

## The Role of Customary Law in Sustaining Endemic Marine Species: A Case Study of Ole Fish Conservation in Wakatobi, Indonesia

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### ABSTRACT

This study aimed to examine the existence of customary law and the interaction of the Kawati customary-law community on Tomia Island to conserve Ole fish, an endemic species thought to be found only on the Wakatobi Islands, Southeast Sulawesi. This study used a descriptive qualitative approach with data analysis involving interviews, focus group discussions, and a review of relevant documents. The results showed that Kawati customary law plays a central role in coastal resource management through rules that prohibit fishing in spawning areas, regulate the use of environmentally friendly fishing gear, and limit fishing time. Customary declarations involving various parties, including traditional leaders, local government, and conservation organizations, strengthen the legitimacy of customary law and create synergy in Ole fish conservation. This indigenous-based approach has proven to be able to maintain the sustainability of marine ecosystems while supporting the social and economic welfare of local communities. This research makes an important contribution to a custom-based marine resource management model that can be applied in other coastal areas.

### INTRODUCTION

Marine resource management cannot be separated from overall environmental management. Conservation and sustainable development are integrated resource conservation projects to improve the quality of the environment (Rajski & Papalambros, 2021; Elliot *et al.*, 2023). Modern conservation approaches increasingly utilize local wisdom through the empowerment of customary law (Touwe, 2020). In the context of Indonesian law, Law No. 32/2009 on Environmental Protection and Management emphasizes that local wisdom is one of the principles of environmental protection. This local wisdom features noble values that live in the community, often integrated with customary law that protects customary rights. Law No. 23 of 2014 on the recognition and protection of customary law in mariculture and fisheries for the sake of sustainable development, as well as Minister of Home Affairs Regulation No. 52 of 2014 on guidelines for the recognition and protection of customary-law communities, have





strengthened the recognition and protection of customary law in the management of marine and fisheries products.

Many indigenous groups around the world are currently advocating for sustainable development strategies that can benefit both the environment and society (**Sangha, 2020**). Local wisdom can be implemented synergistically with the concept of sustainable natural resource management. One example of an area that still maintains the functions of its indigenous people is the Wakatobi Islands, located in the southeastern part of Sulawesi Island, Indonesia (**Hadara *et al.*, 2017; Marlina *et al.*, 2024**). The area is known for its high marine biodiversity, including coral reefs, fish, mollusks, and marine plants. The name Wakatobi is an acronym for the four main islands: Wangi-wangi, Kaledupa, Tomia, and Binongko (**Syahadat, 2022**).

Because of its abundant natural resource potential, the Wakatobi District Government has made the marine and fisheries sector the primary focus of regional development (**Oetama *et al.*, 2018**). The model of Indigenous community engagement is crucial in conservation areas (**Patanda, 2018**). The Wakatobi Regional Government continues to develop various concepts of Indigenous participation to support the sustainable utilization of fisheries resources. According to **Hasrawaty *et al.* (2017)**, Wakatobi's local wisdom plays ecological, social, and institutional roles that are pertinent to conservation initiatives, particularly those pertaining to the fishing industry.

The Wakatobi District Government has established the marine and fisheries sector as the main sector of regional development due to its large natural resource potential (**Oetama *et al.*, 2018**). The model of Indigenous community engagement is crucial in conservation areas (**Patanda, 2018**). The Wakatobi Regional Government continues to develop various concepts of Indigenous participation to support the sustainable utilization of fisheries resources. According to **Hasrawaty *et al.* (2017)**, Wakatobi's local wisdom plays ecological, social, and institutional roles that are pertinent to conservation initiatives, particularly those pertaining to the fishing industry.

The Ole fish is one of the distinctive ecosystems found in Wakatobi National Park, especially on Tomia Island. This fish is known by the local community as an endemic species that is only found in the waters around Tomia Island (personal interview). According to a review of the literature (**Safrial, 2011; Utman, 2011; Wajali, 2011**), Ole fish is believed to be a small pelagic species and no scientific name has yet been assigned. Its occurrence is limited to June to September. The continued capture of Ole fish for human consumption is thought to potentially threaten the sustainability of its population because fishing is often conducted in roaming areas before the fish spawn.

Local fishing communities and indigenous institutions have acknowledged the decline in Ole fish populations, which is typified by smaller catches, fishing in spawning grounds, and the use of small-mesh fishing gear. There is currently very little information available in scientific journals, fisheries organizations, and other government organizations regarding the production or use of Ole fish. Therefore, this study aimed to

examine the existence of customary law and the interaction of customary-law communities on Tomia Island to conserve Ole fish. Additionally, this study will support Indigenous peoples' management of marine resources in the Wakatobi Islands, Southeast Sulawesi.

## MATERIALS AND METHODS

### 1. Time and location

This study was conducted over four months, from July to September 2024. The selection of research time was based on information from local fishermen who mentioned that Ole fish usually appear from July to September. Nonetheless, Ole fishing operations were modified in the field in order to collect data. The research location was focused on the waters of Tomia Island, which is part of the Wakatobi Islands, Southeast Sulawesi, Indonesia (Fig. 2). The island is located within the Wakatobi National Park, which is known for its high marine biodiversity. The study site was chosen because Tomia Island is considered the main habitat of Ole fish, a small pelagic species thought to be endemic to the region.

### 2. Data collection

This research used qualitative methods, focusing on community behavior in utilizing and managing Ole fish. Data collection were conducted using a combination of primary and secondary data, using several techniques to ensure that the data obtained was relevant and comprehensive.

#### 2.1. Primary data

Primary data were collected through structured interviews and focus group discussions (FGDs) with key respondents. Respondents consisted of traditional leaders (Meantu'u), traditional officials (Bonto Tooge), village heads, the Wakatobi Marine and Fisheries Service, and fishing communities on Tomia Island. The data collection process also involved pre-prepared data collection forms to systematically record field information.

#### 2.2. Secondary data

A variety of documents, including local and national regulations as well as community-wide customs and norms, are used to gather secondary data. Data sources include documents published by the Wakatobi Marine and Fisheries Agency, village documents, previous studies, books related to Wakatobi community culture, and relevant laws and regulations.

### 3. Data collection methods

This study performed both *in-situ* and *ex-situ* data collection methods. To gain a deeper understanding of the activities of Indigenous communities and the condition of the marine ecosystem on Tomia Island, *in-situ* data were gathered through direct observation at the research site. Simultaneously, *ex-situ* data were collected through the analysis of relevant documents and literature, including regulations and reports from government

agencies and Indigenous communities. This approach followed the recommendations of **Hamka (2012)**, ensuring that the data collected were both relevant and comprehensive enough to meet the study's objectives.

#### **4. Data analysis**

This research is a case study focused on the customary institutions of Tomia Island, Wakatobi Regency, Southeast Sulawesi Province. To gather primary data, the study adopts an emic perspective approach, which emphasizes the views and interpretations of respondents based on their perceptions and experiences of existing phenomena. This perspective allows for an analysis that is more relevant to the local values of Indigenous communities and provides greater contextual insight.

The data analysis process was conducted descriptively and qualitatively in three main stages. The first stage, data reduction, involved filtering information obtained from interviews, focus group discussions (FGDs), and direct observation to ensure its relevance to the research objectives. Next, the reduced data were organized and presented in the form of narratives, tables, or diagrams to aid interpretation and highlight trends related to the Indigenous communities' management of Ole fish. The final stage, conclusion drawing, involved further examination of the data to address the research questions and provide recommendations for conserving Ole fish and enhancing the role of customary law. Beyond describing factual conditions, this approach aimed to uncover meanings significant to the Tomia Island community's customary law.

## **RESULTS AND DISCUSSION**

### **1. Identification of customary management areas by indigenous people**

Wakatobi Regency, including Tomia Island, is an area of exceptional marine biodiversity, where indigenous peoples (IPs) play an important role in the management of coastal and marine resources. The region is known for its Kawati customary law system, which specifically regulates the management of land and marine resources. The role of indigenous communities in managing coastal and marine areas on Tomia Island is reinforced by the local legal framework. To maintain the sustainability of the local marine ecosystems, Regent Regulation No. 45/2018 gives Indigenous communities the authority to oversee Ole fish spawning grounds.

The role of indigenous communities in monitoring and conserving Ole fish populations is explicitly affirmed at the local level by Wawotimu Village Regulation No. 02 of 2022 and West Waitii Village Regulation No. 01 of 2022. This custom-based management aligns with studies that demonstrate how local customs, like "sasi laut" in Misool, West Papua, can support community involvement in coastal resource management and can improve the conservation of marine biodiversity (**Prasetyo *et al.*, 2020**).

A similar approach on the Kei Islands shows that custom-based management can sustain marine resources through the application of adaptive, community-based local

rules (**Hamid *et al.*, 2020**). Furthermore, the integration of customary and scientific knowledge, as demonstrated in the “papadak/hoholok” system in Rote Ndao, can provide effective guidance for the sustainable management of marine resources (**Oktavia *et al.*, 2018**).

With these regulations in place, the Kawati indigenous community has a strong framework to ensure that Ole fish utilization not only supports the welfare of the local community but also ensures the sustainability of the marine ecosystem on Tomia Island. This demonstrates the importance of involving Indigenous communities in resource management, both for ecological and socio-economic purposes. The Kawati customary territory includes marine areas that are the main habitat of Ole fish. The results of field research show that indigenous communities have designated certain areas as protection zones to support the spawning process of Ole fish. This effort shows the local community's awareness of the importance of protecting marine resources for sustainable use (**Oetama *et al.*, 2018**; **Estradivari *et al.*, 2022**).

## 2. The existence of customary law in Ole fish preservation on Tomia Island

One glaring example of how customary law can be crucial to the preservation of regional biological resources, like Ole fish, which are an essential component of the local ecosystem, is Tomia Island in Malaysia's Wakatobi Archipelago. The success of local wisdom-based approaches in managing sustainable marine resources is demonstrated by the existence of the Kawati customary law in this region. In a global context, the literature emphasizes the role of customary law in endemic species conservation and community resource management, as described by **Techera (2008)**, who mentions that customary law supports conservation by integrating traditional practices with modern formal legal frameworks.

The Kawati indigenous community employs strategies like fishing time limits and prohibitions during the spawning season. This approach is comparable to the Sasi concept in the Kei Islands, Maluku, where the local marine ecosystem is meant to remain sustainable by temporarily closing access to marine resources (**Thorburn, 2000**). This model shows how conventional methods and contemporary conservation ideas can coexist. However, there are drawbacks to customary law's effectiveness in managing horizontal conflicts. difficulties, including inconsistencies between state laws and customary law, as revealed by studies on disputes in South Africa. In these circumstances, it is essential to recognize customary law in order to include the rights of indigenous peoples in the conservation of natural resources without violating national laws (**Bishop, 2021**).

The customary declaration that was carried out in Tomia with the participation of various stakeholders was a significant step in creating a collaborative model that promotes the sustainability of Ole fish populations. This approach is in line with global recommendations to integrate customary law within broader legal frameworks to support biodiversity conservation and community-based resource management (**Techera, 2010**).

Customary law-based approaches, such as those implemented by the Kawati community on Tomia Island, illustrate how local wisdom can serve as an effective conservation tool, especially when combined with modern conservation principles and formal legal support.

### **3. Socio-cultural dimensions of Ole fish preservation**

The socio-cultural dimensions of the Kawati Indigenous community on Tomia Island play an important role in Ole fish conservation, identifying how cultural values can be the foundation for sustainable resource management. Local culture, passed down through generations, has formed a collective awareness of the importance of maintaining the balance of nature. This can be seen in customary traditions, such as the prohibition of fishing at spawning sites and the regulation of the use of certain fishing gear. These traditions demonstrate the community's understanding of the biological cycles of species and the importance of maintaining the sustainability of the marine ecosystem.

Starting the Ole fishing season with a traditional ritual reflects the Tomia community's harmonious relationship with the sea. This ritual serves as a collective reminder of the value of following customs and a way to honor ancestors, which has both ecological and spiritual significance. Similar values are found in the study by **Gupta *et al.* (2015)** on the role of religious beliefs in fish conservation in India, which demonstrates how custom-based practices can preserve local species while fostering closer ties between humans and ecosystems.

This socio-cultural dimension also strengthens social cohesion within Indigenous communities. The role of traditional leaders such as Meantu'u and Bonto Tooge is important in implementing and monitoring customary rules. Because of the strong sense of collective responsibility fostered by this social structure, breaking customs affects not just the individual but also the peace in the community. Research by **Aswani and Hamilton (2004)** on the Solomon Islands shows that social structures supported by customary values can increase the success of community-based conservation.

However, the sustainability of this socio-cultural dimension may be threatened by modernization and surges in economic activity, including tourism. As noted by **Techera (2008)**, modernization often erodes local traditions that are the foundation of preservation. Therefore, culture-based education is a crucial tactic for upholding traditional values and making sure that the next generation is aware of the importance of indigenous customs in protecting the environment. This sociocultural dimension demonstrates how a resource management system that adheres to sustainability principles can be created by fusing formal policies with customary values. By maintaining harmony between humans and nature and involving the younger generation in cultural preservation, the Kawati Indigenous community on Tomia Island can serve as a successful model of community-based conservation relevant to other regions.

### **4. Customary declarations' significance for Ole fish sustainability**

The customary declaration agreed by the Kawati indigenous community on Tomia Island is an important foundation for Ole fish conservation. The declaration shows a

shared commitment to protecting marine ecosystems by involving several parties, including local government, traditional leaders, and related agencies. This customary declaration's existence is pertinent to earlier studies that demonstrate that involving indigenous communities in the management of natural resources can be a successful tactic in addressing the threat of ecosystem degradation (Estradivari *et al.*, 2022).



**Fig. 1.** Declaration of the indigenous community on Ole fish catching and management in Kawati customary management area on Tomia Island  
(source: La Ode Arifudin, YKAN-Indonesia)

One way adaptive conservation principles are being applied is through the timing of ole fishing, which is only permitted after the spawning cycle is finished. This approach is particularly relevant in the global context, where local wisdom-based fisheries management often demonstrates Indigenous peoples' understanding of the biological and ecological cycles of target species. A study by Aswani and Hamilton (2004) showed that such custom-based arrangements can help maintain populations of threatened species, such as bumphead parrotfish On the Solomon Islands, by identifying the most critical times and locations for the species sustainability.

Additionally, an attempt is made to stop the exploitation of undersized fish by using fishing gear with specific mesh sizes, like  $\frac{3}{4}$  or  $\frac{1}{2}$  inch. This action is consistent with worldwide best practices to protect fish stocks and to reduce adverse effects on population structure. In their study conducted in Brazil, Sampaio and Ostrensky (2013) noted that regulations based on fishing technology, like catchable species lists or catch size limits, are crucial instruments for promoting the conservation of marine species and guaranteeing the sustainability of ecosystems. By regulating fishing times and selective fishing gear, the customary declaration on Tomia Island not only protects the Ole fish population but also creates an adaptive and sustainable model of community-based conservation. This model can serve as inspiration for similar initiatives in other areas facing similar threats to local biological resources.

## 5. Regulation to support Ole fish management's sustainability

The sustainability of Ole fish management in Tomia Island is strengthened by formal regulations that support the customary practices of the Kawati Indigenous community. These regulations provide legitimacy and a legal framework that strengthens the

existence of customary law in protecting coastal resources, including Ole fish, which is an important part of the local ecosystem.

A regulation that strongly supports the conservation of Ole fish is Wakatobi Regent Regulation No. 45/2018, which specifically regulates the protection and management of marine resources based on customary-law communities on Tomia Island. This regulation lays the groundwork for customary communities to be involved in the management of coastal areas in addition to promoting the application of customary rules. The rule outlines resource management procedures, such as the ban on damaging activities in Ole fish spawning grounds, as well as the rights and responsibilities of communities governed by customary law.

In addition, Law No. 1/2014 on the Management of Coastal Areas and Small Islands is a national legal policy that provides space for local-based management. This law emphasizes the importance of local wisdom in maintaining a balance between the utilization and conservation of coastal resources. This policy is put into practice on Tomia Island through technical measures of fishing gear limitations, fishing activity monitoring, and sustainable management of traditional areas.

Local governments can establish management areas for communities governed by customary law by following the guidelines provided by other regulations, such as the Minister of Marine Affairs and Fisheries Regulation No. 8/2018. This regulation is relevant to Ole fish management, as it supports coastal space utilization procedures that involve indigenous communities as the main managers. With this regulation, the Kawati Indigenous community has a stronger foundation to carry out their role as caretakers of the coastal ecosystem.

There are difficulties in putting these regulations into effect. Frequently encountered challenges include inadequate resources to support field supervision and monitoring, as well as a lack of coordination between the government and indigenous communities. Conflicts of interest between local fishermen and those from other areas are another problem that needs to be addressed. Therefore, stronger synergy between the government, indigenous communities, and other parties involved in resource management is needed. The official recognition of customary law must be followed by the development of efficient cooperation and oversight systems, as a study by **Bishop (2021)** demonstrates that a lack of coordination between the government and Indigenous communities frequently makes this situation worse.

## **6. Implementation of customary law in Ole fish conservation: Synergy of local wisdom and formal policy on Tomia Island, Wakatobi**

Indonesia is home to the world's greatest biodiversity. But it's also faced with the daunting challenge of overexploiting its marine and coastal resources in an environmentally destructive manner. These activities have reportedly led to a decline in marine products, which has resulted in losses and impacts on future generations. This requires us to manage resources that prioritize aspects of sustainability by establishing

protected areas that are regulated to protect ecosystems to ensure that they remain sustainable (Setiyono, 2016).

The results of the field search found that the implementation of customary law on Tomia Island in managing Ole Fish resources is shown in the “Declaration of Customary-Law Communities Regarding ‘Catching and Managing Ole Fish in the Kawati Customary Management Area on Tomia Island’ and the formation of a monitoring team (Heole-Olea) (Arifudin, 2023). The declaration was recognized and approved by 16 people consisting of the community, customary elders, Tomia sub-district head, East Tomia sub-district head, Wakatobi National Park officials, Tomia police chief, East Tomia police chief, Tomia and East Tomia military officers, Wakatobi Fisheries Service branch in Tomia Island, Tomia Fishermen Community (Komunto), Nature Conservation Foundation (YKAN), Tomia fishermen representatives, East Tomia fishermen representatives, women representatives, and Konta Bitara as the spokesperson for the customary area.

The six main points in the declaration include: 1) recognition of Ole fish as an endemic species of Tomia Island that must be preserved; 2) regulation of fishing areas as part of the management area of customary-law communities; 3) restrictions on fishing time after the spawning season, which is at 4 p.m.; 4) prohibition of the use of environmentally unfriendly fishing gear with a certain mesh size ( $\frac{3}{4}$  inch or  $\frac{1}{2}$  inch); 5) the obligation of customary-law communities, fishermen, and related parties to supervise activities that can damage Ole fish spawning sites; and 6) application of sanctions for violations by Wakatobi Regent Regulation Number 45 of 2018.

In addition to written rules, strong social cohesion among indigenous peoples is essential to the success of this declaration. Cultural traditions and values, such as respect for natural cycles and harmony between people and the environment, are important elements that strengthen the implementation of customary law. In practice, in order to ensure that fishing activities are carried out by the principles of sustainability, indigenous communities act as both managers and supervisors of coastal areas.

The declaration of the Customary-Law Community on Tomia Island not only contains technical rules on Ole fish conservation but also provides the basis for more focused management initiatives, such as the creation of an Ole fish range map. This spawning migration map is an important tool in supporting the implementation of the customary declaration and ensuring the sustainability of Ole fish resource management in the Kawati customary territory. One strategy highly relevant to spatial management principles is the creation of fish migration maps. It provides an understanding of migration patterns, spawning and feeding grounds, and other important areas that need to be protected. This approach demonstrates modern scientific practices used in fish conservation in many parts of the world. Research by Hermoso *et al.* (2011) in Spain illustrates the importance of identifying and protecting vital areas for endemic species to maintain sustainable populations.



The regular monitoring of the Ole fish is also an important step in ensuring the sustainability of the resource. By monitoring ole fish populations, indigenous communities are able to detect changes in population dynamics and the health of the ecosystem. Monitoring also helps ensure that customary rules and regulations, such as prohibiting fishing during spawning season, are having the expected results. The study by **Sampaio and Ostrensky (2013)** showed that regular monitoring is an essential element in supporting evidence-based conservation policies, especially in the management of vulnerable marine species.



**Fig. 3.** Establishment of Heole-Olea team and implementation of Ole fish monitoring (source: La Ode Arifudin, YKAN-Indonesia)

Fish migration and monitoring maps also allow Indigenous communities to adapt their management strategies to changing environmental or anthropogenic pressures, such as increased tourism or climate change. This is in line with the concept of adaptive management, which emphasizes the importance of flexibility and responsiveness to ecosystem dynamics. These efforts are an example of how a combination of local wisdom and scientific approaches can lead to effective resource management models. Migration maps and regular monitoring not only ensure the sustainability of ole fish populations but also increase the capacity of indigenous communities to protect the marine ecosystems on which they depend. Other regions facing similar challenges can be inspired by this community-based approach.

## CONCLUSION

The study indicates that Kawati customary law plays an important role in the conservation of ole fish on Tomia Island. The existence of customary law is supported by customary rules governing fishing, monitoring of spawning areas, and the use of environmentally friendly fishing gear. The interaction of customary communities with local government and conservation organizations creates effective collaboration in marine resource management. This Indigenous, community-based approach has great potential to support ecosystem sustainability and the well-being of local communities, and can serve as a model for coastal resource management in other areas.

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