



Legal Efforts of the Indonesian Government for the Protection of Marine Resources Due to Damage to Marine Ecosystems by Fishermen

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ABSTRACT: As a huge maritime country, Indonesia has tremendous potential for marine resources. Indonesia is the largest tropical marine country in the world and has the largest biodiversity in the sea. The potential of marine biological resources in Indonesian waters has always been able to provide optimal benefits for the economic and socio-cultural development of the community. However, many fishermen conduct fishing easily and destructively (destructively fishing) of marine ecosystems using fishing gear that is not environmentally friendly to meet the demand for fish needs. The perpetrators use Dupont Lannate chemicals containing Methomil with mashed fish and then spread it into the sea, then pick up the dead fish. The use of chemical poisons can kill the animals that make up the coral so that the coral becomes discolored which eventually dies and other fish that are not targeted also die. Therefore in this study, the author examines law enforcement in Indonesia's marine territory to protect the biodiversity of Indonesia's marine areas. this study uses a Normative research type that examines national and international legal arrangements regarding the protection of the marine environment. Therefore researchers examine the regulation and effectiveness of law enforcement in Indonesia.

KEYWORDS: Destructive Fishing, Marine Ecosystems, Protection.

INTRODUCTION

Sea is an area that is very important for integrity and unifying, a means of Defense and security, and most importantly as a means of prosperity as well as the welfare of a country because of the potential of these marine resources. Indonesia's seas hold enormous wealth potential. Indonesia has the largest sea area in the world and two-thirds of its territory is territorial waters. Based on these facts, geographically Indonesia can be referred to as a maritime country, which has a sea area of 3.2 million km² consisting of a territorial sea with an area of 0.3 million, an archipelagic sea of 2.9 million, and an Exclusive Economic Zone 2.7 million km². (1) As a country that has a very wide sea area, Indonesia of course has many problems concerning its sea area, Indonesia faces various transnational crimes that commonly occur at sea such as Illegal fishing, smuggling of goods, drug smuggling, human trafficking, and boat people, terrorism, and Pirates.

The potential of Marine Biological Resources in Indonesian waters can always provide optimal benefits for the economic and socio-cultural development of the community, and if managed properly, it can improve the welfare of the people, especially fishermen so that economic resilience will be realized. Indonesia also has a potential threat that can disrupt the continuity of the potential of these natural resources, and as a maritime country that has a wealth of marine resources that are very abundant, it is not surprising that many fishermen easily do fishing and damage (destructive fishing) marine ecosystems using fishing gear that is not environmentally friendly to fish needs. (2)

In May 2023 Supervisor of Marine Fisheries Resources (PSDKP) Lampulo-Banda Aceh detained several fishermen who were fishing using trawl trawls in the waters of the Strait of Malaca, Aceh region. PSDKP lampulo patrol boat, Shark 12, captured KM Surya Citra 25 with a weight of 49 gross tons or GT and KM Laot Jaya, weighing 18 GT. The two motor boats were caught while fishing using illegal fishing gear in the Fisheries Management Area of the Republic of Indonesia (WPPNRI) 571, Straits of Malacca. Fishing that damages marine ecosystems also occurred in May 2023 in Sikka NTT. Satpol Air Polres Sikka, Polda NTT secured the perpetrators of destructive fishing using chemicals in the waters of Maumere Bay. The perpetrators used Dupont lanate chemicals containing Methomyl with fish that had been mashed and then scattered it into the sea, then took the dead fish. The use of chemical poisons can kill coral constituent animals so that corals become discolored which eventually die and other fish that are not the target dies. (3)



For the period 2013 to 2019, Fisheries Supervisors in the Technical Implementation Unit (UPT) of PSDKP in collaboration with the local provincial Marine and Fisheries Office and Related Agencies have handled at least 653 (six hundred and fifty-three) cases of fishing by damaging marine ecosystems in various water areas in Indonesia with the highest number of cases in the region waters of South Sulawesi province as many as 471 (four hundred and seventy one) cases of use of explosives and toxic materials, followed by South Kalimantan province as many as 57 (fifty-seven) cases of stun gun use, and Lampung Province as many as 30 (thirty) cases of explosives and stun gun use. (4)

Fishing activities in this way result in environmental damage to marine ecosystems and also a decline in fish resources and other marine habitats. Regulation of the Minister of Marine Affairs and Fisheries (PERMENKP) No. 2 of 2015 on the Prohibition of the Use of Trawls and Seine Nets in the Fisheries Management Area of the Republic of Indonesia. It is stated that the use of fishing gear that is not environmentally friendly in the fisheries management area of the Republic of Indonesia can threaten the environmental sustainability of marine ecosystems. (6)

The Convention on the Law of the Sea 1982 fully regulates the protection and preservation of the marine environment (protection and preservation of the marine environment) contained in Article 192 which reads: "confirms that every state should protect and preserve the marine environment". The issue of damage to marine ecosystems should be the concern of the government to participate in maintaining and ensuring the implementation of the protection of the marine environment and marine ecosystems in it. Based on the description above, the author will examine the effectiveness of countermeasures against appropriate activities so that the preservation of marine ecosystems can be well maintained in the Indonesian sea area.

DISCUSSION AND RESULT

The Basic Concepts Of Destructive Fishing

According to MMAF (Ministry of Marine Affairs and Fisheries), destructive fishing is a fishing activity using fishing gear/fishing aids that damage marine and fishery resources.^[6] In the KBBI, destructive is defined as an activity that damages, destroys, and destroys; while the word fishing is defined as the activity of catching fish. So destructive fishing is the practice of fishing using tools or materials that can damage the environment and marine and fisheries resources. Irresponsible fishing is not only limited to illegal fishing but there is also destructive fishing. This activity can also cause great losses, especially to the sustainability of existing aquatic ecosystems. For this reason, the Ministry of Maritime Affairs and Fisheries (KKP) through the Directorate General of Marine Resources strives to protect the sea from the threat of destructive fishing.

The term destructive fishing itself is not found in the Fisheries Law, but this term can be found in the appendix of the Decree of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia Number 114/KEPMEN-KP/SJ/2019 concerning the National Action Plan for the Supervision and Management of Destructive Fishing Activities in 2019-2023. The term destructive fishing is popularly used by law enforcement officials and related agencies in the fisheries sector to refer to destructive fishing activities. Article 8 Paragraph (1) of Law Number 45 of 2009 concerning amendments to Law Number 31 of 2004 concerning Fisheries, hereinafter referred to as the Fisheries Law explains that: "Every person is prohibited from fishing and/or fish farming by using chemicals, biological materials, explosives, tools, methods and/or buildings that can harm and/or endanger the sustainability of fish resources and/or the environment in the fisheries management area of the Republic of Indonesia".

Then in Article 9 of the Fisheries Law it is explained that: "Every person is prohibited from owning, controlling, carrying and/or using on a fishing vessel in the fisheries management area of the Republic of Indonesia:

- Fishing gear and/or fishing aids that are not under the stipulated size;
- Fishing gear that is not under the requirements or standards set for: and/or
- Prohibited fishing gear.

In addition, Article 21 of PERMEN-KP Number 71 of 2016 concerning Fishing Lines and Placement of Fishing Gear in the Fisheries Management Area of the Republic of Indonesia, also prohibits the use of fishing gear such as drag trawls, trawls, and traps. Three types of destructive fishing activities damage ecosystems and kill marine life, including cyanide fishing, dynamite fishing, and stun fishing. The use of these materials causes damage to coral reefs and surrounding ecosystems and causes the death of various species and sizes in these waters. Based on Law Number 45 of 2009 concerning Amendments to Law Number 31 of 2004 concerning Fisheries, it states that every person is prohibited from owning, controlling, carrying, and/or using fishing gear and/or



fishing aids that interfere with and damage the sustainability of fish resources on fishing vessels in the fisheries management area of the Republic of Indonesia. (7)

Indonesia also has the most extensive coral reef area in the world. The area of coral reefs in Indonesia reaches approximately 248,300 km² or 18% of the coral reef population in the whole world. In the Indonesian Sea, there are approximately 2,500 species of fish, 2,500 species of Mollusca, 1,500 species of shrimp, and 590 species of coral. In addition to coral reefs, other biological resources such as mangroves, seagrass beds, and other marine biota include marine microorganisms. In terms of biodiversity, coral reefs are referred to as tropical forests in the ocean (living many marine species and rearing fish juveniles). (8) In Indonesia alone, approximately 70% of the surface of the country where we live is covered by the sea, but in reality, there is a lot of destruction and violation of the environment in the marine ecosystem. (9)

Law Enforcement Against Destructive Fishing that damages the marine ecosystem.

Based on Article 1 paragraph (3) of the 1945 Constitution of the Republic of Indonesia, the State of Indonesia is a State of law. This is an affirmation that all aspects of life in society, state, and government must always be based on law. In other words, every violation and crime in the form of actions or deeds that occur must be dealt with firmly according to legal norms or applicable laws; moreover, these crimes can threaten themselves, and others and can even threaten the survival of other living things, in this case biological resources that can be sustainably utilized by humans. (10)

In national development, law enforcement not only emphasizes how the law should play a role but can also be used as a parameter in following up on any problems or violations and irregularities that occur in various aspects of the life of the nation and state, including marine fisheries resources. Legal development in Indonesia, including in the context of realizing the principle of environmental sustainability, of course also requires the support of the formation of the written law (legislation), in line with Hans Kelsen's doctrine of pure law which states that "outside the law, there is no law".

Law enforcement in a broad sense includes activities to implement and apply the law and take legal action against any violations or deviations from the law committed by legal subjects, either through judicial procedures or through arbitration procedures and dispute resolution mechanisms. (11) The effectiveness and efficiency of law enforcement is influenced by several factors, including:

- the legal factor itself, where the problems that occur against law enforcement originating from the law are due to non-observance of the principles of the enactment of the law and the absence of implementing regulations that are needed to implement the law.
- law enforcement factors, namely those who form and those who apply the law, namely those who are in charge of their respective fields such as the Judiciary, Prosecutor's Office, Police, Lawyers, and Corrections. Law enforcers are role models in society who are tasked with implementing legal rules or norms as a basis for regulating community Behaviour, creating justice and order in society, and also imposing sanctions on all violations or legal acts that occur in society.
- factors of facilities or facilities that support law enforcement. In law enforcement, facilities are very important because they include educated and skilled human resources, good organization, adequate equipment, sufficient finance, and others. Without all of them, the law enforcement process is unlikely to run effectively and smoothly.
- community factors, namely the environment where the law applies or is applied. Law enforcement aims to achieve justice in society, and if the community already knows and understands what is the obligation and legal sanctions for every action taken, the community will realize and be responsible as law-abiding citizens for what has been violated.
- cultural factors, namely the habits of the daily life of the community that have been embedded according to applicable rules. Cultural factors have similarities with community factors; however, cultural factors emphasize the problem of the system of values that exist in society. In the community factor, it is said that the level of community compliance with the rules of society is still low. This is because a culture of compromise often occurs in Indonesian society. There is still often a cultural tendency for people to escape from the rules that apply.

In law enforcement, it is clear that the five factors mentioned above in the reality of their relationship will be closely related to one another. This is because in law enforcement one with the other will be able to influence each other in the course of enforcement. The weakness of one has an impact on other obstacles because the whole is the main thing in law enforcement, as well as to obtain a benchmark of the effectiveness of law enforcement. Of the five factors of law enforcement problems, the law



enforcement factor itself becomes the central point. This is because the law is prepared by law enforcers, its application is carried out by law enforcers, and law enforcement itself, is a role model by the wider community, so its position becomes very decisive in law enforcement. (12)

Law enforcement in the marine and fisheries sector is also very important to eradicate destructive fishing to protect marine ecosystems and marine resources. Irresponsible fishing activities using destructive methods (destructive fishing) can cause great losses, especially to the conservation of existing aquatic ecosystems. For this reason, the Ministry of Maritime Affairs and Fisheries, through the Directorate General of Marine Resources and Fisheries Monitoring (PSDKP), continues to strive to protect the sea from the threat of destructive fishing.

Destructive fishing activities carried out by unscrupulous people usually involve the use of explosives (fish bombs) and the use of toxic materials to catch fish. The use of these materials has caused damage to coral reefs and surrounding ecosystems, as well as the death of various species and sizes in these waters. Law No. 45 of 2009 on Amendments to Law No. 31 of 2004 on Fisheries states that it is prohibited for any person to possess, control, carry, and/or use fishing gear and/or fishing aids that interfere with and damage the sustainability of fish resources on fishing vessels in the Fisheries Management Area of the Republic of Indonesia. If it is known and sufficient evidence is obtained that there are people who carry out fishing activities using destructive means, they can be sentenced to a maximum of 5 years imprisonment or a maximum fine of Rp. 2 billion. (13)

With Indonesia's vast marine territory, there are limitations for the government to monitor destructive fishing activities. Starting from the limitations of surveillance personnel, surveillance vessels, and a very wide range of areas. For this reason, community participation is needed to jointly combat destructive fishing. Community participation can be done by observing or monitoring fisheries activities and environmental utilization in their area and then reporting suspected destructive fishing activities to Fisheries Supervisors or law enforcement officials. Destructive fishing is one of the main threats to the management of Indonesia's fisheries potential besides illegal fishing because destructive fishing causes extensive damage to coral reefs. Damaged coral reefs cause fish to lose their habitat and the population of fish habitat and other marine resources to decline. On the other hand, it takes a very long time to restore the condition of damaged coral reefs. This condition becomes a series that continuously threatens the economy in the marine and fisheries sector. The perpetrators of destructive fishing aim to make instant profits, but their actions result in fish scarcity, which ultimately harms the perpetrators themselves. (14)

From the monitoring activities carried out by the Directorate General of Marine Resources and Fisheries Monitoring (Directorate General PSDKP), it is known that the practice of destructive fishing has been rampant for three decades, but until now no appropriate formulation has been found to solve the problem. (15) Many factors contribute to the rampant destructive fishing activities in several Indonesian waters, among others:

- The raw materials for making explosives, such as ammonium nitrate and potassium cyanide, can be easily obtained through smuggling practices or because they are sold freely in the market. Handling destructive fishing becomes complex and complicated due to the many links that must be unraveled, especially related to the trade in raw materials for explosives.
- the high demand for live fish for consumption has triggered the rise of fishing activities using toxic materials.
- in some areas, fishermen are entangled in debts to retainers which triggers them to obtain catches in a fast way, including by using explosives or toxic materials.
- the lack of skills of some fishermen in using fishing equipment, which encourages them to catch fish the easy way, namely by using explosives and toxic materials.
- the perpetrators' lack of understanding of the negative impacts of destructive fishing on human health, as well as the sustainability of fish resources and the environment.
- court sentences against perpetrators of destructive fishing as well as perpetrators of explosives possession are considered very low, which does not create a deterrent effect.

The perpetrators of the fish bombing should be charged under Article 9 of Law No. 45/2009 on Fisheries and Article 33 of Law No. 27/2007 on the Management of Coastal Areas and Small Islands. In addition, the perpetrators could be charged under Article 6 of Law No. 23/1997 on Environmental Management, Law No. 5/1990 on the Conservation of Living Natural Resources and Ecosystems, Emergency Law No. 12/1951 on the Possession of Firearms and Explosives, and Presidential Decree No. 125/1999 on Explosives. (16)



Appropriate And Effective Countermeasures To Destructive Fishing For The Preservation Of Marine Habitats.

Considering the complexity of the causes of destructive fishing in Indonesian waters, it requires the commitment and cooperation of various parties to tackle it. The NAP (National Action Plan) for the Monitoring and Countermeasures of Destructive Fishing Activities is an important tool to formulate a joint commitment to countering destructive fishing in Indonesia. The purpose and objective of this NAP is to provide direction and reference for the parties to prioritize activities to combat destructive fishing. The NAP on the Monitoring and Countermeasures of Destructive Fishing Activities is expected to be used by all parties who are actively involved directly or indirectly in efforts to prevent, countermeasure, and enforce the law against destructive fishing activities, especially the work units within the Ministry of Maritime Affairs and Fisheries and other related parties, such as the Ministry of Agriculture, Ministry of Trade, Ministry of Energy and Mineral Resources (MEMR), Food and Drug Monitoring Agency (BPOM), Local Government, Indonesian National Police, Attorney General's Office (AGO), Ministry of Finance, Geospatial Information Agency (BIG), Indonesian Institute of Sciences (LIPI), Indonesian National Navy (TNI AL), Non-Governmental Organizations (NGOs) and Communities. (17)

Considering that the use of explosives, toxic materials, and stun guns is the most common destructive fishing practice in Indonesia, this NAP is limited to regulating countermeasures against the use of explosives, toxic materials, and stun guns in fishing activities. The direct impact of the use of explosives can damage and destroy coral reefs, and can even endanger the life safety of the explosive thrower. Data from the World Bank (1996) states that the capacity of explosives weighing 2,000 (two thousand) grams in fishing practices explosives can destroy approximately 12.56 (twelve points fifty-six) square meters of coral. In addition, there can be deaths of target and non-target fish, along with juveniles and other biota in large numbers due to the destructive explosive power. Indirect impacts of explosives include altered tropic structure, habitat modification reduced aquatic biodiversity, and local extinctions. (18)

In addition to destroying coral construction, explosive fishing also destroys coral ecosystems. Explosive fishing can reduce the ability of corals to survive natural disturbances because corals become fragile. In addition, damage to coral reefs also harms the aquatic tourism sector that relies on the beauty of coral reefs. Based on data from the Directorate General of PSDKP, it is known that fertilizers made from ammonium nitrate as raw material for explosives are smuggled from Malaysia through two main locations, namely Pasir Gudang and Tawau. The ammonium nitrate is brought by sea to be distributed to fishermen who have capital in several areas, such as East Belitung, Kangean, East Lombok, Bonerate, Buton, or Kupang. The capitalized fishermen assemble the materials, which are then distributed to small-scale fishermen at the time of providing capital loans for sailing. Most fishermen who fish using explosives do not have boats, fishing gear or capital to sail, so they rely on loans from capital owners. In return, the fishermen will repay the loan by selling their catch to the retainer. In general, the transaction of providing capital and purchasing fishermen's catches is not done directly with the retainer, but with the retainer's confidant, the collector. It is this collector who also provides the explosives that fishermen will use to catch fish. (19)

Poison fishing generally uses potassium cyanide as a raw material. Fish that are poisoned are knocked unconscious for a while, so it is often called fish tranquilization. The target fish are ornamental fish and consumed reef fish. The use of poisonous materials in fishing activities has increased along with the increasing consumer demand for ornamental fish and live reef fish for consumption. Fish poisoning is common in shallow waters, such as coral reef flats. Some of the equipment and materials used to conduct anesthesia are bottles containing potassium cyanide solution, masks, snorkels, fins, compressors, air hoses, scrapers, and fish containers. The captured fish are then put into the fish container and brought to the ship. The neutralization of the fish condition is done by rinsing the fish with seawater until the condition is normal again. (20)

Based on the monitoring results of the Directorate General of PSDKP, some local fishermen also often use natural poisons derived from tuba leaves and roots for anesthesia. Other hazardous materials used are insecticides and ink, while the most widely used by fishermen is potassium cyanide. The results of supervision carried out by the Directorate General of PSDKP concluded that the damage caused by ornamental fish anesthesia can have a greater adverse impact than fish anesthesia on reef fish for consumption and even greater than the impact of fishing using explosives. This happens because the spraying points to get ornamental fish to pay attention to water currents so that the poison hits more parts of the coral body. Many branching corals are broken off to obtain small ornamental fish. Whereas in the use of explosives, corals can be destroyed but still have the opportunity to revive. (21)

The use of stun guns to catch fish is still common in Indonesia. Stun guns used for fishing activities are one of the methods that can harm and/or endanger the sustainability of fish resources. The target fish for electrocution is consumer fish. The tools used



in fish electrocution are stun box bags containing batteries, iron rods, scrapers, and boats. Stun fishing not only injures the target fish but can also kill fish fry, both target and non-target fish, thus damaging the sustainability of fish populations in the waters. The effect of electrocution is to shock and stun the fish. In some cases, fish can be injured, experience bleeding in the gills and even die. In addition to affecting target fish, small fish can also be electrocuted if they are within the radius of the spread of electricity in the water column.

Differences in the tools/materials used by fishermen in several regions are due to differences in the types of fish caught, the location of the fishing grounds, and the characteristics of each region. By using explosives, toxic materials, and stun guns, fishermen require less capital and larger catches. This situation is short-term but has a long-term impact because it damages fish resources and the environment. Based on data from the Directorate General of PSDKP, fishing activities using explosives occur in almost all provinces in Indonesia, but the most vulnerable conditions occur in South Sulawesi, East Nusa Tenggara, West Nusa Tenggara, Southeast Sulawesi, and Gorontalo. Meanwhile, fish poisoning activities are rampant in South Sulawesi, East Nusa Tenggara, West Sumatra, Gorontalo, and Riau Islands. Meanwhile, fish shocking activities are mostly carried out in lakes or river estuaries in South Kalimantan, West Java, Lampung, and West Kalimantan.

CONCLUSION

The 1982 Convention on the Law of the Sea fully provides for the protection and preservation of the marine environment, Marine resource management includes the monitoring and utilization of marine natural resources. This includes conservation, restoration, aquatic environment, research as well as fisheries programs. Destructive fishing activities carried out by unscrupulous people generally use explosives (fish bombs), and the use of toxic materials to catch fish. The use of these materials causes damage to coral reefs and surrounding ecosystems and causes the death of various species and sizes in these waters. Indonesia already has Law Number 45 of 2009 concerning Amendments to Law Number 31 of 2004 concerning Fisheries and Community Participation is needed.

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