

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	Ilija Cetkovic
Project title	Distribution and conservation of vulnerable Blue shark (<i>Prionace glauca</i> L.) in coastal waters of Montenegro
RSG reference	19247-1
Reporting period	February 2016 – November 2016
Amount of grant	£4977
Your email address	ilija.cetkovic65@gmail.com
Date of this report	16.11.2016.

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
Defining distribution of blue shark in coastal waters of Montenegro			X	Cooperation with local fishermen has been very successful and we registered five individuals of blue shark in three different locations. During 21 fieldwork days, we found two sharks, but didn't succeed to get them caught. Both sharks were found on the location near Bar, where blue shark presence was confirmed by our fishermen just before the fieldwork activities.
Determination of habitat condition			X	During fieldwork, we collected data that habitat condition of blue shark is very good. We registered big number of squid and fish (family Scombridae), which are its main food in the Adriatic Sea.
Defining threats			X	We determined main threats to blue shark in our waters. These are tuna fisheries (commercial and non-commercial), maritime traffic and presence of solid waste (especially plastic materials). Maritime traffic is very intensive during the spring and summer when it is its birth period.
Collecting of blue shark DNA samples		X		We collected samples from three individuals. Fourth individual was sold on the market, so we didn't succeed to collect the sample from it. Fifth individual was released by our fishermen, because it was very stressed.
Education in schools and lectures on faculty.			X	We held presentations about sharks and their importance in seven elementary and high schools in

				coastal region and for the biology students on Faculty of Natural Sciences and Mathematics. We shared leaflets and posters during all activities. Also, posters and leaflets are distributed in all fishing equipment stores "Sipa" and "Megafish". Posters were placed in ports, too.
Making the project logo		X		We informed students on the Faculty of Visual Arts about the logo competition. There was not such interest about it, but we still got striking logo.
Fishermen education and cooperation			X	This is probably the biggest success of this project. We informed big number of fishermen about the problem with blue shark and other sharks. During the project, we got 17 reports of sharks in our waters. Also, there was much bigger number of tales and other information from the previous years. Several big game fishing teams from Montenegro are got involved in the project and they want to help us during the following research. We shared leaflets and talk with them during whole project period and some of them, especially big game fishing teams, recognised importance of this problem.
Informing public with the media			X	We produced documentary about the shark research in Montenegro, which was emitted on national TV station "Vijesti" two times, and will be shown two times more. Our partners from the Institute for Marine Biology talked about the project on Radio Television Crna Gora (RTCG) and radio station "Kotor". Also, we made an article for national newspapers

				<p>"Pobjeda". We made a short movie about the project fieldwork that is available on Youtube, as a documentary for TV "Vijesti" is, too. Links for the documentary and the short movie are below.</p>
Participating in the "Open days of science" event			X	<p>We held a workshop about pelagic sharks of the Adriatic Sea. Our presentation was visited by big number of pupils from 17 schools from different parts of our country, plus the individual visits. We shared leaflets and posters for their schools here, too.</p>
Organising round table for representatives of competent institutions		X		<p>We organised round table in Kotor at the space we rented, but only small number of representatives showed up. After this, we wrote an official report document about the project results, in the name of Montenegrin Ecologists Society, and send it to Environment Protection Agency, Ministry of Sustainable Development and Tourism, Ministry of Agriculture and Rural Development and to the local municipalities and other institutions that has interest in this problem.</p>

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

- We had problems with high winds on the first fieldwork trip in June and third one in August 2016, so some fieldwork days were moved to July and September 2016.
- During the second part of the summer, price of sardines was higher than we expected, so we reduced quantity for each fieldwork day, during that period, from 25 to around 20 kg for last days of field work.

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

- We found three new localities where Blue shark is present (one in front of Bar, second in front of Herceg Novi and third on the other side of Boka bay entrance, near the place Zanjice), also some other species (such as shortfin mako). From five registered individuals, only one was adult and was released by sport fishing team that has cooperation with us. Four other were juveniles and they were found dead on longlines of commercial tuna fisheries. When we compared their GPS locations with sonar data from fishermen, we realised that there are big reefs underwater which probably attract sharks, because places like that are not common in the Montenegrin part of the Adriatic Sea. With fishermen and fieldwork data, we established first database about blue shark and other pelagic shark species in coastal waters of our country. Also, we get significant data about shortfin mako (*Isurus oxyrinchus*), which is endangered on the same way as blue shark. These data will be important during the NATURA 2000 establishment in Montenegro, because shark species are very important for this process. Also, we listed all threats to blue shark and other species in our waters. Next step will be to determine their impact on shark populations.
- Biggest outcome is establishment of strong cooperation with local fishermen, especially non-commercial big game fishing teams. Also, commercial are interested in this, but less than the first ones. They ask us to join the following research and offer us different ways of help. That will help us to collect data about blue shark and other species in the following period, establish monitoring about their catch and sightings and complete distribution data for other species. Also, we established connections with other scientists that are dealing with this problem in the Adriatic Sea. Most important of them are "Sharklab International", an institution which is based on Malta and its scientist are researching sharks in Mediterranean. Its part, "Sharklab Adria", is researching sharks in waters of Croatia and Bosnia and Herzegovina, so we made contact with them in order to exchange our data.
- Third outcome will be raising of awareness of fishermen and local people through education lectures, materials and media. We shared education leaflets during talks with fishermen and other social groups. Documentary about the research that we produced was viewed by big number of people and it is available on Youtube (https://www.youtube.com/watch?v=Zclh2E_GnSI). People get informed by appearances on Radio Television Crna Gora and Radio Kotor. Article in newspaper "Pobjeda" is produced, too. We made short video about fieldwork activities that is available on Youtube channel of Montenegrin

Ecologists Society (<https://www.youtube.com/watch?v=z9Gsl6G0b8I>). Beside all of this, people get informed through the website of Montenegrin Ecologists Society and its Facebook page. We have done an online questionnaire about sharks in Montenegro and found the main reasons why the people are terrified about sharks here and realised that their knowledge about the species and their ecology is very small.

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

During lectures in schools and University of Montenegro, students get informed about this problem and they got knowledge about sharks of the Adriatic Sea. As there are no specific subjects that are teaching about sharks, they get information about the species that are inhabiting Adriatic Sea and students got chance to volunteer in our fieldwork activities and get knowledge about the research methodology in this area of biology. During fieldwork we talked with big number of fishermen and told them about the importance of blue shark and other species for the ecosystem. Most of them helped us to get necessary data and want to cooperate as it is previously mentioned. We explained them about the threats to this species and suggested them to take care about their fishing activities. Now, they have more knowledge how to help sharks when they find them on longlines. We explained that there are other possibilities how they can get benefit from sharks much bigger than catching and selling them, such as shark diving and watching. Also, we presented them these ways implemented in other countries in the world. This is ideal way to implement the principles of sustainable development, because Montenegro has the name of ecological state and tourism is the main economic activity of local people. Also, we shared our contact details, so they can easily inform us about sightings and catch of any shark. All of these educational activities helped to reduce negative beliefs of local community and fishermen about sharks.

5. Are there any plans to continue this work?

There are several plans for continuing of this research.

- First of all, we want to get more data about the distribution and population status of other pelagic sharks in our waters, establish more detailed monitoring and study the anthropogenic impact on these species.
- We will try to make an action plan to manage with these species and present it to competent institutions. We will suggest them, again, to take more care about the illegal fishing activities on our coastline.
- There is a plan to apply for bigger projects for this problem with our colleagues from Sharklab Adria and Institute for Marine Biology.

- We will continue to raise awareness about sharks and reduce negative beliefs of local communities through workshops and lectures.
- We will organise meetings with representatives of competent institutions separately, because round table was not such successful as we expected, and present them importance of this problem briefly.

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

- Results are already shared through website of Montenegrin Ecologists Society, its Facebook page and our educational material with local people. Also, they are shared through Youtube movies and media.
- Some of this data will be used for my graduation thesis and we will prepare a scientific paper, which will contain distribution data of blue shark in Montenegro and will help other scientist that are dealing with this problem in our region.
- We shared project results with competent institutions through official report that I previously mentioned.
- We will share all data with Sharklab International and other interested institutions.
- We shared this data with Institute for Marine Biology.

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

It was used from March to the end of October 2016, as it is predicted by project timescale. There was some small displacement, with fieldwork days, under this period, as it is already mentioned.

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
Boat renting	1365	1364	-1	This was previously arranged price with the fishing company that owns several boats in Budva.
Sardines	762	774	+12	During the second half of the summer, sardine price per kg was higher than

				we expected.
Fishing equipment	220	242	+22	We needed more small parts, such as swivels, because other fish were destroying our leaders and baits.
Educational materials and logo competition	500	500	0	Printing of educational material and T-shirts was cheaper than we expected, so the rest of the money was used to increase the reward for making the project logo, because the students of Visual Arts were not such interest for 35 £ reward.
Daily allowance (food, drink etc.)	840	927	+87	Food and drink were more expensive than we expected, because of the biology students that were going with us on the fieldwork three times.
DNA tubes and 2 bottles of 96% alcohol	100	5	-95	We didn't buy DNA tubes, because they are selling only 100 pieces together and we had only 3 samples, so we used tubes from our colleagues and bought just a bottle of alcohol. Rest of the money were used for other purposes were it was needed.
Camera CANON EOS 600D	370	329	-41	EOS 600D was not available on the market, so we bought cheaper EOS 1200D.
Balance, meter and thermometer	70	65	-5	These parts of the equipment were cheaper than we expected.
Fuel	250	273	+23	We spent more fuel than we expected.
Organizing of round table	400	410	+10	Organizing of round table was a little bit more expensive than we expected.
Additional expenses	100	100	0	This money was used for bank fee and other purposes were needed.
Total	4977	4989	+12	

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

- Continuing the research of blue shark and its population in our part of the Adriatic Sea.

- Including other pelagic shark species (primarily shortfin mako, porbeagle and thresher shark) in research, because we get data that they are endangered, too.
- Investigate impact of commercial tuna fisheries on pelagic shark populations and its reducing through education and meetings, because the accidental catch (bycatch) is one of the biggest marine conservation problems today.
- Get the database, we formed, more detailed.
- Make the cooperation with fishermen and scientists we mentioned, even better.
- Continuing to raise awareness of fishermen and other people through education activities and media.
- Organising meetings with representatives of competent institutions and suggest them to take care about this problem.

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 Rufford Foundation logo was used on all educational material we produced (leaflets, posters and t-shirts) and in the short fieldwork documentary on Youtube. It was used during all lectures and workshops for students and fishermen. RSGF received publicity during the broadcasting of documentary we produced on one of the most watched TV stations in Montenegro, TV "Vijesti". Documentary was broadcasted two times and will be two times more during the repetition of the series season. Also, it was mentioned on the Radio Television Crna Gora and Radio Kotor by representatives of the Institute for Marine Biology. Also, in newspaper "Pobjeda" article. The Rufford Foundation logo was used on the poster for the "Days of Science" event, too.

11. Any other comments?

I would like to thank to The Rufford Foundation for funding this project, because this is the first time in Montenegro that this problem was observed. Data collected during the project is the first data about blue shark in coastal waters of Montenegro and is unique. I hope that RSGF will continue to fund activities that are dealing with shark conservation in our country, because this is one of the biggest problems in marine conservation in the whole world.