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Various Seafarers’ Training Programs Needed for Fishery Industries

1. Introduction

Seafarers have been playing a key role as human resources for ocean fisheries. While Korean seafarers have reduced to 37,000 in 2015 from 39,000 in 2011, fishing seafarers excluding seafarers employed overseas have reduced to 17,151 from 18,083 during the same period. Their main duties are navigation, engine operation and fishing work on board ocean fishing boats, offshore fishing boats and foreign fishing boats.

2. Trends and New Challenges

In contrast to 797 graduates from fisheries universities and high schools in 2015, actual job seekers on board fishing boats are only 246 (31%). Graduates from fisheries educational institutions are composed of those studying in departments including fishing, engine operation, and maritime police. Out of all the graduates of 2015, certified seafarers are 307 (38.5%). They are 179 navigation officers with 3-6 grades, and 128 engine officers with 3-5 grades. Due to Korean seafarers’ high rate of separation from ocean and offshore fishing boats, foreign seafarers have increased to 11,815 in 2015 from 9,949 in 2011. In case of ocean fisheries, Korean seafarers are 1,823, compared to 3,374 foreign seafarers in 2015. Foreigners come from various countries such as Indonesia, Vietnam, China and Sri Lanka.

Due to a changed national composition of decreasing Korean seafarers and increasing foreigners, multi-nationality and multi-culturality, the importance of leadership role of captain and engine chief officer of fishing boats has been clearly recognized in dealing with problems occurring on board. In case of 20-month long term fishing operations such as ocean tuna fishing, control of seafarers’ fishing operations and on board living conditions has become more conspicuous.

3. Various Seafarers Training Programs to be Developed

The steep separation rate and aging of seafarers may deplete adequate supply of maritime human resources including seafarers. The average age of Korean seafarers rose to 50.5 in 2015 from 40.5 in 2001. Aging is an immediate problem to Korean maritime industries. The problem of aging seafarers, who are older than 60, is serious and their proportion has already reached 26.5%. This aging problem may result in stoppage and difficult transfer of fishing and maritime skills to the next generation.

Preparation and implementation of various seafarers’ training programs are in the way of providing on the job training and internship programs. It is necessary to train seafarers in the way of on board training of shipping companies and extended training programs of seafarers offered by Korea Maritime and Fisheries Institute. A seafarers’ training program for the time being has been successful to offer maritime officer certificates to those who graduated fisheries high schools through training on board ships and interviews.

4. Policy Recommendations

Extended on Board Training Programs of Seafarers

It is necessary to extend the existing seafarers’ on board training programs by Korea Maritime and Fisheries Institute to fisheries university students and general high school graduates. Development of a special seafarers’ training program for graduates from general high school should be proposed and examined in a way to broaden the base of seafarers’ skill trainings.

<table>
<thead>
<tr>
<th>Year of graduation</th>
<th>Graduate Boarding</th>
<th>Reserve</th>
<th>Job taker</th>
<th>Boarding Rate (%)</th>
<th>Separation</th>
<th>Separation rate (%)</th>
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<td>293</td>
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<td>454</td>
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<td>246</td>
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</table>

Development of Internship Programs

Ocean and fisheries associations may develop special sea-farers' internship training programs so that the trainees may obtain maritime officer certificates after finishing the training courses. The internship programs provided by ocean fishing companies and offshore fishing companies may train qualified human resources for fishing operations and fisheries.

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The History of the Arctic, Dominating Crucial Phases of the History of Europe since the Middle Ages ②

Crisis of the Middle Ages 1: Faltering Roman Catholic

Featuring the Roman Catholic and feudalism as major characteristics, the Middle Ages began to wither away after seven rounds of Crusades (1096-1291). The Roman Catholic seriously undermined its authority, as it had failed to achieve the original objective of the Crusades: the reclamation of the Holy Land. In an effort to maintain the weakening papacy, the Holy See engaged in a tug of war with temporal monarchs. However, pressed to come to France by King Philip IV, Pope Clement V humiliated himself by moving the papal capital to Avignon. This is what was famously known as the Avignon Papacy (1309-1377). Ultimately, the papacy was returned to Rome, only following the Western Schism (1378-1417): when two rival claimants to the papacy emerged, each having been elected by cardinals of the Avignon Church and the Roman Church with each becoming the head of their respective church. As many parts of the Europe, led by John Wycliffs (unknown-1384) of England, Jan Hus of Bohemia (now Czech Republic) (unknown-1415), and Girolamo Savonarola (1452-1498) of Italy, increasingly called for the reform of the Church, the authority of the Roman Catholic fell precipitously.

Crisis of the Middle Ages 2: Weakening Feudalism

Following the Crusades (1096-1291), feudalism also started to weaken rapidly. In particular, knights who had stood at the top of feudalism were damaged the most. As many knights were killed during successive wars, survivors waged conflicts over the ownership of the lands left in hometowns, accelerating the weakening of the groups of knights. Furthermore, some knights mortgaged their territory to pay the costs of the war. Therefore, even if they survived and went back home, it was not easy for them to recover the economic status that they had previously enjoyed. Moreover, the crisis of the feudal system was exacerbated with dramatically decreasing numbers of peasants who should have been working at manors, along with their changing social status. For example, the Black Death drove more than one third of the European population to death during the period between 1347 and 1350 alone, resulting in the overall decrease of labor.

With the remarkable growth of cities after the crusades, an increasing number of peasants were trying to escape to a city in search of freedom. A peasant could gain freedom by escaping from a manor to a city and living there for more than a year. Consequently, knights had no choice but to improve the peasants' labor conditions in an attempt to appease them, which contributed to the further weakening of feudalism.

A New Change amid Crisis: the Rise of the Hanseatic League

Under such a chaotic social atmosphere, an important social and economic change took place at the international level, marching towards the modern age: the Hanseatic League. The Hanseatic League was an alliance of trading guilds that established and maintained the safe navigation of vessels at sea, providing joint security among members and expanding their influence among the cities of the coast of Northern Germany and the Baltic during the 13th-15th century. The Hansa cities exported crops cultivated in Germany and the coast of the Baltic Sea to Scandinavia and eastern England. In return, they concentrated on importing dairy products, fish and fur from Scandinavia, as well as wool and wool textiles from England. Among those cities, territories such as Bergen of Norway and Novgorod of Russia were well known. The Hanseatic League was able to accumulate so much wealth that even the Kingdom of Denmark waged a war with this alliance of Hansa cities out of envy.
The Hanseatic League, the Arctic Circle’s Proactive Response to the Change of an Era

In summary, the Arctic region centering on the Baltic Sea formed an alliance of cities in the late-Middle Ages. In doing so, the area was able to overcome the challenges of the past, when it had been relatively underdeveloped, and gain a prominent position for new growth. As the power of the Church fell, people were increasingly interested in a reality along with a prominent development of cities. Under such circumstances, the Arctic region gained the spotlight by establishing a practical alliance of cities that bonded with commercial interests. Later, the Hanseatic League fell into recession due to conflict between member cities and non-member cities over the closed operating system and changing trade routes arising from the development of new sea routes. However, the economic and political capacity generated by the Hanseatic League was a major engine for the Arctic region to take an important role during the beginning of the Modern Ages when the Wars of Religion drove the entire Europe into turbulence.

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The History of the Arctic, Dominating Crucial Phases of the History of Europe since the Middle Ages

The Reformation and the Rise of the Protestant Church

The Reformation led by Martin Luther in 1517 put an end to the faltering medieval church and divided it into two: Roman Catholics and Protestants. At that time, Luther opposed the Catholic Church for claiming that people could buy indulgences to ensure the partial or full remission of sins being punished in Purgatory—an intermediate state after death where sinners undergo purification so as to achieve the holiness necessary to enter into heaven. Also, Luther asserted that God's pardon for guilty sinners is granted to and received through faith alone, which was also in opposition to the doctrine of Catholicism that emphasized the importance of both faith and good deed. In addition, Luther strongly opposed hagiolatry (the worship of saints) within the church and denied the authority of Canon Law and other church traditions extraneous to the Bible.

With Luther’s reformed faith, Luther and other reformers of the time enrooted Protestantism across Europe. In particular, John Calvin deserves mention here. Concentrating his effort to help reform the church in Geneva, Switzerland, Calvin’s theology greatly influenced the Presbyterians in Scotland, the Huguenots in France, and the Geuzen in the Netherlands. On the other hand, Luther’s theology greatly appealed to people in Northern Germany and Northern Europe.

Response from the Roman Catholic Church against the Reformation

To counter the Protestant movements, the Roman Catholic Church mainly responded in four ways: (1) Publishing the Index of Forbidden Books, it began to operate the Roman Inquisition to try people deemed in support of Protestantism, and tortured and persecuted those found guilty; (2) Holding successive sessions of the Council of Trent from 1545 and 1563, it reconfirmed its dogmatic theologies and condemned Protestantism for heresy; (3) Through self-reforming efforts, it prohibited practices that had been under criticism at the time, including clerical marriage and simony (buying and selling priesthood); and (4) it officially approved the Society of Jesus, established by Ignatius Loyola, a theologian in Spain, thereby limiting the expansion of Protestantism and stepping up its effort to actively promote its missionaries overseas.

Thanks to support from the Society of Jesus, the Roman Catholic Church managed to maintain its clout over Central and Southern Europe. In addition, it entered into Japan and Central and South America, tapping into the trends of the Age of Exploration, which also took place during the time of the Reformation.
Fragile Co-existence: the Peace of Augsburg (Augsburger Religionsfrieden)

The Lutheran Reformation had a great impact on the German region where the Roman Catholic Church enjoyed its strongest influence. In fact, the region was politically vulnerable at the time and the Roman Curia made a strategic decision to sell indulgences there. While the sales were to raise funds for the reconstruction of St. Peter’s Basilica, there was a strong backlash from the residents against the acts of the Curia. Empowered by the unstable and divided political situation in the German region, the Reformation brought about major chaos. Charles V, Holy Roman Emperor and the political head of the region at the time, tried to consolidate his hold of power by teaming up with the Roman Curia. On the other hand, local lords who wanted to set themselves free from the control of the emperor partnered with proponents of Luther. Eventually, the two sides initiated a civil war that lasted for decades, before the Peace of Augsburg in 1555 finally brought it to an end. Both the Roman Catholic Church and the Protestants reached an agreement on two sides. First, the proponents of Luther were denied of the heresy charge thereby established the Lutheran Church. Second, a ruler of each region was able to choose either from the Roman Catholic or the Lutheran Church as the region’s religion.

The Arctic Circle, Standing in the Middle of the Storm of Reformation

The Arctic Circle stood in the middle of the turbulence during the times of Reformation. To begin with, the Arctic region quickly embraced the theology of Luther, which would have been dismissed as a trivial dispute, gave importance and developed it as a political power. Also, the Peace of Augsburg inevitably provided the Arctic Circle with additional roles, albeit with two significant flaws. First, a problem remained on how to placate the discontent of the supporters of Calvin who were still labeled as heretics. Second, as political leaders of temporal world were able to decide a religion of their own territory, conflict over religion may escalate into political conflict at any time. Leaving Germany divided as a buffer zone, the northern European region and the southern European region could have politicized a religious issue and clashed in the country at any time. Tragically, these potential conflicts finally exploded into the Thirty Years War in 1618.

Bigger Ship Size and Stagnation of Ports’ Throughputs Calls for the Consolidation and Enlargement of Terminal Operation

For the last 20 years, most types of vessels have grown in size following the increasing demand of marine transportation and higher efficiency of ship operation. It is well-known that the size of containership has become larger and larger over the last 20 years, but such trend is significant in other types of vessels. (Refer to [Table 1]). The containerships have doubled in size from 23,520 tons in 1996 to 44,620 tons in 2015 on average. In particular, very large containership, which have capacity with more than 18,000 TEU, have been mainly operated on Asia-Europe route, and started its services in Asia-North America (West) route from May, 2016.

While the average size of oil tankers has grown five times from 39,000 tons in 1996 to 195,000 tons in 2015, and that of bulk carriers has increased 47,120 tons to 72,590 tons during the same period. Also, increasing demand of marine tourism in the world has accelerated the enlargement of cruise ships fast. The size of cruise ships has grown eight times from 6,500 tons in 1996 to 52,050 tons in 2015 on average. Furthermore, most of the cruise ships which have been ordered and delivered after 2010 are larger than 100,000 tons.

Looking at the vessels in and out of Korean seaports, the average size of the vessels has increased about 130% during a decade from 34,025 tons in 2004 to 44,314 tons in 2014. According to the type of ships, the size of containerships has grown most significantly, while that of bulk carriers has increased slightly. Looking at the marine terminals, which are mainly for loading and unloading general cargos, with the capacity of berthing up to 30,000 tons, however, the size of most vessels, such as general cargo carriers and bulk carriers, calling at those terminals are larger than 30,000 tons. As of
2014, the average size of general cargo carriers and bulk carriers calling at marine terminals in the ports of Incheon, Pyeongtaek-Dangjin, Ulsan and Gunsan are 34,422 tons and 33,270 tons respectively. Therefore, it is necessary to develop bigger berths to accommodate entering vessels larger than 30,000 tons.

However, the development of a new berth requires large investment for selecting a new location and building breakwaters. Also, it takes quite a long time from planning to construction. In fact, the marine terminals with berthing capacity of 30,000 tons are able to accommodate the vessels larger than 30,000 tons, if the depth of water and the length of quay walls are enough. It is generally known that a corresponding terminal is able to accommodate the vessels within the 20% range of its design capacity based on technical reviews on the terminal’s strength, weight, and mooring condition. Therefore, it is a wiser decision to develop a strategy for operating existing terminals efficiently, rather than developing a new large berth or terminal which requires a long time. This strategy should include how to accommodate an appropriate level of large vessels in existing terminals through technical reviews. For this purpose, it is essential to secure sufficient berthing length for large vessels by expanding the unit of terminal operation and integrating adjacent terminals.

Furthermore, most of terminal operating companies (TOCs) in Korean seaports are operating berths in small unit which serves as a limitation to attract large vessels. There are 44 marine terminals, which are managed by the government or Port Authority (PA) and operated by private TOCs after being designated as the so-called ‘TOC Terminals’. Among them, 23 TOC Terminals (over 50%) have less than 500 meters of berthing length. These terminals face a challenging situation in which two vessels both larger than 30,000 tons are unable to berth simultaneously. What make matters worse, most small-sized TOCs are facing difficulties to attract large vessels and have to cut cost due to excessive competition, which lead to the overall business deterioration of seaport industry and market disturbance. This vicious cycle is, actually, one factor that has accelerated the integration of terminal operations in the Busan North Container Port. When it comes to TOC Terminals, two adjacent TOCs carried out voluntary M&A for integrating their terminal operations in the Ulsan Port in 2015.

The Korean government and seaport industry need to not only respond to the global trend of ship-size enlargement, but also increase the efficiency of terminal operation and improve the business environments of TOCs. In order to achieve these, it is necessary to come up with institutional foundation and incentives to increase the unit of terminal operation and integrate their operation. KMI

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Establishment of the Outer Limits of the Continental Shelf beyond 200 nm by Argentine and Its Implications on the Territorial Dispute

Establishment of the Outer Limits of the Continental Shelf by Argentine

The United Nations Commission on the Limits of the Continental Shelf (CLCS) adopted by consensus the recommendation on the submissions presented by Argentine in 2009 and 2012 to extend the outer limit of its continental shelf beyond 200 nautical miles.

A coastal state may submit the geological and geomorphological information on the limits of the continental shelf beyond 200 nautical miles to the CLCS in accordance with the Article 76 of United Nations Convention on the Law of the Sea (UNCLOS). Then the CLCS considers the data and other material submitted by the coastal state and adopts the recommendation if it considers the outer limits are supported by the scientific and technical data. Based on the recommendation, the coastal state may establish the outer limit of continental shelf and it shall be final and binding.

The Argentine Foreign Ministry held a press conference and evaluated the establishment of the outer limits of continental shelf based on CLCS recommendation as an historical achievement in Argentine foreign policy.\(^1\) The extended area beyond 200 nautical miles from the northern region of the Atlantic Ocean and the westernmost sector of the combined continental margin to the south, covering the Tierra del Fuego margin region is approximately 1,700,000 sq kilometers - the equivalent of around 48% of the land territory of the Argentine Republic.\(^2\) The Argentine Foreign Ministry explained that by extending the outer limit of continental shelf to 350 nm, the country is now able to exercise our sovereignty rights over the resources of minerals, hydrocarbons and sedentary species.

The Recommendation of the CLCS and the Falkland/Malvinas Islands Dispute

Meanwhile, some media reported, immediately after the CLCS recommendation, that Argentina has a far greater continental shelf and Falkland/Malvinas Islands, which are a disputed area with the UK, “are inside that shelf”. Also, they reported that the CLCS recommendation might affect the sovereignty claims of the UK.\(^3\) However, neither the press release of CLCS nor the official announcement of the Argentine Foreign Ministry mentioned the Falkland/Malvinas Islands. Moreover, the reports turned out to be incorrect after release of full text of the recommendation, and the rules of procedure and practice by the CLCS on disputed areas were overlooked by the media.

According to the CLCS rules of procedure, CLCS cannot and does not consider the information of continental shelf relating to territories in dispute without the consent of contending parties. The CLCS rules of procedure annex 1, paragraph 5 stipulates as follows: “In cases where a land or maritime dispute exists, the Commission shall not consider and qualify a submission made by any of the States concerned in the dispute. However, the Commission may consider one or more submissions in the areas subject to dispute with prior consent given by all States that are parties to the dispute.”\(^4\) Even though the CLCS adopts the recommendations on some regions extraneous to disputed territories based on the prior consent among concerned parties, it clearly stipulates that the recommendation has no influence to the disputes. In fact, the CLCS indefinitely postponed the adoption of recommendations regarding some areas adjacent to Oki-no-tori-Shima, against which the People’s Republic of China and the Republic of Korea raised objections to the information on the outer limits of the continental shelf submitted by Japan.

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2) Ibid.
4) "In cases where a land or maritime dispute exists, the Commission shall not consider and qualify a submission made by any of the States concerned in the dispute. However, the Commission may consider one or more submissions in the areas under dispute with prior consent given by all States that are parties to such a dispute.”
The UK also submitted the information on the limits of the continental shelf near Falkland/Malvinas Islands to the CLCS. However, the Commission decided not to consider it because of the existence of territorial dispute between Argentina and the UK. Regarding the submission presented by Argentina, the UK made it clear its opposition to the sovereignty claims by Argentina and the CLCS deferred the consideration on the information submitted by Argentina. Furthermore, the UK strongly asserted that CLCS does not have jurisdiction of sovereignty over Falkland Island, and the UN also cannot and did not consider the claims relating to Falkland/Malvinas Islands submitted by Argentina. Therefore, the UK reaffirms its original position that there is no doubt that the country has indisputable sovereignty over the Falkland Island.6)

Implications on the Territorial Dispute

In the press release of March 28, with regard to the recommendations in respect of the submission made by Argentina, it is recalled that, previously, the Commission had already decided that it was not in a position7) to consider and qualify those parts of the submission that were subject to dispute – that is, the Falkland/Malvinas Islands.8) The recommendations of the Commission only deal with the issues related to article 76 and Annex II to the Convention and shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts, or prejudice the position of States which are parties to a land or maritime disputes, or application of other parts of the Convention or any other treaty.9) In the end, the recommendations adopted by CLCS

7) CLCS/64, paras. 76-77, CLCS/76 para. 57.
allow Argentina to exercise its sovereignty rights over the massive areas of continental shelf extending beyond 200 nm. However, it has been reaffirmed that the recommendations will not have any influence on the disputed areas of Falkland/Malvinas Islands in accordance with relevant regulations of UNCLOS as well as rules of procedures and well-established practice of the CLCS. Even if the CLCS adopts the recommendations with regard to the out limits of continental shelf located near disputed areas, such recommendations would not have any implications on the territorial disputes and maritime delimitation. The CLCS’s recommendation has also reaffirmed that it cannot consider the submissions relating to the disputed areas as the establishment of outer limit of continental shelf and maritime delimitation are a separate activity. KMI

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MOF to Train Auditors for IMO Member State Audit Scheme

IMO Mandates Member State Audit Scheme (IMSAS)

The International Maritime Organization (IMO) has adopted IMO Member State Audit Scheme (IMSAS) effective from January 1, 2016. IMSAS is an audit system which evaluates the following areas; the conformance and implementation status in enacting domestic legislation of the IMO instruments; the adequacy of marine safety management organizations and human resources; and the management and supervision of government agencies. In doing so, the audit system is intended to provide consistent and effective application of international maritime safety instruments including 60 IMO international agreements and 1,800 types of resolutions.

Under the IMSAS, the audit is conducted to check whether to establish domestic legislation system and working procedure for the implementation of international agreements; to secure organizations and professional manpower to implement a government’s responsibility under international agreements; to properly guide and supervise private agencies entrusted by a the government’s authority.

IMSAS follows about 700 governmental mandatory provisions of international agreements such as the International Convention for the Safety of Life at Sea (1974 SOLAS) and the International Convention for the prevention of Pollution from Ships (MARPOL 73/78). The audit takes place on 7 year cycle with South Korea due to take it in 2020.

If the audit result shows sub-standard, the corresponding member state would face economic damage in maritime activities. For example, insurance premiums of ships for the corresponding country would increase and other countries would avoid chartering their ships.

Conducting the Training of IMSAS Auditors

The Ministry of Oceans and Fisheries (MOF) joins hands with IMO to training international ship auditors for IMSAS in an effort to respond IMSAS and nurture professionals working as international IMSAS auditors.

Auditor training education takes place from June 20 through June 24 at Korea Oceans & fisheries Institute, Busan, South Korea. The IMO trainees will be 34 officials, now servicing in maritime affairs from 13 IMO member states including China, Iran, Myanmar and South Korea. And 10 Korean trainees will be participated. The instructors for the program consist of two IMSAS auditors and one IMO official. Education program deals with actual status on fulfillment of domestic law by each member state relating to the international conventions, control-audit systems of government agencies and their audit procedures and technique.

Prospects of IMSAS Training Program

Korean trainees for IMSAS auditor course will apply for the registration of IMSAS auditor on July, 2016, starting to carry out audit activities for IMO member states. The training course does not only contribute to education of domestic auditors but also to people networking. Therefore, MOF is expected to continue the training course every year. KMI

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A Study on Policy Measures to Enhance the Safety of Fishing Industry

1. Purpose
- The study aims to present policy directions and system improvement measures to enhance the safety of fishing industry. It conducted an analysis on the current status of safety management system and accidents in fishing industry. Also, it carried out on-site investigation regarding the risk factors during fishing operation as well as the analysis on the policy cases of fishing industry’s safety management in Korea and overseas. Based on the analysis, safety management policy measures are suggested to enhance the safety of fishing industry.

2. Methodologies and Feature

1) Methodologies

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<td>Related literature</td>
<td>- Need to conduct basic data analysis due to the lack of related studies on fishing industry</td>
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<td>- Analysis on the laws and regulations as well as policies of fishing industry</td>
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<tr>
<td>Survey</td>
<td>- Survey on fishermen’s opinion about the safety management of fishing industry</td>
<td>Survey to fishermen</td>
<td>- Need to conduct a survey on the general sentiment of fishing safety and policy demand to fishermen who are the target and participants of safety policy. It contributes to the effective establishment of safety management system</td>
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<tr>
<td>On-site investigation</td>
<td>- Investigate and analyze the risk factors in the process of fishing operation</td>
<td></td>
<td>- Necessary to analyze the risk factors of operation sites in order to develop safety measures during the fishing operation, which is the essence of safety management</td>
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<tr>
<td>Expert consultation</td>
<td>- Policy measures on the safe management of fishing industry</td>
<td>Expert consultation and hearing of opinions</td>
<td>- Essential to consult with related experts on policy direction and tasks for the safe management of fishing industry</td>
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</table>

2) Features
- This study conducted an analysis on fishing accidents occurred in Korea’s littoral sea and risk factors during fishing operation. Also, it took a survey on the safety awareness of fishermen. By doing so, it discovered policy tasks to raise the safety of fishing industry and suggested improvement measures in legal system.
- So far, the safety management of fishing industry has focused on hardware such as inspection of fishing boats.

3. Results

1) Summary
- As for the current status of fishing boat accidents, the number of accidents took place during 2011~2014 stands at 426. Based on the type of fishing, the great proportion of accidents took place in coastal complex fishery, followed by offshore stow-nets fishery, coastal gill net fishery, offshore angling fishery and offshore longline fishery.
- The most common cause of fishing boat accidents is oper-

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1) Author’s note: ‘Fishing industry’ in this study is defined as the general fishing industry excluding fishing for leisure activities.
ator negligence, followed by lack of vigilance, mishandling & equipment failure. The most common type of accidents is found to be collision. The next highest contributor is fire, followed by death, stranding and capsizing. The highest number of accidents took place in the South Sea, followed by the West Sea, East Sea and foreign oceans.

- According to the fishermen survey and field investigation, risk factors vary depending on the type of fishing. However, a common response was that fish catching has a high risk of tripping or falling. Also, fishing operations such as netting, departing a vessel and the preparation of departure commonly show a high risk of accidents, which requires proper measures.

- According to a survey on the safety of fishing operation, the number of fishermen who think the fishing industry is more dangerous than the other industry is less than expected. Also, those who are aware of fishing related policy such as safety regulation turns out less than the majority.

- However, more than the majority of the fishermen who surveyed were willing to follow safety related regulations. At the same time, they agreed on the need for the safety management policy of fishing industry. Consequently, safety management policies which encourage the participation of fishermen will be effective.

- Having started a joint discussion on enhancing the safety of fishing industry, international maritime and fisheries related organizations such as IMO and FAO are expected to establish international regulations on the safety of fishing industry in the near future.

- Lastly, the study presented policy directions (basic directions), strategies and policy tasks to increase the safety of fishing industry.

- The basic direction of safety management policy is to establish a comprehensive safety management system for fishing industry. Strategies for this policy are as follows; establishing the foundation for qualitative assessment of safety management, building a safety management system by fishing type, strengthening the R&D and supply business, and establishing and improving a support system for safety management policy.

- Also, the following tasks were suggested for policy strategies; developing safety and safety management indicators, conducting safety compliance survey to fishermen, establishing safety management system by fishing type and fishing operation, improving inspection certification system for fishing vessels and fishing gear, practical training for fishermen and their families and conducting it on a regular basis, expanding the development and distribution of safety technology and equipment, status survey on the safety of fishing industry, establishing a basic plan on the safety management of fishing industry, building safety related database and big data systems, restructuring and improving the legal governance, introducing a system of safety supervisor, restructuring the damage compensation system and expanding the integration of safety management system for fisheries industry.

2) Policy Contribution

- Provide policy and system improvement measures for enhancing the safety in Korea’s coastal and offshore fishing industry.

- Present R&D measures as a foundation for new rear industry such as materials to enhance the safety of fishing industry.

3) Expected Benefits

- Increase the practicality of public safety for a national task, by suggesting policy measures to enhance the safety of coastal and offshore fishing industry.

- Used as a basic material for studies on the safety management of fishing industry this is expected to grow continuously in the future.

- Increase the competitiveness of fishing industry by attracting new labor following the increasing safety of fishing industry. KMI
<table>
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<tr>
<th>Research Projects</th>
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<tr>
<td>● The establishment of the master plan for increasing productivity of fishery products in Algeria</td>
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<td>● A basic plan for the development of fishing villages and fishing ports of Choongchungnamdo (1st study, 2016)</td>
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<td>● A study on the feasibility review and the establishment of measures for integrating TOC of inner ports in Incheon</td>
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<td>● 2016 Yeosu project – SOI support projects by CBD</td>
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<td>● The establishment of the 1st comprehensive plan for supporting those returning to rural and fishing villages</td>
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<td>● A policy study on the utilization of container searcher</td>
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<td>● The 2nd study on the revision of the basic plan for maritime fishery development</td>
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<td>● The establishment of integrated management system for fishery waste polystyrene buoy in 2016 (1st phase)</td>
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<td>● The 6th support for the industrialization of fishing villages subsidary</td>
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<td>● R&amp;D on marine environment and ecosystem management nearby Saemanguem</td>
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<td>● A study on the foundation for upgrading comprehensive management for coastal areas</td>
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<td>● Review of validity and economic feasibility for the development plan of port hinterland</td>
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<td>● Foundation establishment for undersea tests of ocean drilling equipment</td>
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<td>● 2016 Entrusted operation of shipping and ports logistics information system</td>
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<td>● 2016 National transportation survey and DB establishment</td>
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<td>● A study on activation measures of mudflat ecology resources</td>
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<td>● A validity study on the lands applying for changed plan on public water reclamation</td>
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<td>● 2016 MOF cost benefit analysis on ‘cost-in, cost-out’</td>
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<td>● A study on impact analysis and response measures of WTO and TPP on fishery sector</td>
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<td>● A study on the establishment measures for building feeder and artery network for coastal passenger ships</td>
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<td>● A study to promote cooperative relation among Northeast Asian ports</td>
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<td>● A study on the expansion of integrated cargo vehicle for sea and land transportation among Korea-China-Japan</td>
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<td>● Evaluate as a proxy for the certificate system of 2016 good logistics companies</td>
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<td>● 2016 information provider on overseas market for offshore service industry</td>
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<td>● The operation of international logistics investment analysis center in 2016</td>
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<td>● A study on the introduction of quality certification for fishery equipment</td>
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<tr>
<td>● 2016 Entrusted operation of shipping demand prediction center</td>
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<tr>
<td>● A study on the establishment of international cooperation and institutional foundation for Arctic policy</td>
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<td>● A study on securing logistics base in Far Eastern Russia for activating northern logistics business</td>
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<td>● 2015 Analysis on the current status of beaches</td>
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<td>● A study on the establishment of basic plan for building export complex of fishery products and its feasibility study</td>
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<td>● A study on the agenda analysis and response measures of BBNJ and Nagoya Protocol</td>
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<td>● The 3rd study on the establishment of basic plan and institutional improvement for fishing ground management</td>
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<td>● A study on expansion of aquaculture insurance items</td>
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<td>● A study on active implementation of special management water system and the expansion of total pollution load management system</td>
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<td>● 2016 Implementation of total pollution load management system on the Masan Bay special management water</td>
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<tr>
<td>● The establishment of marine spatial planning system_2016 demonstration research project</td>
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<tr>
<td>● The development of evaluation methods for climate change impact and vulnerability in fishery industry</td>
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<td>● A study on the performance analysis and improvement measures for fishery resources recovery project</td>
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<td>● A study on the strategy of generating future values for Guern-River estuary, a center for the West Sea era</td>
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<td>● A study on the establishment of the 4th basic plan of promoting inland fishery and current status survey</td>
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<td>● A study on the conservation and management of marine protected species in 2016</td>
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<tr>
<td>● The improvement measures and mid-to-long term development strategy for managing coastal wetlands in 2016</td>
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<td>● The establishment of a global network of ocean territory experts</td>
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<td>● Mid-to long-term development measures for government reserve of fishery products</td>
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<tr>
<td>● The 2nd National Basic Plan on Maritime Affairs and Safety (2017–2022)</td>
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<td>● A case study on maritime boundary delimitation for negotiating countries</td>
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<tr>
<td>● A study on the estimation of national sea power (centering on the establishment of national sea power index)</td>
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<tr>
<td>● The publication of white paper on the recovery, compensation and indemnification of Sewol ferry</td>
</tr>
<tr>
<td>● Response measures for China’s 13th Five-Year Plan – focusing on logistics area</td>
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</tbody>
</table>
RESEARCH PROJECTS

- A study on the establishment of basic plan for building marine healthcare complex
- A study on Incheon Port comprehensive development plan
- A study on improving cooperation for the investigation of maritime accidents
- A study on the promotional measures of marina cluster
- A study on the estimation of carrying capacity for tug boat station per ports
- A study on improvement measures for cooperation charge on the conservation of marine ecosystem
- The feasibility study and the establishment of plans for building sea fishing complex town
- The publication of MOF history
- A study on the improvement measures for self-sufficiency rate of fishery products
- A study on the establishment of ICT convergence strategy in fisheries industry
- A validity test on the improvement of polluting ports industry
- Consulting business of joint logistics support for shipbuilding and ocean equipment
- A study on building a tourist destination for beaches in Gyeongsangbuk-do
- A study on implementation measures for Charm Seafarer Project
- A study on establishing basic plan for utilizing inspection and quarantine areas
- A study on the follow-up management for costal improvement facilities
- A study on the preservation of marine biological resources in Polar Regions and sustainable fishery
- The operation of comprehensive information network for shipping market
- The design of ICT VAEMS commercialization model and its verification of industrialization
- A review on the normalization measures for port private projects
- A study on the response measures of market entry procedures for expanding the export of fishery products to China
- A study on the diversification measures of overseas port development projects
- A study on the status study and management system of accommodation for invigorating fishing village economy
- The planning for the establishment of Blue Carbon Management System
- The operation of international seminar on Eurasia-the Northern Sea Routes connectivity
- A Validity study on Inland Waterway Transport (IWT) between Korea-Mekong River and repair shipyard in Cambodia
- A study on setting up the standards following the establishment of fisheries seed industry promotion act
- A study on the improvement of integrated management and operation of Masan and Jinhae ports
Major Activities Planned in June 2016

1. KMI-WMU MOU Agreement and International Seminar

- Time and Place: June 16(Thu), World Maritime University (WMU), Malmö Sweden
- Contents:
  (MOU) WMU and KMI will cooperate on research, share information, and organize joint seminars on mutually agreed maritime theme.
  (1st Seminar) IMO member state audit scheme: current practices and future
- Participants: President of both institutions, related directors, professors and students

2. The 3rd Policy Discussion of Eurasia Knowledge Network (Korea-Russia Dialogue / Korea-Russia Far East Forum)

- Time and Place: June 7(Tue) ~ 8(Wed) / Vladivostok
- Contents: Discussion on concrete measures between Korea and Russia for the development of Russian Far East
- Participants: KMI, KOTRA, Korea Research Institute for Human Settlements (KRIHS) and private companies, Ministry of Development of Far Eastern Region and Primorsky Krai government

Major Activities Planned in July 2016

1. 2016 North Pacific Arctic Research Community (NPARC) Seminar

- Time and Place: July 4 (Mon) – 6 (Wed) / Sapporo, Japan
- Contents: Building a cooperative foundation for Arctic related research and projects of NPARC and strengthening the network of Arctic related experts
- Participants: KMI President, Director General Kim Jong-deog, other researchers and participants from 21 organizations including Korea-China-Japan Arctic related research institutions and universities

2. 2016 Korea-Latin America Fisheries Forum (KOLAFF)

- Time and Place: July 21 (Thu) / Lima, Peru
- Subject: Cooperation measures for Korea-Peru fisheries industry under sustainable development goals (SDG)
- Participants: Industry, academic and research related participants working in Korea-Latin America fisheries sector

3. 2016 Korea Iran Business Forum

- Time and Place: July 25 (Mon) – 26 (Tues) / Lotte Hotel Busan
- Subject: Development of the cooperation platform for the Republic of Korea and Iran in the post-sanctions era
- Participants:
  (Korea) 200 experts and businessmen from academia, research institutes, business, government
  (Iran) 10+ experts and businessmen from academia, research institutes, business, government