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MORALITY BEFORE KNOWLEDGE

Identification of potential violations using marine spatial data as an intelligence product in Jakarta Bay waters

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ABSTRACT

Background: The utilization of marine spatial data based on nautical charts, both paper charts and digital maps (ENC-Electronic Navigational Chart), is currently not only an instrument to ensure safe navigation at sea. But more than it, marine spatial data can be used more widely for maritime security purposes. The problem of violations is also something that needs to be researched, considering that there are quite a lot of security posts around the waters of Jakarta Bay. **Methods:** This research uses a mix method with Delphi analysis, in order to obtain a common consensus in the use of marine spatial data to identify potential violations in the waters of Jakarta Bay. **Findings:** Using the concept of the physical basis of the state by Buzan, there is a connection between a region, natural resources and humans; Where each threat can be detected by threats to natural resource objects and man-made objects. This is also depicted on nautical map products which depict all objects (natural and artificial) on land and sea. Jakarta Bay is also a very important water area in the shipping system in Indonesia. **Conclusionn:** However, in the period from 2015 to 2023 there are various violations in the waters of Jakarta Bay, such as sand dredging without permission, marine pollution due to waste, theft of undersea cables, drug smuggling, illegal fuel ship to ship activities, pirate syndicates, smuggling of luxury goods, and theft accompanied by destruction of fish haven.

KEYWORDS: marine spatial, Jakarta gulf waters, navigation safety, maritime security.

1. Introduction

President Joko Widodo (Jokowi) has signed Presidential Regulation No. 16/2017 on Indonesia's Ocean Policy. This answers various discourses about the need for Indonesia to establish its marine policy. Marine policy is a general guideline and implementation steps through work programs and activities at stakeholder ministries/agencies in the marine sector that are prepared to realize Indonesia as the World Maritime Axis which clearly emphasizes Indonesia's marine vision by becoming an advanced, sovereign, independent, strong maritime country, and able to make a positive contribution to the security and peace of the national and international region in accordance with national interests (Ryan, 2015; Buzan, 2009). Each mission of Indonesia's marine policy above is highly correlated with the World Development agenda by the United Nations at the United Nations Conferences on Sustainable Development in 2012 which was agreed at the United Nations General Assembly in 2015 on Sustainable Development Goals (SDGs).

When viewed based on territorial data which is a national reference between Pushidrosal (Indonesian Navy *Hydro-Oceanographic* Center) and Geospatial Information

Agency with data and calculation methods and technically determined studies; concluded that the total area of Indonesian waters is recommended with a figure of 6,400,000 km², Indonesia's land area of 1,900,00 km², the length of the coastline (coastline) 108,000 Km, and the number of islands that have been submitted to the United Nations (United Nations) 16,056 islands. It is very possible that with all its biological and non-biological diversity, that Indonesia is vulnerable to all kinds of violations at sea.

Table 1. List of violations in Jakarta Bay 2015 - 2023

No	Case/Violation
1	The MV Vox Maxima, a marine sand suction vessel, is carrying out marine sand dredging activities for the benefit of the reclamation process in Tanjung Priok, Jakarta. The ship is carrying out these activities without having a permit for Conformity Approval for Marine Spatial Utilization Activities
2	PT MEF and PT B through the Waste Water Treatment Plant channel produced pharmaceutical waste that contaminated the waters of Jakarta Bay with paracetamol pollution. This is a follow-up result of research by the National Research Agency and Innovation, and followed up by Ministry of Environment and Forestry.
3	The Directorate of Polairud Polda Metro Jaya succeeded in uncovering the crime of stealing scrap metal in the waters of Jakarta Bay from an LPG ship - KM Marashi Shibatreva. It is known that the perpetrators of the theft have repeatedly carried out their actions on every ship that is anchoring around the waters of the port Kalibaru at night.
4	The rapid reaction team of Main Navy Base III, arrested 15 people who stole copper from an undersea cable around the island of Pabelokan, Thousand Islands as heavy as 1,362 Kilograms. The perpetrator has repeatedly carried out this action since 2013. Where the results of the theft will be sold to collectors in the Tangerang area at a price of IDR 58,000/Kg. The theft of this submarine cable resulted in disruption electricity intake to the Thousand Islands.
5	Dipolair Korpolairud with the vehicle KP. SBU-017 with the Octopus Team of the Aquatic Intel Subdit caught the perpetrator of fish theft in a floating bagan owned by traditional fishermen in Cilincing. The perpetrator launched the action of tearing the bagan with a sharp weapon and steal the fish that are in it.
6	The National Narcotics Agency managed to thwart the action of smuggling of 2.176 kg of methamphetamine around the waters of the port of Teluk Jakarta. The narcotics type of methamphetamine were hidden in electronic equipment wrapped in aluminum foil and clear plastic. This operation is the result of cooperation between BNN and the Ministry of Finance in relation to the memorandum of understanding of April 16, 2015 in safeguarding the area of Indonesia's sea coasts from drug smuggling.
7	Lantamal III managed to stop a roro-type ship, KM Fajar Bahari V, in the waters of Tanjung Karawang, Jakarta Bay because it carried 27 vehicles (18 big motorcycles - moge and 9 cars). All of the goods were not equipped with official documents and the ship, which departed from Pontianak to Jakarta, also violated the rules of berthing at the Marunda pier Center.
8	The pirate syndicate occurred on Sunday, July 19, 2020, in the waters of Jakarta Bay by 4 people equipped with homemade firearms on Sabira Island. The action was carried out by mapping the waters in circles looking for victims such as fishing boats. The group has been carrying out its actions since 2017 with profits reaching nearly ten billion rupiah. This network is organized and financed, and divided into four different groups.
9	Two vessels (MT Nusantara Bersinar and Self Propeler Oil Barge - SPOB Michael 6) were secured by the Marine Security Agency (*Badan Keamanan Laut*/Bakamla) for illegal fuel activities (Fuel Oil) in the waters of Jakarta Bay on November 10, 2018.
10	Destruction of SBNP in Karang Ayer and Karang Ubi

In connection with this vulnerability in the 1982 UNCLOS regulation article 21 expresses the responsibility of the State of the Principality in terms of peaceful traffic related to the safety of navigation and traffic systems in waters, protection of navigation aids with facilities owned, the object of submarine cables and pipes, maritime conservation areas and preservation and protection of the marine environment, marine scientific research and marine technology as well as prevention and sanction of customs, immigration and sanitary violations (Cleveland, 1982). Considering the responsibility that Indonesia has with great potential in the marine sector, a detailed informative, accurate and up-to-date

marine geospatial picture is urgently needed. One area that is quite complex is the waters of Jakarta Bay, in the Special Capital RegionJakarta province. Based on publications from several sources, there are cases of violations occurring in the waters of Jakarta Bay presented in the table above.

2. Methods

The method and research design used in identifying potential violations in the waters of Jakarta Bay using the Delphi method (Miles & Huberman, 1992). This Delphi method is one of the types of qualitative and quantitative mixed method research or more commonly known as "Mixed Method". The Delphi technique, primarily developed by Dalkey and Helmer (1963) at Rand Corporation in the 1950s, is a widely used and accepted method for achieving convergence of opinion regarding real-world knowledge requested from experts in a particular topic area. The researcher plans that the delphi method used in this research is carried out twice a round in terms of data collection. Where in the first round a session was conducted questions to 7 experts (respondents) who are determined to be related to the problem to find out information and understanding related to marine spatial and potential violations. This research will obtain primary data, by conducting in-depth interviews with related parties who really understand the problems in the field, including: Head of Mapping Office; Hydro Oceanographic Center of the Navy, Directorate of Navigations; Directorate General of Sea Transportation, Deputy for Information, Law, and Cooperation; Marine Security Agency, Directorate of Violation Handling; Directorate General of Marine Resources and Fisheries Supervision, Directorate of Sea and Coast Guard Units; Directorate General of Sea Transportation, Subditgakkum, Ditpolairud Polda Metro Jaya, and Dansatintel Geospasika Strategic Intelligence Agency and Indonesian National Army (Kristiadi, 2005).

Then in the last analysis process, researchers analyzed data input from all consensus by seven sources with quantitative methods, until the conclusion was drawn using convergent techniques. In this process, data will be obtained conclusions about Data (X1), Government Regulations (X2), Spatial Objects or areas identified as potential violations (X3), Background of Potential Violations (X4), and Maritime Security Strategies (X5). Researchers will explain the analytical descriptive technique obtained from the answers of experts or experts by assuming that using this technique, it can explain Data (X1), Government Regulations (X2), Spatial Objects identified as potential violations (X3), Background (X4), and Maritime Security Strategy (X5) in research related to the utilization of marine spatial data as intelligence information in identifying potential violations in the waters of Jakarta Bay.

2.1 Marine spatial data

The data depicted on the sea charts both paper and digital maps include: bathymetry data, dredging areas, port development data, Navigational Aids data, Government Regulations, Offshore Installations, Navigation Hazards, and so on both on the sea surface and land and below the sea surface as the main and supporting data to ensure the safety of shipping navigation. From all data obtained by the Pushidrosal (Indonesian Navy Hydro-Oceanographic Center) survey team and third parties, assessment and impact analysis (impact map) are carried out and stored in a bathymetry database system and hydrographic product database, and oceanographic and meteorological databases. As for Hydro-Oceanographic Center of the Navy (*Pusat Hidro-Oseanografi TNI Angkatan Laut*) products in addition to paper charts (nautical paper charts) and digital maps (ENC), all hydrographic and oceanographic data by the Hydro-Oceanographic Center of the Navy (*Pusat Hidro-Oseanografi TNI Angkatan Laut*), also produce nautical publications that can be used in general such as: inland chart book maps, tide tables, tide tables, Indonesian Seafarer News (*Berita Pelaut Indonesia*), nautical chart catalogs, ENC catalogs, nautical scouting, seamanship lists, minefields, port information, Indonesia Flares List (*Daftar Suar*

Indonesia/DSI), buoy lists, weather maps, current maps, coastal radio station lists, island name lists, ship frame lists, track lists and inter-port distances, and sunrise and sunset lists.

2.2 KDW concept (information, knowledge, data, wisdom)

The KDW (information, knowledge, data, wisdom) concept is a pyramid-shaped concept, with its main components consisting of Data - Information - Knowledge and Wisdom, where Data is at the bottom and Wisdom is at the top of the pyramid (Rowley, 2007). Each major component of the DIKV Pyramid has its own unconnected definition and context, but the KDW Theory brings all these components together into a process of developing raw data into a valuable form of decision-making wisdom as each level of the DIKW pyramid builds on the lower levels, and to make data-driven decisions effectively (Goldman, 1999; Nozick, 1989).

2.3 Theory of intelligence

Intelligence is the end result or knowledge product required by the user for accurate and timely decision-making with the level of operations carried out (Saronto, 2020; Fingar, 2011). Indonesia has an implicit definition in Law of the Republic of Indonesia No. 17 on State Intelligence that Intelligence is defined as knowledge, organization, and activities related to policy formulation, national strategy, and decision-making based on analysis of information and facts collected through working methods for detection and early warning in the context of prevention, deterrence, and countermeasures of any threat to national security (Hanita, 2019; Lambe, 2011).

2.4 National security theory

According to the Copenhagen School, national security threats can be perceived through an understanding of threat factors from the political, environmental, and economic sides so that this national threat is not only limited to military intervention (Mangold, 1990). The Copenhagen School itself became a term for an academic school of thought with its proposal contained in Barry Buzan's book of international relations theory entitled People, State, and Fear (Buzan, 2009). Buzan discusses hypotheses about the nature of the State and emphasizes the need to analyze the nature of the State. This is necessary to understand the threats that may be faced in terms of national security.

3.   Result and Discussion

3.1 Interview and correspondent data test

In the data processing stage, researchers have conducted interviews with seven experts who have the ability in the field of mapping academics and marine security enforcement practitioners (Marimin, 2004). This was carried out so that researchers could obtain variables from each answer or explanation from each expert. Below is a table of the relationship between indicators and variables obtained from the answers of each expert. From the results of interviews conducted with all experts, twenty-two (22) variables were identified that were verified and validated from all statements or answers from experts (experts/sources/respondents). In the question session (Delphi questionnaire round I), the experts had an understanding and insight into the use of nautical charts not just for navigating while sailing. This can be seen from all the answers submitted by the experts, that all seven experts use sea charts both paper maps and digital maps in security enforcement operations at sea, especially in the waters of Jakarta Bay.

This explanation is also supported by all respondents' very strong understanding of the use of nautical charts, so that the researcher obtained twenty-two assessment instruments for 5 indicators with information, namely: four variables for the use of spatial

data (X1), four variables for government regulations (X2), six variables for spatial objects or areas identified as potential violations (X3), two variables for background (X4), and security strategies (X5). Furthermore, all of these variables will be reassessed by all respondents in the round II Delphi questionnaire.

Furthermore, this research was continued with round II Delphi analysis in the form of a questionnaire summarized on a Likert scale rating system (1-7) on the urgency or not of each statement or answer from each indicator. Where the results of the round II Delphi questionnaire are the same respondents from each expert who were given the same questions in the round I Delphi interview session. From the results of this round II Delphi questionnaire, there was one (1) respondent who gave a score of 4 for variable D1, namely the use of marine map products (paper maps) and one (1) other respondent gave a score of 4 for variable S1, namely the use of information from the community to assist in handling violations at sea and variable S2, the implementation of patrols as an act of prevention and handling of violations at sea. Assessment the two respondents on the three (3) variables are expected to provide deviations that will become findings as consensus.

After the second round of Delphi questionnaire data processing, the researcher did not get the findings that were previously thought to be consensus. So that the results of the second round of Delphi questionnaire processing have become the determinant of the consensus or not of the Delphi questionnaire results. This processing uses statistical calculations including the calculation of the mean, standard deviation, and inter-quartile range. In the second round, Delphi will show convergent or consensus when the answers or assessments of all respondents or experts have a standard deviation of <1.5 and the consensus assessment ends if the assessment of all respondents has an inter-quartile range value (Inter Quartile Range) <2.5. Below are the results of data tests carried out on all variables from the statements of each expert (respondent).

Table 2. Data test results

Indicator	Code Var	Respondents (Experts)							Total	Mean	Stdev	IR
		A1	A2	A3	A4	A5	A6	A7				
X1	D1	4	6	6	5	7	7	6	41	5.857	1.069	1.0
	D2	7	7	6	7	7	7	6	47	6.714	0.488	0.5
	D3	5	7	7	7	7	7	7	47	6.714	0.756	0.0
	D4	6	7	7	7	7	7	7	48	6.857	0.378	0.0
X2	R1	7	7	7	7	7	7	7	49	7.000	0.000	0.0
	R2	7	7	7	7	7	7	7	49	7.000	0.000	0.0
	R3	7	7	7	7	7	7	7	49	7.000	0.000	0.0
	R4	7	6	7	7	7	7	6	47	6.714	0.488	0.5
X3	P1	5	6	7	7	7	7	7	46	6.571	0.787	0.5
	P2	6	7	7	7	7	7	7	48	6.857	0.378	0.0
	P3	6	6	6	6	6	6	6	42	6.000	0.000	0.0
	P4	6	6	6	6	6	6	6	42	6.000	0.000	0.0
	P5	6	6	6	7	5	5	6	41	5.857	0.690	0.5
	P6	6	6	6	6	6	6	6	42	6.000	0.000	0.0
X4	L1	7	6	6	6	6	6	6	43	6.143	0.378	0.0
	L2	6	6	6	6	6	6	6	42	6.000	0.000	0.0
X5	S1	6	7	7	7	4	5	7	43	6.143	1.215	1.5
	S2	6	6	7	7	4	5	6	41	5.857	1.069	1.0
	S3	6	6	6	7	7	7	6	45	6.429	0.535	1.0
	S4	6	6	6	6	7	6	6	43	6.143	0.378	0.0
	S5	6	7	7	7	7	7	7	48	6.857	0.378	0.0
	S6	6	6	5	7	7	7	6	44	6.286	0.756	1.0

From the average data results of the statistical data test, all experts agreed with the statement of each variable from the indicator of the use of spatial data (X1), four variables for government regulations (X2), six variables for spatial objects or areas identified as potential violations (X3), two variables for the background (X4), and the identified security strategy (X5). The standard deviation in general in the second round can be said to vary up

and down and tends to decrease in the security strategy indicator. The same thing happened with the results of the data test on the interquartile range values for all security strategy indicators. Where in variable S1 on the security strategy indicator, each has the highest value of 1.215 for standard deviation and 1.5 for interquartile range. In the interquartile range value, it can be seen that the data values are more distributed due to the many varied statements for security strategies in identifying potential violations in the waters of Jakarta Bay.
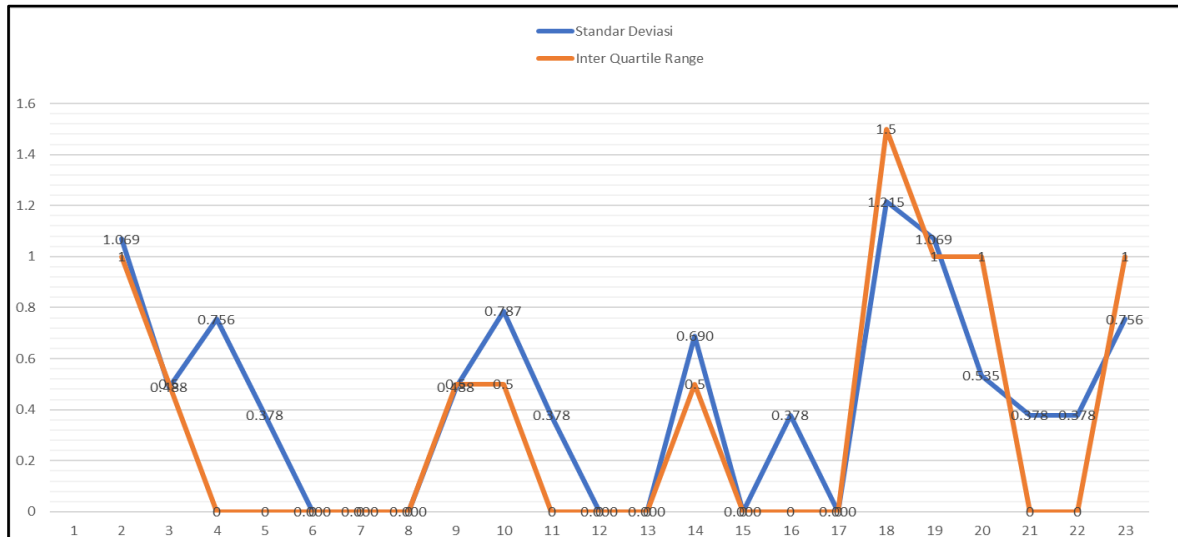

Fig 1. Graph of standard deviation and interquartile range of the delphi round I questionnaire process

3.1 Spatial overview of Jakarta Bay waters

Jakarta Bay with all its spatial objects both below and above sea level, is drawn in detail because all these spatial objects are to support the safety of shipping navigation. Paper (Paper Chart) and digital (ENC/Electronic Navigational Chart) maps which are products of the Hydro and Oceanographic Center of the Indonesian Navy which describe all spatial waters of Jakarta Bay, can be seen on the Indonesian Sea Map/paper map with number 86 and digital map/ENC with ID400086. Especially in the waters of Jakarta Bay, the last survey was carried out in 2019, namely the Jakarta Bay survey. By using ENC ID400086 cell data, researchers can sort out 8 (eight) elements or features depicted in the existing digital map and paper map products, which include bathymetry data (Bathymetry), dredges area data (Dredges Area), shipping channel system data (Routeing Measures), port development data (Port Development), Aids to Navigation data, government regulation data related to waters (Regulated Areas), offshore installation data (Offshore Installation), data on various navigational hazards (Navigational Dangers).

3.2 Use of marine spatial

In the sector of using marine spatial data in all agencies where experts carry out their respective duties, it is found that the use of marine spatial data is very important and must be used. However, based on the results of interviews with Across all experts, it was found that the use of paper charts to identify marine spatial features was no more frequent than the use of digital charts. This anomaly was found in the Directorate General of Marine Resources and Fisheries Monitoring (*Direktorat Jenderal Pengawasan Sumber Daya Kelautan dan Perikanan*/PSDKP) institution, where the expert also gave a score of "4" on the variable of using paper charts in his institution compared to the variable of using digital charts or ENC with a maximum score of "7".

Fig 2. Situation of communication and navigational system on KN. Grantin P.211 by KPLP

This is also supported by the results of interviews with experts, adding that every personnel on the ship also implements digital modernization in its operations. One form of using spatial data in digital form is; each personnel can use navigation maps from android-based mobile phones to access navigation maps such as Navionic and Garmin products. Unfortunately, experts at PSDKP assessed that the ability to understand the reading of marine spatial features is still lacking with a score of "5". The same thing almost happened in the Marine Security Agency (*Badan Keamanan Laut*/Bakamla) unit, where at sea security enforcement operations have optimized the use of digital maps with a score of "7" compared to the use of paper maps at a score of "5". The form of the analysis can be seen from the table of the second round of questionnaire recapitulation results below.

Table 3. Questionnaire recapitulation for spatial data usage indicator

Indicator	Code Var	Respondents (Experts)							Total	Mean	Stdev	Ir
		A1	A2	A3	A4	A5	A6	A7				
	D1	4	6	6	5	7	7	6	41	5.857	1.069	1.0
	D2	7	7	6	7	7	7	6	47	6.714	0.488	0.5
X1	D3	5	7	7	7	7	7	7	47	6.714	0.756	0.0
	D4	6	7	7	7	7	7	7	48	6.857	0.378	0.0

3.3 Government regulation

In the indicator sector of depicting government regulations in marine maps, all experts strongly agreed with the depiction of all government regulations as one of the spatial features of the ocean both from the results of the interview session and the statistical data questionnaire given back to the experts. During the interviews, the interviewees also tried to read all elements of government regulations on both digital and paper nautical charts. All categories of features that describe the regulatory area are considered good enough to be displayed or visualized on existing digital and paper nautical charts (as illustrated in Figure 14). If there is a new regulation, it is hoped that the sea chart provider will be able to carry out the update as soon as possible.

Table 4. Questionnaire recapitulation for indicator of government regulation portrayal

Indicator	Code Var	Respondents (experts)							Total	Mean	Stdev	Ir
		A1	A2	A3	A4	A5	A6	A7				
X2	R1	7	7	7	7	7	7	7	49	7.000	0.000	0.0
	R2	7	7	7	7	7	7	7	49	7.000	0.000	0.0
	R3	7	7	7	7	7	7	7	49	7.000	0.000	0.0
	R4	7	6	7	7	7	7	6	47	6.714	0.488	0.5

3.4 Spatial objects or areas identified as potential violations

In the indicator sector of spatial objects or areas identified as potential violations, all experts agreed on the existence of potential and acts of violation in: anchor lego areas: ship to ship illegal fuel, not lego in the proper area, and piracy; port areas: smuggling of illegal goods; underwater installation areas: destruction of underwater pipes and theft of underwater cables; conservation areas; destruction of coral distribution; exclusive settlement areas: smuggling of illegal goods and drugs; and fish haven areas: fish theft and destruction of fish nets. However, from the second round of questionnaires, it was found that the variable of potential violations occurring in the anchor lego area: ship to ship illegal fuel, not lego in the proper area, and piracy received a score of "5".

Table 5. Questionnaire recapitulation for indicators of spatial objects or areas identified as potential violations

Indicator	Code var	Respondents (experts)							Total	Mean	Stdev	Ir
		A1	A2	A3	A4	A5	A6	A7				
X3	P1	5	6	7	7	7	7	7	46	6.571	0.787	0.5
	P2	6	7	7	7	7	7	7	48	6.857	0.378	0.0
	P3	6	6	6	6	6	6	6	42	6.000	0.000	0.0
	P4	6	6	6	6	6	6	6	42	6.000	0.000	0.0
	P5	6	6	6	7	5	5	6	41	5.857	0.690	0.5
	P6	6	6	6	6	6	6	6	42	6.000	0.000	0.0

This anomaly is due to the fact that violations related to ship to ship illegal fuel are only able to be mitigated by KPLP, Ditpolairud, Marine Security Agency (*Badan Keamanan Laut*/Bakamla), DITNAV, and BAIS TNI agencies; because the five agencies have the main task regarding the movement of commercial vessels, while Directorate General of Marine Resources and Fisheries Monitoring (*Direktorat Jenderal Pengawasan Sumber Daya Kelautan dan Perikanan*/PSDKP) alone focuses on fishing vessels operating in Jakarta Bay waters.
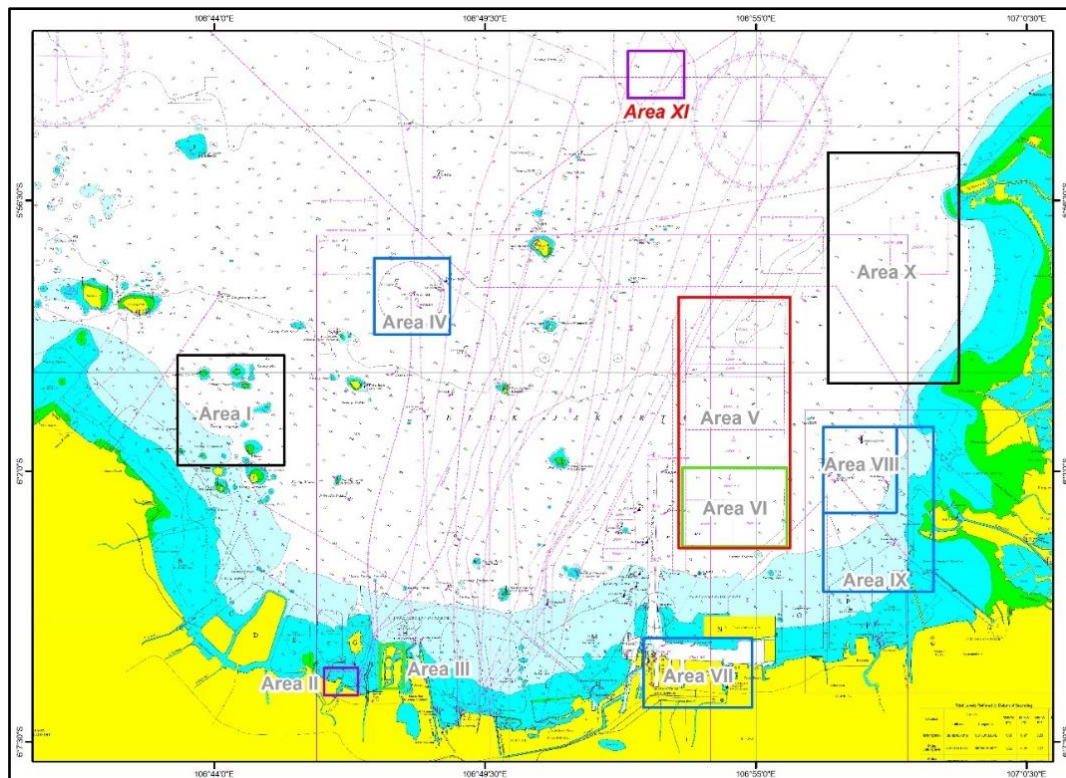

Fig 3. Identified areas of potential violation in Jakarta Bay Waters

As for the variable of potential violations occurring in the exclusive settlement area: smuggling of illegal goods and drugs is carried out optimally by Marine Security Agency (*Badan Keamanan Laut*/Bakamla), followed by Directorate General of Marine Resources and Fisheries Monitoring (*Direktorat Jenderal Pengawasan Sumber Daya Kelautan dan Perikanan*/PSDKP), KPLP, Ditpolairud, and BAIS TNI. So that below can be summarized in the form of a data test table for spatial object variables or areas identified as potential violations and sketches of images of areas identified as potential violations in the waters of Jakarta Bay. There are similar perceptions of potential violations from several agencies despite different locations, such as Geospasika BAIS TNI, DITNAV, and Marine Security Agency (*Badan Keamanan Laut*/Bakamla) for the variable of potential violations occurring in the anchor lego area: ship to ship illegal fuel, not lego in the proper area, and piracy. Then the PSDKP agency, KPLP, Pushidrosal (Indonesian Navy *Hydro-Oceanographic* Center) Mapping Service for the variable Potential violations occur in the submarine installation area: destruction of submarine pipes and theft of submarine cables. This perception equation is because in determining the area using historical data that has occurred in the area.

Table 6. Areas identified as potential violations in jakarta bay waters and the violations that occurred

No	Potential Area Breach	Proposal	Potential Violations that Occur
1	Area I	Directorate General of Marine Resources and Fisheries Monitoring	The potential for violations to occur in area conservation area: destruction coral distribution
2	Area II	Marine Security Agency	Potential for violations to occur at area conservation area: coral distribution destruction
3	Area III	Marine and Shipping Surveillance Unit	The potential for violations to occur in exclusive residential areas: smuggling of illegal goods and theft drugs
4	Area IV	Mapping Service, Hydro-Oceanographic Center of the Navy	Potential violations occur in the area of subsea installations: destruction of pipelines under the sea and undersea cable theft
5	Area V	Strategic Intelligence Agency, Directorate of Navigations	Potential violations occur in the anchor lego area: ship to ship illegal fuel, not lego in the proper area and piracy
6	Area VI	Republic of Indonesia Sea and Coast Guard Unit	Potential violations occur in the anchor lego area: ship to ship illegal fuel, not lego in the proper area and piracy

There are similar perceptions of potential violations from several agencies despite different locations, such as Strategic Intelligence Agency, DITNAV, and Marine Security Agency (*Badan Keamanan Laut*/Bakamla) for the variable of potential violations occurring in the anchor lego area: ship to ship illegal fuel, not lego in the proper area, and piracy. Then the Directorate General of Marine Resources and Fisheries Monitoring (*Direktorat Jenderal Pengawasan Sumber Daya Kelautan dan Perikanan*/PSDKP), KPLP, Hydro-Oceanographic Center of the Navy (*Pusat Hidro-Oseanografi TNI Angkatan Laut*/Pushidrosal) Mapping Service for the variable Potential violations occur in the submarine installation area: destruction of submarine pipes and theft of submarine cables. This perception equation is because in determining the area using historical data that has occurred in the area.

3.5 Background of potential violations

In the indicator sector of the background of the perpetrators of violations, all respondents (experts) focus on the perpetrators of violations in the waters of Jakarta Bay which tend to be committed by fishermen who are influenced by the economic factors of the fishermen and the opportunity from illegal activities that result in violations at sea. This is

supported by the consensus score obtained from the respondents' assessment which shows that they agree that the potential violations that occur in the waters of the Jakarta Bay are due to background economic factors and the opportunity for illegal activities.

Table 7. Questionnaire recapitulation for potential offender background indicators

Indicator	Code Var	Respondents (Experts)							Total	Mean	Stdev	IR
		A1	A2	A3	A4	A5	A6	A7				
X4	L1	7	6	6	6	6	6	6	43	6.143	0.378	0.0
	L2	6	6	6	6	6	6	6	42	6.000	0.000	0.0

Based on a report from The ICC International Maritime Bureau (IMB), there are ten (10) areas in Indonesia that are prone to piracy. One of the ten (10) areas is Tanjung Priok port, which is located in the waters of Jakarta Bay, while the others are Belawan, Dumai, Nipah, Tanjung Berakit/Bintan, Gresik, Taboneo, Tanjung Butan, Muara Berau and Balikpapan. The relevant authorities in Indonesia have confirmed to IMB that in accordance with the Road Map of the Police Reforms Wave III Program; a high frequency of surveillance is required to prevent piracy in these ten locations. All vessels passing through these areas are advised to exercise close surveillance and report incidents and any suspicious activity to the relevant authorities or parties.

In-depth interviews with Marine and Shipping Surveillance Unit staff confirmed that the piracy rate in front of Tanjung Priok harbor is quite high. Piracy is more common in the anchor lego area located north of Tanjung Priok harbor. The pattern of piracy is carried out by perpetrators using small boats (fish boats) approaching large or commercial ships that are anchored, with the motive of bartering with the crew members of the ship for their needs such as logistics. However, as soon as the perpetrators board the ship, the gang commits theft and even hostage-taking that may go unnoticed by the crew of the hijacked ship. However, when the crew becomes aware of the incident, it is often not reported immediately because it is believed to slow down the mobilization process and take time. Therefore, the ship will only report the piracy activity once it has reached its home port.

3.6 Maritime security enforcement strategy

In the indicator sector, the maritime security enforcement strategy in the waters of Jakarta Bay according to experts has five variables, namely utilizing information from the community, carrying out patrols as a preventive measure and handling violations, establishing good relations with stakeholders (owners, users and crew) of ships, fishermen and coastal communities (fishermen/non-fishermen), fostering community groups in overcoming violations at sea, and utilizing AIS technology in mitigating violations, and optimizing the Indonesian Seafarers News report to Hydro-Oceanographic Center of the Navy (Pusat Hidro-Oseanografi TNI Angkatan Laut/Pushidrosal) to be widely informed or published (Rahman, 2009).

Table 8. questionnaire recapitulation for maritime security enforcement strategy indicator

Indicator	Code Var	Respondents (Experts)							Total	Mean	Stdev	IR
		A1	A2	A3	A4	A5	A6	A7				
X5	S1	6	7	7	7	4	5	7	43	6.143	1.215	1.5
	S2	6	6	7	7	4	5	6	41	5.857	1.069	1.0
	S3	6	6	6	7	7	7	6	45	6.429	0.535	1.0
	S4	6	6	6	6	7	6	6	43	6.143	0.378	0.0
	S5	6	7	7	7	7	7	7	48	6.857	0.378	0.0
	S1	6	7	7	7	4	5	7	43	6.143	1.215	1.5
	S2	6	6	7	7	4	5	6	41	5.857	1.069	1.0

However, based on the questionnaire data test on the consensus of the strategy used for the utilization of information from the community and the implementation of patrols at sea by the Directorate of Navigation agency, it received a score of "4". This is due to the fact

that in its operational implementation, it ensures the safety of navigation such as: commercial shipping such as commercial ships, sea tolls, roro, freight transportation, animal ships, cargo, fishing vessels, and tourist ships. Disnav Class I Tanjung Priok also has a survey vessel of 8 units of navigational state vessel fleet and 3 units of Rigid Inflatable Boat which has 24-hour operational hours.

4.   Conclusion

Researchers have mapped intelligence information by optimizing marine spatial data to identify areas of varying potential infringement. Results of interviews with experts related to potential violations in waters Jakarta Bay is an intelligence product which is then verified by quantifying all possible consensus of experts into a common consensus in terms of analyzing the types of violations that may occur in the waters of Jakarta Bay, analyzing mitigation strategies for marine violations in Jakarta Bay. In data collection, this research has also practiced intelligence data collection with the categories of Imagery Intelligence and Geospatial Intelligence, while the mapping product is a thematic map of potential violations.

Then based on data processing, marine violations in the waters of Jakarta Bay that may occur in the future are piracy, illegal fuel ship to ship activities, smuggling of illegal goods and drugs, destruction of coral distribution (conservation areas), destruction of underwater pipeline installations and theft of underwater cables, as well as destruction of fish nets and fish theft. All violations that are expected to tend to occur in: Do not lego areas in Jakarta Bay waters, harbor areas, subsea installation areas, exclusive settlement areas, fishnet areas, and conservation areas. This occurs against the backdrop of influential economic factors.

As for the security strategy used by each related party is to carry out data collection and information from the community in order to handle violations at sea, carry out patrols as a preventive measure and handling of violations at sea, establish good relations with stakeholders (owners, users and crew) of ships, fishermen and coastal communities (fishermen/non-fishermen), conduct community group coaching in overcoming violations at sea, utilize AIS (Automatic Information System) technology in mitigating violations, and optimize the Indonesian Seafarer News report to Hydro-Oceanographic Center of the Navy (*Pusat Hidro-Oseanografi TNI Angkatan Laut*/Pushidrosal) to be informed or published widely.

This research still has shortcomings and limitations both in data presentation, data processing, and data analysis. This research is expected to provide a better and more precise policy recommendation in identifying locations or areas that may give rise to a potential violation. However, in this study, it can only use the results of a joint consensus of seven experts who are directly involved in operations in the waters of the Jakarta Bay, which should be expected to be more experts with experience in academics, violators, and of course with related parties related to handling violations, especially in the waters of the Jakarta Bay.

Author Contribution
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