

LAW ENFORCEMENT MODEL BASED ON LOCAL KNOWLEDGE AND FORMAL LAW IN SAVING CORAL REEF DESTRUCTION IN SPERMONDE ISLANDS

ANDI KURNIAWATI¹, FARIDA PATITTINGI¹, MARWAH¹, ANDI BATARI ANINDHITA¹, JUWITA SEPTIANA APRISAL¹, JELITA SEPTIANI APRISAL¹, RIZKAL NUR¹

¹Faculty of Law, Hasanuddin University

Abstract: *The purpose of this research is to describe a law enforcement model based on local knowledge and formal law in preserving coral reefs in the Spermonde Islands. The method used is a literature review. The data collection technique was carried out using the PRISMA method which resulted in inclusion of 17 journals, then were analyzed using thematic analysis techniques. The result shows that the damage happened to coral reefs in the Spermonde Islands was caused by human activities related to the use of fishing gear and destructive fishing methods which damaged coral reefs. Local knowledge combined with formal law is an effective solution as an effort to save the damage to coral reefs in the Spermonde Islands. This solution can be realized and has a good impact on the sustainability of coral ecosystems which in line with SDG'S point 14.*

Keywords: *Law Enforcement Model, Local Knowledge, Formal Law, Spermonde Islands.*

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INTRODUCTION

Spermonde Islands is an archipelago area located in South Sulawesi Province. The Spermonde Islands stretches from Takalar Regency, Makassar City, Pangkep Regency, to Barru Regency. The islands consist of 121 islands with an area of about 2500 km². (Jompa, 2010. Glaeser et al, 2019). The Spermonde Islands have a highly diverse of coral reef, consisting of 78 genera and sub-genera, also included as the world's coral triangle area with a total of 262 species, and about 80-87% found in the outermost reef areas (Jompa, 2010).

The beauty of the Spermonde Islands makes this area a tourist spot, such as the romantic island landmark 'cangke' and also the tale of neneka (whale shark) that appears in the period of September-November in the water of Kapopposang. In addition, it is well-known for snorkelling, beach camp, diving, and other beach tourism. The islands are also the main economic source of coastal communities, as well as the largest supplier of high-quality fish in the city of Makassar, in which its advantages highly depend on its coral reefs (Djapari, 2014). Unfortunately, in the last 12 years there has been a decline in live coral levels caused by several factors, including fishing that is not environmentally friendly such as using bombs, drugs and the use of cantrang which has damaged the coral reef (Ilham et al. 2017). Based on several studies that have been carried out, it is estimated that around Rp. 30 million to Rp. 1 billion per year the loss will be experienced by the Spermonde Islands if the coral reef ecosystem gets severely damaged. Losses will not only be experienced by fishermen or fisheries business actors, but local governments will also lose its regional income from the tourism



sector (Marzuki, 2019). Therefore, the coral reefs in the Spermonde Islands area are now under real threat.

In addition, there are several relevant studies on coral reefs previously conducted in the Spermonde Islands. However, most of the research conducted, it only focuses on the damage on coral reefs that are attempted to be conserved with several methods that refer to the marine science field. These studies include research conducted by Ilham and Dody Priosambodo in 2017 regarding the coral cover on Baranglombo and Bone Batang islands using the reef check method. Ismail Marzuki in 2019, conducted research regarding the conservation of marine biota in the triangle area for the economic development of marine tourism, ports, and the integrated Center Point of Indonesia in the work area of the Makassar City Fisheries and Agriculture Office, especially in the Spermonde Islands.

In fact, to save the damaged coral reefs in the Spermonde Islands can not only be solved by using marine science alone, yet there are also progressive efforts in the field of law. For now, the formal law regulating coral reefs is contained in Law No. 32 of 2009 on Environmental Protection and Management. However, local community activities such as exploitation of fish that are not environmentally friendly that have an impact on coral reefs are still being practiced. It is clear that there is a lack of concern about what has been regulated in Law No. 32 of 2009 concerning Environmental Protection and Management which regulates the damage to coral reefs. (Fadillah, 2018).

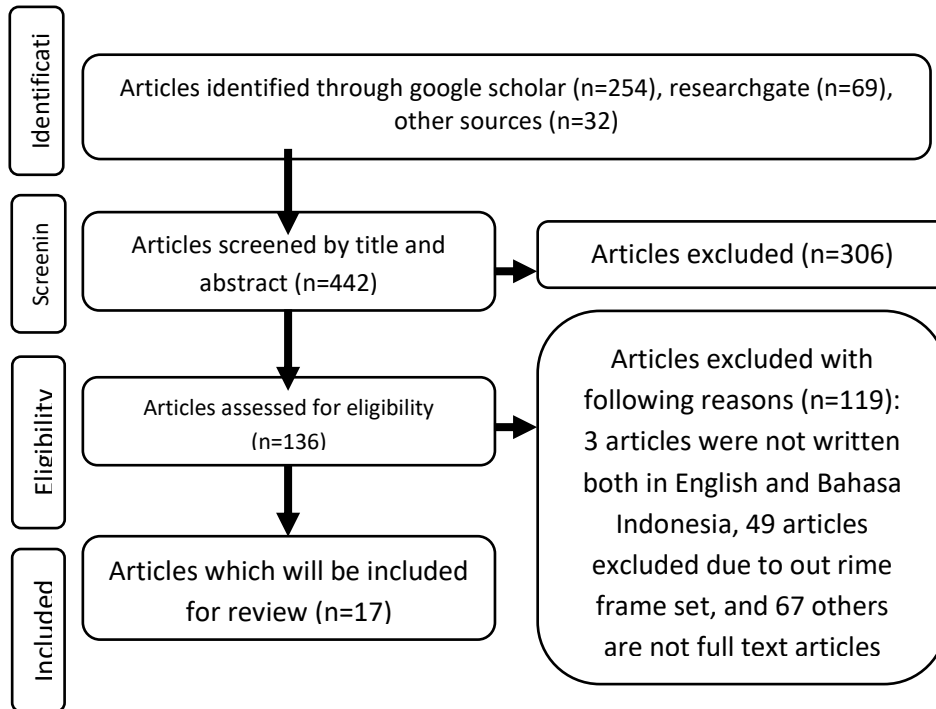
Not only this regulation, since the enactment of several other regulations, all cases of coral reef destruction from 1994 to 2020 have not experienced a significant decline (Destructive Fishing Watch, 2020). In addition to laws and regulations that play role in regulating coral reef destruction activities, there are also several studies that show that local knowledge can be the most functional instrument. It also plays a role in preserving and maintaining the survival of marine biota. Local knowledge that is in the form of rules which to limit fishing behavior, to limit certain fishing gear and can also be in the form of total closure of a location (Raodah, et al., 2017).

Formal law and local knowledge turn out to have a close linkage. It is in line with what Soerjono Soekanto stated, that law is considered an expression of local knowledge, meaning that the rule of law must be studied and understood functionally from local knowledge (Rosana', 2014). This is also in line with the opinion of Brian Z. Tamanaha, who said that the law is a reflection of society (Widodo, 2013). Therefore, starting from the problems above, a solution is needed to restore the damage to coral reefs in the Spermonde Islands.

The form of effort proposed as a solution is by establishing of a law enforcement model based on a combination of local knowledge and formal law. This solution is the latest idea and has high creativity in preserving the aquatic ecosystem, especially coral reefs. This idea is relatively new because prior to this narrative review was composed, no study had ever been conducted in the Spermonde Islands regarding this law enforcement model. Thus, this is the main goal in writing this narrative review. The contribution of the field of law and local knowledge is developed into a new approach so that it can enrich knowledge in the field of marine conservation in the Spermonde Islands. This narrative review explains how the model of law enforcement based on local knowledge and formal law in restoring the damage to coral reefs in the Spermode Islands. The destruction of coral reefs due to uncontrolled human activities in managing marine resources is not in line with SDG's point 14 regarding the sustainable management of marine resources. For this reason, good law enforcement is needed to prevent the activities of destroying coral reefs in the Spermonde Islands.

1. METHODOLOGY

The methodology used is literature review. Literature review is a systematic method to identify, to evaluate, and to synthesize research results and ideas that have been produced by previous researchers. The inclusion criteria used are articles from 2010-2020. The literatures were collected using the PRISMA (Preferred Reporting Items For Systematic Reviews and Meta-analyses) method (Handayani, 2017) as follows:

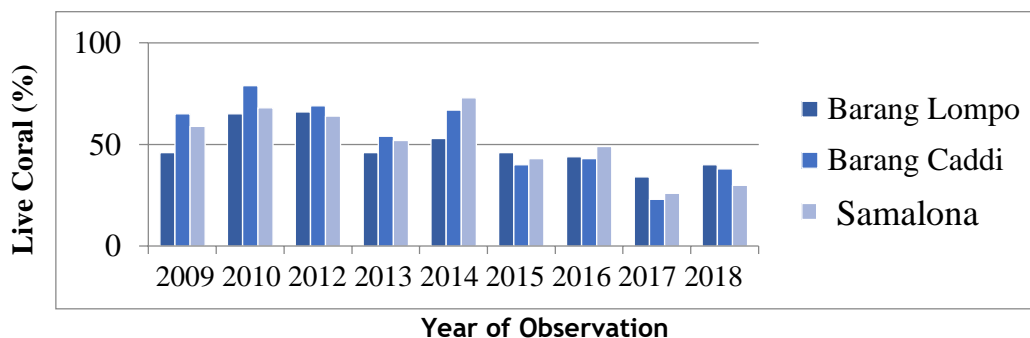


2. RESULT AND DISCUSSION

2.1 Current Condition on the Damaged Coral Reef in Spermonde Islands

Damage happened to coral reefs due to human activities is related to the use of fishing gear and environmental-unfriendly fishing methods, for example, the use of bombs, the use of drugs, and the use of cantrang. Data from DFW stated that 26% of fishermen in the Spermonde Islands catch fish using tools which can damage coral reef ecosystems. As many as 68% use bombs that cause coral reefs to be destroyed and die. As many as 27% use drugs that blacken the coral reefs and then become porous and destroyed, 5% use both. Meanwhile, the use of cantrang which dredges the bottom of deep waters and coastal waters is no exception. The use of cantrang destroys coral reefs which are the spawning sites for marine life. Although cantrang avoid coral reefs, but small groups of live coral at the bottom of the water will also be washed away and get damaged. (Vika Kartika, 2017)

In some locations in archipelagic waters, signs of the use of destructing and non-environmentally-friendly fishing gear such as bombs and drugs are still found (Muh. Nurdin et al., 2019). This was influenced by the economic needs, the simple fishing gear used to catch fish was not able to meet their daily needs so the worst way was that they use fishing gear that destroys coral reef ecosystems (Ismail Marzuki, 2019). The presentation of live coral reefs based on the monitoring of coral reef damage carried out by the MSDC (Marine Science Diving Club) Hasanuddin University for the last 9 years can be seen in the following graph:



Graphic 1. Monitoring Reef Check in 2018



Source: MSDC (Marine Science Diving Club) Hasanuddin University

Live coral cover on Barrang Lompo Island was recorded at 40% (moderate category) and Barrang Caddi Island at 38% (moderate category) and Samalona island 30% (poor category). Therefore, the coral reefs in the Spermonde Islands are in concerning condition, so that an effective solution is needed to maintain the sustainability of the coral reef ecosystem.

2.2 Local Knowledge of Community in Spermonde Islands

Local knowledge on maritime issue in Indonesia has become an interesting discussion and has urgent importance in relation to the rehabilitation and environmental management of marine ecosystems. Local knowledge of fishing communities is understood as cultural knowledge. This knowledge includes values, norms and beliefs that underlie the cultural behavior of fishing communities in utilizing marine resources in a sustainable manner (Munsi Lampe, 2012). The knowledge passed down by their ancestors, actually proved beneficial. This can be seen from the preservation of the environment with traditional method, so that in the use of marine resources without causing significant damage in the long term. However, with the increasing population and the development of incoming technology, it has caused environmental damage and environmental imbalance due to the use of technology that does not pay attention to environmentally friendly aspects (Nurlia Ali, 2019).

Before exploring further about the local community knowledge of Spermonde Islands in the practice of conservation and utilization of marine resources, there are several local knowledge of marine conservation. The local knowledge of marine conservation is in line with the aims and objectives of marine management and utilization aiming towards the sustainability and preservation of marine ecosystems. Some of them are on the Webula. In this area there is a relevant customary system, namely kaombo. Kaombo is a marine protected area established to ensure the sustainability of marine life in a sustainable manner. This utilization pattern is intended to avoid the sea as an open access area (Mustari et al. 2019). Like the one in Webula, the islands in the Spermonde in Makassar also has local knowledge in conserving the sea, one of which is based on research conducted by Nurlia Ali et al. in Bonetambu. Bonetambu has local knowledge in maintaining traditional values related to island and sea conservation as follows:


| Objectives | No | Applied Local Knowledge |
|--------------------|----|--|
| Water Preservation | 1 | Determination of time, weather and season before fishing |
| | 2 | Keep the use of environmentally friendly fishing gear in catching fish |
| | 3 | Preserving coral reefs |
| | 4 | Conduct ritual before using new boat and fishing gear |
| | 5 | Preserving the good fishing tradition |
| | 6 | Treat the sea as God's creation that every fisherman must take care of |

Table 1. Local knowledge on sea conservation in Bonetambu
Source: Data processed (Nurlia ali, et al, 2019)

Therefore, if we explore more deeply about the local knowledge found in the Spermonde Islands, it can be seen based on the location of the island group. So the most related and appropriate local knowledge is the local knowledge found in Bonetambu, the knowledge in preserving the sea in Bonetambu can also represent local knowledge in the Spermonde Islands geographically.

2.3 Formal Law Regarding Coral Reef Protection in Spermonde Islands

Law enforcement efforts to tackle and prevent the damage to coral reefs are a very important component in achieving the objectives of coral reef management programs. For perpetrators of coral reef destruction, there must be an element of wrongdoing which against the



law. Based on the formal law i, the perpetrator can be sentenced according to Article 98 paragraph (1) of Law No. 32 of 2009 concerning Environmental Protection and Management. In addition, there is also Law No. 27 of 2007 concerning Management of Coastal Areas and Small Islands as well as the application of criminal provisions against perpetrators of destructive crimes against coral reef ecosystems and Article 73 paragraph (1) letter a. (Fadilah, 2018).

In South Sulawesi, efforts to minimize the damage to coastal and marine ecosystems, the provincial government have issued policies in the form of South Sulawesi Provincial Regulation No. 7 of 1987 concerning the Prohibition of Exploitation and Destruction of Coral Rocks along the coastal waters of South Sulawesi Province. In addition, there are other regulations such as Law No. 1 of 2014 concerning Amendments to Law No. 27 of 2007 concerning Management of Coastal Areas and Small Islands, Law 45 of 2009 concerning Fisheries, and Law No. 23 of 2014 concerning Regional Government. Talking about formal laws concerning coral destruction, many have made. But in fact, the regulation does not have a significant impact on the preservation of coral reef, and even coral reef destruction during fishing activities (cyanide bombing) are still ongoing. This is supported by several examples of fish bombings cases found which damage corals according to DFW (Destructive Fishing Watch) study in 2003. Based on this research, in 2001 on Papandangan Island 3 people died from bombs, in 1994 on Bonetambu Island 1 person died from a bomb. when throwing, on the island of Labbu Tallua the bomber and his jolorok were confiscated by the Mappakasunggu police, which continues to this day. Meanwhile in 2020, 5 Makassar fishermen damaged coral reefs in Pangkep. These fishermen operate in a restricted area, a conservation area.

Substantially, according to laws and regulations, the prevailing policies in coral reef management tend not to address the root causes of coral destruction even though there are many formal laws that regulate it. Therefore, it is necessary to establish law enforcement model as soon as possible that is able to prevent the destroying activities of coral reefs.

2.4 Law Enforcement Model Based on Local Knowledge and Formal Law

Local knowledge becomes a blue print of behavior that provides guidelines on what to do, what is permissible to do and what not to do. Formal law and local knowledge are both closely related. Then how the potential of local knowledge itself can be an ingredient in enforcing the law in Indonesia. Talking about law enforcement, it discusses the whole process of functioning legal norms as a guide to behavior or legal relations in the life of the nation and state (Sri Sulistyawati, 2018).

As one model of law enforcement based on local knowledge and national law was written by Ahmad Ulil Aedi in 2019, regarding the settlement of minor crimes in the development of the national legal system. Meanwhile, PKM implementers design a law enforcement model based on local knowledge and formal law in saving coral reef in the Spermonde Islands which begins by mapping the condition of damaged coral reef in the Spermonde Islands. The conditions of damaged coral reef referred here are divided into categories of low, moderate or severe. Then, qualifying the acts of destroying coral reefs such as the use of bombs, the use of drugs, the use of cantrang and then deciphering the impact of the damage caused by the action. From some of the destructive actions, then explain the existing problem settlement system related to destruction of coral reef such as how to sanction according to formal **knowledge/law** or sanctions from local knowledge. If the problem settlement system has been described, it is necessary to apply an effective awareness model for all stakeholders in the Spermonde Islands using the approach of Lawrence M. Friedman, namely the structure related to internal reform, law enforcement agencies must be carried out consistently and sustainably, the substance is related with law enforcement. Together with judges and advocates, they must carry out their respective duties properly so that public trust will increase, and the last is legal culture related to public awareness of the law, and how law enforcement is in line with community habits, in this case local knowledge. Then, the enforcement model that is made must also ensure that formal laws must be combined with local knowledge of the Spermonde Islands local community.

This law enforcement model can provide justice, legal certainty, and equality before the law for all stakeholders in the Spermonde Islands. This model is aimed at preventing the perpetrators of destroying coral reefs in the Spermonde Islands, realizing sustainable marine resources in the Spermonde Islands and preserving coral reefs in the Spermonde Islands. When the Covid-19 pandemic

ends and offline/field research can be carried out, then the designed law enforcement model can be discussed jointly by all stakeholders in Spermonde Islands and can be applied directly to save coral reefs in the Spermonde Islands.

3. CONCLUSION

Based on the literature review used in compiling this narrative review, several facts were found based on the results of previous researchs on coral reefs in the Spermonde Islands. The law enforcement model based on a combination of local knowledge and formal law can reduce the number of perpetrators of coral reef destruction and become a new reference in the sustainable management of marine resources.

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