P-ISSN: 2355-729X
Jurnal IPTEKS PSP. Vol. 9 (2) October 2022: 59 – 75 E-ISSN: 2614-5014

SOCIAL ECONOMIC ANALYSIS OF ILLEGAL FISHING FISHERS IN SPERMONDE ISLAND

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Manuscript received: 1 October 2022
Revision accepted: 31 October 2022
DOI: 10.20956/jipsp.v9i2.23772

ABSTRACT

The sustainable use of fish resources is closely related to fishing practices by fishermen. It is a classic problem of utilizing marine and fishery resources. The exploitation method carried out by fishermen often does not consider environmental sustainability aspects or is contrary to the principles of responsible fisheries management (Code of Conduct for Responsible Fisheries - CCRF). This study aims to examine IUU fishing activities from the socio-economic dimension, which will produce its own understanding under certain conditions, especially regarding traditional rights, resource share allocation, and the level of dependence on fishery resources. The type of research is qualitative research with a case study method. Data collection techniques are observation, interviews and literature study. The data collected includes primary data and secondary data. The data analysis technique is the content analysis method through data reduction, data presentation and conclusion. The results of this study indicate that illegal fishing in the Spermonde Islands is dominant due to the pressure to fulfil economic needs. Other factors are the common understanding of the importance of sustainable use of fishery resources; increasing demand for foreign markets, especially live fish; and inconsistency and weak law enforcement in preventing the use of explosives and drugs. Empirical data on resource potential is required and integrated into policy formulation in the form of responsible fisheries, including other activities that fishermen can do as alternative livelihoods and ecosystem approaches for the conservation and management of fish stocks of related species.

Keywords: Socio-Economic, Islands, Spermonde, Fishermen, Illegal Fishing

INTRODUCTION

The distribution of potential coastal and marine resources in South Sulawesi consists of 3 (three) main spots for fishing areas, namely; Makassar Strait, Flores Sea and Bone Bay. These three areas become the foundation of coastal and archipelagic communities in achieving their welfare and the government in meeting the increase in regional original income. The Spermonde Islands, which consist of more than 120 islands, are located in the southern part of the Makassar Strait or on the southwest side of the South Sulawesi Peninsula (Spermonde Shelf). Administratively, the Spermonde Islands are included in the administrative territory of several autonomous regional governments Regency/City in South Sulawesi Province, namely Maros Regency, Takalar Regency,

Makassar City, Pangkajene and Islands Regency, and Barru Regency. Pangkajene and Districts The archipelago has the largest number of islands, followed by Makassar City.

The context of the use of coastal and marine resources in South Sulawesi cannot be separated from the social and cultural ties of the sea, so that the supply of resources becomes the dominant source of livelihood for the majority of small-scale fishermen. The struggle for resources, especially those with high economic value, limited access to resources owned by coastal and archipelagic communities due to the lack of investment capacity and technology at least encourages the occurrence of IUU fishing activities (illegal, unreported, and unregulated). This activity is not only the fault of the coastal and archipelagic communities, but a number of policies, instruments and resource utilization systems also influence the occurrence of these activities(Arief et al., 2020).

Sustainable management of fish resources is closely related to fishing practices by fishermen. It is a classic problem thatin utilizing marine and fishery resources, the exploitation method carried out by fishermen often does not consider environmental sustainability aspects or is contrary to the principles of responsible fisheries management (Code of Conduct for Responsible Fisheries - CCRF)(Silva, 2006).According to the category, IUU fishing can be divided into three groups (Bray, 2000), namely;(1)Illegal fishingare illegal fishing activities in territorial waters or EEZ of a country, without a permit from the coastal state; (2) Unregulated fishingis fishing activity in territorial waters or EEZ of a country that does not comply with the applicable rules in that country; (3) Unreported fishingis fishing activity in territorial waters or EEZ of a country that is not reported either its operations or data on ships and their catches.

Destructive fishing practice is one part of fisheries crime (Illegal Fishing), namely fishing activities in the fisheries management area of the Republic of Indonesia by destroying fish resources and their ecosystems through the use of chemicals, biological materials, explosives, tools or methods and buildings so as to harm or endanger sustainability of fish resources and the environment(Arief. A. Adri, 2021). This situation is said to be a crime or violate the law (illegal) because it not only has a temporal impact when the action is taken (destructive fishing), but also has permanent damage to the ecosystem in the future.(Nurdin & Grydehøj, 2014).

Destroying current fisheries resources and environment will not only bring harm to current generations but also to future generations, because fisheries resources and environment have limited self-renewal capacity.(Munyi, 2009). Therefore, damage to fisheries resources and the environment through the use of destructive technology takes a long time to

restore the ecosystem to its original condition. In other words, the current damage to the environment and fishery resources will close opportunities for future generations to utilize fisheries resources in a sustainable manner.

This study aims to examine IUU fishing activities from the socio-economic dimension, which under certain conditions will produce its own understanding, especially when it comes to traditional rights, resource share allocation, and the level of dependence on fishery resources. Then this is related to other aspects that are thought to have influenced it, such as the format or configuration of coastal and ocean development policies; and the option of minimizing the IUU activities.

MATERIAL AND METHOD

This research was conducted from March to June 2022 in a group of islands located in the administrative area of North Liukang Tupabbiring District,Pangkajene and Districts Islands of South Sulawesi Province. This location was chosen intentionally (purposive method) with the consideration that the inhabitants of the islands are mostly fishermen with the distance between the islandslocated quite far from the mother island and has difficult access to major population centers, which makes the local economy dependent on the production and distribution of fishery resourcesThe type of research is qualitative research with case study method. Determination of the method refers to Babbie's (2004) explanation that social research often speaks of case studies, which focus attention on one or few instances of some social phenomenon, such as a village, family, or a juvenile gang. This research focuses on the phenomenon of destructive fishing activities that occur in the research area. Data collection techniques are observation, interviews and literature study. The data collected includes primary data and secondary data. Secondary data obtained through literature study. Primary data were collected through in-depth interviews (independent interviews) and questionnaires, concerning the forms of destructive fishing, fishermen's perceptions of destructive fishing, resource management rules in the form of local agreements. In-depth interviews were conducted with certain people (key informants) which were carried out purposively, namely selected people who were considered to know the problems being studied. They are fishermen, *ponggawa* (owners of production equipment), community leaders, mustard (fishing workers), security forces, village government. In addition to purposive selection of informants, the selection of informants is also carried out by means of snowball, namely through information from informants who have been interviewed previously while still referring to the principle of triangulation. (Miles, M.B, Huberman, A.M, dan Saldana, 2014). During the research, it was found

that the research sample was 45 informants who were selected purposively. The data analysis technique used is the content analysis method through the stages of data reduction obtained through interviews with fishermen and fisheries business actors. Then the data that has been obtained will be presented in chart form so that it can describe the socio-economic conditions that are the aim of this research. Conclusions are drawn by comparing the test items obtained through interviews and literature studies so that the research objectives can be answered correctly.

RESULTS AND DISCUSSION

Socio-Economic Factors in Illegal Fishing in North Liukang Tupabbiring

There are more than at least 115 islands in the Pangkajene and Archipelago Districts. Most of these islands are located in the sub-districts of Liukang Tupabbiring, Liukang Tangaya, and Liukang Kalmas. The villages and islands included in the North Liukang Tupabbiring District are as follows:VillageMattiro Baji,This village consists of 4 island, i.e. Island Saugi, Satando, Sapuli, and Sideburns. Mattiro Bombang Village, this village consists of 5island, namely: high, Island Salemo, Sagara, Sabangko, and Sakuala. Mattiro Bulu Village, This village is located in Karangrang Island. Village Mattiro Kanja, This village is located inSabutung Island. Village Mattiro Labangeng, This village consists of 2 island, namely: Island Laiyaand Polewali. Village Mattiro Uleng, This village consists of 2 island, i.e. Island Kulambing and Bangko bangkoang. Mattiro Walie Village,This village consists of 7 island, namely: Island Bana-Banawang, Salebbo, Samatellu Wholesale, Samatellu Lompo, Reang-Reang, and Samatellu Pedda.

Illegal fishingin the socio-economic context of the Spermonde Islands community, fishing activities that do not or have not followed the CCRF (Code of Conduct for Responsible Fishing). In general, Illegal fishing is then described as: The use of fishing gear that is not environmentally friendly; The entry of fishermen from regencies/cities to other water areas in South Sulawesi or to other provinces due to the euphoria of regional autonomy; Exploitation of fish species that have been designated as protected fish species due to market demand; Standardization of fishing gear that is not done consistently.

The character of the coastal community in South Sulawesi is the character of the community that is attached to the maritime spirit as well as the maritime spirit (Costa-Pierce, 1997). This means that the level of knowledge of maritime and maritime dynamics is accompanied by a high level of dependence on resource stocks in coastal and ocean areas. With this community character, it is also followed by the existence of various types of fishing gear.

The attachment of the maritime and maritime spirit to coastal and archipelagic communities is also implemented into the behavior of encroaching water areas in Indonesia. Encroachment into other fishing areas outside the territorial waters of South Sulawesi is followed by the linkage of social systems so as to form strong ties. Meanwhile, the economic orientation that relies on the supply of coastal and marine resources is often interpreted as the use of fishing gear that must be optimally used. This is more or less able to explain why coastal and island communities in South Sulawesi are able to create effective fishing gear in utilizing resources which, on the other hand, may conflict with environmentally friendly criteria.

Based on the results of research conducted, the use of fishing gear that is not environmentally friendly is caused by various factors, including;

1. The low capital owned by most of the island fishermen, while the knowledge of the existence of a high economic fish species is sufficient.
2. There is still confusion in the classification of fishing gear owned by the government, for example the difference between Cantrang and Trawl. In the method of operation, these two tools have something in common, namely operating on the bottom of the water by being pulled by a ship, but trawling itself is prohibited from using it while the cantrang is still operating.
3. The ability of government officials to update fishing gear is still weak to minimize illegal fishing compared to the high ability of coastal communities to create fishing gear.

The practice of illegal fishing that occurs is mostly triggered by information on the economic value of resources received by island fishermen. Often, island fishermen fail to comply with the preservation of their fishery resources due to strong market demand pressure for protected species. For example, the type of napoleon fish that is protected in Spermonde waters, is actually exploited by local fishermen for economic reasons and weak supervision and law enforcement. The high demand for economically important fish species, especially in coral reef areas, the still weak institutional tools that oversee the sustainability of the resource, and the debate over the validity of the CPUE (Catch Per Unit of Effort) based resource potential or statistical data in some areas will trigger uncertainty about the rationalization of utilization. resource, especially the economically important fish species. Therefore, illegal fishing activity shows a linear relationship between resource supply, high demand, and weak control over the marketing mechanism of fishery products themselves.

The context of illegal fishing cannot be separated from the socio-economic conditions of the people in the Spermonde Islands. The

weaker social relations of the island people and their resources, coupled with the increasing economic orientation, have led to a struggle for resources by creating effective fishing gear, but not environmentally friendly. Even from the results of the research, it was found that social facts regarding the widespread occurrence of fish bombing due to the reaction of small-scale island communities of small-scale economic fishermen felt that they had "traditional rights" to utilize their resources. The denial of traditional rights that characterize the development policy journey of the coastal and marine area resource sector, including small islands at least triggers an increase in illegal fishing.Saad, 1998; Saad, 2000), and if this condition continues, "The Tragedy of the Commons" will occur (Hardin, 1968). Illegal fishing occurs due to the forgetting of the concept of protection for small fishermen, while taking sides with industrial scale fisheries or investors with the motivation to increase local revenue has contributed to the rampant practice of fishing that is not environmentally friendly (Kusnadi, 1998; Saad, 2001).

The policy of zoning superior commodities, including the fisheries and marine sectors, in South Sulawesi some time ago, also triggered the acceleration of the depletion of high economic value fish resources. Another thing is that coastal areas and small islands are increasingly designated as production areas so that the space for fishermen with low-economy scales is increasingly pressed, as a result, fishermen carry out fishing activities that are not environmentally friendly, such as the use of cyanide, anesthetics, and bombing. This can occur due to weak aspects of supervision and law enforcement, especially in a number of small islands in the Spermonde archipelago. The high level of dependence of coastal communities in South Sulawesi on coastal and marine resources, denial of traditional rights, and the high market demand for high economic value fish species, coupled with the lack of alternative income accumulating in the form of illegal fishing activities. The lack of funds provided by the government in carrying out routine monitoring, counseling, and coaching activities for small-scale fishermen who do illegal fishing is another obstacle in suppressing the occurrence of illegal fishing. Information on the location of illegal fishing on the one hand can be used as an indicator where the supervisory officers or supervisors are not working effectively; or it can be used as an indicator of the location of an imbalance in resource allocation among users.

The results of the research carried out provide information that fishermen in the Spermonde Islands in carrying out fishing activities determine their fishing areas based on knowledge from generation to generation, while the contribution of alternative fishing grounds that should be given by the government is very

little done. As a result, in certain fishing areas there is a concentration of fishing activities, which rely more on investment capabilities alone so that groups of fishermen who are marginalized as a result of this use tools that are outside the CCRF criteria or illegal fishing in order to maintain their lives. The impact is that adherence to the importance of wisdom in exploiting resources in their socio-cultural context is getting weaker and replaced by a stronger economic motivation.

Motivation and Forms of Destructive Fishing in Liukang Tupabbiring District

Destructive fishingor catching efforts using destructive fishing techniques, is one part of illegal fishing activities (catching fish by illegal or prohibited methods). The results of the field analysis found that there are at least 4 (four) things that motivate island fishermen to make arrests using explosives and anesthetics, including: (1) the pressure of the subsistence economic needs of fishing communities, especially mustard fishermen; (2) the lack of understanding of the importance of sustainable use of fishery resources; (3) increasing demand for foreign markets, especially live fish; and (4) inconsistency and weak law enforcement in preventing the use of explosives and anesthetics.

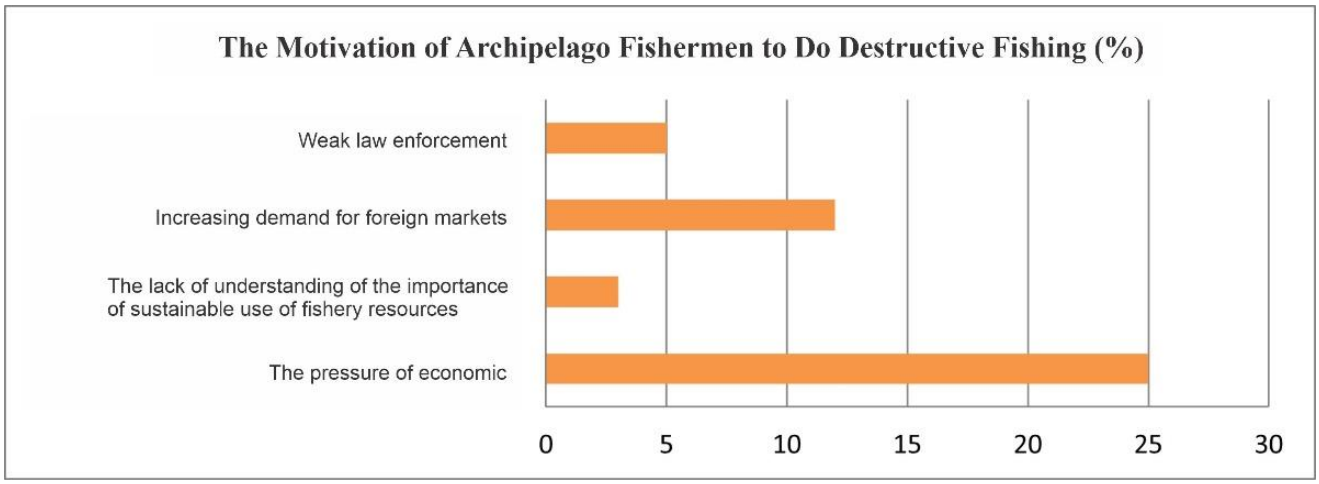

Figure 1. The Motivation of Archipelago Fishermen to Do Destructive Fishing

Based on information from informants, destructive fishing is one of the fishing techniques that has developed for a long time in the Spermonde Islands. The track record of this capture technique dates back to the 1900s, at which time gunpowder from war ammunition was used as its raw material. This fishing method is not purely derived from the creativity of island fishermen, but they are also taught by fishermen from the Philippines. Gunpowder is obtained by destroying ammunition (bullets) without causing the slightest spark because it can be fatal, namely the explosion of the ammunition. Several cases state that this activity has claimed

many lives. The magnitude of the risk faced to obtain this gunpowder, This causes the raw material to be available in limited quantities. Thus, initially only a small number of fishermen were able to use this fishing technique. However, since the discovery of another raw material to replace gunpowder, namely urea stamped fertilizer made in Malaysia in the 1960s, fishermen began to study and use this technique because it is considered the most effective in producing large catches in a short time. The following is a description of the informants' perceptions regarding fishing activities using explosives in the Spermonde Islands. Therefore, fishermen began to study and use this technique because it is considered the most effective in producing large catches in a short time. The following is a description of the informants' perceptions regarding fishing activities using explosives in the Spermonde Islands.

Informants' Perceptions Regarding the Use of Explosives in Fishing

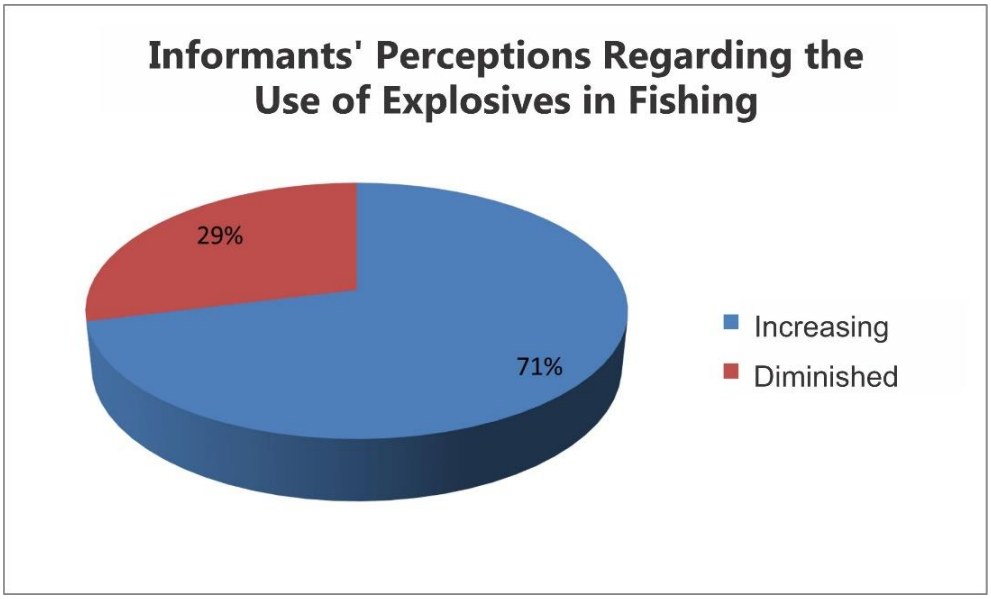

Figure 2. Informants' Perceptions Regarding the Use of Explosives in Fishing

The fishing technique using anesthesia is also part of destructive fishing which is also widely used by fishermen in the archipelago. The raw material that is often used is cyanide in addition to tuba roots. In contrast to fishing techniques using explosives, this technique does not cause damage to the habitat structure but can cause death in coral habitats. So that it can be seen that the traces of anesthesia leave a relatively unchanged habitat structure but experience death. Signs of the death of coral habitat due to this anesthetic is the occurrence

of coral bleaching followed by very fast growth of algae that covers the coral surface or commonly known as Dead Coral Algae (DCA).

According to informants, this technique has been widely used by the community in the Liukang Tuppabiring waters since the 1980s, when the live fish market became the prima donna, although in fact this fishing technique has been studied and known by fishermen since the 1940s. Like fishing techniques using explosives, this technique is taught by fishermen from the Philippines. Until now, this technique is still used by fishermen, in fact it tends to be used more than other fishing techniques. This is due to the increasing market demand for reef fish, especially live sunu fish.

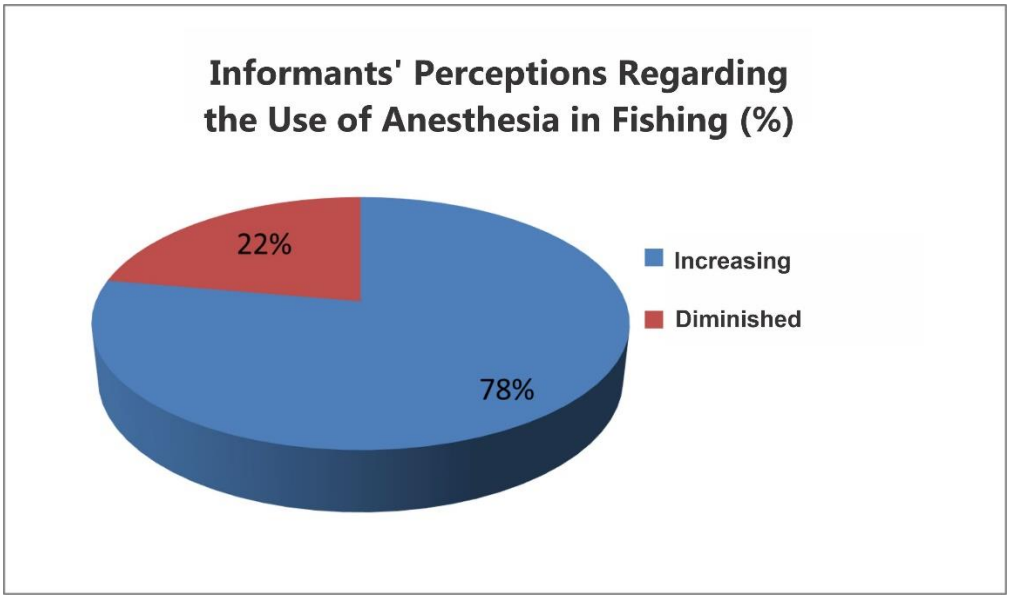

Figure 3. Informants' Perceptions Regarding the Use of Anesthesia in Fishing

Fish Caught from Destructive Fishing Activities

The results indicate that there are approximately 40 species, both from the pelagic and demersal groups. There are approximately 10 families of dominant species which are the main catches of fishermen in Spermonde, including: Pomacentridae, Labridae, Gobiidae, Apogonidae, Serranidae, Chaetodontidae, Blenniidae, Acanthridae, Scaridae, and Lutjanidae From these families, the target fish species are the demersal group. The dominant ones are red snapper (Lutjanidae spp), Baronang (Syganus spp), Snapper (Lutjanus spp), Grouper (Ephinephelus spp) and Sunu (Chepalopolis spp). This species usually lives around coral reefs and in shallow waters around the coast, so it is often the main target species for fishermen. While the dominant group of pelagic fish that became the catch target was the Banyara (Rastraliger spp), Layang (Decapterus spp), Lemuru (Caranx spp), Tongkol (Euthynnus spp), Teri (Stolephorus spp), and Mackerel (Scomberomorus spp). Pelagic groups live in

groups making it easier to catch using fish bombs. The bomb was detonated in waters of a certain depth before reaching the bottom of the water

Areas of Potential Destructive Fishing Locations

Fish bombing areas in the Spermonde Islands, which are used as fishing grounds and other areas that are indirectly related to fish bombing activities in the Spemonde Islands. Target locations for fishing using bombs are generally carried out in flat areas. coral reefs (reef flat and slope) including taka (patch reef) and around the edge (reef edge), and a small part of it is done in coastal waters. However, it is interesting that fish bombing activities do not only occur around coral reefs, but also in areas outside coral reefs or open waters. Based on the results of the study, it was obtained information that, locations that have the potential to be used as destructive fishing areas are depicted in Figure 4.

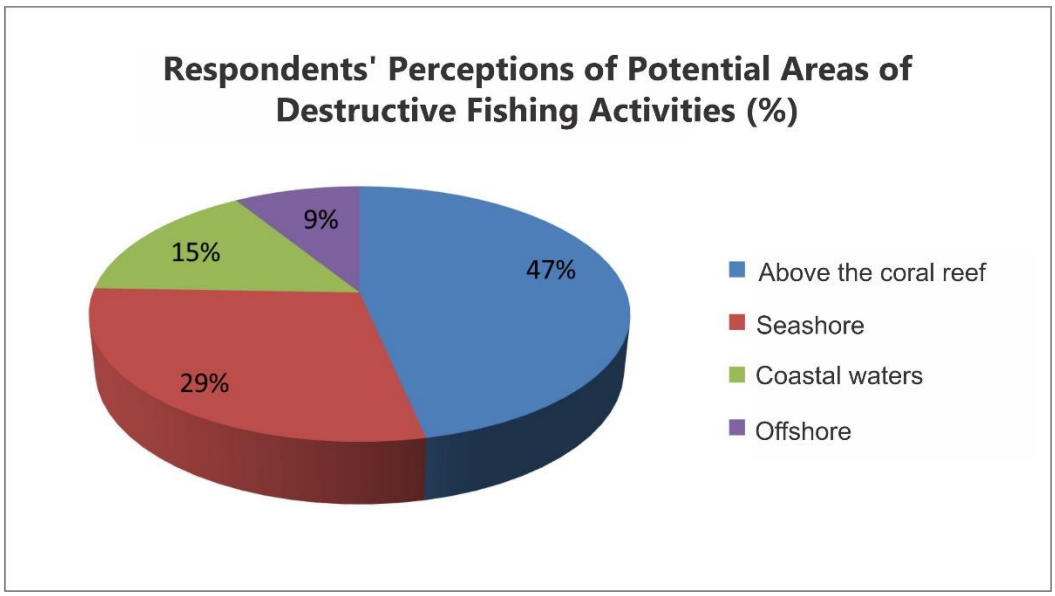

Figure 4. Respondents' Perceptions of Potential Areas of Destructive Fishing Activities

In principle, fish bombing locations are locations that have been used as fishing grounds for fishermen. The fishing grounds of the people who live in the Speromonde Islands are spread over several water areas, namely the Spermonde Islands area, the Kalukuang Masalima (Kalmas) Islands area of Pangkep Regency, the territorial waters of Mamuju Regency and Majene Regency, South Sulawesi, in the waters around Central Sulawesi, Southeast Sulawesi, to the territorial waters of East Kalimantan and South Kalimantan. Catching locations in the Spermonde Islands can be distinguished by season (West and East). Although the seasonal factor is a consideration for all fishermen in Spermonde, however, specifically for fish-bombering fishermen, this factor does not significantly affect the intensity

(frequency) of these activities within the Spermonde Islands area except outside the area. The intensity of the bombing was quite high in those two seasons. However, bombing activities were more concentrated within the Spermonde area during the West monsoon, compared to the East monsoon, which more reached locations outside Spermonde.

Table 1. Destructive Fishing Locations in the Spermonde Islands

Zone	Arrest Location
Outer	Kapoposan Island, Views, Gondongbali, Suranti and Pamanggangan in Pangkep Regency, Langkae Island and Lanyukang in Makassar City
Middle Outer	Kondingareng Island Caddi Lompo
	Kondingareng Lompo Island
	Caddy Goods Island
	Barrang Lompo Island
	Badi Lumu-Lumu Island
	Badi Island
	Karangrang Island
	Sappo Island
	Kulambing Island
	Laiya Island
	rare island
	Podang-Podang Island
Middle Inner	Tanakeke Islands (Baulung Island, Satangan, Dayangan) Takalar . Regency
	Putengin Island in the District

Primary Data Source Processed, 2022.

Marketing of Destructive Fishing

The Fish Landing Base (PPI) / Fish Auction Place (TPI) are the main marketing locations for fish suspected of being the result of the bombing, although in practice, the fishermen who carried out the bombing generally do not sell it directly, but through an intermediary or retainer. This is done simply to avoid surveillance by the authorities. However, this does not mean that all fish that are being in TPI/PPI is the result of bombing or other illegal activities. There are 7 (seven) PPI/TPI locations that become landing sites and selling fish resulting from the bombing of Indonesia Spermonde Islands, among others: TPI Paotere and TPI Rajawali in Makassar city, TPI Beba in the district Takalar, TPI Panaikang in Maros district, TPI Kalebone in Pangkep district, TPI Pancana, PPI Bottoe and TPI Sumpang Binangae in Barru district. The fish caught by fishermen who are

traded at the local TPI/PPI do not come entirely from the location of the catch around the TPI/PPI is located. For example, at the Beba TPI in Takalar, the fish produced by the activities Many of the bombings also came from fishing practices in the Nine Islands, Sinjai and districts around the islands in the Selayar district. Likewise at several TPI/PPI in Makassar, the fish that entry comes from various regions, which are around the city of Makassar. Among them are from the islands in Makassar, the islands in Pangkep, Maros, Selayar, Sinjai, Bulukumba, Majene, Mamuju, Jeneponto, Takalar, Kendari, even the districts of Kolaka (Southeast Sulawesi) and Kolonedale (Poso, Central Sulawesi province).

The results of the study conducted showed that TPI Rajawali and TPI Poatere in Makassar were the TPIs with the largest volumes of fish caught, including those caught by bombing. This fact is corroborated by the percentage of locations of origin of pa'balolang and the domicile locations of land courtiers as buyers of intermediate fish before being sent to TPI/PPI. Furthermore, the results of the study also show that Pabbalolang who buy fish in the coastal waters of Takalar Regency and Pangkep Regency, generally will resell the fish they bought at TPI Rajawali and TPI Poatere.

The underlying reason for this is because the two TPIs are the landing and selling places for scattered fish in South Sulawesi with better management and facilities, as well as a more secure fish price structure than other PPI/TPI locations.

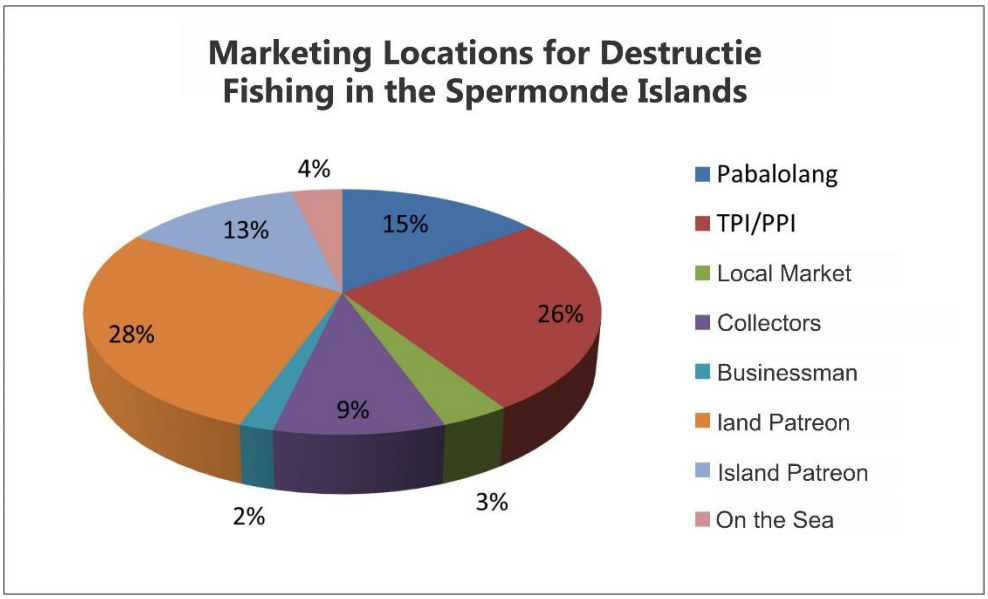

Figure 5. Marketing Locations for Destructie Fishing in the Spermonde Islands

Based on the results of interviews, the perpetrators of destructive fishing activities are strongly suspected to be fishermen from the islands of Karanrang, Ballang Caddi, Sarappo

P-ISSN: 2355-729X
E-ISSN: 2614-5014

Caddi, and Gondongbali. In addition, there are also those from islands in Makassar waters, including Barrang Caddi and Bonetambu islands. However, respondents implicitly revealed that almost all fishermen from small islands in the Spermonde waters have the potential to be perpetrators of destructive fishing.

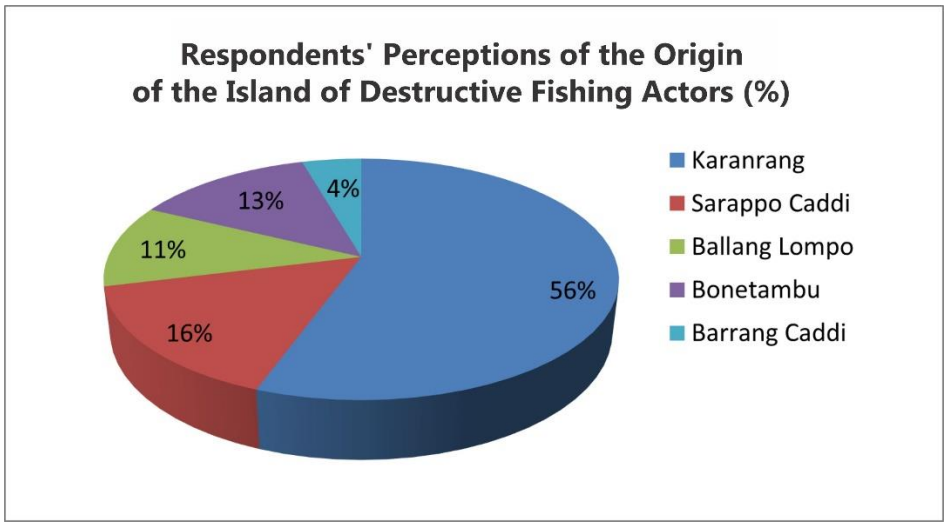

Figure 6. Respondents' Perceptions of the Origin of the Island of Destructive Fishing Actors

Although the island community knows the perpetrators of destructive fishing, anticipatory or preventive measures against this action are rarely found in the islands. The community generally chooses to remain silent or not to report destructive fishing actions that they know or encounter. This attitude was born as a manifestation of an individualistic sense of trying to protect one's own interests and those of his group, as well as disappointment with law enforcement officers who are suspected of committing many irregularities in the practice of supervising destructive fishing activities in the archipelago. One example of neglect is that until now fishing by bombing and anesthesia is still happening, even though if we look at the perpetrators of this illegal fishing method it is very clear. The description of respondents' attitudes towards the perpetrators of destructive fishing activities is depicted in Figure 7.

P-ISSN: 2355-729X
E-ISSN: 2614-5014

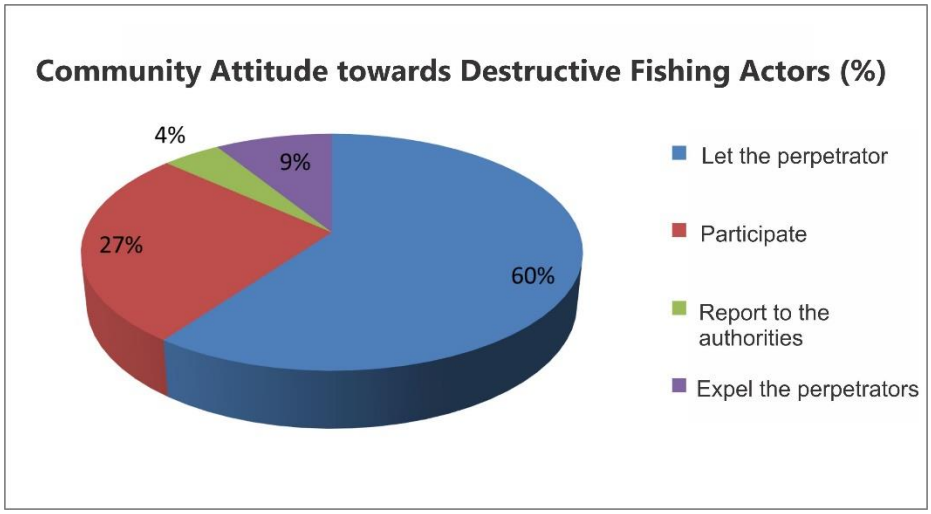

Figure 7. Community Attitude towards Destructive Fishing Actors

Scenario Anticipating Illegal Fishing

Illegal fishing in the socio-economic context of the Spermonde Islands community is an effort to maintain social rights and traditional rights which are then packaged into economic goals. However, the application of CCRF rules and the importance of sustainable resource use cannot be understated for purely socio-economic reasons. Determination of Regional Marine Protected Areas (DPLD) by forming zones, is a preventive and persuasive effort that relies on cooperation with local communities. According to Johannes (1981), cooperation with coastal and island communities in an effort to suppress illegal fishing activities is the most effective method if the cooperation is packaged into a community base that prioritizes traditional rights, local knowledge. (Taufiq, 2018).The government cannot work alone in minimizing illegal fishing without understanding and accommodating traditional rights and interests in resource conservation (Christy, 1982; Hanna et al., 1995).

Economic evaluation of resources in coastal areas should be framed in the CCRF format and the sustainability of the resource itself (Goodstein, 1999). If the fisheries and marine sector development policies are more focused on economic benefits and lack of attention to market mechanisms (supply and demand), it will trigger an increase in illegal fishing. Therefore, empirical data on resource potential is needed and integrated into the formulation of policies in the form of responsible fisheries, including aquaculture activities, and efforts to approach ecosystems for conservation and management of fish stocks and related species. Besides illegal fishing, unreported and unregulated fishing are important things in the application of CCRF in the Spermonde Islands because in the concept of sustainable resource management, these two

things greatly affect the carrying capacity of the lives and welfare of coastal and island communities. (Arief. A. Adri & Agusanty, 2021).

Reconciliation of traditional systems and modern resource management formats is absolutely necessary in an effort to suppress the occurrenceillegal fishing, unreported and unregulated fishing (Graham and Idechong, 1998). This reconciliation has been successfully carried out in the Pacific Islands (Berkes, F. 1996; Li, TM 1996), in New Zealand by ethnic Maori (Ruddle, 1995) by validating fishing gear, fishing methods, and actualizing traditional-based resource management practices. This model is possible in South Sulawesi, for example, coastal and island communities in various regions have established a community-based monitoring system (Siswasmas) which is facilitated by the local government, and the results can reduce the occurrence of illegal fishing. Learning to directly involve coastal communities in suppressing illegal fishing should be carried out, as happened in the Para, North Sulawesi and Maluku communities with the sasi institutional system (Mantjoro, 1996a; Mantjoro, 1996b). This is a strategic step to anticipate the high costs if an MCS system is formed (Monitoring, Controlling and Surveillance) through formal institutions. The high mobility of the majority of the Spermonde Islands community must be anticipated by establishing an ecosystem-based management system in the form of sub-regional cooperation so that there will be an exchange of data and information about illegal fishing activities.

CONCLUSION

Illegal fishingcontinues to occur in the Spermonde Islands due to the pressure to fulfill economic needs, lack of investment, high market demand, and the increasingly narrow space available for small fishermen due to the dominant orientation of economic-oriented resource utilization policies. The effectiveness of the supervision system and the provision of sanctions against destructive fishing actors is needed in providing protection to the ecosystem and the sustainability of fishery resources. It is suggested in the context of fisheries policy that community involvement in alternative livelihood activities is one of the strategies to divert fishermen's activities into destructive fishing activities.

ACKNOWLEDGEMENT

Thank you to fishermen and community leaders in Pangkajene Islands Regency for their cooperation in providing the information needed in this research. Thanks are also conveyed to the staff of the Department of Fisheries and Maritime Affairs of the Pangkajene Islands Regency for their cooperation in providing the required secondary fisheries data.

REFERENCES

Arief, AA (2021). Small Island Fishermen and Capitalism. Yogyakarta : Depublish.

Arief, AA, & Agusanty. (2021). Fishermen An Economic Sociology Review. Yogyakarta : Depublish.

Arief, AA, Agusanty, H., & Mustafa, MD (2020). Fishermen Conflict and the Resolution for Using Fisheries Resources Utilization at Selayar Islands, South Sulawesi. ECSOFiM (Economic and Social of Fisheries and Marine Journal), 7(2), 228–238.

Berkes, F. 1996. Social Systems, Ecological Systems, and Property Rights. In Hanna, SS, Folke, and KG, Maler (Eds). Right to Nature: Ecological, economic, cultural, and political principles of institutions for the environment. Beijer, Island Press.87-107.

Christy, FT 1982. Territorial Use Rights in Marine Fisheries: Definitions and conditions. FAO Fish. Tech. Papers. 277:10pp.

Goodstein, ES 1999. Economics and the Environment. Second Edition. Prentice Hall, New Jersey. 558p.

Graham, T, and N. Idechong. 1998. Reconciling Customary and Constitutional Law: Managing Marine Resources in Palau, Micronesia. In K. Ruddle (Ed.). Special Issue on A Modern Role for Traditional Coastal Marine Resource Management Systems in the Pacific Islands. Ocean & Coastal Management. Vol. 40. No.2-3:143-164.

Hanna, S. S, C. Folke, and K. G. Maler. 1995. Property Rights and the Natural Environment. In SS Hanna, C. Folke, and K. Goran Maler. Rights to Nature: Ecological, Economic, Cultural, and Political Principles of the Institutions for the Environment. Island Press. 1-10.

Hardin, G. 1998. Extensions of The Tragedy of the Commons. Science 280 (5364): 682..

Johannes, RE 1981. Working with Fishermen to Improve Coastal Tropical Fisheries and Resources Management. Bulls. of Marine Science, 31(3).

Kusnadi, 1998. The Increase of Marine Resource Exploitation. Kompas, the national newspaper.Http://www.kompas.com/9802/17/ Opinion/men.htm

Li, TM 1996. Images of Community: Discourse and Strategy in Property Relations. Development and Change. Vol. 27 Number 3. July 1996: 501-527.

Mantjoro, E., 1996a. Management of Traditional Common Fishing Ground: The experience of the Para community, Indonesia. Coastal Management, 24:229-250.

Mantjoro, E., 1996b. Traditional Management of Communal-Property Resources: The practice of the Sasi system. Ocean & Coastal Management Vol. 32. No. 1. Elsevier Science. Ltd. pp. 17-37.

Miles, MB, Huberman, AM, and Saldana, J. (2014). Qualitative Data Analysis, A Methods Sourcebook, Edition 3. USA: Sage Publications.

Munyi, F. (2009). The Social and Economic Dimensions of Destructive Fishing Activities in the South coast of Kenya.

Nurdin, N., & Grydehøj, A. (2014). Informal governance through patron–client relationships and destructive fishing in Spermonde Archipelago, Indonesia. Journal of Marine and Island Cultures, 3(2), 54–59.

Saad, S. 1998. Fishermen Empowerment Strategy. Kompas, The national newspaper.Http://www.kompas.com/9802 /24/opini/stra.htm.

Saad, S. 2000. The Right of Retention and Fishing: Existence and Prospects of Its Regulation in Indonesia. Gadjah Mada University, 2000. Ph.D Dissertation.

Saad, S. 2001. Decentralization of Marine Territory Management. Decentralization of Coastal Areas. In S. Saad, M. Hasbi, and Awaluddin (Eds). Decentralization of Coastal Resources Management. Proceedings of Regional Workshop of Sulawesi Island. Makassar, 12-14 March 2001. Partnership for Government Reform – Elsap. 277 – 280.

Silva, P. (2006). Exploring the linkages between poverty, marine protected area management, and the use of destructive fishing gear in Tanzania. World Bank Policy Research Working Paper, 3831.

Taufiq, TT (2018). Religion-Based Environmental Wisdom (Ethnoecological Study of Fisherman Community in Banyutowo Coastal, Dukuhseti Pati). Journal of the Sociology of Religion, 11(2), 259–280

Stice. 2010. Akuntansi Keuangan. Edisi 16. Jakarta: Salemba Empat.

Suratiyah, K. 2015. Ilmu Usaha Tani. Jakarta: Penebar Swadaya.

Undang-Undang Republik Indonesia. Nomor 16 Tahun 1964 Tentang Bagi Hasil Perikanan. Sekretariat Negara Republik Indonesia.

Undang-Undang Republik Indonesia Nomor 13 Tahun 2003 Tentang Ketenagakerjaan. Sekretariat Negara Republik Indonesia.

Usman, S. 2004. Pembangunan dan Pemberdayaan Masyarakat. Yogyakarta: Pustaka Pelajar.