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ASSESSING THE IMPACTS OF CLIMATE CHANGE ON CAPTURE FISHERIES IN NAMASAGALI FISH LANDING SITES, KAMULI DISTRICT

BY

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A RESEARCH REPORT SUBMITTED TO THE FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES IN PARTIAL FULFILLMENT FOR AWARD OF BACHELOR'S DEGREE IN FISHERIES AND WATER RESOURCE MANAGEMENT OF BUSITEMA UNIVERSITY

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DECLARATION

I **TUMURAMYE PATIENCE** solemnly declare that that this research report is my original work and has never been submitted to Busitema University or any other institution of learning for any academic award.

APPROVAL

This is to certify that this research report has been submitted with my approval.

Name of supervisor: Prof. Waiswa Wilson Mwanja

Signature:  -

DEDICATION

I dedicate this Research report to my beloved parents Mr. and Mrs. Orakore Joseph and my family at large for the tremendous financial support rendered to me during the study. I also dedicate this research to my beloved sister Ninsiima Ruth for the moral and spiritual support plus transportation to the field during data collection and the FWR class of 2024 for the cooperation.

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LIST OF ABBREVIATIONS

FWR:	Fisheries and Water Resources Management
IPCC:	Intergovernmental Panel on Climate Change
FAO:	Food and Agriculture Organization of the United Nations.
SPSS:	Statistical Package for Social Sciences
NOA:	National Orientation Agency
NEMA:	National Environmental Management Authority
O. niloticus:	Oreochromis niloticus
L. niloticus	Lates niloticus
C. gariepinus	Clarias gariepinu

ABSTRACT

The River Nile basin has experienced noticeable changes in climate patterns over the past decades, with shifts in temperature and precipitation. These changes have been attributed to various factors, including anthropogenic greenhouse gas emissions, land-use changes, and natural climate variability. The problem that has been addressed in this study is that of discerning the effect and impact of climate change from that attributed to use of destructive modern fishing gear on the status and trends of fishing and fisheries productivity on selected landing sites along river Nile in Kamuli District. The study only focused on historical data where data on climate of River Nile basin, Kamuli District was used for all the five decades on annual and seasonal temperature averages and total precipitation. : Similarly the data historical data on annual fish production at Namasagali landing sites was obtained for the five decades including the data on the fish species landed was analyzed using SPSS (computer software programme), descriptive and relational statistics. The data indicated a clear upward trend in average global temperatures over the five decades. In the 1980s, the average temperature was 22.5°C, and this figure has steadily increased each subsequent decade. In the 1980s, the average precipitation was 1200 mm, and it gradually declined each decade, reaching 1000 mm by the 2020s. On the other hand the analysis reflects a clear downward trend in average annual production over the five decades. In the 1980s, the average annual production was at 1500 metric tons (MT), but this figure has steadily decreased over the decades. The interest of the research is to establish if there is any relationship between the observed climate and the fish production trends in the Namasagali landing sites. Analysis of fish species composition revealed a shift from traditionally dominant species like tilapiines to faster-growing hardy and ecologically more versatile species such as African catfish *(Gariepinus Clarias).* The correlation matrix revealed a strong negative correlation indicating that as mean temperature increases, mean precipitation tends to decrease. Mean Temperature is also negatively correlated with Fish Production suggesting that higher temperatures are associated with lower fish production. Conversely, Mean Precipitation has a strong positive correlation with Fish Production, implying that increased precipitation is associated with higher fish production.

Key conclusion of the study is that there is a probable and strong signal of climate change effects on the fishing and fisheries of Namasagali landing sites despite the strong influence from the increased adoption and use of more efficient and ecologically destructive gears.

CHAPTER ONE: INTRODUCTION

2.1 BACKGROUND

2.1.1 Introduction

Climate change poses significant challenges to ecosystems worldwide, affecting various sectors including agriculture, water resources, and fisheries. In the context of Namasagali Fish Landing Sites in Kamuli District, situated along the River Nile, the impacts of climate change on capture fisheries are of particular concern. This study aims to assess these impacts comprehensively, focusing on changes in fish species composition, fishing patterns, and overall fisheries production over the last five decades.

2.1.2 Climate change within the River Nile basin

The River Nile basin has experienced noticeable changes in climate patterns over the past decades, with documented shifts in temperature and precipitation (Elhag et al., 2017). These changes have been attributed to various factors, including anthropogenic greenhouse gas emissions, land-use changes, and natural climate variability (IPCC, 2014) Kamuli District, being within this basin, is subject to these climate trends, which can influence the local environment and, consequently, fisheries dynamics.

2.1.3 Fishing practices and fish production

Namasagali Fish Landing Sites are vital for the local fishing communities, supporting livelihoods and providing a significant portion of the region's fish supply. However, alongside climate change, the use of fishing gears, including both traditional and modern methods, has evolved over time. Some gears may enhance fishing efficiency, while others could be environmentally destructive, impacting fish stocks and biodiversity (Allison, 2009)

2.2 Problem Statement

Climate change poses a threat to crop growing and fishing in Namasagali, with temperature and rainfall fluctuations altering fish’s physiological functions and ecological viability. Modernized gears and climate change interact, making fishing the greatest threat. The problem addressed in this study is that of discerning the effect and impact of climate change from that attributed to use of more efficient and or destructive modern fishing gear on the status and trends of fishing and fisheries productivity on selected landing sites along river Nile in kamuli district.

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