

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	Andrej A. Gajić
Project title	Assessment of Degree of Exploration and Conservation Strategy of the Protection of Sharks, Skates and Rays in the Neum Bay
RSG reference	21196-1
Reporting period	February 2017 – December 2017
Amount of grant	£ 4895
Your email address	agajic@sharklab-adria.org
Date of this report	28 th of December, 2017.

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
Inventory of the elasmobranch fauna from the Neum bay				During the project we have created a checklist of elasmobranchs, permanently or occasionally, recorded in the Neum bay (total 12 species).
Assessment of current health status of target species				Given the by-catch availability, our team did not have the opportunity to analyze all listed species within the foreseeable time frame, but predictions are given.
Mapping of habitats and spawning sites of certain elasmobranchs				Nursery grounds from 3 of 12 species were identified and mapped, which is highly important information for the Adriatic sea, due to extreme lack of data.
Students educated through interactive workshops				Anonymous student polls included our events among the most significant education events in the last 10 years in the B&H.
Education of local communities and wider public masses				Throughout the awareness campaigns we have educated wider public masses and local co-mmunity (involved in Action plan).
Making the Legislative for the protection of elasmobranchs				The project team has fully drafted amendments to laws related to the protection of species and habitat at several levels.
Publishing of the project-related scientific papers				Total four original papers were created during the project, of which one was published already while three are <i>in press</i> .
Promotion of the project activities through media				The project was promoted through local and regional televisions, radio and newspaper - as well as internet portals and social media.
Raising support from the local municipality and ministries				Government representatives supported legal protection and on which we will work intensively in the forthcoming period.

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

During the realization of the project activities there were no unforeseen circumstances nor any other obstructions. Given the far larger amount of studies, we were forced to change (the delay) the original plan of activities, namely to move some of the activities in order to conduct them in the best possible way. All the activities were preceded by a significant preparation, as well as the purchase of adequate equipment, which really minimized all the difficulties in the work, especially field work in winter and spring season.

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

1. We have created a taxonomical checklist of the diversity of elasmobranchs, with maps of potential distribution and nursery grounds in the Neum bay.

2. We have conducted the baseline assessment of the health status and diseases of the elasmobranchs in the Neum bay (using modern approaches in pathology, histopathology and radiology) was performed and compared with our samples from the Croatian waters.

3. We have developed the proposal for further legal protection of species/habitats through the Action Plan (within the municipality of Neum), as well as through the amendment of the Law on nature protection. Furthermore, our proposal gained initial support and now we have most of the necessary data, we will continue to work on the adoption of proposed amendments as described in published paper(s).

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

Local community in the Neum bay was involved in most of the project related activities regarding the field studies and development of the LEAP. During the field studies, we have connected with local sport divers, fisherman and owners of the aquaculture facilities. In addition, we have connected with the only NGO in Neum municipality which deals with nature and energetics in order to raise support from local people for the LEAP. Wider masses in local communities in Neum, Mostar and Sarajevo were involved in the interactive workshops.

5. Are there any plans to continue this work?

The complete project, however well-structured, is just the foundation for the future studies, long-term in-situ conservation and continuous monitoring. Given the large amount of new data, this project has broadly expanded the vision of the whole team. Besides, many undergraduates wanted more engagement in this field. We will certainly apply for the 2nd Rufford Small Grant for next season to continue our work and most importantly contribute to the research and protection of the species and habitats in the marine part of Bosnia and Herzegovina, which without the generous help of the Rufford Foundation would not be feasible.

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

All project results will be primarily published through the relevant scientific journals. Media engagement has already shared basic data with the wider public masses. The project updates have been submitted on the monthly scale to the Rufford Foundation so that other researchers and any interested person could follow our work and results. Through 20 minute presentation I will present the project methodology and results at the 27th Rufford Conference in Montenegro. Finally, on the Sharklab ADRIA website, we will create a section which will contain all project results, methodology, advices, legal documents and multimedia:

URL: <http://sharklab-adria.org/projects/sharks-of-the-neum-bay/>

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

Grant was used as planned, with minor deviations primary due to the extremely large amount of work to be done, and technical issues. In the table below I have summarized all activities on a monthly scale.

Month	Major Activities	Major Achievements
February	Field equipment has been purchased. Short field studies were conducted. Media support has been raised.	Live appearance on the N1 (CNN partner); agreement with Deutsche Welle and newspaper articles published
March	Large expedition in Neum bay was conducted in order to study potential nursery grounds and spatial ecology of chosen taxa.	Nursery ground of <i>Torpedo marmorata</i> Risso, 1810 have been mapped. Sighting of adult <i>Raja miraletus</i> L.
April	Pathological and histopathological analysis (which begun in March) together with anatomy studies.	Very first results regarding the presence of diseases on studied stingray and catshark specimens
May	Workshops and educational activities for undergraduate students. Continuation of the pathological studies.	Undergraduate students have been educated in the fields of ecology, pathology and conservation.
June	Continuation of educational activities at the Faculty of Veterinary Medicine. Histopathological and morphological studies.	Undergraduate students have gained laboratory experience working on the pathology and histopathology of sharks, skates and rays.
July	Attendance at the Pathological congress in Neum. Field expedition and education of undergraduate students.	First published proceeding! New data on spatial ecology and diversity of elasmobranchs. Student field education.
August	Field expedition with the aim of	The short documentary report

	spatial ecology research. Filming with Deutsche Welle. Planned meeting with ministry.	have been filmed with DW. We have arranged meeting with the ministry and municipality.
September	Meeting with the ministries and the representatives of the municipality of Neum in order to discuss further protection.	Major victory! Several governmental bodies have recognized and supported our work and efforts in protection!
October	We have finalized pathological, histopathological and radiological studies. Development of legal proposal.	Significant discoveries about ecopathology of elasmobranchs. Beginning of the proposal for legal protection.
November and December	Finalizing the project activities. Submitting manuscripts. Finalization of the legal proposal for protection (Action plan/strategy)	Research papers have been published. Government and local community support initial protection steps.

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
Santi E.Lite drysuit	1.540	1.649	- 109	Difference was covered from the honorarium
Santi undersuit	190	177	+ 13	Difference was used for GoPro Hero Black 5
GoPro Hero 5 Black	370	383	- 13	Covered from the difference above
GoPro UW Housing	41	52	- 11	Difference was covered from the honorarium
SanDisk 64 GB MC	54	32	+ 22	Difference was used to cover the multimedia
Mares Hybrid ProTec*	500	450	+ 50	Difference was used to cover the multimedia.
Mares Instict	300	300	0	No differences !
Field work cost	1.000	1.100	- 100	Difference was covered from the honorarium
Multimedia material	200	282	- 82	Covered from the differences in MC and BCD + 10 from honorarium
Honorarium	700	700	0	Used to utilize the negative differences in project, other used by PI
TOTAL	4.895	5121	- 230	

* Instead of listed Mares Hybrid ProTec BCD, due to several technical issues (which I haven't been aware at the moment of application) I have decided to purchase another, better, BCD from Scubapro (X-Tec Wing HS 60) which was on the action.

** Local exchange rate varied through the beginning of the year, at the moment is it 1 £ (GBP) = 2,22 KM (BAM), which also have caused several differences from the original Budget.

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

Due to a certain void in the data some populations listed as “unconfirmed” in the checklist should be reinvestigated through the continuation of this project in order to better understand the spatial ecology within the Bosnian part of the Adriatic Sea. It is also extremely important step to establish a cooperation with NGO bodies in Bosnia and Herzegovina which deals with ecology and conservation of aquatic animals, as well as bilateral cooperation with Croatian NGO bodies and institutes in order to join forces to benefit on animals, nature and the people as well. One of the important steps is also publishing a monograph (book) “Elasmobranchs of the Neum bay” which supposed to be written in Bosnian, Serbian and Croatian as a native languages in our country. In this was every interested person will be available to learn about the diversity, threats and conservation measures for the sharks, skates and rays in the Neum bay. This project has provided a very strong basis for the long-term in-situ legal protection of elasmobranchs species in Neum bay. Now it is time to carry on with the implementation of legal frameworks in partnership with the Ministry of environment and tourism, Municipality of Neum and the local community which had provided strong support on the development on Action plan/Strategies for conservation.

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?

Foundation logo has been used according to the Terms of use. We have used the logo on the promo material such as leaflets and booklets in order to acknowledge the foundation. Beside, the logo were used at the website created for the project material. The Foundation has been acknowledged (together with the project title and reference number) in the scientific papers as well. Following papers are published through this project:

- Beširović, H., Gajić, A., & Kahrić, A. (2017). Pathohistological analysis of the lesser-spotted catsharks, *Scyliorhinus canicula* (L.), from the Eastern Adriatic sea: insight into the current studies. 31st Adriatic Society of Pathology International Meeting, Neum, Book of Abstracts, p. 17.
- Gajić, A., Kahrić, A., & Lelo, S. Preliminary proposal of the Red list of the elasmobranchs, *Classis Elasmobranchii Bonaparte, 1838*, in Bosnia and Herzegovina. *Supplements of fauna of Bosnia and Herzegovina*, vol. 13, *In press*.
- Gajić, A. (2017). A fundamental principle of legal protection of the elasmobranch species in Bosnia and Herzegovina. *Supplements of fauna of Bosnia and Herzegovina*, vol. 13, *In press*.

Gajić, A. (2017). Assessment of Degree of Exploration and Conservation Strategy of the Protection of Sharks, Skates and Rays in the Neum Bay. 27th Rufford Small Grants Conference "Developing transboundary conservation network from Mountains to Deep Seas. Bar, Montenegro. Book of Abstract, In press.

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

Full name	Specific role in the project
Andrej A. Gajić	Principal investigator and project coordinator responsible for the project management, scientific and educational work, as well as the partnership with ministry, municipality and stakeholders in order to develop the legislatives.
Adla Kahrić	As one of the best marine biologist in our country, Adla was involved in the interactive workshops as lecturer and coordinator of the laboratory studies, as well on the second cycle of the field studies.
Neira Dedić	Neira was involved in the second cycle of field studies in order to contribute to the researches of inventory and spatial ecology of target species.
Dario Šakić	As a bio-geographer, Dario was involved in the mapping of habitats and spawning sites of chosen species as well as in the making of special blind maps.
Selma Durgut	As undergraduate student Selma was involved as the technical support at the laboratory studies and educational workshops.
Sabaheta Hadžiavdić	As undergraduate student Sabaheta was involved as the technical support at the laboratory studies and educational workshops.
Hajrudin Beširović	As a full professor at the Department for pathology, Hajrudin was involved in the pathological, histopathological and radiological analysis of the by-catch samples obtained during the field trips. He was involved in the educational workshops as lecturer.

12. Any other comments?

I would like to express my exceptional gratitude to the Rufford Foundation: to the Trustees for approving our grant, to Jane for comfortable and easy communication and to Josh for well managing the team. As a project coordinator, it was my absolute pleasure and honor to work with such enthusiastic persons on this highly important issue for the state level. During last year all of us have learned so much from each other. Through this project we have definitely created a solid fundamentals for all further scientific studies, long-term in-situ conservation and monitoring not only of the elasmobranch species, but all other marine vertebrates in our country. **Thanks!**