



ANALYSIS OF THE SUITABILITY SIZE OF LONGLINE VESSELS AND GILLNET VESSELS IN PALABUHANRATU FISHING PORT OF SUKABUMI REGENCY (CASE STUDIES ON VESSELS >20 GT)

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ABSTRACT

The purpose of this research is to identify the suitability of the gross tonnage (GT) of fishing vessels in the document through re-measurement of the physical check of the vessel and to calculate and compare the gross tonnage (GT) of fishing vessels with the formula of the Directorate General of Sea Transportation 2002 with Nomura and Yamazaki 1977 formula. The research objects is fishing vessels measuring >20 GT in Palabuhanratu Fishing Port which were leaning from August to December 2019. The vessels which are the object of research are 24 longline vessels and one of gillnet vessel. This research was analyzed in a comparative descriptive manner using data from re-measurement results and their suitability compared to fishing vessel documents. The re-measurement results show that as many as 88% of longline vessels in Palabuhanratu Fishing Port proven to practice markdown, while 100% of the gillnet vessels practice markdown too. The difference in the results of the GT calculation is based on Directorate General of Sea Transportation 2002 with Nomura and Yamazaki 1977 on the longline vessel and gillnet vessels with an average of 10 GT. The difference in the calculation of GT will be detrimental to the government and vesselowners such as Non-Tax State Revenue that are not following the conditions in the field when there is assistance from the government and when the vesselowner submits insurance and makes loans with the vessel as collateral.

Keywords: fishing vessels, gillnet, gross tonnage, longline, markdown

1. INTRODUCTION

Potential fishing fishery utilization activities using fishing vessels can be utilized through responsible exploitation using fishing boat facilities and fishing equipment. Data and information related to fishing vessels that are important to know one of which is data on the size of fishing vessels (gross tonnage/GT). Gross tonnage (GT) of the vessel is closely related to fisheries management. According to Government Regulation Number 51 Year 2002 about Concerning Vesselping, that the gross tonnage (GT) of a vessel is a unit of the total volume of vessels measured based on the main dimensions of the vessel both on deck and below deck. The gross tonnage (GT) size of the vessel in the document will be used for assistance, insurance and collateral for the vesselowner.

Fishing activities by taking into account the sustainable management of fisheries has become a demand in the utilization of fisheries resources. One of the main problems related to sustainable fisheries management is the existence of Illegal, Unreported and Unregulated Fishing (IUU Fishing) practices. The impact of IUU Fishing practices has resulted in the disruption of sustainable fisheries management and has caused economic losses for many developing countries. One of the thirteen modes of IUU Fishing practice is markdown practice.

According to Firdauset *al.* (2017), licensing abuse is one of the IUU fishing practices that are prevalent in Indonesian waters. Markdown is the terrestrial gross tonnage (GT) of a document that does not correspond to the actual physical vessel. This markdown practice has an impact on economic losses and also pressure on resources. This markdown practice causes many losses. Losses from the government can be in the form of inaccurate data and losses in the case of Non-Tax State Revenue. According to the Ministry of Maritime Affairs and Fisheries (2018), state losses due to markdown practices reach Rp 13 trillion.

According to Firdauset *al.* (2017), markdown of gross tonnage (GT) size of vessels can be defined as the practice of reducing the size of gross tonnage (GT) of fishing vessels reported in documents, where document data do not correspond to the physical conditions (length, width, and depth) of the actual vessel. It is suspected that there are various causes of the occurrence of the practice of marking up the size of the gross tonnage (GT) of vessels carried out by business actors. Firdauset *al.* (2017) said the causes of markdown practices include ease of licensing (central licensing should be a region) and avoiding taxes and lack of supervision in the field are also factors triggering markdown practices. According to the Ministry of Maritime Affairs and Fisheries (2018), the cause of the markdown practice carried out by vesselowners is to get fuel subsidies and pay taxes with a lower value.

The Corruption Eradication Commission on the Indonesian Marine Spatial and Marine Resources Management System in 2014 found several vessels that were considered to have made a markdown. On July 10, 2015, the Ministry of Transportation through the Directorate General of Sea Transportation issued a circular number UM.003 / 47/16 / DJPL-15 concerning Verification or Re-Measurement of Fishing Vessels (BKIP 2016). The circular requires vessel owners to re-measure their vessels to improve the gross tonnage (GT) of the vessel on the document.

Palabuhanratu Fishing Port is one of the five Fishery Ports that are industrialized. Palabuhanratu Fishing Port is also one of the ports that carry out the eradication of Illegal Unreported and Unregulated (IUU) Fishing in managing marine and fisheries resources in a sustainable manner (Palabuhanratu Fishing Port 2019). Based on the number of vessels in

Palabuhanratu Fishing Port not rule out the possibility of various violations in the field of fisheries, including the policy of re-measurement of vessels. Therefore, to find out the gross tonnage (GT) of vessels in Palabuhanratu Fishing Port and to know their suitability, it is necessary to re-measure the suitability of the vessel size on the vesseling document with the actual physical size of the vessel. The purpose of this study is to identify the suitability of gross tonnage (GT) of fishing vessels on documents through re-measurement of physical checks of vessels and to calculate and compare gross tonnage (GT) of fishing vessels with the formula of Directorate General of Sea Transportation 2002 with Nomura and Yamazaki 1977 formulas.

2. RESEARCH METHOD

2.1 Research Time and Place

The time of the research has been executed from August to November 2019. The research location will be carried out in Palabuhanratu Fishing Port, Sukabumi Regency, West Java (Figure 1). The object of research is fishing vessels measuring >20 GT. Vessels that are the object of research are vessels with a longline of 24 vessels and one gillnet.

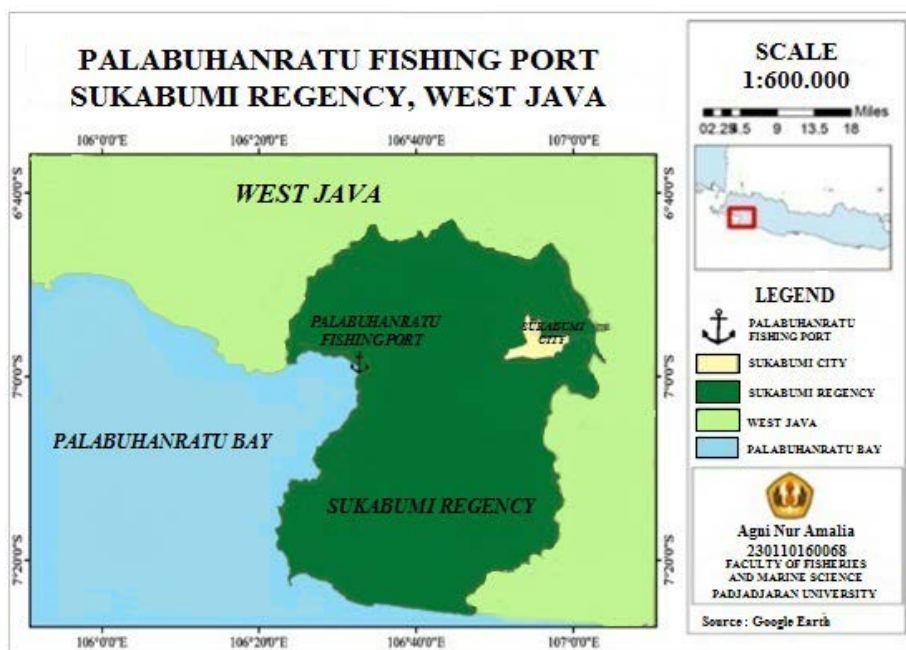


Figure1. Research Location Map

2.2 Research Method

Gross tonnage (GT) of a vessel is calculated using re-measurement data and then its suitability is compared with the vessel's documents. Vessel documents referred to, among others, such as vessel certificates, vessel logbooks, and vessel measurement letters are compared in the data obtained from the calculation results as well as secondary research data. These results are analyzed using descriptive methods that will explain the gross tonnage (GT) calculation directly in the field and the gross tonnage (GT) listed on the vessel's certificate.

2.3 Research Procedure

2.3.1 Determination and Sampling

The population in this study is fishing vessels that are actively operated in PalabuhanratuFishing Port at the time of data collection and measuring >20 GT. According to Arikunto (2006), if the vessel population is less than one hundred, it is better if the sample taken is the entire population, but if the large population can be taken between 10-15% or 15-25%. The fishing vessels in PalabuhanratuFishing Port which are >20 GT are vessels with longline fishing gear and gillnet. The sampling technique used in the study was purposive.

2.3.2 Data Collection

The type of data used are primary data and secondary data. Primary data collection is carried out by interviewing fishermen and observing by direct measurement on vessels >20 GT in PalabuhanratuFishing Port that are leaning from August to December 2019. The measurement data includes measurements of the length overall (LOA), length of the deck (Ldek), breadth, depth, length of the building on the deck, width of the building on the deck, and height of the building on the deck. Secondary data was obtained from the SyahbandarPalabuhanratuFishing Port in the form of vessel name data, number of vessels, type of fishing gear and vessel size (GT).

2.3.3 Data Analysis

Analysis of the gross tonnage (GT) measurement of vessels in this research used two measurement methods (Table 1) using the formula Directorate General of Sea Transportation 2002 (National) with Nomura and Yamazaki 1977 (International).

Table 1. Vessel Gross Tonnage (GT) Measurement Formula

Parameter	Method of Measurement	
Formula	Directorate General of Sea Transportation 2002	Nomura and Yamazaki 1977
	$GT = K \times V$ $GT = K \times (V_a + V_b)$ $GT = K \times ((L_{dek} \times B \times D \times f) + (p \times l \times t))$	$GT = K \times V$ $GT = K \times (V_a + V_b)$ $GT = K \times ((L_{dek} \times B \times D \times f) + (p \times l \times t))$
Constanta	$K = 0,25$	$K = 0,353$
coefficient block (cb)	$f = 0,7$	$f = 0,5-0,6$ but in this research, f is 0.56

3. RESULT AND DISCUSSION

3.1 Longline Vessel

According to Astutiet *al.* (2016) longline boat (Figure 2) is a fishing gear used to catch tuna. Saputra *et al.* (2011), states that longline is the most widely used tuna fishing gear to catch large pelagic fish groups and is a series of fishing rods that are operated at once. The main catches of tuna longline in Indonesia according to Astutiet *al.* (2016) among them are *bigeye tuna (Thunnus obesus)*, *yellowfin tuna (Thunnus albacares)*, *albacore (Thunnus alalunga)*, *atausouthern Bluefintuna (Thunnus maccoyii)*, *swordfish (Xiphias gladius)*, *striped marlin (Tetrapturus audax)* dan *black marlin (Makaira indica)*.



Figure2. Longline Vessel

3.1.1 Suitability of GT Longline Vessels

Based on Table 2, out of the 24 longline vessels that were re-measured at the time of the study, 21 longline vessels did not match the GT stated in the initial document. This can be interpreted that out of the 21 total longline vessels that have been re-measured, 88% of the longline vessels are carrying out markdown practices. The size of the GT is not in accordance with the previous document due to several things. Inappropriate size can occur due to the addition of dimensions such as length, width, and in the vessel that has not been reported by the vesselowner to the parties concerned. Inappropriate GT also occurs because of the addition of closed rooms above the deck whose volume exceeds 1 m^3 which was not previously listed on the initial document.

The difference in GT is very significant due to fraud in the manipulation of vessel size data by vesselowners with syahbandar or measuring experts. This is proven because according to the regulation of the Minister of Transportation Number: PM 8 of 2013 concerning vessel measurements, only vessel measurement experts or Government Officials within the Directorate General of Sea Transportation have the authority to carry out vessel measurements. Based on the results of the study, there are several vessels with a size of more than 30 GT, the size has been reduced to less than 30 GT. According to Firdauset *al.* (2017) vessels that often markdown to less than 30 GT are because they want to get fuel subsidies, while vessels larger than 30 GT are not entitled to receive fuel subsidies so markdown practices up to less than 30 GT are carried out.

Longline vessels measuring >30 GT in PalabuhanratuFishing Port allegedly made a markdown because the vesselowner wanted to save on costs for obtaining vessel permits and reduce the cost of fees. According to Arthatiani (2014), markdown practices are carried out by fisheries businesses to save costs in obtaining vessel permits because they are following the Minister of Maritime Affairs and Fisheries Regulation No. Per.05 / MEN / 2008 concerning Capture Fisheries Business. Besides, a markdown was also carried out to minimize levies imposed by the government on fishery entrepreneurs. According to the Decree of the Minister of Finance of the Republic of Indonesia Number 316 / KMK.06 / 2001 concerning Procedures for Imposing and Depositing Fisheries Levies, the amount of fisheries business levies is determined

based on the formulation of tariffs per GT multiplied by the size of GT vessels according to the type of fishing gear. Therefore, verification or re-measurement is very important to be implemented by the government to overcome the very detrimental markdown.

Table 2. GT Longline Vessels and Gillnet Vessels Comparison

No	Name	GT on Documents	GT Re-Measurement		Difference
			Directorate General of Sea Transportation 2002	Nomura and Yamazaki 1977	
1	Bintang 88	33	42	50	8
2	Jaya Mitra	60	72	88	16
3	Jaya Mitra 2	34	34	41	7
4	Jaya Mitra 3	38	45	54	9
5	Jaya Mitra 5	55	71	86	15
6	Jaya Mitra 7	42	52	63	11
7	Bintang Mas Gemilang	43	50	62	12
8	Cipta Jaya 89	38	47	56	9
9	Mina Jaya	58	66	79	13
10	Cipta Indah	25	36	43	7
11	Maju Jaya I	40	49	60	11
12	Maju Jaya II	50	60	72	12
13	Cipta Jaya II	38	38	46	8
14	Cipta Jaya 88	37	45	54	9
15	Bintang Selatan 88	33	33	40	7
16	Bintang Mas II	49	57	69	12
17	Samudera Jaya 88	43	56	67	11
18	Karya Sempurna	29	39	47	8
19	Bintang Baru	29	37	44	7
20	Alam Semesta	25	36	43	7
21	Indoprima Jaya I	29	39	47	8
22	Cipta Baru Jaya	25	36	44	8
23	Bintang Bahari 88	72	77	93	16
24	Bintang Timur II	60	66	80	14
25*	Bahari Express 3	30	44	53	9
	Average	41	49	59	10

*Gillnet vessels

3.2 Gillnet Vessel

According to Julianiet *al.* (2019), gillnet and drift gill fishing gear commonly used by fishermen to catch small pelagic fish such as mackerel (*Rastrelliger spp*) and layur fish (*Trichiurus lepturus*). Boat nets (Figure 3) are fishing fleets with fishing nets as fishing gear.

Fishermen use a gillnet for fishing because the material is easy to obtain, easy to operate and the operating costs are affordable. The operation of gillnet is carried out passively so that the vessels operating it can be categorized as static gear vessels (Istiqomahet *al.* 2014).



Figure 3 . Gillnet Vessel

3.2.1 Suitability of GT Gillnet Vessel

In this study repeated measurements were carried out on vessels measuring >20 GT following the statement of Firdauset *al.* (2017) which states that vessels that make a lot of markdowns are vessels with size >20 GT. Measurements were made directly by the author of one boat net measuring >20 GT and was leaning on PalabuhanratuFishing Port. The steamed nets which were remeasured during the study were KM Bahari Express 3. The amount of GT KM Bahari Express 3 on the document is 30 GT.

Gillnet in PalabuhanratuFishing Port which have been re-measured at the time of the study are proven to be 100% markdown practices. The measurement result of GT was 44 GT and 30 GT was stated in the document. Based on the re-measurement of fishing vessels in Belawan Harbor (Supervision of Marine Resources and Fisheries (2015)), the number of fishing vessels carrying out markdown practices for vessel size categories of less than 30 GT reached 100%, for the vessel size category more from 30 GT it reached 92.86%. Meanwhile, the results of Pradiptyo's study (2016) show results that are different from the results of repeated measurements at the Port of Belawan, where for the number of vessels with a category of vessels less than 30 GT that carry out markdown practices it is estimated as many as 31.3% and for the average number of vessels practice markdown at sizes less than 30 GT and more than 30 GT reaching 65.7%. Based on comparisons from the two regions, the percentage of markdown practices in PalabuhanratuFishing Port is relatively high on vessel sizes>20 GT, which is 100%.

The motive for carrying out the practice of marking a steamer net from size 44 GT to 30 GT is to get fuel subsidies. In accordance with the statement of Firdauset *al.* (2017) that many vessels mark up to <30 GT vessels to get fuel subsidies from the government. Besides Firdauset *al.* (2017) also mentions that another disadvantage of the practice of markdown is that the practice of markdown has triggered depletion of resources faster and greater, thus threatening the sustainability of fisheries management in Indonesia. Furthermore, Firdauset *al.* (2017) also states that the lack of supervision in the field is also one of the triggering factors for markdown practices.

3.3 Gross Tonnage (GT) Comparison of Longline Vessels and Gillnet Vessel Using the of Directorate General of Sea Transportation 2002 Formula with Nomura and Yamazaki 1977 Formula

In 2002 the Directorate General of Sea Transportation officially changed the formula for calculating gross tonnage (GT) for vessels with coefficient values or conversion of vessel gross tonnage (GT) from 0.353 to 0.25 through Decree of the Director General of Sea Transportation Number: PY.67 / 1 / 16-02 concerning changes to the decision of the Directorate General of Sea Transportation Number PY.67 / 1 / 13-90 dated October 6, 1990 concerning Implementation of the Decree of the Minister of Transportation Number KM.41 of 1990 concerning Measurement of Indonesian Vessels. The Directorate General of Sea Transportation changed the coefficient with the aim that the method of domestic measurement was following the provisions of the 1969 International Convention on Vessel Measurement (TMS) and there were also demands from stakeholders that the coefficient of 0.353 be changed because it was too large. This change will cause the results of different GT vessels in domestic measurements to use the Directorate General of Sea Transportation 2002 formula when compared with international measurements that have a GT conversion of 0.353 following the provisions of the coefficient values applied by the Nomura and Yamazaki 1977 formulas.

The results of the GT measurements of the two formulas are different due to the different GT multiplications in the conversion and there was no coefficient of block (Cb) information used by the measuring team to calculate the GT of the ship. The average difference in the size of GT longline vessels and gillnet vessel in Palabuhanratu Fishing Port according to the Directorate General of Sea Transportation 2002 formula with Nomura and Yamazaki 1977 is 10 GT. The losses that would be experienced if the 2002 DG Perla GT compared to the 1977 Nomura and Yamazaki measurement results are as follows:

- a. The state loss in the form of Non-Tax State Revenue will not be in accordance with the conditions in the field as stated in the Decree of the Minister of Finance of the Republic of Indonesia number 316 / KMK.06 / 2001 concerning Procedures for Imposing and Depositing Fisheries Levies.
- b. The loss of the ship owner is in the form of assistance from the government, submission of insurance and when making loans with the ship as collateral because the government will provide assistance in accordance with the size of the GT of the ship.

4. CONCLUSION

Based on the results of the study it can be concluded that:

- 1) Vessels in Palabuhanratu Fishing Port which are more than 20 GT are longline vessels and gillnet vessel. As many as 88% or 21 longline vessels in Palabuhanratu Fishing Port are not following the actual physical condition of the vessel or markdown practices. Markdown practice is also carried out by gillnet vessel that are equal to 100%.
- 2) The average difference between the results of GT calculations based on the of Directorate General of Sea Transportation 2002 with Nomura and Yamazaki 1977 formula on longline vessels and gillnet vessels is 10 GT. The difference will harm the country and fisheries.

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