

Coastal Fishing in the Province of Surigao del Sur: A Case Study

Eduard Jan E. Plaza¹, Harry Santiago P. Achas²

¹Instructor, College of Criminal Justice Education, North Eastern Mindanao State University-Cantilan

²Professor, College of Criminal Justice Education, PHINMA Cagayan de Oro College

Abstract

This qualitative case study examined illegal fishing practices among small-scale fishers within the coastal context of Cantilan, Surigao del Sur. Specifically, the study explored the forms and methods of illegal fishing, the socio-economic, environmental, and governance factors contributing to their persistence, their impacts on fishing communities and marine ecosystems, and participants' perspectives on improving compliance with fisheries regulations. The study was anchored in Southern Green Criminology, Political Ecology, and Environmental Justice, which provided complementary perspectives for understanding environmental offending within resource-dependent coastal communities. Data were gathered from small-scale fishers and qualitatively analyzed to identify recurring patterns and themes. The findings revealed that participants engaged in prohibited practices, including the use of unregulated lobster fingerling traps, triple nets, compressor-assisted spearfishing, and fishing within marine sanctuaries or during restricted periods. These practices involved deliberate decisions influenced by poverty, unstable income, dependence on fishing, limited livelihood alternatives, declining marine resources, and inconsistencies in enforcement and monitoring. Although prohibited fishing practices provided immediate economic benefits and addressed short-term household needs, they also contributed to declining fish populations, the capture of juvenile species, disruption of reproductive processes, and increased pressure on protected marine areas, thereby threatening long-term livelihood sustainability. Moreover, participants recognized the importance of fisheries regulations and expressed willingness to comply when viable livelihood alternatives, sustained institutional support, accessible regulatory processes, and consistent enforcement were present. Overall, the study concluded that illegal fishing in Cantilan was a multidimensional environmental and criminological concern shaped by the interaction of individual decision-making, socio-economic vulnerability, ecological decline, and governance conditions. The findings underscored the importance of balancing individual accountability with an understanding of structural conditions and highlighted the need for consistent enforcement, sustainable livelihood support, community participation, and collaborative environmental governance to strengthen compliance and protect marine resources.

Keywords: environmental crime, environmental justice, fisheries governance, green criminology, illegal fishing, small-scale fishers, sustainable fisheries

Introduction

Illegal, unreported, and unregulated (IUU) fishing remains one of the most persistent threats to marine biodiversity, coastal livelihoods, and fisheries governance, particularly in developing maritime states

where enforcement capacity and socio-economic vulnerability intersect. Beyond constituting a violation of fisheries regulations, IUU fishing has increasingly been conceptualized as a form of environmental harm with profound criminological implications because it simultaneously depletes ecological resources, undermines state legitimacy, and perpetuates social inequalities within coastal communities. Globally, IUU fishing weakens sustainable fisheries management, exacerbates food insecurity, and disproportionately affects small-scale fishers who depend on marine resources for survival. (FAOHome) In the Philippines, despite the enactment of Republic Act No. 8550, as amended by Republic Act No. 10654, and continuing investments in monitoring, control, and surveillance, illegal fishing persists across numerous coastal municipalities, reflecting a complex interaction among economic deprivation, institutional limitations, ecological decline, and community practices. (AOHome) Within this context, the coastal municipality of Cantilan in the Province of Surigao del Sur presents a particularly important case because local livelihoods remain highly dependent on municipal fisheries while reports of prohibited fishing methods and incursions into protected waters continue to challenge marine resource governance. Against this backdrop, the present study asks: How do socio-economic conditions, governance dynamics, and local ecological realities shape the persistence of illegal fishing practices in Cantilan, Surigao del Sur, and how can participants' lived experiences inform more effective and socially legitimate fisheries governance? This question is significant because it shifts attention from viewing illegal fishing solely as regulatory non-compliance toward understanding it as a socially embedded environmental crime occurring within structurally constrained coastal communities.

Recent scholarship increasingly recognizes that illegal fishing cannot be adequately explained through deterrence or legal compliance models alone. Contemporary fisheries research demonstrates that IUU fishing is embedded within broader socio-ecological systems characterized by poverty, declining fish stocks, governance fragmentation, market pressures, and climate-related environmental change (FAO, 2024; UN, 2025). Simultaneously, recent developments in green criminology argue that environmental crime should be examined as harm produced through unequal political, economic, and ecological structures rather than merely individual offending (Brisman & South, 2023). Emerging scholarship likewise emphasizes environmental justice perspectives, highlighting how marginalized coastal populations often experience both the causes and consequences of ecological degradation while possessing limited influence over resource governance. Within fisheries governance, scholars increasingly advocate participatory and community-based approaches, arguing that enforcement effectiveness depends not only upon surveillance and sanctions but also upon legitimacy, trust, procedural fairness, and livelihood security. However, an important scholarly debate remains unresolved. One perspective continues to prioritize stronger enforcement technologies, surveillance systems, and legal deterrence as the principal mechanisms for reducing illegal fishing, whereas another argues that enforcement without addressing structural poverty, livelihood dependence, and governance inequities merely displaces rather than resolves environmental offending. These competing perspectives reveal a growing consensus that illegal fishing represents a multidimensional governance challenge while simultaneously exposing disagreement regarding the relative importance of structural versus enforcement-centered interventions.

Despite these advances, a significant empirical and theoretical gap remains. Existing literature has predominantly examined illegal fishing through macro-level analyses emphasizing ecological impacts, fisheries economics, compliance rates, remote sensing technologies, or institutional performance. Comparatively fewer studies have investigated illegal fishing as a criminological phenomenon grounded

in the lived experiences, decision-making processes, and social realities of small-scale fishers operating within specific local contexts, particularly in the southern Philippines. This omission is theoretically important because environmental harm is experienced, interpreted, and negotiated within local social, cultural, and political environments that cannot be adequately captured through aggregate fisheries statistics or enforcement records alone. Empirically, municipalities such as Cantilan remain underrepresented in international scholarship despite possessing ecological significance, high dependence on municipal fisheries, and continuing governance challenges associated with prohibited fishing practices. Consequently, the persistence of illegal fishing in this locality raises questions extending beyond legal compliance toward understanding how structural inequality, livelihood precarity, community norms, ecological decline, and perceptions of governance converge to influence environmental offending. Addressing this gap is therefore necessary to advance criminological understandings of environmental crime within Global South contexts while generating contextually grounded evidence capable of informing locally responsive fisheries governance.

This study contributes theoretically, methodologically, and practically to contemporary criminological and environmental governance scholarship. Theoretically, it advances Southern Green Criminology by demonstrating how environmental harm emerges through the interaction of structural inequalities, ecological vulnerability, and governance conditions within a resource-dependent coastal community. It further integrates perspectives from Political Ecology and Environmental Justice to explain illegal fishing not merely as unlawful behavior but as a manifestation of broader socio-ecological relations shaping access to marine resources, legitimacy, and environmental harm. Methodologically, the study contributes an in-depth qualitative case study that privileges participants' lived experiences, thereby complementing predominantly quantitative fisheries research with context-rich evidence concerning motivations, perceptions, and governance realities. Practically, the findings provide evidence capable of informing fisheries management policies that balance enforcement with sustainable livelihood development, participatory governance, and community-based conservation strategies. More broadly, the study contributes to international debates concerning environmental crime, sustainable marine governance, and coastal resilience by demonstrating that effective responses to illegal fishing require simultaneously addressing ecological sustainability, social equity, institutional legitimacy, and community participation. In doing so, the research offers a context-sensitive framework that may inform future criminological inquiry, environmental policymaking, and fisheries governance within the Philippines and other resource-dependent coastal regions confronting similar environmental and governance challenges.

Theoretical Framework

Illegal fishing in coastal communities cannot be adequately understood through conventional criminological perspectives that conceptualize offending primarily as individual deviance or rational non-compliance. Rather, it emerges from the convergence of ecological degradation, structural inequality, governance failures, and livelihood insecurity operating within complex socio-ecological systems. This study argues that illegal fishing in Cantilan, Surigao del Sur represents not merely a violation of fisheries legislation but an expression of environmental harm situated within broader political, economic, and ecological processes. Accordingly, the study adopts Southern Green Criminology as its principal theoretical framework, supported by Political Ecology and Environmental Justice. This integrated framework was selected because it extends beyond legalistic understandings of

crime by examining how environmental harms are produced, normalized, and reproduced through unequal social relations, institutional arrangements, and historical patterns of marginalization. Compared with deterrence-oriented or opportunity-based criminological theories, this perspective offers greater explanatory power for understanding why environmentally harmful practices persist among resource-dependent communities despite legal prohibitions and intensified enforcement efforts. Recent developments in green criminology likewise emphasize that environmental crimes should be understood within broader systems of ecological exploitation and structural inequality rather than solely through the lens of individual culpability.

The primary theoretical foundation of this study is Southern Green Criminology, an emerging perspective that reorients green criminology toward the lived realities of the Global South. While classical green criminology challenged criminology's anthropocentric focus by recognizing environmental destruction as a form of crime and harm, Southern Green Criminology further argues that environmental victimization is deeply embedded within colonial histories, unequal development, ecological dependency, and asymmetric power relations. Rather than treating environmental offending as isolated criminal behavior, it conceptualizes ecological harm as a consequence of structural conditions that simultaneously constrain and shape local agency. Consequently, individuals who participate in environmentally harmful practices frequently occupy the contradictory position of being both contributors to environmental degradation and victims of broader political-economic processes beyond their control. This perspective is particularly relevant to small-scale fisheries, where livelihood dependence, declining marine resources, market pressures, and weak institutional support often intersect to produce forms of environmental harm that cannot be adequately explained through legal definitions of crime alone. Southern Green Criminology therefore shifts analytical attention from individual blame toward examining the structural conditions through which environmental injustice is produced and sustained.

To strengthen this structural analysis, the study incorporates Political Ecology as its first complementary theoretical perspective. Political Ecology argues that environmental problems are inherently political because access to natural resources, ecological risks, and conservation policies are mediated by unequal distributions of power, capital, and institutional authority. Environmental degradation is therefore understood not simply as the outcome of resource overuse but as the consequence of contested governance, competing economic interests, and historical inequalities operating across multiple scales. Within fisheries governance, Political Ecology explains how declining fish stocks, market commercialization, regulatory fragmentation, and uneven enforcement create conditions under which illegal fishing becomes economically rational despite its ecological consequences. Importantly, this perspective does not excuse environmental offending but situates individual decision-making within broader political-economic structures that simultaneously generate ecological scarcity and constrain livelihood alternatives. Such an approach complements Southern Green Criminology by illuminating the institutional and governance processes through which environmental harms become normalized within marginalized coastal communities.

The second supporting perspective is Environmental Justice, which broadens the analysis by examining how environmental benefits, burdens, and decision-making authority are distributed across society. Contemporary environmental justice scholarship extends beyond distributive concerns to include procedural justice, recognition justice, and participatory governance, emphasizing that environmental sustainability cannot be achieved without equitable access to resources, meaningful participation in

environmental decision-making, and recognition of marginalized communities' knowledge and lived experiences. Applied to fisheries governance, Environmental Justice highlights how small-scale fishers frequently bear disproportionate economic costs arising from marine conservation policies while possessing relatively limited influence over regulatory processes. Consequently, compliance with fisheries regulations depends not solely upon legal sanctions but also upon perceptions of institutional legitimacy, fairness, and inclusion. Integrating Environmental Justice with Southern Green Criminology and Political Ecology therefore provides a multidimensional analytical lens capable of simultaneously examining environmental harm, structural inequality, governance legitimacy, and community agency within coastal resource management.

The integrated theoretical framework informs every stage of the present investigation. At the methodological level, it guides the qualitative case study design by directing attention toward participants' lived experiences rather than limiting inquiry to observable regulatory violations. The interview protocol explores how fishers understand environmental harm, negotiate livelihood insecurity, perceive fisheries governance, and rationalize participation in prohibited fishing practices. During thematic analysis, Southern Green Criminology provides the overarching interpretive lens for identifying structural drivers of environmental harm; Political Ecology facilitates examination of institutional arrangements, resource access, and governance dynamics; while Environmental Justice supports interpretation of participants' perceptions regarding fairness, participation, recognition, and institutional legitimacy. Collectively, these perspectives enable a richer understanding of illegal fishing as a socially situated phenomenon produced through the interaction of ecological decline, governance conditions, and socio-economic vulnerability rather than as an isolated manifestation of criminal intent.

Recent scholarship demonstrates the growing relevance of integrated theoretical approaches in the study of environmental crime and fisheries governance. Barrett and Marshall (2023) argue that contemporary green criminology has evolved beyond its original political-economic foundations by incorporating diverse theoretical traditions capable of explaining environmental offending across multiple levels of analysis. Similarly, recent developments in Southern Green Criminology emphasize the importance of decolonizing environmental criminology through greater attention to local knowledge systems, structural inequalities, and Global South perspectives that have historically remained peripheral within mainstream criminological discourse. International scholarship on environmental crime likewise increasingly recognizes that environmental governance requires integrating ecological sustainability with procedural legitimacy, community participation, and social equity rather than relying exclusively upon deterrence-based enforcement strategies. Nevertheless, much of the existing literature continues to emphasize transnational wildlife crime, extractive industries, climate governance, or macro-level environmental policy. Comparatively limited attention has been devoted to understanding how small-scale fishers themselves interpret environmental harm, negotiate regulatory systems, and reconcile livelihood survival with conservation obligations within localized coastal contexts. By focusing on Cantilan, Surigao del Sur, the present study extends this growing body of scholarship by demonstrating how structural inequalities, governance practices, and community experiences converge to shape illegal fishing within a specific Philippine socio-ecological setting.

The integrated framework adopted in this study is therefore particularly appropriate because it accommodates both structural explanation and individual agency while avoiding the reductionism associated with single-theory approaches. Nonetheless, each perspective possesses important limitations. Southern Green Criminology has been criticized for emphasizing structural inequality at the expense of

individual accountability, whereas Political Ecology has occasionally been challenged for privileging macro-level political-economic explanations over everyday decision-making. Environmental Justice, meanwhile, provides normative guidance regarding equity and participation but is less explicit in explaining why individuals engage in environmental offending despite awareness of ecological consequences. Rather than viewing these limitations as weaknesses, the present study treats them as complementary strengths. By integrating the three perspectives, the framework captures the reciprocal relationship between environmental harm, governance, livelihood vulnerability, and local agency, thereby producing a more comprehensive explanation than any individual theory could offer independently. Ultimately, this theoretical positioning contributes to the continuing evolution of environmental criminology by demonstrating that illegal fishing in the Global South is best understood as a socio-ecological phenomenon situated at the intersection of environmental sustainability, distributive justice, institutional legitimacy, and structural inequality. Such an approach advances ongoing debates concerning environmental governance while offering context-sensitive insights relevant to fisheries management, conservation policy, and criminological theory within resource-dependent coastal communities.

Methodology

Research Design

This study employed a qualitative case study design to examine the persistence of illegal fishing within the coastal municipality of Cantilan, Surigao del Sur. A case study approach was considered appropriate because the research sought to generate an in-depth understanding of illegal fishing as a contemporary socio-ecological phenomenon embedded within its natural context rather than as an isolated legal violation (Yin, 2018). The design enabled a holistic examination of how socio-economic conditions, governance dynamics, environmental change, and local fishing practices interact to shape compliance with fisheries regulations.

Given the complexity of environmental offending in resource-dependent communities, the qualitative case study facilitated exploration of participants' lived experiences, perceptions, and decision-making processes that are often inaccessible through quantitative approaches. This design is particularly suited to addressing "how" and "why" questions concerning environmental crime while capturing the contextual realities surrounding fisheries governance. Individual experiences obtained through in-depth interviews were complemented by Focus Group Discussions (FGDs), allowing individual narratives to be contextualized within broader community perspectives. The integration of these qualitative methods strengthened the credibility of the findings through methodological triangulation, enabling comparisons between personal accounts and shared community discourses.

Research Locale and Participants

The study was conducted in the municipality of Cantilan, Province of Surigao del Sur, Philippines, a coastal municipality where municipal fishing constitutes one of the primary sources of livelihood. Cantilan was purposively selected because of its ecological importance, heavy dependence on marine resources, and documented occurrence of illegal fishing activities despite the implementation of fisheries management regulations. These characteristics provided an appropriate setting for examining the complex interaction among livelihood dependence, environmental pressures, and governance challenges.

The participants consisted of ten (10) small-scale municipal fishers with documented experience in illegal fishing activities. Participants were identified through coordination with the Municipal Agriculture Office–Coastal Resource Management (MAO-CRM), which maintains records of individuals previously apprehended or documented for fisheries violations. A purposive sampling strategy was employed to recruit information-rich participants capable of providing detailed accounts relevant to the study objectives. Eligibility criteria included: (1) documented involvement in illegal fishing within the previous two years, (2) active engagement in municipal fishing as their primary livelihood, and (3) residency in one of Cantilan's coastal barangays.

The sample size was deemed appropriate for qualitative inquiry because the objective was to obtain rich, contextualized narratives rather than statistical generalization. Participant confidentiality was maintained through the use of numerical identifiers throughout data collection, analysis, and reporting.

Research Instrument

Data were collected using a semi-structured interview guide developed from the study's research questions and informed by the theoretical framework. The interview guide consisted of open-ended questions designed to elicit participants' experiences regarding illegal fishing practices, contributing socio-economic and governance factors, perceived ecological and community impacts, and recommendations for improving regulatory compliance. Probing questions were employed throughout the interviews to clarify responses and encourage participants to elaborate on significant experiences.

To enhance content validity, the interview guide underwent expert evaluation by specialists in criminology and environmental resource management. Their recommendations regarding question clarity, relevance, and alignment with the study objectives were incorporated prior to field implementation. The finalized instrument provided sufficient flexibility to accommodate emerging issues while ensuring consistency across all interviews.

Data Collection Procedure

Primary data were collected through in-depth interviews (IDIs) with the ten purposively selected participants. Because illegal fishing involves potentially sensitive and legally implicating behaviors, individual interviews were prioritized to provide participants with a confidential environment in which they could openly discuss their experiences, motivations, and perceptions. Each interview lasted approximately 45 to 60 minutes and was conducted in locations convenient and comfortable for the participants, including barangay halls and designated coastal community facilities.

Following completion of the interviews, Focus Group Discussions (FGDs) were conducted to supplement and validate the individual narratives. The FGDs facilitated interaction among participants, allowing collective reflection on shared experiences, community norms, and fisheries governance practices that may not have emerged during individual interviews. The combination of IDIs and FGDs provided methodological triangulation by enabling the researcher to compare individual accounts with collective community perspectives.

Prior to participation, all respondents received a detailed explanation of the study objectives, research procedures, confidentiality safeguards, and their rights as research participants. Written informed consent was obtained before data collection commenced. With participants' permission, all interviews and group discussions were audio-recorded to ensure accurate documentation. Field notes were simultaneously maintained to capture contextual observations, non-verbal communication, and

significant interactions. Audio recordings were subsequently transcribed verbatim, while responses delivered in Cebuano were retained in their original form and translated into English where necessary to preserve contextual meaning.

Data Analysis

The data were analyzed using reflexive thematic analysis, following the systematic procedures proposed by Braun and Clarke (2022). Analysis began with repeated reading of the interview and FGD transcripts to achieve familiarity with the dataset and to identify preliminary patterns of meaning. During the initial coding phase, meaningful units of text were assigned descriptive codes that captured participants' experiences concerning fishing practices, livelihood dependence, governance conditions, environmental perceptions, and regulatory compliance.

The coded data were subsequently examined for conceptual relationships, allowing related codes to be grouped into broader categories. Through an iterative process of comparison and refinement, these categories were synthesized into overarching themes that represented recurring patterns across participants' narratives. Themes were continuously reviewed against the complete dataset to ensure conceptual coherence, internal consistency, and alignment with the research objectives.

Interpretation of the findings was guided by the integrated theoretical framework comprising Southern Green Criminology, Political Ecology, and Environmental Justice. This theoretically informed analytical approach enabled the findings to be interpreted beyond descriptive accounts by examining how structural inequality, environmental change, governance arrangements, and local agency collectively shape illegal fishing practices within resource-dependent coastal communities. To enhance analytical trustworthiness, each theme was supported by verbatim participant quotations, ensuring that interpretations remained firmly grounded in participants' lived experiences while allowing broader theoretical insights to emerge.

Results and Discussion

Illegal fishing in coastal communities represents a multidimensional environmental governance challenge that cannot be adequately understood through legal compliance alone. Participants' narratives demonstrate that prohibited fishing practices emerge through the interaction of livelihood insecurity, declining marine resources, institutional limitations, and locally embedded social norms. Rather than portraying illegal fishing as a consequence of individual criminal intent, the findings reveal a more complex socio-ecological process in which fishers continually negotiate economic survival within increasingly constrained environmental conditions. Consequently, environmental offending becomes embedded in everyday livelihood strategies and shaped by both structural vulnerabilities and governance realities.

The thematic analysis generated four interrelated themes corresponding to the study objectives. The first theme examines the forms and methods of illegal fishing employed by participants and the adaptive rationalities underlying these practices. The second explores the structural drivers that sustain illegal fishing, emphasizing the interaction among poverty, ecological decline, and governance conditions. The third analyzes participants' perceptions of the ecological and socio-economic consequences of illegal fishing, while the final theme examines pathways toward improving regulatory compliance through participatory and socially responsive fisheries governance. Throughout the discussion, empirical findings are interpreted using the integrated perspectives of Southern Green Criminology, Political

Ecology, and Environmental Justice to situate participants' lived experiences within broader debates concerning environmental crime and marine resource governance.

Illegal Fishing Practices as Livelihood Adaptation

The findings indicate that illegal fishing in Cantilan is characterized by the deliberate use of prohibited fishing methods and strategic violations of fisheries regulations designed to maximize fishing efficiency under conditions of increasing ecological and economic uncertainty. Across interviews and focus group discussions, participants consistently identified four dominant practices: harvesting lobster fingerlings through triangular traps, utilizing triple-layer gill nets, compressor-assisted spearfishing (*boso*), and fishing within marine protected areas or during closed fishing seasons. Although these practices clearly violate existing fisheries regulations, participants rarely described them as criminal acts. Instead, they framed them as necessary adaptations to declining fish catches, unstable household income, and limited livelihood opportunities.

One participant explained:

"Among gamit kay trap pagkuha ug fingerlings sa lobster... mao nay pinakadali nga makakwarta mi." ("We use traps to collect lobster fingerlings because this is the easiest way for us to earn income.") (Participant 1)

Similarly, another participant remarked:

"Kung dili mi mogamit ani, wala gyud mi mauli nga igo para sa among pamilya." ("If we do not use this method, we cannot bring home enough for our family.") (Participant 5)

These accounts suggest that the selection of fishing gear is not merely a technological decision but rather an adaptive livelihood strategy developed in response to deteriorating fishing conditions. Participants consistently linked prohibited fishing methods with their capacity to secure immediate income despite growing ecological constraints. Consequently, illegal fishing practices were understood less as deliberate expressions of criminality than as practical responses to persistent economic precarity.

The harvesting of lobster fingerlings using triangular traps emerged as one of the most widespread practices. Participants acknowledged that juvenile lobster collection is prohibited because it disrupts future recruitment and threatens stock sustainability. Nevertheless, lobster fingerlings command relatively high market prices and provide immediate cash income compared with traditional fishing methods. Several participants indicated that income generated from fingerling collection frequently exceeded that obtained through legal fishing activities, particularly during periods of low fish abundance. Such findings illustrate how short-term economic incentives may override longer-term conservation considerations when households experience chronic livelihood insecurity.

A similar pattern emerged regarding the use of triple-layer nets. Participants reported that declining fish abundance has substantially reduced the effectiveness of conventional fishing gear, encouraging the adoption of highly efficient but prohibited nets capable of capturing greater quantities of fish with fewer fishing trips. One participant explained:

"Mas daghan gyud ang makuha sa triple net bisan gamay nalang ang isda." ("Triple nets catch more fish even when fish are already scarce.") (Participant 6)

Rather than reflecting technological preference, the adoption of triple nets represents an attempt to compensate for declining catch efficiency while minimizing fuel costs and fishing effort. Participants recognized that these nets indiscriminately capture juvenile fish and non-target species, yet many viewed

such ecological consequences as secondary to immediate household survival. Their narratives therefore reveal a continual negotiation between environmental awareness and economic necessity.

Compressor-assisted spearfishing likewise emerged as a significant practice among several participants. Unlike conventional fishing techniques, compressor diving enables fishers to remain underwater for extended periods, increasing harvesting efficiency and allowing access to deeper reef habitats. However, participants also acknowledged the substantial occupational risks associated with this method, including decompression illness and physical injury. One participant stated:

"Kabalo mi nga delikado ug bawal, pero mao ra gyud ang paagi nga makaigo ang among kita." ("We know it is dangerous and illegal, but it is the only way we can earn enough.") (Participant 10)

This statement demonstrates that participants simultaneously recognize both the legal and personal risks associated with compressor fishing while nevertheless continuing the practice because of limited economic alternatives. Such findings suggest that environmental offending frequently involves calculated assessments of competing risks rather than simple disregard for fisheries regulations.

Beyond prohibited fishing gear, participants also described strategic violations of spatial and temporal fisheries regulations. Fishing inside marine protected areas and operating during closed fishing seasons were frequently justified by participants on the grounds that these areas contained larger and more abundant fish populations than legally accessible fishing grounds. One participant candidly remarked:

"Kung walay patrol, mangisda mi sulod sa sanctuary." ("If there are no patrols, we fish inside the sanctuary.") (Participant 8)

The statement reveals a sophisticated understanding of local enforcement patterns rather than ignorance of regulatory requirements. Participants demonstrated awareness of patrol schedules, surveillance limitations, and the likelihood of apprehension, suggesting that compliance decisions were influenced by perceptions of enforcement certainty rather than legal knowledge alone. Fishing regulations therefore became embedded within everyday calculations balancing economic necessity against perceived enforcement risk.

From the perspective of Southern Green Criminology, these findings challenge conventional criminological interpretations that reduce illegal fishing to individual lawbreaking. Instead, participants occupy the contradictory position of simultaneously contributing to environmental degradation while experiencing structural vulnerabilities generated by poverty, declining fisheries productivity, and uneven access to economic opportunities. Environmental harm consequently becomes both an outcome of individual fishing practices and a manifestation of broader structural inequalities that constrain livelihood choices. This interpretation shifts analytical attention from questions of individual culpability toward the socio-economic and political conditions through which environmental offending becomes normalized within marginalized coastal communities.

The findings further resonate with Political Ecology, which emphasizes that environmental problems are inseparable from the political and economic arrangements governing access to natural resources. Participants' decisions to employ prohibited gear or fish within protected areas were not isolated behavioral choices but responses to declining fish stocks, increasing operational costs, market pressures, and limited institutional support. Resource scarcity, therefore, was experienced not merely as an ecological phenomenon but as a socio-political condition shaping everyday livelihood strategies. The persistence of illegal fishing consequently reflects broader governance dynamics that influence how coastal communities negotiate competing demands for environmental conservation and household survival.

The perspective of Environmental Justice provides an additional dimension to understanding these findings. Participants consistently expressed awareness of fisheries regulations and acknowledged the ecological importance of marine conservation. However, many also perceived that conservation measures disproportionately restricted their livelihoods while offering few viable economic alternatives. This perception illustrates procedural and distributive dimensions of environmental justice in which regulatory burdens are experienced unevenly across different social groups. Compliance therefore becomes contingent not solely upon enforcement but also upon perceptions of institutional fairness, meaningful participation, and equitable access to livelihood opportunities.

Collectively, these findings suggest that illegal fishing in Cantilan should not be interpreted exclusively through legal definitions of environmental crime. Rather, it represents an adaptive response to intersecting ecological decline, livelihood dependence, and governance limitations. Fishers' narratives reveal that environmental offending emerges through continuous negotiation between conservation objectives and the immediate realities of household survival. Recognizing this complexity does not diminish individual responsibility for environmental harm. Instead, it highlights the necessity of understanding environmental offending within the broader socio-ecological systems that simultaneously constrain, shape, and reproduce illegal fishing practices. Such an interpretation provides a more comprehensive foundation for designing fisheries policies that integrate ecological sustainability with social equity and community resilience.

Structural Drivers of Illegal Fishing: Livelihood Insecurity, Governance Constraints, and Ecological Decline

While participants openly acknowledged engaging in prohibited fishing practices, their narratives consistently revealed that such behaviors were embedded within broader structural conditions rather than isolated individual decisions. The analysis identified three interrelated drivers underlying illegal fishing in Cantilan: persistent livelihood insecurity, declining marine resources, and perceived weaknesses in fisheries governance. Rather than operating independently, these factors reinforced one another, producing a socio-ecological environment in which regulatory compliance became increasingly difficult despite participants' awareness of fisheries laws.

The most dominant driver emerging from the interviews was economic vulnerability. Nearly all participants described fishing as their sole or primary source of household income, emphasizing the absence of alternative employment opportunities within their coastal communities. Seasonal fluctuations in fish catches, rising operational costs, and unstable market prices further intensified financial insecurity, compelling fishers to prioritize immediate subsistence over long-term environmental sustainability. Participants repeatedly emphasized that illegal fishing was not motivated by a desire to violate the law but by the necessity of providing food and income for their families.

Participant 4 explained:

"Kabalo mi nga kinahanglan adunay permit, pero unsaon man kung wala mi'y kwarta para ana? Ang importante makakaon among pamilya." ("We know that permits are required, but what can we do if we cannot afford them? What matters is that our family has something to eat.")

Similarly, Participant 9 reflected:

"Human sa seminar nibalik gihapon mi kay wala man laing panginabuhi." ("Even after attending the seminar, we returned to illegal fishing because we had no other livelihood.")

These accounts illustrate that participants did not reject fisheries regulations outright. Instead, compliance was frequently subordinated to the more immediate imperative of household survival. Regulatory knowledge therefore coexisted with economic necessity, creating a persistent tension between environmental responsibility and livelihood security. This finding challenges simplistic assumptions that environmental non-compliance primarily reflects insufficient awareness or disregard for conservation policies.

Participants further described how declining fish abundance had fundamentally altered their fishing practices. Many observed that catches from conventional fishing methods had steadily decreased over the past decade, requiring longer fishing trips, greater fuel consumption, and increased physical effort while yielding progressively lower returns. Declining productivity was attributed to multiple factors, including overfishing, habitat degradation, destructive fishing methods, and changing environmental conditions.

Participant 2 remarked:

"Sa una dali ra kaayo makakuha ug isda. Karon bisan tibuok adlaw sa dagat, gamay ra gihapon among madala pauli." ("Before, it was easy to catch fish. Now, even after spending the whole day at sea, we bring home very little.")

Another participant stated:

"Kung legal lang among gamiton, usahay wala gyud mi makuha." ("If we only use legal methods, sometimes we catch nothing at all.")

These narratives reveal that ecological decline was experienced not as an abstract environmental issue but as an immediate livelihood crisis affecting everyday survival. Participants consistently associated declining catches with increasing dependence on highly efficient but prohibited fishing methods capable of maintaining minimum household income. Consequently, ecological degradation itself became a driver of further environmental exploitation, generating a reinforcing cycle in which declining marine resources encouraged increasingly intensive extraction.

This cyclical relationship illustrates an important paradox. Illegal fishing contributes to resource depletion while simultaneously emerging as an adaptive response to that very depletion. Such feedback mechanisms have profound implications for fisheries governance because they demonstrate that enforcement alone cannot interrupt the structural processes sustaining environmental harm.

Participants also identified limited livelihood diversification as a significant contributor to illegal fishing. Several explained that opportunities outside fishing were scarce, particularly for older fishers possessing limited formal education and few transferable occupational skills. Although some government livelihood programs had been introduced within the municipality, participants generally perceived these interventions as temporary, inconsistent, or insufficient to replace fishing income.

Participant 7 observed:

"Daghan seminar pero human ana wala na dayon. Kinahanglan gyud og panginabuhian nga padayon." ("There are many seminars, but after that nothing follows. What we need is a sustainable livelihood.")

This statement reflects participants' distinction between informational interventions and substantive economic support. Educational campaigns alone were viewed as inadequate because they failed to address the structural conditions compelling continued dependence on prohibited fishing practices. Livelihood diversification therefore emerged not merely as an economic issue but as a critical governance challenge directly influencing environmental compliance.

Alongside economic constraints, participants consistently emphasized weaknesses in fisheries governance and enforcement. Although respondents generally demonstrated familiarity with fisheries regulations, they perceived enforcement as uneven, inconsistent, and highly dependent upon patrol visibility. Compliance decisions frequently involved informal assessments of enforcement probability rather than ignorance of legal requirements.

Participant 8 explained:

"Kung walay bantay, mangisda gyud ang uban sulod sa sanctuary." ("When nobody is monitoring, others will fish inside the sanctuary.")

Another participant similarly stated:

"Dili pirmi ang patrol, mao usahay makalusot ang uban." ("Patrols are not always present, so some fishers are able to avoid detection.")

These observations indicate that enforcement operated as a situational rather than continuous regulatory mechanism. Participants demonstrated detailed knowledge of patrol schedules, enforcement routines, and areas where monitoring was limited. Illegal fishing therefore reflected strategic adaptation to perceived governance gaps rather than indiscriminate disregard for regulation.

However, participants' accounts also suggest that enforcement limitations extended beyond surveillance capacity. Several respondents expressed concerns regarding inconsistencies in rule implementation, unequal treatment of fishers, and limited opportunities for meaningful community participation in fisheries management. These perceptions contributed to varying degrees of institutional distrust and influenced participants' willingness to comply voluntarily with fisheries regulations.

Viewed through the lens of Southern Green Criminology, these findings reveal that environmental offending cannot be reduced to individual moral failure or rational criminal choice. Instead, illegal fishing emerges within broader systems of structural inequality where marginalized communities experience constrained livelihood opportunities, environmental degradation, and uneven state capacity simultaneously. Fishers therefore occupy a dual position as agents contributing to environmental harm while remaining vulnerable to political-economic conditions largely beyond their control.

This interpretation is particularly important because it challenges traditional criminological frameworks emphasizing deterrence and punishment as primary mechanisms for achieving compliance. Participants' narratives indicate that legal sanctions possess limited effectiveness when structural drivers remain unresolved. Economic necessity frequently outweighs perceived risks associated with enforcement, especially where household survival depends directly upon fishing income.

The findings also strongly support the explanatory value of Political Ecology. Participants repeatedly described declining fish stocks, increasing operational costs, and limited livelihood opportunities as interconnected rather than independent problems. Political Ecology conceptualizes environmental degradation as a consequence of broader political-economic processes influencing access to natural resources, institutional authority, and economic opportunity. The present findings illustrate precisely such interactions, demonstrating how resource scarcity, governance fragmentation, and livelihood dependence collectively shape environmental behavior.

Importantly, participants rarely attributed illegal fishing solely to personal choice. Instead, they framed their decisions within wider structural constraints that limited available alternatives. This perspective does not absolve individuals of responsibility for environmental harm but instead recognizes that agency is exercised within unequal social, economic, and ecological contexts. Understanding these structural

dimensions is therefore essential for developing fisheries policies capable of addressing the underlying drivers of environmental offending.

The perspective of Environmental Justice further enriches interpretation by highlighting participants' perceptions regarding fairness and institutional legitimacy. Many respondents expressed willingness to comply with fisheries regulations if viable livelihood opportunities, equitable enforcement, and sustained government support were made available. Compliance therefore depended not only upon legal obligation but also upon whether governance systems were perceived as socially just and economically responsive.

Several participants explained that conservation policies imposed substantial restrictions upon municipal fishers while providing relatively few compensatory mechanisms. This perception contributed to procedural dissatisfaction and weakened voluntary compliance. Consequently, environmental governance was evaluated not only according to ecological outcomes but also according to its distributive consequences for fishing households.

Collectively, these findings suggest that illegal fishing persists because structural vulnerabilities continually reinforce one another. Poverty increases dependence on marine resources; ecological decline reduces legal fishing productivity; governance limitations weaken regulatory effectiveness; and insufficient livelihood alternatives perpetuate dependence upon prohibited fishing practices. These interacting conditions create a self-reinforcing cycle in which environmental harm becomes structurally reproduced rather than simply individually chosen.

From a policy perspective, this interpretation carries important implications. Strategies focused exclusively on surveillance, apprehension, or punitive sanctions are unlikely to achieve sustained compliance if they fail to address the underlying socio-economic conditions identified by participants. Instead, effective fisheries governance requires integrated interventions combining consistent enforcement with livelihood diversification, institutional capacity building, community participation, and long-term environmental stewardship. By recognizing illegal fishing as a product of interacting ecological, economic, and governance conditions, policymakers may develop more socially legitimate and environmentally sustainable approaches capable of reducing environmental harm while simultaneously strengthening the resilience of coastal communities.

Environmental and Socio-economic Consequences of Illegal Fishing

Participants consistently acknowledged that illegal fishing generates consequences extending beyond immediate economic gain, affecting both the ecological integrity of marine ecosystems and the long-term sustainability of coastal livelihoods. Although prohibited fishing practices were frequently justified as necessary responses to financial hardship, participants simultaneously recognized that these activities contributed to declining fish populations, habitat degradation, reduced catch productivity, and increasing livelihood insecurity. Their narratives reveal an important contradiction: while illegal fishing provided short-term household benefits, participants were equally aware that continued reliance on these practices threatened the very ecological resources upon which their communities depended.

One of the most frequently discussed consequences was the decline in fish abundance. Participants observed noticeable reductions in both the quantity and size of commercially valuable species, describing changes that had become increasingly evident over many years of fishing experience. Older participants, in particular, contrasted present fishing conditions with earlier periods when legal fishing methods yielded substantially higher catches with less effort.

Participant 2 reflected:

"Karon lisod na kaayo mangita og dagkong isda. Ang makuha kasagaran gagmay nalang." ("Now it is very difficult to catch large fish. Most of what we catch are already small.")

Likewise, Participant 6 observed:

"Bisan asa mi moadto, dili na parehas sauna nga daghan kaayo ang isda." ("Wherever we fish, it is no longer like before when fish were abundant.")

These accounts indicate that participants perceived ecological decline not as an isolated environmental phenomenon but as a lived reality directly affecting everyday fishing activities. The reduction in fish abundance translated into longer fishing trips, higher operational costs, and greater uncertainty regarding household income. Consequently, ecological degradation was experienced primarily through its implications for livelihood security rather than through abstract environmental concerns.

Participants also recognized that several prohibited fishing methods contributed directly to the capture of juvenile fish and disruption of reproductive cycles. Fishers using triple-layer nets acknowledged that these gears often trapped immature fish together with marketable species, while participants engaged in lobster fingerling collection understood that harvesting juvenile lobsters reduced future recruitment.

Participant 1 explained:

"Kabalo mi nga kung kuhaon ang fingerlings, gamay nalang ang mudako sa sunod." ("We know that if the fingerlings are collected, fewer lobsters will grow in the future.")

Similarly, Participant 7 remarked:

"Apil gyud ang mga gagmay nga isda sa triple net bisan dili unta sila ang target." ("The small fish are caught in the triple net even though they are not the intended target.")

These narratives demonstrate that participants possessed considerable ecological knowledge regarding the biological consequences of their fishing practices. Rather than indicating ignorance of conservation principles, the findings suggest that fishers were aware of the long-term ecological implications associated with prohibited gear. However, this ecological awareness frequently conflicted with immediate livelihood needs, producing difficult choices between present economic survival and future resource sustainability.

Beyond declining fish stocks, participants emphasized the growing pressure placed upon marine protected areas. Several respondents acknowledged that repeated incursions into marine sanctuaries reduced the effectiveness of these areas as breeding and replenishment zones. Fishers recognized that protected areas were originally established to facilitate stock recovery; however, many also perceived these locations as the only remaining fishing grounds where catches remained economically viable.

Participant 9 explained:

"Daghan pa man gud og isda sulod sa sanctuary mao nga usahay didto mi mangisda." ("There are still many fish inside the sanctuary, which is why we sometimes fish there.")

This statement reflects an important ecological paradox. Marine protected areas become increasingly attractive precisely because they remain comparatively productive. Consequently, the success of conservation measures may unintentionally increase incentives for illegal entry when surrounding fishing grounds continue to decline. Participants' accounts therefore illustrate the complex interaction between conservation effectiveness and livelihood dependence.

Participants likewise discussed broader consequences for community livelihoods. Several explained that declining fish catches had intensified competition among fishers, increased household debt, and reduced economic stability within coastal communities. Many families had become increasingly dependent upon

informal borrowing arrangements to finance fuel, fishing equipment, and daily household expenditures. Reduced catches therefore generated cascading social and economic effects extending beyond individual fishers.

Participant 5 stated:

"Kung gamay among kuha, mangutang nalang mi para adunay pamaliton ug gasolina sa sunod." ("If our catch is small, we borrow money so we can buy fuel for the next fishing trip.")

Others described how unstable fishing income affected children's education, household nutrition, and family well-being. Such accounts illustrate that ecological degradation ultimately translates into wider social vulnerability, reinforcing dependence upon increasingly intensive fishing practices.

This relationship reveals a self-reinforcing cycle. Environmental degradation reduces legal fishing productivity, which encourages greater dependence on prohibited methods capable of maintaining household income. Continued illegal fishing subsequently accelerates ecological decline, further reducing future productivity and intensifying livelihood insecurity. Participants repeatedly described this cycle as increasingly difficult to escape because economic pressures continually outweighed longer-term conservation considerations.

From the perspective of Southern Green Criminology, these findings demonstrate that environmental harm should be understood as a socially produced process extending beyond measurable ecological damage. Illegal fishing simultaneously generates ecological victims—including marine ecosystems, fish populations, and future resource users—while also producing human victims whose livelihoods become increasingly insecure as environmental conditions deteriorate. Fishers therefore occupy the contradictory position of contributing to environmental harm while simultaneously experiencing many of its adverse consequences. Such dual victimization challenges simplistic distinctions between offender and victim, emphasizing instead the structural conditions through which environmental harms are collectively produced and experienced.

This interpretation also illustrates how environmental crime extends beyond legal violations to encompass broader forms of ecological injustice. Participants consistently recognized that resource depletion threatened future generations of fishers, suggesting an awareness that environmental harms possess temporal as well as spatial dimensions. Consequently, environmental victimization was understood not only in terms of immediate ecological loss but also through concerns regarding intergenerational livelihood sustainability.

The findings likewise resonate strongly with Political Ecology, which conceptualizes environmental degradation as inseparable from political, economic, and institutional processes. Participants rarely attributed declining fisheries solely to illegal fishing. Instead, they referred to multiple interacting factors, including increasing fishing pressure, habitat destruction, inadequate enforcement, and limited economic opportunities. Such interpretations highlight the importance of examining ecological change within broader systems of governance and resource management rather than reducing environmental decline to individual behavior alone.

Importantly, participants viewed environmental degradation as unevenly experienced across different sectors of society. Small-scale municipal fishers perceived themselves as bearing disproportionate responsibility for conservation despite possessing relatively limited economic resources compared with larger commercial fishing interests. Although participants acknowledged their own contribution to resource depletion, several also questioned whether conservation policies adequately addressed wider structural drivers affecting coastal fisheries.

These perceptions align closely with Environmental Justice, particularly its emphasis on distributive and procedural equity. Participants generally accepted the legitimacy of marine conservation but expressed concern that the economic burdens associated with regulatory restrictions were not matched by sufficient institutional support. Restrictions on fishing effort, protected area access, and gear use were experienced as immediate livelihood constraints, whereas compensation through alternative employment or sustained economic assistance remained limited.

Participant 3 explained:

"Mosunod mi kung naa pud untay lain nga panginabuhi nga masaligan." ("We will comply if there is another reliable source of livelihood.")

Similarly, Participant 10 observed:

"Kung adunay permanente nga suporta gikan sa gobyerno, dili na kinahanglan mubalik sa bawal nga pamaagi." ("If there were permanent government support, there would be no need to return to illegal fishing.")

These statements indicate that participants viewed environmental compliance as contingent upon broader questions of social equity and institutional responsiveness. Conservation policies were not rejected in principle; rather, respondents emphasized that successful implementation required governance systems capable of balancing ecological protection with the economic realities confronting coastal households.

Collectively, the findings suggest that the consequences of illegal fishing extend far beyond ecological degradation alone. Environmental decline, livelihood insecurity, institutional trust, and social vulnerability are mutually reinforcing components of a broader socio-ecological system. Short-term economic gains derived from prohibited fishing practices are consistently offset by long-term reductions in resource productivity, increased household insecurity, and weakened community resilience. Consequently, illegal fishing should not be interpreted merely as an environmental offence but as a manifestation of deeper structural tensions between conservation objectives and livelihood survival.

These findings carry important implications for fisheries governance. Policies emphasizing ecological restoration without addressing the socio-economic conditions identified by participants are unlikely to achieve durable conservation outcomes. Conversely, livelihood interventions that ignore the ecological consequences of continued overexploitation may merely postpone future environmental crises. Sustainable fisheries management therefore requires integrated approaches capable of simultaneously strengthening ecological resilience, improving livelihood security, and enhancing institutional legitimacy. Such approaches acknowledge that environmental sustainability and social justice are not competing objectives but mutually dependent foundations of effective coastal resource governance.

Toward Sustainable Compliance: Reimagining Fisheries Governance Through Community Participation and Livelihood Security

Participants consistently emphasized that sustained compliance with fisheries regulations cannot be achieved through enforcement alone. Although respondents generally acknowledged the legitimacy of existing fisheries laws and recognized the ecological necessity of protecting marine resources, they repeatedly argued that compliance depended upon the availability of viable livelihood alternatives, consistent institutional support, equitable law enforcement, and meaningful community participation. Their narratives suggest that illegal fishing persists not because coastal fishers fundamentally reject

environmental regulation, but because existing governance arrangements insufficiently address the structural conditions that shape everyday livelihood decisions.

Across interviews and focus group discussions, participants expressed a willingness to transition toward legal fishing practices provided that such changes were accompanied by realistic opportunities for economic security. Rather than requesting the relaxation of fisheries regulations, respondents consistently called for government interventions capable of reducing their dependence on environmentally harmful fishing methods. Livelihood diversification emerged as the most frequently identified strategy for improving long-term regulatory compliance.

Participant 3 explained:

"Kung naa lang gyud lain nga panginabuhi, dili na kinahanglan mubalik sa illegal nga pangisda." ("If there were other sources of livelihood, there would be no need to return to illegal fishing.")

Similarly, Participant 4 stated:

"Mas maayo unta kung tabangan mi sa gobyerno nga adunay lain nga trabaho kaysa pirmi nalang silotan." ("It would be better if the government helped us find other work instead of simply punishing us.")

These statements reveal an important distinction between participants' acceptance of conservation objectives and their dissatisfaction with the limited economic opportunities available to support behavioral change. Compliance was therefore understood not as a purely legal obligation but as a practical possibility dependent upon broader socio-economic conditions. Participants viewed livelihood assistance not as compensation for environmental restrictions but as a necessary foundation for sustainable resource management.

Several respondents further emphasized that previous livelihood initiatives had often been short-term, project-based, or poorly sustained. Although many appreciated government seminars, skills training, and occasional livelihood assistance, participants argued that these interventions rarely generated stable income capable of replacing fishing as their principal livelihood.

Participant 7 remarked:

"Daghan kaayo seminar, pero human ana wala na. Kinahanglan gyud ug programa nga magpadayon." ("There are many seminars, but after that nothing continues. What we need is a program that is sustained.")

This observation reflects a broader concern regarding the continuity of fisheries development programs. Participants suggested that one-time interventions generated awareness but produced limited long-term behavioral change because they failed to address the chronic economic vulnerability experienced by fishing households. Sustainable compliance therefore requires governance systems that extend beyond information dissemination toward long-term community investment.

In addition to livelihood concerns, participants repeatedly discussed the importance of consistent and equitable enforcement. Rather than opposing fisheries law enforcement, respondents generally supported stricter implementation provided that regulations were applied fairly across all resource users. Several participants expressed concern that enforcement occasionally appeared inconsistent or selective, undermining public confidence in fisheries management.

Participant 6 explained:

"Kung parehas tanan ang pagpatuman sa balaod, mas dali pud mosunod ang mga tawo." ("If the law is enforced equally for everyone, people will also be more willing to comply.")

This statement illustrates that institutional legitimacy constitutes an important component of voluntary compliance. Participants evaluated fisheries governance not solely according to enforcement intensity but according to perceptions of fairness, transparency, and accountability. Where regulatory institutions were viewed as impartial and consistent, respondents suggested that community cooperation would become more achievable.

Participants likewise emphasized the need for greater collaboration between government agencies and coastal communities. Several argued that fishers possess valuable ecological knowledge acquired through years of fishing experience and therefore should be more actively involved in fisheries management decisions. Community participation was viewed as essential not only for improving conservation outcomes but also for strengthening trust between local resource users and regulatory institutions.

Participant 8 observed:

"Mas maayo kung paminawon pud ang among kasinatian kay kami man ang pirmi naa sa dagat." ("It would be better if our experiences were also heard because we are the ones who are always at sea.")

This finding demonstrates that participants did not perceive themselves merely as recipients of environmental regulation but as potential partners in marine conservation. Their willingness to participate reflects an understanding that effective fisheries governance depends upon reciprocal relationships between communities and state institutions rather than exclusively top-down regulatory approaches.

Several participants also proposed strengthening environmental education, particularly among younger generations entering the fishing sector. However, respondents distinguished education from livelihood support, emphasizing that awareness campaigns should complement rather than substitute for broader economic interventions.

Participant 5 stated:

"Importante ang edukasyon, pero kinahanglan pud adunay panginabuhi aron masunod gyud ang balaod." ("Education is important, but there must also be livelihood opportunities if people are expected to follow the law.")

This perspective reinforces one of the central findings of the study: knowledge alone does not necessarily produce compliance when structural constraints remain unresolved. Environmental education may strengthen ecological awareness, but its effectiveness ultimately depends upon whether individuals possess realistic opportunities to adopt environmentally sustainable practices.

Viewed through the lens of Southern Green Criminology, these findings illustrate that meaningful environmental governance requires addressing the structural inequalities underlying environmental harm. Participants' recommendations consistently shifted attention away from punitive responses toward broader social and economic reforms capable of reducing dependence upon environmentally harmful practices. Illegal fishing was therefore understood not simply as a matter of regulatory enforcement but as an outcome of unequal access to resources, livelihood opportunities, and institutional support. Southern Green Criminology argues that environmental crimes occurring within marginalized communities frequently reflect deeper political-economic processes rather than isolated acts of deviance. The present findings strongly support this perspective by demonstrating that participants themselves identified structural transformation—not increased punishment—as the most sustainable pathway toward compliance.

The explanatory value of Political Ecology is likewise evident in participants' recommendations. Respondents consistently linked environmental sustainability with broader governance arrangements affecting resource access, livelihood opportunities, and institutional decision-making. Rather than viewing conservation and development as competing priorities, participants envisioned fisheries governance capable of integrating ecological protection with local economic resilience. Such perspectives reflect Political Ecology's central proposition that environmental problems cannot be separated from the political and economic systems through which natural resources are governed. The persistence of illegal fishing therefore reflects not only ecological pressures but also the institutional capacity to balance conservation objectives with the livelihood needs of coastal populations.

Participants' recommendations also resonate strongly with the principles of Environmental Justice, particularly procedural and recognitional justice. Their narratives consistently emphasized the importance of being recognized as legitimate stakeholders possessing valuable ecological knowledge and practical experience. Participants sought greater inclusion within fisheries management processes, arguing that policies developed without community involvement frequently fail to reflect the realities of everyday fishing livelihoods. Procedural justice therefore extends beyond consultation toward meaningful participation in environmental governance.

Equally significant is the issue of distributive justice. Participants repeatedly highlighted the unequal distribution of conservation costs, noting that restrictions on fishing activities were experienced immediately by small-scale fishers while the benefits of marine conservation often materialized only over longer ecological timescales. Respondents did not dispute the necessity of environmental protection; rather, they questioned whether existing governance arrangements adequately compensated communities expected to bear these short-term economic burdens. Their recommendations therefore illustrate that successful conservation requires governance systems capable of distributing both environmental responsibilities and development opportunities more equitably.

Collectively, these findings suggest that sustained compliance with fisheries regulations depends upon transforming the relationship between coastal communities and governance institutions. Participants envisioned a fisheries management system characterized by consistent enforcement, inclusive decision-making, long-term livelihood support, and collaborative stewardship of marine resources. Such a system would shift environmental governance from a predominantly enforcement-oriented model toward one emphasizing partnership, legitimacy, and community resilience.

Importantly, these recommendations should not be interpreted simply as local preferences but as broader reflections on the conditions necessary for effective environmental governance. Participants consistently demonstrated that compliance is a dynamic social process shaped by institutional trust, economic opportunity, ecological knowledge, and perceptions of fairness. Consequently, fisheries governance should be understood as extending beyond regulatory control toward the creation of institutional environments in which environmentally responsible behavior becomes both socially desirable and economically feasible.

Taken together, the four themes presented in this study reveal that illegal fishing in Cantilan is best understood as a socio-ecological phenomenon produced through the interaction of structural inequality, environmental decline, governance limitations, and community agency. While participants acknowledged their own involvement in environmentally harmful practices, they also articulated a clear vision for more legitimate, equitable, and sustainable fisheries governance. Their narratives demonstrate that environmental protection and livelihood security are not mutually exclusive objectives but mutually

reinforcing foundations of resilient coastal communities. These insights provide an important basis for the concluding discussion, which synthesizes the study's theoretical contributions and policy implications for environmental criminology and community-based marine resource governance.

Conclusion

This study examined illegal fishing in the coastal municipality of Cantilan, Surigao del Sur through the integrated lenses of Southern Green Criminology, Political Ecology, and Environmental Justice. The findings demonstrate that illegal fishing cannot be adequately understood as a simple violation of fisheries regulations or an individual act of environmental offending. Instead, it represents a complex socio-ecological phenomenon produced through the interaction of livelihood insecurity, declining marine resources, governance limitations, and unequal access to economic opportunities. Participants' narratives revealed that prohibited fishing practices—including the use of non-selective fishing gear, compressor-assisted spearfishing, harvesting of juvenile lobster, and fishing within protected areas—were primarily adopted as adaptive livelihood strategies in response to persistent economic uncertainty and diminishing fish productivity rather than deliberate attempts to undermine conservation policies.

The findings further indicate that the persistence of illegal fishing is sustained by mutually reinforcing structural conditions. Poverty, dependence on fisheries, declining fish stocks, inconsistent law enforcement, and limited livelihood diversification collectively create circumstances in which compliance with fisheries regulations becomes increasingly difficult despite participants' awareness of legal restrictions and ecological consequences. Importantly, participants did not reject the legitimacy of marine conservation or fisheries governance. Instead, they consistently expressed a willingness to comply when governance systems were perceived as fair, participatory, and accompanied by sustainable economic alternatives. These findings suggest that environmental compliance is shaped not only by legal deterrence but also by institutional legitimacy, social equity, and the practical feasibility of adopting lawful livelihood strategies.

The study also contributes to understanding the multidimensional consequences of illegal fishing. Participants recognized that environmentally harmful fishing practices accelerate resource depletion, reduce fish populations, disrupt ecological processes, and threaten the long-term sustainability of coastal livelihoods. At the same time, they acknowledged that environmental degradation intensifies economic vulnerability, creating a self-reinforcing cycle in which declining fisheries productivity encourages continued dependence on prohibited fishing methods. This reciprocal relationship highlights the inseparability of ecological sustainability and human well-being, emphasizing that environmental harm simultaneously affects marine ecosystems and the communities whose livelihoods depend upon them.

From a theoretical perspective, the study extends the application of Southern Green Criminology within the Philippine context by demonstrating how environmental harm is embedded in broader structures of inequality and governance rather than solely in individual criminal behavior. The integration of Political Ecology and Environmental Justice further enriches this analysis by illustrating how resource access, institutional arrangements, and perceptions of fairness shape environmental decision-making within coastal communities. Together, these perspectives provide a comprehensive framework for understanding illegal fishing as an environmental governance issue situated at the intersection of ecological decline, socio-economic vulnerability, and state capacity. In doing so, the study contributes to the growing body of environmental criminology that advocates moving beyond narrow legalistic interpretations of environmental crime toward more context-sensitive analyses of environmental harm.

The findings also have important policy implications. They suggest that enforcement-centered approaches, while necessary, are insufficient to achieve sustained compliance if implemented in isolation from broader development strategies. Fisheries governance should therefore integrate consistent law enforcement with long-term livelihood diversification, participatory resource management, institutional capacity building, and community engagement. Policies that strengthen procedural fairness, recognize local ecological knowledge, and expand access to sustainable economic opportunities are more likely to foster voluntary compliance while enhancing the resilience of coastal communities. Such integrated approaches are essential for balancing biodiversity conservation with the socio-economic realities faced by small-scale fishers.

Several limitations should be acknowledged. The study focused on a single coastal municipality and involved a relatively small number of purposively selected participants whose experiences may not represent the diversity of fishing communities across the Philippines. As a qualitative case study, the findings are intended to provide contextual depth rather than statistical generalization. Future research may expand this work by undertaking comparative studies across multiple coastal municipalities, incorporating additional stakeholder groups such as fisheries law enforcement officers, local government officials, marine conservation practitioners, and commercial fishing operators, or adopting mixed-methods designs that combine qualitative inquiry with ecological and socio-economic indicators. Longitudinal research would also provide valuable insights into how changes in fisheries governance, livelihood interventions, and environmental conditions influence compliance over time.

Ultimately, this study demonstrates that illegal fishing in Cantilan is not simply an environmental offence but a manifestation of broader structural tensions between ecological sustainability, economic survival, and governance capacity. Addressing this challenge requires moving beyond punitive conceptions of environmental regulation toward governance models that recognize the interconnectedness of environmental justice, community resilience, and sustainable resource management. By foregrounding the lived experiences of small-scale fishers, the study contributes to a more nuanced understanding of environmental crime in the Global South and provides evidence to inform more equitable, participatory, and sustainable approaches to coastal fisheries governance.

Recommendations

The findings suggest that reducing illegal fishing in coastal communities requires integrated governance approaches that address both environmental protection and the socio-economic realities of small-scale fishers. Accordingly, fisheries management agencies should move beyond predominantly enforcement-oriented strategies by combining consistent regulatory implementation with long-term livelihood diversification programs that provide viable economic alternatives for resource-dependent households. Livelihood interventions should be sustained, locally appropriate, and developed in collaboration with fishing communities to reduce dependence on prohibited fishing practices while enhancing household resilience.

Local government units, the Bureau of Fisheries and Aquatic Resources (BFAR), and coastal resource management institutions should strengthen participatory fisheries governance by actively involving municipal fishers in decision-making, monitoring, and conservation planning. Incorporating local ecological knowledge into fisheries management may improve policy legitimacy, strengthen community ownership of conservation initiatives, and increase voluntary compliance with fisheries regulations. At

the same time, enforcement mechanisms should be transparent, equitable, and consistently implemented to enhance institutional trust and reduce perceptions of selective or inconsistent law enforcement.

The study further highlights the importance of expanding environmental education beyond awareness campaigns toward programs that integrate ecological stewardship with practical livelihood development. Community-based capacity-building initiatives should therefore combine conservation education, skills development, and access to financial or technical assistance to facilitate transitions toward sustainable fishing practices.

Finally, future research should extend the present investigation by conducting comparative studies across multiple coastal municipalities and incorporating the perspectives of other stakeholders, including fisheries enforcement officers, local government officials, marine conservation organizations, and commercial fishing operators. Mixed-methods and longitudinal research designs would also provide valuable opportunities to examine how changes in governance arrangements, livelihood interventions, and ecological conditions influence compliance behavior over time. Such research would contribute to a more comprehensive understanding of environmental crime and support the development of evidence-based, socially responsive fisheries governance within the Philippines and other resource-dependent coastal regions.

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