Darwin Initiative, Darwin Plus and Illegal Wildlife Trade Challenge Fund Covid-19 Rapid Response Round - Final Report

Due within two months of the end date of the Rapid Response Round project

(maximum 6 pages)

Project reference	CV19RR04
If linked with an ongoing project, please include that project reference here (e.g. IWT001)	
Project title	**Reducing the Impact of Invasive Lionfish on the Marine Ecosystem**
Country/ies	Montserrat
Lead organisation	Scuba Montserrat Inc.
Partner institution(s)	Island Solutions Inc.
Start/end date of project	January through March 2021
Which fund was this project relevant to?	Darwin Plus
Grant value (£)	20,400
Project Leader name	Andrew Myers
Report author(s) and date	Andrew Myers – August 2021

1. Project Summary

The loss of and continued prevention of tourism caused by the COVID-19 pandemic stopped tourist funded dive trips to Montserrat's coral reefs where it was regular practice to remove invasive lionfish from deeper water habitats. Lionfish have a high impact on indigenous species and can devastate valuable food-stock resources and ecosystems. Lionfish had been largely left unchecked and uncontrolled for nearly 10 months because of regular restrictions and lack of tourism and visitors. Prior to the pandemic 2-10 dives a week were done in which lionfish were removed from reefs, with 2-4 sites getting weekly visits. The population of lionfish was therefore reduced greatly at regularly visited sites,

This project was developed to revitalise lionfish control efforts by:

- Training full and part time Montserrat resident scuba divers on best culling practices,
- Providing professionally supervised regular and repetitive visits to accessible reefs systems within safe diving depths, with a focus on sites between 10-30m,
- Providing the necessary equipment to safely capture lionfish to project trainees,
- Promoting the value of using the invasive lionfish for personal and business consumption.

Montserrat is an Eastern Caribbean UK Overseas Territory with a coral reef systems found around all sections of the island. For this project, most site visits were along the western leeward side of the island because of the inaccessibility of the windward northern, eastern and southern reefs. Sea conditions prevent safe access to those reefs.

2. Project Achievements

The overall goal was to develop the skill sets in multiple local divers to effectively reduce the population of invasive lionfish using best practices and ensuring the highest level of safety. To achieve this outcome the following was done:

1. The project reached out to all divers on Montserrat with minimal or no lionfish hunting experience. 8 divers signed up to join the training (plus 1 person doing the open water dive course) with a total of 7 persons attending the first project training session. 4 program participants did at least 6 and up to 18 of the training sessions offered.

2. A total of 34 training sessions were planned/offered with 3 having to be rescheduled because of no-shows by trainees, 3 were canceled because of boat issues, and 7 having to be canceled because unsuitable weather.

3. A total of 19 diving site visits days were conducted with a total of 45 dives (the project original commitment was for 13 days and 39 dives).

4. Approximately 294 training hours were conducted for the trainees.

5. Training included not only capture and culling activities but also lionfish physiology, biology, species impacts, data collecting underwater, both written and photo/video documentation, and post-dive processing sessions. All divers in the program were required to experience each aspect of the program and do a test prior to the project about lionfish.

6. Each dive session included pre-dive discussions and post dive debriefings which covered safety and improving underwater techniques.

7. 24 distinct sites were visited with over 60% having multiple visits over the duration of the project (note: the project visited approximately 5 sites that weather prevented return visits to and 3 sites return visits were determined unnecessary).

8. 478 lionfish were removed from the reef system. The sizes varied from 2-16 inches and 0.1-2.13 lbs.

9. Belly content analysis was conducted on every 10 fish. Stomach contents comprising of multiple species of fish, shrimp and lobster were found in 70% of the checked fish.

10. One processing session that cleaned all 34 fish caught that day resulted in 50% containing egg sacks. Based on this percentage of roe carrying fish it can be extrapolated that if 50% of the fish caught during the project have eggs 4,800,000 eggs (240 fish multiped by an average of 20,000 eggs per clutch) were prevented from possible fertilization.

11. A network of 11 customers was created to buy lionfish with a particular focus on 2 restaurants that had a customer base that drove regular demand for the fish.

12. The project provided 5 persons/families not familiar with lionfish free lionfish to make their own meals from.

13. The project conducted an open house day that offered an educational talk conducted by one of the project trainees (part of his home school program), a slide show on lionfish facts and free samples of lionfish prepared three different ways.

14. A database that included site metadata, photos, capture and escape numbers, sizes, and mapping was produced and will be provided to the Department of Agriculture.

15. 3 persons employed by the Government of Montserrat, including 1 fisheries officer and 2 members of the Montserrat Marine Police, took part in the project.

16. The project provided specialized equipment for capture and cleaning to program participants that completed the program.

17. Since the completion of the project culling visits have been conducted (or at least attempted when weather and access to equipment allowed) by program trained divers.

Even though the project did complete more than the stated 13 sessions the project had issues because of a national COVID lockdown in February and multiple days of inoperable weather conditions. To overcome these challenges the original schedule was adjusted. When requested program trainees did multiple sessions per week.

This project contributed to the following Darwin aims:

1. Addressing invasive species,
2. Biodiversity protection,
3. Improved livelihoods.

3. Lessons learnt

Though our organisations feel we delivered the project beyond our application's commitments there are areas that we would have liked to have seen even greater impacts. Those areas are:

1. That all certified diver trainees that committed to the program prior to the project, and even from the start of the project, had participated in a majority of the training opportunities. Though we had several persons that fully engaged in the project, 3 of our expected trainees did not complete the program even with our efforts to work within their schedules. We felt in discussions with each of the individuals they were quite excited for the training opportunities, however, the reality is that work and life can change person's commitments.
2. Interactions and participation on the project open house day were lower than desired and expected. Finding the balance between promotion and lack of capacity to provide freshly caught samples and COVID public gathering restrictions were difficult to determine and our team decided to err on the side of caution instead of overpromoting the event and having issues with gathering size and supplies.
3. Sightings of lionfish often increased later in the day (lionfish are active throughout the day, however are considered nocturnal and tend to be more active later in the day and at night). Our sightings and potential for removal varied greatly on return visits to sites depending on the time of the visits. Though some sites did have reduced populations over the duration of the project to determine overall population reduction and the goal of 25% reduction was not possible to determine. To maintain continuity in the data each site would need to be visited within approximately the same time range.

4. Other comments and feedback

The following are important aspects of the project not covered above:

1. The project had an 8 to 1 capture to escape ratio.

2. The program was also offered to 5 Government of Montserrat student divers that had the potential to complete their dive courses prior to the start of the project. Unfortunately, the incentive to participate in the project did not motivate the group to complete their dive course.

3. Scuba Montserrat and Island Solutions will provide access to dive gear, scuba tanks, and fuel to sustain the project going forward if the lionfish hunting teams cannot earn enough revenue through fish sales to continue the activity.

4. Other sites beyond the scope of the project are being patrolled to expand the coverage area.

5. Island Solutions will support training of additional and interested Government of Montserrat certified diver employees on best and safe practices used in this lionfish program through 2021.

6. To support youth involvement the project included a 13-year-old junior open water diver who used his experiences in multiple home-schooling presentations.

7. The project donated approximately 20 pounds of lionfish to support a fundraiser to help persons from St. Vincent impacted by the volcanic activity there.

8. The project will be featured in an upcoming article by online media company, Uncommon Caribbean, who has over 100,000 followers.