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Indigenous Fishing Techniques of Pilar Fisher Folks in Pilar Bay

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ABSTRACT

An understanding of fishing gear, crafts, and techniques is crucial for the scientific and prudent exploitation and management of fisheries resources. Therefore, this study aimed to identify the various indigenous fishing methods employed by Pilar's native fishermen. especially on the fishing methods that are now in use and those that are not. employing self-structured questionnaires for the descriptive survey and guiding questions for the Key Informant Interview (KII). Referrals sometimes referred to as the snowball approach, and enumeration listing were used to identify survey respondents. The emerging results show that The indigenous fishing techniques used by fisherfolks in Pilar Bay are the following: *Hudhod, Baleng, Patuloy, Pamanti, Panilag, Pambalanak, Punot, Tangkop, Arong, Pamana, Sensoro, Hila hila, Pangasag, Labay, Tabudlak, Kurantay, Bobo, Pamunit* and *Panagat*. The types of fish catch using simpot or nets are: Fairy shrimp (*hipun*), *Silag, Pasayan* (shrimp), *tabagak, gurayan* etc; on the other hand, those that use structures, are *Kugan, bulan, milkfish, abu, inid, mamlad* etc; and those that utilize special equipment like rods and hooks, are *pugaro* and *inid*. Moreover, the seasonal fish catch are as follows *tabagak, milkfish, sap-sap, gurayan* and *hipun*. In general, local fishing helped to maintain environmental equilibrium. The use of mostly local and indigenous fishing gear and equipment indicates of the usage of indigenous methods.

INTRODUCTION

Filipinos who reside in coastal areas rely heavily on fishing as a source of income because the country is made up of 7,641 islands (as of the 2016 census). For ages, agriculture has been one of the most important economic endeavors that has sustained and nourished millions of Filipinos. One of the most resilient fisheries in the world is found in the Philippines. The abundance of the sea provides a living for about 5 million people. The majority of residents in Pilar, one of the communities in Capiz that is close to the ocean, reside on the coastline (in Pilar Bay). Every Pilareno has considered fishing to be the "meat of the crop." Fish catches are the source of livelihood. Determining the indigenous fishing methods and traditional fishing practices of the Pilareno is therefore crucial in order to assist them in improving their standard of living while also protecting the fishing habitat.

In the Philippines, traditional fishing is still widely practiced today. Devices including pole gear, sling spears, and spear cannons were utilized in this kind of fishing. In Mindanao, the indigenous Badjao group—also referred to as the Sea Gypsies and Sama people—frequently engage in spearfishing. Payaos, a fish aggregating device used in traditional fishing, are used to draw pelagic species, such as tuna, into fishing nets or handlines. Modern payaos, which are built of steel and have fish lights and fish location sonar, are an adaptation of the traditional bamboo raft.

For the scientific and prudent exploitation and management of fisheries resources, an understanding of fishing gear, crafts, and techniques is crucial. Devices of various sizes and forms that are used in aquatic environments to catch fish of various sizes are referred to as fishing nets and gear. Fishing methods used in a given geographic location typically rely on the different behavioral traits and microhabitat types of the local fish fauna. The majority of fishing equipment and vessels are antiquated and non-mechanized. Any type of apparatus, tool, instrument, or mechanical device used to capture, gather, or harvest fish is referred to as fishing gear.

It is difficult to record local, traditional fishing knowledge in a way that both resource managers and scientists can comprehend, despite the fact that its significance cannot be understated. This is due to the need for a thorough understanding of both natural processes and local culture and customs, thus this study was conducted to determine the indigenous fishing techniques are being practiced by Pilar fishermen; determine the traditional fishing gears that Pilar fishermen are employing; find out the type of fish catch, type of gear with reference to the season (referring to time, phase of the moon, number of people operate the gear used by fishermen and determine the possible environmental effects may have resulted from these indigenous fishing techniques and traditional fishing practices.

LITERATURE REVIEW

According to Kechu, Metevinu *et al.* (2023) in their study entitled "Traditional fishing methods practiced by Ao and Sumi tribes in Dikhu River of Nagaland, India" stated that earliest fish-catching methods that were passed down from ancestors in the majority of Naga communities in

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Nagaland are the source of traditional fishing expertise. Traditional fishing is mostly done for domestic use and is thought to be less intense than commercial fishing methods, which can have a detrimental effect on the sustainability of rivers. But in the modern day, there is a chance that traditional wisdom may be lost. In order to better understand and record the traditional knowledge of fishing methods used by the Ao and Sumi tribal people that live along the banks of the Dikhu River, an attempt was undertaken. Three categories of fishing gear, four fishing accessories, one fishing vessel, and three additional types of fishing techniques have been documented as a consequence of the wide range of traditional fishing tools and methods being categorized according to their distinct purposes. However, harmful fishing methods like dynamites and harsh chemicals were used in certain areas. The findings show that most traditional fishing gear is made from locally accessible, environmentally benign materials including bamboo, wooden poles, and cotton yarn, and that local fishermen still depend on traditional fishing methods for their livelihood. Better resource management may be achieved by implementing and preserving the knowledge gathered from this study.

Pascual *et al.* (2015) in their study "Traditional fishing gears and methods in Ilocos Norte," details the traditional fishing gear and techniques used by rural Ilocano fishermen, which have not been thoroughly documented before. Among other things, it documents, identifies, and characterizes their features, such as their designs, methods of operation, fishing grounds, and fish species. Artisanal fishermen employing fishing techniques and equipment from the coastal and interior communities of the The sources of information were provinces. According to the study's findings, 48 different types of fishing gear and techniques are employed, and they are divided into four (4) groups according to Philippine fishing gear categorization. Ten traps (three coastal, two inland, and three common) and eight hand instruments (six coastal, One and seven inland. Ten traps (three coastal, seven inland, and one common), fourteen lines (eleven coastal, two inland, and one common), sixteen nets (10 coastal, six inland, and four common), and eight hand instruments (six coastal, two inland, and three common) are included.

According to Bai *et al.* (2023) in their study entitled "The Value of Traditional Fishing from the Perspective of Cultural Heritage" that the importance of maintaining traditional fishing is thoroughly examined in this paper. Additionally, the usefulness of traditional fishing as well as its inherent and unique qualities are investigated. This was accomplished by using Ichinomiya-cho, Kujukuri-hama seine fishing techniques as a case study and by demonstrating the basic nature of traditional fishing and how its economic worth is determined. Furthermore, traditional fishing contributes to the preservation of the environment, the upkeep of local society, the improvement of human interactions, and the development of local landscapes. Therefore, this study clarifies the irreplaceable character of traditional fishing in terms of labor, culture, and landscape.

Rahman *et al.* (2017) stated in their research study entitled "Economic Evaluation of Two Major Traditional Fishing Techniques in Vembanad Estuary" that one important component of the poor's social capital that contributes to their sustainable development is the use of indigenous traditional knowledge. The study focuses on the economic analysis of the two main traditional fishing methods used in the backwaters of the Vembanad: Indian coracles and Chinese dip nets. Traditional fishing methods have their own value as a sustainable method of harvesting systems with the least detrimental effects on the fishing environment, even in light of the pollution and financial losses that contemporary fishing systems and fleets inflict to the ecosystem. The study's primary goal was to examine the advantages and disadvantages of the two main fishing methods used in Kerala State's Vembanad Estuary, as well as their potential issues and future developments. The paper covers the economic analysis of the Chinese dip nets and coracles and records the fishing methods. Results show that there are approximately 696 Chinese dip nets operating in Ernakulam district, accounting for 29% of the district's fixed fishing craft, while approximately 15-20 coracles are operated in the Vembanad backwaters. This type of study was the first to use scientific analysis tools like the Garrette ranking method and other major econometric tools. Both of these methods are proven to have extremely cheap manufacturing and maintenance costs. Another noteworthy feature in the research is the reliance on coracles of roughly 25 families that moved to Kerala from Karnataka around 20 years ago. The report emphasizes how they have economic advantages.

MATERIALS AND METHODS

This was conducted at the 8 barangays of the municipality of Pilar, namely: Brgy. Dulangan, Brgy. Binaobawan, Rosario, Poblacion, Natividad, San Ramon, Balogo and Dayhagan of the municipality of Pilar. This study employed purposive sampling technique and snowball to identify the participants of the study. The data on the demographic information collected was analyzed quantitatively using descriptive measures. Data collected were gathered through a questionnaire. In particular, the data was analyzed using frequency and percentage. In order to collect the majority of the study's data, qualitative techniques including participant observation and interviews were used for each response's emphasis. Referrals, sometimes referred to as the snowball approach, and enumeration listing were used to identify the 40 survey respondents.

RESULTS AND DISCUSSION

According to Table 1, the majority of responders are between the ages of 26 and 35. This indicates that the majority of fishermen are of working age. Additionally, it's possible that the majority of people who fish indigenously have received these methods from their parents and grandparents. Fishing could have been their

main source of revenue. In addition, the majority of fishermen are men. because men predominate in the fishing sector. The women are typically the spouses of fishermen who support them in their livelihood. The majority of them are married in terms of their civil status. This suggests that they fish to provide for their families. The unmarried fishermen could be the offspring of fishermen. The number of widowed and separated people is rather small. This suggests that, in the absence of their partners, they could have chosen to make fishing their primary source of revenue. The fishermen have completed or attained secondary school while considering educational achievement. Since there may have been less options for them to attend college, they may have ended up being fishermen. Numerous college and postgraduate fishermen were present. They are most likely proprietors of small fishing enterprises that use fishing as a pastime or a way to supplement their income. Lastly, the majority of fishermen earn between $11,000 and $30,000 when income is taken into account. This suggests that their revenue is more than enough to cover all of their expenses. They may still employ traditional fishing methods because of this.

Table 1: Demographic Profile of the Respondents

Variables	Frequency	Percentage
Age		
Below 15	1	2.5%
16-25	7	17.5%
26-35	14	3.5%
36-45	8	20%
46-55	7	17.5%
56 up	3	7.5%
Gender		
Male	27	67.5%
Female	13	32.5%
Civil Status		
Single	6	15%
Married	26	65%
Widow	3	7.5%
Separated	5	12.5%
Educational Attainment		
Elementary	6	15%
High School	26	65%
College	3	7.5%
PostGraduate	5	12.5%
Average Monthly Income		
10,000 and below	7	17.5%
11,000-30,000	16	40%
31,000-50,000	6	15%
51,000-70,000	7	17.5%
71,000 and above	4	10%

Table 2 provides a summary of fishing methods, fishing practices as shown by the gear and equipment utilized, fish species caught, and profitable fishing times. Because fishing is typically passed down from generation to generation as a source of income, the fishermen in the Pilar Bay area employ these traditional fishing methods. Because they are accustomed to these methods, they could find them easy to use. On the other hand, their methods of fishing, as shown by the tools and equipment they employ, have been around since the beginning of time. The employment of nets made from a variety of locally available materials suggests that they could find it simpler to build or acquire the fishing tools required for a certain approach. It makes it possible for them to fish for little money. Furthermore, fishing is usually greatly influenced by the seasons and weather. This indicates that the seasons and weather are the main factors that fisherman depend on in order to profit from their catch. They can diversify or get ready for lean seasons because they were aware of this. This suggests that in order to

provide for their families, they could have learnt to employ a range of fishing methods. Lastly, using local fishing methods might benefit the ecosystem. Given that the majority of the equipment is indigenous, local, and derived from renewable resources, it could be less harmful. It is more probable that various fish species and other marine life will be able to repopulate if fishermen are keeping an eye on the open and closed seasons. Diverse fishing methods may also promote the growth of other marine creatures. Due to current regulations and penalties, only a small percentage of fishermen use certain fishing methods and practices, even if they may appear to be less environmentally friendly.

Table 2: Summary Table of Indigenous Fishing Techniques in Pilar Bay Area

Indigenous Fishing Technique	Description of Fishing Technique	Description of Gears Used	Type of Fish Catch	Season Time of the Year
Hudhud	It is characterized by using a movable fishinggear operated by a single person. This type of fishing takes place in shallow water. It has a gear which looks like a big scoop net with a fixed or folding frame made of bamboo and fish net.	*Simpot* is a kind of net which is attached to a folding frame made of bamboo which measures almost 10 meters long with a It is also called "puyo-puyo."	*Hipon* (fairy shrimp) *Pasayan*	After detecting that there is the presence of shrimps (*hipon, pasayan*). They also consider after the breeding season. Starting Nov – February of every year.
Baleng	It is usually handled by 5 persons in almost 3 meters depth of water. Their main catch are fairy shrimps.	Simpot is a net which is primarily used. It has mosquito net-like fine holes.	*Hipon* (fairy shrimp)	November to February
Pamanti/ Patuloy	It is usually done by casting a net with 700-800 meters long with a stick on both sides. Fishing is possible when the depth is 1-2 meters.	The main fishing gear is a net with bigger holes (numbers 6-9).	*Kugan, Gisan, Abu, Lagan*, etc	During high tide
Panilag	It is a very specific fishing technique usually operated by 2-4 persons casting a type of net for catching *silag*.	They call the net *Simpot Kuralon*, a cotton type fishing net, with rubber floater. They are usually transported by a pumpboat.	*Silag*	No preferred time Year round
Pambalanak	Another specific fishing technique which is done by casting a net in shallow water to catch *Balanak*.	The net used has a bigger hole (number 4). This network of nets is attached to numerous rubber floaters.	*Balanak*	Seasonal after breeding season of *Balanak*
Punot	It is a technique which traps fish inside a structure made of bamboo poles. The area below the structure is occupied by a huge net. The net is being pulled up every time the fishermen wish to catch trapped fish in the structure.	Punot is basically made out of bamboo poles and net. Bamboo poles are usually placed in deep water (minimum depth is 24 meters). It is situated away from the open sea. It looks like a bamboo fence with a bamboo roofing.	*Kugan, Bulan*, etc.	All year round/ not seasonal
Tangkop	It is similar with *punot*, the only difference is the depth of the water. It is usually constructed in shallow water ranging from 3-5 feet deep.	*Tangkop* is also made of bamboo poles and net. Bamboo poles are usually placed in shallow water (minimum depth is 3 feet). It is situated away from the open sea. It looks like a bamboo fence with a bamboo roofing.	*Abu, bangrus*, etc	Non seasonal/all year round

Arong	This is also a fixed structure made to catch fish just like the *punot*. However, it uses a kerosene lamp to attract the fish especially during dark nights. The warm light lures a number of fish to the contraption.	The structure used for this techniques is similar to a bamboo house constructed in the sea with a depth of 25 meters. There are contraptions that would trap the fish once it gets in the structure.	*Kugan, Bulaw*, etc.	Non-seasonal/ but extracted during typhoon season.
Pamana	It is a manner of catching fish using a pointed metal rod (arrow-like) shoot to the target fish hiding under the stones and big corals in the sea bed. Most fish catch are living in "Isda Sa Bato" (coral fish).	The main fishing equipment is a metal arrow (*baslay*) made from steel rod called Hara and rubber.	*Pugaro, Inid*	All year round
Sensoro	It is a tedious way of catching fish since it needs to be handled by 10-12 persons to make this fishing technique work.	The *poyo* is the main gear that collects fish. It is made up of a net with smaller holes, rope to fasten the nets and floaters which keep the nets afloat and serve as markers of nets.	*Gurayan*, etc.	(seasonal in operation) Note: Gone today due to laborious operation which needs 10 to 12 persons.
Hilahila	This is done by casting the net in shallow water in a circular manner and it is left there for a period of time, then the net is taken out of the water.	*Simpot* is a special net used in this kind of fishing. The nets are also attached to floaters to keep the net visible from the boat.	*Tabagak, Sapsap*, etc.	Seasonal from October to January
Pangasag	This technique uses a net that is cast in the open sea during higher current flow of water. The net is then pulled out after a few minutes of waiting for the crabs to be trapped. *Pangasag* usually happens during moderately stormy weather.	The main gear is a net with large holes. It is attached to floaters as well. A small boat may be used to carry and hold the nets during casting and drawing of nets.	*Kasag*	During windy and stormy season
Labay	This may be used both for deep sea and shallow water fishing methods. The string with hooks then is attached to a *bahayan* or long big rope. The *bahayan* is dropped in the water on the side of the boat. The boat will be gradually pulled when a tremor is felt. This tremor signals that the fish is already caught in the hooks.	The Bahayan, a big nylon rope (number 60) with 600-800 hooks attached to it. The individual hooks are attached in a separate nylon string. There is a need for a motorized pumpboat to haul the labay.	*Kugan, Ubod, Abu, Inid, kugtung*, etc.	All year round
Tabudlak	Fishing through this technique is done by casting a net in the shallow water.Wooden paddles are attached the boat to create noise. The noise disturbs the fish and usually ends up getting caught in the net.	The main equipment is the pumpboat in which carry the wooden paddles. It also hauls the net (hole number 5-8), then net is being cast in the shallow water.	*Tabagak, bangrus*, etc.	Seasonal

Kurantay	A pumpboat with at least 4 crew casts a specified net in an identified fishing ground. Once a school of fish is spotted, they cast their nets in circular motion with the aim of surrounding the school of fish.	A specified net, called Simpot, is placed in a motorized pumpboat.	*Tabagak*	Seasonal
Bobo	It is characterized by using a fish cage as trap to catch specific types of fish. Coconut meat is used as a bait. It is placed inside the trap to attract fish. They added white metal plates "*lusa*" to mimic the coconut meat used in the trap.	The fish cage is round made of metal rod with a dimension of 2x3x8 feet covered with fishing net. Other materials: Bait: Coconut meat (Kopra) White metal plates	*Lukus, Danggit, Nipa Nipa, Mamlad*	All year round
Pamunit (Hook and Line Fishing)	This involves catching fish using a fishing rod with hooks at the end of the nylon string. It is usually done in the absence of a boat. Similar to fly fishing.	Bamboo Stick, nylon, Hook	*Inid, Pampano*	All year round
Panagat	"*Panagat*" is the term used for doing *pamunit* if the fisherman sails to the sea for a catch.	Bamboo Stick, nylon, Hook, fishing Boat with paddles or pumpboat	*Inid, Pampano*	All year round

Figure 1: Schematic Diagram of Punot

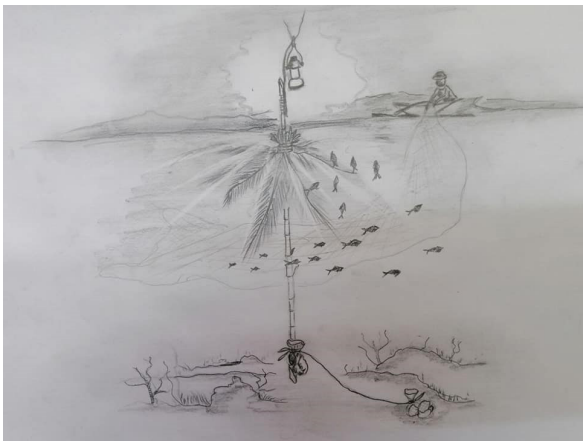

Figure 2: Schematic Diagram of Tangkop

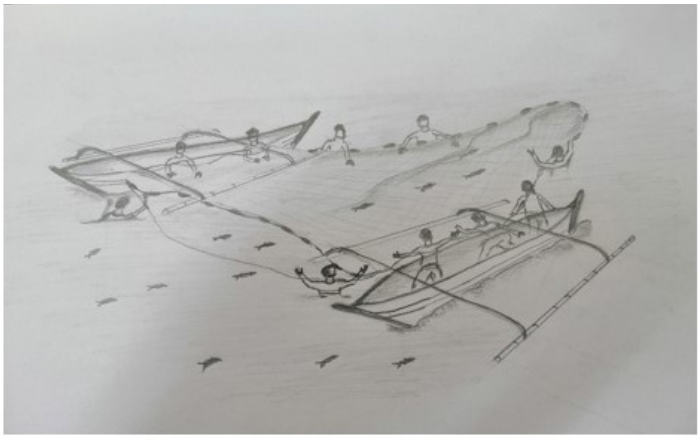

Figure 3: Schematic diagram of Sensory

Figure 4: Materials for panglabay

Figure 5: Material for pamaslay

CONCLUSION

The indigenous fishing techniques used by fisher folks in Pilar Bay are the following: *Hudhod, Baleng, Patuloy, Pamanti, Panilag, Pambalanak, Punot, Tangkop, Arong, Pamana, Sensoro, Hila hila, Pangasag, Labay, Tabudlak, Kurantay, Bobo, Pamunit* and *Panagat*. The traditional fishing gears utilized by the fishermen for the various indigenous fishing techniques are as follows: Net (Simpot/lahang), folding frame, net (kuralon), floater, bamboo poles, metal arrow, nylon rope, hook, coconut meat, white metal plates, bamboo sticks, boat and motorized pumpboats. The types of fish catch using *simpot* or nets are: *Fairy shrimp (hipun), Silag, Pasayan (shrimp), tabagak, gurayan* etc; on the other hand, those that use structures, are *Kugan, bulan, milkfish, abu, inid, mamlad* etc; and those that utilize special equipment like rods and hooks, are pugaro and inid. Moreover, the seasonal fish catch are as follows *tabagak, milkfish, sap-sap, gurayan* and *hipun*. Most fishing techniques are still being done, except *Sensoro*, due to its complex and laborious operation. More fishermen are needed to manipulate the fishing gears. Generally, indigenous fishing brought about balance in environmental conditions. The use of indigenous practices as evidenced by the use of mostly local and indigenous fishing equipment and gears are observable.

It is advised that the fishermen in Pilar Bay continue to employ traditional fishing methods and that the LGU give them the credit they deserve in light of the study's conclusions. They could be set up to act as role models for other fishermen who engage in unethical or unlawful fishing methods. The majority of their equipment is obviously homemade, but the LGU might be able to teach them how to use it properly. They might receive safety instruction (similar to how to use potentially hazardous equipment, pamana). It appears that the ability of fishermen to purchase fishing gear or equipment has a significant impact on the amount of fish they catch. As a result, people can get help with this. Fishermen must be informed about the need of protecting fishing areas. In addition to helping people escape poverty, organizing and educating them will also make them more conscious of their responsibility to protect the environment. The way they capture fish now could affect what the following generation catches in the future.

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