

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

MODELLING OF STAGE-BASED DISTRIBUTION
FOR LOGGERHEAD SEA TURTLE (CARETTA
CARETTA) BY LEFKOVITCH MATRIX

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES	v
LIST OF TABLES	vi
ABSTRACT	vii
1 INTRODUCTION	1
1.1 Research Background	1
1.2 Problem Statement	4
1.3 Research Objective	5
1.4 Significant of Project	5
1.5 Scope of Project	6
2 LITERATURE REVIEW	7
2.1 Matrix Population Projection Approach	7
3 METHODOLOGY	11
3.1 Step 1 : Collection of Data	11
3.2 Step 2: Calculation of P_i and G_i	12
3.3 Step 3: Form Lefkovich Matrix Model	12
3.4 Step 4: Determine the Stable Stage Distribution (w), the Geometric Growth Rate (λ) and the Intrinsic Rate (r)	13
3.5 Step 5: Determine which Stage Contribute to the Extinction	14
4 IMPLEMENTATION	15

ABSTRACT

As the population of the most endangered marine species have approaches extinction, thus the proper conservation efforts should be implemented to avoid this problem from getting worse. Lack of age details, particularly for turtle species had triggered the development of Lefkovitch Model. In this paper, we used Lefkovitch stage class model by referring to stage-based life table of Loggerhead sea turtle generated by Crouse (1985) in order to determine which stage gives the most impact on unbalance population of this threaten sea turtle. The population projections obtained are used to examine the population growth rate that reflect the stage at the population changes.

1 INTRODUCTION

1.1 Research Background

Loggerhead sea turtle (*Caretta caretta*) is widely distributed sea turtle throughout the world especially southeastern United States. Loggerhead sea turtle also known as Loggerhead. This type of turtle gets its name from its relatively large heads, which support powerful jaws and enable them to feed on hard-shelled prey. Their habitat include near-shore waters, coastal bays and estuaries. Sea turtle may be carnivore, omnivore or herbivore. Loggerhead are mainly carnivore from hatching until juvenile feeding on jellyfishes, pteropods, floating mollusks, floating egg clusters, squids and flying fishes. Loggerhead is largest cheloniid turtle with weight between 70 to 170kg. Its life span is more than 50 years. Loggerhead breathes by taking oxygen into the lungs and releasing the carbon dioxide during exhaling.

Loggerhead sea turtle faces many threats. Firstly, the loggerhead's eggs and meats are risked by human's famous illegal activity where they take them for the commercials purpose. Secondly, numerous hatchlings wrongly take food containing oil slick and the surrounding that polluted by non-biodegradable waste can caused them to die. They also tend to ingest floating debris, including plastic bags, sheets, pellets, balloons and abandoned fishing line that were dumped into the oceans. Loggerheads may mistake the floating plastic for jellyfish. Besides, juvenile and adult turtle often caught in fishing gears, either by incidentally or for their shell and meat. They also affected by Fibropapillomatosis disease. Fibropapillomatosis disease specific to sea turtle that will attack epithelial tumors on the surface of biological tissues. This disease caused by bio-toxins or contaminants. Loggerhead sea turtle developed Fibropapillomatosis appears as lobe-shaped tumors. This disease can infect all soft portions of the turtle's body such as skin, in the mouth, on the eyes and on internal organ.