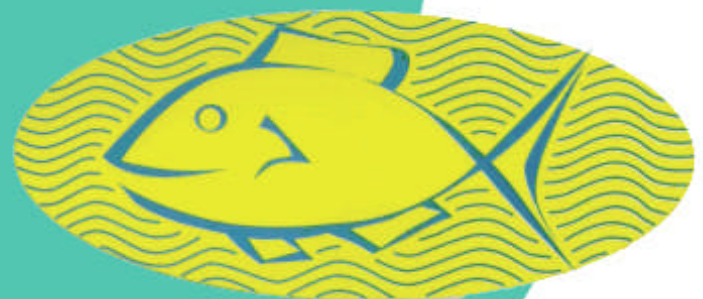


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PREFACE

Indonesian Fisheries Research Journal (IFRJ) in 2016 entered the Volume 22. The process of publishing this journal is funded by Center for Fisheries Research and Development of the fiscal year 2016. All submissions should be published through the process of evaluation by the Editorial Board, Peer-Reviewers and editing by Editorial Office.

Management of Indonesian Fisheries Research Journal (IFRJ) in 2016 began referring to the Open Journal Systems (OJS). In terms of appearance there was a little change, namely:

1. Inclusion of p-ISSN and e-ISSN in the upper right corner on the face skin page, title page and table of contents page of issue, without colons
2. Inclusion of numbered lists or ISSN barcode in the lower right corner on the back cover
3. Special Sheets for Peer-Reviewers
4. Sheet gratitude for Peer-Reviewers involved in the review of each number
5. Each title sheet no additional information on the website, email address and information about the IFRJ, as well as the logo and the cover on the left and right. This change information is displayed on each foreword for 2 (two) publications.

First published in Volume 22 Number 1 2016 presented seven fisheries research articles. Those seven articles are: Growth Comparison of Mahseer (*Tor tambroides*) From Manna and Tarusan River in Western Sumatera River, Small Pelagic Fishery Status in Makassar Strait Based in the Northern Java; Role of Sub Surface Temperature, Salinity and Chlorophyll to Albacore Tuna Abundance in Indian Ocean; Biology and CPUE Spatial Distribution of Escolar *Lepidocybium flavobrunneum* (Smith, 1843) in Eastern Indian Ocean (Evolving Fisheries: Today's By-catch is Tomorrow's Target Catch); The Effect of Depth of Hooks, Set and Soak Time to The Catch per Unit Effort Tuna in The Eastern Indian Ocean; Mangrove of Berau: Ecological Condition, Fisheries and Management Options; Current Status of The Pole-And-Line Fishery in Eastern Part of Indonesia; The Seasonal Variability of CPUE and Catch-At-Size Distribution of Troll and Handline Tuna Fisheries Landed in Labuhan Lombok.

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 Center for Fisheries Research and Development and outside for their active participation in this edition.

Editor in Chief

INDONESIAN FISHERIES RESEARCH JOURNAL
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INDONESIAN FISHERIES RESEARCH JOURNAL
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ABSTRACT

**GROWTH COMPARISON OF MAHSEER
 (Tor tambroides)
 FROM MANNA AND TARUSAN RIVER
 IN WESTERN SUMATERA RIVER**

Arif Wibowo

IFRJ, Vol. 22 No.1, Page: 1-8

ABSTRACT

Mahseer is commonly used as a premium consumption fish with exceptional price, however, these species have encountered dwindle in distribution and abundance. The objective of this study was to investigate and to compare aspects of the interspatial variability of Western Sumatra component growth of mahseer between Manna River and Tarusan River. Mahseer samples were collected from the Manna River, Bengkulu Province and Tarusan River, West Sumatra Province. Monthly sampling was carried out over a period of February to October 2012 in Manna River and February to July 2012 in Tarusan River for detailed growth study. A total of 295 mahseer samples were collected from five sampling sites in Manna River and 495 mahseer samples were collected from three sampling sites in Tarusan River. The results show the age group population estimation of *T. Tambroides* from Manna River and Tarusan River based on the analysis of length-frequencies using the Bhattacharya method, resulted in two different age groups. The theoretical growth curve for length from Manna River, the values are $L_{\infty} = 50.45$ cm, $K = 1.90$ yr⁻¹, $t_0 = -0.07$ yr⁻¹ and $\Phi = 3.684$, and for weight, the values are $W_{\infty} = 1395.49$ gr, $K = 0.71$ yr⁻¹, $t_0 = -0.078$ yr⁻¹ and $\Phi = 6.148$. The parameters of the von Bertalanffy growth curve in length from Tarusan River were $L_{\infty} = 31.34$ cm, $K = 1.70$ yr⁻¹, $t_0 = -0.09$ yr⁻¹ and $\Phi = 3.21$ and $W_{\infty} = 634.86$ gr, $K = 0.48$ yr⁻¹, $t_0 = -0.147$ yr⁻¹ and $\Phi = 5.282$ in weight. The length-weight relationship estimated for Manna River was $W = 0.000007TL^{3.086}$ for females ($R^2 = 0.9545$, $N = 91$) and $W = 0.0037TL^{1.882}$ for males. While for Tarusan River, length-weight relationship estimated was $W = 0.00003TL^{2.839}$. Mahseer from Manna River population has better growth parameters than those at Tarusan River.

Keywords: Growth; mahseer; Manna and Tarusan River

**SMALL PELAGIC FISHERY STATUS IN
 MAKASSAR STRAIT BASED IN THE
 NORTHERN JAVA**

Sri Turni Hartati

IFRJ, Vol. 22 No.1, Page: 9-16

ABSTRACT

The coastal of Makassar Strait is a fishing area to become a primary fishing destination for purse seine vessels from Java based in Pekalongan, Tegal, and Juwana. This paper presents the current condition of small pelagic fishery in the Makassar Strait based on data and information obtained from study in 2012 and review of previous studies. During 2004-2011, overfishing has been occurring in the small pelagic fisheries in the Makassar Strait, indicated by a sharp decreasing trend in the catch rate, from 30.83 tons/trip in 2004 to 12.27 tons/trip in 2011. The estimated MSY for small pelagic fish in the Makassar Strait is at the range of 34.705-37.930 tons with optimum efforts for 2.234-2.500 purse seine trips. Thus the level of purse seine fishing effort in 2011, i.e. 3.078 trips, was exceeding the optimum effort. For management of the small pelagic fisheries in the waters of Makassar Strait, important action recommended is fishing effort restrictions. The effort allowed would be only in the range of 2.234-2.500 purse seine trips, with control the fishing capacity.

Keywords: Purse seine fisheries; Makassar Strait; Northern Java

**ROLE OF SUB SURFACE
 TEMPERATURE, SALINITY AND
 CHLOROPHYLL TO ALBACORE TUNA
 ABUNDANCE IN INDIAN OCEAN**

Dian Novianto

IFRJ, Vol. 22 No.1, Page: 17-26

ABSTRACT

The swimming layer is one of the important factors to get maximum catches, especially on tuna longline effort. The vertical abundance of the albacore tuna was investigated based on catch data and 3-DINDESO Ocean Model data, such as sub-surface conditions of sea water potential temperature (Temp), salinity (Sal) and mass concentration of diatoms and flagellates expressed as chlorophyll (Chl) in the Eastern Indian Ocean period 2014-2015. Combining the statistical method of generalized additive model (GAM) was performed to analysis in this study. There were seven

GAM models that generated with the number of ALB vertical abundance as a response variable, and Temp, Sal, and Chl as predictor variables. Sal has highly significant ($P < 0.001$) while Chl and Temp significant ($P < 0.01$) to ALB vertical abundance. Deduced from GAMs, indicated that a negative effect of Sal on the number of ALB was observed at salinity >34.52 psu. There was a positive effect of salinity on the number of ALB, which was from 34.30 to 34.47 psu and Chl showed a positive effect of this variable on the number of ALB caught occurred between 0.01 mg/m^3 and 0.12 mg/m^3 in the region of high confidence level where negative effect on $> 0.13 \text{ mg/m}^3$. While ALB catches abundance varied in the temperature range with the highest frequency at 24.0-24.9 °C. Sal was the most important environmental variable to the number of ALB vertically caught, followed by Chl and Temp.

Keywords: Albacore tuna; abundance; subsurface; temperature; salinity; chlorophyll; Indian Ocean

BIOLOGY AND CPUE SPATIAL DISTRIBUTION OF ESCOLAR *Lepidocybium flavobrunneum* (Smith, 1843) IN EASTERN INDIAN OCEAN (EVOLVING FISHERIES: TODAY'S BY-CATCH IS TOMORROW'S TARGET CATCH)

Fathur Rochman
IFRJ, Vol. 22 No.1, Page: 27-36

ABSTRACT

Discharge of by catch is a significant problem in world fishery. Every commercial fishery such as tuna longline has a suite of bycatch species, escolar fish (LEC). LEC as by catch product has received a little attention because of its lower economic value and given its importance as a secondary market. With time, however, market can become establish for this presently undesirable species. Acknowledging that today's by catch might become tomorrow's target fish. The aims of this study are to provide information on biological aspect and catch per unit of effort (CPUE) spatial distribution of escolar (*Lepidocybium flavobrunneum*) as by catch in Indonesian longline fishery operating in the Eastern Indian Ocean. Total escolar samples of 1,815 were taken from scientific observer data from 2011-2013. The study area of escolar was between $0.897 - 33.175^{\circ}\text{S}$ and $85.366 - 138.733^{\circ}\text{E}$ of Eastern Indian Ocean. Results show that the escolar length (cmFL) is distributed from 27-178 cmFL (median=83 cmFL, mode=85 cmFL, mean=83.95 cmFL and $n= 1.812$) and dominated by the size of 85 cmFL. The length weight relationship was determined to be $W=0.0002\text{FL}^{2.2926}$ (W in kg, FL in cm). In terms of CPUEs distribution, the lower CPUEs (<1.0001) generally occurred near shore between Indonesia and Australia ($10-20^{\circ}\text{S}$ and $110-125^{\circ}\text{E}$). The highest CPUEs of escolar (>1.0001 to 7.382) generally occurred in

Western Australian, precisely on grid between $10-35^{\circ}\text{S}$ and $85-110^{\circ}\text{E}$. These grids would be a potential for fishing LEC with the best time to catch in June to August.

Keywords: Tuna Longline; bycatch; escolar; CPUE; Indian Ocean

MANGROVE OF BERAU: ECOLOGICAL CONDITION, FISHERIES, AND MANAGEMENT OPTIONS

Ivana Yuniarti
IFRJ, Vol. 22 No.1, Page: 37-42

ABSTRACT

Mangrove area of Berau District, East Kalimantan Province is an important buffering zone for Derawan Islands. It also becomes a distinctive habitat for commercial fisheries commodity. Land conversion into shrimp ponds has threatened its sustainability. This paper summarizing its ecological condition, fisheries, and management options presents a guideline for the decision makers about what strategies can be applied in conserving the mangrove sustainability. Overall, the ecological condition is proven to support sustainable fisheries practice; such as shrimp and crab silvofisheries. Moreover, the calculation of firewood economic value shows that a sustainable commercial firewood production is another option that can be established to support local economic activities. In addition, a well managing ecotourism may be considered by local government considering its potential for local economic growth.

Keywords: Mangrove; fisheries; ecotourism; management; Berau

CURRENT STATUS OF THE POLE-AND-LINE FISHERY IN EASTERN PART OF INDONESIA

Agustinus Anung Widodo
IFRJ, Vol. 22 No.1, Page: 43-52

ABSTRACT

The promotion of pole-and-line fishery for a selective gear operating in the Indonesian tuna management area is considered as the proper policy in response to the increasing market demand with tuna eco-labeled. Appropriate information in addressing the current status of the pole-and-line fishery in Indonesia is an important step in order to support the promotion. Data used to describe the fishery were obtained through scientific port sampling program in collaboration between RCFMC and WCPFC in 2010 to 2014 and also scientific observer onboard program collaboration RCFMC and CRAC Co. Ltd. in 2013. The results show that presently the number of pole and line fleets was decreased significantly and

remain about 232 fleets in Sorong, Bitung and Kendari and Larantuka. The national annual total catch of pole-and line during 1980 – 2013 was recorded between 24,000 and 160,000 tons per year (average 98,117 tons per year). This value is estimated to contribute about 20% of Indonesia annual total catch of tuna in FMAs 713-717. The pole-and-line catch rates based at Bitung, Kendari and Sorong were fluctuated in each year with the range respective between 8.79 and 17.93 tons/trip/vessel, 4.78 and 5.36 ton/trip/vessel and about 7.99 ton ton/trip/vessel. Pole-and-line fishery operated in Indonesian FMAs 713-717 is considered as selective fishery, with > 80 % catches of skipjack in matured stage. The tuna-live bait fish ratio in Indonesian pole-and-line was 4.41 :1, then an improvement of live bait ratio as well as its management is required.

Keywords: Current status; pole and line; Indonesia

THE SEASONAL VARIABILITY OF CPUE AND CATCH-AT-SIZE DISTRIBUTION OF TROLL AND HANDLINE TUNA FISHERIES LANDED IN LABUHAN LOMBOK

Bram Setyadji

IFRJ, Vol. 22 No.1, Page: 53-60

ABSTRACT

Troll and hand line tuna fisheries is one of the major fishing gears landed in Labuhan Lombok coastal fishing port (PPP Labuhan Lombok) west Nusa Tenggara Barat province. Both fisheries are strongly associated with fish aggregating devices (FAD's). The main fishing ground is Indian Ocean southern part of this province. Several source of data has been collected regularly. Data analysis comprised of monthly catch and effort data samples based on port monitoring program during 2012 to 2015. The result showed the declining of CPUE of yellowfin and skipjack tuna presumably related to fishing intensity of fleets and its variability that landed in PPP Labuhan Lombok. The increasing CPUE of skipjack tuna in 2014 was predicted due to increasing aggregation around the FADs. Contrasting seasonal fishing index pattern between yellowfin and skipjack tuna found in 4-month cycles, started in January. A length-weight relationship suggested that yellowfin tuna caught by small-scale fisheries were performing allometric growth pattern ($b=2.963$, $r^2=0.9737$).

Keywords: Troll and handline fisheries; FADs; fishing season; Labuhan Lombok