed as knowing the fishing bylaws well and the remaining 20% know them fairly well. 94% of the FCCs report that only the correct meshed nets are now being used to catch *Oreochromis lidole* and 97% report that Usipa fishers are now using the larger Number 10 bunt in their nets. These measures ensure that only large adult fish are now being caught thereby leaving more young fish in the lake to grow and breed. In 89% of FCC areas there are no mosquito nets being used for fishing and in 77% of FCC areas there are no beach seine or drag nets in use. 80% of FCCs report that all fishers are observing the closed season.

Catch data (see Annex 7.5 and section 4.5 below) shows that fishers are now consistently catching more larger fish and leaving the smaller ones, previously caught in very large quantities using smaller meshed nets, to grow and breed, increasing the overall stocks of fish in the lake.

By ensuring that the fishers are now catching mainly large fish, their income has increased and we have helped the fishers to introduce 33 savings groups, 18 of these are now well established and 15 are partly established, meaning that they have formed the groups but have not yet started to fully operate, mainly because of restrictions on meetings caused by Covid-19.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

The project has addressed the following Sustainable Development Goals:

- **SDG 1 – End Poverty** – the project has already demonstrated that by ensuring that fishers are able to catch more and larger fish through the use of larger meshed nets and by protecting baby fish so that the breeding stock is increased, fishers and fish sellers are making more money from the sales of their catch.
- **SDG 2 – End Hunger** – it has not been possible to measure the impact on hunger as part of this project but as fish is an important animal protein source and the availability of fish for sale is being increased, we would hope that this will be the case
- **SDG 5 – End Gender Inequality** – we are empowering women by ensuring that they play an active role in fish conservation. 31% of FCC members are women, reflecting the vital role they play in processing and selling fish. The well-being surveys that we have carried out have demonstrated that being members of an FCC has increased women's wellbeing.
- **SDG 14 – Life Below Water** - by introducing and enforcing conservation bylaws, we are increasing the stocks of critically endangered fish species and increasing the knowledge of how poor fishing practices are damaging life below water
- **SDG 17 – Partnerships for the Goals** – the project has helped the District Fisheries Officer in Nkhotakota and his team to develop a better working relationship with fishers and continues to build the capacity of District Fisheries through the planned introduction of District Fishing Permits.

4.2 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

The project supports Malawi's Convention for Biological Diversity targets as follows:

- **Target 4** - through development of local bylaws with relevant stakeholders and national and district Fisheries offices
- **Target 7** - through harvesting within ecological limits
- **Target 11** - by protecting fish nurseries and breeding areas, encouraging plant growth and minimising damage caused by drag nets
- **Target 12** - increasing mesh sizes and protecting breeding and nursery areas will help prevent extinction of known threatened species
- **Target 15** - through empowering members of fishing communities in Nkhotakota to take ownership of their fish resource, diversify their livelihoods, access family planning services and manage fish stocks sustainably. The project also encourages women to become active project participants

The Country CBD Representative Lilian Chimphepo (PhD) who is the Principal Environmental Officer and Biosafety Focal Point in the Environmental Affairs Department is extremely supportive of the project and Force Ngwira is in regular contact with her to share progress.

4.3 Project support to poverty alleviation

The income of both Chambo and Usipa fishers has increased substantially since the project started. We had hoped that this would be the case as this was also our experience in Nkhata Bay District. In two of the three strata where we are gathering catch and income data, the incomes of Chambo fishers have increased by 99% in one and 169% in the other. In the third, we were unable to get accurate data before 2020 and so we are using anecdotal.

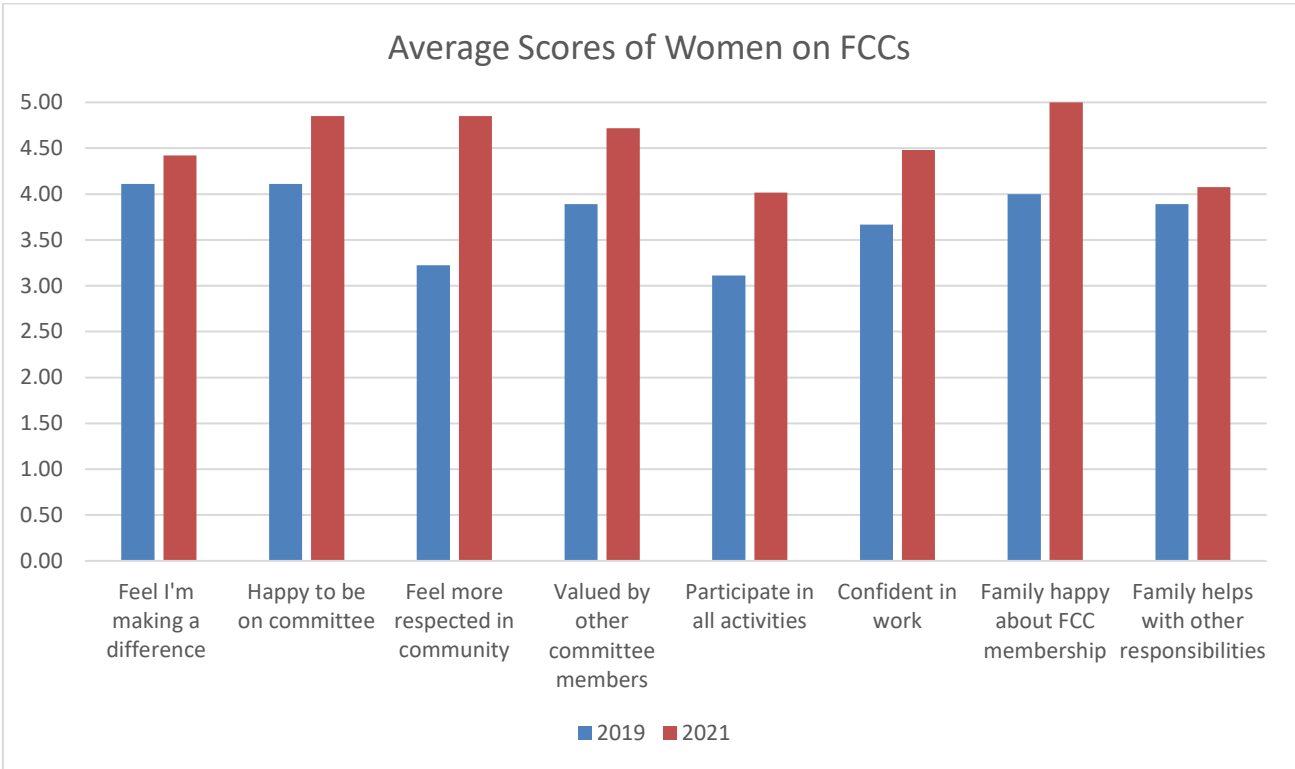
For Usipa fishers, income at the three data collection sites have increased even more dramatically. Increases between 2017/2018 and 2020 of:

- 343% at Chizeo
- 566% at Maundo
- 146% at Ngala

We have helped the fishers to introduce 33 savings groups in the project area - 18 of these are now well established and 15 are partly established, meaning that the groups have been formed but have not yet started to fully operate, mainly because of Covid-19 restrictions. The catch data are at Annex 7.5 and the income data are shown below in Section 4.5.

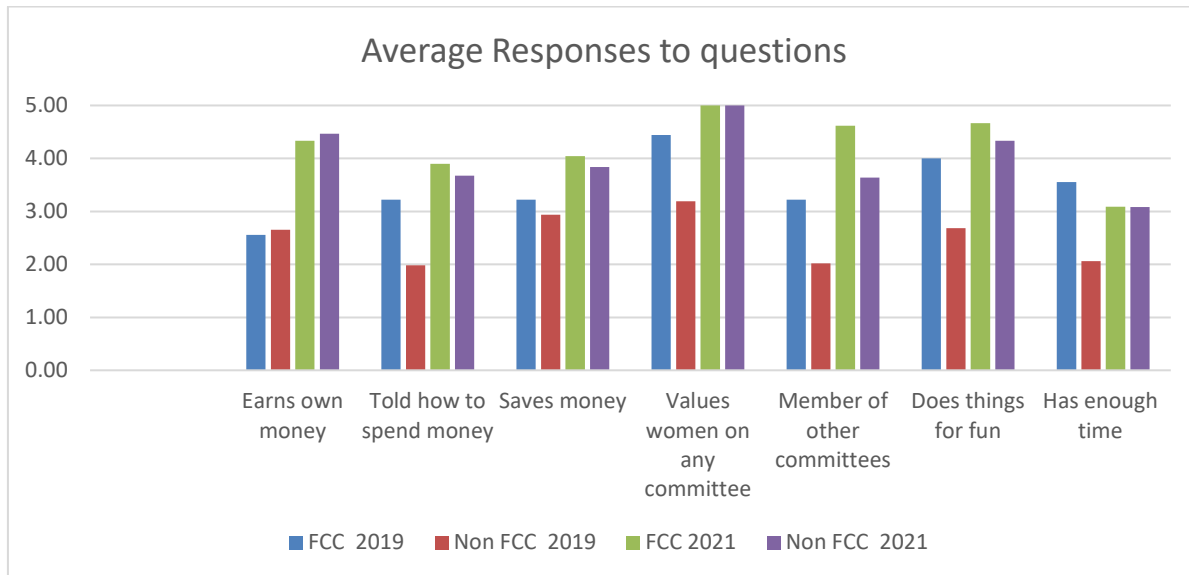
4.4 Gender equality

Women are encouraged to become active members of the Fish Conservation Committees and in the project area they constitute 31.9% of total FCC membership. We have developed a questionnaire to measure the impact of their increased participation in the project on their wellbeing levels. A baseline survey was carried out in 2019 and then again in early 2021 to measure changes. As part of the survey, we asked the FCC members what role they have on the committee and most of them are either secretary or treasurer of their FCC - key roles giving them more committee responsibilities. In terms of their responses to the specific questions about committee membership, the average scores for all questions have improved during the project period. The biggest improvement has been in the respect that they feel they have from other community members.



We also then asked a series of questions to both groups so that we could compare the responses of those women who are FCC committee members with other women in the fishing communities. These questions were developed in association with project stakeholders and fishing community members through a series of focus groups to cover areas which address how women living in these remote fishing communities feel about their lives in order to assess their wellbeing.

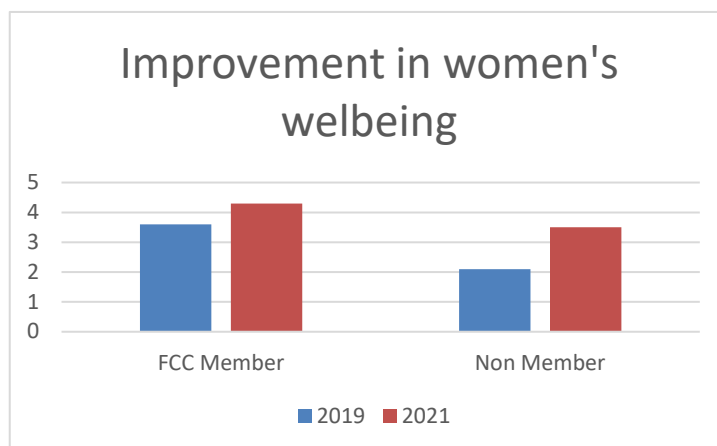
Key areas covered in the questions put to both groups included whether they earn their own money, whether they are told how they can spend their money by other family members, whether they are able to save money, whether they think it is important for women to be active members of committees, whether they themselves are or have been active members of other committees (not connected with fish), whether they are given the opportunity to do activities for their own enjoyment (such as singing in a choir) and whether they have free time.



The only area in which the results were lower in 2021 than they were in the baseline study was that women who are members of FCCs have less time for their own activities, reflecting the additional work that they have to do as committee members. However, we can see from the more detailed questions that we asked FCC members that this has not adversely affected their desire to remain on the committee.

We assessed the average scores for these key questions to assess the overall wellbeing of both women on FCCs and those who are not in the project area to compare the two groups and the changes from the first baseline survey in 2019 to now,

Each question has a total score of 5 and the average scores are shown in this chart.



Interestingly the wellbeing scores for the women who were not FCC members has increased more than for those who are FCC members and the reasons for this are twofold:

- The women who joined the FCCs were generally those who take part in other activities within their villages, such as being on women's groups, health groups etc and their wellbeing levels were already probably at a higher level to start off with
- The women who are not FCC members have benefited from seeing the respect that the female FCC members have been given by their fellow committee members and by others within the community and this has meant that they have felt that women in general are more respected than before.

These data are supported by case studies gathered from the women interviewed. See Annex 7.3

4.5 Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**

Yes – all of the FCC members are from the fishing communities in the project area. Therefore there are now 360 local poor people directly managing the fisheries in their area of the

lakeshore. They are being supported by the District Fisheries team and other key stakeholders, but the main thrust of this project is the empowerment of local communities to protect biodiversity and livelihoods for the future.

- **Were any management plans for biodiversity developed and were these formally accepted?**

New District Fishing bylaws were developed in Nkhotakota District and were signed in 2018. These were communicated to all key stakeholders and formed the basis of the management plans for each FCC. The bylaws were the first in the country to be signed by all District Councillors under the new devolved government initiative in Malawi. Fisheries extension workers and Ripple Africa coordinators assist each FCC to develop management plans and the FCCs are regularly assessed against these to ensure that they carry out their agreed activities.

- **Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?**

The District Fishing bylaws were developed in consultation with all key stakeholders including fishing community members as this has proved to be the most effective way of ensuring that there is ownership of both the problems and solutions amongst the communities who will be the key to protecting their natural resources. All 360 fish conservation committee members in the project areas are volunteers recruited from their local communities – 36% are fishers and 64% are non-fishers so that the whole community is represented. Of the 360 fish conservation committee members, 31.9% are women, reflecting the key role of women in fish processing and selling.

- **How did the project positively influence household (HH) income and how many HHs saw an increase?**

By encouraging fishers to use larger meshed fishing nets to catch mainly larger Chambo and Usipa, fishers and fish sellers have been making more money from their fish catches compared with before the project. We have recorded increased income at all of our data collection sites and this evidence is also backed up by the anecdotal information that we are receiving from fishers who are now able to make considerably more money through the protection of baby fish which is providing more larger fish each year that they are able to catch. Case studies of the impact that this is making for the fishers and their families can be seen in Annex 7.3.

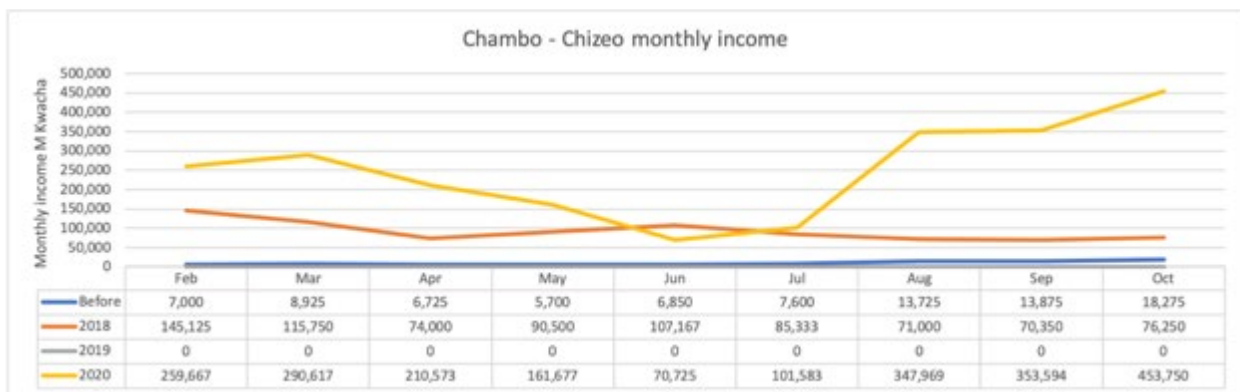
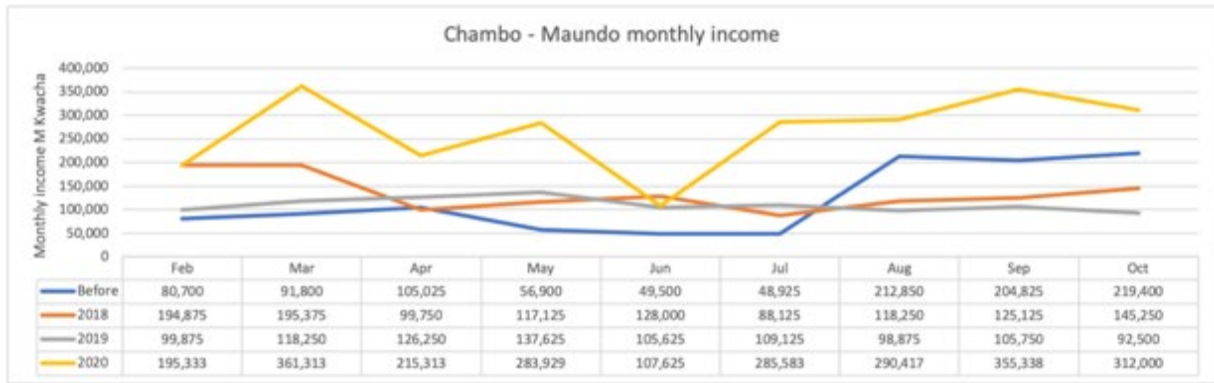
- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**

There are no data available on national income for fishers in Malawi – fishers are not taxed on the income made from their fish catches and there is no requirement for them to declare their income. All data gathered from before the project started is anecdotal. The catch data on which the income measurement is based are at Annex 7.5.

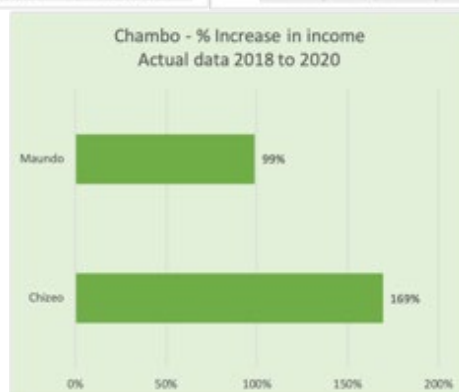
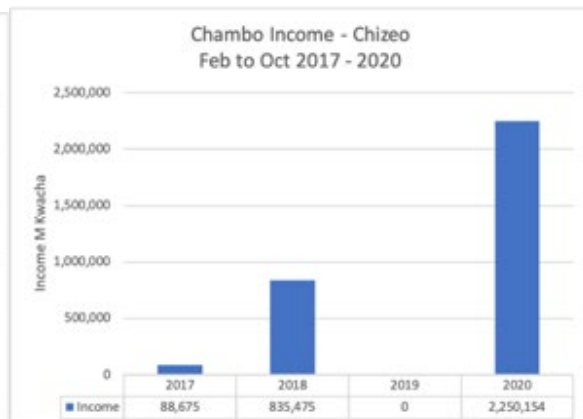
To measure the impact of the project on Chambo fishers' income, we estimate monthly income for all fishers at a beach landing site based on data provided by four fishers there who record their catch for three days per month. Data before the commencement of the project is anecdotal, with data from 2018, 2019 and 2020 coming from the four fishers at each landing site counting the numbers of small, medium and large fish that their catches contain. We then calculate their income by establishing the market price of the fish at that time. This enables us to put a figure on the income made for their fish catch each month and the graphs below illustrate how the monthly average income has increased over the three years that the project has been running. The market price reflects supply and demand and varies each month, making accurate recording of market prices a key element in the calculation of income.

For Chambo, fishers' income has increased significantly over the baseline figures collected at the start of the project. As well as market price of fish, monthly income is also affected by seasonal variations in weather, which reduce the ability of artisanal fishers to go out. Hence the

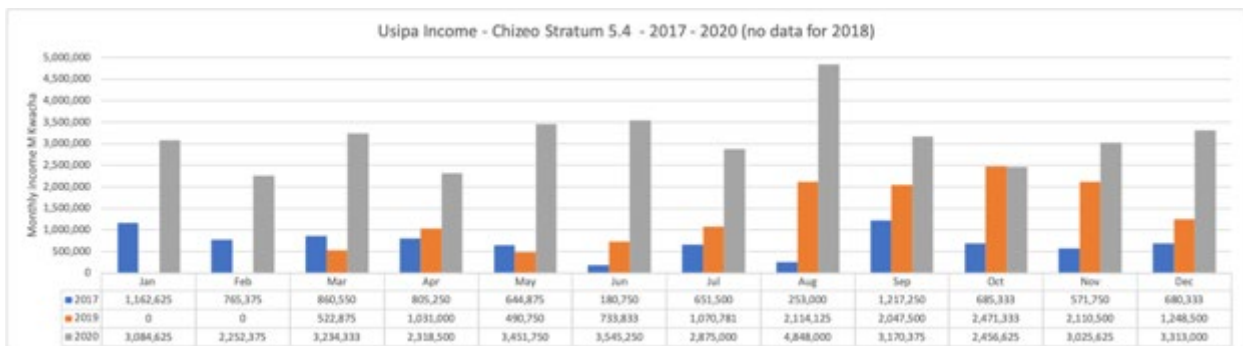
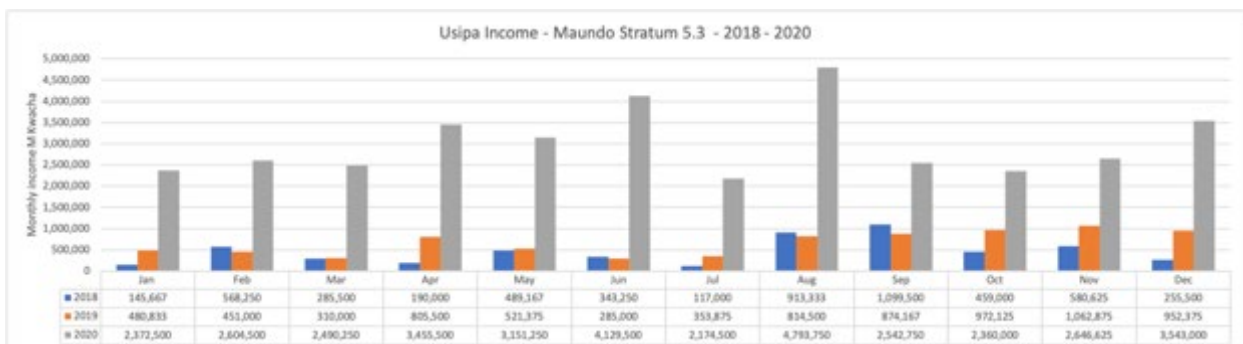
lower income figures in June and July. No data is collected during the closed season between October and February when there is no fishing permitted with gill nets.



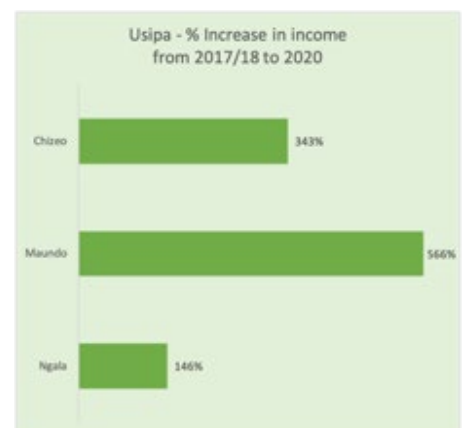
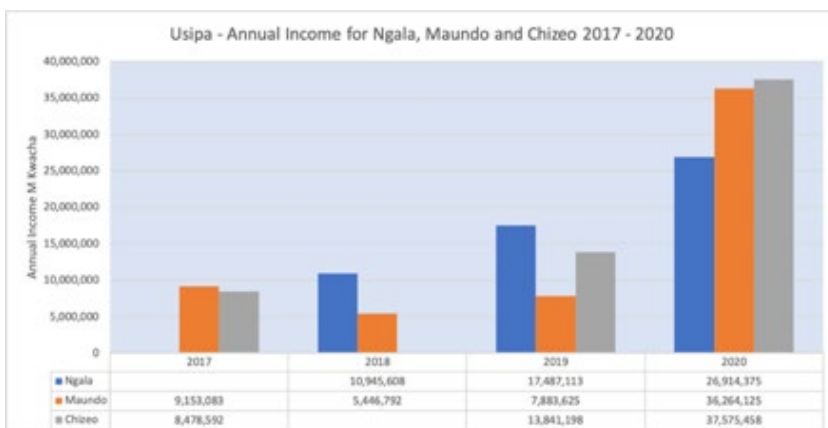
Sadly, no data was collected by the sampling fishers at Chizeo in 2019 as the FCC discovered that they were using the incorrect meshed nets and their nets were confiscated and the fishers were fined. Sampling commenced once we had been able to ensure that the fishers were using the correct meshed nets and the 2020 data has been regularly spot-checked to ensure that the data are accurate.



For Usipa, the data is collected year round and although winds obviously affected Usipa fishers as well as Chambo fishers, the income made has been higher. This is because Usipa fishers work in teams and go out into the lake in larger boats, only using the less stable canoes to carry nets out from the larger boats. Therefore, Usipa fishers are generally able to fish in higher winds than Chambo fishers. The following graphs show the average income per fisher at Ngala, Maundo and Chizeo landing sites.



As the charts below illustrate, fishers at Ngala saw an increase in their income of 146%, fishers at Chizeo saw an increase of 343% and at Maundo an increase of 566% over the baseline figures gathered in 2018.



4.6 Transfer of knowledge

The effectiveness of Ripple Africa's approach to fish conservation was reflected in the Notice of Funding Opportunity guidelines for the USAID REFRESH project. Potential grantees were advised that they should ensure that their programme of activities included liaison with Ripple Africa as:

RIPPLE Africa's Fish Conservation project is empowering local fishing communities to protect fish in their own areas of jurisdiction. The project works with artisanal fishers in participatory fisheries management through the development of fisheries bylaws in their areas in Nkhata Bay and Nkhotakota districts. These are the fishing districts where significant volumes of Mcheni and Sardella (Usipa) are caught. REFRESH should continue co-learning with Ripple Africa in Nkhotakota in banning the use of mosquito nets for fishing; enforcing a three month closed season to allow fish to breed; protecting shallow fish breeding grounds as fish sanctuaries and enforce a minimum mesh size restrictions.

We are liaising with Pact who were the successful bidders for the REFRESH project to ensure that they understand how we are working in the Darwin Initiative project area.

Ripple Africa have now been approached by UNESCO to introduce our Fish for Tomorrow approach in the World Heritage Site National Park area in Lake Malawi. A scoping study was carried out in September 2020 and we have submitted a project proposal for a two year project in partnership with Malawi's National Parks and Wildlife Department to protect cichlids in the National Park protected area. The outcome will be announced in May 2021.

Force Ngwira's selection as one of the three finalists in the 2018 Tusk Awards for Conservation in Africa and his presentation at a Tusk international conservation symposium in Kenya shared knowledge with many other policy makers in sub Saharan Africa and also internationally.

Ripple Africa have submitted a number of articles on the project to the Darwin Initiative Newsletter and have also shared information on the project with academics from UK and US universities.

4.7 Capacity building

Force Ngwira, Ripple Africa's Country Director and the project manager in Malawi was one of the three finalists in the 2018 Tusk Awards for Conservation in Africa.

He was flown to the UK to present this project to judges and to the Duke and Duchess of Cambridge.



Force was also flown to Kenya to take part in the Tusk Conservation Symposium in 2019 to share the Fish for Tomorrow project with conservationists from other African countries.

Force was also invited to attend a dinner hosted by the UK High Commissioner and attended by the then Duke of Sussex to highlight conservation projects.

In May 2019, Force Ngwira was featured on BBC Africa in a short film highlighting the Fish for Tomorrow project <https://www.bbc.co.uk/news/av/world-africa-48342649>

Also in May 2019, Force was interviewed on BBC World Service Africa about the project – audio no longer available.

He has been interviewed on Malawi television and radio many times and the project has featured in many newspaper articles. This raised profile has helped spread the news of the project and generated interest in its introduction in other districts.

5 Sustainability and Legacy

The main risk to the project has always been the need to secure ongoing funding. The Darwin Initiative funding has enabled us to run the project until March 2021, and we have managed to secure some funding from private donors to enable us to work towards the introduction of permit fees to provide an ongoing source of funding for the project going forwards.

We are working with District Fisheries Officers in Nkhata Bay and Nkhotakota Districts to fine tune our proposed District Fisheries Permit system (see Annex 7.6) to bring in income from fishers. Initial feedback has been extremely positive from our discussions with District Commissioners, District Executive Councils and District Fisheries Officers of the two districts. However, Covid restrictions introduced by the Government of Malawi have meant that we have been unable to proceed as quickly as we had hoped to trial the new system.

Ripple Africa staff have now been reduced in the project area as the Fisheries Extension workers are now able to support the Fish Conservation Committees. However, we have kept our Manager, Joyce Banda, in post to manage the trial and introduction of the District Fishing Permits in Nkhotakota. She will be supported by three other Ripple Africa staff. We will relocate other Ripple Africa project staff and resources to other districts in which we are now also running the Fish for Tomorrow project. In Salima and Dedza Districts we have funding from the International Conservation Fund of Canada for the next two years and we are currently awaiting the outcome of a bid to UNESCO to introduce the project in the World Heritage Site National Park area. The experience that our staff have gained working in Nkhotakota will be invaluable in these new areas.

6 Lessons learned

Ripple Africa is probably not the typical recipient of Darwin Initiative funding and we have struggled with the administrative burden of the bid process and reporting requirements. We felt constrained by this and the cost in terms of our staff time in completing the reports was disproportionate to the costs of actually running the project on the ground. In retrospect, we might have chosen to run the project in a smaller area to allow ourselves more funds for the monitoring and evaluation, but our aim has always been to get fishers in as large an area as possible to change their habits and conserve the dwindling fish stocks in the lake.

6.1 Monitoring and evaluation

We have been fine tuning the methodology for monitoring catch and income throughout the project and have made changes to ensure that we are gathering meaningful data. When we started the project, we used the Fisheries catch data to establish our baseline figures and as these data are based on a four day catch sample, we wanted to gather more detailed data over longer time frames to measure project impact. This has proved fairly straightforward for Usipa catches where all the Usipa boats come into a limited number of beach landing sites at around the same time each day when fishing takes place. We have therefore developed a simple sampling system for Usipa catches - we take one litre samples from the catch that is landed to assess how many small, medium and large fish the sample contains.

However, for Chambo, this has proved to be more challenging for the following reasons:

- The boats come in at many more beach landing sites, often at inaccessible beaches, making checking on the accuracy of the data being gathered extremely difficult
- Chambo fishers do not all fish at the same times – some land their catches very early in the morning and other fishers arrive back much later in the day

- We have found when checking the accuracy of the data that fishers have under-reported their catch. This is consistent across all the areas in which the project is operating and we suspect this might be due to a fear of being taxed on larger fish catches if they report actual catch data

Some of our sample fishers had illegal nets confiscated during the reporting period meaning that there were significant gaps in the data reports until they obtained new nets. In order to establish what is really happening, we are now gathering three-day sampling from 4 fishers in each stratum – this is a smaller number of fishers that we had originally intended to use but we are finding that it is much easier for us to check the accuracy of the data being provided. Our sample fishers note how many small, medium and large Chambo they have caught and this is then recorded so that we can assess the average income based on the average catch and multiplied by the average number of days fished to record catch and income

We have also found that the results are consistent from all the fishers who are reporting not only in the Darwin project area but also in other strata in Nkhotakota and in Nkhata Bay.

6.2 Actions taken in response to annual report reviews

The feedback that we received in our last annual report is as follows:

No.	Comment	Discuss with Darwin	Next half year report	Next Annual Report	No response needed
1	Please provide details about the specific role of RIPPLE Africa and Fisheries staff in project implementation.			X	
2	Please follow reporting guidelines and adhere to the template in section 3.1. Annex 1 is not a substitute for this section.			X	
3	Review indicators to ensure they are SMART. If any changes are proposed, please submit a change request.	(X) Done			
4	Please provide information on current fundraising to ensure (a) the continuation of the activities undertaken by the FCCs and (b) the continuation of monitoring activities to establish whether the current action has resulted in the expected changes.			X	
5	Please explain what measures you are taking to ensure data accuracy when collecting catch and income data		X Done		

The key issues that therefore need to be addressed in this annual report are as follows:

1. The specific roles of Ripple Africa and Fisheries staff in project implementation

In the Fish for Tomorrow project, Ripple Africa are overall in charge of the project but one of the key aims of the project has been to break down the barriers that have been preventing the District Fisheries team from effectively managing the fisheries in Nkhotakota and to build the capacity of the District Fisheries team to continue to support the FCCs on an ongoing basis. Therefore, we are providing the necessary resources to enable Fisheries Extension Workers to travel to beach landing sites on a regular basis and work in partnership with the FCCs to ensure that the District Bylaws are being observed in all areas. We also ensure that all Fisheries staff understand the aims of the Fish for Tomorrow project.

In terms of project implementation, Ripple Africa's District Fish Conservation Project Manager and the District Fisheries Officer work in partnership on:

- Planning and Strategy – making sure that plans are being implemented effectively and updating strategies if necessary. As the District Fisheries Officer is an Nkhotakota District official and an employee of the National Fisheries Department, any major strategic decisions have to be submitted through him with Ripple Africa support
- Problem solving, project monitoring and day to day supervision of their relevant extension workers
- However, all accounting for project expenditure is the responsibility of the Ripple Africa manager and all funding for Fisheries travel and subsistence has to be approved by Ripple Africa.
- The Ripple Africa Manager is also responsible for overseeing all monitoring and evaluation and providing reports as required

Ripple Africa's project coordinators are responsible for:

- Training all Fisheries Extension Workers in how to implement the project in their area
- Overseeing all training of Fish Conservation Committee Members
- Managing the catch and income data collection and reporting results
- Monitoring the performance of the FCCs
- Carrying out annual audits of the breeding areas
- Completing all project paperwork

Fisheries Extension Workers

- Work alongside their Ripple Africa colleagues to audit breeding areas, carry out checks of the activities of the FCCs in their area and coordinate the collection and destruction of confiscated fishing nets.
2. Information on Fundraising to ensure the continuation of the activities undertaken by the FCCs and the continuation of monitoring activities

We have continued to fundraise to raise further funding and ensure that the project is able to continue in the project area until sufficient revenue from fishing permits can be raised. We have submitted a bid to the Guernsey Overseas Aid Foundation and have also received donations from individual and corporate supporters to ensure that we have funding to continue to operate the project with a reduced staffing level.

3. Hopefully, the reporting guidelines have been correctly followed in this annual report.

7 Darwin identity

We have added the Darwin Initiative logos to our forms and there is information on our website that acknowledges the support that we are getting from the Darwin Initiative.

<https://www.rippleafrica.org/get-involved/trusts-and-foundations/>. We have also had several articles published in the Darwin Initiative Newsletter and always feature these on our social media channels. We always share the Darwin Initiative Newsletters on our social media feeds. See Annex 7.7 for some examples of this.

The Darwin funding supported one area of Ripple Africa's Fish for Tomorrow programme and we have shared the support of the UK Government with our Malawi team, with the Department of Fisheries and the District Fisheries Officer in Nkhotakota District, with other current funders and in bids for further project funding.

8 Impact of COVID-19 on project delivery

Malawi responded to the pandemic by shutting down borders quickly, closing schools and universities for extended periods, imposing a night time curfew and enforcing the wearing of masks and limiting the number of people able to meet. However, as there is almost no state

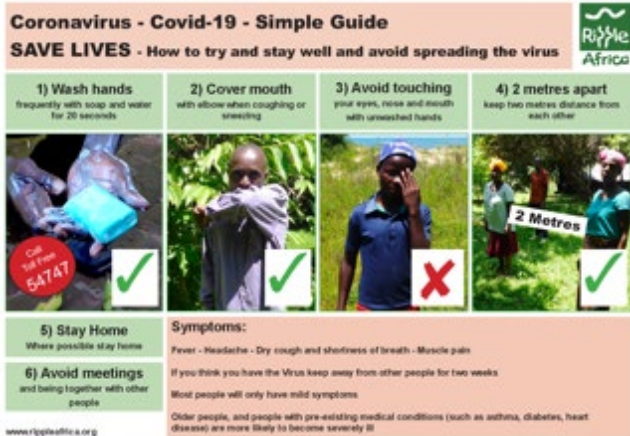
support for those in need, most people in Malawi have continued to carry on their business as normal in line with government guidelines. We considered halting the project, but after consultation with our management team in Malawi, with District officials and with the fishing communities that we are supporting, it was agreed that we needed to continue the project with safety measures in place, such as social distancing and smaller meeting sizes. Luckily most of our staff and the fisheries extension workers have motorbikes and therefore do not need to use public transport, considered one of the most likely places for the virus to spread. As virtually all of our meetings are held on the beach or in extremely well-ventilated buildings (no glass in the windows or open sided), we felt that the potential risk of exposure to Covid outweighed the risk of halting the project and losing momentum. Lack of reliable internet and lack of technology means that virtual meetings were not an option.

At the beginning of the pandemic, there was considerable concern that Malawi would be hit hard by the virus - despite a youthful population profile, many people have underlying existing conditions such as HIV, TB, diabetes and malaria, making them extremely vulnerable. Testing was likely to be limited and there were only 25 ventilators for almost 20 million people, making treatment of the sickest patients almost impossible.

Information on frequent handwashing and social distancing in line with WHO guidance was given out on television and radio but many of the people living in the remote rural areas of the country have no access to TV and only limited numbers have radios. There was therefore concern that these people would be less likely to know how to protect themselves from the virus.

Ripple Africa was asked to help the District Councils in Nkhata Bay and Nkhotakota Districts to get the messages across and also to ensure that as many people as possible had access to water for handwashing – we raised money to repair 420 broken boreholes to date and buckets and soap have been provided to fish landing beaches, medical centres and markets.

To get the right information on protection against the virus to isolated communities along the lakeshore, an obvious solution was to use the volunteer Fish Conservation Committee (FCC) members as they already have experience of community education and live alongside those needing the information. Ripple Africa’s Fish for Tomorrow project has a considerably larger outreach network than the District Health Departments in the three districts where the project is operating.



Simple, visual and locally relevant educational materials in local languages on social distancing and handwashing were produced and FCC members shared this information with others in small groups, observing social distancing at all times. This ensured that the most vulnerable members of Malawi’s population understand how Covid-19 is transmitted, how to protect themselves and their families and what to do if they have symptoms.

Ripple Africa also organised public address vehicles to tour for ten days in each district to reach those in more remote villages or those unable to attend the meetings organised by FCC members. All FCC members were provided with masks and reinforced the need to wear these as part of their awareness campaign.

9 Finance and administration

9.1 Project expenditure

Project spend (indicative) since last annual report	2020/21 Grant (£)	2020/21 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL				

Staff employed (Name and position)	Cost (£)
Force Ngwira – Director	
Joyce Banda – Senior Manager	
Sam B Manda – Manager, Monitoring and Evaluation	
Edgar E. P Liwewe - Driver	
Kingsly Damaliphetsa - Coordinator	
Sibongile Hara - Coordinator	
Darwin Kaunda - Coordinator	
Paul Manda - Coordinator	
Naomie White - Coordinator	
Yamikani Kamanga - Coordinator	
Adraida Malenga - Coordinator	
Christopher Mndala – Office Assistant	
Watchman	
Pension	
Tax	
TOTAL	

Capital items – description	Capital items – cost (£)
TOTAL	

Other items – description	Other items – cost (£)
TOTAL	

9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Donated Salaries (In kind)	

Good Little Company – corporate donor	
Genesis Charitable Trust	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
Private USA Donor	
Makosi – corporate donor	
Good Little Company – corporate donor	
TOTAL	

9.3 Value for Money

As with all Ripple Africa projects, our aim with this project is to ensure that we find the most cost-effective ways of achieving the project objectives. On this project, all of our training is done in situ to reduce travel and room hire fees. We use the beaches where the fishers are working or nearby classrooms and meeting rooms which are provided to us free of charge. We only pay minimal travel costs for chiefs and district officials to attend meetings – the ‘allowance’ system in Malawi has been a fact of life for many years and it has taken us considerable effort to change the mindset that NGOs have to pay people to attend meetings and training sessions.

FCC members are all volunteers and their activities are funded entirely through fines and their own local permit fees.

Our Ripple Africa office is in a very small old room adjacent to the Fisheries office and we have spent only a small amount to make it watertight and secure and to furnish it. Maintenance of the surrounding grounds and security is already provided by the Fisheries Office.

We are using the resources of fisheries staff, already paid for by the Government of Malawi – as with all our projects, we utilise existing structures wherever possible.

10 OPTIONAL: Outstanding achievements of your project during the (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

We consider the outstanding achievement of this project to have been breaking down the barriers between fishers and the District Fisheries Office, meaning that Fisheries are no longer seen only as enforcers but as partners to fishers, helping to protect fish to provide a sustainable source of food and income and conserve the biodiversity of Lake Malawi.

The 360 members of the Fish Conservation Committees in the project area, 31.9% of whom are women, have been empowered to become the custodians of their area of the lake and have learned how they can protect the fish stocks through sustainable fishing practices. They have become ambassadors for fish conservation in Nkhotakota District and are educating other fishers and fellow community members to follow the district bylaws and use the correct meshed nets to protect baby fish until they are large enough to breed. Their dedication and enthusiasm for fish conservation is inspiring other districts in Malawi to follow their example.

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Lake Malawi fishing communities manage fish resources sustainably and improve biodiversity through protection of endangered species, breeding areas and regulation of fishing gears thereby securing their livelihoods and improving nutrition.</p>			
<p>Outcome: Fishing communities, supported by Fisheries Department in Nkhotakota District are empowered and take ownership of managing sustainable fishing methods, reducing illegal practices and protecting breeding/nursery sanctuaries for Chambo and Usipa.</p>	<p>0.1 420 Fishers and community members are trained and active members of 42 Fish Conservation Committees by July 2019. Of these 125 will be women</p> <p>0.2 All Chambo breeding / nursery areas in Nkhotakota District will be identified by September 2018 and will be protected by FCC members by March 2019</p> <p>0.3 Fishers earnings stabilised by catching larger Chambo and Usipa and therefore earn a higher income from April 2019 until project end compared with baseline (to be established)</p>	<p>0.1 Database of FCC membership and fishing gear used, training records, minutes of meetings and surveys of FCC activities</p> <p>0.2 Mapping of Chambo breeding areas and assessment of natural habitat, quarterly tracking of FCC activities, such as net confiscations and awareness training</p> <p>0.3 Catch quantities and income from fish sales per month</p>	<ul style="list-style-type: none"> • Fish Bylaws for Nkhotakota District are signed off by District Councillors and Executive Committee before the project start date • Traditional Authorities, Senior Chiefs, Village Headsmen, community members and District officials are fully supportive of the project and its introduction into the new areas • Catch data systems developed in Nkhata Bay District can be replicated in Nkhotakota District and we are able to find fishers who can be trusted to give accurate data on a daily basis.
<p>Output 1. Establish and train 42 fish conservation committees in Fishing Strata 5.3, 5.4 and 5.5 and local leaders and support them in managing fishing practices in their beach areas</p>	<p>1.1 42 Fish Conservation Committees each containing 10 members - 30% of whom are female and 60% of whom are non-fishers - established by Dec 2018. All member details and details of fishers and fishing gears used at the landing sites where they will operate entered onto database by March 2019.</p> <p>1.2 Training of all FCCs will cover fish management and conservation, impact of family size and other family lifestyle choices on the natural environment, finance issues and committee</p>	<p>1.1. Details on database of FCC membership and date established</p> <p>1.2 Record of training and post training questionnaires to ensure that members understand their roles and responsibilities, their understanding of</p>	<ul style="list-style-type: none"> • Community members, particularly women, agree to join Fish Conservation Committees • Data collected is accurate • Baseline survey is done to enable us to identify increased understanding • FCC members are active and effective

	<p>management. Priorities for training committees will be in the Chambo nursery and breeding areas, but all FCCs will be fully trained by July 2019</p> <p>1.3 All FCCs will be encouraged to actively patrol their beach area, confiscate nets and train other members of their community – from when they are fully trained until March 2021. This FCC led training will mirror the training that the FCC received, including the importance of fish as a natural resource and of sustainable fishing as a means of improving nutrition and household income. It will also highlight the impact of continued human population growth on future prospects for both fisheries and livelihoods.</p> <p>1.4 More than 125 female FCC members feel that they are empowered and fully involved in the project and fish value chain by December 2019</p>	<p>the project and their understanding of how lifestyle changes will positively impact on natural resource availability and income that they can generate</p> <p>1.3 Record of FCC activities including net confiscations, questionnaire and survey results, photos, case studies and feedback from extension workers</p> <p>1.4 Survey of female FCC members to measure their involvement levels and wellbeing, case studies</p>	<ul style="list-style-type: none"> • Men are fully prepared to involve women in committee activities and family decisions • Socio-economic survey developed is effective in assessing women's views • Minimal political interference
<p>Output 2. Identify all Chambo breeding and nursery areas and ensure that protection measures and sanctuaries are in place for all of these</p>	<p>2.1 Survey Strata 5.3, 5.4 and 5.5 between July and September 2018 to identify and map Chambo breeding areas</p> <p>2.2 Provide more in-depth training on Chambo and Usipa breeding cycle, seasons and need for protection of breeding areas. Particularly the importance of preserving natural vegetation such as reeds in shoreline areas, which offer protection for the Chambo fry. Also the importance of using larger mesh and closed season for Usipa. Targeting those FCCs who will be closest to the sanctuaries and responsible for their protection by November 2018.</p>	<p>2.1 Accurate map of all breeding areas</p> <p>2.2 Training record of FCCs in breeding areas and photos</p>	<ul style="list-style-type: none"> • Chambo breeding areas are easy to identify • Community members are willing to become members of the Fish Conservation Committees in breeding areas and understand their responsibilities • Fish Conservation Committees in the breeding areas are active and effective at carrying out their protection duties • Community members understand the need for the

	<p>2.3 Ensure that FCCs stop all fishing activities in breeding areas, respect the closed season and confiscate all mosquito nets (used for Chambo and Usipa) as a priority by February 2019</p> <p>2.4 FCC members will train non-FCC community members on the importance of protecting fish breeding areas and respecting closed seasons by July 2019</p>	<p>2.3 FCC activity logs, case studies, questionnaires to test understanding of this issue with FCC members and other members of the community</p>	<p>project and the importance of natural vegetation in breeding areas</p> <ul style="list-style-type: none"> • Political support for establishing nursery sanctuaries • Climate change does not cause lake to recede exposing sanctuaries
<p>Output 3. Measurement systems for Chambo and Usipa catches and income of fishers are developed and introduced, collecting accurate data to measure the success of the project and feedback to community management</p>	<p>3.1 Develop the catch monitoring system to operate in this project area by Dec 2018</p> <p>3.2 Data collectors are selected and trained by April 2019</p> <p>3.3 From April 2019, collect data on a daily basis for selected data collection fishers and establish economic value chain that the catch will generate segregated for Chambo and Usipa</p> <p>3.4 Fisher's income generated by catches of larger Chambo and Usipa will increase by an average of 20% per annum against the baseline figure from April 2019 until project end.</p>	<p>3.1 Details of fishermen on the database and written details of how the monitoring system will operate</p> <p>3.2 Training records</p> <p>3.3 Records of daily catches – quantity of fish caught and their size - entered onto monitoring database, lifestyle questionnaire results, case studies</p> <p>3.4 Income earned by catch data monitors, survey responses from non catch data monitors to establish validity of measurement system</p>	<ul style="list-style-type: none"> • The monitoring system being used in Nkhata Bay District can be easily replicated in Nkhotakota District • Fishers selected as data collectors are honest and provide accurate data • Baseline assessment of income is available to measure impact of the project on household income
<p>Activities (each activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>Agree with District Council and Department of Fisheries the issuance of By-laws for Nkhotakota District, modelling on Nkhata Bay</p> <p>1.1 Agree with Department of Fisheries which staff will work in the chosen areas – reassign staff as required</p> <p>1.2 Meet with Fisheries extension workers, Traditional Authorities, Group Village Headmen and Village headmen to launch project and agree where the FCCs will be located in communities where this has not already been done. Share by-laws.</p> <p>1.3 Meet with community members to launch the project, discuss how the project will benefit community members and seek volunteers to join the FCC where this has not yet been formed. Particular focus on encouraging women to participate</p> <p>1.4 Generate an FCC register and enter details of all fishers at beach landing sites onto RIPPLE Africa database</p> <p>1.5 Adapt current training materials to include training on how population increase affects natural resources and on family planning with reference to local support available</p> <p>1.6 Train newly formed FCCs in management - priority to be given to those located near breeding areas</p>			

- 1.7 Monitor and support all FCCs to ensure that they are following local bylaws and spreading the message to other community members on the project
- 1.8 Develop socioeconomic survey to assess women's wellbeing and involvement and carry out initial survey to establish baseline
- 1.9 Carry out quarterly surveys to compare results against baseline

- 2.1 Carry out survey with District Fisheries to identify all Chambo nursery and breeding areas and develop simple management plans
- 2.2 Produce map of breeding and nursery areas of Chambo
- 2.3 Work with Fisheries to identify the breeding cycle and seasons of different sizes of Usipa
- 2.4 Provide additional training to FCCs in nursery and breeding areas on protection of their breeding Chambo population, in particular the need to protect reeds and other protective vegetation
- 2.5 Explain the biology of the fish and the need to allow juveniles to grow, and initiate a program to confiscate all mosquito nets for Chambo and Usipa
- 2.6 Monitor activities of FCCs in breeding areas to ensure that the lagoons etc are being adequately protected
- 2.7 Develop community survey in key breeding areas to assess knowledge of all community members on need to protect breeding areas
- 2.8 Carry out quarterly surveys to assess community knowledge, including baseline survey to monitor effectiveness of training

- 3.1 Agree with partners how the catch monitoring system will work in Nkhotakota District
- 3.2 Select and train the fishers who will collect the data and the extension workers who will monitor the data collection process
- 3.3 Train the administrator in Nkhotakota to input the catch data onto the spreadsheet system already developed for Nkhata Bay District
- 3.4 Collect the data and monitor to ensure that it is accurate
- 3.5 Collect prices of different sizes of fish from the market to enable income assessment to be kept up to date
- 3.6 Collect family income data through socio-economic survey to measure change in impact of fish caught on households

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

Project summary	Measurable Indicators	Progress and Achievements
<p>Impact:</p> <p>Lake Malawi fishing communities manage fish resources sustainably and improve biodiversity through protection of endangered species, breeding areas and regulation of fishing gears thereby securing their livelihoods and improving nutrition.</p>		<p>The project has empowered 360 members of poor lakeshore communities to become the custodians of the fish in their area of Lake Malawi -115 of these are women who feel more empowered and involved in fish conservation. Through protection of fish breeding areas and the enforcement of agreed district bylaws, including the confiscation of small meshed fishing nets, they are now ensuring that stocks of critically endangered species of fish are allowed to grow. As fishers are using larger meshed nets, they are now catching larger fish and making more money.</p>
<p>Outcome</p> <p>Fishing communities, supported by Fisheries Department in Nkhotakota District are empowered and take ownership of managing sustainable fishing methods, reducing illegal practices and protecting breeding/nursery sanctuaries for Chambo and Usipa</p>	<ul style="list-style-type: none"> • 350 Fishers and community members are trained and active members of 35 Fish Conservation Committees by July 2019. Of these 105 will be women • All Chambo breeding / nursery areas in Nkhotakota District will be identified by September 2018 and will be protected by FCC members by March 2019. • Fishers earnings stabilised by catching larger Chambo and Usipa and therefore earn a higher income from April 2019 until project end compared with baseline (to be established) 	<p>We revised the number of Fish Conservation Committees that we needed to establish in the project area from 42 to 35. However, the number of fully trained and active FCCs that we now have in place in the project area is 36.</p> <ul style="list-style-type: none"> • 360 fishing community members are trained and active and 115 are women • 11 Chambo breeding sites identified and are being actively protected – 10 by March 2019, 1 by July 2020 • Assessment system established and baseline data collected – details of income increase at Section 4.5
<ul style="list-style-type: none"> • Output 1. • Establish and train 42 fish conservation committees in 	<ul style="list-style-type: none"> • Target revised to 35 Fish Conservation Committees once the project commenced and research was undertaken, Each 	<ul style="list-style-type: none"> • 36 FCCs are now in the project area • 31.9% members are female • 64% are non-fishers

Project summary	Measurable Indicators	Progress and Achievements
<p>Fishing Strata 5.3, 5.4 and 5.5 and local leaders and support them in managing fishing practices in their beach areas</p>	<p>committee to contain 10 members - 30% of whom are female and 60% of whom are non-fishers and should be established by Dec 2018. All member details and details of fishers and fishing gears used at the landing sites where they will operate entered onto database by March 2019.</p> <ul style="list-style-type: none"> • Training of all FCCs will cover fish management and conservation, impact of family size and other family lifestyle choices on the natural environment, finance issues and committee management. Priorities for training committees will be in the Chambo nursery and breeding areas, but all FCCs will be fully trained by July 2019 • All FCCs will be encouraged to actively patrol their beach area, confiscate nets and train other members of their community – from when they are fully trained until March 2021. This FCC led training will mirror the training that the FCC received, including the importance of fish as a natural resource and of sustainable fishing as a means of improving nutrition and household income. It will also 	<ul style="list-style-type: none"> • 35 established by March 2019 • 1 additional established by June 2020 • All fishers' details entered into database by March 2019 <ul style="list-style-type: none"> • 35 FCCs were fully trained by July 2019. The 36th FCC was trained by July 2020. • All training includes these items and training materials are at Annex 7.2 <ul style="list-style-type: none"> • FCCs are monitored to assess whether they are training other community members effectively and whether they are patrolling their area regularly to ensure the bylaws are being adhered to. Retraining is carried out if required to ensure that patrols and community awareness training is effectively carried out.

Project summary	Measurable Indicators	Progress and Achievements
	<p>highlight the impact of continued human population growth on future prospects for both fisheries and livelihoods</p> <ul style="list-style-type: none"> • More than 125 female FCC members (revised to 108 after the reduction in planned FCCs) feel that they are empowered and fully involved in the project and fish value chain by December 2019 	<ul style="list-style-type: none"> • 115 women are active FCC members – many are secretary or treasurer of their FCC and one is Chair. Wellbeing surveys show that they feel empowered and involved – see Section 4.4
Activity 1.1 Agree with Department of Fisheries which staff will work in the chosen areas – reassign staff as required		Completed.
Activity 1.2 Meet with Fisheries extension workers, Traditional Authorities, Group Village Headmen and Village headmen to launch project and agree where the FCCs will be located in communities where this has not already been done. Share by-laws.		This activity was carried out at the start of the project in order to identify the number and location of FCCs needed in the project area. Bylaws were shared with all stakeholders as part of this process.
Activity 1.3 Meet with community members to launch the project, discuss how the project will benefit community members and seek volunteers to join the FCC where this has not yet been formed. Particular focus on encouraging women to participate		This was done in all areas
Activity 1.4 Generate an FCC register and enter details of all fishers at beach landing sites onto RIPPLE Africa database		Done – see Output 1.1 above
Activity 1.5 Adapt current training materials to include training on how population increase affects natural resources and on family planning with reference to local support available		Done – training now includes this in the Darwin area.

Project summary	Measurable Indicators	Progress and Achievements
Activity 1.6 Train newly formed FCCs in management - priority to be given to those located near breeding areas		Done – see Output 1.2 above.
Activity 1.7 Monitor and support all FCCs to ensure that they are following local bylaws and spreading the message to other community members on the project		We have a planned programme of monitoring inspections for all FCCs retraining is done as required.
Activity 1.8 Develop socioeconomic survey to assess women’s wellbeing and involvement and carry out initial survey to establish baseline		Surveys have been carried out as planned to measure improvements in women’s wellbeing
Activity 1.9 Carry out quarterly surveys to compare results against baseline		We carry out the surveys as part of our normal monitoring process – six monthly rather than quarterly as this was considered too intrusive by the women when we discussed it with them initially See section 4.4
Output 2. Identify all Chambo breeding and nursery areas and ensure that protection measures and sanctuaries are in place for all of these	<ul style="list-style-type: none"> • Survey Strata 5.3, 5.4 and 5.5 between July and September 2018 to identify and map Chambo breeding areas • Provide more in-depth training on Chambo and Usipa breeding cycle, seasons and need for protection of breeding areas. Particularly the importance of preserving natural vegetation such as reeds in shoreline areas, which offer protection for the Chambo fry. Also the importance of using larger mesh and closed season for Usipa. Targeting those FCCs 	<ul style="list-style-type: none"> • Ten Chambo Breeding areas were identified by the target date. An additional one was identified in 2020 so 11 are being protected in total. Mapping has now been completed and the map is at Annex 7.4 along with a summary of the breeding areas. • Training of the FCCs located in the initial 10 breeding areas was carried out before November 2018. Luluzi FCC were trained on their responsibilities for protecting the 11th breeding area in 2020. We are checking their understanding of their responsibilities and knowledge of the bylaws as part of the FCC monitoring cycle.

Project summary	Measurable Indicators	Progress and Achievements
	<p>who will be closest to the sanctuaries and responsible for their protection by November 2018.</p> <ul style="list-style-type: none"> • Ensure that FCCs stop all fishing activities in breeding areas, respect the closed season and confiscate all mosquito nets (used for Chambo and Usipa) as a priority by February 2019 • 2.4 FCC members will train non-FCC community members on the importance of protecting fish breeding areas and respecting closed seasons by July 2019 	<ul style="list-style-type: none"> • Achieved and measured as part of the FCC Performance Monitoring process. • Achieved and measured as part of the FCC Performance Monitoring process.
Activity 2.1. Carry out survey with District Fisheries to identify all Chambo nursery and breeding areas and develop simple management plans		Achieved and measured as part of the FCC Performance Monitoring process.
Activity 2.2. Produce map of breeding and nursery areas of Chambo		This has been done – see Annex 7.4.
Activity 2.3. Work with Fisheries to identify the breeding cycle and seasons of different sizes of Usipa		Achieved
Activity 2.4. Provide additional training to FCCs in nursery and breeding areas on protection of their breeding Chambo population, in particular the need to protect reeds and other protective vegetation		Achieved

Project summary	Measurable Indicators	Progress and Achievements
Activity 2.5. Explain the biology of the fish and the need to allow juveniles to grow, and initiate a program to confiscate all mosquito nets for Chambo and Usipa		Training includes information about the need to protect baby fish and the importance of using the correct meshed fishing gear.
Activity 2.6. Monitor activities of FCCs in breeding areas to ensure that the lagoons etc are being protected and to monitor fish numbers		We monitor the activities of the FCCs and assess their effectiveness using a performance monitor.
Activity 2.7. Develop community survey to assess knowledge of all community members on need to protect breeding areas		We have built this into the FCC Performance monitoring process and we have therefore decided that we do not need an additional community survey.
Activity 2.8. Carry out quarterly surveys to assess community knowledge		See above.
Output 3. Measurement systems for Chambo and Usipa catches and income of fishers are developed and introduced, collecting accurate data to measure the success of the project and feedback to community management	<ul style="list-style-type: none"> • Develop the catch monitoring system to operate in this project area by Dec 2018 • Data collectors are selected and trained by April 2019 • From April 2019, collect data on a daily basis for selected data collection fishers and establish economic value chain that the catch will generate segregated for Chambo and Usipa • Fisher's income generated by catches of larger Chambo and Usipa will increase by an average of 20% per annum against the baseline figure from April 2019 until project end. 	<ul style="list-style-type: none"> • This has been established and we are collecting catch data for Chambo and Usipa along with beach prices to identify the economic value of the catch. • Four fishers have been trained at each beach area in data collection • Three day catch data for Chambo is collected from sample fishers on their catch weight and the size of fish caught. We are also getting average market prices for small, medium and large fish to enable us to estimate the income from sales for fishers based on their catch. Catch Data is at Annex 7.5. • See Section 4.5 income data. Although the income varies between beaches and is affected by market prices, there have been substantial increases in income from fish sales for both Chambo and Usipa fishers between 2018 when data collection started and 2020/2021. Details of the income increase are shown in Section 4.5.
Activity 3.1. Agree with partners how the catch monitoring system will work in Nkhotakota District		All partners are happy with the new system

Project summary	Measurable Indicators	Progress and Achievements
Activity 3.2. Select and train the fishers who will collect the data and the extension workers who will monitor the data collection process		Achieved
Activity 3.3. Train the administrator in Nkhotakota to input the catch data onto the spreadsheet system already developed for Nkhata Bay District		Achieved
Activity 3.4. Collect the catch data and monitor to ensure that it is accurate		We conduct simple checks at the landing site to measure accuracy of data collection. We cross check with data from other landing sites to identify any anomalies.
Activity 3.5. Collect prices of different sizes of fish from the market on a quarterly basis to enable income assessment to be kept up to date		We have a monthly reporting system in place to identify beach selling prices to enable us to identify values of fish catches.
Activity 3.6. Collect family income data through socio-economic survey to measure change in impact of fish caught on households		See Section 4.5

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	0					
1b	Number of PhD qualifications obtained	0					
2	Number of Masters qualifications obtained	0					
3	Number of other qualifications obtained	0					
4a	Number of undergraduate students receiving training	0					
4b	Number of training weeks provided to undergraduate students	0					
4c	Number of postgraduate students receiving training (not 1-3 above)	0					
4d	Number of training weeks for postgraduate students	0					
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)	360	Malawian	115 women 245 men		Chichewa	Members of the FCCs who are being trained
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	150,000	Malawian	mixed		Chichewa	Community members, school pupils etc
6b	Number of training weeks not leading to formal qualification						
7	Number of types of training materials produced for use by host country(s) (describe training materials)	See Annex 7.2	Malawian			Chichewa	

Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	0					Participatory process?
10	Number of formal documents produced to assist work related to species identification, classification and recording.	0					
11a	Number of papers published or accepted for publication in peer reviewed journals	0					
11b	Number of papers published or accepted for publication elsewhere	0					Location?
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	0					
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0					
13a	Number of species reference collections established and handed over to host country(s)	0					
13b	Number of species reference collections enhanced and handed over to host country(s)	0					

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	0					

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	3			Conservation in Africa	English	

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)		
21	Number of permanent educational, training, research facilities or organisation established	0	
22	Number of permanent field plots established	0	Please describe

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work <i>(please note that the figure provided here should align with financial information provided in section 9.2)</i>		Canadian British				

Annex 7 Aichi Targets

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

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

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)

Annex 6 Darwin Contacts

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Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@itsi.co.uk putting the project number in the Subject line.	✓
Is your report more than 10MB? If so, please discuss with Darwin-Projects@itsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 10)?	✓
Have you included means of verification? You should 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 need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
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.	