Issue-oriented Framework for Marine Spatial Planning: A Case Study of Koh Lan Island, Thailand

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The world seas are overcrowded due to demands from existing sea uses and emerging ones. To balance the growing development needs and marine conservation, marine spatial planning (MSP) is adopted as an effective resource management tool worldwide. Extensive data lays the foundation of successful planning. However, large data gaps remain, which impedes the successful implementation of MSP. The situation is even worse in small islands because there is neither enough examples to follow nor sufficient datasets, though there is clear need of MSP due to prominent conflicts brought by development and conservation. Here we proposed an issue-oriented framework of MSP for spatial zoning to deal with the constraint of data limits on small islands and applied it successfully to Koh Lan, Thailand, where faces the dilemma of tourism growth and deterioration of marine ecosystem and resources. We highlight lessons learned that: (1) data-driven MSP is fundamental to improve scientificity; (2) issue-oriented MSP is an effective way of regional marine management and (3) coordination between government and stakeholders is an important guarantee to promote the implementation of MSP.

The assessment techniques of carrying capacity of marine fishery resources based on primary productivity

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Carrying Capacity of Resources and Environments refers to the population and economic scale that can be carried by the resource endowment and environmental capacity of a certain regional space. The evaluation of carrying capacity of marine fishery resources is still lack of standardized analysis approaches. In this study, the evaluation model and method of carrying capacity of marine fishery resources were established by using the improved "nutrition dynamic model" and "coastal area energy flow model" with key parameters such as primary productivity and trophic level. Taking Laizhou Bay as an example, the fishery resources were divided into “fish, shrimp, crab and cephalopod” and “shellfish resources” in beach and coastal waters, respectively. The resources of "fish, shrimps, crabs and cephalopods" were 291,000 tons and the carrying capacity was 513,900 people according to the "nutrition dynamic model", while the resources of shelled shellfish in the shoal and the shallow sea within -10 m isobath were estimated to be 1.376 million tons, and the carrying population was 2.4515 million people according to the "energy flow model of coastal waters", respectively. The carrying capacity of marine biology resources in Laizhou Bay was 2.9655 million people. This study provided a technical support for the scientific development of marine fishery resources and implementing integrated coastal zone management.

Assessment of Ecosystem Services of Rudong Mudflat and Aoshan Bay Coastal Area

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Component 4 of the YSLME Phase II Project addresses improving ecosystem carrying capacity with respect to supporting services. To maintain the current habitats of critical global and regional importance and reduce the loss of coastal and marine habitats and associated species in support of achieving SDG 14 and implementing CBD, RAMSAR and other relevant Conventions, we conducted the assessment of ecosystem services both of Rudong Mudflat and Aoshan Bay which is subject to reclamation with different approaches. The study on ecosystem services of Rudong Mudflat aimed to present a method for cooperative decision-making among ecosystem service stakeholders using Rapid Assessment of Wetland Ecosystem Services (RAWES) approach. This approach assesses value in purely nominal terms, with no intent to convert this into a quantifiable or monetary metric. Through the use of simple graphics, the application of the RAWES approach assisted significantly in demonstrating the importance of wetlands to decision-makers in Rudong. For assessing the ecosystem services of Aoshan Bay, we monetized provision services, regulating services, cultural services and supporting services according to the Technical Guidelines for Marine Ecological Capital Assessment, which is used as China national standards. The assessment results of Aoshan Bay represented the baseline conditions at a point in time. The information provided by this study will have great assistance in the decision-making for local government within the urban planning context.

Research on the legal path to improve the Land-Sea coordination system and safeguard maritime security in China under the overall National Security View

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The 19th National Congress of the Communist Party of China proposed to adhere to the overall planning of land and sea and build a maritime power. Comrade Xi Jinping has pointed out that national security is an important cornerstone for ensuring stability and stability of the country, and safeguarding national security is in the fundamental interests of the people of all ethnic groups in China. Since the beginning of the 21st century, the role of oceans in safeguarding national security and development interests has risen sharply. Coastal countries have begun to develop and utilize oceans on a large scale to enhance their comprehensive strength. This paper introduces the historical evolution of China's maritime security consciousness under the background of the overall national security concept, analyzes the reasons for China's backwardness in handling the ocean in modern times, and points out the effective path for China to maintain maritime security and national overall security by improving the maritime legal system and actively participating in international and regional cooperation.