

FATTY ACID PROFILES OF ENDEMIC FISH (*Telmatherina celebensis* and *Telmatherina bonti*) IN LAKE TOWUTI, LUWU TIMUR DISTRICT SOUTH SULAWESI, INDONESIA

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The endemic fish is a major marine resource with sufficient economic and ecological values. Lake Towuti is a biodiversity hotspot. The content of Towuti waters is constantly exploited by the surrounding communities. This unique product serves as the pride of the region as well as a tasty protein source. The chemical composition of *T.celebensis* and *T. bonti* is important to comprehend, although the local population refers to the native name as “pangkilang fish”. Moreover, no information exists regarding the nutritional composition of endemic fish in Lake Towuti. The chemical composition of the freshwater species were fundamental in providing baseline information on nutrition for human intake. The objective of this study is to investigate the fatty acid profiles of *T.celebensis* and *T. bonti* in Lake Towuti, Luwu Timur District, South Sulawesi, Indonesia. The fish samples were collected from Lake Towuti, Luwu Timur district, South Sulawesi, Indonesia, using a trap net. This was followed by the placement into separately labeled polythene bags and eventually stored in a cool box, with the addition of ice to maintain a cool temperature during the transportation to the laboratory at the Faculty of Fisheries and Marine Science, Muslim University of Indonesia. The fatty acid composition of fish is analyzed as profiles of saturated fatty acids, mono unsaturated fatty acids, long chain polyunsaturated fatty acids, and omega-3 fatty acids. Data analysis: The data of fatty acids of *T.celebensis* and *T. bonti* were analyzed descriptively. The results showed an extensive overall content of *T.bonti* SFA, MUFA and PUPFA, compared to *T.celebensis*. Moreover, the compositions of DHA, EPA and AA in *T.bonti* were 0.8159, 0.0913 and 0.3224%, respectively, while in *T.celebensis*, similar components occurred in the values of 0.6062, 0.0432 and 0.2437%, correspondingly. Furthermore, the proportions of omega 3, 6 and 9 fatty acids in *T.bonti* were greater, compared to *T.cebensis*.

Keywords: *Telmatherina celebensis*, *Telmatherina bonti*, Fatty Acid Profile, Towuti Lake.

IDENTIFICATION OF THE FORMS AND BOUNDARIES AREAS OF SASI LAW IN GROUPER RESOURCES MANAGEMENT OF AYAU ISLAND, RAJA AMPAT REGENCY, SOUTHWEST PAPUA

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BACKGROUND :

The Community of Ayau Island in Raja Ampat Regency employs a unique method for managing economic marine resources, including grouper, through a regulation known as Sasi law. This regulation is identified as the traditional practice of opening and closing fishing areas during certain periods, allowing organisms to reproduce optimally before being harvested. To preserve local cultural heritage and marine resources, identification of Sasi's numerous forms and analysis of the Sasi law areas in Ayau Island is critical due to all of them are mostly undescribed. This study aims to examine the types of Sasi law, the sanctions or penalties, and the decision-making model in the implementation of Sasi law. Also, the jurisdictional areas of Sasi law and conservation zone were mapped to identify the boundaries of the Sasi area in the Ayau Island, Raja Ampat Regency.

METHOD : This study employs primary and secondary data. Primary data was collected from 70 respondents interviewed, including local fishermen, traditional elders, and relevant stakeholders. The types of Sasi, penalties for violating Sasi regulations, and the decision-making models employed during Sasi were identified. Direct observations were also performed in the fishing ground to assess operational aspects and mark the Sasi law's region using GPS. Conversely, secondary data was obtained from the Regional Office of Marine and Fisheries Management in Raja Ampat and the Central Bureau of Statistics to identify research site boundaries and support questionnaire outcomes. Data related to the forms of Sasi law were analyzed descriptively, while the jurisdictional borderline of Sasi law was analyzed spatially using ArcGIS 10.8.1 version to generate a territorial map, and the output was also described.

RESULTS & DISCUSSION : The results indicate numerous types of Sasi in Ayau Island, categorized based on location, commodity Sasied, the executed institution, and duration. According to the implementation region, Sasi is divided into three: the red zone is the largest grouper spawning area on Ayau island, the no-take zone is a prohibited fishing area, and the utilization zone, which individual clan leaders or elders regulate. Violators of Sasi law face three levels of sanctions e.g. light, moderate, and severe. The sanctions range from communal work as the lightest penalty to fines requiring the payment of a sum of money, and expulsion from the village as the most severe sanction. Punishments in the form of warnings and fines are used to provide a deterrent effect, educate manners, and conserve resources for future generations. Decision-making in the Sasi's implementation is performed traditionally in meetings and specific rituals attended by respected elders and clan leaders. The assessment of the conservation area in Ayau Island, comprising 101,440 hectares, revealed that not all grouper Sasi areas are conservation zones. This finding demonstrates the local community's concern for the environment, as evidenced by the expansion of protected areas through Sasi's regulations, even outside designated conservation zones increasing grouper yield production.

CONCLUSION : This study concludes the existence of numerous types of Sasi in Ayau Island based on location, commodity Sasied, the executed institution, and duration implementation. The violation of Sasi law has effective and leveled sanctions. The decision-making not only educates but also plays a significant role in preserving marine resources. The jurisdictional boundaries of Sasi law reveal a contribution to the preservation of grouper resources outside conservation areas in the Ayau Island, Raja Ampat Regency.

KEYWORDS : Ayau Island, Grouper, Jurisdictional borderline, Sasi law.