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**EXPLORING THE CHALLENGES AND STRATEGIES IN IMPLEMENTING
OF SUSTAINABLE FISHERY MANAGEMENT IN MERSING**

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**The thesis is submitted in partial fulfillment of the requirements for the award of
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DECLARATION OF ORIGINAL WORK

“I declared that this project is the result of my own research except as cited in the references. This research project has not been any degree and is not concurrently submitted in candidature of any other degree.”

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DEDICATION

This research paper is special dedicated to my supervisor, Dr Chew Boon Cheong, who inspired me a new way of think and new things to learn. Thank you for the guidance and motivation for helping going through this research. Next, parents, who has been my main source of inspiration and encouragement during my studies and provide me the opportunity of enjoying this experience in my life to complete this research. Not forgetting, thanks to my friends that never give up for guiding me as a teacher and encourage me all the time. Your kindness means a lot of things to me.

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Abstract

Conducting a research to identify the challenges and strategies of sustainable fishery is critical for current situation. Traditional unsustainable fishery has caused to certain problem such as marine resources are getting lesser and lesser from day to day. It is very serious issue that may cause the loss of precious natural resources and lead to the shutdown of many fisheries industry due to low yield. Going through this research, the researcher will find out the challenges and strategies of implementing the sustainable fishery to generate social, environmental and economic benefits. Challenges and strategic of this research will determined by semi-structured interview experienced fishermen and manager level staff. In addition, a set of question will be asked to the respondent and their opinion will be listed down as the data resources to complete this researchers.

Abstrak

Menjalankan kajian untuk mengenal pasti cabaran dan strategi perikanan yang mampan adalah penting pada masa ini. Perikanan tradisional yang tidak mampan telah menyebabkan masalah tertentu seperti sumber marin menjadi semakin kurang dari masa ke masa. Hal ini amat membimbangkan kerana isu ini akan menyebabkan kehilangan sumber semula jadi dan penutupan kebanyakan industri perikanan yang berada disebabkan hasil dapatan semakin rendah. Melalui kajian ini, penyelidik dapat mengetahui cabaran dan strategi untuk melaksanakan perikanan yang mampan untuk memaanfatkan orang ramai, alam sekitar dan sector ekonomi. Cabaran dan strategi kajian ini akan ditentukan melalui temubual dengan nelayan berpengalaman 2 tahun atau lebih daripada ini dan kakitangan yang berpangkat lebih tinggi. Di samping itu, satu set soalan akan disediakan dan ditanya oleh pekaji kepada responden untuk mengumpul maklumat dan pendapat mereka akan dicatatkan sebagai sumber data untuk melengkapkan kajian ini.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

As the growing population around the world become more obviously, this has caused the demand of food decline. Fish is one of the food demands and it is getting lesser and lesser nowadays. According to Department Of Fisheries Malaysia (2010), rising of fishery industry has seen the fish population decline rapidly in the past 40 years, from 2.56 tonnes per sq km in 1971 to only 0.21 tonnes per sq km in 2007. Nowadays, the increasing of extinction species problem had become a warning alert for the human to awake their social awareness about the important of sustainable fishery. Harvesting the sea creatures without monitor and control may lead to serious problem of destruction of the ecosystem. Therefore, the sustainable fisheries play an important role in food security, economic and livelihoods.

This can brought a lot of benefit to the fishermen such as over-fishing problem can be detected more easily and fish population can be controlled. In addition, Marine Protected Areas in Malaysia is the conserved area in the ocean where strictly regulated the activities of the fishermen than the surrounding water. This study also helps to determine the current level of sustainable fisheries done by Malaysia government. Recently, a Sustainable Seafood Business and Aquaculture forum is hosted by World

wide Fund Malaysia collaborated with Aquaculture Stewardship Council (ASC), Marine Steward Council (MSC) and Hilton Kuala Lumpur on 14th August 2015. According to Conservation Director of WWF-Malaysia, Dr Sundari (2014), a quarter of Malaysian consumers are aware of the declining fish supply in the sea and there is important that the fishermen source the seafood products that are carrying the eco-label. Malaysian fisheries and aquaculture has produced 2,018,550 tons fish and other aquatic organisms in (Md. Arif and Khairun, 2012). Of this, 71% of total national productions which mean 1,432,962 tons come from marine capture fisheries and other of the production comes from the aquaculture. These data highlights this sector had become priority area in Malaysia. Therefore, it is important for Malaysia government improve standard of sustainable fisheries and provide useful and technical knowledge necessary for competent fisheries management. It is crucial to reduce the impact of fishing on the physical environment and by-catch activity to achieve the long term sustainable use of marine resources.

1.2 Problem statement/Research questions

According to the World Wide Fund report (2010) justifies there are slightly more than half of the stocks which is about 53% were estimated to be fully exploited and remaining 32% were estimated to be overexploited, depleted or recovering from depletion. Despite many governments regulation and management oversight are already improved, but the poor fisheries management still facing a big challenge because the measures sometimes are not efficient. In the case of many developing states, the additional problems are limited resources and capacity (Sumaila, Christophe and Alice, 2014). Furthermore, Malaysia Nature Society put a lot of effort on launching Save Our Seafood Campaign with the objectives such as influence market transformation towards sustainable seafood sourcing, promotes sustainable seafood choices and raise awareness on the current status of our fishing supply. Currently,

efforts to manage Malaysia's fisheries have been hampered by lack of data on biological stocks, conflicting goals of government agencies involved in different aspects of fisheries, and lack of political support (Teh and Teh, 2014; Abdul Majid, 1985; Yahaya, 1988; Omar et al., 1992). The research question will guide the researcher to become clearer about the way to implement the sustainable fisheries.

The research questions are as shown as below:

- I. What are the challenges of sustainable fishery that faced by the fishermen nowadays?
- II. What are the strategies need to be implemented in order to achieve the objectives of sustainable fisheries?
- III. What are the innovative suggestions in strengthening the sustainable fisheries management for the local fishermen?

1.3 Research Objective

The research objectives are shown as below:

- I. To determine challenges of sustainable fishery that faced by the fishermen nowadays.
- II. To identify the strategies need to be implemented in order to achieve the objectives of sustainable fisheries.
- III. To provide innovative suggestions in strengthening the sustainable fisheries management for the local fishermen.

1.4 Scope, Limitation and Key Assumptions of the Study

The scope of this research will focus on the fishermen who had at least 2 years experiences on this field. The primary target of this research is those fishermen who are live in the one of the prosperous fishery area in Johor, named as Mersing. There are a lot of jetty established at the coastal area of Mersing since a long time ago. These fishermen will be interviewed to voice out their expert opinion and answer the question in detail. All the answer from the respondent will be recorded correctly and completely.

One of the limitation of this research is that sustainability fishery would be a profound concept to most of the fishermen. Therefore, the answer given by the fishermen may vary from one to another because they just answer the question based on their own opinion. Secondly, the answer given by the fishermen may not consistence.

Next, the key of assumption of this research is that the fishermen will response with a honest answer when they are answering the questionnaires. In order to get the permission of the company, we will try our best to pursue them with clear briefing and explanation so that they can understand the purpose of this research can bring benefits to them and their business.

1.5 Importance of the study

This study is aim to achieve the goal of sustainable fishery which is reduced unsustainable fishing practice by increasing the awareness of fishermen and implement new and useful strategy to improve the sustainable fishery level in Malaysia. Nowadays, a lot of sea creatures facing a lot problem such as decline of population or

more worse, extinction. This phenomenon has warned the people directly that the way of fishing should be in a more sustainable way to avoid it happen. This research hopes to remind people the importance of sustainable fishery. On the other hand, this study is crucial because it determine the future of fishermen in a way whether the number fish stock can be conserved without affecting the profit of those fishery industries. Moreover, this research maybe can help to discover new way of fishing that can save cost and increase productivity at the same time.

1.6 Summary

This opening chapter clearly explains to people what this research about. Most important things are that the objectives of this research which are determine challenges of sustainable that face by the fishermen nowadays and to identify the strategies need to be implemented in order to achieve the objectives of sustainable fisheries, which are including the purpose, key assumption, contribution and limitation of the research. The main objective of this research is to call the attention of public it is the time to stand up and protect the environment so that our next generation can enjoy the same things with us. In data-poor, small-scale fisheries systems, community-based planning efforts can be informed by participatory research approaches that involve community members and stakeholder groups in the design, development and implementation of research (Kittinger, 2013). It shows that mindset can be completely changed by implementing pro-active education and awareness. Furthermore, the profile of the fishing issues should be rising up so that it can draw attention of fishermen the importance of sustainable fishery.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Traditional fishery activities are not efficiency due to the lack of technology, low capital, small scale and normally undertaken by individual instead of a well-organized association. This situation lead to declining of fish stock and some of the fishermen lose their job due to the unsustainable way to fishery. Therefore, sustainable fishery needs to be implemented to avoid same problems again. According to Greenpeace (2008), a sustainable fishery practice is one of the approach can be implemented indefinitely to maintain the population of targeted species at healthy level, and without adversely impacting on other species within ecosystem, and avoiding unsustainable way of fishing by human such as accidentally killing them or damaging their physical environment.

Sustainable fishery processes encompasses all the sustainable fisheries activities such as hatchery production, nursing process, rearing fingerling process, on-growing process, harvesting process, handling and processing process and so on. Every process must be in a sustainable way in order to achieve the goal of sustainable fishery. This can be done by collecting data by observer, assess healthy situation of fish by expert through data analysis, guideline and support from fishermen and so on.

This research is focus on determine the challenges faced by fishermen to achieve sustainable fishery and strategy that can be implemented to achieve the goal of sustainable fishery. By determining the biological feature of the fish and the way of harvesting fish, it helps to identify challenges and strategy of achieving sustainable fishery. There are very few exception that poor management and lack of control can achieve sustainable fishery goal, even the deep-sea fisheries cannot be take account as an alternative method for declining resources in shallower waters (Morato et al., 2006a). Therefore, all these processes must be well-planned in order to minimize and reduce the environmental effect while still remain or increase the production of fishermen.

2.2 Process of Sustainable fishery

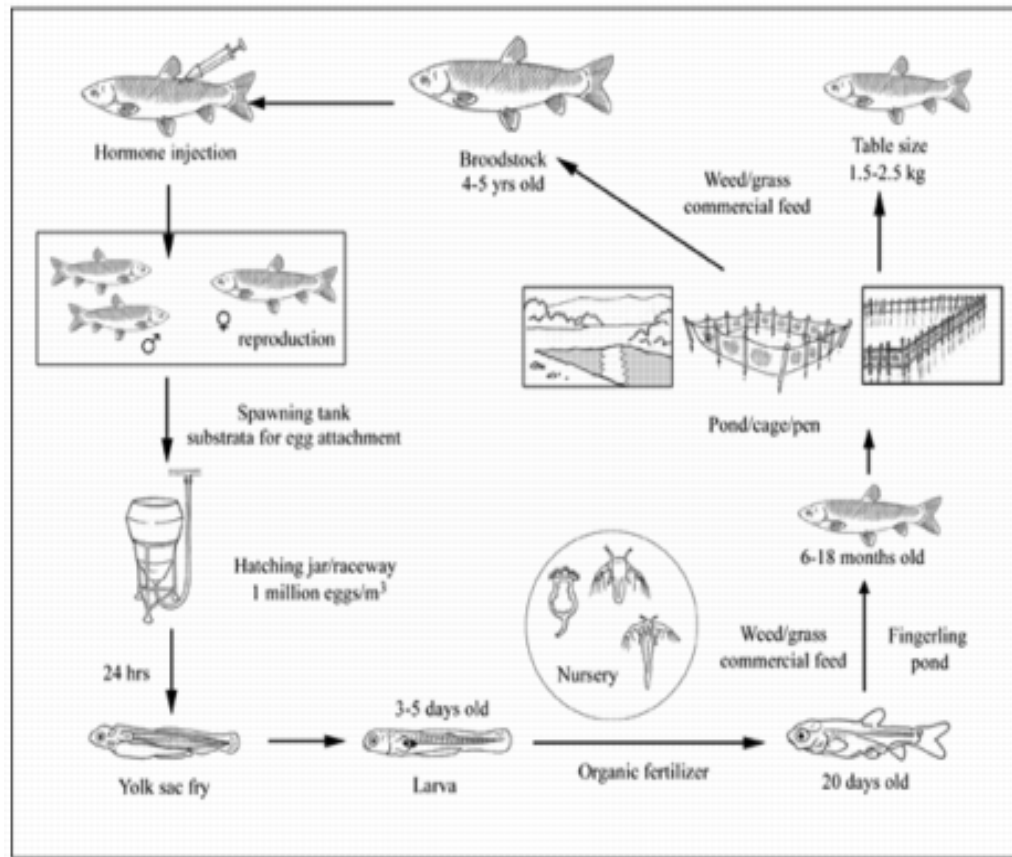


Figure 2.0: Production of fish process

Source: Food and Agriculture Organization (2010)

The production of fish process also known as fish farming can help to determine the ecology of the fish and provide a better environment for them to survive. By observing and the monitoring the data of this breeding fish activity, useful data can be obtained and help to modify harvesting activity. It is important to identify the information that is critical to managing sustainable fisheries, whether this information exists and how it can be incorporated into decision-making, and how the resulting uncertainty can be addressed, which may include taking more precautionary approaches or identifying what data are required to generate the information (Marine