

TABLE OF CONTENTS

COVER	i
CERTIFICATE OF APPROVAL OF THESIS	ii
ANTI-PLAGIARISM STATEMENT	iii
PREFACE	iv
TABLE OF CONTENTS	vi
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF APPENDICES	x
LIST OF ABBREVIATIONS	xi
ABSTRAK	xii
ABSTRACT	xiii
CHAPTER 1 INTRODUCTION	1
A. Scientific Background	1
B. Problem Statements	5
C. Research Objectives	5
D. Research Benefits	6
E. Research Scope	7
CHAPTER II LITERATURE REVIEW	8
A. Microplastics	8
B. Microplastics in Freshwater	9
C. Microplastics as Heavy Metals Carriers	10
D. Microplastic Accumulation in Aquatic Fauna	11
E. Health Risk of Consuming Microplastics in Human	12
CHAPTER III THERORETICAL BASIS AND HYPOTHESES	14
A. Theoretical Basis	14
B. Hypotheses	16
CHAPTER IV METHODOLOGY	18
A. Study Area	18
B. Samples Collection	19
C. MPs Extraction	21
D. Samples Characterization	23
E. HMs Determination	24
F. Health Risk Assessment	26
G. Data Analysis	27
CHAPTER V RESULTS AND DISCUSSION	29
A. MPs in Water and Sediment	29
B. MPs in Aquatic Fauna	33
C. PCA Analysis	41
D. HMs in Wwater, Sediment, Fish Muscle and Their Association with MPs	42
E. Health Risk Assessment	46
CHAPTER VI CONCLUSIONS AND SUGGESTIONS	49

A. Conclusions.....	49
B. Suggestions	50
RINGKASAN	51
SUMMARY	55
REFERENCES.....	59
APPENDIX	70
Appendix 1. Characterization of microplastics based on visual appearance in water, sediment, zooplankton, benthos, fish muscle, and fish GIT	71
Appendix 2. FT-IR spectra and possible composition	88
Appendix 3. One-way ANOVA and Tukey HSD Test	94
Appendix 4. Documentation of the research.....	109