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Article

Towards sustainable improved labor conditions for fishermen: Insights from the Republic of Korea and Norway

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Abstract: This study examined the labor regulations regarding the hours of work and rest for representative fishing countries (Norway) by the International Labor Organization (ILO) Convention C188—Work in Fishing, 2007. A dual comparative analysis with Norway is used to explore policy implications for the representation and protection of fishers' labor standards in Korea. This study examined the possibility of synchronisation between national and international legislation on the hours of work and rest for fishers, with a particular focus on the Norwegian case. The objective is to identify policy enhancements related to the Korean Seafarers Act. This study looked in depth at the fatigue and well-being problems faced by Korean fishers working long times on various vessels. It is based on the results of a qualitative comparative study. To achieve the objectives, We proposed to 'the name of the fishing vessel', which are excluded from the protections afforded by the Seafarers Act and to clarify the regulations regarding the labor standards for them. This proposal will provide compensation and protection for Korean fishers' labor rights. It aims to enhance labor conditions in line with ILO standards, harmonize national and international agreements to protect small-scale fisheries and contribute to the development of environmentally friendly propulsion technologies, such as hydrogen-fueled electric hybrids and LPG (Liquefied Petroleum Gas).

Keywords: working hours; rest periods; fishers; comparative analysis; Seafarers Act; ILO Convention C188; policy implications

1. Introduction

It is of great importance to allow for recovery from fatigue and to promote a healthy lifestyle in order to maintain a healthy and productive workforce. Employees and employers are encouraged to regulate hours of work and rest through a contract of employment, including basic terms and conditions that comply with applicable law. Shipowners and seafarers need to comply with the legal stipulations on hours of work and rest to guarantee the well-being of all (Rogers, 2016). Given the relatively vulnerable position of both men and women as fishers, given the challenging nature of their job and the isolation they face while away from family, friend and community, it is imperative to regulate their hours of work and rest. Notably, the International Labor Organization (ILO) proposed limiting hours of work to eight-hours per one day and 48-hours per one week in 1919. The combination of Norway's commitment to the highest standards of craftsmanship and sustainable practices with explicit legal regulation of working hours represents a unique and exemplary approach to labor relations (Kivimäki et al., 2020).

In Korea, the legal framework governing the rights and obligations of workers

varies according to the nature of their duties. The Labor Standards Act guarantees a minimum standard of living and working conditions for those who provide labor for a salary on our land. However, those who enter into a Seafarers' Employment Agreement (SEA) to provide labour on a fishing vessel are subject to the working conditions and other provisions of the Seafarers' Act. The labor of fishers is different from that of general workers because it has special characteristics(community, isolation, danger of the ship, specificity of hours of work and rest) (Choi, 2021). The Seafarers Act applies to both fishing and merchant vessels, except for certain special cases, such as vessels under 5 gross tonnage(GT). Articles 60 and 68 of the Seafarers Act delineate the legal framework and fundamental principles that regulate the hours of work and rest of seafarers and fishers.

It might be worth noting that there is already an exception in Article 68 (Scope) of the Seafarers Act, which excludes the coverage of fishers on board small fishing vessels under 20GT. This exemption includes approximately 96% of all registered fishing vessels in Korea (MOF, 2023). However, it should be noted that there is currently no rule or policy in place at the Ministry of Maritime Affairs and Fisheries for these small fishing vessels. As a result, there are no specific legal stipulations or institutionalized principles in place for the hours of work and rest of the fishing vessels on board.

Furthermore, it would be beneficial to consider whether the legal governance and interpretation of hours of work and rest for fishers could be aligned with waiting periods for seafarers to go ashore. This would be particularly beneficial given the unique nature of their role and responsibilities. Following the rulings of the Seoul High Court on 13 February 2015 (2013Na2025567) and the Incheon District Court on 13 April 2011 (2009Gahap22910), The court ruled that seafarers who perform additional duties under the supervision of the shipowner, such as the captain, outside of their regular working hours cannot be considered to have guaranteed their rest periods and are therefore considered to be working hours. Furthermore, the court ruled that, due to the distinctive nature of maritime work performed by seafarers, activities aimed at replenishing labor power, such as eating, exercising, sleeping, and resting on board the ship, are also activities aimed at maintaining labor power as a seafarer and constitute seafarers' duties. These include activities such as anchored, strike or drift gillnet fishing. It is pertinent to mention that Article 68(2) of the Seafarers Act empowers the Minister of Oceans and Fisheries (MOF) of the Republic of Korea to establish distinct standards of working hours for seafarers engaged in fishing activities, including catching, taking, or harvesting. These standards may take into account the distinctive environment of their job.

In light of the aforementioned considerations, some promising new measures could be taken to ensure the safety of fishers. These include the promotion of safety culture among shipowners and fishers, the enhancement of the seaworthiness of fishing vessels, and the creation of a better working environment with appropriate hours of work and rest. This could involve ensuring that fishers are not overworked due to unexpected fishing activity, which can affect their ability to spot fish groups (Kim et al., 2023). It is important to recognize that the hours of work and rest of fishers can have a significant impact on their sustainable productivity, profits, competitiveness, safety, and health (Cross, 1984). Consequently, it is of paramount

importance that the legislation regulating these matters is founded upon empirical evidence and transparent guidelines while affording sufficient flexibility (Thorvaldsen et al., 2022).

The objective of this study is to review international conventions on maritime labor and national laws on fishers in order to identify the current standards applicable to working hours and rest periods for fishers. This will be done to benchmark them against the Norwegian case. The rationale behind Norway's robust fisheries-related legislation and policies that align with the standards set by the ILO and the International Maritime Organization (IMO) is to ensure that its fishers are treated following the highest standards of working conditions, safety, health, and working conditions protection. To achieve this objective, Norway will be designated as the benchmarked case country.

The legislation on hours of work and rest for seafarers in Norway will then be compared to that of Korea using a qualitative empirical study based on comparative theory. The rationale for considering Norway a representative case study is two grounds. Firstly, it has ratified international conventions related to seafarers' labor. Secondly, it ranks at the top of the FAO's fisheries statistics. The objective of this study is to identify specific issues related to domestic fishers and to present the legal stipulations and principles for hours of work and rest for domestic fishers by the objectives of the Seafarers Act. The study will also aim to enhance the basic rights of fishers by improving their working environments and terms on board and to enhance their quality of life through sustainable fishing activities.

2. Theory and method

2.1. Theory

2.1.1. Legal perspective on hours of work and rest

From the standpoint of an employee working onshore, the circumstances can be construed as follows. The term "Hours of work" is defined as the period during which an employee is engaged in activities that are explicitly or implicitly directed and supervised by their employer. This encompasses all instances when the employee is at the disposal of the employer and subject to their control and instructions(Bhatia et al., 2024). The classification of rest or sleep periods within working hours as either compensable working time or non-compensable rest time cannot be uniformly prescribed across all industries or occupations. Rather, such determinations must be made by the industry, taking into account the specific terms of a contract of employment, the provisions of employment policies, and relevant collective bargaining agreements. This analysis necessitates a thorough evaluation of the nature of the employee's duties, the extent of employer control during these periods, the availability and adequacy of designated rest areas, and any other relevant factors that may influence the employee's capacity for rest or indicate ongoing employer supervision (Kim et al., 2023).

From the perspective of a seafarer engaged in fishing activities on board a vessel, the circumstances can be interpreted as follows. By Article 60 of the Seafarers Act provides hour standards regarding working and rest for fishing vessels over 20 GT,

except for non-motorized fishing vessels under 5 GT. Nevertheless, additional work may be permitted in exceptional circumstances if the ship owner can demonstrate that the need for it is unavoidable. It is advisable to examine the specific conditions and unique characteristics of fishers' work.

In examining the working conditions that affect fishers, several characteristics require legal consideration. Firstly, differentiating between the hours of work and rest for fishers is challenging due to the difficulty of accurately calculating actual hours of work. Unlike land-based workers, fishers on board engage in both fishing activities at sea and additional tasks upon returning to port (Belton et al., 2019). Often, fishers are bound by a blanket contract with a fishing company that manages the entire fishing operation, including vessel departure, fishing activity, and return. This fishing employment practice may indirectly affect the regulation of fishers' hours of work and rest (Owusu et al., 2023).

The labor market for fishers is usually through introduction or referral. Recently, there has been a notable increase in the employment of foreign fishers, all of whom are male, onboard Korean fishing vessels. The working conditions of fishers are primarily characterized by manual labor, except for some automated squid jigging machines, net haulers, and longline cranes. Nevertheless, despite the growing prevalence of automated fishing machines and systems in land-based industries, The nature of the work is contingent upon the specific fish group and the season of the fishing. Although some pelagic fisheries have transitioned towards mechanization and automation, many nearshore fisheries continue to operate predominantly under manual labor systems (Zytoon and Basahel, 2017). The distinctive nature of these working conditions necessitates the implementation of specific legal frameworks with the objective of ensuring fair labor practices and the protection of the welfare and rights of fishers. To achieve this, legal considerations must address the calculation of working hours, the impact of employment practices on rest periods, and the manual labor-intensive nature of the fishing industry. Examining the working conditions of fishers highlights significant legal responsibilities for employers. Fishing job is known for the 4D job (Dirty, Difficult, Dangerous, and Distant) due to the tough working environment. In addition, it is worrying that these conditions are extended to include Dreamless and Discrimination, which particularly affect foreigners, women, and those with low educational backgrounds (Morgan, 2016).

Therefore, the labor conditions of fish workers(fishermen) are different from those of inland workers and require special legal consideration. Due to the nature of their occupation, fishers are severely constrained in their ability to respond to abrupt changes in sea conditions, mainly due to the limited living and working space on fishing vessels. These spatial constraints contribute to substandard living conditions, as most of the available space is used for loading fishing gear. Fishers also experience irregular hours work and rest due to the unpredictable nature of fishing activities. This unique working environment separates fishers from their main port of call in both time and space, making it impossible for them to distinguish between work and rest, unlike land-based workers. These conditions call for a careful legal framework to ensure the protection of their rights and well-being.

This study utilized the MOF's statistical system and the latest data from 2022 to understand the current state of Korea's fishing fleet. The latest data from 2022 shows

that there are currently 63,669 registered fishing fleets in Korea. As illustrated in **Table 1**, the majority of registered fishing fleets in Korea, approximately 95.8% are small-scale vessels under 20 GT. The Seafarers Act does not pertain to them. Consequently, only approximately 4% of registered fishing fleets in Korea are legally required to adhere to the Seafarers Act.

Table 1. Statistics of Korea's fishing vessel fleets as of 2022.

Total (Unit: Number of fishing vessels)	**F.R.P. type fishing vessel**		**Steel-type fishing vessel**		**Other type vessel**	
	Under 20 GT	**20 GT or more**	**Under 20 GT**	**20 GT or more**	**Under 20 GT**	**20 GT or more**
63,669 (100.0%)	60,250 (94.63%)	1622 (2.55%)	55 (0.09%)	1018 (1.60%)	703 (1.10%)	21 (0.03%)
Remark	Non-motorized fishing vessels under 5 GT are excluded from consideration because they are not included in the MOF statistical data.					

Sourced: Ministry of oceans and fisheries, registered fishing vessel statistics (2023).

As illustrated in **Table 2**, the statistical data on marine accidents involving domestic fishing vessels is presented with a focus on tonnage, from 2018 to 2022. The frequency of marine accidents involving domestic fishing vessels has decreased to a marginal level compared to 2018. Notably, fishing vessels under 20 GT accounted for a considerable proportion (74%–77%) of the accidents over 2018–2022. It has been observed that these smaller-scale vessels are exposed to higher fishing activity environmental risks, which are equally relevant for fishers.

Table 2. Trends in Marine Accidents by Tonnage for Korean Fishing Vessels (2018–2022).

Contents	**2018**	**2019**	**2020**	**2021**	**2022**
Under 20GT	1491 (74.1%)	1618 (75.8%)	1810 (77.6%)	1491 (75.6%)	1472 (77.3%)
20GT or more	519 (25.8%)	515 (24.1%)	519 (22.3%)	479 (24.3%)	428 (22.5%)
Total	2010	2133	2329	1970	1900

Sourced: Korea maritime institute, fisheries and marine environment statistics (2023).
Unit: Number of fishing vessels.

Table 3. State of Korea's employed seafarers in 2023.

Contents			Number of Seafarers
Grand Total			30,587
Korean flag Vessel	Total		28,864
	Merchant Vessel	Sub-total	16,152
		Ocean-going	8634
		Coastal	7518
	Fishing Vessel	Sub-total	12,712
		Ocean-going	1104
		Coastal & Near-ocean	11,608
Foreign-flag Vessel	Sub-total		1723
	Merchant Vessel		1423
	Fishing Vessel		300

Sourced: KOSWEC, Korean Seafarers' Statistical Yearbook (2023).

As shown in **Table 3**, according to the Korean Seafarers' Statistical Yearbook in 2023 from the Korea Seafarer's Welfare & Employment Center (KOSWEC), there were 30,587 employed seafarers in Korea in 2023. Of these, 28,864 (94.4%) were employed on Korean flag vessels and 1723 (5.6%) were employed on foreign flag vessels. Of the seafarers on Korean-flagged vessels, 16,152 (56.0%) are employed on merchant vessels and 12,712 (44.0%) are employed on fishing vessels. Of the fishing crews, 11,608 (91.3%) are employed on coastal and near-ocean fishing vessels.

As shown in the above statistics, the current fishing fleet registered in Korea is composed of small-sized vessels under 20GT, and many maritime accidents have occurred on these small vessels. In addition, the majority of Korean fishers are employed on coastal and near-ocean vessels and are engaged in fishing activities. This is in contrast to the scope of the Seafarers Act, which protects fishing crews (vessels over 20GT). This demonstrates the need and justification for special provisions for fishers on small fishing vessels, who are currently not covered by the Seafarers Act. In this context, this article explores the legal foundations and principles regarding working and rest hours for fishers.

2.1.2. Legal framework for fishers' hours of work and rest: International conventions and domestic legislation

There are four principal international agreements and legislation that prescribe the working hours and rest periods for seafarers. The Maritime Labor Convention, 2006 (MLC, 2006) for seafarers and the C188-Work in Fishing Convention, 2007 (WIFC, No. 188) for fishers represent the publications of the ILO. In addition, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F) published by IMO are of note. Among these international conventions, the following are those that focus on fishers.

On 15 June 2007, the ILO adopted C188 (WIFC), an international agreement that addresses the labor rights and living conditions of fishers. The C188 (WIFC) is an international standard that aims to ensure that fishers have decent and adequate working conditions. These conditions include compliance with minimum requirements for work, labor conditions, occupational safety and health protection, accommodation and food, healthcare, and social security (Suharnata, 2024). The C188 (WIFC) clarifies the rules for fishers' hours of rest requirements in Part IV(Conditions of Service). Articles 13 and 14 of this part, under 'Manning and hours of rest', Clearly suggest the rest periods requirements for fishers. In article 13(b), it says that "fishers are given regular periods of rest of sufficient length to ensure safety and health". In Article 14(b), it says that "for fishing vessels regardless of size remaining at sea for more than three days, after consultation and to limit fatigue, establish the minimum hours of rest to be provided to fishers". The minimum rest period is (1) ten hours in any 24-hour period and (2) 77 hours in any seven-day period (ILO, 2007). These Work Rules for Fishers suggest that each ratifying country may establish minimum rest hours, taking into account the fishing environment in their country. This must be done with clear adherence to the legislative intent and philosophy of the standards (Wang and Xue, 2023).

STCW-F, adopted in July 1995 and entered into force in September 2012, was the first international convention to establish mandatory standards of human safety for fishers. It was designed to harmonize the existing STCW conventions, which set minimum requirements for credentials and minimum knowledge for deck officers, engine officers, and radio operators on fishing vessels, as well as standards for basic safety training and on-call duty for fishers. The STCW does not provide for explicit working hours but instead stipulates rest periods that are more relaxed than the MLC and WIFC. These are as follows 1) A minimum of ten-hours rest is required to be provided in any 24 hour period; 2) The periods of rest may be divided into no more than two periods, one of which shall be at least six hours in length; 3) Intervals between consecutive periods of rest shall not exceed fourteen-hours; 4) A minimum of 77 hours rest is required in any seven days. The ratification of international conventions is a matter of national discretion, taking into account the specific conditions and labor environment of each country.

This study examined the ratification status of the ILO and IMO's international conventions on seafarers and fishing crews for the 30th largest countries according to the FAO's 2023 Fisheries and Aquaculture statistics. These countries will serve as the basis for selecting the case study. The countries that have ratified all four international conventions are Norway and Morocco. The countries that have ratified three international conventions except STCW-F are the United Kingdom and Thailand. The countries that have ratified three international conventions except WIFC are Japan, Indonesia, Russia, Iceland, Spain, and Canada. Finally, the countries that have ratified only two international conventions are the Republic of Korea, the Philippines, China, India, Vietnam, Bangladesh, Chile, Myanmar, Malaysia, Brazil, Iran, Nigeria, and Oman.

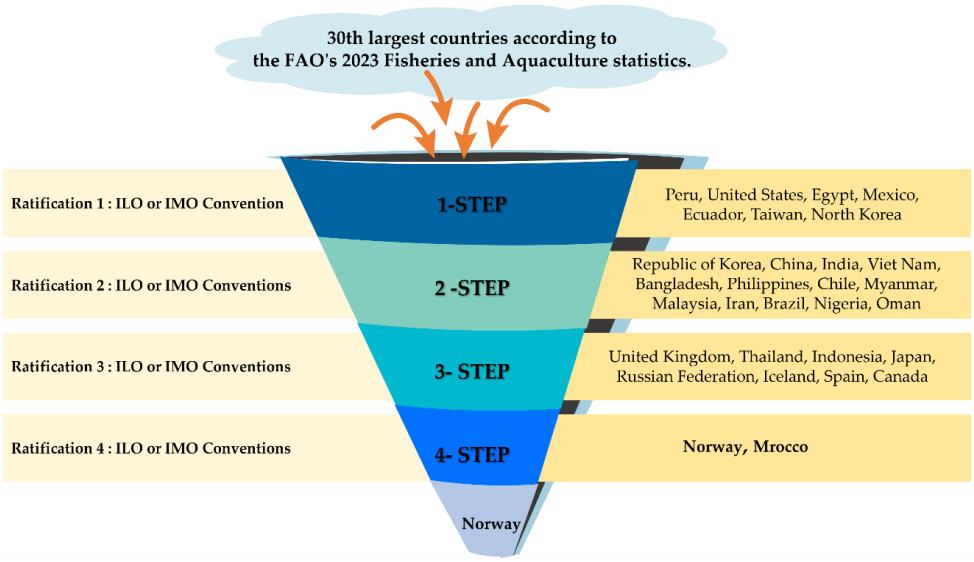

Figure 1. Deriving case benchmark countries with an inductive multi-layer baseline model.

This study determined that an inductive, multi-layered baseline model was the best approach for selecting the case country for analysis. Norway and Morocco, which

represent Step 4, were chosen as the case countries. However, in the case of Morocco, our research was constrained to a review of national legislation. Consequently, we elected to focus our case study on Norway. As illustrated in **Figure 1**, the benchmarked case selection process employs an inductive, multi-layered baseline model, with the step of ratification of international conventions serving as the foundation.

2.1.3. National legal framework for hours of work and rest for fishers in the Republic of Korea

Adequate rest includes not only the right to leave but also daily and weekly rest periods and limits on maximum working hours. The right to rest is also crucial to work efficiency and safety at work (Barwaśny, 2022). Therefore, it is essential to establish specific rules on adequate rest for fishers working in hazardous conditions in order to regain their strength and exercise the right to health and safety to which everyone is entitled under international law. In this context, the Peace Treaty of Versailles (Article 13 of the Labor Code), signed by the ILO in 1919, stipulates that working time limits and guaranteed rest periods are generally 48-hours per week and eight-hours per day. As a consequence of these laws, legislative framework and amendments to the Labor Standards Act in 1989 and 2003 revised the working hours of workers to 44-hours per week and 40-hours per week, respectively(Baumler, 2020). Although the Republic of Korea has not yet ratified the ILO's C188 (WIFC), which is an international convention relating to the labor of fishers engaged in fishing activity, the application of these laws to domestic law is detailed below.

The Seafarers Act and Labor Standards Act have been instrumental in establishing the legal principles and framework that limit the hours of work and guarantee the hours of rest for fishers in the Republic of Korea. Article 59 (Special Exceptions to Working Hours and Rest Periods) on the Labor Standards Act provides for special exceptions to the hours of work and rest for certain industries, taking into account the specificities of the industry. These industries include land, pipeline, water, and air transportation services, other transportation-related services, and health care services. Fishing activities can be interpreted in a variety of ways, including water transportation services and other related services, based on industry-specific criteria promulgated by the MOF. In addition, the 2018 revision of the Act introduced a regulation limiting the hours of work to 52-hours per week for establishments with 300 or more employees. On this basis, special exemptions may be granted for the working environment and labor standards of fishers.

The Seafarers Act explains the legal foundations and related stipulations regarding working hours and rest hours for seafarers. This is further elaborated in Article 60 (Working Hours and Rest Periods) and Article 68 (Scope) of Chapter VI on working hours and compliance with the Act. The Seafarers Act, which stipulates matters related to seafarers' work on board, standards of labor conditions, employment security, welfare, training, and education, applies to all Korean-flagged vessels, which applies to fishing vessels subject to the Fisheries Act of, unless otherwise specified. However, according to Article 3 (Scope of Application) of this Act, the following vessels are excluded from coverage: (1) A ship under 5 GT and which is not a seagoing ship; (2) A ship(excluding a tugboat) sailing only within a lake, river, or harbor; (3) A fishing vessel under 20 GT and which is a ship prescribed by MOF; (4) A barge.

Article 60 (Hours of Work and Rest) of Chapter VI in the Seafarers Act provides that the working hours for seafarers shall be 40-hours per one week and eight-hours per one day, but by agreement between the seafarer (employees) and the shipowner, the hours of work may include overtime up to a maximum of sixteen hours per one week (paragraph (1). In addition, notwithstanding paragraph (1) above, a shipowner may require a seafarer who keeps the navigational watch to work overtime up to sixteen-hours per week and other seafarers to work overtime up to four-hours per week. A seafarer's rest period shall be not less than ten-hours in any 24-hour in a day for period and not more than 77-hours in a week, and a rest period of ten-hours or more in any 24 hours may be divided into only one period (Paragraph 3). In such cases, rest periods of not less than ten-hours in any 24 hours may be divided only once, one of which shall be at least six-hours in length, and a maximum of fourteen hours between consecutive rest periods. In addition, Article 60 (Hours of Work and Hours of Rest) empowers the MOF to approve a collective agreement that establishes disparate standards for the hours of work, the distribution of rest periods, and the intervals. This is the case for seafarers engaged in on-call or assigned duties on ships engaged in short-term voyages when necessary. This may be done, taking into account the frequency of ports of entry and departure and the nature of the fishing activity.

However, based on Article 68 (Scope of Application) of Chapter VI in the Seafarers Act, there are exceptions to the above provisions for (1) A sailing ship that is not seagoing; (2) A fishing vessel except a ship that transports fishing activity; (3) A ship under 500 GT and which is not a seagoing ship; (4) Other ships prescribed by Ordinance of the MOF. Where deemed necessary, the MOF may separately determine the standards of hours of work and the complement of seafarers applicable to ships falling under any of the listed exceptions.

After reviewing the laws that regulate working hours and rest periods for seafarers (workers) in Korea, we found that there are blind spots as shown below **Figure 2**, and we would like to propose a legal basis and regulations to improve the labor environment and guarantee rest periods for fishers that can protect these blind spots.

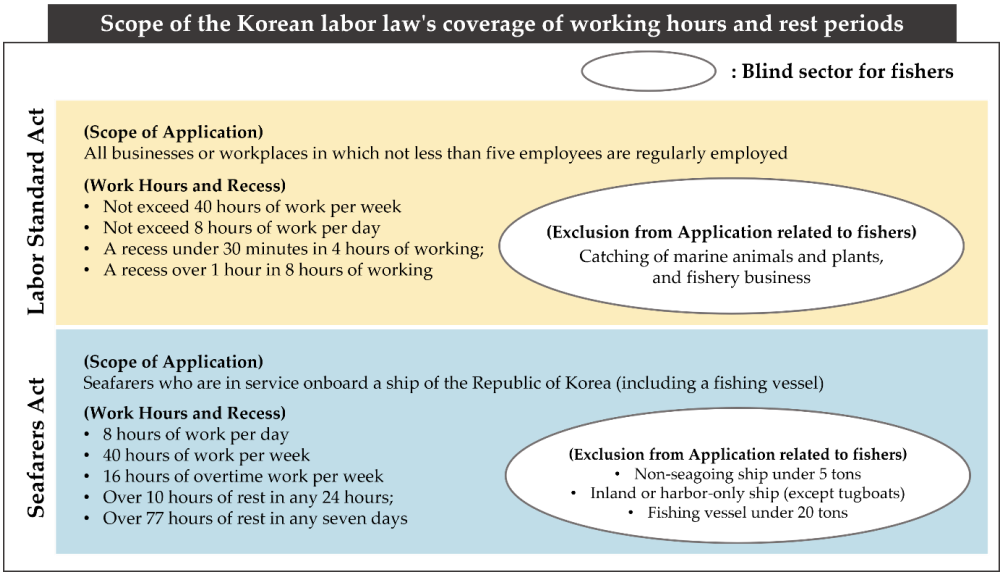

Figure 2. Blind Sectors in Korean law that could protect fisheries workers.

2.2. Method

A qualitative empirical study based on comparative theory is a set theory construction approach to conceptualizing and empirically investigating potentially complex causal relationships(Cilesiz and Greckhamer, 2020). Qualitative comparative analysis is particularly well suited to retrospective research designs because it focuses on a holistic understanding of the case and the complex configuration of conditions associated with an outcome, which can identify the factors that cause a particular phenomenon, such as a legislative outcome (Fischer and Maggetti, 2016; Scharpf, 2018). Qualitative comparative analysis is also particularly well suited for researchers who want to systematically compare small to medium numbers of observations and gain deeper insights into the complexity of a case while maintaining a certain level of generalizability (Fischer and Maggetti, 2016; Rihoux et al. 2011).

In this study, we employed a qualitative empirical study based on comparative theory. This approach allows for the derivation of compelling improvement directions through the comparative analysis of a single case within a defined range. To conduct a comparative study, it is necessary to select a case country for analysis. The objective of this study is to examine the major fishing countries that have ratified the international conventions on maritime labor, including the MLC, C188 (WIFC), STCW, and STCW-F. The number of ratifications was considered a step in the process. Ratification of all four conventions was designated as 4-STEP, while ratification of three conventions, including WIFC, was designated as 3-STEP(WIFC). Similarly, ratification of three conventions, including STCW-F, was designated as 3-STEP(STCW-F), and ratification of two conventions (MLC, STCW) was designated as 2-STEP. The selection model of the case country was employed as an inductive multi-layered baseline model, which is a step-by-step, inductive, multi-layered approach to identifying countries for analysis. The benchmark case country is Norway. The selection was based on the following criteria: the availability of sufficient publicly accessible data for the conduct of a case study, the existence of codified and accessible laws, and the existence of a representative sample of the country's maritime industry.

The qualitative comparative analysis of working and rest standards for fishers is defined as the transfer of social systems or the underlying ideas from national to global standards level (Nunez-Sanchez et al., 2020). In this study, it is assumed that the comparison of fishers' working standards is mainly related to the distinction of hierarchical levels, which will help to analyze national social systems and improve the understanding of advanced benchmarking countries in the fisheries sector. In other words, a qualitative comparative analysis is used to compare fishers' working standards, which can systematically compare small to medium observations and provide in-depth insights into the complexity of cases while maintaining a certain level of generalizability (Fischer et al., 2017). Therefore, it is appropriate to conduct a qualitative empirical study based on comparative theory, as a qualitative case analysis of the labor standards of fishers should consider various factors. **Figure 3** shows the concept of the research method.

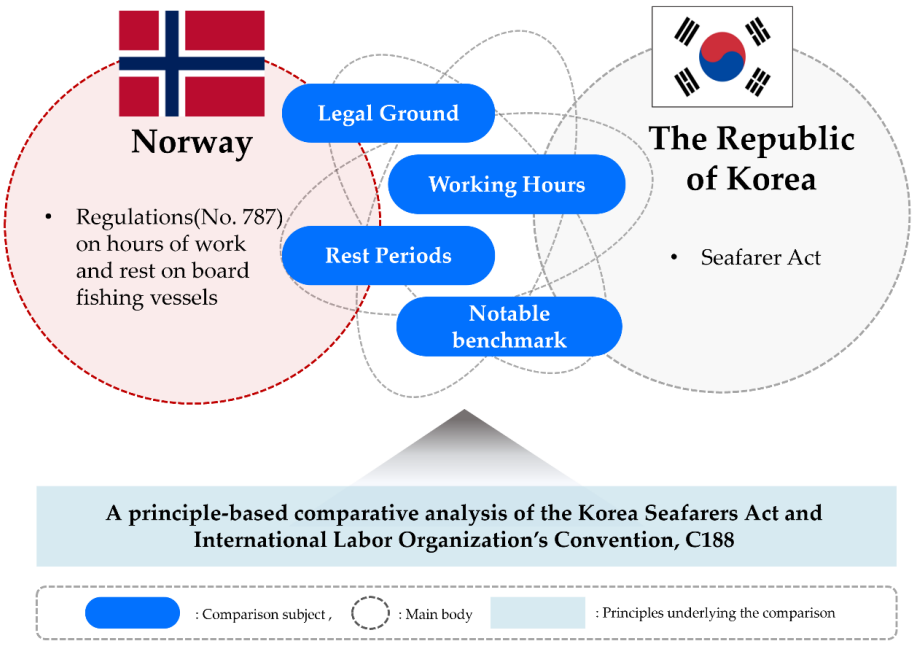

Figure 3. Qualitative empirical method based on comparative theory.

Qualitative comparative study is based on the assumption that in the real social world, multiple causal conditions interact in the most common but complex ways to produce outcomes. The desire to explore this complexity requires the researcher to make theoretical claims through in-depth knowledge of the case under study and its theoretical context (Fischer et al., 2017). In other words, although the qualitative comparative analysis method has the limitation that the researcher's subjectivity may be inherent in the study, this approach can effectively categorize, differentiate, and explain the complexity of specific situations and the factors that include unique measures. Moreover, such qualitative studies often play a pivotal role in arriving at precise solutions to the complexities of the policy process. Therefore, we can justify the use of qualitative comparative methods to analyze fishers' labor standards in national systems. This study used the comparative model to contribute to the development of legal rationale and principles on hours of work and rest to improve the labor conditions and treatment of fishers and addressed the following key research questions(RQs) :

No.1 RQ: What are the policy implications of labor standards, including work and rest, for Norwegian fishers?

No.2 RQ: What are the legal implications for Korean fishers from the dual comparison between Norway and the Republic of Korea?

This study examined the descriptive information in an explanatory, descriptive, and exploratory way, focusing on the keywords derived from the RQs mentioned above.

The labor standards including hours of work and hours of rest, and benchmarking cases. The study also aimed to identify areas for improvement and propose solutions to address the identified problems. As illustrated bellowed in **Figure 4**, the research process and design involved a horizontal comparison of domestic fishing companies to identify areas for improvement and propose solutions. The ultimate goal of this

study is to contribute to the improvement of fishers' labor conditions and quality of well-being.

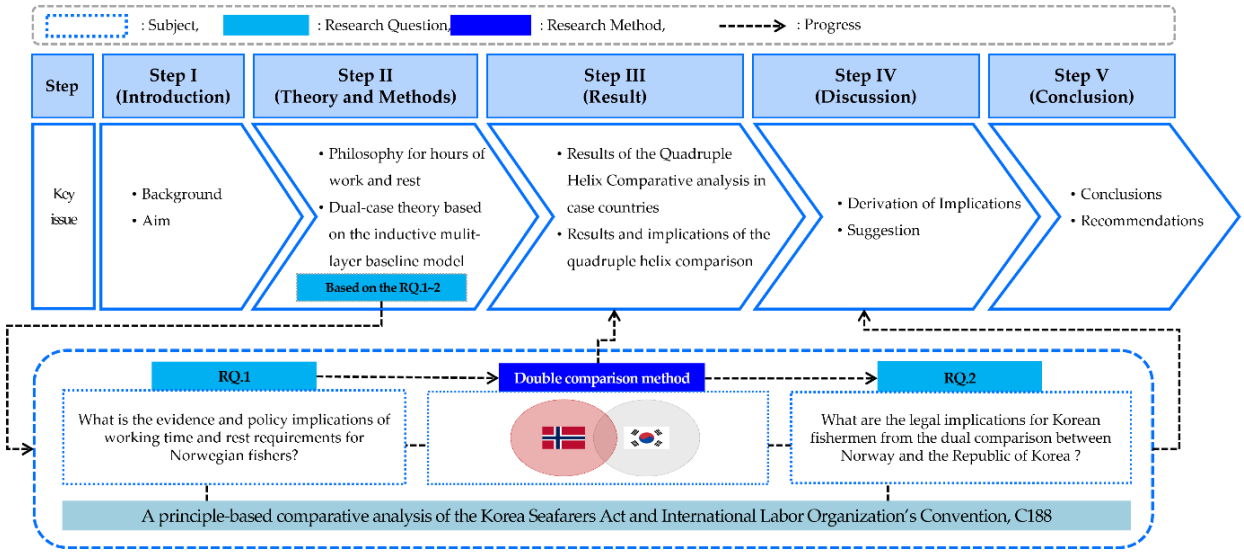

Figure 4. Research process and design.

3. Result

3.1. The results of a qualitative empirical study on the sustainable improvement of working conditions for fishers

3.1.1. Findings for the evidence and policy implications for Norwegian law

The Norwegian government permits collective agreements for seafarers to regulate the labor conditions of fishers to safeguard their labor rights and interests. Nevertheless, the exceptions laid down in the collective agreements for seafarers are complementary to ensure that they do not contravene the ILO's C188 (WIFC) or the EU Directive (Tindall et al., 2022). Norway ratified the ILO's MLC on February 10, 2009, and C188 (WIFC) on 8 January 2016. After ratifying the international labor conventions for seafarers and fishers, Norway enacted separate implementing laws for ships, seafarers, fishing vessels, and fishers (Thorvaldsen et al., 2020). In Norway, the Norwegian Ministry of Trade, Industry, and Fisheries is responsible for regulating labor standards for fishers, including hours of work and rest. This is done through the "Regulations on hours of work and rest on board fishing vessels," Section 3: Working hours and hours of rest (25 June 2003, No. 787) (LOVDATA, 2017). It is evident that Norway has ratified the IMO C188 (WIFC), which harmonizes national legislation with international norms. This exemplifies a benchmarking opportunity for other nations. In accordance with Section 3 of the aforementioned regulations, the standard workweek for Norwegian fishers is 48-hours, with a minimum of ten-hours of rest per 24-hour period. In accordance with section 3 of this Article, the hours of rest are not be less than ten-hours in any 24-hour period, and not less than 77-hours in seven day period. The ten-hours of rest in a day can be divided into two periods, one of which must be at least six-hours long. And the interval between the two rest periods doesn't exceed fourteen-hours. Nevertheless, a shipowner may require fishers to do work during working hours that is necessary for the immediate safety of the fishers and

crews, the vessel or cargo, or for the rescue of another vessel or a fisher in distress at sea. Then, the captain of the fishing vessel must ensure that the person who did the work is well rested during scheduled rest periods as soon as possible after the situation on board has been restored to normal. Furthermore, in 2016, the EU established the following guidelines through a Council-approved agreement between the social partners on fishing activities. The guidelines set minimum requirements for working hours, rest periods, labor conditions, health and safety, procedures in case of injury or death, medical care at sea, fishers' salaries, housing, and food for fishers in Member States (Scheppele et al., 2020). These efforts can be interpreted as an attempt to protect fishers' rights, health, and safety in order to minimize the gap between labor standards at sea and on land and aim to maintain sustainable fishing activities (Fujii et al., 2021). Consequently, it can be argued that Norway seeks to protect the welfare and rights of its fishing industry workers by proactively incorporating international conventions, such as ILO C188 (WIFC), into its national legislation and rigorously enforcing them within the country.

3.1.2. Findings for implications of the qualitative comparison between Norway and The Republic of Korea

The ILO's labor regulations for fishers are based on the principle of guaranteeing a minimum of ten-hours of work in 24 hours and 77-hours of rest in seven days, and allow contracting parties to determine the specific methods of implementation.

Table 4. Qualitative empirical comparison between Norway and The Republic of Korea.

Division	Norway	The Republic of Korea	Comparison of Equal Levels
Legislation	Hours of work and rest on board fishing vessels on Regulations No. 787	Seafarer Act for fishing vessels over 20 GT	Both countries have laws regulating the working and rest hours of fishing vessel crews, but there are differences in scope and specifics. Norway provides a specific date and regulations, whereas the Republic of Korea applies the Seafarer's Act based on vessel tonnage.
hours of work	Based on a period not exceeding 12 months in any one year, average 48 hours per week on board	Eight-hours per day, 40-hours per week, No separate regulations for fishing crews	Norway mandates an average of 48 hours per week over a period not exceeding 12 months, presenting a long-term average. On the other hand, the Republic of Korea sets a standard of eight-hours per day and 40-hours per week, with no separate regulations for fishing crews (fishermen).
hours of rest	Ten-hours a day, 77 hours a week	Ten-hours per day, 77-hours per week	Both countries have identical regulations, stipulating ten-hours of rest per day and 77-hours per week, indicating equal levels in this aspect.

Note: Reorganize the authorship of the Norwegian case based on the Seafarer Act in Korea.

In Korea, we have a Seafarers Act in place that sets out labor standards, including hours of work and rest, for seafarers on board vessels, but it is limited in scope, as it does not apply to fishers or workers aboard small fishing vessels under 20 GT. In Norway, they guarantee fishers the same hours of rest as the ILO minimum standards (Ten-hours per day, 77 hours per week) and set minimum requirements for, among

other things, hours of work, hours of rest, labor conditions, occupational health and safety, procedures in case of injury or death, medical care at sea, seafarers' wages, and housing and food on board fishing vessels. The following **Table 4** is a qualitative empirical comparison of Norwegian and Korean fishers' laws, hours of work, hours of rest, and benchmarking practices.

4. Discussion

Given the diversity of fishing vessels, it is evident that the working conditions, methods, forms, and operating hours vary according to the type of vessel (Guan et al., 2021). Consequently, there may be limitations to the uniformity of labor standards including the hours of work and rest. However, approximately 96% of fishers work on small-scale vessels under 20 GT, which are not subject to the regulations governing seafarers. Consequently, the study emphasizes the necessity of establishing standards for the hours of work and the hours of rest for these vessels, which are currently unregulated. It also suggests that these standards should be tailored to the specific circumstances of each country's fishing environment.

Table 5. Proposed amendments to Article 68 of the Seafarers Act.

Original provision to Article 68 of the Seafarers Act	**Amendment provision to Article 68 of the Seafarers Act**
Article 68 (Scope of Application) (1) The provisions of this chapter shall not be enforced to any of the following vessel (excluding a tugboat registered under Article 24 of the Act on the Arrival and Departure of vessel): 1. A sailing vessel that is not seagoing; 2. A fishing vessel other than a vessel transporting fishery products; 3. A ship the gross tonnage of which is less than 500 tons and which is not a seagoing vessel. 4.Other ships prescribed by the Ordinance of the Ministry of Oceans and Fisheries(MOF). (2)Where it is deemed necessary, the Minister of Oceans and Fisheries (MOF) may separately determine the standards of hours of work and the complement of seafarers to be applied to vessels falling under any of the subparagraphs of paragraph (1).	Article 68 (Scope of application) [Insert new paragraph after the original article] (3)The Minister of Oceans and Fisheries(MOF) shall develop distinct standards for the hours of work and rest for workers on board the name of the fishing vessel. These standards shall reflect the working characteristics of fishing vessels of less than 20 gross tonnage (excluding non-motorized fishing vessels of less than 5 gross tonnage).

As previously discussed, the major overseas fishing country(Norway) also establishes particular regulations regarding the labor standards for the fishers acknowledging that emergency accidents could be occurred for a variety of causes and external conditions related to fishing activities on board. Furthermore, the hours of work and rest specified in the Korea Seafarers Act are consistent with the conditions outlined in the ILO C188 (WIFC). Article 68(2) of the Seafarers' Act permits the establishment of separate standards for seafarers' working hours and the number of seafarers on board in cases where it is considered appropriate to do so. It is, therefore, necessary to extend and apply the hours of work and rest of the Seafarers Act to fishers on board small-scale fishing vessels under 20 GT, except for non-motorized fishing vessels under 5 GT, as shown in **Table 5** above. Furthermore, as illustrated in **Table 6**, it is advisable to safeguard the hours of work and rest of fishers while allowing

flexibility in the working conditions of fishermen engaged in harvesting, transhipment, processing, etc. in small-scale fishing vessels of less than 20 GT, excluding non-motorized fishing vessels under 5 GT, which are not explicitly addressed in the Seafarers Act. The objective of this study can be achieved by establishing particular regulations that reflect the labor characteristics of fishing fleets. To ensure that the vessel's labor conditions are sufficiently reflective of the fishing environment, it is necessary to allow for an acceptable level of the Ministry of Oceans and Fisheries Municipal Ordinance.

Table 6. Municipal ordinance for hours of work and rest for workers aboard the name of the fishing vessel under 20 GT under the Seafarers Act.

Article 1 (Objective) The purpose of this municipal ordinance is to design hours of work and rest for workers aboard the name of the fishing vessel to cultivate the management of fishing affairs and ensure the well-being of the fishermen.
Article 2 (Definition) In this ordinance, the term "name of the fishing vessel" refers to a fishing vessel of less than 20 GT engaged in direct fishing activities, such as harvesting, transhipment, processing, etc., excluding vessels used for other purposes, such as a vessel used for transporting caught fish, fish factory vessels, fishing support vessels, fish farm vessels, skiffs, lightships and fishing vessels licensed to support in the fishing activities of licensed fishing vessels as referred to in Article 3 of the Seafarer's Act.
Article 3 (Hours of Work for onboard) (1) The working hours of an employee on board for the name of the fishing vessel shall not exceed eight hours per day, excluding periods during which fishing work and duties are carried out.
(2) Maximum 40 hours/week.
(3) However, if there is only one worker on board, these ((1),(2)) limits do not apply.
Article 4 (Hours of Rest for onboard) (1) Workers shall be granted at least ten hours of rest per day of fishing activity on board the name of the name of the fishing vessel .
(2) The hours of rest under the regulations of the preceding paragraph shall include at least consecutive six-hours of rest. However, the captain could reduce the standard 24-hour rest period to 18 hours if there is a temporary need to do so.
(3) The rest periods referred to in the previous paragraph shall include two consecutive periods of four hours on board for any fishing activity.
(4) If the captain of the name of the fishing vessel shall reduce the rest period in accordance with the provisions of this paragraph, the captain shall, in addition to the agreed rest period, provide a rest period equal to the shortened period within two days.
Article 5 (Reduction of hours of work during fishing activity, etc.) The captain of the name of the fishing vessel shall endeavor to reduce the hours of work for workers during agreed fishing activity and ensure an adequate hour of rest outside of fishing job and duties, including national holidays of the workers' respective nationalities, through reduced hours, holidays, vacations, or otherwise.
Article 6 (Overtime Work for onboard) The captain could extend the hours of work for fishermen beyond the limits and rest periods laid down in the provisions of Articles 3 and 4 in the event of an emergency accident at sea, excluding fishing operations from the scope of Article 7.
Article 7 (Excluded Work onboard) The provisions of Articles 3 through 6 shall not apply to fishermen engaged in the following activities and duties as instructed by the captain.
(1) Work for the Job and duties necessary during emergency accidents to ensure the safety and health of human life, the vessel, or fishing products, or to rescue human life or another vessel.
(2) Firefighting, fire prevention, evacuation abandon ship drills, and similar training duties.
(3) Work for the Job and duties essential for the agreed rotation of job and duties during the fishing activity all sailing.
Article 8 (Excluded Persons) The provisions from Article 3 to the preceding Article shall not apply to persons according under any of the following subparagraphs.
(1) The officers occupying senior positions on deck part, as well as those in the engine part, other than those engaged in navigation, and their equivalents within the name of the fishing vessel, are to be considered part of the fishing vessel.
(2) Individuals supervising recreational fishing operations for leisure.

5. Conclusion

The Seafarers Act in the Republic of Korea is applicable to all categories of seafarers employed on merchant and fishing vessels. However, approximately

registered fishing vessels under the Ministry of Oceans and Fisheries(MOF) are not covered by the Act because they operate on small-scale fishing vessels under 20 GT. There is no legal framework for small-scale fishing vessels under 20 GT, except for non-motorized fishing vessels under 5 GT, which is mandated by the Seafarers Act. So, the legislation must be reinforced. Thus, This study conducted a dual comparative analysis of labor standards, including hours of work and rest for fishers in Norway, which is a benchmark for fishing countries in Europe. The above is a summary of the study's findings on the extent of compliance with the ILO C188 (WIFC) and the approaches to protecting fishers in Norway.

Norway and the Republic of Korea have each enacted robust legislative frameworks, tailored to their national circumstances, aimed at supporting fishers' hours of work, ensuring adequate hours of rest, and promoting sustainable fishing practices on board. In addition, Norway has incorporated these measures into its national legislation in line with international standards, including the ILO C188 (WIFC). In addition, in 2016, the EU partnered with Norway to establish comprehensive guidelines through an agreement to set minimum requirements for the overall labor standards for fishers.

Secondly, Norway ratified the ILO C188 (WIFC) to ensure that fishing workers have adequate rest and safe working conditions. This aligns with the protection of the health, safety, and rights of fishers and the enhancement of labor conditions in the small-scale fishing industry. The ratification of ILO conventions is regarded as an integral aspect of fulfilling these responsibilities and improving the protection and labor conditions of fishers. Consequently, the average working week for fishers in Norway is no more than 48-hours, with a minimum of ten-hours rest per day guaranteed. This is achieved through the use of advanced technical automation fishing activity systems and equipment. Furthermore, Norway has additional protections for fishers who work at night, including medical checks and the provision of rest facilities.

This study compares the regulations governing the hours of work and rest for fishers in both the Republic of Korea and Norway, assessing their adherence to the ILO's minimum rest standards and evaluating the effectiveness of each country's protective measures for fishers. Norway has aligned its national legislation with international standards. In contrast, the Republic of Korea exhibits gaps in safeguarding fishers' working hours and rest periods, particularly concerning small fishing vessels under 20 GT and non-motorized vessels under 5 GT, which are not explicitly covered by the Seafarers Act. To ensure equitable compensation for fishers' extensive onboard and fishing activities, it is imperative to clearly define working conditions and rest periods through amendments to the Seafarers Act, including provisions in municipal ordinances for seafarers aboard the name of the fishing vessel under 20 GT.

To achieve the primary objective of this study, it is necessary to extend the provisions of the Seafarers Act to encompass fishers on small fishing vessels under 20 GT and to introduce tailored regulations that accommodate the distinctive operational characteristics of fishing vessels. This can be achieved through the development of specific guidelines, such as the Municipal Ordinance for working hours and rest periods for seafarers aboard the name of the fishing vessel under 20 GT on the Seafarers Act, which would provide flexibility in working conditions. Nevertheless,

this study, which focuses on existing literature and proposes enhancements, acknowledges a limitation using a dual comparative method based on deriving case benchmark countries with an inductive multi-layer baseline model. It is recommended that further consultation with relevant stakeholders be conducted to broaden the definition of the name of the fishing vessel and to ensure the legislative framework's broader acceptance.

Finally, this study is significant as it identifies shortcomings in the current legal framework through a comparative analysis with benchmarked countries like Norway. This was achieved by establishing case benchmark countries using an inductive multi-layer baseline model and international standards for working hours and rest periods for fishers. Furthermore, the study acts as a catalyst for discussions aimed at improving the working conditions for fishers. However, due to the diverse nature of fishing vessels and their associated working conditions, prescribing uniform working hours and rest periods is impractical. Therefore, conducting a comprehensive survey on the various work methods, tools, and conditions of domestic fishing vessels is essential. This will inform the development of a more tailored approach to regulating working and rest standards for fishers, thereby enhancing their legal acceptance in the future.

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