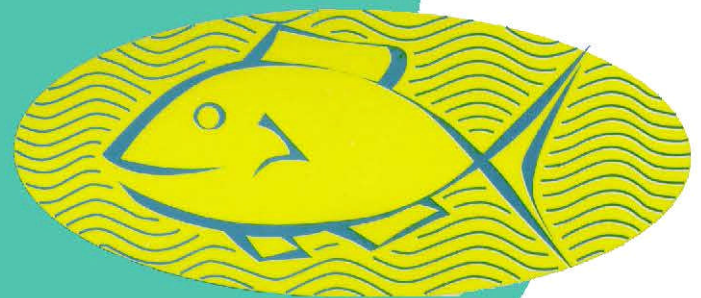


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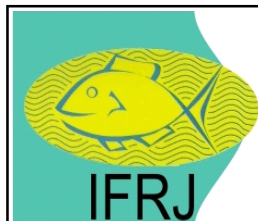
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PREFACE

Indonesian Fisheries Research Journal (IFRJ) in 2021 entered the Volume 27. The process of publishing this journal is funded by Research Center for Fisheries of the fiscal year 2021. All submissions should be published through the process of evaluation by the Editorial Board, Peer-Reviewers and editing by Editorial Office.

The IFRJ Volume 27 Number 1 2021 presented six fisheries research articles: Preliminary Study on The Morphometric and Genetic of Sheat Catfishes Population (SILURIDAE) From The Down Stream of Musi River, South Sumatra Province, Indonesia; Catch Composition of *Ambai* Net in Krueng Jambo Aye Tidal Canal Fisheries, North Aceh-Indonesia; Morphoregression and First Size at Maturity of Goldstripe Sardinella (*Sardinella gibbosa*) From Bali Strait Waters; Reference Point and Exploitation Status of Mud Spiny Lobster (*Panulirus polyphagus* Herbst, 1793) in Sebatik Waters, Indonesia; Estimates of Length-Based Population Parameters of Skip Jack Tuna (*Katsuwonus Pelamis*, Linnaeus 1798) From Pole & Line Fishery in Maumere-Sikka, Indonesia; A Brief Information on Tuna Pole-And-Line Landings and Fishing Effort in Larantuka, Flores Timur District, Nusa Tenggara Timur Province, Indonesia.

Those scientific papers are expected to contribute to policy makers and managers of fisheries resources in Indonesia. Editor would deliver sincere thanks to reseachers from the Resarch Center for Fisheries and outside for their active participation in this edition.

Editor in Chief

INDONESIAN FISHERIES RESEARCH JOURNAL
Volume 27 Number 1 June 2021

CONTENS

	Page
PEER-REVIEWER.....	i
ACKNOWLEDGEMENTS.....	ii
PREFACE	iii
CONTENTS	iv
ABSTRACT.....	v-vii
Preliminary Study on The Morphometric and Genetic of Sheat Catfishes Population (SILURIDAE) From The Down Stream of Musi River, South Sumatra Province, Indonesia <i>By: Rudhy Gustiano, MH Fariduddin Ath-thar, Deni Radona, Sri Sundari and Irin I. Kusmini</i>	1-8
Catch Composition of <i>Ambai</i> Net in Krueng Jambo Aye Tidal Canal Fisheries, North Aceh-Indonesia <i>By: Muhammad Irham, Fitri Handayani, Ratna Mutia Aprillia and Anwar Deli</i>	9-15
Morphoregression and First Size at Maturity of Goldstripe Sardinella (<i>Sardinella gibbosa</i>) From Bali Strait Waters <i>By: Prawira A.R.P. Tampubolon, Nyoman Dati Pertamina and Arief Wujdi</i>	17-26
Reference Point and Exploitation Status of Mud Spiny Lobster (<i>Panulirus polyphagus</i> Herbst, 1793) in Sebatik Waters, Indonesia <i>By: Tirtadanu, Umi Chodrijah and Karsono Wagiyu</i>	27-36
Estimates of Length-Based Population Parameters of Skip Jack Tuna (<i>Katsuwonus Pelamis</i> , Linnaeus 1798) From Pole & Line Fishery in Maumere-Sikka, Indonesia <i>By: Agus Setiawan, Michael A. Rice, Fayakun Satria and Agustinus Anung Widodo</i>	37-49
A Brief Information on Tuna Pole-And-Line Landings and Fishing Effort in Larantuka, Flores Timur District, Nusa Tenggara Timur Province, Indonesia <i>By: Lantun P. Dewanti, Hendra Y. Siry and Alexander M.A. Khan</i>	51-60
CERTIFICATE.....	App. 61
AUTHOR GUIDELINES.....	App. 62

INDONESIAN FISHERIES RESEARCH JOURNAL
Volume 27 Number 1 June 2021

ABSTRACT

PRELIMINARY STUDY ON THE MORPHOMETRIC AND GENETIC OF SHEAT CATFISHES POPULATION (SILURIDAE) FROM THE DOWN STREAM OF MUSI RIVER, SOUTH SUMATRA PROVINCE, INDONESIA

Rudhy Gustiano
IFRJ, Vol. 27 No. 1, Page: 1-8

ABSTRACT

Sheat catfishes is an economically important species group from open water in Indonesia. As a high demand in the local market, this species group was threatened from overfishing and habitat destruction. For its sustainability, sheat catfishes should have an attention to be conserved and domesticated. Population genetic study has been done to understand the diversity of sheat catfishes as the basic information for its aquaculture program. Objectives of the current study are to identify and characterize the phenotype and genotype of sheat catfishes population at Plaju, Mariana Ulu, Mariana Ilir and Meritai in the down stream of Musi River, South Sumatra Province. Phenotypic analysis based on truss morphometric used eight land-mark on the body of the observed specimens. Ten specimens from each site varying in size were measured with dial caliper with an accuracy of 0.01 mm. Meanwhile, the genetic analysis used PCR-RAPD method using OPA 06, OPA 08, and OPA 12 primers. DNA was extracted from the fin of the observed specimens. Discriminant analysis reflecting in the canonical function of truss morphometric data showed that six morphometric characters (A1, A2, A5, B2, B4, and C4) enabled to separate sheat catfishes population. The population of Mariana Ulu and Mariana Ilir spread on negative of Y axis, separately from population of Plaju and Meritai. The population of Meritai is on negative of the X axis. Genetic analyses found that the population of Mariana Ilir and Meritai have a percentage polymorphism of 22.00% which was higher than the population from Mariana Ulu and Plaju with a percentage of 18%. The population of Mariana Ilir has the highest heterozygosis value of 0.093. Kinship analysis showed that the population from Plaju and Mariana Ilir has the closest distance (0.3463) while the population of Meritai and Plaju has the farthest distance (0.5429).

Keywords: Siluridae; sheat catfish; morphometric; genetic; RAPD; Musi River

CATCH COMPOSITION OF AMBAI NET IN KRUENG JAMBO AYE TIDAL CANAL FISHERIES, NORTH ACEH – INDONESIA

Muhammad Irham
IFRJ, Vol. 27 No. 1, Page: 9-15

ABSTRACT

Increasing the amount of by-catch has become one of the causes of the decline in fish stocks that can threaten the sustainability of world fisheries. It may occur in small local brackish-water fisheries, especially in one of the tidal canals of North Aceh, i.e., Krueng Jambo Aye. Therefore, the investigation composition of the main catch and by-catch in a tidal channel of Krueng Jambo Aye is an essential indicator to describe the ecosystem impact by these fisheries. This study aims to determine the comparison of the composition of the main catches and by-catches, to determine the types of by-catches, and to identify the catch rate. The method used in this study is a field data collection and survey methods. The data analysis used was a capture rate analysis. The results showed that the main catches are more dominated by 72% while the by-catch by 28%. There are five species of by-catch with high economic value and nine species with low commercial value. The catch rate of the two catches are 0.42 kg per hour for the main catch and 0.16 kg per hour for the by-catch. It is expected that the results of this study can be used as necessary information to develop the fisheries improvement program in this area.

Keywords: Main catch; by-catch; discard; catch rate

MORPHOREGRESSION AND FIRST SIZE AT MATURITY OF GOLDSTRIPE SARDINELLA (*Sardinella gibbosa*) FROM BALI STRAIT WATERS

Prawira A.R.P. Tampubolon
IFRJ, Vol. 27 No. 1, Page: 17-26

ABSTRACT

Bali Strait was one of the highest density areas for small pelagic fish in Indonesian Fisheries Management Area (FMA)-573 with goldstripe sardinella (*Sardinella gibbosa*) as was one of the abundant species in the catch. The aims of this study were to reveal the morphoregression characteristics and the first size of maturity for *Sardinella gibbosa* in Bali Strait waters. A

total of 1.282 goldstripe sardinella were measured in total length (TL), fork length (FL), and standard length (SL) and weighed during the study. All of the length measurement methods were highly related to the weight, which were $W = 4 \times 10^{-6} TL^{3.1686}$ ($R^2 = 0.9817$); $W = 4 \times 10^{-6} FL^{3.2334}$ ($R^2 = 0.9732$); and $W = 1 \times 10^{-5} SL^{3.0239}$ ($R^2 = 0.9656$), respectively. Among all the measurement methods, total length estimated the weight more accurately than the others. The growth pattern of goldstripe sardinella in this study were various based on the measurement method, sex, and the maturity level of the fish. A total of 800 individuals were dissected and their gonads examined. The sex was identified by visual characteristics. The size at 50% maturity for goldstripe sardinella in Bali Strait was 148 mm TL for male and 155 mm TL for female. Most of the caught fish were under the size at 50% maturity.

Keywords: Length; weight; regression; sardine; Pengembangan

REFERENCE POINT AND EXPLOITATION STATUS OF MUD SPINY LOBSTER (*Panulirus polyphagus* Herbst, 1793) IN SEBATIK WATERS, INDONESIA

Tirtadanu

IFRJ, Vol. 27 No. 1, Page: 27-36

ABSTRACT

Mud spiny lobster (*Panulirus polyphagus* Herbst, 1793) was one of the most important species in Sebatik waters where the resource has been intensively exploited because of its high economic values. The harvest strategy was needed for the sustainability of its stock. The basis studies needed to develop its harvest strategy are the exploitation status and its reference point. The aims of this research were to study the reference point and the exploitation status of *P. polyphagus*. This research was conducted from March 2016 to December 2018 and the total samples of 1.261 female lobsters had been collected monthly from the traditional gillnet fishers in Sebatik. Reference point was determined from the Beverton and Holt yield per recruit and the exploitation status was estimated from the length-based spawning potential ratio (LB-SPR). The results showed that a lot of *P. polyphagus* caught by gillnets were still immature. Annual spawning potential ratios (SPR) of *P. Polyphagus* from 2016 to 2018 ranged from 19% to 22%. The limit reference point was suggested as 21% SPR while 40% SPR as the target reference point. The 2018 spawning potential ratio was higher than the limit reference point but it was still lower than the target reference point of 40% SPR so the fully-exploited condition had occurred for *P. polyphagus* in

Abstract

Sebatik waters. The minimum legal size of 87 mmCL or the minimum weights of 500 grams and not increasing the quota vessels followed by the monitoring study of its stock for the next several years were some recommendations for the sustainable *P. polyphagus* management in Sebatik Waters.

Keywords: Fully-exploited; *P. polyphagus*; Spawning Potential Ratio; Yield per Recruit

ESTIMATES OF LENGTH-BASED POPULATION PARAMETERS OF SKIPJACK TUNA (*KATSUWONUS PELAMIS*, LINNAEUS 1798) FROM A POLE & LINE FISHERY IN MAUMERE-SIKKA, INDONESIA

Agus Setiyawan^{deceased}

IFRJ, Vol. 27 No. 1, Page: 37-49

ABSTRACT

Several population parameters of skipjack tuna (*Katsuwonus pelamis*) taken by pole and line gear from Maumere Waters from March 2017 to February 2018 were analyzed. A total of 2,194 skipjack tuna was sampled randomly. Fishing activities were carried out around FADs (*Fish Aggregating Devices*) and free fish shoal. Observers and enumerators collected data from several landing sites and by direct on-board observations. This study aims to provide length-frequency distribution by season, estimate growth mortality parameters, and estimate stock exploitation rate using FISAT software. The results showed that the total catch was dominated by skipjack tuna; up to 80% with the CPUE of 30.8 kg/person/trip, and the skipjack tuna's length distribution ranged from 26 to 69 cm FL. Length at first capture (L_c) was 34.71 cm FL, and immature fish dominated the total catch with 53%, indicating growth overfishing. The calculated von Bertalanffy growth (VBG) parameters were $L_\infty = 70.35$ cm, $K = 0.55 \text{ yr}^{-1}$, and $t_0 = -0.39 \text{ yr}$. Natural mortality (M) was estimated to be 0.92 and fishing mortality (F) was 0.91. The mean longevity of skipjack tuna is estimated to be 3.2 years, with an exploitation rate (E) of 0.50. Sustainable exploitation of skipjack tuna determined from this analysis could be developed with an E_{max} of 0.73. There is a focus on reducing the catch of immature fish through various methods that include changing the fishing target area from FADs to fishing on natural fish schools and using gear modifications such as larger-sized (lower number) hooks.

Keywords: Pole and line fishery; skipjack tuna; population dynamics; Maumere-Sikka; Indonesia

A BRIEF INFORMATION ON TUNA POLE-AND-LINE LANDINGS AND FISHING EFFORTS IN LARANTUKA, FLORES TIMUR DISTRICT, NUSA TENGGARA TIMUR PROVINCE, INDONESIA

Lantun P. Dewanti
IFRJ, Vol. 27 No. 1, Page: 51-60

ABSTRACT

This research examines tuna pole-and-line landings data by focusing on trend and effort levels in Larantuka, Flores Timur District, Nusa Tenggara Timur Province, Indonesia. The analyzed fisheries data indicate trends that might be useful for monitoring and management purposes. The research data used were from the landings, number of trips, and fishing gear data on tuna pole-and-line from 2005 to 2014 provided by local fisheries authority. Data was also sourced from previous

publications and field surveys. This research analyzes data on tuna pole-and-line fishery trends, relationships between landings, number of trips, and fishing gears used. Overall, the data on tuna landings from 2005-2014 increased whilst on the contrary there was a decrease in the numbers of trips and fishing gears used. The relationship between landings to trips (slope = 8.1285; p-value = 0.2715) and gears (slope = 8.1285; p-value = 0.2715) can be interpreted as being a unit increase in number of trips, which tended to be linked with a decrease of 0.0087 tons in landings. In contrast, a unit increase in gears tended to be associated with an increase of 8.1285 tons in landings. The research did not show statistically significant relationships among landings, numbers of both trips, and fishing gears.

Keywords: Eastern Indonesia; effort; fisheries data; pole-and-line; tuna