

CENTRE FOR COASTAL AND MARINE ENVIRONMENT

RESEARCH PROJECTS AND SUMMARY OF FINDINGS

An Assessment of Fisheries Management in the Sulu Sea: Issues, Challenges and the Way Forward

More specifically, the Sulu Sea is one of the most important and abundant commercial fisheries areas in the world, playing a critical role in the food security and the economies of the states in the area. Straddling fish stocks predominate in this area. In principle, no single state owns these common pool resources which render fisheries management in the region difficult. Properly managed fisheries resources can produce long-term sustainable yields and ensure continuous economic activities and employment. The fishing capacity in the Sulu Sea is however in excess and the fishery resources are in a state of overexploitation with many of the coastal pelagic and demersal fish stocks fully exploited or overfished. This is evident in the increasing proportion of low-value species and juveniles of high-value species being caught. Additionally, there are also challenges from illegal, unreported and unregulated (IUU) fishing and destructive fishing practices. Some of the large pelagic in the area are considered as migratory fish stocks and need to be further examined and sustainably managed at the regional level. Based on these assessments and analyses in the study, recommendations were made towards addressing the issues and challenges and improving fisheries management in the area.

Fisheries in the Sulawesi Sea: Options for improved management

The Sulawesi Sea is one of the most diverse ecosystems in the world due to its high biodiversity especially coral reefs and associated marine ecosystems. It is also a rich fishing ground from which a complex combination of traditional and large-scale fisheries has flourished. The fisheries in the area provide support to about 20 million coastal communities and contribute significantly to the economies of the littoral states of Indonesia, Malaysia, and the Philippines. This project analysed the pelagic fisheries profile in the Sulawesi Sea and the management efforts towards sustainable management of pelagic fisheries in the area. Overall, the marine wealth in the Sulawesi Sea is increasingly threatened by overfishing and overcapacity, along with associated problems of illegal, unreported and unregulated (IUU) fishing, habitats modification and increasing effects from global climate change.

It was apparent from both the above mentioned studies that the Sulu and Sulawesi Seas areas face similar issues and threats especially on the fishery resources. There is a need for continuous emphasis on achieving sustainable fisheries management in the region. Efforts should be focused on synergising experts and management resources among the three littoral countries bordering the area, adopting a harmonised ecosystem approach to fisheries management, considering the creation of a regional network of conservation areas to protect fisheries habitats and nursery grounds as well as rehabilitating and restoring degraded coastal areas, empowering human resources and focusing on capacity building to address the challenges faced, enhancing fisheries research and information sharing among the countries around this LME, enhancing IUU fisheries monitoring and control through joint efforts across borders, strengthening awareness programmes for the communities, adopting environmentally friendly aquaculture practices, enhancing fisheries research and information sharing, as well as forging collaborative fisheries management efforts for shared stocks in the area. In addition to these areas, there is an ever increasing need for greater attention to studies involving effects of global warming and climate change on sustainable fisheries management in the area.

Overall, this study recommends for the continuation of efforts under the Sulu - Sulawesi Marine Eco-region (SSME) programme in the area, which is coming to an end in 2017. Although financial limitations are amongst the major constraints, it is important for all member countries to consider the benefits and advantages of a collaborative effort especially considering the transboundary issues faced on sustainable (pelagic) fisheries management in the LME area. This should be in addition to the Coral Triangle Initiative (CTI) in the larger area involving the six member countries. The alternate option however would be to strengthen implementation of efforts under Goal 1 (Seascapes) for the area under the CTI.

Coastal Blue Carbon: Policy and Management Options for Malaysia towards Prioritising Coastal Ecosystems Protection

Blue carbon is an emerging issue being discussed at various international and regional forums and programmes that look into climate change mitigation efforts, with numerous reports on both scientific and policy areas published in recent time. Specific work undertaken on blue carbon at the national level is however still limited to mostly at its infant stage. Emphasis and interest on blue carbon is however emerging in Malaysia, especially as a means to mitigate impacts of climate change, in addition to national obligations to the United Nations Framework Convention on Climate Change (UNFCCC) and related mechanism such as the Reducing Emissions from Deforestation and Forest Degradation (REDD+), as well as a means to indirectly support some of the activities and efforts under the CTI concerning climate change mitigation, and the National Climate Change Policy 2009. This study looked at the current situation and provided recommendations on incorporating blue carbon into national conservation strategies especially involving mangroves protection.

Although conservation is high on agenda at the national level, there are still various gaps and challenges that would need to be filled, and concerns addressed to ensure appropriate and adequate implementation would take place on coastal ecosystems to reduce the potentially significant emissions from their conversion and degradation. In general, there would firstly be a need to focus on increasing national understanding and capacity on the technical, policy and institutional aspects of emissions and removals of blue carbon sinks and reservoirs at the national level to ensure blue carbon is comprehensively included into the national level mitigation activities. More specifically, this study recommended increasing of the importance of coastal habitats for ecosystems services specifically including carbon sequestration and storage and the potential for increased emissions when these systems are degraded; analyse coastal carbon potentials in Malaysia towards developing national blue carbon action plans by identifying the opportunities, needs and limits; incorporate coastal blue carbon into existing coastal conservation initiatives, planning and management guidelines through a coordinated framework which includes also cross-sector planning; develop policy measures and financial incentives to enhance climate change mitigation through conservation and restoration of coastal ecosystems as part of national climate change mitigation efforts, as well as identify priority areas and pilot projects for carbon in coastal ecosystems to demonstrate implementation.

Shrimp Farming vs. Mangrove Conservation: Economic Valuation for Sustainable Management

The continuous destruction of mangrove forests due to the non-sustainable shrimp farming has brought adverse externalities to the ecosystems as well as socio-economic issues. Some local communities depend on mangrove for food, charcoal, construction materials, and employment. This study examined whether the full conversion of mangroves into commercial shrimp aquaculture farms is worthwhile taking into account its environmental

impacts. An analysis of a mangrove system in the selected study areas shows that conversion to shrimp farming make sense in terms of short-term private benefits. The internal benefits of developing the shrimp farm are higher than the internal costs in the ratio of 1.5:1. However, when broader environmental impacts are more comprehensively evaluated, the external benefits are much lower than the external costs in a ratio that ranges between 1:6.

The results show that although shrimp farming generated huge private benefits, it is not very economically practicable when the externalities created by mangrove destruction and water pollution are included. As a policy recommendation, the silvofishery system (combination of mangrove planting with the diversified aquaculture approach) can countervail the needs of shrimp farming and at the same time conserving mangroves in Malaysia. Advance technology consumption, such as water paddles at specific points to prevent high waste, advanced water treatment systems, as well as new technology on algae waste treatment, should help in preventing water pollution. In addition, there is no need to find new mangrove sites for shrimp farming purposes. Such initiatives can ensure sustainable long-term shrimp farming aquaculture, especially in mangrove ecosystems.

Fisheries Sector Subsidies and Their Impacts on Resource Management in Peninsular Malaysia

The fishing industry receives billions of Ringgit annually in subsidies as a means to continue fishing activities, especially for small scale fishermen. However, much of the subsidies are not allocated properly to fishermen who are supposed to receive them. A study was conducted to see the relationship between fisheries sector subsidies and their impacts on resource management in Peninsular Malaysia. The objective of this study was to assess the management used in the planning on fisheries and subsidies, examine the impacts of fisheries subsidies on ecological resilience and economic profitability, as well as review the basic issues relating to fisheries degradation from the implementation of subsidy programmes. The study showed that the livelihood of fishermen is heavily supported by subsidies, particularly fuel subsidies, catch incentives, and living allowance. Fuel subsidies represent between 63.8% and 84.5% of fishermen's net revenue, catch incentive about 10.0% of their monthly income, and living allowance form about 25.0% of coastal fishermen's income. In addition, the fishing effort is also heavily supported by fuel subsidies which this study shows have negative impacts on the depleted fish stock. This implies that to balance the availability of seafood in Peninsular Malaysia due to high fishing effort, sustainable marine aquaculture can be introduced to commercial fishermen. It was noted also that fish stocks have improved through the distribution of artificial reefs at potential fishing areas.