

Beyond the catch: Lived Experiences of fisherfolk on compliance and regulatory defiance on sustainable fishery management

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ISSN: 2243-7770
Online ISSN: 2243-7789

Received: 17 June 2026

Available Online: 31 August 2026

Revised: 22 August 2026

DOI: 10.5861/ijrsm.2026.26122

Accepted: 29 August 2026

OPEN ACCESS

Abstract

This study explores the fishing practices of the fisherfolk in relation to sustainable fishery management in San Agustin, Romblon. The study employed a qualitative phenomenological design to understand the experiences of the leaders of fisherfolk communities. Fifteen fisherfolk leaders from different barangays were the participants in this study. Data from semi-structured interviews with the fisherfolk leaders were analyzed through thematic analysis. The findings of this study reveal that the fisherfolk primarily use legal and traditional fishing methods, indicating a gradual adoption of sustainable and regulated fishing practices. However, they encounter challenges with declining fish stocks, environmental issues, and lack of resources within their community. There are multiple factors that influence the fisherfolk's compliance with fisheries regulations. According to compliance with fisheries regulations theory, the fisherfolk leaders comply with the regulations instituted by the government to ensure that the fish population in their community is preserved and to provide for their community's needs. However, they do not comply when they experience economic hardship as they require the resources from the ocean to survive. The findings indicate a tension between the needs of the community and the sustainability of their fishing practices. However, the fisherfolk exhibit resilience in the face of challenges and understand sustainable fishing practices. Based on these findings, recommendations for sustainable fishery management in the area include the development of livelihood diversification programs for the fisherfolk, the establishment of more enforcement mechanisms for the fisheries regulations, and the creation of a governing body that includes the fisherfolk in decision making. Such approaches will foster a sustainable fishery management practice that considers the needs of the community and the preservation of their natural resources.

Keywords: fisherfolk lived experiences, fisheries regulatory defiance, small-scale fisheries management, sustainable fishery management

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1. Introduction

Marine fisheries play a vital role in ensuring food security, economic stability, and environmental sustainability, particularly for countries with coastal communities that rely heavily on fishing for their livelihood and nutrition. The sustainable management of these fisheries is linked to several United Nations Sustainable Development Goals. Each of these goals is essential to finding sustainable solutions for managing marine fisheries effectively while ensuring the welfare of the individuals who depend on these fisheries for their livelihoods. There are many threats to the sustainability of fishery resources worldwide. Overfishing, habitat destruction, climate change, pollution, and illegal, Unreported, and Unregulated (IUU) fishing pose significant threats to marine fish populations.

The growing recognition of environmental harm has given rise to the concept of Green Criminology - the study of crimes that are committed against the environment (Barrett et al., 2014). Beyond studying crimes against individuals and property, criminologists are now studying crimes against the environment, such as illegal fishing practices, encroachments into protected habitats, and the non-compliance with environmental regulations and laws. From this new perspective on crime, environmental criminologists are able to study the impacts of these violations on both the environment and the communities that rely upon it. Thus, these environmental crimes are also, therefore, crimes of the criminal justice system - any violations of the laws that were created to protect the environment and its resources for the people and the planet alike (Lynch et al., 2021).

Within the Philippine context, Republic Act No. 8550, also known as the Philippine Fisheries Code of 1998, and its subsequent amendment via Republic Act No. 10654, provides the regulatory framework for the sustainable management, conservation, and protection of the country's fisheries and aquatic resources. The law is specific in its criminalization of a variety of fisheries-related offenses, including those that involve illegal fishing activities, commercial fishing within municipal waters, the use of destructive fishing methods, and other similar offenses that threaten the health of the country's marine ecosystems. As such, fisheries management within the Philippines also incorporates elements of criminal justice to effectively manage and prosecute those who are found to be committing such offenses (Barboza et al., 2024)

However, beyond the existence of fisheries laws, another crucial aspect of management is the extent to which the communities of fishers comply with or conflict with such laws. Beyond the consideration of laws that deter and penalize non-compliance with fisheries regulations, the motivations and perceptions of the fishers themselves may help to explain the compliance or non-compliance with such regulations. For instance, the concept of procedural justice suggests that individuals are more likely to comply with laws if they believe in the legitimacy of those laws and the individuals that establish them (Tyler, 2006). Additionally, individuals that do not believe in the legitimacy of those laws or governing institutions may be more likely to develop resistance towards such laws. This concept is likely to be particularly relevant to the small-scale fisheries discussed in relation to the livelihoods and survival of those who fish for a living.

Due to the country's location and its rich marine ecosystem, the Philippines enjoys a heavy dependence on municipal fisheries for both food and economic growth. However, the growth of illegal fishing within these municipal waters presents a threat to the sustainability of the fisheries within the nation. Issues like commercial fishing encroachments into municipal waters, insufficient enforcement of existing fishing laws, and the diminishing fish stocks within the nation's waters work together to threaten the sustainability of the fisheries that supply the protein and income to the Philippines' coastal communities (Palm et al., 2021)

While the fishing laws and regulations were introduced with the intention of ensuring the sustainability of those fisheries, the resulting conflicts between those fisheries and the requirements of those laws contribute to the complex relationship between the fishing communities of the Philippines and those laws. The aforementioned realities are particularly apparent in the Province of Romblon where the people who depend upon the fisheries of the province for subsistence and income are encountering various challenges. Within municipalities like San Agustin and Calatrava, for instance, fisherfolk are encountering declining fish population, environmental challenges, few alternatives to fishing as a means of livelihood, and regulatory challenges. While there have been numerous investigations into fisheries management in Romblon, few investigations have been performed into the experiences of fisherfolk in relation to fisheries management regulations (Macalisang et al., 2023). Furthermore, there has been no investigation within the criminological literature regarding the views of fisherfolk towards fisheries regulations, management, and the role that they should play in the management of the Province's fisheries resources.

In addressing this research gap, this study investigates the experiences of fisherfolk in relation to compliance or defiance of the fisheries management regulations that are established to ensure sustainability of the fishery. The study employed theories of Green Criminology and Procedural Justice Theory to investigate the experiences of fisherfolk with fisheries regulations and compliance, and to understand the reason for the behavior of fisherfolk in relation to such regulations. Additionally, by examining these issues within the context of environmental justice, regulatory compliance, and resource protection, this study contributes to the field of Criminal Justice theory and knowledge.

Objectives of the Study - This study generally aims to explore and understand the experiences of the fisherfolk regarding compliance and defiance of the fisheries regulations within the context of sustainable fishery management. Specifically, this study intends to explore the fishing practices that are performed and implemented by the fisherfolk through examining their fishing activities and environments. Furthermore, this study also aims to investigate the factors that influence the fisherfolk in complying with or defying the fisheries regulations by gaining an understanding of the fisherfolk's compliance with such regulations and requirements as part of their fishing activities. Additionally, this study intends to gain an understanding of the challenges faced by the fisherfolk in balancing their fishing activities with the requirements of sustainable fisheries management. Lastly, this study aims to utilize its findings regarding the experiences of the fisherfolk to provide recommendations for future initiatives related to the sustainability of fisheries management in these coastal communities.

2. Methods

Research Design - This study utilized a phenomenological research design to explore and understand the experiences of the fisherfolk leaders in San Agustin, Romblon with respect to their fishing practices, compliance with sustainable fisheries, and the challenges of balancing their fishing practices with the need to ensure the sustainability of their fisheries. Phenomenological research is a qualitative research design that is used to understand and describe a phenomenon based on the experiences of the individuals who experienced that phenomenon. Thus, rather than seeking to explain or measure a given phenomenon, this research design intends to gain an understanding of the phenomenon from the perspective of the individuals who experienced it (Creswell et al., 2018; Neubauer et al., 2019). More specifically, descriptive phenomenology, as described by philosopher Edmund Husserl, intends to describe the essence of a phenomenon by describing the experiences of the individuals who experienced the phenomenon, yet without the influence of the preconceptions that the researcher may possess regarding that phenomenon (Creswell et al., 2018; Moustakas, 1994). Thus, the research design intends to explore the experiences of the individuals to gain an understanding of the essence of the phenomenon that is described within these experiences. Furthermore, current discussions of phenomenological research as a methodology indicate that it is an appropriate methodology for investigating the ways in which individuals make sense of their experiences (Neubauer et al., 2019).

Informants - The study involved fifteen key informants, each representing one of the recognized leader of the

fisherfolk from each barangay. Such sample size is appropriate for phenomenological studies, which seek to obtain descriptions from the participants as to their experiences of the identified phenomenon. Phenomenological studies typically use smaller sample sizes to allow for an exploration of the phenomenon in depth (Creswell et al., 2018; Vasileiou et al., 2018). Fifteen individuals were sufficient in capturing the experiences of the participants regarding the phenomenon of interest, as well as in exploring such experiences in depth.

The population of the study included all the cooperative leaders and heads of the fisherfolk who are recognized by their barangay in the fifteen barangays of San Agustin. These individuals hold the most important positions in the management of fisheries in their different barangays. The sample frame for the study was established in coordination with the Municipal Agriculture Office and the Barangay Fisheries and Aquatic Resources Management Councils. Purposive sampling or criterion sampling was used to select research participants who have experience and knowledge on the topic that is being studied. These criteria include the participants having experience as a leader of fisherfolk for at least two years, participating in fisheries management, and residing within the municipality where the study was conducted. Individuals who do not meet these criteria were excluded from the research study. This criterion ensured that the information collected is rich, relevant to the study, and based on experiences in leading these fisherfolk communities.

Research Locale - The data to be collected was conducted in the fifteen coastal barangays that make up the municipality of San Agustin, Romblon. San Agustin is a fourth class municipality within the Tablas Island group with a population of around 23,698 residents. The municipality is reliant upon fishing, has fishing cooperatives, and faces challenges with the management of its natural resources. Romblon itself is reliant upon fishing as its main source of income for its residents, possesses cooperatives and BFARMCs within the area, and experiences various issues with illegal fishing activities and the depletion of the natural fishing resources of the area. Thus, the municipality is an ideal location for the study due to the number of fishermen, cooperative members, and the issues related to fishing that can be discussed within the area. Additionally, the familiarity with the location and its residents further ensures that data can be collected in an ethical and sensitive manner.

Instrument - The main instrument used in the study was a semi-structured interview guide to gather information regarding the practices, leadership, and opinions of the fisherfolk regarding the fisheries and the management of their resources. The interview questionnaire was comprised of a series of open-ended questions that allow the participants to describe their experiences in the study in their own words (Kallio et al., 2016). In addition to the interview questionnaire, additional forms of data were collected through field notes, observations of the fisherfolk and their practices, and through the review of relevant documents published by the BFARMC (Bowen, 2009). Prior to data collection, the interview guide was reviewed by subject matter experts to ensure that the interview questions were clear, relevant, and aligned with the research objectives. Additionally, the interview guide was piloted in a neighboring municipality to assess the appropriateness of the interview questions. Based on the recommendations from the pilot test, the interview guide was slightly adjusted to improve the clarity and appropriateness of the questions. This process ensured that the interview guide would elicit responses that were in line with the research objectives (Kallio et al., 2016).

Data Gathering Procedure - The research study obtained ethical clearance from the Lyceum of the Philippines University Research Ethics Committee. Additionally, the Municipal Mayor's Office permitted to conduct the interviews with the selected participants. The participants were recruited through the coordinators from both the MAO and BFARMC. Informed consent was obtained from the participants regarding the research study. The interviews were conducted in person at the participants' chosen private locations and lasted between 60 and 90 minutes. The interviews were recorded on audio devices with the consent of the participants. Additionally, field notes were taken by the researcher during the interviews.

Ethical Considerations - The study complied with the principles laid out in the Belmont Report and the Data Privacy Act of 2012. The study also complied with the requirements of the Ethics Committee of Lyceum of the Philippines University-Batangas. Approval was received for the study prior to data collection. All measures were

taken to ensure the privacy and confidentiality of the informants. Only pseudonyms and codes were used in the transcripts and reports, and any information that can identify the interviewees was removed from the research data. The data collected is stored in password protected files. Finally, all participants were volunteers for the study and have the right to withdraw from the study at any time. Informed consent was obtained from all study participants after explaining the study's purpose to them. Such measures ensured that the study upheld ethical principles regarding the participants and their rights.

Data Analysis - Interview data was analyzed using Colaizzi's (1978) method for analyzing descriptive phenomenological data. This method is commonly used to analyze and interpret the data from interview participants. This method involves identifying significant statements from interview participants, formulating meanings from these statements, organizing these meanings into themes, and integrating these findings to produce a more exhaustive description of the phenomenon that was observed and interpreted through the participants (Colaizzi, 1978; Morrow et al., 2015). This method allows the researcher to identify the meaning that is essential to the narratives from the interview participants to gain an understanding of the experiences of the research participants regarding the topic of the study.

The analysis of the data commenced with the process of familiarization in which the researcher read and reviewed the interview transcripts to gain a comprehensive understanding of the experiences of the fisherfolks. Following the process of immersion in the data, statements that were found to be significant and related to the phenomenon being studied were identified and extracted from the interview transcripts. These statements reflected the experiences of the fisherfolks with fishing and fishery management practices. Following the extraction of these significant statements, the meanings behind those statements were formulated by the researcher. These formulated meanings were then grouped into clusters according to their conceptual similarities. These clusters of meanings reflected the experiences of the fisherfolks with their fishing and fishery management practices.

Following the clustering of the themes that emerged from the analysis, an exhaustive description of the phenomenon was performed to capture the experiences of each of the study's participants. The themes that emerged from the data analysis included themes related to issues such as livelihood, regulations, community, stewardship, and strategies. These themes contributed to an understanding of the factors that influence compliance or defiance of those fisheries regulations by the fisherfolk. The themes that emerged from the data analyses were compared with the original interview transcripts to ensure the credibility of the results. These themes provided an understanding of the essence of the experiences of the fisherfolk, as well as to provide insights and recommendations regarding the management of the fisheries and fisheries regulations.

3. Results and discussion

3.1 Lived Experiences of on Fishing Practices

Beyond providing income to these fishermen, their narratives also describe fishing in relation to environmental stewardship, economy, tradition, and responsibility. While each of these fisherfolk had their own experiences with fishing that were impacted by their individual experiences and roles within their communities, their stories shared some common meanings of the activity of fishing altogether.

Theme 1. Sustainable and Regulated Fishing Practices

The methods of fishing that characterize the municipal fisheries in the Philippines are the traditional methods of fishing. The type of fishing gear and techniques that are used by municipal fisherfolk in the Philippines are some of the simplest fishing gears and techniques. Although there have been changes in the methods of fishing technology in the fisheries sector, small-scale fishers continue to use the traditional methods of fishing because they require little capital to purchase the fishing gear and they are well-suited to the environmental conditions in which they fish. Such perceptions of the sustainability of traditional fishing methods are reflected in the

experiences of the coastal fishers in San Agustin, Romblon who use gill nets (lambat), hook and line (bunit), drift nets (langgarete), trolling (lambo), and other methods developed in these coastal communities.

These methods are preferred by the participants in the coastal fishing communities in San Agustin, Romblon for a variety of reasons. Most importantly, fisherfolk prefer to use these traditional methods of fishing because they believe that these methods are the most sustainable methods of fishing for their ecosystems. This belief of the sustainability of traditional methods of fishing is illustrated in the following account:

“In our community, most fishers use nets, especially for night fishing. Some also use hook-and-line fishing, particularly those with smaller boats. Others, especially in the past, used active fishing gear, but its use has gradually declined because of stricter law enforcement.” “Dito po sa amin, karamihan ay gumagamit ng lambat, lalo na yung pang-gabi. Mayroon din pong hook and line, lalo na kapag maliit lang ang bangka. Yung iba po, lalo na dati, gumagamit ng active fishing gear... pero ngayon po ay medyo nabawasan na dahil sa paghihigpit ng batas.” (Participant 1)

This understanding was consistently echoed across the participants’ narratives:

“In our community, most fishers still use nets and hook-and-line fishing. Others also use drift nets, particularly when catching sardines, round scad, and mackerel scad. Some also engage in spearfishing in shallow coastal areas.” “Sa amin po... karamihan ay lambat pa rin, saka hook and line. Pero may iba rin pong gumagamit ng langgarete lalo na kapag may tamban, galunggong at alumahan. Meron din pong naninisid, namamana sa may mababaw na bahagi.” (Participant 5)

This perspective was further articulated by a participant who serves as a cooperative leader:

“Aside from nets and hook-and-line fishing, trolling is also commonly practiced in our community. As the head of the cooperative, we continually explain to our members which fishing methods are most appropriate depending on the season and the target species.” “Sa amin po, bukod sa lambat at hook and line, karaniwan din ang lambo o trolling... Bilang cooperative head, sinusubukan naming ipaliwanag sa mga miyembro kung alin ang mas angkop depende sa panahon at target na huli.” (Participant 12)

Beyond the considerations of efficiency and cost, the fishermen also made considerations of the fishing practices that they employed as a way of responsibly managing and protecting the fishery resources within their regions. The use of only those fishing gears that are legally permitted to be used by fishermen was associated with such decisions of responsible stewardship of the marine environment in which the fisherman’s operate. Such beliefs are correlated with the concept of ecosystem stewardship in fisheries management, wherein the fishermen considered the impact that their practices have upon the environment and their decision to incorporate considerations of responsibility towards the environment and the resourceful needs of the planet for the future. Furthermore, knowledge of fisheries laws and supporting initiatives to limit fishing efforts or to reduce the impacts of illegal fishing practices has been recognized as another factor in the determination of individual fishermen to exhibit such behaviors of ecosystem stewardship within their fishery regions (Kotowicz et al., 2022). Overall, then, these findings indicate that incorporating concepts of conservation into the practices of fishing communities may lead to the development of local stewardship of those resources and the successful implementation of management initiatives for those fisheries.

The narratives provided further suggest that sustainable fishing practices are learned through experience within the community rather than through legislation alone. The participants explained that many of the fishing practices that are present within their communities today are different from those practiced within the previous years of those fishing communities, and that those destructive fishing practices have declined due to the efforts of the law enforcement officials within those communities to implement fisheries regulations and to increase the environmental awareness of the communities as a whole. In other words, these individuals have learned of the

practices of sustainable fishing through their interactions with their communities and their environment. Similar studies have been performed within other fishing communities throughout the world, such as in the Philippines. For instance, one study of individuals that live in coastal communities of the Philippines discovered that many of these individuals are aware of the fishing regulations that exist in their area, understand the consequences of illegal fishing practices, and are committed to the conservation of their fish populations (Kotowicz et al., 2022).

At the essence of these narratives and experiences of the fishers of the coastal areas of the Philippines is the discovery of the practices of sustainable fishing through their interactions with their communities and environment. Each of these understands the practices of using only appropriate fishing methods to protect their fishing grounds and to ensure that they can provide for their fishing communities and their future generations.

Theme 2. Resilient and Adaptive Livelihood Practices

Small-scale fishers' livelihoods are often defined by an element of uncertainty regarding the environment in which they fish. The Philippines, for example, is a country that has experienced various environmental changes and climate variabilities that have had an impact upon the livelihood of its municipal fishers (Macusi et al., 2025). Ilosvay et al. (2022) discovered, for instance, that the more hazards that affected the area in which a fisher lived, the more likely that those fishers would adapt their fishing efforts to accommodate those environmental issues. Each of these descriptions of the lives of those small-scale fishers are reflected within the narratives of the fishers that lived in San Agustin, Romblon.

Fishers within San Agustin, Romblon, indicated, for example, that the fishing activities that they performed were often based upon the weather and environmental conditions within the ocean at the time. The decision of whether or not to go fishing offshore, for instance, required those fishers to observe the marine environment for the safety of the fishers and the potential for catching fish within those areas. This opinion of the importance of the environment to the fishers is visible within the following narrative of one small-scale fisher:

"We usually wake up as early as three or four in the morning. Before going out, we first observe the weather. If the winds are strong, we sometimes decide not to continue. If conditions are favorable, we stay at sea until noon or sometimes the afternoon. After returning, we sell whatever we have caught. There are also days when we catch almost nothing, especially when the weather suddenly changes." "Madalas po, madaling-araw pa lang, mga alas-tres o alas-kuwatro, gising na kami. Titingnan muna ang panahon. Kapag malakas ang hangin, minsan hindi na kami tumutuloy. Kapag okay naman, pumapalaot kami hanggang tanghali o minsan hapon. Pagbalik, saka naman po ibinebenta ang huli. May mga araw po na halos wala kaming nahuhuli, lalo na kapag pabago-bago ang panahon." (Participant 2)

This understanding was consistently echoed across the participants' narratives:

"Our day often begins with uncertainty about whether the weather will be favorable. Before dawn, we already check the wind and sea conditions. Once we are at sea, timing and choosing the right fishing ground become crucial. However, no matter how skilled you are, if there are no fish, there is little you can do. It is only when you return that you realize whether your efforts were worthwhile." "Madalas po, nagsisimula ang araw namin sa pag-aalala kung magiging maganda ba ang panahon o hindi. Madaling-araw pa lang, nagtse-tsek na kami ng hangin at alon. Kapag nasa dagat na, doon na papasok yung focus, kailangan tama ang timing, tamang lugar. Pero kahit anong galing mo, kung wala talagang isda, wala kang magagawa. Pagbalik, doon mo mararamdaman kung sulit ba ang pagod mo o hindi." (Participant 5)

This perspective was further articulated by a participant who described how fishing routines vary according to the fishing method and environmental conditions:

"When we use gill nets, we leave before dawn. For drift-net fishing, we work at night using lights

on the boat while waiting for the fish to gather. Everything depends on the weather and proper timing.” “Kapag lambat po, madaling-araw pa lang umaalis na kami. Sa langgarete naman, gabi ang trabaho, may ilaw sa bangka, tapos hinihintay naming lumapit ang isda. Depende talaga sa panahon at tiyempo.” (Participant 12)

The notion of adaptation is also evident from the experiences of the participants regarding their fishing activities. The fishers have to adapt their activities based on the conditions of the environment around them, as these conditions will dictate the time to fish, the location to fish, the length of fishing activities, and the method to fish. Such knowledge of the environment is gained over time by the fishers through their experiences in fishing. This finding is supported by Silvano et al. (2023), who also noted the importance of the indigenous and local knowledge of fishers to supplement the scientific knowledge applied in fisheries management.

Beyond the adjustment to environmental factors, the narratives also indicate that the participants accept uncertainty as a normal part of life. The authors described encountering unpredictable weather, the amount of fish that could be caught, and the conditions of the seas as factors that would have to be endured rather than battled against. However, the ability to continue despite these uncertainties is portrayed in the stories as being dependent upon the hope that each fishing trip would provide enough for the family. This interpretation is in alignment with the findings of Roscher et al. (2022), who found that diversification of the livelihoods of small-scale fishers increases the resilience of those individuals by reducing their vulnerability to the shocks that both their socioeconomic and environmental factors can inflict upon them. As a result of implementing strategies for their livelihoods that are flexible in response to these environmental and socioeconomic factors, the small-scale fishers are able to increase their resilience against the challenges that may manifest in these variables.

Beyond the response to variability and livelihood risks, adaptive behavior by these fishers also indicates other understandings of adaptation. Most studies on adaptation among fishers have primarily focused on adaptation to climate change and the livelihoods required to sustain their fishing activities (Ilosvay et al., 2022; Macusi et al., 2025). However, these findings suggest that there is another driving understanding of adaptation for these groups: the responsible use of fishery resources. For these individuals, adapting to environmental risks is also a way of life that promotes the sustainability of their resource and fishing livelihood.

At the essence of these findings, adaptation and resilience are essentially the same as there is a continuous adaptation to environmental risks and challenges, as well as a demonstrated ability to endure these challenges to eventually overcome them and to continue their fishing activities. For these fishers, their adaptation to environmental changes is a means of surviving, but also ultimately of demonstrating their knowledge of and their perseverance in the face of environmental challenges, as well as their ability to make necessary decisions to continue their fishing livelihood.

Theme 3. Economic and Practical Considerations in Fishing Tool Selection

Beyond the influence of fish species abundance on the type of gear used in fishing, the availability of economic resources also determines the type of fishing gear that small-scale fishers use. The limited financial resources available to most small-scale fishers constrain their ability to purchase and maintain sophisticated fishing gear; they are, therefore, compelled to use traditional fishing gears that are relatively cheap to purchase and maintain (Roscher et al., 2022). Financial constraints also prevent them from diversifying their income sources and investing in innovations in the fishing industry. The Food and Agriculture Organization also notes the limited access to financial capital, technology, and training as significant challenges faced by small-scale fishers in most parts of the world. In the Philippines, most fishing activities in municipal fisheries are carried out by small-scale fishers that have limited capital and fishing assets (BFAR, 2023). These observations are in line with the experiences of the coastal fishers in San Agustin, Romblon.

The type of gear that the coastal fishers in San Agustin, Romblon use is determined by their financial resources. Fishers rely on inexpensive fishing gear that is easy to maintain and suitable for their small fishing boats. For

instance, gill nets (lambat), hook-and-line (bunit), and other simple fishing gears are commonly used by these fishers. This observation is made evident in the following account of one of these fishers:

“Gill nets are the most commonly used because they are not as expensive as other fishing gears. We are also already familiar with using them. Hook-and-line fishing takes more time, but it allows us to catch specific fish species.” “Lambat po talaga ang pinaka-karaniwan kasi hindi ganoon kamahal kumpara sa iba. At saka sanay na rin po kami doon. Yung hook and line naman, mas matagal pero mas pili ang nahuhuli.” (Participant 1)

This understanding was consistently echoed across the participants’ narratives:

“Fishers choose the equipment they can afford to buy and maintain. Not everyone can invest in modern fishing equipment. Financial resources greatly influence what fishing gear people are able to use.” “Pinipili po nila yung kaya nilang bilhin at i-maintain. Hindi lahat kayang mag-invest sa modern equipment. Malaki po ang epekto ng pera. Kung ano lang ang kaya mong bilhin, yun ang gagamitin mo.” (Participant 4)

This perspective was further reinforced in the following account:

“We only use simple fishing gears, such as small nets, hook-and-line, and fish traps. We choose these because they are affordable and do not require large fishing boats.” “Simple lang po... tulad ng maliit na lambat, bunit, at fish trap. Pinipili namin yun kasi kaya naming bilhin at hindi rin kailangan ng malaking bangka.” (Participant 8)

Fishing gear is not just a resource that small-scale fishers select according to their efficiency in catching fish. The economic realities that define these fishers define their choice of fishing gear. Among the economic resources that limit the small-scale fishers’ options is the affordability and availability of fishing gear. Small-scale fishers must consider the cost of purchasing and maintaining fishing gear and the resources available to them within their household. Economic resources are a significant determinant of the fishing gear technology that small-scale fishers use. Small-scale fishers with limited financial resources cannot afford the purchase and maintenance of efficient fishing gears; hence, they continue to use traditional fishing gears with low costs of purchase and maintenance. Due to financial constraints, they also cannot explore other livelihood strategies or innovations in fishing gears (Roscher et al., 2022). The Food and Agriculture Organization also identifies limited financial resources as a barrier that small-scale fishers in developing countries face when seeking to improve their fishing productivity and sustainability. In the Philippines, municipal fisheries are dominated by small-scale fishers with limited fishing capital and fishing assets (BFAR, 2023).

Beyond the consideration of economic factors, the fishermen also related to the use of traditional fishing gears the level of familiarity and experience that they possess with such tools over the years. The continued use of such methods by the fishermen indicates the confidence that they have in these methods that they have used over time. Similar studies have also noted the use of these methods by the fishermen. Silvano et al. (2023) have studied the indigenous and local ecological knowledge that the fishermen employ when interacting with the marine environment for fishing purposes. Such knowledge has been developed over time by the fishermen as they interact with the marine environment. Furthermore, another reason for the continued use of these methods involves the limited financial capacity of the fishermen (BFAR, 2023). The findings of this research study also show that due to the financial limitations of the fishermen, they unintentionally engage in more environmentally responsible fishing practices as they continue to use fishing gears that are considered less destructive to the marine environment in which they fish.

At the essence of their experience in fishing, the fishermen noted that the tools that they use reflect their economic capacity, their knowledge of fishing methods, and their need to find a balance between their financial and environmental responsibilities.

Theme 4. Environmental and Regulatory Drivers of Fishing Transformation

Global evidence of the impacts of issues like dwindling fish populations, climate change, and habitat destruction, as well as the implementation of management measures to address these impacts, indicate that small-scale fisheries have experienced significant transformations as a result. Fishers have had to modify their fishing practices, travel farther from shore to fish, and invest more time and effort into their fishing efforts. These conditions are likewise reflected in the fisheries management literature, as authors like Hilborn et al. (2020) have indicated that successful fisheries management efforts must be able to account for and react to these changing conditions; successful fisheries management strategies must account for both the variability in fish populations as well as the change that occurs within the environment in which those fish live. These conditions are likewise reflected in the experiences of the coastal fishers of San Agustin, Romblon.

Each of the fishers of San Agustin, Romblon, for instance, indicated that their fishing practice has experienced a transformation over time. Each fisher explained that there are significantly fewer fish available to fish for near the shoreline where the fishers live and fish, forcing the fishers to travel farther from shore to fish for their communities, spending more time at sea to catch the same amount of fish as before, and investing more into their fishing practices overall. Additionally, the fishers also noted that there have become more stringent regulations to the practices that can be performed by the fishers, forcing those fishers to cease their use of some of those practices that used to be employed and performed before.

The changing realities of fishing are reflected in the following account:

“Yes, definitely. There has been a significant change. In the past, catches were more abundant even without traveling far from shore. Nowadays, fishers have to go farther and spend more time at sea. The regulations have also become stricter, so some practices that were previously allowed are no longer permitted today.” “Ayyyy Opo!!!, malaki po ang pagbabago. Dati po mas marami ang huli kahit hindi gaanong kalayo ang pinupuntahan. Ngayon po, kailangan nang lumayo at mas matagal sa dagat. Mas naging mahigpit din ang batas, kaya yung ibang dating ginagawa, hindi na pwede ngayon.” (Participant 1)

This sense of transformation also emerged in participants’ descriptions of declining fish abundance and increasing operational demands:

“The most significant change has been the decline in the volume of our catch. In the past, there was no need to travel far to fish. Nowadays, we have to go farther, stay at sea longer, and spend more on fishing operations. I believe one possible reason is the presence of large-scale commercial fishing activities.” “Yung pinaka-malaking pagbabago po ay ang pagliit ng huli. Dati, hindi ka na kailangang lumayo. Ngayon, mas malayo, mas matagal, mas mahal ang gastos... siguro isang rason ay dahil sa mga malalaking pamalakaya.” (Participant 7)

A similar experience was evident in another narrative, which linked environmental change with declining fish abundance despite improvements in fishing equipment:

“There has been a significant change not only in the fishing gear used but also in the abundance of fish. In the past, the sea seemed plentiful. Now, it feels as though the fish stocks are gradually being depleted. Even when you have complete fishing equipment, there are times when you still return with little or no catch.” “Malaki po... hindi lang sa gamit... kundi sa dami ng isda. Dati po, parang sagana ang dagat. Ngayon... parang unti-unti nang nauubos... kahit kumpleto ka sa gamit, minsan wala pa rin.” (Participant 12)

The life of the fishers was transformed by these two factors: the environmental decline and the changes to the fisheries governance. Each of these factors were recognized by the fishers as both related to and contributive to one another, including each of the factors related to the decline of fish populations and fishery regulations.

Ilosvay et al. (2022) indicate that those fishers exposed to the hazards related to climate change tend to change the way in which they fish, whether in terms of the effort they put into fishing, the types of fish they target, or the schedules on which they fish.

Despite the difficulties that are created by fisheries regulations, the participants were still aware of their ecological purpose. The participants felt that the regulations were created to ensure the sustainability of the fisheries and to provide recreational fishing for those who enjoy the sport in the future. This finding is reflective of the findings of Kotowicz et al. (2022) their study discovered that fishers' knowledge of fisheries laws, understanding of illegal fishing activities, and their support for fishing regulations are all essential components of predicting whether or not the fishers are exhibiting behaviors of being stewards of the environment. The researchers also discovered that fishers who understand the ecological purpose of fisheries regulations are more likely to comply with those regulations, as they are more likely to understand that the regulations will ensure the sustainability of those fisheries.

At the essence of this research study, the transformation of fishing into an increasingly regulated and sustainable activity emerged from the understanding of fishers of the difficulties that the environment presents to the fishing communities. In these interviews, it was made clear that the changing nature of fishing is not just related to the changes in fisheries regulations. Rather, the change in the nature of fishing is due to the change in the environment and the necessity of fishermen to adjust to a fishing activity that is also responsible for the survival of their households.

Theme 5. Emotional Responses to Changing Fishing Practices

Beyond the impact of environmental change on the fisheries itself, the change also has an impact upon the emotional well-being and leadership of those fishing communities. Bennett et al. (2021) have published similar viewpoints to suggest that conservation and management of fisheries should consider the role of local communities in managing the resources, their leadership within those communities, and their knowledge of the fish and their habitats. These sentiments are echoed by the experiences of the coastal fishers of San Agustin, Romblon. The impacts of environmental change were recognized by these coastal fishers not just in the decline in their catches, but also in their emotional recognition of the change and their responsibilities towards the future of their communities. However, while the implementation of fisheries regulations was frustrating for the fishers during its initial implementation, they have come to recognize the value of their community leaders and their role in protecting the fish populations of their area over time.

The emotional journey of adapting to these changes is reflected in the following account:

"To be honest, we struggled at first. It felt as though our income had decreased. However, over time, we came to understand that these measures are ultimately for the benefit of the marine environment. Even though I do not necessarily hope that my children will become fishers someday, I want them to still have fish to catch should they choose that path so they can continue to make a living." "Sa totoo lang po, nahirapan kami noong una. Parang nabawasan ang kita. Pero habang tumatagal, naiintindihan na rin namin na para rin naman ito sa ikabubuti ng dagat at para sakali kahit di ko naman pinapangarap na magiging mangangisda din ang mga anak ko, Sir, ay meron pa rin silang mahuhuli kahit papaano at mabubuhay pa rin sila." (Participant 1)

The participants' experiences likewise reveal how leadership became an important source of guidance during this period of adjustment:

"To be honest, adjusting to the changes was difficult. Some of our members expressed their frustrations and complaints. However, as the leader, it was my responsibility to explain that these measures are intended for the long-term benefit of everyone." "Sa totoo lang po, nahirapan kami sa adjustment. May mga miyembro na nagrereklamo. Pero bilang lider, kailangan kong ipaliwanag

na para ito sa pangmatagalan.” (Participant 4)

Another narrative highlights how environmental change also carried a profound sense of personal and collective responsibility:

“It is disheartening because you know you have the skills and experience, yet it is the sea itself that has changed. It is also deeply concerning because I am not only thinking about myself but also about the members who depend on fishing for their livelihood.” “Nakakalungkot po... Kasi alam mong marunong ka... pero yung dagat na mismo ang nagbago. Nakakabahala po... Kasi hindi lang sarili ko ang iniisip ko pati yung mga miyembro na umaasa sa pangangisda.” (Participant 7)

Beyond the reduced ability of the fishers to catch fish within their waters exists the emotional responsibility that they feel for the future of their community and family. Rather than continuing to resist the regulations that were placed upon them, the participants explained that they eventually came to accept the regulations on their communities after recognizing their role in the sustainability of the fish populations in those areas. Furthermore, many of these fishery leaders also recognized their role in educating others within the community of these fishery regulations, and in encouraging their community to participate in such efforts. Bennett et al. (2021) found that effective ocean governance encourages the participation, trust, and stewardship of the local communities within those oceans, as those communities are essential to the effective and sustainable management of those oceans. These findings support these researchers in recognizing that the leadership role of these communities is in understanding their emotional connection to their environment, and in taking steps to encourage the participation of their community members in responding to and managing their environmental changes - for the benefit of their future generations.

At the essence of these interviews, the participants revealed the emotional and collective journey that their communities have taken in response to the environmental changes to their oceans. Beyond the adaptation to the fisheries regulations, the participants indicated that their communities exhibited the resilience and compassion to overcome the challenges that were posed to them by these changing environments, and committed themselves to the protection of both those environments and their communities.

3.2 Factors Influencing Compliance and Regulatory Defiance

This objective explores how coastal fishers understand, interpret, and respond to fisheries regulations within the context of their everyday livelihood. The participants’ narratives reveal that compliance and regulatory defiance are not experienced as simple choices between obeying or violating the law. Rather, these experiences reflect the complex realities of sustaining household livelihoods while fulfilling the shared responsibility of protecting marine resources.

Theme 1. Compliance as a Balance Between Legal Awareness, Livelihood Necessity, and Institutional Trust

Compliance with fisheries regulations is understood to be a multidimensional concept that encompasses various factors that influence fishermen’s awareness of the regulations, their livelihood, and their confidence in the governing institutions. Kotowicz et al. (2022) discovered that environmental stewardship by fishermen in the Philippines is dependent upon their knowledge of fisheries laws and regulations, their support for limiting fishing efforts in the oceans, and their belief in the importance of protecting marine life in those oceans. Finally, the Bureau of Fisheries and Aquatic Resources (BFAR, 2023) noted that similar to the FAO, the Philippines believes that fisheries law enforcement should be supplemented with programs that allow for the participation of fishermen, educational efforts, and capacity to manage the fisheries within their municipal areas.

The participants in the interview also indicated that compliance with fisheries regulations went beyond the knowledge of such regulations by the fishermen. Their answers indicated that they felt that compliance was related to their ability to meet their needs and to the confidence that the regulations were actually being implemented by

The participants' understanding of compliance is reflected in the following account:

"Those who comply with the regulations are usually the ones who are knowledgeable about the law and recognize the consequences of violating it. On the other hand, those who fail to comply often do so out of economic necessity, particularly when they have no other source of livelihood."
"Yung mga sumusunod po kadalasan ay yung may kaalaman at takot sa batas. Pero yung hindi sumusunod, kadalasan po ay dahil sa pangangailangan lalo na kung walang ibang pagkakakitaan."
(Participant 1)

The interconnected nature of compliance also emerged in participants' descriptions of the factors influencing their decisions:

"There are three main factors: knowledge, economic necessity, and trust in the system. Even if you are knowledgeable about the regulations, it is difficult to comply if you lack trust in the system or do not have a stable source of income." *"Tatlo po yan: kaalaman, pangangailangan, at tiwala sa sistema. Kahit may kaalaman ka, kung wala kang tiwala o wala kang kita, mahirap sumunod."*
(Participant 6)

Another narrative illustrates how economic hardship may outweigh legal awareness:

"Some fishers are fully aware that their actions are prohibited, but they feel they have no other choice. They believe that without fishing in that manner, they and their families would go hungry." *"Yung iba alam naman talaga nilang bawal pero wala silang magagawa... magugutom po talaga."* (Participant 11)

The compliance or violations of the fisheries regulations by the fishers are not made through the decision of what would be the easiest regulation to follow or to violate, but instead in the negotiation between the desire to follow environmental regulations versus the need to comply with the survival of their families. The fishers understand the importance of these regulations and the consequences of not complying with them, but their need to provide for their families limits their ability to comply with the regulations set for fisheries. However, the voluntary compliance with these regulations is correlated with the trust that the fishers have in the governance of fisheries to follow those regulations for all fishers alike. Fisheries compliance and violations have been discussed in a variety of scholarly publications. Galappaththi et al. (2022) also published a scientific journal article that discussed the importance of collaborative governance and allowing stakeholders to participate in the management of fisheries resources. Finally, the Bureau of Fisheries and Aquatic Resources (BFAR, 2023) recommends that fisheries be managed by allowing for communities to participate in the fisheries management process, extension services to aid the fishers, and the continuous provision of fisheries-related education. These various publications and organizations indicate that compliance with fisheries regulations is indeed a negotiation between the requirements of the fisheries regulations and the survival of the fisher's families.

At the essence of the opinion of the fishers regarding compliance with fisheries regulations is an understanding that compliance exists as a balance between understanding the regulations of the fisheries, meeting the needs of their families, and trusting in the enforcement of those regulations for all fishers alike. Thus, understanding that these regulations may be essential for the sustainability of fisheries resources, the fishers also require the ability to follow those regulations to fulfill their role as provide for their families.

Theme 2. Livelihood Pressures and Economic Sacrifices Influencing Regulatory Compliance

Fishery regulations are recognized as essential for protecting the marine ecosystems in which fish populations live and thrive. However, these regulations are often challenging to implement for small-scale fishing communities that depend upon these fish populations for their livelihoods. De la Puente et al. (2022) also note that the

implementation of sustainable fishing practices does not necessarily lead to an increase in the livelihood and well-being of small-scale fishing communities. The participants in these interviews also recognized the importance of fishery regulations for the protection of marine ecosystems. However, they also described the hardships that these regulations have created for their communities. Though they recognize the need for these conservation measures, the small-scale fishers also explained the negative impact that these regulations have had upon their ability to provide for their families.

The consequences of these conservation measures for the small-scale fishers and their families are reflected in the statement:

“The impact is significant. When closed seasons are implemented or fishing is prohibited in certain areas, our income decreases. There are times when we are compelled to borrow money just to meet our daily needs.” “Malaki po ang epekto. Kapag may mga closed season o bawal mangisda sa ilang lugar, nababawasan ang kita. Minsan napipilitan kaming mangutang.” (Participant 1)

Participants also described how declining income affects their emotional well-being and influences their willingness to comply with regulations:

“The impact on our income is obvious, it declines. Emotionally, many fishers become discouraged and lose their motivation. At times, this frustration creates the temptation to violate the regulations.” “Sa kita po, obvious, bumababa. Sa emosyon, nawawalan ng gana ang mga mangangisda... minsan nagkakaroon ng tukso na lumabag.” (Participant 7)

Another narrative illustrates how spatial restrictions directly affect fishing opportunities:

“Because certain fishing areas are now prohibited, our fishing grounds have become limited. As a result, there is little we can do.” “Dahil bawal, limitado ang aming pangisdaan... wala kaming magawa.” (Participant 14)

The participants also discussed how conservation was both associated with protecting the environment, but also required some sacrifice from those involved. While the participants were aware of the importance of ensuring that the marine resources of these areas were preserved for the future, they also discussed the impact that conservation had upon their ability to provide for their families - both in relation to income from the fishing, as well as the uncertainty of the future income that those fishers would be able to provide for their families. Crosman et al. (2022) have also published recommendations for ocean governance to recognize the needs of small-scale and vulnerable fishers and fish communities, especially in relation to those conservation efforts and requirements. These findings help to explain the experience of the small-scale fishers in relation to the concept of conservation, and how they experience conservation as a responsibility that necessitates some sacrifice from those who are required to participate in the conservation efforts.

At the essence of the findings of these interviews is the understanding of the participants that conservation is a responsibility, but one that requires some sacrifice from each participating fisherman and fishing community. The fishermen understand that while they must make sacrifices in the immediate future and present to provide for their families, they must also make those sacrifices in order to ensure that their future and the future of their communities is provided for.

Theme 3. Perceived Fairness and Consistency in Law Enforcement as Drivers of Compliance

Beyond the existence of fisheries regulations and policies, voluntary compliance will also require that these policies are implemented fairly. Puley et al. (2022) found that allowing the fishers to participate in the fisheries management process in various capacities will enhance the legitimacy of that organization and encourage compliance from the fishermen who are required to contribute to the fisheries management process. In each of the interviews, the stakeholders recognized the importance of fisheries regulations but also expressed concerns

regarding whether the regulations were implemented fairly across all sectors of the fishing community. Voluntary compliance was specifically mentioned by the stakeholders as requiring the regulations to be applied equally across the community, regardless of the relationship that exists between the individual fisherman and the fisheries management authorities.

Perceived unequal implementation of fisheries laws is reflected in the following account:

“Not all the time. There are instances when some individuals seem to evade enforcement, particularly if they have influential connections. As a result, some fishers become discouraged and lose the motivation to comply with the regulations.” “Hindi rin po sa lahat ng oras. May mga pagkakataon na parang may nakakalusot, lalo na kung may koneksyon. Kaya minsan nawawalan ng gana yung iba na sumunod.” (Participant 1)

Concerns regarding selective enforcement were likewise evident in another participant’s narrative:

“Not in all instances. There have been complaints that some individuals are able to evade enforcement. Even when they are reported, they are not apprehended, allegedly because they are personally acquainted with, or related to, members of the Coast Guard.” “Hindi po sa lahat ng pagkakataon. May mga reklamo na may nakakalusot. Kahit may nagrereport hindi hinuhuli... kilala kasi at mga kamag-anak ng coast guard.” (Participant 3)

The influence of inconsistent enforcement on respect for the law also emerged during the interviews:

“Not all the time. When some individuals are able to evade enforcement, it diminishes people’s respect for the law.” “Hindi po palagi. Kapag may nakakalusot, nawawala ang respeto sa batas.” (Participant 6)

Participants from geographically isolated coastal communities further described how limited monitoring affects perceptions of fairness:

“In our area, we are far from the town proper, so monitoring is not as consistent. As a result, some individuals still engage in illegal fishing activities. I would say that enforcement is not entirely fair because it tends to focus more on areas that are closer to the authorities.” “Dito samin malayo na sa banwa, hindi na gaanong nababantayan kaya may nakaka-illegal gihapon. Masasabi ko na hindi patas kasi yung nababantayan nila yung mga nasa malalapit lang sa kanila.” (Participant 15)

The concept of governance in the fisheries management sector is also recognized by the fishers through the fairness with which the regulations are implemented. Fishers that perceived that there was a level of favoritism and uneven enforcement of fisheries regulations within their regions were less likely to comply with the existing regulations. However, fishers that felt that the fisheries regulations were enforced fairly by all fishers, and that all individuals were required to fulfill the same regulations and standards, were more likely to comply with those regulations. These results are consistent with the research of Fudge et al. (2021), who found that processes that allowed for the participation of those who would be impacted by fisheries-related decisions created a sense of justice and legitimacy with the management practices of the fisheries. Swasey et al. (2021) also found that fisheries management that incorporated accountable and participatory management practices lead to increased support and confidence in the fisheries management practices. The findings of the fishers on this topic help to extend these concepts to the idea that fairness and justice in fisheries management is also experienced as a moral and ethical requirement for compliance with fisheries management initiatives.

At the essence of the experiences of the fishers within this study is the idea that justice relates to the concept of fairness within the governance of the fisheries. Fishers only have a willingness to comply with fisheries management regulations if everyone has the same responsibilities and is held to the same standards in their

management of fisheries resources. Thus, sustainable management of fisheries resources requires not just the implementation of various management regulations, but also the enforcement of those regulations in a consistent, transparent, and fair manner for all members of the fishing community.

Theme 4. Emotional Responses Shaping Compliance and Regulatory Defiance

Compliance with fisheries regulations is often understood to be a social and emotional process for those fishers in question. These types of results are present within the research of authors like Andrews et al. (2021), who found that the behaviors of fishers is influenced by a variety of psychosocial factors in addition to the economic incentives to comply with fisheries management regulations. Bergseth et al. (2023) have also determined that fisheries governance regulations should consider the influence of human behavior and community involvement in addition to compliance with the regulations themselves. Outside of these discussions of the benefits of considering human behaviors in the management of fisheries, the participants also had some mixed concepts of the fishers that violate the regulations of those fisheries. For instance, participants were both frustrated by the impact that non-compliance with fisheries regulations can have upon the other fishers within those communities, yet also understand that the reasons for their non-compliance are often the result of the poverty and declining fish catches that impact those communities and their fishers.

The emotional tension between accountability and understanding is reflected in the following account:

"It is frustrating because we comply with the regulations, while others do not. It feels unfair. At the same time, I can also understand their situation because, like us, they are simply trying to earn a living." "Nakakainis po, kasi kami sumusunod tapos sila hindi. Parang hindi patas. Pero minsan naiintindihan ko rin sila kasi pareho lang kaming naghahanapbuhay." (Participant 1)

Community leaders likewise described the challenge of encouraging compliance while remaining empathetic toward fellow fishers facing similar hardships:

"It is difficult because some of our fellow fishers also express their frustrations. We often find ourselves caught in the middle, although we also understand how they feel." "Mabigat po... Kasi nagrereklamo din yung iba na kasamahan... kami yung naiipit, nauunawaan din naman namin yung kanilang nararamdaman." (Participant 10)

The participants' viewpoints show that non-compliant fishers are seen as more than just individuals that violate the regulations. These fishers are often seen as the neighbours, relatives, and individuals that are in the same state of socioeconomic lives as the other fishers who must comply with the regulations. The fishers' frustrations with the non-compliant fishers develops from the understanding of the impact of that non-compliance upon the resources and those who comply with the law. Compassion towards those who are often non-compliant with the fisheries regulations is understood as a result of the knowledge of the impact of poverty and resource limitations upon those individuals' abilities to comply. These results are consistent with the findings of Andrews et al. (2021), who investigated the psychosocial factors that impact the behavior of fishers and found that many of those factors were related to the experiences and interactions of the fishers with others in their communities, rather than to considerations of the economics of fishing. Weiland et al. (2021) discovered, through interviewing the stakeholders in fisheries management, that open communication and allowing stakeholders to have a role in the fisheries management decisions results in increased commitment of those stakeholders to the fisheries. Gammage et al. (2021) discovered that fisheries management strategies that consider the social aspects of fisheries management as well as the environmental aspects of those fisheries lead to an increase in cooperation among the stakeholders in those fisheries. These results help to fill the knowledge gap in understanding how these social aspects of fisheries management may impact the compliance or noncompliance with fisheries regulations.

At the essence of these fisheries interviews, it is clear that compliance with fisheries regulations requires a balance between accountability and compassion towards those fishers. The sustainability of fisheries, therefore,

relates not just to the environmental requirements of those fisheries but also to the social and emotional aspects of managing those fisheries and their communities.

3.3 Challenges Encountered in Balancing Livelihood Needs and Sustainability Obligations

Considering how the fishers in these communities experience the balance between the needs of their livelihood and their responsibilities to sustain fishing will be explored in this objective. Many of the challenges that these fishers experience in their pursuit of being environmental stewards also impact their livelihood, leading them to recognize the relationship between these two concepts for themselves.

Theme1. Balancing Livelihood Needs and Sustainable Fisheries Management

One of the main challenges of small-scale fisheries is the balance between livelihood needs and conservation of the fishery. De la Puente et al. (2022) discuss, for instance, the efforts of small-scale fishers to balance the needs of their livelihood with the demands of utilizing sustainable fishing practices. The authors explain that fishery conservation practices alone are not sufficient to meet the needs of these communities without also considering their needs for well-being. Roscher et al. (2022) similarly indicate that diversifying the livelihoods of small-scale fishers is essential to both reducing the dependency upon the fisheries, as well as ensuring the well-being of those fisher communities. Béné et al. (2015) discuss how small-scale fisheries must also balance conservation practices with the needs of the communities fishing, especially with regard to the well-being of those populations.

The small-scale fishers discussed in these research studies indicate that their primary motivation to fish is to provide for their families, while also preserving the fishery for future generations. While the fishers recognize the importance of utilizing sustainable fishing practices to ensure the long-term sustainability of their fishery, they also indicate that financial hardships make it difficult to achieve such a balance between these two needs.

The challenge of balancing livelihood and sustainability is reflected in the following account:

“For me, these are two things that must be balanced. It is not enough to focus solely on maximizing today’s catch; we must also ensure that there will still be resources left for the future. However, achieving this balance is difficult when one’s income is insufficient.” “Para po sa akin, parang dalawang bagay na kailangan pagsabayin. Hindi pwedeng puro huli lang ngayon, kailangan may maiwan pa para bukas. Pero mahirap po ito kapag kulang ang kita.” (Participant 1)

A similar dilemma emerged in another participant’s narrative:

“It is truly difficult. It often feels as though you are caught in the middle you want to comply with the regulations, but at the same time, you also need to earn a living to survive.” “Mahirap po talaga. Parang lagi kang nasa gitna gusto mong sumunod, pero kailangan mo ring kumita para mabuhay.” (Participant 4)

The responsibility toward future generations was likewise emphasized during the interviews:

“We cannot focus solely on earning income today; we must also ensure that marine resources remain available for future generations.” “Hindi pwedeng puro kita ngayon... kailangan may maiwan pa para sa susunod na henerasyon.” (Participant 10)

The participants’ interviews demonstrate the relationship between livelihood and sustainability. Even with the limitations placed upon them regarding their livelihoods, the participants all recognized the importance of sustainability for the future of their families and communities. Thus, every decision they made in relation to fishing was a decision to balance their livelihood with the sustainability of their fisheries for their communities. This aligns with the findings of de la Puente et al. (2022), who also discovered that fishers must find a balance between their livelihood and sustainable fishing practices; conserving the fisheries without considering the impact on the livelihood of these communities will only lead to more challenges for those populations. Ouréns et al. (2022) also

discovered that the sustainability of small-scale fisheries depends upon empowering the communities involved in fishing while taking into account their livelihoods. Both of these important studies demonstrate the need for fisheries management to find a balance between fisheries conservation and the livelihood of those communities that depend upon them. The findings of this research further to these existing studies by showing that the balance must be found within the welfare of the families and the future of their communities, as they hold the greatest stake in the sustainability of their fisheries.

At the essence of their fisheries, the balance between livelihood and sustainability is one of protecting their families and communities and ensuring that the fisheries remain capable of providing for them into the future. For these small-scale fisherfolk, the two concepts are intertwined with one another and cannot be separated. Sustainability in fishing is a responsibility to their families and communities, as is the livelihood that they provide for those individuals.

Theme 2. Financial Vulnerability and Emotional Strain in Household Survival

The persistent challenge facing small-scale fishing households is financial insecurity. The unstable income from fishing affects the well-being of the households directly. Huynh et al. (2021) highlight the various factors that impact the well-being of small-scale fishing communities, including their livelihood and their ability to diversify their sources of income. Selvaraj et al. (2022) discovered that small-scale fishing communities experience various forms of vulnerability due to their dependence upon the ocean and their inability to diversify their livelihoods. Simmance et al. (2022) note that the benefits of small-scale fishing goes beyond income to these communities, as they experience improvements in food security and reduction of poverty within their communities. Participants also noted the various aspects of their lives that were negatively impacted by their financial instability beyond their income from fishing. For instance, they struggled to afford food to eat, sent their children to school, covered their healthcare needs, or even to maintain a stable emotional state within their families.

The impact of livelihood insecurity on household survival is reflected in the following account:

“The impact is significant. There are times when we do not have enough food, and we are compelled to borrow money to meet our daily needs. My children also experience difficulties with school-related expenses.” “Malaki po ang epekto. Minsan hindi sapat ang pagkain, at napipilitan kaming mangutang. Yung mga anak ko po, minsan nahihirapan sa gastusin sa school.” (Participant 1)

The financial burden associated with family health also emerged during the interviews:

“It is truly difficult, especially when a family member becomes ill. During such times, you do not know where to find the money needed to cover the expenses.” “Mahirap po talaga lalo na pag may nagkakasakit sa pamilya... hindi mo alam saan kukuha ng panggastos.” (Participant 4)

Participants likewise described the emotional consequences of prolonged financial uncertainty:

“We become burdened with debt, struggle to meet our basic needs, and, at times, experience stress within our families.” “Nagiging lubog sa utang, kulang sa pangangailangan, at minsan stress sa pamilya.” (Participant 7)

The livelihood of the participants relates to the well-being of the family as a whole rather than the financial gain of the individual fishers. The declining fish catch has an impact on the income of the family, which affects the ability of those family members to provide for their children and maintain the well-being of their families overall. Thus, the financial gain of the family impacts their relationships within the family and the overall well-being of those family members. These findings are in agreement with the findings of Stacey et al. (2021), who also discussed how the well-being of the small fishing communities depends upon the resilience of their livelihoods. Such livelihoods depend upon the sustainability of the fisheries in which they fish. Amadu et al. (2021) discovered

that the livelihood of the small-scale fishers also relies upon the ability of those individuals to adapt to change and to organize themselves within their communities. Finally, Wintergalen et al. (2022) also found that the resilience of their livelihoods could be furthered by increasing the diversification of the livelihoods of these small-scale fishers, leading to an increased capacity of those individuals to adapt to environmental changes.

The findings presented in this paper support these perspectives regarding the concept of livelihoods by revealing that the fishers primarily discuss their concept of livelihood in the context of caring for their families, and in measuring the success of their trips according to their ability to provide for their families. Thus, their livelihood is understood to be based upon the concept of providing for their families, and as such, their ability to provide for their families is the main indicator of their success as a fisher and their understanding of livelihood.

Theme 3. Livelihood Diversification as a Coping Strategy under Economic Insufficiency

In response to the decline in fish catches among small-scale fishers, diversification of livelihoods has become increasingly common among those households. For instance, Roscher et al. (2022) report that small-scale fishers often perform various types of work to ensure that they and their families can remain resilient in the face of the uncertainty of their fishing incomes and the need to remain connected to the sea and their fishing activities. Similarly, Fabinyi et al. (2022) report that many coastal communities in Southeast Asia have begun to increase the diversity of their livelihoods from fishing alone, instead utilizing their resources and skills to also participate in wage labor, aquaculture, livestock production, and other small businesses. Furthermore, Wongbusarakum et al. (2021) report that increasing the social adaptive capacity of the individuals within fishing communities can lead to increased resilience from those communities, which can better respond to the changes in their environment and livelihood.

These strategies were likewise seen in the individuals who participated in the study, indicating that they have likewise attempted to diversify their incomes from fishing alone to help compensate for the instability of that income stream, and to provide for their families.

Participant 1 described taking on temporary work whenever opportunities became available:

“From time to time, we take on other sources of income, such as repairing fishing nets, boat building or repair, or working in construction. However, these opportunities are not regular.”
“Paminsan-minsan po, may sideline tulad ng pag-aayos ng lambat, paggawa ng bangka, o construction. Pero hindi po regular.” (Participant 1)

Participant 6 similarly explained that many fishers supplement their livelihood through other forms of manual labor:

“Some engage in livestock raising, work in construction, or take on cargo-handling jobs at the pier.” *“Yung iba naghahayopan, nagko-konstraksyon, o nagkakarga sa pier.”* (Participant 6)

Participant 10 also shared how the family combined several income-generating activities to meet daily needs:

“Aside from fishing, I also raise chickens, and our family operates a small neighborhood store. However, these additional sources of income are still not sufficient to meet all of our needs.”
“Bukod sa pangangisda, nag-aalaga ako ng manok at may maliit kaming tindahan... pero hindi pa rin sapat para sa lahat.” (Participant 10)

These narratives indicate that the participants felt that diversification was necessary to ensure that their households could survive, as they relied upon these additional occupations to provide income during periods of low fishing income. Additionally, each participant considered fishing to be their primary and identifying livelihood. Thus, alternative occupations were established to supplement their existing fishing livelihood.

These findings are in agreement with the findings of Nomura et al. (2021), who determined that diversifying

the types of fishing activities that occur within small-scale fisheries enhances the adaptability of those fisheries and increases their resilience to adverse conditions. Additionally, Gonzalez-Mon et al. (2020) discovered that fishers typically find alternative species or fishing grounds to fish at in order to ensure that their livelihoods are able to be sustained despite alterations in their environment. Furthermore, Green et al. (2021) also discovered that the ability of small-scale fishers to have diverse and flexible livelihoods is one of the main components of their ability to adapt to the various conditions that may impact their fisheries. Finally, the findings of this study indicate that these fishermen and fishers primarily viewed diversification of their livelihoods as a means of preserving their fishing livelihood. Thus, these individuals gained additional occupations to enable them to have the income necessary to continue their fishing occupation.

Livelihood diversification was also experienced as a form of resilience because the participants were able to find additional ways to provide for their families while still maintaining their identities as fishers. The concept of resilience in the context of these individuals was not experienced as a transition away from their fishing identity, but rather in the ability to continue to provide for their families and maintain their livelihood as fishers. Furthermore, diversification of livelihoods was experienced by the participants as a means of continuing to both their welfare and their identity as fishing community members. These additional sources of income allowed them to weather periods of economic insufficiency while still being able to maintain their fishing identities and roles within their communities.

Theme 4. Compounded Economic, Environmental, and Regulatory Pressures on Fishing Livelihoods

The effects upon small-scale fishing livelihoods are the result of the combined effects of each of these different categories of impact. Short et al. (2021), for instance, have investigated the various small-scale ecosystems within which the small-scale fishers exist, and found that various factors related to the environment, the economy, and the governance of fisheries has a combined effect upon the ability of those fishers to support themselves. Arthur et al. (2021) have investigated small-scale fisheries within the context of food systems, climate systems, and governance systems within those small-scale communities, and found that each of these factors has a combined effect upon sustainability of those fisheries. Authors like Roscher et al. (2022) have found that the vulnerability of small-scale fisheries is the result of the interaction of ecological, economic, and governance factors. Each of these factors were likewise evident within the experiences of the fishing community participants themselves; each described the impact upon their livelihood of the combined effects of declining fish catches, rising costs, and fisheries regulations. For instance, Participant 1 described the impact of declining fish catches within their area on their livelihood:

“No matter how hard you work, if there is simply no catch, you will still have nothing to bring home.” “Kahit anong sipag mo... kung wala talagang huli, wala ka ring maiuuwi.” (Participant 1)

Participant 3 highlighted the challenge of balancing livelihood needs with regulatory compliance:

“Balancing our livelihood needs with compliance with the law.” “Yung pagsabayin ang pangangailangan at pagsunod sa batas.” (Participant 3)

Participant 5 also described the growing financial burden associated with fishing operations:

“The increase in fuel prices has been substantial. The cost of fishing operations has become very high, yet the selling price of our catch remains low.” “Grabe ang pagtaas ng presyo ng gasolina ... mahal ang kapital pero mura ang bili sa huli.” (Participant 5)

As indicated by these various authors, the livelihood challenges that were experienced by the small-scale fishers were not experienced as separate challenges. Each of these fishers were aware of the various challenges that impacted their ability to earn a living as fishers, including the declining fish populations, the increased costs of fuel for their fishing boats, and the regulations that restricted their ability to earn a living from their fishing activities. Each of these challenges is recognized by the small-scale fishers as challenges that combined to create

the livelihood challenges that they experienced. Valdez-Rojas et al. (2022) have indicated that understanding the small-scale fishery as a social-ecological system allows for the recognition of the relationship between environmental, social, and governance-related factors to the livelihood of the small-scale fisher. Roscher et al. (2022) have also indicated that the resilience of small-scale fishers is established through the recognition of the ecological, economic, and governance-related factors that contribute to their vulnerabilities. Thus, while each of these authors recognize that the small-scale fisher experiences various challenges to their livelihood, the findings of this research are that these different challenges are combined into a small-scale fisher's reality as a group of challenges to their livelihood.

Fishermen experienced vulnerability in relation to the various challenges they faced, and they did not appear to be able to distinguish one challenge from the other. For these fishermen, maintaining their fishing livelihood was defined by the uncertain nature of their fish catches as well as the various costs and regulations that threatened to affect their ability to continue to fish sustainably. Thus, vulnerability as experienced by these fishermen demonstrates that their fishing livelihood is experienced as a result of the various challenges that exist in relation to fishing in general. To maintain their fishing livelihood, the fishermen were constantly adapting to their environment, yet they exhibited the resilience necessary to provide for their families.

Theme 5. Institutional and Livelihood Support Gaps Affecting Sustainable Compliance

In the understanding of fisheries governance, regulation alone is not likely to lead to long-term compliance from small-scale fishers. Ruano-Chamorro et al. (2023) discovered, for instance, that fishery management is more likely to achieve positive outcomes for the environment and the community if it recognizes the different ways in which small-scale fishers may be impacted in relation to their livelihoods. Kotowicz et al. (2022) discovered that small-scale fishers in the Philippines are more likely to exhibit stewardship of their environment if they are provided with knowledge of the regulations that exist in relation to fisheries management. Short et al. (2021) similarly found that small-scale fisheries management initiatives that are successful tend to include elements relating to stewardship of the environment, increasing the participation of small-scale fishers in management decisions, as well as ensuring that the livelihoods of those fishers are protected. These suggestions for fisheries management are reflected by the authors and small-scale fisher participants alike regarding the need for government initiatives to go beyond the enforcement of regulations regarding fisheries management to also implement initiatives that address the livelihood of those small-scale fishers.

Participant 1 emphasized the importance of livelihood support and fair implementation of the law:

"I hope there will be greater support, particularly in providing alternative livelihood opportunities. I also hope that the law will be enforced fairly and consistently." "Sana po ay mas may suporta lalo na sa alternatibong kabuhayan... at sana patas ang pagpapatupad ng batas." (Participant 1)

Participant 3 likewise underscored the need for inclusive government assistance, particularly for women engaged in fishing livelihoods:

"I hope that greater support will be provided to fishers, especially to women like us, and that the law will be enforced fairly and equitably." "Mas mabigyan ng suporta ang mga mangingisda, lalo na kaming mga kababaihan... at maging patas ang pagpapatupad ng batas." (Participant 3)

Participant 5 further described the connection between livelihood opportunities and regulatory compliance:

"If there were alternative sources of livelihood, complying with the law would be much easier." "Kung may ibang pagkakakitaan... mas magiging madali ang pagsunod sa batas." (Participant 5)

The above narratives demonstrate that the participants did not reject the concept of conserving fisheries and enforcing environmental regulations. Instead, they believed that the conservation of fisheries should be the responsibility of both the government and the fishing communities. Additionally, they felt that it would be more

realistic to enforce regulations on fishing communities if there were programs to support their livelihoods, if there was more equitable law enforcement within fisheries, and if there were development initiatives to reduce the vulnerability of fishing communities to poverty. Fudge et al. (2021) also reported that governing fisheries in a way that included the stakeholders in fisheries would result in an increase in the trust that these groups have in the fisheries management policies. Skerritt (2024) also found that increasing the transparency of fisheries governance led to an increase in the accountability of those governing the fisheries, the participation of the stakeholders in the governance of fisheries, and an increase in the effectiveness and equity of fisheries management. Finally, the findings of the present study demonstrate that the government's commitment to fisheries and fisheries management includes the provision of livelihood programs for fishing communities, as these populations are required to fulfill their environmental responsibilities.

Beyond the notion of governance as partnership is the idea that the government was attached to the fishing communities through their provision of fairness, support, and opportunities to those fish communities. Compliance by the fishermen is provided to the government through the recognition of their socioeconomic relationship with the fishing communities, indicating that compliance is dependent upon the development of trust between the government and those fishing communities.

Another theme that emerged from these interviews was that sustainable compliance is the product of integrated governance. For these participants, compliance is not just provided through the implementation of regulations that are effective at managing the populations of targeted fish species, but also that sustainable compliance also requires the government to be equitable in their enforcement of regulations, to provide support for those fishing communities, and in requiring the collaboration between those governmental entities and the fishing communities in which they depend.

4. Conclusions and recommendations

In the coastal communities of San Agustin, Romblon, fishing is a way of life supported by the knowledge of the fish, the environment, and the skills that are necessary to catch and sustain their fish resources. The fishermen utilize various traditional (and legal) fishing methods to catch fish from the area, but also adapt their methods according to the weather, fish in the area, environmental changes, and fishing regulations. Additionally, the knowledge of fish and how to sustain their fish and their environment is passed from one generation of fishermen to the next. The study likewise established that compliance with the regulations of sustainable fishing extends beyond compliance with the laws of fisheries. Compliance by fishermen with these regulations is the result of various factors, including economic needs, responsibilities towards households, and the perceived fairness of the laws that are in place and enforced in fisheries. Although the fishermen in the study were aware of the importance of conserving fish species in the oceans, their ability to comply with regulations to accomplish those conservation goals were impacted by their income instability, poverty, lack of other means of livelihood, and the perceived enforcement of these fisheries regulations. Thus, voluntary compliance with fisheries regulations was found to occur when fishermen felt that the regulatory agency was transparent, equitable, participatory, and understood the needs of the fishermen. The findings also revealed that the most significant challenge faced by coastal fishers is the difficulty of balancing their needs for livelihood with their sustainability obligations. The declining fish catches among fishers has contributed to the decrease in the welfare of those fisher households. To counteract these challenges to their livelihoods, the fishers have had to adapt their fishing practices and income sources, utilizing their resources and knowledge of the environment to balance their needs for both their families and their way of life. These findings, therefore, indicate that the livelihood and sustainability of coastal fishers are dependent upon one another. Drawing from these experiences, valuable insights can be garnered regarding the topic of sustainable fisheries management. These insights can inform the development of future policies and initiatives related to fisheries management, especially those related to municipal fishing communities. Overall, the essence of this phenomenon is that sustainable fishing is closely tied to the survival of the individuals in those fishing communities. In order to survive, the fishers must protect their fish populations in order to protect their families, their dignity, and the future of their communities. Thus, sustainable fisheries management can be understood as a responsibility

to the environment of those individuals as a whole, and to the future of their communities. As such, the future of these communities is closely tied to the future of their fisheries and its ecosystems.

Based on the findings of this study, the following recommendations are proposed: The Bureau of Fisheries and Aquatic Resources in collaboration with the Municipal Local Government Unit of San Agustin, Romblon, should organize training and educational programs regarding sustainable fishing practices, responsible fisheries management practices, environmental conservation, and climate-resilient fishing techniques. These programs will allow the fishermen to gain knowledge on these topics and develop the skills necessary to adapt to the changing environment in which they fish. The Municipal Local Government Unit of San Agustin, Romblon, in partnership with various government agencies and organizations of fisherfolk, should expand and improve the available alternative livelihood programs for the community of fishermen. By creating alternative forms of income for the fishermen, the town can reduce the fisherfolk's dependence on the fishery, increase their income, and reduce the impact of non-compliance with established fisheries regulations. Fisheries law enforcement agencies may work towards the implementation of fisheries laws in a manner that is consistent, transparent, and equitable. This may include implementing coastal patrols that include both agency members and local officials and fisherfolk associations alike. The fisherfolk associations and cooperatives themselves are also encouraged to continue to implement programs that provide education to their members regarding responsible fishing practices and the importance of managing the natural resources of their ecosystems. Additionally, encouraging the members of these cooperatives to participate in the management of these associations may enhance their ability to work towards a common goal of effectively managing fisheries within their regions. Finally, future researchers that investigate these topics in other coastal municipalities and provinces may be able to determine whether the same issues are present within different regions of the country. Additionally, future investigations into the effectiveness of implementing certain programs for these fisherfolk communities may uncover beneficial steps that can be taken to enhance their compliance with sustainable fishing practices.

5. References

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