

Ensuring the Sustainability of Small Pelagic Fishery in the Southeast Asian Region

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In the case of shared stocks, over-fishing in one area may lead to remarkable resources reduction in the whole area. The small pelagic stock in the South China Sea is strongly believed to be shared among countries bordering this ecosystem. Therefore, under the Japanese Trust Fund II program, collaborative efforts among SEAFDEC participating countries was considered crucial to ascertain this belief and to ensure efficient management of the stock. The second phase of the “Tagging Program for Economically Important Pelagic Species in South China Sea and Andaman Sea” (2007-2011) focused on tagging experiments to confirm the existence of subpopulation of the selected four pelagic fish species, namely: the Indian Mackerel (*Rastrelliger kanagurta*), Indo-Pacific Mackerel (*R. brachysoma*), Japanese scad (*Decapterus maruadsi*) and shortfin scad (*D. macrosoma*). Outcomes from this program could be used as scientific evidence to support the management of small pelagic fishery in the Southeast Asian region.

Regional Cooperation

SEAFDEC Secretariat, MFRDMD, TD and MFRD were involved in the program implementation from 2002 to 2006. Seven countries bordering the South China Sea, *i.e.* Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Thailand and Vietnam participated in the program.

Twenty-six sampling sites were identified in these countries for biological studies on the major small pelagic species groups such as mackerels and round scads.



Participants of the 3rd Core Expert Meeting on Tagging Program of Small Pelagics in March 2010

This Tagging Program is a sequel to the project on “Information Collection for Sustainable Pelagic Fisheries in the South China Sea”, which was part of the first phase of the Japanese Trust Fund (JTF) II program formulated as part of the follow-up action after the 2001 “ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium”. The project’s goal was to acquire information that would clarify the actual status of operation and catches of purse seine fishery targeting pelagic fishes and the biological characteristics of the pelagic fish resources. The project also examined the existence of under-exploited pelagic resources to maximize the utilization of catches.



Sampling sites for collecting catch and biological information in the South China Sea Area



Is this stocks shared by countries in the region?



Briefing of the local reporters of Malaysia on the tagging program of mackerel and round scad by MFRDMD team

Stock Identification

Results of the DNA analyses on Indian mackerel indicated that fish in Sihanoukville (Cambodia), Kuantan, Kota Kinabalu, Kunak and Kuala Perlis (Malaysia), Rosario (the Philippines), Samut Prakan (Thailand), and Chua Hoi and Nha Trang (Vietnam) belong to the same stock. The results were based on tissue samples taken from the adult migratory fishes in the South China Sea waters. The distributions of these pelagic species were influenced by environmental factors such as monsoon season and current movements. However, sub-populations of Indian mackerel in the South China Sea could not be distinguished from the results. Following that, more DNA samples should be sequenced in order to find clear genetic markers on various populations of pelagic fishes in the South China Sea waters.



Tagging of small pelagic species in the South China Sea waters

The migration path of small size fishes are quite limited compared with the larger size species. As for Cambodia, the fishes were sampled around several small islands. It is possible that the migration path of the fish is limited in some particular area. However, through these findings it is essential to conduct the tagging study of pelagic fishes for determining the migration pattern and also for obtaining better understanding on sub-populations of pelagic fishes in the South China Sea.

Indian mackerel was the only targeted small pelagic species found in all participating member countries. *Rastrelliger brachysoma* was not recorded in Brunei Darussalam and Indonesia. *Decapterus russelli* was only recorded in Indonesia, Cambodia and the Philippines. Relatively high composition of *Rastrelliger brachysoma* was observed in Cambodia while large percentage of *Decapterus russelli* was found in Indonesia.



Recommendations for the ASEAN Region

As the exploitation rates and the catch patterns of these three species *Restreliger kanagurta*, *Restreliger brachysoma* and *Decapterus russelli* were similar, regional coordination are required to conserve the spawning stock, to protect the spawning areas and to control fishing capacities.



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