

# A Joint Fishing Plan between ROK and DPRK in the East Sea

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**Abstract:** This study aims to design a joint fishing zone in a certain area of the East Sea, in terms of fisheries cooperation between the Republic of Korea(ROK: South Korea) and the Democratic People's Republic of Korea (DPRK: North Korea), under the regime of the 200-nautical mile Exclusive Economic Zone(EEZ).

For better relation between the two Koreas, it is suggested to develop a joint fishing plan in a certain area of the East Sea. The size of the proposed fishing zone will be about 60-nautical mile wide and about 188-nautical mile long from the assumed territorial sea lines. To successfully establish the joint fishing zone, several systems such as management, organization, agreement parties, jurisdiction over fisheries vessels, surveillance, and enforcement will be needed. In conclusion, when set by both Koreas, the joint fishing zone could not only contribute to better relation of the two Koreas and rational utilization of fisheries resources, but might partially solve the current boundary disputes between both Koreas.

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## I . Introduction

In the North Pacific region, the Republic of Korea(ROK: South Korea), the Democratic People's Republic of Korea(DPRK: North Korea), Japan, and the former Soviet Union(USSR) adjacent to the East Sea have claimed and enforced their respective authority and sea boundary. Several bilateral fisheries agreements currently exist in the East Sea among the four countries. However, there is no bilateral fisheries agreement and cooperation between the two Koreas which share two marine boundaries. There have been many conflicts around the water between the two Koreas which have not drowned successful results for mutual interests. Therefore, cooperative actions are urgently needed for the rational use of fisheries resources and the improvement of living standards of fishermen in the region. Particularly, the regional cooperation between the two Koreas regarding fisheries management and development is important and necessary not only because of the biological nature of fish migrating across national jurisdiction, but also because of unique characteristics of the region. So, this kind of regional cooperation could be the beginning of an optimal use of fisheries resources in their coastal waters.

The purpose of this study is to design the establishment of a joint fishing zone in a specific area of the East Sea as an option of fisheries cooperation between the two Koreas together with possible bilateral cooperation in the field of fisheries under the regime of the 200-nautical mile EEZ.

Studies on fisheries cooperation between South Korea and North Korea

have been intensively published between the 1990s and the 2000s by Shin(1998, 1999), Ahn and Hong(2001), Lee(2001), and Hong and Lim(2002), Nam(2006), Hong and Park(2012). However, those on fisheries cooperation in the East Sea between the two Koreas have limitedly published. In other words, this study focuses on the development of a plan for successful fisheries cooperation in a certain area of the East Sea between both Koreas.

This study consists of introduction of the EEZ regime among nations adjacent to the East Sea, description of major characteristics of the two Koreas around the East Sea, analysis of issues and problems of fisheries cooperation between both Koreas, suggestion for the development of a joint fishing plan in a certain area of the East Sea as an option for better relation of the two Koreas, and concluding remarks.

## II. The EEZ regime among nations adjacent to the East Sea

The four countries bordering the East Sea, South Korea, North Korea, Japan, and Russia are all traditionally considered as fishing countries, but the state of development of their respective national economies and fisheries is different. The development of their fisheries is remarkable in all the countries bordering the East Sea and has led to the region's large fishery production.<sup>1)</sup>

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1) According to FAO Statistics, in 1990, the former USSR, Japan, South Korea and North Korea produced 10,389,030, 10,353,555, 2,750,000 and 1,750,000 metric tons of fisheries respectively, ranking 2nd, 3rd, 9th and 14th in order of world fisheries production. In addition, according to recent 2010 FAO Statistics, fisheries production excluding aquaculture and inland fisheries of Japan, Russia, South Korea and North Korea was about 4,141,312, 4,075,541, 1,745,971, and 205,000 metric tons respectively, ranking 6th, 7th, 14th, 51th in order of global capture production.

Although the 1982 Convention has not yet entered into force, several nations bordering the East Sea have already formulated their fisheries policies to reinforce their claims of extended jurisdiction. There are distinctive fisheries management characteristics in the East Sea under the 1982 UNCLOS. First, South Korea did not yet extend its jurisdiction over the coastal sea beyond the territorial waters (12 nautical miles) at that time. North Korea established a 200-nautical mile Exclusive Economic Zone in 1977. The former Union of Soviet Socialists, current Russia, declared a 200-nautical mile fishing zone in 1976. Japan also established 200-nautical mile fishing zone in 1977 but its western part of the East Sea has been excluded from the Japanese fishing zone. Furthermore, there have been various types of fisheries agreements established between the four neighboring countries in the region. Secondly, the existence of reciprocal fishing rights established between neighboring countries over the years after the extension of national jurisdiction, e.g. South Korea-Japan, South Korea-Russia, North Korea-Russia, and Japan-Russia have reciprocal fishing rights agreements. However, there is no fisheries agreement between South and North Korea despite the fact that they share the two sea boundaries; one is in the East Sea and the other is in the Yellow Sea.

This study focuses on bilateral fisheries cooperation between the two Koreas in a certain area of the East Sea. Particularly, in the East Sea, the two Koreas have less boundary conflicts and also more shared fish stocks than in the Yellow Sea. Therefore, in the short and midterm, for the two Koreas it is desirable to initiate fisheries cooperation in the East Sea than in the Yellow Sea. However, in the long term, future cooperation might include the fisheries cooperation in the Yellow Sea and furthermore the multilateral cooperation in the East Sea including the four countries, South Korea, North Korea, Japan, and Russia which share the East Sea.

### III. Characteristics of South Korea and North Korea around the East Sea

Marine geographic features are one of the most important components influencing a nation's marine interests. National maritime activities are quite clearly shaped by the natural facts of their marine geography such as accessibility to the ocean and its resources and length of the coastline (Alexander, 1973). Because the conflicts on fisheries between South and North Korea are caused by the natural circumstances, it is essential to describe the geographic and marine characteristics of the two Koreas in some detail before entering into topics on the joint fishing plan.

The Korean peninsula is about 1,000 kilometers long and about 250 kilometers wide, it is located to the northeast of the Asian continent and bordered with China on the northeast and Russia on the east. In the east lies the East Sea, in the west, the Yellow sea, and in the south, the East China Sea. The peninsula with its associated islands lies between 124° 11' 00" and 131° 52' 42" E between 33° 06' 40" and 43° 00' 39" N.

The area of the Korea peninsula is about 223,352 square kilometers. At present, it is politically divided into two parts: the North and the South. South Korea is about 100,188 square kilometers or 45 percent of the peninsula and North Korea territory is about 123,164 square kilometers or 55 percent. The Exclusive Economic Zone (EEZ) of the South Korea is 288,045 square kilometers. There are numerous islands off the southern and southwestern coasts. The total number of islands is about 3,000. The total length of coastline is estimated at 16,900 kilometers including islands' coast and the coastal length of the peninsular portion is about 8,600 kilometers. The coastline of the islands

is about 8,300 kilometers. The large ratio of South Korean coastline to land area signifies that the coast has much indentation (Lee, 1984).

Table-1. Marine Geographic Statistics of South Korea: Size and Length of Coastline

Unit: sq. km, km

Territory	Area (sq. km)	Coastline(km)		Area Ratio	Hypothetical Area to 200-mile (sq. km)
		Mainland	Island		
South Korea	100,188	5,600	7,200	0.130	101,600
North Korea	123,164	3,000	1,100	0.034	37,800
Total	223,352	8,600	8,300	0.077	149,400

Source: Lee, 1984.

The East Sea is about one million square kilometers in size and is semi-enclosed by North and South Korea, Japan and Russia. Its average depth is about 1,700 meters, with the deepest area reaching over 4,000 meters. The 200-meter isobath runs very close along the coasts of the three countries.

The number of marine species which live in the East Sea is over 439 species. Approximately 50 species are of commercial significance. These include demersal, pelagic, and anadromous fish species; crustaceans, cephalopods, and marine mammals; and seaweeds. Among these species, specially important species in terms of volume and value are Alaska pollack, red crab, squid, mackerel, pacific saury, anchovy, conger, flat fish and atka fish in the East Sea off the east coast (Ministry for Agriculture, Food, Forestry and Fisheries (MOF, 2012).

The Food and Agriculture Organization of the United Nations(FAO) estimates for North Korea's annual capture production are shown in Table 2. South Korean capture production is indicated for comparison.

South Korean capture production has increased remarkably since the

Korean Government initiated the First Five Year Economic Development Plan in 1962. The capture production amounted to approximately 2,496,909 metric tons in 1990, which is about 7 times as much as in 1960. Then, the capture production in South Korea has gradually decreased. The condition of shared fisheries resources seems to be getting worse. There is one of significant evidences to support this argument. As can be seen in Table 3, due to decrease of the capture production of major fishing vessels in South Korea, the number of major fishing vessels in South Korea has been dramatically decreased with vessel buyback program in order to prevent depletion of fish stock.

■ Table-2. Annual Capture Production of the Two Koreas ■

Unit: M/T

Country	1960	1970	1980	1990	2000	2005	2010
North Korea	299,190	385,000	853,000	478,000	212,850	205,000	205,000
South Korea	338,564	752,222	1,863,228	2,496,909	1,838,018	1,661,370	1,745,971

Note: aquaculture and inland production are excluded.

Source: Food and Agriculture Organization (FAO) FishstatJ 2013.

In 2010, capture production of South Korea excluding aquaculture and inland fisheries was about 1,745 thousand metric tons, ranking it 14th in the world. In addition, the composition of the total fisheries production of 2010 by fishing type shows that adjacent waters fishery was the 2nd important one, accounting for 36% of total tonnage (3,110 thousand metric tons). In reference, aquaculture fishery was the 1st important one, accounting for 43%.

Also, in 2010, estimate of North Korea capture production excluding aquaculture and inland fisheries was about 205 thousand metric tons, ranking it 58th in the world. Capture production of North Korea excluding aquaculture and inland fisheries has continuously decreased since 1980 like one of South Korea.

**Table-3. Trend in Capture Production and Number of Major Fishing Vessels in South Korea**

Unit: M/T, number

Fishing Type	Capture Production of Major Fisheries					Number of Major Fishing Vessels				
	1980 (A)	1990	2000	2010 (B)	(B-A)/A(%)	1980 (C)	1990	2000	2010 (D)	(D-C)/C(%)
Mean	105,558	125,566	76,385	62,975	-0.40	522	434	302	144	-0.87
Large pair trawl	124,181	110,663	93,923	51,474	-0.59	399	384	206	76	-0.84
Large otter trawl	29,002	10,668	11,796	12,853	-0.56	132	83	47	44	-1.06
Large Trawl	57,070	166,185	127,113	60,933	0.07	84	87	70	53	-0.36
Eastern sea trawl	37,758	6,879	5,097	38,687	0.02	41	44	32	39	-0.05
Large purse seine	218,651	358,993	179,988	160,409	-0.27	334	367	232	153	-0.49
Offshore gill nets	45,634	42,368	51,647	59,644	0.31	1,534	1,211	898	415	-0.92
Offshore stow nets	226,613	183,208	65,128	56,823	-0.75	1,127	865	629	229	-1.04

Source: Ministry for Ocean and Fisheries(MOF), each year.

FAO has estimated the production of North Korean fisheries for two categories, the total catch of fresh water fish and marine fish, neither of which is specified by species or species groups. Chikuni (1989) indicates that North Korea's fisheries production has been very poor, replying on various fragmentary and indirect bits of information. Currently, FAO statistics also shows that North Korean fisheries production has been getting worse as shown in Table 2.

North Korea uses trawl fishing introduced by the former Soviet Union for large scale fisheries, especially for Alaska Pollack fisheries in the East Sea and in the Okhotsk Sea. Purse seine is also of great importance, while only a small amount of catches is taken by gillnets and other types of gear. North



Korea has endeavored to modernize its fishing vessels and has imported several factory ships from western countries. North Korea also developed large trawl fishing vessels of 3,750 tons and has used them as its main fishing vessels for harvesting Alaska Pollack. According to the Board of National Unification (1988), the number of power fishing gears in North Korea was estimated to about 1,400 vessels. Nevertheless, the amount of capture production has been getting worse and worse.

Table-4. Status of Major Power Fishing Gears of North Korea

Unit: M/T, number

Type of Vessel	Scale of Vessel	Number of Vessel
mothership	10,000	8
factory/freezing carrier	3,000~7,000	12
large trawl fishing vessel	3,750	11
multi-purpose vessel	450~485	554
net fishing vessel	270	16
trap fishing vessel	30~100	766
small trawl fishing vessel	30~100	170

Source: Board of National Unification, 1988.

Therefore, using fisheries resources sustainably and efficiently between the two Koreas adjacent to the East Sea is much more important than before. As a result, although there are recently several political disputes and battles between the two Koreas, adaptable plans for solving several issues and problems of fisheries cooperation between them are needed to be prepared and designed.

## IV. Issues and problems of fisheries cooperation

### 1. Lack of systematic data on shared species

Systematic data on fish stocks in the East Sea and its adjacent sea area are lacking, but there are variably valued stocks that occur in the jurisdictional waters of more than one of the countries facing, or adjacent to the East Sea. The shared species between the two Koreas include Alaska Pollack, Squid, Sardine, Pacific Saury, Anchovy, Flat Fish, Mackerel, Conger, Red Crab, and Shrimp, but scientific information on them is not only enough, but not opened exactly, particularly in North Korea. According to FAO statistics, the conditions of these shared fisheries resources are not good because of overexploitation. Therefore, adequate measures for protection and management of these resources are urgently needed.

Meanwhile, based on current data on shared species, target species for a joint fishing zone will be Alaska Pollack, Squid, Pacific Saury, Red Crab, Shrimp, Mackerel, and Sardine in terms of amount and value on shared species.

### 2. Depletion of fish stocks

The exact statistics and regulations for fisheries of North Korea have not been released. In addition, it is hard to know the current status of fish stocks in the waters of North Korea because of its reluctance to reveal such information. Based on estimate of Chikuni (1989), the total catch has been steady or increasing in the waters of North Korea since 1980s, but almost all

species are overfished; thus, the Catch Per Unit Effort(CPUE) may be declining. Based on estimate of FAO statistics, the capture production has been continuously decreasing in the waters of North Korea due to depletion of fish stock after 1980s.

According to Korean Statistical Information Service(KOSIS), the capture production in South Korea has gradually decreased since 1990s due to high fishing intensity. South Korea implemented vessel buyback program and Total Allowable Catch(TAC) system since 1994 and 1999, respectively. As a result, the CPUE in the waters of South Korea has increased in recent years. However, fishing intensity is still higher than the sustainable yield.

TAC species of South Korea were composed of 12 species in 2012. The TAC assessment has been based on biological and economic information of species caught by South Korea.

**Table-5. TAC species and fisheries of South Korea**

Year	TAC species	TAC fisheries
1999	mackerel, jack mackerel, sardine red snow crab	large purse seine offshore trap
2001	fun mussel, purplish Washington clam Cheju island top shell	diver village
2002	king crab	offshore gillnets, offshore trap
2003	blue crab	coastal and offshore gillnets, coastal and offshore trap
2007	squid	offshore angling, Eastern sea trawl, large trawl, large purse seine
2009	Raja pulchra, sailfin sandfish	offshore longline, coastal multiple Eastern sea trawl, Eastern sea danish sein
2012	mackerel, jack mackerel, red snow crab, fun mussel, purplish Washington clam Cheju island top shell, king crab, blue crab, squid, Raja pulchra, sailfin sandfish	large purse seine offshore trap, diver village, offshore gillnets, offshore trap, coastal and offshore gillnets, coastal and offshore trap, offshore angling, Eastern sea trawl, large trawl, large purse seine, offshore longline, coastal multiple Eastern sea trawl, Eastern sea danish sein

Source: MOF, 2012.

### 3. Limitation of full utilization of fisheries resources

The two Koreas have difficult to fully use of fisheries resources in the region, specifically the area along the South Korean fishing limit line, mainly due to conflicts and tension between them. Fishermen cannot go close to the self-claimed boundary line of North Korea to fish because they are afraid of kidnapping. About 460 South Korean fishing boats and 3,700 fishermen have been kidnapped to North Korea by the North Korean military since 1954.

Taking into account limitations and difficulties in full use of fisheries resources in the near areas of self-claimed boundary lines, fisheries cooperation between the two Koreas is needed, in particular, for the peaceful fishing operation and full use of fisheries resources in the region.

Scientific survey and assessment on fisheries resources is a prerequisite to realize joint fishing policies. Fisheries resources management policy on a national level can be achieved by figuring out how much fisheries resources are in joint fishing zones. This will provide fishing information that enables safety in fishing and stable supply of fisheries products.

### 4. Lack of proper management system for fisheries resources

Major marine shared fish stocks between the two Koreas are Alaska pollack, squid, sardine, mackerel, and pacific saury. North Korea considers its fisheries resources as the main source of protein supply for the people and is trying to raise its production. According to the FAO estimates, South Korea produced about 1,700 thousand tons of fish in the year of 2010 and Alaska Pollack accounted for about 75% of its annual capture production.

The main fishing period for Alaska pollack is 4 months from November

to the next February in the North Korean Waters. Therefore, during the non-fishing period of Alaska pollack, many North Korean fishing vessels might be tied up in the harbor go to the Okhotsk Sea for fishing of other species. Fish species of North Korea are not diverse, with relatively short fishing season, North Korea might wish to extend the fishing ground and period, together with, diversification of fishing target species.

On the other hand, in South Korean waters, there are several important fish species such as squid, sardine, pacific saury, and mackerel. If the establishment of the joint fishing zone is agreed by the two Koreas, North Korea can fish in the South Korean side of waters and vice versa. Alaska pollack is the most favorite fish for Koreans. However, Alaska pollack fishing of South Korea has gradually disappeared since 1990 on account of climate changes and stock depletion. Therefore, South Korea urgently needs new fishing ground for Alaska pollack.

## 5. Boundary disputes on utilization of fisheries resources

South Korea has two marine boundaries with North Korea : one is the East Sea, and the other is the Yellow Sea. The two Koreas have a ceasefire line on land, but they have no agreed sea boundary line. Self-proclaimed sea boundary lines cause disputes and conflicts between the two Koreas. These kinds of disputes and conflicts disturb efficient management of the living resources.

North Korea established a 200-nautical mile economic zone in 1977. "It also proclaimed a 50-nautical mile military boundary zone, in order to reliably safeguard the economic sea zone and firmly defend the national interests and sovereignty of the country".<sup>2)</sup>

North Korea might have to use a straight baseline to mark the zones, but it has not made public exactly where and how it will draw them. In the East Sea, a straight baseline which North Korea is reported draw enclosing two small bays is roughly 100-nautical mile long; the waters so closed, however, would fail to meet even the most elastic interpretation of the definition of a bay as given in the 1982 UN Convention on the territorial Sea and the Contiguous Zone. This raises the question of how the two lateral boundaries with South Korea at both ends of the ceasefire line, were drawn. However, it should be noted that, for largely political reasons, the coastal states in the neighborhood of North Korea have been equally reluctant to be specific about their straight baseline and lateral boundaries and have thus far seemed to thrive on the ambiguity.

South Korea reacted almost instantly with strong protests denouncing the North Korean claim as unprecedented under international law when North Korea declared its 50-nautical mile military boundary from the baseline in 1977. The South Korean government concerned about fishing operations near the boundary lines and their security. Japan also disapproved the 50-nautical mile military boundary declared by North Korea because the Japanese fishermen would not be allowed to enter in the North Korean military boundary. The former Soviet Union with no comment simply reported the North Korean announcement and Japan's disapproval. Only China remained silent because of its relation with North Korea. Other countries are likely to be indirectly affected by the North Korean claim (Park, 1988).

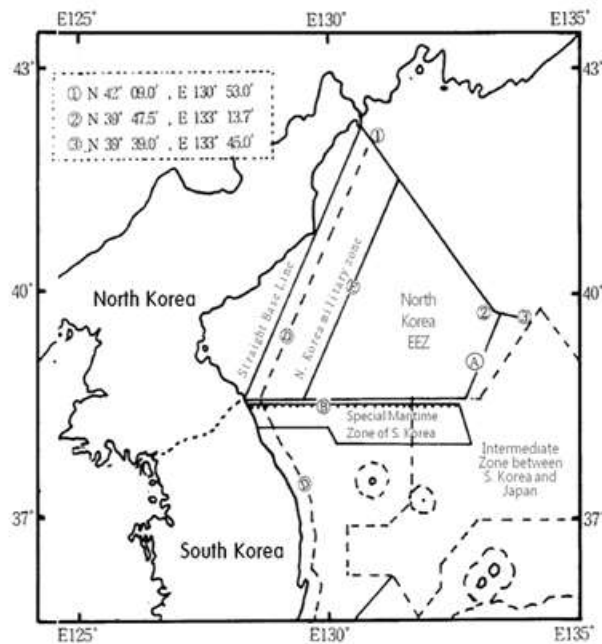
South Korea established two special maritime zones in the East Sea and the Yellow Sea for the safety of fishing operations and partly to prevent the

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2) The English text, by the Korean Central News Agency, August 1, 1977, in FBIS(Foreign Broadcasting Information Service), Asia and Pacific, August 1977, at D6; and The People's Korea, August 10, 1977.

infiltration of North Korean agents. The two zones were established in the name of the regulations for the Safety of Shipping Operations. Current fishing limit line is located at 38° 33' north latitude. The fishing limit line has revised many times depend on the situation of the region.

■ Figure-1. Fishing Waters between South and North Korea ■



Note : ① Northern Limit Line ② Fishing Limit Line, ③ Territorial Sea Line  
Source : Hong and Lim 2002.

## 6. Controversy on the base line of the joint fishing zone

The model of fisheries cooperation is a new approach for the two Koreas. Until now, fisheries cooperation between them has not been made since they were divided into two in 1945. No joint fishing zones are in place in the East

Sea. There may be some controversial problems about the establishment and management of the joint fishing zone between the two Koreas.

First of all, which sea line will be the basis for the joint fishing zone because the two Koreas have not reached on the boundary agreement? However, to initiate a joint fishing zone, the fishing limit line of South Korea established the 200-nautical mile economic exclusive zone in 1977 and proclaimed a 50-nautical mile military boundary zone in order to reliably safeguard the economic exclusive zone and firmly defend the national interests and sovereignty of the nation(Park, 1988). With its indented coastline and offshore islands, North Korea used straight baseline to mark the zones. North Korea has not permitted foreign fishing in the military zone. But for the success of a joint fishing zone, North Korea must permit fishing in the military zone where Alaska Pollack live. However, from the legal point of view, the North Korean claim is not consistent with the 1982 UNCLOS.

The UNCLOS states that the straight baseline can be used for the bays that have the width of less than 24-nautical mile. However, North Korea used straight baseline to mark her EEZ. Therefore, the lateral boundary between both Koreas in the East Sea extended southward beyond the imaginary equidistant curve.

However, the problems concerning the structure of the joint fishing zone can be solved if the basis line for the zone can be the current line until the two Koreas agree on the boundary line. For the efficient management of the zone, North Korea must exclude the application of the 50-nautical mile military zone for the joint fishing zone.

Another problem is how to merge the fisheries agreements which the two Koreas have made with neighboring countries with the joint fishing zone. The two Koreas must change the fisheries agreement made with the neighboring



nations to be consistent with the joint fishing zone. As for prospects for a joint fishing zone, the two Koreas clearly understand the need to cooperate. Therefore, prospects for a fisheries cooperation is more mature than before. Also, the two Koreas are experiencing depletion of fisheries stocks in their coastal waters. They need action for the conservation and efficient use of living resources. South Korea has lost major deep-sea fishing ground such as drift-net fishing in the Pacific and Alaska Pollack fishing in Bering Sea. Therefore, South Korea needs new fishing ground for supplementing these fisheries.

## V. A Joint Fishing Plan between South Korea and North Korea

### 1. Location and structure of a joint fishing zone

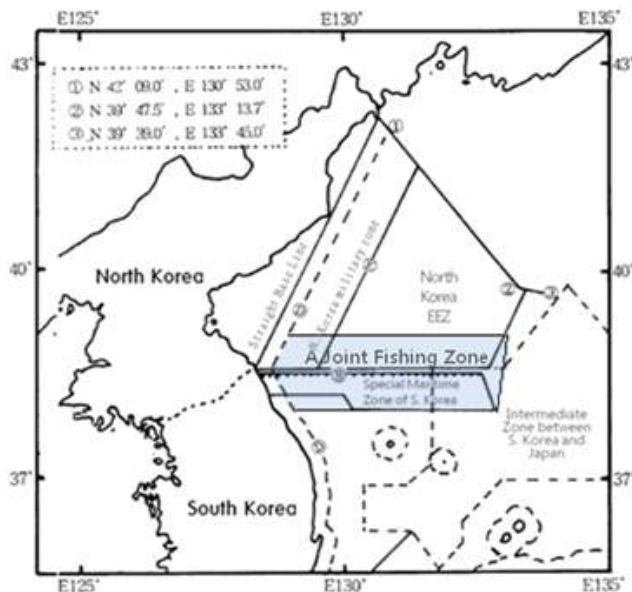
The two sea border lines exist in the waters between South and North Korea, one in the East Sea and the other in the Yellow Sea. However, the East Sea has more favorable conditions for initiating cooperation than the Yellow Sea, because it has richer fish stocks and less boundary conflicts than the Yellow Sea. Therefore, the location of the joint fishing zone would be better in the East Sea.

The structure of the joint fishing zone is very important to start fisheries cooperation between the two Koreas. It must be based on equitable principle in terms of structure and management.

The size of the proposed fishing zone will be about 60-nautical mile wide

and about 188-nautical mile long from the assumed territorial sea lines. The two Koreas will each dedicate a stretch of ocean extending 30-nautical mile north or south from the current sea boundary to form the joint fishing zone. There are two main reasons why the size of joint fishing zone would be 30-nautical mile wide and 188-nautical mile long. One reason is that considering the fisheries management and security purposes, South Korea already established a special maritime zone, about 30-nautical mile wide and about 188-nautical mile long, in the East Sea. Therefore, it is desirable for the North Korea to dedicate the same size of the sea for the joint fishing zone. The other reason is that the joint fishing zone must include the enough amounts of shared and migrating fish stocks to produce profits for fishermen who enter the zone. Considering these two factors, the size of the joint fishing zone would be at least 60-nautical mile wide and 188-nautical mile long.

Figure-2. Joint Fishing Zone between South and North Korea

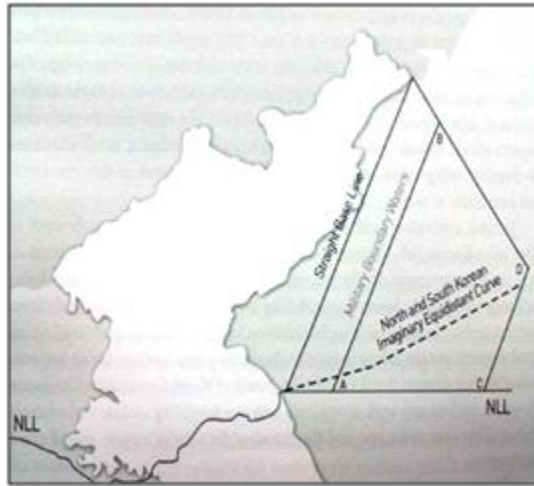


The territorial waters will be excluded from the joint fishing zone to avoid causing the two Koreas security worries. The 50-nautical mile military boundary zone of North Korea will be included even though North Korea declared any foreign fishing activity will not be permitted. In the joint fishing zone, the two Koreas can catch fish together and also could conduct the scientific survey to assess the conditions of fishery resources. The scientific data related to fisheries can be used for the management of the joint fishing zone.

The choice of the basis line for the joint fishing zone is the big issue and is very important for its successful implementation. However, currently the two Koreas do not have a boundary agreement concerning the sea. There are self-proclaimed boundary lines on the sea which neither party recognizes. These unresolved boundary conflicts may increase the danger of endless disputes, especially as the two Koreas turn their attention more fully to exploiting the sea's resources. In fact, the relative absence of disputes over the use of the sea so far may be less a result of deliberate policy than of good fortune, in that both Koreas, especially South Korea, have so far been cautious concerning the management of the sea.

There are two options for the basis line of the joint fishing zone: one is the imaginary equidistant curve between the two Koreas, the other is the South Korean fishing limit line established just below the lateral line of North Korean EEZ. If the imaginary equidistant curve is adopted for the joint fishing zone, the zone will be located about 18 degree northward of current boundary line. In this case, North Korea may not accept the joint fishing zone because the zone will be located farther the north than current South Korean fishing limit line.

Figure-3. The North-South Korean Imaginary Equidistant Curve



Source: Hong and Park, 2012.

Therefore, the South Korean fishing limit line for the joint fishing zone is recommended until both Koreas have a boundary agreement. This means that for the successful establishment of the joint fishing zone, both Koreas must accept the current boundary line. However, this does not necessarily mean the current boundary lines are accepted by the two Koreas.

## 2. Agreement parties

There are two ways for both Koreas to reach a fisheries agreements for the joint fishing zone: one is a non-governmental level agreement and the other is a government level agreement. Generally, the two parties which have no diplomatic ties have non-governmental agreement, while the two parties which have diplomatic relations usually have governmental agreement.

Japan has a fisheries agreement with North Korea on a non-governmental

basis because the two countries have no diplomatic ties. Both parties have established North Korea-Japan Fisheries Cooperative Committee for the executive organization of the agreement (Valencia, 1989) as a non-governmental organization. However, Japan had a governmental fisheries agreement with South Korea because it normalized diplomatic relations with South Korea in 1965.

The fisheries agreement parties between the two Koreas would be both government authorities even though the two Koreas do not have diplomatic ties. The governmental agreement for the fisheries management makes its enforcement smoother and more efficient than with the non-governmental agreement. In addition, South and North Korea signed a "Basic Agreement on Reconciliation, Nonaggression and Exchange and Cooperation" on December, 31, 1991 in a far-reaching bid to turn the conflict and hostility that has dominated 46 years of their relations into rapport and co-prosperity. It went into effect on February 19, 1992 along with the "Joint Declaration on the Denuclearization of the Korean Peninsula". A set of protocols was also concluded by the two Koreas on September 17, 1992, to implement the Basic Agreement. However, this Agreement also soon became a dead letter and inter-Korean relations deteriorated over the North's nuclear development program (Ji, 2001). After then, inter-Korean relations have continuously been in bad situation since 2010 due to regional provocations of North Korea such as artillery attack on Yeonpyeongdo and the Cheonanham(warship) sinking, but the relations are expected to be better than now due to poor economic conditions of North Korea.

### 3. Management of a joint fishing zone

Most of all, the successful management of the joint fishing zone is very important for the efficient use and conservation of fisheries resources in the region. However, the two Koreas have neither diplomatic relation nor fisheries agreement. Therefore, a fisheries agreement is needed for the efficient management of a joint fishing zone. The agreement will establish a bilateral fisheries commission charged with responsibility for implementation of the joint fishing zone.

This commission will have authority for decisions of provisional fisheries regulatory measures and give advisory opinions to the two governments. Then, both governments will enforce the decisions of the commission on fisheries management in the joint fishing zone. In the joint fishing zone mentioned above, licensed fishermen from the bilateral fisheries commission can enter the joint fishing zone and can fish in the zone. In their respective side of waters of the joint fishing zone, coastal state principle will be implemented. However, court jurisdiction for the vessel will be given to the flag state.<sup>3)</sup>

Under the commission, a scientific body for assessment of fisheries stocks in the joint fishing zone will be established. The scientific body will report findings on fish stocks in the joint fishing zone to the commission.

### 4. Jurisdiction over fishing vessels

Two major options are available about jurisdiction over fishing vessels in

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3) The flag state of a commercial vessel is the state under whose laws the vessel is registered or licensed. The flag state has the authority and responsibility to enforce regulations over vessels registered under its flag, including those relating to inspection, certification, and issuance of safety and pollution prevention documents. As a ship operates under the laws of its flag state, these laws are used if the ship is involved in an admiralty case (Wikipedia, 2013).

the joint fishing zone: one is the flag state principle and the other is the coastal state principle.<sup>4)</sup>

Since the two Koreas currently have military confrontation in the East Sea, they may consider that the coastal state principle might be better than the flag consideration of the effective enforcement of the agreement and the current relation of the two Koreas.

Therefore, in consideration of the relation of the halt and inspect vessels will be given to the coastal state in the joint fishing zone. However, the court jurisdiction must be given to the flag states. If one party finds vessels violating the regulations on the joint fishing zone, then the party reports the findings to the other party. The flag state takes judicial authority over the vessels. The kind of management tool is a mixture of the coastal state principle and the flag state principle.

The modified management tool will be appropriate for the unique and special situation between the two Koreas. Usually, fisheries agreements between the coastal countries contain the coastal state principle to effectively implement the agreements. For example, the fisheries agreement between South Korea and Russia, and between Japan and North Korea adopts the coastal state principle(Akaha, 1993).

However, the 1965 fisheries agreement between South Korean and Japan adopted the flag state principle. The principle proved ineffective for control of violations of the 1965 government fisheries agreement. If fishing vessels suspected of violating the bilateral agreement conceal their nationality, it is impossible for the authorities to check and report. Faced with the problem, the Japanese government proposed revision of the existing bilateral fisheries agreement which includes breaking with the past practice of the flag state

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4) The coastal states are the state with a coastline. The coastal states have sovereign rights to manage fisheries in waters under their jurisdiction (FAO, 2001).

control and court jurisdiction, and then adopts the coastal state principle.

## 5. Fisheries management tools

The harvest level or the intensity of fishing power can be controlled for the efficient management of the joint fishing zone. This is what the so-called conventional fisheries regulations have attempted to control fisheries (Lee, 1986).

First of all, the size of fishing vessels might be less than 200 tons for the conservation of the fisheries stocks.

Secondly, license limitation program can be used to restrict the number of fishing vessels in the zone. The two Koreas would be permitted to enter the same number of fishing vessels into the joint fishing zone. However, how many fishing vessels will enter the joint fishing zone must be decided based on the scientific data for the fisheries in the region. Currently, the scientific data for the fisheries in the region is not available. Therefore, the number of fishing vessels to enter the joint fishing zone must be decided after scientific survey for the fish stocks in the region is finished.

Thirdly, total quota system can be implemented for the rational use of fish stocks in the joint fishing zone. Total quotas for each species will be decided by the joint fisheries quotas in the zone. After comprehensive survey of the fisheries resources, the number of fishing vessels for the joint fishing zone would be decided to maintain the maximum sustainable yield in the region.

## 6. Management organization

A joint fisheries commission will be necessary to facilitate the management



of the joint fishing zone and the settlement of disputes that might arise during the implementation of agreement for the joint fishing zone. The members of the commission are appointed in equal numbers by the both parties. As to the frequency of meetings, the joint fisheries commission will meet once a year and also it meet at any time at the request of either party, or whenever necessary.

The joint fisheries commission deals with all the problems related to implementation of joint fishing zone. The commission reviews all information about fish stocks and problems related the joint fishing zone. Then, it makes recommendations to both governments for the efficient management of the join fishing zone. The commission will decide and recommend the number and size of vessels authorized to fish and catch quotas and so on to both governments. In addition, under the commission a scientific body for the assessment of fish stocks will be established. This body surveys the status of fish stocks in the zone, and then reports the findings about the fish stocks to the commission.

## 7. Surveillance and enforcement

For efficient and smooth surveillance and enforcement, the two Koreas will have the rights to board, inspect and arrest fishing vessels in their side of the joint fishing zone without unduly obstructing fishing operations. Such rights may be exercised by the either countries or coastal countries in their waters at only when it has reasonable ground to believe that a provision of the agreement has been violated. A set of documents, including a fishing log book of a commonly agreed model and updated daily, must be available at any time for inspection. Inspectors are also entitled to inspect fishing gears and catches.

Before entering and leaving the joint fishing zone, all fishing vessels will

be checked by the both parties and observers to qualify them pursuant to the rules of the zone and to check the amount of the catch.

However, the judicial rights will be given to the flag state because the two Koreas have different judicial systems. But the two countries must report each other the result of the punishment of the violating vessels.

## VI. Conclusions

South Korea has two sea boundaries with North Korea; one in the East Sea and the other in the Yellow Sea. For the success of the cooperation, the East Sea has more favorable conditions than Yellow Sea. The East Sea has more rich fish stocks and less boundary conflicts than the Yellow Sea.

The location of a joint fishing zone will be in the East Sea, and then the size of the joint fishing zone will be 60-nautical mile wide and 188-nautical mile long from the assumed territorial line. The territorial seas of both Koreas will be excluded. The basis line for the joint fishing zone would be current fishing limit line of South Korea even though the two Koreas have not agreed on a boundary agreement. The disputes on boundary line will be frozen for the time being for the success of a joint fishing zone.

To successfully establish the joint fishing zone, several systems such as management, organization, agreement parties, jurisdiction over fisheries vessels, and surveillance and enforcement will be specifically built. In addition, to improve the basis of rational utilization of fisheries resources, the two Koreas should standardize their data on fishery resources and release them. Details of information covering all the major species currently utilized and its timely release are critically important to detecting any change occurring in the

ecosystem of the living resources in the region. Frequent and reciprocal exchanges of scientists concerned with resources assessment are strongly recommended for exchanges of scientific data on fisheries stocks.

The joint fishing zone between South and North Korea may be a first step in a long journey toward cooperation in the fisheries. Although the political and economic systems of the countries are very different. But if a joint fishing zone is successfully implemented, the sea of conflicts will turn into a zone of peace and cooperation.

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