Final Project Evaluation Report

Your Details	
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Project title	Conservation of spawning aggregation phenomenon in the threatened Brazilian coast
Application ID	24449-1
Grant Amount	£4496
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1. 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
Access the information about spawning aggregations using local ecological knowledge.				Between April and October 2018, 45 interviews were conducted with bottom-line and / or dive fishers in eight areas in the state of Espirito Santo. The interviews accessed the local ecological knowledge about possible areas and times that occur the spawning aggregation of snappers and groupers.
Access previous data related to fishing in the state of Espirito Santo				It was analyzed reports of the Program of Statistical Fisheries of Espírito Santo and current data referring to the Marine and Coastal Protected Areas Project. Information about the production, effort and occupation of the marine space by the fishing sector were used to determine the dynamics of the fishing fleets during seasons and to corroborate the main fishing sites pointed out by the fishermen through the interviews.
Developmental maps of the sites of spawning aggregation of the species through the local ecological knowledge of the region fishermen				A map with the main points obtained through the interviews was prepared to spatially visualise the sites and guide the inspections in situ.
Carry out remote underwater video surveys				Characterisation of identified sites is underway. A BRUVS campaign has already been carried out (march/2019) and the data are under analysis. BRUVs were deployed around Abrolhos Bank with 42 deployments. All deployments lasted 45 minutes. The analyses will still be done but we hope to find indications of spawning aggregations in the videos recorded.

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

Local Ecological Knowledge - Due to a national ordinance (445/2014) that prohibited the fishing of some target species of this study, it was difficult to interview some fishermen who showed resistance in talking mainly in the port of Guarapari - ES. For them, our presence indicate that we were there to collect data to prohibit the fishery. So, they did not want to collaborate with us in this task.

Characterization of spawning aggregations- The sites identified through the reports and interviews data were very deep (>45 m) and dangerous for carrying out the diving activity. Therefore, a campaign was carried out in March / 2019 using BRUVS (Baited Remote Underwater Video System) equipment to try to identify aggregation events, however this data is still being analyzed.

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

1 - Map with important points of possible areas of spawning aggregation: It was possible to obtain through the interviews several points considered as possible areas of Epinephelidae and Lutjanidae spawning aggregation and that guided the campaign for local characterisation of the phenomenon. A total of 21 points were identified through 45 interviews conducted in eight ports throughout the state of Espirito Santo.

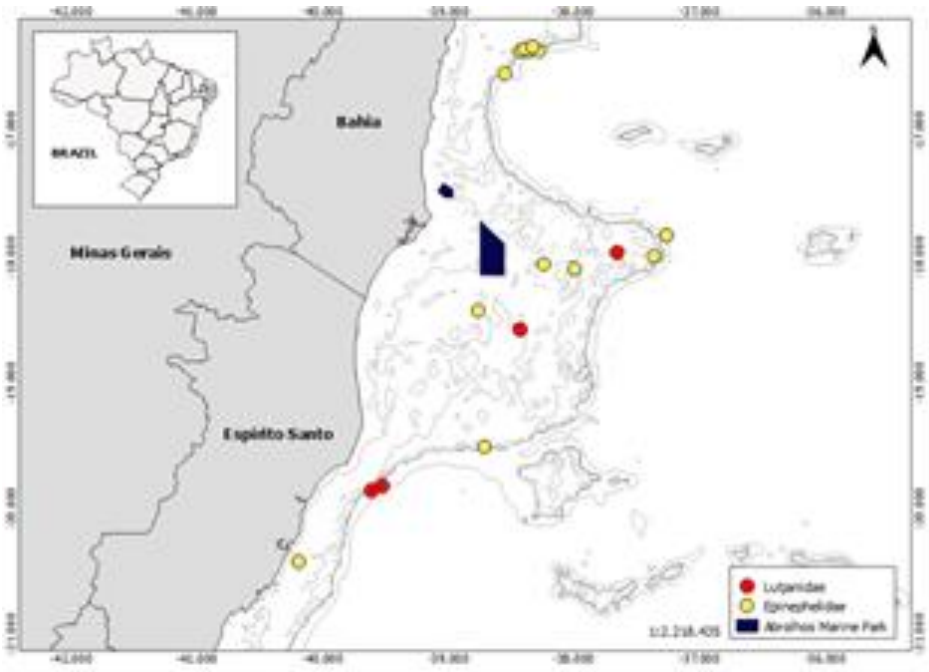

Figure 1. Map showing the possible areas of spawning aggregation of the Epinephelidae and Lutjanidae families obtained through interviews with fishermen throughout the state of Espirito Santo.

2 – Summer BRUVS campaign: The BRUVS were released in 10 points identified through local ecological knowledge, in the lunar phase and season of the year corresponding to the reproductive period of the species. Among all the possible aggregation sites obtained, the points for inspection were chosen based on the frequency with which they were mentioned in the interviews and the fisherman's expertise in working with this species. These locations were compared to the main fishing areas identified through the analysis of the state fishery reports and the landing data accessed. However, the images are still being processed.

3 – Awareness of the local community about the importance of preserving the sites of spawning aggregation: Many fishermen were unaware of how harmful fishing in the "correção" period (as it is popularly known) could be to sustain the fishery of these species. During all interviews, the importance of the spawning aggregation phenomenon for the maintenance of the species was explained.

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

It is important to point out that this work was approved by the national commission of works with human beings. In all localities but the one commented above in which some difficulties have appeared, we have a good reception of local fishing community. In some ports we work in partnership with the federal agency that controls fishing landings in the region, where natives work by monitoring and collecting fishing data. This partnership facilitated the meeting and presentation of the team to the fishermen once the community monitor made this intermediation possible. This type of mediation also contributes to the reliability of the data obtained. In each fishing port, prior interviewing, we undertook a brief speech to the fisherman of what we are going to do there and the purpose of it. Most of them understood that there was a baseline study for collecting information of this species which if not proper managed will soon disappear.

5. Are there any plans to continue this work?

For sure. We intend to do more interviews and a winter campaign in September for identification in situ of the aggregation areas. Fishermen are an important source of local ecological knowledge and therefore will be continuously inserted into other activities involving the local community and research projects. Therefore, additional research involving spawning aggregation and habitat characterisation of commercial reef fish species should also be undertaken in the area and one of the goals of future projects.

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

Besides academic products which are a PhD thesis, reports and articles published, we intend to present to the community the results of this work, informing them the importance of the spawning aggregation seeking the awareness of the local community as main stakeholders in protecting the resource. In addition, the data will be made available so that they can serve as a basis for the construction of species management measures.

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

The RSG was used from April 2018 to April 2019. The grant amount was used continually during the entire duration of the project as it was mostly used to access sampling localities and pay all campaign expenses. The previewed and achieved chronogram were almost identical. Only some budget has been relocated (the purchase of GoPro camera to displacement) to allow team displacement and cover some campaigns costs, because there was a need to travel more often than planned.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Displacement	1170	1570	+400	Used to buy bus tickets, displacement to attend field campaign.
Accommodation	1100	1100		Accommodation costs in Vitória, Piúma, Guarapari, Anchieta, Santa Cruz and Itaipava.
Alimentation	1320	1320		Alimentation on sampling campaigns
Diving Mask	46	46		Acquisition of a diving mask
Print and stationery supplies	300	300		Print questionnaires and stationery (paper, stamp, pencil, permanent markers, clipboard)
GPS	160	160		Used to insert points obtained with fishermen and guide field campaign.
GoPro camera	400		-400	Substitute the purchase of GoPro camera to allow team displacement and cover some campaigns costs, because there was a need to travel more often than planned.
Total	**4496**	**4496**		

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

Looking ahead, it is important to continue all activities so far, such as conducting more interviews with fishermen in the state seeking to increasingly access their knowledge on spawning aggregations over time and their distribution in space, in addition to other research involving the reef environment always seeking to better understand the biology and ecology of species in Brazilian reefs.

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

The RSG logo was used in all printed material used for interviews and in all project presentation. In the future it will also be present in the publications resulting from this project.

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

PhD Alexandre Schiavetti – Ethnoecology specialist. Helped construct the questionnaire to guide the interviews in the field and analyze the interview results.

PhD Fabiana Cézar Félix-Hackradt – Fish specialist. Through the data obtained in the interviews and reports, guided the field campaign.

PhD Mauricio Hostim Silva – Fish specialist. Accompanied in some interviews and as a researcher known in the region, facilitated the approach and interview with the fishermen.

PhD Carlos Werner Hackradt – Fish specialist. Through the data obtained in the interviews and reports, he guided the field campaign.

Interviews (2018)

BRUVS campaign (March/2019)