

## 学位論文全文に代わる要約 Extended Summary in Lieu of Dissertation

氏名 : Jihoon Kim  
Name

学位論文題目 : Studies on the local authority-fishers partnership for the fisheries development in  
Title of Dissertation Japan and Korea.  
(日本と韓国における自治体と漁業従事者との連携による漁村地域活性化に関する研究)

学位論文要約 :  
Dissertation Summary

### 1. Introduction and Background

The contents of this research can be divided into private-public partnership, co-management, and case studies of fisheries development in Japan and Korea. The aging of the fishing communities and a shortage of successors may lead to a weakening of fishery productivity in both countries. Moreover Fisheries Cooperative has been consolidation or shutdowns due to management shortages and the decline of fishers and fisheries. In addition, the merger of fisheries cooperatives has increased the number of places where the distribution of smooth seafood is restricted. It is not easy for small fishers to find outlets other than fisheries cooperatives. Moreover, they are not able to escape from low incomes due to resource depletion, environmental regulation, and the stagnation of transaction prices. They can be exposed to temptations, such as fishing in a close season, fry fishing, and the use of hydrochloric acid, violating environmental regulations. If these activities continue, they will cause serious damage to sustainable fisheries.

Therefore, a policy to activate fishing villages through fisheries development is required in cooperation with fishers. Local authorities encourage the participation of new fishers, but they should be supervised to prevent such as fishing in a close season. In addition, a new distribution system should be established to replace Fisheries Cooperative, but the disturbance about management of the fishers should be regulated.

From this perspective, this paper identifies three research challenges. The first challenge is to explore the decline in the number of fishers in both Japan and Korea and to review aging policies. The second challenge is to investigate the new distribution structure that has emerged to solve the problems faced by distributors and fishers. The third challenge is to develop marketing strategies for low-value fish that have been rediscovered recently.

On the other hand studies were conducted in Wando and Jangheung Jeollanam-do, South Korea. Both regions are the first areas where new distribution systems were implemented by local authorities. Therefore, there are many participating fishers and accumulated data. Both local authorities are also actively attracting U-turn fishers through subsidies, and both regions have the largest number of settled U-turn fishers. The research area in Japan is Yawatahama City and OH Island, which belongs to the same city. Yawatahama makes an effort to sell local aquatic products to consumers and OH Island is older than other islands. It is also a port for Oita Prefecture and close to Matsuyama, the prefectural capital of Ehime Prefecture. Therefore, it is necessary to study whether subsidy payments can support fishing for older fishers. It is also possible to review the linkages with the fisheries market.

## **2. Current Fisheries and Development Situation in Japan and Korea**

The crisis facing Japan and Korea in common is the population decrease of fishing villages. Due to the industrialization of both countries, large populations of rural areas moved to cities. The primary industry, such as fisheries, has become a decaying industry and the population of fishing villages continues to decline. Japan entered the aging society in 1994 and entered the super aged society in 2005. The problem is the aging rate of fishing villages exceeds the overall aging rate. Aging is not desirable in terms of productivity of fisheries. In addition, the decline of young fishermen under 30 years is remarkable. The successors of conventional fisheries were the offspring of fishery household. However, the demand for labor in the secondary and tertiary industries has increased and many descendants left the fishing village to gain a chance to earn a high income. For this reason, the lack of successors in the fishing villages emerged and the population of the fishing villages rapidly decreased. In addition, the number of children in the fishing village where the nuclear family has progressed has decreased. As a result, the number of fishermen under 40 in 2013 was about 30,000. This is about 10% less than in 1963. From 1963 to 2003, the number of older fishery workers aged 60 or older increased from about 70,000 to 110,000. However the number of older fishery workers is decreasing due to the decrease in the total number of fishery workers.

On the other hand, Korea's fishing industry is currently facing problems involving an aging society and lack of successors in fishing villages. Both fishery population and fishery households are declining. In addition, the age structure has changed significantly. In 1973, the proportion of fishers under 19 was roughly 50%. However, it accounted for approximately 9% in 2014. On the other hand, the proportion of older fishers over 60 years of age has increased. It accounted for about 6% in 1973, but about 44% in 2014. It can be seen that the age structure has become aged while the number of whole fishermen is decreasing. Therefore, the problem of labor supply of fisheries is rising. Therefore, the Korea Ministry of Oceans and Fisheries (KMOF) has implemented many policies.

Japanese have consumed marine products as a major source of animal protein and are the most consumed worldwide. As a result, a unique culture of consumption of seafood such as sashimi and sushi was formed. In 1923, the Central Wholesale Market Act was enacted in response to the demand of the people for the vigorous demand and freshness of seafood. Wholesale market can be divided into two routes: "inner-wholesale market" and "outer-wholesale market". Inner-wholesale market is through the wholesale market of the production area market or consumption site markets. On the other hand, outer-wholesale market does not go through the wholesale market either area. Wholesale market is also divided into "production area wholesale market" and "consumption site wholesale market" depending on the established location. In Japan, the distribution channels of agricultural products, livestock products and marine products are long and complex compared to industrial products. In particular, there are two markets for marine products, which are longer and more complex. Marine products are particularly long and complicated because there are two wholesale markets.

The production area wholesale market is a unique distribution channel that only in marine products. Marine products are easy to decay and are not uniform in size and have a variety of uses. For this reason, a production area wholesale market is needed. In Korea, the wholesale market for seafood has been influenced by Japan and its distribution structure is very similar.

### **3. A New Departure on Remote Island : A Case of Abalone Farming in Ehime, Japan**

Lack of transportation and infrastructure give a serious disadvantage of producing fisheries items and selling products to Remote Island. In addition, the lack of new generation and graying cause reducing the roles of remote islands : marine products production, environment conservation, salvage, and borderline surveillance. Therefore, Japanese government established a new 「Grants-in-Aid Program to Vitalize Fishing Industry of Remote Island」 to increase productivity and rise income in remote island from 2005. Grant in aid were paid around 95,000,000usd from 2005 to 2009(the first period), around 85,000,000usd from 2010 to 2014(the second period). OH Island was also subsidized around 400,000usd for the first period and started cultivation of abalone. However, around 40% abalones have died from the high water temperature, red tide, and typhoon and shipments were falling behind 10%. The cultivation of abalone was failed and make a new strategy was required for OH Island.

Many primary industry farmers are concerned about the crisis of agricultural markets owing to the opening of domestic markets through Free Trade, but the openness and globalization is inevitable. Individual farmers are trying to maximize revenue through branding in order to prepare them. Besides, Local governments make a strategy for brand development systems. In Ehime Prefecture, there are many branding products including Bochan abalone. Botchan is a novel written by Natsume Sōseki in 1906. It is one of the most popular novels in Japan, read by many Japanese during their school years. The story is based on the author's personal experience as a teacher dispatched to Matsuyama on the island of Shikoku. Finally Botchan became the representative character in Ehime. Botchan abalone is bigger than Oh island abalone and be farmed a better environment. Therefore Botchan abalone is getting recognize and popular in Ehime for the taste and freshness. However, Oh Islands abalone's sales will be decreased compare to last year.

「The closed circulatory culture system on land」's biggest problem is high costs of electricity, water and food for abalone. The original cost estimate around 626.9Yen/piece in OH Island 2014. However Land-Based Abalone Farming breakeven point is estimated 600Yen/piece in Japan. Moreover, the cost of Korea abalone is estimated 337.4Yen/piece.

Oh Island's abalone industry is expected to have a low impact on local economy from an economic standpoint. However, Land-Based Abalone Farming will be continued and received Grant in Oh Island. Japan became an aging society in 1994, was swiftly passing through an aged society, and finally became a super-aged society in 2007. Especially people over the age of 65 account for 37.4 percent of total population in farming and fishing villages, the problem of a super-aged society is more serious than city. The Changes in Population Structure will raise complicated issues like decrease workforce and consumption, and finally undermine the country's growth potential and deteriorate the people's livelihood. Therefore, Using 「The closed circulatory culture system on land」 can shorter working hours and participate in production activity, so retirement will be extended. In Oh Island, economic activity has been increased like processing, packaging, transportation, and accounting apart from abalone farming that using 「The closed circulatory culture system on land」. Although Oh Island abalone farming run a deficit, the Japanese government has to support agribusinessmen who aged 65 years old or older since Japan has become super-aged society and their primary industry is at risk of collapse.

## **4. Policy for Returning to Fisheries in Korea**

### **4.1. Introduction**

According to data released by Statistics Korea about the age of fishing workers, fishers aged over their 60s represent the largest portion at 44.2 percent, followed by those in their 50s at 25.8 percent and those in their 40s at 9.6 percent, whereas those under their 30s constitute 20.4 percent. In addition, more than 50 percent of marine products are imported goods, and this percentage rises year-on-year. Unexpected industrial structure changes have brought about the increase. In the face of declining fisheries, the Korean government is trying to come up with several policies. However, most policies are restrictive, such as the “fishery village stay” program, local festival events, and attempts to attract tourists. In other words, policies that enhance fisheries income are rare. In these situations, U-turn fishers are prominent in the fishing village. A U-turn fisher is a person who has had to leave their place of origin for a job and has either returned home or moved to the country after quitting their job and who wants to work in the fishing industry. However, city people can experience economic difficulties when they settle in a fishing village and attempt to start up in fisheries. They need to buy or rent a house, a fishing boat, fishing gear, etc. As such, it is difficult to determine whether city people can be labelled U-turn fishers. Therefore, the Korean government has been working on the returning to fisheries project since 2010. This project meshes with the baby boomer generation—those born during demographic post-Korean War between 1955 and 1964. This age group is nearing retirement, but the number of people returning to fisheries is increasing.

### **4.2. Characteristics of Korean fisheries**

In Korea, the fishing industry is generally engaged in farming or harvesting fish at sea and salt production. Fisheries is categorized as free fisheries, permitted fisheries, and chartered fisheries by Korea’s Fisheries Act and enforcement ordinance

Fishery rights permit fishers to farm specific aquatic products in public water zones. A permit is valid for 10 years but can be extended up to a further 10 years. This right has the characteristics of both real rights and property rights; however, any person wishing to transfer to other fisheries must obtain authorization. Directors of fishing village cooperatives (FVC) are authorized by the administrative agency to issue fishery rights.

FVC are part of a special organization in Korean fishing villages. FVC appeared for the first time in 1962 under the Fisheries Cooperatives Act. It comprises members of the Regional Fisheries Cooperatives (RFC) who fulfill a dual purpose of raising fisheries income and improving relationship between members. FVC have the right to grant fishery rights through the Fisheries Cooperatives Act, but these rights are only allocated to members of both the FVC and RFC. Being a member of the RFC takes precedence in obtaining fishery rights. In 2014, there were 1994 FVC with more than 200,000 members.

The National Federation of Fisheries Cooperatives (NFFC) was founded in 1962 to strengthen the socioeconomic status of fishers by Fisheries Cooperatives Act. The RFC is a sub-organization of NFFC and supports fishers directly on-site in fishing villages. In Korea, there are 70 RFC, with a total membership of over 159,000 (NFFC, 2014). To become a member of the RFC, candidates must satisfy two conditions: they must have a regular domicile of home or business and engage in fisheries for more than 60 days in a year. The director of FVC assesses these two conditions and can issue confirmation that these have been met. In other words, NFFC have erected the substructure FVC, separate from RFC. This is because the RFC centers on distribution and credit

business, whereas the FVC focuses on marine production

### **4.3. Support policy for U-turn fishers**

The Korea Ministry of Oceans and Fisheries (KMOF) has implemented a policy for people who wish to work in the fishing industry by assisting with smooth settlement in fishing villages. The purpose of this policy from KMOF, which has links to NFFC, is to invite persons to fishing villages and provide successors that can foster fisheries. This policy takes the form of a financial support program, with grants totaling 200 million KRW ( $\approx 180,000$  USD, 1 USD  $\approx 1100$  KRW) in loans.

The period for the reimbursement of loans must not exceed 10 years and includes a period of deferment not exceeding five years. The interest on a loan is 2%, which is low compared with the market rate. To receive a benefit from this policy, applicants must meet two criteria: no experience in fisheries and willingness to move to fishing areas and work in fisheries, such as aquaculture, general marine fisheries, and fishing village tours. The fund was issued to the 839 U-turn fishers between 2010 and 2016.

The U-turn fishers project has also been enacted by some local governments to increase population and tax revenues and revive the regional economy. Local government policy is divided into two measures—financial support and fisheries training. First, financial support is similar to the KMOF program, but they are not large sums. Because the financial independence rate of each local government is nearly 50 percent, with the exception of Seoul, the capital of Korea, there are limitations on excessive spending on U-turn fishers. Therefore, financial support has been implemented in only two provinces, Wando (Joellanam province) and Jangheung, which have well-developed fishery industries. Wando provides a grant of 5 million KRW ( $\approx 4,500$  USD) toward the expenses incurred for resettlement, and a further 5 million KRW ( $\approx 4,500$  USD) can be contributed to the repair costs of housing. (Wando-County). Jangheung provides more for resettlement—30 million KRW ( $\approx 27,000$  USD)—and repair costs for housing is the same as that of Wando—5 million KRW (Jangheung-Gun County). Both areas lead other areas in fisheries, and the seafood and shells produced in these areas are eminent. However, both regions are experiencing great difficulty in finding successors to meet the labor shortage. Therefore, the financial support is being used to entice new fishers.

### **4.4. Conclusion**

Korean fisheries may be less able to add benefit if decreases in fishing village populations remains an ongoing issue. U-turn fishers policy has the potential to do much for the ongoing development of fisheries. However, financial policy is limited in its call to fishers; policies must also address fishery rights, technical education, and conflict with existing fishers. These matters cannot be resolved in a short period, so government needs to establish a long-term policy.

The number of U-turn fishers will continue to increase because the baby boomer generation is nearing retirement and there are high levels of youth unemployment. Korean fisheries will progress when the flaws in policy are corrected and the different abilities of U-turn fishers are better utilized.

## **5. Socio-Economic Analysis on the Role of Local Government in Developing the Abalone Industry in KOREA**

### **5.1. Introduction**

Abalone (*Haliotis discus hannai*) has traditionally been considered a valuable present for special days,

such as Korean Thanksgiving or Lunar New Year. Cultivation of abalone in sea cages was developed in the 2000s, and production has greatly increased in Korea. By 2014, Korea had nearly 400 times the production of 2000. Korean abalones are known for their great flavor, and large volumes are exported overseas, especially to Japan. Consequently, abalone has become the emblematic seafood of Korea.

Wando is also well known for its laver (*Porphyra tenera*), which accounts for 80% of total production in Korea. The sea around Wando is relatively unpolluted and contains many nutrients. The abalones in Wando are of high quality because they feed on the Wando seaweeds. Given its quality, Wando abalone is increasingly recognized domestically and internationally, but problems in the distribution structure in production areas have also arisen. This distribution structure is divided into two routes: “systematized forwarding” and “unsystematized forwarding”. Under systematized forwarding, marine products are distributed by the National Federation of Fisheries Cooperatives (NFFC). Fishers prefer to deal with NFFC because their transaction system is stable. However, unsystematized forwarding, which includes all distribution structures other than the NFFC, accounts for 97% of the Korean abalone market share. The NFFC is divided into an “economic business” and a “credit business”. The latter involves loans, and because the profit margin from loans is more lucrative, the former, which includes the distribution chain of products from fishers to large supermarkets, is neglected.

## **5.2. Materials and Methods**

This study was conducted in Wando District in South Jeolla Province, Korea. The data for this study were collected in 2013 and 2014 in Wando from face-to-face interviews and a structured questionnaire. A representative sample of 118 fishers who had been attending the Wando Abalone Development Meeting (WADM) since 2010 were interviewed for this study. Data regarding output, abalone export volume, average earnings of abalone aquaculturists, and changes in the distribution structure were collected from the Wando government’s reports and audits.

## **5.3. Results and Discussion**

In Wando, fishers had requested that the new distribution structure be operated by the local government because it has an important role in aquaculture management and could eliminate the “addition.” Fishers were confident that the local government had the power to solve the problem of the “addition,” and Wando’s local government finally responded to their repeated demands. Wando’s local government injected KRW 4 billion (1 USD ≈ 1100 KRW) of public funds into the new distribution structure. This structure was christened the Wando Abalone Corporation (WAC), with abalone produced by fishers and oversight provided by a supervisor from the local government.

Fishers were surveyed in the Wando area in late 2013 and early 2014; 118 WADM members were randomly selected to participate. Figure 3 shows a socio-demographic breakdown of the survey sample. More than half of the survey respondents were between 40 and 59 years of age, while those under the age of 40 accounted for 27%. Among those surveyed, 65% had completed secondary school and 6% had a bachelor’s degree. The remaining 29% only attended elementary school. No respondents were illiterate. Most (83%) of the members increased their annual income after joining the WAC, while 17% did not see a change. Considering the members whose incomes increased, in 2013–2014, the annual income of 56% increased by KRW 3 million compared with that of 2009, while that of 23% increased by KRW 5 million and that of 21%, by more than KRW 10 million.

As the increased incomes of the fishers became apparent to other fishers, more joined the company, and membership increased from 615 in 2010 to 1,191 in 2014. During the same period, the capital assets of the company increased from KRW 4 billion to KRW 9 billion. Furthermore, the company's per capita investment increased from KRW 3 million in 2010 to KRW 5 million in 2014, and company sales have steadily increased in the past five years (2010–2014).

#### **5.4. Conclusion**

This study clearly showed that the role of local government in the production management, distribution, and marketing of abalone resulted in increased income for most fishers who joined the WAC. Primary industries, especially fisheries, have been declining for a long time in Korea. However, a primary industry is necessary for a local economy to grow. Many agricultural jobs were lost following the 1997 financial crisis, and the era of free trade resulted in many losers in the market economy. Local government clearly has a vital role in retaining and reviving primary industries in a local area.

### **6. Change of Distribution System in Production Area of Marine Products**

#### **: A Case Study in Jangheung, Jeollanam-do, Korea**

##### **6.1. Introduction**

In South Korea, the role of government is seen as important not only in fishery development and resource management, but also in fishing community revitalization and tourism development. However, despite these perceptions and efforts, there has been no serious progress in Korean fisheries. Many bills have been introduced to solve the problem of the industry's long and complex marine product distribution structure, but the growth of fisher income as well fishery development remains limited. With the aging of fishing village society and the shortage of successors, the decline of fishery management exerts a large negative influence on the entire Korean fishing industry. For this reason, fishers should actively involve themselves not only in the joint management of fishery resources but also in the distribution of marine products. In other words, it is important that a new form of distribution system be introduced—one in which local governments play a role. This is considered to be the key to the future development of Korean fishery. Against this backdrop, a “fishermen corporation” was created in 2009 in South Korea's ChangHeung County, Jeollanam province. It serves primarily as a distribution mechanism and was established through investments from fishermen and subsidies from local governments. It purchases marine products from shareholder fishers under the supervision of the local governments. This fishermen corporation has a form similar to existing fisheries co-management operations which emphasize the participation of fishermen and the role of local governments. However, the structure in this case focuses more on business management than administration. The purpose of this research is to examine ChangHeung Acid Free Laver, a fishermen's corporation with the potential to contribute significantly to Korea's fishery development, region creation, and fishery management.

##### **6.2. Establishment of ChangHeung Acid Free Laver**

ChangHeung started acid-free laver farming to promote its competitiveness and raise awareness of its brand. In Korea, laver production has increased rapidly with the development of aquaculture technology, one facet of which is acid treatment. Acid treatment involves the use of organic or inorganic acids to prevent diseases caused by bacteria. However, ChangHeung began cultivating acid-free laver—laver that does not undergo this

acid treatment—in 2008 to appeal to consumers seeking safe and secure food. Problems in the distribution structure of the Korean laver industry also contributed to the development of ChangHeung's acid-free laver. Laver is not consumed as fresh algae. Rather, an automatic dryer for drying the original algae is required. Since small laver cultivators cannot afford such expensive equipment, they generally ship their fresh algae to a primary processing company that processes dry algae. The Korean laver industry is divided into three stages of production: raw algae, dry seasoning and seasoning taste. Laver processors who buy raw algae process dried seaweed that is then shipped to the wholesale consumer market or to a seasoning taste company. This means that the raw algae producer plays only the role of raw algae supplier; it is the laver processor that has the ability to control the price of the algae.

This phenomenon was clearly apparent in ChangHeung, particularly since the route sales of ChangHeung were quite low. Of the 28,774 tons of raw alga produced in ChangHeung in 2008, only 4,856 tons were shipped through the Korea Fishery Cooperative Association (KFCA). Looking at the distribution structure for the laver in that same year, 60% of the raw algae was processed at a dry processing company in ChangHeung (primary processing company), 10% was processed at a secondary processing company in ChangHeung, and the remaining 30% was shipped to secondary processing companies in other areas. According to one interviewee, the average price of Korean algae for that year was 983 won. However, in ChangHeung, it was only 780 won—far below the Korean average. For this reason, good quality algae was shipped to processing companies in other areas and traded at 850 to 900 won—a price that was still less than the Korean average. As a result, the quality of the raw algae distributed in ChangHeung declined. Furthermore, the primary processing companies in the county dried the algae and produced dried seaweeds, while the main consumption of laver in Korea was seasoning taste seaweeds. Because the processors in ChangHeung did not have secondary processing technology and equipment, they had to ship their dry laver to other seasoning taste processing companies. The resulting transaction price was 2,000 won, well below the 3,191 won Korean average. Faced with this situation, the coral alga cultivators and dry processing companies in ChangHeung were determined to enhance primary quality and improve their secondary processing facilities. The ChangHeung County Agency set up a processing company and ChangHeung Acid Free Laver was born within the framework of the corporation.

### **6.3. Effectiveness of ChangHeung Acid Free Laver**

According to the account of an interviewee, the price of raw alga for ChangHeung Acid Free Laver was about 900 won in 2012, while the average price for all of Korea was 902 won during that same period of time. Thus there was essentially no price difference. In addition, the shipping price of non-acidogenic algae to processing companies formed in other areas was roughly 850 won. Comparing this situation with the situation in 2008, the distribution price in the county rose by about 100 won, but the price of shipping to processing companies in other areas was unchanged. Moreover, it was found that the distribution price in the county and the shipping price to other regional companies did not change significantly from 2012 to 2014. In other words, it seems that the price of algae in the county had risen to the level of the average price of algae across all of South Korea.

### **6.4. Conclusion**

Sales of ChangHeung Acid Free Laver have been steadily progressing with the administrative support and marketing activities of Changheung County and the corporation, however there are remaining issues that



need to be discussed. First, the initial goal of production, processing, distribution and sales of all Changheung laver has not been achieved. We found that the balance of quantity and lot has broken down between production, processing and sales. In order to deal with all the laver produced in Changheung County, the financial strength of ChangHeung Acid Free Laver is insufficient.

The second issue is the influence of ChangHeung Acid Free Laver on the Korean laver industry as a whole. The acid treatment method and complicated distribution process are not limited to Changheung County. ChangHeung Acid Free Laver is definitely useful for laver farmers, and the effectiveness of this system has been demonstrated. However, Changheung County seems to have experienced the effect of this system based on the efforts of a small fishing village of 139 household farmers. Overall impact on South Korea's entire laver industry is limited.

Finally, ChangHeung Acid Free Laver has produced a ripple effect on other marine products. Wando Abalone and Shinan Shrimp were clearly affected by ChangHeung Acid Free Laver. Both companies experienced a positive management effect. As a consequence, ChangHeung Acid Free Laver expects that similar companies will be established in the future, bringing increased fishery income and serving as a good example for the Korean fishing industry.

## **7. Can trash fish be a SPA brand? A case from Yawatahama, Japan**

### **7.1. Introduction**

In the case of Japan, retail and foodservice industries have developed, and distribution is required to supply a certain amount of product meeting standards of quality and size at a constant price. Fishery products that do not satisfy these conditions, have a poor reputation or inferior appearance lose sales. These fish are called 'trash fish.' They are usually disposed of or dealt at a very low price. Given current conditions, efforts are now being made to create value for trash fish. The use of trash fish can prevent the waste of fishery resources and contribute to the income of fishermen. In this paper, I will examine the actual situation and explore the problems of one project using trash fish, centered on the experience of Yawatahama, Ehime Prefecture.

### **7.2. Marketing Strategy of SPA brand and trash fish project**

High quality fish species such as tuna, red sea bream, and yellow tail represent existing luxury goods manufacturers. In addition, brand fish species are being cultivated. It uses a sophisticated strategy to create a special aquaculture environment and supply special feed. However there are many species of fish in the coastal waters of Japan, but there are only about 100 popular fish that are highly recognized by the Japanese people and consumed in large quantities. Yawatahama is a place where catch fisheries are developed rather than aquaculture. Therefore, there are many by-catch fishes. The fishers of Yawatahama had a lot of worries about their treatment. In the end, they established Trash Fish Commercialization Strategy (TFCS) in cooperation with the Yawatahama Chamber of Commerce and Industry (YCCI). The TFCS began in August 2014 to commercialize trash fish. The goal is to raise awareness of the trash fish in the area and to develop them as special products and tourism resources. Forty-eight of a possible 150 species were selected for the project. They were labeled the ZAKO48. It is a project to convey the charm of the fish that has been caught in the area but has not been eaten and to make added value. In November 2015, the project began with a tasting of dishes using trash fish. The trash fish were prepared in various ways—for sushi, tempura, and boiled. The event was well received by the participants. A

vote to select one of the 48 fishes was conducted on the Internet from September to November in 2016. Finally, a vote to select a fish through tasting was held on November 19, 2016.

### **7.3. Discussion and Conclusion**

A questionnaire survey showed that many people in Ehime have an interest in trash fish. Various products can be produced at reasonable prices. However, there are several challenges to developing these fish as successful products and establishing a brand representing Yawatahama.

First of all, there is an irregular supply of the fish. Unlike aquaculture, it is difficult to supply a certain quantity of offshore catch at certain times of the year. Thus, even if restaurants develop a menu featuring trash fish, visitors are unlikely to be able to order the same fish on a regular basis because of the instability of supply. In addition, some restaurants may be reluctant to cook trash fish due to the difficulty of the process.

The second issue is demand expansion. There is still low awareness of the trash fish, and it is difficult to make large profits through branding, as is done in the case of popular fish or high quality fish. In addition, the consumption of fish and shellfish is declining. Therefore, trash fish profitability will rely on volume sales at a low unit margin of profit.

Finally, promoting the understanding of citizens is required, with the goal of the success of fishery in Yawatahama. The entire prefecture needs education on its unused resources to enhance an understanding of the potential of trash fish. This education should extend over a long period. Fishers, distributors, and restaurants can expect only limited profits through trash fish. However, establishing a network from production to consumption will change the value of fisheries, increase the profit of fishers, and influence the establishment of local revitalization and branding.

There are many areas like Yawatahama where the management of fisheries is becoming more difficult. It is not easy to take on the challenge of building a new business using trash fish. However, in response to the decline of the fishery industry, the attempt to utilize previously useless fishery resources is of great significance.

## **8. General Conclusion**

These studies focused on cooperation with local authority to improve the competitiveness of the fisheries industry, which is emerging as a new food-producing industry in Japan and Korea. Especially in Yawatahama City in Japan and Jeollanam-do in Korea, case studies dealing with the aging of fishery workers, characteristics of the current situation, the problems of fisheries distributions, and changes in the consumption of fishery products have been developed and analyzed.

The aging of fishery workers was addressed that subsidy system for abalone production in OH Island, Yawatahama, Ehime prefecture and that policy for returning to fisheries in Korea. The aging of fishers and the lack of successors were examined through the subsidy system in OH Island, Japan and policy for U-turn fishers in Korea. Both policies showed that solving problems through subsidies can be effective in the short term. However, specific measures are still needed to distinguish beneficiaries from non-beneficiaries. Moreover, in Korea, non-economic factors, such as community relationship, play a major role in settlement in fishing villages. OH Island launched abalone aquaculture through subsidies. However, it succeeded in branding abalone in other areas of Ehime Prefecture. Also, abundant abalone is imported from Korea. Therefore it is necessary to examine the advantages and disadvantages of the OH Island abalone style. In addition, it is necessary to cooperate with

local governments to develop a market for abalone produced in OH Island. Yawatahama actively sells marine products in the area through the DO-YA MARKET. Also, there is a port connecting Kyushu which is also advantageous for attracting tourists. In combination with these advantages, local-authority must develop means to promote OH Island abalone.

The problems of distribution are analyzed in case study about abalone seaweeds in Korea. In the case of abalone, these issues result from a bad habit called “addition”. To solve these problems, local-authority have established distribution-processing company with fishers that purchased directly from the producer and sold to the consumer. With the introduction of this system, shipments became possible without “addition”. However, the existence of “Fishing Village Cooperatives” revealed the problem of maintaining the influence of existing distributor in the production area. In the case of seaweed, distribution is negatively impacted by the tyranny of processors who exploit the characteristics of commodities that are not distributed with the raw algae. These characteristics of the commodity indicate that production area distributor have the dominance of production area market prices. Moreover, it seems that the price of trades with producers has decreased due to the stagnation of the price of seaweeds. Meanwhile, some argue that there is a problem with the use of hydrochloric acid in the production of fisheries in relation to the fishery environment and products. Considering this, a company that produces and sells seaweeds without using hydrochloric acid was established as a subsidy of the local government. This company has been contributed to differentiation of products and income increase of producers.

The consumption of fishery products reviewed the project of trash fish in Yawatahama. This project aimed to heighten interest in trash fish, and it is expected to raise awareness consumers in Japan and Korea. Both countries are still focusing on branding high-end fish species and popular fish species. However, the effective distribution of trash fish will require further research on stable supply, commoditization, and consumer awareness.

Finally, I have found the following two findings by these case studies.

First, as reviewed in Chapters 3 and 4, new fishers are migrating due to government policies in areas where aging is progressing and fishers have decreased. However, friction with existing local fishers is becoming a problem. These problems are repeated in the cases reviewed in Chapters 5 and 6. New distribution systems built by governments and local governments have proven to be beneficial to fishers. However, it has become clear that the presence of the “Fishing Village Cooperatives” is offsetting the merits. This phenomenon is associated with hindering new participation in fishing villages and fisheries, and indicates the need for policies to protect the interests of fishers.

Second, as reviewed in the case of seaweed, the establishment of a company and the new distribution system due to the support of the local government are linked to the increase in income of fishers through product differentiation. At the same time, it shows that the maintenance of the fishing village environment and the safety of the product are the key to building sustainable fisheries.

I would like to present two perspectives for the development of fisheries in both countries. On the other hand, continuous research is needed to advance the private-public partnership and a new distribution system approach in fisheries. In particular, it is necessary to study the welfare and economic effects of the two sectors. Fisheries support through active intervention by the government is a means to support primary industry rather than a means to produce direct and immediate economic benefits. Therefore, it is necessary to study the contribution of fisheries support to the overall economic welfare of Japan and Korea. In addition, research on economic effects such as the income equivalence of fishers should be continued.