

Acknowledgments

I would like to thank Prof. Don McNeil my advisor, Macquarie University, Australia for his direction guidance and advice on my thesis. I would also like to thank Dr. Phattrawan Tongkumchum and Dr. Wanchamai Karntanut my co-advisor for their kindness, support, valuable guidance, and encouragement during this research, together with their constructive criticisms for improvement of my thesis.

I would also like to express my thankfulness to Dr. Chamncin Choonpradub Dr. Nittaya McNeil and Asst. Prof. Paktra Kooburat for their helpful comments. I would like also to thank Dr. Metta Kuning for her kindness advice and Mrs. Lyn McNeil for her encouragement during I stayed in Australia, and I would like to express my thanks to all the teachers and staff of the Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus.

I would like to express my thanks to Graduate School, Prince of Songkla University for partially supporting fund in this study.

My special thanks to Pattani Fishery Port for allowing me to use the data.

Finally, my sincere appreciation is to my parents, classmates and friends for their encouragement and support.

Premwadee Komontree