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Building a cross-strait cooperation mechanism for the conservation and management of fishery resources in the South China Sea

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ABSTRACT

Fishery resources in the South China Sea play an essential role in the economic and social development of Mainland China and Taiwan as well as the conjunct regional communities. Beyond the sovereignty disputes and competing maritime claims, the over-exploitation and unregulated harvesting of fishery resources are placing serious pressures on the health and security of the South China Sea ecosystem. This article argues that sub-regional cooperative actions with a regional thinking were deemed effective approaches for the sustainable development of regional fisheries before the establishment of regional arrangements. The lack of collective approach for fisheries conservation and management in shared waters means that a mutually beneficial situation for Mainland China and Taiwan is yet to be achieved. An integrated and collaborative mechanism for cross-strait fisheries cooperation and ecological management is urgently needed. This article analysis the major factors that could enable the ultimate success of cross-strait cooperation on fisheries issue in the South China Sea areas. In addition, a prudent stepwise approach and viable actions which the two sides should undertake to conserve and manage the fishery resources are also discussed. Finally, the article proposes a coordinative and cooperative mechanism for Mainland China and Taiwan towards the sustainable conservation and co-management of fishery resources in the South China Sea waters, as well as the sound measures for learning, exchanging and capacity building of the two sides.

1. Introduction

The South China Sea is a large semi-enclosed sea bordered by Mainland China and Taiwan, Philippines, Malaysia, Brunei, Indonesia, Singapore and Vietnam (Schofield, 2013). It's one of the world's richest marine biodiversity areas, with abundant and diverse marine resources, for example, more than 2500 species of marine fishes and 500 species of reef-building corals present (UNEP, 2005). High marine biodiversity therefore sustains stable ecosystem functioning, and ecosystem functions provide ecosystem services that benefit human society (Chapin et al., 1997; Paterson et al., 2012; Herman et al., 2015). The South China Sea is an important source of livelihood and economic activity for regional countries and regions, which are dependent on its resources such as space, fisheries, and other ecosystem services (Pejsova, 2014). Fisheries contribute approximately 65% of the animal protein consumed in countries such as the Philippines, Malaysia, and Indonesia (UNEP, 2005). Mainland China and Taiwan are bordering the north of the South China Sea. There are more than 186 million people living in the coastal region (National Bureau of Statistics of China, 2013). The living resources of the South China Sea are essential to the socio-economic development and people's well-being of the adjacent communities of the two sides. The South China Sea is one of the most important fishing grounds for tropical marine fisheries of Mainland China and Taiwan. The potential annually catch in the South China Sea is up to 6.5–7.5 million tons (Wang, 2010). The harvest of Taiwan fisheries in the South China Sea had been more than 4 million tons in 2000 (LME, 2004). However, rapid industrialization and population growth, accompanied with complex political situations, are exerting increasingly serious pressure on the sustainable development of common

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resources and ecosystem balance. There are reasons for concern as regards the state of the fishery resources, with two-thirds of the major fish species and several major fishing grounds already fully or overexploited, such as sharks, bill-fish and other pelagic species, and highly migratory species and straddling stocks of tuna are most affected (FAO, 2014). There is widespread use of destructive fishing methods such as blasting and poisons, which is having severe environmental impacts. Also, benthic trawling had adverse direct effects on the habitats and biodiversity (UNEP, 2005). Given the above unsustainable exploitation of fishing resources, there is expected to be significant environmental deterioration with severe economic and social impacts in future.

Although the South China Sea littoral countries and communities have enhanced the integrated coastal and ocean management through enacted regulations and environmental control, the South China Sea lacks formalised cooperative instruments that integrate and coordinate efforts by littoral states at managing and protecting the marine living resources, and regulating marine economic activities (Naess, 1999). First of all, a lack of political will of surrounding parties of the South China Sea to collectively address the marine environmental and ecological issues leads to practical problems so as to hinder the extensive cooperation. The cooperative fishery management is hardly among the top priorities of regional affairs due to political differences. The existing global regimes regarding fisheries and the regional systems have been less proactive at the sub-regional, national and local levels. As for the Mainland China and Taiwan, they also respectively took a number of measures to improve the sustainable development of fishery resources, no stable cooperative mechanism has been established. In recent years, with the rapid development of cross-strait economic relationship, Mainland China and Taiwan have gained great progress in building systematic mechanisms to enhance cross-strait cooperation, such as the cross-strait direct flight and validation of the Economic Cooperation Framework Agreement (ECFA) (Xinhuanet, 2010a). Under current circumstances, the peaceful development of cross-strait relations has become the main stream for long term, which will create good policy environment and provide practical support for cross-strait community's extensive communication and institutional process in the cooperation on fisheries.

Fisheries co-management has been viewed as a crucial element of ecosystem-based management, and a multifunctional solution of complex resources issues through the development of innovative institutions and policies to promote sustainability (Castrejón and Charles, 2013; Linke and Bruckmeier, 2015; Makino et al., 2009). Much of the late academic literature presents theoretical and empirical discussion of conditions, paradigms and methods of the fisheries co-management, and provides experiences with cases from many parts of the world (Chuenpagdee and Jentoft, 2007; Jentoft, 2005; Ou and Tseng, 2010; Pomeroy et al., 2001; Wamukota et al., 2012). Under the complex political and ecological circumstances of fisheries in the South China Sea, whether and how can transboundary co-management of fishery resources on sub-regional level be effectively advanced towards sustainability? It is important to reiterate that the fishery resources will be subject to a particular type of institutional arrangement (Jentoft and McCay, 1995). Central to the implementation of fisheries co-management is the design of new structures (Nunan et al., 2015; Wilson et al., 2010), bringing together interest groups for decision-making and implementation (Wilson et al., 2006). This article therefore aims to explore a cooperative mechanism for Mainland China and Taiwan to sustainably conserve and co-manage the declining fishery resources in concerned waters of the South China Sea. It will first review the current status of fishery resources of the two sides, underlining the main threats and obstacles to be resolved. A comprehensive analysis was also conducted on the feasibility of cross-strait fisheries cooperation in the South China Sea, including the rationale for this geographical sub-regional cooperation and its influencing factors. Finally, this paper proposes a coordinative and cooperative mechanism for Mainland China and Taiwan towards the sustainable conservation and co-management of fishery resources in the South China Sea waters.

2. Status of cross-strait fisheries in the South China Sea

2.1. Common threats and challenges

The health of the South China Sea ecosystem is in serious decline due mainly to coastal industrialization and dense maritime activities. Overfishing, destructive fishing, marine pollution, and the degradation of unique natural habitats are widespread problems around this region. According to the world review of Food and Agriculture Organization (FAO, 2014), the South China Sea is among the most over-exploited ecosystems in the world, accounting for over 10% of global fishery production. In addition, intensive offshore aquaculture and coastal development have led to the loss of 65% of coastal mangrove forests, which are the home to young pelagic fish such as tuna. Many fish nursery areas and breeding grounds are being degraded. Moreover, because of the absence of most maritime boundaries, there are increasing conflicts between user groups for shared resources. The overlapping claims to maritime zones make it impossible to decide the responsibilities of littoral states for the protection and management of marine resources, and nearly no sense of joint responsibility between countries exists. This situation sounds very much like the so called “Tragedy of the Commons” (UNEP, 2005). Rapid economic development and continued population growth, alongside a lack of political will to address environmental issues, are now placing increasingly serious pressure on the region's maritime commons (Pejsova, 2014).

As Mainland China claims the most areas of the South China Sea, advanced technology and enhanced capacity enable it to engage in large-scale of fishing activities in this area. Growing demands for and competition over fishery resources are encouraging unsustainable commercial harvesting, such as bottom trawling and dynamite fishing. Offshore fishery resources are suffering increasingly degradation. Fishery is also a pillar industry of Taiwan economy, especially the pelagic fisheries. Taiwan authorities had not given enough attention to fishery resources protection in the past, and failed to curb its overcapacity of fishing, waters around Taiwan has been developed completely now (Liu and Deng, 2014).

Furthermore, the provisions of Exclusive Economic Zone (EEZ) of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) have had the greatest influence on the structure of fisheries policies in national and international areas (Ablan and Garces, 2005). The South China Sea littoral states claimed their jurisdiction and rights to exploit marine resources based on this international agreement, and strengthened competition of fishing activities within their claimed areas before the ocean demarcation. Tensions over conflicting sovereignty claims in the South China Sea have significant impact on Taiwan's traditional pelagic fishing by limiting its development space (Xinhuanet, 2010b).

The geographical proximity means that fishers from Taiwan and Mainland China have long shared the marine resources in the South China Sea (Tseng and Ou, 2010). Fisheries products are the major source of high-quality protein and income for Mainland China and Taiwan society. Also, fisheries play an important role in the ecological security and health of the two sides in the South China Sea. Regulatory measures, which if conducted in a