

The Rufford Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in word format and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details

| | |
|----------------------------|--|
| Your name | Elizabeth Campbell |
| Project title | Helping river dolphin populations recover -one ping at a time |
| RSG reference | 26330-B |
| Reporting period | January – December 2019 |
| Amount of grant | £10,000 |
| Your email address | eli.campbell@gmail.com |
| Date of this report | Jan 30 2020 |

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

| Objective | Not achieved | Partially achieved | Fully achieved | Comments |
|--|--------------|--------------------|----------------|---|
| Implementation of an onboard observer program in the RNPS, with an emphasis on river dolphin interactions with fishery operations. | | | | |
| Monitoring of dolphin populations with the use of FPODS, passive acoustic data-loggers. | | | | |
| Field tests with acoustic devices to reduce cetacean bycatch | | | | |
| Educational workshops in fishing ports | | | | We aimed to visit five ports of which we were able to visit and present at three. Instead, we organised five workshops inside the reserve about river dolphins to smaller children. |

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

There were no difficulties that impeded the development of the project. We did have to modify the methodology of the project after we discussed our objectives with the developers of the pingers. Initially, and when we applied, we thought that the pingers would be deployed at each fishing set with FPODS. This was to cover our project objective of studying river dolphins Tucuxi (*Sotalia fluviatilis*) and boto (*Inia geoffrensis*). After talking to FishTek they told us it was better if we used cycling pingers in longer deployments. Therefore, we decided to first test if dolphins react to the pingers by placing an FPOD in the Buenos Aires community and an FPOD with a pinger at the 20 de enero community. This was not a difficulty, but a modification to the project.

3. Briefly describe the three most important outcomes of your project.

- a) Implementation of an onboard observer programme in the RNPS, with an emphasis on river dolphin interactions with fishery operations.

We implemented an onboard observer programme by identifying and training two observers per port. These observers would accompany subsistence fishers and fill out

a form prepared by us (Fig. 1). This data was then transferred to an excel spreadsheet by team members.

**1. FORMATO PARA OBSERVADORES A BORDO -- RN Peceya Samiria
FICHA POR VIAJE**

| | |
|------------------------|------------------------------|
| Nombre de Observador: | Fecha y hora de sumergir red |
| Numero de Tripulantes: | |
| Nombre Embarcacion: | Motor _____ Largo _____ |

CARACTERISTICAS APAREJO DE PESCA

| | |
|-----------------------------|-------------------------------|
| Tipo de APAREJO RED: | Usan camada? |
| Tamaño de APAREJO RED: | Numero de APAREJO RED: |
| Profundidad de APAREJO RED: | ¿Utilizan un segundo aparejo? |

| | |
|---|-------|
| Fecha y hora de recojo de red | Lugar |
| Especies capturadas (unidad o kg de cada una) | |
| Especies observadas | |

Por favor, no te olvides de dibujar las características de tu aparejo de pesca, en la parte de atrás de esta ficha!!!

Comentarios:

Figure 1. Field data sheet given to onboard observers

Fisheries were monitored from March to September 2019 (Table 1), after this the men in communities took up other agricultural activities. A total of 36 trips were monitored, an average of three per month. Of these trips, 83% used nets as fishing gear, 11% used hook and line and the rest, bow and arrow. In both communities, the average duration of sets was less than four hours.

Table 1. Summary of data provided by onboard observers.

| Observer | Community | Number of Trips | Crew members | Fishing method | Average duration of trip | Average size of nets |
|----------|--------------|-----------------|--------------|--------------------------------|--------------------------|---------------------------|
| Ivan | 20 de Enero | 22 | 2 | Nets | 2 hours | 40m length 2m depth |
| Lorenzo | Buenos Aires | 14 | 2 | Nets Hooks Bow and arrow | 3 hours | 38 m length 1.5m depth |

Two fishers were accompanied by onboard observers regularly. Fisheries inside the reserve are all subsistence fishers, they use small canoes with no motor or a motor with less than 12HP. For all trips, fishers had an additional crew member. In 20 de Enero, Ivan had an additional member that went with him on all trips. Contrary to this, Lorenzo had different members on his boat, all family. 88% of the fishing activities were executed by all-men crew members, 22% of them involved women.

On average, fishers would capture 23 fish individuals per trip as part of their target catch, specifically, 20 de enero captured 19.15 individuals and Buenos Aires 29.4 individuals per trip. The most commonly caught species were, in order of frequency, Sabalos (*Brycon cephalus*, *Brycon melanopterus*) Carachamas (*Ancistrus barbuda*), Fasacos (*Hoplias malabaricus*) and Acarhuazú (*Astronotus ocellatus*) (See Fig.2).

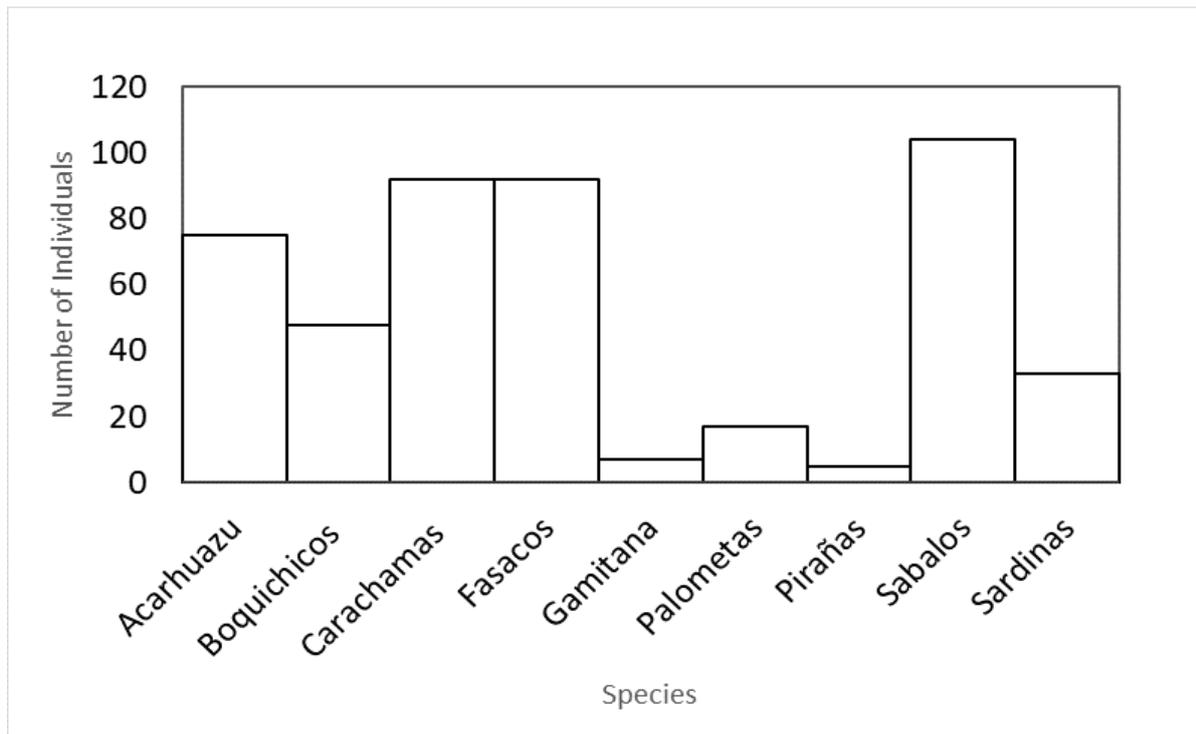


Figure 2 Summary of catch in two communities by species common name.

We also asked fishers to record what their investment was per trip. This was similar in both communities. In 20 de enero, Ivan recorded that they spent about a gallon of gasoline per day, priced at about 15 PEN (or £3). Lorenzo described most of his trips cost 20-25 PEN (£4-5.5).

The objective of this activity was to generate information on subsistence fishery as well as possible bycatch fishers could have inside the reserve. No bycatch events were recorded during the months of fishery monitoring. Observers did record when dolphins were close to nets when fishing, 46% of the trips had dolphins, either Tucuxi or boto close to nets when fishing. Other observations from onboard observers included turtles, river otters, caimans and a variety of birds. From publications related to river dolphins in other countries, we expected fishers to have more interactions with dolphins, but these results are positive and point to subsistence fishers in the reserve having minimal interactions with river dolphins. This could be due to the short sets these fishers execute, leaving the net for hours and staying close to them to check on them. It could also be the size of the nets, on average 40 m length by 2 m depth.

b) Field tests with acoustic mitigation devices

We deployed two FPODS (Fig 3) in two locations to generate information on dolphin presence and to see the effect a cycling pinger had on dolphin activity. To do this we deployed one of the FPODS with a cycling pinger that would turn on for 29 hours then off for 27 hours at 145dB. To see if the pinger affected the presence of clicks emitted by dolphins, we calculated detections per minute (DPM) for each sample and compared between pinger and control site.



Figure 3 Deploying FPODS close to the 20 de enero community

A total of four samples were collected from our control site and pinger site. Each sample is approximately 14-22 days long. There was no significant effect for pingers, $t(3) = 0.39$, $p = 0.71$, despite the pinger site attaining lower average scores for DPM per day (134.5) than the control site (155.24, See Table 2).

Table 2. Summary results of our acoustic tests with pingers

| | March | | May | | July | | September | | AVERAGE | |
|---------------|--------|---------|---------|---------|---------|---------|-----------|---------|---------|---------|
| | Pinger | Control | Pinger | Control | Pinger | Control | Pinger | Control | Pinger | Control |
| File duration | 16d 3h | 18d 4h | 18d 14h | 19d 23h | 22d 11h | 22d 10h | 12d 19h | 16d 15h | 17d | 18.75d |

| | | | | | | | | | | |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Clicks found | 289,642 | 325,487 | 746,282 | 952,478 | 179,028 | 200,181 | 226,946 | 729,702 | 288,380 | 313,843 |
| Clicks per min | 13.9 | 14.9 | 28 | 41 | 5.6 | 7 | 19.9 | 35 | 13.48 | 19.58 |
| DPM per day | 161.1 | 161.5 | 283.7 | 329.4 | 71.4 | 85.3 | 156.3 | 200 | 134.5 | 155.24 |

Although our results are not significant, we did see a reduction of dolphins sounds in the pinger site, leading us to believe that there is a pinger effect on dolphin behaviour. We were limited in the number of samples and hope that by increasing samples in the following year this effect can be better understood.

c) Educational workshops in fishing ports

We had two types of workshops. The first was organised for fishers in three communities, Iquitos, Pucallpa and Nauta. The second type was to children of small communities inside the reserve and where we developed our project. A summary of the attendees is presented in Table 3.

In workshops for fishers and children we presented team members and our project, what our objectives were and how we were going to work. We then talked about river dolphins and the Amazon ecosystem and the conservation status of these was currently. The workshop then ended with an activity, depending on the public. Children had to write and create a story of dolphins in their natural habitats, fishers had to write about an action they could do to reduce their impact during their fishing activities.



Figure 4 Children from Buenos Aires at our final closing activity in December and San Jose de Monterrico

Additional to project objectives, we presented the project in Lima, Peru to 65 elementary school children (Fig 4, San Jose de Monterrico School) and to 32 communication and graphic design students from the San Ignacio Loyola University. Student volunteers designed banners on river dolphins that were then donated to the project.

Table 3 Summary of presentations, workshops and activities related to project.

| Month | Place | Attendees |
|----------------|-------------------------------|------------|
| April 2019 | Iquitos, Loreto | 8 |
| April 2019 | Pucallpa, Ucayali | 18 |
| May 2019 | Nauta, Loreto | 7 |
| July 2019 | 20 de enero, Loreto | 15 |
| July 2019 | Buenos Aires, Loreto | 13 |
| December 2019 | 20 de enero, Loreto | 22 |
| December 2019 | Buenos Aires, Loreto | 26 |
| Lima, Peru | | |
| July 2019 | San Jose Monterrico School | 65 |
| September 2019 | San Ignacio Loyola University | 40 |
| Total | | 188 |

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

Local communities participated in every objective and activity of our project. Our onboard observers were recommended to us by leaders at both communities. These leaders are appointed by the community every year. They recommended Ivan a young man beginning to work and community a retired farmer, Wilder Tuesto in the *20 de enero* community and an older fisher in *Buenos Aires*. They were then trained and paid to collect data on subsistence fisheries. These subsistence fishers have daily trips that last a couple of hours in the early morning. We asked observers to monitor five trips per month.

Second, we trained two fishers (Fig 5), one from each community to help with the deployment and supervision of FPODS. They were responsible for looking after the CPODS after team members deployed them. Two weeks later, they would retrieve the CPODS and keep them in a safe place until a team member returned to deploy them. With their participation we were able to deploy the CPODS for longer periods of time and have a larger sample size. During the project they became our focal communication point for each community. They would help us organise workshops, activities with children and remind onboard observers to fill out observer forms.

Finally, we organised three workshops with fishers and four workshops with children. Here members of the communities learned about biodiversity conservation, their role in protecting the Amazon ecosystem and what they could do to lessen their impact.



Figure 5 FPOD supervisors, "Chino" and Justo from 20 de enero and Buenos Aires respectively

5. Are there any plans to continue this work?

Yes, through an association with a tourism company based in Nauta, we have been able to leave the F-PODS after finalising the Rufford project. This will allow us to have more acoustic samples of the use and effect pingers have on dolphin populations.

6. How do you plan to share the results of your work with others?

The project's results will be shared in a summary report that will be given to government agencies participating in the project (SERNANP, national reserve manager and PRODUCE, aquatic mammal management agency). Preliminary results were shared with the communities in the closing workshops in December 2019.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

Our project began in January 2019 and we finished the project in December 2019, for a year. This was earlier than we expected as we thought that the project would begin in March 2019. This change was due to the FPODS being ready before the expected date.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

| Item | Budgeted Amount | Actual Amount | Difference | Comments |
|--|-----------------|---------------|------------|--|
| Field expenses | | | | |
| Travel & Lodging | 4360 | 3985 | -375 | Details: 5 trips, 2-3 team members, duration of a week. |
| Entrance to Natural Reserve Pacaya Samiria | 0 | 245 | +245 | Policy changed right before our project; now national reserves charge entrance regardless if you are doing research. |
| FPOD supervisors | 0 | 220 | +220 | We did not budget this as we did not think this was needed, but it was recommended to us by the reserve management agency. |
| Observers stipend | 1800 | 1800 | | |
| Supplies | | | | |
| Cycling pingers (12 pingers, 65 each) | 780 | 540 | -240 | We changed to customized pingers, two cycling pingers made specifically for this project by FishTek. |
| 2 F-Pods | 2400 | 2308 | -92 | |
| Camera | 310 | 273 | -37 | |
| Printing and Education | | | | |
| Banners | 130 | 67 | -63 | |
| Project souvenirs | 100 | 125 | +25 | |
| Room rental for workshops (£30@5) | 50 | | -50 | |
| Communication | 70 | 76 | +6 | Details: Colouring images and materials designed and printed, colouring materials |
| Total | 10000 | 9639 | -361 | Leftover funds returned to Rufford Foundation 1GBP=4.5PEN |

9. Looking ahead, what do you feel are the important next steps?

We hope to expand our fisheries monitoring project. We have realised there is a significant lack of information for freshwater fisheries in Peru. Most of the data dates from 1994 and excludes subsistence fisheries from their research. We hope to expand our onboard observer programme to commercial fisheries as well as to other ports.

Another important next step will be to define bycatch rates and overall numbers of dolphins killed as bycatch more accurately. This would be best accomplished with the same, intensive, continuous monitoring programme but with a variety of fisheries, subsistence, commercial, and different types of fishing gear. Onboard observers would not only develop information for river dolphins but also Amazon fisheries.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The RF logo was used during the eight presentations we organised with fishers and children. At each of these localities we developed slides that included the RF logo as well as the logo we designed for this project (an output of our second grant with RF).

We also printed and donated the banners (Fig 6) designed by the San Ignacio Loyola University students. One was donated to each locality (Iquitos, Pucallpa, Nauta, 20 de Enero, Buenos Aires), either to their community center or their school.

We have also been sharing updates of the project on the [instagram page](#). RF was tagged or mentioned in the description.



Figure 6 Banners designed and printed for our project

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Elizabeth Campbell Project advisor – Trip logistics, CPOD analysis, talked to CPOD and observer data and supervision

Field assistants oversaw assisting in field activities, as well as prepared materials for each trip, they were also in charge of organizing the outreach activities with children.

- Daniela Thorne
- Ayumi Oshita
- Nicolas Acuña

12. Any other comments?

We are very thankful to The Rufford Foundation for providing us with this grant to continue with our conservation work and renew our research with river dolphins in Peru.