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Presentations and Authors

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Workshop on Mangrove Ecosystem Management Policy and Data Analysis

Keynote Presentation from Wetland International Indonesia: Pengelolaan Mangrove Berkelanjutan: Praktek Pembelajaran Lapangan

Eko Budi Priyanto

Keynote Presentation from Dit. BPEE, Ditjen. KSDAE, Kementerian Lingkungan Hidup dan Kehutanan: Kebijakan Konservasi Mangrove Dalam Kerangka Ekosistem Esensial

Febriany Iskandar

Keynote Presentation from Faculty of Biology Universitas Jenderal Soedirman: Riset dan Analisa dalam Mendukung Kebijakan Pengelolaan Mangrove

Imam Widhiono

Keynote Presentation from Asisten Deputi Lingkungan dan Kebencanaan Maritim Kemenko Kemaritiman: Percepatan Pemulihan Ekosistem Mangrove

Sahat Manaor Panggabean

Keynote Presentation from Dit. KTA, Ditjen. PDASHL, KLHK: Rehabilitasi Mangrove Dalam Rangka Pengelolaan Ekosistem Mangrove Lestari

Setyo Yuwono

Mangrove Ecosystem Health

Relationship between Mangrove Vegetation Parameters and the Abundance of Forest Floor Fauna (Case Study in Pondok Bali Beach, Subang and Pulau Dua Nature Reserve, Serang)

Silvia Ferdayanti Laoli, Devi Nandita Choesin, Ichsan Suwandhi

Relationship Between Vegetation Parameters and Substrate Characteristics in Mangroves of Pondok Bali Beach and Pulau Dua Nature Reserve

Agnes Rumenta Setianty Samosir, Devi Nandita Choesin, Ichsan Suwandhi

Composition and Zoning Pattern of Mangrove Plants in Cilacap Donan Sedimented Land

Ani Widyastuti, Edy Yani, Erie Kolya Nasution

A quantitative relationship between environmental setting and mangrove community in Bintan island, Indonesia

I Wayan Eka Dharmawan, Dede Falahudin

Distribution and Characteristics of Nypa Palm (*Nypa fruticans* Wurmb.) in Southern Part of Cilacap Regency

Pudji Widodo, Sukarsa Sukarsa, Wiwik Herawati, Hexa Apriliana Hidayah, Titi Chasanah, Dian Palupi, Elly Proklamasingih

Mangrove Community Structure in Papuan Small Islands

I Wayan Eka Dharmawan

Composition and Characters of Actinomycetes Isolated from Nipah Mangrove Mud, Gastrointestinal, and Feces of Nipah Worm (*Namalycastis rhodhocorde*)

Rikhsan Kurniatuhadi, Ari Hepi Yanti, Tri Rima Setyawati

The pathway of methane production in overwash mangroves

Yaya Ihya Ulumuddin

Study of Mangrove Forest Change Towards the Diversity and Carbon Stock of Mangroves in Segara Anakan, Cilacap

Nurmalahayati Nurmalahayati, Erwin Riyanto Ardli, Ani Widyastuti, Edy Yani, Agatha Sih Piranti

Kandelia candel (L.) Reproductive Organs Phenology, at Berbak and Sembilang National Park, South Sumatra

Hanifa Marisa, Sarno Sarno, Mohd. Rasyid Ridho, Dwi Puspa Indriani, Puspita Wulansari

Mangrove Root Diversity and Structure (cone, pencil, prop) Effectiveness in Accumulating

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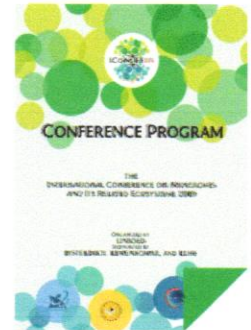
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Cu and Zn in Sediments and Water in Blanakan River

Noverita Dian Takarina

Health Assessment of Mangrove Ecosystem in Ayau Islands, Raja Ampat West Papua

Rudhi Pribadi

Translocation Factor of Zinc (Zn) in Water and Sediment by Root and Stem of Rhizophora sp. at Blanakan Riparian, West Java

Ananda Rizky Purwaningdyah, Noverita Dian Takarina

Bioaccumulation of Heavy Metal in Avicennia sp. from Blanakan Riparian, Subang, West Java

Selsa Artika Ayuajawi, Noverita Dian Takarina

Early study on the mangrove coverage condition in the West Coast of North Sumatera Province, Indonesia

Joko Samiaji

Bioaccumulation of Heavy Metal in Avicennia sp. from Blanakan Riparian, Subang, West Java

Selsa Artika Ayuajawi, Noverita Dian Takarina

Enzymatic activity profile of Streptomyces spp. isolated from nipah mangrove sediment in Sungai Kakap District, West Kalimantan

Ari Hepi Yanti, Rikhsan Kurniatuhadi, Tri Rima Setyawati

Effect of Salinity and Zinc (Zn) Heavy Metal on Water towards Size Distribution of River Catfish (Mystus sp.) at Blanakan River, Subang, West Java.

Agatha Oktavina, Noverita Dian Takarina

Composition and Characteristics of Actinomycetes Isolated from Nipah Mangrove Sediment, Gastrointestinal and Faecal Pellets of Nipah Worm (Namalycastis Rhodhocorde)

Rikhsan KURNIATUHADI

Composition And Characteristics of Actinomycetes Isolated From Nipah Mangrove Sediment, Gastrointestinal and Fecal Pellets of Nipah Worm (Namalycastis Rhodhocorde)

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Translocation Factor of Zinc (Zn) in Water and Sediment by Root and Stem of Rhizophora sp. at Blanakan Riparian, West Java

Ananda Rizky Purwaningdyah, Noverita Dian Takarina

Mangrove Ecosystem Management

Nursery Evaluation of Avicennia marina (Forssk.) Vierh. and Bruguiera cylindrica (L.) Blume in Different Substrates

Frank Paolo Jay Babate Albarico, Rogelio Q. Gacutan

Bird Preference in Using Mangrove Vegetation at Pulau Dua Nature Reserve, Banten

Dinda Safira Fauziah, Devi Nandita Choesin, Ichsan Suwandhi

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Nana Kariada Tri Martuti, Nur Kusuma Dewi, Rudhi Pribadi

Mangrove Governance: Establish a new paradigm of mangrove management " from village to the world"

Yonvitner Yonvitner

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Molecular Profile of Synedrella nodiflora (L.) Gaertn from three different altitudes based on IGS atpB- rbcL

Agus Hery Susanto, Murni Dwiati

Morphological and Physiological Adaptation of Synedrella nodiflora (L.) Gaertn in Various

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Tri Rima Setyawati, Ari Hepi Yanti, RIKHSAN KURNIATUHADI

Evaluation of Coliform Bacteria and Heavy Metal (Cu) in Upstream of Blanakan River, Subang, West Java

Ghina Nabila, Noverita Dian Takarina

Ornamental marine fish from the south coast of Cilacap Central Java

Agus Nuryanto

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ARI HEPI YANTI, TRI RIMA SETYAWATI, RIKHSAN KURNIATUHADI

Molecular Profile of Synedrella nodiflora (L.) Gaertn from three different altitudes based on IGS atpB - rbcL

Agus Hery Susanto, Murni Dwiati

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Nurtjahjo Dwi Sasongko

Preliminary Detection of Coliform Bacteria and Heavy Metal Pollution in Blanakan River Estuary, Subang, West Java

Enggit Glory, Noverita Dian Takarina



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Pathogenicity Profile of Indigenous Bacteria Isolated from Gut and Fecal pellets of Nipah Worm (<i>Namalycastis rhodochorde</i>)		

Schedule of International Conference of Mangroves and Its Related Ecosystems 2019

Workshop Day-1. Monday, 19 August 2019	
Time	Event
08.30 - 09.00	Registration
09.00 - 09.15	Opening by Dean of Faculty of Biology Universitas Jenderal Soedirman
09.15 - 12.00	Workshop Session 1. Direction of Mangrove Ecosystem Management Policy
	Material 1. The Policy of Mangrove Ecosystem Rahabilitations by Direktur Konservasi Tanah dan Air, Ditjen PDASHL, KLHK
	Material 2. Acceleration of Mangrove Ecosystem Recovery by Asisten Deputi Lingkungan dan Kebencanaan Maritim, Kementerian Koordinator Bidang kemaritiman
	Material 3. Research and Analyses to Support Mangrove Management Policy by Dean of faculty of Biology Universitas Jenderal Soedirman
	Material 4. Mangrove Conservation Policy in Essential Ecosystem Platform by Direktur Bina pengelolaan Ekosistem esensial, Ditjen KSDAE, KLHK
	Material 5. Best Practices of Sustainable Mangrove Management by Direktur wetland International-IP
	Panel Discussion
12.00 - 13.00	Lunch Break
13.00 - 15.30	Workshop Session 2. Data Analyses
	Primer v7 Software: Theory and Practices
15.30 - 16.00	Coffee Break
16.00 - 17.30	Primer v7 Software: Theory and Practices
19.00 - 21.00	Discussion [optional]



Workshop Day-2, Tuesday, 20 August 2019	
08.30 - 12.00	Primer v7 Software: Theory and Practices
12.00 - 13.00	Lunch Break
13.00 - 16.00	Primer v7 Software: Theory and Practices
16.00 - 16.15	Coffee Break
16.15 - 16.30	Closing

Field Trip Day, Tuesday, 20 August 2019	
Time	Event
06.30 - 17.00	Segara Anakan Mangrove, the Tropical Mangrove of the South Java, and mangrove planting

Conference Day-0. Tuesday, 20 August 2019		
Time	Event	Place
16.00 - 17.30	Registration for the Conference	1 st Floor
17.30 - 18.00	Prayer Break	1 st Floor & 2 nd Floor
18.00 - 19.30	Welcoming Dinner	Plenary Room (3 rd Floor)
19.30 - 20.00	Pre-Opening Ceremony	
20.00 - 20.20	Opening Remarks [Dean of Faculty of Biology, Rector of Universitas Jenderal Soedirman, and Coordinating Ministry for Maritime Affairs] Official Opening	
20.20 - 21.00	Keynote 1. Coordinating Ministry for Maritime Affairs	

Conference Day-1. Wednesday, 21 August 2019			
Time		Event	Place
08.30 - 09.30		Parallel Session 1	Symposium
08.30 - 08.50	[Paper 1] The Condition of Mangrove Ecosystem at Coastal Area of Pangkalpinang City, Bangka Belitung Province [Irma Akhrianti, Ahmad Gustomi]		Parallel Room 1 (1 st Floor)
08.50 - 09.10	[Paper 2] Study of Mangrove Forest Change Towards the Diversity and Carbon Stock of Mangroves in Segara Anakan, Cilacap [Nurmalahayati, Erwin Riyanto Ardli, Ani Widyastuti, Edi Yani, Agatha Sih Piranti]		
09.10 - 09.30	[Paper 3] Distribution and Characteristics of Nypa Palm (<i>Nypa fruticans</i> Wurmb.) in Southern Part of Cilacap Regency [Pudji Widodo, Sukarsa Sukarsa, Wiwik Herawati, Hexa Apriliana Hidayah, Titi Chasanah, Dian Palupi, Elly Proklamasiningsih]		
08.30 - 08.50		[Paper 29] Leaf Morphological Variation of Acanthus in Some Estuarin Areas of Cilacap [Wiwik Herawati, Pudji Widodo, Sukarsa Sukarsa, Dian Palupi]	Parallel Room 2 (2 nd Floor)
08.50 - 09.10	[Paper 30] Translocation Factor of Zinc (Zn) in Water and Sediment by Root and Stem of Rhizophora sp. at Blanakan Riparian, West Java [Ananda Rizky Purwaningdyah, Noverita Dian Takarina]		
09.10 - 09.30	[Paper 31] Composition and Zoning Pattern of Mangrove Plants in Cilacap Donan Sedimented Land [Ani Widyastuti, Edy Yani, Erie Kolya Nasution]		
09.30 - 09.50		Coffee Break	
09.50 - 11.00		Keynote 2. Global Phylogeography of Mangrove Plants and Evolutionary Consequences of Extreme Long-distance Sea-drift Seed Dispersal Koji Takayama, Kyoto University, Japan	
11.00 - 12.00		Keynote 3. Science-based Mangrove Rehabilitation and Conservation: the Philippine Experience Jurgenne H Primavera, Zoological Society of London, Philippine	
12.00 - 13.00		Lunch Break	
		Plenary Room (3 rd Floor)	

13.00 - 16.30		Parallel Session 2	Symposium	
13.00 - 13.30	[Invited Speaker] Evaluation of Mangrove Restoration in the Southern Coastal of Java, Indonesia [Erwin R Ardli, Universitas Jenderal Soedirman, Indonesia]	MEH	Parallel Room 1 (1 st Floor)	
13.30 - 13.50	[Paper 4] Relationship between Mangrove Vegetation Parameters and the Abundance of Forest Floor Fauna (Case Study in Pondok Bali Beach, Subang and Pulau Dua Nature Reserve, Serang) [Silvia Ferdayanti Laoli, Devi Nandita Choesin,Ichsan Suwandhi]	MEH		
13.50 - 14.10	[Paper 5] Relationship between Vegetation Parameters and Substrate Characteristics in Mangroves of Pondok Bali Beach and Pulau Dua Nature Reserve [Agnes Rumenta Setianty Samosir]	MEH		
14.10 – 14.30	[Paper 6] Composition and Characters of Actinomycetes Isolated from Nipah Mangrove Mud, Gastrointestinal, and Feces of Nipah Worm (<i>Namalycastis rhodocord</i>) [Rikhsan Kurniatuhadi, Ari Hepi Yanti, Tri Rima Setyawati]	MEH		
14.30 – 14.50	[Paper 7] Bioaccumulation of Heavy Metal in <i>Avicennia</i> sp. from Blanakan Riparian, Subang, West Java [Selsa Artika Ayu jawi, Noverita Dian Takarina]	MEH		
14.50 – 15.10	[Paper 8] The Pathway of Methane Production in Overwash Mangroves [Yaya Ihya Ulumuddin]	MEH		
15.10 - 15.30	Coffee Break			
15.30 - 15.50	[Paper 25] Health Assessment of Mangrove Ecosystem in Ayau Islands, Raja Ampat West Papua [Rudhi Pribadi]	MEH		
15.50 - 16.10	[Paper 27] <i>Kandelia candel</i> (L.) Reproductive Organs Phenology, at Berbak and Sembilang National Park, South Sumatra [Hanifa Marisa, Sarno, Mohd. Rasyid Ridho, Dwi Puspa Indriani, Puspita Wulansari]	MEH		
16.10 – 16.30	[Paper 24] Mangrove root diversity and structure (cone, pencil, prop) effectiveness in accumulating Cu and Zn in sediments and water in Blanakan River [Noverita Dian Takarina]	MEH		
13.00 - 13.20	[Paper 32] Microplastic Monitoring Using Combination of FTIR with Multispectral and Sentinel SAR Remote Sensing [Andri Adi]	MEH	Parallel Room 2 (2 nd Floor)	
13.20 - 13.40	[Paper 33] Preliminary Detection of Coliform Bacteria and Heavy Metal Pollution in Blanakan River Estuary, Subang, West Java [Enggit Glory, Noverita Dian Takarina]	MIS		
13.40 - 14.00	[Paper 34] Evaluation of Coliform Bacteria and Heavy Metal (Cu) in Upstream of Blanakan River, Subang, West Java [Ghina Nabila, Noverita Dian Takarina]	MIS		
14.00 – 14.20	[Paper 35] Assesment of Heavy Metals Zn and Coliform in Midstream of Blanakan River, Subang, West Java [Tika Damayanti, Noverita Dian Takarina]	MIS		
14.20 – 14.40	[Paper 36] The Potencies of <i>Streptomyces</i> spp. Origin of the Mangrove Ecosystem of Segara Anakan [Dini Ryandini et al.]	MIS		
14.40 – 15.00	[Paper 37] Exploration of Rhizospheric Soil Fungi From Several Food Crops in Purwokerto [Endang Sri Purwati, Uki Dwiputranto, Nuraeni Ekowati, Nuniek Ina Ratnaningtyas]	MIS		

15.00 - 15.30	Coffee Break	
15.30 - 15.50	[Paper 45] The plankton composition from lagoon to sea water entrance in the west part of Segara Anakan Cilacap [Moh. H Sastranegara, Dwi S Widyartini, Isna Fitriana, Klaus M Rani]	MIS
15.50 - 16.10	[Paper 56] Traceability Studies of <i>Kappaphycus alvarezii</i> Carrageenan Industries in Indonesia [Bayu Mangkurat, Maya Puspita, Ratih Pangestuti, A. B. Susanto]	MIS
16.10 - 16.30	[Paper 46] Marine environment and biodiversity in Sudanese Red Sea [Hanan Hasan Alsheikh Mahmoud]	MIS

Time	Event	Place
13.00 – 15.10	Internal Meeting	Plenary Room (3rd Floor)
13.00 – 13.20	Internal Meeting of the Coordinating Ministry for Maritime Affairs	
13.20 – 13.40	Internal Meeting of the Coordinating Ministry for Maritime Affairs	
13.40 – 14.00	Internal Meeting of the Coordinating Ministry for Maritime Affairs	
14.00 – 14.20	Internal Meeting of the Coordinating Ministry for Maritime Affairs	
14.20 – 14.40	Internal Meeting of the Coordinating Ministry for Maritime Affairs	
14.40 – 15.00	Internal Meeting of the Coordinating Ministry for Maritime Affairs	

Time	Event	Place
18.00 – 19.15	Dinner	Plenary Room (3rd Floor)
19.15 – 21.45	Indonesian Mangrove Society (IMS) Congress	
19.15 – 19.25	Congress Opening	
19.25 – 19.40	Delivery of the Congress Regulations	
19.40 – 21.20	Discussion of the IMS Charter	
21.20 – 21.30	Reading of the Congress Results	
21.30 – 21.45	Congress Closing	

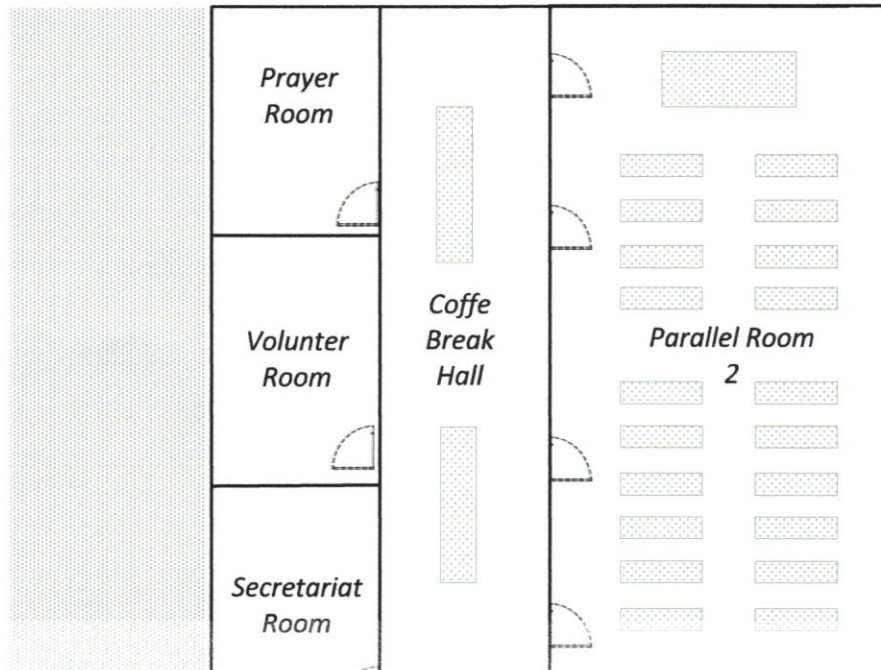
Conference Day-2. Thursday, 22 August 2019			
Time	Event		Place
08.00 - 09.40	Parallel Session 3	Symposium	
08.00 - 08.20	[Paper 9] A Quantitative Relationship between Environmental Setting and Mangrove Community in Bintan Island, Indonesia [I Wayan Eka Dharmawan, Dede Falahudin]	MEH	Parallel Room 1 (1 st Floor)
08.20 - 08.40	[Paper 10] Mangrove Community Structure in Papuan Small Islands [I Wayan Eka Dharmawan]	MEH	
08.40 - 09.00	[Paper 11] Conditions and Status of Mangrove Resources in The Coastal Area of Lombok Island, West Nusa Tenggara [Hilman Ahyadi, Lalu Ahmad Tantilar]	MEH	
09.00 - 09.20	[Paper 23] The Recent Status of Development of Mangrove Health Index based on Remote Sensing Data [Gathot Winarso]	MEH	
09.20 - 09.40	[Paper 13] Bird Prefence in using Mangrove Vegetation at Pulau Dua Nature Reserve, Banten [Dinda Safira Fauziah]	MEM	
08.00 - 08.20	[Paper 38] Effect of Temperature and Zinc (Zn) Temporal Variation in Water on Size Distribution of River Catfish (<i>Mystus</i> sp.) at Blanakan River, West Java [Dewi Ayu Sekarini, Noverita Dian Takarina]	MIS	Parallel Room 2 (2 nd Floor)
08.20 - 08.40	[Paper 42] Size Variation of River Catfish (<i>Mystus</i> sp.) and It's Relationship to Cadmium (Cd) Heavy Metal and pH in Blanakan River, Subang [Intan Claudya Anjani, Noverita Dian Takarina]	MIS	
08.40 - 09.00	[Paper 43] Sexual Dimorphism Characterization of Kurau Fish (<i>Philimanus perplexa</i> Feltes, 1991) [Sri Sukmaningrum, Suhestri Suryaningsih, Ayu Nurhaeni]	MIS	
09.00 - 09.20	[Paper 39] Macrozoobenthos Diversity as Bioindicator of Metal Pollution in Segara Anakan [Sri Lestari, Teguh Arief Rahmanto]	MIS	

Time	Event		Place
09.40 - 10.00	Coffee Break		Plenary Room (3 rd Floor)
10.00 - 11.00	Keynote 4. Ministry of Environment and Forestry		
11.00 - 12.30	Invited Pleno Topic: - World Mangrove Center - Institution strategic planning, Programs related to mangrove and marine resources 1. Dr. Syaiful Anwar Ministry of Environment and Forestry 2. Dr. Sahat - Coordinating Ministry for Maritime Affairs 3. Prof. Rifda Naufalin , Institute of Research and Community Services Universitas Jenderal Soedirman		
12.30 - 12.40	Quickfire Poster Promotion		
12.40 - 13.30	Lunch Break and Poster Session		
[Monitor 1]	[Poster 1] The Composition of Mangrove Association Mollusks in Natural and Rehabilitation Mangrove Ecosystem at South Lombok Seashore [Laily Hunawatun Sani, Dining Aidil Candri, Hilman Ahyadi, Baiq Farista]	MEH	
[Monitor 1]	[Poster 2] The Preliminary Assessment of Mangrove Status at Payung Island in Musi Estuary, Indonesia [Tengku Zia Ulqodry, Andi Agussalim, Indah Widiastuti, Riris Aryawati, Andreas Eko Aprianto]	RAM	
[Monitor 2]	[Poster 3] Mangrove Ecosystem as A Blue Carbon Asset [Lady Hafidaty Rahma Kautsar]	RAM	
[Monitor 2]	[Poster 4] An Analysis Model of The Change Mangrove Ecosystem in Cendi Manik village, Sekotong, West Lombok [Kholish Supiyani]	RAM	
[Monitor 3]	[Poster 5] Estimation of Carbon Deposits in Mangrove Stands Biomass at Bagek Kembar Mangrove Ecotourism Sekotong West Lombok [Dining Aidil Candri, Athiefah Ifah, Baiq Farista, Arben Virgota, Hilman Ahyadi]	RAM	
[Monitor 3]	[Poster 6] Enzymatic activity profile of <i>Streptomyces</i> spp. isolated from the mud of the nipah mangrove area in Sungai Kakap sub-district, West Kalimantan [Ari Hepi Yanti, Tri Rima Setyawati, Rikhsan Kurniatuhadi]	MIS	
[Monitor 4]	[Poster 7] The Diversity of Fish in Cikaniki River, Bogor Regency [Mia Azizah]	MIS	
[Monitor 4]	[Poster 8] Pathogenicity profile of indigenous bacteria isolated from gut and feces of nipah worm (<i>Namalycastis rhodochorde</i>) [Rikhsan Kurniatuhadi, Tri Rima Setyawati, Ari Hepi Yanti]	MIS	
[Monitor 5]	[Poster 9] The Induction of Asexual Reproduction on <i>Holothuria scabra</i> and <i>Bohadschia marmorata</i> : The Conservation Effort in Tanimbar Archipelago, Maluku [A. Dimas Cahyaning Furqon, Firdaus Maulana, Endang Triyani Prihantari, Romanus Edy Prabowo]	MIS	
[Monitor 5]	[Poster 10] Community structure of Trepang at Namtabung, Selaru Island, Maluku, Indonesia [Firdaus Maulana, Romanus Edy Prabowo, Erwin Riyanto Ardli]	MIS	

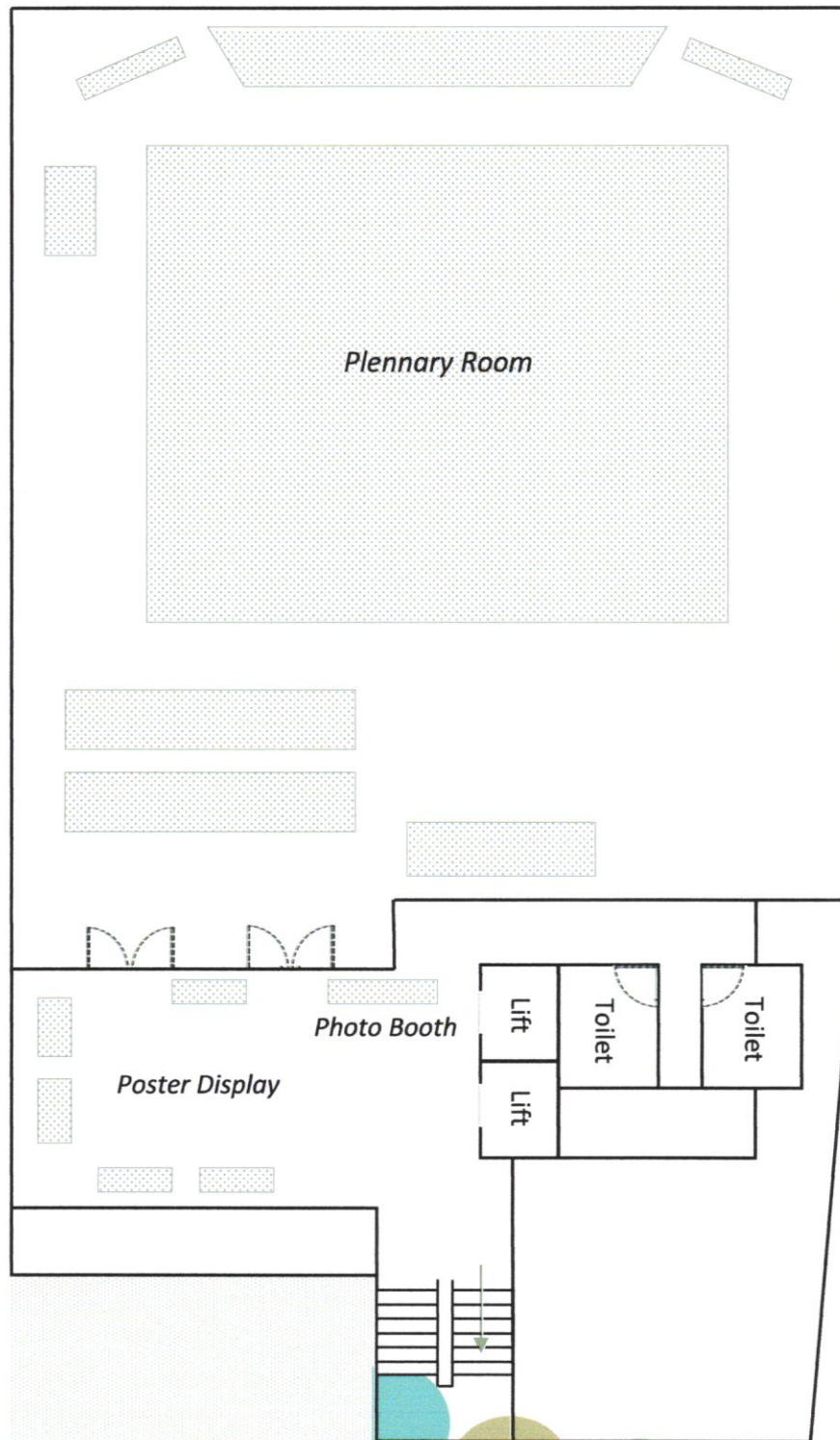
Time	Event		Place
13.30 - 15.00	Parallel Session 4		
13.30 - 14.00	[Invited Speaker] Forty Years Mangrove Rehabilitation and Management of Can Gio Mangrove Biosphere Reserve, Ho Chi Minh City, Viet Nam (1978 – 2018) [Vien Ngoc Nam, Long Nam University Vietnam]	MEM	Parallel Room 1 (1 st Floor)
14.00 - 14.20	[Paper 14] The Dynamics of Coastline and Mangrove Ecosystems in Coastal Area of Mangrove Kulon Subdistrict, Semarang [Nana Kariada Tri Martuti]	MEM	
14.20 - 14.40	[Paper 15] The Mangrove Conditions Post Restoration by Planting and Enrichment Pattern in ex-Fish Ponds at Berbak and Sembilang National Park, South Sumatera [Tengku Zia Ulqodry]	MEM	
14.40 - 15.00	[Paper 16] Design of a Mangrove Greenbelt at a Permanently Waterlogged Area in the North Coast of Subang District, West Java [Devi Nandita Choesin, Dinda S Fauziah, Syntia Ayu Kartika, Silvia F Laoli, Agnes RS Samosir, Ichsan Suwandhi]	MEM	
13.30 - 14.00	[Invited Speakers] Topic: Ecophysiology of Coral Reefs [Suharsono, LIPI]	MIS	Parallel Room 2 (2 nd Floor)
14.00 - 14.20	[Paper 44] Effect of Salinity and Zinc (Zn) Heavy Metal on Water towards Size Distribution of River Catfish (<i>Mystus</i> sp.) at Blanakan River, Subang, West Java [Agatha Oktavina, Noverita Dian Takarina]	MIS	
14.20 - 14.40	[Paper 40] Polychaete Nereis sp. in the Coastal Farming of Jeruklegi, Cilacap as Potential Prawn Feed [Eko Setyo Wibowo, IGA Ayu Ratna Puspitasari, Endah Sri Palupi, Atang]	MIS	
14.40 - 15.00	[Paper 41] A New Mangrove Intertidal Barnacle of Segara Anakan Cilacap [Romanus Edy Prabowo]	MIS	
15.00 - 15.20	Coffee Break		
15.20 - 16.40	Parallel Session 5		
15.20 - 15.40	[Paper 17] Mangrove Governance: Establish a new paradigm of mangrove management “ from village to the world” [Yonvitner]	MEM	Parallel Room 1 (1 st Floor)
15.40 - 16.00	[Paper 18] Carbon Dynamic of Restored Mangrove at ex-Brackish Pond in Northern Sumatra: Implication for Mitigation Climate Change [Onrizal, Alfian Gunawan Ahmad, Achmad Siddik Thoha]	MEM	
16.00 - 16.20	[Paper 19] Analysis of Visitor Perceptions of Additional Cost of Admission Ticket for Conservation Program at Brebes Mangrove Ecotourism [Cahyadi Adhe Kurniawan]	MEM	
16.20 - 16.40	[Paper 26] Preliminary assessment of mangrove ecosystem health using multitemporal high resolution satellite images: Case of mangrove rehabilitation areas in Indonesia [Rinny Rahmania, Terry Louis Kepel, Luh Putu Ayu Savitri Chitra Kusuma, Taslim Arifin]	MEM	
15.20 - 15.40	[Paper 47] Molecular Profile of <i>Synedrella nodiflora</i> (L.) Gaertn from Three Different Altitudes Based on IGS atpB- rbcL [Agus Hery Susanto, Murni Dwiati]	MIS	Parallel Room 2 (2 nd Floor)
15.40 - 16.00	[Paper 48] Morphological and Physiological Adaptation of <i>Synedrella nodiflora</i> (L.) Gaertn in Various Altitudes [Murni Dwiati, Agus Hery Susanto]	MIS	
16.00 - 16.20	[Paper 49] Ability of Road Shade Plants As Pb Absorbent in Jalan Jenderal Soedirman Purwokerto [Siti Samiyarsih, Slamet Santoso, Sri Lestari, Dayu Ardiyuda, Nur Fitrianto]	MIS	

16.20 - 16.40	[Paper 50] Chlorophyll contain of <i>Ipomoea pes-caprae</i> (L.) in Cilacap Coastal Areas in Relation to Habitat [Elly Proklamasiningsih, Pudji Widodo]	MIS	
Conference Day-3. Friday, 23 August 2019			
Time	Event		Place
08.30 - 10.10	Parallel Session 6		
08.30 - 08.50	[Paper 20] Ba(NO ₃) ₂ Acetone Method Adapted for Nitrateisolation from Fresh and Saline Water in Nitrogen Isotope Analysis [Ferdouse Zaman Tanu, Yasuhiro Nakanishi]	RAM	Parallel Room 1 (1 st Floor)
08.50 - 09.10	[Paper 21] Identification of Changes in Shoreline and Mangrove Area in the Coast of Legon Kulon Sub-District, Subang District, West Java [Syntia Ayu Kartika]	RAM	
09.10 - 09.30	[Paper 22] Crowdsourcing Data Collection as an Optimatization Method for Mangrove Rehabilitation [Ardha Yosef Retmana, Bayu Mangkurat]	RAM	
09.30 - 09.50	[Paper 28] Early study on the mangrove coverage condition in the West Coast of North Sumatera Province, Indonesia [Joko Samiaji]	MEH	
09.50 - 10.10	[Paper 12] Nursery Evaluation of <i>Avicennia marina</i> (Forssk.) Vierh. and <i>Bruguiera cylindrica</i> (L.) Blume in Different Substrates [Frank Paolo Jay Babate Albarico, Rogelio Q. Gacutan]	MEH	
08.30 - 08.50	[Paper 51] Ornamental Marine Fish from the South Coast of Cilacap Central Java [Agus Nuryanto, Dian Bhagawati, Kusbiyanto]	MIS	Parallel Room 2 (2 nd Floor)
08.50 - 09.10	[Paper 52] Phytoremediation of Liquid Waste Electroplating using <i>Salvinia</i> sp. [Hernayanti, Sri Lestari]	MIS	
09.10 - 09.30	[Paper 53] Batik Dye Decolorization by Immobilized Biomass of <i>Aspergillus</i> sp. [Ratna Stia Dewi, Aris Mumpuni]	MIS	
09.30 - 09.50	[Paper 54] Self-Feeding Selection Behavior in German Cockroaches, <i>Blattella germanica</i> L. (Dictyoptera:Blattellidae) [Trisnowati Budi Ambarningrum, Edi Basuki, Rokhmani]	MIS	
09.50 - 10.10	[Paper 55] Preference of Termites to Habitat under The Trees along Altitudinal Gradient in Western Slope of Mount Slamet Central Java [Hery Pratiknyo, Trisnowati Budi Ambarningrum, Endang Ariyani Setyowati, Titik Indrawati]	MIS	
10.10 - 10.30	Coffee Break		
10.30 - 11.00	Closing		

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Sexual Dimorphism Chracterization of Kurau Fish (*Philimanus perplexa* Feltes, 1991)

at the

**INTERNATIONAL CONFERENCE OF MANGROVE AND ITS RELATED ECOSYSTEMS:
ESTABLISHING AND MANAGING MANGROVE DATABASES FOR MAINTAINING
ITS ECOSYSTEM SERVICES AND RESOURCES**



PURWOKERTO, 20-23 AGUSTUS 2019

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Waktu : Pukul 08.00 – 15.00 WIB

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1 August 2019

Dear **Suhestri Suryaningsih (Co-Author)**
Faculty of Biology, Jenderal Soedirman University

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Re. **Letter of Acceptance**

This is to confirm that your submitted abstract has been approved by the Scientific Committee to be accepted for oral presentation at the ICoMIRE on 20-23 August 2019. We expect to have your power point presentation (PPT) no longer than 10 August 2019. The PPT up loading menu is available on the website via ppt menu. If you wish to submit your proceeding manuscript to be published in the Scopus-indexed conference proceeding, please do so before 10 August 2019 in the paper submission menu.

The following is your presentation details.

Title: **Sexual Dimorphism Characterization of Kurau Fish (*Philimanus perplexa* Feltes, 1991)**

Symposium: **Mangrove Interrelated System**

Abstract status: **Accepted**

Presentation type: **Oral**

Co-author(s): Suhestri Suryaningsih, Ayu Nurhaeni

Your registration and paid conference fee are requirements to present your abstract. Please notify that the payment is available up to 10 August 2019.

We greatly hope to see you at the conference. Please feel free to contact us if you need further inquiries.

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ConferenceOrganizing Chair

INTERNATIONAL CONFERENCE ON MANGROVES
AND ITS RELATED ECOSYSTEMS 2019

PURWOKERTO, INDONESIA
AUGUST, 19-23 2019



ICOMIRE 2019 SECRETARIAT

Faculty of Biology Universitas Jenderal Soedirman



Paper 43: Mangrove Interrelated System**Sexual Dimorphism Characterization of Kurau Fish
(*Philimanus perplexa* Feltes, 1991)**Sri Sukmaningrum , Suhestri Suryaningsih, Ayu Nurhaeni

Faculty of Biology, Jenderal Soedirman University

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Kurau fish (*Philimanus perplexa*) is one of the economical fish species in Indonesia which is commonly found in PPI Tanjungsari Pemalang. Kurau fish have a rather wide flat body shape, yellowish body color. Characteristic of Kurau fish has seven free filaments on the pectoral fin whose length exceeds the anal fin. Kurau fish is widely used as a consumption fish. Continuous capture without farming can lead to overfishing, so efforts are needed to preserve the Kurau fish. Kurau fish do not have sexual dimorphism, therefore taxonomical information is needed to distinguish male and female Kurau fish. Differences in male and female fish can be seen through morphological performance, morphometrics truss techniques and meristic characters. The purpose of this study was to differentiate male and female Kurau fish based on morphological performance, morphometrics truss technique and meristic characters. The method used in this research is survey. Samples were taken by purposive random sampling technique. Samples of Kurau fish were obtained from PPI Tanjungsari Pemalang which consist of 90 fish. The variables observed were morphological performance, morphometrics truss distance and meristic characters. The measured parameter is the ratio between the truss distance to the standard length. Morphological performance observed were body shape, mouth shape and position, caudal fin shape, scale type and tooth type. Morphometrics truss characters measured are the truss distances that have been determined by 15 points. Meristic characters were calculated, namely the number of hard and soft fingers on the dorsal, anal and pectoral fins; number of scales above and below the linea lateralis; the number of gill archs and the number of scales surrounding the tail shaft and the number of filaments on the pectoral fin. Data on morphological performance were analyzed descriptively, morphometrics truss character measurements were statistically analyzed by the "t" test of the SPSS Version 16.0 program and meristic characters were analyzed descriptively. The results showed that the character of truss morphometrics can be used as a differentiator between male and female kurau fish, namely in the posterior part of the body where males have wider body sizes and are relatively longer than females. Morphological performance and meristic characteristics cannot be the difference between male and female Kurau fish.

Keywords:sexual dimorphism; morphological performance; morphometrics; meristic; kurau fish
(*Philimanus perplexa*)

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Sexual Dimorphism Characterization of Splendid threadfin (*Philimanus perplexa* Feltes, 1991)

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Sexual Dimorphism Characterization of Splendid threadfin (*Filimanus perplexa* Feltes, 1991)

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Abstract. *Filimanus perplexa* is among fish species with high economic value. It has a flattened body shape and yellowish body color. Another characteristic of *F. perplexa* is seven free filaments on the pectoral fin whose exceeds the anal fin. These species do not show sexual dimorphisms. Therefore, a taxonomic study is needed to distinguish male and female individuals of Kurau fish. Differences between male and female fish can be seen in their morphological performance, truss morphometrics, and meristic characters. The purpose of this study was to know morphological characters that can be used to differentiate between male and female individuals of Splendid threadfin fish. The method used in this research surveys. Samples were taken by purposive random sampling technique. Samples of Kurau fish were obtained from PPI Tanjungsari Pemalang. The variables observed were the morphological performance, truss morphometrics distances, and meristic characters. Morphological data were analyzed descriptively. The truss morphometrics character was statistically analyzed using a t-test on SPSS Version 16.0 program. Furthermore, meristic characters were analyzed descriptively. The results showed that male and female individuals of Kurau fish could be differentiated based on truss distance, where males individuals have larger body sizes and are relatively longer than females. Morphological performance and meristic characteristics cannot be the difference between male and female Kurau fish.

1. Introduction

Splendid threadfin (*Filimanus perplexa*) or locally known as kurau fish, is among landed fish species at Tanjungsari Auction Center (PPI) Pemalang. Splendid threadfin has a flattened body shape and yellowish body color. This species is also characterized by having seven filaments on the pectoral fin, whose length exceeds the anal fin [1]. Kurau fish is widely consumed as a food fish [2], which might suffer from high exploitation and lead to overfishing.

According to their sexuality, the fish specimen can be distinguished into male and female individuals [3]. In certain species, both sexes show sexual dimorphisms that make it easy to distinguish between males and females individuals [4]. According to Fishbase [5], the sexuality of *Filimanus perplexa* cannot be distinguished. In that case, a particular method is required to differentiate between male and female individuals of *F. perplexa*. Data on the number of male and female individuals of *Filimanus perplexa* are vital for its conservation. A careful examination of morphological performance [6], morphometric characteristics, and meristic characters [7] is one technique to determine male and female individuals of *F. perplexa*.

Various characters can be examined to illustrate body performance of fish, namely, body shape, mouth shape and position, caudal fin shape, scales type, and tooth type [6]. Morphometric character is



among the morphological characters. It is a quantitative measure of the size and shape of the organism [8]. Morphometric characters can be measured using a truss morphometric technique. Truss morphometrics is a body measurement technique that is based on truss points [9]. Previous studies had used truss morphometrics to differentiate male and female individuals of various fish species that do not show sexual dimorphism. For example, the study of [10] showed that male and female *Lepidorhombus whiffiagonis* fish could be distinguished based on the ratio between body height and standard length.

Meristic characters can also be used to describe the character of fish species [6]. Meristic is a character related to the number of body parts of a fish, for example, the number of scales on the rib line, the number of hard and soft fin rays. The study from [11] showed that male and female fish in Gelik fish (*Otolithes ruber*) could be differentiated based on their meristic characters.

No study has been done about the morphological characteristic of male and female individuals of splendid threadfin (*Filimanus perplexa*). The purpose of this study was to figure out morphological performance, morphometrics truss technique, and meristic characters that can be used to distinguish male and female individuals of splendid threadfin (*F. perplexa*).

2. Methods

The material used is fish Kurau (*Filimanus perplexa* Feltes, 1991), which was taken from PPI Tanjungsari Pemalang as many as 90 fish. The method used in this study is a survey method. The variables observed were morphological characters, morphometrics truss distance, and meristic. The parameter measured is the ratio of the distance between the truss distance and the standard length [12].

Morphological performance observed were body shape, mouth shape, and position, caudal fin shape, scale type, and tooth type [6]. Morphometrics truss characters measured are truss distances that have been determined [12] by 15 points (modification). Meristic characters were calculated, namely the number of hard and soft fingers on the dorsal, anal and pectoral fins; the number of scales above and below the rib line; the number of gill filters on the first gill arch on one side of the body; the number of scales surrounding the tail shaft [6] and the number of filaments on the pectoral fin [12].

2.1. Research procedure

2.1.1 Fish are identified and determined with guidance [12], [5], and [14].

2.1.2 Determination of morphological performance in fish is carried out directly to observe the body shape of the fish, the shape and position of the fish's mouth, the shape of the caudal fins, the type of scales, and the type of teeth [6].

2.1.3 Measuring fish with morphometrics truss techniques. Standard length measurements are taken from the front end of the snout to the base of the caudal fin. Each sample is determined by 15 points that serve as a benchmark point for morphometrics truss to obtain 33 characters [12]. (Figure 2.1; Table 2.1). The morphometrics truss benchmark points are:

1. The base of the lower jaw; 1.1.A. The tip of the upper jaw; 2. The leading edge of the snout ; 3. Ventral head and body boundaries; 4. Dorsal head and body boundaries; 5. The front base of the ventral fin; 6. Dorsal fin front base I; 7. The front base of the anal fin; 8. Dorsal fin base I; 9. The base of the back of the anal fin; 10. Dorsal fin front II; 11. The base of the back of the ventral fin; 12. Dorsal fin II base; 13. Ventral tail folding; 14. Dorsal tail folding.

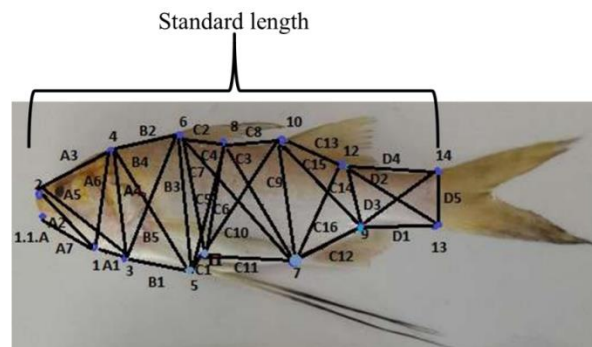


Figure 2.1 The points and distance of morphometrics truss fish Kurau (*Filimanus perplexa*, Feltes, 1991) [12] with modification

Table 2.1 Description of morphometrics truss distances used in research

Area	Code	Description of Distance
Head	A1 (1-3)	Distance between the base of the lower jaw - the boundary of the head and ventral body
	A2 (1-2)	Distance between the base points of the lower jaw - the leading edge of the snout
	A3 (2-4)	The distance between the leading endpoints of the snout – the boundary of the head and dorsal body
	A4 (3-4)	Distance between the head and ventral body border - the head and dorsal body boundary
	A5 (2-3)	Distance between the leading endpoints of the muzzle - the boundary of the head and ventral body
	A6 (4-1)	Distance between the head and dorsal body border - the base of the lower jaw
	A7 (1.1.A-1)	Distance between the tip of the maxilla - the base of the mandible
Body part Anterior	B1 (3-5)	Distance between the head point and the ventral body - the front of the ventral fins
	B2 (4-6)	Distance between the head and dorsal body boundary point - the front base of the dorsal fin I
	B3 (6-5)	The distance between the dorsal fin front point I - the front end of the ventral fin
	B4 (4-5)	The distance between the head and dorsal body boundary point - the front of the ventral fins
	B5 (6-3)	Distance between the dorsal fin front point I - head and ventral body boundary
	C1 (5-11)	Distance between the starting point of the ventral fin front - the rear base of the ventral fin
Body part Posterior	C2 (6-8)	Distance between the dorsal fin I dorsal base - dorsal fin I dorsal base
	C3 (8-7)	The distance between the dorsal fin base point I - the front base of the anal fin
	C4 (6-7)	The distance between the dorsal fin front point I - the front base of the anal fin
	C5 (8-5)	The distance between the dorsal fin dorsal point I - the back base of the ventral fin
	C6 (8-11)	Distance between the dorsal fin base I - the rear of bottom the ventral fin
	C7 (6-11)	Distance between the front base of the dorsal fin I - the rear base of the ventral fin
	C8 (8-10)	Distance between the dorsal fin I dorsal point - the front base dorsal fin II
	C9 (10-7)	The distance between the dorsal fin front point II - the front base of the anal fin
	C10 (10-11)	The distance between the dorsal fin front point II- the rear base of the ventral fin

C11 (11-7)	Distance between the rear base point of the ventral fin - the front base of the anal fin
C12 (7-9)	Distance between the starting point of the front of the anal fin-the rear base of the anal fin
C13 (10-12)	Distance between the starting point of the dorsal fin II - the rear base of the dorsal fin II

2.1.4 Counting of Meristic Characters.

Meristic characters were calculated, namely the number of hard and soft fingers on the dorsal, anal and pectoral fins; the number of scales above and below the rib line; the number of gill filters on the first gill arch on one side of the body; the number of scales surrounding the tail shaft [6] and the number of filaments on the pectoral fin [14]. Meristic character calculation, according to [6] and [13], is as follows. Number of dorsal fin radii I, number of dorsal fin radii II, number of anal fin radii, number of pectoral fin radii, number of rib line scales, number of scales above the rib line, number of scales below the rib line, number of scales surrounding the tail stem, number of filaments on the pectoral fin, number of Gill rakers were calculated.

2.1.5 Data analysis

Data on the morphological performances were analyzed descriptively. The truss character measurements between male and female Kurau fish were analyzed statistically by the "t" test of the SPSS Version 16.0 program, and meristic characters were analyzed descriptively.

3. Results

Morphological Performance, Morphometrics Truss and Meristics Kurau Fish

3.1. Morphological performance

The observations showed the morphology of the fish Kurau *Philimanus perplexa* has a flat body shape, lower mouth, and not prominent. Body shape and mouth position between male and female Kurau fish are not different. The shape of the two-branched Kurau fish tail fins shows no difference in tail fin shape between male and female Kurau fish. The types of scales observed in Kurau fish are ctenoid scales. Types of comb scales in male and female Kurau fish have no difference. Kurau fish have villiform teeth, and there is no difference in tooth shape between male and female Kurau fish.

3.2. Truss morphometrics characters

The truss ratio of male and female individuals was analyzed using a t-test and is presented in Figure 3.1 and Table 3.1. It can be seen both in Figure 3.1 and Table 3.1 that nine out of 33 truss distance ratios were significantly different between male and female kurau fish, e.g., A₁, B₁, B₄, B₅, C₃, C₉, C₁₁, C₁₂, and D₅. The B₄ truss distance ratio is the distance between the head and dorsal body boundary point and the ventral fins with a standard length; male fish has a value of 0.369, bigger than female fish that is 0.359. The next significant truss distance ratio is B₅, which is the distance between the ductal fins I and the head and ventral body boundary with standard length, and the male fish has a value of 0.346, higher than the female fish that is 0.335. The next significant truss distance ratio is C₃, which is the distance between the dorsal fin base point I and the front base of the anal fin with standard length, in male fish has a value of 0.362, higher than that of female fish that is 0.354. The next significant truss distance ratio is C₉, which is the distance between the dorsal fin front point II and the anal fins (posterior height) with standard length, in male fish having a value of 0.329, higher than that of female fish that is 0.319. The next significant truss distance ratio is D₅, which is the distance between the dorsal tail folding and the ventral tail folding with a standard length, in male fish with a value of 0.153, higher than that of the female fish that is 0.149.

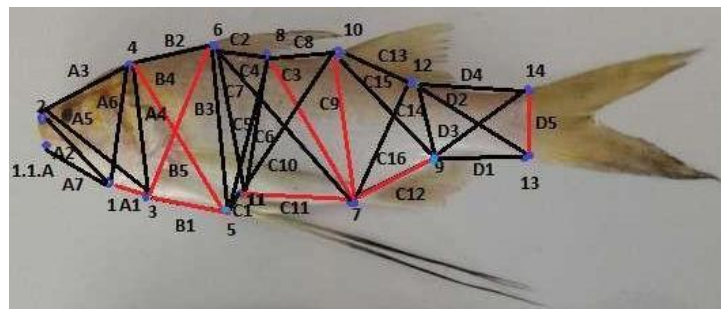


Figure 3.1 Distance truss Kurau fish (*Filimanus perplexa*, Feltes 1991). Blackline: Non-significant. Redline: Significant

Table 3.1 Test results "t" ratio between truss distance and the standard length of Kurau fish (*Filimanus perplexa* Feltes, 1991).

No	Truss Distance	Average Ratio		‘T’	No	Truss Distance	Average Ratio		‘T’
		Male	Female						
1	A1 (1-3)	0,041	0,046	*	18	C6 (8-11)	0,321	0,322	NS
2	A2 (1-2)	0,177	0,177	NS	19	C7 (6-11)	0,337	0,339	NS
3	A3 (2-4)	0,185	0,185	NS	20	C8 (8-10)	0,165	0,162	NS
4	A4 (3-4)	0,247	0,249	NS	21	C9 (10-7)	0,329	0,319	*
5	A5 (2-3)	0,216	0,221	NS	22	C10 (10-11)	0,392	0,385	NS
6	A6 (4-1)	0,236	0,236	NS	23	C11 (11-7)	0,226	0,208	*
7	A7 (1.1.A-1)	0,139	0,134	NS	24	C12 (7-9)	0,21	0,222	*
8	B1 (3-5)	0,215	0,189	*	25	C13 (10-12)	0,157	0,164	NS
9	B2 (4-6)	0,177	0,168	NS	26	C14 (12-9)	0,178	0,161	NS
10	B3 (6-5)	0,363	0,359	NS	27	C15 (10-9)	0,3	0,303	NS
11	B4 (4-5)	0,369	0,359	*	28	C16 (12-7)	0,282	0,285	NS
12	B5 (6-3)	0,346	0,335	*	29	D1 (9-13)	0,198	0,192	NS
13	C1 (5-11)	0,027	0,032	NS	30	D2 (12-13)	0,284	0,295	NS
14	C2 (6-8)	0,118	0,12	NS	31	D3 (9-14)	0,25	0,25	NS
15	C3 (8-7)	0,362	0,354	*	32	D4 (12-14)	0,254	0,26	NS
16	C4 (6-7)	0,434	0,434	NS	33	D5 (14-13)	0,153	0,149	*
17	C5 (8-5)	0,342	0,342	NS					

NS : Non-Significant

* : Significant

Truss distances B4, B5, C3, and C9, are vertical distances as well as at D5, which is the height of the caudal peduncle. The vertical distance in male fish is higher than that in female individuals. Therefore, in general, it can be stated that in male fish is larger than female fish. The next significant truss distance ratio is the truss distance B1, C11, and C12, which are horizontal lines. Truss distance ratio B1, which is the distance between the head and ventral body boundary point and the ventral fins with a standard length, in male fish has a value of 0.215 higher than female fish, which is 0.189. C11 truss distance ratio, which is the distance between the rear base point of the ventral fin and the front base of the anal fin with a standard length, in male fish has a value of 0.226, higher than the female fish is 0.208. The next significant truss distance ratio is C12 which is the distance between the base point of the front of the anal fin and the base of the back of the anal fin with a standard length, in male fish having a value of 0.210 is smaller than that of the female fish which is 0.222. The distance ratio of

truss B1 and C11 in male fish has a higher value than female fish, so it can be stated that male fish are relatively longer than females.

The head shows that the distance ratio A1 truss, which is the distance between the base of the lower jaw and the head and ventral body boundary with a standard length in females, has a value of 0.046, higher than the male fish that is 0.041. The A1 truss distance ratio in female fish is higher than male fish. The vertical and horizontal truss distances in male fish are higher than female fish, so it can be stated that in male fish, the body size is larger and relatively longer than female fish. The results of this study show a significant difference in some truss distances between male and female fish.

3.3. Meristic characteristics

The meristic characters consisting of the radii of the dorsal fin, anal fin, pectoral fin, linea lateralis scales, upper and lower linea lateralis, scales that surround the tail stem, gill rakers, and chest filaments are presented in Table 3.2. Table 3.2. shows that of the ten meristic characters observed, there are no characters that can distinguish between male and female Kurau fish. Kurau fish have long gills rakers with as many as 46-48 and 115-gill filaments.

Table 3.2 The results of the meristic characteristics of the Kurau fish (*Filimanus perplexa* Feltes, 1991).

Karakter meristic	Female					Male				
Number of dorsal fin radii I	VII	VII	VII	VII	VII	VII	VII	VII	VII	VII
Number of dorsal fin radii II	I.13	I.13	I.12	I.13	I.13	I.12	I.12	I.12	I.13	I.13
Number of anal fin radii	II.14	II.14	II.14	II.14	II.14	II.14	II.14	II.14	II.14	II.14
Number of pectoral fin radii	XIII	XIII	XIII	XIII	XIII	XIII	XIII	XIII	XIII	XIII
Number of scales above the linea lateralis	7	7	7	7	7	7	7	7	7	7
Number of linea lateralis scales	40	37	34	31	34	51	41	38	44	43
Number of scales below the linea lateralis	5	5	5	5	5	5	5	5	5	5
Number of scales surrounding the tail	12	12	12	12	12	12	12	12	12	12
Steam Number of gill rakers	46	46	46	48	45	46	54	48	48	45
Number of filaments on the pectoral fin	7	7	7	7	7	7	7	7	7	7

4. Discussions

4.1. Morphological performance

The character found in kurau in line with [14] that fish species from the Polynemidae family have flattened body shapes and inferior mouth positions, and the mouth cannot be protruded. According to [12], fish from the Polynemidae family have ctenoid scales. Moreover, [13] has stated that the posterior part of ctenoid scales is equipped with stenii (small serrations). Osteichthyes fish have ctenoid scales both in Malacopterygii and Actinopterygii. According to [13], parts of ctenoid scales in fish are nuclei, radius, and stenii. Focus is the starting point for the development of scales and is usually located in the middle of the scales. However, in later developments, the nucleus can grow more posteriorly or more anteriorly. That tooth type, as observed in the samples similar to [12] that Kurau fish have villiform tooth shapes as adaptations for prey hunters (fish eaters and small crustaceans).

4.2. Truss morphometrics characters

The results of this study, similar to the previous study by [15]. Which stated that to distinguish male and female *Oryzias dancena* fish were located in 4 characters in which there was one character that was the same as the kurau fish, namely the ratio of truss distance between the dorsal fin base and the front base of the anal fin. The distance ratio in male fish is higher than female fish.

The results of this study indicate that the distance ratio of A1 truss in females is higher than male fish; that is different from research [16] on Threespine Stickleback fish, which shows that the size of the head and jaw in male fish is larger than females. This condition is relatively similar to the results of research [17] in yellowtail fish (*Caesio cuning*) where male fish are bigger than female fish. It can be seen from the results of measurements on the length of the abdominal fin length, base length of the anal fin, the height of the tail stem, body width, so it is suspected that male fish have a higher growth rate than female fish.

According to [18], the morphological variation in fish is influenced by several factors, including genetic factors inherited from their parents that distinguish them from other species. [16] states that sexual dimorphism can occur due to several factors, for example, the role of different reproduction and intrasexual competition, which can encourage differences in reproductive structure externally. According to [18], male and female fish have different growth patterns, which will produce differences in body shape, which is an essential factor in differentiating the sex of a species.

4.3. Meristic characteristics

Almost the same research results from this study are found in studies [20], which state that in male and female *Liza melinoptera* fish, there are no differences in the characteristics of the number of first dorsal fins and number of anal fins. It is supported by [21], which states that the characteristics do not change significantly outside the range of coverage. According to [22], meristic features are more stable during growth even though fish body size has reached a maximum. These results differ from studies [10], which state that in male and female fish, *Lepidodermus whiffiagonis* found differences in the characteristics of a meristic on the number of dorsal fins, number of anal fins, number of gill sails, and number of rib scale. According to [23], environmental conditions can affect fish adaptation patterns. The impact can occur on the shape, size, and number of several parts of the body, including the meristic character.

5. Conclusion

It can be concluded that the technique of truss morphometrics can be a differentiator of male and female Kurau fish. In male fish, the body size is larger and relatively longer than female fish. Morphological performance and meristic characteristics cannot be the difference between male and female Kurau fish.

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