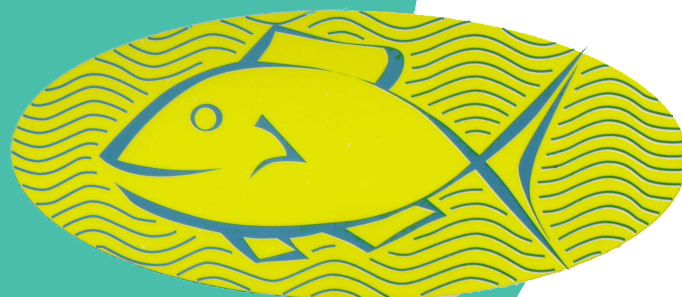


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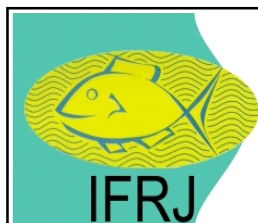
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Manuscript submitted entering to Indonesian Fisheries Research Journal will be checked on the guidelines writing by Editorial Office. If it is in compliance will be reviewed by one (1) person Editorial Board and one (1) person peer-reviewer based on the appointment of Editor in Chief. The decision whether or not a manuscript accepted the rights of Editor in Chief based on the recommendations of Editorial Board and peer-reviewer.

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PREFACE

Indonesian Fisheries Research Journal (IFRJ) in 2020 entered the Volume 26. The process of publishing this journal is funded by Research Center for Fisheries of the fiscal year 2020. All submissions should be published through the process of evaluation by the Editorial Board, Peer-Reviewers and editing by Editorial Office.

The IFRJ Volume 26 Number 1 2020 presented six fisheries research articles: Some Reproductive Biology of Skipjack Tuna (*Katsuwonus pelamis* LINNAEUS, 1758) in Toli-Toli Waters, Central Sulawesi; CPUE Standardization of Frigate Tuna (*Auxis thazard*) Caught By Purse Seine in The Western Sumatera Coast (FMA 572); Mapping the Potential of Marine Living Resources in Outer Island of Southwest Maluku; Study on Market Process of Tuna Pole and Line Fishery in Eastern Indonesia: A Study Case in Sorong, Papua Barat Province; The Impact of Environmental Changes on The Abundance of Black Marlin, *Makaira indica* (Cuvier, 1832) in The Eastern Indian Ocean; Stock Status of Blue Swimming Crab (*Portunus pelagicus*) in Tanah Laut, South Kalimantan, and Its Adjacent Waters.

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

Editor in Chief

INDONESIAN FISHERIES RESEARCH JOURNAL
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ABSTRACT

SOME REPRODUCTIVE BIOLOGY OF SKIPJACK TUNA (*Katsuwonus pelamis* LINNAEUS, 1758) IN TOLI-TOLI WATERS, CENTRAL SULAWESI

Umi Chodrijah
IFRJ, Vol. 26 No. 1, Page: 1-10

ABSTRACT

Skipjack tuna (*Katsuwonus pelamis*) was one of the export commodities, where the demand and exploitation tend to increase, so sustainable fisheries management is needed based on biological data. The objective of the research was to study the several aspects of biology including of length of weight relationship, sex ratio maturity stage, gonada somatic index (GSI), length at first capture, and length at first maturity. The research was conducted in February - December 2015 in Toli-toli, Central Sulawesi. The results showed that the skipjack tuna growth pattern was allometrically positive ($b=3,318$ for male and $b=3.3049$ for female), where growth weight was faster than the increased length. The length of the first time capture skipjack tuna of pole and line (43.49 cmFL) was bigger than length at first maturity (41,007 cmFL). It means the mostly skipjack tuna caught have already spawned. The spawning season occurred throughout the year with spawning peaks are in April and September, with fecundity ranging from 450,570 to 1,707,390 eggs.

Keywords: Biological aspect; Skipjack tuna; spawning season; Toli-toli

CPUE STANDARDIZATION OF FRIGATE TUNA (*Auxis thazard*) CAUGHT BY PURSE SEINE IN THE WESTERN SUMATERA COAST (FMA 572)

Ririk Kartika Sulistyaningsih
IFRJ, Vol. 26 No. 1, Page: 11-17

ABSTRACT

Frigate tuna (*Auxis thazard*) is one of the major commercial tuna species, both in industrial and small scale fisheries, particularly in the waters off Western Sumatera. In Indonesia, *A. thazard* is a group of locally called "tongkol" together with *A. rochei*, *Thunnus tonggol*, and *Euthynnus affinis*. This study describes a preliminary examination of frigate tuna catch from purse seine off the coast of western Sumatera (FMA 572). The data were collected daily by an enumerator on the fish landing site from 2013 to 2017, including fishing gear, number of days at sea, catch, length, and weight of frigate tuna. The fishing ground coordinate data provided by the observer on board the vessel. General Linear Model (GLM) with gamma was applied in this study to

standardize the CPUE by year, quarter, season, and GT as fixed variables. The results showed that the variation of CPUE was mostly influenced by year and quarter, while season and fleet size (GT) showed less impact on the catch. In general, even though the catch trend declines during the observation years, the population of frigate tuna off the coast of western Sumatera (FMA 572) were considered sustainable.

Keywords: *Auxis thazard*; CPUE; frigate tuna; purse seine; standardization

MAPPING THE POTENTIAL OF MARINE LIVING RESOURCES IN OUTER ISLAND OF SOUTHWEST MALUKU

Ralph Thomas Mahulette
IFRJ, Vol. 26 No. 1, Page: 19-32

ABSTRACT

Southwest Maluku or Maluku Barat Daya (MBD) Regency is in the southeastern part of the outer rings of the Indonesian Archipelagic States. This regency consists of 17 districts covering 48 islands that lie scattered in the region in which 31 islands among them are uninhabited. Mapping information on challenges and opportunities on marine living resource dependence on community livelihood is limited. This area has a total population of about 72.300 persons with 4.069 (5.6 %) of them are fishers. The coastal ecosystems include coral reefs (595 Ha), mangrove (7.8 Ha), and seagrass (57 Ha). Seaweed harvesting and cultivation are ones that would be developed as an alternate livelihood for the community. The goal of this research was to describe a general situation of community livelihood that was supported by the role of marine fisheries. The environmental parameters, such as monthly air temperature, rainfall, and wind speed, were plotted as supporting information. General description of the fishing boat and fishing gear, annual production, and distribution of fishers and households around the islands were discussed. The result showed that the fisheries category was small scale with one-day fishing. The population distribution and fishermen were also used as a baseline parameter to elaborate on the potential of marine living resources in the interested area. Those resources were described with existing small-scale fisheries issues based on limited serial data that were gathered through field observation. The secondary data, such as Southwest Maluku District (MBD) annual data, from the Local Statistical Board (BPS) yearly report, were also used in this paper.

Keywords: Small Islands; marine living resources; Southwest Maluku

STUDY ON MARKET PROCESS OF TUNA POLE-AND-LINE FISHERY IN EASTERN INDONESIA: A STUDY CASE IN SORONG, PAPUA BARAT PROVINCE

Alexander M. A. Khan

IFRJ, Vol. 26 No. 1, Page: 33-39

ABSTRACT

This research is a study of the way the small-scale pole-and-line tuna fishery in Sorong, Indonesia by examining official records of supply chains; key informant and fishers' perceptions of marketing; and personal observations of landings and selling. The main finding of the study is that the pole-and-line fishers in Sorong have made strenuous efforts to escape the constrictions of middlemen by direct selling to processors.

Keywords: Marketing; pole and line; small scale fisheries; Sorong; tuna fishery

THE IMPACT OF ENVIRONMENTAL CHANGES ON THE ABUNDANCE OF BLACK MARLIN, *Makaira indica* (Cuvier, 1832) IN THE EASTERN INDIAN OCEAN

Bram Setyadji

IFRJ, Vol. 26 No. 1, Page: 41-49

ABSTRACT

Black marlin (*Makaira indica*) is commonly caught as frozen by-catch from Indonesian tuna longline fleets. Its contribution was estimated around 18% (~2,500 tons) from total catch in the Indian Ocean. Catch-per-unit-of-effort (CPUE), as calculated based on commercial catch records, is one of the essential components for running stock assessment. Despite it always being associated with abundance index (number or biomass), little is known on how environmental factors might contribute to it. The objective of the study is to investigate the impact of physical attributes of the ocean on the distribution of black marlin. Data were collected from August 2005 to December 2017 through a scientific observer program (2005-2017) and a national observer program (2016-2017). Most of the monitored vessels were based in Benoa Port, Bali. In general, time trends of abundance fluctuated, although there had been an increasing trend since 2010, then dropped significantly

Abstract

into a relatively similar figure in 2005. Even though Sea Surface Temperature (SST) and Sea Surface Height (SSH) were statistically significant when incorporated into the models, it allegedly wasn't the main driver in determining the abundance of black marlin. Instead, it was more likely driven by spatio-temporal factors (year and area) rather than environmental changes.

Keywords: Impact; environmental factors; marlins; abundance; GLM

STOCK STATUS OF BLUE SWIMMING CRAB (*Portunus pelagicus*) IN TANAH LAUT, SOUTH KALIMANTAN, AND ITS ADJACENT WATERS

Ali Suman

IFRJ, Vol. 26 No. 1, Page: 51-60

ABSTRACT

A study on the stock status of blue swimming crab (*Portunus pelagicus* Linnaeus, 1758) was conducted in Tanah Laut, South Kalimantan waters, based on data collected in March to November 2017. The results showed that the growth pattern of blue swimming crab in Tanah Laut waters was negatively allometric and the sex ratio of males to females was 1.0 : 1.7. The chi-square test indicated that the total males and total females of the blue swimming crab was significantly different. It means that there was an imbalance in numbers between males and females. The estimated length at first capture (L_c) was 127.26 mm (carapace width; CW), smaller than the length at first maturity (L_m) at 133.24 mmCW. The growth parameter of blue swimming crab was 1.1year with a maximum carapace width (L_∞) of 204.3 mmCW. The estimated instantaneous total mortality (Z) and natural mortality (M) were 3.04/year and 1.24/year, respectively. While fishing mortality (F) and exploitation rate (E) were 1.80/year and 0.59/year, respectively, the estimated spawning potential ratio (SPR) was 11.1 %. Therefore, the stock status was categorized as overfishing. In order to ensure the sustainability of the blue swimming crab, a precautionary approach, such as reducing fishing effort by 18 % of the current situation, is strongly recommended to apply.

Keywords: Blue swimming crab; population dynamic; spawning potential ratio; Tanah Laut; FMA 712