

Table of contents

List of figures

List of tables

Acknowledgements

1 Introduction

1.1 Aquaculture in the global context

1.1.1 Global economic value of aquaculture

1.1.2 Salmonid aquaculture in the sub-Arctic

1.2 Aquaculture in Iceland

1.2.1 History

1.2.2 Legislation

1.2.3 Current concerns

1.3 Research frame

1.3.1 Objectives

1.3.2 Aims

1.3.3 Research questions

1.3.4 Data and methods

1.3.5 Research limitations

2 Theoretical overview

2.1 Salmonids in Iceland

2.1.1 Introduction to salmonids

2.1.2 Atlantic salmon

2.1.3 Sea trout

2.1.4 Arctic charr

2.1.5 Summary

2.2 Sea lice in the north Atlantic

2.2.1 Background

2.2.2 Life cycle

2.2.3 Movement and dispersal

2.2.4 Attachment

2.2.5 Infection

2.2.6 Control on salmon farms

2.2.7 Consequences for wild salmonids

2.3 Collection of free-living planktonic sea lice larvae

2.3.1 Plankton tows

2.3.2 Sentinel cages

2.4 Implications for salmonid farms

2.4.1 Issues, costs and monitoring

2.5 Icelandic hydrographic conditions: Arnarfjördur

3 Research methods

3.1 Pre-study evaluation

3.2 Study area

3.3 Temporal period

3.4 Salmon smolt transportation and storage

3.5 Sentinel cage placement

- 3.6 Data collection
 - 3.6.1 Sentinel cage data collection
 - 3.6.2 Temperature and salinity data collection
 - 3.7 Sentinel cage cleaning
 - 3.8 Lab analysis
 - 3.9 Modelling sea lice movement
 - 3.10 Data analysis
 - 3.11 Limitations
- 4 Results
 - 5 Discussion
 - 5.1 Sea Lice Assessment
 - 5.2 Hydrodynamic model feasibility
 - 6 Future research and management
 - 7 Conclusions
- References