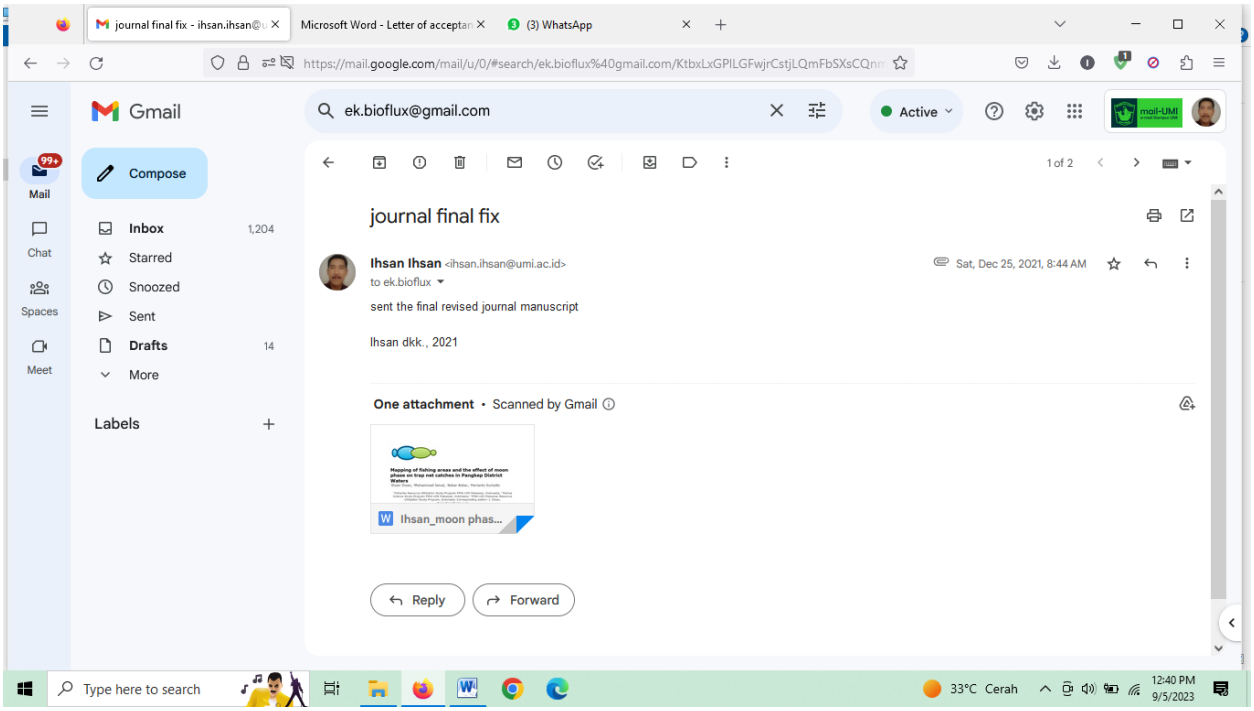
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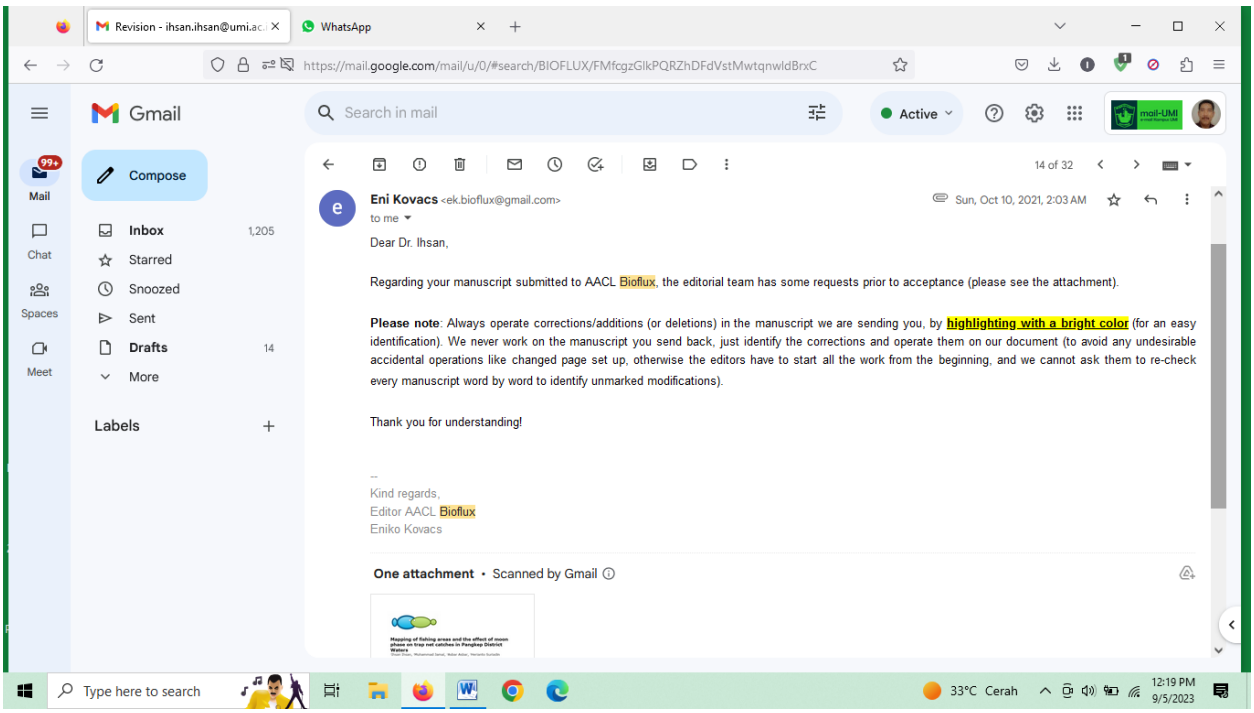
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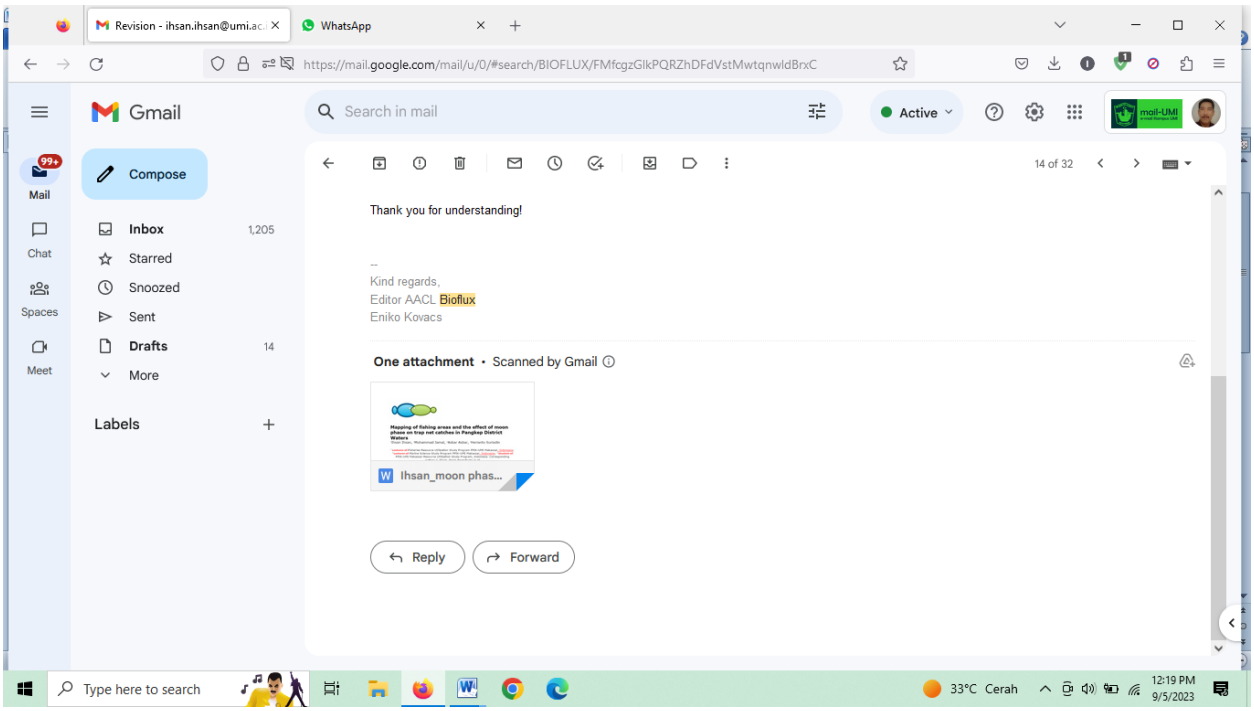
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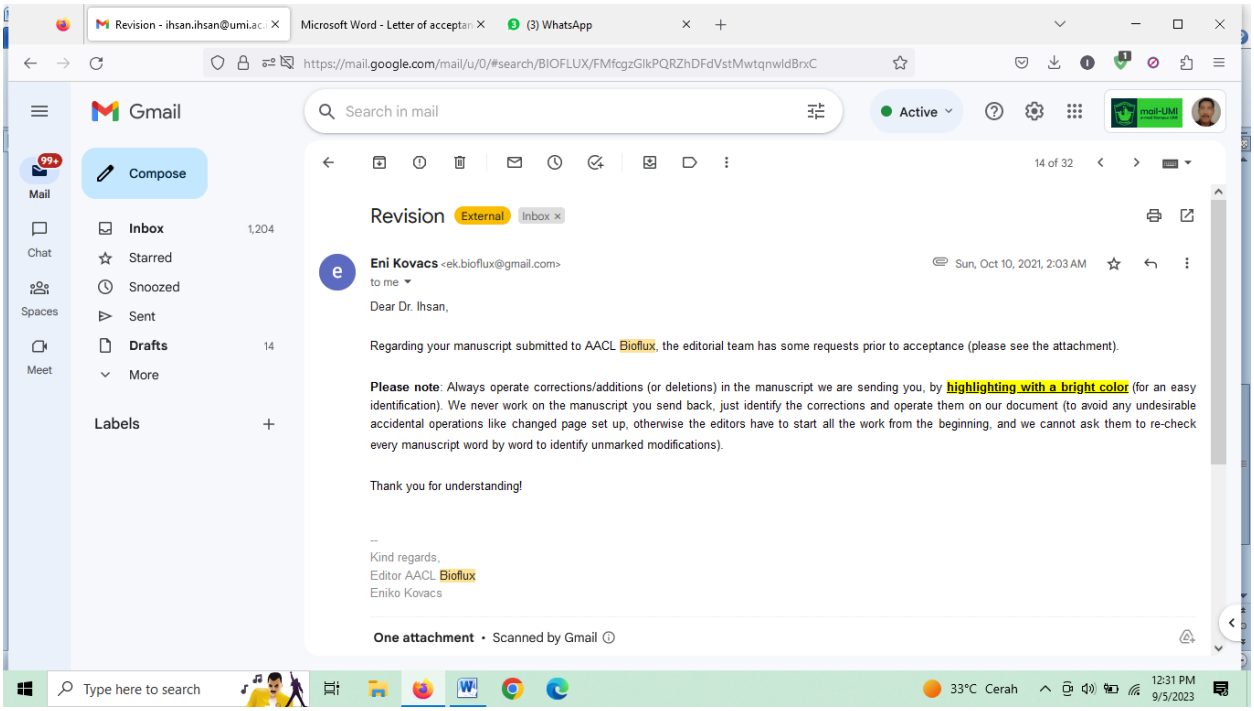
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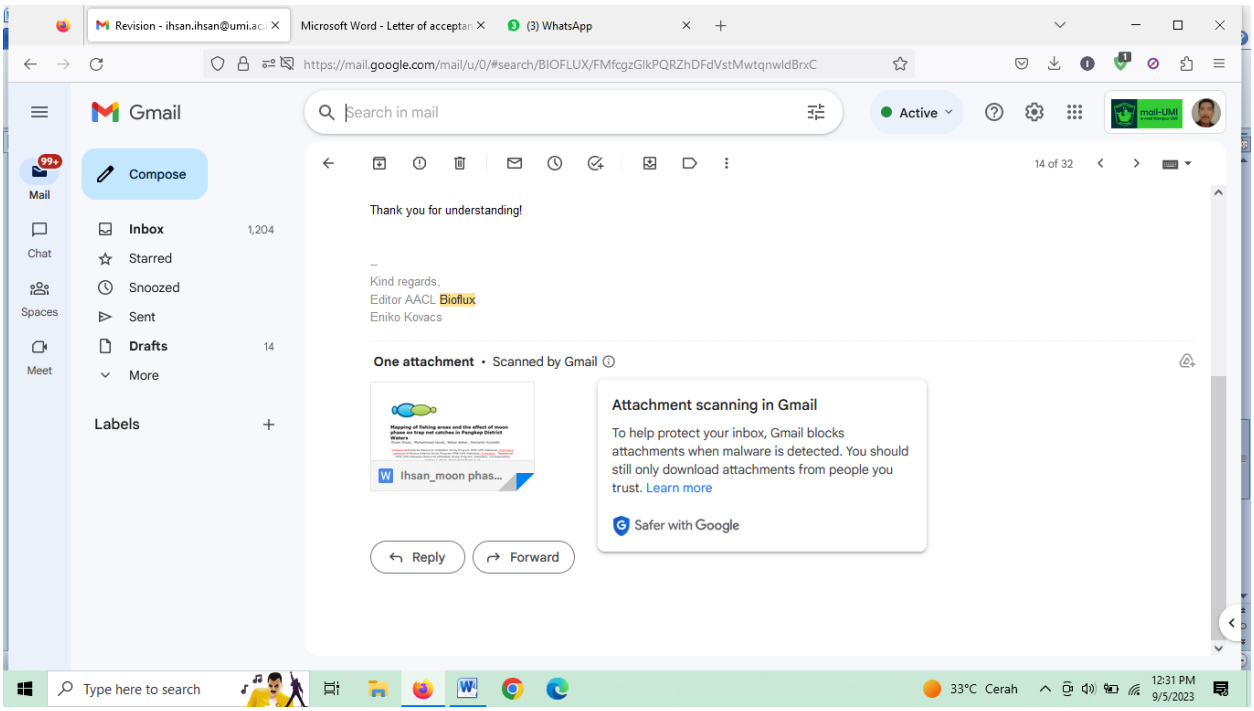
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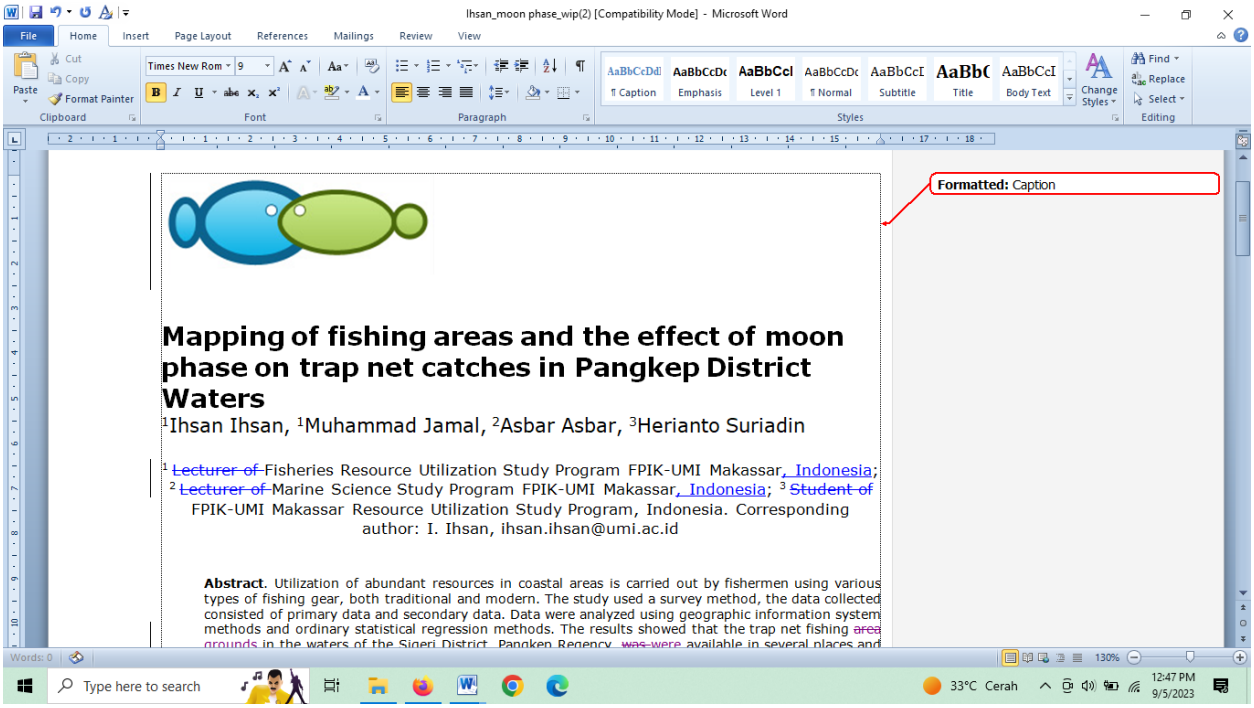

Mapping of fishing areas and the effect of moon phase on trap net catches in Pangkep District Waters

[1]Ihsan Ihsan, [1]Muhammad Jamal, [2]Asbar Asbar, [3]Herianto Suriadin

[1] ~~Lecturer of~~ Fisheries Resource Utilization Study Program FPIK-UMI Makassar, Indonesia; [2] ~~Lecturer of~~ Marine Science Study Program FPIK-UMI Makassar, Indonesia; [3] ~~Student of~~ FPIK-UMI Makassar Resource Utilization Study Program, Indonesia. Corresponding author: I. Ihsan, ihsan.ihsan@umi.ac.id

Abstract. Utilization of abundant resources in coastal areas is carried out by fishermen using various types of fishing gear, both traditional and modern. The study used a survey method, the data collected consisted of primary data and secondary data. Data were analyzed using geographic information system methods and ordinary statistical regression methods. The results showed that the trap net fishing ~~area~~ grounds in the waters of the Sigeri District, Pangkep Regency, ~~was~~ were available in several places and

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Abstract. Utilization of abundant resources in coastal areas is carried out by fishermen using various types of fishing gear, both traditional and modern. The study used a survey method, the data collected consisted of primary data and secondary data. Data were analyzed using geographic information system methods and ordinary statistical regression methods. The results showed that the trap net fishing ~~area~~ grounds in the waters of the Sigeri District, Pangkep Regency, ~~was~~ were available in several places and ~~were~~as ideal for operating trap nets. There was observed a significant effect of the moon phase (tidal) on fish catches ~~during~~ the operation of trap net fishing gear, ~~it is better~~ especially in the full moon and dead moon phases ~~to get more catches because in this lunar phase~~, due to the high tides ~~occur compared to other moon phases~~. Tidal height ~~affects~~ affected most of the amount of catch~~,~~ and only a small part ~~is~~ was influenced by several external factors, during the study. For every 1% increase in sea level at high tide, the catch value ~~increases~~ increased by 1,329. The regression coefficient is positive, so it can be said that the direction of the influence of the tidal height variable on the catch is positive (very influential).)

Key Words: mapping, arrest area, catch, net traps, moon phase.

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Introduction. To take advantage of the abundant resources in the coastal area, fisherm ishing gear, both traditional and modern. One of them is a trap cess ~~is that~~ consist of trapping fish ~~are trapped~~ during high tic re operated parallel to the shoreline.

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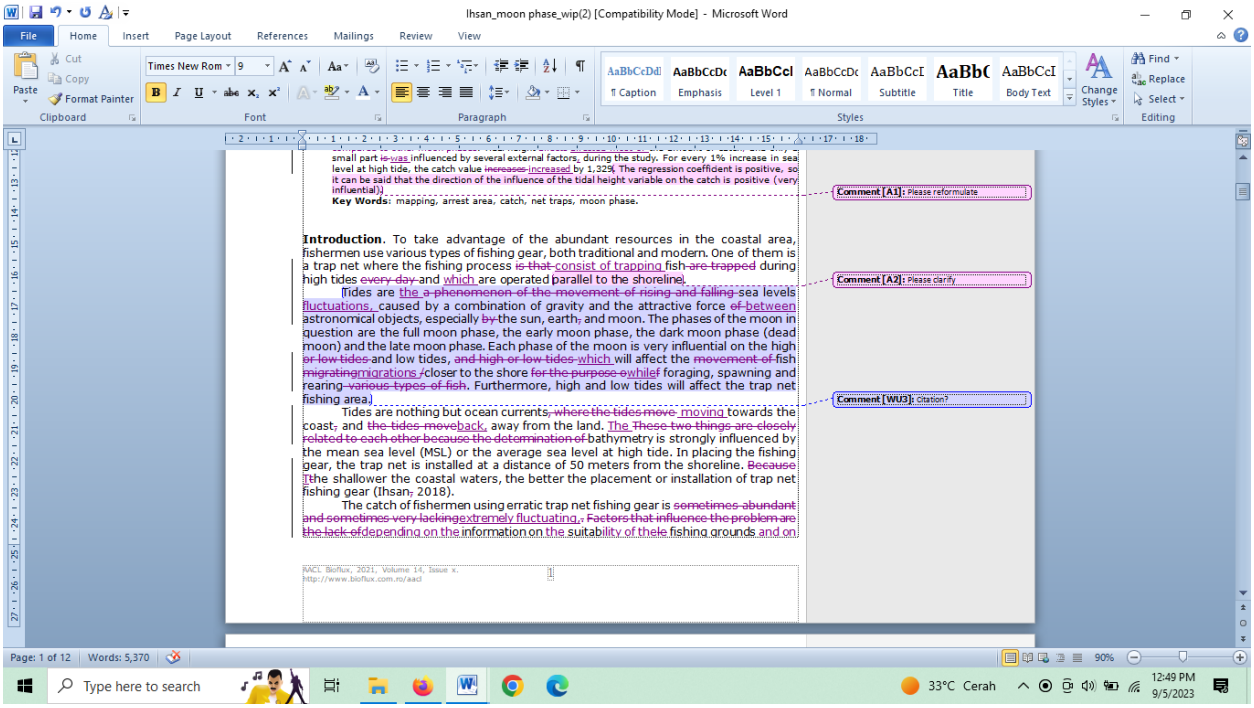
Tides are the ~~a phenomenon of the movement of rising and falling~~ sea levels fluctuations, caused by a combination of gravity and the attractive force ~~of~~ between astronomical objects, especially ~~by~~ the sun, earth~~,~~ and moon. The phases of the moon in question are the full moon phase, the early moon phase, the dark moon phase (dead moon) and the late moon phase. Each phase of the moon is very influential on the high ~~or low tides~~ and low tides, ~~and high or low tides~~ which will affect the ~~movement of~~ fish ~~migrating~~migrations ~~/~~closer to the shore ~~for the purpose ewhile~~ foraging, spawning and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Key Words: mapping, arrest area, catch, net traps, moon phase.
Introduction. To take advantage of the abundant resources in the coastal area, fishermen use various types of fishing gear, both traditional and modern. One of them is a trap net where the fishing process is that consist of trapping fish are trapped during high tides every day and which are operated parallel to the shoreline.
Tides are the a phenomenon of the movement of rising and falling sea levels fluctuations, caused by a combination of gravity and the attractive force of between astronomical objects, especially by the sun, earth, and moon. The phases of the moon in question are the full moon phase, the early moon phase, the dark moon phase (dead moon) and the late moon phase. Each phase of the moon is very influential on the high or low tides and low tides, and high or low tides which will affect the movement of fish migratingmigrations closer to the shore for the purpose ofwhilef foraging, spawning and rearing various types of fish. Furthermore, high and low tides will affect the trap net fishing area.
Tides are nothing but ocean currents, where the tides move moving towards the coast, and the tides moveback, away from the land. The These two things are closely related to each other because the determination of bathymetry is strongly influenced by the mean sea level (MSL) or the average sea level at high tide. In placing the fishing gear, the trap net is installed at a distance of 50 meters from the shoreline. Because Ithe shallower the coastal waters, the better the placement or installation of trap net fishing gear (Ihsan, 2018).
The catch of fishermen using erratic trap net fishing gear is sometimes abundant and sometimes very lackingextremely fluctuating. Factors that influence the problem are the lack ofdepending on the information on the suitability of thele fishing grounds and on
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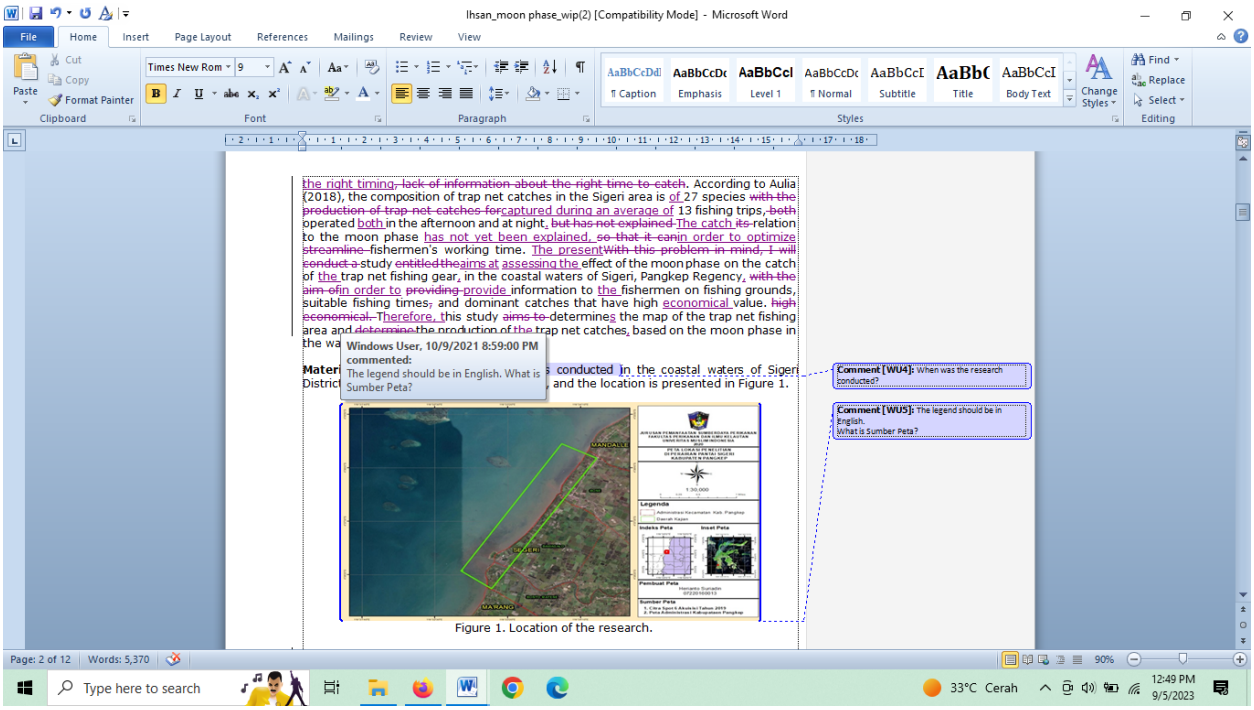
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the right timing, lack of information about the right time to catch. According to Aulia (2018), the composition of trap net catches in the Sigeri area is of 27 species with the production of trap net catches forcaptured during an average of 13 fishing trips, both operated both in the afternoon and at night, but has not explained The catch its relation to the moon phase has not yet been explained, so that it canin order to optimize streamline fishermen's working time. The presentWith this problem in mind, I will conduct a study entitled theaims at assessing the effect of the moon phase on the catch of the trap net fishing gear, in the coastal waters of Sigeri, Pangkep Regency, with the aim ofin order to providing provide information to the fishermen on fishing grounds, suitable fishing times, and dominant catches that have high economical value. High economical. Therefore, this study aims to determines the map of the trap net fishing area and determine the production of the trap net catches, based on the moon phase in the wa
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Mater conducted in the coastal waters of Sigeri Distric and the location is presented in Figure 1.
Figure 1. Location of the research.
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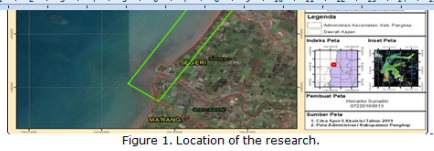

Figure 1. Location of the research.

In this study, the object of research is the fish caught by trap net fishing gear operated by fishermen in Sigeri District. The equipment used ~~in this study~~ was a fishing rod, camera, office stationery, global position system, digital scales, hand rectometer, echosounder, tide gauge stick (TPP) and trap net fishing gear.

The data collected includes: (1) tidal observation data; (2) bathymetry data for coastal waters; (3) catch data (kg) per trip~~.~~; (4) ~~data on the existing condition of coastal waters,~~ oceanographic data on coastal waters. ~~Participate~~ The authors participated in fishing operations to conduct direct observations in the field and ~~conduct~~ interviews using a questionnaire related to the operation of trap net fishing gear. In this study used descriptive qualitative data analysis for and quantitative. For mapping ~~using~~ the GIS method was used with criteria~~, , the~~ The Admiralty~~adriminal~~ method was used for measuring tides, ~~and~~ The regression analysis was used to determine the relationship between the ~~number~~ of catch volumes (kg) ~~of each moon phase related to~~ and the tides during each moon phase, in the waters of Sigeri District, Pangkep Regency.

Ihsan (2015) said that in this study, the determination of the appropriate fishing area was carried out by analyzing bathymetric data, tidal data and tidal data other existing. Bathymetric analysis was obtained ~~after~~ by tracking with S and Z patterns using an echosounder mapping tool. The values stored or recorded in the echosounder mapping are inputted into the ArcGis 10.3 software and then interpolated, with the aim of producing a map of the depth class of the research location and, more specifically, ~~a map~~ of the location of the operating area for the trap net fishing gear. Tidal analysis uses the Admiralty m~~M~~ethod, for ~~which is a tidal analysis method used to calculate~~ calculating two

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harmonic componentsconstants, namely amplitude and phase delay. After obtaining the tidal components, ~~namely the amplitude and the price of the phase delay, then it is~~ the following can be calculated ([]):

Comment [WU9]: Sources of the formulas:

Average Water Level (Mean Sea Level)
MSL = A(S0)

Lowest Low Water Level
LLWL = A(So) – (M2 + S2 + K1 + O1 + P1 + K2)

Highest High Water Level
HHWL = A(So) + (M2 + S2 + K1 + O1 + P1 + K2)

Pair type (F) = A(K1) + A(O1) / A(M2) + A(S2))

Comment [A10]: signification of the variable symbols, please.

The type of tide can be determined by using the following formula:

$$F = \left(\frac{K_1 + O_1}{M_2 + S_2}\right)$$

Where:
F - Formzahl number;
K_1 - Amplitude of the affected daily tidal wave cub by the declination of the sun and moon;
O_1 - Amplitude of the affected single daily tidal wave by the sun's declination;
M_2 - Amplitude of the average double daily tidal wave influenced by the moon;
S_2 - Amplitude of the average double daily tidal wave influenced by the sun.

Comment [A11]: signification?

According to Triatmodjo (1999) in (Asri et ~~al.,~~al 2014), there are 4 ~~classifications of~~ tidal types based on tidal constants:
0 < F < 0.25 = ~~Pure~~ pure ~~Double~~ double daily tidal type
0.25 < F < 1.50 = ~~Mixed~~ mixed ~~Tidal Type Double~~ double ~~Inclined~~ inclined ~~Daily~~daily tidal type
1.50< F < 3.0 = ~~Single~~ single ~~Daily~~ mixed inclined daily ~~Inclined Mixed T~~tidal ~~Type~~type
F > 3.0 = ~~Pure~~ pure ~~Single~~ single ~~Daily~~ daily Tidal Type

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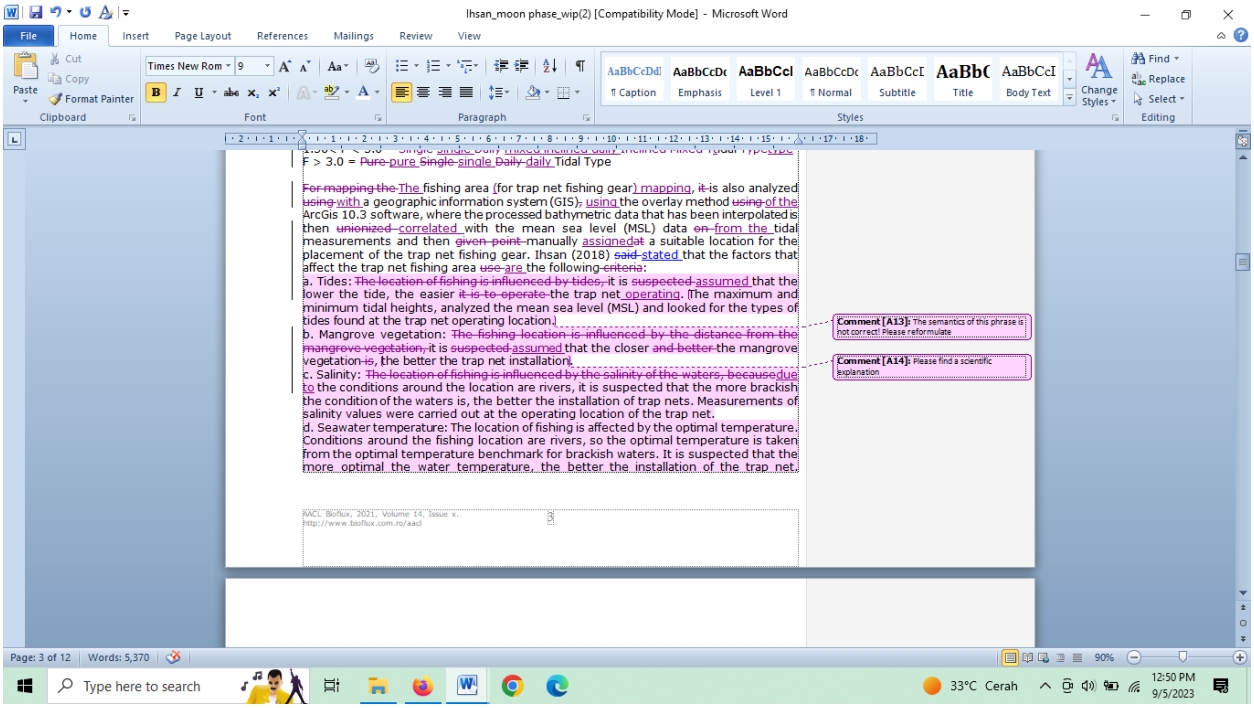
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F > 3.0 = Pure pure Single single Daily daily Tidal Type
For mapping the The fishing area (for trap net fishing gear) mapping, it is also analyzed using with a geographic information system (GIS), using the overlay method using of the ArcGis 10.3 software, where the processed bathymetric data that has been interpolated is then unionized correlated with the mean sea level (MSL) data on from the tidal measurements and then given point manually assigned at a suitable location for the placement of the trap net fishing gear. Ihsan (2018) said stated that the factors that affect the trap net fishing area use are the following criteria:
a. Tides: The location of fishing is influenced by tides, it is suspected assumed that the lower the tide, the easier it is to operate the trap net operating. The maximum and minimum tidal heights, analyzed the mean sea level (MSL) and looked for the types of tides found at the trap net operating location.
b. Mangrove vegetation: The fishing location is influenced by the distance from the mangrove vegetation, it is suspected assumed that the closer and better the mangrove vegetation is, the better the trap net installation.
c. Salinity: The location of fishing is influenced by the salinity of the waters, becausedue to the conditions around the location are rivers, it is suspected that the more brackish the condition of the waters is, the better the installation of trap nets. Measurements of salinity values were carried out at the operating location of the trap net.
d. Seawater temperature: The location of fishing is affected by the optimal temperature. Conditions around the fishing location are rivers, so the optimal temperature is taken from the optimal temperature benchmark for brackish waters. It is suspected that the more optimal the water temperature, the better the installation of the trap net.
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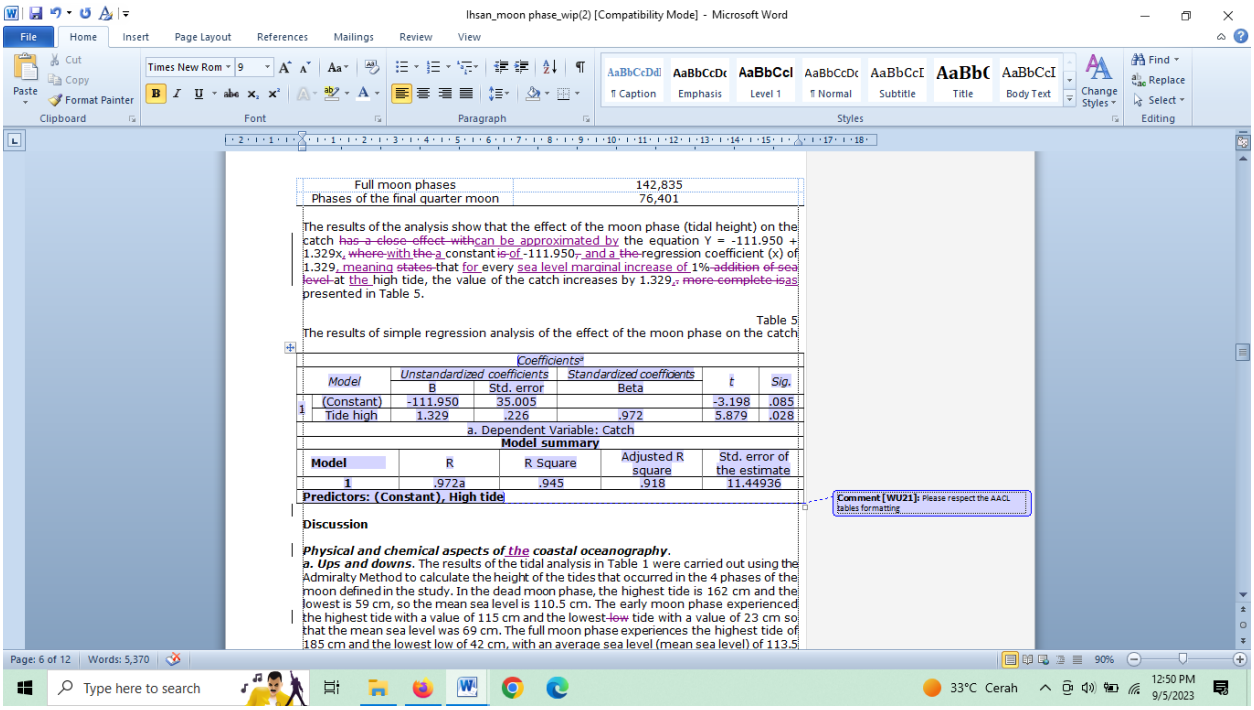
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Full moon phases 142,835
Phases of the final quarter moon 76,401
The results of the analysis show that the effect of the moon phase (tidal height) on the catch has a close effect withcan be approximated by the equation Y = -111.950 + 1.329x, where with the a constant is of -111.950, and a the regression coefficient (x) of 1.329, meaning states that for every sea level marginal increase of 1% addition of sea level at the high tide, the value of the catch increases by 1.329, more complete isas presented in Table 5.
Table 5
The results of simple regression analysis of the effect of the moon phase on the catch
Coefficients[a]
Model | Unstandardized coefficients B | Unstandardized coefficients Std. error | Standardized coefficients Beta | t | Sig.
1 (Constant) -111.950 35.005 -3.198 .085
Tide high 1.329 .226 .972 5.879 .028
a. Dependent Variable: Catch
Model summary
Model | R | R Square | Adjusted R square | Std. error of the estimate
1 .972a .945 .918 11.44936
Predictors: (Constant), High tide
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Discussion
Physical and chemical aspects of the coastal oceanography.
a. Ups and downs. The results of the tidal analysis in Table 1 were carried out using the Admiralty Method to calculate the height of the tides that occurred in the 4 phases of the moon defined in the study. In the dead moon phase, the highest tide is 162 cm and the lowest is 59 cm, so the mean sea level is 110.5 cm. The early moon phase experienced the highest tide with a value of 115 cm and the lowest low tide with a value of 23 cm so that the mean sea level was 69 cm. The full moon phase experiences the highest tide of 185 cm and the lowest low of 42 cm, with an average sea level (mean sea level) of 113.5
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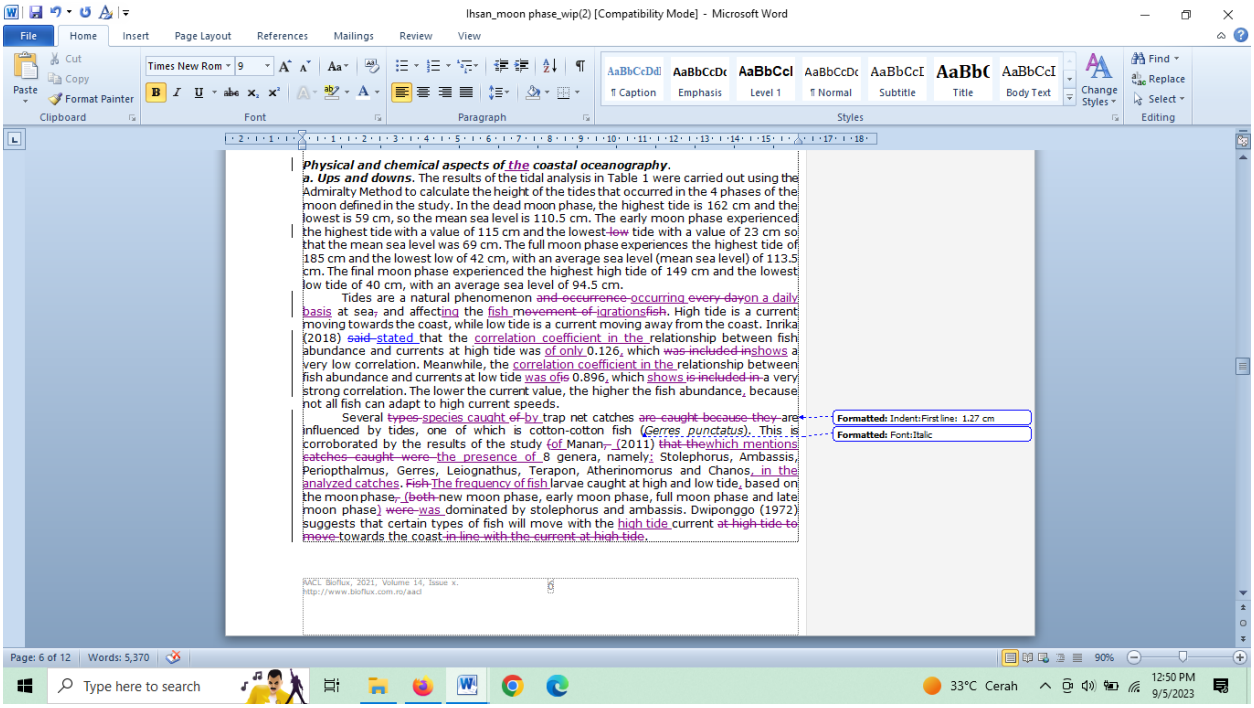

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Physical and chemical aspects of the coastal oceanography.

a. Ups and downs. The results of the tidal analysis in Table 1 were carried out using the Admiralty Method to calculate the height of the tides that occurred in the 4 phases of the moon defined in the study. In the dead moon phase, the highest tide is 162 cm and the lowest is 59 cm, so the mean sea level is 110.5 cm. The early moon phase experienced the highest tide with a value of 115 cm and the lowest ~~low~~ tide with a value of 23 cm so that the mean sea level was 69 cm. The full moon phase experiences the highest tide of 185 cm and the lowest low of 42 cm, with an average sea level (mean sea level) of 113.5 cm. The final moon phase experienced the highest high tide of 149 cm and the lowest low tide of 40 cm, with an average sea level of 94.5 cm.

Tides are a natural phenomenon ~~and occurrence~~ occurring ~~every day~~on a daily basis at sea, and affecting the fish ~~movement of i~~grations~~fish~~. High tide is a current moving towards the coast, while low tide is a current moving away from the coast. Inrika (2018) ~~said~~ stated that the correlation coefficient in the relationship between fish abundance and currents at high tide was of only 0.126, which ~~was included in~~shows a very low correlation. Meanwhile, the correlation coefficient in the relationship between fish abundance and currents at low tide was of~~is~~ 0.896, which shows ~~is included in~~ a very strong correlation. The lower the current value, the higher the fish abundance, because not all fish can adapt to high current speeds.

Several ~~types~~ species caught ~~of~~ by trap net catches ~~are caught because they~~ are influenced by tides, one of which is cotton-cotton fish (*Gerres punctatus*). This is corroborated by the results of the study ~~(~~of Manan~~,~~ (2011) ~~that the~~which mentions ~~catches caught were~~ the presence of 8 genera, namely: Stolephorus, Ambassis, Perioptalmus, Gerres, Leiognathus, Terapon, Atherinomorus and Chanos, in the analyzed catches. ~~Fish~~ The frequency of fish larvae caught at high and low tide, based on the moon phase~~,~~ ~~(both~~ new moon phase, early moon phase, full moon phase and late moon phase~~)~~ ~~were~~ was dominated by stolephorus and ambassis. Dwiponggo (1972) suggests that certain types of fish will move with the high tide current ~~at high tide to move~~ towards the coast ~~in line with the current at high tide~~.

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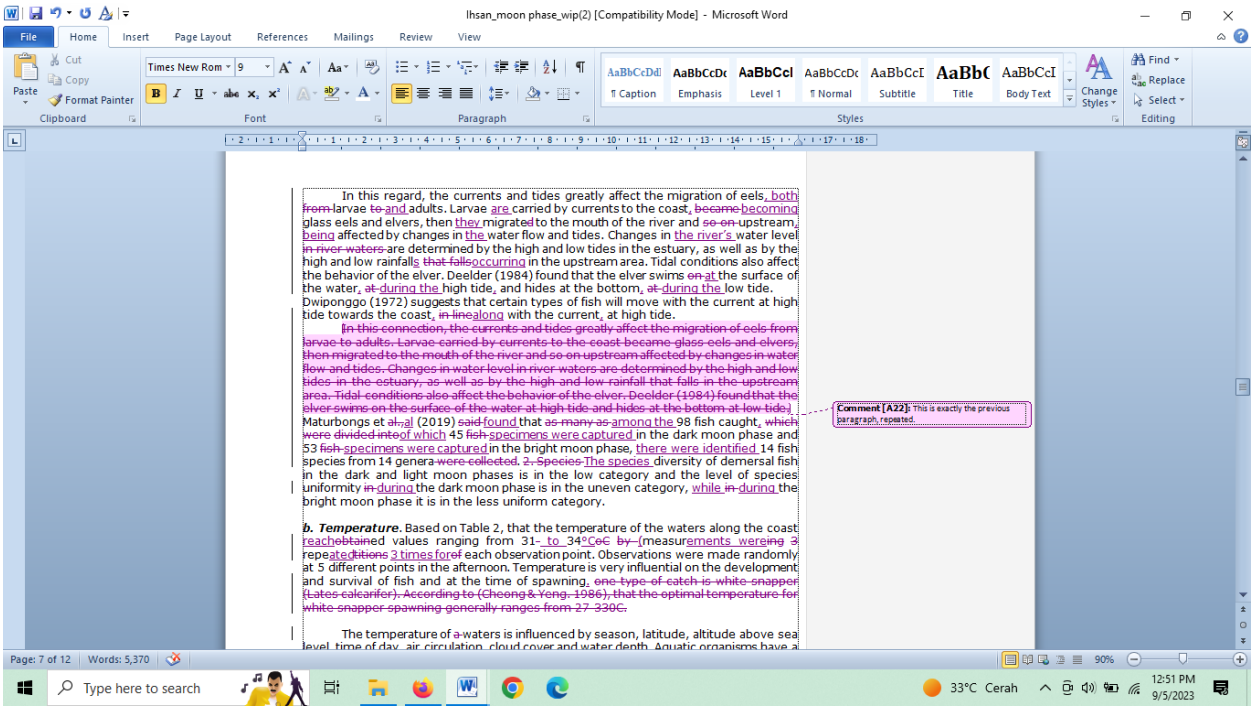

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In this regard, the currents and tides greatly affect the migration of eels, both ~~from~~ larvae ~~to~~ and adults. Larvae are carried by currents to the coast, ~~became~~ becoming glass eels and elvers, then they migrated~~d~~ to the mouth of the river and ~~so on~~ upstream, being affected by changes in the water flow and tides. Changes in the river's water level ~~in river waters~~ are determined by the high and low tides in the estuary, as well as by the high and low rainfalls ~~that falls~~occurring in the upstream area. Tidal conditions also affect the behavior of the elver. Deelder (1984) found that the elver swims ~~on~~ at the surface of the water, ~~at~~ during the high tide, and hides at the bottom, ~~at~~ during the low tide. Dwiponggo (1972) suggests that certain types of fish will move with the current at high tide towards the coast, ~~in line~~along with the current, at high tide.

~~In this connection, the currents and tides greatly affect the migration of eels from larvae to adults. Larvae carried by currents to the coast became glass eels and elvers, then migrated to the mouth of the river and so on upstream affected by changes in water flow and tides. Changes in water level in river waters are determined by the high and low tides in the estuary, as well as by the high and low rainfall that falls in the upstream area. Tidal conditions also affect the behavior of the elver. Deelder (1984) found that the elver swims on the surface of the water at high tide and hides at the bottom at low tide.~~

Maturbongs et ~~al.~~al (2019) ~~said~~ found that ~~as many as~~ among the 98 fish caught, ~~which were divided into~~of which 45 ~~fish~~ specimens were captured in the dark moon phase and 53 ~~fish~~ specimens were captured in the bright moon phase, there were identified 14 fish species from 14 genera ~~were collected~~. ~~2. Species~~ The species diversity of demersal fish in the dark and light moon phases is in the low category and the level of species uniformity ~~in~~ during the dark moon phase is in the uneven category, while ~~in~~ during the bright moon phase it is in the less uniform category.

b. Temperature. Based on Table 2, that the temperature of the waters along the coast ~~reached~~obtained values ranging from 31- to 34°C~~C~~ ~~by~~ (measurements were~~ing~~ ~~3 repeated~~titions 3 times for~~of~~ each observation point. Observations were made randomly at 5 different points in the afternoon. Temperature is very influential on the development and survival of fish and at the time of spawning, ~~one type of catch is white snapper (Lates calcarifer). According to (Cheong & Yeng, 1986), that the optimal temperature for white snapper spawning generally ranges from 27-33°C.~~

The temperature of ~~a~~waters is influenced by season, latitude, altitude above sea level, time of day, air circulation, cloud cover and water depth. Aquatic organisms have a

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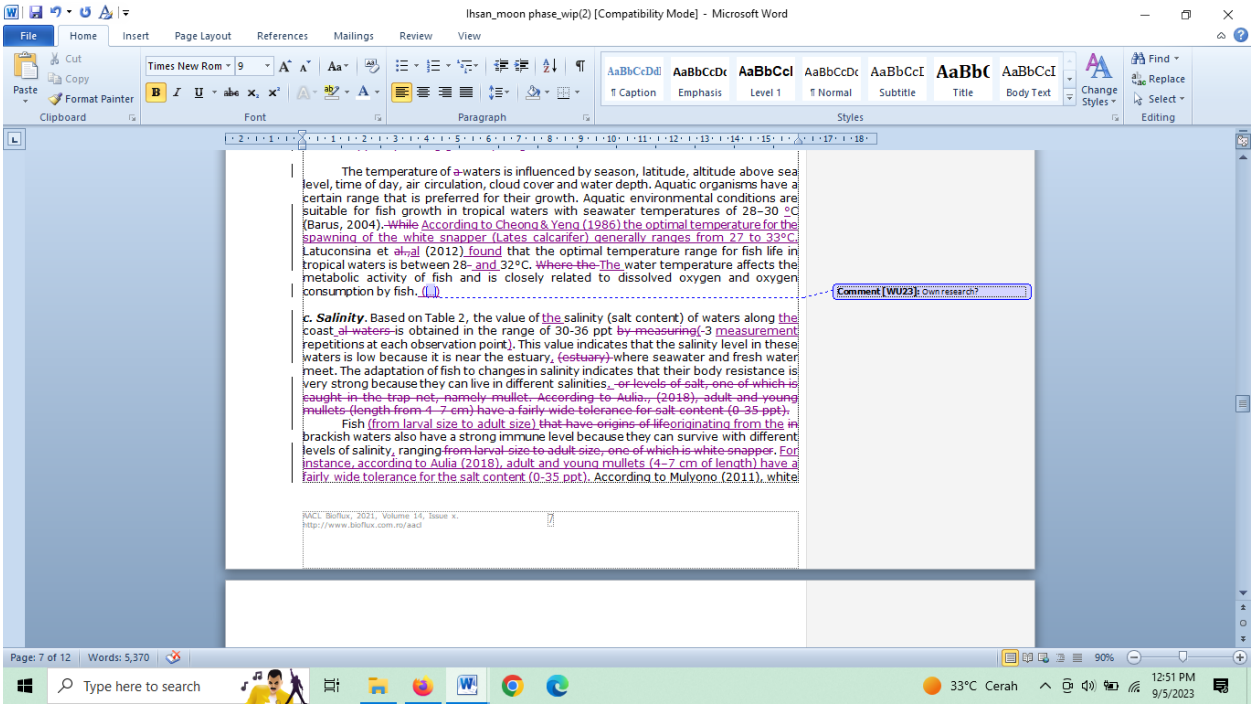
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The temperature of a waters is influenced by season, latitude, altitude above sea level, time of day, air circulation, cloud cover and water depth. Aquatic organisms have a certain range that is preferred for their growth. Aquatic environmental conditions are suitable for fish growth in tropical waters with seawater temperatures of 28–30 °C (Barus, 2004). While According to Cheong & Yeng (1986) the optimal temperature for the spawning of the white snapper (Lates calcarifer) generally ranges from 27 to 33°C. Latuconsina et al.,al (2012) found that the optimal temperature range for fish life in tropical waters is between 28- and 32°C. Where the The water temperature affects the metabolic activity of fish and is closely related to dissolved oxygen and oxygen consumption by fish. ([])
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c. Salinity. Based on Table 2, the value of the salinity (salt content) of waters along the coast al waters is obtained in the range of 30-36 ppt by measuring(-3 measurement repetitions at each observation point). This value indicates that the salinity level in these waters is low because it is near the estuary, (estuary) where seawater and fresh water meet. The adaptation of fish to changes in salinity indicates that their body resistance is very strong because they can live in different salinities, or levels of salt, one of which is caught in the trap net, namely mullet. According to Aulia., (2018), adult and young mullets (length from 4 -7 cm) have a fairly wide tolerance for salt content (0-35 ppt).
Fish (from larval size to adult size) that have origins of lifeoriginating from the in brackish waters also have a strong immune level because they can survive with different levels of salinity, ranging from larval size to adult size, one of which is white snapper. For instance, according to Aulia (2018), adult and young mullets (4–7 cm of length) have a fairly wide tolerance for the salt content (0-35 ppt). According to Mulyono (2011), white
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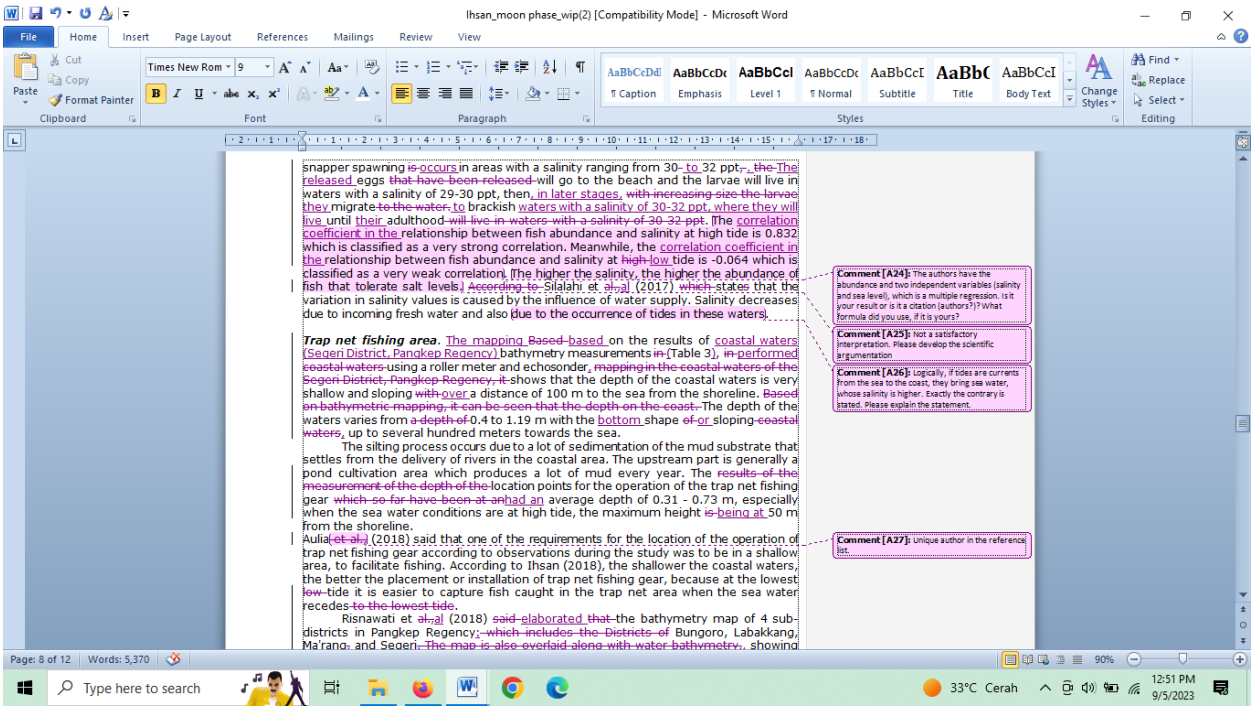
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snapper spawning is occurs in areas with a salinity ranging from 30- to 32 ppt,-, the The released eggs that have been released will go to the beach and the larvae will live in waters with a salinity of 29-30 ppt, then, in later stages, with increasing size the larvae they migrate to the water, to brackish waters with a salinity of 30-32 ppt, where they will live until their adulthood will live in waters with a salinity of 30-32 ppt. The correlation coefficient in the relationship between fish abundance and salinity at high tide is 0.832 which is classified as a very strong correlation. Meanwhile, the correlation coefficient in the relationship between fish abundance and salinity at high low tide is -0.064 which is classified as a very weak correlation. The higher the salinity, the higher the abundance of fish that tolerate salt levels.) According to Silalahi et al.,al (2017) which states that the variation in salinity values is caused by the influence of water supply. Salinity decreases due to incoming fresh water and also due to the occurrence of tides in these waters).
Trap net fishing area. The mapping Based based on the results of coastal waters (Segeri District, Pangkep Regency) bathymetry measurements in (Table 3), in performed coastal waters using a roller meter and echosonder, mapping in the coastal waters of the Segeri District, Pangkep Regency, it shows that the depth of the coastal waters is very shallow and sloping with over a distance of 100 m to the sea from the shoreline. Based on bathymetric mapping, it can be seen that the depth on the coast. The depth of the waters varies from a depth of 0.4 to 1.19 m with the bottom shape of or sloping coastal waters, up to several hundred meters towards the sea.
The silting process occurs due to a lot of sedimentation of the mud substrate that settles from the delivery of rivers in the coastal area. The upstream part is generally a pond cultivation area which produces a lot of mud every year. The results of the measurement of the depth of the location points for the operation of the trap net fishing gear which so far have been at anhad an average depth of 0.31 - 0.73 m, especially when the sea water conditions are at high tide, the maximum height is being at 50 m from the shoreline.
Aulia(et al.,) (2018) said that one of the requirements for the location of the operation of trap net fishing gear according to observations during the study was to be in a shallow area, to facilitate fishing. According to Ihsan (2018), the shallower the coastal waters, the better the placement or installation of trap net fishing gear, because at the lowest low tide it is easier to capture fish caught in the trap net area when the sea water recedes to the lowest tide.
Risnawati et al.,al (2018) said elaborated that the bathymetry map of 4 sub-districts in Pangkep Regency; which includes the Districts of Bungoro, Labakkang, Ma'rang, and Segeri. The map is also overlaid along with water bathymetry., showing
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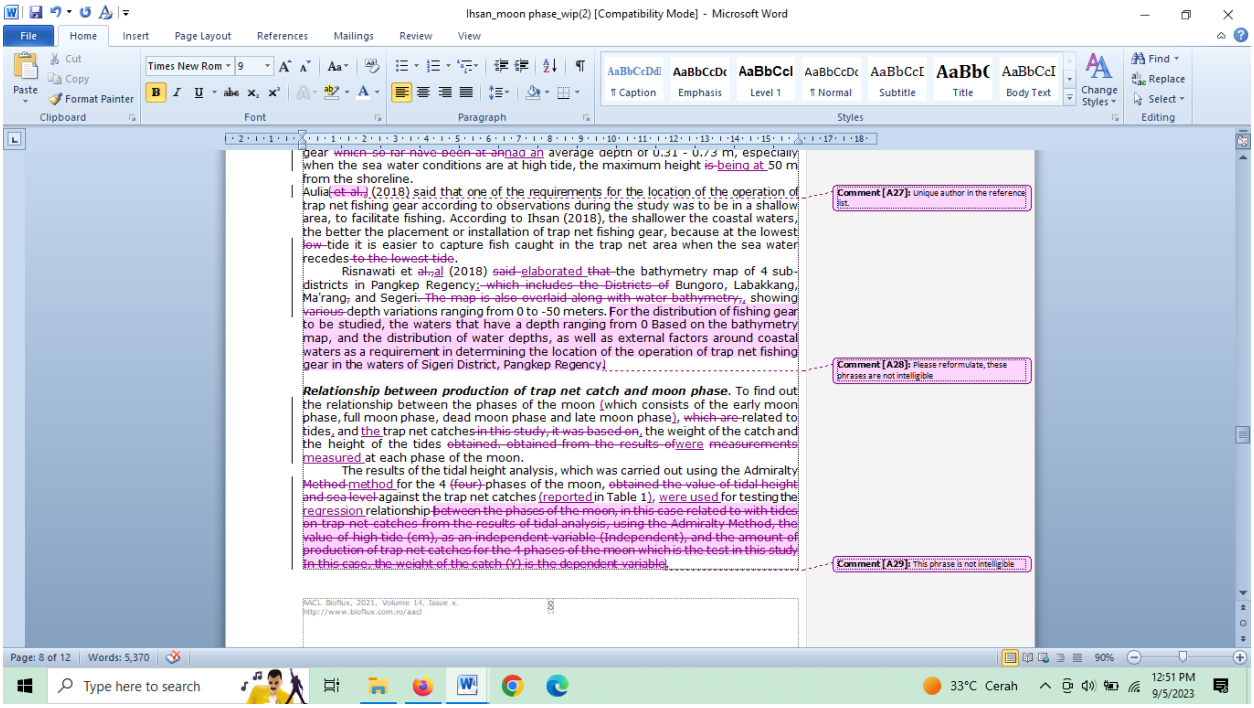

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Relationship between production of trap net catch and moon phase. To find out the relationship between the phases of the moon (which consists of the early moon phase, full moon phase, dead moon phase and late moon phase), which are related to tides, and the trap net catches in this study, it was based on the weight of the catch and the height of the tides obtained. obtained from the results ofwere measurements measured at each phase of the moon.

The results of the tidal height analysis, which was carried out using the Admiralty Method method for the 4 (four) phases of the moon, obtained the value of tidal height and sea level against the trap net catches (reported in Table 1), were used for testing the regression relationship between the phases of the moon, in this case related to with tides on trap net catches from the results of tidal analysis, using the Admiralty Method, the value of high tide (cm), as an independent variable (Independent), and the amount of production of trap net catches for the 4 phases of the moon whichis the test in this study In this case, the weight of the catch (Y) is the dependent variable)

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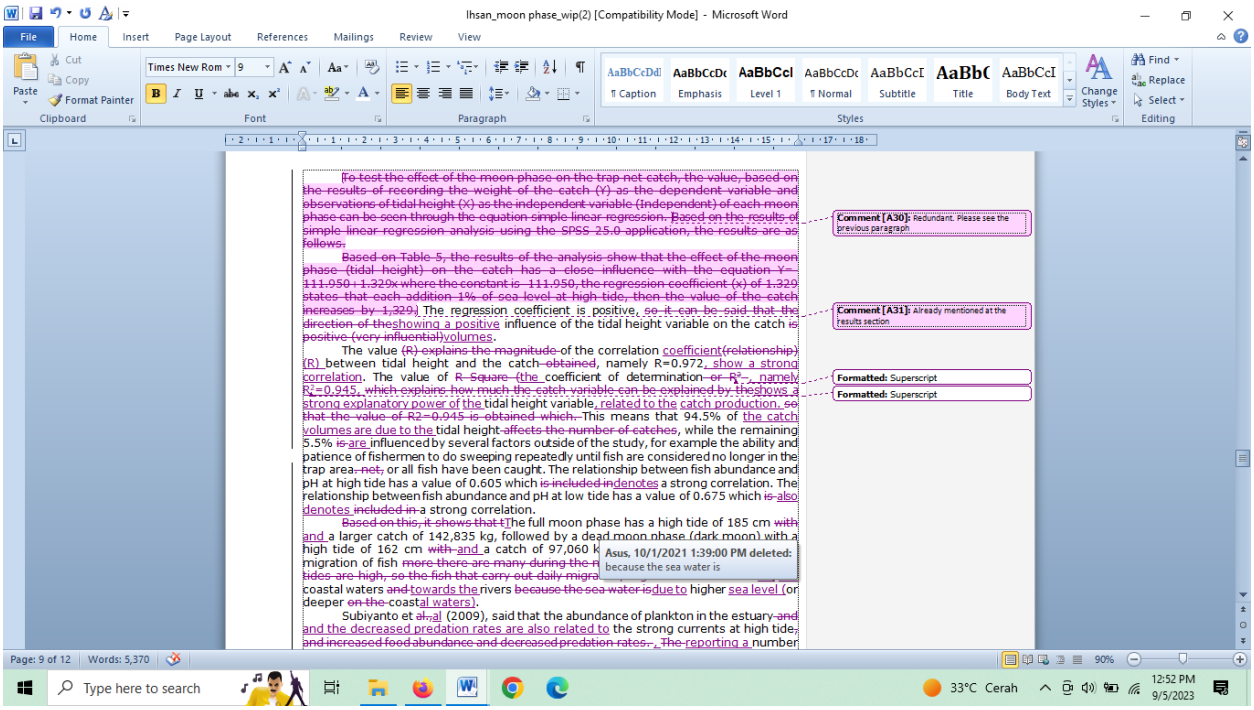

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To test the effect of the moon phase on the trap net catch, the value, based on the results of recording the weight of the catch (Y) as the dependent variable and observations of tidal height (X) as the independent variable (Independent) of each moon phase can be seen through the equation simple linear regression. Based on the results of simple linear regression analysis using the SPSS 25.0 application, the results are as follows.

Based on Table 5, the results of the analysis show that the effect of the moon phase (tidal height) on the catch has a close influence with the equation Y= -111.050 +1.329x where the constant is -111.950, the regression coefficient (x) of 1.329 states that each addition 1% of sea level at high tide, then the value of the catch increases by 1,329) The regression coefficient is positive, so it can be said that the direction of theshowing a positive influence of the tidal height variable on the catch is positive (very influential)volumes.

The value (R) explains the magnitude of the correlation coefficient(relationship) (R) between tidal height and the catch obtained, namely R=0.972, show a strong correlation. The value of R Square (the coefficient of determination or R^2-, namely R^2=0.945, which explains how much the catch variable can be explained by theshows a strong explanatory power of the tidal height variable, related to the catch production. so that the value of R2=0.945 is obtained which. This means that 94.5% of the catch volumes are due to the tidal height affects the number of catches, while the remaining 5.5% is are influenced by several factors outside of the study, for example the ability and patience of fishermen to do sweeping repeatedly until fish are considered no longer in the trap area. net, or all fish have been caught. The relationship between fish abundance and pH at high tide has a value of 0.605 which is included indenotes a strong correlation. The relationship between fish abundance and pH at low tide has a value of 0.675 which is also denotes included in a strong correlation.

Based on this, it shows that tThe full moon phase has a high tide of 185 cm with and a larger catch of 142,835 kg, followed by a dead moon phase (dark moon) with a high tide of 162 cm with and a catch of 97,060 k

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migration of fish more there are many during the r

tides are high, so the fish that carry out daily migra

coastal waters and towards the rivers because the sea water isdue to higher sea level (or deeper on the coastal waters).

Subiyanto et al.[al] (2009), said that the abundance of plankton in the estuary and and the decreased predation rates are also related to the strong currents at high tide, and increased food abundance and decreased predation rates. , The reporting a number

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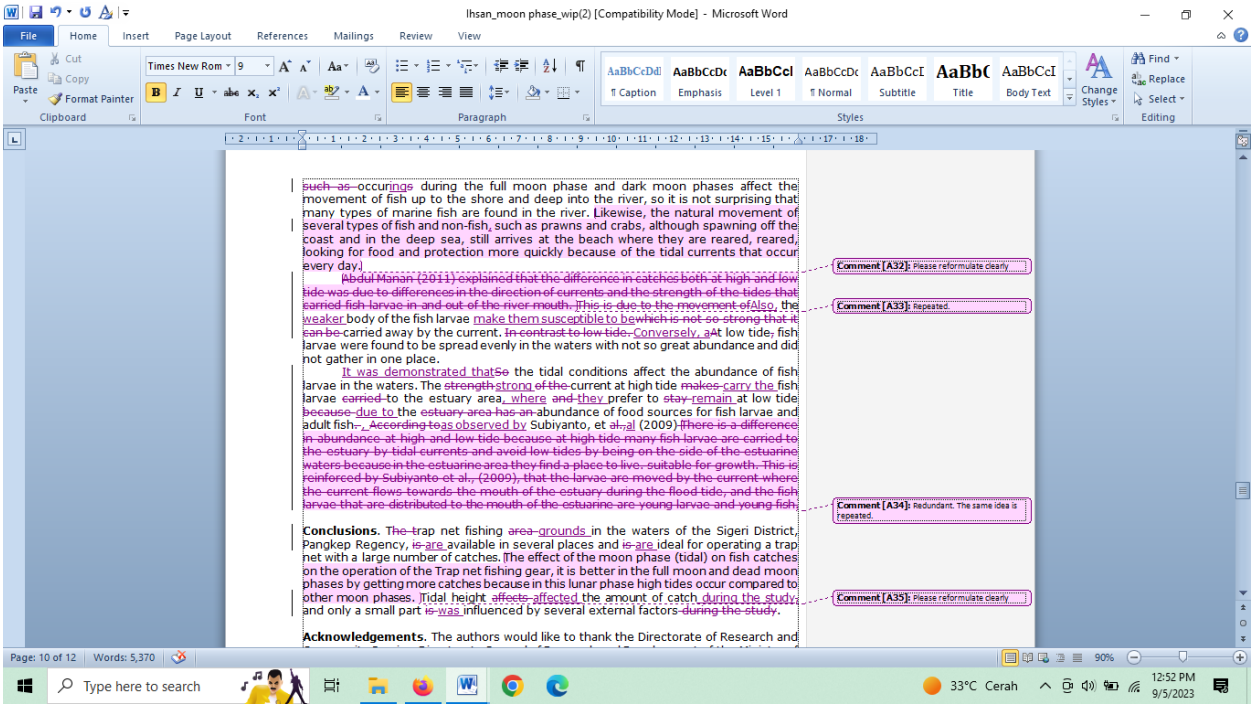

such as occurringe during the full moon phase and dark moon phases affect the movement of fish up to the shore and deep into the river, so it is not surprising that many types of marine fish are found in the river. Likewise, the natural movement of several types of fish and non-fish, such as prawns and crabs, although spawning off the coast and in the deep sea, still arrives at the beach where they are reared, reared, looking for food and protection more quickly because of the tidal currents that occur every day.)

Abdul Manan (2011) explained that the difference in catches both at high and low tide was due to differences in the direction of currents and the strength of the tides that carried fish larvae in and out of the river mouth. This is due to the movement ofAlso, the weaker body of the fish larvae make them susceptible to bewhich is not so strong that it can be carried away by the current. In contrast to low tide. Conversely, aAt low tide, fish larvae were found to be spread evenly in the waters with not so great abundance and did not gather in one place.

It was demonstrated thatSo the tidal conditions affect the abundance of fish larvae in the waters. The strength strong of the current at high tide makes carry the fish larvae carried to the estuary area, where and they prefer to stay remain at low tide because due to the estuary area has an abundance of food sources for fish larvae and adult fish., According toas observed by Subiyanto, et al.al (2009) [There is a difference in abundance at high and low tide because at high tide many fish larvae are carried to the estuary by tidal currents and avoid low tides by being on the side of the estuarine waters because in the estuarine area they find a place to live. suitable for growth. This is reinforced by Subiyanto et al., (2009), that the larvae are moved by the current where the current flows towards the mouth of the estuary during the flood tide, and the fish larvae that are distributed to the mouth of the estuarine are young larvae and young fish.

Conclusions. The trap net fishing area grounds in the waters of the Sigeri District, Pangkep Regency, is are available in several places and is are ideal for operating a trap net with a large number of catches. The effect of the moon phase (tidal) on fish catches on the operation of the Trap net fishing gear, it is better in the full moon and dead moon phases by getting more catches because in this lunar phase high tides occur compared to other moon phases. Tidal height affects affected the amount of catch during the study and only a small part is was influenced by several external factors during the study.

Acknowledgements. The authors would like to thank the Directorate of Research and

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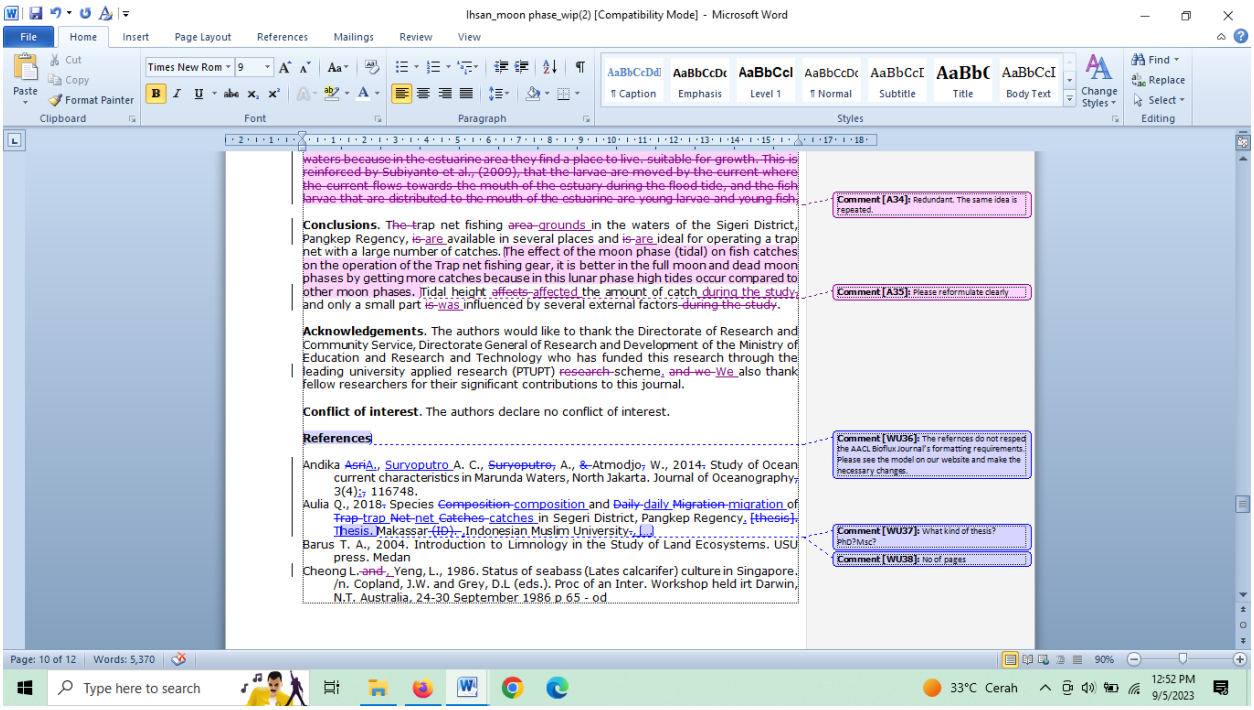

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Conflict of interest. The authors declare no conflict of interest.

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