EVALUATION FACTORS OF BOAT ACCIDENTS IN THE MUSI RIVER WATERS, INDONESIA

Surnata[1]; Febriansyah[2]; Ferdinand Pusriansyah[3]; Monica Amanda[4]; Destria Rahmita[5]
Inland Water and Ferries Transport Polytechnic of Palembang, Country Indonesia, Palembang[1,2,3,4]; PKTJ, Country Indonesia, Central Java, Tegal[5]
Email : surnata190766@gmail.com[1]; febriansyah4759@gmail.com[2]; ferdinand@gmail.com[3]; monicaamanda86@gmail.com[4]; destria@pktj.ac.id[5]

ABSTRACT

Musi River is a river placed in South Sumatra, Indonesia. The Musi River is also the biggest river with a median width of 504 meters (the widest is 1350 meters round Kemaro Island, and the shortest 250 meters is positioned around the Musi II River Bridge).The only means of transportation that can reach the area is by boat via the Musi River. People use the Musi River as a transportation route to travel from one place to another around Palembang City or to areas far from Palembang City and use ships to travel in order to shop for daily needs, work and others. However, in the operation of the ship on its way there are still accidents, which often occur are accidents caused by human error, besides that there are often obstacles with natural conditions. For example, waves and on every bank of the Musi river, there are lots of tree plants that interfere with the smooth flow of traffic. Recently, in the Musi River there was an accident other than in Akibarka, the natural condition of the accident was caused by human negligence Two speedboats with the brand Rahendi Putra and Five Brothers collided while in the waters of the Musi River, Palembang, South Sumatra (South Sumatra), Wednesday (30/5/2018). Accidents in the Last Two Years Tuesday on the Awet Muda speedboat revealed new facts. In the last two years, the fast boat company has had two accidents that claimed lives.

Keywords : Accident; Boat; Safety

INTRODUCTION

Musi River is a river located in South Sumatra, Indonesia. The Musi River has a length 750 kilometers, and as a longest river on the island of Sumatra. The Musi River is also the largest river with an average width of 504 meters (the widest is 1350 meters around Kemaro Island, and the shortest 250 meters is located around the Musi II River Bridge). Historically, the river that divides the city of Palembang into Seberang Ulu and Seberang Ilir is known as the main means of transportation for the community. The Musi River, which is the center of the Batanghari Sembilan, together with other rivers, forms a delta or swamp all the way to the Sungsang estuary (Upang area).

The only means of transportation that can reach the area is by boat via the Musi River. People use the Musi River as a transportation route to travel from one place to

another around Palembang City or to areas far from Palembang City. In general, people use ships to travel in order to ship for daily needs, work and others.

However, in the operation of the ship on its way there are still accidents, which often occur are accidents caused by human error such as taking the wrong position of ships, the occurrence of accidents due to the ship crashing into chunks of wood, the accident of the ship taking too much position when passing traffic (Asriandi et al., 2018; Damanik et al., 2016; Obeng et al., 2022). Finally the ship's steering wheel was entangled by roots jutting into the river, the ship hit the river bank and the overload factor was due to the many desires of customers who forced both passengers and goods to board the ship until it finally rolled over and resulted in fatality (Dianovita et al., 2022; Efridewi & Jefrizal, 2017).

Ship accident besides being able to cause fatalities, can also result in material losses from ship operators such as compensation for the damage transported, damage to the ship and its engine, bodily injury and even death of crew members (ABK), environmental damage, pollution, pollution, costs the cost of salvaging the lifting of the wreck, legal costs, and other factors (Erdi et al., 2022; Habaibie et al., 2010).

The occurrence of this ship accident should be a concern of all parties, only from ship owners but also the government, related agencies and also the community who must be more active in providing information.

LITERATURE REVIEW

Human errors is often said because the primary issue causing an coincidence. For everyday people, information about transportation accidents with human blunders because the cause is often interpreted as human mistakes by way of device operators which incorporates machinists, pilots, supply captains, and others (Zohorsky, 2020; Wahyuningsih, 2013). This belief is sincerely now not pretty right, considering that there are many elements and distinct additives that might without delay or in a roundabout way inspire an operator to take irrelevant movements. errors itself is commonly described as a failure to perform a correct and favored motion in a given state of affairs, this mistake can simplest arise if there's right interest, to reply to the positioned occasions even as the very last motion taken isn't always as preferred (Vidianditha et al., 2020; Sutalaksana et al., 2019).

So it could be concluded that the final result of the mistake is an event, just so later there can be an occasion that may be discovered. this error is not simplest limited through using horrific or intense output. mistakes caused by human factors may be due to repetitive paintings with a 1% possibility of errors (Sutalaksana, Zakiyah & Widyanti, 2019; Sabitha et al., 2022).

From secondary data collection seen from an overview of the province of South Sumatra, the history of river transportation which is the movement of passengers and goods that began in the Dutch era is still seen as very important for movement, the movement that starts from isolated areas to urban areas, one of its functions is to shop from the city of needs. basic necessities, while from the area as a supporter of vegetables, fruits and other crops that are brought to the city or market, this is for the journey carried out from year to year (Paroka, 2018; Parks et al., 2018). There are even junior high schools that do not go to school at all but until now they are still able to captain the boats and motor boats, so it is natural that they have never had knowledge of the rules of sailing on rivers, from the Central Data of the Bureau of Maritime Statistics and Fisheries of South Sumatra Province, it can be seen that accident data every year it increases, the authors take the example of secondary data from 2019 to 2021, the graph of the accident rate tends to increase due to the lack of understanding of the captains who lack knowledge in the shipping field.

METHOD

Method is a method of work that can be used to obtain something. While the research method can be interpreted as a work procedure in the research process, both in searching for data or disclosing existing phenomena (Zulkarnaen, W., et al., 2020). The research area is located in South Sumatra, precisely on the Musi River shipping lane. The Musi River has a length of 720 km, and the mouth of the river is in the Bangka Strait. This river divides the city of Palembang into two parts, Ilir and Ulu. The two parts are connected by the Ampera Bridge which is an icon of Palembang and three other bridges. Since the days of the Srivijaya Kingdom until now, this river is famous as the main means of transportation for the community. The Musi River is also called "Batanghari Sembilan" because of this nine important rivers, the meaning of the nine major rivers is the Musi River along with the 8 major rivers that empties into the Musi

river. The 8 rivers are Komering River, Rawas River, Leko Sungai River, Lakitan River, Kelingi River, Lematang River, Rupit River and Ogan River.

The Musi River is a shipping lane that can be navigable by ships. Based on the Constitution of the Republic of Indonesia No. 21 1992 Article 5 Paragraph 1 Shipping Channel is part of the waters natural or artificial in terms of depth, width and obstacles any other voyage is considered safe to navigate. The narrow shipping lane is the direction of the shipping lane or shipping water narrow should sail as close as possible to the steam boundary of the shipping lane which is located on the right side of the stomach as long as it is still safe and can be held.

In this study, several collection methods and approaches were used as reference materials in collecting data and information in order to obtain accurate and objective results, and the approach adapted to the conditions and locations where the object was located. This research was carried out by conducting a survey of accident data, especially boats and speed boats, then identification of the causes of accidents was carried out and continued by analyzing the causal factors and finally recommending steps to anticipate the causes of accidents

RESULT AND DISCUSSION

The existence of errors that occur due to repetitive work should be prevented or reduced as much as possible, with the aim of increasing one's reliability by decreasing the error rate that occurs. So it is necessary to improve human performance to reduce the error rate. An error rate of 1 in 100 occurs with a 1% chance. If this kind of thing happens then it can be said that the condition is in good condition. Error itself is generally defined as a failure to perform a correct and desired action in a given situation.

This error can only occur if there is proper attention, to respond to the observed events while the final action taken is not as desired. So it can be concluded that the final result of the error is an event, so that later there will be an event that can be observed. This error is not only limited by bad or serious output. While what is meant by an accident is an event that is not planned, expected, or desired and usually produces an unfavorable output. Error is a psychological event caused by psychological factors so that there is a possibility that some or all of the errors that occur are not identified (Lasse, 2014).

Basically there is a human error classification to identify the cause of the error. The general classification of the causes of human error are as follows:

1. Induced Human error machine. where the mechanism of a system allows humans to make mistakes, for example management that does not apply area nicely and strictly.7
2. Layout triggered Human mistakes. The occurrence of mistakes is as a result of the layout or design of the work gadget that isn't top. in accordance with Murphy's regulations (Murphys law) which states that if an equipment is designed not according with the person (ergonomic aspect), then there can be a possibility of a discrepancy inside the use of the device, and sooner or later it'll arise.
3. Natural Human errors. An errors that takes place only comes from in the human itself, for example because of ability, experience, and psychology. reasons of Human errors The reasons of human errors can be divided into:
   a. primary reasons primary causes are the causes of human mistakes at the man or woman diploma. To avoid mistakes at this degree, technologists have a tendency to advise measures related to people, as an instance enhancing education, training, and personnel choice. however, such advice can not address mistakes due to fraud and negligence.
   b. Managerial reasons Emphasizing the location of character actors in wrongdoing is irrelevant. mistakes are unavoidable, schooling and schooling have a restricted impact and fraud or negligence will always occur, no emphasis on accurate use of era will prevent mistakes from occurring. This truth has been stated to were extensively diagnosed in the mistakes literature in high-threat industries (Suyono, 2003). it is consequently the location of manipulate to make certain that personnel do their jobs well, to make certain that resources are to be had at the same time as desired and to allocate responsibilities correctly among the workers involved.
   c. global reasons mistakes which might be beyond control's manipulate, which includes monetary pressure, time stress, social stress and organizational tradition

Wrong Action Take Traffic Position

From the results of the survey in the field, in general, boat captains, moror ships driving water vehicles, graduating from junior high school, senior high school, and without age limit, ship operations departing from the origin of the destination do not understand the traffic rules on average they carry out trips in passing they take the other

side. right or left, especially when dealing with high speed with a very close distance, the captain loses control to take certain steps. even though according to the rules of traffic on water adhere to the rules of traffic on water. Unlike the traffic rules on the highway, examples of cases on the way if you cross paths are described in the picture.(Figure 2)

Ship Hits Wooden Pieces Floating in the Water

In the second case, accidents often occur because of obstructions in the form of wooden hunks that float and float in the water, speed boats running at night often crash into logs so that the ship is damaged and overturned. this often happens during the fog season and so that the vision looks faintly visible. This is because of the lack of skill of the captains, they should be careful in traffic in the waters.

Ship Hits River Cliff

The third case on the Musi river bank is that there are still many wooden roots or branches that protrude into the river so that when the ship is running the ship's rudder is often entangled by roots or branches that protrude into the river causing the ship to lose control and crash into the cliff, eventually crashing into the trees on the edge of the cliff. the river, the tree plants are very disturbing the smooth flow of traffic. (Figure 3)

Overload

In this fifth case, the loading of excess factors in the form of passengers and goods on board the ship which is forced by the skipper is sometimes a request from the customer, with conditions that are full beyond the hull, if it passes by a larger ship, it causes the ship to sway and roll over. (Figure 4)

We as government officials should pay attention to that while maintaining and preserving river transportation running by paying attention to the safety of transportation in the field of shipping, starting with designing the ship, providing knowledge to the captain and providing technical support facilities, both in the form of services from the readiness of the ship and service needs for facilities. passenger safety (Istanto, 2004).

Wrong Action Take Traffic Position

From the results of the survey in the field, in general, the captains of boats, ships driving water vehicles with no prior knowledge of shipping, they carry out based

on daily customs, so the captain is confused about what decisions should be taken if something like this happens.

Opinions of theoreticians. In humans there are three related abilities, namely intelligence, talent and creativity, intelligence is a general potential ability. Talent is a specific potential ability, while creativity is related to the ability and pattern of approaching problems in different ways. Intelligence is related to the talent of intellectual ability to be one measure of giftedness according to (Natova, 2005). Natural Human error. An mistakes that takes place only comes from within the human itself, for example because of ability, enjoy, and psychology. So it is clear that making decisions is not just talent, there must be creativity equipped with related knowledge so that they understand the right steps to make a decision.

The Prevention of Collision at Sea Regulations 1972 Rule 14 Situations of the Face

a. When two power ships are meeting with their bows facing each other or nearly facing each other, resulting in a danger of collision, each vessel must change course to the starboard so that it passes each other on her starboard side.
b. Such a situation is always presumed to exist, when a ship sees another ship directly or almost directly ahead of it at night she can see the mast lighting of the other ship in line or almost in line and/or both sidelights during the day taking into account the adjustment of the angle of view of the other ship.
c. When a ship is in doubt as to whether such a situation exists, it must assume this is the case and act accordingly.

Regulation of the Minister of the Republic of Indonesia No. 52 of 2012 concerning River and Lake shipping lanes Article 48 Principles of letter traffic include:

a. Every river and lake vessel sailing in the channel must always be on the starboard side of the channel;
b. While sailing in river and lake shipping lanes, the captain of the watch must periodically report the status of his trip to the river and lake ship departure officer;
c. The captain must comply with the provisions regarding the route system established and obey the orders given by the officers;
d. The captain must be alert and attentive by listening to sound signals and paying attention to light signals issued by other river and lake vessels, paying attention to the

surrounding conditions including paying attention to the movement of approaching river and lake vessels so that there is no collision;

e. The master must operate the river and lake vessels at a safe speed so that it is possible for him to perform appropriate evasive movements to prevent collisions.

Ship Hits Wooden Pieces Floating in the Water

Accidents often occur because of obstructions in the form of wooden hunks that float and float in the water, speed boats running at night often crash into chunks of wood so that the ship is damaged and overturned, the ship is indeed far away but this often happens on during the foggy season and so that the vision looks dimly visible. This is because of the lack of skill of the captains, they should be careful in traffic in the waters.

Regulations for Prevention of Collisions at Sea (P2TL) 1972 Rule 5 OBSERVATIONS Each ship must at all times make appropriate observations, each by using sight and hearing and with the aid of all available manner appropriate to the circumstances and conditions, a good way to make a full evaluation of the state of affairs and the danger of collision.

The things that must be done when conducting a round observation are: 1) Maintain constant vigilance by sight and hearing as well as with other tools; 2) Pay full attention to the situation and risks of collision, run aground and navigational hazards; 3) The observer officer must carry out his duties properly and should not be given other tasks because it can interfere with the implementation of the observation; 4) The duties of the observer and the rudder must be separate and the duty of the rudder must not be concurrently or considered concurrently with the task of observing, except on small vessels where the view in all directions is not obstructed from the rudder; and 5) If deemed necessary, personnel who carry out guard duties are added in accordance with existing conditions (Lee et al., 2019; Lasse, 2014).

If the ship uses automatic steering, it is expected to always check the ship's bow within a certain period of time. The special conditions that must be given priority for the implementation of more intensive mobile observations are: 1) Sailing in areas with heavy ship traffic; 2) Sailing in the area near the beach; 3) Sailing in or near separation charts and in narrow shipping lanes; 4) Sailing in a restricted looking area; 5)

Sail in areas with many navigational hazards; and 6) Sailing at night (Kocak et al., 2021; Karyono, 2017).

Collision Prevention Regulations at Sea (P2TP) Rule 6 Safe Speed. Each ship must always move at a safe speed so that it can take appropriate and successful measures to avoid collision and can be stopped within a distance that is appropriate to the circumstances and conditions. The following factors include factors that must be taken into account: 1) level of vision; 2) Traffic density including concentration of fishing vessels or other vessels; 3) The ship's maneuverability, especially in relation to stopping distance and turning ability; 4) At night, there is a background light, for example the lights from the ground or the reflection of the lights themselves; 5) The state of the wind, sea and currents and the dangers of navigation in the vicinity; and 6) Loaded with respect to the state of the existing water.

Ship Hits River Cliff

In this case, almost every ship in traffic approaches the bank of the river without taking into account the danger because long wooden roots protrude into the river, so that if an accident occurs on the propeller engine, they are often entangled in the presence of long wooden roots when sailing do not get near the edge of the river. Although this is human negligence in commanding, besides that, it is an error on the supervisor of the infrastructure manager regarding the maintenance of the river cliff walls (Kocak, 2021; Karyono et al., 2017).

In Regulation of the Minister of Transportation of the Republic of Indonesia N0 52 of 2012 Regarding Shipping Routes Article 88 maintenance of paragraph (1) letter c for flow-retaining buildings and flow-regulating buildings includes: 1) Remove or get rid of disturbing objects; 2) Cleaning the current-damage building or current-control structure that is dirty; and 3) Repairing current-damaged structures or current-regulating structures; and D. replacement of current-damaging structures or current-regulating structures that are damaged and not functioning.

Maintenance as referred to in Article 88 paragraph (1) letter c for retaining walls/river cliffs includes Eliminate or get rid of objects that interfere with retaining buildings/river cliffs; and Repair and/or replace damaged retaining structures/river cliffs

Overload

From the problem data above, the captains do not know the importance of the boundary line loading passengers and goods at will, even though it is coercion from the service user. The hull provides buoyancy that forestalls the deliver from sinking. The layout of the ship's hull is important in making a ship as it will have an effect on the stability of the ship, the speed of the deliver's plan, gasoline consumption, the desired depth on the subject of the port pool to be visited and the intensity of the transport lanes traversed through the deliver (Hu & Park, 2020). The hull of the ship showing the loading limit of the ship, is one of the considerations of the porter before issuing a sailing permit. The hull symbol appears in the form of a circle along with several lines that indicate the loading limit for several types/areas traversed, this is important because the density of water in rivers will be different from the sea in the tropics or for areas with cold temperatures.

In Ministerial Regulation No. 39 of 2019 concerning Ship loading and loading lines Load line limit Article 39 paragraph:

a. The ship's loading line markings may not set when the ship departs, during the voyage and upon arrival according to the predetermined loading line.
b. Loading on the ship must not exceed the limit of the load line markings that have been determined in the load line certificate.
c. In the event that the loading on the ship exceeds the load line limit specified in the certificate, adjustments must be made to the ship.
d. In the event that the ship is in fresh water with a density of one load line that is appropriate, it can be in water as much as the amount of fresh water listed in the certificate in accordance with the applicable laws and regulations.
e. In case the density differs from one, an allowance shall be calculated in proportion to the difference between 1.025 and the actual density.
f. In the case of a ship leaving a port located on a river or inland waters, deeper loading must be allowed according to the weight of fuel and other materials required for consumption between points of departure.

CONCLUSION

From the results of the survey in the field, in general, the captains of boats, boats are moror in driving a water vehicle with never before having knowledge of

shipping, they carry out based on daily customs, so the captain is confused about what kind of decision should be taken if something like this happens.

Opinions of theoreticians. In humans there are three related abilities, namely intelligence, talent and creativity, intelligence is a general potential ability. Talent is a specific potential ability, while creativity is related to the ability and pattern of approaching problems in different ways. Intelligence is related to the talent of intellectual ability to be one measure of giftedness according to Semiawan (1997) Pure Human Error. An error that occurs purely comes from within the human itself, for example due to skill, experience, and psychology. So it is clear that making decisions is not just talent, there must be creativity equipped with related knowledge so that they understand the right steps to make a decision.

Accidents often occur because of obstructions in the form of wooden hunks that float and float in the water, speed boats running at night often crash into chunks of wood so that the ship is damaged and overturned, the ship is indeed far away but this often happens on during the foggy season and so that the vision looks dimly visible. This is because of the lack of skill of the captains, they should be careful in traffic in the waters.

In this case, almost every ship in traffic approaches the bank of the river without taking into account the danger because long wooden roots protrude into the river, so that if an accident occurs on the propeller engine, they are often entangled in the presence of long wooden roots when sailing do not get near the edge of the river. Although this is human negligence in commanding, besides that, it is an error on the supervisor of the infrastructure manager regarding the maintenance of the river cliff walls. Other than the hassle facts above, the captains do not know the significance of the boundary line loading passengers and goods at will, although it is coercion from the provider person. The hull presents buoyancy that stops the deliver from sinking. The design of the ship's hull is vital in creating a ship as it will affect the stability of the ship, the speed of the ship's plan, gas consumption, the required intensity when it comes to the port pool to be visited and the depth of the delivery lanes traversed with the aid of the ship. the hull of the deliver displaying the loading limit of the deliver, is one of the issues of the porter before issuing a sailing permit.

REFERENCES

Asriandi, A., Gani, M. U., & Hasbi, A. M. (2018). Pengaruh Budaya Organisasi dan Lingkungan Kerja terhadap Loyalitas Karyawan serta Dampaknya terhadap Kinerja Karyawan PT. Industri Kapal Indonesia (Persero) Makassar. *JEMMA (Journal of Economic, Management and Accounting)*, *1*(2), 1-13.

Damanik, L., Mulyatno, I. P., & Adietya, B. A. (2016). Kajian Teknik Kekuatan Konstruksi Kapal Tugboat 2 X 800 Hp Dengan Metode Elemen Hingga. *Jurnal Teknik Perkapalan*, *4*(1).

Dianovita, C., Gardiarini, P., & Rustika, R. (2022). Pengembangan Tata Kelola Fasilitas Objek Wisata Pemancingan Ikan Air Tawar di Jurusan Teknik Kapal Niaga SMK Negeri 5 Balikpapan. *Jurnal Abdi Masyarakat Indonesia*, *2*(6), 1751-1756.

Efritadewi, A., & Jefrizal, W. (2017). Penenggelaman Kapal Illegal Fishing di Wilayah Indonesia Dalam Perspektif Hukum Internasional. *Jurnal Selat*, *4*(2), 260-272.

Erdi, P. N., Arwizet, K., Ambiyar, A., & Waskito, W. (2022). Evaluasi Pelaksanaan Praktik Kerja Industri Kompetensi Keahlian Teknik Kapal Penangkap Ikan di SMK dengan Bantuan Software Atlas. ti. *JRTI (Jurnal Riset Tindakan Indonesia)*, *7*(4), 596-601.

Habibie, I., Ahmad, M., & Nofrizal, N. (2010). Teknik Pemasangan Mesin untuk Kapal Perikanan. *Jurnal Perikanan dan Kelautan*, *15*(02), 132-144.

Hu, Y., & Park, G. K. (2020). Collision Risk Assessment Based on the Vulnerability of Marine Accidents using Fuzzy Logic. *International Journal of Naval Architecture and Ocean Engineering*, *12*, 541-551.

Istanto, S. (2004). Bahan Kuliah Politik Hukum. *Diktat, Yogyakarta: Magister Hukum Program Pascasarjana UGM*.

Karyono, T., Budianto, B., & Pamungkas, R. G. (2017). Analisis Teknik Pencegahan Korosi pada Lambung Kapal dengan Variasi Sistem Pencegahan ICCP ibandingkan dengan SACP. *J. Pendidik. Prof*, *6*(1).

Koçak, H., & Altıntaş, H. K. (2021). Evaluation of Maritime Accident Reports of Main Search and Rescue Coordination Centre between 2001 and 2012. *International maritime health*, *72*(3), 163-171.

Lasse, D. A. (2014). Keselamatan pelayaran di lingkungan teritorial pelabuhan dan pemanduan kapal. *Jakarta: Raja Grafindo Persada*.

Lee, Y. J., Kang, S. K., & Gu, J. Y. (2019). A Study on Marine Accident Ontology Development and Data Management: Based on a Situation Report Analysis of Southwest Coast Marine Accidents in Korea. *Journal of the Korean Society of Marine Environment & Safety*, *25*(4), 423-432.

Natova, A. (2005) "Implications of The United Nations Convention on the Law of the Sea for IMO General Features of the Relationship between UNCLOS and IMO Shipping regulations," *International Affairs*.

Obeng, F., Domeh, V., Khan, F., Bose, N., & Sanli, E. (2022). Capsizing Accident Scenario Model for Small Fishing Trawler. *Safety Science*, *145*, 105500.

Park, G. K., Hong, T. H., & Kim, G. (2018). A Study on the Structure Analysis of Vulnerability Factors of Marine Accident to Coastal Cargo Ships using FSM. *한국지능시스템학회 논문지*, *28*(6), 589-594.

Paroka, D. (2018). Karakteristik Geometri dan Pengaruhnya terhadap Stabilitas Kapal Ferry Ro-Ro Indonesia. *Kapal: Jurnal Ilmu Pengetahuan dan Teknologi Kelautan*, *15*(1), 1-8.

Sabitha, N. M., Athulya, A. S., Sreedevi, B. G., & Kumar, V. S. (2022). Development of Risk Assessment Model for Waterway Safety. In *Proceedings of the Fifth International Conference of Transportation Research Group of India* (pp. 163-179). Springer, Singapore.

Sutalaksana, I. Z., Zakiyah, S. Z. Z., & Widyanti, A. (2019). Linking Basic Human Values, Risk Perception, Risk Behavior and Accident Rates: The Road to Occupational Safety. *Industrial Engineering*, *10*(5).

Suyono, R. P. (2003). Shipping (Pengapalan Internasional Ekspor-Impor Melalui Laut). *Jakarta: BPM*.

Vidianditha, K. R., Mangku, D. G. S., & Yuliartini, N. P. R. (2020). Perlindungan Hukum yang Diberikan oleh Indonesia Kepada WNI sebagai Pelaku Perompakan Kapal (Studi Kasus: Perompakan Kapal Orkim Harmony Milik Malaysia). *Jurnal Komunitas Yustisia*, *3*(1), 59-68.

Wahyuningsih, S. (2013). Pengembangan Layanan Jasa Pengiriman PT. Pos Indonesia untuk Kebutuhan Masyarakat di Kota Bandung. *Jurnal Penelitian Pos Dan Informatika*, *3*(1), 19-48.

Zohorsky, P. J. (2020). *Human Error in Commercial Fishing Vessel Accidents: An Investigation Using the Human Factors Analysis and Classification System* (Doctoral dissertation, Old Dominion University).

Zulkarnaen, W., Fitriani, I., & Yuningsih, N. (2020). Pengembangan Supply Chain Management Dalam Pengelolaan Distribusi Logistik Pemilu Yang Lebih Tepat Jenis, Tepat Jumlah Dan Tepat Waktu Berbasis Human Resources Competency Development Di KPU Jawa Barat. *Jurnal Ilmiah MEA (Manajemen, Ekonomi, & Akuntansi)*, *4*(2), 222-243. https://doi.org/10.31955/mea.vol4.iss2.pp222-243.

FIGURE

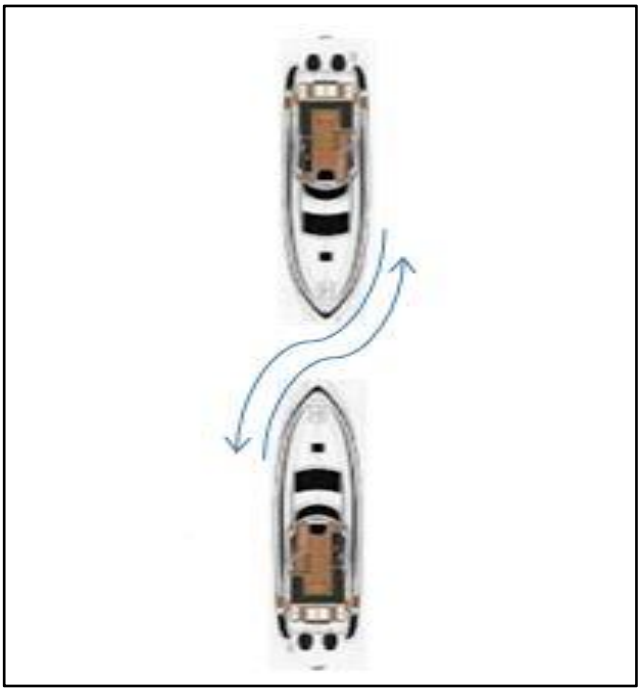

Figure 2. Ship Facing

Figure 3. Ship Hits River Cliff

Figure 4. a motor boat that overturned due to overload