



EXECUTIVE SUMMARY
HARVEST STRATEGY FOR
BLUE SWIMMING CRAB

in Fishery Management Areas of
Republic of Indonesia
(WPPNRI 712)



MINISTRY OF MARINE AFFAIRS AND FISHERIES
DIRECTORATE GENERAL OF CAPTURE FISHERIES
YEAR 2020

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PREFACE

The Blue Swimming Crab fishery in the Fishery Management Area of Republic of Indonesia (WPPNRI) 712 contributes significantly to the total national production of blue swimming crab, with 49% of the national blue swimming crab production coming from this area. In addition, the blue swimming crab fishery in Indonesia also has a significant economic contribution to the country, contributing to IDR 4.6 trillion per year. This economic and production contribution makes blue swimming crab the third highest valued-export commodity from Indonesia, following tuna and shrimp.

The production and value of the blue swimming crab fishery as well as employment created by this sector (up to 275,00 workers) contribute significant economic impacts to Indonesia. Due to these contributing factors, development of fishery management for blue swimming crab must consider the ecological, economic, and social aspects of the fishery.

This document acts as a reference and guidance for the Ministry of Marine Affairs and Fisheries, local governments, and all stakeholders, as a framework for blue swimming crab fishery management and harvest, with a focus on WPPNRI 712. A framework is necessary to help maintain sustainability of the blue swimming crab fishery so the fishery will be sustainable and continue providing socioeconomic benefits to general fishing communities, and specifically blue swimming crab fishing communities.

We would like to extend our gratitude to all parties for their support in the development process of this document. We hope that this harvest strategy document can be useful and implemented in line with the existing rules and regulations.

Thank you very much for your consideration and cooperation.

Jakarta, 03 March 2020

M. Zulficar Mochtar
Director General of Capture
Fisheries

CHAPTER I

INTRODUCTION

1.1. BACKGROUND

Blue swimming crab is one of the fishery commodities that contributes the biggest export value in Indonesia. In 2018, export value of blue swimming crab ranked as number 3 (three), following tuna and shrimp¹. The main market destination countries for blue swimming crab include the United States of America (71%), Japan (9%), and Malaysia (7%). Export volume of blue swimming crab reached its peak in 2016 with 19,837 tonnes, valued at IDR 3.3. trillion. However, in 2018, the export volume decreased to 16,845 tonnes but export value increased to IDR 4.6 trillion. In addition to the important export value contribution of blue swimming crab, this fishery also provides huge job opportunities through the processing units and miniplants across Indonesia, employing more than 185,000 women workers and more than 90,000 fishers².

High demand from international markets has caused strong pressure in the blue swimming crab fishery, and as a result, the stock is experiencing decline. The stock decline has been indicated by decreases in total catch, smaller size of crabs being caught, fishing grounds growing more distant, and extended fishing operation time.

As mandated in the Decree of Minister of Marine Affairs and Fisheries Republic of Indonesia No. 70/KEMPEN-KP/2016 regarding the Blue Swimming Crab Fishery Management Plan (RPP) in WPPNRI, one of the action plans listed in the RPP is to develop a harvest strategy to control optimal and sustainable fishing activities for blue swimming crab in WPPNRI 571, WPPNRI 711, WPPNRI 712, and WPPNRI 713. In addition, the pending import regulations in market destination countries, especially the United States, will soon require traceability for blue swimming crab products to support sustainable fisheries.

Harvest strategy is an integrated part of the Fishery Management Plan and is an important component in current and future blue swimming crab fishery management. The harvest strategy is expected to promote stock recovery while the stock is depleted and maintain optimal harvest when the stock status is healthy.

¹ DJPDSPKP.2018

² Indonesia Blue Swimming Crab Association (APRI). 2018

1.2. SCOPE OF MANAGEMENT

1.2.1. Geographical Area

The geographical area for fishery management in this document covers Fishery Management Area of Republic of Indonesia (WPPNRI) 712, encompassing Java Sea as presented in Figure 1.

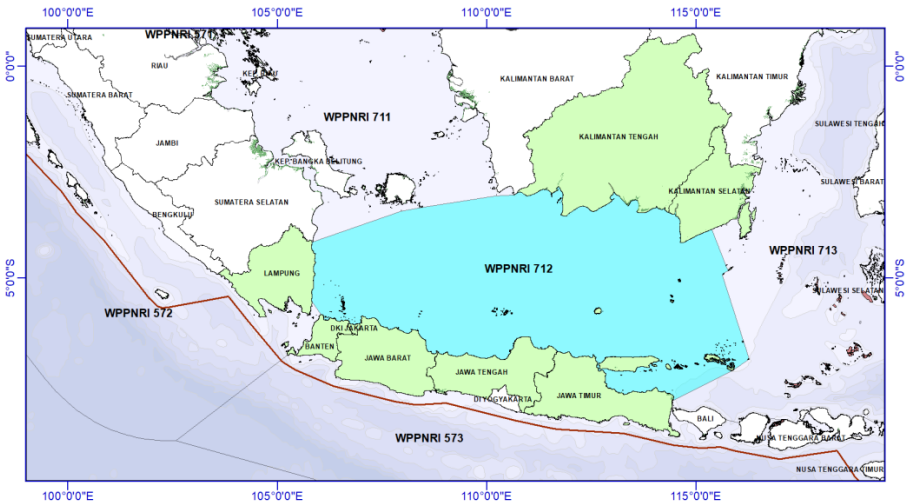


Figure 1: Map of Fishery Management Area of Republic of Indonesia 712

WPPNRI 712 has been selected as the geographical area of focus in this harvest strategy document due to several justifications, including:

- 1) WPPNRI 712 contributes the biggest proportion of blue swimming crab production compared to other WPPs (49% of total national production);
- 2) WPPNRI 712 is the center for blue swimming crab processing units (UPI) distribution (where 65% of total blue swimming crab processing units are located)
- 3) WPPNRI 712 has the highest number of *miniplants* (57%) and blue swimming crab fishers (50%) in Indonesia;
- 4) Blue swimming crab in WPPNRI 712 is considered one population which is managed as one unit.

1.2.2. Fishery Management Unit

Based on genetic population studies, it has been concluded that the fishery management unit of blue swimming crab (*Portunus pelagicus*) in WPPNRI 712 is considered one population.

1.3. DEFINITION

In this Directorate General regulation, the following definitions apply:

1. Harvest Strategy is a framework covering and explaining selected management measures for a fishery (at the level of fishery management unit) which is required to achieve the agreed biological, ecological, economic and/or social management objectives.
2. Indicator is a specific variable in the fishery that can be monitored to assess selected management measures in a specific timeframe. Each variable is related to one or more reference points and used to evaluate the status of that fishery variable.
3. Reference point is the specific point of the indicator that is used as a reference in fishery management.
4. Target Reference Point is a reference point that is used as a target of the harvest control rules. This point is still acceptable if it is slightly over or below the agreed target reference point.
5. Limit Reference Point is a reference point that is used as the limit for the control of harvest. This point is minimum value and should not be exceeded.
6. Unit of stock is a group of individuals from one species, inhabiting a clear delineated area, free from any other stock from the same species, and can be considered as one single unit for management and assessment purposes.
7. Catch per Unit Effort or CPUE is the ratio between catch and effort.
8. Spawning Potential Ratio or SPR is the reproductive capacity of a species, which is the comparison between biomass of the spawning stock under certain fishing conditions at a specific time compared with the biomass of the unfished stock ($f = 0$)
9. Maximum Sustainable Yield or MSY is the highest catch that can be taken from one stock to maintain the biomass of the stock at a sustainable level from year to year assuming relatively stable environmental conditions.
10. Maximum Economic Yield or MEY is the value of the largest positive difference between total fishing revenues and total fishing costs (including the wages and capital).

CHAPTER II.

STATUS OF FISHERY

2.1. CONDITION OF STOCK

Estimations of the stock status of fish resources in specific waters could be assessed by using Spawning Potential Ratio (SPR). Due to the existing available data and to simplify the monitoring of the stock, it is agreed to use SPR as the performance indicator for blue swimming crab fishery in WPPNRI 712, and it is also agreed to use Catch Per Unit Effort as a supporting indicator.

Based on the stock assessment from the Marine Fisheries Research Center (BRPL), MMAF, the SPR of blue swimming crab in the Java Sea (WPPNRI 712) in 2016, 2017 and 2018 was 30%, 19% and 21% respectively. Based on the analysis of the SPR level in WPPNRI 712, the stock is considered to be “fully exploited” to “over exploited”.

CHAPTER III.

HARVEST STRATEGY

3.1. OBJECTIVE

3.1.1. Conceptual Objective

The conceptual objective of the harvest strategy for blue swimming crab is: **“Ensuring sustainability of the blue swimming crab fishery in WPPNRI 712”**

3.1.2. Operational Objectives

Operational objectives of the harvest strategy for blue swimming crab are:

1. Maintaining and/or improving Spawning Potential Ratio (SPR) at a minimum of 30%.
2. Increasing the target percentage of blue swimming crab caught that are larger than minimum legal size to 90%. Minimum legal size, as stated in the government regulation, is 10 cm.

3.2. HARVEST STRATEGY

3.2.1. Performance Indicator in Fishery Management

Performance indicators used in the harvest strategy for blue swimming crab are:

- 1) Spawning Potential Ratio - SPR;
- 2) Distribution of length frequency; and
- 3) Catch size-selectivity by assessing size distribution.

3.2.2. Reference Points

3.2.2.1. Limit Reference Point

The Limit Reference Point (LRP) for the blue swimming crab fishery, using Spawning Potential Ratio (SPR) as the indicator, is 20%.

3.2.2.2. Target Reference Point

The Target Reference Point (TRP) for the blue swimming crab fishery, using Spawning Potential Ratio (SPR) as the indicator, is 30%.

3.3. MANAGEMENT MEASURES

Management measures are management options taken by national and local government to control blue swimming crab fishing activities, to ensure sustainability of the stock, both biologically and economically.

3.3.1. Harvest Control Rule

Harvest Control Rule refers to a reference point and depends on the results from monitoring and selected evaluation strategy. The evaluation strategy for the blue swimming crab fishery is to avoid stock depletion and if the stock status is overfished (the stock is unable to recover again) then a strategy for stock recovery has to be designed to recover the stock immediately and increase the biomass above the limit reference point.

3.3.1.1. Input Control

Based on the blue swimming crab stock status presented in Chapter II, the management measures for input control could be done by:

- 1) Registration of active fishing vessels targeting blue swimming crab;
- 2) Compliance to the regulation on fishing lines and fishing gears in WPPNRI;
- 3) Standardized reporting system (monitoring) for reporting catch

3.3.1.2. Output Control

Minimum legal size could be used as a management option for output control. The implementation of current regulations on minimum legal size (10cm), and no harvest of berried females is currently being done through the Control Document.

3.3.1.3. Technical Control

3.3.2. Adaptive Management

If there are any policy or socioeconomic factors that could potentially influence the stock status drastically, then appropriate adaptive action should be taken, such as a temporary closure of fishing activities, upon agreement with all stakeholders and evaluation.

3.3.3. Bycatch Management

Any protected bycatch species in the blue swimming crab fishery should be released alive. CHAPTER IV.

EVALUATION

4.1.MONITORING, CONTROL, AND SURVEILLANCE

Evaluation of fishery management strategies is conducted through monitoring, control, and surveillance the blue swimming crab fishery from upstream to downstream by involving all stakeholders, including enumerators, blue swimming crab association (APRI), and the Marine Fisheries Research Center (BRPL), KKP to do data collection and validation. Validated data will be submitted and analyzed every year.

Improving regulatory compliance could be accomplished by independent third party entities supported by the blue swimming crab association (APRI) through the implementation of the Control Document that can be audited. Control Document could be used to improve accountability, traceability, and verification along the blue swimming crab supply chain.

4.2.Evaluation

The evaluation process for the Harvest Strategy of Blue Swimming Crab Fishery document will be carried out based on the needs and the management issues.

