



单位代码 10635

学 号 112015310000810

# 西南大學

# 硕士学位论文

英语海洋主题纪录片的生态话语分析  
——以 *Oceans* 和 *Big Fish Texas* 为例

论文作者：赵依含

指导教师：刘承宇 教授

学科专业：英语语言文学

研究方向：英语语言学

提交论文日期：2019 年 4 月 2 日

论文答辩日期：2019 年 5 月 19 日

学位授予单位：西南大学

中国 • 重庆  
2019 年 4 月

# 独创性声明

学位论文题目： 英语海洋主题纪录片的生态话语分析

本人提交的学位论文是在导师指导下进行的研究工作及取得的研究成果。论文中引用他人已经发表或出版过的研究成果，文中已加了特别标注。对本研究及学位论文撰写曾做出贡献的老师、朋友、同仁在文中作了明确说明并表示衷心感谢。

学位论文作者： 支x 依含 签字日期：2019 年 4 月 2 日

## 学位论文版权使用授权书

本学位论文作者完全了解西南大学有关保留、使用学位论文的规定，有权保留并向国家有关部门或机构送交论文的复印件和磁盘，允许论文被查阅和借阅。本人授权西南大学研究生院可以将学位论文的全部或部分内容编入有关数据库进行检索，可以采用影印、缩印或扫描等复制手段保存、汇编学位论文。

（保密的学位论文在解密后适用本授权书，本论文：☐不保密，☐保密期限至      年      月止）。

学位论文作者签名： 支x 依含 导师签名： 刘永军

签字日期：2019 年 4 月 2 日      签字日期：2019 年 4 月 2 日

**An Ecological Discourse Analysis of English  
Marine Documentaries**  
**—A Case Study of *Oceans* and *Big Fish*  
*Texas***

*Zhao Yihan*

**Supervisor**  
*Prof. Liu Chengyu*

*A Thesis Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
M. A. in English*

**COLLEGE OF INTERNATIONAL STUDIES  
SOUTHWEST UNIVERSITY**

**April, 2019**

## **Acknowledgements**

On the completion of this thesis, my school life as a student will also temporarily come to an end. I would like to extend my gratitude to a number of people who give me insistent encouragement, useful advice and tremendous support in the three years' postgraduate study.

First of all, my sincere indebtedness goes to my supervisor Professor Liu Chengyu for his supervision in the past three years. He always gives me instant feedback, constructive advice, continual encouragement not only on this thesis but also on other problems that I have met in these years. Especially, from his warning and criticism, I was finally able to face up with my shortcomings, which I think is of great significance for my career and future life. I have been very lucky to be one of his students and what he has taught me will be the most precious treasure and gifts.

Then, I am also obliged to all the other professors at the College of International Studies, Southwest University, from whose brilliant lectures I have encountered with so many enlightening ideas.

Next, I should also thank my roommates Chen Tian, Li Kun and Qin Yi for their timely company. Girls of our age often get worried about the future life, and their night talks are always good medicine.

Last but not least, I am really grateful for my parents' never-failing care and support not only in the past three years of post-graduate study but throughout my lifetime as well.

# Contents

Abstract.....	I
摘 要.....	IV
Chapter One Introductions.....	1
1.1 Research Background.....	1
1.2 Research Objectives.....	1
1.3 Research Significance.....	2
1.4 Layout of the Thesis.....	2
Chapter Two Literature Review.....	3
2.1 Ecolinguistics and Ecological Discourse Analysis: An Overview.....	3
2.1.1 Origin and Development of Ecolinguistics.....	3
2.1.2 Ecological Discourse Analysis and Its' Localization in China.....	5
2.1.3 Research Paradigm for EDA.....	8
2.2 Previous Studies on English Marine Documentaries.....	10
2.3 Summary.....	10
Chapter Three Theoretical Basis.....	12
3.1 Introduction.....	12
3.2 Ecosophy: The Meaning Potential Stratum.....	14
3.2.1 Definition and Significance of Ecosophy.....	14
3.2.2 “One Assumption & Three Principles” Ecosophy.....	15
3.3 Ecological Sense of Place: The Interface Stratum.....	17
3.4 Transitivity System: The Linguistic Instance Stratum.....	20
3.4.1 Material Process.....	21
3.4.2 Mental Process.....	22
3.4.3 Relational Process.....	23
3.4.4 Other Process Types.....	23
3.5 Summary.....	24
Chapter Four Research Design.....	28

4.1 Research Questions.....	28
4.2 Data Collection and Description.....	28
4.3 Instrument and Data annotation.....	29
4.4 Research Procedures.....	32
Chapter Five Results and Discussion.....	33
5.1 Process Types in the Data.....	33
5.1.1 Overall Distribution.....	33
5.1.2 Material Process.....	35
5.1.3 Mental Process.....	38
5.1.4 Relational Process.....	42
5.1.5 Other Process Types.....	46
5.2 Participant Types in the Data.....	48
5.2.1 Different Participant Roles.....	49
5.2.2 The “-er” Participant and the “-ed”Participant.....	54
5.3 Ecological Sense of Place in the Data.....	56
5.3.1 The Roles of PEOPLE.....	57
5.3.2 The Types of PLACE.....	59
5.3.3 The Types of SENSE.....	62
5.4 Ecological score: The Ecological Tendency of the Two Documentaries.....	68
5.5 Discussion.....	69
5.6 Summary.....	71
Chapter Six Conclusion.....	74
6.1 Major Findings.....	74
6.2 Implications.....	75
6.3 Prospects for Future Research.....	76
References.....	77
Appendix The Transcript and Cleaned Texts of the Two Documentaries.....	82

## List of Figures and Tables

Figure 1 The cline of instantiation (Halliday, 2014).....	13
Figure 2 The Ecological Sense of Place (ESOP).....	19
Figure 3 Refinement of participant.....	21
Figure 4 The analytic framework for ecological discourse analysis in this research.....	25
Figure 5 The ecosophy system in the analytic framework.....	26
Figure 6 The transitivity system in the analytic framework.....	27
Figure 7 The annotation schema.....	30
Figure 8 The distribution of the process types.....	33
Figure 9 The distribution of different roles as participants.....	49
Figure 10 The distribution of Human as participants.....	51
Figure 11 The distribution of Marine organism as participants.....	52
Figure 12 The distribution of the roles of PEOPLE.....	57
Figure 13 The distribution of PLACE types.....	59
Figure 14 The distribution of SENSE types.....	62
Table 3.1 Examples of Material process.....	22
Table 3.2 Examples of Mental process.....	22
Table 3.3 Examples of Relational process.....	23
Table 3.4 Examples of Behavioral process.....	24
Table 3.5 Examples of Existential process.....	24
Table 4.1 Basic text information.....	29
Table 4.2 An example of data analysis.....	31
Table 5.1 A statistical comparison of the process types.....	34
Table 5.2 A statistical comparison of the sub-types of Mental process.....	38
Table 5.3 A statistical comparison of the sub-types of Relational process.....	43

Table 5.4 A statistical comparison of the participant types.....	50
Table 5.5 A statistical comparison of Human as participants.....	51
Table 5.6 A statistical comparison of Marine organism as participants.....	53
Table 5.7 A statistical comparison of “-er” participants.....	54
Table 5.8 A statistical comparison of “-ed” participants.....	55
Table 5.9 A statistical comparison of the roles of PEOPLE.....	59
Table 5.10 A statistical comparison of the types of PLACE.....	61
Table 5.11 A statistical comparison of the types of SENSE.....	63
Table 5.12 A statistical comparison of the discourse of conation.....	63
Table 5.13 A statistical comparison of the discourse of cognition.....	65
Table 5.14 A statistical comparison of the discourse of emotion.....	66
Table 5.15 The ecological tendency of the two documentaries.....	69



# **An Ecological Discourse Analysis of English Marine Documentaries —A Case Study of *Oceans* and *Big Fish Texas***

## **Abstract**

With the aggravation of ecological problems and the enhancement of people's ecological consciousness, there has been an ecological turn in scientific research, including the linguistic studies. Michael Halliday believes that we can use language to construct our world. Therefore, language could play an important role in alleviating the current ecological crisis. Among many linguistic theories devoted to ecological research, Ecological Discourse Analysis (EDA) has developed its own research paradigm. This thesis intends to conduct EDA on two English documentaries relating to marine environment (*Oceans* from BBC and *Big Fish Texas* from NGC), attempting to reveal the ecological attitudes hiding behind their language. Three close-related questions are going to be discussed: (1) How are the ecological attitudes delivered through linguistic devices? (2) Which one of the two documentaries has a more positive ecological significance? And how is this more positive ecological significance realized?

This thesis proposes an instantiated theoretical framework for ecological discourse analysis, which consists of three strata: meaning potential, interface and linguistic instance. In the meaning potential stratum, based on Huang Guowen (2017)'s ecological philosophy, this thesis demonstrates a criterion for harmonious and ideal ecological ideology (i.e. the assumption of people orientedness, and the principles of proximity, consciousness and regulation). In the linguistic instance stratum, transitivity system is employed to investigate the speakers' linguistic devices. To build a connection between the linguistic devices and the underlying ecological meanings, a geographic concept "Sense of Place" (SOP) is metaphorically placed between the linguistic instance stratum

and the meaning potential stratum. SOP expounds the connections from three perspectives: the responsible role of human participants, the aspects of nature being focused on in the language, and the types of sense that human participants generate towards nature. On account of this theoretical basis, qualitative and quantitative methods are integrated in the EDA practice. First, the linguistic features are scrutinized in terms of process and participant types; then, the Ecological Sense of Place of the two documentaries are discussed; and finally, ecological scores are calculated based on the above procedures to exhibit the ecological tendencies of the two documentaries.

In this context, qualitative and quantitative methods are integrated to conduct an ecological discourse analysis of the BBC documentary *Oceans* and the NGC documentary *Big Fish Texas*. The transitivity system and Ecological Sense of Place are particularly investigated to reveal the ecological tendencies of the two documentaries, and thus to explore the interactions between linguistic devices and ecological meanings.

Based on the analysis, the following conclusions are drawn: (1) ecological attitudes of the language can be interpreted through ecological discourse analysis on the transitivity system and the ecological sense of place. (2) BBC's *Oceans* bears a more positive ecological significance than NGC's *Big Fish Texas*. The more positive ecological significance is realized through the choice of linguistic devices, which can be explained from the following aspects. First, in terms of process types, *Big Fish Texas* contains more Material processes, Relational-possessive processes and Mental-desideration processes than *Oceans* to push the flow of events and to claim for ownership on and demands from the nature. In contrast, *Oceans* prefers Relational-attributive process, Relational-identifying process and Mental-cognition process and Behavioral process, whereby the identifications and characteristics of the marine environments are presented, alongside with the knowledge and understandings of the surroundings. Second, as for the distribution of participant types, human participants and their actions and behaviors take the largest proportions in *Big Fish Texas*, while *Oceans* involves more marine lives and natural entities as participants. *Big Fish Texas* uses more human participants as Agent to initiate Material process and as Possessor to claim for the ownership over nature than *Oceans*. As for the Marine organism as participants, *Big Fish Texas* tends to put them on the positions of being

affected and being possessed, while *Oceans* treats marine lives as the targets to be characterized, identified and understood. Thirdly, the analysis of the Ecological Sense of Place indicates that human beings mostly serve as risk managers who are responsible for the sustainable development in *Oceans*, while serve mostly as risk gainers who are born to obtain benefits from nature in *Big Fish Texas*. In terms of the types of place that is being focused, *Oceans* gives most of its attentions to non-human organisms and natural places, while *Big Fish Texas* cares more about social and social-natural places. With regard to the types of sense, *Oceans* prefers to express understandings towards the surroundings through discourse of cognition, while *Big Fish Texas* prefers to convey conative behaviors through discourse of conation. And finally, the ecological scores also prove that *Oceans* delivers a more beneficiary ecological meaning than *Big Fish Texas*. Generally speaking, *Oceans* exhibits a stronger sense of belonging to the surroundings than *Big Fish Texas*; the latter one regards marine environment as available resources and human beings has the absolute control and dominance over nature.

This thesis is expected to contribute theoretically to the application of the transitivity within the paradigm of EDA and thus can be envisaged as an extension of EDA. Practically, the thesis is expected to offer a critical point of view for the audience to appreciate the ecological documentary and meanwhile serves as a reminder for documentary producers to publicize an ecological attitude conveyed in their works. In a word, it is expected to alert all of us to think, speak, and act ecolinguistically.

**Key Words:** ecological discourse analysis; English marine documentaries; instantiation; ecological sense of place; transitivity system

# 英语海洋主题纪录片的生态话语分析

## ——以 *Oceans* 和 *Big Fish Texas* 为例

### 摘 要

随着生态问题加剧和人们生态意识的增强,科学研究包括语言学研究出现生态转向。韩礼德认为我们可以使用语言建构我们的世界。因此,语言在缓解生态危机方面有有益作用。在众多致力于生态研究的语言学理论中,生态话语分析发展出其自身的研究范式。本文采用生态话语分析的方法,结合生态场所概念,对两部与海洋环境相关的英语纪录片(BBC 纪录片《海洋》和 NGC 纪录片《德州捕鱼专家》)进行生态话语分析,试图揭示其语言背后所传达的生态态度,对两个紧密相关的问题进行探讨:(1)纪录片中的语言是如何体现生态态度的;(2)两部纪录片哪一部具有更积极的生态意义?这种更积极的生态意义是怎样实现的?

本文首先提出了层级化生态话语分析框架,包括意义潜势层、界面层和语言实例层。在意义潜势层,本文以黄国文(2017)的生态哲学观为基础,展示了和谐生态思想的理想化标准(包括以人为本假设、亲近原则、良知原则和制约原则)。在语言实例层,借助及物性系统呈现讲话者的语言手段。为了建立起语言手段和生态意义之间的联系,在语言实例层和意义潜势层之间加入了从地理学术语隐喻而来的“场所观”概念。这一概念从三个方面阐述人类参与者的责任角色、语言中的关注焦点以及对环境所产生的态度类型等之间的关系。鉴于此,本文采用定性分析与定量分析相结合的方法,首先从过程类型和参与者角色的角度呈现语言特征,其次讨论两部纪录片中体现的场所观,最后在以上步骤的基础上,计算生态得分,展现其生态倾向。

鉴于此,本文采用定性与定量分析相结合的方法,对 BBC 纪录片《海洋》和 NGC 纪录片《德州捕鱼专家》的语料进行生态话语分析,着重分析及物性系统中的过程类型和参与者角色,同时分析其生态场所观,试图揭示其话语背后所传递的生态倾向,进而探讨语言手段与生态意义之间的交互关系。

通过分析得出以下结论:(1)通过对纪录片语言的及物性系统和生态场所观的分析,可以解读其所蕴含的生态态度;(2)BBC 纪录片《海洋》比 NGC 纪录

片《德州捕鱼专家》具有更加积极的生态意义。这种更加积极的生态意义是通过对语言手段的选择实现的，具体从以下几方面展开。首先，就过程类型的分布而言，《德州捕鱼专家》比《海洋》更多地使用物质过程，同时前者更倾向于使用关系过程和心理过程来表示对海洋资源的占有和对需求；而《海洋》则更加青睐采用关系过程来描述和识别海洋环境的特征及身份，更多地采用心理过程表达对周围环境的理解和认识。其次，就参与者角色而言，人类参与者在《德州捕鱼专家》中占有最大的比例，而《海洋》则给予海洋生命和海洋环境更多的关注。在人类充当参与者角时，《德州捕鱼专家》更为频繁地将其作为物质过程的执行者和关系过程中的占有者；当海洋生命充当参与者角色时，《德州捕鱼专家》将其置于被影响、被占有的位置，而《海洋》则更频繁地将其作为被描述、识别、被感知和认识的一方。第三，对两个纪录片生态场所观的分析显示，《海洋》中人类参与者更多地承担风险管理者的角色，《德州捕鱼专家》则更倾向于作为风险受益者。就两个纪录片所关注的场所类型和所产生的感觉类型而言，《海洋》给予非人类生命体和自然场所最大的关注，《德州捕鱼专家》则关心社会性场所和社会-自然性场所；前者比后者更多地表达对周围环境的认知和理解，而后者展现出对周围环境强烈的意动意图。最后，两个纪录片的生态值也证明《海洋》具有更加积极的生态意义。总体来说，《海洋》展现出对海洋环境的亲近与尊重，《德州捕鱼专家》则更倾向于将海洋视为可利用资源，人类拥有对自然的控制与主导权。

本文在理论方面采用生态话语分析范式以及物性系统为手段，对与海洋环境相关的纪录片进行生态话语分析，有望丰富该领域的研究。在实践方面，本文期待为观众提供批判性地观赏生态环境类纪录片的视角，警醒制作者反思其作品所传达的生态态度，同时呼吁人们以生态语言学的方式来思考、说话和行事。

**关键词：**生态话语分析；英语海洋主题纪录片；示例化；生态场所观；及物性系统



# Chapter One

## Introductions

This chapter serves as the introductory section of the whole thesis, including the research background, objectives, significance and layout of the thesis.

### 1.1 Research Background

The growth of population and the rapid development of economics have caused an increasing number of ecological problems. With the promotion of ecological awareness, there occurs an ecological turn in scientific research, including the linguistic studies. Michael Halliday's constructivism view of language believes that we can modify our world through the language we use. That is to say, language plays an important role in solving ecological crisis. Since the 1990s, more and more linguists have been devoting themselves to finding a linguistic way to contribute to alleviating the world ecological crisis. A branch of those linguists attempt to investigate the ecological problems in language within the domain of Ecological Discourse Analysis (EDA). With a history of nearly 40 years, EDA has developed its own research paradigm. Following the steps of former EDA scholars, this research conducts an EDA on two English documentaries relating to marine environment (*Oceans* and *Big Fish Texas*) and attempts to reveal the ecological attitudes hiding behind their language, intending to offer the audience an ecological critical angels to appreciate environmental documentary and to alter all of us to think, speak and act ecolinguistically.

### 1.2 Research Objectives

Complying with the ecological turn of scientific research, this thesis is devoted into exploring the interaction among language, ideology and ecology, attempting to seek an eco-friendly way for discourse and to promote the utility of linguistic in solving realistic dilemma. To reach this ultimate goal, this thesis shall strive for two closely-related objectives:

(1) This thesis shall present an instantiated theoretical basis through the integration of EDA research paradigm, transitivity system, ecological philosophy, and Sense of

Place, based on which a bottom-up analytical framework shall be discussed.

(2) The EDA approach shall then be applied to an empirical analysis of two English documentaries relating to marine environment to investigate the interaction between language and nature.

### **1.3 Research Significance**

Broadly speaking, EDA is dedicated to exploring the interaction between language and ecology and advocating the power of linguistic devices in promoting a better world.

Theoretically, this thesis applies the Systematic Functional Grammar (SFG) into EDA, and further contributes to the application of SFG in this research field. It attempts to consolidate the theoretical reliability and practicability through discussing the ‘meaning potential-interface-linguistic instance’ instantiated theoretical basis. Also, this thesis extends the delicacy of SFG in EDA by adding a further dimension on participant classification. And this thesis makes up for the the insufficiency of quantitative study in current EDA studies.

Practically, the results of this thesis shall offer a critical and ecological angle to understand, appreciate, and evaluate the two widely known documentaries which are related to marine environment. The discussion of the interaction among language, ideology, and ecology strives to rouse and promote ecological consciousness in our society, serving as enlightenment and alarm to think, speak, and behave ecolinguistically.

### **1.4 Layout of the Thesis**

This thesis consists of six chapters. Chapter One is the introduction to the study, stating the research background, objectives, significance and the layout of the thesis. Chapter Two conducts an overall review on ecolinguistics and ecological discourse analysis, and clarifies the research paradigm for EDA. Chapter Three sets up the theoretical basis for this research, presenting an instantiated analytic framework. Chapter Four explains the language data, instrument and annotation methods, and research procedures. Chapter Five conducts a qualitative and quantitative analysis of the language data. Chapter Six draws a conclusion and reflects the implications of this research.



## Chapter Two

### Literature Review

This chapter presents an overview of pertinent literature to figure out the departure for the current research. Section 2.1 introduces the origin and development of ecolinguistics, locates the position of ecological discourse analysis in the domain of ecolinguistics, and then demonstrates the research paradigm of EDA. Section 2.2 examines previous studies of marine documentaries.

#### 2.1 Ecolinguistics and Ecological Discourse Analysis: An Overview

Before going into the research paradigm of ecological discourse analysis, we shall locate its position in the theoretical system of ecolinguistics. In this section, the author shall first review the development of ecolinguistics briefly and holistically, and then introduce the research paradigm of ecological discourse analysis and how the Chinese scholars localize it into Chinese contexts.

##### 2.1.1 Origin and Development of Ecolinguistics

As the proverb goes, “Rome was not built in a day.” Long before the explicit discussion on the relationship between language and ecology, the famous German educationalist and linguist Baron Friedrich Heinrich Alexander von Humboldt has demonstrated the interdependence of language and the world. Inspired by Humboldt’s philosophy, in their linguistic relativity hypothesis, the American anthropologists and linguists Edward Sapir and Benjamin Lee Whorf firstly pointed out the complex relationship among environment, culture and language (Li, 2018). In the 1960s, the publishing of *Silent Spring* pushed the word “ecology” to the forefront of history. Linguistic scholars also begun to explore the relationship between language and environment from the perspective of ecology.

There are two events widely recognized as the landmarks in the history of ecolinguistics. In his speech entitled as *On the ecology of language* in 1970, Eniar Haugen firstly pointed out the inseparable relationship between language, environment ,and bio-ecological environment (Haugen, 1972). In the following two

decades, the studies of Bolinger (1980), Harrmann (1980, 1987), Denison (1983), Finke (1983), etc., primarily established the research paradigm of ecolinguistics, in which scholars clarified the research subject and definition and justified the ecology methods in linguistic studies (Fill, 2001). In the 1990s, in his speech *New Ways of Meaning: the Challenge to Applied Linguistics* in AILA, M. A. K. Halliday criticized the anthropocentric values and ideology in language, and demonstrated the close relationship between language and ecology problems, appealing for taking language and linguistic study as a part of the solutions for the alleviation of ecological crisis.

Later on, Fill (2001), and Bang and Døør (2007) reached an agreement and distinguished the two research paradigms in ecolinguistics studies, accordingly led by Haugen and Halliday. Haugen (1972) introduced ecology into the language system, analogizing the living state of language to that of living organism. Thus, in this model, the survival, development and death of language, language diversity, language world system, endangered language protection, languages planning, etc., are the research focuses (Huang, 2016). Scholars following this paradigm metaphorically investigate the ecology of language, thus are often understood as the linguistic ecology. As this thesis does not involve the living condition of a particular language, the author shall stop here for the introduction of the story of Haugen's paradigm.

Unlike the metaphoric use of ecology in Haugen, Halliday and his followers focus on the role of language in environmental problems, bestowing the social accountability of alleviating ecological crisis on linguists. Since then scholars have begun to discuss how language and linguistics contribute to the resolving of ecology crisis. Among all those Halliday's followers, quite a large branch of them examine the language we live by from the perspective of discourse criticism (Stibbe, 2015). Scholars investigate ecological and non-ecological features of the daily language and language system, intending to promote a more harmonious relation between language and ecosystem through adjusting the language system mode and modifying the way we speak (Huang, 2016). In other words, scholars following this paradigm actually adapt a similar method of discourse analysis. To appeal for ecological consciousness of human society, they encourage the ecological harmonious discourse and behavior, resist the inharmonious ones, and introspect human beings' conquering, controlling, plundering and destruction

over nature. Following this paradigm, this thesis critically inspects the language in two English documentaries relating to marine environment, intending to reveal their ecological attitude towards environment and surroundings and to investigate how the ecological ideologies are conveyed by linguistic devices.

### **2.1.2 Ecological Discourse Analysis and Its' Localization in China**

*Language Sciences* published a whole volume in 2014 to discuss the theoretical construction and development of ecolinguistics, in which ecological discourse analysis (EDA) was defined as a crucial task to investigate how language and the use of language can affect the ecosystem (Alexander & Stibbe, 2014). Although ever since its birth ecological discourse analysis was seen as an extension of Critical Discourse Analysis (CDA), they bear with different focuses. CDA primarily studies “the way how social power abuse, dominance, and inequality are enacted, reproduced, and resisted in the social and political analysis context” (Schiffrin & Hamilton, 2001). Fairclough (1995) put up the three dimensional conceptualization of discourse to represent interaction between discourse and society, in which discourse should be simultaneously regards as the language text (either spoken or written), as discourse practice to be produced and to be interpreted, and also as a social-cultural practice. Within Fairclough's theory, in analyzing the discourse, researchers shall describe the linguistic features of the discourse, interpret the relationship between the interpretative process and the text, and explain the relationship between interpretative process and its social meaning (Fairclough, 1995). In a word, CDA aims at finding how language reflects the social power and revealing what kind of ideology is conveyed in the language. As an extension of CDA, EDA has a more specific attention on the interactive relationship, particularly focusing on how “issues of environment are presented” (Harre, Brockmeier & Muhlhausler, 1999). To be specific, through the investigation of the ecological and non-ecological features in language, researchers of EDA intend to reveal the speakers' hiding attitudes and discourse representation towards the environment, exploring discourse expressions for sustainable development.

Halliday (1990) ushered in a new era of ecological and linguistic criticism, since then scholars have been striving to investigate the ecological and non-ecological

features of discourse from different theoretical angles. In its very early stage, some scholars were interested in conducting the ecocriticism on the language system itself. Halliday's pioneering discussion on growthism, sexism, anthropocentrism, classism, speciesism and their representations in the lexical and syntactic structures of language contributed to the rise of green grammar, which seeks for lexical and grammatical expressions to realize an ecological ethics of harmonious co-existence and universal equality. Besides the ecological and non-ecological features in the grammar system, more scholars are devoted into conducting the ecological discourse analysis on discourse of different genres. Mary Kahn's study on the *Wildlife Society Bulletin* (a famous magazine) indicates that the massive use of passive voice and euphemisms in scientific literature written style actually attempt to cover up for human being's moral responsibility (Khan, 1992). Michael Howlett and Rebecca Raglon's diachronic survey (1992) on 500 corporate introductions that were published between 1910 and 1990 finds out that throughout those 80 years corporate organizations' intentions to create an environmentally friendly identity were betrayed by the consumptive and nature-defying business images they chose. The studies of Gerbig (1993), Alexander (1996), Goatly (1996) involve how agency works in discourse to convey speaker or writer's ecology attitudes. Scholars' passion on the eco-critical investigation on discourses continues till today. Carvalho (2005) identifies the discursive strategies of political actors and the media in their re-constructions of climate change. Stamou and Paraskevopoulos (2008), by analyzing vocabulary, syntax, ergativity, aspect, and temporal and illocutionary indices, studied whether visitors, through the way they construct protection acts in their texts, display knowledge about and concern for environmental issues within an ecotourism context. Alexander (2009) studied texts of different genres and interrogated how in the media, press, corporate and activist circles language is employed to argue for and propagate selected positions on the growing ecological crisis. Near recently, corpus is being introduced into EDA to systematically discuss the linguistic features of environmental language; for example, facilitated by corpus linguistic techniques, Alexander (2017) conduct critical discourse analysis on the texts about environmental degradation.

The above paragraphs give a brief glimpse on the EDA studies by former scholars

abroad. In the next part, the author shall take a look at how the scholars in China assimilate the model of EDA and develop our own research paradigm. In the early age of the twenty first century, Fan (2005), Fan and Gong (2004), Kong (2016) were the pioneers who brought the ecolinguistics theory into China, introducing its history, theoretical framework, research paradigm, and recent achievements. In the recent decade, Huang Guowen and his followers are a branch of new force that contributes a lot for the localization of EDA into Chinese context. On the one hand, they introduced the theories and ideas of some famous ecolinguistic scholars such as Fill and Stibbe (Huang & Chen, 2016; Huang, 2018; He & Wei, 2018); on the other hand, they are actively exploring EDA approaches that suit the Chinese context and that can deliver the voice of Chinese scholars to the world. He and Wei (2018) demonstrated the similarities and differences among Critical Discourse Analysis, Positive Discourse Analysis, Multimodal Discourse Analysis and ecological discourse analysis, clarifying ambiguities for the establishment of EDA theoretical foundation. He and Zhang (2017) set up an ecological analytical framework for discourse by employing the Sense of Place and refining the transitivity, mood, modality, appraisal, theme and information systems within Systemic Functional Linguistics from the perspective of ecology. This thesis borrows the ideas of He and Zhang (2017). Huang and Chen (2016), Huang (2017c) construct an ecology philosophy system integrating the ideas of Chinese philosophy, which thus offers a better way to convey the understandings of China to the world.

In recent years, the number of EDA practice is booming. Yang and Qu (2013) analyzed the language in *Life of Pi* under the framework of transitivity system with a purpose to examine how the writer actively constructs a harmonious relationship among human, society and nature. Also within the framework of Systemic Functional Linguistic (SFL) and Discourse Analysis, Huang and Chen (2017) studied the register, genre and metafunctions of the text, aiming at revealing Emily Dickinson's observation and attitudes towards nature in "*A Bird came down the Walk*". Based on the SFL and the theory of ecological Sense of Place, Yuan (2018) empirically studied the news headlines about China haze in BBC, revealing the incomplete reports and eco-beneficial features in them. Besides, quite a lot postgraduate theses followed this paradigm, investigating

how ecological meaning is construed through language resources (Ning, 2014; Fang, 2015; Hu, 2017; Wang, 2018).

### **2.1.3 Research Paradigm for EDA**

He and Wei (2018) clarified some theoretical features for EDA. For the first thing, the life sustaining relationship between human beings, between human beings and other organism, and between human beings and environment are the constant focuses of EDA. Endowed with ecological accountability, linguists aim at awakening human society's ecological awareness and cultivating a proper attitude towards nature and other organisms. EDA not only studies the discourse with environmental topic, but also involves an ecological analysis on discourse of various types (Alexander & Stibbe, 2014).

Secondly, scholars of EDA attempt to alleviate world's ecological crisis through the reflection and promotion of the language we use. Thus, they claim that we should encourage the practices which contribute to the sustainability of ecological environment and should reject those which do harms to the ecological equilibrium and the species diversity. On account of this, according to its ecological effect, Stibbe (2015) classified discourse into three categories, namely, ecological beneficial discourse, ecological ambivalent discourse, and ecological destructive discourse.

Then, the next problem is on what basis do we judge the ecological effect of the discourse? The answer is the researcher's ideology, ethical criteria and values, and their ecological philosophy (Huang, 2017c). Naess (1995) is the pioneer who employed the term ecological philosophy (abbreviated as ecosophy) to generalize these ideologies relating to ecology. He believes that the formation of ecosophy is shaped by various factors, including the living condition, society and education, knowledge about history, geography and human development, personal experience and moral level, etc. That is to say, the construction of ecosophy is quite an individualized process, characterized by systematicness, individuality, culture, sustainability and evolution (He & Wei, 2018). For us individual analyzer intending to do ecological discourse analysis, inheriting the well accepted ecosophy established by former scholars is a safe way. Danish ecolinguistic scholar Jorgen C. Bang argued that cooperation, sharing, democratic

dialogue, peace and non-violence, equality and ecological sustainability should be the fundamental characteristics and the primary values for ecolinguistics, which should contribute to local and global culture (Stibbe, 2015). Stibbe recognized the complexity and profundity of constructing a universal ecosophy and used the expression “Living!” to generalize his ideology system. This generalized expression can be interpreted from seven aspects: Valuing living, Wellbeing, Now and the future, Care, Environmental limits, Social justice, and Resilience (Stibbe, 2015). China has a long tradition in discussing the human-heaven relationship, thus the imported ecosophy borrowed from different cultural background does not fit into the Chinese context and is not sufficient to deliver the essence of Chinese ecological philosophy. As China is gaining an increasingly significant role in maintaining the ecological sustainability, it is the scholars’ obligation to put forward a set of ecosophy that can deliver the essence of the Chinese culture to the world and submit a set of China plan to alleviate the world ecological crisis. After deep reflection and rigorous research on the Chinese philosophy, Huang Guowen (2017c) proposes one assumption and three principles that can be followed in doing EDA practice; namely, they are “the assumption of people-orientedness”, “the principle of consciousness”, “the principle of proximity” and “the principle of regulation”. Huang’s ecosophy is followed in this thesis, serving as a criterion for ideal ecological attitudes. A detailed introduction can be found in the next chapter.

And finally, the last problem is on what linguistic theory or linguistic device does this thesis depend. As an open and inclusive research paradigm, EDA accommodates any proper linguistic theory. And as an applicable linguistic theory, Systemic Functional Linguistics offers comprehensive and powerful tools for us to solve the practical ecological problems. Many scholars have applied SFL methods into EDA practices and have proved its serviceability. Bednarek and Caple (2010) analyzed the evaluative meanings in heading, image and caption of forty environmental reporting in Australian broadsheet newspaper *The Sydney Morning Herald* based on the Appraisal theory; Stibbe (2005) conducted a functional analysis on the process, participant role, and modality in the discourse of neoclassical economists in BBC news report *Polish factory farms cause a stink*; He and Wei (2017) set up a transitivity analytical model for

international ecological discourse; He and Zhang (2017) constructed an ecological analytical framework for discourse. Zhao (2016) carried out a case study on the identity construction of silver hake in ecological assessment reports from SFL perspective. Following these scholars' step, this thesis also adapts SFL theory, intending to reveal ecological effect through investigating the linguistic devices within the framework of transitivity system.

## 2.2 Previous Studies on English Marine Documentaries

The research objects of this thesis, *Oceans* and *Big Fish Texas*, are two documentaries relating to marine environment, presenting the living conditions of marine species and exhibiting the interaction between human being and the marine environment. They can be further classified as ecological documentary. Generally speaking, ecological documentary gives its attention on the survival and development of species, relationship between species or between species and environment, mutual interaction between human life and nature, in which the thoughts of ecological protection or ecological aesthetics shall be delivered (Chang, 2014). In recent decades, ecological documentaries sprang up one after another in world famous platforms, such as CCTV, BBC, NGC, Science.Channel, etc (Wang, 2015).

Former studies on ecological documentaries focused on the interpretation of its aesthetic value and artistic techniques. The linguistic interpretations of its ecological significance are seldom seen. Wu (2017), Chang (2014), Wang (2016) elucidated the English commentary in the ecological documentaries from the perspectives of Grammatical Metaphor, Functional Stylistic, and Periodic Analysis. Li and Li (2017), Gao (2015), Zhang (2015), and Wang (2018) investigated the subtitle translation of the ecological documentaries under the perspective of Eco-translatology. It can be concluded that there is a plenty of room for the studies that interpret the ecological value of the ecological documentary discourse from linguistic perspectives.

## 2.3 Summary

In the last part of Chapter Two, there shall be a brief review of this chapter. This chapter gives a general introduction to the theoretical background of ecolinguistics and layouts some previous studies. Section 2.1.1 introduces the origin and development of



ecolinguistics, and locates the position of EDA in the domain of ecolinguistics. Sections 2.1.2 and 2.1.3 demonstrate some previous studies of EDA and illustrate its research paradigm. Section 2.2 has a quick look on the study of marine documentaries.

Li (2018) pointed out that at present ecolinguistics studies in China mostly focus on literature review, theoretical integration and qualitative research based on macro policy analysis; and there are few corpora and statistics assisted quantitative studies. Thus, Chinese scholars should turn to empirical research on the micro-level with comprehensive theories, such as the Multimodal Discourse Analysis, the Metaphor Theory, the Appraisal Theory, etc., and should integrate quantitative and qualitative methods. Thus, following Li's enlightenment, this research shall qualitatively interpret the ecological effect of the language in the two documentaries, and then visualize the ecological tendency of the two documentaries by calculating and investigating the statistic information of the linguistic features.

## **Chapter Three**

### **Theoretical Basis**

This chapter introduces the instantiated theoretical basis and then incorporates an analytical framework for the subsequent ecological discourse analysis, which consists of three strata: meaning potential, interface and linguistic instance. The pertinent ecosophy serves as the meaning potential to offer a criterion for ecological assessment; the systemic notion of transitivity is employed to examine the linguistic devices through which ecological meanings are conveyed; and the notion of Ecological Sense of Place is utilized to build a connection between linguistic devices and the corresponding ecological meaning potential.

#### **3.1 Introduction**

With no more than 40 years' history, no consensus has been established so far on a widely acknowledged analytic framework for ecological discourse analysis. As a linguistic branch dedicating to the applicability of its theory, Systemic Functional Linguistic has gained favors from scholars in exploring an analytical device for EDA. Language on the one hand statically represents our ideology and action, on the other hand dynamically constructs the world we live in. Halliday (1990/2003) proposed that linguistics and language themselves actually are 'mode of action'; they should be a way to intervene the social and political process in human society, and they are employed to construct our world. Thus, through the destruction of language, we could reveal 'the stories we live by' (Stibbe, 2015); and through the reflection, encouragement, criticism, modification or restraint on the ideology we carry, linguistics and language take their responsibility in building a better world (Huang, 2017a). Upon this idea, Halliday (1990/2003) dedicated to develop systemic ecolinguistics to investigate the impact of language on human decision-making relating to ecological issues and consequently on the actions human takes to deal with these issues (Zhang, 2018). SFL scholars (Zhang, 2018; Zhao, 2016; He & Zhang, 2017; Huang, 2017b; He & Wei, 2018; Xin & Huang, 2013) are discussing the possibility to build an analytical framework for EDA under the

domain of SFL both theoretically and practically. Transitivity system, them-rhyme system, information system, modality system, etc., all have been applied to interpret discourses ecologically. Following previous scholars' steps, this thesis attempts to carry out an empirical research within the domain of EDA and SFL.

SFL regards language as 'the cline of instantiation', realized through the 'system-register-text' hierarchy (Figure 1). The first hierarchy is realized by the second hierarchy. The system underlies the meaning-making resources as the potential of language; the meaning potential of the language is instantiated in the form of text.

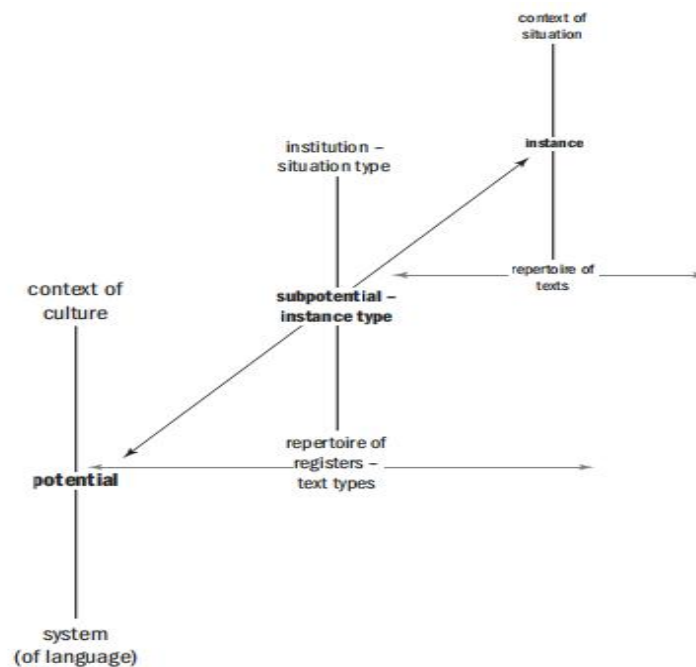


Figure 3.1 The cline of instantiation (Halliday, 2014)

Following this guiding ideology, this thesis attempts to establish a 'meaning potential - interface - linguistic instance' analytic framework for EDA. In the meaning potential stratum, ecosophy developed by Huang Guowen (2017) serves as a criterion for harmonious and ideal ecological ideology. In language instance stratum, transitivity system is employed to investigate the speakers' linguistic devices. To build a connection between the linguistic devices and the ecological meanings they convey, a geography concept Sense of Place (SOP) is placed between the linguistic instance stratum and the meaning potential stratum; SOP expounds these connections from three perspectives:

the responsible role of human participants, the aspects of nature that is being focused in the language, and the types of sense that human participants generate towards nature. The ecological meanings delivered in the discourses shall be materialized into and interpreted from the three aspects in the domain of sense of place, and then instantiated and realized by the transitivity resources.

## **3.2 Ecosophy: The Meaning Potential Stratum**

### **3.2.1 Definition and Significance of Ecosophy**

Although critical discourse analysis has preliminarily gained its position as an intellectual orthodoxy in human and social sciences, it has always been criticized for its insufficiency in judging criteria (He & Wei, 2018). The emergence and development of EDA remedies this weakness in traditional discourse analysis paradigm. A consensus has been reached that before going into any EDA practices, analyzers should have a set of well-established ethical principles, which play a significant role in understanding and evaluating the ecological value of discourse. These set of principles were initially defined by Naess (1995) as ecosophy, which should be understood as ‘a philosophy of ecological harmony’ and contains rules, postulates, value priority announcements and hypotheses relating to the state of affairs. In other words, according to his ethical standards, analyzer could evaluate the ecological meanings of linguistic features so that he could tell whether the discourses are ecological or non-ecological. Incorporating human beings into the panorama of ecosophy system, analyzer should reconstruct the relationships among human beings, other organism and the environment, and organize them into a set of environmentally friendly normative principles and assumptions (Stibbe, 2015).

Guiding by our ecosophy, we could reveal the deep ideology hiding behind ‘the abnormal readings of the interaction among human, non-human organisms and the physical world’, according to which we could distinguish the ecological effects of the discourses. Furthermore, we could promote the beneficial discourse and maintain vigilant on the destructive discourses. And this may be a starting point for the pursuing of a more harmonious human-nature relationship. Thus, to settle the ecological issues from the perspective of ecolinguistics, it is necessary to set up new ways of

understanding the human-nature relationship and to integrate the ecological philosophy behind all the linguistic analysis (Zhang, 2018).

### **3.2.2 “One Assumption & Three Principles” Ecosophy**

Constructing the ecosophy is quite an individualized process, which could be formed by multiple aspects including the political, economical, geographic, historical, social and educational factors (Huang & Chen, 2016). For a long time, western philosophers have always dominated the discussion of human-nature relationship (Zhang, 2018). As China has gained an increasing role in solving the global ecological issues, it is not enough to just adopt the achievements in western philosophy. To deliver the voice of China to the world and to submit a China plan for the current ecological crisis, it's time for Chinese scholars to propose a set of ecological ethics that suit Chinese context.

Philosophers have been committing to digging out and elaborating the ecological thoughts from traditional Chinese philosophy, in which a harmonious human-nature relationship has been formed and an eco-friendly way to get along with the nature has been developed with thousands of years' endeavor. Within recent ten years or more, Chinese linguists also devoted themselves in developing applicable ecosophy systems for ecological discourse analysis (Huang, 2017c; He & Wei, 2018; Zhang, 2018). Among all those outstanding ideas, the ecosophy system put up by Huang Guowen is found to be systematic and practical for EDA, and thus is adopted in this thesis.

#### **The assumption of people-orientedness**

The concept of “harmony between man and nature” (天人合一, Tian Ren He Yi) has been widely employed by studies about Confucianism to represent its ecological ideology (Zhou, 2017; Zhou & Huang, 2017; Meng, 2004; Qiao, 2013). And ‘pursing for a better life’ has been widely accepted as a merited action, no matter in the age of agricultural civilization, industry civilization or nowadays’ ecological civilization. Under the direction of Wang Yangming’s ‘the unity of all things’ ideology (万物一体, Wan Wu Yi Ti), as a member of the nature, it is rational, indispensable and justified for human to ask for living materials from their living environment to maintain their survival and development (Zhang, 2004). Huang Guowen (2017c) adapted the term

‘people-orientedness’, proposed by Guan Zhong (a famous minister of Qi State in the Spring and Autumn period), to elaborate the underlying assumption on his ecological ideology for discourses and behavior analysis. This is consistent with Stibbe’s “Living!” (Stibbe, 2015). In ecological discourse analysis, ‘the assumption of people-orientedness’ requires that the survival and development of human being should be the priority.

### **The principle of consciousness**

Wang Yangming endowed consciousness as spontaneous self-regulation and subject of moral judgment. It derives from the inner interiors, which is the origin of all the knowledge and experience including moral consciousness, principles and norms (Huang, 2017c). For example, it is naturally to generate a sense of filial piety to father, to have a sense of respect to elder brothers and friends, and to arise compassion on child falling down the well. Under the context of ecology, eco-conscience is spontaneous and voluntary good intentions on caring and protecting nature, which comes from the gradual awareness of the deep correlation between nature and human beings’ survival (Wang, 2005).

### **The principle of proximity**

Although Confucianism claims for “harmony between man and nature”, there essentially exist hierarchy within the unity of man and nature. Adhering to ‘the assumption of people-orientedness’, human will cultivate relationships of different distance with other organisms and natural environment. This relationship can be defined from multi-dimensions, such as geographic, spatial, temporal, cognitive, emotional, etc. We will develop different relationships with people surrounding us, such as stranger, nodding acquaintance, intimate friend, and close families etc. In the similar way, we also generate emotions of different degree towards the surroundings; and these different degrees of relationship are quite cultural oriented. Adapting it to the ecological context, Huang Guowen (2017) proposed ‘the principle of proximity’, which require us to develop intimacy towards surrounding organism and nature environment.

### **The principle of regulation**

Human beings differ from any other organism on the earth in their thinking ability, their introspection, and their language ability, which produce rationality, morality, hierarchy, social organization, and behavior rule. Thus, restrictions will come from their

self-consciousness and education, folk regulation in community, and social legal regulation; and the former regulations shall comply with the latter ones. For the ecological analysis of discourse and behavior, the regulations from individual, community and nation, interacting with each other, play a significant role in the social stability and harmonious coexistence between human and nature (Huang, 2017c). To be more specific, the principle of regulation requires that human beings should limit their exploitation, influences and destruction on the surroundings as minimal as possible.

### **3.3 Ecological Sense of Place: The Interface Stratum**

The ecosophy originated from the Chinese philosophy has been demonstrated in the last section. But pursuing for a thorough ecological ethical criterion should never stop here for two reasons. First, within most of the current ecosophy, in discussing the relationship among human beings, other living organisms and the physical environment, analyzers tend to focus on how is ecology affected by human beings; and the mutual effect and interaction between nature and human beings is relatively ignored, which implies human beings is regarded as standing above the ecosystem rather than being the membership of the ecosystem. The insufficiency of a sense of ecological belonging and the ignorance of the mutual interaction among human, other organism and physical environment are one of the causes that lead to today's ecological problem (He & Zhang, 2017). Second, the construction of ecosophy should incorporate value judgment and scientific judgment; the former one refers to the judgment made by human beings on the objective value of things, expressed as 'we should.../it should be...'; while the latter one refers to people's construal of what things actually are, expressed as 'it is...' (Tan, 2018). The ecosophy expounded in the above section stipulate how should human beings behave so that we could leave the minimal influence on nature and how to evaluate the objective value of human activities. To make up the insufficient attention on "human-nature mutual interaction" and to replenish the binary relationship of 'value-scientific judgment', this thesis integrates the concept of Sense of Place (SOP) into its analytical framework, which is a geographic concept and was brought into EDA by He Wei and Zhang Ruijie (2017). Scholars believe that different Sense of Place shall trigger different ecological behavior and lead to totally different ecological effects.

SOP is initially a geographic concept and rebuilt by Zhang Ruijie (2018) to fit for ecological discourse analysis. It refers to the emotional connection, cognitive experience, and conation behavior individual or group generate towards the physical and social characteristics of their living places and the non-human organisms. Generally speaking, it consists of three components: PEOPLE, PLACE, and SENSE (Scannell, 2010; Zhang Ruijie, 2018). Zhang (2018) modified this geographic concept and renamed it as Ecological Sense of Place (ESOP), so that it could be applicable for ecological discourse analysis. In this thesis, the concept of ESOP is taken to serve as an interface in analyzing the relationship between linguistic devices and the ecological meanings they convey. In the following part, the three components shall be demonstrated.

**PEOPLE.** The analysis of ESOP begins with the agent who generates senses towards places. The agent exists in the form of both individual level and group level. And these two levels in a way exert influence on each other and are mutually dependent (Zhang, 2018). Individual or group experience is fundamental to the establishment of sense towards places and obviously agent's senses construct the whole body of ESOP system. Furthermore, for ecological purpose, there are different stakeholders who may create, suffer from, or solve the ecological crisis. Respectively, they are risk gainer who gains more from nature and return damage (polluting enterprise for instance), risk loser who suffers from damage (ordinary people), and risk manager who represents morality and interests of the commoners and involves himself with the protection and management of the sustainable environment. In general, the types of PEOPLE in ESOP system represents the responsible role that human participants bear in the interaction with nature; and the individual and group who generate identities and attachments to places can be re-classified from three-dimensions: risk gainer, risk loser, and risk manager.

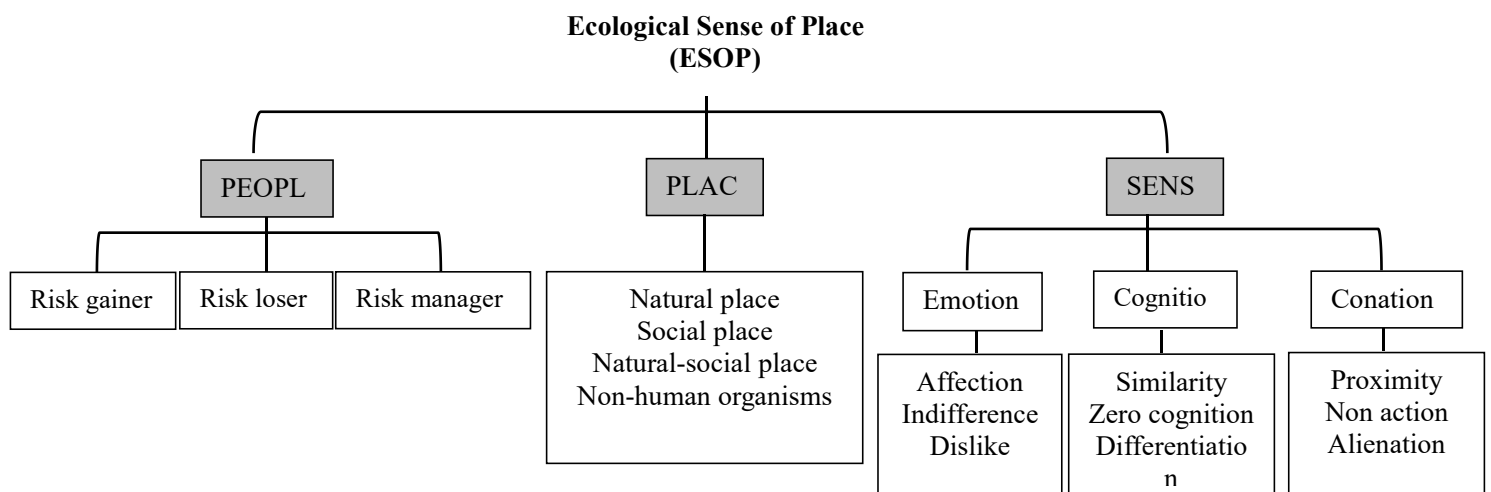
**PLACE.** The types of places occupy the second component of ESOP system. Generally speaking, places in ESOP system are divided into social aspect (houses, streets, residential settings, etc.) and natural aspect (mountains, rivers, landscapes, etc); then, the intermediate places between the social and the natural ones are named as natural-social places (tourists' attractions, national or provincial parks, home gardens, community greening, etc.), which serve not only as a natural retreat from social works but also as places for social bonding. Besides, non-human organisms, which share the



natural or social places with human beings, are also considered as the constituents of places in ESOP system.

**SENSE.** The last core component of ESOP refers to the types of sense generated towards places. Previous studies commonly agree that major psychological interactions between human and places basically are emotion, cognition and behavior. And different attitudinal tendency (positive, negative, ambivalent) will exert different influences on the interaction between human and nature. Thus, Zhang Ruijie (2018) refined nine types of sense by integrating the attitudinal tendency and the types of interaction (emotion, cognition, behavior). With regards to one's emotional connection with places, it ranges from love (affection) to intermediate indifference, and to hate (dislike). For cognition, human will generate sense of similarity, differentiation, and zero cognition. Finally, when it comes to the type which is realized through people's behavior, the conative process is divided into the maintaining of proximity, the reconstruction of the places (alienation), and non action.

To conclude, this section elaborates the Ecological Sense of Place system (ESOP) which serves as the interface between linguistic devices and the ecological meanings they convey. When conducting the EDA practices, analyzer should interpret the responsible role of human participants, distinguish the types of places, and figure out the types of sense generated by the human participants. Figure 2 gives a panoramic picture of the ESOP system.



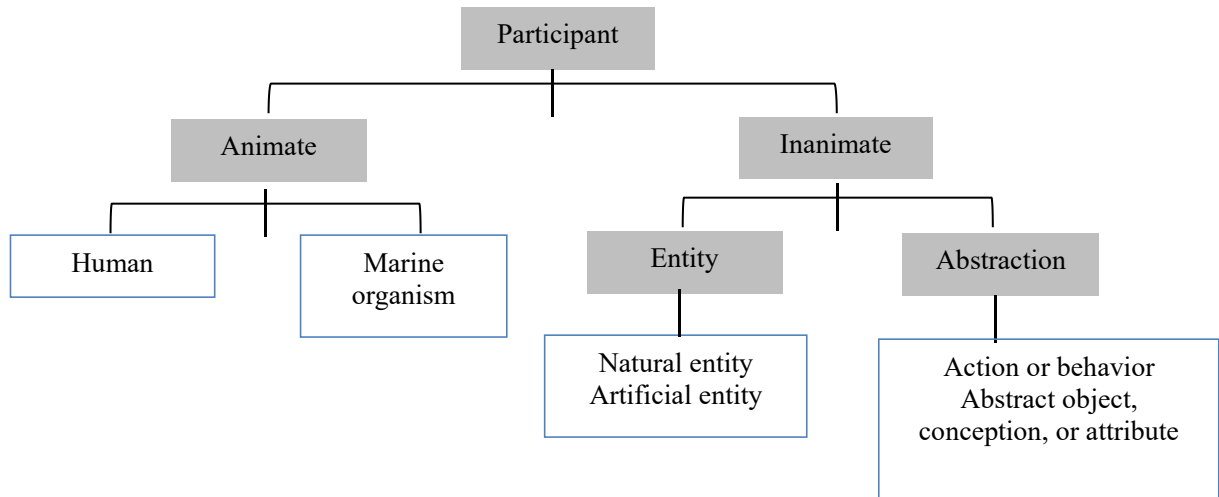
**Figure 3.2 The Ecological Sense of Place (ESOP)**

### 3.4 Transitivity System: The Linguistic Instance Stratum

With a sociological and functional orientation, Halliday's Systematic Functional Linguistics (SFL) explores how people use language in different contexts and how language is structured for use as a semiotic system. Halliday (2014) demonstrated that the meaning delivered by language can be interpreted from three metafunctional aspects: ideational meaning, interpersonal meaning and textual meaning. Within each metafunction, language serves as a set of possible choices waiting for constructing meanings. Among the three metafunctions, organizing and expressing "reality" is considered to be the priority (Halliday, 2014). Through the ideational metafunction of language, we talk about and construct both our external and internal world to represent the "reality" (Thompson, 2008). To be specific, this ideational meaning is realized mainly through transitivity, which construes the world of experience into a manageable set of process types (Halliday, 2000). To deliver a complete meaning, the process is accompanied by participant and circumstance. Processes are bounded to organize human experiences; directly relating to the process, participant evokes the process or is affected by the process; and usually realized by adverbial groups or prepositional phrases, circumstance serves as element arguing around the 'participant-process' configuration.

Bearing applicability as its initial mission, SFL declares that the general property of language is its availability in different operational contexts (Halliday, 2006), and the role of linguistic theory should be a resource for solving practical issue. This property of SFL makes it a suitable device in analyzing the ecological problems in language. In addition, transitivity system, as a quite mature linguistic theory, has been widely used in discourse analysis. Through decades' practice, scholars extended the delicacy and explanatory power of the process and participant from different angles and functions. In this thesis, for the discussion on the ecological interaction between human and nature, the author also attempts to make a more detailed and concrete classification on the Participant. This thesis intends to discuss the human-nature relationship in two English documentaries and reveals the ecological attitude conveyed in the discourse. Thus, based on the traditional classification of participants in Halliday's SFL (Agent, Goal,

Carrier), another dimension of classification method (Figure 3) is added in this thesis, so that we could have a clearer look at the power relation between human and nature. To be specific, when labeling the participant, we not only have to identify its traditional role as the Agent or the Goal, but also has to indicate its role as ‘human’, ‘marine organism’, ‘action or behavior’ or else.



**Figure 3.3 Refinement of Participant**

(Note: Marine organism refers to the non human organisms in the marine environment; Natural entity refers to the natural places such as the sea, the gulf, oceanic trench, etc; Artificial entity refers to the places or object build by human beings such as the seafood market, the boat, the parliament building, etc. Examples of abstract objects and conception could be ‘commercial fishery’, ‘family business’; Attribute refers to some adjectives description such as ‘nasty’, ‘worn out’, ‘successful’, etc.)

### 3.4.1 Material Process

To begin with, our material process represents a flow of events and happenings, usually realized by dynamic words. The doer of the actions is called the **Agent**. Another participant, which the process is directing at, is named as **Goal** or **Patient**, meaning the “suffer” or “undergoes” (Halliday, 2000). For its ecological orientation, Zhang (2018) refined the Goal and the Patient in Halliday’s theory as the **Affected** and the **Created**. The Affected element refers to the one that is influenced by an action; and the Created refers to the production of the Material process, indicating that the verb realizing the

process has the semantic function of “creating” (Zhang, 2018).

Table 3.1 demonstrates examples of Material process. In the first example, the lion is the one that initiate the process of catching, thus is labeled as Agent; and the tourist is the other part of the process which is the target of and is being influenced by the action of catching, thus is labeled as Affected. The action in the second example is “establishing something” and the object being established is the Chinese southwest shelter forest belt labeled as the Created; the Agent is being omitted.

**Table 3.1 Examples of Material process**

Participant: Agent	Process: Material	Participant: Affected
The lion	Caught	the tourist.
Circumstance	Participant: Created	Process: Material
After 10 years effort,	the Chinese southwest shelter forest belt	is established

### 3.4.2 Mental Process

Mental process deals with something goes on in the internal world of the mind, including our emotion (describing feelings), desideration (indicating demands), perception (described by sensory verbs) and cognition (realized by verbs like believe, check, examine, etc ). The subject that conducts the Process is labeled as **Senser** (for convenience of calculating, the Emoter, the Desiderator, the Perceiver, and the Cognizant are all simplified as Senser); the other Participant that is sensed by the Senser is labeled as **Phenomenon** (Thompson, 2008). Examples of Mental process are demonstrated in Table 3.2. The following two examples belongs to the type of Mental process, accordingly realized by Meant-emotion process that describes Senser’s feelings and by Mental-deisderation process that indicates Senser’s desire.

**Table 3.2 Examples of Mental process**

Participant: Senser	Process: Mental-emption	Participant: phenomenon
Mary	Like	the gift.
Participant: Senser	Process: Mental-desideration	Participant: phenomenon
The buyer	Wants	five thousand pounds of fish.

### 3.4.3 Relational Process

Relational process serves to establish the relationship between two entities, representing the interaction between what happens in the physical world and the world of our consciousness. Halliday assigned Relational process as attributing clause and identifying clause, which are used to indicate characteristics and clarify identities; He et al (2017) extended it into possessive process, correlation process, locational process, and directional process. This research adopts He's classification for its convenience of presenting the interactive relationship between participants. For attributing clause, there are the **Carrier** and the **Attribute**; for identifying clause, there are **Token** and **Value**; for Possessive clause, there are **Possessor** and the **Possessed**; and for correlative clause, there are two **Correlators**. Table 3.3 illustrates some examples of Relational process.

**Table 3.3 Examples of Relational process**

Participant: Carrier	Process: Relational-Attributive	Participant: Attribute
She	is	wise.
Participant: Token	Process: Relational-Identifying	Participant: Value
She	is	the leader.
Participant: Possessor	Process: Relational-possessive	Participant: Possessed
We	have	a really healthy red snapper fishery

### 3.4.4 Other Process Types

After the three major process types were analyzed in the above sections, the other less frequent process types, namely Behavioral process and Existential process, will be presented in this section. The Verbal process is not presented because of its less frequent occurrence in the data.

#### 3.4.4.1 Behavioral process

Behavioral process presents physiological and psychological behavior, like breathing, coughing, smiling, dreaming and staring. It is the least distinct process because it resides between Material and Mental process and has no clearly defined

characteristics of its own (Halliday, 2000). This process is composed by the **Behaver**, who carries out the process, and the Behavioral process itself. Table 3.4 gives examples of Behavioral process. It is easy to understand that dreaming is a daily behavior of human beings; while in the second example, diving to the marine animals is just like dreaming, smiling and breathing to human beings, so it is also understood as a Behavioral process of the sperm whales.

**Table 3.4 Examples of Behavioral process**

Behaver	Process: Behavioral	Circumstance
He	could have possibly dreamt about it.	
Sperm whales	can dive	to over two thousand metres.

#### 3.4.4.2 Existential process

Existential process indicates that something exists or happens. Apart from *there are...*, the Existential process can also be realized by some verbs closely related to existing or happening, such as *exist, remain, arise, occur, come about, happen, take place*, etc (Halliday, 2000). The entity that exists or the event that happens is called the **Existent**. And frequently, an Existential clause contains a distinct circumstantial element of time or place, labeled as **Location** (Halliday, 2000).

**Table 3.5 Examples of Existential process**

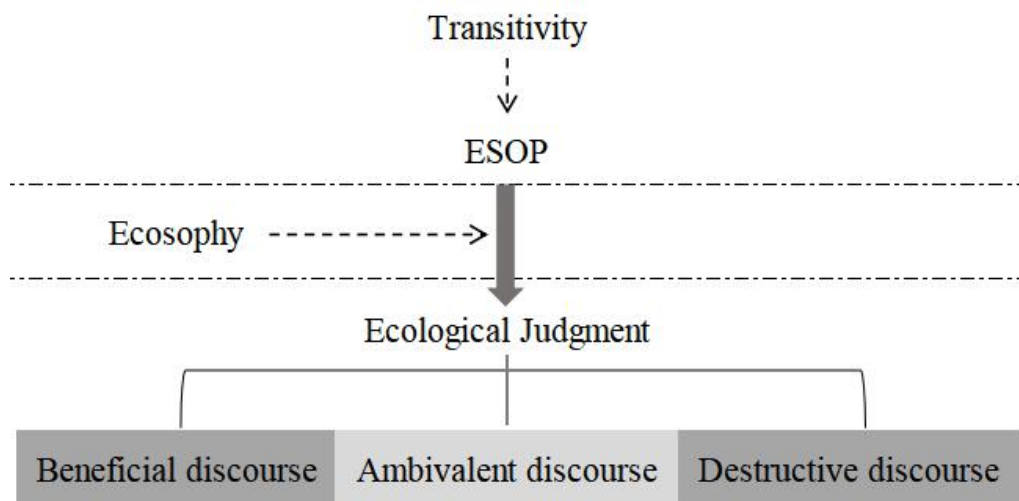
Circumstance: Location		Process: Existential	Participant: Existent
On the wall	there	Hangs	a picture.
	There	Was	a storm.

### 3.5 Summary

This chapter discusses the theoretical basis for EDA. Section 3.1 presents the idea that language is a cline of instantiation, which serves as the fundamental support for the analytic framework in this thesis. Section 3.2 introduces the ecosophy argued by Huang Guowen (2017), serving as the meaning potential stratum that unconsciously decides

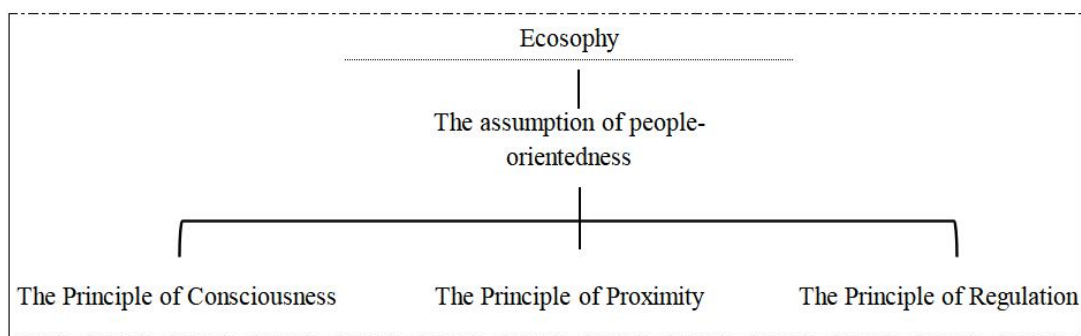
the speaker or writer's ecological tendency and functioning as the ethical criterion for EDA practice in this thesis. Section 3.3 demonstrates the concept of Ecological Sense of Place, which works as an intermediate for linguistic devices and ecological meanings in the analytic framework of this thesis. Finally, Section 3.4 lays out the linguistic devices through which the speaker or writer's ecological attitudes are realized. The above four sections constitute the theoretical basis for this thesis, in which the realization of ecological meanings in language starts from the ecosophy of speaker or writer, then is instantiated by the concept of ESOP system and finally realized by the transitivity system.

In this section, the analytic procedures shall be presented. In conducting EDA practice, analyzer shall start from identifying the transitive resources used in discourses; then, to connect the linguistic devices with ecological meanings, human participants' responsible role (PEOPLE in ESOP), the aspects of nature that is being focus (PLACE in ESOP), and the types of sense generated towards the surroundings (SENSE in ESOP) shall be clarified; and finally, under the guidance of the ecological ethical criterion, a judgment shall be made on whether the discourse is ecological beneficial, ecological ambivalent or ecological destructive. To have a clear and panoramic picture of the analytic framework in this thesis, Figure 4 illustrates the procedures for ecological discourse analysis.



**Figure 4 The analytic framework for ecological discourse analysis in this research**

Ecosophy determines the orientation of EDA practice. Figure 5 displays the ecosophy system in the analytic framework. To begin with, the ecological discourse analysis shall be based on the ‘people-orientedness’ assumption, which insists the priority and rationality of the survival and development of human beings. At the same time the other three principles require that the human beings shall keep conscious and grateful towards nature, be intimate with nature, and limit their consumption to the minimal extent.



**Figure 5 The ecosophy system in the analytic framework**

The ecological attitudes are materialized by the resources in ESOP system, and then instantiated by specific linguistic devices which in this thesis is constrained to transitivity resources. In Figure 2 in Section 3.3, the details in ESOP system is displayed clearly. The transitivity system has already been discussed in Section 3.4; to have a clear impression, Figure 6 integrates the linguistic devices in transitivity system. Participants, processes and circumstances are the core components in transitivity analysis. The well-established and widely recognized classification for participants by Halliday and other SFL scholars is borrowed as the basis; furthermore, to explore the interaction and power relation between human beings and nature (the marine, the marine organism, etc) embodied in the discourse and to offer evidence for the ecological ethical judgment in the next steps, the author adds another participant dimension -- participant as human, marine organism, natural entity, artificial entity, action or behavior, and abstract object, concept or attribute. The analysis of process type and the circumstance shall resort to the current theory used by most scholars; details are showed in Figure 6.



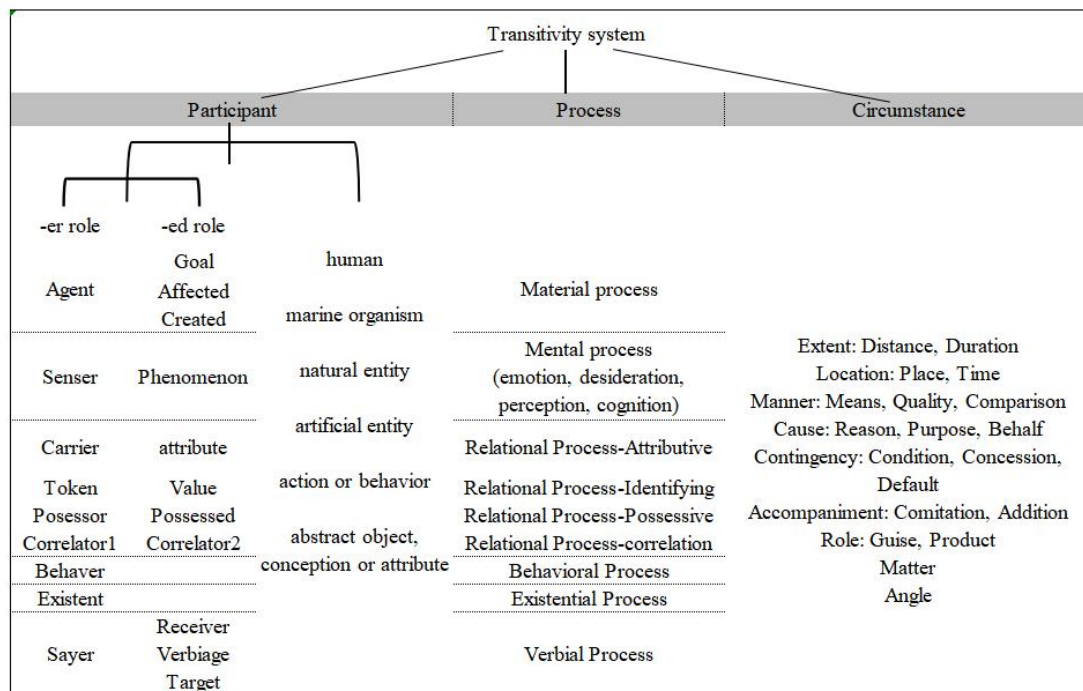


Figure 6 The transitivity system in the analytic framework

## Chapter Four

### Research Design

In the previous chapter, the theoretical basis is elaborated for the ecological discourse analysis of this thesis. This chapter will present the detailed research design. Firstly, the research questions are introduced to display the author's original intentions. Then the information about the data will be listed. Next, the instrument used in this research, the annotation schema and the statistical methods are expounded. Finally, the research procedures are clarified.

#### 4.1 Research Questions

This research intends to conduct a contrastive ecological discourse analysis on two English documentaries relating to marine environment: *Oceans* by BBC and *Big Fish Texas* by NGC. The following three research questions will be addressed:

- (1) How are the ecological attitudes in the two documentaries conveyed through transitivity resources?
- (2) Which one of the two documentaries has a more positive ecological significance? And how is this more positive ecological significance realized?

#### 4.2 Data Collection and Description

Both the two documentaries chosen in this thesis keep a record of human beings' exploration and exploitation on the oceans, closely focusing on the marine environment and the marine organisms in it. The interaction between interests group and marine environment thus can be reflected. *Oceans* is a documentary series produced by BBC in 2008, which preserves a group of scientists' exploration on the marine world. It seeks to provide a better understanding of the state of the earth's oceans today, their role in the past, present and future and their significance in global terms. *Big Fish Texas*, produced by NGC in 2016, shoots how the Galveston's Guindon family runs and develops their family fishery business in the Gulf of Mexico, and displays how they keep their business growing and thriving at all costs in an increasingly serious business condition.

There are several reasons why the current two documentaries are chosen and why

they fulfill the objectives of this thesis. Firstly, the similar topic of marine environment bestows the two materials with comparability; while different shooting angles give us the necessity to analyze them contrastively. Secondly, standing on behalf of different interests group, the two documentaries have inevitable different attitudes, emotions and cognition towards the marine environment and marine organisms. Thus, they offer sufficient discourse materials for EDA to investigate how linguistic resources are used in conveying ecological ideology. Last but not least, produced and broadcast by world famous platform, the two documentaries have a large amount of audience, which gives them great power and significance on spreading their ecology values; undeniable, they could influence and shape audience's idea towards ecology. Thus, it is indispensable to critically evaluate them and offer an objective and ecologically oriented evaluation to the audience.

This thesis selects one complete episode from each documentary. Then the two pieces of 40 minutes videos are transcribed into written texts and are cleaned. More detailed information of the final texts is showed in Table 4.1. For the convenience of writing, in the following chapters, the *Oceans* is replaced by Documentary A and *Big Fish Texas* is replaced by Documentary B.

Table 4.1 Basic text information

		<i>Oceans</i> (Documentary A)	<i>Big Fish Texas</i> (Documentary B)
Length	Words	5368	4488
	sentence	457	480
Grammatical Complexity	Av. Word Length	4.27	3.8
	Av. Sentence Length	11	9.35
Lexical Density	Lexemes per sentence	5.19	4.04
	Lexemes % of text	46.88	43.24

### 4.3 Instrument and Data annotation

The UMA CorpusTool is a state-of-art environment for annotation of text corpora, available at <http://corpustool.com/index.html>. The UMA CorpusTool is chosen from all

those corpus software for the following two reasons. On the one hand, it gives analyzers a free platform to construct their own personalized annotation schema and to annotate multiple texts with the same annotation schema; on the other hand, it offers an efficient statistic tool in its software, so that analyzers can extract and compare the statistics of linguistic features they intended investigate.

To have a better understanding of the language processing and statistic analysis in this thesis, working procedures shall be discussed here.

To begin with, based on the theoretical basis discussed in Chapter Three, the annotation schema shall be built in the UMA. As displayed in Figure 7, linguistic features should be annotated at three levels, accordingly transitivity system, ESOP system and an ecological judgment. Due to the limitation of space, the details of transitivity system and ESOP system, which has been discussed in Chapter Three, will not be displayed here.

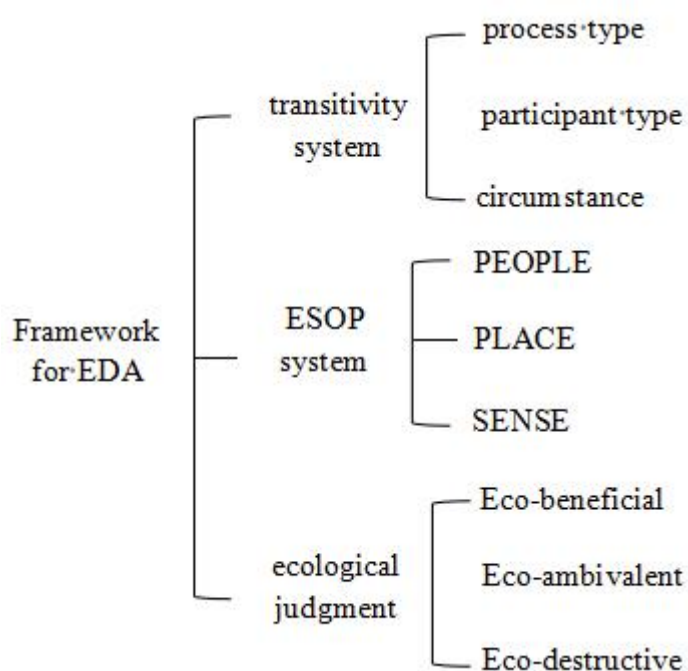


Figure 7 The annotation schema

Next, the target texts shall be imported to the UMA and the analyzer should annotate the texts manually based on the established annotation schema.

Then, after finishing the annotation tasks, the statistics function in the UMA will

offer the data of the annotated linguistic features, which include the frequency and percentage of the linguistic devices. However, the simple comparison of the frequency and percentage is insufficient to prove the validity of the differences between the two texts, because the total number of words in the two texts are inevitable not the same. Thus, to verify the validity of the frequency differences, the frequencies of the linguistic features in the two texts shall be tested by calculating Chi-square value and P value. The calculation depends on the calculating tool developed by Liang Maocheng and his colleagues (2010), which is designed specially for the analysis of corpus data. To have a better understanding, a piece of data is exemplified here. As in Table 4.2, Documentary A has 79 Material processes and Documentary B has 110 Material processes. We can not simply conclude that Documentary B uses Material process more frequently than Documentary A, because the two texts are of different total number of words. To verify the validity of the difference, Chi-square value has to be calculated. If the Chi-square value is greater than the critical values of 3.83, 4.64 and 10.83, it shows that the value is significant at the significant levels of 0.05, 0.01 and 0.001. In this example, the Chi-square value for the frequencies of Material process is 12.4653 and the P value is 0.000, which indicate that the difference of Material process between Documentary A and Documentary B is statistically significant. For the convenience of interpretation, the signals \* and +/- are displayed; \* indicates the significance of the difference; + indicates that the target linguistic device is overused by Documentary A than Documentary B; and - indicates that the target linguistic device is underused by Documentary A. The following data shows that Documentary B has more Material processes than Documentary A, and this difference is statistically significant; Mental process is also more frequently used by Documentary B, but this difference has no statistical significance.

	Documentary A		Documentary B		Chi-Square Significance(p)		
Material process	79	38.54%	110	50.93%	12.4635	0.000	*** -
Mental process	32	15.61%	38	17.59%	2.1764	0.140	-

Table 4.2 An example of data analysis

#### **4.4 Research Procedures**

This thesis integrates both qualitative and quantitative methods in its research design.

The ecological meanings conveyed in the sentences shall be qualitatively interpreted through the analysis of the linguistic devices from three dimensions (the transitivity system, the ESOP system, and the ecological judgment).

The linguistic features are calculated to present and compare the ecological tendency of the two documentaries as a whole. To be specific, the use and distribution of process types, the constitution of participant types, and the deconstruction of the ESOP system in the two documentaries shall be examined to reveal the textual differences

Upon the statistics of the linguistic devices, qualitative conclusions on the ecological significance of the two documentaries shall be made. And the linguistic devices that contribute to the ecological and non ecological effect in discourses shall be reflected.

## Chapter Five

### Results and Discussion

The above chapters offer the theoretical basis and analytic framework for the description and interpretation of the language data. In this chapter, the author intends to analyze the discourse in the two documentaries and reveal the ecological meaning which underlies the language instances. The analysis will begin with an investigation of the linguistic features in terms of process types and participant types; then the Ecological Sense of Place will be analyzed; and finally ecological scores will be calculated to exhibit the ecological tendency of the documentaries as a whole.

#### 5.1 Process Types in the Data

##### 5.1.1 Overall Distribution

The representation of our experience consists of a flow of events, which are realized in quanta of change by the grammar of clause. These changes can be modeled as a figure of happening, doing, sensing, saying, being or having (Halliday, 2014). A process unfolding through time and the participant involved in the process constitute the core components of the figure. Visualizing the statistical distribution of the process types offers an angle to present how the events are advanced in the two documentaries.

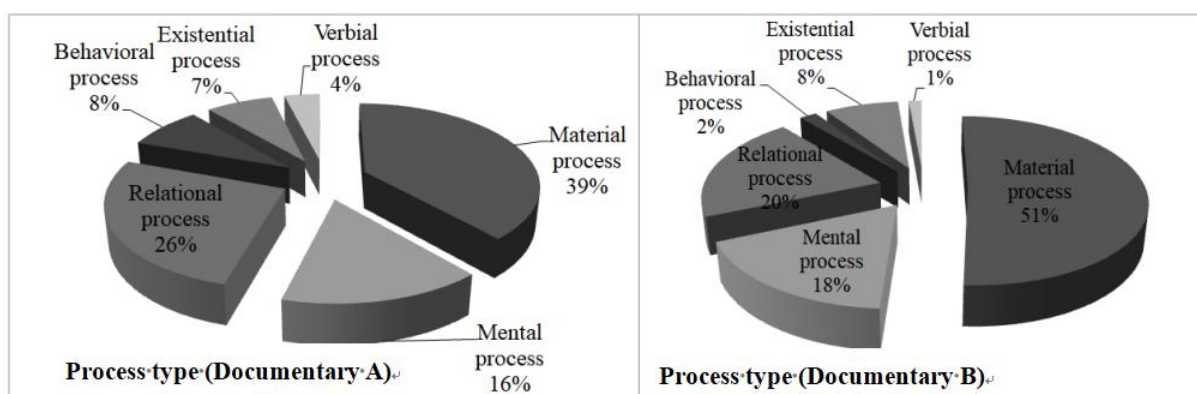


Figure 8 The distribution of the process types

To begin with, the exploration shall start from how are the process types used in the

two documentaries. Some analogous tendencies emerge. Material process plays an important role in both Documentary A (39%) and Documentary B (51%); together with Mental process (16% in Documentary A, 18% in Documentary B) and Relational process (26% in Documentary A, 20% in Documentary B), they control the flow of events. Behavioral process, Existential process and Verbal process take a relative smaller part, totally accounting for 19% in Documentary A and 11% in Documentary B. To be specific, most of the time, discourse in both the two documentaries present the actions that affect and rebuild the actual state of the subject and the environment through Material process; also, they often express the participants' emotion, desideration, perception, and cognition towards the outside environment through Mental process; and besides, they strive to characterize or identify the features of participants, and clarify the relationship among participants through Relational process. The participants in the two documentaries mainly involve human beings, marine organisms, the marine environment, etc. So the similarity in all the above three process is that they promote or retreat the interactions between human and nature actively. Yet, the other three process types account for a relative small part of the whole texts.

Although Documentary A and Documentary B exhibit a general resemblance in the distribution of process types due to their similar topic and genre, they differ from each other when using process resource to convey their idea. These differences are unavoidable, because behind their linguistic choice their ecological ideologies manipulate.

**Table 5.1 A statistical comparison of the process type**

	Documentary A		Documentary B		Chi-Square	Significance(p)		
Material process	79	38.54%	110	50.93%	12.4635	0.000	***	-
Mental process	32	15.61%	38	17.59%	2.1764	0.140		-
Relational process	54	26.34%	44	20.37%	0.0162	0.899		+
Behavioral process	17	8.29%	4	1.85%	5.9536	0.015	*	+
Existential process	15	7.32%	17	7.87%	0.7456	0.388		-
Verbal process	8	3.90%	3	1.39%	1.4810	0.224		+
Total	205		216		5.9052	0.015	*	-

A first glimpse of Table 5.1 tells us that Documentary A has a relative balanced use



of the process resources, which is reflected in its relative less use of Material process and more attention on Relational process (26.34% in Documentary A, 1.85% in Documentary B) and Behavioral process (8.29% in Documentary A, 1.85% in Documentary B). Statistics from Table 5.1 shows us that comparing with Documentary A, Documentary B contains more process resources; especially it involves more Material processes; Chi-square value and the P value prove the statistical significance of the difference between Documentary A and Documentary B. It indicates that Documentary B is more dynamic, in which we could find more evolutions of the human-nature interaction. Besides, Documentary B uses more Mental processes and Existential process than Documentary A, but the difference is not statistically significant. While Documentary A uses more Relational processes, Behavioral process, and Verbal process; also, the disparities are not statistically different except the Behavioral process.

### **5.1.2 Material Process**

Material process represents ‘doing- & -happening’, constructing a quantum of change in the flow of events as taking place through some input of energy (Halliday, 2014). Action starts from an actor and it may direct at or extend to the goal or suffers of the process. In another word, Material process tells us who did what. It is the maximum process type in both the two documentaries; investigating Material process and the participants involved in it shall show us what actions have been carried out and who dominate these actions in the human-nature interaction.

When using the Material process, Documentary A and Documentary B exhibit different general tendency. In the Material process from Documentary B, we could find that they talk a lot about human beings’ activities and actions which intend to change or exploit the nature environment. For instance, in the first three examples from Documentary B, the positions of Agent are occupied by human participants who actively change the environment’s status and seek for benefits for themselves. While as exemplified in example (4) to (7), Material processes from Documentary A concern more about the marine organisms’ activities and the situation of natural entity; human activities in Documentary A concern more about their own behavior, action and the effect they have made on nature rather than the reconstruction of the outside world.

- (1) You **deep fried**[*Material process*] it like chicken and it's pretty.
- (2) Since I've been there, we **have doubled**[*Material process*] our money.
- (3) Dude they **have been fishing**[*Material process*] for sixteen days.
- (4) Our oceans **are changing**[*Material process*] faster than ever.
- (5) Fishing, tourism and industry **triggered**[*Material process*] complex changes and its these that the team has come to investigate.
- (6) ...this sea **is steadily growing**[*Material process*].
- (7) The team **is heading**[*Material process*] north to meet one of the most isolated tribes in Mexico.

Example (8) is realized through Material process, with the marine organism -- the whales occupying the position of Agent. The speaker equals the animal communicating behavior to the human's social behavior, which acknowledges that the marine animals have the equivalent statues and ability as human beings. The speaker regards himself/herself as a risk manager responsible for monitoring the health condition of the whales, and shows their knowledge about the marine environment to the audience. It demonstrates an intimacy towards the marine animals and complies with the principle of proximity and thus is marked as a eco-beneficial discourse.

- (8) **The whales**[*Agent-marine organism*] **are socializing** [*Material process*].

In examples (9) and (10), the positions of Agent are occupied by human beings and human activities; speakers acknowledge that human beings have made influence on the marine animals and on the marine environment. Agent in example (11) is omitted, leaving the Affected marine environment in the position of theme and appeals for rational exploitation on the sea. In the above three sentences, the speakers believe human beings to be risk gainer who have obtained benefits from nature and also expect human beings to be the risk manager to maintain the permanence of the nature environment and of the marine animals. Complying with the assumption of people-orientedness and agreeing upon the principle of consciousness, they are all marked as ecological beneficial discourse.

- (9) **Commercial fishing***[Agent-action or behavior]* **is starting to affect***[Material Process]* **them (California sea lion)***[Affected-marine organism]*.
- (10) **Human** *[Agent-human]* **has had a growing impact***[Material Process]* **on the system***[Affected-natural entity]*.
- (11) **They (the Sea of Cortez)** *[Affected-natural entity]* **have to be farmed***[Material Process]* **in a way that is sustainable***[Circumstance-manner]*.

In example (12), the speaker regards himself/herself as a merited risk gainer whose life depends on and who should benefit from nature deservedly. The initiator of the process is human being, and the Material process is realized through the verb “battle” which metaphorically put human beings on the opposite side of the nature. Apparently, it is not suitable for building harmonious human-nature relationship; so this sentence should be evaluated as ecological destructive.

- (12) **I***[Agent-human]* **ll battle***[Material Process]* **even mother nature herself***[Affected-natural entity]* **to pull a living from these waters ...**  
*[Circumstance-purpose]*

Example (13) introduces the speakers’ harvest in the fishing trip and indicates his desire to catch more fish. The position of Agent is occupied by human being, serving as a risk gainer; the Material process is realized through the action of catching fish. Speaker in this sentence asks for excessive natural resources in a ungrateful way, which would unconsciously reinforce the audience’s indifference towards nature. Thus, this sentence should be labeled as eco-destructive due to its violation on principle of regulation.

- (13) **We***[Agent-human]* **usually catch***[Material Process]* **ten (ten pounds of grouper)***[Affected-marine organism]* **and you know, catch***[Material Process]* **fourteen (fourteen pounds of grouper)***[Affected-marine organism]* **made it that much better.**

### 5.1.3 Mental Process

Mental process and Relational process account for quite a large proportion in both documentaries. When annotating the discourse, the author annotates the sub type of Mental and Relational process delicately; and the statistics visualize the differences between Documentary A and Documentary B, which is quite meaningful and interesting. Thus, these two process resources are discussed separately in the current and the next sections.

Although in section 5.1.1 we have found that the uses of Mental process in Documentary A and Documentary B do not have a statistically significant difference, the two documentaries use the sub types of Mental process in quite a different way. Through Mental process, the speaker discloses his psychological activities such as emotion, desideration, perception, and cognition, which reflect the way he treats the outside world. The differences thus reveal how Documentary A and Documentary B treat or think of human-nature relationship in their own distinct way.

Generally speaking, as displayed in Table 5.2, Documentary B significantly uses more Mental-desideration processes to request for more resources than Documentary A, and slightly prefers Mental-Emotion and Mental-perception (not statistically significant). However, Documentary A prefers Mental-cognition process to introduce knowledge about the nature.

**Table 5.2 A statistical comparison of the sub-types of Mental process**

MENTAL PROCESS TYPE:	Documentary A N=32		Documentary B N=38		Chi-Square	Significance (p)	
mental-emotion	5	15.62%	5	13.16%	0.0804	0.777	-
mental-desideration	3	9.38%	13	34.21%	8.2422	0.004	** -
mental-perception	5	15.62%	9	23.68%	1.9874	0.159	-
mental-cognition	19	59.38%	11	28.95%	0.9544	0.329	+

#### 5.1.3.1 Mental-desideration process

Statistics from Table 5.2 reports a significant difference in the use of Mental-desideration process (9.38% in Documentary A, 34.21% in Documentary B).

When disclosing their mental activities, speakers in Documentary B more frequently put forward their demands and longings than Documentary A. Among these longing and hoping, the request of resources from the nature dominant speakers' appeals.

(14) **Nick***[Senser-human]* **needs***[Mental-desideration Process]* **me to catch five thousand pounds of snapper***[Phenomenon-marine organism]* **in just nine hours.**

(15) **But now recreational fishing interest groups***[Senser-human]* **want***[Mental-desideration Process]* **to take more quarter away***[Phenomenon-abstraction]* **from the commercial fishery, and they would want***[Mental-desideration Process]* **to kick the commercial fishermen right out of the business***[Phenomenon-action].*

For instances in examples (14) and (15) from Documentary B, the initiators of the process are human beings, and the Mental-desideration process is realized through asking for a large quantitative of fish and battling for more interests. The assumption of people-orientedness lays the foundation that human beings' survival and development should be given top priority, so it is reasonable to ask for resources from nature. At the same time, the principle of consciousness and the principle of regulation also remind us to keep our demands within the minimum range. Massive demands from nature shall reinforce the harmful idea of the imbalanced interaction between human and nature. In this respect, Mental-desideration processes in these two sentences bear a relatively unfriendly ecological ideology.

(16) **...they***[Senser-human]* **want***[Mental-desideration Process]* **five thousand pounds (snapper fish)***[Phenomenon-marine organism]* **a week.**

In example (16), the human participants act as the role of a risk gainer, indicating their demands to consume fish resources through the Mental-desideration process. Although according to the ecosophy in this research human survival is among the first requirement to meet, continuous and excess request for fish resources is a behavior

beyond normal needs of survival. It violates the principle of regulation. And discourses like this lead to an unconscious reinforcement of the destructive idea in the audience that the natural resources are inexhaustible and human beings are born to plunder them. Thus, it is also evaluated as an eco-destructive sentence.

### 5.1.3.2 Mental-emotion process and Mental-perception process

Besides, in terms of Mental-emotion process and Mental-perception process, though Documentary A less often use these two process resources than Documentary B, statistical comparison does not report a significant difference. However, interpretations on their contents still reveal different ecological tendency. Mental-emotion process denotes people's feeling about something (He et al, 2017); Mental perception process expresses speakers' organization, identification, and interpretation of the vision, sound, touch, etc (Zhang, 2018). When conveying their emotion and perception, as in examples (17) to (20), speakers in Documentary A expresses their fondness and concerns on the marine environment and marine animals, in which we can find a willingness to be intimate to the nature.

- (17) **I**[Senser-human] **am loving** [Mental-emotion] **this sea**...[Phenomenon-marine organism]
- (18) **Sperm whales**[Phenomenon-marine organism], **that's all we**[Senser-human] **care**[Mental-emotion] **about**.
- (19) **I**[Senser-human] **felt**[Mental-perception] **that boom**[Phenomenon-marine organism] **go right through my body**.
- (20) **You**[Senser-human] **can feel** [Mental-perception]**them (Humboldt squid)**[Phenomenon-marine organism].

However, Documentary B, as in example (21) to example (24) focuses on human's psychological sensations towards the events that are directly related to themselves. Generally, Documentary A delivers a more equal, intimate, and friendly ecological effect than Documentary B.

- (21) **But we all**[Senser-human] **love**[Mental-emotion] **fishing**[Phenomenon-action] **at**

**the end of the day and we like making money.**

(22) **I[*Senser-human*]'m astonished[*Mental-emotion*] that my guys want to do this good bye party and hello snappy fishing[*Phenomenon-action*].**

(23) **I[*Senser-human*] definitely feel[*Mental-emotion*] I have been taken advantage of a little bit[*Phenomenon-action*].**

(24) **We[*Senser-human*]'re all tired[*Mental-perception*] after sixteen days long trip[*Circumstance*].**

In example (25), the speaker was diving together with the sea lions and she felt the voice produced by the sea lions just like a boom going through her body. The position of the *Senser* is taken by human beings; and the *phenomenon* being sensed is the marine animals. Human participant in this sentence acts as a manager swimming with the marine animals and observing their conditions, showing a tendency to be intimate with the sea lions and exhibiting an equal position between human and marine animals.

(25) **I[*Senser-human*] felt[*Mental-perception*] that boom go right through my body[*Phenomenon-marine organism*].**

### 5.1.3.3 Mental-cognition process

Finally, among the four sub-types of *Mental* process, over half of them are cognition in Documentary A (59.38%); this figure is almost halved in Documentary B (28.95%). *Mental-cognitive* process constructs actions or process of acquiring knowledge and understanding through thought, experience, and sense (Zhang, 2018).

A deeper look on the sample sentences in Documentary A tells us that the human-nature interactions are more frequently realized through speakers' cognitive activity such as their comprehension and reasoning of the observation they have on nature objects; more often they exert intentions to have a deeper understanding towards the marine organism and environment. For instance, in example (26) the *Senser* is the human participants and the *Phenomenon* being recognized is the finiteness of natural resources. Example (26) indicates that the human participants' awareness of the limitation of marine resources and thus alters the audience to cherish the resources.

Thus it is can be evaluated as eco-beneficial due to its complying with the principle of regulation.

**(26) And yet they're[Senser-human] also very aware[Mental-cognition process] that the seas only have a limited resource[Phenomenon-Natural entity].**

In example (27) human beings, serving as the Sensors who initiate the Mental-cognition process, share the knowledge about the marine animals with the audience. Human participants here act as managers who are responsible for observing and studying the habits of marine animal. In this way, Documentary A delivers an atmosphere of proximity to the nature through the desire for a deeper understanding, which exhibits an attitude of reverence and respect towards nature and contributes to the eco-beneficial significance of Documentary A.

**(27) And from the otica we[Senser-human] can identify[Mental-cognition process] what the sea lions have actually been eating[Phenomenon-marine organism].**

#### 5.1.4 Relational Process

Relational process serves to characterize and identify, establishing relationship between entities. Relational process can be used to describe or attribute the class and features of the participants (attributive process) and to identify something or define its identity (identifying process); also, it is also used to construct the possession relation (possessive process) and to match relationship between two correlative participants (correlative process). Relational process is the secondary important process type besides Material process in both documentaries, respectively accounting for 26.34% and 20.37% in Documentary A and Documentary B (statistic can be found in Table 5.1). Documentary A slightly more often uses Relational process than Documentary B. Just as Mental process, although Table 5.1 does not report a significant difference of the total use of the Relational process in Documentary A and Documentary B, the two documentaries do use the sub types of Relational process in quite a different way, which



thereby create different ecological atmosphere.

As showed in Table 5.3, Documentary B uses more Relational-possessive processes than Documentary A; Chi-square value and P value prove the statistical significance of this difference. Besides, Documentary A uses more Relational-attributive processes, Relational-identifying processes, and Relational-correlational processes than Documentary B, but the difference is not statistically significant.

**Table 5.3 A statistical comparison of the sub-types of Relational process**

RELATIONAL PROCESS TYPE:	Documentary A N=54		Documentary B N=44		Chi-Square Significance ( <i>p</i> )		
relational-attributive	27	50.00%	16	36.36%	1.2073	0.272	+
relational-identifying	13	24.07%	8	18.18%	0.4698	0.493	+
relational-possessive	5	9.26%	13	29.55%	5.1783	0.023	* -
relational-correlation	9	16.67%	6	13.64%	0.1856	0.667	+

#### 5.1.4.1 Relational-attributive process and Relational-identifying process

Apparently, both the two texts adopt Relational attributive process and Relational identifying process to describe features, clarify identity, taking more than half of all the Relational processes. Documentary A prefers to use these two process resources to denote the identity and to describe the quality of marine organism and marine entity than Documentary B, but the difference is not statistically significant.

In example (28), speaker describes the identities of their fishing industry through Relational-identifying process. Human beings act as risk gainers who make a living on the marine resources. And speaker intends to introduce the situation of their fishing business to the audience objectively. Although it complies with the assumption of people-orientedness and does not involve the violation against the principles of consciousness, proximity and regulation, we still need more information to classify it into the categorization of beneficial or destructive, thus it is evaluated as eco-ambivalent.

(28) **The commercial fishery***[Token-abstract conception]* **is***[Relational-identifying Process]* **not a bunch of corporations** *[value]* **with hundreds of employees.**

**We**[Token-Human] **are**[Relational-identifying Process] **a small family businesses**[value]...

The speaker in example (29) describes the survival situation of the marine animals through Relational-attributive process. The human participant here serves as a risk manager who is monitoring the condition of marine animals. It displays audience with speakers' knowledge about the facts in marine environment and helps the audience have a deep understanding towards the marine environment, and thus bears a positive effect.

(29) ... **an explosion of squid**[Carrier-Marine organism] **is**[Relational-attributive Process] **at the cost to some other species**[attribute].

A deep and comprehensive reading on the discourses will help us find that the Relational-attributive process and Relational identifying process in Documentary B point to human's behavior, personality, and artificial utility. For example, speakers in example (30) concerns about the condition of his fishing tool; example (31) regards human as a fighter against the nature; and example (32) describes the nature of their fishing business. While Documentary A focuses more on nature aspects in the human-nature relationship and guides the audience to be intimate to the nature. For instances, in examples (33) and (34), speakers introduce the characteristics of the Sea of Cortze to the audience; and example (35) regards the natural reaction as the language of the marine animals, which acknowledge the same status between human and marine animals. Thus, in the use of Relational-attributive and Relational-identifying process, Documentary A exhibits a friendlier and intimate attitude than Documentary B.

(30) **My keel cooler**[Carrier-artificial entity] **is**[Relational-attributive Process] **just nasty**[attribute].

(31) **You**[Carrier-human] **are**[Relational-attributive Process] **born to fight this battle**[Attribute], **Buddy**.

(32) **We**[Token-human]'**re**[Relational-identifying Process] **a family business**[Value] **and I put everyone in my family to work**.

- (33) **The sea of cortez***[Carrier-natural entity]* **is***[Relational-attributive process]* **a rich, fertile gulf***[Attribute]* **separating the peninsula back to California and the mainland Mexico.**
- (34) **...humboldt squids***[Carrier-marine organism]* **are***[Relational-attributive process]* **intelligent***[Attribute]*.
- (35) **These flashes***[Token-marine organism]* **may be***[Relational-identifying process]* **a form of language***[Value]* **that could possibly help groups of squid to communicate as they hunt.**

#### 5.1.4.2 Relational-possessive process

In contrast to Documentary A's preference on characterizing and identifying, Documentary B significantly more often uses Relational process to indicate the possessive relationship among participants.

In example (36), human participants serve as the Possessor who initiates the Relational-possessive process, claiming for the ownership over the snapper fish resources within Gulf of Mexico. Human participants are regarded as risk gainers who can allocate and occupy the marine resources as they want. Speaker creates an atmosphere where human beings are over the nature and there is a lack of a sense of belonging to the nature, and thus this sentence is evaluated as eco-destructive.

- (36) **As commercial fishermen, we***[Possessor-human]* **are allotted***[Relational-possessive Process]* **fifty one percent of the total allowable red snapper catching***[Possessed-marine organism]* **in the gulf of Mexico.**

As exemplified in examples (37) to (39), in most cases, speakers in Documentary B claim human's ownership on the marine animals (grouper fish, stock of fish) and the fishing industry (red snapper fishery). In another word, Documentary B believes that human beings are above the natural environment rather than a part of the whole ecosystem. This is an alienation from the Mother Nature and the lack of sense of belongings to the nature shall lead to obstacles for building a harmonious human-nature relationship.

- (37) **We***[Possessor-human]* **have***[Relational-possessive Process]* **fourteen thousand pounds of grouper***[Possessed-marine organism]* **to show for it.**
- (38) **We***[Possessor-human]* **have***[Relational-possessive Process]* **a really healthy red snapper fishery***[Possessed-marine organism]* ...
- (39) **We***[Possessor-human]* **have***[Relational-possessive Process]* **a better stock fish***[Possessed-marine organism]* **out there ...**

### 5.1.5 Other Process Types

Comparing with the three major process types discussed above, Behavioral process, Existential process and Verbal process, totally occupying 19% in Documentary A and 11% in Documentary B.

#### 5.1.5.1 Behavioral process

Even though it is not a dominant process type in both documentaries, we still can find significantly more Behavioral process in Documentary A than Documentary B. This process sketches the physiological and psychological behaviour, like breathing, coughing, smiling, dreaming and staring (Halliday, 2014). From Documentary A we extract more Behavioral process resources to introduce both marine organism's and human being's physical-psychical behavior, as exemplified in examples (40) to (42). Human participants serve as risk managers and observe the condition of marine animals in these three examples, from which audience could obtain some knowledge about those marine animals. Here, it is reasonable to conclude that Documentary A puts more emphasize on natural and physiological process rather than manipulates the non human organisms and the environment, and it pays more attention to introduce the habits of the marine organism to the audience. In this way, Documentary A exhibits an intimacy towards the nature.

- (40) **They (marine animals)***[Behaver-marine organism]* **reverberate sound***[Behavioral process]* **with bony crest so that everybody can hear them.**
- (41) **The whales***[Behaver-marine organism]* **rise up to breath***[Behavioral process]*.

(42) **I** [*Behaver-human*] **heard** [*Behavioral process*] **the sonar boom.**

#### 5.1.5.2 Existential process

Existential process represents that something exists or happens (Halliday, 2014). Documentary A and Documentary B use almost the same amount of Existential process. Although there is almost no difference in the total usage, the ecological attitudes delivered through Existential processes are different in Documentary A and Documentary B. Existential processes in Documentary B mostly introduce human's activities (example 43), affection (example 44) or demands (example 45), while often Documentary A introduces the living condition of marine animals or their habits, as exemplified in examples (46) and (47). That is to say, in terms of the Existential process, Documentary A gives more attention on the surroundings, while Documentary B still focuses on human beings.

(43) **There's** [*Existential process*] **very few people** [*Existent-human*] **that can actually go out there and just do what we do.**

(44) **There's** [*Existential process*] **only one thing I like better** [*Existent-human behavior*] **than Galveston in the morning, and that's being out on the water.**

(45) **There won't be** [*Existential process*] **an ecosystem** [*Existent-natural entity*] **there to fish.**

(46) **There were** [*Existential process*] **about thirty pups** [*Existent-marine organism*] **a year in the early nineties and now there are** [*Existential process*] **more than a hundred** [*Existent-marine organism*] **a year and it's a real success story which is good news.**

(47) **There are** [*Existential process*] **several of them** [*Existent-marine organism*] **flashing their colors, and we can see these ghostly light shadows that are flashing red.**

The above sections demonstrate how Documentary A and Documentary B use process resources differently and deliver different ecological effects. A summary shall be made in this section. Speakers in Documentary B prefer to use Material process to

present the actions carried out by human beings towards the marine animal and environment, exhibiting a strong willingness to change the current situation and rebuild the Mother Nature. In the other process resources in which speakers have no intentions to rebuild the nature, Documentary B tends to ask for resources from the nature consistently and to claim human being's ownership on the nature through Mental-desideration process and Relational-possessive process. Even though among the more static process like Mental-emotional process, Mental-perceptive process, Relational-attributive process, and Relational-identifying process, where speakers express their feelings and perceptions and characterize and identify the nature of participants, Documentary B concerns more about psycho-physical sensations, behavior and actions, and demands of human beings. However, the sense of presence of human beings in Documentary A is not as strong as it is in Documentary B. Speakers from Documentary A more frequently use Material process and Behavioral process to describe life-sustaining activities of marine animals and the dynamic condition of the marine environment; they convey a strong desire to have deeper understandings towards the situations of the nature and to deliver their eager concerns on the the survival of marine animals and on their living conditions through Mental-cognitive process, Relational-attributive process, and Relational identifying process, etc.

Generally speaking, the more frequent use of Material process, Mental-desideration process, and Relational-possessive process in Documentary B create an image that human beings are above the nature, while Documentary A delivers intimacy, reverence and a sense of belongings to the mother nature through the more often use of Behavioral process, Relational-attributive process, Relational-identifying process, and Mental-cognition process.

## 5.2 Participant Types in the Data

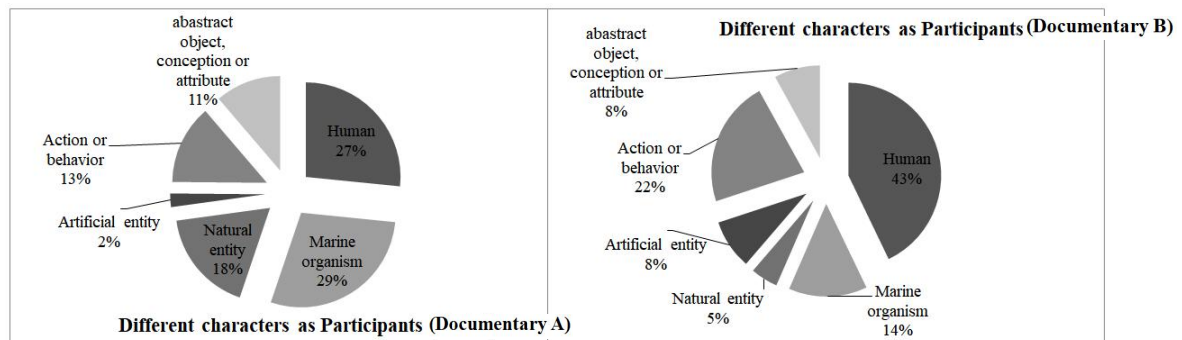
Process types discussed in the above section constitute the most significant part of the transitivity system. The next important and indispensable component of transitivity system is the participants that evoke the occurrence of the process or are affected by the process. Investigating the participant resources helps us reveal who have the initiative to control the flow and change of events and which parts are often changed or affected.

Participant resources shall be discussed from two different perspectives. A more delicate classification on the current categorization of participant type is presented in Section 3.4; upon the Agent, the Carrier, the Affected, the Attributive, etc, the author further annotates whether the participant is taken up by Human, Marine organism, or Natural entity, etc. So firstly, the author studies what kind of characters serve as the participants and how are they used. Secondly, the author explores which are the frequent participants to initiate the process (the “-er” participant), and which are the frequent influenced participants by the process (the “-ed” participant).

### 5.2.1 Different Participant Roles

#### 5.1.1.1 An overall usage of participant type

Figure 9 presents a quite different distribution of participant roles in Documentary A and Documentary B.



**Figure 9** The distribution of different roles as participants

Overall, Documentary B contains more Human (42.86%), Action or behavior (22.02%) and Marine organism (14%) as participants. Documentary A cuts the involvement of Human nearly in half (27%), and doubles the occurrence of Marine organism (29%); Natural entity, such as “gulf”, “fishing spot”, “fosse”, etc., also has a pretty high sense of participation (18%).

**Table 5.4 A statistical comparison of the participant types**

	Documentary A N=346		Documentary B N=336		Chi-Square	Significance (p)		
Human	92	26.59%	144	42.86%	23.3660	0.000	***	-
Marine organism	99	28.61%	46	13.69%	11.3195	0.001	***	+
Natural entity	61	17.63%	16	4.76%	19.1784	0.000	***	+
Artificial entity	8	2.31%	29	8.63%	16.1528	0.000	***	-
Action or behavior	47	13.58%	74	22.02%	12.0537	0.001	***	-
abstract object, conception or attribute	39	11.27%	27	8.04%	0.5735	0.449		+

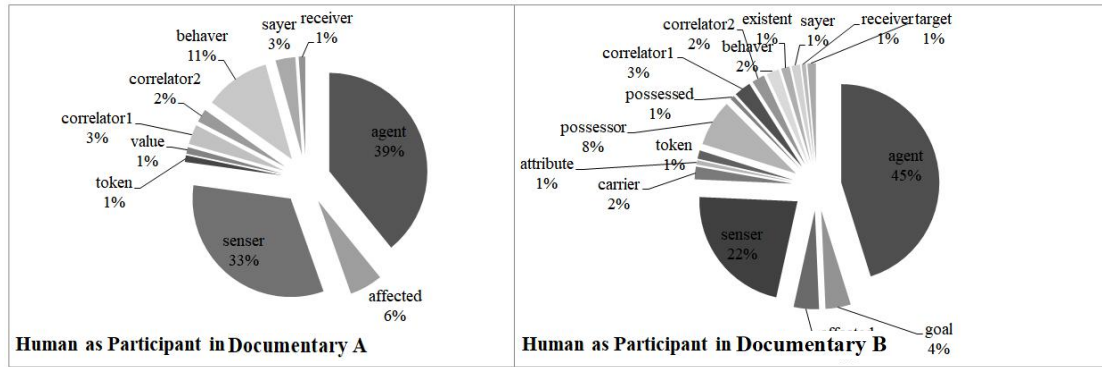
Statistics from Table 5.4 proves that there exist quite obvious divergence of the employment of participant types in the two documentaries, and the differences between them are statistically significant. To be specific, Documentary B has more Human, Artificial entity, and Action or behavior as participants, while Documentary A employs more Marine organism and Natural entity as participants. Chi-square value and P value prove the statistical significance of these differences. In another word, Documentary A pays more attention on the nature, while Documentary B centers more on human being.

Nevertheless, till then, we can prove nothing but the high involvement of Marine organism and Natural entity in Documentary A and the frequent occurrence of Human, Artificial entity, and Action and behavior in Documentary B. We are still not clear about functions of the Human, Marine Organism, etc. To be specific, we have to further explore what kind of roles do the Human or the Marine organism act as in the next two sections.

#### **5.1.1.2 Human as participants**

The following figure shows what kinds of roles the human participants act as in the two documentaries.





**Figure 10 The distribution of Human as participants**

Figure 10 shows clearly that Human as Agent and Human as Senser occupy the largest part. Documentary A and Documentary B exhibit the same tendency to use Human as Agent and as Senser, accounting for 72% and 67% respectively. In the discussion of the overall distribution of the participants, we have proved that the Documentary A significantly use less Human participants than Documentary B in section 5.2.1.1, thus as showed in Table 5.5 Human as almost all participant role in Documentary A are less used than Documentary B.

**Table 5.5 A statistical comparison of Human as participants**

	Documentary A		Documentary B		Chi-Square		Significance(p)			Documentary A		Documentary B		Chi-Square		Significance	
agent	36	39.13%	65	45.14%	14.5748	0.000	***	-	possessed	0	0.00%	1	0.69%	1.1962	0.274	-	
goal	0	0.00%	6	4.17%	7.1808	0.007	**	-	correlator1	3	3.26%	4	2.78%	0.3805	0.537	-	
affected	5	5.43%	6	4.17%	0.3604	0.548	-	-	correlator2	2	2.17%	3	2.08%	0.4220	0.516	-	
senser	30	32.61%	32	22.22%	0.9291	0.335	-	-	behavior	10	10.87%	3	2.08%	2.6474	0.104	+	
carrier	0	0.00%	3	2.08%	3.5893	0.058	-	-	existent	0	0.00%	2	1.39%	2.3926	0.122	-	
attribute	0	0.00%	1	0.69%	1.1962	0.274	-	-	sayer	3	3.26%	2	1.39%	0.0618	0.804	+	
token	1	1.09%	2	1.39%	0.5403	0.462	-	-	receiver	1	1.09%	1	0.69%	0.0161	0.899	-	
value	1	1.09%	0	0.00%	0.8362	0.361	+	-	target	0	0.00%	2	1.39%	2.3926	0.122	-	
possessor	0	0.00%	11	7.64%	13.1716	0.000	***	-									

The most attractive figure in Table 5.5 is that Documentary B significantly use more human participants as Agent and Possessor than Documentary A. Agent bears the capacity to initiate actions and to influence or change other participants; and Possessor can be used to claim for ownership over something. Thus, the frequent use of these two resources in Documentary B indicates its attitude that speakers put the status of human beings above the nature. Besides, although the Chi-square value and the P value do not report their significant meaning, Human as Sense and Human as Behavior do taking

quite an large percentage, totally accounting for 44% in Documentary A and and 24% in Documentary B. That is to say, in terms of their proportions, Documentary A has a more possible tendency to put human beings in a relative passive position to express emotions and perception, to introduce knowledge, or to produce physiological action, which exhibit no intention to rebuild the nature; Documentary B, on the contrary, describes human beings frequently as the Agent and as Possessor who initiate the exploitation and rebuilding of the nature and who claim ownership over nature.

### 5.1.1.3 Marine organism as participants

Figure 11 shows what participant roles the marine organisms act as in the two documentaries.

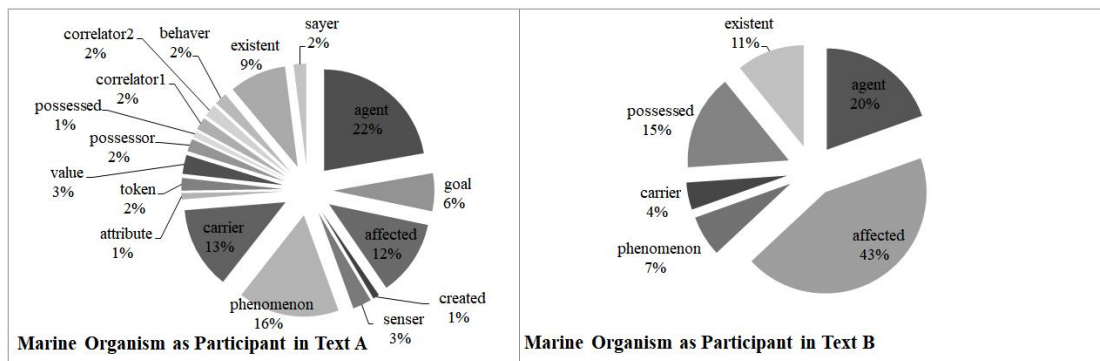


Figure 11 The distribution of Marine organism as participants

As an important index of the human-nature bilateral interactions, the use of Marine organism as participants also mirrors speakers' ecological attitude. Documentary A and Documentary B use Marine organism as Agent (22% in Documentary A, 20% in Documentary B) and as Existent (9% in Documentary A, 11% in Documentary B) nearly in the same proportion, through which marine animals initiate an process or denote the existence of themselves; it seems that Documentary A gives Marine animals slightly more initiative to change or affect other participants than Documentary B in terms of the proportion, but the difference has no statistical significant meaning. What is more noteworthy is that Documentary A significantly uses Marine organism as Phenomenon (16% in Documentary A, 6.52% in Documentary B) to be sensed, perceived, or recognized and as Carrier (13.13% in Documentary A, 4.35% in Documentary B) to be

characterized; and this difference is statistical significant.

**Table 5.6 A statistical comparison of Marine organism as participants**

	Documentary A		Documentary B		Chi-Square		Significance(p)		Documentary A		Documentary B		Chi-Square		Significance(p)
agent	22	22.22%	9	19.57%	3.4152	0.065	+	value	3	3.03%	0	0.00%	2.5090	0.113	+
goal	6	6.06%	0	0.00%	5.0194	0.025	* +	possessor	2	2.02%	0	0.00%	1.6725	0.196	+
affected	12	12.12%	20	43.48%	3.7254	0.054	-	possessed	1	1.01%	7	15.22%	5.6851	0.017	* -
created	1	1.01%	0	0.00%	0.8362	0.361	+	correlator1	2	2.02%	0	0.00%	1.6725	0.196	+
senser	3	3.03%	0	0.00%	2.5090	0.113	+	correlator2	2	2.02%	0	0.00%	1.6725	0.196	+
phenomenon	16	16.16%	3	6.52%	6.7919	0.009	** +	behavior	2	2.02%	0	0.00%	1.6725	0.196	+
carrier	13	13.13%	2	4.35%	6.2815	0.012	* +	existent	9	9.09%	5	10.87%	0.5453	0.460	+
attribute	1	1.01%	0	0.00%	0.8362	0.361	+	sayer	2	2.02%	0	0.00%	1.6725	0.196	+
token	2	2.02%	0	0.00%	1.6725	0.196	+								

Besides, though Chi-square value and P value do not report its statistical significant meaning, Documentary B do treats Marine organism as the Affected (12.12% in Documentary A, 43.48% in Documentary B) and the Possessed (1.01% in Documentary A, 15.22% in Documentary B) more frequently in terms of their proportion. This means that Marine organisms in Documentary B are often treated as the target to be affected or changed and as something that can be allocated. In another word, Marine organism in Documentary B has less initiative.

#### 5.1.1.4 Summary

At the end of this section, it is necessary to make a conclusive comparison between Documentary A and Documentary B on their features in the use of different role as participants. Generally speaking, Documentary A gives nearly the same attention on Human and Marine organism as Participant, with Marine organism gaining more focus; however, Human as Participant gains the absolute initiative in Documentary B. To be specific, Human in Documentary A more often act as the “senser” and the “interpreter”, and produce bodily reflexes like seeing or hearing something; Marine organisms in Documentary A are more often the object to be sensed and to be characterized. By contrast, Human participants in Documentary B more often have a reconstructive role, and often claim ownership over natural resources; accordingly, Marine organism are mostly being influenced and being possessed. In a word, Human in Documentary B plays a more active role; Marine animals gain more initiative and recognition in Documentary A.

### 5.2.2 The “-er” Participant and the “-ed”Participant

By the “-er” participant, the author refers to those participant roles that have the ability to initiate a process (the Agent, the Senser, the Carrier, the Possessor, the Behavior, etc), usually put before the process; by “-ed” participant, the author refers to those participant roles that are influenced by the process or are the targets of the process (the Affected, the Goal, the Phenomenon, the Attribute, the Possessed, the existent, etc), usually put after the process. Such a distinction shall give us a more direct impression on interactive relationship between participants.

**Table 5.7 A statistical comparison of “-er” participants**

	Participant: -er							
	Documentary A		Documentary B		Chi-Square	Significance ( <i>p</i> )		
Human	80	45%	118	75%	16.1065	0.000	***	-
Marine organism	46	26%	11	7%	15.9138	0.000	***	+
Natural entity	29	16%	4	3%	14.9065	0.000	***	+
Artificial entity	3	2%	5	3%	0.9291	0.335		-
Action or behavior	15	9%	14	9%	0.0881	0.767		-
abstract object conception or attribute	3	2%	5	3%	0.9291	0.335		-

On the one hand, for the participant types that initiate a process (the “-er” participant), Human plays an important role in both Documentary A (45%) and Documentary B (75%); Chi-square value and P value prove that Documentary B significantly uses more Human as the initiator of a process than Documentary A. In contrast, Documentary A employs more Marine organism (26% in Documentary A, 7% in Documentary B) and Natural entity (16% in Documentary A, 3% in Documentary B) as the “-er” participant than Documentary B; and this difference is also proved to be significantly meaningful.

Human in Documentary B has a dominate role in initiating a process; comparing with Documentary B, the involvement of Marine organism as active role triples and the existence of Natural entity as starting point of a process increases four times in Documentary A. That is to say, Documentary A gives more initiate to the marine animals and the nature, while Documentary B emphasizes the active role of human

beings.

**Table 5.8 A statistical comparison of “-ed” participants**

	Participant: -ed					
	Documentary A		Documentary B		Chi-Square	Significance ( <i>p</i> )
Human	7	4%	19	11%	7.9730	0.005 ** -
Marine organism	49	32%	35	21%	0.5114	0.475 +
Natural entity	27	18%	12	7%	3.4425	0.064 +
Artificial entity	4	3%	23	14%	17.1619	0.000 *** -
Action or behavior	30	20%	56	34%	13.4119	0.000 *** -
Abstract object conception or attribute	36	23%	22	13%	1.3605	0.243 +

On the other hand, both Documentary A and Documentary B have a relative average use of the “-ed” participant types. Marine organism accounts for the largest proportion of the “-ed” participant in Documentary A, as exemplified in examples (48) to (50); the other “-ed” roles in Documentary A are divided by Natural entity (18%), Action or behavior (20%), and some abstract conception (23%), as exemplified in examples (51) and (52); human and artificial entities as “-ed” participants take only a small proportion, accounting for 4% and 9% respectively. However, Documentary B concerns most about how are the Action and behavior of human effected by the process as exemplified in example (53), accounting for 34%; 21% of the “-ed” participant are allocated to Marine organism, which describe how are the marine animals exploited by human; also, Documentary B put a lot effort in describing how are the life of Human affected and how are the Artificial entity used for fishing activities, totally accounting for 24% of all the “-ed” participant in Documentary B (as in examples 54 and 55).

(48) ... devastate **local fish stocks**[*Affected-Marine organism*]...

(49) There are several of **them (squids)** [*Existent-Marine organism*] flashing their colors ...

(50) So you can hear **the sperm whales**[*Phenomenon-Marine organism*] clicking. )

(51) ... local people protect **our seats** [*Affected-Natural entity*].

(52) But here the team is exploring **unique corner of the pacific ocean**[*Goal-Natural*

*entity*], a sea of cortex.

(53) I've got to change **my course**[*Affected-action*] from going home to go on snapper fishing.

(54) ...get all the **barrels** [*Affected-Artificial entity*] up on the roof.

(55) ...there's **very few people**[*Existent-Human*] that can actually go out there and just do what we do.

As Chi-square value and P value in Table 5.8 prove, Documentary B significantly uses more Human, Artificial entity, and Action and behavior as “-ed” participant; and Documentary A slightly uses more Marine organism and Natural entity as “-ed” participant than Documentary B. In other words, Documentary B concerns more about how are the life and activities of human beings affected; while Documentary A emphasizes how are the marine animals and the marine environment affected.

To sum up, in the above sections, the author investigates the use of participant from different angles; and statistical evidences reveal their totally different ecological attitude. Generally speaking, in Documentary A marine animals and their habitat are involved frequently; they are bestowed with more initiative to trigger a process and to be further described. Although human beings also have an important role in Documentary A, they tend to be static roles that produce bodily reflexes. On the contrary, comparing with those in Documentary A, human beings in Documentary B have the absolute dominant position; most often they serve as the initiator to reconstruct the nature or claim their ownership over natural resources; marine animals become the more passive role waiting to be affected, altered, possessed, etc. The recognition and attention on the natural object and the weakening of human impact are important indexes for a fair and harmonious human-nature relationship; thus in terms of the use of participants role, Documentary A is a better carrier for convey ecological ideology than Documentary B.

### 5.3 Ecological Sense of Place in the Data

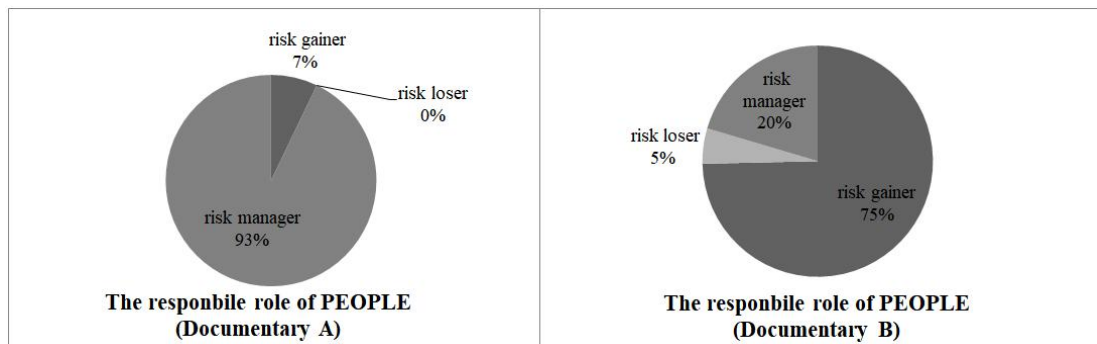
As illustrated in Section 3.3, Ecological Sense of Place (ESOP) refers to the emotional connection, cognitive experience, and conation behavior that human participants generate towards the surrounding environment and the non-human



organisms. ESOP serves as the interface between the linguistic devices and the ecological meanings of the discourse. As illustrated in Chapter Three, Zhang (2018) developed the Ecological Sense of Place. The ESOP system consists of three sub system, namely PEOPLE, PLACE and SENSE. PEOPLE identifies the responsible role of the human participants; they can be either a risk gainer who should obtain benefit from nature, a risk loser whose benefit get impaired in the nature, or a risk manager who should be responsible for the sustainability of the nature. The type pf PLCACE clarifies on which aspects of the surroundings does the speaker focuses; it tells whether the sense is generated towards the natural place, the social place, or the non-human organism, etc. And the types of SENSE denote whether the participant expresses his emotion, claims his knowledge, or indicates the action that he shall make on the PLACE. Studying the ESOP system shall give us a more direct, intuitive, and concrete impression on the concerns and ecological attitude of the two documentaries.

### 5.3.1 The Roles of PEOPLE

The analysis shall begin with the responsible role of the human participants. Figure 12 shows human participants' responsible roles in the two documentaries.



**Figure 12 The distribution of the roles of PEOPLE**

Mostly, human participants in Documentary A serve as risk managers (93%) who are responsible for protecting the sustainable development and health condition of the surrounding environment. For instance, the human participant in example (56) serves as an observer who is intending to dig out squids' hunting habit; in example (57) speaker is hiding behind as an monitor and researcher to be responsible for monitoring the health

condition of the ecosystem. And speaker in example (58) claims the ocean in the earth to be the obligation of whole mankind. Also, in a few cases (7%), human beings in Documentary A are recognized as the beneficiary part of the nature. As exemplified in examples (59) and (60), human beings have to depend on the natural resources to make a living.

(56) These flashes may be a form of language that could possibly help groups of squid to communicate as they hunt.

(57) Environmentalist Philip Crystal will examine the shifting balance of this delicate ecosystem.

(58) We had to try and understand the earth's oceans and put them in a human scale.

(59) If they feel that they're overharvesting one area, they move to another area and maybe fish octopus, so the principle is sustainable.

(60) The Sarah Indians demonstrate a technique that balances the needs of people with the health of the city.

Speakers and human participants in Documentary B have more diversified identities. In most cases, speakers and human participants in Documentary B are risk gainers (75%) who often ask for benefits from nature. As in examples (61) and (62), unconsciously speakers regard the oceans as resource provider. Occasionally, speakers in Documentary B assign human participants the responsibility to manage the the environment and the fishery industry properly (20% as risk manager), so that they could obtain life supporting resources. As in example (63) and example (64), the speakers claim to protect the Gulf of Mexico and to discuss about the healthy development of fishery industry with the government officials, aiming at creating a better living condition for themselves and their descendants.

(61) I've caught as much fish as anyone in these waters.

(62) Right now, the future of the snapper fishery looks great.

(63) Leaving the Gulf of Mexico off better than we found it.

(64) Kattie and I are traveling to Austin to meet with our government representatives to talk about the red snapper fishery.



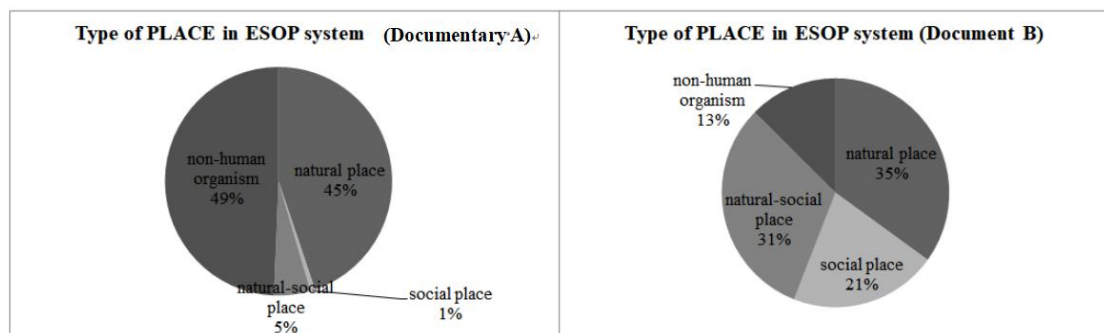
**Table 5.9 A statistical comparison of the roles of PEOPLE**

PEOPLE-TYPE:	Documentary A N=154		Documentary B N=142		Chi-Square	Significance (p)		
risk gainer	11	7.14%	106	74.65%	96.9483	0.000	***	-
risk loser	0	0.00%	7	4.93%	8.3785	0.004	**	-
risk manager	143	92.86%	29	20.42%	58.0397	0.000	***	+

Table 5.8 gives a comparison of responsible roles of human participants between Documentary A and Documentary B. It is obvious that Documentary A regard human being as risk managers more frequently than Documentary B, while Documentary B more possibly put human beings in the position of risk gainer. Chi-square value and P value prove that the differences in the human's responsible role between Documentary A and Documentary B have statistical significance. In another word, generally speaking, speakers in Documentary A delivers an attitude that human beings shall be responsible for the nature rather than just act as a beneficiary. Attitudes like this could help promote audience's sense of commitment to the nature, contributing to a balanced and equal relationship between human and nature.

### 5.3.2 The Types of PLACE

Next, the author shall come to the types of PLACE involved in the two documentaries. Briefly speaking, it denotes which aspects of the nature the speakers care about and tells us whether it is the natural place, the social place, the non-human organism or the natural-social place that obtains speakers' concerns.

**Figure 13 The distribution of PLACE types**

As displayed in Figure 13, Documentary A gives most of its attention on non-human organism (49.35%) and natural place (44.81%). For example, it emphasizes the importance of the sea of Cortez as a breeding ground and the current condition of the sea of Cortez in examples (65) and (66); speakers in examples (67) and (68) introduce the health condition and the feature of sperm whales.

(65) ... it shows how important *the sea of Cortez* is as a breeding ground for sperm.

(66) ... *the sea of Cortez* will disappear forever, engulfed by the rest of the Pacific Ocean.

(67) *Sperm whales* are amongst the loudest animals in the world.

(68) Lucy and Corrina want to find out how healthy these *whales* are.

Documentary B involves more diversified aspects of environment, and speakers' concerns are more equally allocated. It allots its greatest attentions to the natural places (35.21%). For instance, in example (69), the "*old hot spots*" refers to the secret places only known by experienced fisherman; and in examples (70) and (71) the speakers give their concerns on the health condition of the Gulf of Mexico.

But especially, what makes Documentary B differs from Documentary A is that the former one talks a lot about social place (21.13%) and natural-social places (30.99%). The former one usually refers to the places for social activity and the facility or equipment by which people used for fishing, such as the '*Katie seafood market*' in example (74), the boat, the gears, and the keel coolers in examples (72) and (73). And the natural-social place is labeled when the discourse is concerning the fishery industry where the human social activity and the marine environment interface with each other; for instance, speaker in example (75) intends to promote the fishing industry and the "*buccaneer oral and gas field*" refers to the offshore oilfield which is found to be a habitat for red snapper. Only 13% of Documentary B's attentions are given to non-human organisms.

(69) I'm gonna try to hit *some old hot spots* at each fisherman who can't even see if

there...

(70) We're headed out into *the Gulf of Mexico* to measure changes in the Red Snapper fishery.

(71) *The Gulf of Mexico* is a six hundred thousand square miles of open water, with conditions as unpredictable as they are unforgiving.

(72) We always are driving down *the gears*, hauling them and driving setting out.

(73) *Keel coolers or water cooled radiator* is mounted to the bottom of the boat and is designed to keep the engine cool.

(74) A quarter of the gulf, fresh fish comes through my business, *Katie seafood market* in Galveston, Texas.

(75) Commercial fishermen have worked really hard to *get this fishery in a rebuilding stage*.

(76) For years, *the buccaneer oral and gas field* has been depleted of Red Snap.

**Table 5.10 A statistical comparison of the types of PLACE**

PLACE-TYPE:	Documentary A N=154		Documentary B N=142		Chi-Square	Significance (p)		
natural place	69	44.81%	50	35.21%	0.2592	0.611	+	
social place	1	0.65%	30	21.13%	34.6678	0.000 ***	-	
natural-social place	8	5.19%	44	30.99%	34.3886	0.000 ***	-	
non-human organism	76	49.35%	18	12.68%	24.3631	0.000 ***	+	

Table 5.9 gives a comparison on how Documentary A and Documentary B allocate their concerns to the types of PLACE. Documentary A pays more attention to the non-human organisms and slightly concerns more about the natural places than Documentary B, whereas Documentary B more often talks about the social and natural-social places than Documentary A. Chi-square value and P value prove that these differences are statistically significant. Thus it can be concluded that Documentary A cares about the marine animals and their living places, while Documentary B more concerns about the sites where human activities are carried out. On ground of this, we can say that Documentary A is more intimate with the marine environment.

### 5.3.3 The Types of SENSE

The last and also the most important component are the types of SENSE that human participants generate towards the PLACE. These types of SENSE may be the emotion towards the PLACE, the knowledge about the PLACE, or some actions intending to be carried out upon the PLACE. For each type of SENSE, there is a further division depending on whether it is positive, negative or neutral. For the type of emotion, speakers may produce affection, indifference, or dislike towards the surroundings; for the type of cognition, speakers may express their similarity, differentiation, or has no cognition towards the surroundings at all; and finally, for the type of conation, speakers may express their willingness to be proximate with the surroundings, to alienate and rebuild the surroundings, or have no action at all. In this section, firstly an overall distribution of the three types of SENSE in Documentary A and Documentary B shall be displayed and compared; then a detailed introduction to each type shall be made.

#### 5.3.3.1 An overall distribution of Sense types

Figure 14 demonstrates the overall tendency of the distribution of the sense types that human participants generate towards the surroundings.

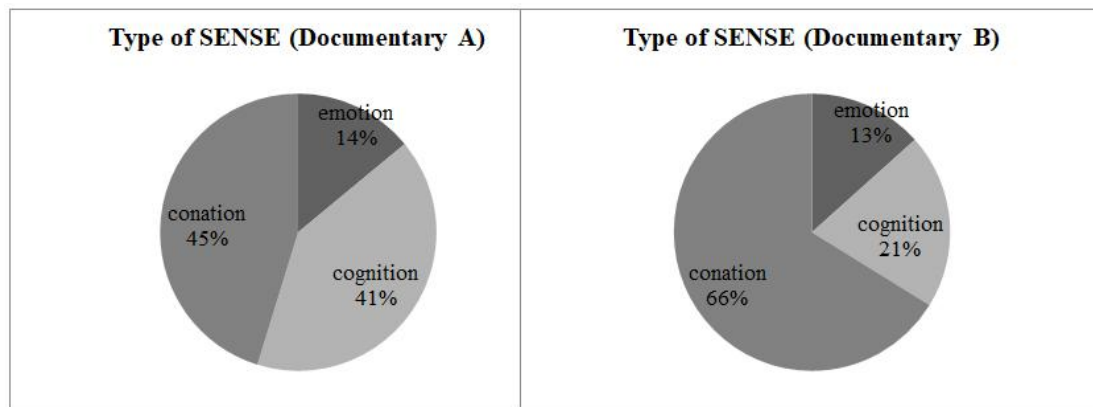


Figure 14 The distribution of SENSE types

Documentary A and Documentary B exhibit their distinct features in the type of SENSE that they generate towards the surroundings. Discourses of cognition, in which speakers lay out their understandings or knowledge about the marine environment, take

the majority part of Documentary A, accounting for 48%; discourses of conation, in which speakers deliver the information about what human have done or are going to do towards the surroundings, accounts for 38% of all the SENSE types; and the remaining 14% belongs to emotional discourses, in which speakers express affective attitudes towards the surroundings.

The types of SENSE in Documentary B have quite a different distribution from Documentary A. Documentary B has 66% conative discourse, accounting for the largest proportion; the type of cognitive discourses accounts for 21%, reduced by more than a half than Documentary A; and the proportion of emotional discourses in Documentary B is almost equal to that in Documentary A, accounting for 13%.

**Table 5.11 A statistical comparison of the types of SENSE**

SENSE-TYPE:	Documentary A N=154		Documentary B N=142		Chi-Square Significance (p)			
emotion	21	13.64%	19	13.38%	0.1644	0.685	-	
cognition	74	48.05%	29	20.42%	6.5659	0.010	*	+
conation	59	38.31%	94	66.20%	11.9595	0.001	***	-

Table 5.11 gives a statistical comparison on the use of SENSE types in the two documentaries. Results show that Documentary A has more cognitive discourse than Documentary B, while Documentary B delivers stronger intentions to carry out conative actions upon the surroundings. Chi-square value and P value prove the statistical significance of these differences.

### 5.3.3.2 Discourse of conation

Table 5.12 gives a comparison on the use of discourse of conation between Documentary A and Documentary B.

**Table 5.12 A statistical comparison of the discourse of conation**

SENSE-CONATION:	Documentary A N=71		Documentary B N=94		Chi-Square Significance (p)			
proximity	35	49.30%	35	37.23%	1.4560	0.228		+
non action	21	29.58%	19	20.21%	1.5155	0.218		+
alienation	15	21.13%	40	42.55%	5.4955	0.019	*	-

Among those conative information, 49% of them in Documentary A and 37% of them in Documentary B show the human participant's proximity to the surroundings and their willingness to maintain or promote the current situation. Example (77) shows speaker's willingness to approach the marine animals; example (78) exhibits speaker's inclination to promote and maintain the marine fish resources. Also, as in examples (79) and (80), human participants' intention to investigate marine environment is a signal of intimacy towards the nature, since a deeper and scientific understanding towards nature leads to reasonable exploitation and protection.

(77) Despite the strong winds, the helicopter is finally getting closer with the whales.

(78) If we manage them properly there's more than enough fish to go around.

(79) Let's get some science going here.

(80) Marine biologist tony martin will be helping to unearth a secret.

21.13% of the conative discourses in Documentary A claim alienation towards the surroundings, and this figure is nearly doubled in Documentary B (42.55%). By alienation, it means being an outsider and changing current situation as they wish. From the word 'grinding' in example (81) we could feel the speaker's negative mood towards the sea; fishing could have been evaluated as a reasonable and necessary activity for survival, but the word 'pulling' in example (82) portrays a brutal image and an indifferent attitude towards the fish resources provided by the nature; example (83) gives fishing activity an inexhaustible image, which violates the principle of regulation and conveys an non ecological information to the audience.

(81) I'm out here (on the sea) grinding and there were worn out.

(82) I've spent the past thirty five years pulling fish out of the gulf.

(83) Local fishermen say catching one tempts others up from the deep.

Besides, the rest 29.58% conative discourses in Documentary A and 20.21% conative discourses in Documentary B do not have an obvious ecological tendency on whether it is the maintaining or the rebuilding of the surroundings, as exemplified in the

following examples.

(84) We're going to head over to a spot called Clint's Spot.

A comparison of the discourse of conation in the two documentaries shows that Documentary B has stronger intentions to alienate or rebuild the surroundings than Documentary A; Chi-square value and P value prove the statistical significance of this difference. And Documentary A slightly prefers to indicate proximity towards the surroundings.

### 5.3.3.2 Discourse of cognition

Among the three sub types of SENSE, discourse of cognition takes the majority part of Documentary A, accounting for 48.05%. Table 5.13 gives a comparison on the use of discourse of cognition between Documentary A and Documentary B.

**Table 5.13 A statistical comparison of the discourse of cognition**

SENSE-COGNITION:	Documentary A N=64		Documentary B N=29					
similarity	55	85.94%	16	55.17%	34.8653	0.000	***	+
zero cognition	3	4.69%	6	20.69%	0.3353	0.563		-
differentiation	6	9.38%	7	24.14%	0.0569	0.812		+

85.94% of the discourse of cognition in Documentary A draws identifications between human participants and the surrounding places, exhibiting a positive ecological attitude; this figure reduces to 55.17% in Documentary B; Chi-square value and P value prove that Documentary A overwhelmingly has more similarity towards the surroundings than Documentary B. Example (84) shows a accordance between people's need and the health of the surrounding place, thus develops a strong sense of belongings to the place. The recognition of the threatening fact and the cost of the marine animals in examples (85) and (86) also reveal the speakers' affiliation on the surrounding environment.

(87) The Sarah Indians demonstrate a technique that balances the needs of people with

the health of the city.

(88) But today this ocean paradise is under threat

(89) If you're seeing an explosion of squid that is at the cost to some other species.

As the above examples indicate, 44.83% in the discourse of cognition in Documentary B shows no cognition or differentiation on the surroundings; this figure reduces to 14.07% in Documentary A. But there is no statistical significance of this difference.

### 5.3.3.3 Discourse of emotion

Finally, both Documentary A and Documentary B have about 13% of the SENSES types for building emotional connections to certain places. Table 5.14 gives a comparison on the use of discourse of emotion between Documentary A and Documentary B.

Table 5.14 A statistical comparison of the discourse of emotion

SENSE-EMOTION:	Documentary A		Documentary B		Chi-Square	Significance (p)		
	N=22		N=19					
affection	15	68.18%	6	31.58%	6.9984	0.008	**	+
indifference	2	9.09%	2	10.53%	0.0828	0.774		+
dislike	5	22.73%	11	57.89%	0.8850	0.347		-

Although the total numbers of the discourse of emotion have no statistically significant difference between Documentary A and Documentary B, the two documentaries do have different ecological tendency when using these emotive discourse. 68.18% of the discourses of emotion in Documentary A convey speakers' affection towards the surroundings, while 31.58% of them in Documentary B have the same attitude. That is to say, Documentary A has a more positive attitude towards the surroundings than Documentary B; Chi-square value and P value prove the statistical significance of this difference.

Documentary B, on the contrary, expresses more attitude of dislike, accounting for 57.89% of all the discourse of emotion; this figure reduces to 22.73% in Documentary A. Both Documentary A and Documentary B have about 10% of the discourse of



emotion that produce neither affection nor dislike towards the surroundings. But the differences in the use of discourse of indifference and discourse of dislike have no statistical significance.

When describing the agility of the sea lions, speaker in example (87) uses a metaphor of bullet and expresses appreciation towards the sea lions. The positive emotion will also help the audience build an intimate connection with the marine animals. On the contrary, examples (89) and (90) use negative expressions to describe the human participants' situation on the sea, telling how bored the workers are on the boat and indicating the participants' eagerness to leave the current surroundings; the impatient attitude and tendency of alienation portray an undesirable image for the marine environment, which of course does no good to build the intimacy between the audience and the nature.

(87) He (sea lions) came close like *speeding bullet*.

(88) That (sea lions) for sure is *awesome*.

(89) You're *working your ass off* and no stop.

(90) So I'm just *ready to get off this boat* for a little bit.

The above sections interpret the components of Ecological Sense of Place of the two documentaries. In this section, the author shall make an integrated summary of the three individual aspects. Speakers in Documentary A regard human participants mostly as the risk managers who should be responsible for maintaining sustainability of the area. The attention of those risk managers are given to the surrounding marine environment and the creatures living there. Most frequently, Documentary A spreads informative message about the current situation of the surroundings and expresses identification upon the current situation. Documentary A also introduces human participants' conative actions towards the surroundings, which mainly intend to maintain and promote the sustainable development. Occasionally, speakers in Documentary A share their affections about the surroundings. By contrast, speakers in Documentary B more often regard the human participants as risk gainers who are born to enjoy the benefits from the surroundings; occasionally, they play the role of risk

manager to improve the condition so that it would guarantee their interests. Mostly, the attentions of Documentary B are allotted to the natural places and the natural-social places, which refer to the areas for fishing, the equipment for fishing, and the whole fishery industry; more frequently than Documentary A, Documentary B tracks the ongoing events in the social places, like ‘the Katie seafood market’, the meeting with the government officials who will be helpful to defend for the interests of the commercial fishing industry. Towards the surroundings, Documentary B exhibits an active attitude and diligence to explore, change and rebuild; it also shows willingness to maintain and promote the current condition for the good of the human participants. Once in a while, audience can also encounter with some informative introduction and emotional evaluation on the surroundings, some of which are occupied by senses of differentiation and dislike.

Briefly speaking, Documentary A creates an intimate and reverent sentiment towards the nature, in which nature is given recognition and promise to maintain its sustainability. However in Documentary B, nature is more often regarded as available resources to be exploited, to be developed and to provide continuous life supporting for human beings. The author believes the discourse in Documentary A to be more suitable for constructing a mutual respect and interdependent human-nature interaction.

#### **5.4 Ecological score: The Ecological Tendency of the Two Documentaries**

In conducting the ecological discourse analysis practice on the two documentaries, ecological judgments on whether it is eco-beneficial, eco-ambivalent or eco-destructive shall be made on the sentences, based on the analysis of the transitivity resources and the Ecological Sense of Place. Further, to have a direct impression on the ecological tendency of the whole documentary, the author designs a calculation of the ecological score. The author assigns a score on each ecological judgment; the segments labeled with ‘eco-beneficial’, ‘eco-ambivalent’ and ‘eco-destructive’ accordingly get 1 point, 0 point and -1 point; add up the points of all the ecological judgments in the documentaries, then divide it by the total number of the ecological judgments. In this way, we get scores which excludes the influence of the fact that the two documentaries

have different number of ecological judgments.

**Table 5.15 The ecological tendency of the two documentaries**

ECOLOGICAL JUDGMENT:	Documentary A N=154		Documentary B N=144		Chi-Square	Significance (p)		
eco-beneficial discourse	85	55.19%	41	28.47%	8.6919	0.003	**	+
eco-ambivalent discourse	57	37.01%	69	47.92%	4.3807	0.036	*	-
eco-destructive discourse	12	7.79%	34	23.61%	15.0061	0.000	***	-
Ecological score	0.47		0.05					

From Table 5.15 we can find that among all the ecological judgments, eco-beneficial discourse accounts for 55.19% in Documentary A and 28.47% in Documentary B; eco-ambivalent discourse accounts for 37.01% in Documentary A and 47.92% in Documentary B; and eco-destructive discourse accounts for 7.79% in Documentary A and 23.61% in Documentary B. Documentary A has more eco-beneficial discourse than Documentary B, while Documentary B contains more eco-ambivalent and eco-destructive discourse. Chi-square value and P value prove that these differences have statistical significance.

With regard to the ecological score, Documentary A gets 0.47, whereas Documentary B gets 0.05. That is to say, Documentary A does better in delivering its eco-friendly attitudes and in constructing a balanced, harmonious and reverent human-nature interaction through language devices.

## 5.5 Discussion

This chapter interprets the ecological significance of the language in *Oceans* and *Big Fish Texas* from different angles. Although both the two documentaries concentrate on presenting the marine environment to the audience, they exhibit different ecological attitudes, which can be reflected in the linguistic devices they choose.

The BBC documentary *Oceans* exhibits intimacy and reverence towards the marine environment by recognizing the independent status of the marine entities and marine animals; speakers in *Oceans* regard human beings as members belonging to the ecosystem, and they indicate their willingness and determination to maintain the sustainability of the marine environment. In this documentary, human participants

mostly serve as risk managers who should be responsible for the health condition of the marine environment, introduce more informative messages and understandings towards the surroundings, and express positive emotions towards the surroundings. When it comes to the linguistic choices, *Oceans* involves a diversified use of process types; it uses more Mental-cognition processes to present human's understanding towards the surroundings and more Mental-emotional processes to express emotions and feelings towards the marine environment; it also frequently characterizes and identifies the features of the surroundings through Relational-attributive process and Relational-identifying process. The proportion of Material process is relatively reduced and involves less about the intentions to change the surroundings. On the participants, *Oceans* gives marine animals and natural environment more opportunities to initiate the process, weakens human participant's control over the flow of events, and bestows human beings with more responsibility to act as observers and a preservers. From NGC's documentary *Big Fish Texas* we could read a lot about human beings' overwhelming priority over the marine environment, in which nature is regarded as available resource. Mostly, human participants act as risk gainers who are born to exploit the resources provided by the nature; sometimes, they take the responsibility to manage the health condition of the marine, of course, for their own good. Expect for the marine environment as the inseparable living places, human participants concern more about the social places where they fight with other interests groups to defend for their fishing industry, focus on the natural-social places where they conduct their fishing activity and manage their fishing industry, and also care about the marine animals as their harvesting targets. Upon the surroundings, human participants show strong desires to carry out conative actions. For the linguistic choices, Material process is the most frequent one, pointing to the reconstruction and changes of the surroundings; at the same time, there are a lot Mental-desideration processes which represent human participants' demands from nature; human participants also occasionally claim ownership over natural resources through Relational-possessive processes. In terms of participants, human and their actions and behavior absolute dominate, playing an active role in rebuilding and occupying the surroundings. Marine animals on the contrary lie in the passive positions of being affect or possessed, losing initiatives comparing with

those in BBC's *Oceans*.

From the analysis of the linguistic devices, we can find that *Oceans* bears a more positive ecological attitudes than *Big Fish Texas*. Ecological effects of the documentary will have subtle impact on the audience, thus documentary producers should be prudent in choosing linguistic devices. In terms of the linguistic instance stratum, the interactive relationship of process types and participant types and its ecological effect should be considered. In addition, the responsible role of the human participants, the focuses of the language, and type of sense generated towards the natural environment should also be chosen carefully.

## 5.6 Summary

This chapter is a detailed analysis of the language in the two documentaries based on the “meaning potential-interface-linguistic instance” analytic framework built in Chapter Three. The ecological meanings are interpreted from the perspectives of process types, participant types and the components of ESOP system; then, ecological scores are calculated to present the ecological tendencies of the documentaries. In this section, the author shall extract out the most significant data and make a brief summary.

Material process, Mental process and Relational process together dominate both *Oceans* (Documentary A) and *Big Fish Texas* (Documentary B). *Big Fish Texas* significantly uses more Material processes than *Oceans*; further it also employs more Mental-desideration processes to ask for resources from the environment and has more Relational-possessive processes to claim ownership over the nature. *Oceans*, on the contrary, often employs Material processes and more Behavioral processes to describe life-sustaining activities of marine animals and the dynamic condition of the marine environment; and *Oceans* also prefers Mental-cognitive process, Relational-attributive process and Relational-identifying process which convey speakers' understandings and concerns on the survival of marine animals and their living conditions.

As for the participants within the those processes, Human absolutely takes a dominate position in *Big Fish Texas* (42.8%), and more frequently they serve as the Agent (45.14%) to initiate Material process, as the Senser (22.22%) to ask for resources and as the Possesser (7.64%) to claim ownership; Marine organisms (13.69%) are more

frequently the objects being affected and possessed. *Oceans*, on the contrary, involves more Marine organisms as participants (28.61%) than *Big Fish Texas* and those marine organisms serve as the Carrier (13.13%) to be identified or characterized, as the Phenomenon (16.16%) towards which human participants express their emotions, perceptions and understandings, and as the Existent (9.09%) to indicate their existence in the nature; and among the Human participants (26.59%) in *Oceans*, 39.13% of them serve as Agent and 32.61% of them serve as Senser to produce emotions and perceptions and to express understandings. Besides, for other participant types, Natural entity (17.63% in *Oceans*, 4.76% in *Big Fish Texas*) which concerns the physical places in marine environment occur frequently in *Oceans*; Artificial entity (8.63% in *Big Fish Texas*, 2.31% in *Oceans*) and Action or behavior of human beings (22.02% in *Big Fish Texas*, 13.58% in *Oceans*) occur frequently in *Big Fish Texas*.

Next, let's come to the interface stratum between the linguistic devices and the ecological meanings. In terms of the responsible role of human participants, speakers in *Oceans* most often regard human beings as the risk managers (93%) who should be responsible for the protection of the marine environment; in a few cases human participants become the risk gainers (7%) who benefit from the environment. On the contrary, 75% of the cases in *Big Fish Texas* regard human participants as risk gainers who are born to enjoy and to consume natural resources; occasionally (20%), speakers in this documentary realize that for long-term dependence on the marine resources, human should manage the marine environment properly; and in a few cases (5%), speakers complain about their loss due to unfriendly marine environment.

When having a look at the types of PLACE, we will find that the overwhelming majority of *Oceans*' attentions are given to the Natural places (44.81%) and the Non-human organism (49.35%); apart for the unavoidable mentions of natural environment (35.21%), *Big Fish Texas* concerns more about the Social places (20.13%) and Natural-Social places (30.99%), where they fight for the interests of their fishing industry against other interests groups; and the mentions of the Non-human organisms (12.68%) all treat the organisms as the fishing targets.

In addition, among the three types of SENSE, both in *Oceans* and *Big Fish Texas* nearly 13% of them are the emotions towards the environment and surrounding; *Big*

*Fish Texas* (66.2%) exhibits a stronger desire to conduct conative actions on the nature than *Oceans* (38.31%); *Oceans* (48.05%) more frequently delivers understandings and cognition towards the environment and surrounding than *Big Fish Texas* (20.42%).

Finally, ecological judgments on whether they are eco-beneficial, eco-ambivalent or eco-destructive are made. 55.19% and 37.01% of the judgments in *Oceans* are the eco-beneficial and eco-ambivalent ones, leaving 7.79% of them bearing with destructive effect; *Big Fish Texas* has stronger ambivalent (47.92%) and destructive (23.61%) attitudes than *Oceans*. And the final ecological scores prove that *Oceans* has a more ecological tendency than *Big Fish Texas*.

## Chapter Six

### Conclusion

In this concluding chapter, the major findings will be summarized, followed by the implications of the research and prospects for future research in pertinent fields.

#### 6.1 Major Findings

The ecological discourse analysis of the language in the two marine documentaries aims to explore the ecological tendencies of the two documentaries and therefore to interpret the interactions between the linguistic devices and the construction of ecological meanings. The investigation on the distribution of process types and the use of participant types could reveal the ecological tendency of the discourse. At the same time, the analysis on the Ecological Sense of Place in the discourse also helps uncover the responsible roles, the focuses of human participants and the types of sense generated towards the surroundings.

EDA on the language data proves that the BBC documentary *Oceans* has a more positive ecological significance than the NGC documentary *Big Fish Texas*. The former one exhibits intimacy and reverence towards the marine environment; the latter one regards marine environment as available resources and human beings hold the initiative and control over the marine environment and the marine lives.

Firstly, in terms of the use of process types, *Big Fish Texas* contains more Material processes, Relational-possessive processes and Mental-desideration processes to push the flow of events and to claim for ownership on and demands from the nature. Comparing with *Big Fish Texas*, *Oceans* prefers Relational-attributive process, Relational-identifying process, Mental-cognition process and Behavioral process, in which characteristics and identifications of the marine environments are described, alongside with knowledge and understandings towards the surroundings.

Secondly, the use of participant types also differs in the two documentaries. Human participants and their actions and behaviors take the largest proportions in *Big Fish Texas*, while *Oceans* involves more marine lives and natural entities as participants. The



distribution of the participant roles of human beings in the two documentaries shows a similar trend, but *Big Fish Texas* uses human participants more frequently as Agent to initiate Material process and as Possessor to claim for ownership over nature than *Oceans*. As for the marine organisms as participants, *Big Fish Texas* puts them on positions of being affected and being possessed, while *Oceans* treats the marine lives as the targets to be characterized, identified and understood.

Thirdly, the analysis of Ecological Sense of Place exhibits the interactions between human and nature. As for the responsible roles of human beings, speakers in *Oceans* mostly serve as risk managers who bear the responsibility for sustainable development, while speakers in *Big Fish Texas* most frequently serve as risk gainers who are born to obtain benefits from nature. In terms of the types of place that are being focused, *Oceans* gives most of its attentions to the non human organisms and the natural places, while *Big Fish Texas* cares more about the social places and the social-natural places. When it comes to the types of sense, *Oceans* prefers to express understandings towards the surroundings through discourse of cognition, while *Big Fish Texas* prefers to convey conative behavior through discourse of conation. Generally speaking, *Oceans* exhibits a stronger sense of belonging to the surroundings than *Big Fish Texas*.

Finally, the ecological scores also prove that *Oceans* delivers a more beneficiary ecological meaning than *Big Fish Texas*.

## **6.2 Implications**

Through ecological and statistical analysis on the linguistic features in the two documentaries, this research visualizes the ecological attitudes hiding behind the language. Theoretically, the current research verifies the applicability of SFL by applying it into ecolinguistic study and by solving practical problems. In addition, it also extends the current EDA studies by employing the corpus tool and statistical comparison.

Practically, this thesis contributes to the appreciation and production of marine documentary from the following aspects: (1) it offers the audience an angel to critically appreciate the environmental related documentary and to dig out the ecological ideology behind its language rather than accept all the information; (2) it serves as a reminder for

the producers to introspect the attitudes they deliver in their documentaries and to make it equipped with a eco-friendly effect; (3) it further alters all of us to think, speak and act ecolinguistically.

### **6.3 Prospects for Future Research**

We should always bear in our mind the edification from the great man Michael Halliday -- our language is constructing our world. It is the obligation of the linguists to explore a better way to maintain a harmonious and sustainable world. Some of the prospects for future research are introspected.

Firstly, the capacity of the corpus should be expanded and the types of discourse should be enriched. On the one hand, the analysis of some linguistic resources (such as Verbal process) are insufficient due to the limitation of the capacity and text type of the corpus; to have a more complete investigation of linguistic devices, further research shall include more language data. On the other hand, it shall also pose greater challenge for annotation, since the expansion of corpus shall bring more diversified language phenomenon such as metaphor, irony, etc.

Secondly, future research should include the analysis of other metafunctions of language. This thesis focused mainly on the transitivity system, which may be criticized as being flattening. To have a more stereoscopic and panoramic interpretation of the discourse's ecological effect, other dimensions of the SFL theory should be included; for example, the future research could include the interpersonal meaning into its analytic framework, interpreting the ecological attitudes from the mood, modality, and appraisal resources of the discourse.

Last but not least, research targets should be extended. Scholars of ecological discourse analysis have a bigger ambition to explore better discourse representation for various fields and to resolve much more problems. Thus, future researches should be expanded to more diversified types of discourse and should focus on more diversified domains and practical problems, rather than just be restricted to environment or ecology related topics.

## References

- Alexander, R. (2009). *Framing discourse on the environment: A critical discourse approach*. New York: Routledge.
- Alexander, R. (2017). Investigating texts about environmental degradation using critical discourse analysis and corpus linguistic techniques. In A. Fill & H. Penz (eds.), *Routledge handbook of ecolinguistics* (pp.187-201). London and New York: Routledge.
- Alexander, R., & Stibbe, A. (2014). From the analysis of ecological discourse to the ecological analysis of discourse. *Language Sciences*, 41, 104-110.
- Bang, J. C., Døør, J., & Alexander, R. (eds.) (1993). *Ecolinguistics: Problems, theories and methods*. Paper presented at the Symposium of Ecolinguistics, AILA, Amsterdam.
- Bang, J. C., & Døør, J. (2007). *Language, ecology, and society: A dialectical approach*. London: Continuum.
- Bednarek, M., & Caple, H. (2010). Playing with environmental stories in the news: good or bad practice? *Discourse & Communication*, 4 (1), 5-31.
- Carvalho, A. (2005). Representing the politics of the greenhouse effect: Discursive strategies in the British media. *Critical Discourse Studies*, 2(1), 1-29.
- Døør, J., & Bang, J. C. (1996). Language, ecology and truth: Dialogue and dialectics. In A. Fill & P. Muhlhausler (eds.), *The eco-linguistics readers: Language, ecology and environment* (pp.17-29). London and New York: Continuum.
- Fairclough, N. (1995). *Critical discourse analysis: The critical study of language*. London: Longman.
- Fang, K. L. (2015). *Eco-critical discourse analysis of English eco-hotel introductions*. Chongqing: Southwest University, MA Thesis.
- Fill, A. (1998). Ecolinguistics: States of the art 1998. In A. Fill & P. Mühllhäusler (eds.), *The eco-linguistics readers: Language, ecology and environment* (pp.43-53). London and New York: Continuum.
- Fill, A. (2001). Language and ecology: Ecolinguistic perspectives for 2000 and beyond.

- AILA Review*, 14, 60-75.
- Gerbig, A. (1993). The representation of agency and control in texts on the environment. In J. C. Bang et al. (eds.), *Language and ecology: Eco-linguistics problems, theories, and methods*. (pp.61-73). Odense: Research Group for Ecology Language and Ideology.
- Goatly, A. (1996). Green grammar and grammatical metaphor, or language and myth of power, or metaphors we die by. *Journal of Pragmatics*, 25 (4), 537-560.
- Goatly, A. (1997). A response to Schleppegrell: What makes a grammar green? *Journal of Pragmatics*, 28 (2), 249-251.
- Halliday, M.A.K. (2014). *Halliday's introduction to functional grammar*. Revised by Christian M.I.M. Matthiessen. London and New York: Routledge.
- Halliday, M.A.K. (2000). *An introduction to Functional Grammar* (2nd edition). Beijing: Foreign Language Teaching and Research Press
- Haugen, E. (1972). *The Ecology of Language*. Stanford: Stanford University Press.
- Howlett, M., & Raglon, R. (1992). Construing the environmental spectacle: Green Advertisement and the greening of the corporate image, 1910-1990. *Environmental History Review*, 16, 53-68.
- Hu, R. Y. (2017). *A discourse analysis on ecocity projects: From the perspective of eco-linguistics*. Wuhan: Central China Normal University, MA Thesis.
- Kahn, M. (2001). The Passive Voice of Science: Language Abuse in the Wildlife Profession. In Fill, A. & P. Mühlhäusler (eds.), *The eco-linguistics readers: Language, ecology and environment* (pp.241-244). London and New York: Continuum.
- Naess, A. (1995). The Shallow and the long range, deep ecology movement: a summary. *Inquiry*, 16: 95-100.
- Ning, Q. Q, (2014). *A study of the ecological thoughts in Walden from the perspective of critical discourse analysis*. Hangzhou: Hangzhou Dianzi University, MA Thesis.
- Schiffrin, D., & Hamilton, H. E. (2001). *The handbook of discourse analysis*. London: Blackwell.
- Schleppegrell, M. (1997). What makes a grammar green? A reply to Goatly. *Journal of Pragmatics*, 28 (2), 245-248.

- Stamou, A., & Paraskevopoulos, S. (2008). Representing protection action in an ecotourism setting: A critical discourse analysis of visitors' books at a Greek reserve. *Critical Discourse Studies*, (5), 35-54.
- Stibbe, A. (2005). Ecology and the magic of economics. *Language & Ecology*, 1 (4), 1-6.
- Stibbe, A. (2005). Environmental education across cultures: Beyond the discourse of shallow environmentalism. *Language & Intercultural Communication*, (4), 242-260.
- Stibbe, A. (2015). *Ecolinguistics: Language, ecology and the stories we live by*. London and New York: Routledge.
- Wang Q. W. (2018). *An ecological analysis of the Old Man and the Sea from a systemic functional perspective*. Wuhan: Central China Normal University, MA Thesis.
- Zhou, W. J. (2017). Ecolinguistics: Toward a new harmony. *Language Sciences*, 62, 124-138.
- Zhou, W. J., & Huang, G. W. (2017). Chinese ecological discourse: A Confucian-Daoist inquiry. *Journal of Multicultural Discourses*, 12, 1-18.
- 艾尔文·菲尔、范俊军、宫齐，（2004），当代生态语言学的研究现状，《国外社会科学》，第5期，5-10。
- 常娇，（2014），生态纪录片中英语解说词之功能文体学分析——以《美丽中国》为例。陕西西安：西北大学，硕士学位论文。
- 范俊军，（2005），生态语言学研究述评，《外语教学与研究》，第2期，110-115。
- 高振东，（2015），生态翻译学视域下的纪录片字幕翻译——以BBC纪录片 *Wild China* 为例。重庆：四川外国语大学，硕士学位论文。
- 何伟、魏榕，（2017），国际生态话语之及物性分析模式构建，《中国外语》，第5期，597-607+729。
- 何伟、魏榕，（2018a），生态语言学的超学科发展——阿伦·斯提布教授访谈录，《外语研究》，第2期，22-26。
- 何伟、魏榕，（2018b），生态语言学：发展历程和学科属性，《国外社会科学》，第4期，113-123。
- 何伟、魏榕，（2018c），话语分析范式与生态话语分析的理论基础，《当代修辞学》，第5期，63-73。
- 何伟、张瑞杰，（2017），生态话语分析模式构建，《中国外语》，第5期，56-64。

- 黄国文, (2016), 生态语言学的兴起与发展, 《中国外语》, 第1期, 1+9-12。
- 黄国文, (2017a), 从系统功能语言学到生态语言学, 《外语教学》, 第5期, 1-7。
- 黄国文, (2017b), 论生态话语和行为分析的假定和原则, 《外语教学与研究》, 第6期, 880-889+960。
- 黄国文, (2018), 斯提比生态语言学研究述评, 《鄱阳湖学刊》, 第1期, 42-47。
- 黄国文、陈旸, (2016a), 菲尔生态语言学研究述评, 鄱阳湖学刊, 第4期, 19-23。
- 黄国文、陈旸, (2016b), 生态哲学与话语的生态分析, 《外国语文》, 第6期, 55-61。
- 黄国文、陈旸, (2017a), 自然诗歌的生态话语分析——以狄金森的《一只小鸟沿小径走来》为例, 《外国语文》(双月刊), 第2期, 61-66。
- 黄国文、陈旸, (2017b), 作为新兴学科的生态语言学, 《中国外语》, 第5期, 38-46。
- 孔江平等, (2016), 语言生态研究的意义、现状及方法, 《暨南学报》(哲学社会科学版), 第6期, 3-28。
- 李倩, (2018), 中西方生态语言学历时发展及整合研究, 《北京科技大学学报》(社会科学版), 第12期, 18-26。
- 李庆明、李佩琪, (2017), 生态翻译学视角下纪录片字幕翻译——以 CCTV4《远方的家》为例, 《绍兴文理学院学报》, 第7期, 85-89。
- 梁茂成、李文忠、许家金, (2010), 《语料库应用教程》。北京: 外语教学与研究出版社。
- 蒙培元, (2004), 《人与自然——中国哲学生态观》。北京: 人民出版社。
- 乔清举, (2013), 《儒家生态思想通论》。北京: 北京大学出版社。
- 谭晓春, (2018), 生态话语的价值判断和科学判断, 《中国外语》, 第4期, 47-53。
- 王丹, (2016), 生态纪录片解说词的篇章格律。黑龙江哈尔滨: 黑龙江大学, 硕士学位论文。
- 王矗, (2011), 生态批评视域下生态纪录片叙事风格研究。吉林长春: 东北师范大学, 硕士学位论文。
- 王天孜, (2005), 论生态良知。山东曲阜: 曲阜师范大学, 硕士学位论文。

- 王媛媛, (2018), 生态翻译学视角下电视纪录片《自然守望者》的字幕翻译报告。江苏苏州: 苏州大学, 硕士学位论文。
- 邬可心, (2017), 生态纪录片英文解说词的语法隐喻研究。广西南宁: 广西师范大学, 硕士学位论文。
- 辛志英、黄国文, (2013), 系统功能语言学与生态话语分析, 《外语教学》, 第3期, 7-10+31。
- 杨汝福、曲春玲, (2013), 《少年 Pi 的奇幻漂流》的生态话语分析, 《现代语文》, 第8期, 117-119。
- 袁颖, (2018), 媒体报道的生态取向: BBC 中国雾霾新闻标题的生态话语分析, 《北京科技大学学报》(社会科学版), 第4期, 33-41。
- 张佳, (2015), 生态翻译学视角下看自然纪录片字幕翻译。福建福州: 福州大学, 硕士学位论文。
- 张瑞杰, (2018), 系统功能语言学视角下话语生态性分析模式构建。北京: 北京科技大学, 博士论文。
- 张学智, (2004), 从人生境界到生态意识——王阳明“良知上自然的条理”论析, 《天津社会科学》, 第6期, 29-35。
- 赵蕊华, (2016), 系统功能视角下生态话语分析的多层面模式——以生态报告中银无须鳕身份构建为例, 《中国外语》, 第5期, 84-91。
- <http://natgeotv.com/ca/big-fish-texas/about>
- <https://www.imdb.com/title/tt4534284/>
- <https://www.imdb.com/title/tt1322780/>
- [https://en.wikipedia.org/wiki/Oceans\\_\(TV\\_series\)](https://en.wikipedia.org/wiki/Oceans_(TV_series))

## Appendix

### The Transcript and Cleaned Texts of the Two Documentaries

- No. *Oceans* (Documentary A)
- 1 They cover two thirds of our planet.
  - 2 They hold clues to the mystery of the people's past and they are vital for our future survive.
  - 3 But the secrets of our oceans remained largely undiscovered.
  - 4 Explorer Paul Ross is leading a team of ocean experts on a series of underwater science expeditions.
  - 5 For years, the team was voyaged across the world to build up a global picture of ourselves.
  - 6 We are doing some pretty uncharted research here.
  - 7 We had to try and understand the earth's oceans and put them in a human scale.
  - 8 Our oceans are changing faster than ever.
  - 9 There's never been a better time to explore the last jewels on earth.
  - 10 But here the team is exploring unique corner of the pacific ocean, a sea of cortex.
  - 11 This is so beautiful.
  - 12 I think that there is a thin wail.
  - 13 The sea of Cortez is a rich, fertile gulf separating the peninsula back to California and the mainland Mexico.
  - 14 This sea is an exceptional marine environment, home to the greatest variety of whales and dolphins anywhere in the world.
  - 15 But today this ocean paradise is under threat.
  - 16 In the last fifty to a hundred years, humans have had a growing impact on the systems that make this sea so interesting.
  - 17 The health of sea lions, sharks and sperm whales, you know, all these big animals that found here in this little young sea.
  - 18 Fishing, tourism and industry triggered complex changes and its these that the team has come to investigate.
  - 19 This is definitely on the edge.
  - 20 Environmentalist Philip Crystal will examine the shifting balance of this delicate ecosystem.
  - 21 If you're seeing an explosion of squid that is at the cost to some other species.
  - 22 Maritime archaeologist Dr.
  - 23 Lucy Blue discovers how local people have found a way to protect our seats.
  - 24 They are very aware that the seas only have a limited resource.
  - 25 They have to be farmed in a way that is sustainable.



- 26 Marine biologist and oceanographer Tuny Mathot explores how life is responded in a rare encounter with one of the largest carnivals or not I got sonar boom.
- 27 I felt that boom go right through my body.
- 28 The sea of Cortez is a sea on the change and we we're gonna witness those changes and I think it's a fantastic mission for a diving expedition.
- 29 This will be a voyage of discovery into a scene of change.
- 30 The we're headed off to a low sea sloters, go diving with sea lions, which I have to say is one of my favorite things to do in the world.
- 31 Large reading comments of California sea lions are found here.
- 32 But commercial fishing is increasing, and that is starting to affect them.
- 33 There's been a lot of overfishing of their traditional food, like sardines in the sea of Cortez.
- 34 And so a lot of the sea lions are suffering because of that.
- 35 The animals of low sea sloters are mysterious exception.
- 36 Somehow these animals are thriving.
- 37 Marine biologist tony martin will be helping to unearth a secret.
- 38 The the first aim is to check out how healthy this commonly is.
- 39 He came close like speeding bullet, then the new facility underwater kind of process to shame.
- 40 I feel right there is a very big boy.
- 41 I think he's one of the males.
- 42 Oh, and he certainly correct check me out.
- 43 Yeah, that is a big deal.
- 44 That's for sure is awesome.
- 45 You can see that huge bony crest.
- 46 Other hand they use that to reverberate sound so that everybody can hear them.
- 47 Let them know that they're in the territory and they are in charge.
- 48 Blowing bubbles is a way of saying keep your distance.
- 49 This looks like the nursery area to me, it's all the junior lions.
- 50 Apparently these pups here in this particular population spent an awful lot longer with their mothers box of with the same species in different areas, so they got on fish with their mother, so they learn that behavior.
- 51 The number of pups in the water is assigned this colony is doing well as it means the females are healthy enough to breed regularly.
- 52 There were about thirty pups a year in the early nineties and now there are more than a hundred a year and it's a real success story which is good news.
- 53 But with many fish stocks declining the mystery is why this colony is doing so well.
- 54 Something else must be going on.
- 55 Cool.
- 56 Okay, they look so they look so incongruous.
- 57 And and only then as soon as he's in water is actually perfectly streamlined, amazing! Master of his environment.

- 58 Hello, good for her.
- 59 Gathering sea lions dropping scans might give Tuny clues about their diet.
- 60 The line pupe number two.
- 61 Essentially, I'm doing the scientific equivalent of coming for gold.
- 62 I'm looking at the sea lion pup and what we're looking for, uh, the fish otica which are the  
air bones of fish.
- 63 And from the otica we can identify what the sea lions have actually been eating.
- 64 No, this one Gold, Gold! These ear bones could reveal the answer.
- 65 And it seems Tuny really has struck gold.
- 66 What we find here is officially to this from a deep water sea bass that lives pretty much  
between seventy five and two hundred sixty five meters.
- 67 So that instantly shows that this population has at some stage adapted to fishing at much  
deeper depth.
- 68 California sea lions normally hunted depths of around seventy meters catching fish such as  
sardines.
- 69 But the ear bones Tuny has found prove the animals at low sea slouter have been able to  
change their hunting patterns.
- 70 And that's the reason why that population seems to be doing so well.
- 71 Because of this crucial adaptation, the low sea slouter sea lions no longer have to compete  
with fisherman and their flourishing.
- 72 The fact that this particular colony is being able to adapt to threats and challenges that are  
facing it and thrive is a great story.
- 73 Hopefully if this colony can exhibit this kind of behavior, then others can follow suit and  
there maybe a bright future for the California sea lion.
- 74 Although life is changing fast here, change itself was nothing new to our seas and oceans.
- 75 In fact, their size and shape are constantly shifting.
- 76 Oceanographer Tuny has brought the team west to the bay of Concepsion.
- 77 Because here you can actually see that process in action.
- 78 Beneath these calm waters is a giant fracture in the earth's crust.
- 79 It's part of the infamous san andreas fault block and created this sea.
- 80 The sea of Cortez is quite young in geological terms.
- 81 The peninsula split away from the main cosine of Mexico about five million years ago.
- 82 So it basically started tearing apart.
- 83 And the great thing I like so much is the fact that it's still moving.
- 84 The whole of the Baja peninsula is moving pretty much west right five centimeter year.
- 85 This bay offers Tuny the chance to look for evidence that this sea is getting bigger.
- 86 And Paul's hoping lovely snack in the process.
- 87 Um, could we have um, uh, six eggs, uh, waves? We can be okay? Just a good man.
- 88 Thanks very much.
- 89 Thank you.

- 90 Yeah, never gonna see.
- 91 Tuny and Lucy are swimming over a part of the san andreas fault line.
- 92 As the earth's crust is being ripped apart beneath them, heat and gas from the center of the planet are escaping through cracks called hydrothermal vents.
- 93 Oh look all these bubbles coming through here.
- 94 Oh god yeah.
- 95 It's rare to see a hydrothermal vent in five meters of water.
- 96 They are normally found in deep beneath the surface.
- 97 Oh look, You can see the hate shimmer.
- 98 This is the simmering water for the hot water's coming out of the ground, a mixing with the colder sea water around.
- 99 And This is the evidence through the height of thermal activity company while the couples.
- 100 Oh, that's hot, that's really hot.

No. *Big Fish Texas* (Documentary B)

- 1 The Gulf of Mexico is a six hundred thousand square miles of open water, with conditions as unpredictable as they are unforgiving.
- 2 We gotta get the hell out of here.
- 3 Fishing here takes strength, stamina and guts.
- 4 It can be alone.
- 5 I should know.
- 6 I've caught as much fish as anyone in these waters.
- 7 A quarter of the gulf, fresh fish comes through my business, Katie seafood market in Galveston, Texas.
- 8 We're a family business and I put everyone in my family to work.
- 9 But to succeed in the cutthroat world, a commercial fishing.
- 10 I'll battle the odds, bad fishermen and even mother nature herself to pull a living from these waters and pass it on to my boys.
- 11 Morning is my favorite time of the day.
- 12 Not many people around you, you get to see nature starting to wake up or starting to come away.
- 13 There's only one thing I like better than Galveston in the morning, and that's being out on the water.
- 14 Today I will take out Will Hyman and he's a research scientist.
- 15 We're headed out into the Gulf of Mexico to measure changes in the Red Snapper fishery.
- 16 It's all about finding the best possible information.
- 17 So the fisheries are managed sustainably, then everybody wins.
- 18 That's we're understood is getting your research to a point where you can determine what's happening with the stocks of fishes.
- 19 I don't believe the federal government is getting the job done.
- 20 I've spent the past thirty five years pulling fish out of the gulf.

- 21 And unless we continue to be responsible about our effects on the ecosystem, there won't be an ecosystem there to fish.
- 22 Your studies that you're doing will help federal government understand where the fish are actually congregated.
- 23 If we're good stewards of the fishery, perhaps you be able to catch more fish and we won't have to work near as hard I do it.
- 24 This is the Buccaneer oil and gas field.
- 25 It was put out here like the nineteen sixties.
- 26 We think that they're gonna be migrating from the jetties out here to spawn.
- 27 For years, the buccaneer oil and gas field has been depleted of Red Snap.
- 28 That's because it used to be a spawning area, but it got over fished.
- 29 To catch a lot of fish there, they're gonna not come back as you wiped out the breeding stock.
- 30 OK, fisherman, let's get some science going here.
- 31 All right.
- 32 All right.
- 33 But how can your field was an area that was over fished at one time.
- 34 You couldn't catch red snapper around here.
- 35 So if we catch any red snapper here today, that means our efforts have been successful over the years.
- 36 That's something I can feel it.
- 37 ? How many snappers was not too far? That was three, three.
- 38 But you got there or red snapper.
- 39 Uh, we got lots of snappers for sure.
- 40 Right now, the future of the snapper fishery looks great.
- 41 And if we can continue to build on what we've done over the last few years, it is going to be better than any fishery in the world.
- 42 Future.
- 43 So bright, I gotta wear shades.
- 44 Ha ha ha! Real data is good for everybody, especially the commercial fishing.
- 45 There's plenty enough fish.
- 46 If we manage them properly there's more than enough fish to go around.
- 47 And we got about fourteen thousand grouper on the boat.
- 48 We're heading in right now.
- 49 ?We are about one hundred and seventy miles from Galveston.
- 50 And we've been out here busting our ass for sixteen days.
- 51 You know, we have fourteen thousand pounds of grouper to show for it.
- 52 We usually catch ten and you know, catch fourteen made it that much better.
- 53 It was a great trip.
- 54 No, there's very few people that can actually go out there and just do what we do.
- 55 There's no dressing up.

- 56 There's no fixing your hair.  
57 There's definitely no Starbucks.  
58 There's no party and there's no drinking.  
59 There's no hanging out.  
60 Forget about there's none of them out there.  
61 You're working your ass off and no stop.  
62 Go Getting there do one thing and that's the work and catch fish.  
63 So I'm just ready to get off this boat for a little bit.  
64 I had to go to a big ass party when I get home? Excited, man, when are you gonna settle down? Become a contributing member of society? Probably never.  
65 All I'm worried about is getting home as quick as I can.  
66 It's ready to hang out with some friends.  
67 You know, I disappeared off the plane and no social media, nothing.  
68 So I'm just ready to get off this boat for a little bit.  
69 You can do you know, whatever the wife says.  
70 Yeah, I'm going to have way more fun than you.  
71 Oh, yeah, nice clean bed and nice clean house.  
72 I'll sit in their way.  
73 Coming home to my wife, you know, that's kind of what I look forward to at the end of a long trip.  
74 Bring that paycheck home to her.  
75 Now just give it a few years.  
76 Yeah, I don't know.  
77 It might be a little bit more than a few years.  
78 That's what they always say.  
79 Ready to party.  
80 The snapper, when they give you a head like that, you take that, throw it out and get it on.  
81 and you deep fried it like chicken and it's pretty.  
82 You didn't know that?  
83 Yeah! I can't be replaced.  
84 You understand that? Since I've been there, we have doubled our money.  
85 I mean, we have doubled.  
86 I'm about the best.  
87 That's all I got to say.  
88 There is the main man.  
89 What's up, Mike? Hey, have you noticed downstairs? Everybody is working out real good? Yeah, you're right.  
90 Think about that.  
91 Yes, sir, I will.

- 92 How about a raise? I've been working a while, you know, one hand washes the others,  
buddy.
- 93 You know, ah, when my mom died she said that you do everything for everybody, and  
you're gonna be rewarded twice.
- 94 I thought she was talking about money, but I ain't never got no money off anybody.
- 95 And now I know what you really meant.
- 96 I got so many friends and a lot of them try to look after me.
- 97 They don't have to look after me.
- 98 I do everything by myself.
- 99 We're going to get along this year.
- 100 I'm pretty sure of that.