



# Big Moon Lobster Study Report #3 (Project Complete)

OERA Project # 300-216

August 1<sup>st</sup> to December 31<sup>st</sup>, 2018

Big Moon Power Canada

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# Big Moon Power Lobster Study Final Project Report #3

## 1. Table of Contents

1. Executive summary.....	3
2. Objectives .....	3
3. Description of Progress.....	3
4. Budget.....	6
5. Employment Summary .....	7
6. Summary.....	8
7. Appendix.....	9



## 1. Executive summary

The aim of this study is to incorporate traditional, local and academic knowledge while increasing the knowledge of the movements of American lobsters. The work as outline for this project has been completed in accordance with the original planned project outline and the agreed project changes as approved by the OERA Research Manager. Appendix A of this project summary report is the research study report, ***Population Characteristics of American Lobster (*Homarus americanus*) Captured in Commercial and Experimental Traps in Minas Passage and Minas Basin, Nova Scotia and Movements after Release Tagged with Streamer and Acoustic Tags***. This report is a details overview of the activities carried out from October 2018 to October 2019 and results of those activities.

## 2. Objectives

The Objective of this study is to validate the hypothesis proposed by local fishers that the lobster stock in the eastern Bay of Fundy uses Minas Basin as a preferred spawning area because of warmer waters in the Basin compared to the rest of the eastern Bay of Fundy. The objectives of this study are to determine the movement patterns of American lobsters. This object has not changed since the last report

## 3. Description of Progress

The study examined the size range, sex ratio, maturity and molting condition of migrating lobsters in Minas Passage and tag these lobsters to track their migratory patterns to proposed spawning grounds in Minas Basin.



The 3rd stage of this project consisted of final retrieval of the Vemco receivers to collect the recorded data. The setting of 28 experimental traps which were fished every 2 to 3 days from August 6<sup>th</sup> to October 13<sup>th</sup>, 2018. The final data collection and analysis and writing of the research report.

## **Completed Tasks**

### **Task 1: Project Initiation (October 2017)**

- Activity 1 - Purchase lobster monitoring gear and VEMCO tags - Complete
- Activity 2 - Train personnel in assessment and tagging procedures - Complete
- Activity 3 - Set up initial lobster set plan and distribution – Complete

### **Task 2: Fall Trapping Event – Minas Passage (October-December 2017)**

- Activity 4 - Initial trap setting - Complete
- Activity 5 - First trap recovery - Complete
- Activity 6 - Initial lobster tagging - Complete
- Activity 7 - Follow up trap recoveries (2 times per week) - Complete
- Activity 8 - Removal of traps for winter – Complete

### **Task 3: January 31: Interim Status Report 1 (Complete)**

## **Revised Tasks**

- Activity 9 - Setting of Scientific Traps in Minus Basin – April 22, 2018 - (Completed)

# B I G M O O N

- Activity 10 - Follow up Trap Recoveries (2 days per week) - April 24, 2018 to May 30, 2018 – (Not Completed)
- Activity 11 - Follow up Tagging and Data Recovery (2 days per week) - April 24, 2018 to May 30, 2018 - (Not Completed)
- Activity 12 - Relocate Traps back to the Minus Passage – June 1 to September 30, 2018 (Start date changed to August 1<sup>st</sup>, 2018) (Complete)
- Activity 13 - Follow up trap recoveries (2 days per week) Complete
- Activity 14 - Removal of scientific traps (October 13<sup>th</sup>, 2019) (Complete)

**Task 7: Data Analysis and Reporting (October 2018 – January 2019) (Complete April 5th, 2019) Complete**

## **New Tasks Added**

- Activity A1 - Deploy 42 Vemco Receivers – (Complete)
- Activity A2 – Retrieve Vemco receivers and download data (Complete)



## 6. Summary

Over all the research team were able to meet and, in some cases, exceed the original plan for this project. The revised marine operation enabled cost saving on the overall extended project budget and by retrofitting Darren Porters Work Boat. There is now a new marine asset available in the Bay of Fundy that can be used for future lobster and other marine species studies. This Asset will also reduce cost to future studies in and around the Minus Passage. The researchers were also able to coordinate an exchange of data with FORCE and the Ocean Tracking Network (OTN). This allowed the Study team to add the data from FORCE's 5 Vemco receivers and OTNs 9 Vemco receivers and in turn FORCE and OTN now have access to the Data retrieved for the Studies 40 Vemco Receivers which also includes data gather for any other species that would have passed by the study receivers. This achieves one of the main supporting objectives of the study which was to collaborate with other rightsholder and stakeholder groups.

Based on the data sharing and transparency of the study it has enabled the study team to partner with other research groups in the Bay of Fundy for future projects. The study team are currently working with the Department of Fisheries and Oceans, Ocean Tracking Network, Mi'kmaq Conservation Group, Unama'ki Institute of Natural Resources, A'Poqmatulti'k research group, Nova Scotia Transportation and Infrastructure Renewal, and Big Moon Canada Corp. to complete additional studies in the Bay of Fundy related to Salmon and Gaspereau population, and a study of the effects on fish related to the Windsor Causeway at Halfway River. The team is also looking for opportunities to work with FORCE on future research projects or as a minimum continue to share data.

The studies to be conducted in 2019 will see the deployment of 80 to 100 Vemco receivers around the Minas Passage and Basin. We will also be trialing a new type of acoustic receiver that will be supported alongside the original Vemco VR2W and the data from both receivers will be used for comparison purposes. This will be the largest study conducted in the Bay of Fundy to date and will allow the collection of data that can be used to help establish a strong baseline for future studies related to tidal energy development which is another supporting objective of this study.

The study team has identified the need to complete a lobster larvae study that can also be used as a baseline for future studies. Based on the currently level of



tidal energy development activity in the minus passage this would allow for the collection of Larvae data prior to any tidal devices being deployed at the FORCE or Big Moon Canada sites. This study could also be expanded to include the three designated marine renewable areas in Grande Passage, Petite Passage and Digby Gut.

## 7. [Appendix A](#)

Appendix A – Population Characteristics of American Lobster (*Homarus americanus*) Captured in Commercial and Experimental Traps in Minus Passage and Minus Basin, Nova Scotia and Movement after Release Tagged with Streamer and Acoustic Tags Study