

Research Article

Investigating law enforcement for coral reef conservation of the Spermonde Archipelago, Indonesia

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ABSTRACT

The coral reef ecosystem in the Spermonde Archipelago manifests great potential in ecosystem services. However, it has been degraded to “severely damaged”. In this study we investigated the law enforcement related to coral reef conservation, especially the damage caused by destructive actions. We used mixed qualitative and quantitative methods. We explored existing laws, conducted semi-structured interviews with 6 informants (five fishermen and one judge), collected data on regional convictions data, and surveyed 48 respondents with a quantitative questionnaire, in 5 sampling sites: South Galesong District, Takalar Regency; Kodingareng Lompo Island, Sangkarrang District Makassar city, Kapoposang Island; Sarapo and Papandangan Island; Pangkajene and Kepulauan Regency. This study detected 26 destructive cases, in which the perpetrators were found guilty by the court with the consideration that their actions damaged the coral reef ecosystem. The perpetrators used bombs, cyanide, and *cantrang* nets to catch fish and collect corals for trading. The imposed sentence was mild and far from the maximum penalty, both in imprisonment and fine. Notably, none of the perpetrators were sentenced to half of the main legal threats. 96% of (n = 48) respondents in our study area disagreed with the mild penalty. A mild penalty may not provide deterrent effects to the perpetrators or others who have an intention to conduct similar activities. The questionnaire showed that most of the locals know about the conservation area (66%) and its regulation (88%). The best solution to strengthen the conservation effort is to quickly establish a fisheries court in Spermonde Archipelago, which is also supported by locals (92% agreed to the establishment). A fisheries court could examine, adjudicate, and decide fisheries criminal cases, such as illegal fishing and destructive fishing within their jurisdiction. The court could be established by Presidential Decree and it will be under supervision of the Supreme Court of Republic of Indonesia.

Key words: corals, destruction, criminal law, Spermonde Archipelago

INTRODUCTION

In Southeast Asia, coral reef damage has been particularly severe. 88% of coral reefs in this region are endangered, of which approximately 50% are categorized as at high risk and 12% are categorized as at very high risk (Burke, *et al* 2012; Haya, Fujii, 2020). The quality and the number of corals are declining rapidly on a global scale because of the combined pressures of climate change, overexploitation, coral disease, and water quality degradation (Teichberger *et al*, 2018; Bruno & Selig, 2007; Mellinat *et al.*, 2016; Pandolfiet *et al.*, 2005; Diaz-Pulido *et al.*, 2009). Several sites are categorized as threatened, including the waters and coastal areas of Makassar City, Pangkajene Kepulauan Regency, KKPN (*Kawasan Konservasi Perairan Nasional*–National Marine Conservation Area) Kapoposang, and Takalar Regency of Spermonde Islands. From the 43 sites in Spermonde Archipelago, those that were classified as excellent and good have greatly reduced over some time; only 2.3% (n = 1) of the total sites are considered excellent, 20.9% (n = 9) are good, while the rest are classified as fair (41.8%; n = 18), and poor (34.8%; n = 15) (Hadi *et al*, 2018). The coral reefs classification was determined by the Indonesian Institute of Sciences (LIPI) based on the living coral cover; excellent

(75-100% of living coral reef), good (50-74.9%), fair (25-49.9%), and poor (0-24.9%).

There are two conservation areas in the Spermonde waters: the National Water Conservation Area (Kapoposang Marine Tourism Park) and the Water Conservation Area of Pangkajene Regency (Figure 1). Previously, Kapoposang Marine Tourism Park was under the management of the Ministry of Forestry.

Based on Law No. 27/2007, this area is currently under the management of the Ministry of Maritime Affairs and Fisheries. Based on the Minister of Maritime Affairs and Fisheries Ministerial Decree No. 66/Men/2009 Kapoposang Marine Tourism Park has been appointed as a National Water Conservation Area and Aquatic Tourism Park. Furthermore, the South Sulawesi Provincial Regulation No. 2 of 2019 was established, concerning the Plan for Water Area Zoning into 3 new locations in the Regional Water Conservation Area: LiukangTupabiring KKPD (*Kawasan Konservasi Perairan Daerah* – State Marine Conservation Area), LiukangTangngaya KKPD, and Tanakeke KKPD. The establishment of KKPD involved several steps: community or regional government initiative; investigation by regional government/university; site selection and reservation by the governor; preparation of KKP

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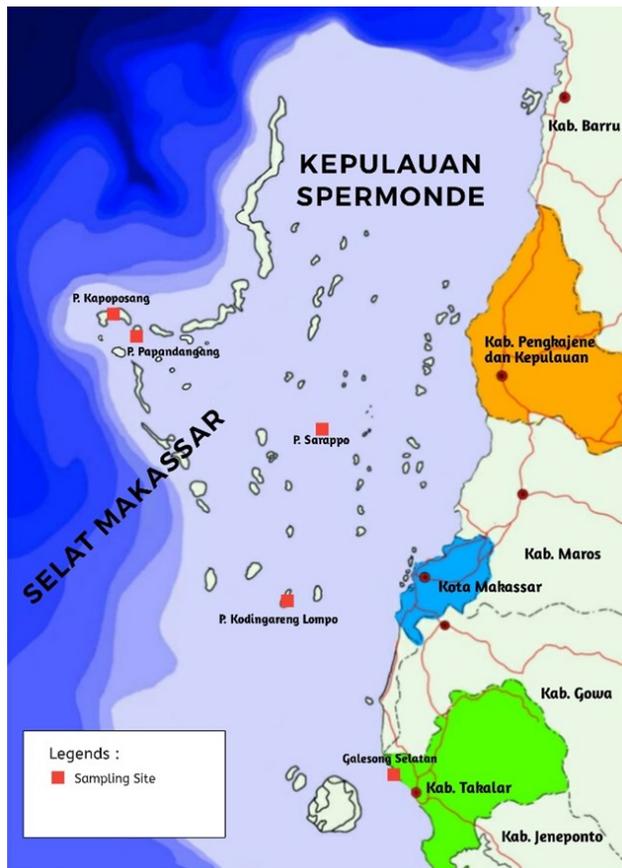


Figure 1. The map of the study sites. Spermonde Archipelago is located in Makassar Strait. (Source: Marine and Fisheries Agency of South Sulawesi: Kench and Mann 2017: Modified by authors).

management plan and zoning plan; decision making by the Minister. Pangkajene Regency and Island Region Water Conservation Area were established based on the Regent Decree No. 209 of 2015.

Underwater documentation of Spermonde Archipelago, precisely on BarrangLompo, BarrangCaddi, and Kodigareng Islands, was carried out by Green Peace

Indonesia in collaboration with the Marine Science Diving Club of Hasanuddin University. This documentation reported the evidence of coral reef damage caused by explosives and potassium cyanide usage. Unfortunately, the damage may be worsened in the absence of strict supervision and strict law enforcement (Green Peace Indonesia, 2019).

Legal norms and sanctions: the criminal law enforcement in environmental protection

The law enforcement of coral reef protection falls under the framework of the legal system, which is a combination of 3 main elements: legal structure, a legal substance, and legal culture (Friedman, 2015.). In the national legal system, law Number 12 of 2011 about Legislation Formation is considered as the umbrella legislation on local (regional regulations), national (government regulations), or global (international instruments that have been ratified) scale, as it can synergize the existing laws and minimize overlapping laws (Satakeet *al.*, 2008; Green *et al.*, 2014; Green &Perrings, 2014; Benson &Garmestani, 2011, Bridge, *et al.*, 2013).

The substance of environmental law related to coral reef protection is regulated by two Indonesian legislations. These two constitutions do not specifically regulate coral reefs, rather they regulate the management of coastal areas and small islands, as well as fisheries. Notably, several articles regarding the usage of legal substance for reef protection in the form of prohibitions and criminal sanctions, including the imprisonment time and/or fines, are regulated by the Law (Table 1).

Sawallet *al.* (2013) conducted a study in Spermonde Archipelago about the coral reef restoration efforts after the reef was damaged by eutrophication and blast fishing. The problem faced by the Spermonde coral reef ecosystem is not only excessive fishing but also destructive fishing practices, especially the use of poisons (potassium cyanide) and bombs, which contribute to the marine ecosystem destruction. Historically, explosives were used since World War II, particularly since fisher were taught to assemble explosives by the Japanese army. The technological developments were

Table 1. The legal substance of coral reef protection

Legislation	Prohibitions	Criminal Sanctions
<i>Law No. 27/2007 about the Management of Coastal Areas and Small Islands (Paragraph 1 of Article 73)</i>	Mining coral reefs that result in damaging coral reef ecosystems. Collecting corals in the conservation area. Utilizing explosives, poisonous chemicals, and/or other materials that damage the coral reef ecosystem. Utilizing equipment and/or method that damage the coral reef ecosystem.	Imprisonment for a minimum of 2 years and a maximum of 10 years, and a minimum fine of IDR 2,000,000 (approx..USD 141) and a maximum of IDR 10,000,000. (approx..USD 706)
<i>Law No. 31/2004 Amendment to Law No. 45 of 2009 Concerning Fishery</i>	Article 84 (1) Intentionally conducts fishing using chemicals, biological materials, and explosives within the territory of the Republic of Indonesia fisheries management.	Imprisonment for a maximum of 6 years and a maximum fine of IDR 1,200,000,000. (approx. USD 84,678)
	Article 85 Intentionally conducts fishing using prohibited equipment within the territory of the Republic of Indonesia fisheries management.	Imprisonment for a maximum of 10 years and a maximum fine of IDR 2,000,000000. (approx. USD 141,130)

followed by the advancement of destructive fishing, which utilized bombs made of fertilizer and kerosene instead of dynamite (Nurdinet *et al.*, 2016, Pet-Soede, & Erdmann, 1998a, Newton, *at al* 2007, Linfield, *at al* 2016, Haya, Fujii, 2019).

Another study was carried out by Nurdin&Grydehoj (2014) who focused on the influence of the patron-client system (or known as *punggawa-sawi* by the locals) toward destructive fishing in the Spermonde Archipelago that the *sawi* (the client) was forced to do destructive fishing due to the debt to the *punggawa* (patron); this had been the practice for generations and created a local governance. Nurdinet *et al.* (2016) also conducted a study focusing on the coral reefs destruction due to the destructive fishing in the Spermonde Islands; the destructive fishing practice had been done for 44 years and the consequences were felt, but the local fisher were forced to do it due to economic pressure. However, the law enforcement in coral reef conservation has been poorly investigated. Therefore, the main objective of this study was to investigate the law enforcement of coral reef conservation, particularly the damage caused by destructive fishing and coral mining in the Spermonde Archipelago conservation areas. Specifically, the study addresses the issue of how the coral reef protection law has been properly implemented in the Spermonde Islands, local reaction to the judge's sentence to uphold the said law, how aware locals are of existing laws, and the reaction of locals to the idea of marine court in their area. The study analyzed 26 judge sentences in court with jurisdiction to the Islands (Pangkajene and Archipelago District Court, Makassar District Court, and Takalar District Court), and collected local sentiment and other social science data at 5 sampling sites (South Galesong Takalar Regency; Kodingareng Lompo Island Makassar city; Kapoposang Island, Papandangan Island, and Sarappo Island Pangkajene and Kepulauan Regency). Specifically, we used a questionnaire with 2 focuses in its questions (the act of coral reef protection and the law protection about coral reef), and a semi-structured interview about coral reef protection and its law.

MATERIALS AND METHODS

(i) regional convictions data

The conviction data was obtained from the investigation record on the court's judgments from 2016 to 2018. These conviction data had the permanent force through the directory of the Supreme Court, which is then followed up in the Pangkajene and Archipelago District Court, Makassar District Court, and Takalar District Court. A total of 26 conviction data were selected based on its relevancy with the study objective and the scope of laws mentioned in table 1, where 21 cases were recorded from Pangkajene and Archipelago District Court and 5 from Takalar District Court. Also, 2 conviction data regarding the possession of explosive material by fishers were recorded in Makassar District Court. However, the legal basis for these conviction records was the Firearms and Explosives Law. Therefore, we decided to not include the data from Makassar District Court due to its irrelevancy with the study objectives.

(ii) questionnaire

The study data was collected from 4th February to 27th July 2019 in Spermonde Archipelago, Sulawesi, at 5 sampling sites: South Galesong Takalar Regency;

Kodingareng Lompo Makassar city; Kapoposang Island, Sarappo Island, Papandangan Island; Pangkajene & Archipelago Regency (Figure 1). The survey team consisted of 4 fisheries students and 3 law students who had been trained to gather data. The study was approved by the ethics committee of the Institute of Research and Community Service at Bosowa University (certificate no. 209/LPPM/Unibos/X/2020). The identities of respondents and informants were not exposed per ethical compliance.

Fifty respondents were chosen proportionally with these details: 25 fishers (50%), 10 fish skippers or fisher ship captain (20%), 10 village officials (20%), and 5 community leaders (10%). The number of respondents was determined based on the correlation of each occupation with the study objective. In this case, the fisher is considered to be directly related to the study subject, followed by the fish skippers who collect the fisher's catches, then the village officials who understand the governance structure and the regulation in the village scope, and finally the community leaders who are the role models of fisher and understand the community culture. The fisher respondents were selected using a structured tracking on 3 groups of fishers from the three largest fishing landing sites, namely Pao-tere Makassar, Galesong Takalar, and Labak-kang Pangkep. The basic data, such as name, address, age, and education level, were collected to support the main data. The respondents were requested to fill out a questionnaire that was previously explained by the survey team, in Bahasa Indonesia. All surveys and interviews were conducted in Indonesian, the local language of the respondents. The interview was conducted with six key informants: 2 water police who served in Makassar Strait, 1 person from a nautical NGO, and 2 community leaders (1 person from Papandangan Island and 1 person from Sarappo Island). The questionnaires consisted of 2 topics, the act of coral reef protection with 11 items, and law enforcement related to coral reef protection with 12 items. The questions revolved around these topics: respondents' knowledge about coral reefs; the awareness about the conservation area status; the awareness to the destruction of said conservation area by some perpetrators; the opinion about the judge's sentence, law socialization, and the establishment of fisheries court in the area.

RESULTS

Coral reef conservation law violations

The cases involving coral reef destruction in conservation areas, including our study sites, were mostly related to destructive fishing using illegal nets, explosives, and cyanide (Figure 2).

According to the record, there were 26 destructive cases involving 34 perpetrators who were found guilty by the courts. Most of these cases occurred in Pangkajene & Archipelago Regency (21 cases) and a few (5 cases) occurred in Takalar Regency. However, there were no cases recorded in Makassar. Some cases were committed by more than one perpetrator, which resulted in a different number between the recorded cases and the number of perpetrators. The details of the violations were 13 cases were convicted under violation of Paragraph 1 in Article 84 of Law No. 31/2004, 5 cases were convicted under violation of Article 85 of Law No. 45/2016, and 8 cases were convicted under

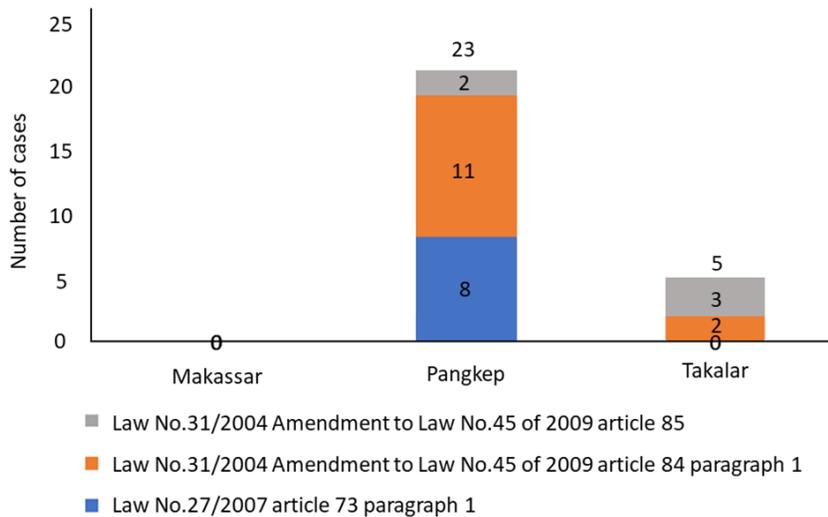


Figure 2. The number of cases convicted by the courts located in the study sites (Source: The Directory of the Supreme Court of the Republic of Indonesia 2019).

violation of Paragraph 1 in Article 73 of Law No. 27/2017.

Most of the perpetrators were fisher who lives near the crime sites and some were coming from another area. Two forms of actions are considered as destructive by the judge: (1) fishing using cyanide, trawls, or a bomb made of ammonium nitrate fertilizer that was placed in a bottle or other container equipped with a detonator; and (2) coral mining in the conservation area for a trading purpose (Figure 3 and Figure 4). According to the regulation of the Minister of Maritime Affairs and Fisheries No. 2/Permen-KP/2015, the prohibited fishing gears are Trawls (bottom trawls, midwater trawls, twin trawls, push trawl) and Tine Trawlers/seine nets (beach seines and boat or vessel seines, which consist of dongles/danish seines, Scottish seines, pair seines, *payang*, *cantrang*, and lampara bottoms).

The selected 26 convicted cases could be categorized into three forms of environmental law violation as described in table 2.



Figure 3. *Cantrang* net. The *cantrang* is lowered to the sea bottom and pulled by the ship. Its destructive power will damage the coral reefs. The picture is taken from the documentation of the Department of Marine Affairs and Fisheries of South Sulawesi Province.

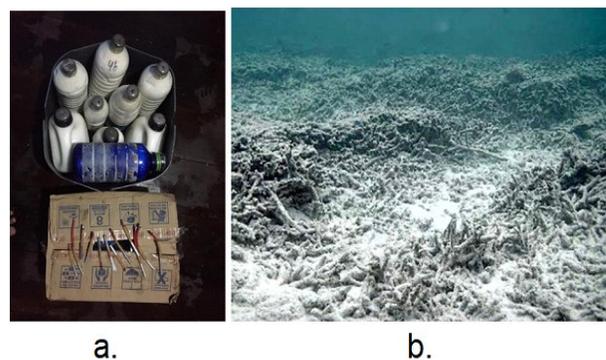


Figure 4. (a) The fish bombs; (b) The damage of fish bombs. Fish bombs are packaged in bottles of mineral water, containing ammonia nitrate and detonators. The data is taken from the South Sulawesi Marine and Air Police Documentation.

Based on the above-mentioned cases, all of the perpetrators were imposed with minimum sentences, with an average sentence of 2 years in prison and a fine of IDR 2 billion for coral mining in conservation areas, and 7-8 months imprisonment with a fine of IDR 1 million for violations of the Fisheries Law.

Questionnaire results

The respondents consisted of 42 men and 8 women with diverse education levels from junior high school (29 people), senior high school (18 people), and bachelor’s degree (3 people) (Table 3). The 50 respondents were spread from 5 sampling site, 15 from Kodingareng Lompo Island, 27 from Pangkajene and archipelago regency with 9 each from Kapoposang, Sarappo, and Papandangan island, and the last 8 from South Gale-song district.

Notably, most respondents (96%; n = 48) disagreed with the light criminal sentences imposed on the perpetrators, particularly if it was less than half of the maximum sentences. In addition, the majority of local respondents (92%) agreed with the idea of establishing fishery courts in the Spermonde Archipelago.

Table 2. The convicted case of environmental law violation

No.	Violation	No. of cases	Maximum Sentence		Judge's Sentence	
			Imprisonment	Fine*	Imprisonment	Fine*
1	Coral reef mining in the Kapoposang conservation area	8	2 years minimum and 10 years maximum	IDR 2,000,000,000 (approx. USD 141,130) minimum and IDR 10,000,000,000 (USD 705,651.00) maximum	2 years	IDR 2,000,000,000 (approx. USD 141,130) and 1 month of imprisonment subsidiary
2	Fishing using chemical/potassium cyanide and explosives	14	Maximum of 6 years	Maximum IDR 1,200,000,000 (approx. USD 84,678)	IDR 18 months for 2 persons and 7 months for 12 persons	IDR 50,000,000 (approx. USD 3,528) and 3 months of imprisonment subsidiary
3	Fishing using prohibited tools	4	Maximum of 10 years	Maximum of IDR 2,000,000,000 (approx. USD 141,130)	IDR 10 months	IDR 1,000,000 (approx. USD 71)

Source: Pangkajenne State Court and Takalar State Court

*IDR: Indonesian Rupiah

Table 3. Respondent's demographic

No	Respondent's characteristic	N
1.	Age (years old)	
	17-25	5
	26-30	8
	31-35	15
2	Latest Education	
	Junior High School	29
	Senior High School	18
	Bachelor degree	3
3	Occupation	
	Fishers	25
	Fisher ship captain	10
	Village officials	10
	Community leader	5

DISCUSSION

Related laws to coral reefs destruction

The violation potential in Pangkajenne and Archipelago District is higher than Takalar District, due to the higher potential for fisheries and coral reef value in the three study locations. Pangkajenne and Archipelago Regencies have a large water area and a quite number of small islands with a total of 115 islands, where 73 of them are uninhabited. Its land area is 89.829 km² and the water area is 11,464 km² with a good reefs distribution and quality. Kapoposang National Marine Protected Area and Liukang Regional Marine Protected Area are located in Pangkajene and Archipelago Districts. Takalar Regency also has a marine area and small islands but not as large as Pangkajene Regency and the Islands and the area was not listed in the area with coral reefs anymore. However, the locals still found some coral reefs, even though it was already significantly decreased. With the high potential of fisheries, it becomes the attraction of fishers to catch fish and take corals, both fishers who live in or outside the waters of the Pangkajene and Archipelago Regency and the islands. Meanwhile,

Makassar City, which is also the capital city of South Sulawesi Province, has a water area and 11 islands. The potential for fisheries in its waters has started to decrease and the marine area no longer has coral with a good classification.

Furthermore, both laws in table 1 apply nationally, which means that none of the laws apply specifically to a particular location. These two laws are inter-related and their enforcement is coordinated by the Ministry of Maritime Affairs and Fisheries. The enforcement of Law No. 27 of 2007 and Law No.1 of 2014 concerning Amendments to Law No.27 of 2007 are intended to regulate and prevent several damaging acts, such as mining coral reefs (on a large scale) both inside and outside conservation areas and the destruction of coral using explosives or other equipment. The criminal sanctions for these acts are the same. However, if more than one criminal act is committed, then the perpetrators will be convicted simultaneously. In addition to the Laws described in table 1, three other relevant laws are added, namely Law No. 32 of 2009 concerning Protection and Management of the Environment (which was the amendment of Law No. 23 of 1997), the Law Number 5 of 1990 concerning Conservation of Living Natural Resources and their Ecosystems, and the Emergency Law No. 12 of 1951 concerning firearms and explosives. Both Law No. 32 of 2009 and Law Number 5 of 1990 used imprisonment time and a fine as the punishment. Similarly, Emergency Law No. 12 of 1951 has severe punishment, which is imprisonment of maximum 20 years or death and a lifetime penalty.

The disparity of the imposed sanction to the maximum sanction

All of the discussed cases in this study were convicted under the judgment that "the perpetrators had committed destructive actions on the ecosystem and marine biota through coral mining and destructive fishing in the conservation areas." Considering the law enforcement, the court's decisions were correct and supported the

environmental protection act. The judges had considered all criminal aspects, including the perpetrator's actions, evidence, and the impact of the actions. The judges always pay attention to the economic capacity of the fisher or his/her dependents' family in deciding the sentences. The fisher's breadwinner condition is one of the factors, but not the dominant one, in deciding the sentence. Other factors are the perpetrators were never been sentenced before and admitted that they regret the action and pledged to not doing it anymore. Based on the judges' sentences and interview results, there was no connection between the low-imposed sentence and the perpetrators' economic capability. Some of the perpetrators have a good economic capability and some have a modern fishing boat. There was 52 modern fishing boats based on the interview results in South Galesong district. One judge, who had sentenced a destructive case, claimed that the court decisions are based on fair and thorough consideration. In every judge's decision, there is a balancing between a large number of fines and the limited economic capacity of the perpetrator.

Another interesting aspect is that we also observed that the prosecutor's charges were lower than the applicable fisheries law as well. In Indonesian court system, the public prosecutors are the one who file the criminal charges based on the article 13 and 14 letter g Law Number 18 Year 1981 about criminal procedural law. The court will impose the perpetrator's sentence based on the presented evidences and the criminal charges filed by the public prosecutors. In the environmental destruction cases, the public prosecutors' charges are usually lower than the permitted by law, so if the perpetrator's verdict is guilty, then the sentence will not go beyond the filed charges. For instance, in the case no. 42/Pidsus/2016/Pn.Pkj, the prosecutors charge the perpetrator's with 10 months of imprisonment and IDR 1 million (USD 70.57) of fine, while the maximum sentences are 6 years and IDR 1,200,000,000 (1.2 Billion) (USD 84,678.12) of fine.

The sentencing is expected to give deterrent effects to the perpetrators. In this case, the judges should consider the long-term impact of the destructive actions on the sustainability of coral reefs. Therefore, it is essential to impose sentences commensurate with the weight of the crimes (Harkrisnowo, 2018, Reksodiputro, 2020). Fundamentally, criminal sentencing is the main guarantor that deters people from committing environmental crimes at the same time. The judges should consider the nature's conservation and the law enforcement should be consistent, fair, and provide a deterrent effect. Thus, the passed sentence should not be too light or less than half of the maximum sentence regulated by the law. Based on this, the passed sentence should be balanced on the perpetrator's action and social condition, not just in favor of the perpetrator's interest (Elvany, 2019).

Nevertheless, none of the convicted perpetrators were subjected even to less the half-sentence of the maximum penalty. For instance, the convicted perpetrators of coral mining in the conservation area were sentenced to a minimum prison of 2 years and a minimum fine of IDR 2 billion according to Article 73 letter b, yet the maximum prison can reach up to 10 years and the maximum fine up to IDR 2 billion. Unfortunately, this also occurred in other cases violating Law No. 84, Article 84, Paragraph 1 where perpetrators were sentenced only to 7 months in prison, while the maximum prison sentence is 6 years and the maximum fine is IDR 1.2 billion (USD 84,678.12).

The imposition of serious crimes with a purpose to punish the perpetrators and deter others to commit destructive actions remains unclear. In reality, the light sanctions sentenced to the perpetrators of destructive actions are contradictory with the efforts of conserving coral reefs from destruction. The light sentence cannot make a significant deterrent effect to the perpetrators and not enough to protect the coral reef ecosystem. The interview results ($n = 48$; 96%) and the informant's statement reinforce the questionnaire result. One informant, SA from Sarappo, quoted:

"The punishment of 7 months imprisonment and IDR 1 million of fine are too light considering the heavy environmental damage that have been made. Moreover, the perpetrator comes from the outside!"

Another respondent, AR, who is a water police, stated:

"Light punishments do not help in eradicating destructive fishing. The fisher will still do it because the punishment is not deterring."

The respondent's opinion could be a cue for local authorities to make a localized law product that could be synergized with the national law. One study found that one of the reasons why destructive fishing is still happening in Indonesia is the low penalty for violators (Elvany, 2019). The respondent's favor for the heavy sentence cannot be separated from the effect of the destructive action to them. The destroyed coral reefs have a direct effect on the fish catch of local fisher in the Spermonde Archipelago (Elvany, 2019). Law enforcement officials should be aware that coral reefs are distributed in limited areas, such as Spermonde Archipelago, which makes it essential to conserve and maintain their ecosystem. However, it is unfortunate that the law enforcers, especially prosecutors and judges, did not base their judgments on the perpetrators' destructive actions' consequence but to the perpetrator's interests or condition.

Destructive act using bombs, cyanides, and coral mining in a conservation area is a environment crime that falls under the environment law jurisdiction. In Indonesian law system, environment crimes are included in the special crime and its trial should be in a specialized court. One possible reason of the disparity of the imposed sentence and the maximum sentence is the environment cases is handled by general crime judges, who have low sensitivity, understanding, and knowledge about environment, especially in terms of coral reef; and it affect their judgement (Husin, 2016, Reksodiputro, 2020). Based on our observation, all destructive cases in the study location had been trialed in the court with general crime judges and public prosecutors, who graduated from law schools with less understanding to the environment philosophy, especially regarding the coral reefs. Spermonde Archipelago, Indonesia, area under serious threat from anthropogenic and natural factors. Based on the rapid appraisal technique for fisheries (RAPFISH) analysis, the use of coral reef ecosystem in the region is "less sustainable" from the ecological, social, technological, and legal and institutional aspects (Haya, Fujii, 2020). The results of the analytical hierarchy process (AHP) analysis provided an objective basis for the prioritization of 10 alternative strategies to improve the status of coral reef ecosystems in the in region, with the highest priority placed on increasing awareness of existing laws, campaigns, and education, followed by law enforcement, selectivity of

fishing gear use, rehabilitation of coral reef ecosystem, and restocking of fish in coral reefs (Haya & Fujii 2020).

Typically, environmental crime is often associated with a crime without victims, as it only influences objects without owners. Unfortunately, this viewpoint exists in some law enforcers, which affecting the court's judgment that environmental crime is not considered a serious crime. This statement is supported by various studies (White, 2017; South & Brisman, 2013; White, 2010; White & Heckenberg, 2014, Kennedy, et al., 2013). One important step for society is to increase the awareness that environmental crime, such as reef destruction, may result in a long-term negative effect, affecting both present and future ecosystems. Dealing with destructive cases requires seriousness and courage to punish the perpetrators. However, the repetitive destructive actions are a warning that the applicable laws may need to be revised by the law enforcers to prevent the occurrence of similar cases in the future.

Fisheries court could be a solution

One of the solutions to prevent environmental crimes related to coral reef conservation is by quickly establishing a fisheries court that covers the Spermonde Archipelago. The existence of a special court in fisheries could mitigate the mentioned disparity. The fisheries court was established based on the mandate of Article 71 of the Fisheries Law. It was first established in five cities as the center of fisheries in Indonesia, including North Jakarta, Medan, Pontianak, Bitung, and Tual. Further, the fisheries courts were also established in Tanjung Pinang, Ranai, Ambon, Sorong, and Merauke, but it is not yet established in the Spermonde Archipelago. The main objectives of fisheries courts are a) Ensuring the optimal and sustainable management of fish resources; b) Provide clarity and legal certainty of law enforcement for criminal violations related to fisheries; c) Completing and polishing procedural laws regarding the process of investigation, prosecution, and examination at trial; d) Ensuring formal and faster material laws; e) Increasing the efficiency and effectiveness of law enforcement against criminal acts in the fishery sector (Khopiatuziadah, 2017).

The fisheries court is given the authority to examine, prosecute, and convict the criminal acts related to fisheries, including the destruction of coral reefs and other marine biotas. Judges are selected from career and ad hoc judges. Career judges are appointed by the Chief of Justice of the Supreme Court, while ad hoc judges are appointed by the president as suggested by the Chief of Justice. The recruitment of ad hoc judges is conducted openly with the selection criteria of having a relevant fisheries background, such as to be a fisheries lecturer or other profession related to fisheries. During the case examination, a judicial model generally consists of 3 judges with the composition of 1 career judge and 2 ad hoc judges. The term of office for ad hoc judges is five years, while the term of office for career judges depends on the policy of the Chief of Justice of the Supreme Court. Due to the limited availability of fisheries courts (only exist in 10 cities), all fisheries criminal cases will be convicted in district courts where fisheries crimes occur (Khopiatudziah, 2017).

Fishery courts, whose functions are similar to environmental courts in other countries, have a central role in conducting law enforcement against the perpetrators of environmental crimes, more precisely to those

related to the marine ecosystem. These special courts will have broader insights and the ability to understand the properties and characteristics of each environment (White, 2013, Akib, 2016). White (2017) added that the prosecutors and judges of special courts are expected to have broader insights towards the level and the type of damage on the environments, as well as able to provide appropriate solutions for the violations committed by the perpetrators.

CONCLUSION

Law enforcement against destructive actions perpetrators has been implemented through legal processes. A total of 26 destructive cases have been convicted with the applicable criminal law and the perpetrators have been sentenced. The perpetrators had violated three types of environmental crimes, including blast fishing, fishing using trawls or *cantrang* nets, and coral mining in the conservation area. Referring to the evidence, the judges convicted that the perpetrators were guilty of their destructive actions that might harm coral reefs and other marine ecosystems. However, the imposed sentences were relatively light and far from the maximum penalty that has been regulated in the law. Light sentences will likely not give deterrent effects to the perpetrators and others for committing similar crimes. Therefore, we suggest heavier sentences are imposed, at least more than half of the maximum penalty, to quickly establish fishery courts in the Spermonde Archipelago. In addition to the possible establishment of a fisheries court, criminal cases related to fisheries and coral reef destruction are expected to be better examined, which hopefully could reduce the destructive actions committed in Spermonde Islands.

CONFLICT OF INTEREST

The authors guarantee that there is no conflict of interest in this study. This study was purely carried out for the development of environmental criminal law and the conservation of coral reefs.

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