



FOSTERING STEWARDSHIP IN MANAGING FISHERIES AND AQUATIC RESOURCES IN THE LENS OF GREEN CRIMINOLOGY

ROSE ANN DIAGSAY-AGUJA, Ph.D.

<https://orcid.org/0009-0008-7814-9426>

roseann.aguja@vsu.edu.ph

Visayas State University Tolosa, Tanghas, Tolosa, Leyte, Philippines

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ABSTRACT

Illegal fishing imperils Gulf ecosystems, prompting this qualitative study, rooted in green criminology and purposive sampling, to explore stewardship in fisheries and aquatic resource management. Police officers (Bantay Dagat), BFAR representatives, Barangay Officials, and Fisherfolks were interviewed. This study revolved around three main thrusts: (1) common law violations relative to the fishery and aquatic resources law violations; (2) the reasons/motivational factors of engaging in the fishery and aquatic resources law violations; and (3) measures on how the community can foster stewardship in managing fisheries and aquatic resources. The findings proved that the illegal fishing activities in municipal waters and marine protected areas were done for higher income and economic sustenance but posed various threats to the sustainability of aquatic and fishery resources and the environment in Leyte Gulf. The study also found that the community can foster stewardship through participatory enforcement of aquatic and fishery laws and programs and the provisions of equipment and resources needed for more effective patrol and surveillance of marine waters to prevent and combat illegal fishing.

Keywords: Green Criminology, Illegal Fishing, Stewardship, Leyte Gulf

INTRODUCTION

Illegal fishing poses one of the biggest threats to fisheries management for the place. Several factors hamper efforts to deal with the problem. The large area of marine space relative to the land area, the migratory fisheries resources, lack of financial and technical resources, and skilled human resources compound the problem of dealing with illegal fishing in Leyte. The ocean occupies more than two-thirds of the Earth's surface and is considered the heart of the planet and the largest ecosystem on Earth. Understandably, for people who subsist on fishing,

the ocean remains a major source of livelihood, especially for those living near coastal areas.

According to Shapiro (2015), the oceans are very important in many different ways. They provide sanctuary for spectacular marine ecosystems, and livelihoods for countless fishermen, and, if appropriately protected, could very well feed the world. Among Filipinos, millions depend on their fishing for their livelihood. However, the fish, which are rich and precious resources, are declining rapidly. Major fishing grounds are already under threat due to overfishing, destructive fishing practices, habitat degradation, pollution, improper waste disposal,

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and extreme weather are all undermining the marine environment. Years of overfishing have prompted an imminent crisis of fish stocks worldwide, where they are overexploited and unsustainable.

On the green criminology rationale, criminology professionals suggest that green crimes present the most significant challenge to criminology as a discipline. As Lynch and Stretesky, (2016) put it, "as we observed, most of the criminologists ignore green issues; we are not just concerned about neglecting the problem. Still, instead, we are disturbed by the fact that as part of the profession, criminology cannot understand the thought of taking green crimes more seriously, and the need to reorient itself in making ways to find a solution to a vast global environmental problem we are currently facing".

In numerous maritime regions of the world, illegal fishing has massively contributed to the depletion of fish stocks, particularly in developing countries' coastal waters (WorldOceanReview2, 2013). The decline in production and the resulting decrease in income from fishing can be attributed to several factors such as massive exploitation of the country's fishing grounds, illegal unreported, and unregulated fishing, deadly impacts of climate change, and disasters to lives, livelihoods, and properties of fisherfolk (Greenpeace Philippines, 2017). The ocean being under threat will eventually lead to harming the ecosystems, such as decreasing the fish population and the change of the marine environment. One of those threats gets relatively little attention but is both serious and solvable in large-scale illegal fishing (PEW, 2017). It is difficult to estimate the exact total catch from illegal fishing which is considered a global problem. Most of the fish stocks have been overexploited and are depleted. Despite the presence of fishery laws, the "Bantay Dagat" is still facing difficulties in combatting illegal fishing

activities within the society (WorldOceanReview, 2013).

Leyte Gulf is one of the major sources of marine products in Region 8. The municipal areas covered are; Abuyog, McArthur, Mayorga, Dulag, Tolosa, Tanauan, Palo, Tacloban, Basey Samar, and Marabut Samar. Despite the presence of fishery and aquatic resources laws, problems in the enforcement and non-compliance of fisher folks are still existing.

Dynamite or blast fishing, fishing with poison, and destructive gear are particularly damaging to fisheries resources. Overfishing and competition between the municipal and the commercial fishing sectors are due to the finite nature of marine resources combined with an "open access" principle. When excessive fishing effort leads to resource depletion, fisherfolk are forced to employ more efficient fishing technology, increasingly finer meshed nets, poisons, and other destructive fishing methods to meet their short-term needs at the expense of resource sustainability.

In this situation, there are already problems in eliminating illegal fishing practices. Further study is needed to address the other problems related to the common violations of fishery and aquatic resources laws in the Leyte Gulf. The study presumes that an effective alternative livelihood program for the fishing community has many benefits and can impact the lives of fisherfolks as well as their families. Fostering the community's stewardship in managing fisheries and aquatic resources would promote a positive impact that was very useful in preserving marine resources for the benefit of future generations.

The study was anchored primarily on Environmental stewardship which includes aspects of social, economic, and environmental sustainability and meeting the needs of the present without compromising the ability of future



generations to meet their own needs" (Brundtland, 1987). This study was anchored on the following philosophies and theories: Green Ethics Philosophy (Newman, 2015); Human Resource Philosophy; Fisheries Compliance Theory (Hauck and Kroese, 2006); Philosophy of Stewardship (Welchman, 2012), and; Social Learning Theory (Bandura, 2019).

Green Ethics Philosophy considers the moral relationship between human beings and the value and moral status of the environment. A sustainable environment is essential not only at present but also in providing a better future; thus, everyone must know their moral obligation towards the environment (Newman, 2015). Since the ocean is considered the essential source of food and the main livelihood of fishing communities, it is right for them to be protected and ensure sustainability.

Human resource philosophy revolves around management's beliefs and assumptions about people, nature, needs, values, and approaches to work. These beliefs and assumptions, then determine how people should be treated. This philosophy proves that the fishing communities and the people who get benefits should treat the water resources the way they should be treated so that they can provide enough supply to sustain life.

Fisheries Compliance Theory by Hauck and Kroese (2006), which evolved over the past two decades, provides information that clarifies the factors that influence fishers' behavior and develops appropriate strategies to enhance compliance. Thus, every member of the community, especially the fishing communities, must adhere to the regulatory compliance to fishery laws, which are all intended to conserve and improve the fish population to sustain a living.

The philosophy of stewardship puts across the culture of responsibility that is generally seen

as beneficial because it promotes greater transparency and accountability. It stresses responsibility for managing human activity, affecting the natural environment to ensure conservation and preservation of natural resources and values for future generations (Welchman, 2012). Every individual is responsible for marine resources, and we can contribute and manage sustainably so that future generations can continue to benefit from them.

Further, Social learning theory was based on the idea that individuals develop motivations and skills to violate the law through associating with or exposure to others involved in illegal fishing activities (i.e., associating with deviant peers). Akers proposed that this exposure to abnormal behavior provided individuals with definitions seen as either approving or neutralizing the behavior (Bandura, 2019). Small-scale fishers were forced into non-compliance and unsustainable fishing practices due to a lack of income due to decreased fish stocks. That is why they are prone to influence, and they learned to execute illegal fishing activities.

The study was based on the rationale for fostering stewardship in managing fisheries and aquatic resources through the lens of green criminology. In this context, fishermen play an important role in the community since they obtain food from marine resources, and they have a responsibility to maintain and preserve these resources. Therefore, fishing communities must adhere to the fishery laws for the water resources to be properly protected and can supply enough food needed by society.

OBJECTIVES OF THE STUDY

The study was primarily centered on advancing the concept of stewardship within the framework of fisheries and aquatic resource

management. It aimed to investigate the following specific objectives:

1. To ascertain instances of common legal infractions relative to fishery and aquatic resource legislation in the context of Leyte Gulf.
2. To delineate the underlying factors and motivations that lead fisherfolk to contravene laws governing fishery and aquatic resource management.
3. To devise strategies for the incorporation of community-driven stewardship practices into the overarching framework for the governance of fisheries and aquatic resources.

METHODOLOGY

The research employed a qualitative research design due to its focus on gathering data through respondents' observations and interview responses. This approach aimed to elucidate common violations of fishery and aquatic resource laws, the underlying reasons motivating fisherfolk to commit such violations, and the strategies for community-driven stewardship in managing fisheries and aquatic resources. The study's objectives were to describe the nature of the situation and explore the causal factors of the observed phenomenon.

Three distinct groups of respondents participated in the study, engaging in individual interviews and focus group discussions to provide essential information. These groups comprised three Police Officers (Bantay Dagat), three representatives from the Bureau of Fisheries and Aquatic Resources (BFAR), three Barangay Officials, and three Fisherfolks. These selections were purposeful to ensure diverse perspectives.

The study was conducted within Leyte Gulf, a significant source of marine products located in the central Philippines. Municipal areas covered by Leyte Gulf included Abuyog, McArthur,

Mayorga, Dulag, Tolosa, Tanauan, Palo, Tacloban, Basey Samar, and Marabut Samar.

Data collection involved the use of an interview guide during one-on-one in-depth interviews and focus group discussions. The researcher made frequent visits to the research locale to clarify information and address data gaps as needed. Additionally, documentary analysis was used to validate respondents' statements by reviewing documents that contributed to the data's clarity.

The research tool underwent a rigorous review and validation process before implementation. The tool was validated by experts and panel members during preliminary presentations of the study, and the interview transcript was included for reference.

To conduct the study in the selected area, the researcher sought permission through a formal letter addressed to the Municipal Mayors and Chief of Police. Data collection commenced only after obtaining voluntary and informed consent from the respondents, ensuring their awareness of the study's objectives, the extent of participation, and their rights as informants.

The interviews were conducted in the local language, Waray, to ensure comprehension among the participants. Audio recordings of interviews were made with respondents' knowledge and consent. Additionally, direct observations complemented the information gathered from interviews.

After collecting interview responses, the researcher organized and analyzed the data using Braun and Clarke's Thematic Analysis (TA) method, following a six-step guide. This method allowed for flexibility in addressing research questions related to respondents' experiences and views on illegal fishing.

The primary themes in this study encompassed: 1) common law violations related to

fishery and aquatic resources in Leyte Gulf, 2) reasons and motivating factors leading to these violations, and 3) strategies for community-driven stewardship in fisheries and aquatic resource management. These themes were integrated into all three research questions posed in Chapter 1.

The study adhered to ethical research principles, including securing informed consent from respondents before data collection, ensuring anonymity through coding, maintaining data confidentiality, and planning to disseminate study results to respondents through official coordination with local municipal authorities.

RESULTS AND DISCUSSION

The results are then utilized as the basis for the formulation of a set of policies that can be implemented to foster stewardship in managing fisheries and aquatic resources through the lens of green criminology.

1. Common Violations Relative to Fishery and Aquatic Resources Law Violations in the Leyte Gulf

The results, as discussed in this section, show the common violations relative to the fishery and aquatic resources law in the Leyte Gulf were elicited from the actual experiences of the respondents, namely the Police Officers, BFAR representative, Barangay Officials, and Fisherfolks.

2. Fishing through Illegal Means

Illegal fishing can be done through any of the following: use or possession of explosives, noxious and poisonous substances, and electricity (Section 88); use of fine mesh net except for certain species (Section 89); use of active fishing

gear in municipal waters, at bays, or fishery management areas (Section 90); fishing with gear or method that destroys coral reefs and other marine habitats, such as muro-ami (Section 92); use of superlight (Section 93).

These illegal means of fishing show that the fisher folks wanted to catch more fish quickly. They often resorted to illegal fishing through explosives without regard to the harmful effects on the future fish stocks and the marine life's habitat. The illegal act of fishing occurs not only in Leyte Gulf but also in many parts of the country since the majority of the population lives on the coastlines and relies on the seas for sustenance and livelihood. Not only did the local fisherfolks do this, but also the poachers utilized this kind to ensure a quick catch.

As observed by the researcher, fisherfolk are mostly involved in using dynamite in fishing, as is the case with trawling because they are active gear that are prohibited in municipal waters. This is to say that the fisherfolks have indulged in illegal, unregulated fishing, even knowing the hazard and danger it may cause to them and the natural habitat of the fish.

According to Actman (2016), fishermen use explosives, often with dynamite, to maximize their catch. Katiriko and Mahenge, (2016) further stated that dynamite or blast fishing remains the most pervasive fishing method in coastal waters that constitutes a major threat to small-scale fisheries through the degradation of reefs critical habitats for fish in blast fishing, it kills all marine creatures within the vicinity. It destroys the coral reefs, which play a crucial role in marine biodiversity.

Trawling is also one of the common fishing gears that are usually used as a way of fishing. It consists of throwing heavy gear over the bottom of the oceans in search of fish near the seafloor. These are then ballasted and then pulled for their

collection. This is also considered a destructive gear because it causes harmful effects to other fisheries and the marine environment. Clearly, not only is everything in their path disturbed and destroyed, but also it leads to overfishing.

According to Krotkov et al., (2017), trawls are the most common human-caused disturbance to the seabed, which is believed to harm and deplete marine life. Accordingly, the frequently repeated trawling over the same ground involves displacement of sediments owing to mechanical redistribution that ultimately causes the leveling of the surface and produces morphological effects. Trawling can catch unwanted species of fish or other marine species, collectively known as bycatch, which harvest many non-target species.

It corroborates the study of Kumar, Rajagopalan, Hoerling, Bates, and Cane (2006) which stated that trawl fishing has a direct and indirect impact on the marine environment because it collects and kills the volume of non-target species. Also, it directly kills the volume of fish and other marine species and is very destructive to the seabed. Trawl fishing is considered unsustainable because such operations can rapidly cause the depletion of fish stocks. If this practice continues to exist, it will eliminate marine resources in the long run.

The practice of illegal fishing by utilizing Danish seine is mainly used to catch marine species found on the ocean floor. This kind of fishing gear consists of a conical net with a pair of wings, the ends of which are connected to a rope embedded with buri, plastic strips, sinkers, or other similar materials to serve as scaring or herding device hauled through a mechanical winch or by manpower. Using Danish seine is very damaging compared to the benefits; that is why, that kind of fishing practice has been prohibited and considered illegal.

Danish seine is considered an active gear that has been proven to destroy marine habitats and other fishery resources. The use of fishing gear is a violation of section 92 of Republic Act 8550 and the use of such gear was banned by the government in 2013. The law reiterates the prohibition of using any fishing gear that destroys and damages the coral reefs, seagrass beds, and other fishery marine life habitats (Mirafior, 2018). The full enforcement of prohibiting this kind of fishing gear will help preserve the marine environment.

3. Fishing in Prohibited and Restricted Areas

The informants in this study have commonly claimed that the other most common law violations relative to fishery and aquatic resources law violations in Leyte Gulf are fishing in prohibited and restricted areas. According to law, this type of violation can be any one of the following: commercial fishing in overexploited areas (Section 86); fishing in overfished areas and during the closed season (Section 95); fishing in areas declared as fishery reserves, refuges, and sanctuaries (Section 96); violation of catch ceilings (Section 101).

Illegal fishing activities happen in an area where there is a school of fish. People violate the law because they are tempted by the volume of fish caught despite the knowledge of harming marine resources.

The municipal water, as defined by RA 8550, is 15 kilometers away from the coastline when coral reefs, seagrass beds, and mangroves foster marine species subject to fishing. Municipal water is important to protect fishermen's rights, especially in the preferential use of municipal water. The Undersecretary for Fisheries and BFAR Director Eduardo B. Gongona emphasizes engaging the fisherfolks as sea stewards and

guardians to protect their fishing areas. The resident fishers are given priority to exploit the expanded kilometer limit of municipal water. This is one of the common areas wherein illegal fishing happens when other fishermen enter the jurisdiction of other municipal water without a permit and conduct the fishing.

4. Reasons for Engaging Fishery and Aquatic Resources Law Violations

One of the common reasons why a person is pushed to do illegal or engage in any activities that violate the law is poverty. Poverty refers to a situation where a person lacks or is limited in terms of financial resources and essentials for minimum living standards. As a consequence, some who are poverty-stricken get engaged in illegal activities in order to procure or be provided the basic needs for them to survive. In the context of this study which sought to determine why the fisher folks engage in illegal fishing activities, poverty is seen to be among the reasons. Below is a discussion of the themes that emerged from analyzing the respondents' answers to the interview questions.

5. Source of Higher Income

Low income is the common reason why fisherfolks violate the rules and regulations of fishery laws. It may correspond not only to a lack of resources but also to the lack of opportunity to improve one's standard of living and acquiring resources. The wider conception of low income appears to be particularly well-suited for small-scale fishers who often live in remote and isolated communities. To provide for the basic needs of the family, they often engaged in illegal fishing practices.

6. A Means to Alleviate Poverty of Family and Source of Livelihood

Aside from earning a higher income, another reason why the fisher folks in Leyte Gulf commit fishery and aquatic resources law violations as unanimously agreed by the respondents is to alleviate family poverty.

Most of the people in coastal communities struggled in their daily lives. Fisheries are depleted therefore the leading agency must improve its management and develop alternative livelihood options for fisherfolks to avoid violations of fishery and aquatic resources law. At present the government already offers different livelihood options to increase income and help sustain the basic family needs of this fishing community. A clear analysis of the impact of alternative income-generating activities is needed before they are recommended or promoted.

7. Weak Enforcement of the Aquatic and Fishery Laws

Most respondents agreed that the third common reason for engaging in fishery and aquatic resources law violations is weak enforcement of the aquatic and fishery laws.

The statements from the respondents imply that weak implementations of the aquatic and fishery laws trigger fisher folks to engage in illegal fishing, making it more susceptible to the destruction of the marine resources environment and unsustainable fishing for legal fishing and illegal fishing.

Improving the implementation of fishery and aquatic resources law is more than enhancing law enforcement officers' capacity to apprehend the violators. Effective coastal policy and law implementation must address all aspects of the law enforcement continuum, including legislation



and regulation, apprehension prosecution, judgment, education, and monitoring. It is very important to have support coming from the government in order for the enforcer to be fully equipped if we want this kind of damaging fishing practice to be eliminated.

8. Means of Fostering Stewardship in Managing Fisheries and Aquatic Resources by the Community

The need to promote environmental improvement and care through stewardship is very necessary. It is a diverse action in creating different protected areas, replanting trees, coastal cleanup, and reducing, or the stoppage using illegal fishing gear for more sustainable marine resources.

9. Reporting Violations of Fishery and Aquatic Laws

Most of the key informants have agreed that one way by which the community contributes to fostering stewardship in managing fisheries and aquatic resources is to report violations of fishery and aquatic laws and regulations.

The responses imply that despite the illegal activities perpetuated by the fisherfolks, some fisherfolks and members of the community have the initiative to report violations of laws relative to illegal fishing. This is because they find it part of their duty to protect the marine environment and preserve it for future generations. As stated by one fisher folk in an informal interview, "It is our obligation as a fisherman to be aware of the possible impact of illegal activities on the marine environment so we have to report violation".

Information coming from the community is necessary to identify violators and take appropriate action immediately. Reporting any

violations of fishery laws will help stop illegal fishing practices in the locality.

10. Improvement of the Equipment for Surveillance and Patrolling

Generally, the main problems in effective implementation are lack of appropriate equipment, operating funds, and trained manpower. Those who resort to dynamite fishing use compressors, improvised flippers, and explosives consisting of ammonium nitrate, sinker, and scoop net. Their fight against fishermen using dynamites is made even more difficult by the intrusion of big-time commercial vessels into municipal waters in the Leyte Gulf.

Bantay Dagat members also have to deal with the motorboats used by the illegal fishers, which sport faster engines with 32 horsepower compared with the Bantay Dagat boats, which only have 15 horsepower. Bantay Dagat members chase them on water and even on land. They are also accused of violating human rights by the owners of commercial vessels. Enforcement is not always an easy affair. There have been some instances where blast fishers have fought back against law enforcers with shootouts, and some have harassed community members who report them to the authorities.

The local chief executives can foster stewardship through financial or awards/benefits and appropriate sanctions, considering the illegal fishers are fully armed with speed boats for the protection and safety of the environment. The residents' obligation towards their environment is under the care of the local chief executives.

11. Participation in Marine and Coastal Cleanup Drive and Other Programs

As observed, people in the community are working together to conduct a twice-a-month tree



planting and coastal cleanup to maintain the marine environment. The community contributes to fostering stewardship in managing fisheries and aquatic resources through tree planting, and coastal cleanup. If the fishing community abides by the fishery laws and works hand-in-hand to stop the illegal practice, the community can accurately preserve the marine resources for the benefit of future generations.

What motivates them to help and stop illegal fishing practices is the perceived negative effect on the marine environment. If this continues to happen, the time will come, when all marine resources will disappear and the next generation will no longer have enough nutritious fish.

The responses further imply that the fisher folks are aware of the possible effects of marine pollution, which warrants them to help protect and sustain it for the following generation to experience an abundance of safe and nutritious fish for food consumption. They therefore are also encouraging everyone in the fishing community to accept the responsibility and challenge by working together for the sustainability of marine resources in Leyte Gulf.

In summation, the common violations relative to fishery and aquatic resources law violations in the Leyte Gulf are Fishing through illegal means and fishing in prohibited and restricted areas. Whereas the common reason they are pushed to do illegal fishery and aquatic resources law violations is for higher income, a means to alleviate Poverty of family and Source of livelihood lastly; the community can foster stewardship in managing fisheries and aquatic resources by Reporting violations of fishing and aquatic laws, improvement of the equipment for surveillance and Patrolling by the LGU and Participation in Marine and coastal cleanup Drive and other programs.

CONCLUSION

Illegal fishing in Leyte Gulf continues to persist. However, it had provided socio-economic opportunities to the fisher folks, had to adhere and recurring issues on marine waters and resources environment and green crimes. It has greatly affected the people and the place, which requires stronger aquatic and fishery stewardship among the fisher folks, community, and the government towards sustainable marine resources.

RECOMMENDATION

This study offers several key recommendations to combat illegal fishing in Leyte Gulf. Firstly, local chief executives should establish a program that rewards reporting of illegal fishing. Secondly, strict enforcement of fishery laws is crucial, with enhanced patrols by the PNP-Maritime Group, Bantay Dagat, and DA-BFAR.

Additionally, the local government should upgrade patrol equipment, provide faster boats, allocate operating funds, and ensure trained manpower for Bantay Dagat and PNP Maritime Group. To address poverty in the fishing community, DA-BFAR and local government units should collaborate on sustainable alternative livelihoods, with regular monitoring.

Each municipality should implement ordinances with higher penalties for illegal fishing violations as deterrents. Lastly, considering the research's importance, further studies on unreported, unregulated, and illegal fishing in Leyte Gulf are recommended.

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AUTHOR'S PROFILE

Rose Ann Diagsay Aguja, Ph.D., is an Assistant Professor IV at Visayas State University Tolosa. She is an active faculty member of the College of Criminal Justice Education at Visayas State University-Tolosa since 2008. She graduated Bachelor of Science in Criminology at Leyte Colleges, Tacloban City last 2008. She was a Registered Criminologist having a specialization in Fingerprint Identification taken at the Professional Academy of the Philippines, Naga City Cebu. She Graduated Master of Science in Criminal Justice with a Specialization in Criminology at Emilio Aguinaldo Colege, Ermita Manila last May 2014. She also earned the degree of Doctor of Philosophy in Criminal Justice with Specialization in Criminology at the University of Baguio, Baguio City last July 2020.

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