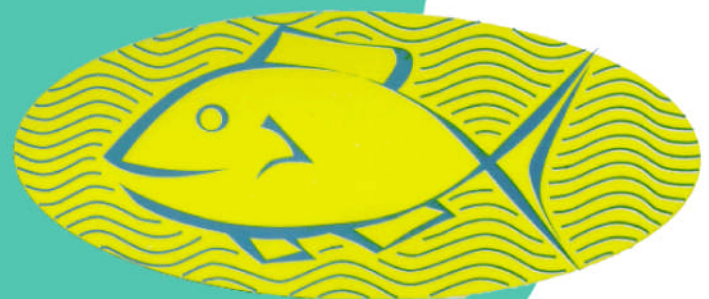


# INDONESIAN FISHERIES RESEARCH JOURNAL



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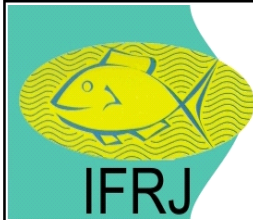
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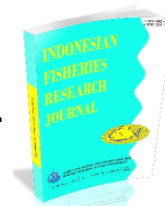
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### SHEET INDEXING

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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 2018 entered the Volume 24. The process of publishing this journal is funded by Center for Fisheries Research and Development of the fiscal year 2018. All submissions should be published through the process of evaluation by the Editorial Board, Peer-Reviewers and editing by Editorial Office.

The IFRJ Volume 24 Number 1 2018 presented seven fisheries research articles: Spatial and Temporal Distribution of Fish In The Floodplain of Kumbé River, Papua; Genetic Characterization of Longtail Tuna *Thunnus tonggol* (Bleeker, 1851) Based on Partial Sequence of 16S rRNA Mitochondrial Gene; Some Population Parameters and Exploitation Status of Fourfinger Threadfin (*Eleutheronema tetradactylum* Shaw, 1804) in Tarakan Waters, North Kalimantan; Asian Catfish Genus *Pangasius*: Diagnosis and Distribution; Population Characteristics of Mud Crab (*Scylla serrata*) in The Waters of Kendari Bay and Surrounding Areas; Population Dynamics of Malayan Leaf Fish (*pristolepis grooti* Blkr.) in Ranau Lake, South Sumatera; Biodiversity and Habitat Preferences of Living Sharks in The Southeast Asian Region.

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**  
**Volume 24 Number 2 December 2018**

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**INDONESIAN FISHERIES RESEARCH JOURNAL**  
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**ABSTRACT**

**SPATIAL AND TEMPORAL DISTRIBUTION OF FISH IN THE FLOODPLAIN OF KUMBE RIVER, PAPUA**

Yoga Candra Ditya  
 IFRJ, Vol. 24 No. 2, Page: 69-81

**ABSTRACT**

Expansion of land clearance mostly for plantation is the big issue in Indonesia including in Papua. Its effect is not only to the catchment area but it also affects fisheries resources. The stress effect occurs worsen in Kumbe River and its floodplain area by the present of introduced fish species such as snakehead (*Channa striata*) and Nile tilapia (*Oreochromis niloticus*). Spatial and temporal fish distributions are important information for the sustainable fisheries resource and their utilization. Study on spatial and temporal fish distribution covering four types of swamp ecosystem of Kumbe River was conducted during April-September 2014 and Mei-November 2015. Explorative field survey was conducted in four different ecosystem types in Kumbe River floodplain areas. Ecological data was collected from four sampling sites in each ecosystem type during high water precipitation (April and May) and low water precipitation (August, September and November), and fish samples were collected with different mesh sizes of gillnet fishing experiment conducted in four sampling sites. Parameters measured were fish important relative index and physical and chemical water quality parameters. The results noted 18 fish species deriving from 13 families. The Arridae with its blue catfish (*Neoarius graeffei*) dominated almost 90% of fish catch both spatial and temporal. Hydrological dynamic seems the key of trigger factor for the spatial and temporal distribution of fish and dynamic of habitat and water quality characteristic in the floodplain of Kumbe River.

**Keywords:** Distribution; important relative index; floodplain; fish; Kumbe River; Papua

**GENETIC CHARACTERIZATION OF LONGTAIL TUNA *Thunnus tonggol* (BLEEKER, 1851) BASED ON PARTIAL SEQUENCE OF 16S rRNA MITOCHONDRIAL GENE**

Achmad Zamroni  
 IFRJ, Vol. 24 No. 2, Page: 83-89

**ABSTRACT**

Although the Longtail tuna (*Thunnus tonggol*) is an important fish in Indonesia, the population structure has not been investigated. In this study, the genetic differences in geographic scale are analyzed to provide

a clear picture of the structure of *T. tonggol* populations along a transect stretching from Pemangkat (western Kalimantan) to Pekalongan in the Java Sea. We also analyzed SNPs in the mitochondrial 16S rRNA gene of *T. tonggol* as potential molecular marker for the identification of the origin within species. In total, three polymorphic sites (all represent singleton dimensions) were identified in the sequence analysis of the 570-bp fragment among a total of 97 *T. tonggol* individuals from Pekalongan and Pemangkat. Based on these polymorphic sites, four haplotypes were identified. The Pemangkat samples had higher amount of haplotype and nucleotide diversity ( $h = 0.1556 \pm 0.0680$  and  $\Pi = 0.000277 \pm 0.000432$ ), meanwhile samples Pekalongan showed lower levels of diversity ( $h = 0.0400 \pm 0.0380$  and  $\Pi = 0.000070 \pm 0.000209$ ). The study revealed a single, intermixing population of *T. tonggol* across the sampled location. No significant structuring was observed between other pairwise comparisons, indicating gene flow between geographically adjacent locations.

**Keywords:** Longtail tuna; 16S rRNA; genetic characteristic

**SOME POPULATION PARAMETERS AND EXPLOITATION STATUS OF FOURFINGER THREADFIN (*Eleutheronema tetradactylum* Shaw, 1804) IN TARAKAN WATERS, NORTH KALIMANTAN**

Tirtadanu  
 IFRJ, Vol. 24 No. 2, Page: 91-98

**ABSTRACT**

Information on exploitation status of fourfinger threadfin (*Eleutheronema tetradactylum* Shaw, 1804) is important for sustainable gillnet fisheries management in Tarakan, North Kalimantan waters. In an attempt of providing scientific data and information on the exploitation status of this species, a research work was conducted from January to November 2016 in Selumit landing place. Fish sampling was done by trained enumerator on bottom gillnet catches landed through semi-regular observation. A total of 1964 specimens were collected and measured. The results showed that the size ranged between 16-70 cmFL with an average of  $37.72 \pm 0.36$  cmFL. The length at first captured ( $L_c$ ) of about 38.5 cmFL, was smaller than the length at first mature of female ( $L_m$ ) of 39.6 cmFL. The growth pattern was negative allometry. By applying von Bertalanffy growth model, it was found that growth model for this species was  $L(t) = 75,8(1 - e^{-0,3(t+0,035)})$ . Exploitation rate ( $E$ ) was 0,47. It showed that the exploitation status of fourfinger threadfin in Tarakan Waters was still sustainable.

**Keywords:** Exploitation rate; fourfinger threadfin; population parameter; Tarakan Waters

## ASIAN CATFISH GENUS *PANGASIUS*: DIAGNOSIS AND DISTRIBUTION

Rudhy Gustiano  
IFRJ, Vol. 24 No. 2, Page: 99-115

### ABSTRACT

Pangasiidae are economically important riverine catfishes that generally exist in freshwater from the Indian subcontinent to the Indonesian Archipelago. Among genera in Pangasiidae, genus *Pangasius* has numerous species. The objective of the present study is to describe all species of genus *Pangasius* with their diagnosis and natural distribution. Nine hundred and ninety nine specimens formed the core of the material examined in this study. All examined species were collected from Bangladesh, Vietnam, Cambodia, Thailand, Malaysia, and Indonesia. Additional samples including specimens of 49 previously described species housed in various museums were also examined. On each specimen, 35 point to point measurements covering the possible variation of the body conformation were taken using dial calipers. Measurements were log-transformed before the PCA was run on the covariance matrix. The first factor, considered as the size-factor was not taken into account to minimize the effects of size differences among samples. Allometry is indicated by unequal loading of variables on the first component and by biological interpretation of allometric data proceed using coefficients of the first components against the second components that was linear. An independent PCA was run on the correlation matrix from the untransformed count data. Finally, data analysis consisted in characterizing groups from scatter plots between pairs of structuring characters for subsequent use in generic identification keys. The results show Asian catfish genus *Pangasius* consist of 21 valid species. This paper describes the diagnosis and distribution of all valid species.

**Keywords:** Genetic; catfish; *Pangasius*; diagnosis; distribution

## POPULATION CHARACTERISTICS OF MUD CRAB (*Scylla serrata*) IN THE WATERS OF KENDARI BAY AND SURROUNDING AREAS

Ali Suman  
IFRJ, Vol. 24 No. 2, Page: 117-124

### ABSTRACT

The high market demand for mud crabs (*Scylla serrata*) has caused intensive fishing for this resources and tended to threaten their sustainability. Studies of

*Abstract*

population characteristics are the main bases for formulating management measures for sustainable utilization. The purpose of this study was to determine the population characteristics of mud crabs in the waters of Kendari Bay and its surrounding waters. The study was conducted from January to November 2016 using survey method. The study results revealed that the mud crab growth pattern in Kendari Bay was negative allometric and that the ratio of males and females was imbalance. The length at first maturity ( $L_m$ ) was at a carapace width of 109.8 mm. The growth rate ( $K$ ) was 1.01 per year and the maximum carapace width ( $L_\infty$ ) was 206 mm. The estimated total mortality rate ( $Z$ ), fishing mortality rate ( $F$ ), and natural mortality rate ( $M$ ) were 3.20 per year, 2.17 per year, and 1.03 per year, respectively. The exploitation rate ( $E$ ) was 0.68 per year. Therefore, the exploitation rate had reached 136%, which is categorized as overfishing. In order to ensure the sustainability of the mud crabs, there is needed to apply the precautionary approach, such as reducing fishing effort by 36% of the current situation.

**Keywords:** Mud crab; population characteristics; Kendari Bay and its adjacent waters; Fisheries Management Area (FMA) 714

## POPULATION DYNAMICS OF MALAYAN LEAF FISH (*Pristolepis grooti* Blkr.) IN RANAU LAKE, SOUTH SUMATERA

Sevi Sawestri  
IFRJ, Vol. 24 No. 2, Page: 125-131

### ABSTRACT

The Malayan leaf fish or locally named as kepor (*Pristolepis grooti*) is one of important biotic components in Ranau Lake ecosystems. This study aimed to estimate population dynamic and exploitation rate of kepor in Ranau Lake, South Sumatera. The population parameters are estimated based on length frequency data which were collected in March to October 2013. Growth parameters and fishing mortality rates were calculated using FiSAT software package. The results showed that kepor's growth was negative allometric, which tended to gain length faster than weight. Kepor population was dominated (42%) by individual length of 10.0 to 11.0 cm. Predicted length infinity ( $L_\infty$ ) was 17.28 cm with high value of growth rates ( $K$ ) of 1.4 year<sup>-1</sup>. The natural mortality rate ( $M$ ) is 2.57 year<sup>-1</sup>, the fishing mortality rate ( $F$ ) is 5.36 year<sup>-1</sup> and total mortality rate ( $Z$ ) is 7.93 year<sup>-1</sup>. The exploitation rate of Malayan leaf fish in Ranau Lake ( $E = 0.68$  year<sup>-1</sup>) has passed the optimum score.

**Keywords:** *Pristolepis grooti*; population; growth; exploitation rate; Ranau Lake

## **BIODIVERSITY AND HABITAT PREFERENCES OF LIVING SHARKS IN THE SOUTHEAST ASIAN REGION**

Ahmad Ali

IFRJ, Vol. 24 No. 2, Page: 133-140

### **ABSTRACT**

This paper reviews the biodiversity and habitat preferences of living sharks in the Southeast Asian region accumulated from published literatures including journals, books, proceedings, unpublished technical papers, and technical reports as well as authors' knowledge and experiences working in this field. A total of 196 species of sharks from nine orders and 30 families have been recorded inhabiting from fresh water to deep ocean in this region. Indonesia recorded the highest

### *Abstract*

diversity with 114 species from 27 families followed by the Philippines with 96 species (27 families), Thailand 76 species (21 families), Vietnam 70 species (23 families), Malaysia 68 species (19 families), Myanmar 64 species (19 families), Brunei Darussalam 45 species (15 families), and Cambodia with 26 species from 10 families. Many species still need to be confirmed and are most probably new species. In term of habitat preferences, 83 species of sharks (42.3%) inhabit continental/insular shelves (SHL) followed by continental/insular slopes (SLO) with 48 species (24.5%), shelf to slope (SHS) with 26 species (13.3%), and shelf to oceanic (SHO) with 16 species (8.2%). Only nine species (4.6%) inhabit oceanic and six species (4%) obligate freshwater and euryhaline freshwater/shelves.

**Keywords:** sharks; biodiversity; habitat preference