

**COMPARISON OF THREE NONLINEAR GROWTH  
MODELS IN PREDICTION OF GROWTH NILE TILAPIA FISH**

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**Thesis Submitted in Fulfilment of the Requirement for  
Bachelor of Science (Hons.) Mathematical Modelling and Analytics  
College of Computing, Informatics and Mathematics  
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**August 2023**

## ABSTRACT

Three non-linear mathematical equations, namely Logistic, Gompertz, and Von Bertalanffy, were employed to depict the growth curves in question. The present investigation utilized a dataset sourced from the Wastewater Oxidation Pond located in Thailand. The dataset consisted of weight measurements of Nile Tilapia fish, which were acquired at four-week intervals spanning from week 0 to week 48. The python software was utilized to fit each model individually to the body weight records of all Nile Tilapia Fish. The adequacy of the models was evaluated through the utilization of statistical measures such as the adjusted coefficient of determination ( $R^2$ ), Akaike's Information Criterion (AIC), and Bayesian Information Criterion (BIC). The Von Bertalanffy model was found to be the most suitable for fitting the growth curve of Nile Tilapia fish, as indicated by its comparatively lower Mean Absolute Error (MAE) values and the lowest AIC and BIC values among the other models considered. The growth curve fit for Nile Tilapia fish was found to be the poorest using the Logistic model. The assessment of various growth equations utilized in this investigation demonstrated the potential of non-linear functions in accurately modeling body weight data of Nile Tilapia fish.

## **ACKNOWLEDGEMENT**

In the name of Allah, the Most Gracious and the Most Merciful, Alhamdulillah, all praises to Allah for simplifying this path to complete this final year project report. Foremost, I express my sincere appreciation to my supervisor, En. Muhammad Fauzi bin Embong, for his invaluable assistance and guidance throughout the course of my research. His patient and insightful advice were instrumental in the successful completion of my work. The constructive comments and suggestions provided by him have significantly contributed to the success of this research. I express my profound gratitude to my parents and friends for consistently providing me with support and encouragement throughout the years. Lastly, I express my gratitude to all of my instructors who have imparted to me the skills necessary for producing a superior report.

## TABLE OF CONTENTS

	<b>Page</b>
DECLARATION BY THE SUPERVISOR	i
DECLARATION BY THE CANDIDATE	ii
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
INTRODUCTION OF RESEARCH	1
1.1 Introduction	1
1.2 Background Study	1
1.3 Problem Statement	3
1.4 Objectives	3
1.5 Significance of the Project	4
1.6 Scope of the Project	4
1.7 Project Benefits	5
1.8 Definition of Terms and Concept	6
1.9 Organization of Report	7
LITERATURE REVIEW	8
2.1 Introduction	8
2.2 Literature Review	8
2.3 Non-linear Growth Model	9
2.3.1 Von Bertalanffy Model	11

2.3.2 Logistic Model	12
2.3.3 Gompertz Model	14
2.4 Mean Absolute error	15
2.5 Goodness of Fit	16
2.5.1 Coefficient of Determination	16
2.5.2 Akaike Information Criterion	17
2.5.3 Bayesian Information Criterion	18
2.6 Conclusion	19
METHODOLGY	20
3.1 Introduction	20
3.2 Research Step	20
3.3 Conclusion	25
IMPLEMENTATION	26
4.1 Introduction	26
4.2 The Implementation of nonlinear growth model in predict weight	26
4.3 Conclusion	35
RESULT AND DISCUSSION	36
5.1 Introduction	36
5.2 Result and Analysis	36
5.2.1 Von Bertalanffy model result	36
5.2.2 Logistic model result	38
5.2.3 Gompertz model result	39
5.2.4 Summarize of three growth model	41
5.3 Compare goodness of fit	44