RESTRUCTURING MEASURED FISHING POLICY: INTEGRATIVE SUPERVISION OF FISHERY BUSINESS ACTORS IN REALIZING A SUSTAINABLE BLUE ECONOMY

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Abstract

Indonesia as a maritime country faces serious challenges in the problem of overexploitation and declining fish stocks in the management of marine resources in 11 Fisheries Management Areas (WPP). The quota-based Measured Fishing (PIT) policy has not been effective due to conflicts with local fishermen and weak supervision by the Ministry of Marine Affairs and Fisheries (KKP), as evidenced by violations of fishing zones by large and foreign vessels. This normative legal research uses a statutory, conceptual, and comparative approach. The results of the study show challenges in supervision and law enforcement. Several countries have used sophisticated technology and quota systems to manage fishing zones, but Indonesia faces obstacles in supervision. Researchers recommend the implementation of a satellite monitoring system, additional criminal sanctions, strengthening inter-agency coordination, and a customary-based sea closure system to restore fish stocks.

Keywords: Fishermen Protection; Surveillance; Measured Fishing; Blue Economy.

Abstrak

Indonesia sebagai negara maritim menghadapi tantangan serius dalam masalah eksploitasi berlebihan dan penurunan stok ikan dalam pengelolaan sumber daya laut pada 11 Wilayah Pengelolaan Perikanan (WPP). Kebijakan Penangkapan Ikan Terukur (PIT) berbasis kuota belum efektif karena konflik dengan nelayan lokal dan lemahnya pengawasan oleh Kementerian Kelautan dan Perikanan (KKP), terbukti dengan pelanggaran zona tangkap oleh kapal besar dan asing. Penelitian yuridis normatif ini menggunakan pendekatan undang-undang, konseptual, dan perbandingan. Hasil penelitian menunjukkan tantangan dalam pengawasan dan penegakan hukum. Beberapa negara telah menggunakan teknologi canggih dan sistem kuota untuk mengelola zona tangkap ikan, namun Indonesia menghadapi kendala dalam pengawasan. Peneliti merekomendasikan adanya penerapan sistem pemantauan satelit, penambahan sanksi pidana, penguatan koordinasi antarlembaga, dan sistem penutupan laut berbasis adat untuk memulihkan stok ikan.

Kata Kunci: Perlindungan Nelayan; Pengawasan; Penangkapan Ikan Terukur; Blue Economy.

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INTRODUCTION

Indonesia, a maritime country, has a sea area covering 70% of its total area, or about 6.4 million km².[1] According to 2023 data from the Geospatial Information Agency (BIG), Indonesia has 17,024 official islands.[2] This condition makes Indonesia rich in marine resources and tourism potential, highlighting the maritime sector's crucial role in the country's national development. Optimizing the maritime sector faces major challenges, particularly in managing and utilizing marine resources across 11 Fisheries Management Areas (WPP) in Indonesia, which have a sustainable fish resource potential of 12.54 million tons per year, covering various types of marine fisheries.[3]

Referring to international provisions, around 10 million tons per year, or 80% of the total sustainable potential can be utilized.[4] Marine capture fish production in Indonesia has shown a significant increase. In 2019, marine capture fisheries production reached 6.6 million tons, accounting for more than 90 percent of total capture fisheries production, with nearly 500 thousand tons of it coming from marine capture fish.[5] However, the continuous exploitation of Indonesia's fisheries wealth can cause pressure and challenges to the maritime sector, although it was originally intended to meet the needs and support the implementation of the sustainable fisheries concept. The rampant practice of over-exploitation of marine resources is marked by the depletion of fish stocks in Indonesia's marine areas, which are divided into 11 WPPs.[6]

KKP reported that there were at least 3 WPPs with over-exploited utilization status for large pelagic fish species while 8 other WPPs were fully exploited, meaning that no new fishing permits should be issued and the fishing process must be strictly monitored.[7] The decline in the number and types of fish, especially in WPPs that are overexploited, is caused by a decrease in environmental carrying capacity and illegal fishing practices that damage the environment.[8] Legally, the Indonesian government issued Government Regulation Number 11/2023 on Measured Fishing (PIT) in March 2023 to combat excessive fishing, with the Ministry of Marine Affairs and Fisheries overseeing its

[1] Febriana and A Burhanuddin, "Implementasi Kebijakan Sekuritisasi Maritim Presiden Jokowi Dalam Menghadapi Aktivitas Ilegal Di Perairan Indonesia," *Jurnal Kemaritiman: Indonesian Journal of Maritime* 4, no. 1 (July 10, 2023): 56–65.

[2] Tarisha Amalia and Indri Arrafi Juliannisa, "Analisis Kondisi Pembangunan Manusia Di Pulau Sulawesi, Maluku Dan Papua," *Jurnal Edukasi (Ekonomi, Pendidikan dan Akuntansi)* 12, no. 1 (June 30, 2024): 75.

[3] Kepmen KP No. 50, "Keputusan Menteri Kelautan Dan Perikanan Republik Indonesia Nomor 50/Kepmen-Kp/2017 Estimasi Potensi, Jumlah Tangkapan Yang Diperbolehkan, Dan Tingkat Pemanfaatan Sumber Daya Ikan Di Wilayah Pengelolaan Perikanan Negara Republik Indonesia," *Keputusan Menteri Kelautan dan Perikanan Republik Indonesia Nomor 50/Kepmen-Kp/2017* (2017): 6.

[4] Untung Adi Nugroho and Febry Budianto, *Perspektif Eksploitasi Dan Konservasi Dalam Pengelolaan Sumber Daya Perikanan Indonesia*, 2021.

[5] Irfan Akbar, "Literature Review Pemanfaatan Sumber Daya Kelautan Untuk Sustainable Development Goals (SDGs)," *Jurnal Sains Edukatika Indonesia (JSEI)* 4, no. 1 (2022): 17–22.

[6] Ade Nur Anugrah and Arindra Alfarizi, "Literature Review Potensi Dan Pengelolaan Sumber Daya Perikanan Laut Di Indonesia," *Jurnal Sains Edukatika Indonesia (JSEI)* 3, no. 2 (2021): 31–36.

[7] Welem Waileruny, Rivan Saidi, and D P Matrutty Delly, "Potensi Lestari Dan Status Pemanfaatan Ikan Tongkol (Auxis Thazard) Di Perairan Maluku Tengah," *Marine Fisheries: Journal of Marine Fisheries Technology and Management* 15, no. 1 (2024): 15–24.

[8] Hendi Kristiana, Jamaludin Malik, and Nur Anwar, "Pendugaan Status Sumberdaya Perikanan Skala Kecil Di Kota Semarang," *Journal of Tropical Fisheries Management)* 5, no. 1 (2021): 51–58, http://journal.ipb.ac.id/jurnalppt.

implementation. KKP has five main programs to implement the Blue Economy concept during the 2021-2024 period.

Blue Economy itself refers to a new concept or model that aims to encourage sustainable economic growth while maintaining resource conservation and protecting the environment in the marine and water sectors.[9] The Blue Economy concept was created to achieve sustainable economic growth without ignoring marine resources and environmental sustainability, which are very important for Indonesia's future.[10] Of course, the Blue Economy concept is very important in the implementation of the PIT policy, namely increasing the income of fisheries business actors (economy) but carried out with environmentally friendly fishing practices (ecology). In this case, fisheries business actors include individuals and institutions involved in activities in the field of fish catching or transmission, such as local fishermen and fishing companies.[11]

Five strategic programs as an effort to achieve the Blue Economy have been initiated by the government, including a) expansion of conservation areas; b) development of sustainable cultivation; c) sustainable management of coasts and small islands; d) quota-based PIT policy; e) handling of marine waste through the Bulan Cinta Laut program.[12] One of the five programs that focuses on the legal aspect is the quota-based PIT policy. The government has launched a quota-based PIT program, intended to limit fishing in Indonesian waters for the sake of a sustainable marine ecosystem, but the supporting regulations for the policies issued are contradictory, out of a total of 11 WPPs, 6 of them have been made Industrial Areas and in this area, fishing vessels above 30 gross tonnages (GT) will operate.[13]

By changing this area into an industrial area in PP Number 11 of 2023, there will be a great possibility to expand the utilization of fishery resources in the region. This is certainly contrary to the ecological principles in the Blue Economy, where environmental sustainability should have an equal position with economic interests. Vessels from large corporations will receive fishing contract permits for up to 30 years in WPP, including foreign vessels that are already permitted to operate under the regulations contained in the Government Regulation instead of Law (Perpu) Number 2 of 2022 concerning Job Creation. Fishing lanes are also regulated in the PIT policy where large vessels above 30 GT are only allowed to catch fish above 12 nautical miles from the coastline while vessels measuring 4 to 30 GT are in lane 2, namely 4 to 12 nautical miles from the coastline while local fishermen with vessels below 5 GT operate in lane 1, namely 0 to 4 nautical miles from the coastline.[14]

[9] Vishnu Juwono dkk, *Penguatan Blue Economy Dan Penerapan Sustainable Development Goals (SDGs) Di Kawasan Ekonomi Khusus (KEK)*, 2023, https://scholar.ui.ac.id/en/publications/penguatan-blue-economy-dan-penerapan-sustainable-development-goal.

[10] Z Jayakusuma, "Analisis Konsep Blue Economy Pada Sektor Kelautan Di Indonesia Berdasarkan Undang-Undang Nomor 32 Tahun 2014 Tentang Kelautan," *JOM Fakultas Hukum* 5, no. 2 (2018): 1–15.

[11] Kementerian Kelautan dan Perikanan Republik Indonesia, "PERMEN KP No. 38 Tahun 2021," *Peraturan Menteri Kelautan Perikanan* 1, no. 16 (2021): 5–13.

[12] Sahira Sajjadia Luthfia, "Mengupas Tata Kelola Perikanan Nasional Melalui PP No. 11 Tahun 2023 Tentang Penangkapan Ikan Terukur Demi Mewujudkan Blue Economy," *Jurnal Rechtsvinding* 12, no. 3 (2023): 483–501, https://koral.info/id.

[13] Bella S.M. Marpaung et al., "Pelanggaran Kapal Perikanan Di Wilayah Pengelolaan Perikanan Negara Republik Indonesia 571," *Jurnal Ilmu dan Teknologi Perrikanan Tangkap* 7, no. 2 (August 1, 2022): 141–150.

[14] Boris Frans Edberg Simanjuntak, Soraya Gigentika, and Agnes Puspitasari Sudarmo, "Tingkat Kesesuaian Daerah Penangkapan Ikan Purse Seine Di PPN Sibolga Terhadap Regulasi Pengelolaan Perikanan," *ALBACORE* 8, no. 2 (2024): 185–197.

Because the boat areas overlap, the potential for conflict with local fishermen increases. According to facts on the ground, vessels exceeding 30 GT or even 200 GT arrive at Route II with troll nets powered by local fishermen's nets. These field facts have shown that although the PIT policy is intended to protect the sustainability of fish resources and improve the welfare of fishermen through the provision of adequate quotas, the presence of this policy has not provided an optimal solution to the problem of decreasing fish stocks in various WPPs and weak implementation of supervision of fishing zone policies by KKP.[15] The division of PIT zones in the Fisheries Management Area of the Republic of Indonesia (hereinafter referred to as WPPNRI) ignores the fact that 11 WPPs are in an overexploited condition. The concerning condition of the WPP indicates that fishing has exceeded the natural recovery capacity of fish stocks.

Although PIT is designed to regulate catch quotas, this policy does not adequately address the overexploitation conditions in these areas. The large number of fish caught in a certain period in the area requires serious recovery (conservation) efforts. Fisheries conservation can certainly be done through the distribution of fish seeds (restocking) in various WPPs by the Ministry of Marine Affairs and Fisheries. Conservation through the distribution of fish seeds must be an integral part of the fish stock recovery policy. However, field facts show that conservation efforts carried out by the Ministry of Marine Affairs and Fisheries are not yet intensive enough or well-coordinated to offset the high level of fishing. The condition of WPP with dwindling fish stocks is further exacerbated by illegal fishing practices.

In February 2024, IOJI (Indonesia Ocean Justice Initiative) detected illegal fishing in WPP 718. Based on data issued by the AIS (Automatic Identification Systems) system, two fishing vessels, Run Zeng 03 and Run Zeng 05, were detected moving from China to Indonesian waters. The AIS transmission for the Run Zeng 03 vessel was no longer monitored after leaving the port in China on April 11, 2023. Meanwhile, the AIS transmission for the Run Zeng 05 vessel was detected in several locations in the Exclusive Economic Zone (hereinafter referred to as ZEE) of Indonesia, which led to the eastern waters of Indonesia. The handling of the Run Zeng 03 and Run Zeng 05 cases shows disagreement and a lack of supervision from KKP. There was an opportunity for the two vessels to enter the Tanjung Priok Public Port and be inspected by port officers. Although the inspection found several errors on the two vessels, the Ministry of Maritime Affairs and Fisheries did not conduct further inspections.[16]

As a result, both ships managed to leave the port, and only then did law enforcement arrest them. If KKP and the Ministry of Transportation had collaborated more, the two ships suspected of illegal fishing in Indonesian waters and jurisdiction could have been prosecuted more quickly. In addition, indications that the two Run Zeng ships were high-risk ships were also not detected by port officials. The case has indicated that the monitoring system carried out by KKP is not effective in overcoming the problem of violations by foreign ships or large ships (above 30 GT) which has caused further problems. In line with the above problems, the small quota for fishing vessels in Indonesia requires local fishermen to compete with companies that have more complex vessels and fishing equipment. This condition has illustrated the inequality in the distribution of benefits from the fishing

[15] Yulita Dwi Pratiwi et al., "Politik Hukum Penetapan Wilayah Pengelolaan Perikanan Dan Penangkapan Ikan Terukur Dalam Pembangunan Sumber Daya Perikanan Berkelanjutan," *Bina Hukum Lingkungan* 6, no. 3 (June 30, 2022): 362–385.

[16] Indonesia Ocean Justice Initiative, "Deteksi Dan Analisis Dugaan Praktik Penangkapan Ikan Secara Ilegal Di Wilayah Perairan Dan Yurisdiksi Indonesia," https://oceanjusticeinitiative.org/2024/06/11/deteksi-dan-analisis-dugaan-praktik-penangkapan-ikan-secara-ilegal-di-wilayah-perairan-dan-yurisdiksi-indonesia/.

industry. Larger and stronger fishing companies can utilize greater resources to gain greater profits, while smaller fishermen must struggle to meet their living needs.

Through the issuance of the Perpu Ciptaker, especially in Article 27 paragraph 2, requiring everyone who owns and/or operates a foreign-flagged fishing vessel operating in the Indonesian EEZ to fulfill the Business Licensing from the Central Government has opened up opportunities for foreign vessels to exploit Indonesia's marine resources more widely. If the practice of supervision and implementation of the application of the PIT zone policy is not strictly implemented, this could result in the potential for overfishing of the marine ecosystem and a decrease in the welfare of fishermen in terms of income. However, in this case, KKP has implemented the Fishing Vessel Monitoring System (SPKP) as stipulated in PP Number 11 of 2023 which is ineffective in carrying out supervision because there are still practices of violating the PIT zone policy. In addition, the legal implications for several vessels that violate are also not carried out properly because there is still a selective system (not all vessels are subject to strict action).

The complexity of the problems regarding quota-based PIT policies in Indonesia has encouraged researchers to compile a scientific paper entitled "Restructuring of Measured Fishing Policies: Integrative Supervision of Fisheries Business Actors in Realizing a Sustainable Blue Economy". This study explains the implementation of KKP supervision of foreign vessels or large vessels that violate local fishermen's fishing zones and their legal implications. The study focuses on the problems of implementing WPP management that are contrary to the Blue Economy concept, both in terms of social (potential conflict between fishermen), economic (fishermen's welfare), and ecological (environmental sustainability). The results of this study are expected to be a reference for science regarding the implementation of marine resource management with the Blue Economy concept that focuses on the problems that occur in WPPs in Indonesia. The results of this study are expected to encourage the government to provide answers to several problems that are of concern to the author, such as the condition of 11 WPPs that are overexploited; WPP management that is not by the Blue Economy concept; and the implementation of KKP supervision of practices that violate fishing zone provisions.

METHOD

Based on the title and the problems to be studied, this study uses a normative legal method that analyzes research problems through an approach to legal principles and refers to legal rules stated in regulations in Indonesia.[17] This study requires data from library materials which are generally known as secondary data. This study aims to collect components such as theories, concepts, legal principles, and regulations that are relevant to the research topic.[18] Through the analysis of theories, concepts, legal principles, and regulations, this study aims to determine the legal implications of the problems studied, as well as provide recommendations or appropriate solutions to answer the problems. This study uses a statutory, conceptual, and comparative approach. First, a statutory approach that involves a study of a country's regulations or relevant international laws related to the research topic.

[17] Kornelius Benuf, Siti Mahmudah, and Ery Agus Priyono, "Metodologi Penelitian Hukum Sebagai Instrumen Mengurai Permasalahan Kontemporer," *Refleksi Hukum: Jurnal Ilmu Hukum* 3, no. 2 (August 7, 2019): 145–160.

[18] Sigit Sapto Nugroho, Anik Tri Haryani, and Farkhani, *Metodologi Riset Hukum*, *Ase Pustaka*, vol. 2, 2020, https://unmermadiun.ac.id/repository_jurnal_penelitian/Sigit Sapto Nugroho/URL Buku Ajar/Buku Metodologi Riset Hukum.pdf.

By using this approach, researchers can explore the ratio legis and ontological basis behind the formation of the regulation.[19] Second, a conceptual approach that bases the researcher's understanding on theories and doctrines of legal science that are progressing. Third, a comparative approach that is carried out through a comparison between regulations in Indonesia and regulations in one or more international countries regarding the same topic.[20] The purpose of this approach is to identify gaps between existing regulations.[21] The differences found will be used to evaluate whether there is a discrepancy between the legal provisions and the underlying philosophy.

RESULT AND DISCUSSION

1. *KKP Supervision Foreign Vessels and Large Vessels (above 30 GT) Violating PIT Zones Owned by Local Fishermen*

a. Implementation of PIT Zone Supervision in Various International Countries

The management of fisheries resources is a problem shared by many countries throughout the international world. The main factor in the framework of fisheries management is its supervision of fishing zones, which aims to conserve fish stocks while preventing excessive fishing, especially for sea areas experiencing overfishing. Various countries have developed different approaches and strategies in carrying out this supervision, namely as follows:

1) Canada

Canada is one of the countries that uses a comprehensive surveillance system in its fishing zones. They use satellite-based vessel monitoring (VMS) technology to track the location and activities of all commercial vessels operating in its EEZ. In addition, Canada also imposes fishing zone restrictions and catch quotas to maintain the sustainability of fish stocks. A strict licensing and monitoring system is also applied to foreign vessels that want to operate in Canadian waters.[22] Canada can effectively track and monitor fishing activities by vessels operating in its territory. This encourages fishermen to comply with the regulations and boundaries of the fishing zones that have been set because they are aware that their activities are being monitored. However, the drawback of this VMS monitoring system is that it is easy for fishermen to deactivate the system on their vessels so that they are not monitored. To anticipate the shortcomings of the VMS system, Canada has imposed administrative sanctions in the form of fines, revocation of permits, and confiscation of vessels.

[19] Yira Dianti, "Problem Hukum Dan Pendekatan Dalam Penelitian Hukum Normatif," *Angewandte Chemie International Edition, 6(11), 951–952.* (2020): 5–24, http://repo.iain-tulungagung.ac.id/5510/5/BAB 2.pdf.

[20] Cut Mira Sutia, "PERLINDUNGAN PETANI TERHADAP PRAKTIK MONOPSONI DALAM PERDAGANGAN PADI DI DESA TANJUNG REJO DUSUN IV KECAMATAN PERCUT SEI TUAN" (Universitas Muhammadiyah Sumatera Utara, 2017), http://repository.umsu.ac.id/bitstream/handle/123456789/12371/SKRIPSI CUT MIRA SUCIA.pdf?sequence=1.

[21] Muhammad Siddiq Armia, *Penentuan Metode Dan Pendekatan Penelitian Hukum*, *Sustainability (Switzerland)*, vol. 11, 2019, http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI.

[22] Fisheries and Oceans Canada, "The National Vessel Monitoring System," https://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs114-21-2015-eng.pdf.

2) Norway

Norway adopts an approach by dividing water zones into several categories, namely national, regional, and international waters, with different rules for each zone. Norway regulates the number of vessels, vessel sizes, and fishing gear that are allowed to operate in each zone. In addition, they also implement an integrated electronic monitoring system such as the elektronik overvakingssystem to address fishing activities in real time. The concept of the elektronik overvakingssystem was initially a high-quality alarm and warning system for natural disasters which was then applied to the fisheries and marine surveillance system so that marine inspectors can immediately take firm action against violators of fishing zone policies. The electronic monitoring system has the advantages of lower costs and minimal negative impacts on the environment. With this system, Norway can be more effective in regulating the number of vessels, vessel sizes, and fishing gear that are allowed to operate in each zone. This makes it easier for them to adjust fishing efforts to the condition of fish stocks in each zone.[23]

3) New Zealand

New Zealand implements an Individual Transferable Quota (ITQ) system to regulate the amount of catch allowed. This system provides incentives for fishermen to maintain the sustainability of fish resources. New Zealand also uses electronic monitoring and reporting technology in the form of e-reporting that involves the role of local fishermen to report cases of violations of fishing zones through photos or documentation that are later attached online so that the New Zealand government can immediately follow up on the report and take firm action against the violators concerned. In addition, they implement rules for handling bycatch to minimize the impact on marine ecosystems.[24] This monitoring system can encourage the consolidation of fishing fleets and reduce overcapacity in the fisheries sector. This also reduces the potential for conflict between fishermen in competing for fish resources.

b. Implementation of Supervision of PIT Zones in Indonesia

The Ministry of Marine Affairs and Fisheries as the authorized party has a role in increasing supervision of regulations that have been in effect in Indonesia, especially ahead of PP Number 11 of 2023, which has raised debate about PIT. This supervisory role can be seen in the arrest of several violations committed by large vessels (above 30 GT) against the PIT zone belonging to local fishermen. In 2018, KKP reported that there were 1,636 vessels measuring more than 30 GT that violated fishing area boundaries.[25] In addition, in 2023, seven fishing vessels were found to have violated regulations in the WPPNRI. The fishing vessels were suspected of not having business licensing documents to the fishing sub-sector (SIPI) until other vessels caught fish simultaneously with the specified rules. The seven fishing vessels had violated fishing routes in the Sulawesi Sea and the North Natuna Sea and the catch was found to be 1.9 tons of squid and 3 tons of skipjack tuna.

[23] E Agustina, "Analisis Ekonomi Maritim Norwegia Melalui Industri Perikanan Dan Akuakultur (Pendekatan Ekonomi Biru) Pada Tahun 2011-2016," 2018.

[24] Hekia Bodwitch et al., "Why New Zealand's Indigenous Reconciliation Process Has Failed to Empower Māori Fishers: Distributional, Procedural, and Recognition-Based Injustices," *World Development* 157 (September 1, 2022): 1–13.

[25] Michael Reily, "KKP: 1.636 Kapal Langgar Wilayah Tangkap Ikan," https://katadata.co.id/berita/maritim/5e9a55d5ed689/kkp-1636-kapal-langgar-wilayah-tangkap-ikan.

Not only that, based on information in the field, ships with more than 30 GT and even 200 GT entered lane II (4-12 nautical miles) with troll nets dragging local fishermen's nets.[26] This case indicates that there are still indications of large ships and foreign-flagged ships to violate the PIT zone owned by local fishermen, indicating weak supervision by KKP and coordination with the Ministry of Transportation regarding the implementation of the PIT policy so that strategic legal steps are needed. The PP and Ministerial Regulations that are currently in effect do not provide sufficient legitimacy in the framework of supervision of the PIT zone. The opportunity for foreign-flagged fishing vessels to operate in the Indonesian EEZ is increasingly wide open with the provisions in Article 27 paragraph (2) which reads: "Every person who owns and/or operates a foreign-flagged fishing vessel used to catch fish in the Indonesian EEZ is required to fulfill the Business License from the Central Government."

Therefore, the elimination of this article can minimize the potential for violations of the PIT zone. The use of VMS in Indonesia has been implemented previously by KKP since 2003. However, knowledge about VMS among fisheries actors is still limited and there is minimal socialization and direct assistance from the Ministry of Marine Affairs and Fisheries regarding the use of VMS to the community or local fishermen. Until now, the use of VMS has been faced with several weaknesses, including the complexity of procedures related to transmitters, high transmitter maintenance costs, not reducing illegal fishing practices (IUU fishing), and lack of socialization regarding transmitters to the community (especially local fishermen).[27] These problems have illustrated the ineffectiveness of using VMS technology in SPKP so that alternative solutions are needed to realize an optimal surveillance system by referring to the technology implemented by Norway, namely the Satellite Surveillance Systems. The Norwegian government uses satellites to monitor ship activity and detect violations in their waters.

Satellite Surveillance Systems in Indonesia itself have been planned to be implemented in 2024. Indonesia is developing a satellite constellation to improve surveillance of marine and fisheries resources. The inaugural launch of this nanosatellite will launch the first of a total of 20 satellites, each with a maximum weight of 10 kilograms. These satellites are expected to increase efficiency and accuracy in the management of marine and fisheries resources. KKP also stated that this nanosatellite constellation will be combined with marine drones to monitor maritime areas in Indonesia. Twelve of the total satellites will be equipped with radio frequency equipment, five with imaging equipment, and the remaining will use sensors compatible with the Automatic Identification System (AIS) to track ships at sea. With the constellation of 20 nanosatellites, within 24 minutes, KKP will be able to monitor all conditions in Indonesia from one center so that it can provide convenience for KKP in carrying out its supervisory function on ship movements and accurate information on the availability of fish stocks in each WPP.[28]

Satellite Surveillance Systems will be more implementable to be applied in SPKP in Indonesia when compared to VMS technology because Satellite Surveillance Systems uphold the principle of

[26] Yogi Eka Sahputra, "KKP Amankan 7 Kapal Melanggar WPPNRI, Bagaimana Aturan Penangkapan Ikan Terukur?," https://www.mongabay.co.id/2023/10/20/kkp-amankan-7-kapal-melanggar-wppnri-bagaimana-aturan-penangkapan-ikan-terukur/.

[27] Amiek Soemarmi et al., "Teknologi Vessel Monitoring System (VMS) Sebagai Strategi Perlindungan Dan Pembangunan Industri Perikanan Di Indonesia," *Masalah-Masalah Hukum* 49, no. 3 (2020): 303–313.

[28] Basten Gokkon, "Indonesia Unveils Plan to Launch a Satellite Network for Maritime Monitoring" (n.d.), https://news.mongabay.com/2024/03/indonesia-maritime-fisheries-satellite-monitoring-patrol-iuu-remote-sensing/.

implementing a centralized surveillance system so that it does not require local fishermen or fishing companies to install it on their respective vessels. Through an adequate and effective surveillance system with the use of Satellite Surveillance Systems, legal protection for local fishermen can be guaranteed. Satellite Surveillance Systems provide strict supervision in the implementation of the PIT zone policy so that the law can play a role in integrating and coordinating the various interests of each of the local fishermen and fishing companies that own large vessels (above 30 GT) and minimize the potential for conflicts of interest. The use of Satellite Surveillance Systems in SPKP in Indonesia should be accompanied by a sustainable approach, namely the implementation of an Individual Transferable Quota system like in New Zealand to regulate the number of fish catches that are allowed. With the implementation of this system, KKP is tasked with providing incentive assistance for fishermen to maintain the sustainability of the stock of fish resources that are increasingly depleting in each WPPNRI.

Local fishermen are given small fish seeds to open up opportunities for them to cultivate fish so that efforts to restore (conserve) the number of fish stocks are increasingly optimal and minimize the potential for conflict between local fishermen and foreign vessels or large vessels (above 30 GT). Both the Satellite Surveillance Systems concept and the Individual Transferable Quota can be supporting components of the regulation related to the prohibition of catching small fish seeds. In this regulation, fishing is defined as the activity of getting fish from the sea that is not entering the cultivation process through various equipment or methods, as well as activities involving ships to transport, store, and preserve fish. In addition, the prohibition of fishing is emphasized in certain circumstances that result in the destruction of the sustainability of the fish stock cycle, such as fishing that is still in the seed or larval phase and is carried out through the use of explosives, poisons, or other dangerous equipment. This article stipulates that KKP can determine a prohibition zone or a certain time to protect fish seeds.

Through the right collaboration between technology (Satellite Surveillance Systems) and ecology (Individual Transferable Quota), the implementation of the supervision function by KKP will be more optimal, followed by a decrease in the number of violations of the PIT zone and the rapid recovery of fish stock numbers throughout the WPPNRI. Seeing the gaps in weaknesses that arise from Satellite Surveillance Systems, such as satellite network disruption due to bad weather, other efforts are needed as alternatives. Researchers recommend the Community-Based Marine Protection System (SPLBK) is an innovative approach to monitoring and managing fish farming in Indonesia by integrating the principles of customary-based conservation and community-based management. By involving collaboration between fishermen, SPLBK internalizes one of the traditions or customs in fisheries monitoring and management, namely the prohibition on fishing when the sea enters the closing period (spawning period). SPLBK regulates seasonal closures to allow for the recovery of fish populations and marine ecosystems. This sea closure can be regulated for a certain period, such as during the spawning season or during unfavorable environmental conditions.

The practice of customary-based sea closures has been previously implemented in the Cicia Island community, Republic of the Fiji Islands and has proven effective in restoring the number of fish stocks that have dwindled in the fishing zone due to illegal fishing practices. The success of the sea closure practice is marked by the increase in fishery productivity for sale on the market.[29] Through cooperation and coordination with KKP, SPLBK can involve the role of local fishermen as fish seed

[29] Elodie Fache and Simonne Pauwels, "The Ridge-To-Reef Approach on Cicia Island, Fiji," *Ambio* 51, no. 12 (December 1, 2022): 2376–2388.

cultivators as well as supervisors (witnesses) if later there are practices of violations of the PIT zone in the field accompanied by photos or documentation to be used as valid evidence in the Fisheries Court. This is by the principle of minimum proof, namely that judges may not impose a criminal sentence on someone unless there are two valid pieces of evidence. The role of local fishermen can certainly be a supporting role in minimizing the escape of violations by large ships and foreign ships against the PIT zone from the supervision or inspection of sea patrols.

Based on Salmond's legal protection theory, law plays a role in uniting and aligning differences in social interests to minimize conflicts in society. In life in the marine and fisheries areas, conflicts of interest are often encountered between local fishermen and foreign vessels and large vessels (above 30 GT) who want to get fish catches to be traded internationally. Through this conflict of interest, real social inequality can be seen where local fishermen with simple vessels and fishing gear must compete with foreign vessels and large vessels with adequate vessels and fishing gear. The rights, justice, and social welfare of local fishermen are important to protect and guarantee in the maritime economic ecosystem. The existence of the PIT policy does not seem to be effective considering the many violations against it. Therefore, with the internalization of Satellite Surveillance Systems (technological aspects) in the SPKP, the implementation of supervision of the PIT policy can run optimally and provide protection and social justice for local fishermen. The implementation of Individual Transferable Quota (ITQ) for fish seed cultivation helps restore dwindling fish stocks in various WPPNRI and boosts the economy of local fishermen.

2. *Legal Implications of Violations by Foreign Vessels and Large Vessels (above 30 GT) against PIT Zones Owned by Local Fishermen*

Provisions regarding the imposition of administrative sanctions for violators of the PIT zone policy and the use of fishing gear are stated in Chapter VII of PP Number 11 of 2023 and Article 61 of Permen-KP Number 28 of 2023. These administrative sanctions include written warnings or reprimands, government coercion, administrative fines, freezing of Business Licenses or approvals, and/or revocation of Business Licenses or approvals. Various administrative sanction enforcement mechanisms depend on the type of administrative sanction applied, for example, written warnings or reprimands are given to violators who have committed violations for the first time and have not caused negative impacts or damage to the environment and/or human safety, or if the impact can be easily repaired. In other words, if the violation is the first time and does not cause significant environmental damage, the sanction given is only a written warning or reprimand. The time for resolving problems after a written warning varies according to the type of violation. Violations related to business and utilization of marine space require 10–30 working days, while violations related to SPKP obligations require two–seven working days.

Three types of administrative penalties can be imposed if the violation has caused serious damage or threat to environmental health. Fines such as government coercion, administrative fines, and site closures fall into this category. The rampant practice of violating the provisions of the PIT zone that have been attached to the previous discussion indicates the weakness of the legal implications or sanctions that have previously been in effect in PP Number 11 of 2023 concerning PIT and its implementing regulations. In designing the next steps, the researcher refers to the concept of the legal system put forward by Lawrence M. Friedman. Thus, to ensure the effectiveness of the law and assess the success or failure of the law, the analysis must be carried out based on the substance of the law (applicable norms or laws), legal structure (authorized state institutions), and legal culture (values or culture adopted in society).

Referring to the legal substance, the provisions regarding the imposition of administrative sanctions for violators of the PIT zone policy and the use of fishing gear are stated in Chapter VII of PP Number 11 of 2023 and Article 61 of Permen-KP Number 28 of 2023. Then, are the administrative sanctions that already exist in the two regulations sufficient to anticipate violations committed by foreign vessels and large vessels against the PIT zone? When viewed from the perspective of the legal substance, the provisions regarding administrative sanctions given to violators in the PIT policy do not provide a sufficient deterrent effect (chilling effect) so criminal sanctions need to be applied. The imposition of criminal sanctions is a very important step to take considering the magnitude of the losses experienced by the Indonesian state due to the widespread practice of violating the PIT zone and fishing with fishing gear that damages the environment. In 2023, the FAO reported that fishing violations in PIT zones and destructive practices caused Indonesia an economic loss of 26 million tons, or approximately 23 billion US dollars.[30]

In addition, findings in the field regarding the presence of ships above 30 GT and even 200 GT that entered lane 2 with troll nets dragging local fishermen's nets. Several findings of the cases above have shown the ineffectiveness of administrative sanctions in providing a deterrent effect for violators of the PIT zone which at the same time further strengthens the reasons for the need for criminal sanctions provisions in the implementation of the PIT zone policy. The provisions of criminal sanctions are per the concept of ultimum remedium which imposes criminal sanctions when in a condition where administrative sanctions are no longer effective in providing a deterrent effect to realize the objectives of law enforcement. Therefore, changes are needed to PP Number 11 of 2023 concerning PIT, namely:

a. Between CHAPTER VII and CHAPTER VIII, 1 (one) CHAPTER is inserted, namely CHAPTER VIIA, which reads as follows:

CHAPTER VIIIA

CRIMINAL PROVISIONS

b. Between Article 25 and Article 26, 1 (one) article is inserted, namely Article 25A, which reads as follows:

Article 25A

1) Any Person, Central Government, or Regional Government who violates the provisions regarding the Measured Fishing Zone as referred to in Article 5 paragraph (1) shall be subject to imprisonment for a minimum of 6 (six) months and a maximum of 8 (eight) years.
2) Any Person, Central Government, or Regional Government who violates the provisions regarding the Limited Fishing Area as referred to in Article 5 paragraph (2) shall be subject to imprisonment for a minimum of 3 (three) years and a maximum of 8 (eight) years.
3) Any Person, Central Government, or Regional Government who violates the provisions regarding the Fish Catch Quota as referred to in Article 11 paragraph (2) shall be subject to imprisonment for a minimum of 6 (six) months and a maximum of 8 (eight) years.
4) Any Person, Central Government, or Regional Government that violates the provisions regarding the agreement as referred to in Article 12 paragraph (2) shall be subject to imprisonment for a minimum of 6 (six) months and a maximum of 8 (eight) years.

[30] Haryanti Puspa Sari, "KKP: Kerugian Akibat 'Illegal Fishing' Capai 23 Miliar Dollar AS," https://money.kompas.com/read/2023/05/16/161137126/kkp-kerugian-akibat-illegal-fishing-capai-23-miliar-dollar-as.

5) Any Person, Central Government, or Regional Government that violates the provisions regarding the use of permitted fishing gear as referred to in Article 16 shall be subject to imprisonment for a minimum of 3 (three) years and a maximum of 8 (eight) years.

The application of the above criminal sanctions refers to several provisions in international countries that regulate the imposition of criminal sanctions for violators of the PIT Zone provisions, such as Iceland. The country of Iceland applies the Fisheries Management Act 1990 as a framework or basic reference for fisheries management. The Fisheries Management Act 1990 establishes several important principles in fisheries management. Through Article 25, the Icelandic government takes strict action against violators of the PIT Zone provisions by imposing administrative sanctions in the form of fines, regardless of whether the violations are committed intentionally or due to negligence. Cases of serious or repeated violations and those committed intentionally can also be subject to imprisonment of six years. The fine for a first violation may reach ISK 4,000,000 (IDR 46,000,000), while repeated violations incur fines ranging from ISK 400,000 to ISK 8,000,000 (IDR 92,000,000), depending on the violation's nature and scope. Regarding criminal acts committed by violators, especially foreign-flagged vessels or large vessels against the PIT zone, they will be followed up through a litigation process at the Fisheries Court as a special court law enforcer that has authority over criminal violations in the fisheries sector.[31]

The presence of 10 Indonesian Fisheries Courts has been spread across various jurisdictions which guarantees greater legal certainty in strengthening the law related to criminal acts in the fisheries sector. This court can complement and improve legal procedures in investigations, prosecutions, and examinations in court, in addition to following legal procedures.[32] In addition, the Fisheries Court provides a guarantee that material law and procedural law (formal) can be applied more efficiently, as well as optimizing the flow of law enforcement in the fisheries sector.[33] From the perspective of its legal structure, the initiation of enforcing legal implications against large vessels or foreign vessels that violate the PIT zone is realized through the existence of its law enforcement officers. According to Article 18, number 14 of the Perpu Ciptaker, the Central Government is authorized to issue fisheries business permits, previously under Regional Government authority.

This article emphasizes that the Regional Government does not have the authority to issue Business Permits for fisheries actors or companies or to synergize with the Ministry of Marine Affairs and Fisheries in implementing the PIT policy. The following are three state institutions that synergize together to realize a PIT zone that is free from violations, namely: (1) KKP; (2) Ministry of Transportation; and (3) Fisheries Court. KKP, has the primary responsibility for managing and preserving fishery resources in Indonesia. Its authority includes regulation, supervision, and law enforcement in the fisheries sector. In this case, KKP is tasked with implementing the PIT zone management policy, regulating fishing procedures, and monitoring and enforcing the law against violations that occur in the zone.[34]

[31] MFMR, "Fisheries Management Act 2015- Solomon" 2015, no. 2 (2015).

[32] Welly Angela Riry, "Kedudukan Pengadilan Perikanan Dalam Mekanisme Penegakan Hukum Perikanan Indonesia," *Syntax Literate: jurnal Ilmiah Indonesia* 8, no. 5 (2023): 3598–3609.

[33] A Tahar and W Krulinasari, "Pembagian Kerwenangan Dalam Penegakan Hukum Terhadap Pelanggaran Peraturan Perundang-Undangan Di Perairan Indonesia," *Fiat Justitia Jurnal Ilmu Hukum* 6, no. 1 (2015): 1–13.

[34] C Tiwow, "Tinjauan Hukum Dalam Pelaksanaan Pengawasan Sumber Daya Perikanan," *Keadilan Progresif* 3, no. 1 (2012): 103–118.

Ministry of Transportation, has the authority to regulate and supervise aspects of maritime transportation, including ship management and navigation in Indonesian waters. In terms of fisheries law enforcement, the Ministry of Transportation plays a role in supervising ships, both local and foreign, and ensuring compliance with regulations relating to ship operations in fishing zones to prevent violations relating to the use of ships that do not comply with legal provisions. The Fisheries Court functions as a special judicial institution that handles fisheries cases. Its authority includes law enforcement and dispute resolution involving violations of the law in the fisheries sector. The existence of the Fisheries Court itself aims to provide legal certainty, ensure a fair trial process, and impose sanctions on violators of the law in the fisheries sector. Overall, the three institutions have the function of creating an effective and integrated law enforcement system and can handle various aspects of violations in the fisheries sector, from regulation, and supervision, to law enforcement and dispute resolution. To realize the optimal implementation of the PIT zone policy, good coordination is needed between the three institutions.

Looking at it from the perspective of the culture or legal culture that is developing in society, of course with the existence of clear and firm legal substance in providing sanctions (legal implications) in the form of imprisonment and administrative sanctions for violators of the PIT zone and an adequate legal structure with good coordination between state institutions (KKP, Ministry of Transportation, and Fisheries Court) then the social behavior (culture) in society will also change. Changes in behavior or culture can later be shown through the increasing compliance of the community (not only local fishermen but also large ships and foreign-flagged ships) with the PIT policy in PP Number 11 of 2023, such as the PIT zone and the use of environmentally friendly fishing gear. There are at least 2 people or parties who should comply with the PIT policy, namely local fishermen and fishing companies. In practice, local fishermen have complied with the PIT zone policy and the use of permitted (environmentally friendly) fishing gear in various WPPNRI.

For example local fishermen in Kedungrejo Village, Banyuwangi Regency with a ship size of 6 GT using purse seine fishing gear as one of the Fishing Gear (API) permitted in Article 5 of Permen-KP Number 59 of 2020.[35] On the other hand, fishing companies have been proven not to have SIPI and to violate fishing routes in the Sulawesi Sea and the North Natuna Sea. These field facts indicate that the legal culture of fishing companies has not complied with previously existing regulations. Clear legal sanctions for the PIT zone ensure legal protection for local fishermen, safeguarding them from the negative impacts of large or foreign vessels. The PIT zone protects areas vital for small fishermen, allowing them to fish without disruption. Criminal and administrative sanctions prevent PIT zone violations, ensuring strong law enforcement to protect small fishermen. The PIT policy supports fair access to fishery resources and guarantees legal certainty, allowing small fishermen to benefit equally without threats from uncontrolled commercial activities.

[35] Alfatah Yusron Azis, "Perkembangan Teknologi Alat Tangkap Ikan Nelayan Di Desa Kedungrejo Kecamatan Muncar Kabupaten Banyuwangi Tahun 2001 – 2013," *AVATARA, e-Journal Pendidikan Sejarah* 11, no. 1 (2021): 1–12.

CONCLUSION

Indonesia, rich in marine resources, faces significant maritime challenges, including declining fish stocks in various WPPNRI and frequent violations by foreign and large vessels (over 30 GT) in PIT zones designated for local fishermen. Field findings show large vessels (30-200 GT) entering the PIT zones, dragging local fishermen's nets, highlighting weak supervision by the Ministry of Marine Affairs and Fisheries. Additionally, the VMS technology in SPKP, aimed at minimizing violations, is costly and underutilized by fisheries stakeholders. In contrast, countries like Canada, Norway, and New Zealand have successfully implemented strict supervision systems, resulting in fewer fishing violations, increased state income, and improved welfare for local fishermen. These countries' success offers valuable lessons for Indonesia in enhancing PIT zone supervision. To address these challenges, the Indonesian government, through KKP, has introduced administrative sanctions in Article 24 of Government Regulation Number 11 of 2023, aiming to reduce violations and ensure better protection for local fishermen. These efforts are vital in strengthening governance over maritime resources, improving enforcement, and promoting sustainable fishing practices.

The widespread violations of the PIT zone policy and the use of environmentally harmful fishing gear (destructive fishing) by fishing companies suggest that existing administrative sanctions are insufficient to deter such practices. Researchers argue that criminal sanctions should be applied, given the significant losses Indonesia faces due to these violations. According to the legal system theory, implementing these sanctions requires strengthening legal substance, structure, and culture. Government Regulation Number 11 of 2023 introduces criminal sanctions (legal substance), involving KKP, the Ministry of Transportation, and the Fisheries Court (legal structure) as key authorities in enforcing the PIT zone policy. Additionally, the compliance of local fishermen and fishing companies (legal culture) will serve as an indicator of the policy's effectiveness. Stricter sanctions and a more integrated law enforcement system are expected to foster a legal culture that encourages adherence to regulations and improves protection for local fishermen. By combining stronger penalties with a unified approach, the government aims to ensure better resource management, minimize environmental damage, and support the livelihoods of small-scale fishermen.

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