

Identification of Fishing Gear in Java from Historical and Cultural Perspective

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Abstract

Fishing is one of the livelihoods in Java which causes the emergence of different fishing gears from one place to another. By applying a historical perspective, this paper identifies variety of fishing gears for fishermen in Jepara and Pekalongan which can be traced to their historical roots since prehistoric times. Two important questions raised in this article, among others, related to the history of fishing gear for fishermen in Java and why this fishing gear is still sustainable up to the present day. This research was conducted in several stages. First, it begins by searching for various fishing gears based on literature studies. Second, field research which conducted in Jepara and Pekalongan to determine the continuity of culture related to the findings of fishermen's fishing gear. The results showed that fishing is a job that has been done by humans for a long time. The variety of fishing gear used are adjusted to the natural conditions where the fish are located. The diversity of fishing gear shows that fishing activity can be used either as a side job or a main job. Even though it has passed a dozen centuries, it turns out that some traditional fishing gear are still used until today, indeed with modifications and innovations.

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Introduction

Cultural research is an endless activity. Culture includes all human activities, whether their ideas, activities, or the results of human work in community life which are obtained by learning (Koentjaraningrat 2003, 72-81). Learning is the key that distinguishes humans from animals, even though they have brains, animals only use their instincts to fulfil their needs. Unlike animals, humans always learn to face all the challenges in their lives by creating innovative tools to fulfil their needs. Fishing is one of the livelihoods that has long been done by humans. The livelihood creates its own culture in the community, both in coastal communities and in rural communities, which can be seen from the types of tools, the terms used to refer to each tool, as well as the culture generated from these tools. According to Koentjaraningrat (2003, 165-171), livelihoods, cultural areas, and ethnic groups affects the culture of a place. Even though, Kedung Malang Village-Kedung District-Jepara Regency and Wonokerto Kulon Village-Wiradesa District-Pekalongan Regency are both located in the North Coast of Java, there are several cultural differences in fishing. There are variety of fishing gear, which is different from one place to another. Therefore, this article focuses on the identification of fishing gear based on its historical and cultural aspect. First, how was the history of fishing gear in Java. Second, why the fishing gear is still sustainable up to the present day.

There are several scholars who have paid considerable attention to the fishing gear, namely Baruah et al. (2013), Indrahti and Maziyah (2019a; 2019b), and Praharsi et al. (2019). Baruah et al. (2013) discusses the tools and methods of traditional fishing traps in the Brahmaputra valley in Assam India. The result shows that the fish traps can be classified into 28 different species from 5 main categories based on fishing principles, designs, and operational methods. These traps have various in

shape, some are conical, cylindrical, pyramidal to rectangular. Most of the tools are made of thin pieces of bamboo, some are shaped like a *bubu*, a fishing gear from Java. Similar to Java, in India, each tool has a different name in a different place. These tools are used to catch fish in rivers and in wetlands. Furthermore, Indrahti and Maziyah 2019a is briefly mentioned that fishermen's fishing gear, both traditional and simply innovation, are adjusted to the location for fishing and the type of fish. However, this article emphasizes on the culture which emerges as a result of fishing activities in Jepara and Pekalongan. Moreover, there are traditions to strengthen the spirituality, namely *Sedekah Laut* (an offering ceremony to ocean), *Rajaban*, and *Tahlilan*. These traditions are practiced in order to maintain good relationship with sea, they realized that fishing activity are always coexists with the ferocity of the sea. There are also tradition of *Nggalang Perahu*, *Tasyakuran*, and pilgrimage to the ancestral graves of Kedung Malang Village, Jepara. With these traditional activities, it is hoped that Allah, God Almighty, will protect them from the ferocity of the sea and always provide abundance of fish. Indrahti and Maziyah (2019b), discusses various types of fishing gear for traditional fishermen in Jepara, both those used to catch fish in rivers, ponds, or by the sea.

Praharsi et al. (2019) discusses the problem of traditional fishing boat models in East Java, ranging from the manufacturing process to the management of the use of the boat including working hours, raw materials, material costs, and labour costs. Working hours and material requirements are directly correlated with the tonnage of the boat, is also related to the model of the boat. Therefore, this article identifies variety of fishing gears for fishermen in Jepara and Pekalongan which can be traced to their historical roots since prehistoric times.

Method

In order to trace the history of fishing gear for fishermen in Java and why they are still sustainable up to present day, the authors applied a descriptive analytical study. The research was begun by tracing the various types in pronouncing the fishing gear through inscriptions from the Hindu-Buddhist era, literary texts from the 11th century to the 19th century, as well as from the previous research. Furthermore, to find out the visual form of the tool in the Hindu-Buddhist era, it was traced through the *Karmawibhangga* reliefs in Borobudur Temple. The visual form of fishing gear during the Islamic era can be found through observations of collectibles at the Ranggawarsita Central Java Museum, Semarang and Kartini Museum in Jepara. The last observation was carried out in the research area, it is necessary to determine the fishing gear used by fishermen at the present day. The observations were made in several places to portray the development of fishing gear from various ages. In addition, in-depth interviews were also conducted to identify the location of each type of traditional fishing gear that had been inventoried and also explores the technical functions, cultural meanings or values, social functions or symbolic meanings of the traditional fishing gear. The interviews were conducted with several stakeholders including users, makers and sellers of traditional fishing gear, and the figures that involved in fishing organizations, communities, and related associations. The fishing gear is a representation of non-physical (intangible) cultural heritage which is important to be preserved.

Traditional fishing gear is the result of human creativity that can be investigated through the background of its manufacture, culture, and local wisdom. The presence of various fishing gear, indicates the historical development of the local community, notably in cultural aspect. The tradition includes various symbolic meanings that are understood by the local community. A culture always has four forms, both in the form of cultural values, cultural systems, social systems, and physical works (Koentjaraningrat 2003, 74-75). In addition, it is related to the seven elements of universal culture in the form of language, knowledge system, social organization, living equipment system and technology, livelihood system, religious system, and art (Koentjaraningrat 2003, 80-81). The fishing community certainly has a distinctive culture related to the seven elements of culture. Therefore, an anthropological approach is needed in this study to compile an ethno history related to fishing communities. A hermeneutic approach is also needed in this study to understand the hidden culture behind fishing gear.

Development of Fishing Gear in Java

Fishing gear as one of the tools used to fulfil the needs of human life, especially for the food needs, has a long historical roots. This tool with the various forms has been used since prehistoric times until now, undergoing various changes as a result of adaptation and innovation to the availability of natural resources in the environment. The existence of fishing gears in the Paleolithic era are known based on the presence of artefact (Figure 1) that indicate the use of these tools to find fish. Heekeren (1957, 45-46) and Prasetyo (2012, 224-226) state that one of the functions of a bone tool called *lancipan* is as a spear used to catch fish. The shape of the tool is like the tip of a spear with teeth on the sides, used to catch fish such as harpoons. It is a kind of bone tools found in the Ngandong area of Central Java and are related to the cultural product of Homo Soloensis, ancient humans from the earliest evolutionary stage in Indonesia (Prasetyo 2012, 224). The bone tools from the Homo Soloensis culture are called the Ngandong industry (Heekeren 1957, 45; Prasetyo 2012, 224).



Figure 1. Bone Taper.

Source: Heekeren 1957, 48.

Linguistic evidence shows that in 2,000 years BC, migration was carried out by groups of Austronesian (Bellwood 2000, 172) which brought a culture related to fishing. In line with this culture, according to Blust (1976) in Bellwood (2000, 156-157), there are several words for material culture that have been successfully reconstructed for the Early Austronesian people, namely *bubu* from bamboo to traps for fishing, types of nets, hooks, nets, boats, and outriggers.

During the Hindu-Buddhist era, which spanned the 7th to 15th centuries, some information related to fishing gear was found. The information were derived from inscriptions and literary texts, reliefs and artefacts. The inscription implicitly indicates the tools used to catch fish and animals that live in the waters (rivers, lakes, or in the sea). The information contained in the inscription is that there are many kinds of party dishes made from various types of fish, such as those found in the *Panggumulan* Inscription A and B 902 M IIIa Inscriptions, lines 18-19 (Nastiti, et al., 1982, 16;34) as follows:

III.a. 18. "... *matumpuk asin asin ḍaiṅ kakap. ḍaiṅ kaḍawas.ruma*
19. *han. layarlayar. huraṅ. halahala...*"

Translation:

III.a. 18. "...heaps of salted fish such as snapper, *kaḍawas* fish (sea fish), mackerel,
19. squid, prawns, halahala (a type of fish) ..."

Based on the above information, it is implied that there must be various types of tools used to catch fish, both fish that can be found in rivers and in the sea. The *Karmawibhangga* relief found at the foot of Borobudur Temple can provide a clear figure of two types of fishing gear, namely *kěkǒ* nets. *Kěkǒ* is a term refers to certain animal fishing gear. *Kakawin Rāmayāna* explains that the animals

caught using *kěkő* are shrimp (Zoetmulder 2000, 482). In Islamic era, *kěkő* was called *kěkěb*. This tool is made of bamboo slats arranged in a circle about 50 cm length with the tip smaller than the base. The small end is used to hold the tool when not in use and to pick up fish that caught at the base. This tool is usually used in shallow rivers, in rice fields, or in swamps (Interview with Mr. Ahmad Reza on March 16, 2018). Figure 2 and 3 is a relief showing the existence of the fishing gear. Meanwhile, the literature mentions some of the tools used to find fish as shown in Table 1.



Figure 2. Two people are pulling nets and two people carrying fish on the relief of *Karmawibhangga* Panil 109

Source: Santiko and Nugrahani, 2012, 84.



Figure 3. *Kěkěb* and Fish on the Relief of *Karmawibhangga* Panil 1

Source: Santiko and Nugrahani 2012, 30.

Table 1. Name of Fishing Gear in Literature

No	Name of Tool	Meaning	Literary	Century
1.	<i>Añco</i>	Big rectangular mesh with pole and hoist	Tantri Kamaṇḍāka Arjunawijaya Tantri Demung	14 14 18
2.	<i>Baḍoṅ</i>	Fish trap in the sea	Dewa Ruci	19
3.	<i>Bahitra</i>	Boat, ship	Smaradhahana Sumanasântaka Sutasoma Parthayajña Hariwijaya Kidung Suṅḍa Ranggalawe Arjunawijaya Malat	12 13 14 15 15 15/16 15/16 14 18
4.	<i>Baluh-baluhan</i>	Fish net buoy	Smaradhahana	12
5.	<i>Baluk</i>	Sailboat	Parthayajña Dewa Ruci	15 19

6.	<i>Bibit</i>	Fish hook	Udyogaparwa	11
7.	<i>Jala</i>	Tools for catching fish or birds	Rāmayāṇa	12
			Arjunawijaya	14
			Tantri Kamaṇḍāka	14
			Tantri Kadiri	17/18
			Malat	18
8.	<i>Jaring</i>	Tools for catching fish, birds, or deer	Smaradhahana	12
			Tantri Kamaṇḍāka	14
			Ranggalawe	15/16
			Tantri Kadiri	17/18
9.	<i>Kěkő</i>	Fishing gear for various small animals including fish	Rāmayāna	12
10.	<i>Laha</i>	Certain fishing gear using bamboo ribs as a trap	Arjunawijaya	14
			Tantri Kamaṇḍāka	14
11.	<i>Seser</i>	A kind of dipper net made of woven bamboo for catching fish	Sri Tañjung	13
			Tantri Kamaṇḍāka	14

Source: Zoetmulder 1985; 2000.

Based on Table 1, it shows that some of the fishing gear have been mentioned in the 11th century, namely *bibit*, which means hooks, written in *Udyogaparwa* manuscript. Meanwhile, there is also a tool mentioned in *Dewa Ruci* manuscript and then composed in the 19th century, namely the *baḍoṅ*, fish traps in the sea. This brief information shows that although it happened in the past, the fishing gear has also innovated in accordance with the natural environment that requires the tool to make it easier for humans who support their culture to caught fish and other aquatic animals.

During the Islamization, the fishing gear can be identified based on the tools that are in the collections of Museum of Central Java Ranggawarsita in Semarang (represented in Figure 4 and 5) and Kartini Museum in Jepara (Figure 6 and 7).

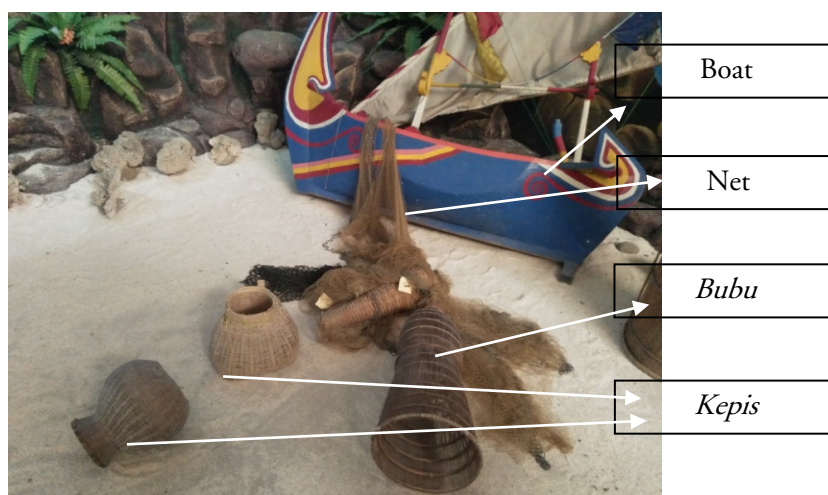


Figure 4. Fishing Equipment Collection of Museum of Central Java Ranggawarsita



Seser dan Dayung



Bagan

Figure 5. Fishing Equipment Collection of Museum of Central Java Ranggawarsita



Bagan



Ajug

Figure 6. Collection of the Jepara Kartini Museum

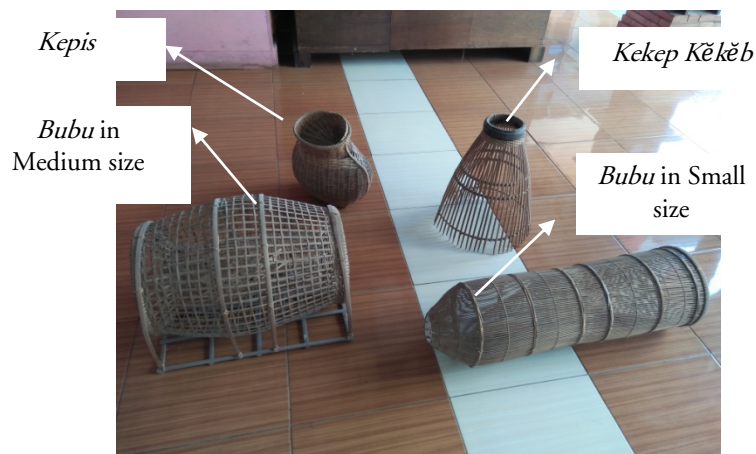


Figure 7. Fishing Gears Collection of Kartini Museum in Jepara

Based on the collection of Museum of Central Java Ranggawarsita and Kartini Museum as shown in Figures 4 to 7, it can be seen that the fishing gear of fishermen can be classified into three based on the location where the fish were found, on land, on the beach, and on the sea. The fishing gear used by fishermen on land are *kėkėb*, *bubu*, and *seser*. *Kėkėb* and *bubu* are used to trap fish in shallow rivers, in rice fields, or on the edge of ponds. *Seser* is usually used to find fish in places where there is much water, such as in ponds or rivers. *Kepis* is used to carry fish that have

been caught. *Bagan* and *ajug* are tools for catching fish on shallow beaches while the waves are not too heavy. Creating and operating these two tools requires both team work and larger capital. Boats, oars, and nets are tools used to catch fish in the sea. Based on the various types of fishing gear of fishermen in the Islamic era, it can be seen that searching for fish is a job that the Javanese people continue to do. The tools used on land show that fishing is a side activity. This is different from the *bagan*, *ajug*, boats and nets which are used to catch fish in large quantities as one of the main livelihoods of fishermen.

Traditional Fishing Gear in Jepara

There are various types of fishing gear for traditional fishermen in Kedung Mulyo Village, Kedung District. From the collections of fishing gear, there are some tools that are still functioning, and some of those are also experiencing innovation in their form and use. The fishing gear found in Jepara can be seen in

Seser

Seser is the simplest tool and relatively small in size, it can be operated by a person solely. *Seser* in Kedung Mulyo Village has material innovated by replacing it with plastic nets or mosquito nets depending on the size of the fish target. The mouth of the net is rimmed, shaped like an isosceles triangle or round. The frame uses bamboo or iron in a round shape, with long or short stalks of bamboo according to the needs of fishermen. The shape of the net itself resembles a cone, but the back is slightly expanded. *Seser* is usually used to catch milkfish and shrimp larvae. In addition, *seser* is also used to catch fish in ponds or fish that trapped in *ajug* (Interview with Khafidhoh on March 16, 2018). The image marked in a white circle is a *seser* with a long stalk, this tool found in Kedung Malang Village Jepara.

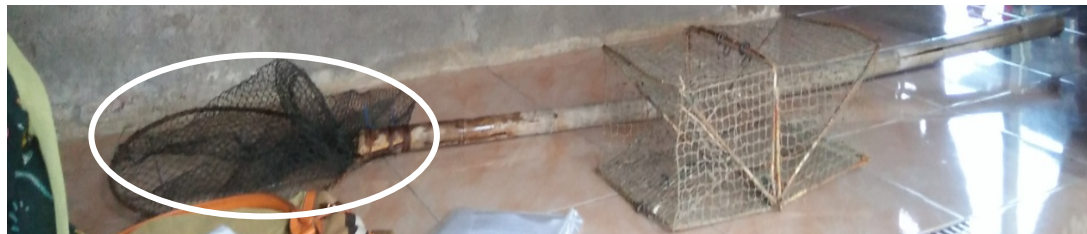


Figure 8. *Seser* with Long Stem

Bubu

Bubu is a fish trap tool made of bamboo which is shaped like an elongated cage with closed ends. At the mouth of the trap there is a kind of door that can be opened and closed. The door is closed while trapping fish, so there is only a narrow hole to pass through. Once the fish enters the trap, they unable to come out. *Bubu* is usually put in the afternoon where there is running water. The trap door is opened if the fisherman will take the traps the next day. *Bubu* is used by fishermen to trap fish on the banks of rivers or, on the banks of ponds (Interview with Khafidhoh on March 16, 2018). In Kedung Malang Village, traps are used to trap fish around ponds as shown in figure 10. There are also society who produce and sell fishing gear as shown in figure 9. In accordance with their function, traps have three types, namely small *bubu*, medium *bubu* and large *bubu*. Figure 9 and 10 are the *bubu* found in Kedung Village, Malang Jepara



Figure 9. Big *Bubu* Sold by Fishermen in Kedung Malang.



Figure 10. Big *Bubu* on the banks of rivers and ponds

Kepis

Kepis is a small container that functions as a place for freshly caught fish. This tool used to be made of woven bamboo, but nowadays it is usually made of plastic to make it lighter and more durable. To facilitate its use, *kepis* is usually hung on the waist with the help of a rope. In the mouth hole, a separate woven bamboo is given as a tool to block the fish from getting out, it is also called by *ilep-ilep*. They had various size and adapted to the fish caught. *Kepis* is used as a fish container because it is able to keep the fish fresh. Water circulation flows in *kepis* because it is made of woven. If the place to look for fish is deep, *kepis* falls into water and allows fish to survive. Furthermore, fish will stay fresh (Interview with Khafidhoh on March 16, 2018).



Figure 11. *Kepis*

Anco

Anco is a fishing gear found in the banks of the river in Kedung Mulyo Village, but its function is incidental and only used to catch fish when the tide is high so the water leads to the river. The fish that follow it become the fortune of the local people who have *anco*, so they are considered as a side livelihood. The way to operate the *anco* is to lower the wide net into the river for a while then the fish

are trapped in it. The next step, the net is pulled up, and the fish that trapped in the net are taken using a *seser* long-handled slide (Interview with Suharno, on March 16, 2018). Figure 12 below shows the visual form of *anco* and long stalk *seser*.



Figure 12. *Anco and Long-Stemmed Seser*

Bagan Apung

Floating *Bagan* is a kind of fishing gear made of bamboo which is arranged in such a way that it can float in the middle of the sea, formed with a series of rectangular bamboo, in the middle of *Bagan*, there is also net. Basically this tool consists of bamboo, a rectangular net attached to a frame made of bamboo. The net measure is 0.4 cm with a position located at the bottom of the building which attached to a rectangular bamboo frame, on all four sides of the net given weights that the net can sink to the seabed.

Bagan Tancap

Bagan Tancap is one type of fishing gear to catch small pelagic fish. This fish is like anchovies which are very much sought after by fishermen. *Bagan Tancap* was first introduced by Bugis-Makassar fishermen around the 1950s. Furthermore, in a relatively short time this tool has been known throughout Indonesia. *Bagan Tancap* in its development has many changes, both in terms of shape and size which have been modified in such a way as to suit the fishing area.

Bagan used in Kedung Mulyo is a *Bagan* boat that can "walk". Unlike the traditional *bagan* that is stuck in the coastal area, this *bagan* can move to catch fish from the herd. The capital to make this *Bagan* is quite large, but the results are worth it (Interview with Khafidhoh on March 16, 2018). Figure 13 is a *Bagan* boat used by a small number of fishermen in Kedung Malang.



Figure 13. *Bagan Boat in Kedung Malang Village*

Jala (Net)

Jala Tebar, which commonly known as throwing nets are fishing nets in the form of small circles with weights on the edges, which are thrown by fishermen. They have various size up to 4 meters in diameter. The net is thrown in such a way that it spreads on the surface of the water and sinks. The trapped fish will be caught when the net is pulled out of the water. In principle, fishing with nets is a way to confine fish or shrimp by spreading the tool in such a way which covers the desired target.

Arat

Arat is an innovative form of traditional fishing gear (net) which is widely used by fishermen in Kedung Malang, because *Arat* can be operated by 1-2 people using machines (Interview with Khafidhoh on March 16, 2018). According to fishermen in Kedung Mulyo, the use of *Arat* is considered more effective, because it does not depend on the large number of fishermen. The use of machines 1-2 pieces is very helpful. Although the information from village officials stated that *Arat* fishing gear is not environmentally friendly, because small fish are also carried away. However, the local fishermen understand that from the past until present day, the fish in the sea will never run out even if they are caught the fish every day (Interview with Nurul Musafa on March 16, 2018).

Dogol

Dogol is widely used by fishermen in Kedung Mulyo. To operate this tool, it requires 7-8 people. This activity requires an agreement from the participants who will go to sea to catch fish (Interview with Slamet on March 16, 2018). Oftentimes, all the materials are ready, yet fishing activities unable to be carried out because of incomplete participants. According to Sholeh (44 years old) who has been working as a fisherman and fishing gear repair shop for 10 years, the average price of a new *dogol* is between 10-20 million.

Traditional Fishing Gear in Pekalongan

Fishermen in Wonokerto Kulon Village are broadly grouped into three categories, namely small fishermen, medium fishermen and *cakalang* fishermen (Interview with Dorat on April 12, 2018). For small fishermen, they use traditional fishing gear. While fishermen with large categories generally have their own boats, as well as entrepreneurs who are hereditary in nature, have fishing areas from the Karimata Strait to Natuna Island. In carrying out fishing activities for almost three months. The catch of fish is generally sold at TPI Tegal, TPI Pekalongan and TPI Juana.

The following is an example of a traditional fishing gear in Wonokerto Kulon Pekalongan which is widely used by fishermen. The tool can be used to catch fish of various sizes, from large and small. They modifies net to become *cantrang* fishing gear in which is widely used to catch small fish such as *pethek*, cuttlefish and squid (Interview with Tardi on April 12, 2018). Tardi, a crew member of the ship, goes to sea for three days, departs at 3 AM and releases his anchor in the sea for two nights, then returns home on the third day. He usually goes to sea for three days and requires 600 liters of diesel fuel in 20 jerry cans. To keep the fish fresh, it needs 1.5 tons of ice for 30 blocks, the price of ice is 700 thousand rupiahs.

Traditions of Fishing Communities

It is estimated that 80% of fishing community in Wonokerta Village is Muslim and still maintains traditions such as *Nggalang perahu*, *Tasyakuran*, and pilgrimages. Moreover, during the Islamic holidays, they also offer *Sedekah Laut*, *Rajaban* and *Mauludan* (Interview with Karsan on April 12, 2018).

Sedekah Laut is one of the typical cultural traditions of fishing communities on the North Coast of Java (Anwar 2013, 438). The event is held every 7th of Shawwal in various places on the North Coast of Java, including in Jepara and Pekalongan. The essence of this traditional ceremony is a gratitude expression of the fishing community who have received sustenance from the sea in the past

year, they also expect abundance of sustenance in the upcoming year. At the event, people from all over the village came to witness the offerings and took part in various events (Indrahti et al. 2017, 64-67).

Meanwhile, to fill the days when they do not go to sea, there are also fishermen who do *nggalang perahu*, namely repairing boats. To expedite the work of repairing the boat, *slametan* is usually carried out with grilled chicken, chicken egg and fish. Besides being associated with a series of boat repair work, this tradition is also intended when someone buys other valuables things, such as motorbikes or cars that can also be used for work. However, for fishing communities the main tool used to work are boats and fishing gear which sometimes require machines.

In addition to *slametan*, fishing communities also make regular pilgrimages to Kudus, Demak and Pekalongan. This pilgrimage is carried out individually or in recitation groups. This tradition is intended to gain religious strength to live a life and obtain the spirit to do work that is full of challenges. Fishermen work in the middle of the ocean, anything can happen that requires both mental and physical strength to survive, especially for the financial issues, oftentimes, the income from fishing is uncertain depending on natural conditions.

Tahlilan is also carried out by fishing communities every Friday night. This tradition is held, both within family and groups, such as Muslim groups, neighbourhood and all villagers. At the neighbourhood level, meeting is usually held once a week on Friday, while at the village level it is held in the house of residence who got *arisan*.

In *tahlilan*, there is also recitation and *arisan* to attract many people. Usually, there are 100 people who are involved in the *arisan*, each person give 5000 rupiahs. Thus, the total of money would be 500.000 rupiahs. This amount of money is pretty much for village community. With the *tahlilan* and recitation, they believe they will get blessings.

Sedekah laut, *Nggalang perahu*, pilgrimages to ancestral graves, and *Tahlilan*, are essentially lead to elements of the belief of the fishing community who have a dependence on the sea. *Sedekah Laut* and *Nggalang perahu* are traditional ceremonies that are closely related to the livelihood system of the fishing community. Meanwhile, *Tahlilan* and grave pilgrimage are cultural activities that are used to strengthen the soul of fishermen and as an effort to ward off misfortune on the sea.

Conclusions

The results showed that fishing is an activity that has been done by humans for a long time. The fishing gear have been adjusted to the natural conditions where the fish are located. Thus, not all of fishing gear could be found in all areas. Based on various type of fishing gear, it indicates that fishing become either a main job or a side job. For people who have main job as fishermen, they uphold a variety of cultures re, such as *Sedekah Laut*, *Nggalang perahu*, *Tahlilan*, they believe in the power of God who gives life and hope for safety while working to catch fish. The fishing gear is still sustainable until present day because they make innovation in its manufacture that suitable with the needs of the community.

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