

# 歐慶賢 教授 漁業管理研究室



## 一、沿革與特色

309研究室由歐慶賢教授主持，民國78年代自日本北海道大學獲得水產學博士學位後，於民國78年再度回母系服務並成立本研究室，迄今已有20餘年。早期國內漁業科學研究發展蓬勃，但漁業管理這塊領域的研究卻相對較少。因此，本研究室選擇走上這條研究的不歸路，為國內漁業學術研究開啟一個嶄新的領域。



歐慶賢教授治學嚴謹，同時相當重視學生待人接物與為人處事之人格培養，並強調身體力行、以身作則的研究態度，讓學生在一齊作研究的過程中，不斷的潛移默化，而在各方面有所精進，達到知書達禮，從而確立作人作事紮實雄厚之根基。

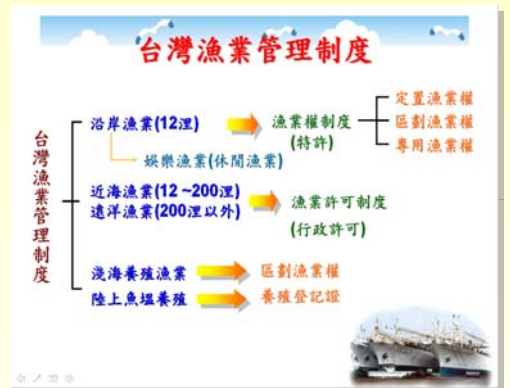
## 二、研究方向

本研究室是以漁業社會科學領域為發展主軸，理工為輔，相較於系上其它研究室之研究領域，獨樹一幟。經過多年的耕耘，本研究室的研究業績與內容已有一定的評價，並持續鑽研國際漁業管理最新動態與趨勢之研究，隨時掌握國際脈動並與國際接軌，例如：沿岸帶綜合管理、基於生態系的漁業管理等。



## 三、研究內容

本室之主要研究項目包含漁業管理、漁業法規、漁業政策、漁具漁法、大陸漁業政策與管理、休閒漁業等，探討漁業管理之相關問題，研究結果對於漁政部門在進行決策與施政時，均能提供重要的科學依據與建議。最近執行之研究計畫如下：



- 一、臺灣漁業科技追求卓越之規劃研究-海洋漁業政策之規劃；
- 二、雲林及澎湖雞善嶼沿岸海域專用漁業權整體計畫；
- 三、全球漁業管理趨勢分析及我國漁業政策因應調整之研究；
- 四、兩岸漁業競合關係研究；
- 五、我國漁業產業經營與投資佈局之研究-日本漁業所得補貼政策研究；
- 六、海峽光纜1號(TSE-1)海纜系統路由海域海洋生態與漁業影響評估；



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# Ocean & Coastal Management

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## The fishery agreements and management systems in the East China Sea

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### 1. Introduction

The rich fishery resource of the East China Sea makes it the most important fishing ground in the East Asia and one of the most productive fishing grounds in the world. Its access is important to the surrounding regions such as Taiwan, China, Japan, and South Korea and leads to many fishery disputes. In addition, following the adoption of the United Nations Convention on the Law of the Sea 1982 (UNCLOS),<sup>1</sup> States began to declare their 200 nautical mile Exclusive Economic Zones (EEZ), resulting in disputes over overlapping EEZs. In the East China Sea, since more than 400 nautical miles separate Taiwan in the south and South Korea in the north, there is no problem of overlapping EEZs between these two Parties. While China, South Korea and Japan's EEZs overlap in the northern part of the East China Sea, the problem has been gradually resolved over time; in the southern part of the East China Sea where EEZ overlap between China, Taiwan and Japan, the problem remains to be resolved. The purpose of this paper is to examine the fishery relations between the Parties surrounding the East China Sea, the problems and mechanisms involved in the joint management of East China Sea's fisheries as well as how the New Sino-Japanese Fishery Agreement under the EEZ framework affects third States and possible solutions.

### 2. The ecology of the East China Sea

The East China Sea is located on the eastern side of Asia. Its boundaries are approximately 25°N ~ 40°N latitudes and 119°31'E ~ 129°30'E longitudes [1]. Its length along the south–north axis is

approximately 630 nautical miles and its width along the east–west axis is between 150 and 360 nautical miles [2]. Covering approximately 1,243,190 km<sup>2</sup> [3], the East China Sea spans the temperate and sub-tropical zones and is an elongated body of seawater bounded by islands such as South Korea's Cheju Island (north), Japan's Kyushu (east-north) and Okinawa (east) as well as Taiwan (south), in addition to the continent of Mainland China (west) [3]. Under the UNCLOS it is defined as a semi-enclosed sea [4]. The average depth of the East China Sea is 370 m, its maximum depth 2332 m [5] and it is a marginal sea with an extensive continent shelf [6]. The continental shelf area accounts for 81% of total area [7]. China's Yangtze and other rivers empty into the East China Sea. The "Kuroshio Current" also passes through the area, so the interaction with Kuroshio's high temperature and high salinity water results in a high level of biodiversity and primary productivity [8], creating excellent fishing grounds [9]. It is estimated to have over 800 species of fish in the area, with 40 ~ 50 of them with high economic value such as yellow croakers and squids.

For China, its catch from the East China Sea in 1950 was 182,000 tons and rapidly increased to 1.608 million tons in 1984 and 6.254 million tons in 2000. Between 1984 and 2000 the average annual catch was 3.5471 million tons, accounting for 42.70% of all Chinese catch from the sea [5, p. 750–51] and making the East China Sea a very important fishery zone for China.

The main Parties involved in working the East China Sea's fisheries are China, Japan, South Korea and Taiwan. The East China Sea is an important fishing ground for trawlers but long-term exploitation has led to decrease in Catch Per Unit Effort (CPUE), smaller fish sizes, change in composition of fish stock, and withdrawal of fishing vessels. These are all signs of over-exploitation and depletion in fishery resources [10]. With many countries all competing to exploit the area's fishery resources, there was no proper management of fishery resources in the East China Sea before China, Japan and South Korea signed their new Fishery Agreements.

Traditionally the East China Sea's "Four Main Fishery Resources" were the large yellow croaker, small yellow croaker, hairtail, and

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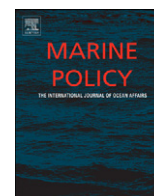
<sup>1</sup> Article 308 of the United Nations Convention on the Law of the Sea: "This Convention shall enter into force 12 months after the date of deposit of the sixtieth instrument of ratification or accession." The UNCLOS came into force on 16 November 1994.



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## Taiwan and China: A unique fisheries relationship

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### ABSTRACT

Taiwan and China have a long history of sharing marine resources in the China Seas. However, due to political issues, the two sides have yet to formalize collaboration and interaction despite such a close geographical relationship. The lack of formal collaboration means they cannot manage fisheries or conserve resources as a team. The lack of collaboration in the regional fisheries management organizations also means a mutually beneficial situation for the two sides is yet to be achieved. Recognizing this, the two sides began negotiations in 2008 and have since signed agreements on fisheries co-operation projects. This paper discusses the unique fisheries relationship between Taiwan and China, and the characteristics of their fishing industries. The paper also presents the latest update on the collaboration between the two sides. Finally, this paper proposes practical solutions for resolving outstanding issues between the two sides' fishing industries.

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### 1. Introduction

Since 1989, China has led the world in terms of total national fisheries production (from capture fisheries and aquaculture), with its current production accounting for a third of the world's total. Its aquaculture industry is the largest in the world. At the same time, Taiwan has one of the world's most renowned distant water fishing fleets.

Taiwan and China became two independent areas in 1949 and are geographically separated by the Taiwan Strait. The widest part of the Strait is 120.8 miles, the narrowest 72.2 miles, with the average width being 108.8 miles [1]. This geographical proximity means that fishers from Taiwan and China have long shared the marine resources in the China Seas, especially the East China Sea, the Taiwan Strait, and the South China Sea (see Fig. 1), and the two sides historically share a close fisheries relationship.

Two sides of the Strait have been politically segregated for over 60 years and the shared waters and overlapping fishing grounds in between have meant a long experience of disagreements, including disputes over fisheries and emergency evacuation and rescue. As the political relationship between Taiwan and China becomes less sensitive, the interaction between the two populations has also started to increase. However, there remain many issues yet to be resolved, such as the co-management and sharing of marine resources, ongoing fisheries disputes, and the supply of labor for the fishing industry. Non-fisheries related issues, such as smuggling and illegal immigration, also have a major effect on the security and operations of fishing vessels so these too must be resolved.

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From total quarantine and segregation to now frequent interaction between their citizens, the governments of the two sides now have a more open attitude to their relationship. This in turn has had an effect on the development of the fishing industries, and industry members from both sides now conduct regular exchange visits. The Chinese government is keen to learn more about Taiwan's marine regulations, such as the fishery rights and the Fishermen's Association regimes, the recreational fishery, the tuna and squid industries, cage and grouper (*Epinephelus areolatus*) aquaculture, and offshore aquaculture of abalone, and the industry's processing techniques. Similarly, Taiwan is interested in China's mid-summer fishing moratorium, its geological resources, hatchery space, labor force and low-priced raw materials. The fishing industries of the two sides should continue to positively engage for each other's mutual benefit. This will have a positive impact on the industries' long-term sustainable development.

This paper aims to discuss the characteristics of the fishing industries in Taiwan and China and the unique fisheries relationship between the two sides. The paper also presents the latest update on the collaboration between the two sides. Finally, this paper proposes practical solutions for resolving outstanding issues between the two sides' fishing industries.

### 2. The political relationship between Taiwan and China

In 1894, the First Sino-Japanese War broke out between Man Qing of China and Japan,<sup>1</sup> and after Man Qing lost the battle, Taiwan was ceded to Japan<sup>2</sup> and became a Japanese colony [2]. In

<sup>1</sup> The First Sino-Japanese War lasted from 1894 to 1895.

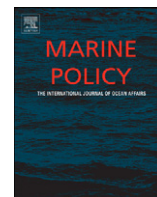
<sup>2</sup> According to the Treaty of Shimonoseki.



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## Marine Policy

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## Precious coral fisheries management in Taiwan—Past, present &amp; future

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## ABSTRACT

Taiwan used to have the biggest precious coral fisheries industry in the world. However, due to changes in the fishery, including increased fishing restrictions and the replacement of obsolete vessels, the scale of the industry had been gradually reduced since 1979. Unfortunately, the initiative proved to be poorly managed and resulted in an increase in illegal, unreported and unregulated (IUU) coral fishing. This forced the government to review and amend the precious coral fisheries management regulations, which had been in place for decades. The Taiwanese government introduced stringent monitoring, control and surveillance (MCS) management methods, already used in deep water fisheries, as a precautionary approach. At the same time, an investigation and evaluation of existing resources was carried out. Together, these initiatives were introduced in order to encourage the domestic industry to adopt the concept of ecosystem-based fishery management.

This paper reviews the development of precious coral fisheries management in Taiwan, discusses the causes of illegal coral fisheries and looks at the reasons for adjustments to the current management system. Further issues that need to be resolved will also be discussed based on the relative success of the management implementation following the adjustments. Finally, research topics and priority initiatives will be proposed for the future management of Taiwan's precious coral fisheries.

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## 1. Introduction

Corals play a vital part in marine ecosystems, including providing habitat for numerous species and creating physical structures. In addition, neritic coral reef zones support productive fisheries and the areas have been dubbed the 'tropical rainforests of the sea'. Furthermore, the rarity and exquisiteness of precious corals (also called 'priceless corals') make them one of the seven treasures in Buddhist scripture.<sup>1</sup> These precious materials can be used to make a variety of valuable jewelry and have been deemed a symbol of power and wealth. They are also said to have the power to fend off misfortune and evil spirits, bring luck, and protect one's wellbeing; they are, therefore, of very high economic value.

Taiwan used to have the largest precious coral fisheries industry in the world [1]. However, the scale of the industry has been gradually reduced since 1979 as a result of fisheries restrictions and the replacing of obsolete vessels with new ones [2]. Research carried out in 2007 showed that the number of vessels fishing illegally surpassed the authorized ones by as many as 30 times [3]. This forced the government to review and amend

the precious coral fisheries management regulations, which had been in place for decades. However, in order to restrict public awareness about this issue, the government weakened the intended management measures whilst still carefully monitoring the catch and thoroughly evaluating the resource. This contradictory behavior was controversial and attracted heavy criticism from environmental conservation organizations with an interest in the marine environment.

Through reviewing the development of Taiwan's precious coral fisheries, this paper aims to discuss the causes of growing illegal, unreported and unregulated (IUU) coral fishing and look at the reasons for adjustments to the relevant regulations. Based on this review, the paper will then assess and evaluate the stringent controls employed by other parts of the industry, such as the deep water fisheries, as well as look at the tangible results from management systems that adopt international standards. Finally, areas for improvement and future objectives will be proposed.

## 2. Development of Taiwan's precious coral fisheries

Compared with countries like Greece, Spain, France, Italy and Japan, the precious coral fisheries industry in Taiwan has been established for a relatively short time. According to a Taiwanese fisheries publication, in 1923 Japanese longliners retrieved fishing equipment that had hooked coral. This was the coincidence that

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<sup>1</sup> The seven treasures in the Buddhist's scripture refer to: gold, silver, lazurite, glass, agate, coral and pearl.



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## The evolution and trend of the traditional fishing rights

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### ABSTRACT

“Traditional fishing rights” were once universally accepted by the international community. However, under a regime of Exclusive Economic Zones (EEZs) defined by the United Nations Convention on the Law of the Sea (UNCLOS) in 1982, these rights were treated as a reasonable allocation of the surplus of the total allowable catch (TAC) or dependence on phase-out arrangements in bilateral fisheries agreements. This has caused the gradual marginalization of traditional fishing rights. This paper analyzes the transformations and trends affecting the development of fishing industries around the world, especially the growth and decline of traditional fishing rights and EEZs.

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### 1. Introduction

“Traditional fishing rights” or “historical fishing rights”<sup>1</sup> refer to where fishermen of a particular state have habitually fished in a specific section of international waters over a long period. Now, however, these waters have come under the jurisdiction of coastal states and the fishing rights are held by those EEZs.

Prior to the 1970s, long-standing international practice gave littoral states exclusive fishing rights in their own coastal waters but also respected the traditional fishing rights of the other states in the same waters. Traditional fishing rights gradually developed to become customary international law. In 1982, the UNCLOS established the EEZ regime. Under this regime, coastal states have exclusive rights to all natural resources, including fisheries up to 200 miles from the baseline, and third states may not enter the EEZ to exploit or survey any natural resources without the permission of the coastal state.

The creation of the 200-mile EEZ regime has meant that 37,745,000 square miles of water are now incorporated into the EEZs of coastal states, equivalent to 36% of the world's oceans. Although 63% of the ocean remains high seas, EEZs of littoral countries possess over 90% of global yield. This shows just how much of an impact EEZs have had on the international fishing industry. Although traditional

fishing rights were generally accepted by the international community prior to 1970s and were part of customary international law, the traditional fishing rights of third states in coastal states' EEZs were not mentioned in the UNCLOS. This omission is thought provoking. It has hampered the stable sustainable development of the global fishing industry, which is certainly the best approach to ensure the food security of the world's constantly growing population. As traditional fishing rights affect the development of the global fishing industry, it is necessary to explore their evolution, trends and underlying significance.

### 2. Long-term practice of traditional fishing rights

Fishing rights have been closely correlated with territorial seas during the development of the order of the sea. Since ancient times, coastal dwellers have taken advantage of their location to conduct fishing activities as an important avenue for sustenance. The importance of marine fisheries to these people has gradually led the drive by coastal states to place coastal fisheries under their own control.

In long-term international practice, coastal states have the power to grant their own nationals exclusive access to fish in their coastal waters, while restricting fishermen from the other states from operating in these waters. In 1609, Hugo Grotius published “*Mare Liberum*” and established the principle of freedom of the seas. By the late 17th century, the right of a coastal state to exercise sovereignty over a narrow belt of water adjoining its coast was also recognized [2]. In 1613, William Welwood concluded that a country's people have a basic right to fish in their coastal waters and exclude others from doing so. This is because coastal stocks will risk extinction if all people are allowed to fish wherever they wish [3]. This was in line with the reasoning for government-imposed allowable catch quotas later on. As fish stocks are a renewable resource their exploitation

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<sup>1</sup> There is no explicit definition of the “traditional fishing rights” or “historical fishing rights” in any international convention. Though Part IV of the 1982 UNCLOS does mention the traditional fishing right of archipelagic States, no definition was provided. The authors derived the definition used in this paper by collating the relevant regulations from certain states' domestic legislation as well as bilateral/multilateral agreements.