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Suitability of Gross Tonnage of Grant Boat by Kementerian Kelautan dan Perikanan (KKP) based in Pangandaran, West Java, Indonesia

Malik Maulana^{1,*}, Izza Mahdiana Apriliani², Indah Riyanti³, Iskandar²

¹Fisheries Student, Faculty of Fisheries and Marine Science, Universitas Padjadjaran, Indonesia

²Departement of Fisheries, Faculty of Fisheries and Marine Science,
Universitas Padjadjaran, Indonesia

³Departement of Marine Science, Faculty of Fisheries and Marine Science,
Universitas Padjadjaran, Indonesia

*E-mail address: malik.maul97@gmail.com

ABSTRACT

Kementerian Kelautan dan Perikanan (KKP) prioritizes Pangandaran to be one of the important fisheries centers in Java, especially southern West Java. One program that has been rolled out is the assistance of a number of grant boat units for fishermen in Pangandaran who are members of Kelompok Usaha Bersama (KUB). KKP hopes in giving these grant boat is to increase fish catch so that it can advance the fisheries sector in Pangandaran. Boat grants from the KKP was not used properly by the fishermen in fishing operations. This aims of the study were to analyze the suitability of size of the KKP's boat grants based in Pangandaran. Suitability of GT of grant boats size will be compared to the actual size and size of the boat used in Pangandaran. Based the result of the study, in actual size the all of the grant boat by Kementerian Kelautan dan Perikanan (KKP) based in Pangandaran are not suitable with the boat certificate.

Keywords: grant boat, gross tonnage, Pangandaran, West Java

1. INTRODUCTION

Indonesia have about 10,5 million ton/year of marine fisheries potential. Pangandaran Landing Base (PPI) is the one which contributes to the potential of capture fisheries in Indonesia. The marine sector and capture fisheries is the mainstay area for this area. Coastal waters are a part of the outer boundary that is still influenced by natural processes that occur on land, this provides an understanding that coastal waters are dynamic ecosystems and have diverse wealth (Suprpto et al. 2014). Also in Pangandaran waters have a vast potential of marine resources. Therefore, the resources potential of marine fish in Pangandaran should be optimally utilized. To increasing the fishery production, fishing activity in Pangandaran waters should be supported by sustainable fishery resources (Apriliani, 2018).

Based on the operating area and fishing gear. Pangandaran fishermen use various types of fishing gear to catch fish (Apriliani, 2019). Therefore, Pangandaran is face to face with Hindian Ocean. It explains that Pangandaran have a rich marine fishery resources. But about the boat that used by the Pangandaran fishermen, Pangandaran fishermen dominated by small outboard motor boat with 15 PK engines and fishing area just about 1-2 miles from the coastline. The depth of the waters was not more than 50 meters which is considered safe for fishing operation with small boat. In building the boat every region have different craft from other region, it caused the different of geomorphological features of the coast (Tripati, 1997). Then the boat building should be suitable with the water characteristic in Pangandaran. One what be characteristic of boat in Pangandaran is positioning the boat part. It will makes the boat more save like positioning the wooden plank on one side and the square wooden plank on the other side balance the boat never turns upside-down (Kapita, 1987).

Based on the potential that can be increasing the fishing operations in Pangandaran waters. Kementerian Kelautan dan Perikanan (KKP) rolled out the program called Bantuan Kapal Hibah. The program was the assistance of boats for Pangandaran fishermen who are the member of Kelompok Usaha Bersama (KUB). KKP hopes in giving the grant boats is to make the Pangandaran fishermen can have their own boat. Because a lot of Pangandaran fishermen was work with their boss's boat. So that their income must be divide with their boss and other crew. With the grant boats the problem about income should be finished and it could have an impact on increasing fishing production that it can advance the marine fisheries sector in Pangandaran.

Based Nur and Suranto (2018) design of fishing boat for fishermen as one of the effort to increase production of capture fisheries. The study have to know about suitability of gross tonnage of the grant boat by Kementerian Kelautan dan Perikanan (KKP) based in Pangandaran. Suitability of the boat size is important to be compare with the gear used, suitable design of specific gear can makes the gear much easier to use (Bartoo et al, 2011). That all based on standard of common boat size which used to be by the Pangandaran fishermen and the boat certificate.

2. MATERIALS AND METHODS

The study was conducted in August - September 2018. The location of the study was which the grant by KKP were landed, it was in TPI Legok Jawa, TPI Madasari, TPI Cikidang, TPI Nusa Wiru, TPI Bojong Salawe and TPI Batu Karas, Pangandaran, West Java, Indonesia.

With the object of the study was the 55 units of grant boats by Kemetrian Kelautan dan Perikanan. The boat had 33 units of 3 GT grant boats and 22 unit of 5 GT grant boats which has been landed to 6 TPI in Pangandaran.

The tool used in the study was the tools used in the field. The tools are used to retrieve data in the field directly. The tools can be seen in Table 1.

Table 1. Tools used in the field

No	Tools	Function
1	Roller meter	As a length measuring instrument
2	Waterpass	As a tool to regulate the position of the ship in a flat state
3	Rope	As a length measuring tool
4	Pendulum	As a tool to help see the ship remains flat on the ground
5	Wood Lath	The place to tie the length of the ship
6	Stasionery and Paper	As a tool to record measurement data in the field
7	Offset Table	As a table for entry of ship measurement data
8	Camera	As a documentation tool
9	Grant Ship	As an object of study

The study was conducted using a case study method. The study discusses about the grant studyboats by KKP. This case explained from the point of view of the suitability of the size of the GT of the boats that is suitable for the fishermen in Pangandaran.

The study was analyzed in a comparative descriptive, and illustrates and compares the grant boats gross tonnage size.

The analysis of study was use the calculation of the dimensions of the boat with the Gross Tonnage (GT) unit based on Decision of the Director General of Sea Transportation Number PY.67 / 1 / 16-02. The decision reads as follows:

The gross contents of the vessel are obtained and determined in accordance with the following formula:

$$GT = 0.25 \times V \tag{1}$$

V value is obtained by the following formula:

$$V = V1 + V2 \tag{2}$$

Information:

V = the amount of contents of the room under the main deck plus the rooms above the top deck which are closed perfectly which is not less than 1 m³ in size.

The volume of the room under deck (V1) is obtained by multiplying Length (p), Width (l) and In (d) and Factor (f), or in the form of a formula written as follows:

$$V1 = p \times l \times d \times f \quad (3)$$

Information:

p = the length value obtained by measuring the horizontal distance between the intersection of the outer side of the stomach skin with the bow height and stern height.

l = the width value obtained by measuring the horizontal distance between the two outer edges of skin 1 in the widest part of the head 1.

d = the inner value obtained by measuring the perpendicular distance in the middle l of the widest portion of the frame.

f = factor value determined according to the shape and type of ship:

- a. 0.85 for the boat with flat basic shapes, generally used for barges;
- b. 0.70 for the boat with a basic shape slightly tilted from the center to the side of the ship, generally used for motorized vessels;
- c. 0.50 for the boat that do not belong to groups *a* and *b*, generally used for sailing ships or motorized sailing boat.

The volume of building space (V2) is obtained by multiplying the length by the average width with the average height of the room, or in the form of the formula as follows:

$$V2 = p \times l (r) \times t (r) \quad (4)$$

Information:

P = length of room

l (r) = average width

t (r) = average height

3. RESULT

There are 55 units of grant ships by Kementerian Kelautan dan Perikanan (KKP) has been landed since 2016. Based the boat cetificate, theres are 33 units of 5 GT of grant boats and 22 units of 5 GT grant boats. The grant boats shared to 6 TPI locations in Pangandaran, West Java. There are 7 units of grant boats in TPI Legok Jawa, 6 units of grant boats in TPI Madasari, 22 units of grant boats in Cikidang, 7 units of grant boats in TPI Nusa Wiru, 7 units of grant boats in TPI Bojong Salawe and 6 units of grant boats in TPI Batu Karas.

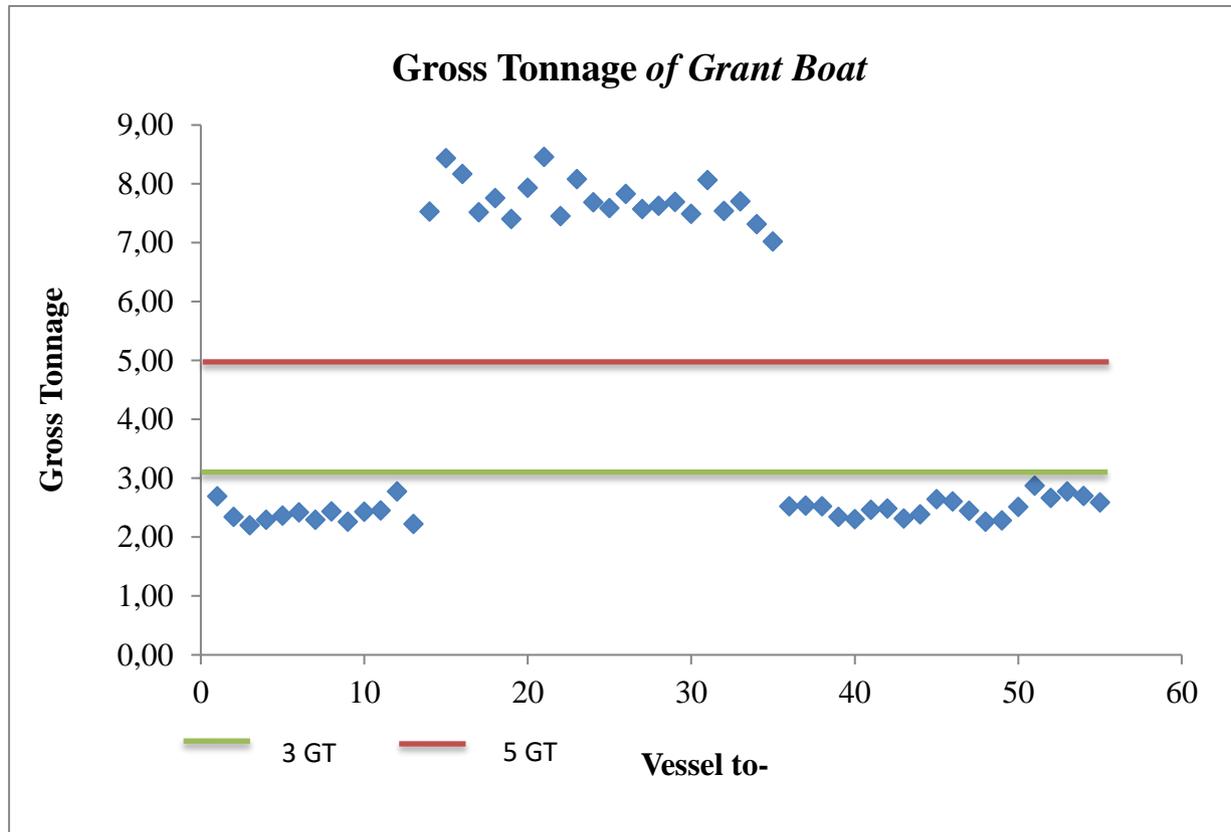


Figure 1. Gross Tonnage of Grant Boat

Even though the certificate told that the grant boat was 3 GT and 5 GT. In fact, according to the calculations that follow Decision of the Director General of Sea Transportation Number PY.67 / 1 / 16-02, the GT of the grant boat is not absolutely 3 GT and 5 GT. In calculation, the factor value used was 0.70, it was because based the rule explain that the boats with a basic shape slightly titled from the center to the side of the boat and the boat which using the motorboat use 0.70 as the factor value. But based Figure 1, it is known that grant boats by KKP based Pangandaran is small boat. Based on Smyth (1901) the characteristic of small boat are small displacement, hollow lines, V-shaped section and sharp floors, shallow draft, lack of beam and a consequent of stability and weatherliness.

The grant boat measuring 3 GT has size no more than 3 GT, but the size was close to 3 GT. While the grant ship measuring 5 GT has a size more than 5 GT. The GT of grant boat more than 5 GT caused by the building on the boat. The Size of gross tonnage of grant boats is presented in Figure 1.

Based on Figure 1, it is known that the 3 GT grant boat was range between 2.20-2.88 GT with 2.47 GT as the average of the GT grant boat. For the 5 GT grant boat was range between 7.02-8.42 GT with 7.72 GT as the average of the GT grant boat. Even the range of the size of gross tonnage was close. The grant boats has diverse size of gross tonnage even in 3 GT or 5 GT of grant boat.

The variety of gross tonnage sizes of the grant boats was because the grant boats has being made by a traditional boat building. Which the traditional boat building is usually not based on

planning and calculation to build the boat. When building the boats, traditional boat building was based the experience knowledge, ideas by the boat builder and the solution from the problem from generation to generation (Robert, 1996). It will be a risk that every boat which made will have different size for every single boat and different size from the plan before.

Very little the early technology is used in building the boat in traditional boatbuilding (Arunachalam, 2008). Then in building the boats always found the change from the plan or calculation wanted. Well it was sure that the gross tonnage of the boats have the diversity gross tonnage and all of them was unsuitable with the gross tonnage wanted. Traditional boat building is used to make a medium size boat or less in 10 days by one man (Gaur, 1993)

Based the suitability of ideal main dimension ratio is very important in the fishing operations operation. Then the ideal boat will support the successfull along the fishing operation. it will makes the fishing operation be more easy and also the cost in fishing operation can be lower. About differential of the water characteristic in any region, the boat building always have their own boat design which makes the boat have different characteristic between another region. It caused because every region have their own differential water characteristics uniqely. Some boats were designed for the calm sea and some boat were designed for the sea with the high wave.

That all are suitable with the characteristic of the water they live.

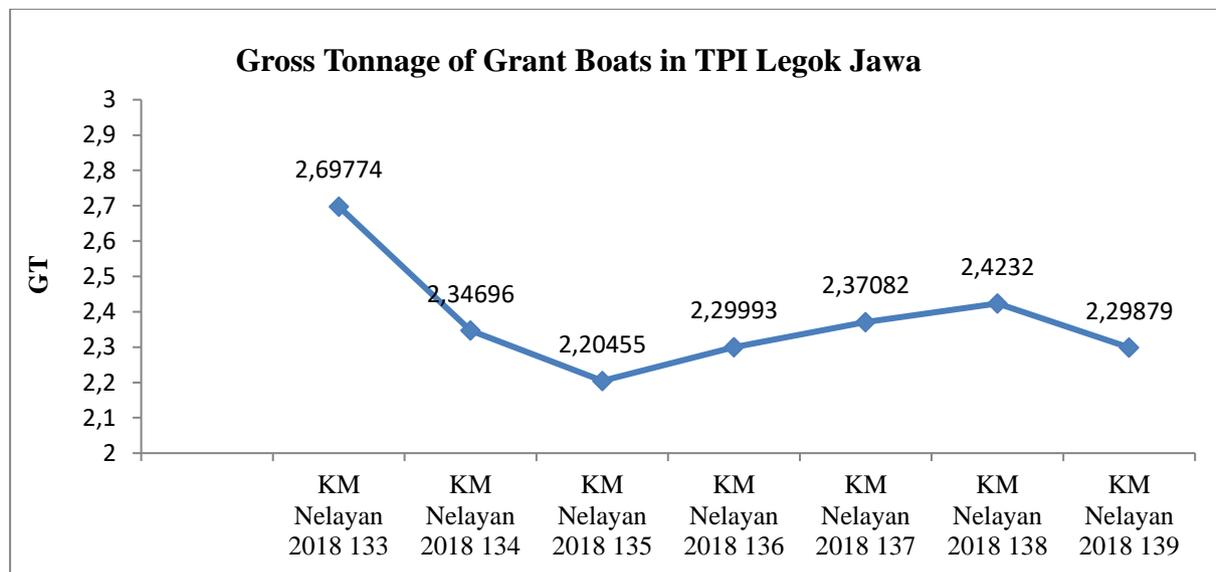


Figure 2. Gross Tonnage of Grant Boat in TPI Legok Jawa

There are 7 grant boats has been landed in TPI Legok Jawa. The grant boat base colour is white and blue with the KKP symbol at the stern of the boat at the right and left side. There is a name for every single grant boat by the KM Nelayan 2018 133 to KM Nelayan 2018 139 in TPI Legok Jawa. Based on the Figure 2, Every single grant boat have a diversity of the gross tonnage. The highest gross tonnage size is KM Nelayan 2018 133 with 2.69774 GT and the lowest gross tonnage size is KM Nelayan 2018 135 with 2.20455 GT. Although KM Nelayan 2018 133 is the highest gross tonnage size, but it is not touching 3 GT size and also all of the grant boats in TPI Legok Jawa.

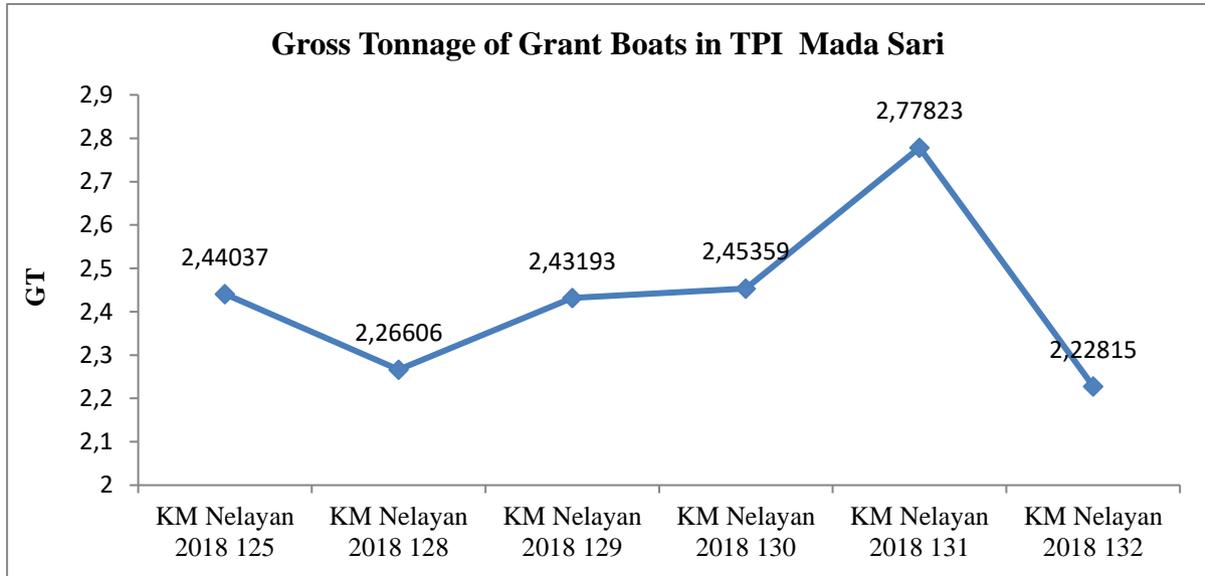


Figure 3. Gross Tonnage of Grant Boat in TPI Mada Sari

There are 6 grant boats has been landed in TPI Mada Sari. The grant boat base colour is white and blue with the KKP symbol at the stern of the boat at the right and left side. Every single grant boat have a name by itself, those are KM Nelayan 2018 125, KM Nelayan 2018 128, KM Nelayan 2018 129, KM Nelayan 2018 130, KM Nelayan 2018 131 and KM Nelayan 2018 132 in TPI Mada Sari. Based on the Figure 3, Every single grant boat have a diversity of the gross tonnage. The highest gross tonnage size is KM Nelayan 2018 131 with 2.77823 GT and the lowest gross tonnage size is KM Nelayan 2018 132 with 2.22815 GT. Although KM Nelayan 2018 131 is the highest gross tonnage size, but it is not touching 3 GT size and also all of the grant boats in TPI Mada Sari.

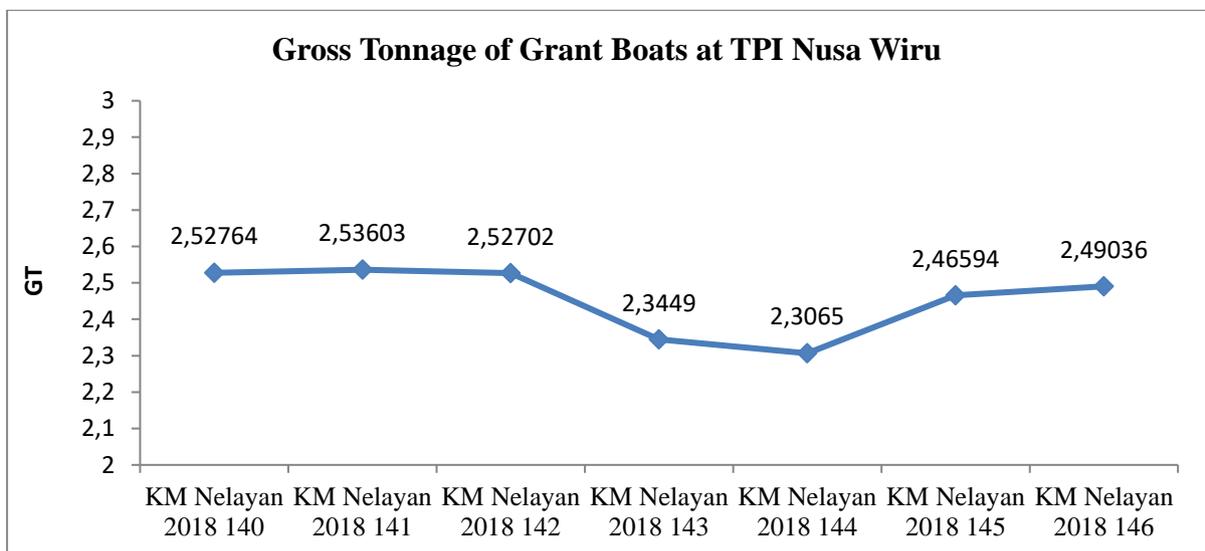


Figure 4. Gross Tonnage of Grant Boat in TPI Nusa Wiru

There are 7 grant boats has been landed in TPI Nusa Wiru. The grant boat base colour is white and blue with the KKP symbol at the stern of the boat at the right and left side. There is a name for every single grant boat by the KM Nelayan 2018 140 to KM Nelayan 2018 146 in TPI Nusa Wiru.

Based on the Figure 4, Every single grant boat have a diversity of the gross tonnage. The highest gross tonnage size is KM Nelayan 2018 141 with 2.53603 GT and the lowest gross tonnage size is KM Nelayan 2018 144 with 2.3065 GT. Although KM Nelayan 2018 141 is the highest gross tonnage size, but it is not touching 3 GT size and also all of the grant boats in TPI Nusa Wiru. The difference between in real calculation and the size in certificate look far enough. It is going to be a question about legality of these boats seriously in the name of law.

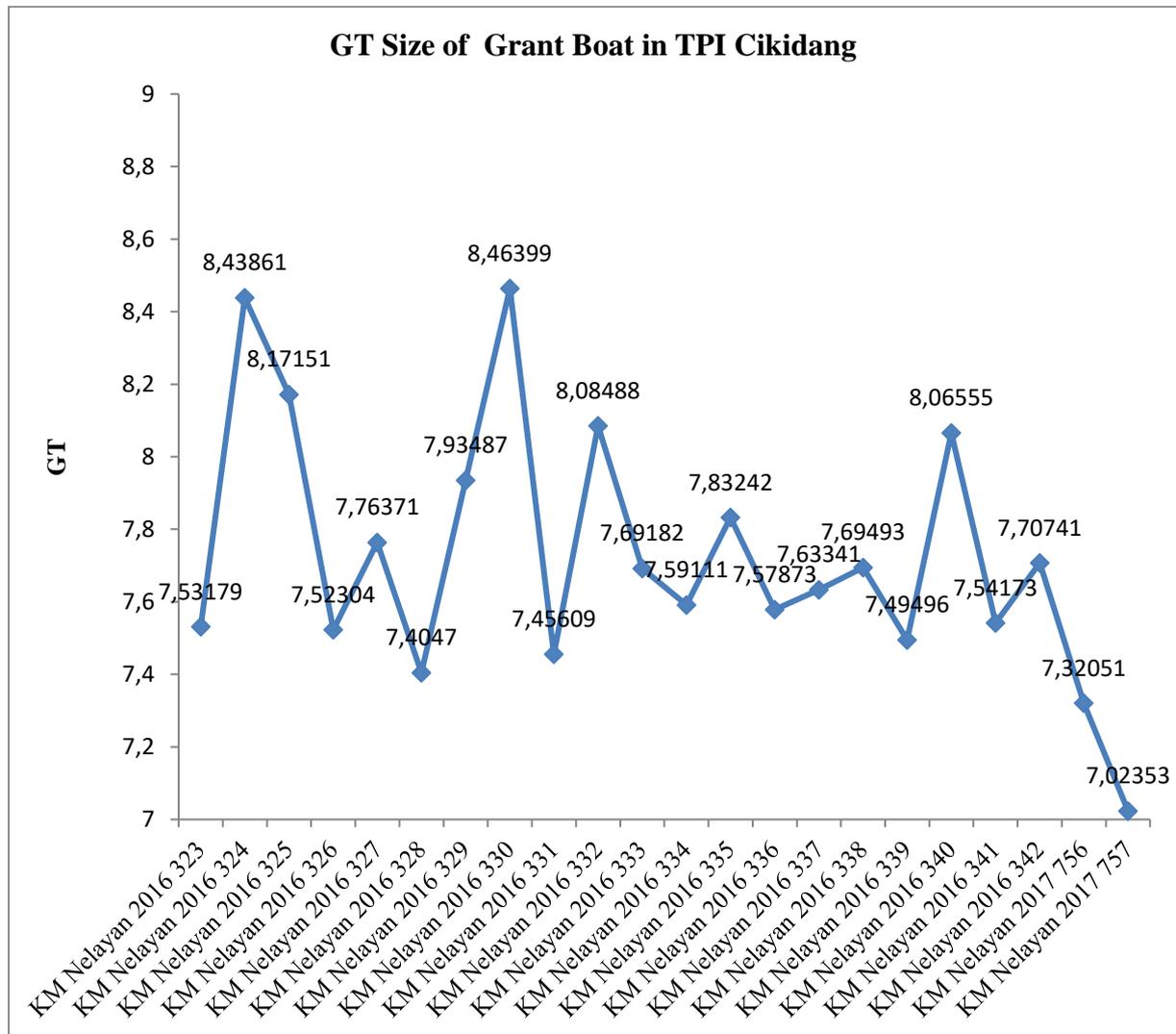


Figure 5. Gross Tonnage of Grant Boat in TPI Cikidang

There are 22 grant boats has been landed in TPI Cikidang. The grant boat base colour is white and blue with the KKP symbol at the stern of the boat at the right and left side. The top

on the boat there is a building as wheelroom. Every single grant boat have a name by itself, those are by KM Nelayan 2016 323 to KM Nelayan 2016 342 and KM Nelayan 2017 756 to KM Nelayan 2017 757 in TPI Cikidang.

Based on the Figure 5, Every single grant boat have a diversity of the gross tonnage. The highest gross tonnage size is KM Nelayan 2016 331 with 8.46399 GT and the lowest gross tonnage size is KM Nelayan 2017 757 with 7.02353 GT. Although KM Nelayan 2017 757 is the lowest gross tonnage size, but its gross tonnage is more than 5 GT size and also all of the grant boats in TPI Cikidang have gross tonnage size more than 5 GT.

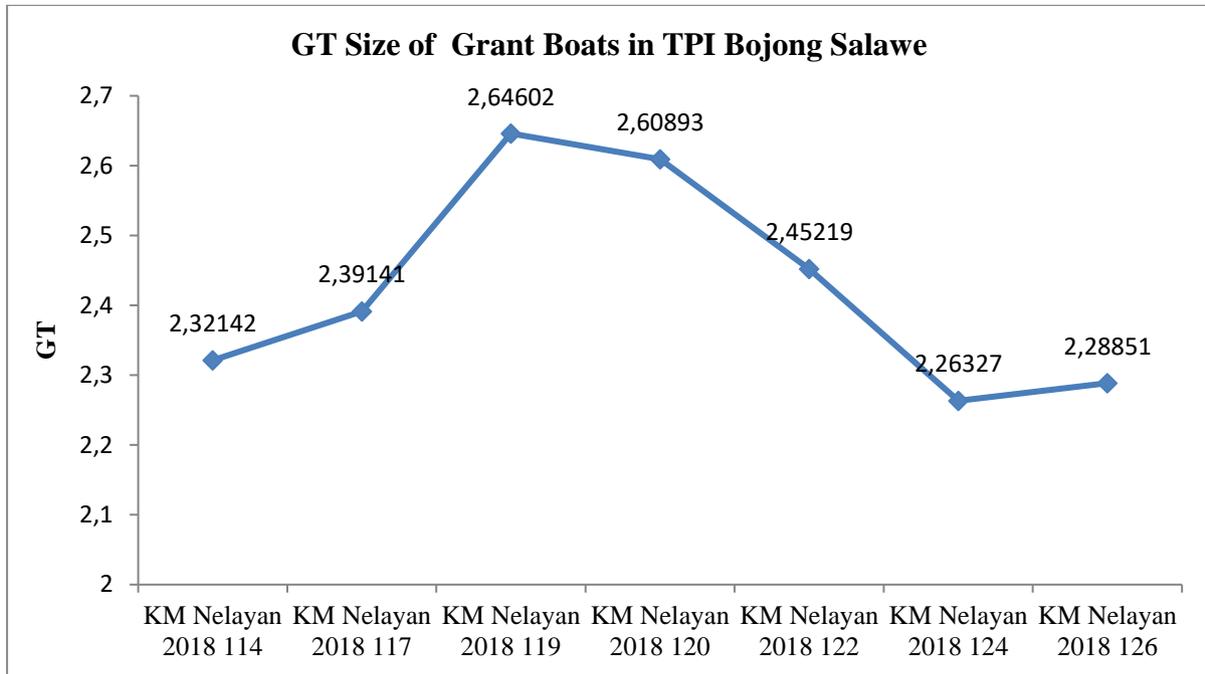


Figure 6. Gross Tonnage of Grant Boat in TPI Bojong Salawe

There are 7 grant boats has been landed in TPI Bojong Salawe. The grant boat base colour is white and blue with the KKP symbol at the stern of the boat at the right and left side. Every single grant boat have a name by itself, those are KM Nelayan 2018 114, KM Nelayan 2018 117, KM Nelayan 2018 119, KM Nelayan 2018 120, KM Nelayan 2018 122 and KM Nelayan 2018 126 in TPI Bojong Salawe.

Based on the Figure 6, Every single grant boat have a diversity of the gross tonnage. The highest gross tonnage size is KM Nelayan 2018 119 with 2.64602 GT and the lowest gross tonnage size is KM Nelayan 2018 124 with 2.26327 GT. Although KM Nelayan 2018 119 is the highest gross tonnage size, but it is not touching 3 GT size and also all of the grant boats in TPI Bojong Salawe.

There are 6 grant boats has been landed in TPI Batu Karas. The grant boat base colour is white and blue with the KKP symbol at the stern of the boat at the right and left side. Every single grant boat have a name by itself, There is a name for every single grant boat by the KM Nelayan 2018 104 to KM Nelayan 2018 111 in TPI Batu Karas.

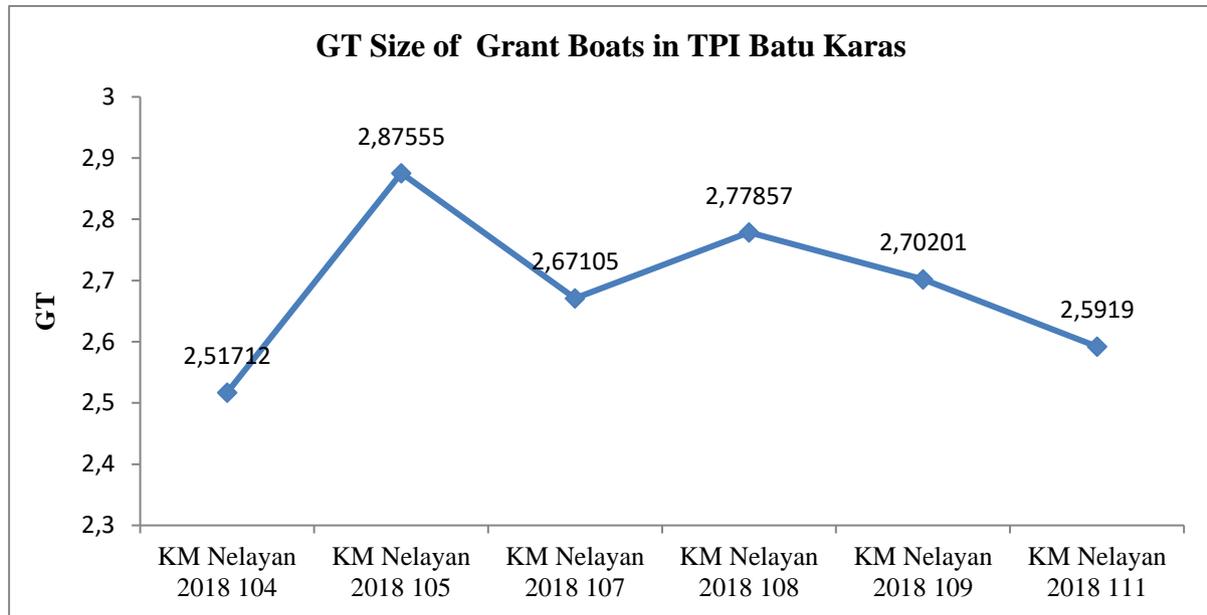


Figure 7. Gross Tonnage of Grant Boat in TPI Batu Karas

Based on the Figure 7, Every single grant boat have a diversity of the gross tonnage. The highest gross tonnage size is KM Nelayan 105 with 2.87555 GT and the lowest gross tonnage size is KM Nelayan 2018 132 with 2.51712 GT. Although KM Nelayan 2018 131 is the highest gross tonnage size, but it is not touching 3 GT size and also all of the grant boats in TPI Batu Karas.

All of 33 units 3 GT grant boat that has been landed in Pangandaran was no one touching 3 GT size. Although KM Nelayan 2018 105 with 2.87555 from Nusa Wiru is the highest of grant boat gross tonnage size in Pangandaran, it is not touching 3 GT size as look like in the boat certificate. Based on figure 5, KM Nelayan 2017 757 from TPI Cikidang is the lowest gross tonnage size off 22 units 5 GT grant boats in Pangandaran. Although it is the lowest but its size is higher than 5 GT. The real gross tonnage size all of the grant boat in Pangandaran are not same like the gross tonnage size which written in the boat certificate.

Based on Vasile (2016) the owner of the boat must be admittance true and correct information in the certificate application, under pinalty of law. Based on Regulation of the Ministry of Maritime Affairs and Fisheries No. PER.17 / MEN / 2006 concerning Capture Fisheries Business CHAPTER XVII Article 68, any person or legal entity conducting a fishing business violating the provisions of this ministerial regulation subject to administrative sanctions or criminal sanctions.

4. CONCLUSIONS

Based on the result of the study, the conclusion obtained that All of 55 units of grant boats are not suitable with the boat certificate. All of 33 units of 3 GT grant boat have lower gross tonnage size than it used to be and all of 22 units of 5 GT grant boat have higher gross tonnage size when it conclucated in real gross tonnage size.

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