

**SEAFOOD CRC RESEARCH TRAVEL  
GRANT: ATTENDANCE AT THE  
ECONOMICS OF AQUACULTURE COURSE  
PORTSMOUTH UNIVERSITY (UK)**

**FINAL REPORT**

*Andrew King*



AUSTRALIAN  
SEAFOOD  
COOPERATIVE  
RESEARCH CENTRE

**Project No. 2012/717**

Copyright Australian Seafood CRC, the Fisheries Research and Development Corporation and University of Tasmania 2012

This work is copyright. Except as permitted under the Copyright Act 1968 (Cth), no part of this publication may be reproduced by any process, electronic or otherwise, without the specific written permission of the copyright owners. Neither may information be stored electronically in any form whatsoever without such permission.

**ISBN:** 978-1-925982-32-9

*The Australian Seafood CRC is established and supported under the Australian Government's Cooperative Research Centres Program. Other investors in the CRC are the Fisheries Research and Development Corporation, Seafood CRC company members, and supporting participants.*

**Office** Mark Oliphant Building, Laffer Drive, Bedford Park SA 5042

**Postal** Box 26, Mark Oliphant Building, Laffer Drive, Bedford Park SA 5042

**Tollfree** 1300 732 213 **Phone** 08 8201 7650 **Facsimile** 08 8201 7659

**Website** [www.seafoodcrc.com](http://www.seafoodcrc.com) **ABN** 51 126 074 048

### **Important Notice**

Although the Australian Seafood CRC has taken all reasonable care in preparing this report, neither the Seafood CRC nor its officers accept any liability from the interpretation or use of the information set out in this document. Information contained in this document is subject to change without notice.



**Australian Government**  
**Fisheries Research and  
Development Corporation**



**An Australian Government Initiative**



## **NON-TECHNICAL SUMMARY**

**PROJECT NO: 2012/717**

**TITLE: FINAL REPORT - SEAFOOD CRC RESEARCH TRAVEL GRANT:  
ATTENDANCE AT THE ECONOMICS OF AQUACULTURE COURSE  
PORTSMOUTH UNIVERSITY, UNITED KINGDOM, 16<sup>TH</sup> TO 20<sup>TH</sup> APR  
2012.**

**PRINCIPAL INVESTIGATOR:** Andrew King

**ADDRESS:** Institute of Marine and Antarctic Studies  
University of Tasmania  
Private Bag 129  
Hobart  
Tasmania  
7001

### **OBJECTIVES OF RESEARCH TRAVEL GRANT**

1. Enhanced understanding of the economics of aquaculture from both market and production perspectives.
2. Development of aquaculture production economic modelling skills.

### **NON TECHNICAL SUMMARY:**

Andrew King, a Seafood CRC doctoral candidate, was awarded a 'Round 9' research travel grant to attend an intensive course on the economics of aquaculture held at the University of Portsmouth in the United Kingdom in April 2012.

The course was given by two of the world's leading experts; Professor T. Bjorndal, CMARE, the University of Portsmouth and Professor F. Asche, the University of Stavanger in April 2012.

The contents of the course were of direct relevance to Andrew's CRC PhD – a targeted risk assessment of the options for expansion of salmonid aquaculture within Tasmania (project number 2011/735).

### **OUTCOMES**

Outcomes to Date: None

Outcomes Planned: The development of robust economic model to underpin the growth strategy for the Tasmanian Atlantic Salmon industry – Target date Mid 2013.

### **OUTPUTS DEVELOPED AS RESULT OF TRAVEL GRANT/ INDUSTRY BURSARY:**

The tangible output that will be produced by the travel bursary for industry will be economic modelling input into a detailed report for the CRC (a deliverable for CRC project 2011/735). This report will present a critical analysis and evaluation of the expansion options available for salmonid aquaculture in Tasmanian waters, a core component of which will be an economic analysis.

## **ABOUT THE PROJECT/ACTIVITY**

### **BACKGROUND AND NEED**

The Tasmanian Atlantic salmon industry's is targeting a 100% expansion to a \$1 billion industry over the next 20 years to 2030, ref TSGA (Tasmanian Salmon Growers Association) strategic plan.

Core to the delivery of this plan is Seafood CRC project 2011/713 - An evaluation of the options for expansion of salmonid aquaculture in Tasmanian waters - which model the interrelated economic, social and environmental dimensions.

This project is being led by the University of Tasmania (UTas), with co-investigators nominated by TSGA and CSIRO, and is centred around an underpinning CRC doctoral candidate (Andrew King).

The background / need to the travel grant was to enhance Andrew's economic modelling skills and his understanding of the core production & market drivers in relation to Atlantic salmon production.

### **RESULTS**

This travel grant (CRC project 2012/717) has enabled the PhD candidate associated with CRC project 2011/735 to acquire and develop specific skills in economic analysis that will ensure that the cost modelling of the alternative production technology expansion options for the Tasmanian salmon industry is undertaken in the most effective and timely manner.

## **INDUSTRY IMPACT**

### **PROJECT OUTCOMES**

The planned outcome from the travel grant will be to support the development of a robust economic model for use within a analysis of alternative Atlantic salmon production technologies and specifically their suitability for adoption within the Tasmanian environment.

### **SUMMARY OF CHANGE IN INDUSTRY**

Whilst attendance at this aquaculture economics workshop will not directly influence industry activities in the short term or change any of the proposed milestones for SCRC project 2011/735 it is anticipated that the skills obtained through attendance at this workshop will ensure that the cost modelling component of the proposed project is undertaken using current "best practice" techniques and with the fullest understanding of all of the relevant issues. It is also anticipated that the amount of time required to complete this task will be reduced and the final product will be better aligned with industry needs, thereby providing a better outcome overall for industry

## **WHAT FUTURE AND ONGOING CHANGES ARE EXPECTED?**

It is anticipated that following completion of the options analysis component of the main CRC project, that the Tasmanian industry will test the preferred technology production options in pilot site applications before commencing commercial scale adoption.

## **WHAT BARRIERS ARE THERE FOR CHANGES TO OCCUR?**

The Tasmanian industry currently lacks a critical evaluation of the technical, environmental and economic feasibility of production technology options with which to base a holistic assessment. Attendance at the workshop has helped to ensure that the economic feasibility study is undertaken according to current best practice.

## **IF NOT ALREADY HAPPENING, WHEN WILL THE CHANGES OCCUR?**

It is anticipated that the two leading companies within the Tasmanian Atlantic Salmon industry (c.90% of the industry) will commence adopting the findings of the overarching CRC funded project in early 2014, through the initiation of a pilot site application(s).

## **WHAT IS THE LIKELIHOOD THAT THESE CHANGES WILL OCCUR?**

Current discussions with industry strongly suggest that the two main companies will endorse / adopt the production expansion (up-scaling) findings of the overarching project.

## **WHAT BARRIERS ARE THERE TO ADOPTION OF THESE CHANGES AND WHAT ACTION COULD BE TAKEN TO OVERCOME THESE?**

The core barriers to adoption of up-scaling expansion options will be:

1. the lack of a robust options analysis in which the industry has proactively partaken; and
2. the capital investment required to deliver the production economies of scale necessary to deliver economic viability against the associated level of risk.

Actions to overcome these barriers include the delivery on programme of the main overarching project 2011/737 and in particular:

- a) undertaking, in conjunction with industry, an initial economic/technical review against a broad raft of criteria to short-list the most promising production technologies (scheduled);
- b) with stakeholder approval and financial support, testing the analysis recommendations by evaluating the preferred option(s) in pilot site applications to confirm the technical feasibility and associated levels of risk.

## **COMMUNICATION OF PROJECT/EXTENSION ACTIVITIES**

### **WHAT IS THE OUTPUT THAT NEEDS TO BE COMMUNICATED?**

Outputs to be communicated:

1. Researchers: Existence of / summary of the course.  
An overview of the economic analysis methodology that was adopted within my research project as a result of the course.
2. Industry: An economic evaluation and critical analysis of the production expansion options for the Tasmanian Atlantic salmon industry.

### **WHO IS/ARE THE TARGET AUDIENCE/S?**

Core target audiences are:

1. Researchers: CRC students, Post Docs and early career scientists.
2. Industry: Tasmanian Atlantic salmon aquaculture producers.

### **WHAT ARE THE KEY MESSAGES?**

Key messages as a result of attending the course are:

- a) The existence of a valuable reference book – The Economics of Salmon Aquaculture, 2<sup>nd</sup> Edition, Frank Asche and Trond Bjørndal, Wiley-Blackwell.
- b) How the Salmon aquaculture demonstrates that technological innovation can create large-scale food production, through reducing the cost of production and thereby stimulating customer demand.
- c) How Salmon aquaculture has experienced a number of environmental challenges that have forced farmers to change their practices in order to make the industry sustainable – similar challenges are likely to face most other intensive aquaculture operations.
- d) That due cognisance needs to be paid to the broader market place when formulating business development strategies, particularly for farmed salmon which is now an internationally traded commodity product.
- e) That any analysis of up-scaling expansion options for the Tasmanian salmon industry will need to be founded upon a sound economic assessment, (to deliver a return on investment appropriate to the level of risk incurred), together with the achievement of sustainability from social and environmental perspectives.

### **WHAT IS THE CALL TO ACTION?**

1. Researchers: Consider, where applicable, lessons learnt by the salmon aquaculture industry.
2. Industry: When assessing production expansion options ensure that any associated business plans are founded upon an in-depth economic risk based assessment.

## COMMUNICATION CHANNELS

<i>Channel</i>	<i>Who by</i>	<i>When</i>
<b><i>Course Awareness &amp; Economic Methodology Briefing</i></b>	<b><i>Andrew King</i></b>	<b><i>SIIP Retreat 2012</i></b>
<b><i>Milestone Report (CRC Project 2011/735)</i></b>	<b><i>Project PI</i></b>	<b><i>June 2013</i></b>

## **LESSONS LEARNED AND RECOMMENDED IMPROVEMENTS**

### **WHAT IS YOUR FEEDBACK?**

No material difficulties were experienced in undertaking the Aquaculture Economics course at the University of Portsmouth, England.

The pre-course reading was presented in a timely manner and electronic copies of the presentation material was provided.

In summary the course provided an excellent economics grounding from both production and marketing perspectives and is particularly valuable for those engaged within the international salmon aquaculture industry.

### **FURTHER ACTION REQUIRED IN REGARDS TO COMMERCIALISATION?**

None.

## **APPENDIX**

Appendix A: Course Completion Certificate

## Appendix A:



UNIVERSITY of PORTSMOUTH

*Andrew Stephen King*

has attended and satisfactorily completed an intensive PhD course in:

**THE ECONOMICS OF AQUACULTURE**

delivered by the University of Portsmouth's Centre for the Economics and Management of Aquatic Resources (CEMARE) between 16 and 20 April 2012.

*Trond Bjørndal, Director of CEMARE*

*Gioia Pescetto, Dean, Portsmouth Business School*