

KOREA MARITIME INSTITUTE

# **KMI International Journal of Maritime Affairs and Fisheries**

Trade in Service Agreement (TISA), a Trial for stalemate WTO/DDA in  
Maritime Transport

Research on Marine Functional Zoning of Dingzi Bay based on  
Resources and Environmental Evolution

An Asia-Pacific Regional Maritime Security: Moving Beyond the Turmoil

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# Trade in Service Agreement (TISA), a Trial for stalemate WTO/DDA in Maritime Transport

Yong-An PARK\*

Kay-Shek CHO\*\*

## ABSTRACT

The Trade in Service Agreement (TISA), a new plurilateral service agreement and a prominent substitute negotiation for stalemate DDA negotiations has been discussed by the participating 22 countries including Korea, USA, EU countries, Japan, and other countries since 2012. In maritime transport services, we could recognize a confrontation between European participants asserting full liberalisation of feeder services and transportation of transport equipment within domestic water of member countries, and Asian participants and American participants protecting cabotage activities. Even though the discussion over cabotage issues is becoming severer, we find a progress on liberalisation of maritime transport, especially commitment draft of the United States at land-side transport services, and new definition on maritime offshore services by Norway.

**Keywords:** TISA, DDA, maritime transport, cabotage, plurilateral agreement  
Journal of Economic Literature classification: Q2, O1, R3

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\* Research Fellow at KMI, first and corresponding author, yapark@kmi.re.kr

\*\* President of Korea Logistics Institute

# 1. Introduction

Since the WTO Doha Development Agenda (DDA) negotiations met a stalemate mainly in agricultural industries and non-agricultural market access (NAMA) areas, WTO Ministers announced the impasse and made a commitment to further negotiations in certain areas covered by the DDA in December 2011 (Sauve, 2013; EC, 2013a). Some WTO members led by the United States and Australia started to discuss over a stand-alone agreement on trade in services in order to finalise the DDA negotiations among willingly WTO Members. In February 2013, the European Commission (EC) formally proposed to open a new plurilateral agreement on trade in services (Sauve, 2013).

The Trade in Service Agreement (TISA) initially being called the International Service Agreement (ISA) included 22 WTO members<sup>1)</sup> belonging to the Really Good Friends of Service (RGFS) grouping. The 22 WTO members are both developed countries such as Korea, the United States and EC, and developing countries including Chile, Paraguay, Peru and other countries. The 22 WTO members represented about two thirds of global cross-border services (excluding intra EU trade in 2010) (EC, 2013a). Being the biggest exporters of services in the world and sharing about 26 % of world total export of services and half of all foreign investment flowing from the EU to other parts of the world, EU companies have been eager to improve legal security and access to new service market opportunities (EC, 2013b).

The amount of exports of services of Korea has been rising from 31 billion US dollars in 2000 to 95 billion US dollars in 2011, recording 10.6% of average annual growth rate during the period (IMF, 2012). On the other hand, the figures of imports of services of Korea have been soaring from 34 billion US dollars in 2000 to 99 billion US dollars in 2011. Korea has been faced the deficit of balance in service trade due to lower competitiveness in service industries including professional services, computer and related services, research and development services even with aggressive position in maritime transport. Nevertheless there have been many opportunities and threats in maritime transport: containerisation and multimodal transport expansion since the 1950s; growth and progress of Chinese marine industry after the 1990s; and periodical maritime business cycles of short period boom and long-term recession; and incessant enlargement of container vessels.

This paper aims to review the structure of TISA, analyze the main issues of maritime transport in TISA and conclude some implications for Korean maritime industry and companies. Especially this paper tries to find a confrontation between European participants and other participants in TISA on liberalization of domestic coastal shipping

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1) EU, Australia, Canada, Chile, Chinese Taipei, Colombia, Costa Rica, Hong Kong China, Iceland, Israel, Japan, the Republic of Korea, Mexico, New Zealand, Norway, Panama, Paraguay, Pakistan, Peru, Switzerland, Turkey and the USA.

or cabotage activities. Chapter Two examines the characteristics of TISA such as structure and differences with other negotiations and lists participants. Chapter Three scrutinizes main issues in maritime transport of TISA, evaluates the responses of main participants in maritime areas and describes discussions at the maritime areas. Chapter Four focuses on the cabotage related issues which was suggested by Norway in 2012: feeder services, transportation of transport equipments such as container vans, and maritime offshore services. Since transshipment services of containers shares approximately 27% of the world's container throughput, cabotage which restricts transshipment activities of shipping companies by foreign shipping within a country becomes more important (Meng and Wang, 2011; Wang *et al.*, 2013). Chapter Five concludes this paper and suggest some policy development agendas. This paper uses the methodology of literature review and evaluation of key issues in TISA through assessing maritime policy on cabotage of main participants in TISA.

## 2. Architecture and Major Participants of TISA

### 2.1 *Architecture and core elements*

At the start of exploratory talking in 2012, the RGFS targeted an agreement being a full part of the WTO system not a Free Trade Agreement (FTA) among the participants (Sauve, 2013). In addition the 22 participants have the aim of plurilateral trade in services agreement that is well suited with the General Agreement on Trade in Services (GATS).<sup>2)</sup> The GATS in 1995 was propelled by the same initiative as its counterpart in merchandise trade, the General Agreement on Tariffs and Trade (GATT): ensuring fair and equitable treatment of all participants; stimulating economic activity through guaranteed policy bindings; and promoting trade and development through progressive liberalization (WTO, 2013). The GATS is of great importance in helping service suppliers to play a vital infrastructure role in the world economy (Chanda, 2003). The fundamental principle of GATS is summarised into five points: 1) progressive liberalisation through binding commitment in schedules, 2) non-discrimination and transparency, 3) regulations that are reasonable, objective, impartial, and not more burdensome than necessary, 4) competition safeguards aimed at the realization of obligations and commitments, and 5) flexibility in recognition of national sovereignty and economic development needs (Tuthill, 1997).

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2) GATS is an annex of Agreement Establishing on the World Trade Organization (WTO) which was concluded in 1993 and included at the final agreement in UR. GATS is one of the three pillars of WTO: the others are Multilateral Agreements on Trade in Goods and Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) (Ministry of Justice of Korea, 2000).

Therefore, the participants agreed that the architecture of agreement would be based on the GATS, with some core GATS articles including definitions, scope, market access and national treatment, general and security exemptions (Sauve, 2013). According to the architecture of GATS, TISA would have two sorts of provisions; the first are general obligations, some of which apply to all service sectors such as most-favoured nation (MFN) and transparency and some only to scheduled specific commitments, e.g. payments and transfers; and the second are specific commitments, negotiated undertakings particular to each signatory (WTO, 2001). Specific commitments, upon the conclusion of negotiations, are to be recorded in schedules which will be attached to, and form an integral part of, the TISA.

Commitment schedules which contain footnotes, head notes and attachments are a record of legal commitment in which a member intends to be legally binding (WTO, 2001). Generally a commitment schedule illustrates the main information: a clear description of the sector or subsector committed, limitations to market access, limitations to national treatment, and additional commitments other than market access and national treatment. If a member undertakes a commitment in a sector then it must indicate for each mode of supply that it legally binds in that sector (WTO, 2001). There are four columns in a commitment schedules: definitions, market access commitments, national treatment commitments and additional commitments.

### 2.1.1 Limitations on market access<sup>3)</sup>

The limitation on market access is constraints at each modes of supply to market of a member to the supplier of other member. The four modes of supply as shown in Table 1 are 1) cross-border supply, 2) consumption abroad, 3) commercial presence, 4) and presence of natural persons. This limitations would grant full market access in a given sector and mode of supply when it does not maintain in that sector and mode any of the types of measures listed in the Article XVI, Limitations on Market Access. The limitation measures include four types of restrictions, limitation on forms of legal entity and on foreign equity participation. The quantitative restrictions can be expressed numerically or through the criteria specified in sub paragraphs. These criteria do not cover the quality of the service supplied or the ability of the supplier to supply the service such as minimum paid-in capital (Ministry of Justice of Korea, 2000; WTO, 2001).

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3) WTO, Guide lines for the Scheduling of Specific Commitments under the General Agreement of Trade in Services (GATS), 2001.



**Table 1.** Mode of Supply in WTO negotiation

Mode	Supplier Presence	Other criteria
Cross-border supply	Service of supplier not present within the territory of the member	Services delivered within the territory of the member, from the territory of another member
Consumption abroad		Services delivered outside the territory of the member, in the territory of another member, to a service consumer of the member
Commercial presence	Service of supplier present within the territory of the member	Services delivered within the territory of the member, through the commercial presence of the supplier
Presence of natural person		Services delivered within the territory of the member, with supplier presence as a natural person

**Source:** WTO (2001). Chanda (2003).

**Note:** Origin of service at cross-border supply in international maritime transport services is a ship registry country (Norio, 2010).

### 2.1.2 Limitations on national treatment

The limitations on national treatment describe the discrimination on suppliers of other member by a member. A member grants full national treatment in a given sector and mode of supply when it accords in that that sector and mode of competition no less favourable to services or service suppliers of other members than those accorded to its own like services and service suppliers (WTO, 2001). The national treatment standard does not require standard of the same treatment of domestic and foreign suppliers. Formally different measures can result in effective equality of treatment. Hence, limitations on national treatment include cases of both de facto and legal discrimination.

### 2.1.3 Additional commitment

Additional commitments are supplementary commitments affecting trade in services not scheduling under Articles of limitation on market access and limitations on national treatment. Additional commitments are expressed in the form of undertakings, not limitations.

### 2.1.4 Levels of commitment

Levels of commitment contain full commitment, commitment with limitations and no commitment (WTO, 2001). In full commitment, expressed as None, a member does not seek in any way to limit market access or national treatment in a given sector and mode of supply through measures inconsistent with articles of limitation on market access and limitations on national treatment. Commitment with limitations embrace two situations: the binding of an existing situation, Standstill and the binding of a more liberal situation where some of the measures inconsistent with the articles of limitation on market access

and limitations on national treatment will be moved, Rollback. In no commitment expressed as Unbound a member remains free in a given sector and mode of supply to introduce or maintain measures in inconsistent with market access and national treatment.

## *2.2 Major participants and their maritime industry*

To date, TISA shows areas of domestic regulation, international maritime transport services, Information and Technology (IT) services, e-commerce, computer related services, postal and courier services, financial services, temporary movement of natural persons, government procurement of services, export subsidies and state-owned enterprises. Among the areas, international maritime transport services is a main area where participants have distinctive different views on definitions, scope, range of commitments on market access, national treatment and additional commitment.

Major countries in global shipping market are participating at TISA. Among top 20 ranks in the basis of owned fleets in 2011, there are 15 TISA participants and five non- participants (<Table 2>). Japan ranks top and owns 143 million GT of 3,946 vessels; Greece in second rank with 130 million GT of 3,317 vessels; Germany in third rank with 76 million GT of 4,025 vessels; the United States in fifth rank with 43 million GT of 2,051 vessels. Korea with 34 million GT records seventh rank, following the UK in sixth rank with 35 million GT. We could see other TISA participants: Norway in eighth with 29 million GT, Denmark in ninth with 279 million GT and Hong Kong in tenth with 24 million GT.

Also in the basis of registered fleets, Panama records top rank; Hong Kong stays in fourth rank and Cyprus in tenth rank. Nevertheless, non-participants such as Liberia, Marshall Islands, Singapore, Bahamas remain within tenth rank. The nationality of owners of Panama fleets is composed of Japan sharing 53 % of Panama fleets, Korea, Greece, Taiwan and other TISA participants.

**Table 2.** World Fleet by Nationality of Owner(2011)

Rank	Country	TISA participation	Fleet	
			Number	1,000GT
1	Japan	Participant	3,946	143,269
2	Greece	Participant	3,317	129,870
3	Germany	Participant	4,024	76,247
4	China	Non	3,623	47,752
5	U.S.A.	Participant	2,051	42,623
6	U.K.	Participant	1,152	34,701
7	Korea	Participant	1,240	34,153
8	Norway	Participant	1,971	28,856
9	Denmark	Participant	1,032	27,456
10	Hong Kong	Participant	821	24,408
11	China (Taiwan)	Participant	692	23,383
12	Singapore	Non	1,091	18,797
13	Italy	Participant	834	14,938
14	Canada	Participant	453	14,441
15	Russia	Non	1,792	14,297
16	Turkey	Participant	1,171	12,374
17	India	Non	560	11,127
18	Malaysia	Non	526	10,442
19	France	Participant	486	8,655
20	Belgium	Participant	267	8,472

**Source:** HIS Fairplay (2012).

In the world liner fleet ranks as shown in Table 3, we can read the competition between European countries and Asian countries. While Maersk shipping company of Denmark ranks top and MSC shipping company of Swiss ranks second, COSCO and China Shipping of China follow them in rank third and fourth. Hanjin shipping company of Korea records rank eight. Since European countries have developed one Single European Maritime market and liberalised feeder services in Europe, European countries are eager to add feeder services and transportation of transport equipment in domestic coastal shipping as maritime agendas in TISA. We could find dynamic strategic alliances between global liner shipping companies, e.g. Grand Alliance, New World Alliance and CKYH Alliance (Panayides and Wiedmer, 2011). Therefore, efficiency of fleet deployment in global shipping networks becomes more important for shipping alliances, and connectivity improvement between

trunk routes and feeder routes will lower costs of vessel operation. Actually, even for global liner shipping companies it is hard to cover all shipping routes in the world as similar to other competitors which have strength in a regional route as shown in Table 4.

In DDA negotiation, EC asserted liberalization of maritime transport and listed Maritime Commitment Schedule including international maritime transport services, maritime auxiliary services, port services, repositioning of empty containers and feeder services of foreign trade cargoes. The Maritime Commitment Schedule of EC in DDA negotiation becomes a basis of maritime commitment of European countries in TISA.

**Table 3.** Ranks of Global Liner Shipping Companies(2012)

Rank	Company	Nationality	TISA participation	1,000 TEU
1	Maersk	Denmark	Participant	143,269
2	MSC	Swiss	Participant	129,870
3	CMA-CGM	France	Participant	76,247
4	COSCO	China	Non	47,752
5	China Shipping	China	Non	42,623
6	Evergreen	U.K.	Participant	34,701
7	Hapag-Lloyd	Germany	Participant	34,153
8	Hanjin	Korea	Participant	28,856
9	NYK	Japan	Participant	27,456
10	K Line	Japan	Participant	24,408
11	Mitsui Osk	Japan	Participant	23,383
12	OOCL	Japan	Participant	18,797
13	Yangming	China (Taiwan)	Participant	
14	NOL/APL	Singapore	Participant	14,441
15	Hamburg-Sud	Germany	Participant	14,297
16	UASC	UAE	Non	12,374
17	PIL	Singapore	Non	11,127
18	WanHai	China (Taiwan)	Non	526
19	ZIM	Israel	Participant	486
20	HMM	Korea	Participant	267

**Source:** HIS Fairplay (2012).

**Table 4.** Geographic coverage of liner services by Shipping Companies (2010)

Company/major route	MT	TA	TP	ME	AF	SA	AUS	IA	IE	Services	Share of service (%)
Maersk		5	12	53	58	42	16	35	43	264	15.3
MSC		9	6	23	28	29	8	12	58	173	10.1
CMA-CGM		8	9	36	39	30	14	32	30	198	11.5
COSCO		2	17	14	7	-	3	30	5	78	4.5
Evergreen		1	13	14	2	8	4	34	10	86	5.0
Hapag-Lloyd	1	14	12	14	6	15	12	2	4	80	4.7
Hanjin		3	18	21	1	1	4	15	0	63	3.7
NYK	1	5	10	23	28	29	8	12	58	173	3.7
K Line		2	13	17	3	4	4	14	3	60	3.5
OOCL	1	7	10	15			7	24	4	68	4.0
Yangming		2	16	19			1	21	1	60	3.5
Hamburg-Sud		3		4	2	27	10		5	53	3.1
ZIM	1	3	5	12	10	17	2	11	12	73	4.2
HMM	1	2	17	16	1		6	9	1	53	3.1

**Source:** Panayides and Wiedmer (2011).

**Note:** 1) MT: Multitrade; TA: Trans-Atlantic; TP: Trans-Pacific; ME: Middle East, South Asia, Indian Ocean; AF: Africa; SA: South America, Caribbean; AUS: Australia, New Zealand, South Pacific Islands; IA: Intra Asia; IE: Intra Europe, Intra Mediterranean.

2) The number of geographical coverage means the number of services in a route.

### 3. General Issues on Maritime Transport and Response of member countries

#### 3.1 Draft of Norway

Norway addressed its opinion on maritime transport in May 2012 in TISA negotiation. It stressed the importance of maritime transport services moving about 90% of global trade goods and classified maritime transport services into three main services: international maritime transport services, maritime auxiliary services and port services. It also adds other issues of feeder services related with international maritime transport services, coastal shipping of transport equipments such as empty containers, and pushing and towing services, and maritime offshore services besides the issue in GATS agreement.

In June 2013 Norway circulated the draft of maritime service Section including scope, definitions, non-discriminatory market access, access to services, recognition of vessel certificates, and identification of documents, entry and transit of seafarers (Norway, 2013). Differently from the issues of GATS, the Norway draft of maritime service Section includes

feeder services, coastal shipping of transport equipment and maritime offshore services.

### **3.1.1 Scope**

In the Scope of the draft, Norway emphasizes feeder services and maritime offshore services. Due to its strong competitiveness in maritime offshore industries such as pushing and towing oil rigs and transportation of marine structures, Norway separates maritime offshore industries from domestic coastal shipping services. Norway seems to intend to develop new service markets of maritime offshore services through addressing maritime offshore activities.

### **3.1.2 Definition**

Norway interprets broadly international maritime transport services as the supply of international maritime transport of cargo and passengers, including door to door or multi-modal transport operations. Multi-modal transport services in accordance with containerization since the 1950s and adoption of container system after the 1960s have changed liner shipping networks both through developing feeder and spoke shipping networks and through diversifying liner shipping routes. European countries have cultivated multi-modal transport services, promoted freight forwarding business and built logistics facilities around port and inland areas.

Introducing a definition of feeder services, European countries represented by Norway try to liberalize feeder services which are directly related with international maritime transport services. However, feeder services in a marine territory in Asia and American Continent are considered to belong to cabotage activities.

Maritime offshore services in which Norway has strength is defined newly as a marine transport between ports and other vessels, floating or fixed installations or any other points of service situated offshore, or between any such points of service situated offshore, and domestic pushing and towing services, including anchor handling, connected to exploration and exploitation of natural resources.

### **3.1.3 Non-Discriminatory Market Access**

The articles of non-discriminatory market access include the statements of unrestricted market access, termination of cargo sharing agreement, commercial presence, abolishment of unilateral measures and administrative, technical and other obstacles which could constitute a disguised restriction or have discriminatory effects on the free supply of services in international maritime transport. Moreover Norway proposes the permission of transportation of transport equipment without payment and feeder service between the ports of a member country by the service suppliers of other number country.

### **3.1.4 Access to Services**

The articles of access to services describe access rights of service suppliers of member countries to port services such as pushing and towing, maritime auxiliary services, customs facilities, and berths and facilities for loading and unloading. It also contains the clause of prohibition of free contract prevention to international maritime transport services suppliers.

### **3.1.5 Recognition of certifications and documents on vessels**

The articles on recognition of certifications and documents on vessels include recognition of nationality of vessels, tonnage certificate and other relevant documents of the vessel.

### **3.1.6 Recognition of certifications and entry procedure on seafarers**

The articles on recognition of certifications and entry procedure on seafarers include recognition of the valid identification documents of seafarers and crews, admission of temporary shore leave, immigration admission for entry and exit of seafarers and crews, permission of medical observation or treatment of an illness, and other crew related issues.

## ***3.2 Major Responses of Participants***

### **3.2.1 Scope and Definition**

Canada points the necessity of transparency of ship registration, urges participants to take commitment on ship registration and proposes the usage of Maritime Model Schedule (MMS) of GATS. Japan asserts that feeder services and maritime offshore services that Norway suggests are belonging to cabotage. Mexico also considers maritime offshore services as a service of cabotage. However, Panama, a main country of flag of convenience agrees the necessity of definition of maritime offshore services and proposes the clarification of definition on maritime offshore services. Panama urges to enlarge the definition of a port in order to include inland sites, water areas, structures, equipment and facilities for the purpose of shelter, repair, loading and discharging of cargo, embarking and disembarking of passengers, or for other activities connected with water-borne commerce.

### **3.2.2 Non-Discriminatory Market Access**

Mexico insists that the issues of non-discriminatory are related with cabotage. Canada addresses concerns on conflict between commercial international maritime transport services of other members within Canadian domestic marine territory with cabotage. Nevertheless, Panama requests the expansionary definition of transportation of transport

equipment in order to include transportation of a) empty cargo vans, empty lift vans, and empty shipping tanks; equipment for use with cargo vans, lift vans, or shipping tanks; empty barges specifically designed for carriage aboard a vessel and equipment, excluding propulsion equipment, for use with such barges; and b) Empty instruments of international traffic, including containers, if such articles are owned or leased by the owner or operator of the transporting vessel and are transported for his use in handling his cargo in foreign trade; and Stevedoring equipment and material.

### 3.2.3 Access to Services

Mexico insists that these issues are related with cabotage. Canada points that these are not at commitment of GATS and requests that access to services such pilotage and pushing and towing services does not apply to illegal fishing vessels.

## 4. Cabotage Issues and Responses of major participants

Norway proposed a new way of defining freer supply of international maritime transport services on a global level. It has good implications for more efficient transport services for both suppliers and shippers. However, it has problems for some countries with less competitive maritime industries.

As to the proposal of Norway, we focus some issues related with international maritime transport services, feeder services, transport of equipment and maritime offshore services, particularly related with cabotage. In fact, they are not new issues, but permanent ones as they are directly related with respective countries' various national interests. While European participants developed single shipping market through establishment of regulation adopting the right on maritime cabotage by a member of EC in the early 1990s, other participants such as Northern American countries sustain the strict cabotage rule.

We examine responses from the comments of Canada, Japan and the United States.

### 4.1 *Legal Development of Maritime Cabotage in Europe*

EC adopted Council Regulation EEC 3577/92 applying the principle of freedom to provide services to maritime services within member states of EC. The concept of cabotage is defined to be the right to provide maritime transport services between two points within one and the same state (Power, 1994). From the definition of cabotage, it is divided into the three services in Europe: mainland cabotage; off-shore supply services; and island cabotage.<sup>4)</sup>

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4) We could find regional cabotage in maritime or air transport services (Hong, 1992).



**Table 5.** Types of maritime cabotage in Europe

Type	Definition
Mainland cabotage	The carriage of goods and passengers by sea between ports situated on the mainland of the main territory of one and the same member states without calls at islands
Off-shore supply services	The carriage of goods and passengers by sea between any port in a member state and installations or structures situated on the continental shelf of that member states
Island cabotage	The carriage of goods and passengers by sea between: ports situated on the mainland and on one or more of the island of one and the same member states, ports situated on the island of one and the same member states

**Source:** Power (1994).

However within the Mediterranean and along the coast of Spain, Portugal and France, the regulation of EEC 3577/92 is exempted as in the following:

- cruise services, until 1 January 1995,
- transport strategic goods (oil, oil products and drinking water), until 1 January 1997
- services bt ships smaller than 650gt, until 1 January 1998
- regulation passenger and ferry services, until 1 January 1999 (Power, 1994).

In addition island cabotage in the Mediterranean and cabotage with regard to the archipelagic regions such as Canary, Azores and Madeira Ceuta was temporarily exempted from the implementation of Council Regulation EEC 3577/92 1 January 1999. For the regular passenger and ferry services in Greece cabotage of Council Regulation EEC 3577/92 was exempted until 1 January 2004.

Therefore the feeder maritime services which mean the pre- and onward transportation by sea, operated by international maritime transport services suppliers between ports located in a member states for the purpose of international cargo, including containerised cargo, en route to a destination, or from a port of shipment, outside the territory of that Party as in the drafts of maritime services in TISA in 2012 by Greece are separated from the traditional maritime cabotage within EC member states after the full implementation of Council Regulation EEC 3577/92 in 2004.

## 4.2 The United States

The United States has maintained a strict cabotage policy. However, it has shown a little higher level of offer that was maintained at DDA and Korea-US FTA. The United Sates may offer more up-graded offers, that is, more liberalized offers in the future trade and service negotiations.<sup>5)</sup>

A new offer of allowing ship maintenance and repair and maritime auxiliary services is an advanced step from the US cabotage rule. It is moving from the existing position to a more liberal to get a balanced approach with global neighbours. As for maritime transport services, land side transport services such as loading and cargo handling services are included on a reciprocal basis.<sup>6)</sup> Especially the US government considers that land side aspects of transport operations are essential for security reasons and strictly limited for national operators.

Traditionally, the United States has a strict cabotage rule by Jones Act and Passenger Vessel Service Act of 1988 (Mak *et al.*, 2010; Zheng *et al.*, 2013). Jones Act requires the US ship registry of three conditions: ship built at the American dock; ship owner, American citizen; seafarers, more than two thirds of crew. The US government's rationale for cabotage is clear for its national security reasons, employment of US citizens and their welfare. Foreign vessels cannot operate in the US seas because they do not pay various taxes and insurances for seafarers. The US ships cannot compete with cheap ships of low cost built ships and cheap seafarers of low income countries without full insurance and welfare.

When national emergency occurs, US citizens can fight for their people and the American seafarers are the fundamental backbone of the US Navy. The American strong Navy is possible with healthy American seafarers. Even though foreign built ships and foreign seafarers may be cheap and help them get competitiveness for American maritime operators, the US government maintains strict cabotage for long-term national security. As the American government maintains strict cabotage, there are no problems occurring from coastal shipping such as feeder services and maritime offshore services.

### 4.3 Canada

Canada maintains an open international maritime transport services sector and supports the unrestricted access to international maritime markets and trades on a commercial and non-discriminatory basis. Canada generally supports the scope of liberalisation set out in Norway's draft paper, in particular, the non-discriminatory market access and access to services provisions. Its maritime policy is against any cargo sharing agreements.<sup>7)</sup>

As for feeder services, Canada points out that the proposed definition of feeder services is structured so as not to capture inland waterways, a segment of feeder services that is commercially significant. Canada recommends that reference to "inland waterways" should be included to extend the feeder services. As to areas of the European feeding

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5) Interviews with Research Fellow at the Korea Institute of International Economic Policy (August, 2013).

6) Korean Government (2012).

7) Canadian Government (2013).

market that would otherwise not be covered without inland waterways. Canada does not put any comment except this leg of transport in feeder services in international maritime transport services.

However, Canada strictly defines cabotage to be all commercial maritime activities in the domestic waters. In Canada, any marine activity of a commercial nature undertaken from a vessel in domestic waters is considered to be cabotage whether there is a transportation component or not. Such maritime services as pushing and towing services including anchor handling (where done exclusively within domestic waters) and servicing offshore exploration and exploitation of natural resources are considered by Canada to be a type of cabotage service.

Feeder services (when international cargo is offloaded at a Canadian port, then reloaded onto another vessel for onward transport to another Canadian port) are considered to be the domestic movement of cargo and fall within the definition of cabotage. This concern would also extend to the repositioning of empty containers. Canada's position is to make sure the legal certainty the foremost goal of TISA but seems not to support the Norwegian proposal on feeder services if other TISA members view these services as a type of cabotage service.

#### *4.4 Japan*

Japan as a strong maritime nation supports the idea of establishing new provisions based on Maritime Model Schedule. And yet, Japan takes a conservative position on new legal arrangements on international maritime transport. Even though Japanese maritime industries' position in the global market is strong and at top rank in maritime industry organization and technology, it does not want to reshuffle structure of maritime transport industries abruptly.<sup>8)</sup>

Japanese description on the new approach is simple. The global adjustment of industry structure should be based on the full agreement and balance of most participant parties. As some RGF in WTO/DDA countries have not even achieved the MMS level of liberalization, it may be too ambitious to aim at a level higher than the MMS. Therefore, Japan considers appropriate that TISA should try to aim at achieving the MMS level first.

Japan considers feeder services and maritime offshore services as cabotage. As Japan is an island country with strong economy, domestic coastal shipping is essential for its national economic security and economic development between islands. Even though feeder services are generally open, they are still in the scope of coastal shipping and they should be controlled by Japanese maritime authorities. Japan's position is that these coastal shipping services should be excluded from the scope.

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8) Japanese Government (2013a).

Japan shows keen interests in maritime offshore services. It raises a question to Norway whether any commercial interests have been shown from maritime companies. Actually as Japan has no strong maritime offshore companies, it is logical to raise questions in order to find new breakthrough for their maritime industries, especially maritime offshore industries.

Japan maritime authorities have maintained reciprocal policy in the maritime sector. Oceangoing ship operators of another Party may be restricted or prohibited from entering Japanese ports or from loading and unloading cargoes in Japan in cases where Japanese oceangoing ship operators are prejudiced by that Party.<sup>9)</sup>

Nationality requirement applies to the supply of international maritime transport services (including services of passenger transportation and freight transportation) through establishment of a registered company operating a fleet flying the flag of Japan. “Nationality requirement” means that the ship must be owned by a Japanese national, or a company established under the laws and regulations of Japan, of which all the representatives and not less than two-thirds of the executives administering the affairs are Japanese nationals. Japanese ship register guidelines are quite strict including shipping management.

Unless otherwise specified in laws and regulations of Japan, or international agreements to which Japan is a party, ships not flying the Japanese flag are prohibited from entering ports in Japan which are not open to foreign commerce and from carrying cargoes or passengers between Japanese ports.<sup>10)</sup>

Japan has no regulations on maritime offshore services. However, this sector is regarded as coastal shipping, and it may be controlled by Japanese maritime authorities as cabotage.

#### *4.5 Implications*

As we have seen coastal shipping policies of the leading shipping countries, cabotage, the domestic coastal shipping will remain in main issues of a international maritime agreement, despite the opening of the international shipping market. Each country has the rationale to maintain cabotage out of various reasons, among them, national security, welfare of citizens, employment and harmonization of economic activities between transport sectors.

Korea has maintained a liberal maritime policy since it entered the OECD in 1996. The Korean government liberalized the maritime sector of international maritime services at that time and later adopted allowing Korean international maritime service suppliers to

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9) Japan's Law Concerning Special Measures against Unfavorable Treatment to Japanese Oceangoing Ship Operators by Foreign Government (Law No. 60 of 1977).

10) Japan's Ship Law (Law No. 46 of 1899), Article 1 and 3 (Japanese Government. 2013b).

service some legs of coastal container shipping in order to achieve two purposes, that is, to induce global liner shipping operators and vitalize port operations of Gwangyang port.

As for feeder services by foreign international maritime service suppliers, there is some restrictions within Korean water. In case of transport of equipment such as empty containers by foreign international maritime service suppliers, two legs are allowed temporarily for the policy objectives just mentioned above. As the competition between coastal shipping and trucking is severe in Korea, some Korean coastal shipping operators lost their interests in domestic container shipping and left the sector.

As the market size of Korean coastal shipping is comparatively small, coastal shipping operators are seeking other emerging coastal shipping markets of neighboring countries. As it is known that Japanese coastal shipping market is closed to foreign operators, they are seeking coastal shipping market of South-east Asian countries.

As for maritime offshore services, Korean government has a policy position of reservation because such maritime offshore market has not opened yet. It has no clear regulation on this new sector of maritime offshore services. It is recommended that the government define maritime offshore services, considering future development of offshore oil reserves in the continental shelf surrounding Korean peninsula.

## 5. Conclusion

Since the introduction of container system in shipping in the 1960s, maritime transport industry has shown incessant evolution in shipping, port and inland services. Nowadays, door to door transportation and multimodal transportation connect directly and conveniently a shipper in a country to customers in the world. International negotiation agreements such as GATT and GATS introduced in the 1990s promote maritime transport services on one hand and on the other hand enhance competition between service suppliers.

In TISA, some participants are competitive in global shipping market and are eager to reach a better agreement to legal certainty for shipping companies. Thanks to information technology and innovative organizations of shipping business, the international shipping has been connected more closely into similar business types on the global level. At the same time, TISA has begun out of the accumulated data and information of former shipping agreements, it is expected that the representatives may reach a more reasonable agreement on shipping service trade. In this negotiation, there are many European countries such as Norway, Greece, Denmark that have strength in the shipping industry and Asian countries that have a few shipping companies competing with European and other countries' shipping companies. Though European countries pushed by the integration of shipping market in Europe are hoping to liberalise a part of domestic shipping services, Asian countries and

American countries pose against this trend.

Hence one of new findings in this paper is to clarify the views on cabotage issues of European countries and other participants in TISA. While European countries are eager to liberalise international feeder services within a member states and other cabotage related services such as repositioning of empty containers within a member states, other countries including USA, Canada and Japan try to protect cabotage related services within its own maritime territory. Academic achievement of this paper would be the literature examination that cabotage issues will be a main agendas in a international maritime agreement and a few progress in liberalising maritime auxiliary services and port related services can be agreed by the participants of TISA in the near future.

Therefore, TISA could conclude significant progress of liberalisation of service supply and access to the maritime industry. Especially, we could find policy change of the United States on inland stevedoring services. In addition from the view of service trade of Korea, maritime transport is a vital part of export of Korea. Hence, we could recommend policy makers some policy agendas. First, it is necessary to introduce and promote a new maritime business such as maritime offshore services and maritime freight forwarding services. Second, the database of maritime transport industry of major shipping countries and the concrete concept of the maritime market will be helpful to position a right strategy and tactic of Korea in international negotiations. Third, development of expertise on international business law and new guidelines of maritime service negotiations is imperative to improve capacity of negotiation and agreement in international discussion.

## References

- Canada Government. 2013. *Transport Canada Questions/Comments on Norway's International Maritime Transport Services proposed Schedule of Commitments*.
- Chanda, R. 2003. Social Services and the GATS: Key Issues and Concerns, *World Development*, 31(12), pp.1997-2011.
- European Commission. 2013a. *Negotiations for a Plurilateral Agreement on Trade in Services*.  
\_\_\_\_\_. 2013b. *The Trade in Services Agreement (TISA)*.
- HIS Fairplay. 2012. *World Fleet Statistics*.
- Hong, S. 1992. Freedoms of the Air and Air Cabotage: their legal concept and problems of expanded applications, *Korea Society of Air and Space Law and Policy*, 4, 37-49.
- International Monetary Fund. 2012. *International Financial Statistics Yearbook*.
- Japan Government. 2013a. *Japan's comments regarding Maritime Transport Provisions proposed by Norway in TISA*.
- Japan Government. 2013b. *Japan's Ship Law*.
- Korea Government. 2012. *Free Trade Agreement between the Republic of Korea and the United States of America*.
- Mak, J. C. Seehey and S. Totiki. 2010. The passenger service act and America's cruise tourism industry, *Research in Transportation Economics*, 26, pp.18-26.
- Meng, Q. and S. Wang. 2011. Liner shipping shipping network design with empty container repositioning, *Transportation Research Part E*, 47, pp.695-708.
- Ministry of Justice of Korea. 2000. *GATS Guidebook*.
- Norio, K. 2010. *International Economic Law*.
- Norway Government. 2013. *TISA – Possible provisions on international maritime transport services*.
- Panama Government. 2013. *Comments from Panama*.
- Panayides, P.M. and R. Wiedme. 2011. Strategic alliances in container liner shipping, *Research in Transportation Economics*, 32, pp.25-38.
- Power, V. 1994. *EC Shipping Law*, Lloyds of London Press Ltd.
- Sauve, P. 2013. *A Plurilateral Agenda for Services? Assessing the case for a Trade in Services Agreement (TISA)*, Working Paper No 2013/29, NCCR Trade Regulation.
- Tuthill, L. 1997. The GATS and new rules for regulators, *Telecommunication Policy*, 21(9/10), pp.783-798.
- Wang, S., Q. Meng and Z. Sun. 2013. Container routing in liner shipping, *Transportation Research Part E*, 49, pp.1-7.
- World Trade Organization. 2001. *Guidelines for the Scheduling of Specific Commitments under the General Agreement on Trade in Services (GATS)*.
- Zheng, J., Q. Meng and Z. Sun. 2013. Impact Analysis of maritime cabotage legislations on liner hub and spoke shipping network design, *European Journal of Operational Research Part, in Press*.





# Research on Marine Functional Zoning of Dingzi Bay based on Resources and Environmental Evolution

Wang Yongzhi<sup>1</sup> Zhang Zhiwei<sup>1\*</sup> Shi Honghua<sup>1</sup> Feng Aiping<sup>1</sup>

## Abstract

As a result of rapid growth in reclamation for aquaculture and salt industry driven by economics, the sea area and water quality in Dingzi Bay were significantly reduced, leading to apparent decrease in benefits of aquaculture and salt industries, the severe loss of coastal wetland as well as the reduction of biodiversity due to large-scale reclamation. The water quality in Dingzi Bay was found to fall below the standard of second kind level in accordance with <Marine Functional Zoning of Shandong Province> (2004)(In marine functional zoning of China, the sea water quality is divided into four kinds standard. The sea water quality which is lower than the second kind level cannot be used for aquaculture and salt production). According to the <Marine Functional Zoning of Shandong Province> (2004), aquaculture and salt industry are the two leading industries in Dingzi Bay, but at present the water quality in Dingzi Bay was not suitable for aquaculture and salt industry development, and the aquaculture and salt industry were incompatible with the needs of marine economy sustainable development and marine environmental protection. Nevertheless, the profound cultural background and Location advantage of Dingzi Bay was not fully developed. Therefore, the remediation and restoration of Dingzi Bay were urgently needed to improve regional environmental, optimize the coastal industrial structure, make good use of cultural tourism resources, and enhance regional economic and social development, the goal of which is to construct the marine culture tourism industry cluster district in Dingzi Bay. Based on dramatic changes in resources and environment in Dingzi Bay and unsuitability for current aquaculture and

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\* Corresponding author, Tel.: +86 0532 88966634, zzw@fio.org.cn

1) The First Institute of Oceanography, State Oceanic Administration, 266061, Qingdao, Shandong, China

salt industry development, so it is suggested that the marine functional zoning in Dingzi Bay in <Marine Functional Zoning of Shandong Province> (2004) should be modified in order to restore the marine environment and promote regional economic development.

**Keywords:** Dingzi Bay, marine function zoning, resources and environment

# 1. Introduction

## *1.1 Location*

Dingzi Bay, located at 120° 44' ~ 120° 58'E, 36° 32' ~ 36° 40'N, is surrounded by Jimo, Laiyang and Haiyang Cities and next to the Yellow Sea. As a semi-enclosed inner bay, it is characterized by the complex coastlines. The name of “Dingzi” comes from the fact that its shape is like the Chinese character ‘丁’. Its nearby villages and towns include Jinkou, Fengcheng, Wangcun, Tianheng, Xuefang, Yangjun, Xingcun and Xinan.

## *1.2 History overview*

Dingzi Bay was an important military fort in the Ming Dynasty in the past, in order to prevent pirate intrusions and its military importance reached its peak in the years of Emperor Qianlong of Qing dynasty. Besides it was also highlighted as a famous commercial harbor, namely Jinkou harbor. However, such functions were largely weakened from the beginning of the 19th century due to severe sediment deposition, as a result of which, the utilities of transport has been completely discarded now.

## *1.3 Natural conditions*

In early 1970s, Dingzi Bay was once about 22km length, about 12.3km width, with its mouth width of about 2.8km. Most of the Dingzi Bay is shallower less than 5 m except in the vicinity of Kaolaotou, where the water depth is deeper, than 20m. As a consequence of massive reclamation driven by aquaculture development and salt industry, however, the tidal capacity and area of Dingzi Bay was significantly reduced. For instance, in 2010 the cover area of Dingzi Bay was only about 176.6km<sup>2</sup> and the shoreline width that water could reach naturally was only about 11.2km, with a tidal water capacity area of about 72.6km<sup>2</sup>.

## *1.4 Marine functional zoning in China*

The marine functional zoning can be regarded as the extension and development of land use planning seaward in China. At present, there is not such a large-scale and systematic division of marine functional zones worldwide as in China. Its concept is as following: based on locations, natural resources and environmental conditions, considering the current status of marine development and utilization and socio-economic development

needs or other factors, sea water can be divided into different types of functional zones by the marine function standards in order to determine the most appropriate marine function sequence for controlling and directing the sea use and to provide scientific basis for rational sea use and marine environmental protection. The objective of marine functional zoning is that according to the marine natural attributes, combined with social needs, the main functions of coastal zones and their sequence can be determined. It can provide basis for marine development and protection as well as overall guidance for a sustainable development and marine protection.

## 2. Present situation

### *2.1 Abuse of sea and beach*

Currently, the primary usage of sea and beach are taken for shrimp ponds and salt industries in Dingzi Bay (see Table 2-1), which account for approximate 57.81% of the cover area of the bay, equivalent to about  $102.1\text{km}^2$ , which result in that the area of total tidal water capacity is nearly  $72.6\text{km}^2$ .

### *2.2 Severe siltation*

As the sequence of significant reclamation for aquaculture development and salt industry, the covering area as well as the water body is greatly reduced, leading to a slowdown of tidal inflows, disability of sand-carrying, as well as severe siltation, thus severe ecological disasters are caused by such changes. For instance, the topography nearby Xiang island(Flowers island), which lies around the Five Dragons River estuary west of the embayment, is so shallower that one can reach this island on foot when ebb tides due to sediments deposition. Yanju fishing port, which located off Laiyang City, was once a good harbor for fishery ships less than 30 years ago and now degraded to a intertidal zone as the result of severe siltation.

### *2.3 Recessions of salt industry*

The primary salt production field in Dingzi Bay lies inside the Haiyang, which includes three salt fields in 1988 with the average production of  $9894.7\text{t}/\text{km}^2$ . However, now the vegetation recession, coastal reclamation as well as the engineering construction almost destroys the salt industry in Dingzi Bay. According to statistics, only two salt yields remains by the end of 2010 and the salt production has dropped from  $9894.7\text{t}/\text{km}^2$ (in 1988) to  $2329.0\text{t}/\text{km}^2$ .

## *2.4 Slow development of aquaculture*

As one of the important industries developed in Dingzi Bay, the unit production of aquaculture decreases apparently, with the increase of area usage in the past 2 years. One evidence is that the total values of aquaculture industry grow slowly although the rapid rising of seafood price in recent years.

## *2.5 Rapid development of tourism*

A rapid development of tourism has been made in recent years along Dingzi Bay. One evident is that the number of employees in tourism rises from 335 million in 2005 to 3.7 million in 2009, much higher than that in fisheries (less than 1 million). Besides, the output value of the tourism also has reached 32 billion yuan in 2009, increasing nearly 3.64 times in recent 5 years.

## *2.6 Problems*

The primary problems of sea use and marine environment in Dingzi Bay can be summarized as following: the abuse of coastal reclamation for aquaculture and salt industry led to significant decrease of tidal water capacity in Dingzi Bay; large-scale reclamation near Wulong River estuary also resulted in siltation, especially in the top of Dingzi Bay. Large wetland was lost due to the rapid growth of aquaculture and salt ponds construction. Because of aquaculture sewage and weak hydrodynamic condition, the sea water quality declined for years. Aquaculture and salt industry are still using the traditional methods. The third industry was not developed. The marine cultural heritage and natural resources are not fully utilized and marine culture tourism industry cluster has not been established in Dingzi Bay.

# 3. Resources and environmental changes

## *3.1 Eco-environmental changes*

### **3.1.1 Water Quality Environment**

The historical sea water quality survey in 1989, 2007, 2009, 2010 <sup>[3][4][5]</sup> has pointed out that sea water quality in Dingzi Bay was worsening year by year. In 1989 only inorganic phosphorus fall short of the sea water quality requirements, while inorganic nitrogen,

petroleum and heavy metals Zn also fall short of the sea water quality requirements in several stations in 2007. The concentration of heavy metals and pH were found to exceed the sea water quality standard in 2009 and 2010. Compared with the historical sea water quality survey data in Dingzi Bay, it can be found that the concentration of Zn was declining, while the concentration of petroleum and inorganic nitrogen increased slightly in the past three years. That indicated that sewage from aquaculture and small fishing boats could be the major sources of pollution in recent years, and the salinity increase was mainly caused by runoff decrease.

### 3.1.2 Biodiversity

It is shown that in T-Bay, where the dominant species are found to be *Calanus sinicus* strong arrow worms, the density of *Calanus sinicus* was  $1 \sim 39 \text{ ind/m}^3$  in Winter of 1982 (February)  $10 \sim 22 \text{ ind/m}^3$  in autumn (November) of 1982,  $40 \text{ ind/m}^3$  in Spring (April) of 2007, only reaching the similar level in winter of 1982 and showing a decreased trend; Density of strong arrow worms was found to be  $76 \sim 139 \text{ ind/m}^3$  in Winter of 1982 (February),  $26 \sim 67 \text{ ind/m}^3$  in autumn (November) of 2007,  $16.6 \text{ ind/m}^3$  in spring (April) of 2007as, lower than that in both autumn and winter in 1982. Therefore, the density of two dominant species in Dingzi Bay was found to be decreased in 2007 comparing with 1982. The structure of phytoplankton species in 2010 remains similar with that in 2007.

In 1982, 16 kinds of fish eggs and larval fish were found in Dingzi Bay, including mackerel, mullet, barracuda, black sea bream, sea bass and other commercial fish. However, only 12 kinds of fish, plankton (class), were found in the survey of Dingzi Bay in 2004 without any major economic species, showing a decrease relative to 1982. Comparing with results of intertidal zones from 2007 to the spring of 2008, the average biomass of benthic organisms decreased significantly from  $70.19 \text{ g/m}^2$  to  $10.3 \text{ g/m}^2$  in 2010. Besides the benthic species structure in T-Bay also changes considerably in 2009 comparing with that in 2007, including significant drop in the number of species, a lower proportions for both polychaetes and mollusks and a higher ratio for crustaceans. The data about cavity sausages, New York shaped, echinoderms, and fisheries resources were not included in this survey. A declining trend for the benthic species diversity in Dingzi Bay can be summarized from above analysis.

### 3.1.3 Tidal water capacity

Two cases were designed by a numerical simulation model through DHI hydrodynamic simulation software to test the tidal water capacity importance in Dingzi Bay as following. Case one was designed to simulate the tidal water capacity with the current coastline including ponds, and case two was designed to simulate the tidal water capacity with the original coastline excluding the current ponds. The topography and coastline used in the model was derived from nautical charts by the Ministry of People's Liberation Army Navy and satellite remote sensing images. Four primary tidal constituents,

namely  $M_2$ ,  $S_2$ ,  $K_1$  and  $O_1$ , extracted from two tidal observation stations, were added to provide astronomical tides through the open boundary. The tides and tidal currents were validated with several in-situ observations. The simulation results show a good agreement between the model and observations.

The total tidal water capacity in Dingzi Bay was calculation during spring tidal, i.e. total tidal water capacity = water body volume + accumulated flood tidal volume. The results show that, the total tidal water capacity was  $2.98 \times 10^8 \text{ m}^3$  during spring tidal and  $2.76 \times 10^8 \text{ m}^3$  during neap tidal in case one. However, the total tidal water capacity was increased to  $4.7 \times 10^8 \text{ m}^3$  during spring tidal and  $4.32 \times 10^8 \text{ m}^3$  during neap tidal without ponds, reaching up to about  $1.72 \times 10^8 \text{ m}^3$  during spring tidal and  $1.56 \times 10^8 \text{ m}^3$  during neap tidal without ponds than at present. Therefore, the total tidal water capacity in Dingzi Bay can be greatly enhanced by the removal of the existing ponds for aquaculture and salt production, which is also helpful to improve sea water quality due to better diffusion conditions without ponds.

#### 3.1.4 Water exchange rate

The water exchange rate was also simulated in the above two cases. It was shown that water exchange rate will increase linearly over time and the lowest values of water exchange rate mostly can be found at the top of the Dingzi Bay due to shallower water depth and weak current velocity, especially along the coast of Laiyang and Jimo, which may be caused by the weaker current velocity associated with the massive intertidal zones. Water exchange rate was significantly greater during spring tidal in case two than case one because of larger sea area in case two. For an instance, only one tidal cycle was required to reaches up to 65.9% for the average water exchange rate in case two, while 13(during spring tidal) and 10(during neap tidal) cycles were required to reach only 50% in case one, which showed the water exchange rate in case one was much lower. Thus it was concluded that reclamation large number of ponds occupied wetlands and intertidal zones can easily influence the water exchange rate. Moreover, lower water exchange rate also resulted in pollutants dilution reduction.

Therefore, it can be seen that severe environmental problems were caused by ponds for aquiculture and salt production in Dingzi Bay. First, severe siltation, caused a greater decrease in the area associated with total tidal water capacity, from  $174.7 \text{ km}^2$  (excluding islands and sea area occupied by ponds for aquiculture and salt production) to  $72.6 \text{ km}^2$  currently, leading to 58% losses of covering sea area, which consequently influence the hydrodynamic environments and especially weaken the flow around main tidal channels, such as nearby the mouth of Wulong River (at the top of the Dingzi Bay). The weaker current velocity further exacerbated sedimentation. The total tidal water capacity was reduced by about 50% and water exchange rate by about 25%-53% after reclamation for ponds. Besides, the ability of self-purification was also declined, all of which in turn

exacerbate the sea water quality decline in Dingzi Bay.

### 3.2 *Wetland loss*

Since the aquaculture and salt industry were developed in Dingzi Bay, the intensity of development and utilization of coastal zone became larger. Large intertidal zones and supratidal zones were replaced by artificial wetlands, such as shrimp ponds and salt fields and so on. The original wetland landscape has been divided to many relatively independent smaller patches, such as aquaculture ponds, salt fields, harbors, roads, dams and canals, and the number and density of wetland patches also increased greatly year by year. Coastal wetland fragmentation was mainly manifested as high landscape patch density index. According to statistics, the number of landscape patches was about totally 4540ind, and landscape patch density index was about  $44.5\text{ind}/\text{km}^2$ , which showed a increasing trend of wetland landscape fragmentation in Dingzi Bay. Secondly, coastal wetland landscape fragmentation was also reflected by the increase of dams, roads and artificial corridor, which blocked the material and energy exchange among wetland and also increased human interferences on coastal wetlands. Based on the entire view of landscape layout in Dingzi Bay, there was most severe fragmentation in intertidal zone and supratidal zone, in which fragmentation density was higher than in subtidal zone. Therefore, the construction of shrimp ponds and salt fields play an important relationship in wetland landscape fragmentation in Dingzi Bay, which indicated that wetland landscape fragmentation was closely related to human disturbance activities.

## 4. Suitability of marine functional zoning in Dingzi Bay

According to <Marine Functional Zoning of Shandong Province> (2004) (Figure 4-1), agricultural zones, beach aquaculture zones, shallow sea aquaculture zones, proliferative zones, salt fields zones, coastal protection forest zones and pollution prevention zones were the main marine functions<sup>[6]</sup>. Considering poor living of the surrounding residents and good water quality and light condition in 1990s, aquaculture and salt industry were developed in Dingzi Bay to promote economic development. Thus, the main marine functional zones in Dingzi Bay are mainly dominated by traditional agriculture according to <Marine Functional Zoning of Shandong Province> (2004). However, at present, there was great changes in natural and social conditions in Dingzi Bay, so any plan should be implemented under new situations.



## *4.1 Implementation of the current marine functional zoning in Dingzi Bay*

### **4.1.1 Good spatial consistency**

Currently, the sea use pattern in Dingzi Bay was basically consistent with marine functional zoning in <Marine Functional Zoning of Shandong Province> (2004). Most of the sea and beach were occupied by shrimp ponds and beach culture, only several salt fields existing along Laiyang and Laiyang coast.

### **4.1.2 Marine environment quality over standard in partial sea areas**

Due to large-scale coastal reclamation inducing reduction of the area of tidal waters capacity, there was a sharp decline in total tidal water capacity by 50% compared to before reclamation through numerical model results. Data from seawater quality survey in 2010 showed that majority of seawater quality in Dingzi Bay reach seawater quality standards class two<sup>[5]</sup>. However, there were some indicators from some stations exceeded the standard, such as heavy metals Cd and Cu. It was also founded that zooplankton density and biodiversity decreased significantly. According to the current <Marine Functional Zoning of Shandong Province> (2004), aquaculture and salt industry were the main sea use pattern in Dingzi Bay, and the corresponding seawater quality standard was required class one for aquaculture along Jimo coast, class two for aquaculture and salt industry along Haiyang and Laiyang coast. Based on <Marine Environment Quality Bulletin of Shandong Province in 2010><sup>[7]</sup>, seawater quality in 2010 can basically satisfy the requirements of the current <Marine Functional Zoning of Shandong Province> (2004). However, based on recent (2007-2009) seawater quality survey results, seawater quality was generally reach seawater quality standard class two, and results from several stations reach class three. Thus seawater quality in Dingzi Bay cannot fully consistent with the requirements of <Marine Functional Zoning of Shandong Province> (2004).

### **4.1.3 Current marine functional zoning's impacts on sustainable development in Dingzi Bay**

According to the data statistics about marine economy along coast and natural resources changes, it was found that the increase in aquaculture output value depended on aquaculture areas expansion, lack of scientific aquaculture and factory farming. Secondly, there was a greatly decline in salt output per square kilometer, which resulted in that many salt fields were transformed to aquaculture ponds. The only remaining three salt fields can explain this phenomenon. Moreover, the total tidal water capacity was very small presently, and seawater quality of partial area exceeded seawater quality standard class two. Thus, the present marine functional zoning in Dingzi Bay basically supported the development of aquaculture and salt industry, but it did not make full use of its marine

cultural tourism resource advantages, and the marine environment should be improved urgently. Therefore, the present marine functional zoning based on aquaculture and salt industry was no longer consistent with the sustainable development in Dingzi Bay.

## 5. Necessity for marine functional zoning modification in Dingzi Bay

### *5.1 The need for the implementation of the Blue Shandong Peninsula Economic Zone's development strategy*

The blue economy includes marine resources and marine space development, as well as directly or indirectly related service industries. The integration of marine and land together is a notable feature for blue economy in China. The Blue Shandong Peninsula Economic Zone space layout fully embodies the concept of integration of marine and land. <Blue Shandong Peninsula Economic Zone Development Plan> was an important plan of economic development in the next 10 years. In order to provide a strong space and resource protection for blue economy, various types of marine development activities should be integrated and coordinated by marine functional zoning through marine space resources optimization, marine economy structure adjustment and promoting scientific marine resources development. According to the <Blue Shandong Peninsula Economic Zone Development Plan> approved by the State Council early in 2011, Dingzi Bay was considered as a cultural tourism industry cluster district, which will focus on the centralized development of culture and entertainment, marine sports, marine science and technology and other cultural services. There is a significant geographical location advantage of Dingzi Bay, which is in the following intersection zones, such as northeast Asia economic circle, Yellow Sea and Bohai economic circle, Yellow Sea economic belt, Shandong Peninsula city groups and advanced industrial belt. The development and construction of Dingzi Bay marine cultural tourism industry cluster district, will not only help expand investment, stimulate domestic demand and maintain growth, promote urban development, increase employment, improve life quality along Dingzi Bay coast, will help accelerate development mode change, improve the quality and efficiency of economic growth, not also will help expand the breadth and depth of opening, participate in international cooperation and competition at a higher level and a wider field.

Dingzi Bay is located between Qingdao and Yantai, which is a new bright spot in the integrated development of the Shandong Peninsula in the plan of Blue Shandong Peninsula Economic Zone. The construction of marine culture tourism industry cluster

district in Dingzi Bay will not only harmonize the coastal industry layout, but also promote the dislocation development. Thus, based on the actual situation of resources and environment in Dingzi Bay, the construction of marine culture tourism industry cluster district and marine environmental remediation should be implemented simultaneously.

## *5.2 The need for scientific use of sea and land-and-sea integrated development*

The <Blue Shandong Peninsula Economic Zone Development Plan> highlights scientific use of sea and economic development mode transition, emphasizes marine economic structure optimization, strengthens the construction of marine ecological civilization, improves marine science and education support ability and innovates coastal zone management mechanism.

### **5.2.1 The need for the change of sea use pattern**

Currently, marine economic structure in Dingzi Bay is very simple. Take marine products for an example, its efficiency of resource use is low with very low added value. Moreover, significant loss of sea and wetland, destruction of coastline and severe sedimentation brought many difficulties for suitable development. Therefore, the existing sea use pattern must be changed. According to the latest <Centralized and Intensive Sea Use Plan in Blue Shandong Peninsula Economic Zone>, it emphasizes a new sea use mode for Dingzi Bay based on resource-saving and environment-friendly. It pointed out that on the basis of marine ecological environment preservation, the greatest ecological, economic and social benefits can be gained through the change of sea use pattern, the change of marine economic structure and centralized and moderate scale development at the cost of minimum shoreline and water occupied.

### **5.2.2 The need for orientation of marine cultural tourism industry**

Coastal reclamation in Dingzi Bay resulted in severe sedimentation, decline in tidal water capacity, wetland resources loss, reduction of salt production and fishery and so on. So the current resource and environment can no longer support suitable development of salt and fishery industry. However, Dingzi Bay has a deep historical and culture of grangeur, such as abundant wetland resources and multiple coastal landforms, coupled with the advantage of geographical location, which lay a good foundation for the construction of marine cultural tourism industry cluster district. Cultural tourism industry is one of the styles of eco-friendly tourism; it would pay attention to the ecological, economic and cultural tourism process. Based on the good environment and deep historical culture, Dingzhi Bay marine cultural tourism would be helpful both in environment protection and economic development.

### 5.2.3 The new requirements of land-and-sea integrated development

Land-and-sea integrated is the most effective way to increase hinterland economic development with rich marine resource. Dingzi Bay is located in the intersection area among Qingdao, Yantai and Weihai. As we known, there were much economic exchanges and cooperation between Qingdao, Yantai, Weihai and other cities from Bohai economic belt, where located the major cities in social, economic and tourism cooperation with Japan and South Korea. Secondly, according to <Shandong Peninsula Urban Agglomeration General Plan> (2006-2020) <sup>[8]</sup>, four development axis were as following. Jinan-Zibo - Weifang - Qingdao, and Rizhao-Qingdao -Weihai-Yantai were regarded as two main development axis. Yantai- Longkou - Laizhou - Weifang, Rizhao - Wulian - Zhucheng - Anqiu - Weifang - Shouguang - Dongying were regarded as two secondary development axis. The construction of marine cultural tourism industry cluster district is an important part of development axes. Therefore, it will further improve infrastructure overall construction and production factor overall configuration for the construction of marine cultural tourism industry cluster district in Dingzi Bay.

## 5.3 *The need for the environmental improvement and industrial structure upgrade*

Although Dingzi Bay has a good basis for marine cultural tourism industry development with location advantage and profound cultural background, the current marine functional zoning was dominated by aquaculture and salt industry in Dingzi Bay. So that its profound cultural details was not fully made use of to develop marine tourism industry. At present, marine industrial structure was unreasonable in Dingzi Bay, such as simple marine economy structure and backward development of tertiary industry, specifically as follows:

### 5.3.1 Large environmental pressure in coastal waters

Due to severe sedimentation in Dingzi Bay, it would lead to extinction without marine environmental integrated renovation. The current marine industry was mainly depended on extensive economic growth pattern and marine environmental degradation, such as natural coastline reduction, wetland deterioration and high excess rate of seawater quality, which resulted in obvious contradiction between economic and social development and resources and environmental carrying capacity. Thus, it greatly reflected sustainable development between marine ecological environment and marine economy.

### 5.3.2 Low level of marine industrial structure

At present, the pattern of marine resources development and utilization was too simple in Dingzi Bay, mainly based on traditional aquaculture and salt industry. What's more, there was no hi-tech industry. Therefore, low level of marine resource development and utilization resulted in inefficient use of marine resources and lack of high value-added marine products.

### 5.3.3 Backward economic growth pattern

One leading industry in Dingzi Bay, aquaculture, its annual aquaculture production value increased slowly year by year depend on aquaculture area expansion and aquaculture density increase. Another leading industry, salt industry, its annual output was shrinking year by year. Therefore, the reason why marine economic growth was too slow in Dingzi Bay is that extensive and low efficiency growth style. Moreover, if Dingzi Bay continues to develop as the current marine economic pattern, it will confront with the pricking up stress of marine resource reduction and marine environmental deterioration.

Whether considering marine ecological environmental protection or simple marine economic structure along coast, or function orientation from <Blue Shandong Peninsula Economic Zone Development Plan>, the current marine functional zoning based on aquaculture and salt industry, did not meet the needs of the development of new national economy in Dingzi Bay. The current marine functional zoning of Dingzi Bay should be modified in order to accord with the requirements of marine industrial structure optimization, adjustment and marine environmental protection.

## 5.4 *Cultural and tourism resources conditions have already possessed*

The proportion of output value from tourism industry in our national economy is continuing to increase. In most regions of China, tourism has become a pillar industry, superior industry and guide industry for promoting economic development.

### 5.4.1 The innate advantage of the development of tourism

Dingzi Bay is a shallow bay with comfortable climate. There are two islands in it, respectively named Sanping Island and White horse Island. Especially its beach is very suitable for tourism development, including a series of long coastal shoals. More importantly, the tourists are easily attracted by its abundant historical cultural details.

There are abundant tourism resources surrounding Dingzi Bay as follows (Figure 6-1), together with convenient railways and highways, which form a perfect tourism line. Ten-thousand-meters long beach, sand sculpture scenic spot, Mountain Zhaohu national

forest park, Congma Temple and the Red Cherry folklore scenic spot in Haiyang are in the north of Dingzi Bay. Hot spring scenic spot and Tianheng Island scenic spot in Jimo are in the south of Dingzi Bay. Gold Mountain beach tourist resort, Mazu Temple and Jinshan Tower and other historic sites are in the west of it. In addition, with the improvement of traffic condition as well as the formation of “Half Day Circle” along Shandong Peninsula coast in the future, it will bring more development opportunities and tourism source (Figure 6-2). The construction of marine cultural tourism industry cluster district will further promote the process of integration of Qingdao, Yantai and Weihai in Shandong Peninsula, and also become a new important bright spot in regional tourism soon.

#### **5.4.2 The rigidity of tourism demand growth and great potential demand for tourism market in Dingzi Bay**

At present, national income per capita was rising from \$3,000 to \$5,000 in China (National income per capita from Jimo, Haiyang, Laiyang along Dingzi Bay was respectively about \$11,000, \$5,800 and \$4,200.). The rising income made more and more people had the ability for tourism consumption, which provided a superexcellent basis for tourism industry development. When people had adequate food and clothing, especially with the available idle money, the life style will be greatly changed including consumption. Tourism consumption increase was an outstanding performance. Moreover, in recent years, with the great change of urban residents’ consumption concept in China, people are willing to spend money on travel and leisure. People in other cities around Dingzi Bay have rich life, which has laid a good foundation for the further development of cultural tourism resources.

#### **5.4.3 Advices on tourism development in Dingzi Bay**

Depend on beautiful natural landscapes and Human Landscape, the coastal tourism compound industry will be constructed on the south coast of Dingzi bay, including ecological processing, ecological technology, cultural creative and efficient aquaculture. More specifically, taken Fengcheng Town as the centre, strengthening the culture of the ancient city, the cultural and creative industry and vocation industry will be developed. The development of marine ecological agriculture, clothing industry, ecological technology research and development, diverse coastal tourism and leisure, marine park, high-end business vacation and ecological leisure and vacation. In the north coast of Dingzi Bay, taken Xuefang and Yangjun as centres, depend on mountain, forest and wetland in Xiang Island and Wulong river estuary, coastal tourism park will be developed.

#### 5.4.4 Advices on compensation for aquaculture and salt industry in Dingzi Bay

At present, the residents around Dingzi Bay mainly lived on aquaculture and salt industry. But the current traditional aquaculture and salt pond were harmful for water quality protection in Dingzi Bay, and the construction of Dingzi Bay marine cultural tourism industry cluster district cannot benefit from it. When Dingzi Bay marine cultural tourism industry cluster district begin to carry out, most aquaculture and salt ponds will be removed. Thus, the local governments need to make relevant policies for compensation on aquaculture and salt ponds owners, and ensure that each owner receives compensation. Move over, the local governments should also make relevant policies to fishermen, such as supplying more jobs.

## 6. Conclusions

Dingzi Bay, located between Qingdao and Yantai, due to good geographical location and good social and economic conditions, was located as one of the nine Blue Shandong Peninsula Economic Zones, as marine cultural tourism industry cluster district. According to the current <Marine Functional zoning of Shandong Province> (2004), the basic function of sea use was fisheries and sea salt in Dingzi Bay, lack of high-end industry of marine functional zones, such as tourism and so on. Correspondingly, the present sea area development and utilization patterns of Dingzi Bay were mainly aquaculture and salt industry.

Currently, the marine ecological environment is facing severe environmental pressures. Rapid economic and social development along Dingzi Bay, because of severe sedimentation and disordered dam constructions and reclamation and other factors, there were a sharp decline in total tidal water capacity and self-purification capacity. Moreover, the marine resource utilization efficiency was very low regarding traditional aquaculture and sea salt as the main marine function zoning. It was not helpful to take advantage of its location and cultural tourism resources. Especially in early 2011, after <Blue Shandong Peninsula Economic Zone Development Plan> became national development strategy, location advantage of Dingzi Bay is significant and its functional location will take place tremendous change. A reasonable plan for marine economy development based on resources and environment sustainable development and the overall plan of Blue Shandong Peninsula Economic Zone must be made. Therefore, the current marine functional zoning of Dingzi Bay is no longer suitable for the construction of blue economic zones and sustainable development. The conclusions are as follows through assessing socio-economic, resources and environment changes.

(1) Dingzi Bay and the surrounding areas have rich cultural heritage and tourism

resources, which lay a foundation for the development of cultural tourism industry. Moreover, the output of traditional fishing and salt industries were gradually decreasing with low efficiency of sea use, which should be optimized and upgraded as soon as possible. Therefore, the basic marine function in Dingzi Bay from the current marine functional zoning should be repositioned.

- (2) In order to avoid the existing owner of aquaculture and salt ponds may strongly resist the remove of aquaculture area, ecological compensation mechanisms should be build. The following work would be needed: first, establish the legal framework of ecological compensation mechanism; second, definite compensation standard. This should be formulated by the local government according to the actual situation.
- (3) There was a sharp decline in sea area, tidal water capacity and self-purification capacity due to coastal reclamation. In addition to severe siltation and seawater quality deterioration, the marine environmental quality cannot satisfy with the requirements of the regional marine functional zoning. Thus, remediation and restoration in Dingzi Bay are very necessary for improving its ecosystem services and resources and environment carrying capacity.
- (4) It is suggested that the marine functional zoning in Dingzi Bay should be modified as following, industrial layout optimization along coast, high-end cultural tourism industry development and recreational fishery development.

In summary, marine environment and natural resources in Dingzi Bay have changed significantly, the current marine functional zoning should be modified in order to further integrate land and sea of economic and social development and optimize regional industrial structure.



## References

- [1] The people's Government of Shandong Province. 2009. *the guidance about building the Blue Shandong Peninsula Economic Zone*.
- [2] The State Council. 2010. *the Blue Shandong Peninsula Economic Zone Development Plan*.
- [3] Wang Wenhai. Xia Dongxing. Gao Xingchen. 1993. *Bays in China* (fourth volumes). Beijing. Ocean Press.
- [4] The first Institute of Oceanography. 2008. SOA. the marine environmental impact report about cross sea bridge joining Haiyang and Jimo.
- [5] Ocean University of China, 2010. *the marine environmental impact report about Long Qicheng marine engineering in Haiyang*.
- [6] The people's Government of Shandong Province. 2004. *marine functional zoning in Shandong province*.
- [7] Department of ocean and fisheries of Shandong province. 2011. *the marine environment quality bulletin of Shandong province in 2010*.
- [8] The people's Government of Shandong Province. 2003. *the overall plan about city groups in Shandong peninsula*.

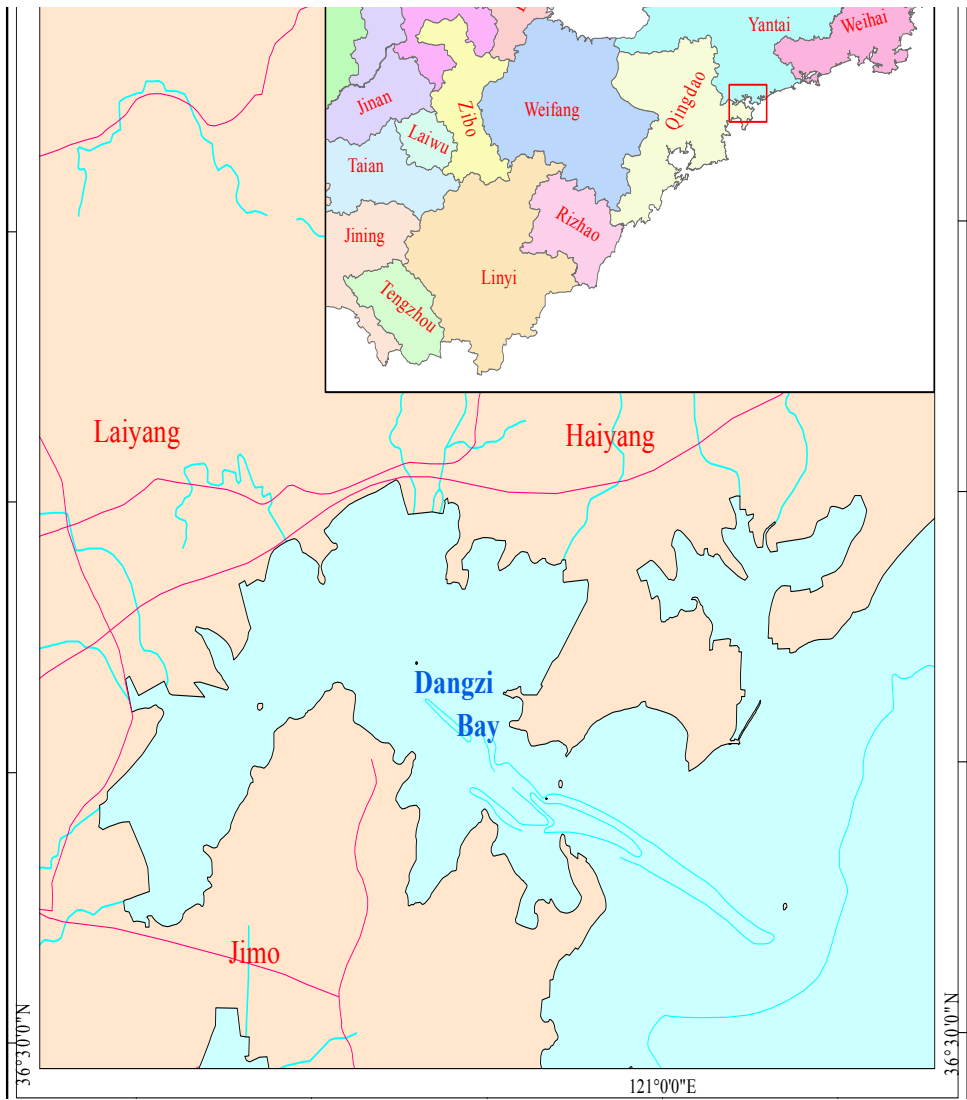
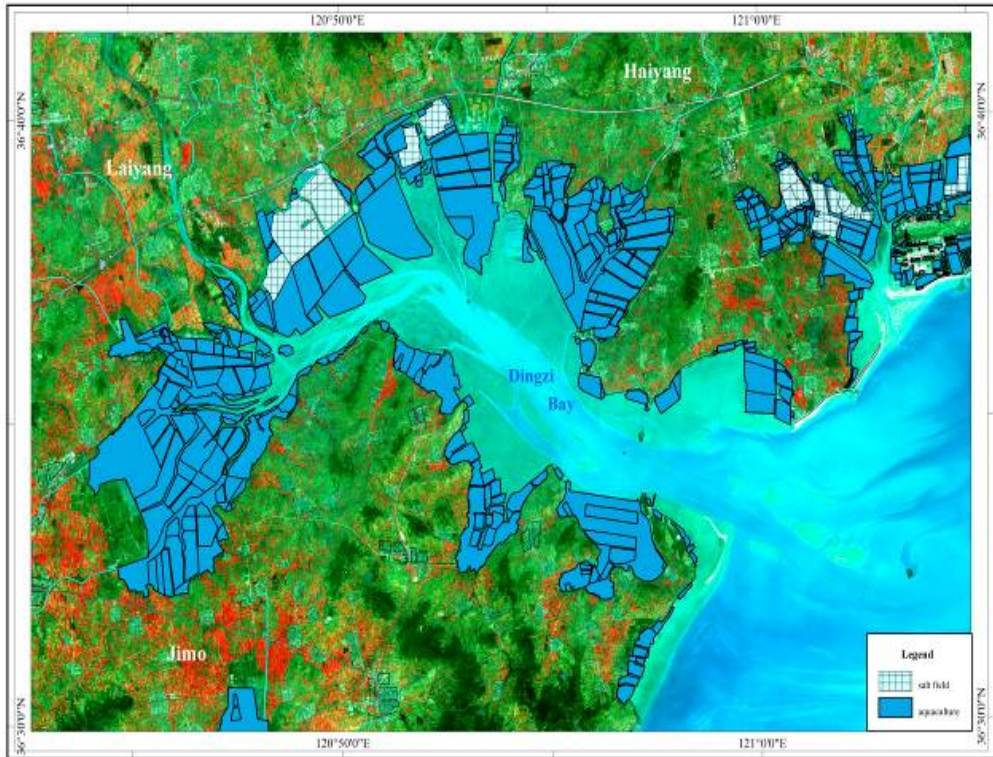


Fig 1-1. Location map of Dingzi Bay

**Tab 2-1.** Current area of sea use in Dingzi Bay

Region(km <sup>2</sup> )		Jimo		Laiyang		Haiyang		total
		area	proportion	area	proportion	area	proportion	
Bay	Total area	71.3	40.4	36.3	20.5	69.0	39.1	176.6
	Sea area	70.8		36.3		67.6		174.7
	Islands area	0.5		0.02		1.4		1.9
area of reclamation for salt and Aquaculture		42.1		25.2		34.8		102.1
Outside dam	Total area	28.7	39.4	11.1	14.8	32.8	45.8	72.6
	Area of below 0m isobath	13.0	53.1	1.3	5.3	10.2	41.6	24.5



**Fig 2-1.** Current development and utilization of sea use situation in Dingzi Bay

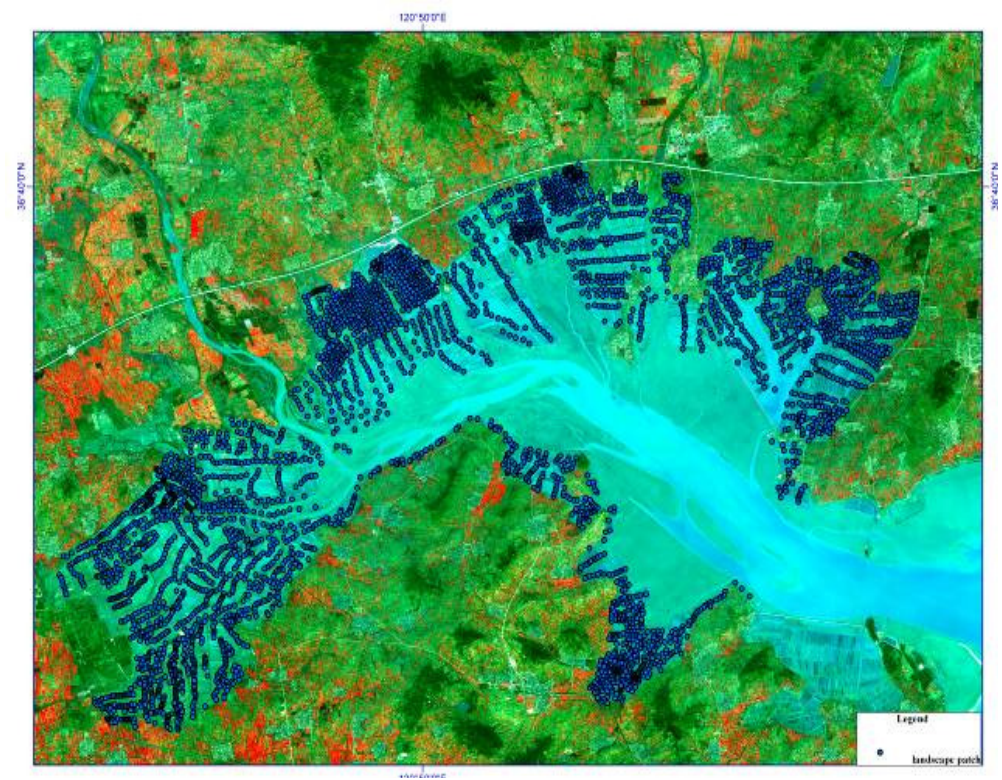


Fig 3-1. Distribution of landscape patch in Dingzi Bay





Fig 4-1. Marine functional zoning of Dingzi Bay (<Marine functional zoning of Shandong Province>(2004))

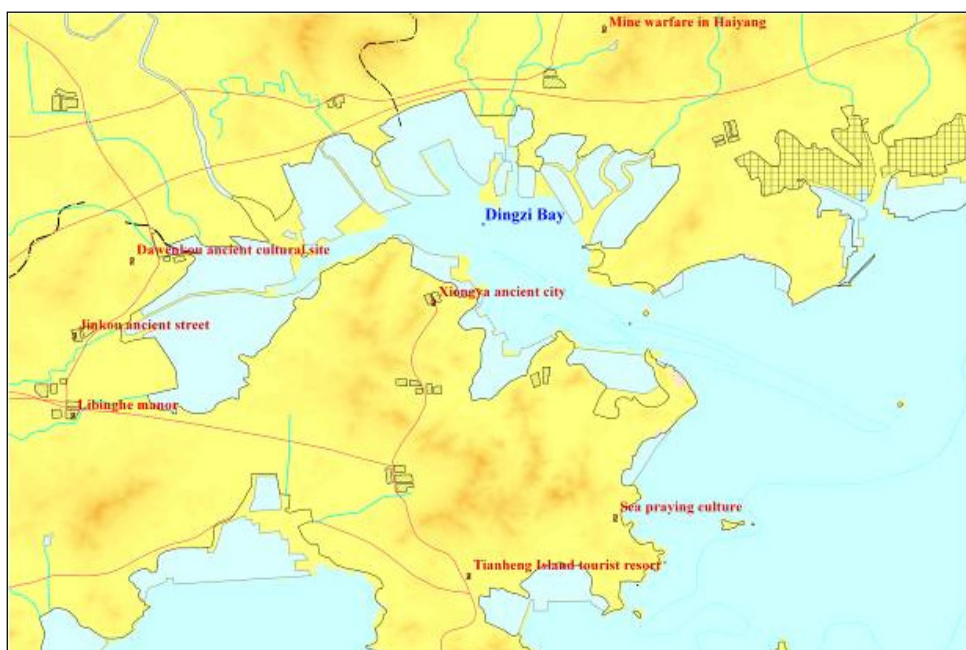
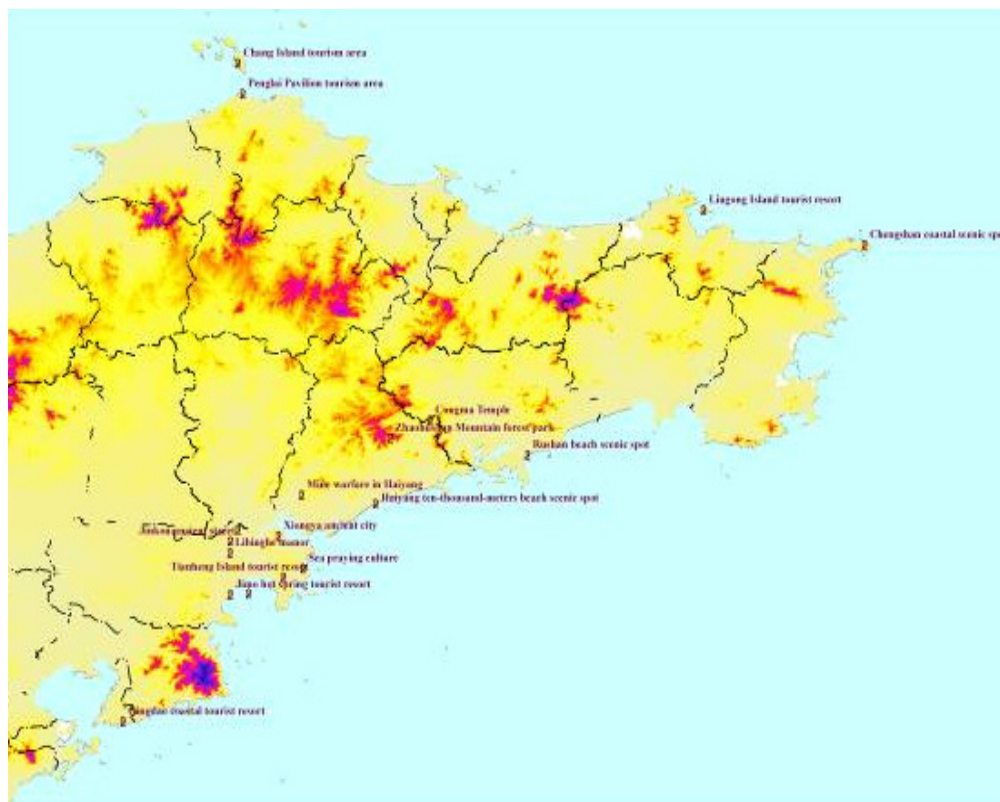


Fig 6-1. Distribution of tourism resources around Dingzi Bay



**Fig 6-2.** Distribution of tourism resources along Qingdao, Yantai and Weihai coast

# An Asia-Pacific Regional Maritime Security: Moving Beyond the Turmoil

Sukjoon Yoon\*

## Abstract

In this paper some of the longstanding issues are reviewed, and some fresh challenges are also identified; together with an examination of causal factors and the fundamentally divergent perspectives applied by the nations of the region, which render both types of problem highly intractable. An Asia-Pacific regional maritime security is on course to become far more dangerous in the future: with nationalistic fervor driving the expansion of maritime jurisdictions; an over-reliance upon militaristic solutions; and the intervention of external powers, however subtle it may be, provoking quarreling nations to adopt more proactive attitudes toward their adversaries. This is surely the time for the nations of the region to develop clear analysis of what constitutes appropriate regional maritime security and to agree upon a common threat perception. Preventive diplomacy is now imperative, and so clear Rule of Engagement should be established and all possible safety measures should be implemented, to avoid accidental miscalculations over incidents in the disputed seas escalating into catastrophe. There is no constructive alternative to the trust-building processes essential to ensure maritime good order and stability: finding effective solutions will inevitably require the nations of this region, and also third parties like the US, to change their attitudes and their behavior, and to commit to building a rules-based system of maritime security.

**Key words:** Regional security, Ocean policy, Maritime security, UNCLOS, Maritime policy, National security policy and strategy

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\* Visiting Professor, Sejong University: [jyoon6680@sejoing.ac.kr](mailto:jyoon6680@sejoing.ac.kr)

## 1. Introduction

An Asia-Pacific regional maritime security is awash with old issues and new challenges, and there are numerous urgent problems with complex causes, all of them disruptive to maritime peace and good order.<sup>1)</sup> In this paper some of the long standing issues are reviewed, and some fresh challenges are also identified; together with an examination of causal factors and the fundamentally divergent perspectives applied by the nations of the region, which render both types of problem highly intractable. The new challenges faced by the nations of the region include: action-reaction phenomena resulting from unbridled nationalism, third party involvement in bilateral maritime disputes, a lack of established norms and regimes through which mechanisms to ensure regional maritime security can be implemented, an over-emphasis upon naval forces, including law enforcement forces such as coast guards, and the overlapping and confused structure of national maritime security administrative organizations. The analysis concludes that effective solutions can only be established through rules-based accords based on recognition of the common maritime interests of individual nations, notwithstanding the deep convictions which many in the region hold about the correctness of their own positions.

## 2. Old Issues Are Still Festering in the Region

There are a number of longstanding regional issues which hamper the maintenance of maritime peace and good order, including: disagreement over what kind of maritime threats should be recognized as major issues, the lack of a common interpretation of the legal situation –especially of the United Nations Convention Law of the Sea (UNCLOS), and the overweening ambition of some states to consolidate or expand their maritime jurisdictions.

First, the nations of the region disagree on what constitutes a serious threat to maritime security. Southeast Asia seems to primarily concerned with non-traditional maritime issues like piracy, illegal fishing, and armed robbery at sea, especially in the South China Sea (SCS); whereas Northeast Asia is struggling with actual military threats at sea, South Korea is facing bellicose rhetoric from North Korea, and China and Japan are competing over maritime jurisdiction, with boundary disputes in the East China Sea(ECS)leading to frictions between China, Japan, and Taiwan. Such differences are likely to exacerbate maritime disorder and instability. For Association of South East Asian Nations

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1) For a discussion of the old issues and new challenges of the Republic of Korea's maritime security, see Geoffrey Till and Yoon Sukjoon, ed., al., *Korean Maritime Strategy: Issues and Challenges* (Seoul: Korea Institute for Maritime Strategy, 2011).



(ASEAN), non-traditional threats like piracy represent a formidable problem, which is perceived very differently by Northeast Asian nations.<sup>2)</sup> The collapse of regional fisheries in the SCS and ECS already appears to be a major issue for ASEAN countries, with the near-extinction of many species of fish and the urbanization of the poor fishing villages. China's recent strategy of sending factory fishing vessels to the Scarborough Shoal in the SCS is particularly disturbing, as an escalation of the non-military threat posed by China, where by its increasing affluence could starve the rest of the world.<sup>3)</sup>

Second, the nations of the region give very limited recognition to the ambiguities implicit in UNCLOS, and indeed, regional maritime disputes are primarily concerned with delimiting boundaries. UNCLOS is a large and complex convention which underpins the individual maritime jurisdictions, but it is not easy to exercise its principles in confined seas. Furthermore, there have been serious disagreements between coastal states and other countries making use of the regional seas, notably between the US and China, over freedom of navigation in Exclusive Economic Zones (EEZs); and also between neighboring coastal states, notably between ASEAN members and China, over what the rights and duties of coastal nations are, particularly in respect of EEZs. Thus, UNCLOS article 56 clearly states that a coastal nation exercises jurisdiction over "marine scientific research" in its EEZ, but unfortunately does not define this term, nor other similar terms like "survey activities", "hydrographic survey" or "military survey". Robert Beckman, who is based in Singapore, has argued that all nations enjoy freedom of navigation and overflight of EEZs where territorial claims overlap in the semi-enclosed geographical situations along the shores of the East Asian Seas.<sup>4)</sup>

Third, historical precedence has always dominated the rules-based regime and norms applying to disputed seas. Thus, the Chinese authorities have made a unilateral claim to all-encompassing maritime jurisdiction in the SCS based on the so-called "nine-(or sometimes eleven-) dashed line",<sup>5)</sup> regarding the entire SCS as indisputably Chinese territorial waters.<sup>6)</sup> Vietnam has also claimed historical rights to maritime jurisdiction in

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2) For example, the statistics for piracy in the region are under-reported for Northeast Asia because ship owners are concerned to avoid increased insurance premiums as a result of piratical attacks. These are therefore reported as robberies on board ship, or as goods being illegally transferred to other ships. Thus piracy is not seen as a major problem of maritime security for Northeast Asian nations, but it is for the ASEAN countries, impacting their prospects for social improvement, environmental management, and poverty alleviation.

3) Zhang Hongzhou, "China's Food Security" RSIS Commentaries, No. 045/2013 dated 14 March 2013.

4) Robert Beckman, "Military Activities in the Exclusive Economic Zone: Towards a Common Understanding", Yang Razali Kassim, ed., al, Strategic Currents (Singapore: Institute of Defence and Strategic Studies, Nanyang Technological University, 2006), p. 42.

5) In 2009, China documented its claims to indisputable sovereignty over the South China Sea by officially tabling a map with nine dash lines to the United Nations Commission on Extended Continental Shelves.

6) A typical Western perspective is: "*China claims indisputable sovereignty over the islands, reefs, and shoals of the SCS and their surrounding waters, demarcating a "tongue-shaped claim" on "Chinese maps" extending hundreds of miles from mainland China*". See China Raising 2012 Defense Spending to Cope With Unfriendly 'Neighborhood' by Bloomberg News, March 5, 2012 and

the SCS where its claims overlap with those of Brunei and Malaysia. The current situation in the ECS is also deteriorating, and will probably continue to worsen for the foreseeable future. Japan bases its claim to maritime jurisdiction of the Diaoyu/Senkaku Islands on the 1951 San Francisco Peace treaty (SFPT), from which the People's Republic of China was excluded. China utterly rejects this claim, and has called vehemently for Japan to abide by the 1943 Cairo Declaration and the 1945 Potsdam Proclamation.<sup>7)</sup> In practice, none of these treaties says anything helpful about potential natural resources under the disputed seas, and they can therefore contribute little to their solution of the jurisdictional disputes over the Diaoyu/Senkaku Islands. The actual amount of deep seabed reserves available remains unclear while surveys remain incomplete and until results are published, but the likely quantities of oil and gas under the disputed seas are certainly attractive to resource-poor nations like Japan. And also to China, which is now a world economic powerhouse and no longer self-sufficient in resources, especially the energy essential to the livelihood of ordinary people. At this moment of political transition across East Asia, and in the US, the prospect of establishing a new and cooperative vision of maritime security seems to be receding into the distance.

Fourth, nearly all East Asian countries are striving to expand the area over which they exercise maritime jurisdiction. It is not uncommon for the freedom of navigation to be disrupted, which is the fundamental basis upon which maritime order and peace, as well as national and regional economic prosperity, depends. Unfortunately, the principles and norms of regional maritime security have yet to be established by mutual agreement, particularly in specific zones, such as EEZs. UNCLOS is the only regime available and competent to resolve such disputes, as nearly all the parties concerned are members of this convention, excepting only Cambodia and North Korea. The multiplicity of overlapping maritime jurisdictions and boundaries across the chain of seas from the West Sea (a.k.a. Yellow Sea) to the ECS and SCS are virtually all between countries claiming legitimate maritime rights and duties under UNCLOS.<sup>8)</sup> In the case of North Korea, it unilaterally and illegally claims its Military Zone, ignoring the long-established maritime demarcation line between the two Koreas following the Korean War of 1950-53, the Northern Limit Line.<sup>9)</sup>

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<http://www.bloomberg.com/news/2012-03-04/china-says-defense-spending-will-incre....> released 2012-10-31.

7) David D. Chen and Cary C. Chen, "China/Japan Dispute Is No Gordian Knot," US Naval Institute Proceedings, December 2012, p. 10 & Gao Hong, "Diaoyu will remain China's," China Daily, September 14-20, 2012, p. 14.

8) As of 10 December 2012 there were 164 parties to UNCLOS. See

<http://www.un.org/News/Press/docs/2012/ga11323.doc.htm>.

9) For a discussion for the NLL between the two Koreas, see Andrew Forbes and Captain Yoon Sukjoon, "Old and New Threats from North Korea Against the Republic of Korea," in Geoffrey Till and Yoon Sukjoon, ed., al., *Korean Maritime Strategy: Issues and Challenges* (Seoul: Korea Institute for Maritime Strategy, 2011), pp. 26-29.

### 3. New Challenges Are Undermining Regional Maritime Security

Such long-running issues of regional maritime security have lingered, due to the diversity of the region's maritime geography and to historical legacies which have led to a marked trust-deficit among East Asian states. Meanwhile, a variety of new challenges has emerged, driven by regional geopolitical circumstances which include: action-reaction phenomena resulting from unbridled nationalism, third party involvement in bilateral maritime disputes, a lack of established norms and regimes through which mechanisms to ensure maritime security can be implemented, an over-emphasis upon naval forces including law enforcement forces such as coast guards, and the overlapping and confused structure of national maritime security administrative organizations. A number of new and emerging challenges can be identified, which are likely to disturb or disrupt regional maritime peace and good order in the East Asian Seas, with the prospect of a severe deterioration in regional maritime security, leading to potentially unmanageable consequences.<sup>10)</sup>

First, in some specific and discrete sea areas, most notably in the EEZs, some coastal states have allowed nationalistic fervor to get out of hand, adding further layers of complexity to existing problems.<sup>11)</sup> Some previously non-political maritime issues have become politicised as a consequence of internal political struggles. For Japan, in December 2012, against the backdrop of angry maritime territorial disputes with China, a rising tide of nationalism displaced all other electoral issues, resulting in a strong vote for the conservative Liberal Democratic Party (LDP), which had been kicked out of office three years previously after more than five decades of political dominance. In March 2012, the LDP-led government had suddenly declared its intention to nationalise the ownership of the Diaoyu/Senkaku Islands, for dubious reasons, and in September 2012 the Chinese government responded by announcing the baseline of the territorial waters of the Diaoyu/Senkaku Islands.

Although the new governments which have recently been installed in South Korea, Japan, China, Russia, and even in the US have sought for peaceful processes and dialogue to resolve the outstanding disputes, in all these countries there are influential conservative factions resisting any policies through which the new leaders might try to change their attitude on the maritime disputes to replace an assertive approach by a more prudent and constructive one. Governments are being pressured by such forces, moving from "reluctance" to "resentment" when reacting to situations arising around maritime disputes in the region; and where national resources may be at stake the situation has grown steadily

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10) The author would like to thank one of the anonymous reviewers for making this argument clear.

11) Wendell Minnick, "Responding to Beijing: Asia Markets Strengthen As China Turns Bully," *Defense News*, February 11, 2013, pp. 11-12.

more serious. There has been a vicious cycle of action and reaction, with recurring maritime confrontations and conflicts, and recently a groundswell of nationalistic emotions has led to more assertive actions by various parties, notably the US Senate's rejection of President Obama's proposal to ratify UNCLOS because of the maritime threat represented by the Chinese military.<sup>12)</sup>

Second, external intervention in regional maritime disputes is emerging as an important new challenge, which complicates the attempt by individual countries to assert their national maritime jurisdictional rights and duties, in particular concerning EEZs. Despite the fact that third parties have no legal rights or interests in bilateral maritime disputes in confined seas, the US has recently become actively involved in the quarrels between China and Japan, and between China and ASEAN members like Vietnam and the Philippines.<sup>13)</sup> It seems that Sino-American rivalry in the East Asian Seas has rendered regional maritime security more complex than ever before. While one might hope for the US to act responsibly, by avoiding behaving in such a way as to make regional maritime security problems more intractable, it seems that US treaty obligations established during the Cold War, specifically its SFPT security commitment to its allies, Japan, may be causing the US to react more and more robustly to what it sees as provocations by a near-peer adversary, China.

Recently there have been several dangerous flare-ups around Diaoyu/Senkaku Islands, and Beijing has vehemently denounced Japan's decision to nationalise the ownership of these disputed islands in the ECS, but the situation has become more serious after the US expressed its support for the status quo: this unwelcome development confronts the nations of the region with a dilemma, making it more difficult to maintain strategic ambiguity in a time of increasing Chinese and declining US maritime power. This was reflected in ASEAN's failure to reach agreement to issue a joint communiqué on the implementation of their Declaration on the Conduct of Parties in the South China Sea (DO C)<sup>14)</sup> at the July 2012 ASEAN Ministerial Meeting Retreat in July 2012.<sup>15)</sup> This protocol was intended to constrain further encroachments upon ASEAN members' maritime sovereignty, including China, but ASEAN is now fragmented on SCS issues, especially over the "two references" to the stand-off at Scarborough Shoal where there have been illegal fishing issues between China and the Philippines since April 2012, with the Chinese

12) See Sukjoon Yoon, "Sino-American Rivalry in the South China Sea: Time for the ROK to Project its Middle-Power Role", presented at the 4th International Workshop, "The South China Sea: Cooperation for Regional Security and Development", 19-21th November 2012, at Ho Chi Minh City, Vietnam.

13) Ian Storey, "Asean Is a House Divided," *The Wall Street Journal*, Friday-Sunday, June 15-17, 2012, p. 11.

14) Terms of Reference of the ASEAN-China Joint Working Group on the Implementation of the Declaration on the Conduct Parties in the South China Sea:

<http://www.aseansec.org/16888.htm> and <http://www.aseansec.org/16885.htm> and

<http://www.aseansec.org/documents-20185-DOC.pdf>. released April 23, 2013.

15) Don Emmerson, "ASEAN Stumbles in Phnom Penh," PacNet #45, Tuesday, July 19, 2012.

dispatching huge factory fishing vessels and numerous trawlers to the area and the award of oil concessions inside Vietnam's EEZ by the China National Offshore Oil Company (CNOOC).<sup>16)</sup> For ASEAN, the complex management mechanisms envisaged for DOC in the implementation guidelines drawn up in 2012, with their legally binding "Code of Conduct (COC)",<sup>17)</sup> represent the last best hope of resolving such problems.<sup>18)</sup>

Third, the US strategy of "rebalancing" toward the Asia-Pacific – which the Obama administration previously dubbed the "pivot" – has some potentially worrying aspects. Rather than simply maintaining the regional maritime status quo, the US appears to be moving towards taking a more disruptive role. Sino-American maritime rivalry entered a new phase with the USNS Impeccable incident in 2009 which involved a clash with Chinese quasi-governmental vessels in the SCS. This was the first direct maritime confrontation between China and the US over the respective rights and duties of the coastal countries and other nations using their EEZs. At issue is UNCLOS Article 56: the parties dispute whether the US was conducting marine scientific research and therefore whether prior notification or authorization was required – the US asserts that freedom of navigation cannot be regulated by any coastal countries.

Since this incident, the US has continued to be involved, directly or indirectly, in regional maritime disputes: deploying the controversial and disruptive Littoral Combat Ship-1(LCS-1)USS Freedom to Singapore in March 2013, enhancing its bilateral naval exercises with its formal allies near the SCS/ECS, and making clear that its security treaties include a commitment to protect disputed waters such as the Diaoyu/Senkaku Islands. The US exercises with China's neighbors, South Korea, Japan, Vietnam and the Philippines have included joint naval drills based upon scenarios involving the recapture of various islands, to which China has responded emphatically. The Chinese government has declared its resolve to "absolutely make no concession on issues concerning its sovereignty and territorial integrity", and its navy has continued to conduct frequent large-scale "rights to protection" or "patrolling and training" naval exercises near disputed sea areas in the SCS and ECS.<sup>19)</sup> China sees this matter as a "core interest"<sup>20)</sup> which is beyond debate, whereas

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16) For a detail of DOC, see Carlyle A. Thayer, "ASEAN's Code of Conduct in the South China Sea: A Litmus Test for Community – Building?" *The Asia-Pacific Journal*, Vol. 10, Issue 34, No. 4, August 20, 2012. For CNOOC's deal with issue, see <http://en.cnooc.com.cn/html/news/2012-06-23/english.322127.html>.

17) For ASEAN, "Regional Code of Conduct in the South China Sea(Draft)" in March 2000 and People's Republic of China, "Code of Conduct on the South China Sea (Draft of the Chinese side) in March 2000, see <http://www.scribd.com/doc/103248217/Thayer-Challenges-to-ASEAN%E2%80%99s-Cohesion-The-Policy-of-Constructive-Engagement-and-a-Code-of-Conduct-for-the-South-China-Sea>.

18) For details, see Carlyle Thayer, "Deference/Defiance: Southeast Asia, China and the South China Sea", a paper presented to panel entitled "on Difference/Diffusion, Deference/Defiance: Unpacking China-Southeast Asia Relations at the 2013 International Studies Association Annual Convention, Hilton San Francisco Union Square, San Francisco, April 5, 2013.

19) Grace Jean, "Freedom unleashed," *Jane's Defence Weekly*, 3 April 2013, p. 24.

20) For a detailed critical examination of the core interest issue, see Michael D. Swaine, "China's Assertive

the US claims that the central issue concerns freedom of navigation, which serves the interests of all the nations in the region.<sup>21)</sup> The US has no formal role in these maritime disputes, except as a party to UNCLOS (assuming the US ratifies the convention), and its involvement as a third party makes very little sense other than as a deliberate policy to thwart China's unilateral claims to maritime jurisdiction. Ongoing Sino-US maritime rivalry in the disputed waters threatens to overwhelm the nations of the region.

Fourth, there is a new emphasis upon military solutions which is becoming a problem in itself. Although the US defense budget has been reduced, defense spending in the East Asian region has increased significantly, including an 11% rise in the Chinese defense budget for 2013. The ongoing enhancement of naval forces and civilian law enforcement agencies seems to present a new threat likely to disrupt of maritime peace and stability.<sup>22)</sup> In theory, maritime security entails maintaining good maritime order in the region to ensure the freedom of navigation and allow innocent passage through territorial seas. In practice, however, disagreements over the applicability of UNCLOS to maritime jurisdictions, together with the US defense budget crisis resulting from internal political wrangles, have prompted the nations of region to rely more upon their own naval power rather than trusting in allies or external parties.<sup>23)</sup> One might expect the East Asian nations to prefer to put more weight on social improvements, environmental management, and poverty alleviation instead of investing such large sums in building independent defense capability. Understandably, they are keen to ensure that they are prepared for maritime disputes, but their willingness to become more self-reliant and share more of the defense burden is surely suspicious when they are expecting to see the implementation of the US "rebalancing to Asia" strategy.<sup>24)</sup> Since November 2012 regular naval patrols by the Chinese People's Liberation Army Navy (PLAN) and the Japanese Maritime Self-Defense Force (JMSDF) have taken place, including air surveillance activities over the disputed areas, and the PLAN raised the stakes in the ongoing confrontation by staging activities against a mock-up JMSDF warship near the disputed seas in January and February 2013.<sup>25)</sup> Quite

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Behavior, Part One: On 'Core Interest',” *China Leadership Monitor*, No. 34, 2011, pp. 1-25.

21) Jeffrey A. Bader, *Obama and China's Rise: An Insider's Account of America's Asia Strategy* (Washington, D.C.: Brookings Institute Press, 2012), p. 105.

22) For the continuing Chinese defense budget increases, see Grace Jean, "China plans next-gen carriers," *Jane's Defence Weekly*, 20 March 2013, p. 10. For the US defense budget reduction, see Daniel Wasserbly, "DoD revisiting strategy amid potential \$889 bn shortfall," *Jane's Defence Weekly*, 27 March 2013, p. 10 and Grace Jean, "US Navy reduces fleet goal," *Jane's Defence Weekly*, 13 February 2013, p. 12. For the Japanese defense budget rise, see Kosuke Takahashi and James Hardy, "Japan announces first budget rise in 11 years," *Jane's Defence Weekly*, 6 February 2013, p. 20. For increases to the defense budgets of ASEAN members, see Guy Anderson and Jon Grevatt, "Rich pickings," *Jane's Defence Weekly*, 19 September 2012, pp. 20-29.

23) Wendell Minnick, "Responding to Beijing," *Defense News*, February 11, 2013, p. 11 & 12.

24) J. Randy Forbes, "Rebalancing the Rhetoric," US Naval Institute Proceedings, October 2012, pp. 16-21 & Robbin Laird and Ed Timperlake, "Pivot Point: Re-shaping US maritime strategy to the Pacific," *Jane's Navy International*, April 2013, pp. 22-29.

25) Sarah McDowall and James Hardy, "China to survey disputed East China Sea islands," *Jane's Defence*

the reverse trend is occurring in Europe, according to Jane's Defence Weekly(European) and Defense News(US):while the Asia-Pacific region has been increasing defense budgets, mainly focusing on building naval strength and promoting law enforcement services such as coast guards, the European nations have begun to cut their defense spending to reallocate more money toward social improvement and coping with the economic downturn.<sup>26)</sup>

Fifth, the overlapping and confused structure of national maritime security administrative organizations, especially for China, will likely hinder the implementation of any bilateral agreements or international legal regimes, should these become established in due course. The International Crisis Group's 2012 Special Report on China lists more than 9the ministries or agencies with some degree of maritime responsibility locked in a struggle for influence in the central communist party and national council in order to secure budgetary and other resources.<sup>27)</sup> Recently the Chinese government announced that the National People's Congress had restructured the diverse and inconsistent organization of ministry of maritime affairs into a single unified maritime apparatus subordinate to the State Oceanic Administration (SOA).<sup>28)</sup> This is a very welcome development in Chinese maritime affairs, which will likely help with the present tensions and reduce the possibility of accidental conflict in the disputed sea areas. The establishment of a single unit responsible for managing national maritime affairs will send a goodwill signal to China's adversaries in its maritime disputes, implying that negotiation processes will be quicker and more effective. Although some critics have argued that the restructuring of the Chinese maritime authorities is more superficial than real, the Chinese have still demonstrated to their neighbors that they are seriously committed to implementing appropriate management of maritime affairs beyond their territorial waters to ensure regional maritime security. Of the new responsibilities which China's SOA has taken on, no task is more urgent than the management of maritime jurisdiction in the ECS and SCS.As China's defence doctrine includes legal warfare, China has developed its "maritime law enforcement strategy" that adopted a policy of "rights protection" in the SCS and the ECS –surely from China's perspective. Asserting greater control over maritime resources and jurisdiction by the law enforcement forces is the latest iteration of this reconstruction of the diverse and inconsistent organization of ministry of maritime affairs to single one.

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*Weekly*, 23 January 2013, p. 14 & Kosuke Takahashi and James Hardy, "Chinese frigates Locked on to JMSDF ship, helo," *Jane's Defence Weekly*, 13 February 2013, p. 16.

26) For the increasing Chinese law enforcement capability, see <http://news.usni.org/news-analysis/news/chinas-700-ship-navy>, released February 6, 2013.

27) For details, see International Crisis Group's *Special Report on China*, March 2012.

28) Gavin Goh, "China realigns maritime agencies," *Jane's Defence Weekly*, 20 March 2013, p. 16.

## 4. The Urgent Need for a Common Approach to Regional Maritime Security

For the time being, maritime security seems critical to individual national security for the East Asian region, and for some nations it merits first place on their national security agenda. However, the region seems still unready for maritime cooperation, with lingering tit-for-tat games between neighboring countries disrupting maritime peace and good order. Several tracks exist for discussing regional maritime security mechanisms: the ASEAN Regional Forum (ARF) and its various sub-committees; the Heads of Asian Coast Guard Agencies (HACGA); and the Council of Security Cooperation in the Asia Pacific (CSCAP) working together with the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP). These forums take a variety of approaches, and are likely discussing the old issues, but they are very reluctant to talk about the new challenges and have produced very little of immediate use in terms of defined plans of action – there is an urgent need to secure the common maritime interests of the region, specifically to ensure the freedom of shipping and to deter the recurring bilateral conflicts and confrontations.<sup>29)</sup>

The best course would be for every nation in the region to agree to work together to preserve their common interests at sea, defining regional maritime security along the lines of: national and multinational efforts to maintain good and peaceful order at sea, and the safety and security of shipping, so as to permit countries to pursue their maritime interests and to develop their marine resources in an ecologically sustainable and peaceful manner in accordance with international law. Any such consensus must also establish that illegal and unilateral activities at sea or inadequate arrangements for the safety and security of shipping are detrimental to good order at sea and should not be tolerated.

Unfortunately, since UNCLOS came into effect as the customary international maritime law of this region after receiving the necessary ratifications in 1997, there have been so many different concepts of maritime security among the nations of the region that they have been quite unable to agree upon any conceptual basis for a common approach to regional maritime security. Given the essential importance of seaborne trade, which is fundamental to the economic growth and prosperity of the region, it seems obvious that most nations share an interest in safeguarding the freedom of navigation and ensuring the safety of shipping, but constructive agreement has proved elusive. Some blame the unfortunate complexity of the region's geography and the ambiguities which arise in the application of UNCLOS to the semi-enclosed seas of East Asia.<sup>30)</sup> Others blame third party

29) Sam Bateman, "Solving the 'Wicked Problems' of Maritime Security: Are Regional Forum up to the Task," pp. 17-20.

30) Sam Bateman, "UNCLOS and its Limitations as the Foundation for a Regional Maritime Security Regime,"



involvement in the region's bilateral disputes, so that the rights and duties of the coastal countries are not in full accordance with the international law, but are determined by alliance obligations which are constrained by geography.<sup>31)</sup>

Fortunately there are very few countries, just Taiwan and South Korea, whose approach to maritime issues adheres to rigid traditional attitudes; where the national defense agenda is dominated by military threats from enemies or historical adversaries, and the protection of national interests and sovereignty at sea.<sup>32)</sup> Indeed, since the end of the Cold War, such traditional maritime security concepts have gradually become less significant around the seas of the region; so it is an appropriate time, in fact it is rather urgent, for the nations of the region to agree upon a common definition of regional maritime security so as to safeguard their common interest in peace and stability upon which their economic prosperity depends.

## 5. Moving Beyond the Turmoil

Looking at the general timeline of the maritime conflicts and tensions during the last few years, from 2010 through the start of 2013, it is clear that existing institutional mechanisms have failed to address the tensions arising between the coastal nations and the users of specific areas, most obviously the EEZs and disputed sea areas like the Diaoyu/Senkaku Islands in the ECS and Scarborough Shoal in the SCS. Unfortunately, very few constructive outcomes have been produced by ASEAN and its various sub-forums and committees like ARF, the ARF Inter-Session Meeting on Maritime Security, and the Maritime Security Expert Working Group established by the ASEAN Defense Minister Meeting Plus.<sup>33)</sup> What can be done to address this deficit? How can robust institutional mechanisms be established to resolve both the longstanding issues and the new challenges for regional maritime security? Some recommendations and suggestions follow.

First, action-reaction phenomena should be defused through discreet bilateral negotiations between the quarreling parties. From time to time, official views on disputed issues become distorted by popular reaction, especially by nationalistic movements and heated public antipathy against perceived insults to sovereignty by rival nations. Such trends have proved particularly destabilizing over recent years, affecting maritime environments

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*The Korean Journal of Defense Analysis*, vol. 19, no. 3 (Fall 2007), pp. 27-56.

31) Li Mingjiang and Zhang Hongzhou, "Restructuring China's Maritime Law Enforcement: Impact on Regional Security," *RSIS Commentaries*, No. 050/2013 dated 1 April 2013.

32) SebastienFalletti, "South Korea delays Spike NLOS deployment," *Jane's Defence Weekly*, 28 November 2012, p. 14.

33) Sam Bateman, "Solving the 'Wicked Problems' of Maritime Security: Are Regional Forums up to the Task?", pp. 17-21.

throughout East Asian Seas ranging from the West Sea (a.k.a. the Yellow Sea), and the ECS to the SCS. To limit the negative impact from such reactions, the best course would be to internationalise the maritime jurisdictional and boundary disputes of the region. This would give the disputing parties some breathing space, and allow them to muster the political will to play a more constructive role in contributing to regional maritime good order and stability. Beyond the official and formal dialogues there is a real opportunity for Asian countries to address many outstanding issues. Since 2010 some very assertive attitudes have prevailed, and it is time some lessons were learned: expanding maritime jurisdictional claims to the limits of continental shelves has produced only trouble and instability.

Second, multilateral forums should urgently consider the suitability of international law to strengthen regional peace and stability. This should involve disputing parties in a process whereby they accept joint responsibility for implementing a new concept of consensual regional maritime security, integrating policy suggestions from all sides. In this way gray areas of UNCLOS could be addressed by international forums, and extended or amended as appropriate. In its present form the convention seems inadequate for resolving the regional maritime disputes, being capable of too flexible a range of interpretations, and it is therefore essential to begin by developing a common understanding of the limitations of UNCLOS, which may then help to ease the recurring tensions. Of course, it is crucial for the US to ratify UNCLOS as soon as possible, so that instead of being a mere observer the US could have a formal role in the dialogue to build a new maritime regime.<sup>34)</sup> US participation in UNCLOS will surely contribute to maintaining maritime peace and stability in the Asia-Pacific region, by helping to provide credible international regulation and sound principles for maritime security.<sup>35)</sup> Among the benefits of updating the conventional context of maritime jurisdiction in the ECS and SCS and the rights and duties of coastal states in maritime zone, particularly relating to the EEZs, would be a welcome reduction in the likelihood of a miscalculation leading to serious maritime conflict.

Third, the best way to avoid such dangerous accidents in the ECS and SCS is to define clear Rules of Engagement (RoE) for maritime forces and law enforcement agencies. Recent clashes over fishing rights, such as those between and Japan over the Diaoyu/Senkaku Islands, and between China and the Philippines over the Scarborough Shoal, in which the China Marine Surveillance agency and Chinese fishery protection agencies were involved, have demonstrated the importance establishing RoE covering how to deal with non-military maritime threats. In the clash with Japan, the Chinese government responded by conducting large-scale naval contingency exercises near the disputed seas which provoked a crisis when the PLAN targeted JMSDF naval vessels and helicopters with fire-control radar in January and February 2013.<sup>36)</sup> In January 2012, the Philippines

34) The author would like to thank the anonymous reviewers for making this argument clear.

35) See Sukjoon Yoon, "Sino-American Rivalry in the South China Sea: Time for the ROK to Project its Middle-Power Role".

government made a good start in moving to reduce the chances of unintended conflict by promoting a COC in which the SCS is defined as a Zone of Peace, Freedom, Friendship and Cooperation(ZOPFF/C) – this is a good model for other nations operating in disputed waters to emulate. It will be good for all parties in the region to continue to discuss the further implementation of the DOC Guidelines in the near future, significantly including “expert committee on safety of navigation and communication at sea” due to its contentious nature.<sup>37)</sup>

Fourth, international legal regimes should be reserved as a last resort, when bilateral means have failed to bring about a peaceful resolution and settlement of disputes. The involvement of external powers in regional maritime security only tends to muddy the waters, with the reactions inevitably provoked making the disputed issues more complex and intractable. Bilateral discourse on maritime cooperation should become the customary approach to these matters, rather than relying upon military tools to rationalize legitimate rights and duties, and transparent, effective and appropriate methods must be devised to resolve the recurrent tensions. It is unfortunate that the implementation of the DOC protocol has been held up by multilateral negotiations within ASEAN identity or central and with China. Individual bilateral settlements are not sufficient to resolve all the issues, however, as shown by the recent unofficial agreement on fisheries between Taiwan and Japan: at a time of heightened tension between China and Japan over the Diaoyu/Senkaku Islands this agreement upset China further, adding more fuel to the fire. It was also disappointing that the Philippines and China were unable to reach agreement to bring the nine-dashed line issue before an international tribunal subject to UNCLOS arbitration.<sup>38)</sup> The Philippine was careful in its Notification and Statement of Claim to say “it was not seeking arbitration over sovereignty disputes to islands or delimitation of maritime boundaries that China had excluded from arbitral jurisdiction. The Philippines claimed that its maritime disputes with China were “about the interpretation and application by States Parties of their obligations under the UNCLOS,” and therefore could be submitted for resolution. By contrast, a Chinese responded that the Philippines’ Statement of Claim “was historically and legally incorrect and contained unacceptable accusations against China.”<sup>39)</sup>It is suffice to say that international legal regimes should be reserved as a last resort is not a “win-or-lose ”for only one certain party, but a “win-win” resolution for all parties.

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36) Kosuke Takahashi and James Hardy, “Chinese frigates Locked on to JMSDF ship, helo,” p. 16.

37) An agreement of the implementation of the DOC guidelines at a China-ASEAN senior officials meeting held in Beijing in January 2012 set up four expert committee on maritime scientific research, environmental protection, search and rescue, and transnational crime.

38) James Hardy, “China Rejected Philippines’ Arbitration Tribunal on South China Sea Issues,” *Jane’s Defence Weekly*, 22 February, 2013, p. 8.

39) Carlyle A. Thayer, ‘China at Odds with U.N. Treaty,’ *USNI News*, Monday, March 11, 2013.

## 6. Conclusion

Regional maritime security is on course to become far more dangerous in the future: with nationalistic fervor driving the expansion of maritime jurisdictions; an over-reliance upon militaristic solutions; and the intervention of external powers, however subtle it may be, provoking quarreling nations to adopt more proactive attitudes toward their adversaries. This is surely the time for the nations of the region to develop clear analysis of what constitutes appropriate regional maritime security and to agree upon a common threat perception. Preventive diplomacy is now imperative, and so clear RoE should be established and all possible safety measures should be implemented, to avoid accidental miscalculations over incidents in the disputed seas escalating into catastrophe. There is no constructive alternative to the trust-building processes essential to ensure maritime good order and stability: finding effective solutions will inevitably require the nations of this region, and also third parties like the US, to change their attitudes and their behavior, and to commit to building a rules-based system of maritime security.

## References

- Geoffrey Till and Yoon Sukjoon. ed., al., *Korean Maritime Strategy: Issues and Challenges* (Seoul: Korea Institute for Maritime Strategy. 2011).
- Zhang Hongzhou. "China's Food Security" *RSIS Commentaries*. No. 045/2013 dated 14 March 2013
- Robert Beckman. "Military Activities in the Exclusive Economic Zone: Towards a Common Understanding." Yang RazaliKassim, ed., al, *Strategic Currents* (Singapore: Institute of Defence and Strategic Studies, Nanyang Technological University. 2006).
- David D. Chen and Cary C. Chen. "China/Japan Dispute Is No Gordian Knot." US Naval Institute Proceedings. December 2012
- Gao Hong, "Diaoyu will remain China's." *China Daily*. September 14-20, 2012, see Andrew Forbes and Captain Yoon Sukjoon. "Old and New Threats from North Korea Against the Republic of Korea." in Geoffrey Till and Yoon Sukjoon, ed., al., *Korean Maritime Strategy: Issues and Challenges* (Seoul: Korea Institute for Maritime Strategy. 2011),
- Wendell Minnick. "Responding to Beijing: Asia Markets Strengthen As China Turns Bully." *Defense News*. February 11. 2013
- Sukjoon Yoon. "Sino-American Rivalry in the South China Sea: Time for the ROK to Project its Middle-Power Role." presented at the *4th International Workshop, "The South China Sea: Cooperation for Regional Security and Development."* 19-21th November 2012, at Ho Chi Minh City. Vietnam.
- Ian Storey. "Asean Is a House Divided." *The Wall Street Journal*, Friday-Sunday. June 15-17. 2012
- Don Emmerson, "ASEAN Stumbles in Phnom Penh." *PacNet* #45. Tuesday, July 19. 2012.
- Carlyle A. Thayer. "ASEAN's Code of Conduct in the South China Sea: A Litmus Test for Community – Building?" *The Asia-Pacific Journal*. Vol. 10, Issue 34. No. 4, August 20, 2012. For CNOOC's deal with issue. see <http://en.cnooc.com.cn/html/news/2012-06-23/english.322127.html>.
- "Regional Code of Conduct in the South China Sea(Draft)" in March 2000 and People's Republic of China. "Code of Conduct on the South China Sea (Draft of the Chinese side) in March 2000. see <http://www.scribd.com/doc/103248217/Thayer-Challenges-to-ASEAN%E2%80%99s-Cohesion-The-Policy-of-Constructive-Engagement-and-a-Code-of-Conduct-for-the-South-China-Sea>.
- Carlyle Thayer. "Deference/Defiance: Southeast Asia. China and the South China Sea." a paper presented to panel entitled "on Difference/Diffusion, Deference/Defiance: Unpacking China-Southeast Asia Relations at the *2013 International Studies Association Annual Convention*. Hilton San Francisco Union Square. San Francisco. April 5. 2013.

- Grace Jean. "Freedom unleashed." *Jane's Defence Weekly*. 3 April 2013.
- Michael D. Swaine. "China's Assertive Behavior, Part One: On 'Core Interest.'" *China Leadership Monitor*. No. 34. 2011. pp. 1-25.
- Jeffrey A. Bader. *Obama and China's Rise: An Insider's Account of America's Asia Strategy* (Washington, D.C.: Brookings Institute Press, 2012),
- Grace Jean. "China plans next-gen carriers." *Jane's Defence Weekly*, 20 March 2013.
- Daniel Wasserbly. "DoD revisiting strategy amid potential \$889 bn shortfall," *Jane's Defence Weekly*. 27 March 2013.
- Grace Jean. "US Navy reduces fleet goal." *Jane's Defence Weekly*. 13 February 2013, p. 12.
- Kosuke Takahashi and James Hardy. "Japan announces first budget rise in 11 years." *Jane's Defence Weekly*. 6 February 2013.
- Guy Anderson and Jon Grevatt. "Rich pickings." *Jane's Defence Weekly*. 19 September 2012
- Wendell Minnick. "Responding to Beijing." *Defense News*. February 11, 2013
- J. Randy Forbes. "Rebalancing the Rhetoric." *US Naval Institute Proceedings*, October 2012.
- Robbin Laird and Ed Timperlake. "Pivot Point: Re-shaping US maritime strategy to the Pacific." *Jane's Navy International*. April 2013
- Sarah McDowall and James Hardy. "China to survey disputed East China Sea islands." *Jane's Defence Weekly*. 23 January 2013.
- Kosuke Takahashi and James Hardy. "Chinese frigates Locked on to JMSDF ship, helo." *Jane's Defence Weekly*. 13 February 2013
- International Crisis Group's *Special Report on China*, March 2012.
- Gavin Goh. "China realigns maritime agencies," *Jane's Defence Weekly*, 20 March 2013.
- Sam Bateman. "UNCLOS and its Limitations as the Foundation for a Regional Maritime Security Regime," *The Korean Journal of Defense Analysis*, vol. 19, no. 3 (Fall 2007).
- Li Mingjiang and Zhang Hongzhou. "Restructuring China's Maritime Law Enforcement: Impact on Regional Security." *RSIS Commentaries*. No. 050/2013 dated 1 April 2013.
- SebastienFalletti, "South Korea delays Spike NLOS deployment," *Jane's Defence Weekly*, 28 November 2012.
- James Hardy. "China Rejected Philippines' Arbitration Tribunal on South China Sea Issues." *Jane's Defence Weekly*. 22 February, 2013.
- Carlyle A. Thayer. "China at Odds with U.N. Treaty." *USNI News*, Monday. March 11. 2013. <http://www.bloomberg.com/news/2012-03-04/china-says-defense-spending-will-incre....> released 2012-10-31
- <http://www.un.org/News/Press/docs/2012/ga11323.doc.htm>.
- <http://www.aseansec.org/16888.htm> and <http://www.aseansec.org/16885.htm> and <http://www.aseansec.org/documents-20185-DOC.pdf>. released April 23, 2013.
- <http://news.usni.org/news-analysis/news/chinas-700-ship-navy>, released February 6, 2013

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